COUNTY OF TULARE

BOARD OF RETIREMENT

Leanne Malison
Retirement Administrator

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AGENDA OF THE BOARD OF RETIREMENT

SPECIAL RETIREMENT BOARD MEETING

Thursday, April 29, 2021 at 8:30 a.m.

TCERA Board Room, 136 N. Akers Street, Visalia, CA 93291

NOTICE OF TEMPORARY PROCEDURES FOR BOARD OF RETIREMENT MEETINGS

On March 17, 2020, California Governor Gavin Newsom issued Executive Order N-29-20, relating to the convening of public meetings in light of the COVID-19 pandemic. The Tulare County Employees' Retirement Association (TCERA) hereby provides notice that it will continue to convene its regularly scheduled public meetings of the Board of Retirement in the Board Room at 136 N. Akers Street, Visalia, as provided in the publicly posted agenda notice, and until further notice.

Persons who wish to address the Board of Retirement during public comment or regarding an item that is on the agenda may address the Board of Retirement in person at the meeting. Members of the public may also submit public comment via email to BORPublicComment@tcera.org before the meeting. The comments received via email before the meeting will be read to the Board of Retirement in open session during the meeting as long as the comments meet the requirements for Public Comments as posted in the agenda. Persons wishing to listen to the meeting and/or participate in public comment remotely may call the TCERA Office during regular business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m.) within 48 hours of the meeting at 559-713-2900 for login information. Public comments are limited to any item of interest to the public that is within the subject matter jurisdiction of the Board of Retirement. (Gov't Code Section 54954.3(a).)

As a courtesy to those in attendance, all individuals are requested to place cell phones and other electronic devices in the non-audible alert mode.

I. CALL TO ORDER

II. ROLL CALL

III. PLEDGE OF ALLEGIANCE

IV. PUBLIC COMMENT

At this time, members of the public may comment on any item not appearing on the agenda. Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time. For items appearing on the agenda, the public is invited to make comments at the time the item comes up for Board consideration. Any person addressing the Board will be limited to a maximum of five (5) minutes so that all interested parties have an opportunity to speak. Please state your name for the record.

V. X-AGENDA ITEMS

VI. NEW BUSINESS

1. Presentation from NEPC, LLC regarding the firm's response to TCERA's Request for Proposal for investment consulting services. Discussion and possible action.
2. Presentation from Verus regarding the firm's response to TCERA's Request for Proposal for investment consulting services. Discussion and possible action.
3. Discussion and possible action regarding the selection of TCERA's investment consultant including evaluation of the responses and presentations from Meketa Investment Group, AndCo Consulting, NEPC, LLC, and Verus and direction regarding on-site due diligence.

VII. UPCOMING MEETINGS

1. Investment Committee Meeting – May 12, 2021 - Canceled
2. Board of Retirement Meeting May 26, 2021, 8:30 a.m.
3. Administrative Committee Meeting – May 26, 2021, 10:30 a.m.

VIII. TRUSTEE/STAFF COMMMENTS

Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time.

IX. ADJOURNMENT

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Secretary of the Board of Retirement at (559) 713-2900. Notification 48 hours prior to the meeting will help enable staff to make reasonable arrangements to ensure meaningful access. Documents related to the items on this Agenda submitted after distribution of the Agenda packet are available for public inspection at TCERA, 136 N. Akers Street, Visalia, CA. during normal business hours.

INVESTMENT CONSULTING PRESENTATION

04.29.2021

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

YOUR
NEPC TEAM

DANIEL HENNESSY, CFA, CAIA

SENIOR CONSULTANT

REDWOOD CITY, CA

Proposed Lead Consultant for TCERA, 20 years of investment experience,

MBA from U. of Penn,

BA Economics from Pomona College

DON C. STRACKE, CFA, CAIA

SENIOR CONSULTANT

REDWOOD CITY, CA

Proposed Backup Consultant for TCERA, 35 years of investment experience,

MBA from Rutgers U.,

BS Accounting from Farleigh Dickenson U.

WHY NEPC?

Stability: Independence and continuity since 1986 allows NEPC to focus on serving our clients.

Attentiveness: Dedicated focus on TCERA's needs; customized advice that draws on all of NEPC's expertise.

Research: 60 people entirely focused on our cutting edge asset allocation tools and identifying outstanding investment managers.

TAILORED SOLUTIONS FOR OUR **WEST COAST CLIENTS**

StanCERA

VCERA
VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

SBcera
San Bernardino County Employees' Retirement Association

County of Los Angeles California

AC Transit

Seal of the City and County of San Francisco
SFERS
San Francisco Employees' Retirement System

City of Fresno Retirement Systems
Caring for Your Future

NMERB
NEW MEXICO EDUCATIONAL RETIREMENT BOARD

Arizona State Retirement System

Seattle City Employees' Retirement System

PSPRS
Serving Those Who Serve Others

LACERS
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

Santa Clara Valley Transportation Authority

NEPC

WE KNOW PUBLIC FUNDS

- Dedicated Public Fund Team of 37 professionals
- NEPC has been advising public funds since the Firm's inception in 1986
- Our 70 public fund clients account for 56% of our total assets under advisement
- 71% of our public fund clients have been with NEPC for 5 years or longer
- 95% client retention rate over the past 10 years

INITIAL ADVICE FOR TCERA

NEPC, LLC

TCERA MISSION STATEMENT AND GOALS

TCERA Mission
To provide retirement compensation, death and disability benefits to County retirees and their beneficiaries. To provide services for County employees to assist them in planning for their retirement. To preserve and maintain the assets of the system through prudent investment of employee and employer contributions, while maintaining a sound funded status for the system.

TCERA Commitment
TCERA is committed to providing excellent service for its plan participants. The Mission is achieved through a competent, professional, impartial and open decision making process. Investments are managed to decrease risk while increasing returns. TCERA exists for the sole purpose of providing benefits to our members with the goals of maximizing member service, enhancing member communication to increase awareness of available benefits, and minimizing employer contributions.

TCERA Goals
- To enhance communications with members and employers.
- To develop an environment which improves the Retirement Board's ability to fulfill its fiduciary responsibilities.
- To improve the level and delivery of services provided to plan participants.
- To achieve and sustain top quartile investment performance as measured by the Public Fund Universe.
- To attract, develop and retain competent and professional staff.

AREAS FOR PORTFOLIO REVIEW

- TCERA's 7% annualized investment target has not been achieved over the past 10 or 20 years
- The current asset allocation is unlikely to achieve its 7% annualized target going forward
- The fund's active managers as a group have not been contributing positively to overall performance
- TCERA has outsized exposure to emerging markets debt with two different managers (PGIM and Franklin)
- The new "scorecard" to evaluate managers is very focused on past performance

THE NEW MANAGER SCORECARD IS VERY BACKWARDS-LOOKING

- Scorecards can be very helpful tools for board oversight, but an unbalanced design might lead to unbalanced decision-making. In TCERA's case, 7 of the 8 proposed rules are focused on short-term historical performance.

- Even the best active managers can suffer years of underperformance, so this backwards-looking scorecard could result in manager turnover at precisely the worst times.

- The NEPC approach is to develop an explicit investment thesis for every strategy and asset class – what purpose does it serve, and when might we expect it to perform especially well or poorly?

- Manager turnover makes the most sense when it addresses TCERA's explicit investment needs, or when a manager's overall investment thesis is questioned. Recent performance may be due to random factors and should not drive the decision.

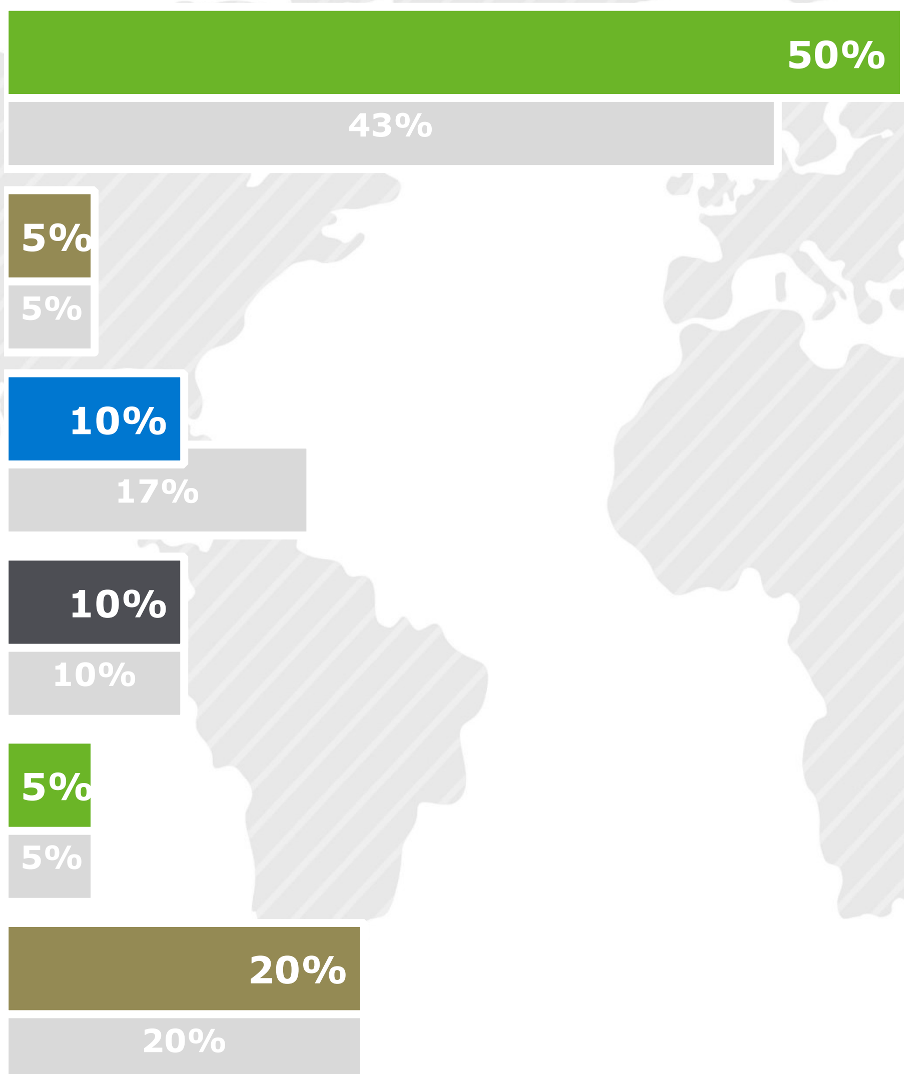
EXAMPLE ASSET CLASS OBJECTIVES

Asset Class	Portfolio Role	Current Policy
Return Seeking		
Public Equity	• Partial passive implementation – low cost option • Capital appreciation • Capture global growth	20-65%
Private Equity and Credit	• Skill-based active management • Higher return expectations than public markets • Includes growth-oriented investments	0-20%
Opportunistic Investments	• Might rely on skill-based active management • Might offer low correlation to traditional stocks and bonds	0-10%
Diversifying Assets		
Real Assets	• Inflation hedge • Income production potential • Adds diversification	10-30%
Specialized Public Credit (emerging and global debt)	• Higher return expectations than investment grade domestic bonds • Adds diversification to portfolio	0-10%
Capital Preservation		
Investment Grade Fixed Income & Cash	• Downside protection • Risk reduction	10-40%

EXAMPLES OF INVESTMENT THESES

Manager	Investment Thesis	Considerations
Ivy Large Cap Growth	CAPITAL APPRECIATION AND ALPHA. The team seeks to identify “franchise growers” with sustainable competitive advantages that can generate long-term growth. They expect to generate 2% annual alpha over an entire market cycle with a relatively concentrated portfolio of 40-60 companies.	Performance may lag when very high growth is in favor, such as coming out of a recession.
Ocean Avenue Fund IV	CAPITAL APPRECIATION AND PRIVATE MARKET PREMIUM. Ocean Avenue partners with high-quality teams making pre-fund or fundless deals in small private companies. Their approach and fee structure compares favorably to more traditional small buyout funds.	Ocean Avenue is a small firm, reliant on several 3rd-party service providers. This is the first economic downturn for the firm.
Sixth Street TAO Contingent	OPPORTUNISTIC RETURN GENERATOR. Opportunistic contingency fund intended to call capital only when large dislocations/crises occur. The Sixth Street investment team has expertise in a wide range of opportunistic credit, special situations, and distressed investments.	TAO Contingent will likely call capital during periods when other portions of the fund are underperforming. Appropriate commitment sizing is important.

PROPOSED PORTFOLIO
POSITIONING & THEMES



PUBLIC EQUITY
Increase public equity by shrinking low-yielding fixed income

PRIVATE EQUITY
Manager selection is especially important as investment multiples are stretched

INVESTMENT GRADE BONDS
Consider replacing Core and Core-Plus with safe haven U.S. Treasuries and TIPS

RETURN-SEEKING CREDIT
Replace specialized strategies with more flexible diversified credit strategies

PRIVATE CREDIT
Consider adding more manager diversification

REAL ASSETS
Increase diversification by adding a public infrastructure allocation

= Current Allocation

IMPACT OF PORTFOLIO CHANGES

30-YEAR EXPECTED ANNUAL RETURN

Current: 6.3%
Proposed: 6.7% (or higher if a liquidity study indicates private markets can be increased)

DOWNSIDE RISK

Current: 1-in-3 chance of losing money each year
Proposed: Same

LIQUIDITY PROFILE

Current: 25% illiquid private markets
Proposed: Same

FIXED INCOME ALLOCATION

Separate the safe haven and risky bond investments, and replace specialized credit (emerging market and global) with more diversified strategies

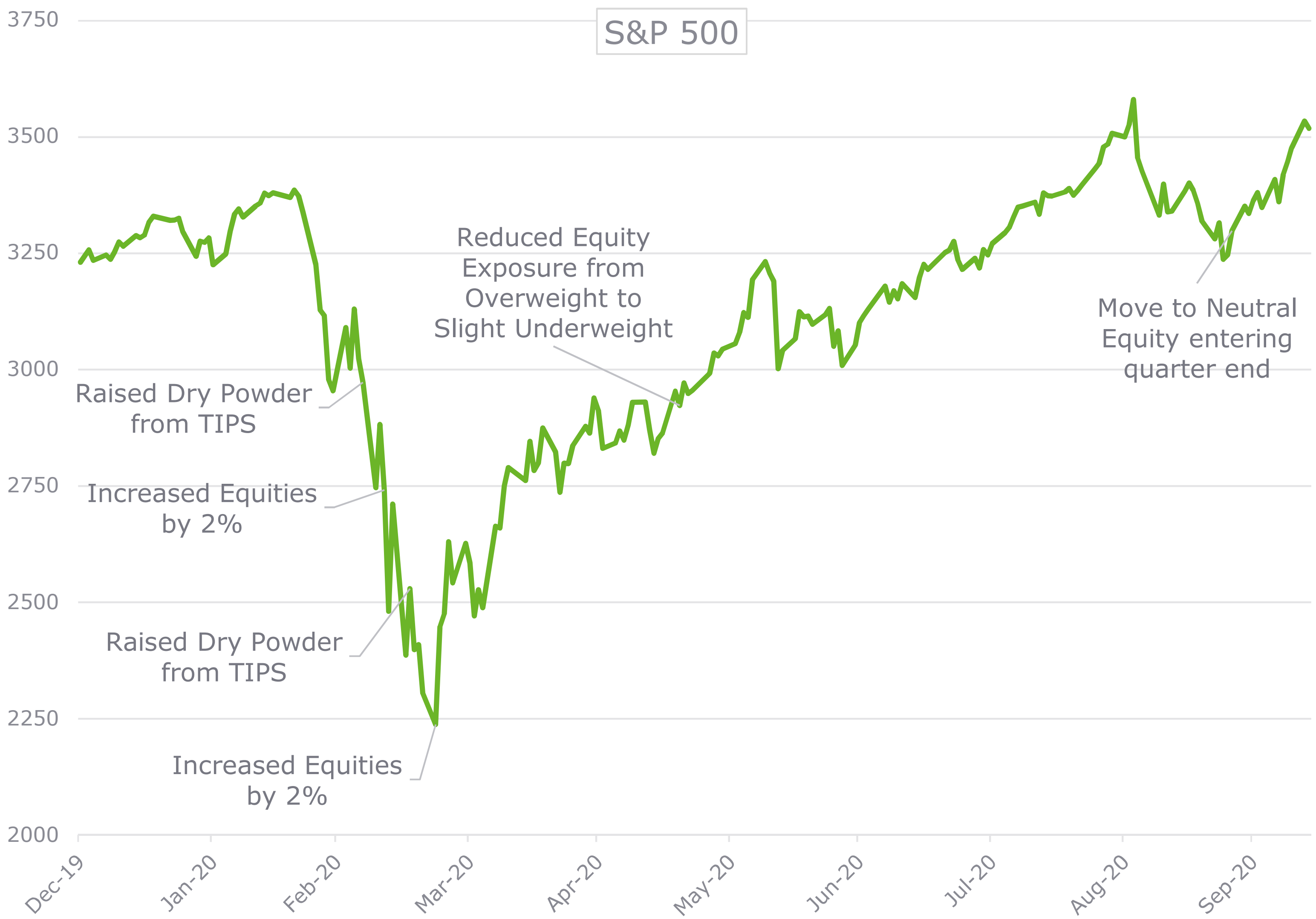
EQUITY ALLOCATION

Shift some of the current fixed income into equities to boost expected returns

REAL ASSET ALLOCATION

Replace some of the core real estate with private infrastructure (transportation, utilities, telecom, etc.) for added diversity and higher expected returns

BE DYNAMIC – EXAMPLE CHANGES



NOTE: The moves represent NEPC's recommendations and specific actions across discretionary clients subject to guidelines and liquidity restrictions. Not all opportunities are suitable for all clients. Past performance is not necessarily an indicator of future results

CUSTOMIZED INVESTMENT RECOMMENDATIONS

NEPC, LLC

WE LOVE
GREAT IDEAS

- Our goal is to produce great investment ideas for each of our clients
- The collaboration between NEPC and our clients leads to inspired thinking
- Our passion for research-led ideas necessitates continual investment

Every retiree is a beneficiary of our investment ideas

MANAGER RESEARCH
GLOBAL COVERAGE

Dedicated research group supplemented by consulting teams

8,000+
investment strategies rated across asset categories[1]

3,200
manager meetings in 2020

363
manager site visits in 2019

88
average number of meetings outside the U.S. annually[2]

593
searches in 2020

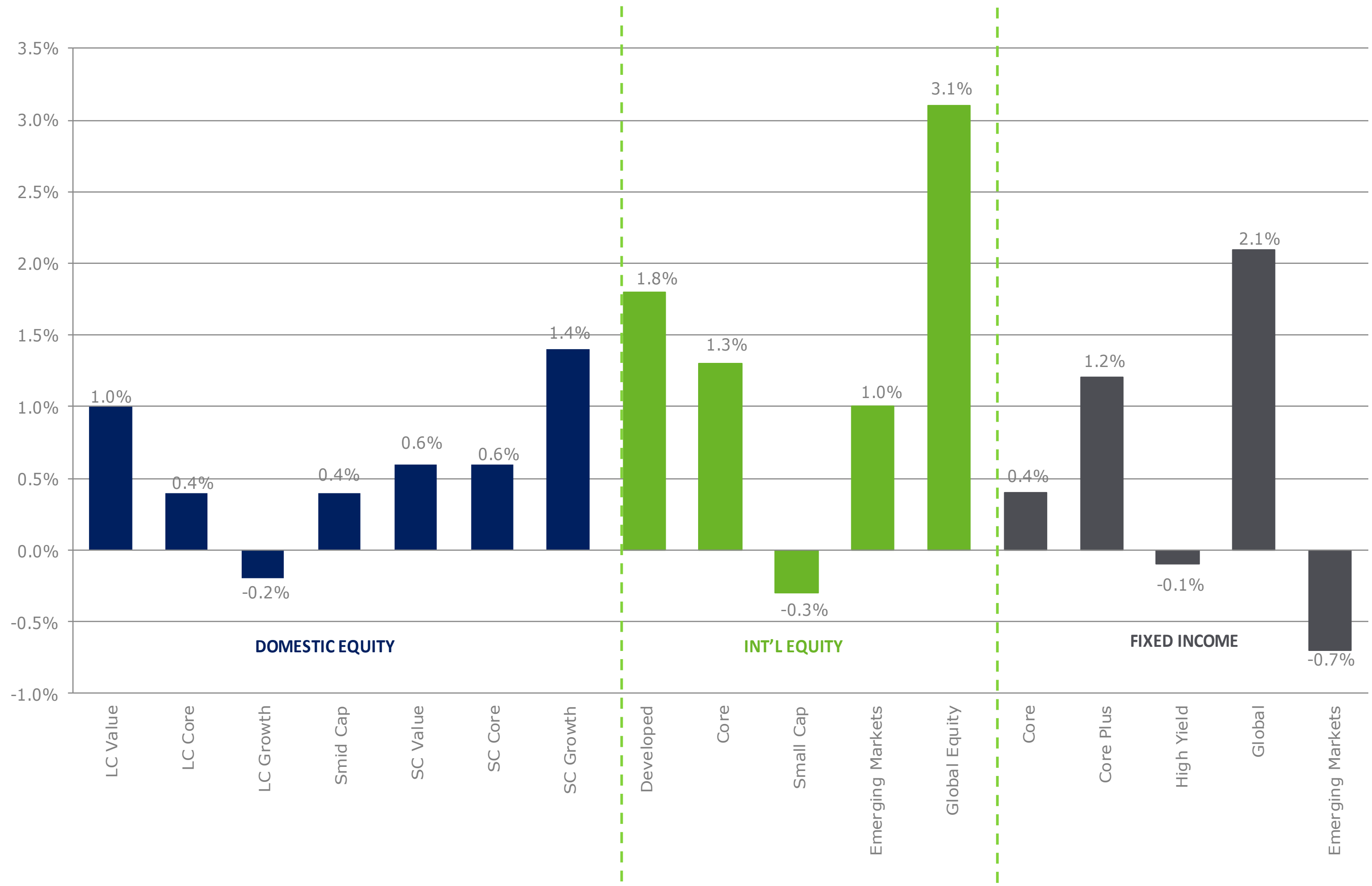
$29.0 billion
total search assets in 2020

[1]Includes all unique products and strategies tracked in NEPC's database on which NEPC has developed an opinion and assigned a rating of 1-5. Does not include products that are flagged as Not Rated. Private equity, real estate and real assets categories include all products/strategies tracked in NEPC's internal database.

[2]Three year average as of 12/31/2019

MANAGER RESEARCH RESULTS

NEPC client public markets manager performance average excess returns 2011-2020



The data represents the average gross return of all current or former managers across all current or former NEPC clients, excluding outliers. Outliers are defined as accounts two standard deviations from the median annual performance for each asset class. Not all managers were placed by NEPC. All plan and sponsor types tracked through Investment Metrics are included. Does not include passively managed accounts (index funds), accounts NEPC does not advise on, or accounts being funded or liquidated.

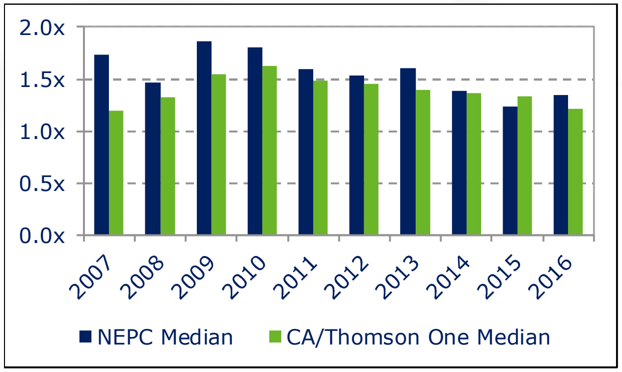
MANAGER RESEARCH
REAL ESTATE RESULTS

Our real estate FPL funds have performed well when compared to industry benchmark median returns

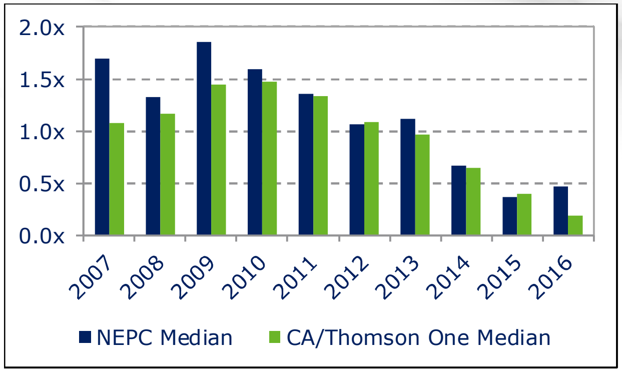
***TVPI**: Outperformed median in 9 of 10 years*

***DPI**: Outperformed median in 8 of 10 years*

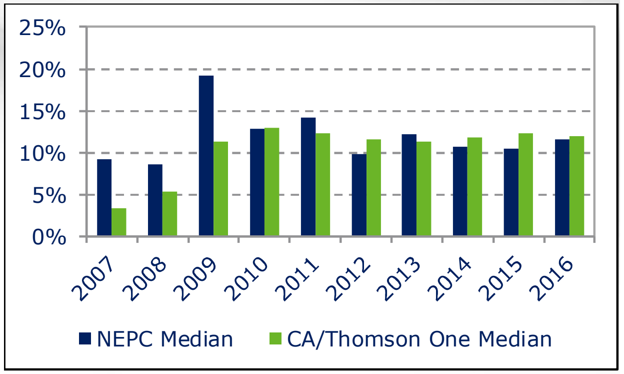
***IRR**: Outperformed median in 6 of 10 years*



NET TOTAL VALUE TO PAID-IN COMPARISON



NET DISTRIBUTED TO PAID-IN COMPARISON



NET INTERNAL RATE OF RETURN COMPARISON

Note: Track record benchmarks 58 private Real Estate funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared with the global value-add and opportunistic real estate data sets from Thomson One/C|A, as of December 31, 2019. See Benchmarking Methodology and Information Disclosures for additional information. Past Performance is no guarantee of future results. Core real estate funds not benchmarked because they are open-ended and tracked separately, two funds are not benchmarked due to unavailable data.

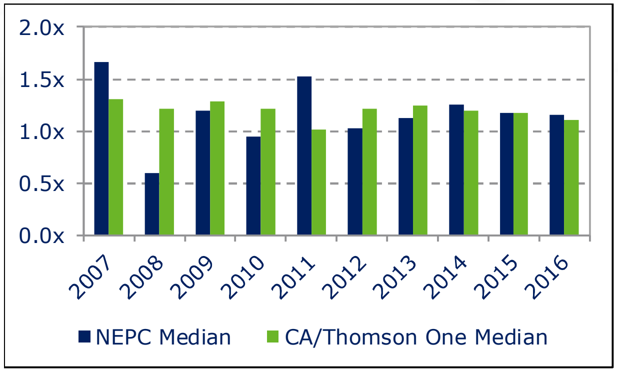
MANAGER RESEARCH
REAL ASSETS RESULTS

Our real assets FPL funds have performed well when compared to industry benchmark median returns

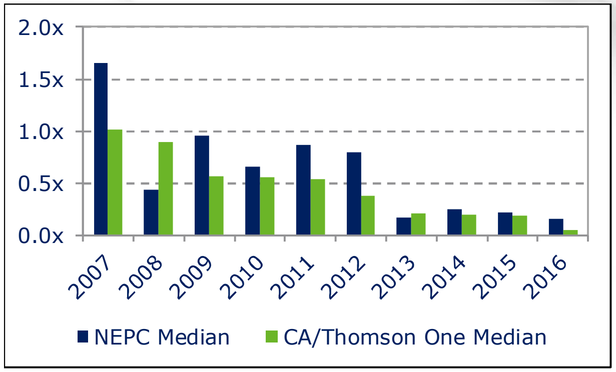
***TVPI**: Outperformed median in 5 of 10 years*

***DPI**: Outperformed median in 8 of 10 years*

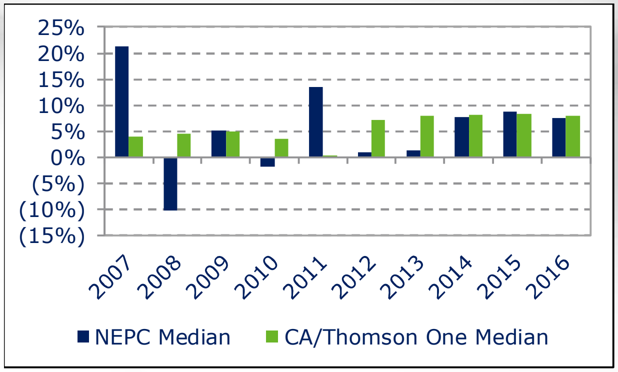
***IRR**: Outperformed median in 4 of 10 years*



NET TOTAL VALUE TO PAID-IN COMPARISON



NET DISTRIBUTED TO PAID-IN COMPARISON



NET INTERNAL RATE OF RETURN COMPARISON

Note: Track record benchmarks 40 private Real Assets funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared with the global natural resources & infrastructure data sets from Thomson One/C|A, as of December 31, 2019. See Benchmarking Methodology and Information Disclosures for additional information. Past Performance is no guarantee of future results. Two funds are not benchmarked due to unavailable data.

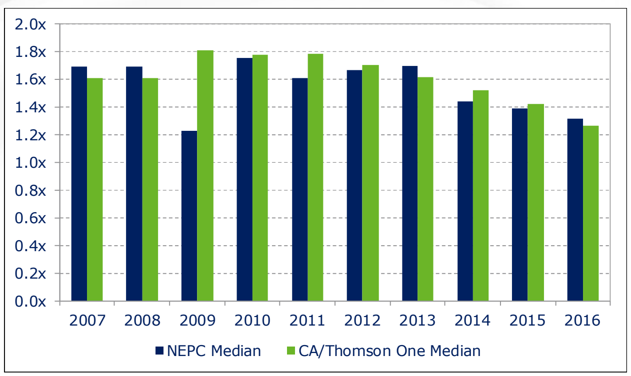
MANAGER RESEARCH
PRIVATE EQUITY RESULTS

Our private equity FPL funds have performed well when compared to industry benchmark median returns

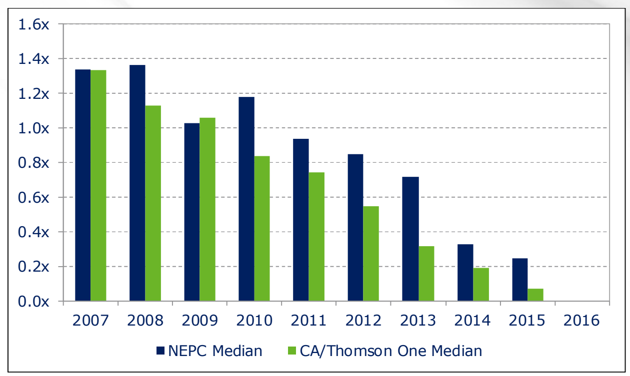
***TVPI**: Outperformed median in 3 of 10 years*

***DPI**: Outperformed median in 8 of 10 years*

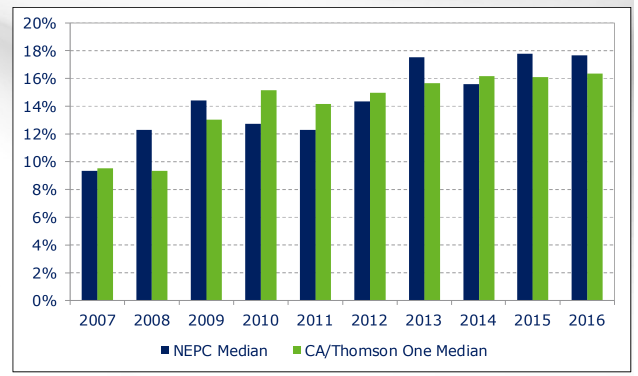
***IRR**: Outperformed median in 5 of 10 years*



NET TOTAL VALUE TO PAID-IN COMPARISON



NET DISTRIBUTED TO PAID-IN COMPARISON



NET INTERNAL RATE OF RETURN COMPARISON

Note: Track record benchmarks 153 private equity funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared against the global private equity data sets from ThomsonOne/C|A as of December 31, 2019. See Benchmarking Methodology and Additional Disclosures for additional information. Past performance is no guarantee of future results.

THIS IS OUR STORY

THE NEPC DISTINCTION

Stability: Independence and continuity since 1986 allows NEPC to focus on serving our clients.

Attentiveness: Dedicated focus on TCERA's needs; customized advice that draws on all of NEPC's expertise.

Research: 60 people entirely focused on our cutting edge asset allocation tools and identifying outstanding investment managers.

CLIENT FIRST IN EVERYTHING WE DO

We love this business, this company, and what we do; we hope we've demonstrated that to you

NEPC was designed from the ground up with a "client first" mindset; if it wasn't for you, we wouldn't have a business

We would value having you join our client family!

OUR
FEE PROPOSAL

NEPC, LLC

FEE PROPOSAL

- Our proposed fees for advisory services are as follows:
  - All inclusive flat fee - Year 1 $269,000
  - All inclusive flat fee - Year 2 $277,000
  - All inclusive flat fee - Year 3 $285,000
  - All inclusive flat fee - Year 4 (if extension is issued) $294,000
  - All inclusive flat fee - Year 5 (if extension is issued) $303,000

  – Total Fees (Years 1-5) $ 1,428,000

  – Travel, postage and related expenses are included in this fee.

APPENDIX

OUR CORE VALUES

Client success drives employee satisfaction

- Exceeding client expectations is at the core of everything we do
- We adhere to strict ethical guidelines and high standards of integrity
- We're accountable for our actions and responsible for their optimal outcomes
- Our environment encourages collaboration, participation, and teamwork
- Creative thinking, excellence in implementation, and continuous improvement is central to our DNA
- We respect our employees' work/life balance and offer flexibility around work schedules

NEPC'S RESEARCH TEAM

Tim McCusker, FSA, CFA, CAIA
*Chief Investment Officer**

Portfolio Construction
Timothy Bruce
*Partner**

Sean Gill, CFA, CAIA
*Partner**

Chris Hill, CFA, CAIA
Senior Consultant

Elton Thomaj, CAIA
Senior Consultant

Ryan Pelletier
Senior Analyst

Kyle Tenczar
Analyst

Alex Goroshko
Analyst

Research Operations

Dawn Swift
Director of Research Operations

Emma Twitchell
Operations Analyst

Operational Due Diligence
William Bogle, *Partner**

Catherine Hull, CAMS
Consultant

Kevin Lau-Hansen
Consultant

Asset Allocation
Phillip Nelson, CFA
*Partner**

Christopher Levell, ASA, CFA, CAIA
*Partner**

Lynda Dennen, ASA, EA
Senior Consultant

Eumene Lee
Consultant

Robert Goldthorpe, ASA
Consultant

Jennifer Appel, CFA
Consultant

Jack Yuan
Senior Analyst

Appy Bubna
Senior Financial Writer

Global Research
Neil Sheth, Partner*

Taxable Research
Kristi Hanson, *Partner**

Brandon Jones
Senior Consultant

Investment Manager Research
Sarah Samuels, CFA, CAIA
*Partner**

Marketable Securities Research
(Long-Only & Hedge Funds)

Equities

Timothy O'Connell, CFA
Director of Equities

Rosann Halleran
Consultant

Andrew Pettersen, CFA
Consultant

Hayley Tran, CFA, CAIA
Consultant

John Lutz
Consultant

Robert Britenbach
Senior Analyst

Alex Rickels
Senior Analyst

Client Strategy Research

Steve Gargano
Senior Consultant

John Shanklin, CFA, CAIA
Senior Consultant

Istvan Meszaros
Consultant

Credit & Multi-Asset

Dulari Pancholi, CFA, CAIA
Director of Credit & Multi-Asset+

Alec Rapaport
Senior Consultant+

Kadmiel Onodje, CAIA
Consultant

Kevin Bliss, *Consultant*

Larissa Davy, *Consultant*

Madison Scalise,
Senior Analyst

Raj Palekar, *Analyst*

Manager Search & Research Associates

Stephanie McMurray
Senior Research Analyst

Alex Cohen
Research Associate

Ian Robertson
Research Associate

Briana Vertucci
Research Associate

Private Markets Research

Private Equity

Melissa Mendenhall
Director of Private Equity+

Eric Harnish, *Senior Consultant+*

Joshua Beers, *Senior Consultant*

Oliver Fadly, *Senior Consultant*

Brad Rowbotham, CAIA
Consultant

Colton Lavin, CFA
Senior Analyst

Amanda Ryan, CAIA
Senior Analyst

Brian Cronin, *Analyst*

Real Assets

Andrew Brett, CAIA
Director of Real Assets+

Chris R. Miers, CRE, FRICS
Senior Consultant

Matthew Ritter, CAIA
Senior Consultant

Jed Drake, *Consultant*

Seth Goldman, CAIA
Senior Analyst

Elizabeth Miller, *Analyst*

As of 4/1/2021. *Ownership interest in NEPC (Partner). +Principal designation for leadership within the Firm.

CURRENT TCERA MANAGER SCORECARD RULES

Rule 1 – Manager has underperformed the benchmark index for the one year period.

Rule 2 – Manager has underperformed the benchmark index for the three year period.

Rule 3 – Manager has underperformed the benchmark index for the five year period.

Rule 4 – Manager has underperformed the 50th percentile in the appropriate style universe for the one year period.

Rule 5 – Manager has underperformed the 75th percentile in the appropriate style universe for the one year period.

Rule 6 – Manager has underperformed the 50th percentile in the appropriate style universe for the three year period.

Rule 7 – Manager has underperformed the 75th percentile in the appropriate style universe for the three year period.

Rule 8 – Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy or drift, excessive asset growth, change in ownership or any other reason that raises concern.

Source: TCERA Investment Committee materials from March 10, 2021

DISCLOSURES

NEPC, LLC

This document may contain confidential or proprietary information and is intended only for the designated recipient(s). If you are not a designated recipient, you may not copy or distribute this document.

Certain information, including that relating to market indices, was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

INVESTMENT METRICS PLAN UNIVERSE

- As of 9/30/2020 the Investment Metrics Universe contained actual, custodian-supplied and audited data on 3,300 plan sponsors, representing roughly $2.0 trillion in assets. This data is drawn from 52 independent investment consulting firms, including NEPC.

ICC UNIVERSE

- Through 2011, universe rankings were based on the ICC Universe, which was populated by 12 independent investment consulting firms, including NEPC, and supplemented by many of the performance measurement clients of State Street Bank.

CLIENT RESULTS DISCLOSURES – ALL CLIENTS

- Past performance is no guarantee of future results.
- NEPC acts in an advisory capacity-only for many clients and does not have discretion over those client assets. As a result, a client's investment performance may not be attributable solely to NEPC's advice.
- NEPC's Overall Composite is compiled from all Pension Plans, Endowments and Foundations for which NEPC is the sole full-retainer consultant. Plans are included in the Composite provided they have exposure to equity and bonds (including alternatives) of at least 25% each, and no more than 20% to other assets such as cash and GIC's.
- New clients are added to the Overall Composite with the first full quarter of a new manager selected from an NEPC search, or after one year as an NEPC client, whichever comes first, provided that the plan is globally diversified.
- Results are reported gross of NEPC advisory fees.
- NEPC's fees for advisory clients vary considerably depending on client size and complexity.

ALTERNATIVE INVESTMENT DISCLOSURES

- It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds, real estate, real assets and private equity:
    - Performance can be volatile and investors could lose all or a substantial portion of their investment
    - Leverage and other speculative practices may increase the risk of loss
    - Past performance may be revised due to the revaluation of investments
    - These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
    - A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
    - These funds are not subject to the same regulatory requirements as registered investment vehicles
    - Managers are not required to provide periodic pricing or valuation information to investors
    - These funds may have complex tax structures and delays in distributing important tax information
    - These funds often charge high fees
    - Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy

PRIVATE EQUITY, REAL ESTATE AND REAL ASSETS PERFORMANCE BENCHMARKING METHODOLOGY AND INFORMATION DISCLOSURES

- Past performance is no guarantee of future results.
- Investment results include funds that were rated "1" by the NEPC Alternative Assets Due Diligence Committee. Investment results include those clients for which NEPC has discretionary authority as well as those where NEPC acts in an advisory capacity. They include all types of clients and plans for whom NEPC serves or served as a consultant and provided advice on private markets.
- Returns are based on the client commitment that had the earliest cash flow into each recommended product. Vintage year classifications are made based upon the year of the first cash flow from this client into the Fund.
- In cases where no current NEPC client is invested in a product (due to a client changing consultants), vintage year and return data was used from either the manager, Preqin or from another limited partner in the fund who publicly discloses investment returns.
- Each internal rate of return is net of management fees and carried interest (both paid and accrued) and is computed on an annualized, dollar-weighted basis. Performance aggregates are created by equal-weighting each fund included.
- Strategy classifications are made by NEPC based on a review of the stated strategy of each investment. Funds included are primarily limited partnerships, including funds-of-funds. Private equity investments include buyouts, venture capital, growth equity, special situations/turnarounds, equity-oriented distressed buyouts, co-investment funds, primary fund-of-funds and secondary funds. Real estate investments include core, core-plus value-add, debt and opportunistic funds. Real assets investments include energy, energy credit/mezz, multi-strategy, natural resources, metals & mining and infrastructure funds.
- Only funds from vintage years 2007–2016 were benchmarked, as performance for funds who have been investing for less than three years is deemed to be too young to be meaningful.
- To compute the quartile performance of each fund, funds were matched against similar strategies and geographic regions tracked by Thomson One/C|A; however, it is important to note that some funds have investment strategies that could be benchmarked against multiple categories.
- Attempts were made to match the geographic strategy of each fund. In cases where the benchmark provider did not have a large data set a global strategy benchmark was used.
- For some vintage years, the benchmark provider may have provided median but not upper and lower quartile cut-off metrics. In these cases, to estimate the upper and lower quartile cut-offs, NEPC used the average quartile-to-median differential for the vintage years preceding and following the vintage year with the missing quartile cut-offs.
- All fund and benchmark returns are as of December 31, 2019.
- The information in this report has been obtained from sources NEPC believes to be reliable. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

NEPC, LLC

MICHAEL P. MANNING, CFA, CAIA
MANAGING PARTNER

January 22, 2021

Ms. Leanne Malison
Retirement Administrator
Tulare County Employees Retirement
136 N Akers Street
Visalia, CA 93291

RE: Investment Consulting Solution for Tulare County Employees Retirement

Dear Ms. Malison:

NEPC, LLC ("NEPC") is pleased to provide you information on our firm. NEPC has been providing consulting services since 1986. NEPC was founded on three main principles: strive to maintain **independence**, provide **proactive counsel** in an attempt to help our clients exceed their goals and objectives, and service our clients with **seasoned professionals**.

The commitment to our clients and guiding principles remains intact, recognizing that our efforts can enhance benefits for the millions of beneficiaries in our care. Our focus has led to favorable client satisfaction ratings relative to our nine largest competitors. Many of our competitors point to specific capabilities as differentiators, and we can as well, but we believe it is hard work and trust that really drives these consistently high ratings from our clients. We hope to provide this commitment and focus to TCERA.

As you assess NEPC's capabilities, we ask you to consider the following:

1. We are one of the largest **independent** investment consulting firms in the industry. We advise 395 retainer clients with $1.2 trillion in assets[1]. Our growth is attributed to the high quality results our clients have achieved and our high service model.

2. We have a **dedicated public fund team** that advises 70 public funds representing $636 billion in assets[2].

3. NEPC research is **award winning**[3]. We have one of the largest research staffs among independent firms and have subject matter specialists in all facets of traditional and alternative investments.

- NEPC awarded **General Investment Consultant of the Year** (AuA over $20BN) at the Pension Bridge Institutional Asset Management Awards 2020.

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[1] As of 10/1/2020, includes 72 clients with discretionary assets of $39.5 billion.
[2] As of 10/1/2020
[3] Please see Disclosures for important disclosures related to awards and recognitions.

- Allan C. Martin, a Partner on the public fund team, was named in CIO magazine's "The Knowledge Brokers 2020" and "The Knowledge Brokers 2018" editions as one of the **world's most influential investment consultants**. In 2018, he was named **consultant of the year** at the CIO Innovation Awards**.**
- In 2019, Kevin M. Leonard, a Partner and head of the NEPC Public Fund Practice, was named in CIO magazine's "The Knowledge Brokers 2019" edition as one of the **world's most influential investment consultants**.
- NEPC's Chief Investment Officer was named on *CIO* magazine's 2016 annual ranking of the **World's Most Influential Investment Consultants**.

4. We are **thought leaders**, guiding our collective client base to **outperform** the InvestmentMetrics/ICC median[4] in 28 of the 34 years since our founding in 1986.

Thank you in advance for your consideration and we hope to have the opportunity to present our consulting capabilities to you in person. Should you have any questions, please call me at (617) 374-1300.

I, Michael P. Manning, CFA, CAIA, Managing Partner, am authorized to bind the firm. All documents submitted pursuant to this request for proposal process will become a matter of public record. This proposal is a firm and irrevocable offer, good for 120 days. NEPC, LLC meets the minimum qualifications set out in this RFP and we are willing to perform the services as described in this RFP.

NEPC has staff and other required resources to perform all services and to provide all deliverables within the specified time frames as described in the RFP. Please see Exhibit 13 for the Warranties Certification and Exhibit 16 for the Mandatory Requirements Certification.

Federal Employer Identification Number: 26-1429809

For the purpose of this proposal, your proposed lead consultant and primary contact is:

Name:	Dan Hennessy, CFA, CAIA
Title:	Senior Consultant
Address:	NEPC, LLC
	900 Veterans Blvd., Suite 340
	Redwood City, CA 94063-1741
Phone:	(650) 362-6699
Fax:	(650) 364-7100
E-mail:	dhennessy@nepc.com

Best regards,

Michael P. Manning

Enclosures

[4] The median fund in the $2.0 trillion InvestmentMetrics Universe (or the ICC Universe through 2011) represents average performance among a nationwide sample of plan sponsor results.

INVESTMENT CONSULTING SOLUTION FOR

Tulare County Employees Retirement

January 2021

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NEPC, LLC Executive Summary

NEPC, LLC, is one of the country's leading investment consulting firms. We service 395 retainer relationships, representing assets of $1.2 trillion[5], with approximately $70.3 billion in alternative assets[6]. Headquartered in Boston, Massachusetts, NEPC has been providing investment consulting services since 1986. Today, the firm has formal offices in Atlanta, Boston, Charlotte, Chicago, Detroit, Las Vegas, Portland and San Francisco.

Public Fund Expertise

NEPC has been consulting to public retirement plans since its inception in 1986. NEPC currently consults to 70 public funds representing $636 billion in assets. Our dedicated Public Fund Consulting Team has deep knowledge of asset allocation, asset liability hedging as well as a proactive strategic approach, which understands the nuances specific to the public fund marketplace.

Our Approach / Philosophy

Our clients define us. They come first in everything we do. Everything we do is driven by our passion to improve lives one investment at a time. We gain a clear understanding of unique client situations and calibrate every investment decision with client success in mind. In order to prioritize client interests we remain independent, and invest heavily in research to have well-founded opinions.

Our investment philosophy is to create outstanding returns while focusing on risk awareness within portfolios that are customized to each client's goals. It is critical to start with an assessment of each client's ability to take risk and ask, "What can go wrong?" By understanding a client's goals, we can develop thoughtful asset allocation strategies that diversify programs to help mitigate risk consistent with the client's goals.

Following a traditional path can be entirely appropriate in building a particular portfolio. That said, we do not shy away from breaking with standard methods when we think that a new direction offers a better approach. Expect our analysis to be thorough and our recommendations to be made with conviction. Our client portfolios are typically broadly diversified across the global landscape, across and within both public market and alternative asset classes and strategies. We proactively build investment programs with long-term strategic asset allocations; however, we will recommend clients make tactical asset allocation shifts when significant opportunities or risks exist in the markets. We strive for continuous improvement to position client portfolios for the future.

NEPC's full service retainer relationships are characterized by a trustworthy service commitment, featuring ready access to our staff and resources, state-of-the-art technology, and comprehensive solutions to our clients' investment needs. We offer an array of services to our clients, highlights of which are outlined below.

Investment Policy - Your Goals, Your Plan

Creating/reviewing your Investment Policy Statement (IPS) is our first priority. A well-conceived, actionable plan developed in close collaboration with the client, the IPS sets forth

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[5] As of 10/1/2020, includes 72 clients with discretionary assets of $39.5 billion.
[6] As of 6/30/2020, only includes assets/clients for which NEPC has due diligence responsibility for their alternative assets.

your goals and objectives within risk tolerances and investment constraints. Serving as the investment program's blueprint, the IPS defines asset classes and investment managers, an asset allocation target, investment guidelines and restrictions, including rebalancing guidelines and performance benchmarks, and the roles of the plan's fiduciaries and reporting requirements. We extend and reinforce the IPS by developing investment guidelines for each investment manager in a client's portfolio.

Asset Allocation - Multifaceted, Customized, Risk-controlled

Along with leveraging our dedicated research group and asset class experts, NEPC uses sophisticated and comprehensive proprietary asset modeling systems to customize each client's investment program. After a careful analysis of your objectives and constraints — cash flow projections, risk aversions, rate of return requirements, permissible asset classes, and any unique policy or regulatory considerations — we seek to develop investment portfolios. Employing a multifaceted approach that integrates several asset allocation models, including mean-variance optimization, risk budgeting, economic scenario analysis, factor analysis and liquidity analysis to minimize risk, we identify strategies that represent the most efficient risk-return-liquidity tradeoffs.

Manager Search – A Rigorous, Proprietary Process

We believe that identifying managers that can meet a fund's objectives is one of the most important parts of an investment consultant's role. Our proprietary process begins with documenting the reasons for the search, and taking note of the client's specific needs, objectives, and sensitivities. NEPC has developed minimum criteria for each asset class, and we monitor a variety of internal systems and databases, including eVestment to find and track managers for our focused placement list of managers.

Of most impact to finding the best managers first are two resources unique to us: the NEPC database, housing all of our Due Diligence data, and our proprietary Performance Analytics Statistical Software (PASS), which allows our analysts to validate and compare investment returns and other key performance indicators.

We review investment manager candidates objectively and methodically. When a list is vetted, we can assist with the interview process, either with you or on your behalf, to create the most appropriate portfolio of managers to reach the risk and return goals of the Fund.

Alternative Assets – Improving Diversification and Risk-adjusted Returns

NEPC has significant experience building alternative asset programs and identifying high quality private equity, private credit, hedge funds and real assets managers for our clients' alternative investments programs. NEPC has been actively working with client investments in alternative assets for the past 26 years and has the commitment, experience, and research resources to meet all of your alternative asset consulting needs. We work with $70.3 billion in alternative assets across 266 clients[7]. During 2019 alone, we completed 286 alternatives searches encompassing over $3.7 billion. Our alternative assets services include: education, portfolio design, manager search, due diligence reviews, and monitoring/reporting.

We currently have 24 full-time individuals dedicated to Alternative Investments led by Sarah Samuels, CFA, CAIA, Director of Marketable Securities. The Alternative Assets Group

[7] As of 6/30/2020, only includes assets/clients for which NEPC has due diligence responsibility for their alternative assets.

includes two principal groups: Private Markets and Absolute Return. In addition, three people, including NEPC's Chief Compliance Officer, William Y. Bogle, are focused primarily on operational due diligence of Hedge Fund and Fund of Hedge Fund managers and strategies.

Performance Measurement - Broader, Deeper Analysis

Investment Performance Analysis (IPA) reports are highly graphic, customized documents, providing performance results, risk analyses and comparisons for the total fund, all asset classes, capitalization ranges, and style combinations and investment managers versus goals and objectives. We work with each client to develop an appropriate reporting tool for their program.

Client Education - Timely, Tailored Programs

As a research-driven organization whose consultants are among the industry's foremost thought leaders, we take every opportunity to share our resources and insights with our clients. As we see it, the better informed you are, the stronger our collaboration. That's why, in addition to your access to a team of NEPC consultants and analysts, we provide a range of tailored educational programs and services. Of course, we also offer informative resources such as white papers, in which we present our perspectives on industry issues, legislative changes, and investment strategies that can affect an investment program.

Covering everything from the basics of investing to trustee responsibilities, details on various alternative assets, and the latest research, products, and results, our outreach takes many forms. Our featured event, the NEPC Investment Conference, is held annually in Boston, Massachusetts. We also host an annual Public Fund Workshop in Arizona that is tailored to address the issues and concerns impacting our public fund clients.

Response to Questionnaire

A. Organization

1. **Provide a brief history of the firm including the year formed, ownership structure, the year the firm began providing investment consulting services for defined benefit public retirement systems, and the nature of the firm's ownership (including any changes in the last five years) and specific details with regard to any affiliated companies or joint ventures.**

   NEPC is a Limited Liability Company (LLC). Since inception in 1986, NEPC has been 100% employee-owned and is therefore neither an affiliate nor a subsidiary of any organization. Today, ownership is shared among 44 partners with no partner owning more than 7% of the firm. We have an active process that allows for the annual distribution of firm equity, which ensures continuity and stability through the ongoing transition of the firm's ownership to future generations. In fact, there are new Partners added almost every year and we have had several retirements – proving our structure is designed for stability and continuity. **This ownership is not a phantom equity program but an actual ownership transfer.** In the current world of industry consolidation, our thoughtful approach to the business model sets NEPC apart from many of our competitors who are just now addressing the critical challenges of intergenerational ownership transfer and management continuity. In the recent industry acquisition frenzy, we have had opportunities to sell and have solidly affirmed that we have no intention of selling our firm. NEPC's sole focus on **investment consulting** while being 100% employee owned assures our clients that we will be able to continue doing what we love for many years to come.

2. **Provide an organizational chart detailing the total number of employees and categories of employment, including the total number of employees identified as investment professionals.**

   NEPC has a staff of 321 professional employees, all of whom are solely dedicated to the practice of investment consulting[8]. Our 112 consultants consist of 72 client service consultants (including 3 discretionary portfolio strategists) and 40 research consultants involved in asset allocation, portfolio construction, marketable securities and private markets research. Additionally, we have 45 analysts that function under the areas of client service consulting and 18 research analysts. We have 11 discretionary operations specialist and analysts, as well as a legal and compliance team of 6 that supports the overall firm as well as legal support for discretionary implementation. 72 professionals are dedicated to performance measurement services. There are 20 members of our staff who are responsible for financial reporting, human resources and marketing. 23 members of our staff are responsible for our systems and data governance, and 14 employees have administrative responsibilities.

   We are organized by practice teams to provide specialized consulting services to different client types. NEPC has seven consulting practice teams devoted to Taft-Hartley, Public Funds, Endowment/Foundation, Healthcare Organizations, Corporations, Private Wealth Clients and Defined Contribution Plans.

[8] As of 10/1/2020

NEPC's Organizational Charts can be found in Exhibit 1.

3. List the firm's lines of business and the approximate contributions of each business to the firm's total revenue. If the firm is an affiliate of an organization, identify the firm's percentage of the parent firm's total revenue generated in the most recent fiscal year.

Advisory and discretionary investment consulting are NEPC's sole lines of business; therefore, 100% of our revenues are a result of providing advisory consulting and discretionary investment services to our clients.

4. Provide the firm's target ratio of clients to a primary consultant, the current average ratio, and the number of clients the proposed primary consultant currently services.

The firm's client-to-consultant ratio is 5:1 – one of the lowest in the industry. We service 395 retainer relationships with 70 full-time equivalent client servicing consultants. We proudly maintain a level that is significantly below the industry averages.

Importantly, the average of five clients per consultant does not include our research consultants. Most of our competitors include their research personnel in their client coverage which we believe can materially misstate the true coverage clients should enjoy from a well-resourced firm.

We limit the number of accounts per consultant based on the client's complexity and servicing needs. We decline new business when we determine that we cannot maintain our service standards without first hiring additional consultants and support staff. In 2020, we declined to respond to 117 RFP submissions.

We have carefully grown our consulting and technical staff to service our existing client base and to accommodate future growth. Therefore, we only succeed and grow if our clients are happy and their needs have been met.

Our proposed lead consultant, Dan Hennessy, is currently lead consultant to 4 clients, and we are confident that he has the capacity and capabilities to advise TCERA exceptionally well. Our proposed backup consultant Don Stracke is lead consultant to 5 clients, and also has the capacity and capabilities to advise TCERA extremely well.

5. Provide the location and function of each of your firm's offices, including the number of professionals at each office and what services are provided by each office.

NEPC has offices in Atlanta, Georgia; Charlotte, North Carolina; Chicago, Illinois; Detroit, Michigan; Las Vegas, Nevada; Portland, Oregon; Redwood City, California; as well as our headquarters located in Boston, Massachusetts. Providing investment consulting services is the primary function of all of NEPC's offices.

Location	Function	Number of Employees
Atlanta, Georgia	Investment Consulting	20
Boston, Massachusetts	Investment Consulting	227
Charlotte, North Carolina	Investment Consulting	4

Chicago, Illinois	Investment Consulting	18
Detroit, Michigan	Investment Consulting	14
Las Vegas, Nevada	Investment Consulting	17
Portland, Oregon	Investment Consulting	12
Redwood City, California	Investment Consulting	9

6. Indicate the address of the office that would service this account, the names of the team members who would be assigned to this account and their contact information. Include biographies for these team members. If the location is different from the main office, please provide the address of the main office location as well.

The Tulare County Employees Retirement Association relationship would be a very important one to NEPC, and as such would be serviced by Dan Hennessy, CFA, CAIA, Senior Consultant, as the lead consultant and Don Stracke, CFA, CAIA, Senior Consultant, as the backup consultant. Their biographies follow. They will be supported by a dedicated Consulting Analyst, a dedicated Performance Analyst and dedicated research specialists where appropriate.

Daniel Hennessy, CFA, CAIA
Senior Consultant

Dan joined NEPC in 2014 and his investment experience dates back to 2000. Dan is a member of NEPC's Public Fund team and is located in our Redwood City, CA office.

Dan joined NEPC from Alan Biller and Associates, where he had worked since 2011 as a Senior Consultant. At Allan Biller, Dan advised a variety of institutional client plans including pension, defined contribution, and health and welfare funds.

Prior to joining Allan Biller, Dan was a Vice President at Franklin Templeton Investments, serving as a senior consumer analyst and Co-Portfolio Manager of a long/short fund. Before joining Franklin Templeton he worked at Fidelity Investments and at McKinsey & Co.

Dan holds a B.A. degree in Mathematical Economics from Pomona College and a M.B.A. in Finance from The Wharton School, University of Pennsylvania. Dan holds both the Chartered Financial Analyst (CFA) and Chartered Alternative Investment Analyst (CAIA) designations.

Don C. Stracke, CFA, CAIA
Senior Consultant

Don began his investment career in 1985, and he joined NEPC in 2009. Working out of our Redwood City, CA office, his consulting responsibilities include servicing large and mid-size public pension funds exclusively. Don is a member of the Large Cap Equity Advisory Group.

Prior to joining NEPC, Don was the Director of Marketing/Client Service at Shenkman Capital Management and Attalus Capital. At both firms he was responsible for the overall management and execution of sales, marketing, and client service and was a member of the executive committee. Prior to Attalus, Don spent seven years as the Director of Corporate Client Services for Dresdner RCM Global Investors. Don's previous work experience includes eight years at Bankers Trust, where he was an investment consultant working with some of the most sophisticated plan sponsors in the country in the areas of risk measurement and analysis, asset allocation, and manager search.

Don received his bachelor's degree from Farleigh Dickinson University and his M.B.A. from Rutgers University. In addition, he holds the Chartered Financial Analyst (CFA) designation and the Chartered Alternative Investment Analyst (CAIA) designation.

The Tulare County Employees Retirement Association would primarily be serviced out of our Redwood City, CA and Boston, MA office locations.

Address:
NEPC, LLC
900 Veterans Blvd., Suite 340
Redwood City, CA 94063-1741
Telephone: (650) 364-7000
Fax: (650) 364-7100

7. Provide the following information regarding the proposed team members for this relationship:

Years of investment consulting experience.

Dan Hennessy - 9 years of consulting experience and 20 years of investing experience

Don Stracke - 20 years of consulting experience and 35 years of investing experience

Years of tenure with your firm.

Dan Hennessy - 6 years

Don Stracke - 11 years

Year the team has worked together at your firm.

Dan and Don have been working together in NEPC's California office since 2014, and in particular have together been advising the Santa Clara Valley Transit Authority since 2016.

8. Provide details on the financial condition of your firm. Include levels of debt and debt payoff plans.

NEPC is a privately held Limited Liability Company (LLC), with no external owners or affiliates and no significant debt obligations. We have been profitable, and revenue has increased, for each of the 34 years of our existence. Additionally, NEPC did not apply for or accept any PPP loans in 2020.

NEPC is 100% employee-owned and has typically taken on minimal debt for cash flow management. In 2012 we made an exception to take advantage of the low interest rate environment, and we borrowed funds to accelerate a paydown to certain equity partners through a pre-determined transition plan. This loan will be repaid over the next 5 years.

NEPC does not generally manage assets for clients, so there is no minimum asset level required to ensure the firm's continuing profitability. We currently serve 395 plan sponsor clients.

9. Provide registration status with the SEC or any state securities regulator as an investment adviser. If so registered, provide all disclosures required under those laws (including Part I and II of Form ADV).

NEPC is a Registered Investment Advisor under the 1940 Act. Enclosed please find a copy of NEPC's Form ADV Parts 1 and 2 in the Appendix.

10. State if your firm has ever been censured by the SEC or any regulatory body. If so, please describe.

Both the SEC and the DOL have visited NEPC. To the best of our knowledge, all such visits have been routine audits. Neither NEPC nor any employee of NEPC has ever been charged with a violation of law by the SEC, the U.S. Departments of Justice or Labor, the Internal Revenue Service, or any other federal, state or local regulatory agency.

11. State if your firm has been subject to or is currently being reviewed or audited by the SEC or other regulatory agencies. If yes, please describe the nature of the investigation.

NEPC's primary regulators are the SEC and the Department of Labor (DOL), and from time to time we have been subject to various regulatory inquiries, exams, or audits. To the best of our knowledge, all regulatory exams to date have been routine audits. It is NEPC's policy to not disclose the results of any regulatory exam or audit, aside from what may be disclosed in our Form ADV. Both Parts 1 and 2 of Form ADV are filed electronically and are available on the SEC's website at: http://www.adviserinfo.sec.gov.

12. State if in the last five (5) years the firm, the Primary Consultant, or other principal or officer of the firm been involved in any business litigation, regulatory, or other legal proceedings or government investigation involving allegations of fraud, negligence, criminal activity or breach of fiduciary duty. If so, please describe.

Neither Dan Hennessy nor any of NEPC's principals or officers have been involved in any matters involving allegations of fraud, negligence, criminal activity, or breach of fiduciary duty. NEPC as a firm is not currently involved in any litigation, nor are we aware of any pending litigation. During our 33-year history, NEPC has been involved in a small number of cases, none of which had a material impact on our business. Within the past five years there was no litigation connected with clients and only one non-client matter: In the spring of 2017, one of NEPC's competitors (CTC|myCFO) filed a lawsuit against NEPC and four NEPC consultants alleging improper solicitation of CTC employees and CTC clients. The lawsuit was resolved and has been dismissed.

13. State if your firm will acknowledge fiduciary status and accept fiduciary responsibility for recommendations to TCERA.

Yes. We consider ourselves to be a fiduciary to our public fund clients and to all clients in general. NEPC is proposing to act as a non-discretionary fiduciary and will commit to maintaining that responsibility in our contract.

14. State whether or not the firm's employees comply with the Code of Ethics and Standards of Professional Conduct of the CFA Institute. Provide a copy of any code of ethics maintained by your firm.

Yes, NEPC has adopted the CFA Institute's Code of Ethics and Standards of Professional Conduct. We also have our own comprehensive Code of Ethics that has been tailored to NEPC's business. Both documents guide our employees and actions.

Please see Exhibit 2 for NEPC's Code of Ethics policy.

15. List the dollar amounts of fiduciary liability insurance, errors and omissions insurance and bonding insurance carried by your firm including carrier, type of coverage and dollar amounts/limits.

NEPC carries Errors and Omissions coverage – also known as Professional Liability coverage – for the overall firm which includes a Director and Officers Policy. The limit is $25 million annually, with E&O retention of $1 million per claim; D&O retention of $500k per claim; and Fiduciary Liability retention of $0. The primary insurance carrier is QBE Specialty Insurance Company, the second carrier is Argonaut Insurance Company, the third carrier is Endurance, the fourth carrier is Houston Casualty Co and the fifth carrier is Everest National Insurance Company.

Additional coverage includes but is not limited to:

- Commercial Umbrella - $10 million per claim, $10 million aggregate, $10 million products-completed operations aggregate, $10 million bodily injury by disease, $10,000 retention (The Hartford)
- Business Owner's Policy (The Hartford), which includes:
  - General Liability - $1 million each occurrence, $2 million aggregate
  - Products Completed/Operations Coverage - $2 million
  - Personal & Advertising Injury Liability - $1 million
- Workers Compensation - $1 million employers liability policy limit (The Hartford)
- Employment Practice Insurance - $5 million per claim, $5 million aggregate with a $25,000 deductible (Mount Vernon Fire)
- Commercial Crime Insurance (NEPC) - $2 million limit, $50,000 deductible (Great American Insurance Company)
- Chief Compliance Officer Individual Liability Coverage - $500,000 per claim (Travelers Insurance Company)
- ERISA Bond (NEPC/PS & 401k) - $1 million employee dishonesty (The Hanover)
- Commercial Crime - $2 million limit, $50,000 deductible (Great American Co)
- Cyber Liability - $5 million each Wrongful Act, $5 million aggregate for all coverages combined & including defense costs (a Chubb-Ace American Insurance Co)

16. Discuss the firm's business objectives and plans for growth. Comment on any present or planned areas of emphasis over the near future. Be sure to include in your response:

a) Total client asset limits.
b) Cap on total client relationships.
c) Maximum limits on asset amounts or number of clients per consultant.

d) Plans to develop and expand resources, merge or acquire other firms, spin off subsidiaries.

We believe measured, thoughtful growth is critical to any consulting organization whose focus is on maintaining a high level of client satisfaction. Growth allows us to increase investments in technology, research, and human capital and provides advancement opportunities across the organization. NEPC's growth over the past several years facilitated significant improvements in both our servicing and our dedicated research staff. As we have grown, our focus has been maintaining and improving the high-quality service our clients have come to expect.

In general, our forward-looking business plan has several elements. Among its more important points are the following:

1. **We will remain independent**. In this era of consolidation in the investment consulting industry, the Partnership at NEPC has repeatedly affirmed our desire to remain independent. We believe we offer, and will continue to offer, a superior product due in part to our independence and single focus on delivering exceptional consulting services to our clients.
2. **We will grow at a controlled pace**. This involves maintaining the proper balance among our human resources, the services we provide, and the selective addition of new clients. We are very sensitive to the servicing requirements of current and prospective clients and have regularly turned down new business opportunities.
3. **We will attract and retain extraordinarily well-qualified personnel.** As our business has grown, we have added professional, technical and administrative personnel, both "home grown" and from competitors (36 current consultants/researchers joined from competitor firms).
4. **We will continue to invest and enhance our service and research capabilities.** Our clients benefit from our ability to source great ideas from our deep research team and our scale via lower costs and efficiencies.

Over our 34-year history, we have thoughtfully and successfully expanded to serve a variety of client types. In each case, it was a long, in-depth process to analyze the market segment and determine if we wanted to operate there. There have been areas of the market where we have made a choice not to go – but for each that we did, we did it with a long-term time horizon, knowing it takes time to build out a presence in a market and we were committed to spending the time and the resources to become a top tier player.

While we do not have a specific limitation on the number of clients that we intend to accept, we do limit the number of accounts per consultant based on the client's complexity and servicing needs. We are very sensitive to the servicing needs of current and prospective clients and have regularly turned down new business opportunities when we determine that we cannot maintain our service standards without first hiring additional consultants and support staff. And as mentioned previously, in 2020, we declined to respond to 117 submissions.

We have no plans to acquire, spin off or merge with another firm. In fact, NEPC is committed to staying independent despite the frequent mergers and acquisitions currently occurring in our industry. We believe maintaining our independence ensures that we can continue to provide the best consulting platform possible with a sole focus on our clients.

17. Provide a list of consulting staff who left or joined your firm within the last three (3) years. Include anticipated personnel changes for the next year. For those who have left or plan to leave, provide the reason for the departure.

Our consulting staff is one of the most stable in the industry with an annual average consultant retention rate of **93% over the last 10 calendar years**. We work continuously to be the employer of choice within the industry, having attracted more than 36 of our current professionals from our competitors. It is NEPC's policy not to disclose specific employment information out of respect for our current and former employees' privacy. The table below provides data on the turnover of our professional staff.

NEPC's Professional Staff Turnover*

	Year Ending 10/1/2020	Year Ending 10/1/2019	Year Ending 10/1/2018
Departures (Managed/Voluntary)	(7)	(2)	(8)
Retirement/Deceased	0	(1)	0
External Hires	3	3	5
Internal Promotions	9	6	5
Net Professional Staff Gains	**5**	**6**	**2**

*Includes Partners, Senior Consultants and Consultants.

18. Describe your firm's compensation system for principal staff, and indicate what specific incentives are utilized to encourage retention of key professionals.

All of our employees receive compensation in three forms: salary, benefits, and a qualified profit-sharing contribution. Salaries are standardized for each professional level within the firm. All employees are eligible for a bonus. Principals are eligible for unit grants which are translated into a bonus payable over three years. Bonuses are paid annually based on two criteria: 1) the employee's performance relative to a predefined job description and specific individual goals; and 2) the success of the firm itself. In addition to the individual bonus, NEPC has consistently made profit-sharing contributions for each employee after his or her first year with the company at the highest levels permitted by law, approximately 15% of total compensation including bonus.

Benefits are available after basic eligibility requirements have been met. NEPC also participates in industry compensation surveys each year. These surveys confirm that our total rewards programs are very competitive and allow us to attract and retain top tier talent and that our benefits (profit-sharing, medical, etc.) are among the most attractive in the industry.

In addition to regular compensation programs, selected senior employees from both NEPC consulting and research teams participate in our equity program (the Partnership), permitting them to share the profits of the company and in the long-term appreciation of its equity. Our conversion to an LLC has materially enhanced the ownership positions of our newer partners, strengthening their opportunities to enjoy somewhat higher levels of compensation.

Finally, it is important to note how we do **NOT** compensate employees. Our compensation programs are specifically designed to align our employees' interest with our clients' success and happiness. We do not compensate employees by the amount of revenue they win or support. We also do not provide incentives to our employees to encourage clients to switch to higher margin relationships (e.g. Advisory to Outsourced CIO/discretionary), as is common in the industry. At the end of the day, we want our employees to focus on the success of our clients' investment programs.

Additionally, our retention rates and the overall stability of our firm are enhanced by a wage system that compensates each salary grouping within our firm with median or higher compensation levels relative to industry norms. Also, we have built an incentive bonus component into our compensation structure based on achieving specific levels of excellence in the annual Greenwich Associates Client Opinion Studies.

19. Disclose any hard or soft dollar compensation derived from sources other than contracted client fees and any policies related to acceptance of such compensation.

We do not accept or pay soft dollars. All of our fees are quoted, paid and received in hard dollars.

20. Identify the percentage of the firm's clients that utilize money managers, investment funds , brokerage services or other service providers from whom the firm receives fees.

NEPC provides consulting services to the employee benefit plans of two firms whose parent or subsidiary organizations are in the financial services industry. In addition, we provide research on external investment managers to a third firm. Although these relationships contribute less than 1% to our annual revenue, all are fully disclosed when NEPC conducts manager searches, and are listed below.

- NEPC provides its defined contribution consulting services to the retirement plan participants of Affiliated Managers Group (AMG). AMG does not manage investments but has ownership stakes in a group of mid-sized asset management firms. The AMG subsidiary firms operate independently while AMG provides them with strategic, operational, marketing, and distribution support.
- NEPC provides investment advice to the employee 401(k) Plan of Brookfield Properties (NYSE: BPO), a subsidiary of Brookfield Asset Management Inc. (NYSE: BAM).
- NEPC provides research and consulting services to Westwood Trust, a Texas Trust Company. The parent of Westwood Trust owns a mid-sized asset management firm, Westwood Management.

The fees NEPC receives from these relationships are not affected by a rating that may be assigned by our research team, or by investments that any client may make.

We use the services of investment management firms to manage our employee Profit Sharing and 401(k) Plans, as do nearly all firms offering retirement plan benefits to their employees.

- T. Rowe Price provides investment and record keeping services to NEPC's 401(k) plan. The 401(k) plan is self-directed; therefore, NEPC does not compensate T. Rowe Price directly. Management fees are assessed to the participant accounts.

21. Describe your firm's disaster recovery plan including the results of the most recent testing of the plan.

Yes, NEPC maintains a formal disaster recovery plan. NEPC backs up all its data on a nightly basis to both a local storage archive and a remote archive at its Rhode Island disaster recovery site. All of NEPC's internally hosted files, databases, and document management systems are backed up in this way to ensure that the latest data has been secured away from the primary data center.

In addition to the nightly file backups, NEPC replicates all production business data to one of its two disaster recovery sites. This replication takes place at frequent intervals to ensure that data loss is minimized in the event of a disaster.

NEPC reduces the risks associated with power loss and city infrastructure failures by locating its production data center in a world-class colocation facility with redundant, high-availability power backed up by generators.

Should a major disaster befall the company's data center, NEPC would initiate its disaster recovery process and recover all of its critical business systems within 24 hours.

NEPC periodically conducts residency and recovery tests on various parts of its IT infrastructure to ensure that in the event of an emergency employee impact is not hindered. NEPC strives to conduct an annual test of at least one aspect of its infrastructure in a rotation (application, network, communications, and production servers). NEPC last conducted a network disaster recovery test in December 2019 to ensure that all NEPC's locations could connect to the disaster recovery site. Previous tests were conducted in December 2016, December 2015, May 2014 (application availability), and January 2014 (communications services).

B. Assets Advised

1. Provide the number of clients, assets under advisement for the firm's investment consulting relationships. Separately identify the number of clients and assets under advisement for outsourced chief investment officer services (full discretionary contract), if any.

We serve 395 retainer clients with $1.2 trillion in assets across 1,011 separate portfolios[9].

Client Type	Clients	Total Assets
Corporate	110	$265 billion
Not-for-Profit/Charitable	76	$86 billion
Healthcare Related	46	$114 billion
Private Wealth	35	$9 billion
Public Fund	70	$636 billion
Taft-Hartley	58	$49 billion
Total Clients	**395**	**$1,159 billion**

[9] As of 10/1/2020, includes 72 clients with discretionary assets of $39.5 billion.

NEPC has 72 discretionary clients with 169 portfolios representing $39.5 billion in discretionary assets[10]. NEPC's Discretionary Services Platform currently works with defined benefit, defined contribution, endowment, foundation, insurance, operating, taxable and VEBA funds.

Discretionary Client Type	Number of Clients	Number of Portfolios	Total Assets ($millions)
Not-For-Profit/Charity	28	53	$5,708
Private Wealth	5	24	$628
Corporate	16	33	$15,041
Healthcare	14	48	$9,788
Taft-Hartley	7	9	$8,049
Public	2	2	$275
TOTAL	**72**	**169**	**$39,489**

2. Provide a list of the firm's investment consulting clients as of 12/31/2020. Please provide a table listing all current clients for whom you provide investment consulting services along with the following information:

a) Name/Type of client (public plan, corporate plan, endowment, fund of hedge funds, etc.)
b) Total size of each relationship
c) Assets on which you provide consulting services
d) Length of service of the relationship
e) Brief, one sentence description of the type of services you provide for each client
f) Nature of the relationship (retainer or project-based)

We have provided a Representative Client List as a supplementary attachment to this proposal in Exhibit 3. Due to client confidentiality issues, we cannot provide the level of detail requested without prior consent by all clients.

3. List all clients your firm has gained in the last three (3) years and the clients who have terminated your services during that time. For those who have terminated your services, please indicate the reason for terminating service.

In the last three calendar years, NEPC has had an average annual client retention rate of 94.5%. We take our clients' satisfaction seriously. With that in mind, we do the following:

- Survey our clients every two years.
- Conduct focus groups with a cross section of our clients to discuss future needs, investing trends, challenges, etc.

	Year Ending 10/1/2020	Year Ending 10/1/2019	Year Ending 10/1/2018
Total # of Clients Gained*	**20**	**28**	**13**
Reason for Termination*			
Resigned by NEPC	0	1	0

[10] As of 10/1/2020

Decided not to use a consultant	1	0	1
Outsourced to a 3rd party/discretionary provider	0	1	3
Rebid the contract and hired someone else	5	10	7
Change at client (merger, fund termination, etc.)^	2	3	3
Total # of Clients Lost*	**8**	**15**	**14**

* Clients represent all institutional retainer clients with assets in excess of $100 million (NEPC's target market).
^ Client losses due to reasons outside of NEPC's control.

4. **Provide the name, address, telephone number and contact person for three (3) current public pension plan clients to serve as a reference for your firm. Clients domiciled in the State of California are preferred.**

Our clients are our only customers, and we have grown substantially through their referrals over the years. While we submit three client references per your request, we respectfully request that you not contact them without notifying us first.

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C. Investment Consulting Philosophy and Process

1. **Briefly describe your firm's philosophy with respect to investment consulting mandates, and the nature of the service that you provide. What key strengths and competitive advantages does the firm possess that generate superior performance and service for your clients?**

We believe our **client-focused approach** distinguishes NEPC from our competitors, and one measure of our value add is the fact that NEPC's collective client base has outperformed the InvestmentMetrics/ICC median[11] in 28 of the 34 years since our

[11] The median fund in the $2.0 trillion InvestmentMetrics Universe (or the ICC Universe through 2011) represents average performance among a nationwide sample of plan sponsor results.

founding in 1986. We would highlight the following attributes as relevant to TCERA. NEPC is:

1. **Independent** - NEPC's independence and employee ownership empowers our consultants to provide investment counsel free of conflict and aligned with the best interests of clients.
2. **Research-Driven** - Driven by proprietary research and deep industry experience, NEPC's investment philosophy is optimized to meet the goals of our clients.
3. **Forward-Looking** - We partner with our clients to develop innovative and dynamic investment portfolios.
4. **Creative** - We sit at the convergence of creativity and research, bringing into clear focus the strategies enabling clients to realize their long-term vision.
5. **Focused** – NEPC works with clients to navigate today's complex markets to deliver on the retirement promise for their employees. NEPC's ***dedicated public fund team*** provides comprehensive investment solutions backed by an independent research team to solve our clients' unique investing challenges. They assess clients' progress against their own unique goals and objectives as well as the largest Public Fund performance measurement universe in the industry.

2. Describe your firm's experience in developing and reviewing investment policies and strategies for clients.

We believe that a well-conceived investment policy statement is the cornerstone of a successful investment program, and furthermore it provides an important element of continuity. The development of an appropriate policy involves the management of competing interests. Critical inputs include: risk tolerance from the perspective of both the Board and Staff, legal constraints and investment restrictions, funded status, liquidity needs, stability of returns, and time horizon. We would begin our relationship by reviewing Tulare County Employees Retirement Association's existing policy statement(s) and suggesting changes and enhancements. This process typically coincides with an asset/liability study to fully understand the direction of the program and to ensure the stated goals and objectives are consistent with the financial condition of the program. On an ongoing basis, typically annually, the objectives will be reviewed and revised, as necessary. This Reviewing TCERA's investment policies is important, since they are the primary tools that we use to truly customize each investment program to the unique needs, risk tolerances and return requirements of each client.

Manager reviews are also an important early project with new clients. NEPC is very familiar with most of TCERA's current managers, and if selected we would immediately schedule due diligence meetings with those few managers that we have not reviewed recently. Our research efforts are designed to ensure that every strategy that any NEPC client is invested with receives an in-depth research review at least annually. We take special care with new clients to understand why they invest with the managers that they do – unless we have specific reasons to divest from a manager or strong preference is to retain current managers as much as possible. Individual manager guidelines are formally reviewed each quarter and managers are required to communicate any desired changes to the Board and consultant.

3. Describe your firm's methodology for reviewing asset allocation, asset liability reviews, and manager structure reviews. Include the following:

NEPC has purposefully developed one of the largest and most experienced research teams in the industry. This has allowed us to create dedicated teams focused on client asset allocation and portfolio construction.

Analytic Tools and Market Data

All of our asset allocation and asset-liability analysis begins with forward looking assumptions of risk, return, and correlation. Our asset class assumptions and economic scenario forecasts are internally generated for forward-looking ten-year time periods. All assumptions rely on building blocks and market factors unique to each asset class based on a wide range of capital market data. For example, the return assumption for US Large Cap Equities is based on building blocks of real economic growth, inflation, dividend yield, and valuation. The return expectation for US Corporate Investment Grade Bonds is based on current Treasury yields, the forward yield curve as priced by the market, current credit spread levels, and a forecast of how spreads will adjust over a 10 year period. Risk and correlation assumptions are based on expectations for the market environment and expected dynamics of relationships across asset classes. All assumptions are updated quarterly along with economic scenarios, which forecast various economic environments over a five year period.

Our asset allocation studies are based on an analysis of both assets and liabilities. We use multiple tools for asset allocation modeling. The traditional efficient frontier modeling utilizes Morningstar Direct software. Our proprietary asset/liability model was developed by NEPC, with stochastic functionality supported by Palisade @Risk. NEPC's asset/liability model can be customized to particular benefit formulas and actuarial assumptions. Using participant data, we project plan costs based on our internally generated economic forecasts. We have internally developed our risk budgeting model, which re-characterizes asset allocation into its component risks, both on an asset-only, and an asset-liability basis.

Risk budgeting and Scenario Analysis rely on NEPC proprietary models. Additional supplemental tools such as Factor Analysis, Liquidity Analysis, and Active Risk Budgeting also rely on proprietary NEPC models. Rather than focusing simply on the single summary term of total portfolio volatility, we determine the contribution to the portfolio's volatility from each underlying asset class. This allows us to understand not just the total level of risk, but also the sources of risk. We find that portfolios with 60% or more in equity investments will have more than 90% of their overall portfolio volatility sourced from equity returns. In other words, performance of the broad equity market will determine the overall direction of the plan's return. Through this approach, we have counseled clients to strive for more balance in their portfolio's risk allocation, leading to asset allocations that are more resilient when equity markets decline.

Collectively, the mosaic of multiple asset allocation models produces a more comprehensive and robust framework for evaluating current and alternative asset allocations, producing portfolios less dependent on a single asset class such as equities for long-term returns and more resilient to market downturns.

NEPC's Asset Allocation Team directs all of the firm's efforts in performing asset allocation and asset-liability studies, and leads the development of the firm's asset class return, risk, and correlation assumptions. Since asset allocation is the primary driver of success, we believe it is important to understand, analyze and challenge assumptions to create more efficient portfolios. We do this by staffing this team with very senior members of the firm. NEPC's Asset Allocation professionals are dedicated entirely to performing asset-liability studies and asset allocation analysis for our clients' portfolios utilizing our extensive suite of tools and researching innovative approaches that might enhance our current approach. These professionals are dedicated to performing asset allocation studies and have limited client responsibilities, allowing them to focus and specialize on this important area. The following is the team of individuals:

- Timothy McCusker, FSA, CFA, CAIA, Chief Investment Officer
- Phillip Nelson, CFA, Partner, Director of Asset Allocation
- Chris Levell, ASA, CFA, CAIA, Partner
- Lynda Dennen Costello, ASA, EA, Senior Research Consultant
- Jennifer Appel, CFA, Research Consultant
- Eumene Lee, Research Consultant
- Robert Goldthorpe, ASA, Research Consultant
- Jack Yuan, Research Analyst
- The Asset Allocation Team is supported by the Asset Allocation Committee, comprised of representatives from Research and Consulting and co-chaired by Christopher Levell, ASA, CFA, CAIA, Partner and James Reichert, CFA, Partner.

Risk Budgeting Approach

Our Asset Allocation Team has developed a risk budgeting exercise that reviews the contribution of each asset class to the portfolio's overall risk. In addition, we can incorporate liabilities into our risk assessment.

Rather than focusing simply on the single summary term of total portfolio volatility, we determine the contribution to the portfolio's volatility from each underlying asset class. This allows us to understand not just the total level of risk, but also the sources of risk. We find that portfolios with 60% or more in equity investments will have more than 90% of their overall portfolio volatility sourced from equity returns. In other words, performance of the broad equity market will determine the overall direction of the plan's return. Through this approach, we have counseled clients to strive for more balance in their portfolio's risk allocation, leading to asset allocations that are more resilient when equity markets decline.

Asset-Liability Study Process

The process for developing investment policy using asset/liability modeling is outlined below:

1. We begin with your current actuarial valuation report so that we may obtain the funding policies, demographics, benefits formulas and other actuarial assumptions to be used in our asset-liability modeling.
2. We evaluate current benefit obligations and forecast the future liabilities of the Plan, using your current actuarial assumptions and the actual demographic characteristics of your participants (we do not use proxies).
3. Next, we develop expected risk and return profiles for the Plan's current asset mix and several alternative asset strategies. Our model can accommodate multiple asset classes, but we believe that the highest value from asset-liability studies comes from identifying and prioritizing key allocation opportunities, so we will not, for example, try to optimize a small cap allocation to the nearest 1%.
4. Once our liability analyses (including analyses of age-service distributions, separation ratios, employee migration and demographic characteristics, male and female

mortality characteristics, and other actuarial factors) and asset forecasts are completed, we integrate these projections. The asset/liability model combines the asset structures (item 3 above) with the liability projections (item 2 above) to forecast the financial status of the pension plan. The resultant comparisons help the client determine which investment alternatives have the best probability of generating the returns and earnings necessary to fund the obligations of the Plan and possibly allow for benefit increases and/or contribution reductions. Projections include benefit payments, contributions, GASB accounting calculations, and funded status (assets compared with liabilities) over the next ten years.

5. With the model, we can conduct "what if" scenarios to determine the impact of changes in actuarial assumptions on the Plan's liability stream (future benefit and expense obligations). We have the capability to demonstrate the impact of plan changes (benefit formula or assumption changes, work force growth, or earnings assumption, for example) on contributions, funded status, and benefit payments for all asset mixes.
6. We then prepare a detailed report on our findings and recommendations. The report includes our inputs and assumptions, projections of liabilities, asset class returns, risk levels, yield and correlation assumptions, optimal combinations of asset classes, and projections of assets, contributions, benefit payments, and funded status.

Manager and Portfolio Structure

NEPC has a dedicated Portfolio Construction Team consisting of two NEPC partners, two senior consultants, and two research analysts. It is led by Timothy Bruce, Partner, Director of Portfolio Construction. The team is constantly researching new ways to improve our clients' portfolio construction and performance. They assist field consultants with portfolio and asset class reviews that typically include active risk budgeting, factor analysis, holdings-based analysis, risk analysis, and investment manager pairing. These structural reviews provide the critical link between top-down asset allocation and bottom-up manager selection and monitoring. The Portfolio Construction Team is also responsible for private market pacing plans and various ad-hoc analyses that are customized to the specific needs of each client.

g) Description of your firm's capital markets model. Source of the model (proprietary or outside vendor)

We use multiple tools for asset allocation modeling. Our asset class assumptions and economic scenario forecasts are internally generated for forward-looking ten-year and thirty-year time periods. These inputs are used in proprietary models. For traditional efficient frontier modeling, we use Morningstar Direct software. Our proprietary asset/liability model was developed by NEPC, with stochastic functionality supported by Palisade @Risk. For this system, our mean/variance assumptions are translated to growth and yield assumptions, to accurately reflect the impact of inflation and interest rates on asset returns and liability calculations. Our asset/liability model can be customized to particular benefit formulas and actuarial assumptions. Using participant data, we project plan costs using our internally generated economic forecasts. Finally, we have internally developed our risk budgeting model, which re-characterizes asset allocation into its component risks, both on an asset-only, and an asset-liability basis.

h) Development of inputs to the model (standard inputs or customized by client)

i) Current inputs to the asset allocation model including expected returns, standard deviations, and correlation coefficients for all significant asset classes for which the firm has developed inputs.

For asset allocation modeling, NEPC has defined approximately 75 asset classes/subclasses.

Please refer to Exhibit 4 for NEPC's 2020 Themes, Actions and Opportunities, which includes text and graphical descriptions of NEPC's assumption development for each asset class. This information is presented annually to every client, generally at the beginning of the calendar year and we also provide updates on a quarterly basis.

j) If the firm has a recommendation for frequency of these reviews, state provide the firm's current recommendation.

We recommend that a formal liability-driven asset allocation study be conducted every three to five years, the length of a typical planning cycle. This 3-5 year review should serve as the primary opportunity to set or adjust strategic asset allocations. We also conduct asset based asset allocation studies annually to review and confirm the appropriateness of the current asset allocation targets or to recommend more tactical actions based on the outcome of our quarterly capital markets review process.

k) Samples of an Asset Allocation Review and an Asset/Liability Modeling Study.

Please see Exhibit 5 and Exhibit 6.

l) The firm's most recent five (5) years of capital market assumptions (projected returns, volatilities and corrections).

Starting with calendar year 2020, NEPC moved to a quarterly cycle for updating our capital markets assumptions. But please see Exhibits 18-22 for NEPC's most recent 5 year-end capital market assumptions. Asset class assumptions and recommendations are created through a review process that is overseen by the Asset Allocation Committee consisting of NEPC's asset allocation team and various members of the consulting practice groups. The outputs for clients are ultimately approved by NEPC's Partners Research Committee.

The assumption development process informs our Investment Outlook, which is updated on a quarterly basis. The key market themes and current opportunities identified in our Investment Outlook form a baseline from which consulting teams develop recommendations suitable for individual client portfolios. We regularly assess markets and opportunities. Should our return and risk expectations change, or an event take place, either domestically or abroad, that we feel will have an impact on our clients' portfolios, we make our clients aware as soon as possible and recommend actions accordingly.

Please refer to Exhibit 4 for NEPC's 2020 Investment Outlook and Asset Class Assumptions Overview, which includes text and graphical descriptions of NEPC's assumption development. This information is presented annually to every client, generally at the beginning of the calendar year and we also provide updates on a quarterly basis. Also, please see Exhibit 7 for our 2020 client asset allocation letter. NEPC's annual asset allocation letter examines the investment landscape, exploring the pockets of opportunity presented by the current volatility. It recommends investors seek opportunities to rebalance toward higher return-seeking investments and consider increasing strategic weights to equity and credit should markets continue to decline.

4. Describe how your firm develops a target allocation recommendation for a client. Provide a sample allocation that you are currently recommending for a client similar to TCERA.

NEPC does not believe that a "one-size-fits-all" investment approach is appropriate. Asset allocation is determined with an explicit consideration of the end-purposes of the assets. We have always initiated relationships with clients by ascertaining their unique needs and goals before providing any investment advice.

While we tailor our asset allocation recommendations to each client's circumstances, NEPC is generally a proponent of creating well diversified portfolios that have less reliance on public equity allocations. Larger allocations to public equities do produce portfolios with higher expected returns but they also put portfolios at higher risks for large draw-downs that often take many years to recover. As a result, NEPC generally speaking, prefers broadly diversified portfolio allocations that reduce the impact of equities on the portfolio's risk budget.

TCERA's current asset allocation does offer some diversification from equity risk, and you have sought to boost returns and increase diversification by investing in private markets. Our clients typically have slightly larger private market programs, and an early focus for us if selected as your consultant would be to determine through asset-liability, liquidity, and scenario stress test studies whether the TCERA portfolio could safely accommodate greater exposure to higher-returning private investments. If so, then we would likely advise some or all of the following:

- Replacing the public equity water strategy with an allocation to high-yielding private infrastructure
- Slightly shrinking the US public equity exposure to increase private equity
- Shifting some of TCERA's emerging market debt and global debt exposures to private credit

We believe that TCERA's current asset allocation is unlikely to achieve your 7% actuarial target over the next 10 or 30 years. We believe that some small adjustments could boost expected returns while maintaining or even improving the investment portfolio's short-term downside risk.

5. Describe the firm's view of tactical/dynamic asset allocation.

Our investment philosophy is primarily driven by a long-term strategic asset allocation informed by periodic asset-liability studies. But we also support clients with tactical and opportunistic approaches.

We believe in a multi-faceted asset allocation process that incorporates the dynamics of the markets.

- **Long-Term:** Review strategic asset allocation at least every 3-5 years and potentially as often as annually to allow for the integration of market driven assumptions. We deliver forward-looking quarterly market observations, investment actions and asset class assumptions to all clients. Annually, we identify areas of opportunity that may be under-represented in the long-term strategic targets and reduce existing allocations that may have less risk-adjusted return potential. This review is facilitated through our quarterly update to our ten-year and thirty-year capital market expectations and actions for clients.

- **Intermediate-Term:** Create an opportunistic allocation, supported by the governance structure that allows for investment in actionable, niche strategies that don't fit cleanly in a more traditional structure. This strategy may focus on investments that are not part of the strategic allocation, however, due to a market dislocation may be an attractive option for investors.We also make annual recommendations to our clients that include specific opportunities based on our market outlook.
- **Near-Term:** Many of our clients rely to a limited extent on flexible, unconstrained mandates, such as unconstrained fixed income or global equity, to capture shorter-term, liquid opportunities. We seek to identify and execute opportunities across asset classes and the liquidity spectrum. Many investment programs may not be equipped to take advantage of these shorter-term opportunities, but skilled investment managers have demonstrated the ability to tactically allocate across markets and add a unique source of alpha to an investment program.

6. Describe the firm's experience in evaluating alternative investment managers (e.g. real estate, private equity, co-investments, secondaries, hedge fund, real assets, etc.)

Over the past three years, we have completed over 812 alternative assets searches and reviews totaling $10.0 billion as of 2019. We seek to marry our top-down views on the market with bottoms-up analysis of investment managers open over the course of the year. We work closely with clients to source and identify the best managers for each client's alternative assets plan. We do not believe we have a monopoly in best ideas and will source ideas both through internal connections and from client relationships that evolve over time.

To identify appropriate investment managers, NEPC develops preliminary guidelines and criteria for candidate managers. These guidelines and criteria include stability of the organization, investment performance, consistency of the track record, professional staff experience and years with firm, assets under management, and appropriateness of terms. Next, we perform extensive due diligence on managers passing the initial screening criteria. This includes an assessment of each firm's organization, staff, investment process, philosophy, track record, access to deal flow, and due diligence capabilities, through in-depth meetings with the investment professionals of the manager. With respect to hedge fund of fund managers, while we generally do not directly review every underlying hedge fund, we use these conversations with managers to gain an understanding of the managers' general thought process and knowledge in selecting the underlying funds. This may include discussions of certain hedge funds to understand the hedge fund sourcing process, the hedge fund evaluation and due diligence effort, and the portfolio construction techniques that a manager uses.

Additionally, NEPC conducts a thorough quantitative evaluation of each manager. For private equity managers, NEPC evaluates the cash flows of each investment made by the organization to determine the key drivers of performance, such as key people, geography, industry, stage, size, style, and structure. For hedge funds, NEPC looks at the stability of the returns, the types of strategies and trades utilized, and drivers of returns.

To enhance our knowledge of managers, NEPC prepares *Due Diligence Questionnaires* for manager candidates requesting detailed information on the company background, organizational history, assets under management, professional staff breakdown, investment strategy and focus, investment process, product structure, and performance. These questionnaires help us understand the manager's process in more detail than the offering memoranda and marketing material permit. However, we do review the pitch books, private placement memoranda, limited partner agreement, and subscription documents, as well.

NEPC conducts on-site due diligence visits for all managers prior to adding them to our recommended/preferred list. There, we try to better understand both the investment process and the business execution risk of a candidate manager. Understanding issues such as compliance management, legal capabilities and portfolio monitoring is very important before recommending a manager to our clients. Furthermore, it is beneficial to meet more junior staff and other staff members who often can give us a better sense of the entire organization. Frequently these interactions require multiple visits to the managers' offices over multiple days.

Our research group has a budget to conduct a certain amount of on-site manager research every year. We have sent our analysts to cover managers in the major financial centers in the U.S. and around the world, and continue to dedicate even more resources to this effort as we grow. Whenever we visit a client, we always try to schedule as many manager meetings around the client meeting as possible, maximizing the benefit from each trip we make.

Upon completing the work on a manager, a formal investment memorandum is prepared for the Alternative Assets Committee (AAC). The due diligence process is overseen by the AAC, which is made up of the key professionals involved in evaluating alternative assets, in addition to other senior (and very experienced) members of the consulting staff. The AAC is ultimately responsible for vetting any manager that is to be placed in NEPC's clients' portfolios, as well as those that have already been retained by our clients. The AAC allows NEPC to lever the deep resources of our consulting staff, while ensuring that each manager we recommend is thoroughly and consistently evaluated. NEPC maintains active relationships with many independent marketers, organizations, academics, clients, fund-of-funds, other fund managers and other contacts who assist in providing knowledge of small and new organizations and funds. In addition to actively seeking new funds, NEPC receives unsolicited contacts from many organizations who know of NEPC's interest in these investments. We review funds of varying sizes and determine if the size of the fund is appropriate to the strategy, i.e., sufficient capital to avoid a potential for dilution in follow-on investment rounds. We also review the size of the fund as it relates to business execution risk, we need to determine if the fee income is sufficient to maintain and attract investment professionals.

7. Describe your firm's view regarding the implementation of alternative investments for a fund of TCERA's asset size and staffing levels, including minimum / maximum suggested allocations.

We believe that well-designed private market programs can add great value to pension plans the size of TCERA, and have great experience in supporting similar plans in building out programs as large or larger than TCERA's current 20% target for real assets and 10% target for private equity and credit.

NEPC has significant experience building alternative asset programs and identifying high quality private equity, private credit, hedge fund, opportunistic and real assets managers for our clients' alternative investments programs. NEPC has been actively working with client investments in alternative assets for the past 26 years and has the commitment, experience, and research resources to meet all of your alternative asset consulting needs. We monitor and advise on $70.3 billion in alternative assets across 266 clients[12]. Our alternative assets services include: education, portfolio design, manager search, due diligence reviews, and monitoring/reporting. During 2019, we completed 286 alternatives searches encompassing over $3.7 billion across hedge funds, private equity and real assets.

As you review other's alternatives capability, what really differentiates our process is our Alternative Asset Committee, comprised of Partners, the key professionals involved in evaluating alternative assets, in addition to other senior members of the research, management and consulting staff. The Committee is ultimately responsible for vetting any manager that is to be placed in a NEPC client portfolio, as well as those that have already been retained by our clients. The sheer breadth of experience (with some members having 30+ years' alternatives experience) and accountability creates a dynamic and skeptical environment. It truly balances innovation with experience and does so while aligning the firm's interests with those of our clients. This Committee allows NEPC to lever the deep resources of our consulting staff, while ensuring that each manager we recommend is thoroughly and consistently evaluated.

Aside from our Alternative Assets Committee, which helps monitor the process, we have 24 professionals dedicated to alternative assets research.

NEPC was one of the first firms to embrace the Chartered Alternative Investment Analyst (CAIA) program with Mr. Sean Gill's induction in the inaugural class of 2003. Currently, NEPC has 40 CAIA designees on staff including both of the consultants we are proposing to advise TCERA. Eleven more professionals are currently pursuing the CAIA designation. Also, of interest, NEPC was honored to work with the CFA Institute in authoring a chapter on Alternative Investments for the Claritas Investment Certificate. The program is intended for all professional disciplines in the financial services industry outside of investment roles and provides a clear understanding of the essentials of the investment industry and the various roles and responsibilities within it.

While we do not seek to overwhelm you with research articles and white papers, you can peruse our website (www.nepc.com) and read NEPC's "letters of action" to clients over the last five years that illustrate our commitment to alternatives research. We have consistently and proactively recommended placements across the alternative asset spectrum including: private equity and debt, global asset allocation strategies, real assets (including real estate, timber and commodities), portable alpha, and others. We are well suited to help you evaluate the use of alternatives, and if appropriate based on your needs and objectives, assist in the development of your alternative assets program.

8. Describe your firm's view of the use of leverage in a public fund investment portfolio.

We have approved strategies for client investment that involve skilled managers using leverage to increase returns and manage risk. These strategies range from real estate to fixed income to risk parity and more. In addition, in a select number of cases we have worked with clients to implement leverage for a portion of their investment program. We have used this approach in cases where clients wanted to use a total plan risk parity like approach, as the leverage can help increase the contribution to risk for low risk

[12] As of 6/30/2020, only includes assets/clients for which NEPC has due diligence responsibility for their alternative assets.

asset classes (i.e., TIPS or core fixed income). We have encouraged the use of a third party to implement the leverage, as the use of derivatives requires a unique skill set. In all cases the introduction of leverage can dramatically alter a strategy's or plan's risk profile, so we take great care in analyzing such opportunities, instituting appropriate monitoring systems, and educating clients ahead of time as to the risks as well as the potential rewards.

9. Describe the firm's view on rebalancing including targets, ranges, frequency, and implementation methods.

We believe in both strategic and tactical rebalancing. Strategic rebalancing is typically triggered by asset class policy ranges, while infrequent tactical rebalancing recommendations occur due to exceptional market developments such as those that occurred last Spring. We do not employ other types of rules-based criteria or calendar-driven rebalancing approaches unless dictated by a client's policy. Rebalancing is typically driven by markets moving the actual allocation outside of policy ranges, liquidity needs and market opportunities.

NEPC firmly believes in "strategic" or long-term rebalancing guidelines to stay within the minimum and maximum ranges around the target allocation. The establishment of a target asset allocation is a statement about the risk tolerance of a client. Therefore, when the actual asset allocation deviates substantially from the target mix, it may move the Plan to an undesirable forward-looking position. Rebalancing is required to maintain the agreed upon risk level. However, we are proactive with our asset allocation recommendations and may advocate slight tilts away from the target mix to take advantage of opportunities we have identified in the markets. For example, we recommended an opportunistic allocation of 0-15% across our entire client base to take advantage of credit market dislocations in 2008-2010.

An effective rebalancing policy adheres to the oldest and simplest theory in investing; "buy low, sell high". Though simple to say, it is enormously difficult to implement due to natural human emotions. As history has shown, market preferences for different asset classes always peak and wane. This historical fact allows for rebalancing to add value in addition to controlling risk. Continuously well-balanced portfolios will avoid "giving it all back" by "taking profits" before the reversal. Simultaneously, the under-performing investment will be at its full allocation and thus well positioned for a potential rebound. However, one of the key issues we are mindful of in shifting asset allocation is transaction costs. Heightened volatility and transaction costs are additional variables that need to be considered when making opportunistic shifts in asset allocation.

10. Describe your firm's views of active versus passive management.

NEPC's clients' investment programs typically incorporate a healthy balance of both active and passive management. We believe there is no one "right" answer to the active/passive discussion, as it depends on the investment program, the asset class, the market environment, available resources (staff time, active risk budget, management fees) and the governance structure.

We believe low-cost passive investing should be used unless there is a demonstrable advantage to using an active manager (net of their fees). We believe the investment categories where active management will be more successful tend to be those that are heterogeneous in nature. Additional characteristics such as a lack of readily available research, poor liquidity and/or relatively few investment constraints also contribute to a favorable environment for active management. We evaluate liquid asset classes using two tests: how consistently median managers beat the benchmark (probability of outperformance) and dispersion of manager returns (degree of potential outperformance). Examples of areas where we believe active management is likely to be more successful include global equity, emerging markets equity, hedge funds and private markets. Examples where we frequently use passive management include large cap domestic equities and domestic fixed income (i.e., treasuries and TIPS).

The decision to implement active or passive strategies is highly unique to each client. Our goal is to leverage our research and help clients understand the active/passive paradigm within their program in order to make use of the benefits of both approaches and to minimize the challenges of each.

11. Describe recent market conditions or concerns, if any, which have caused your firm to recommend significant changes to client portfolios. Describe any such recommendations.

Until recently our long-standing practice was to revise our capital market assumptions annually. Very infrequently we would update or revise specific assumptions due to extreme market movements. Should an event take place, either domestically or abroad, that we feel would have a major impact on our clients' portfolios, our policy is to make our clients aware of it as soon as possible.

In 2019 we began working toward adjusting our process to provide more frequent quarterly updates – not because we believed that clients should review long-term assumptions each quarter, but because many of our clients have fiscal years different than the calendar year, and they wished to time their strategic asset allocation reviews in conjunction with their fiscal year-end. As it happened, our new quarterly approach was found to be extremely helpful for more clients than we expected, because we were able to provide revised assumptions in March and June 2020 that helped our clients better understand how extreme short-term market movements could impact long-term asset class expectations.

Our publication of assumptions is accompanied by commentary and observations on market trends or opportunities, which our consulting teams consider when providing customized client portfolio recommendations. In March and April we emphasized the importance of rebalancing, and advised clients considering their overall asset allocations to consider increasing their strategic targets to equity and credit as their long-term expected return differentials over Treasuries had dramatically widened. As market volatility increased our asset allocation team began producing weekly updates that again emphasized rebalancing as well as the usefulness of safe haven fixed income (Treasuries and TIPS) and the importance of maintaining liquidity to ensure that near-term benefit commitments would not be imperiled. We maintained these recommendations with our June update, though the sharp equity recovery meant that for many clients the rebalancing needed to maintain long-term asset allocations and risk profiles suddenly meant trimming equities instead of adding to them. Throughout the rest of 2020 and still today we continue to recommend a slightly higher equity exposure for clients due to a "permanent intervention" mindset across major governments which we expect to continue supporting equity valuations while depressing interest rates. Despite the low interest rates, "safe haven" fixed income remains vitally important as a plan diversifier. And finally we are advising clients to think very carefully about their return-seeking credit exposures, and for clients that can accommodate the complexity and illiquidity we prefer private credit allocations versus dedicated allocations to high yield bonds, bank loans, and EM debt.

12. Describe your firm's methodology for assessing risk in a client's portfolio. Include a description of any recent changes to that methodology. Include a description of public pension fund risks and information regarding the firm's use of risk measurements and risk budgets.

Risk management for our clients' portfolios is a primary focus at NEPC and is reflected in our asset allocation, manager research, and reporting. We start every consideration with "What can go wrong?" Our approach to risk management is to use multiple measures of risk and to present them in a concise manner that facilitates informed decision-making. We analyze forward looking risk to help inform decisions and present historical risk information to help draw conclusions about decisions.

Our philosophy on risk management from a risk budgeting perspective can be illustrated by reviewing how our asset allocation studies have evolved away from a returns-based approach. Asset allocation historically used only traditional mean variance optimization. A target return is identified, and mixes are developed to reach the objective. While a mean variance approach is still the most commonly used asset allocation tool, it has some weaknesses:

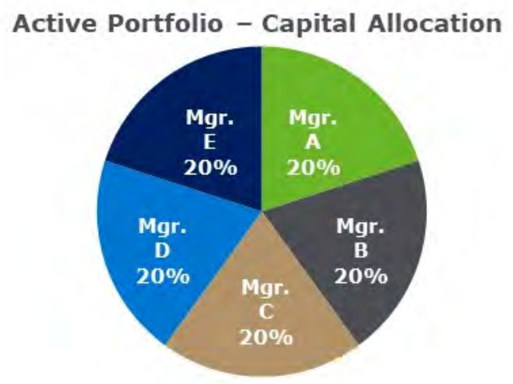
- Usually focuses on expected market returns
- Risk is usually a fallout of the expected return
- Correlations between asset classes are modeled, but correlations between managers are not
- Tends to lead to an over-reliance on equities to hit the desired return target
- Unique strategies or approaches do not fit easily into the model

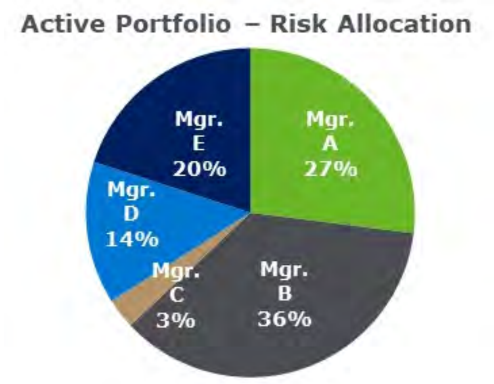
Risk budgeting redefines the portfolio's structure by looking at each asset class' contribution to overall risk. Asset classes are rewarded for having lower risk, but even more so for having low correlation to other classes. Our proprietary risk budgeting model helps inform our clients to diversify risk exposure, while maintaining earnings power.

Another tool we use to assess forward looking risk is our economic scenario analysis. While we appreciate the use of lower correlated strategies for diversifying portfolios, we recognize that correlations trend towards 1.0 during crisis. Our scenario analysis looks at specific regimes of growth and inflation, distinguishing conditions that lead to extreme outcomes for a portfolio.

We also developed a liquidity analysis model to better manage liquidity of a total portfolio. Liquidity analysis gauges the balance between a program's liquidity needs and its liquidity sources. We "stress-test" potential portfolios by simulating situations of heightened need for liquidity combined with restricted access to liquidity sources. Even before the financial crisis, our liquidity model helped clients "right-size" commitments and recognize risk factors.

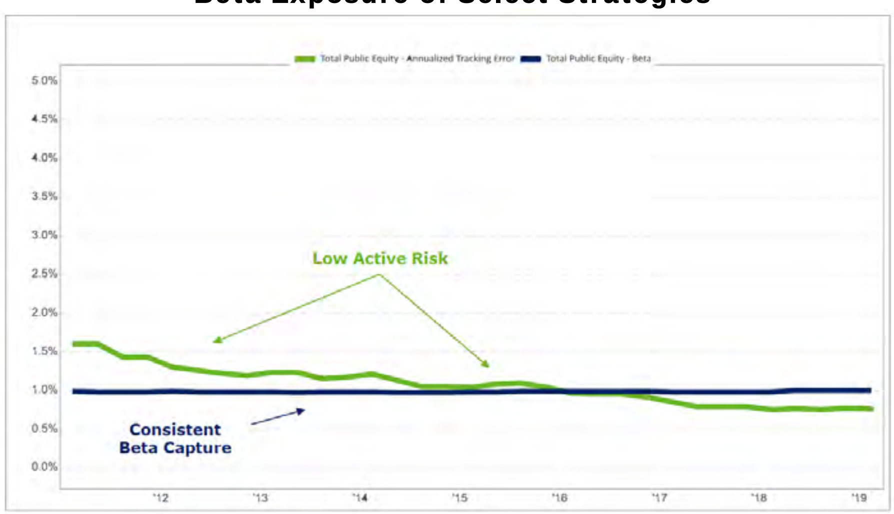
Once an appropriate manager roster has been determined, we use our proprietary "Active Risk Budgeting" tool to combine statistical analysis with our research team's expertise to develop an efficient active manager structure. By modeling each strategy's expected tracking error and correlation to other strategies in the portfolio, we can develop an active risk budget. By understanding the total active risk within each asset class and the contribution to risk by each strategy, we can allocate to strategies appropriately so that no one strategy dominates the active risk profile of each asset class.





By analyzing each strategy's market exposure (or "beta") and excess return (or "alpha") exposure separately over time, we can identify the manager's value add and net out market exposure over time. We can also identify managers which tend to increase and decrease exposure to the market at similar times, leading to high correlations between the two strategies.

Beta Exposure of Select Strategies



This robust quantitative analysis is a critical tool in building efficient, active portfolios through the lens of risk budgeting. When combined with our opinions on each manager, NEPC seeks to construct manager allocations within each asset class with higher expected information ratios – providing our clients with the most efficient exposure to alpha per unit of active risk, while working within the constraints of the chosen long-term strategic portfolio.

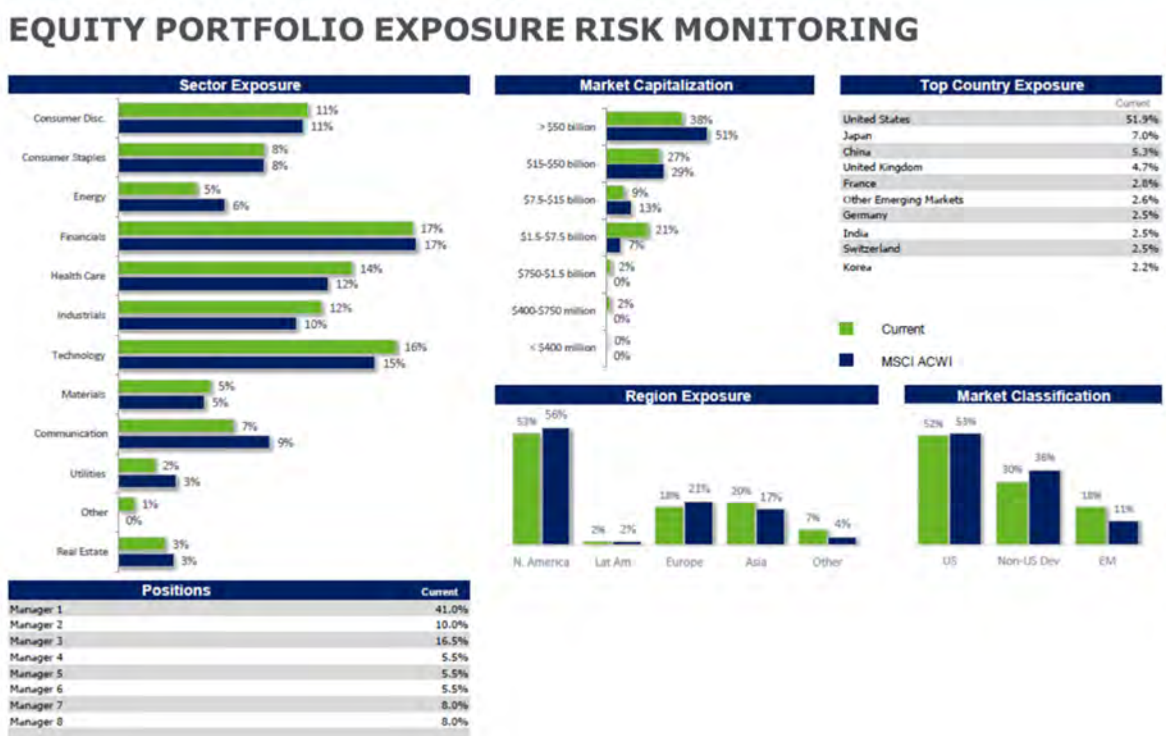
During the performance monitoring process, we use our performance reporting platform to calculate historical, statistical risks using traditional measures such as standard deviation, Sharpe, Sortino and information ratios as well as portfolio characteristics compared to appropriate benchmarks and universes.

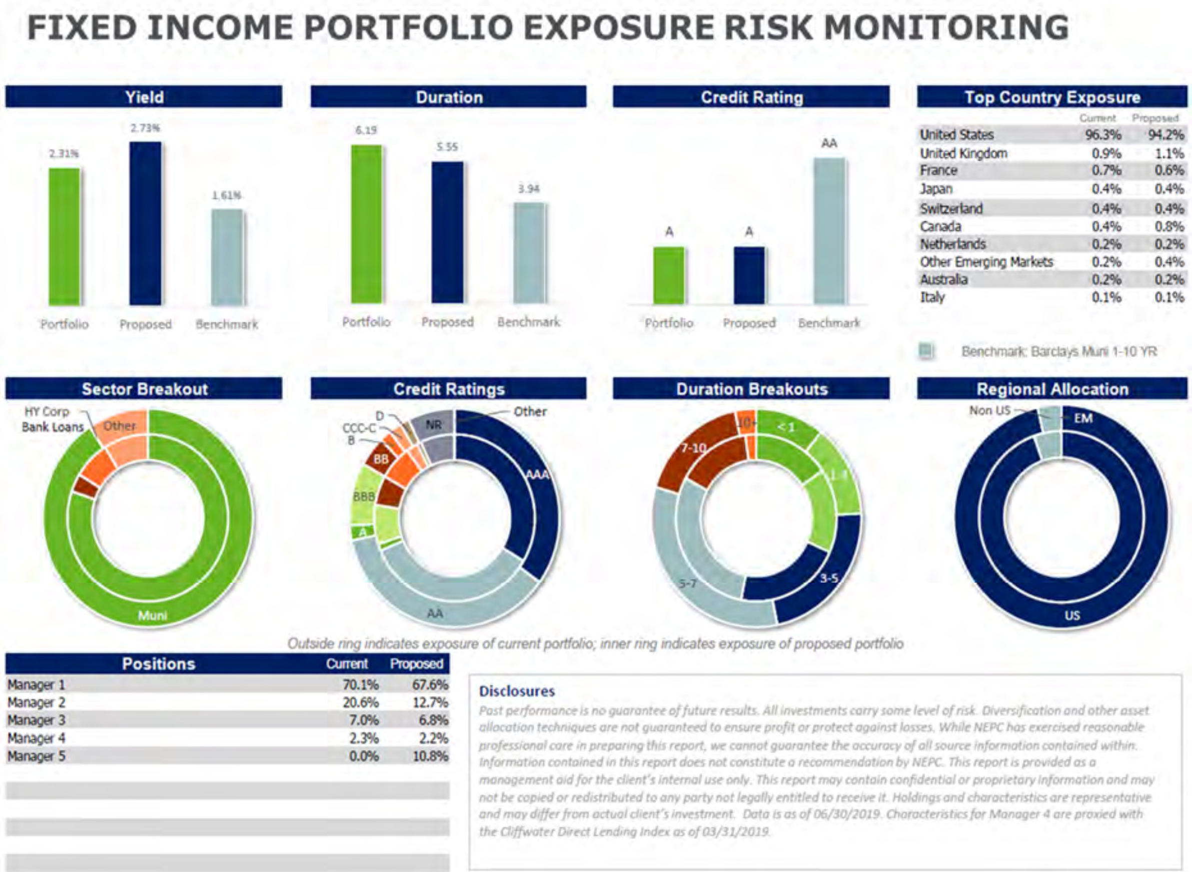
At the manager level, we view and evaluate all measures of risk, from traditional measures such as standard deviation, Sharpe ratios and information ratios to capitalization, book/price, earnings/price, leverage, ROE, dividend yield, beta, standard deviation and five-year growth for equities and duration, quality, coupon, and maturity for fixed income. Together these measures allow us to evaluate the underlying risks. We have the flexibility to customize risk metrics that may not be mentioned above into our reporting process.

Additionally, we have partnered with Factset to provide shorter horizon risk analytics. Factset analysis includes periodic holdings-based risk reports showing risk factors for the total portfolio, each asset class and each manager. A full manager holdings approach is desired, however in practical terms many alternative investments will have to be proxied. In these cases, NEPC works with Factset to analyze each manager portfolio and determine the optimal modeling approach, then confirms the output with our research team and the investment manager.

Look-Through Analysis

We also employ look-through analysis to aggregate exposures and characteristics within a portfolio in our quarterly performance reports, with examples shown below.





Diversification and risk budgeting have long been hallmarks of NEPC's investment philosophy. Pursuing an investment strategy within a "risk budgeting" framework while seeking to balance the sources of risk in portfolios across stocks, bonds, real assets and alternatives has helped many of our clients protect capital in volatile environments.

Traditional risk measurement focused on the standard deviation of assets. NEPC goes far beyond this mean-variance framework with tools such as risk budgeting, scenario analysis, alpha risk budgeting, and liquidity analysis/assessments. For pension plans, risk assessments must factor in the expected performance of assets relative to liabilities. NEPC has hired actuarial analysts with experience in actuarial valuations to run our asset-liability analyses.

We use our risk budgeting model to estimate the risks arising from both portfolio-level asset allocation and manager-specific risk. Once this total risk budget is established, the performance of managers should include an analysis of their volatility around the risk parameters allowed for their strategy. At the total portfolio level, we include a calculation of the "return" of liabilities over various periods. The total portfolio risk incorporates the duration risk from liabilities net of assets, the residual asset risk from the policy allocation, the drift of allocation from policy over time, and the risks from each manager's strategy. This allows our clients to better understand the risks they are taking and to determine whether they are being fully compensated for taking these risks.

13. Describe your firms' perspective on evaluating a consulting firm's performance, including any specific metrics or measurements that are beneficial in that evaluation.

On the investment front, every relationship has but two simple objectives: 1) the challenge of earning higher returns and 2) the challenge of stabilizing those returns. We believe our clients measure NEPC's contribution to the investment process based on our collective success meeting these primary objectives.

To be successful in meeting these objectives, the Board of Trustees must have confidence in NEPC and we must earn the trust of the Board and the investment staff. We accomplish these necessary goals through a strong emphasis on Trustee education, proactive advice and a superior service commitment, all of which lead to the development of strong personal relationships.

Each quarter, we provide our report card to each client in the form of our Investment Performance Analysis (IPA) reports. It summarizes the performance of the overall investment program and the breakdown of that performance into the components due to policy, deviations from policy and value added from active management. These results are ranked against the universes provided by Investment Metrics to ensure valid and meaningful relative rankings. Through these comparisons, each client becomes aware of the Fund's overall performance, their ranking relative to peers, the "correctness" of policy targets, the impact of deviations from policy targets and the contribution of the investment managers. To the extent that NEPC is involved in formulating the underlying decisions generating these results, we are clearly on the hook for both good and bad results, and our role as well as our effectiveness is apparent to all.

We believe the environment in which these decisions are implemented is critically important. The best environment is one where both consultant and client are focused on providing solutions that are in the best interest of the Fund's participants and beneficiaries. We believe that the environment should encourage the consultant to bring "best ideas" to the table. We are strong believers in client education and in offering creative solutions. We like to keep our clients abreast of current opportunities and our thinking with respect to those opportunities. Lastly, discipline and patience are critical attributes in a successful investment program. Discipline is adhering to goals once established. Patience is recognizing the long-term nature of an investment program and giving an investment the requisite amount of time to perform.

We are proud to disclose the results we achieve for clients through all of the areas noted above. Our innovative, research-driven recommendations, delivered by an experienced staff, have led to NEPC's collective client base outperforming the InvestmentMetrics Universe (or the ICC Universe through 2011) median[13] in 28 of the 34 years since our founding in 1986.

We also survey our clients every other year for feedback with regard to what we do well and what we could do better. Feedback from this survey and the annual Greenwich Associates survey is used to help set our consulting priorities so we can continue to meet our clients' needs.

[13] The median fund in the $2.0 trillion InvestmentMetrics Universe (or the ICC Universe through 2011) represents average performance among a nationwide sample of plan sponsor results.

14. Describe your views regarding performance versus asset based fees.

We carefully analyze managers' fee structures and have significant experience designing and monitoring incentive fee arrangements. We track all components of the fees our clients can be expected to pay, including management fees, entry/exit fees, performance fees, minimum fees, custody fees, and any other fees that may apply. We also determine whether or not most favored nations fees are offered and the degree to which managers are willing to negotiate. As with performance, our due diligence is designed to ensure that all candidate managers are evaluated on a consistent basis.

NEPC disagrees with the often-held notion that performance fees for managers can inevitably boosts investment performance. However, there are still occasions where incentive or performance based fees can best serve the interests of the program and, in those cases, we have helped our clients negotiate appropriate incentive fees. We do believe firmly that performance-based fees and traditional fee structures should compensate managers comparably in the long run.

Finally, it is worth noting that NEPC frequently negotiates special fee agreements on our clients' behalf, including a number of agreements that consider the combined invested assets of all NEPC clients in calculating asset-based fees. We have done this solely for the benefit of our clients – we do not receive any of the fees that our clients are paying for these strategies.

D. Manager Measurement and Evaluation

1. Describe your firm's process for analyzing and monitoring investment manager performance. Include information regarding determination of benchmarks and any databases used by your firm. Provide a sample performance report.

We monitor investment managers a number of different ways including the monitoring and evaluation that happens through the manager research and search process, through the evaluation of existing manager relationships our clients have and through the ongoing efforts of our Governance Committees (Due Diligence Committee for public markets strategies and the Alternative Asset Committee for alternative strategies). The monitoring of managers goes beyond analyzing investment performance and includes periodic evaluation of the organization from a business standpoint, people and investment process perspective. We use a 1-5 ratings scale that is explicitly driven by clear quantitative and qualitative metrics. Although historical performance is a component of that analysis, are focus is in identifying key characteristics that make active managers more or less likely to outperform going forward.

We review performance versus benchmarks on a monthly basis and a more comprehensive review of performance and portfolio characteristics on a quarterly basis. Each quarter, we provide our clients with our Investment Performance Analysis (IPA) reports, which summarize the performance of the overall investment program and the breakdown of that performance into the components due to policy, deviations from policy and value added from active management. In addition, the IPA provides a mechanism for the trustees and NEPC to confirm investment manager performance and portfolio characteristics are in line with pre-determined metrics. Finally, our IPA includes due diligence monitoring that provides an additional level of oversight and reporting for the Board and Staff for changes within investment management firms and our opinions on these events.

For those managers not meeting expectations, NEPC provides additional analysis in quarterly reports. The analysis will hone in on the reasons for the underperformance and put the underperformance in perspective relative to the manager's investment style and the current market environment. Sometimes it is difficult to compare a manager to a benchmark for various reasons (i.e. track record, investment style, etc.), so we try to measure them against their stated competitive advantage. Essentially, we ask ourselves, "Does this strategy have a competitive advantage that we believe will persist into the future?"

NEPC also looks to evaluate how managers perform in different market environments. We analyze managers' performance in up and down markets, trying to understand how managers fare when the wind is at their backs, as well as when the market is going against them. This helps enormously in matching the most appropriate manager to a client's specific risk tolerance, as well as pairing managers that will complement each other.

We also analyze a manager's performance history to gauge the likelihood of reversion to the mean. It is an unfortunate tendency for many investors to be most attracted to the manager with the strongest recent performance. Unfortunately, if a manager has recently performed better than his or her long-term average would suggest, there is a relatively high likelihood that the manager's return will "revert" at some point in the future.

We also carefully examine the asset capacity of managers, believing firmly that if a manager takes in too much in new assets, the manager will be less likely to outperform going forward. Finally, we need to have confidence that a manager's organization lends itself to continued out-performance. Firms with excessive professional turnover, ineffective management structures or poor incentive structures tend to be poor future performers, and our due diligence process is geared towards identifying potential problems and avoiding those managers who do not meet our standards in these areas.

Finally, research consultants and analysts, are responsible for meeting with every investment manager used by one or more of our clients at least on an annual basis, though typically we meet more often to re-test our investment thesis and confirm things are operating as expected.

Benchmarks

The use of benchmarks is an important element in measuring the effectiveness of not only individual managers but also the asset allocation decisions of a total fund. Choosing the appropriate asset class benchmarks to represent the asset allocation employed by a total fund is a necessary first step. NEPC works closely with clients in recommending both asset class and manager benchmarks based on both qualitative and quantitative measures to provide a measuring stick against which the manager can be evaluated. The assignment of this benchmark can also be thought of as the first level of risk management – as you are monitoring the manager's ability to stay true to the mandate for which it was hired. InvestmentMetrics, NEPC's reporting and performance calculation engine, has over 1,000 benchmarks from which to choose. We would generally advocate broad market benchmarks (S&P 500, Russell 1000, MSCI EAFE, BarCap Agg, etc.) as the benchmark for a specific portion of the portfolio.

NEPC has worked with several of its clients in developing customized benchmarks that suit their needs.

In general, we prefer to use the most common industry benchmarks with clients. We find that using less well-known benchmarks sometimes causes gaps in communication of results by investment managers. For example, if a client uses an obscure benchmark for an asset class or investment manager, the construction of the benchmark can sometimes have a beneficial or adverse impact on the performance of the portfolio. Providing the context for different index construction is usually necessary (and often not provided) when comparing to a universe of similar managers or peers, which can cause inaccurate conclusions to be reached.

Manager Database

NEPC has long maintained a unique and robust proprietary database of our research on investment managers. NEPC's database houses our qualitative views on a broad group of investment managers, as well as more in-depth analysis and commentary on NEPC's **Focused Placement List ("FPL")** and high-exposure investment managers. Our database includes due diligence observations and assessments, one-on-one manager meeting write-ups, investment theses, and key historical data regarding products, personnel, organizational changes and our own 48-hour notification letters. The table below provides the breadth of coverage of NEPC's database:

NEPC's Manager Database

	Rated Products/ Strategies*	Focused Placement List Products/Strategies
US Equity	901	118
US Fixed Income	713	117
International Equity – Developed	280	63
Global Equity	263	33
Global Fixed Income	220	28
Global Balanced (includes US)	90	37
Emerging Markets Equity	137	33
Emerging Markets Fixed Income	35	14
Target Date	122	13
Hedge Funds	752	73
Private Equity (includes Closed-end Private Equity, Private credit, and Credit Opportunities funds)	2,946	288 added over the last ten years (2009-2019)**
Real Estate	920	86 added over the last ten years (2009-2019)**
Real Assets	666	62 added over the last ten years (2009- 2019)**
TOTAL	**8,045**	**987**

As of 7/16/2020; hedge funds and private markets as of 12/31/2019
*Includes all unique products and strategies tracked in NEPC's database on which NEPC has developed an opinion (Due Diligence Rating of 1 through 5, with 1 being the highest conviction). Private equity, real estate and real assets categories include all products/strategies tracked in NEPC's internal database.
**Private equity, real estate and real asset funds generally have 12-18 month marketing windows.

Most of the systems we use to analyze investment managers and their performance records are proprietary analytics tools developed exclusively by NEPC. NEPC also uses the eVestment database and Morningstar to provide data on public market asset managers. Through eVestment, NEPC also has access to the HFR database. The eVestment database covers over 21,000 products across over 2,500 managers. Morningstar lists a total of 27,570 mutual funds.

For alternative assets, NEPC utilizes the Preqin, Pitchbook and C|A databases to supplement the private markets funds tracked in our client portfolios. Additionally, the HFR database comprises over 6,000 hedge funds, fund of funds, managed futures, and liquid alternative investment products[14].

Please see Exhibit 8 for a Sample Manager Search Report.

2. Identify the steps the firm would take to analyze TCERA 's current investment portfolio and investment policy. Copies of both are included as attachments to this RFP.

NEPC has extensive experience in developing and reviewing investment policies and strategies for clients, and we would work with TCERA to refine the existing investment policy statement(s) in the beginning stages of the relationship. By doing this, we will provide recommendations on the establishment of objectives of the investment program after conducting a thorough evaluation of your goals and objectives. This process typically coincides with an asset/liability study to fully understand the direction of the program and to ensure the stated goals and objectives are consistent with the financial condition of the program. We would use the results of the asset/liability study as well as a client risk survey and a number of other liquidity and stress test scenario studies to help determine the most suitable asset allocation and manager mix for each client's investment needs. On an ongoing basis, typically annually, the objectives would be reviewed and revised, as necessary.

We would review TCERA's current investment line-up in conjunction with our overall investment policy and asset allocation work. We already know most of your managers extremely well, and our large research team has the expertise and capacity to deeply evaluate the remainder. Our goals in the manager review are not simply to evaluate them in isolation – it is much more important to understand whether and how each manager contributes to TCERA achieving its overall investment goals, and whether the portfolio as a whole is well-designed to achieve those goals. We would spend time discussing our evaluations with TCERA staff and board, in order to help build a shared understanding around the plan's portfolio and overall investment goals. This shared understanding is vital to help avoid snap decisions during crisis periods that might be made with less than complete information.

3. Describe the level of customization available for reports provided and any additional charges that would be incurred for customization or requests for additional information.

We pride ourselves on our ability to customize our products and services to each client's needs, at no additional charge. NEPC's Consulting and Performance teams work closely with our clients to develop a customized performance reporting package that meets each client's needs.

4. Provide expected timeframes for completion of the preliminary monthly reports and the final quarterly performance reports (number of calendar days after required data is available).

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[14] Source: https://www.hedgefundresearch.com/hfr-database as of 5/11/2020.

Our comprehensive monthly performance “flash” reports include a market commentary section, a balance sheet of investments along with rates of return for the standard time periods (1-month, 1-quarter, FYTD, CYTD, 1-Year, 3-Year, 5-Year, 10-Year and since inception periods). These monthly reports can include all market values or just public market values depending on the needs of our clients. For private market portfolios, cash-flow adjusted market values can be provided as an indication of allocation to these asset classes.

Quarterly reports are produced on a cycle that generally begins around the 15th business day after quarter-end. The timing of report delivery for your investment program will depend on portfolio complexity and the sources of data. In addition, monthly flash reports are generally available beginning seven business days after month-end, again depending on portfolio complexity and on the receipt of custodian data.

In addition to the quarterly performance reports, a current market update, asset allocation overview, manager searches, and educational materials can and will be prepared in support of meetings. Our goal is not only to provide a performance recap, but also to focus on current market information and forward-looking ideas that may benefit the portfolio.

5. Describe the plan data submission/collection process including whether the firm collects holdings data and performance data from investment managers, client custodian, or clients.

NEPC calculates portfolio performance using InvestmentMetrics which provides advanced performance analytics for 52 investment consultants. Data is collected monthly from custodians and managers, and loaded into InvestmentMetrics via an electronic feed from the Insignis platform for custodian data and from the InvestmentMetrics COLLECT platform for most of our manager data. An internal NEPC team collects the remaining manager data and loads it into InvestmentMetrics. Once the data has been loaded, NEPC’s Performance Analytics Team reconciles portfolio returns and market values.

Investment returns are calculated for total plan, public market asset classes and hedge fund managers using a time-weighted return methodology. For private equity/debt, real estate, natural resource and infrastructure investments that are drawdown style funds, we have the capabilities of calculating an internal rate of return as well as a time-weighted return. We recommend using an internal rate of return methodology as we feel it more accurately reflects the economic return of the investment. Public market and hedge fund manager data is received monthly. For private equity/debt, real estate, natural resources, etc., cash flows are received when they occur and market values are received quarterly. Investment returns are generally provided on a net of fee basis, but NEPC is capable of providing gross of fee returns as needed.

Information from a client’s custodian bank is typically sent to us directly in electronic format. We can work with paper statements, if necessary, but have found that electronic communication improves efficiency and reduces potential for human error. We also gather information from each individual investment manager or relevant fund administrator to verify and double check returns and market values. Data integrity is critical for making investment decisions, and we work hard to ensure accuracy in our client performance reports.

Our internal investment manager database continuously evolves and expands. It is updated via input through continuous due diligence on investment managers and their products. Our researchers and consultants update their notes on managers throughout the year. The eVestment database is populated by investment managers and updated on a quarterly basis. By combining these sources of input, NEPC can compare manager-supplied data with actual results from client portfolios.

NEPC verifies the data by looking for anomalies in returns and patterns of return. If we find differences, we will contact the manager directly to understand the reason for the differences or to determine whether an error has been made.

The eVestment data collection platform provides the quantitative manager and product data, accessible in a standardized electronic format that can then be utilized as part of NEPC's proprietary manager product screening and ranking process.

6. Describe your firm's step by step process for return reconciliation and your follow up procedures for any discrepancies discovered.

NEPC's performance analytics team reconciles performance on a monthly basis for traditional performance reports. Performance analysts will enter custodian data into our reporting platform each month and then check both values and returns relative to those reported by our clients' investment managers. In the case of performance discrepancies, performance analysts are required to do further research to determine what may be driving this performance discrepancy (e.g. cash flows or income accruals not captured by the custodian due to trade/settle differences) and adjust our data accordingly.

7. Describe the firm's performance attribution capabilities, including returns-based and holdings-based capabilities. Include a breakdown of domestic, international, and fixed income performance attribution capabilities and state to what extent performance attribution analysis is proved in the quarterly investment report.

NEPC can provide an extremely wide range of total plan, asset class, and manager-level performance attribution using Investment Metrics, including holdings-based attribution to the extent that the manager(s) or custodian provide holdings data. The methodologies employed are the Brinson Fachler and Brinson Hood Beebower models. The NEPC model uses an arithmetic methodology that incorporates the Carino method for multi-period reporting. These models allow for analysis of allocation, selection, and interaction effects in decomposing total relative performance. Attribution is calculated based on the beginning of the period (month or quarter) market values and assumes a "buy and hold" methodology.

Alternative asset class strategies that include systematic trend following and other exotic approaches can usually be supported by NEPC's attribution system, though holdings data is necessary as well as benchmark data to calculate attribution accurately. Other more in depth reporting for alternatives is provided through additional reports that provide vintage-year, fund and strategy-level contribution

8. Describe your firm's procedures for communicating with the client and with investment managers regarding performance issues including the frequency of type of reviews (formal, ad hoc, etc.) and the use of a "watch list" if any.

NEPC conducted over 2,950 manager meetings annually, with over 1,500 firms per year, covering all asset classes in 2019. In 2019, we met with 528 public market asset manager firms and 1,007 alternative asset manager firms, or approximately 30 firms a week, on average. While many of these meetings occur in our offices, we routinely travel to managers' offices to conduct on-site due diligence. Approximately 12% of our meetings were conducted on-site in 2019.

From a firm-wide perspective, NEPC's Due Diligence Committee is responsible for advising all of NEPC's staff about problems/issues that managers in our database are facing with a focus on traditional asset classes. Within this environment, we utilize a "watch list" consisting of four levels of action: Watch, Hold, Client Review and Terminate, in order of increasing severity.

At an individual client level, we are cautious about recommending any formula-based approach to placing a manager on a watch list. Such approaches often ignore the importance of time to the investment process, and the reality that many successful strategies will have periods when they are out of favor. We are careful not to rely on a simplistic approach to probation and termination which may, in that context, lead to manager turnover that is damaging to long-term investment results. NEPC prefers to evaluate managers over an entire market cycle, which may be a period of five years or longer (or shorter) depending on the vagaries of the markets. We also seek to identify forward-looking reasons for concern, to help avoid problematic managers before theyir underperformance not after. Given our approach, we do not have a standard policy with rules-based criteria for underperforming managers. Many of our clients have specific criteria in their investment policy statements which we incorporate into our reporting to ensure client performance objectives are being met.

Once an investment manager is placed on our firm's official watch list, the process for reviewing and monitoring that manager is as follows:

Watch List Review:

- The Research Analyst will follow up at least once per quarter.
- A summary of the issue is generally included in client reports each quarter until the status is changed.
- If, after one year, the manager is still on Watch then the analyst will review the manager every six months.
- Investment managers will be removed from Watch when NEPC is satisfied that the initial concern has been resolved.
- An investment manager may gravitate to Hold or Client Review on the basis of information uncovered by the Research Analyst.

Hold List Review:

- The research analyst will follow up at least once per quarter and attempts to conduct a meeting at least every six months. More detailed actions (e.g., onsite visit, review of portfolio) may be required in certain cases.
- A summary of the issue is generally included in client reports each quarter until the status is changed.
- If, after eighteen months, the manager is still on Hold then the analyst will review the manager every six months.
- Once the initial concern has been addressed the investment manager status will be upgraded to Watch for a further six months.
- An investment manager may gravitate to Client Review on the basis of information uncovered by the Research Analyst.

Client Review:

- The Research Analyst will review on a quarterly basis the status of clients that have not replaced the manager based upon the analyst's review.
- If, after eighteen months, the manager is still on Client Review then the analyst will review the manager every six months.
- Once the initial concern has been addressed the investment manager status will be upgraded to Hold for a further six months.
- An investment manager may gravitate to Terminate on the basis of information uncovered by the Research Analyst.

Terminate:

- The Research Analyst will review on a quarterly basis the status of clients that have not replaced the manager recommended for termination.

There are typically three reasons that lead to the termination of a manager: 1) policy or structural changes by the client; 2) the manager's lack of compliance with policy or structural changes; and 3) our belief that the manager's ability to outperform in the future has been diminished by the loss of key investment professionals, a change in investment process, or a change in the market environment. The last is the most difficult to evaluate. Simplistic, one-dimensional measures can do more harm than good, as they tend to promote frequent (and expensive) manager turnover. The capital markets are very complex in nature, and different segments of the market will perform differently at different times. This type of intra-cycle rotation must be accounted for in fund structure and in any manager monitoring process.

After careful consideration, the Due Diligence Committee will remove investment managers from the watch list. The Committee needs to unanimously agree to remove the manager, based on the particular situation involved, and the actions the manager has taken to reconcile the situation.

In addition to the watch list established by NEPC's Due Diligence Committee, an individual client's investment guidelines may dictate placing a fund or investment manager on watch when performance is not meeting expectations. Our performance evaluation reports highlight underperforming managers for clients even if there are no other issues associated with the firm, and the consulting team has discretion to make recommendations to clients without advisements from the Due Diligence Committee. In fact, we expect them to make these recommendations, as we take on a co-fiduciary relationship with our clients' programs.

9. Describe your firm's criteria for recommending investment manager terminations.

With a few notable exceptions over the years, manager terminations are almost always driven by client-specific considerations. However, there are times when NEPC's Research Group will issue a blanket Terminate recommendation across our client base. The consultant-supported process of client-specific manager review, however, often begins with a Client Review recommendation issued by NEPC's Research Group. On average, NEPC's Research Group issues 1-4 Terminate recommendations each year.

We are cautious about recommending a "formula based" approach to manager terminations. Such approaches often ignore the importance of time to the investment process, and the reality that many successful strategies will periodically have periods of time where they appear out of favor. We are careful not to rely on a simplistic approach to probation and termination which may, in that context, lead to manager turnover that is damaging to long-term investment results. NEPC prefers to evaluate managers over an entire market cycle, which may be a period of five years or longer (or shorter) depending on the vagaries of the markets. An important factor in evaluating manager performance is how has the manager performed relative to what we know about the manager and its investment style. If managers underperform for reasons inconsistent with their stated approach, this is a concern that may result in a terminate recommendation. For example, a deep value manager underperforming when deep value stocks are in favor is a much greater concern than a manager that typically provides strong downside protection underperforming in an extended bull market.

There are typically three reasons that lead to the termination of a manager: 1) policy or structural changes by the client; 2) the manager's lack of compliance with policy or structural changes; and 3) our belief that the manager's ability to outperform in the future has been diminished by the loss of key investment professionals, a change in investment process, or a change in the market environment. The last is the most difficult to evaluate. Simplistic, one-dimensional measures can do more harm than good, as they tend to promote frequent (and expensive) manager turnover. The capital markets are very complex in nature, and different segments of the market will perform differently at different times. This type of intra-cycle rotation must be accounted for in fund structure and in any manager monitoring process.

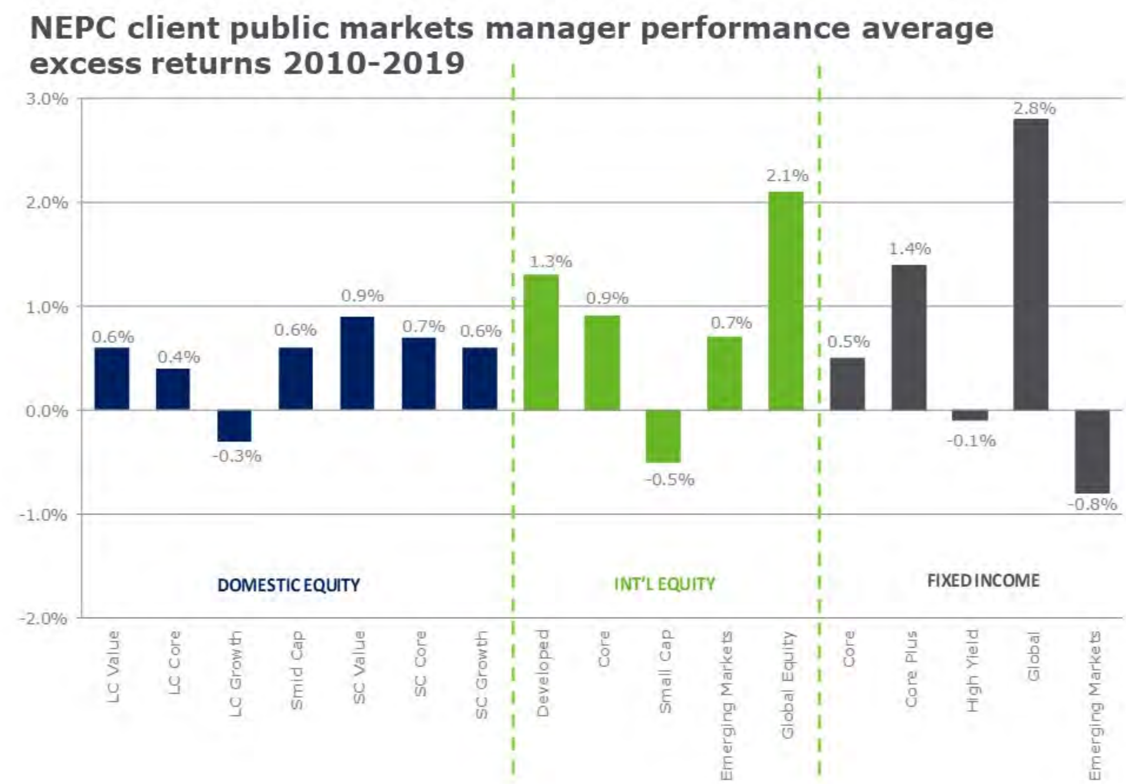
10. Provide information regarding your firm's review of its success in selecting top tier managers and subsequent recommendations to clients.

NEPC has performed manager searches averaging $29.2 billion in search assets in each of the last three calendar years, and total search assets of $143.8 billion over the past five years for a total of 3,210 searches. Importantly, these searches have typically been proactive – to expand the diversification characteristics of the 1,011 separate plans[15] NEPC consults to (e.g. global multi-sector fixed income) or take advantage of a market opportunity (e.g. energy). We track the performance of all managers placed in our clients' investment program against appropriate benchmarks and peer groups and the performance of managers we would likely recommend.

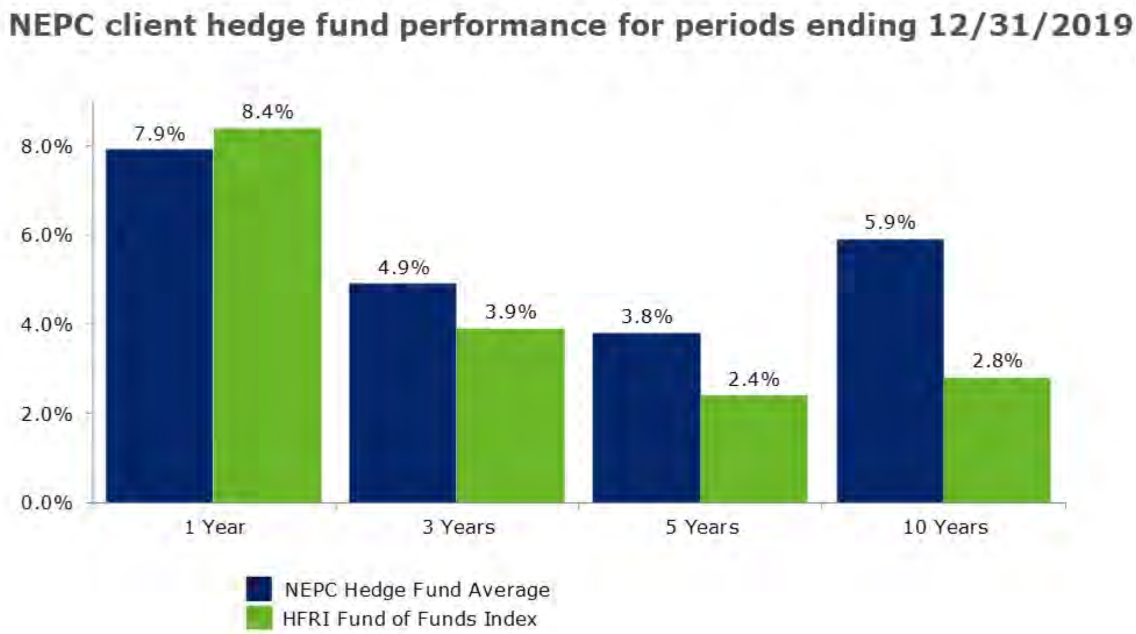
We measure the success of an investment manager versus specified goals and objectives and adherence to investment guidelines. We look at performance over a market cycle (approximately five to seven years). Successful firms also have stable organizations, staff and investment processes. We review performance versus benchmarks on a monthly basis and a more comprehensive review of performance and portfolio characteristics on a quarterly basis. However, sometimes it is difficult to compare a manager to a benchmark for various reasons (i.e. track record, investment style, etc.), so we try to measure them against their stated competitive advantage. Essentially, we ask ourselves, "Does this strategy have a competitive advantage that we believe will persist into the future?" We generally meet with investment managers that invest assets on behalf of our clients at least once a year, though typically we meet more often to re-test our investment thesis and confirm things are operating as expected.

[15] As of 10/1/2020

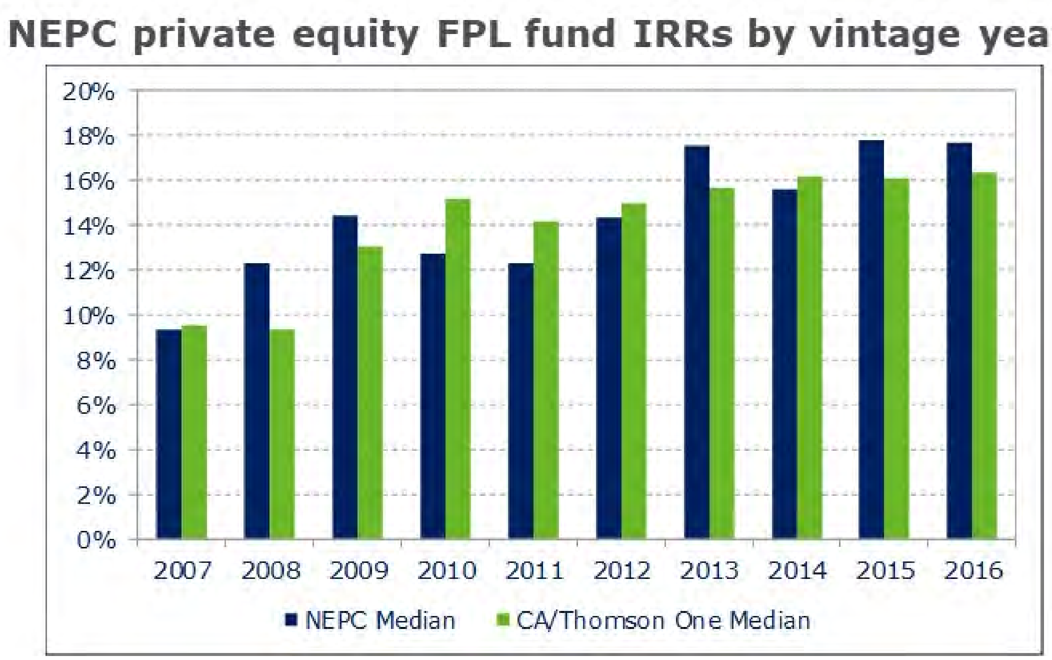
Each year, the head of each area of research presents the results of all of our clients' manager results and reviews what worked and what did not work. During this time, they also present their best ideas for the upcoming year. We believe this level of transparency and accountability has been instrumental in providing consistently strong results. Performance of these asset classes is shown in the tables below.



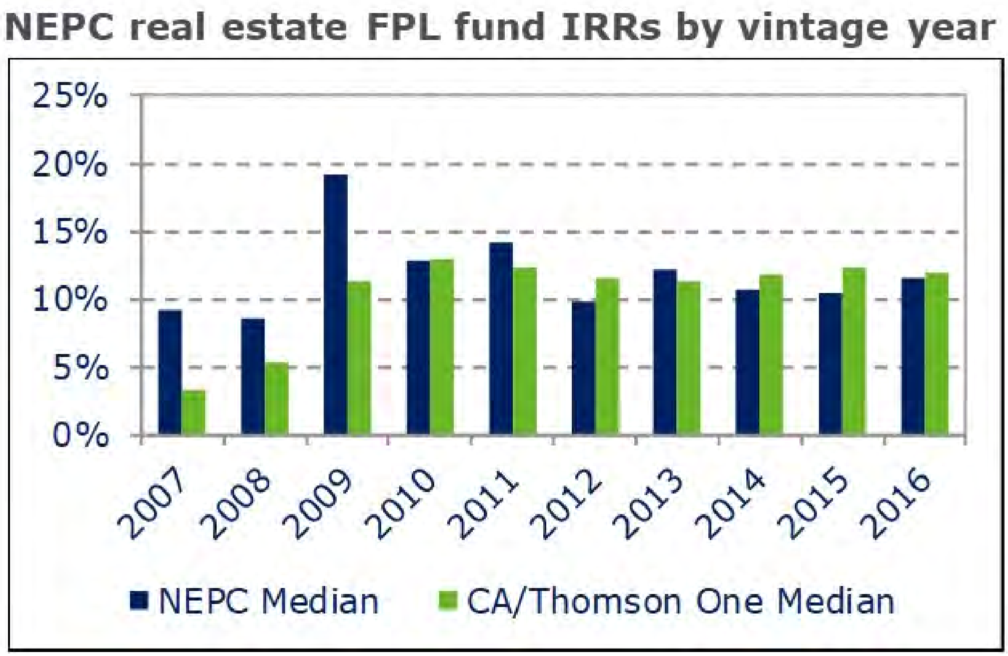
The data represents the average excess return above the benchmark, gross of fee, of all current or former managers across all current or former NEPC clients, excluding outliers. Outliers are defined as accounts two standard deviations from the median annual performance for each asset class. Not all managers were placed by NEPC. All client types reported through InvestmentMetrics are included. Does not include passively managed accounts (index funds), accounts NEPC does not advise on, or accounts being funded or liquidated. Past performance is no guarantee of future results.



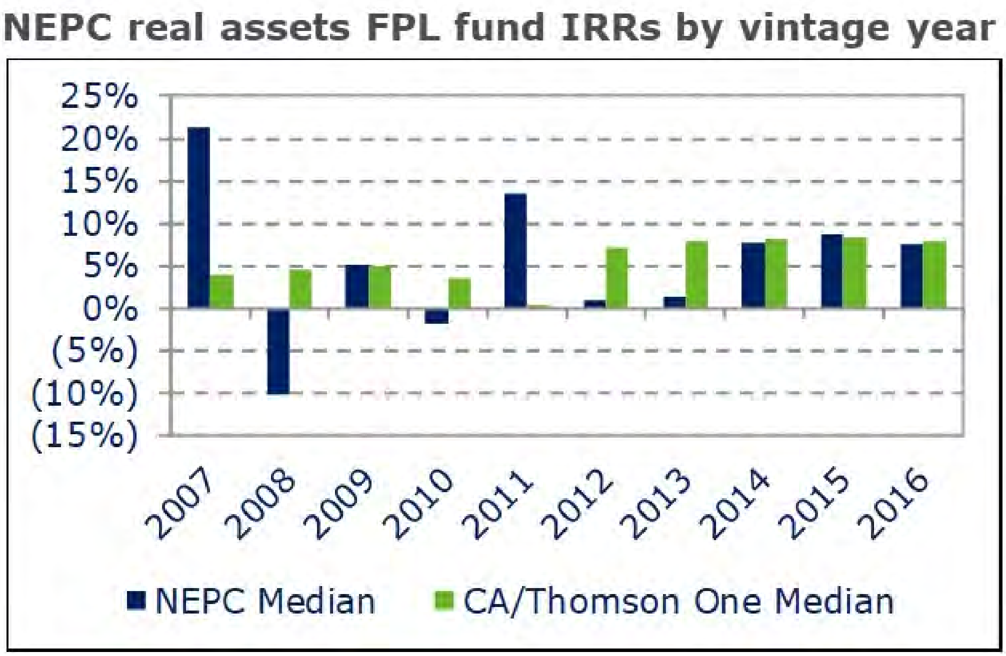
Includes all NEPC client hedge funds available as of March 22, 2020, except clients NEPC does not advise on hedge funds. Not all managers were placed by NEPC. All client types are included. NEPC averages are influenced by survivor bias. Returns are net of fee. Past performance is no guarantee of future results.



Note: Track record benchmarks 153 private equity funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared against the global private equity data sets from Thomson One/C|A as of December 31, 2019. See Benchmarking Methodology and Additional Disclosures for additional information. Past performance is no guarantee of future results.



Note: Track record benchmarks 58 private Real Estate funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared with the global value-add and opportunistic real estate data sets from Thomson One/C|A, as of December 31, 2019. See Benchmarking Methodology and Information Disclosures for additional information. Past Performance is no guarantee of future results. Core real estate funds not benchmarked because they are open-ended and tracked separately, two funds are not benchmarked due to unavailable data.



Note: Track record benchmarks 40 private Real Assets funds added to FPL from 2007-2016. NEPC FPL preferred fund returns (net of fees/expenses) were compared with the global natural resources & infrastructure data sets from Thomson One/C|A, as of December 31, 2019. See Benchmarking Methodology and Information Disclosures for additional information. Past Performance is no guarantee of future results. Two funds are not benchmarked due to unavailable data.

E. Research

1. **Describe the firm's commitment to research and system enhancements. Describe the structure and organization of the firm's research department, including the number and experience of its analysts.**

Research is a core competency at NEPC and a hallmark of our service to our clients. NEPC's Research Group is comprised of 58 dedicated research professionals (approximately 18% of NEPC's total work force) organized into seven teams: Asset Allocation, Portfolio Construction, Global Research, Marketable Securities Research, Private Markets Research, Operational Due Diligence, and Taxable Research. Our CIO, Tim McCusker, FSA, CFA, CAIA, Partner, is responsible for leading the overall research effort. The research teams are supported by NEPC's research operations group.

NEPC's **Asset Allocation team** led by Phillip Nelson, CFA, Partner, Director of Asset Allocation, directs the firm's efforts in performing asset allocation and asset-liability studies, and leads development of the firm's asset class expectations, key market themes, and strategic policy actions.

NEPC has a **Portfolio Construction team** led by Timothy Bruce, Partner, Director of Portfolio Construction, to research and continually improve our clients' portfolio construction and performance. The purpose of the Portfolio Construction team is to combine best ideas across research within the specific risk and return objectives of each individual client. Portfolio Construction can include private markets pacing and liquidity analysis, sizing and risk allocations of strategies/managers to ensure optimal beta structure and exposure within asset classes or look-through exposure analysis to consider overlapping exposures or gaps in exposures throughout the portfolio.

The **Marketable Securities Research, Private Markets and Global Research teams** perform research in their specific areas and work closely with clients and their consulting teams. Sarah Samuels, Partner, leads the Investment Manager Research team covering Marketable Securities and Private Markets Research. Neil Sheth, Partner, oversees NEPC's Global Research efforts. In addition to manager research, these teams are responsible for monitoring the investment environment for developments in new asset classes, instruments and strategies. More importantly, this research allows us to opine on the merit of adding new ideas to a portfolio and then provide these points to clients.

NEPC's **Operational Due Diligence (ODD) team**, led by William Bogle, Partner, Chief Compliance Officer, is separate and distinct from our investment analysis effort and focuses primarily on Hedge Fund managers and strategies. The ODD process focuses primarily on a firm's non-investment risk and procedures around trading, cash and valuation. The ODD team prepares a separate report summarizing the firm's capabilities which is presented to our internal Alternative Assets Committee for approval.

NEPC's **Taxable Research team**, led by Kristi Hanson, Partner, is responsible for identifying implementation options across our Research platform for taxable clients. The team works with each of the specific research teams to identify and vet appropriate best ideas for this client base.

NEPC's Research Group is dedicated to meeting the investment challenges of our diverse group of clients. We provide customized solutions across a range of asset classes and investment strategies to help our clients meet their long-term financial objectives within their individual risk constraints.

Be it searching for the next investment strategy for your portfolio, considering a mosaic of perspectives while constructing portfolios, or monitoring existing managers, our mission is to provide thought provoking insights and sound financial advice. We collaborate across practice groups and asset classes to find tailored solutions that help safeguard, manage and grow your investments.

When you work with us, you get:

- A boutique consulting experience backed by a 58-person Research team
- A forward-looking, multi-faceted asset allocation process that involves a comprehensive understanding of risk
- Actionable investment advice based on original, on-the-ground research and a comprehensive and exhaustive due diligence process
- A Discovery Platform dedicated to uncovering the next great investment idea off the beaten path of traditional areas of focus
- An open mind, relentless curiosity, diversity in thought and experience, and a vibrant mix of ideas
- Investment opportunities across the entire liquidity spectrum, not just within a single asset class
- Independent and unbiased insights on public markets and alternative assets, market and economic events, and industry trends

2. List notable publications that have included your firm's research.

We are proactive in bringing new ideas and investment opportunities to clients and are generally viewed as a thought leader in our field. As a firm, we do this formally through our **annual asset allocation letter**, **quarterly market thoughts**, and **monthly market updates**, as well as through **client webinars**, and our **annual investment conference** and **public funds workshop**. We also provide "**Market Chatter**" pieces and post **blogs** that focus on topical issues such as the COVID-19 outbreak (https://info.nepc.com/covid-19). We also frequently publish **white papers** on key investment topics including new investment opportunities and emerging issues in the market. White papers that have been published by other organizations include the following:

NEPC's white paper—"Don't Let the Tail Wag the Dog: For Insurers, It's Investment Discipline First, Capital Efficiency Second" (November 2018) by Andrew Coupe, Senior Consultant, was featured in the Insurance AUM Journal, Q1 2019 edition.

NEPC's white paper—"The Curse of Greed (January 2018) by Timothy F. McCusker, FSA, CFA, CAIA, Chief Investment Officer, has been featured in the "Consultant Spotlight" column of *Money Management Report* in March 2018.

NEPC's white paper—"Power Up Your Pension Plans" (October 2017) by Michael J. Valchine, CAIA, CIPM, Principal, Senior Consultant, has been featured in the October 2017 edition of *Plan Advisor*.

In July 2017, NEPC's Ross Bremen co-authored the *Defined Contribution Institutional Investment Association*'s research paper titled "Financial Wellness Primer White Paper."

NEPC's white paper—"Battling the Disease of Doubt" (July 2016) by Timothy F. McCusker, FSA, CFA, CAIA, Chief Investment Officer, has been featured in the "Consultant Spotlight" column of *Money Management Intelligence.* The white paper was also featured in the January/February 2017 issue of Investments and Wealth Magazine.

In October 2016, Becker's Hospital Review featured an article written by NEPC's Dave Moore, ARM, CEBS, CPCU, Partner, "Cash is King; Why Healthcare Execs Should Rethink Operating Fund Portfolios."

Lastly, NEPC is frequently quoted in industry media, including *Institutional Investor, Pensions & Investments, CIO, PLANSPONSOR Magazine, FundFire, The Wall Street Journal, Money Management Intelligence*, as well as many other outlets.

3. **Provide a recent sample of a white paper on a topic relevant to public pension plans.**

   Please see a sample white paper in Exhibit 9.

4. **Describe in detail the type and frequency of research that would be provided to TCERA. Describe any research or analytical resources available that your firm would be willing to provide TCERA?**

NEPC provides research to its clients on a wide variety of topics. We provide clients with ad-hoc research studies based on individual client needs. Additionally, we conduct asset class research that results in white papers and updating of our asset class assumptions. We also conduct client webinars on topics including our asset allocation assumptions and recommendations to clients and capital market events. We formally review our capital market assumptions on a quarterly basis and forward our thoughts to clients in the form of an annual memo as well as quarterly updates. As conditions change throughout the year (the economy, capital markets and/or legislation), we communicate the changes to clients via phone calls, quarterly meetings, memos and webinars.

Our manager research team drafts memos for clients when there are significant changes at any of their underlying investment management firms. Our goal is to have a memo drafted for clients within 48-hours of learning of a significant change at an investment management firm. Our quarterly newsletter, Market Thoughts, is distributed to all of our clients and includes a narrative and quantitative description of market activities during the period.

We also publish "Market Chatter" pieces on a regular basis. These pieces provide timely insights on investment, economic and political topics that are relevant to our clients.

NEPC's manager research team is responsible for research and due diligence within assigned asset classes and strategies, assessing new products and technology. Special research projects are frequently undertaken in response to specific client requests or other issues that we believe are of interest or importance to our clients.

You may go to our website (http://www.nepc.com/insights) to view our Market Thoughts newsletters and for a categorized listing of research papers. All of NEPC's clients have the ability to access portfolio specific information such as market values, performance reports, manager due diligence, our traditional manager focused placement list, and the most recent research pieces authored by NEPC, online through our client extranet site, "ClientHub". The client access portal also provides a calendar of events hosted by NEPC such as markets webinars.

We are committed to providing our clients with the best possible investment research and resources, regardless of the source. Hence, based on the topic or need, we are equally comfortable developing original material, using external sources, or integrating the two, depending on which approach best serves the needs of our clients. In all cases, the final recommendations made to a client are our own and reflect NEPC's independent view of what will best serve the interests of the client's investment program.

The following is a partial list of external databases we currently subscribe to:

Database Name	Vendor
AVCJ	MergerMarket Consulting
Bloomberg	Bloomberg Finance LP
Capital Economics Research	Capital Economics Research
eVestment Daily Data Feed	eVestment Alliance, LLC
eVestment Quantum	eVestment Alliance, LLC
Factset Daily Data Feed	Factset Research Systems, Inc.
FactSet Workstation	Factset Research Systems, Inc.
Fund Flows	EPFR Global
HFR Hedge Fund Database	Hedge Fund Research, Inc.
Morningstar Data Feed	Morningstar, Inc.
Morningstar Direct	Morningstar, Inc.
MSCI ESG Research	MSCI Inc
NCREIF Data	MSCI Inc.
P&I Data Site	Pension & Investments
Preqin	Preqin, Ltd
S&P Capital IQ	S&P Global
Thomson One	Refinitiv

As of 12/31/2019

F. Manager Searches and Evaluation

1. Describe in detail your manager search process including any databases or outside sources used in evaluating managers for inclusion in a search. Include the criteria used to make manager recommendations.

NEPC seeks to identify top tier investment managers through the **ongoing** work of our experienced and dedicated 58-person research staff[16]. In other words, our search for a manager does not begin with the client assignment. It is a thorough, vetted and continuous process and is detailed below.

We evaluate managers both quantitatively and qualitatively, seeking to understand the factors driving historical performance to help anticipate their future likelihood of success. We seek to identify investment processes designed to produce investment edges, and develop an investment thesis for each preferred manager that is then monitored and re-evaluated on at least an annual basis. We are also extremely focused on understanding whether manager incentives are aligned with client performance.

[16] As of 10/1/2020

1. NEPC's search process begins with our research team screening both our proprietary internal databases and external databases for candidate managers that meet the Client's/NEPC's internally developed minimum criteria. The parameters take into account the uniqueness of each asset class along with the type of managers our clients seek. If a manager meets the initial screens, our research consultants and analysts consult both the SEC database and our internal due diligence database to identify whether there are any outstanding issues with the manager. From there, we can identify how many managers will qualify for a given criteria set.
2. Next, our asset class specialists conduct a performance review by utilizing our proprietary, internally-developed tools such as Performance Analytics Statistical Software ("PASS") and other quantitative measures, as well as external data providers - eVestment and StyleAdvisor. The PASS system allows NEPC to compare investment returns across the full spectrum of investment styles including fund of funds, direct funds and traditional investment managers. Importantly, the system allows for the examination of each candidate manager's excess return stream, or "alpha", over time. PASS allows us to contrast each manager's true, embedded beta to a variety of market factors and helps rank managers according to an array of customizable criteria.
3. Once we have isolated a set of managers for further analysis, the asset class specialists meet with the managers to assess the investment team, understand the firm's business focus, review investment philosophy, determine consistency of investment style, verify return attribution and liquidity, and dissect the investment process. If the manager meets all the established criteria to this point in the process, our asset class specialists document a proprietary investment thesis for the manager.
4. The asset class specialist then brings the manager to NEPC's centralized Due Diligence Committee for vetting. The Due Diligence Committee is made up of senior members of the firm, including Partners and Senior Consultants. Any outstanding issues/questions from the vetting session are pursued by the research analyst and readdressed to the Due Diligence Committee. All successfully vetted investment managers are considered research-qualified and added to a Focused Placement List (FPL) at the research consultant's discretion. We rank managers on a scale of 1 to 5 and 1 rated managers are on our FPLs.

Manager Evaluation Criteria

Our criteria for including investment managers in a search include:

- An ownership structure and business strategy that align clients' interests with the investment managers' interest. Appropriate alignment of interests includes compensation that aligns with employee contribution and significant employee investment in the fund, careful consideration for the tradeoffs of capacity management and alpha potential, management of succession matters, and the managers' investment of personal capital.
- An identifiable investment thesis that will allow the manager to generate excess returns. If we can't articulate a manager's edge, we do not recommend the strategy.
- Appropriate understanding of, and appropriate procedures for, all types of risk that may be present in the strategy (i.e. market risk, factor risk, operational risk, key person risk etc.)
- An experienced team that has worked together effectively. Investment management success is highly dependent on people working together; therefore, it is incumbent

upon NEPC to confirm that key people and teams are likely to stay in place over the course of the investment period.

- A well-documented investment and operations process. Firms that have strong processes should be better positioned from a risk management perspective.
- A GIPS-compliant track record that is consistent with the manager's approach and our expectations of their performance over multiple market cycles. Understanding how a manager will perform in different market cycles is important so that expectations are clearly established, and clients understand the potential outcomes.
- Deep evaluation of the track record, including, among other things, proprietary frameworks to understand whether a manager's performance is attributable to luck vs. skill, the likelihood of success going forward, and an evaluation of "true skill" when factoring in various market betas.
- Finally, any manager that is recommended to a client should fit the appropriate risk profile that the Board has discussed with NEPC. This will typically include factors such as liquidity, fees, tracking error, concentration and mission alignment amongst other considerations.

2. Describe the process used for updating the database and revising your lists of top tier managers and/or approved manager lists, including the criteria for the addition of new investment managers into your database.

We typically prepare a manager search book of vetted managers from NEPC's **Focused Placement List (FPL)**. Vetted managers are recommended based on their fit with your goals and objectives, which are determined through the interactions with you, and can be supported through our active risk budgeting tool. This process helps size the managers within the context of the overall portfolio. We will discuss the managers with the Board and will also make recommendations on the manager who will best fit the portfolio. Some of our clients choose to meet with the managers prior to making the final selection and we will coordinate those meetings.

NEPC has 1,061 approved strategies across 100 FPLs as of 12/31/19. In the past three years, we have removed 180 strategies from the various FPLs. Some of these strategies are still considered preferred by NEPC; however, have since been closed to new investors, so they are not on the list for current use by clients. In the past three years, we have added 382 strategies to our FPLs. Some of these additions were made because an entire new list was created, whereas others were additions to existing lists.

3. Provide samples of investment manager research/due diligence reports used in evaluating managers.

Please see Exhibit 8 for a sample manager search report and Exhibit 10 for a sample due diligence report.

4. Describe your policy regarding frequency of on-site due diligence visits to managers as well as periodic phone and/or email due diligence.

Our Due Diligence Committee consists of research professionals, senior members of the consulting practice, and partners in both research and consulting. The Committee meets every other week to review the events of the preceding two weeks as they relate to the investment management community, with a focus on traditional asset classes. The Committee vets each Focused Placement List of managers to ensure high standards and consistency in client searches.

A “watch” list is maintained by the Committee to advise all of NEPC’s staff about problems/issues that managers in our database are facing. Issues that can place a manager on a watch list include staff changes, ownership changes, deviations from the investment process and inconsistent/poor performance. The Committee reviews all manager search candidate lists for all searches undertaken by the firm. The Committee also monitors all of the managers currently used by our clients regardless of the number of clients using them.

When NEPC becomes aware of a significant problem at an investment management firm (e.g., key personnel change), we notify all of our clients invested with that manager through our “48 hour” letter. We will often then visit the firm, meet with the manager at our offices, or conduct a conference call to determine how the potential problem is being addressed. We will also report the results of our investigations to our clients and discuss the client’s options. Information that is important, but not identified as a potential problem by our research staff requiring a “48 hour” letter, is communicated to the client by the consulting team (e.g., loss of non-critical personnel, anticipated fund closure, new product offerings, etc.).

Furthermore, each of our research analysts is a specialist for a specific asset class, in terms of the research and due diligence on investment managers. Our analysts are responsible for assessing new products in their asset class as well as meeting with the investment managers to review and analyze the organization and investment management capabilities.

As mentioned earlier, as part of the initial research process, our researchers conduct an onsite due diligence meeting with the majority of prospective managers. Managers are visited before they can be added to one of our Focused Placement Lists. During COVID-19 these visits were virtual, and consisted of video calls with both senior and junior investment team members as well as business leaders and back-office team members. We also performed virtual office tours with floorplans to better understand how the managers interacted with each other while in the office.

On an ongoing basis, meetings take place either at NEPC offices, at the manager’s office or via conference call. Further, many of our consultants meet regularly with investment managers through client meetings and participation in due diligence meetings. We generally meet with the investment managers in our clients’ portfolios at least annually to ensure our conviction remains high in those managers. Exceptions may occur if a manager has been terminated or a fund is being liquidated.

NEPC conducted over 2,950 manager meetings annually, with over 1,500 firms per year, covering all asset classes in 2019. In 2019, we met with 528 public market asset manager firms and 1,007 alternative asset manager firms, or approximately 30 firms a week, on average. While many of these meetings occur in our offices, we routinely travel to managers’ offices to conduct on-site due diligence. Approximately 12% of our meetings were conducted on-site in 2019. In 2020 we

Our staff visits alternative managers throughout the year in both our offices and theirs. In fact, during the last few years, NEPC has done due diligence on managers in all the major U.S. financial centers, Singapore, Hong Kong, London, Paris, the Netherlands and Edinburgh.

NEPC's 2019 Manager Meetings / Research Write-Ups		
Primary Topic Covered	**# of Meetings**	**# of Firms**
Public Market	1362	528
Hedge Funds	509	256
Private Equity	550	441
Real Estate / Real Assets	535	310
TOTAL	**2,956**	**1,535**

Primary Topic Covered	2019 Manager Meetings *On-site* (Location = At Manager/Vendor)
Public Market	93
Hedge Funds	73
Private Equity	114
Real Estate / Real Assets	83
TOTAL	**363**

5. **Provide results for the three most recent searches conducted for public pension clients for US equities, non-US equities, and fixed income. At a minimum, identify the managers provided to the client for consideration and indicate which firm was selected. Identify if the firm's most recent investment manager searches have resulted in the same investment manager/advisor being selected for multiple clients.**

NEPC's manager searches are customized to the needs of each client, therefore it would be fairly unusual for the same equity and fixed income managers to be hired for several clients in sequential searches. Specifically, while we begin our correlation analyses at the asset class level (like most consultants), we then take those analyses down to the manager level to identify the candidate manager having the best fit with the existing complement of managers in the client's fund. However, there are some asset classes and styles with few managers and products (i.e., emerging market equities – small cap, emerging market debt – local currency) where there may be similar managers being hired.

All of the following searches were conducted using NEPC's Focused Placement Lists (FPL) described above. The managers on each asset class FPL are disclosed only to current NEPC clients.

Search Type	Client Type	Asset Class	Finalists	Winner

US Equity	Corporate	Small Cap Growth Equity	Artisan, Eagle Asset, Franklin Advisors, Granahan, Peregrine, Summit Creek, TimesSquare, Westfield	Granahan
US Equity	Not For Profit/Charity	Small Cap Growth Equity	Artisan, Eagle Asset, Franklin Advisors, William Blair	Artisan
US Equity	Taft-Hartley	Small Cap Growth Equity	Advisory Research, Elk Creek, Rice Hall James	Rice Hall James
Non US Equity	Taft-Hartley	Emerging Markets Equity	Axiom, Columbia, Pzena, RBC, UBS, Wasatch, William Blair	Axiom
Non US Equity	Not For Profit/Charity	Emerging Markets Equity	Axiom, City of London, UBS, William Blair	UBS
Non US Equity	Corporate	Emerging Markets Equity	Acadian, Axiom, Columbia, RBC	RBC
Fixed Income	Public	Core Fixed Income	Baird, C.S. McKee, Earnest, Fidelity, Garcia Hamilton, IR+M, Segall Bryant & Hamill, PIMCO	PIMCO
Fixed Income	Not For Profit/Charity	Core Fixed Income	Baird, Garcia Hamilton, IR+M, Segall Bryant & Hamill, Neuberger	Garcia Hamilton
Fixed Income	Public	Core Fixed Income	Baird, C.S. McKee, Earnest, Garcia Hamilton, IR+M, PGIM, Segall Bryant & Hamill, SSgA	Garcia Hamilton

Note: Finalists may include client recommendations or incumbent managers.

6. **Provide a sample of an investment manager search report your firm has provided to a client to present recommended managers for consideration in a recently completed investment manager search.**

   Please see Exhibit 8 for a sample manager search report.

7. **State your position regarding making specific investment hiring or firing recommendations to your clients.**

   Our research team is charged with having a deep understanding of current market conditions, developing both strategic and tactical ideas for client portfolios, developing consulting tools to help our clients make decisions and providing a sounding board to both our consulting staff and clients. While our research is centralized, the implementation of our ideas in client portfolios is driven by the consulting team. The consulting team will take into consideration Tulare County Employees Retirement Association's unique context, investment needs and risk profile. We believe a consultant should be proactive in providing recommendations and advice relevant to each client. We also believe the firm should speak with one voice and that the message should be consistent across clients. That is a balancing act that we perform quite well. Below are some examples of how we ensure consistency across client accounts while allowing customization:

- **Quarterly capital market and asset class assumptions** – Quarterly capital market and asset class assumptions are produced by our research group and discussed with all consultants at an all-company offsite meeting at the beginning of each year. Our views on market trends and areas of expected strengths and weaknesses are also identified, along with practical ways of incorporating themes into client portfolios. The consulting teams then provide customized recommended investment actions to each client.
- **Practice team / partner supervision** – Performance of each account, adherence to NEPC philosophy and standards, and recent client meetings are reviewed at the practice group level. We also run screens on all clients by practice group looking for outliers by asset allocation, performance, etc.
- **Focused Placement Lists of managers by asset class** – These managers have been thoroughly vetted by our research teams and represent “best in breed” managers that are used throughout our client base, taking into account each client’s unique needs, risk tolerances, and return requirements.

G. Other Information

1. Describe your firm's capabilities in providing educational opportunities for trustees and staff including any investment conferences made available to clients.

Trustee Education

NEPC conducts educational programs for many of our clients. These educational sessions are customized for each client and can be as simple as carving out time from the regular review meetings to special meetings for educational purposes. Increasingly, we have found that many of our public fund clients are conducting annual educational forums and we have played a significant role in designing and speaking at many of them, in addition to assisting with identifying industry speakers on relevant topics.

NEPC sponsors an **Annual Investment Conference** in Boston, Massachusetts. Investment managers do **not** subsidize or underwrite NEPC’s investment conferences or workshops, thereby avoiding this potentially significant conflict of interest. Money managers may not attend our investment conference unless they are invited speakers and agree not to include any sales material.

Our **25th Annual Investment Conference** was scheduled for May 20th-21st, 2020 but was cancelled due to the COVID-19 pandemic. Our **24th Annual Investment Conference** was held May 7th – May 8th, 2019 at the Boston Park Plaza in Boston, MA with a theme of “Transitions”. Industry experts addressed how to position investment portfolios through periods of exceptional economic and political change, preparing for transitions of power in the global economy, the people involved, and the world environments around us. Keynote speakers included Larry Fink, CEO, BlackRock; Nancy Giordano, Strategic Futurist, Corporate Strategist, TEDx Austin Curator and Jonathan Karl, ABC News.

Finally, we hold an annual educational workshop ***dedicated to our public fund clients***. This workshop, attended by our largest public fund clients, is led by representatives of senior management and contains educational and brainstorming sessions led by senior field and research consultants and noted industry experts. The focus and content of this two day event is devoted to promoting best practices and present leading edge investment ideas suitable for funds such as Tulare County Employees Retirement Association.

Client education is of paramount importance, as greater understanding of investment fundamentals and complex current investment issues by both trustees and employees assist each group in its efforts to enhance returns and reduce risk.

2. Describe your firm's experience and ability to support issues relating to securities lending, custodial services and commission recapture.

Commission recapture programs have become much less common due to regulatory changes that have largely decoupled sell-side research and other services from commission fees. Commission rates are so low that the benefits to having a commission recapture program are tiny, and instead managers focus on trading for best execution.

Revenues from securities lending have also declined in recent years, but not nearly to the same extent. In fact, some securities that are popular shorts can earn very high lending fees. Many of NEPC's clients have long used securities lending in the regular operation of their investment programs, although interest has waned due to the liquidity problems experienced in 2008 combined with the lower yields captured in today's marketplace. We help clients develop securities lending policies including the investment guidelines of the cash held as collateral. So long as clients understand the risks involved in securities lending, we are supportive of the activity as it adds incrementally to returns. As part of our service offering, we can educate clients on the risks of securities lending and will review and recommend options as to their custodian or other third party.

3. Describe your process for assisting with a custodial bank search process. Please include details such as criteria used for evaluating and ranking custodians.

NEPC can assist Tulare County Employees Retirement Association and staff in the development and implementation of a transition plan should a custodian search be conducted and result in a change. Over the past five years[17] we have assisted our clients with 59 searches aimed at potentially replacing their current custodian. Approximately one quarter of those clients ultimately made a change with their custodian bank. Whether a client decides to make a change or not, the process can result in benefits. including reduced custody expense; reduced operating expense; integration of domestic and international custody and record keeping system; improved cash management; improved securities lending activity; improved split of securities lending revenues; enhanced on-line access to custody records; customized report generation; better reconciliation between custody and investment manager records; more timely and accurate reporting; accessibility to ancillary systems (performance and analytics); improved security and back-up systems; and, reduction in the number of failed trades.

[17] 12/31/19

When a client requests a custody search be conducted, we work with the client to:

1. **Develop Criteria, Identify Potential Candidates & Customize Questionnaire** – Working with the client, we develop preliminary guidelines and criteria for the custodians based on the specific needs of the client. This step includes gathering information on the structure of the Plan(s), determining what services are required and identifying which banks are capable of providing the level of services the client requires.
2. **Issue Request for Proposal (RFP)** – After discussing potential candidates for inclusion in the search, we issue an RFP to each candidate. Responses typically include: answers to NEPC's proprietary master trust/custody questionnaire; and fee proposals and securities lending estimates (if applicable) based on the actual account structure and holdings of the Plan (gathered in step 1). Additionally, we request information on the client service team that would be responsible for the relationship should a change be made.
3. **Candidate Review and Finalist Selection** – Using the responses to the RFP and fee proposals gathered in step 2, NEPC prepares a proprietary search book that analyzes and profiles the candidates being considered. The book evaluates custodians based on their qualifications, expertise in the master trust/custody business, and fee proposals. The report would also summarize the organizational characteristics, client service and reporting customization capabilities, online services, supplemental services and securities lending estimates of the candidate firms. We then meet with the client to review the search book and discuss the pros and cons of each firm.
4. **Finalist Presentations –** We arrange and participate in interviews of the custodians selected in step 3. Based on each candidate's written and oral presentations, plus our knowledge of the custody business, we would assist you in making a decision. Should a client want to conduct on-site due diligence visits at the banks being considered, we would facilitate that process and participate along with the client.
5. **Implementation of New Custody Agreement -** We aggressively negotiate fees (accounting for natural subsidies, such as the revenues generated to the custodian from indexing, securities lending and FX transactions) and provide assistance as required in assisting you and legal counsel in finalizing the new custodian arrangement.

4. Describe the information available on your website or client portal that would benefit your clients.

NEPC maintains a public website (www.nepc.com) that provides information about NEPC's services, people, research papers, videos, surveys, infographics, and market commentary.

Through ClientHUB, our client extranet site, we provide our clients a central HUB for portfolio reporting, NEPC research, and communication with your client service team. NEPC's clients have access to client specific information such as meeting notes and write-ups for all of their managers, market values and portfolio allocation, performance reports, manager due diligence on NEPC's public markets manager focused placement lists, and the most recent research pieces authored by NEPC. ClientHUB is accessible via compatible web browsers on computers, tablets, and smartphones. It acts as an archive for portfolio-specific documents and as a research tool for portfolio-specific investments.

NEPC also offers certain clients the option to connect online to access their performance measurement information through our third party performance reporting vendor. This access permits clients on that platform to view or download a limited set of charts, tables and other data that appear in our performance reports.

5. Provide information regarding the firm's diversity and inclusion policies for both the firm and in evaluating investment managers.

NEPC assures Equal Employment Opportunity in all its policies regarding recruiting, working conditions, transfers, compensation, training, hiring, promotions, the use of employee facilities and other benefits. NEPC will not discriminate against any employee or applicant for employment because of race, color, creed, gender, sexual orientation, religion, ancestry, national origin, age, political affiliation, veteran status, handicap, marital status, citizenship status, or any other prohibited form of discrimination. In addition, NEPC complies with all applicable federal, state and local laws to the fullest extent.

NEPC takes affirmative action as it relates to equal employment opportunity seriously and we have policies that clearly state our firm commitment to fair employment practices. We support initiatives and personal leadership on the part of all of our employees as it relates to creating a respectful and inclusive work environment. Applicants for employment and employees who seek promotion are considered solely on the basis of individual merit and demonstrated performance. This policy derives from the belief that all people must be treated fairly, with human dignity and without fear of discrimination.

NEPC has a **Diversity and Inclusion Advisory Board** that is made up of a cross section of Partners at the firm and serves to provide oversight and governance to the firm's efforts in this area. Below is a schematic of our Diversity and Inclusion organizational structure:

Board Objectives:

- Provide leadership and direction on integrating diversity and inclusion in our business strategy and planning process (e.g. workforce development, succession planning, client relationships, etc.)
- Understand where NEPC is today and affirm why we want to create more diversity. Importantly, this needs to be communicated to the firm and be prominently featured in our culture and values.
- Provide oversight and guidance to our affinity groups (i.e., Diversity, Equity and Inclusion Network; Women's Leadership Forum; and the Diverse Manager Committee) and other affinity groups that may emerge.

The **Diversity, Equity and Inclusion Network's** mission is to identify key diversity and inclusion challenges at the firm; establish partnerships with diversity and inclusion focused organizations; and educate and train managers throughout the firm about best practices to create an inclusive work environment.

NEPC also has a **Women's Leadership Forum** whose mission is to enhance awareness of gender diversity through training; attracting, retaining and developing women at all stages of their career; and improving NEPC's composition to become an industry leader.

The **Diverse Manager Committee's** mission is to engage more broadly and deeply with the diverse manager community to increase the use of diverse managers within our client portfolios.

Diversity outreach is a fundamental part of our workforce planning and recruitment process. We strive to cast a wide net in our recruiting process in order to attract a diverse pool of the most qualified candidates. Additionally, we have augmented that approach through targeted affiliations with organizations that will allow us to deepen that commitment to attracting a diverse workforce. These specific efforts and partnerships include, but are not limited to, the following:

- In June 2020, NEPC signed the Girl Scouts' Fair Play, Equal Pay™ Gender Parity Initiative aimed at promoting a more equitable working world in which girls and young women can see themselves fairly reflected as leaders with an expectation of equal pay for equal work. NEPC will put in practice initiatives that will achieve the stated goal of 30% of women in leadership roles by 2030.
- We have an ongoing relationship with YearUp, an organization that focuses on empowering urban talent to reach their full potential. Many of our partners and senior managers mentor YearUp students, get involved in mock interviews and job preparation workshops, and participate in fundraisers. We have further demonstrated our support for YearUp by hiring a YearUp intern every 6 months since 2014. We have hired several of those interns once their program was completed.
- We support the Gateway to Leadership program as part of our commitment to the United Negro College Fund. Gateway offers internships through its corporate sponsors, and NEPC hired a Gateway intern in our offices on our Public Funds Team on multiple occasions.
- In an effort to include our other offices in our diversity efforts, we relocated four of our Performance Analytics positions to our Atlanta office in 2016 and continue to grow that team. We are targeting women and minorities to fill those positions and have been very successful thus far.
- We have also made a concentrated effort to hire a diverse pool of summer interns.
- In June 2015, Ms. Doris Ewing, a retired NEPC Partner, was honored as the first female African-American Partner of an Investment Consulting Firm at the NASP Women's Legends Tea in Chicago.
- In September 2019, NEPC hosted a Diverse Investment Manager Day as an opportunity for actionable peer-to-peer dialogue on how to achieve more equitable participation for diverse managers. The event convened more than 60 investment managers with featured panelists from several minority- and/or women-owned businesses.
- In February 2020, we hosted a fireside chat entitled "Is the Investment Industry Ready to Be Color Brave™", with Mellody Hobson, co-CEO and President of Ariel Investments. Chenae W. Edwards, Senior Consultant, hosted the event which focused on practical solutions to improving diversity in finance. The replay of the event can be found here.
- A number of NEPC Partners, including Kristine Pelletier, have served as mentors for the organization "Girls Who Invest". Sarah Samuels, Partner, Head of Marketable Securities, is on the Advisory Board of the organization.

We recognize that NEPC has a moral responsibility – and a business responsibility – to engage in our communities and to give more opportunities to female and minority candidates early in their careers, so they can gain industry exposure and experience, providing them with a competitive advantage in the job market. Although we are a small firm, we believe this type of commitment is essential to the success of our firm, our clients, and our industry as a whole.

Diverse Managers

At NEPC, we believe diversity within asset classes, investment strategies, geographies, capitalizations and sectors help portfolios withstand market swings and cycles. We also believe in another kind of diversity: in thoughts, ideas and experiences through diversity in gender and race. A growing and substantial body of research points to the positive and, in many cases, superior investment performance by women and minority managers. Despite these findings, women- and minority-owned funds remain significantly underrepresented in the portfolios of institutional investors. As such, NEPC has developed a Diverse Manager Policy to address the inequitable representation of diverse-owned firms in client portfolios and we have a Diverse Manager Committee to help support that effort.

NEPC defines a diverse-owned as an investment management firm that is majority owned (greater than 50% firm ownership) by minorities and/or other underrepresented groups such as females, disabled persons, and veterans, but also qualifies diverse-led firms when a firm is 33% owned by minorities and/or underrepresented groups. Since 1995, NEPC has been committed to discovering diverse managers with compelling strategies and placing them in client portfolios. NEPC's commitment to thought leadership and uncovering diverse investment firms is underscored by the fact that we have over $30.6 billion of client assets invested with 150 diverse firms. In fact, 48% of our clients are currently utilizing diverse managers across public and private equities, hedge funds, private credit and private real estate. In addition, NEPC has 48 diverse investment products on our various Focused Placement Lists ("FPLs") across all asset classes[18]. Representation on FPLs ensures that firms vetted by our research staff gain broad exposure across our entire client base. We can think of no better advocacy for diverse firms.

For many of our clients, we were instrumental in placing new mandates with diverse managers. We have experience working with clients who have different guidelines and needs/preferences hiring firms across our client base and address them in the following manner.

- Our Research methods are targeted
- We host an annual Diversity Day for investment managers with diverse gender and cultural backgrounds, which was attended by over 60 managers in 2019 and 2020.
- We track managers primarily through eVestment and our own proprietary database.
- We issue an annual diverse manager survey to help identify new diverse firms and further refine our proprietary database.
- We attend conferences where we will have opportunities to meet diverse firms.
- Our employees hold membership within organizations whose goal is to increase diversity and inclusion in financial services, such as the National Association of Securities Professionals ("NASP"), New America Alliance ("NAA"), Association of Asian American Investment Managers ("AAAIM"), National Association of Investment Companies (NAIC) and the Toigo Foundation.

[18] As of 10/31/2020

Furthermore, NEPC's formal **Diverse Manager Policy** has identified specific goals related to diverse manager engagement and exposure. In September 2019, NEPC held its **Closing the Gap Workshop** at Diverse Investment Managers' Day and unveiled our Diverse Manager Policy as a testament to the firm's commitment to work toward an inclusive and diverse future. The policy includes the following goals.

- Increase the number of meetings with diverse firms by 10 percent in 2020.
- By year-end 2021, NEPC's goal is to have diverse managers represent 10% of managers on the firm's focused placement list, which is comprised of 1-rated managers. This represents a 67 percent increase over the current level of representation.
- Where a diverse manager rated 1 or 2 is available, NEPC will make best efforts to include a diverse manager in searches.
- Address responsiveness to diverse managers by providing preliminary feedback within three months of initial contact.
- Implement accountability toward these diversity targets within the goal-setting and evaluation process for the Research team and Diverse Managers Committee.

NEPC's **Diverse Manager Committee** is tasked with helping support the firm's efforts with diverse manager research and help offer our clients solutions to meet the challenges of identifying diverse managers. The Diverse Manager Committee consists of senior research professionals specializing in public market and alternative investment strategies, alongside experienced consultants serving NEPC's broad base of clients. The Committee has been carefully crafted to leverage the expertise of those individuals who have experience in the diverse manager community in various capacities including those who have worked at diverse firms or have built out a diverse manager program as an asset owner. The Committee works closely with NEPC Research to help identify and evaluate highly-qualified diverse investment firms. As part of that process, the Diverse Manager Committee issues an annual survey to diverse managers to help build out our proprietary database and gather additional information on these firms that may not be available through other resources. In addition, the Committee works with Research as they net and vet individual asset classes to ensure they are aware of the diverse firms in the space and provide insight on those firms as needed.

While a small percentage of the total asset management industry, diverse managers are not all “emerging” managers, or new firms. We recognize that emerging and established managers, diverse or not, require differing levels of due diligence and our research process is designed to evaluate them both. We segment diverse managers within three different categories, as shown here. This segmentation allows us to adjust to the varying needs of our clients. Some clients have emerging manager programs that seek to identify diverse managers with smaller asset sizes to help them grow their businesses. Other clients seek to identify women- and minority-owned firms along with investment strategies managed by diverse teams or led by women or minorities in an effort to advocate for more diversity across the asset management industry. Data on ownership is available but data on diversity of teams is more limited. We believe it is importance to understand clients’ unique objectives and customize our approach to meet their unique needs.

“Beginning” Diverse Managers	***“Intermediate”*** Diverse Managers	***“Emerged”*** Diverse Managers
• 1-5 years in business • 1-8 employees, top heavy with most employees partner founders of the firm • <$1B in AUM, most assets from MoM/FoF or founders’ assets • Strategy/team typical a spin out from a larger firm	• 5-10 years in business • 1-8 employees, typically still top heavy, but adding to marketing and mid/junior analyst levels • $5B> AUM, assets still heavily MoM/FoF, but firm beginning to get traction from institutional investors with diverse manager programs	• 10+ years in business • 20+ employees • $10B+ in assets under management, typically more direct allocation than MoM/FoF • Grown out of the “emerging” manager category
***Equity Universe:** ~250	***Equity Universe:** ~470	***Equity Universe:** ~965
Example: Empirical Investment Management	**Example:** Matarin Capital Management	**Example:** Garcia Hamilton & Associates

6. **State if your firm has clients covered by California's "County Employees Retirement Law of 1937" (the '37Act).**

Yes, NEPC currently has three 37 Act clients. Dan Hennessy is the lead consultant for StanCERA, which hired NEPC in 2020. Dan also recently became the backup consultant for VCERA, which hired NEPC ins 2013. In addition, SBCERA hired NEPC in 2003.

7. **State if your firm belongs to and/or participates in the California State Association of County Retirement Systems (SACRS), the California Association of Public Retirement Systems (CALAPRS), or some other California public pension plan organization.**

NEPC has been an active SACRS affiliate since 2004, and our consultants have been regular speakers at SACRS events over that time. One of our consultants, Sam Austin,is an active contributor on the SACRS Program Committee that plans and delivers educational content for SACRS members. We also participate regularly in CALAPRS events.

H. Standard Contract

1. **TCERA's standard contract provisions are attached to this RFP. Such provisions will be incorporated into the final contract. Any requests for exceptions to these provisions must be submitted as part of the response to the RFP.**

Please see NEPC’s Contract Requests in Exhibit 11.

I. Fee Proposal

1. **Provide a fee proposal for the services described in this RFP in the format provided in the attachment to this RFP. If any services are excluded from your proposal, clearly state what services you will not provide.**

   Please see our proposed fees in Exhibit 12.

2. **List any additional costs that might be incurred based on the requirements listed in the RFP.**

   See above list of services. Our fees include all costs, including travel, postage and related expenses.

Awards and Recognitions Disclosure

- Pension Bridge Institutional Asset Management Awards 2020. For more information, please visit https://iamanagementawards.awardstage.com/#!/judging-methodology--criteria.
- CIO's Most Influential Investment Consultants: CIO Magazine interviews pension and non-profit CIOs, asset managers and former consultants to approximate what it calls "the hierarchy of today's institutional consultant industry". The results should not be considered a recommendation of any specific firm or individual consultant. For more information, please visit CIO Magazine's web site at https://www.ai-cio.com/lists/
- Wealth & Finance International's Alternative Investment Awards: Sustained Excellence in Client Investment Management and Macro Strategy Specialist of the Year –USA awards. "The in-depth and rigorous research process, carried out by out dedicated in-house award committee, takes over 6 months, during with time they count and research votes, analyse all supporting evidence and perform additional interviews to ensure that only the most deserving and top performing individuals, firms and products are recognised." [Source: http://www.wealthandfinance-intl.com]
- These rating or awards may not be representative of any one client's experience with NEPC. Any rating or award is representative of NEPC's past performance only and is not indicative of NEPC's future performance, nor does it indicate an endorsement of NEPC. NEPC did not pay any of these organizations to be considered for an award.
- An award presented to a client of NEPC is not a recognition of NEPC's performance and should not be considered an endorsement of NEPC.

Client Results Disclosure – All Clients

- Past performance is no guarantee of future results.
- NEPC acts in an advisory capacity-only for many clients and does not have discretion over those client assets. As a result, a client's investment performance may not be attributable solely to NEPC's advice.
- NEPC's Overall Composite is compiled from all Pension Plans, Endowments and Foundations for which NEPC is the sole full-retainer consultant. Plans are included in the Composite provided they have exposure to equity and bonds (including alternatives) of at least 25% each, and no more than 20% to other assets such as cash and GIC's.
- New clients are added to the Overall Composite with the first full quarter of a new manager selected from an NEPC search, or after one year as an NEPC client, whichever comes first, provided that the plan is globally diversified.
- Results are reported gross of NEPC advisory fees.
- NEPC's fees for advisory clients vary considerably depending on client size and complexity.

Information Disclosure

- Investment Metrics Plan Universe
- As of 06/30/2020, the Investment Metrics Universe contained actual, custodian-supplied and audited data on over 3,000 plans, representing roughly $1.9 trillion in assets. This data is drawn from 42 independent investment consulting firms, including NEPC.
- ICC Universe
- Through 2011, universe rankings were based on the ICC Universe, which was populated by 12 independent investment consulting firms, including NEPC, and supplemented by many of the performance measurement clients of State Street Bank.
- Certain information, including that relating to market indices, was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- This document may contain confidential or proprietary information and is intended only for the designated recipient(s). If you are not a designated recipient, you may not copy or distribute this document.

Alternative Investment Disclosure

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds, real estate, real assets and private equity:

- Performance can be volatile and investors could lose all or a substantial portion of their investment.
- Leverage and other speculative practices may increase the risk of loss.
- Past performance may be revised due to the revaluation of investments.
- These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms.
- A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value.
- These funds are not subject to the same regulatory requirements as registered investment vehicles.
- Managers may not be required to provide periodic pricing or valuation information to investors.
- These funds may have complex tax structures and delays in distributing important tax information.
- These funds often charge high fees.
- Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy.

Private Equity, Real Estate and Real Assets Performance Benchmarking Methodology and Information Disclosure

- Past performance is no guarantee of future results.
- Investment results include funds that were rated "1" by the NEPC Alternative Assets Due Diligence Committee. Investment results include those clients for which NEPC has discretionary authority as well as those where NEPC acts in an advisory capacity. They include all types of clients and plans for whom NEPC serves or served as a consultant and provided advice on private markets.
- Returns are based on the client commitment that had the earliest cash flow into each recommended product. Vintage year classifications are made based upon the year of the first cash flow from this client into the Fund.
- In cases where no current NEPC client is invested in a product (due to a client changing consultants), vintage year and return data was used from either the manager, Preqin or from another limited partner in the fund who publicly discloses investment returns.
- Each internal rate of return is net of management fees and carried interest (both paid and accrued) and is computed on an annualized, dollar-weighted basis. Performance aggregates are created by equal-weighting each fund included.
- Strategy classifications are made by NEPC based on a review of the stated strategy of each investment. Funds included are primarily limited partnerships, including funds-of-funds. Private equity investments include buyouts, venture capital, growth equity, special situations/turnarounds, equity-oriented distressed buyouts, co-investment funds, primary fund-of-funds and secondary funds. Real estate investments include core, core-plus value-add, debt and opportunistic funds. Real assets investments include energy, energy credit/mezz, multi-strategy, natural resources, metals & mining and infrastructure funds.
- Only funds from vintage years 2007–2016 were benchmarked, as performance for funds who have been investing for less than three years is deemed to be too young to be meaningful.
- To compute the quartile performance of each fund, funds were matched against similar strategies and geographic regions tracked by ThomsonOne/C|A; however, it is important

to note that some funds have investment strategies that could be benchmarked against multiple categories.

- Attempts were made to match the geographic strategy of each fund. In cases where the benchmark provider did not have a large data set a global strategy benchmark was used.
- For some vintage years, the benchmark provider may have provided median but not upper and lower quartile cut-off metrics. In these cases, to estimate the upper and lower quartile cut-offs, NEPC used the average quartile-to-median differential for the vintage years preceding and following the vintage year with the missing quartile cut-offs.
- All fund and benchmark returns are as of December 31, 2019.
- The information in this report has been obtained from sources NEPC believes to be reliable. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

NEPC'S ORGANIZATIONAL STRUCTURE

Executive Committee

Michael Manning, CFA, CAIA
*Managing Partner**

Consulting Practice Groups

Taft-Hartley / Public
Rhett Humphreys, CFA
*Partner**

Corporate
Kristen Colvin, CAIA
*Partner**

Philanthropic and Private Wealth
KC Connors, CFA, CAIA
*Partner**

Research

Tim McCusker, FSA, CFA, CAIA
*Chief Investment Officer**

Asset Allocation
Phillip Nelson, CFA,
*Partner**

Portfolio Construction
Timothy Bruce, *Partner**

Investment Manager Research
Sarah Samuels, CFA, CAIA, *Partner**

Taxable Research
Kristi Hanson, *Partner**

Global Research
Neil Sheth, *Partner**

Operational Due Diligence
William Bogle, *Partner**

Consulting Services

Steven Charlton, CFA
*Director of Consulting Services**

Directors of Portfolio Strategy
Chris Klapinsky, CFA
*Partner**

James Reichert, CFA
*Partner**

Portfolio Services
Lenia Ascenso, *Director of Portfolio Services**

Performance Analytics
Lenia Ascenso, *Director of Portfolio Services**

Marketing
Heather Martone
Senior Marketing Manager

Finance

Matthew Lombardi
Chief Financial Officer+

Finance
Margaret Boraks
Senior Controller

IT
Devan Dewey, *Chief Technology Officer+*

Operations and Legal / Compliance

William Bogle
*Chief Compliance Officer**

Human Resources

Judy Murphy, SPHR
*Director of Organizational Development**

Denotes Management Group Member

As of 1/1/2021. *Ownership interest in NEPC (Partner) +Principal designation for leadership within the Firm.

NEPC'S CONSULTING SERVICES TEAM

Rhett Humphreys, CFA
*Partner**

Taft-Hartley

John Elliot
*Partner**

Michael Cairns, CEBS
*Partner**

Michael Sullivan
*Partner **

Daniel Hennessy, CFA, CAIA
Senior Consultant

Daniel Runnals, CFA, CAIA
Senior Consultant

Jack Brodsky, CFA, CAIA
Consultant

Scott Freeman
Consultant

Public Fund

Kevin Leonard
*Partner**

Samuel Austin, III
*Partner**

Margaret Belmondo, CIMA
*Partner**

John Krimmel, CPA, CFA
*Partner**

Allan Martin
*Partner**

Douglas Moseley
*Partner**

Carolyn Smith
*Partner**

David Barnes, CFA, CAIA
Senior Consultant

Kristin Finney-Cooke, CAIA
Senior Consultant

William Forde, CFA, CAIA
Senior Consultant +

Don Stracke, CFA, CAIA
Senior Consultant

Keith Stronkowsky, CFA
Senior Consultant

Scott Driscoll
Consultant

Michael Miranda, CFA
Consultant

Kristen Colvin, CAIA
*Partner**

Defined Contribution

Kristen Colvin, CAIA
*Partner**

Ross Bremen, CFA
*Partner**

Brian Donoghue
*Partner**

Christine Loughlin, CFA, CAIA
*Partner**

Tim Fitzgerald, CAIA
Senior Consultant

Jason Gerda, CAIA
Senior Consultant

Paul Kerry, ASA , EA
Senior Consultant

Daniel Beaton
Consultant

Thomas Cook
Consultant

Deirdre Pomerleau, CFA, CAIA
Consultant

Timothy Wasgatt, CFA
Consultant

Corporate

Craig Svendsen, CFA
*Partner**

Jay Roney, CTP
*Partner**

Brian Roberts, CAIA
*Partner**

Matthew Rowell
*Partner**

Brad Smith, CFA, CEBS
*Partner**

Andrew Coupe
Senior Consultant

Wyatt Crumpler
Senior Consultant+

Kelly Regan
Senior Consultant

Michael Valchine, CAIA, CIPM
Senior Consultant +

Richard Chari
Senior Consultant

KC Connors, CFA, CAIA
*Partner**

Endowment and Foundation

Scott Perry, CAIA
*Partner**

Kristin Reynolds, CFA, CAIA
*Partner**

Catherine Konicki, CFA, CAIA
*Partner**

Kristine Pelletier
*Partner**

Sam Pollack, CAIA
*Partner**

Richard Ciccione
Senior Consultant +

Sebastian Grzejka, CAIA
Senior Consultant

Rich Harper, CFA, CAIA
Senior Consultant+

Scott Harsh
Senior Consultant+

Colin Hatton, CFA, CAIA
Consultant

Asher Watson
Consultant

Healthcare

David Moore, ARM, CEBS, CPCU
*Partner**

Chenae W. Edwards, CPA
*Partner**

Gary Wyniemko, CFA
*Partner**

Eric Vallo, CFA
Senior Consultant

James Holler, CFA, CAIA, *Consultant*

Kevin Novak
Consultant

Nedelina Petkova
Consultant

Private Wealth

Karen Harding, CFA
*Partner**

Kristi Hanson, CFA
*Partner**

Paul Kenney, Jr., CFA
*Partner**

Dan Gimbel, CIMA
Sr. Consultant+

Stacey Flier, CFA
Senior Consultant+

Kate Ball
Consultant

Isabelle Campbell
Consultant

As of 1/1/2021. *Ownership interest in NEPC (Partner) +Principal designation for leadership within the Firm.

NEPC'S RESEARCH TEAM

Tim McCusker, FSA, CFA, CAIA
*Chief Investment Officer**

Portfolio Construction
Timothy Bruce
*Partner**

Sean Gill, CFA, CAIA
*Partner**

Chris Hill, CFA, CAIA
Senior Consultant

Elton Thomaj, CAIA
Senior Consultant +

Ryan Pelletier
Analyst

Kyle Tenczar
Analyst

Research Operations
Dawn Swift, *Director of Research Operations*

Emma Twitchell
Operations Analyst

Operational Due Diligence
William Bogle, *Partner**

Catherine Hull, CAMS
Consultant

Kevin Lau-Hansen
Consultant

Asset Allocation
Phillip Nelson, CFA
*Partner**

Christopher Levell, ASA, CFA, CAIA
*Partner**

Lynda Dennen Costello, ASA, EA
Senior Consultant +

Eumene Lee
Consultant

Robert Goldthorpe, ASA
Consultant

Jennifer Appel, CFA
Consultant

Jack Yuan
Analyst

Appy Bubna
Senior Financial Writer

Global Research
Neil Sheth, Partner*

Taxable Research
Kristi Hanson, *Partner**

Brandon Jones
Consultant

Investment Manager Research
Sarah Samuels, CFA, CAIA
*Partner**

Marketable Securities Research *(Long-Only & Hedge Funds)*

Equities

Timothy O'Connell, CFA
Director of Equities

Rosann Halleran
Consultant

Andrew Pettersen, CFA
Consultant

Hayley Tran, CFA, CAIA
Consultant

Robert Britenbach
Senior Analyst

John Lutz
Senior Analyst

Alex Rickels
Senior Analyst

Credit & Multi-Asset

Dulari Pancholi, CFA, CAIA
Director of Credit & Multi-Asset+

Alec Rapaport
Senior Consultant+

Kadmiel Onodje, CAIA
Consultant

Kevin Bliss, *Consultant*

Larissa Davy, *Consultant*

Madison Scalise, *Analyst*

Raj Palekar, *Analyst*

Client Strategy Research

Steve Gargano
Senior Consultant

John Shanklin, CFA, CAIA
Senior Consultant

Istvan Meszaros
Consultant

Manager Search & Research Associates

Stephanie McMurray
Manager Search Coordinator

Alex Cohen
Research Associate

Alex Goroshko
Research Associate

Ian Robertson
Research Associate

Private Markets Research

Private Equity

Melissa Mendenhall
Director of Private Equity+

Eric Harnish, *Senior Consultant+*

Joshua Beers, *Senior Consultant*

Oliver Fadly, *Consultant*

Brad Rowbotham, CAIA
Consultant

Colton Lavin, CFA
Senior Analyst

Amanda Ryan, CAIA
Senior Analyst

Brian Cronin, *Analyst*

Real Assets

Andrew Brett, CAIA
Director of Real Assets+

Chris R. Miers, CRE, FRICS
Senior Consultant

Matthew Ritter, CAIA
Senior Consultant

Jed Drake, *Consultant*

Seth Goldman, *Senior Analyst*

Elizabeth Miller, *Analyst*

As of 1/1/2021. *Ownership interest in NEPC(Partner) +Principal designation for leadership within the Firm.

CODE OF ETHICS AND PERSONAL TRADING POLICY
(UPDATED 12/20/2018)

1) Purposes
   a) NEPC is registered as an investment adviser under the Investment Advisers Act of 1940, as amended (the "Advisers Act") and acts as an investment consultant to its Clients. In this capacity, we serve as fiduciaries and owe our Clients an undivided duty of loyalty. We must avoid even the appearance of a conflict that may compromise the trust Clients have placed in us, and must insist on strict adherence to fiduciary standards and compliance with all applicable federal and state securities laws, including in particular the requirements of the Advisers Act.
   b) All employees must at all times:
      i) place the interests of our Clients first; and
      ii) conduct any and all personal securities transactions consistent with this Code and in such a manner that avoids any actual or potential conflict of interest or any abuse of our responsibility and position of trust.
   c) If there is a question about any topic covered by this Code, employees should contact the Compliance Officer.
   d) NEPC personnel may also refer to the following as additional guides to our responsibilities: (i) Rule 204A-1 under the Advisers Act and (ii) the Code of Ethics and Standards of Professional Conduct published by the CFA Institute.

2) Definitions

The following is a list of defined terms used in this Code of Ethics:
   a) "Beneficial Ownership" means having or sharing the opportunity, directly or indirectly, to profit or share in any profit derived from a transaction in securities. An Employee will be deemed to have Beneficial Ownership in Securities held in any "Personal Account".
   b) "Client" means any person or entity for which NEPC serves as a consultant or adviser.
   c) "Client Security" means a Security issued by a current NEPC Client.
   d) "Compliance Officer" refers to NEPC's Chief Compliance Officer.
   e) "Control" shall have the meaning set forth in Section 2(a)(9) of the Investment Company Act of 1940, as amended. Section 2(a)(9) provides that "control" means the power to exercise a controlling influence over the management or policies of a company, unless such power is solely the result of an official position with the company.
   f) "Employee" refers to any person who is an employee, member, manager or officer of NEPC, including part-time permanent employees. Contract or leased employees are not considered employees of NEPC, nor are interns or students hired temporarily through a co-op program.
   g) "Exempt Security" means any direct obligation of the Government of the United States, bankers' acceptance, bank certificate of deposit, commercial paper, bank repurchase agreement and other high quality short term debt instrument, and shares issued by registered open-end mutual funds (including money-market funds, but excluding exchange-traded funds) and unit investment trusts (excluding exchange-traded funds), provided they are not mutual funds advised by NEPC.
   h) "Personal Account" refers to any securities account (including, without limitation, a custody account, safekeeping account and an account maintained by an entity that may act in a brokerage or principal capacity) in which an Employee has any Beneficial Ownership. This definition includes Personal Accounts maintained by or

for: 1) any member of an Employee's immediate family sharing the same household; 2) any individuals who live in the Employees' household and over whose purchases, sales or trading activities the Employee exercises control or investment discretion; 3) any persons for whom the Employee provides financial support and either (a) whose financial affairs the Employee controls, or (b) for whom the Employee provides discretionary advisory services with respect to such person's ownership of securities; 4) any trust or other arrangement which names the Employee as a beneficiary remainderman; and 5) any partnership, corporation or other entity in which the Employee has a 25% or greater Beneficial Ownership, or in which the Employee exercises, either individually or together with others, effective Control.

i) "Security" generally has the meaning set forth in Section 2(a)(36) of the Investment Company Act of 1940. It includes stock, bonds, collective funds, ETF's, hedge funds, notes, private placements, limited partnership interests, limited liability company interests, and any derivative thereof, including commodities, options and forward contracts. It does not include "Exempt Securities," as defined above, digital currencies such as Bitcoin, or real estate such as a vacation home or investment property, unless the property is purchased through an LLC or partnership structure that could potentially be recommended to a Client.

j) "Strict Discretionary Account" is an account for which, pursuant to an agreement and in actual practice, an investment adviser or broker (who is not an Employee or affiliate of NEPC) has full discretionary authority to purchase and sell Securities without prior notification to, discussion with or consent of the accountholder or his/her representatives; and as to which communications with the adviser or broker are limited to trade confirmations and account statements, fee discussions, and other communications and discussions that do not relate to purchases or sales of specific Client Securities.

3) Application

This Code applies to all Employees of NEPC.

4) Restrictions on Transactions in Client Securities

Given NEPC's business model, it is unlikely that any Employee would know or have access to material non-public information (so-called "Inside Information") about a Client as a result of NEPC's interaction with that Client. Nevertheless, it is our company policy to limit transactions involving Client Securities, so as to minimize any possibility of legal violations or of transactions that may present an appearance of impropriety that could damage our reputation or client relationships. It is the responsibility of each Employee to ensure that all personal securities transactions are made in strict compliance with the restrictions and procedures in the Code.

a) *General Prohibition*: As a general rule, no Employee may purchase, sell or otherwise directly or indirectly enter into transactions involving any Client Security. Only in the limited circumstances outlined below will any transactions in Client Securities be permitted. A current list of Client Securities is available on various company systems.

    1. *Exception for Strict Discretionary Accounts*: The prohibition on transactions in Client Securities does not apply to any transaction that takes place entirely within a Strict Discretionary Account (as defined above).

- To take advantage of the Strict Discretionary Account exemption an Employee must first submit a Certification relating to Strict Discretionary Accounts to the Compliance Officer.

- An Employee relying on the Strict Discretionary Account exemption is prohibited from directly or indirectly suggesting transactions in specific Securities to the adviser or broker, and the Employee's actual practice must be not to exercise any discretion over transactions. If the Employee engages in discussions of specific investments in Client Securities the account will no longer qualify as a Strict Discretionary Account.

2. *Case-by-Case Exception*: The prohibition on transactions in Client Securities does not apply to any transaction that has been pre-approved by the Compliance Officer. Employees should recognize that the Compliance Officer will not generally approve any transaction in Client Securities unless each of the following requirements is satisfied: (i) there is a compelling reason why the Employee should be granted an exception, such as in circumstances where prohibiting any transactions in a particular Client security would cause undue economic harm to the Employee or another person; (ii) the Employee is not actively engaged in providing consulting or other advice or services to the particular Client; and (iii) the Compliance Officer has determined at the time the transaction is approved that neither the Employee seeking to trade nor any other Employee has Inside Information with respect to the Client Security.

   - Notice regarding pre-approval to an Employee who has submitted a request will generally be sent to the Employee via email within two business days of the submission of the request via email (or generally within five business days of the receipt if in paper form). Unless otherwise approved by the Compliance Officer, all transactions in the Client Security must be completed within the first two business days following the date of the approval notice.

   - The decision of the Compliance Officer whether or not to approve a transaction in Client Securities is final.

   - Employees should recognize that there can be no guarantee that approval of any transactions will be granted within a certain time frame. Accordingly, it may not be possible to sell an existing investment in a Client Security at the most convenient time. Employees should carefully consider their need for liquidity in the investment before seeking approval for an investment.

5) <u>Reporting on Personal Trading</u>
   a) Upon commencement of employment with NEPC, an Employee must, within ten (10) days after joining, provide an Initial Holdings Report to the Compliance Officer disclosing the following:

i) a list of all Securities beneficially owned by the Employee including the number of shares owned, ticker symbol or CUSIP, and principal amount, which must be current as of a date no more than 45 days prior to submission;
ii) the name of any broker/dealer or financial institution where the Employee maintains a Personal Account; and
iii) the date the report is submitted by the Employee.

b) Within 30 days after the end of each calendar quarter, each Employee must provide to the Compliance Officer a summary of all trades during the quarter involving any Securities in which they have any Beneficial Ownership. This report must disclose:
i) the name of each Security (including ticker symbol or CUSIP number);
ii) the amount and nature (i.e., purchase, sale, etc.) of each transaction;
iii) the price;
iv) the trade date; and
v) the name of the broker/dealer or financial institution.

c) On or before February 15 of each year, employees must provide an Annual Holdings report setting forth current information as described in paragraph (a) above. In the event that NEPC already maintains a record of the required information via duplicate account statements or electronic data received from the Employee's broker/dealer, the Employee may satisfy this requirement by (i) confirming in writing or e-mail the accuracy of the record, and (ii) recording the date of the confirmation. Employees with no reportable holdings should still submit an Annual Holdings report and should indicate they have no holdings.

d) All Holdings Reports and Personal Trading Reports are subject to review by the Compliance Officer or his designee.

e) All investments in IPOs, ICOs or limited offerings (e.g., hedge funds, private investment funds or other securities not generally available to the public) must be pre-cleared with the Compliance Officer prior to investment.

f) Dividends, dividend or capital gain reinvestment, and transactions effected pursuant to an automatic investment plan need not be reported on the Quarterly Personal Trading Reports.

g) If NEPC is receiving duplicate account statements, and the statements arrive within 30 days of the end of each quarter, the employee can comply with paragraph (b) above by noting this fact in our online reporting system in lieu of completing a Quarterly Personal Trading Report.

6) <u>Gifts/Entertainment</u>

a) Under no circumstances may NEPC employees offer, give, solicit or receive any type of referral fee, bribe or kickback.

b) Exchanges of reasonable business gifts and entertainment are courtesies designed to build understanding and goodwill among business partners, and reflect commonly acceptable business practice, provided that they are not so frequent, so costly, nor so extensive as to raise any question of impropriety.

c) Any offer of entertainment by an investment manager should be accepted only with the intention of strengthening a business relationship or improving investment performance for our clients by increasing knowledge of the manager.

d) A representative from the vendor should be present at all events to which an invitation is accepted. If tickets are offered for an event at which a vendor representative will not be present, an Employee cannot accept them unless the Employee pays for them. Such an event is considered a gift unless the Employee reimburses the vendor.

e) NEPC employees are discouraged from accepting frequent items from any single firm, or any item from a manager that is currently under consideration by a client with which you are involved.
f) Any gift or outing with an estimated value of more than $50 must be reported to NEPC's Compliance Officer within 30 days after the end of the month.
g) Any gift or outing with an estimated value of more than $500 must be pre-cleared by the Chairman, Managing Partner, or Compliance Officer.

7) Conflicts of Interest
a) NEPC is an independent consulting firm and is 100% employee-owned. We strive to avoid conflicts of interest and do not accept or pay referral fees or commissions of any kind. All fees to NEPC are cash-based and paid in "hard dollars".
    i) We do not accept or pay any soft dollars
    ii) We do not accept finders' fees for placing managers
    iii) Our client conferences are not subsidized by investment managers
    iv) We do not charge managers for inclusion in our manager search databases
    v) We do not provide brokerage services
    vi) We do not provide actuarial services
b) As a registered investment advisor it is necessary for NEPC to disclose to clients and prospects any relationships that may be perceived as a conflict of interest. Such relationships may include, but are not limited to, relatives or family members of Employees who work in the investment management industry.

8) Confidentiality
a) All Client, prospect, and portfolio information, including mutual fund and commingled fund holdings, is considered confidential. Unless such information is already in the public domain, it should not be disclosed to persons outside the NEPC/Client relationship.
b) All Employees must execute a Confidentiality Agreement annually that indicates they understand this policy and will abide by all restrictions.
c) Notwithstanding the terms of the Confidentiality Agreement, no Employee shall be prohibited from contacting any regulator or other authority in a "whistle-blower" capacity if such Employee has reason to believe that NEPC has engaged in some illegal or dishonest activity. This type of outreach does not require prior authorization from NEPC and the Employee is not required to notify NEPC that he or she has made such contact.
d) Certain investment managers may require NEPC to execute an additional confidentiality or non-disclosure agreement before they will provide information we have requested on behalf of our Clients or for general research purposes. Employees must adhere to the terms of all such agreements.

9) Privacy
a) NEPC has a written Privacy Policy. This document will be sent annually in January to those clients that are considered individuals. For other clients or interested parties, the Privacy Policy is supplied upon request.
b) All contact with the media should be limited to our Team or Practice Group Leaders unless otherwise approved in advance by our Chairman, Managing Partner or another member of the Management Group.

10) Client Complaints
NEPC's mission is to provide our clients with focused, high quality, and professional investment consulting services. Consistent with this mission, any consultant who receives an email, letter or other type of complaint from a client with respect to the investment advice provided by NEPC should forward it to the Compliance Officer, with a copy to the appropriate Team or Practice Group Leader.

11) Whistleblower Protection
A whistleblower is defined as an Employee who reports an activity that he/she considers to be illegal or dishonest. Examples of illegal or dishonest activities include violations of federal, state or local laws; violation of any regulation governing the operations of NEPC; an ethics violation; a complaint of discrimination; billing for services not performed and other fraudulent financial reporting.

The purpose of this policy is to encourage and enable Employees to raise serious concerns internally so that NEPC can address and correct inappropriate conduct and actions.

a) If an Employee has knowledge or a concern of activity like the examples listed above, the Employee should contact his/her immediate supervisor, the Human Resources Director or the Chief Compliance Officer. The Employee must exercise sound judgment to avoid baseless allegations. An Employee who intentionally files a false report of wrongdoing will be subject to discipline up to and including termination.
b) The whistleblower is not responsible for investigating the activity or for determining fault or corrective measures; NEPC's managers are charged with these responsibilities.
c) No person may take any action to impede an Employee from communicating directly with NEPC management or a regulator. NEPC will not retaliate against any Employee who in good faith reports a suspected violation. An Employee who retaliates against someone who has reported a violation in good faith is subject to discipline, up to and including termination of employment.

12) Computers, the Internet, and Communication
a) Employees may not install any software on company computers that is not approved by our IT department. This includes applications, browsers, and instant messengers.
b) Employees may not use the Internet during normal business hours for any form of non-work-related chat rooms, day trading or gambling.
c) Any investment-related public communication provided outside of NEPC (such as advice, opinions, market insights and thought leadership) requires disclosure. This includes but is not limited to web sites, blogs and newsletters. All proposed communications must be approved by the Compliance Officer before publication or communication to the public.
d) Employees may not conduct any portfolio or investment-related communication using Text Messaging, on either company devices or personal devices. Any use of Text Messaging related to NEPC's business should be limited to travel logistics or arranging a meeting.
e) Employees should not expect privacy on any computer or other electronic device owned or provided by NEPC.

13) Use of Social Media

a) Aside from listing NEPC as an employer, Employees may not make any reference to NEPC on any social networking sites without prior written permission and may not make any reference to Clients.
b) Employees may not engage in blogging that may harm NEPC's public image or viability, and may not reproduce the company's logo or trademark on a blog. If employees mention NEPC by name in a blog, they should make clear that the post does not reflect the opinions of the company.
c) Keep in mind that you are more likely to resolve work-related complaints by speaking directly with your co-workers or our HR Department than by posting complaints to a social media outlet. Nevertheless, if you decide to post complaints or criticism, avoid using statements, photographs, video or audio that reasonably could be viewed as malicious, obscene, threatening or intimidating, that disparage Clients, associates or suppliers, or that might constitute harassment or bullying.

14) Outside Employment, Service as a Director

a) NEPC Employees may not engage in outside employment or income-earning opportunities without approval of the Compliance Officer. Approval will be based upon a determination that the employment or opportunity does not create a conflict of interest with NEPC.
b) Employees may participate in volunteer activities outside the firm and NEPC encourages its employees to participate in community activities, however employees must notify the Compliance Officer of any volunteer situation in which they provide investment advice. If company management determines that such service conflicts with the employee's duties at NEPC, the employee will be asked to cease such activity.
c) NEPC professionals are permitted to serve on a board of directors or an advisory board, but all positions must be disclosed and any position with a "for profit" organization must be approved in advance by the Compliance Officer. Authorization will be based upon a determination that the board service would not create a conflict of interest or interfere with the employee's responsibilities at NEPC.
d) Employees may not participate in surveys related to investment management that are conducted by firms that pay cash compensation for participation.

15) Political Contributions

NEPC does not want to restrict the right of each Employee to participate in the democratic process, and Employees may make personal contributions to a political party. At the same time, however, many NEPC clients are public funds which could be influenced by elected officials. For this reason, Employees and spouses are prohibited from making contributions to any elected or appointed official or candidate for any office (other than presidential primary candidates) without prior written approval from the Chairman, Managing Partner, or Compliance Officer.

16) Acknowledgement and Certification

Each NEPC employee will receive a copy of this Code of Ethics and any amendments, and must certify in writing upon commencement of employment and annually thereafter that he or she has read and understands this Code, recognizes that he or she is subject thereto and has complied with its provisions, disclosed any relationships that may result in a conflict of interest, and disclosed or reported all personal Securities holdings and transactions and gifts or entertainment that are required to be disclosed or reported by this Code. Such certificates and reports are to be given to the Compliance Officer.

17) Violations

a) Each Employee must report any violation of the Code promptly to the Compliance Officer.
b) Violations of this Code by an Employee or his or her family member or a related party may result in disciplinary action or other sanctions being imposed on the Employee. Sanctions may include termination of employment.

Certification

I hereby acknowledge receipt of NEPC's Code of Ethics. I certify that I have read and understand the Code and recognize that I am subject to its provisions.

I also certify that I have read, understand and agree to abide by the CFA Institute's Code of Ethics and Standards of Professional Conduct as an additional guide.

I have reviewed my own situation and conduct in light of the NEPC Code. I confirm that I am in compliance with the Code, including the requirements regarding the manner in which I maintain and report my Personal Accounts and conduct my personal securities trading activity.

I understand that any violation(s) of the Code is grounds for immediate disciplinary action up to, and including, termination of employment.

Signature ______________________________

Print Name ______________________________

Date ______________________________

To avoid the appearance of any conflicts of interest, I am listing on the next page any relationships I am aware of that might be perceived as a conflict. I am also listing outside employment or service as a director.

Disclosures

Name: ______________________

Date: _______________

Relationship Disclosure

______________________ _______________________ ________________
Name Employer Relationship to me

____
Role or job function

______________________ _______________________ ________________
Name Employer Relationship to me

____
Role or job function

______________________ _______________________ ________________
Name Employer Relationship to me

____
Role or job function

Outside Employment Disclosure

______________________________ ______________________
Employer Role or job function

______________________________ ______________________
Employer Role or job function

Board Membership Disclosure

______________________________ ______________________
Company/Organization Role

______________________________ ______________________
Company/Organization Role

Certification for Strict Discretionary Accounts

I hereby certify that I have read and understand the requirements of the NEPC Code of Ethics and Personal Trading Policy Code (the "Code") regarding transactions in Client Securities. I understand that transactions in Client Securities within the Strict Discretionary Account(s) identified below will be exempt from the pre-clearance requirements of the Code only if:

- pursuant to an agreement and in actual practice, the investment adviser or broker of the Strict Discretionary Accounts (who may not be an Employee or affiliate of NEPC) has full discretionary authority to purchase and sell Client Securities without prior notification to, discussion with or consent of the accountholder;

- neither the accountholder nor his/her representatives, directly or indirectly, suggest or otherwise communicate with the investment adviser or broker in advance concerning transactions in specific Client Securities; and

- the accountholder and I at all times act in accordance with the above agreement with the investment adviser or broker.

I understand that the Code does not prohibit receipt of periodic (after the fact) reports or statements of any Strict Discretionary Account or information for preparation of tax returns or from holding periodic discussions with the investment adviser or broker solely for the purposes of describing investment objectives and risk profiles generally or evaluating the past performance, or for any purpose other than to discuss specific Client Securities or issuers.

I hereby certify that the conditions set forth above are satisfied with respect to each Strict Discretionary Account in which I have any Beneficial Ownership, and that neither I nor any other accountholder will have any communications with the investment adviser or broker relating directly or indirectly to any Client Security currently held or to be held by the account (except for receiving the reporting information specifically permitted by the last sentence of the preceding paragraph).

Name of Investment Adviser or Broker:	
Accountholder:	
Account Number:	

Signature: ________________________________

Date: ____________________________________

REPRESENTATIVE CLIENT LIST

Public

AC Transit Employees' Retirement
Arizona Public Safety Personnel Ret. System
Arizona State Retirement System
Baltimore County ERS
Boston Water and Sewer Commission
Chicago Policemen's Annuity & Benefit Fund
City of Boston - Trust Funds
City of Detroit, Michigan
City of Fresno Retirement Systems
Fairfax County Uniformed Retirement System
Los Angeles County Savings Plan
Los Angeles Deferred Compensation Plan
Louisiana State Employees Retirement System
Massachusetts Water Resource Authority
New Mexico Educational Retirement Board
Ohio Public Employees Retirement System
Philadelphia Housing Authority
San Antonio Fire & Police Pension Fund
San Bernardino County ERA
San Francisco Employees' Retirement System
Seattle City Employees' Retirement System
St. Louis Public School Retirement System
State Boston Retirement System
State of Wisconsin Investment Board
Ventura County ERA
West Virginia Board of Treasury Investments

Taft-Hartley

ABC-NABET
Boston Newspaper
Boston Plasterers' & Cement Masons' Local 534
Boston Shipping Association
Desert States UFCW Pension Fund
Fulton Fish Market
IBEW Local 357
IUOE Locals 12 & 324
Sheet Metal Workers Local 40
Teamsters Local 856
UFCW - Northern California
Western Pennsylvania Teamsters & Employers

Healthcare Related

Baylor, Scott & White Health LLC
Boston Medical Center
Christus Health
Henry Ford Health System
Johns Hopkins Health System
Lahey Clinic
Multicare Health System
Rochester Regional Health
Rush University Medical Center
Shriners Hospitals for Children, Inc.
St. Barnabas Hospital
University of Maryland Medical System

Corporate

Becton Dickinson and Company
Bose Corporation
Colgate-Palmolive Co.
JM Family Enterprises, Inc.
Jones Day
Marriott International
National Grid
Ocean Spray Cranberries, Inc.
Southwest Airlines Co.
ThermoFisher Scientific, Inc.
TimkenSteel Co.

Endowments & Foundations

Community Foundation for SE Michigan
Creighton University
Culver Academies
Hebrew Immigrant Aid Society (HIAS)
MaineGeneral Healthcare
Several High-Net Worth Foundations
Unitarian Universalist Association of Congregations

As of 10/1/2020. The above client list is only a sample. It is not known whether or not the clients approve of the services received. It should not be considered an endorsement by any individual client listed.

NEPC 2020 INVESTMENT OUTLOOK

KEY MARKET THEMES

December 16, 2019

NEPC Research

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KEY MARKET THEMES OVERVIEW

Key Market Themes are factors that define global markets and can be expected to both evolve and remain relevant without a clear timeline of conclusion. At times, themes may be challenged or disrupted and generate market volatility. The conclusion of a theme likely alters both market dynamics and our market outlook. Our intent is for clients to be aware of these themes and understand their implications for asset allocation and portfolio implementation.

NEPC currently has four Key Market Themes:

Late Cycle Dynamics	Permanent Interventions	China Transitions	Globalization Backlash

LATE CYCLE DYNAMICS

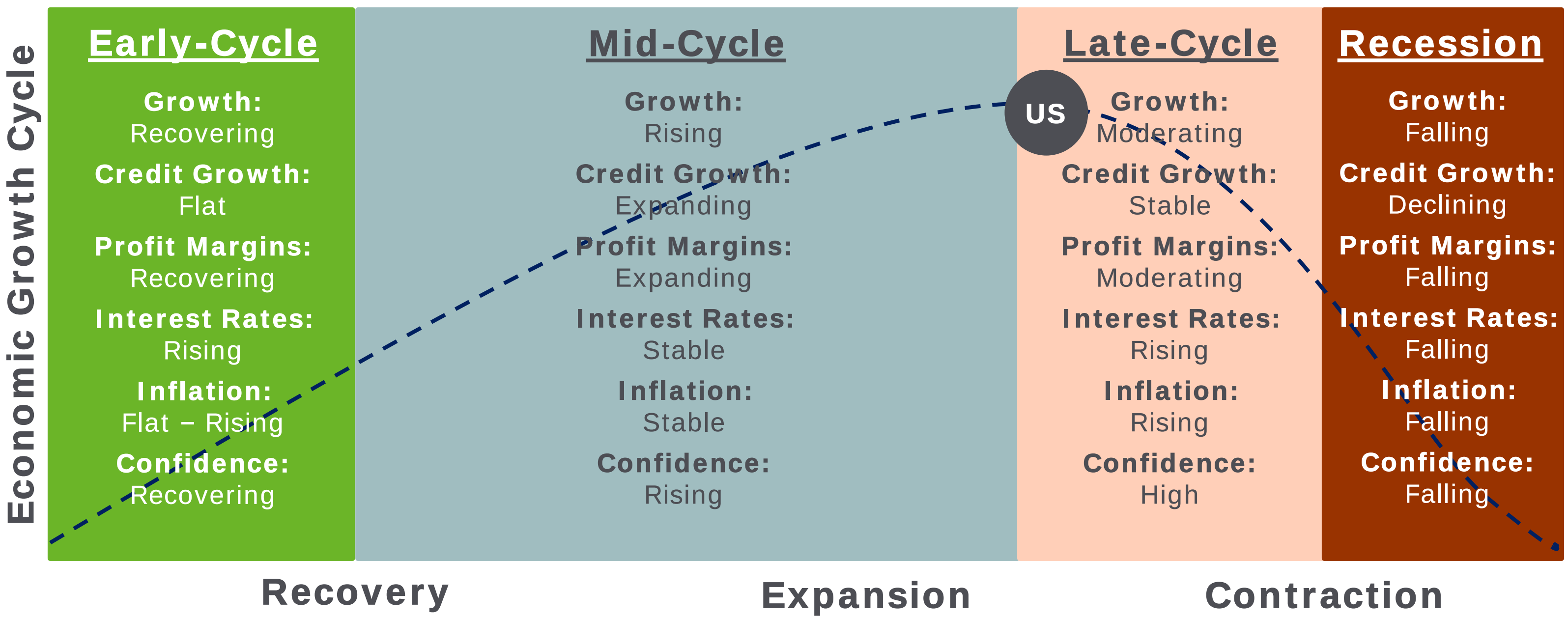
DEFINING THE THEME

The US economy has transitioned from the mid to late stage of the economic cycle as evidenced by classic late-cycle indicators including a tight labor market, a flat yield curve, and strong investment returns

Late cycle does not mean end of cycle; equity markets can offer strong returns and abandoning a long-term target allocation early may detract from long-term results

Despite the trend, there is minimal evidence in economic/financial indicators to suggest that a US recession is imminent

Given typically heightened volatility, rebalancing plays an important role during the late cycle – affording investors the opportunity to maintain risk, liquidity, and diversification targets, while also capturing improved pricing opportunities



EXPECTED EVOLUTION

As the theme evolves, we anticipate:

An extended late-cycle relative to history given the unique aspects of the current economic cycle

The length of the current cycle can be extended with continued central bank support and fiscal accommodation, as described in our Permanent Interventions theme

Despite historically low unemployment, the implementation of tariffs, and a large fiscal stimulus package, inflationary pressures have been slow to materialize in the US

The current expansion has been tepid, with cumulative GDP growth well short of prior expansions – suggesting low, but steady growth may continue

The pronounced bifurcation in economic activity between the consumer and businesses will likely continue. Relatively strong consumer sentiment and spending can support economic growth and help offset weakness in manufacturing and business activity, which have been more acutely impacted by trade uncertainties

A relatively supportive market environment for risk assets and equities

Accommodative monetary policy aimed at prolonging the current expansion and offsetting weak data will likely continue to provide a tailwind for growth-sensitive assets

Historically high corporate profit margins are likely to remain elevated along with steady revenues and continued share buybacks

Dividend yields appear relatively attractive with low yields across the US Treasury curve

EXPECTED EVOLUTION CONTINUED

Volatility metrics are likely to remain suppressed from supportive policy, but there is a higher "gap risk" across capital markets

- Volatility shocks, such as that seen in December 2018, will occur as markets digest the cyclicality of central bank liquidity
- An exogenous shock (trade war, etc.) or a minor economic disappointment can have an outsized impact and surprise investor sentiment as recent economic stability is assumed to continue into the future and fully baked into market expectations
- A wider range of potential outcomes suggests an emphasis on portfolio balance, but we caution against getting too defensive
- With a generally supportive equity risk environment, we encourage investors to remain at strategic target equity weights, but brace for potential volatility

An extended late-cycle may continue for years to come

- Excesses unlikely to build across the economy with growth and inflation relatively muted
- Monetary and potential fiscal stimulus can help to sustain the expansion and mute the regime shifts of a normal economic cycle
- This outcome mirrors the "super cycles" seen in Australia and the Netherlands, where these countries avoided extended drawdowns for decades

The extended expansion could potentially be disrupted by:

- A Fed pivot to less stimulative monetary policy, which would likely result in a recession, though this appears unlikely given the Fed's commitment to support market sentiment
- Exogenous factors, such as a trade war, can cause significant disruption to the economy and impede economic growth

UNIQUENESS IN THE CURRENT CYCLE

The profile of the current cycle fits with classic late-cycle indicators

Solid economic environment with low, but stable GDP growth and a tight labor market

Robust capital market returns throughout the business cycle have created above average equity valuations and a tight credit spread environment

Typically the late stage of the cycle is accompanied by rising interest rates, higher inflation, and an inversion of the yield curve

While these characteristics gained momentum in 2018 and early 2019, these trends have reversed in a powerful way

The current market environment exhibits low rates, subdued inflation, and a flat, though positively sloping yield curve

The reversal of these economic trends do not imply the end of the Late Cycle Dynamics theme, but reflect the influence of our new Permanent Interventions theme on the long-term path of rates and inflation

Accommodative policy consistent with Permanent Interventions is a direct result of late-cycle pressures and this level of central bank influence likely mutes the normal fluctuation of the market cycle

The lack of inflation pressure offers policy flexibility to stimulate and extend the cycle over facing the challenge of the conclusion of the late cycle, i.e. recession

The current level of interest rates outside the US suggest there is limited traditional firepower for developed market central banks to navigate an economic downturn and reinforces the need for extraordinary support from central banks

INVESTMENT CONSIDERATIONS AND RISKS

The current market environment is characterized by a unique set of risks and a more nuanced investment outlook

Above average equity valuations and low yields temper forward-looking returns

Resilient investor sentiment, accommodative policy, and favorable economic trends can further support equity markets and provide substantive investment returns

Subdued growth expectations highlight the fragility of the economy, which suggests an underweight to credit risk relative to safe-haven fixed income exposure is appropriate

Investors must be cautious in such an environment given the uncertainty around time horizon and potential wide range of economic outcomes

There is a greater need for portfolio discipline due to spikes in volatility and the positive returns offered by the late cycle before the expansion ends and asset repricing occurs

While recession concerns remain low, our outlook can quickly change should a material slowdown in economic indicators occur or a dramatic shift in central bank policy

Average Cumulative Return	Early-Cycle	Mid-Cycle	Late-Cycle	Recession
S&P 500 Index	20.1%	46.6%	24.3%	-9.7%
Russell 2000 Index	33.7%	61.3%	15.8%	-7.7%
Barclays US Treasury Index	6.3%	25.0%	12.8%	13.0%
Barclays US Aggregate Index	7.2%	27.3%	13.2%	13.6%
Barclays US High Yield Index	29.5%	50.4%	18.0%	-4.0%
Bloomberg Commodity Index	12.1%	28.7%	30.5%	4.2%

Source: S&P, Russell, Barclays, FactSet, NEPC
Figures represent average cumulative return during each stage of the economic cycle

POTENTIAL OUTCOMES

	Description	Market Implications
Stagnation	Low, but positive growth combined with muted, but slightly higher inflation to create a persistent stagflation-like scenario	Capital market returns are muted. In this scenario, there are no significant drawdowns, but long periods of very low real returns
Recession	Sustained deterioration in economic metrics leading to a cyclical earnings or economic recession. A short-term negative but also is a normal component of the business cycle	Negative asset sentiment leads to significant volatility across markets. This outcome resets expectations and risk premiums in capital markets – resulting in a restart of the business cycle
Extended Late-Cycle *Base Case*	The slow, but steady expansion continues with accommodative fiscal and monetary policy aimed at preventing the derailment of the current economic cycle	Interest rates remain compressed from the impact of accommodative monetary policy. Preferred bias toward equity over credit given yields, spreads, and the risks associated with the late-cycle
The Cycle Restarts	A sustained increase in economic productivity resets the business cycle, pushing the US economy into an early-cycle profile	This is the most appealing outcome for global risk assets, but there is potential for volatility during the transition as central banks adjust. There is no historical analogue in US economic history

PERMANENT INTERVENTIONS

DEFINING THE THEME

The developed world is undergoing a regime shift defined by central bank market interventions and permanent fiscal support from governments

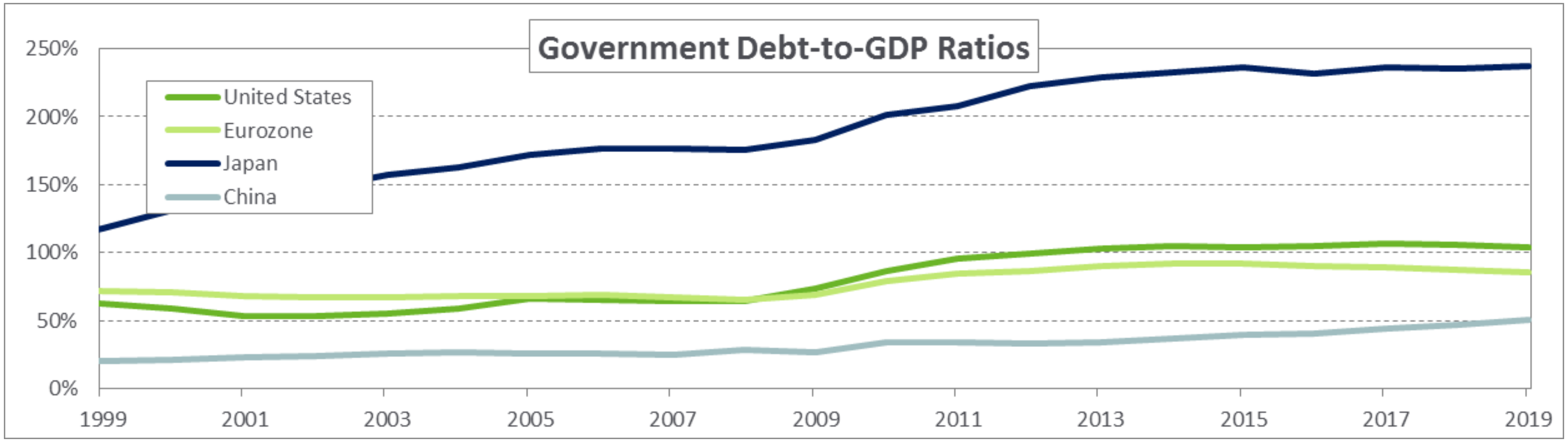
The dynamics of muted inflation pressures and below-average trend growth rates motivate a combined monetary and political response to address deflationary pressures and society's desire for higher economic growth rates

We believe central banks across the globe will continue to expand balance sheet assets to sustain an environment of excess liquidity

Low to negative interest rates and a fragile economic environment force central banks to continue to grow balance sheets and liquify the global financial system

Weak economic growth trends in the developed world underpin political tensions, which we believe will motivate significant fiscal debt expansion

Japan was at the forefront of this theme, raising debt-to-GDP levels to nearly 250% to confront a demographically-driven growth and inflation crisis and highlights a path for the US and Europe to address their unique long-term growth and inflation concerns



Source: FactSet, IMF

DEFINING THE THEME CONTINUED

The absence of central bank intervention and fiscal stimulus would highlight the extraordinary economic weakness of the developed world

The intensity of negative factors vary across regions but can be traced to the influence of past stimulus, demographics, productivity, and structural economic and labor policies

The permanent intervention of fiscal stimulus is likely to continue as populist tensions and political dynamics in the developed world push the self-interest of the political class to significantly expand fiscal policy

As debt-to-GDP levels rise, the necessity of central bank intervention is reinforced as government bonds yields must remain below nominal economic growth rates to forestall a sovereign debt crisis – a profile investors witnessed in the Eurozone in 2010

Controlling market sentiment is of equal importance to the central bank inflation and employment mandates and is now a key policy pillar

In such an environment, the path of monetary policy does not normalize and central banks only adjust interest rates higher if meaningful inflationary pressures force them to act. The proactive tightening of monetary policy damages market sentiment and exposes the fragile nature of economies, as evidenced by the 2018 Federal Reserve tightening policy

We believe the Permanent Interventions theme could mute the normal fluctuations of a business cycle, but leaves no safety net in a downturn as central bank and fiscal interventions will be exhausted

A "new normal" has coalesced around a permanent regime of easy monetary policy, surplus market liquidity, and fiscal debt growth. Investors have yet to fully discount the favorable equity market conditions paired with significantly heightened macro tail-risks

INVESTMENT CONSIDERATIONS

The long-term investment outlook for the Permanent Interventions theme is dependent on an investor's objectives and asset allocation bias

For those with large fixed income holdings, the theme can be viewed as a "war on savers" and for equity investors one could ask "do valuations matter?"

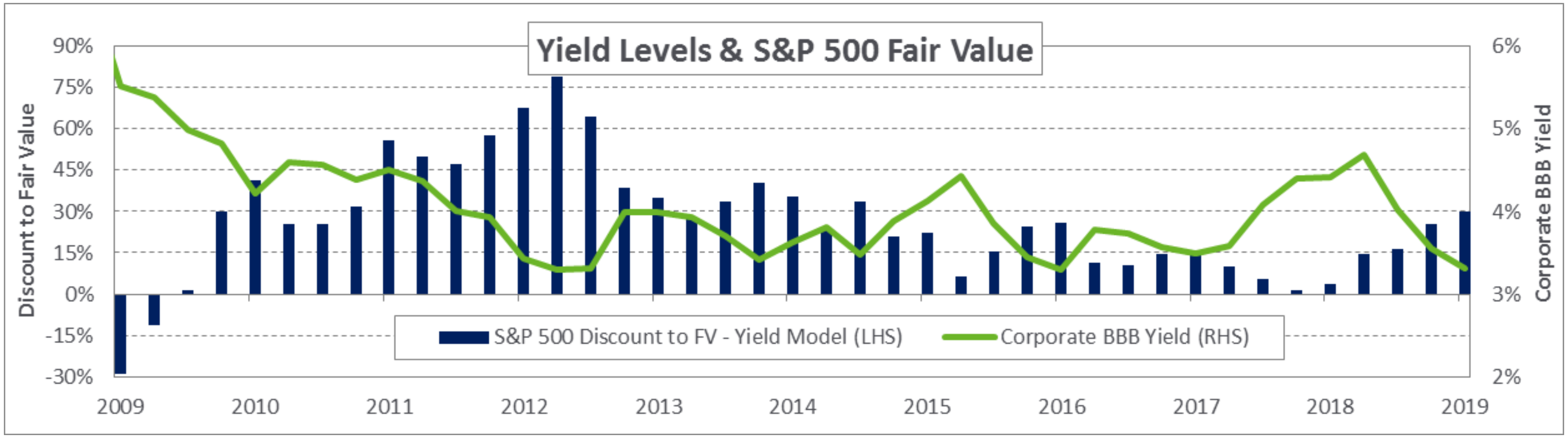
Permanent Interventions suggest low yields and higher P/E multiples

Low interest rates lead to higher values when discounting future cash flows and increase valuations for all equity and lower quality credit asset classes

Investors enjoy high profit margins relative to history as the surplus of central bank liquidity disproportionality benefits holders of capital relative to labor

Supportive policy environment would appear favorable to equities

But historical results (Japan's Lost Decade(s), Eurozone, etc.) show economic weakness can overwhelm the system in the absence of extraordinary policy measures. In such cases, government bonds, despite low yields, can offer the most attractive risk-adjusted returns



Source: FactSet, S&P, Bloomberg

THEMATIC MACROECONOMIC RISKS

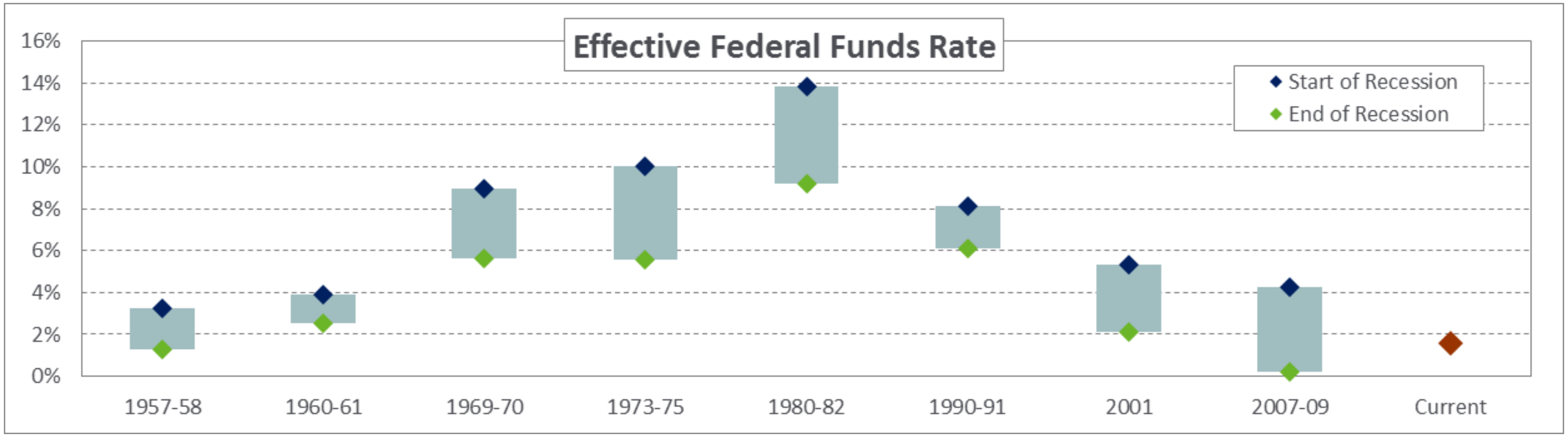
Historically, the conclusion of a market cycle was the result of tighter monetary policy to slow economic activity, but permanent intervention from central banks mutes the normal fluctuation of this market cycle

Macro tail-risks grow as moral hazard is continually absorbed into the financial system and economies nationalize losses that would have occurred in a normal economic cycle

However, there is a low margin of error if an economic downturn is on the horizon as current low interest rates can be reduced only so far

The current level of rates suggests the Fed has limited ability to use Fed Funds as a policy tool to reduce interest rates on par with past market cycles and the Fed is likely to rely heavily upon market interventions to manage sentiment and forestall economic slowdowns

Central bank intervention likely displaces traditional macroeconomic risks as a sovereign debt or bank liquidity crisis appears to be an outlier tail-risk relative to their past impact on developed market economies



Source: FactSet, Federal Reserve

POTENTIAL OUTCOMES

	Description	Long-Term Market Implications
The New Normal	NEPC base case expectation of a permanent regime of easy monetary policy, surplus market liquidity, and fiscal debt growth paired with muted inflation levels	Favorable to equities relative to safe-haven fixed income, with risk assets benefiting from above average corporate profit margins and low interest rates. The normal fluctuations of a business cycle are subdued but continues to build macro tail-risks
Political Dysfunction	Interconnected with NEPC's Globalization Backlash theme, political conflict disrupts the full intervention of fiscal stimulus	Economic growth rates are lower as fiscal stimulus lacks permanence. Developed economies are at a greater risk of a downturn and central bank intervention has limits to improve economic growth. Favorable to long duration fixed income and tactically favorable to risks assets following frequent bouts of market volatility
Back to Normal	Economic trend growth rates and inflation levels normalize along with market and business cycles	Expected period of low investment returns for all assets classes as real interest rates normalize. Requires a repricing of risk premia to incorporate a neutral fiscal policy and the withdrawal of central bank intervention
Inflation	A material increase in inflation would be the most severe tail-risk outcome for investors as the market discounts almost no probability of above average inflation levels.	Significant repricing of market expectations and risk premia likely to generate permanent losses of capital among some segments of equity and fixed income markets. Potential cause and/or effect is a devaluation of developed market currencies and a breakdown of the US dollar's reserve currency status
Japanification	This outcome is largely driven by a demographic crisis, with Europe being the most severely exposed. China is at risk, but racing to increase per-capita GDP levels before the population ages. The US demographic profile is relatively positive compared to major global economies	Favorable to long duration fixed income with severe deflationary pressures and low growth rates. Fiscal and monetary intervention is not a cure, but mitigates the full economic damage. Central banks control bond prices across the yield curve, severely distorting the cost of capital and corporate capital structures with the impacted regions likely experiencing a "lost decade" of investment returns

CHINA TRANSITIONS

NEPC, LLC

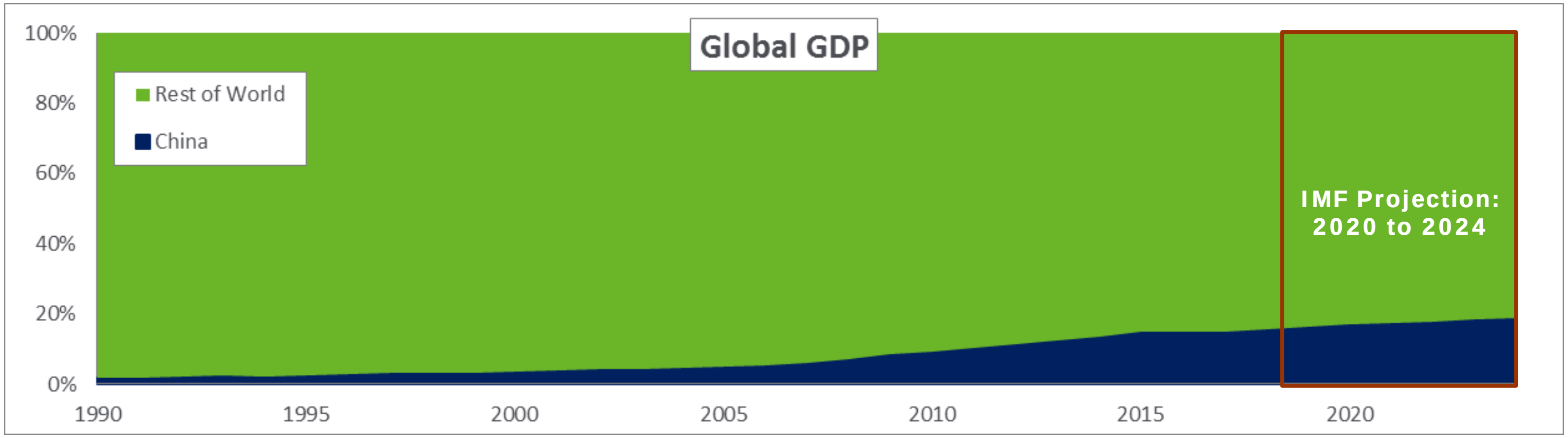
DEFINING THE THEME

China is undergoing a multi-faceted evolution as the economy transitions to a services and consumption-based model, while China's role on the global stage shifts to reflect its ascending geopolitical power

Domestically, China's socioeconomic profile is changing with rising income levels, increasing urbanization, but also challenging demographics. The country is leveraging this transition to continue its economic liberalization, but fixed investment and credit growth are required to support the "old" economy and maintain employment levels

In addition to economic liberalization, barriers to enter China's capital markets are being relaxed and the ability of foreign investors to access local markets has broadly expanded. Index providers are likely to continue to increase China's weight in global equity and fixed income indices, which is a better reflection of China's position in the world economy

China is the global growth engine and any disruption to these significant transitions will be transmitted globally due to the country's expanding role in the world economy



Source: IMF

EXPECTED EVOLUTION

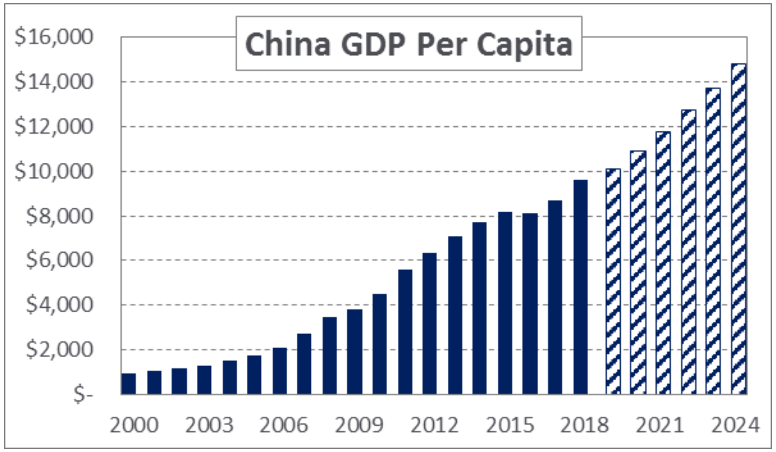
China continues to experience slowing economic growth, but remains on a growth path to equal the size of the US economy over the next 25 years

Policymakers must continue to balance the goals of sustaining healthy economic growth rates and moderating the growth of credit in the financial system

Recent data points highlight China's discipline and commitment to manage credit growth levels despite the harmful economic effects of the US-China trade dispute. However, an uncontrolled acceleration of credit growth and real estate development is a systemic risk to the local economy

Rising income levels and the ongoing rural to urban transition expand the need for a broad range of consumer-oriented services

With the broad improvement in quality of life, consumer demand for healthcare services and education is rapidly growing, but straining existing systems. Despite a rapid increase in GDP per capita, innovation and advances in economic productivity are needed for China to escape a middle income trap and an aging populace



Source: IMF

Source: IMF

EXPECTED EVOLUTION CONTINUED

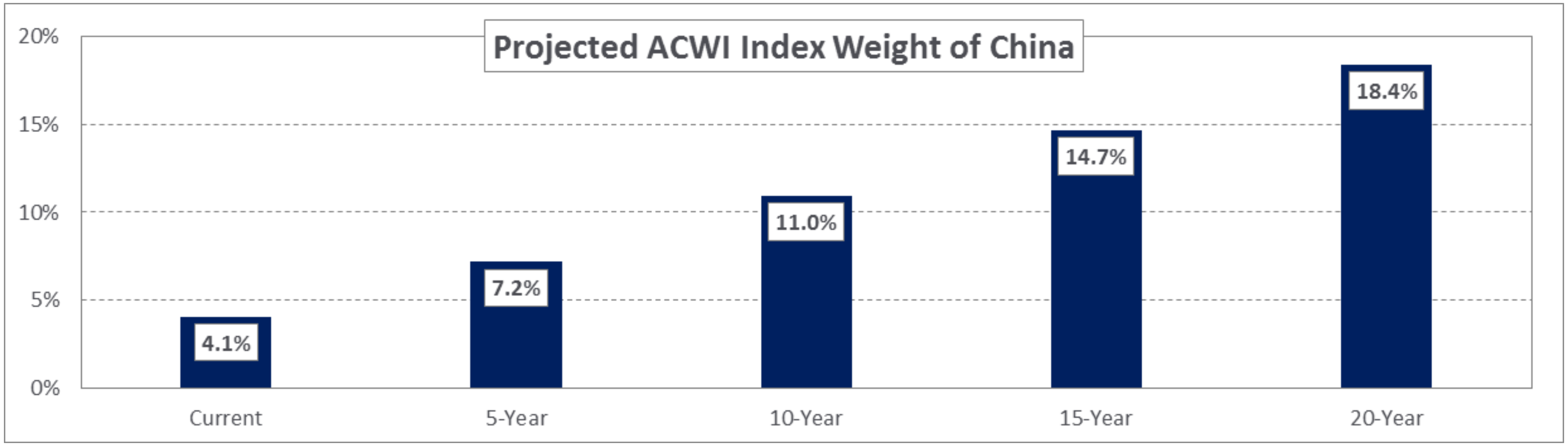
China's ascendancy as a strategic competitor to the US across innovative fields, such as artificial intelligence and 5G technologies, has provoked social and political angst regarding China's transition to a global power

China's growing economic and geopolitical prominence relative to the established global role of the US can be viewed as a "Thucydides Trap", where a rising power causes fear in the established power

The US-China trade conflict is an expression of this dynamic as tariffs have been used as a deterrent to confront China's rising economic status and risks a zero-sum dynamic of economic competition between the US and China across a wide range of sectors

While we anticipate access to local markets will continue to expand, the ability to attract foreign capital can be hindered by policymakers in the developed world limiting the free movement of capital to China

As China's transition continues, tensions with the US are likely to remain heightened and at times may incite volatility in global markets



Source: MSCI, IMF, FactSet, NEPC

INVESTMENT CONSIDERATIONS AND RISKS

China's fundamental transitions will likely continue for the next decade

Successful management of these transitions could accrue beneficially to global investors, especially those with relative overweights to Chinese assets

Access to local financial markets will continue to expand with ongoing inclusion efforts by global index providers in both equity and fixed income

As income levels rise and capital markets liberalize, China is on a long path to developed market status and we anticipate large strategic asset allocation targets to China will be required to maintain a neutral market beta exposure to the country

We believe the market implied base case is for China to continue on its current development path, but numerous disruptions could occur

Any disruption to this transition will have an outsized impact for the global economy and generate significant levels of currency and equity volatility across global markets

The risk of a US versus China economic conflict has notably increased

As experienced over the past few years, US foreign and economic policy has pivoted to view China as a threat and global competitor. China's growth transition can be severely impeded if the US-China relationship descends into the "Thucydides Trap" with economic links being resisted and additional economic costs imposed on both nations

At its extreme, this dynamic creates the potential for separate spheres of US and China influence with disconnected financial systems and distinct USD and yuan currency blocs. Such a long-term scenario is broadly negative – impacting access for both nations to the others capital markets and limiting economic growth opportunities

POTENTIAL OUTCOMES

Size of bubble denotes expected likelihood of outcome

China Reaches Developed Market Status: Successful transition to a consumer-oriented economy with per-capita GDP in line with the developed world and continued liberalization of capital markets

US-China and Separate Spheres of Influence: Two separate economic, geopolitical, and financial systems exist with an ongoing confrontational relationship. This dynamic may impact foreign access to Chinese capital markets, with the potential to directly impact regional blocs aligned with China

The Middle Income Trap: Per-capita income growth stalls as innovation and productivity levels do not improve from current levels. China fails to achieve developed market status, implying an internal shift away from market-friendly reforms or an external force such as US policy pressure curtailing China's growth

Debt and Currency Crisis: Uncontrolled expansion of credit growth to drive short-term economic gain fuels capital misallocation and represents a systematic risk to the financial system and China's currency controls

The 21st Century is Dominated by China: China becomes the dominant global power for this century. China assumes economic leadership and the yuan ascends to become a global reserve currency

Full Integration: Political and economic liberalization within China and complete integration in the established world order and the current geopolitical hierarchy

GLOBALIZATION BACKLASH

DEFINING THE THEME

Stagnant wage growth and growing wealth inequality are fueling political discontent across the developed and emerging world

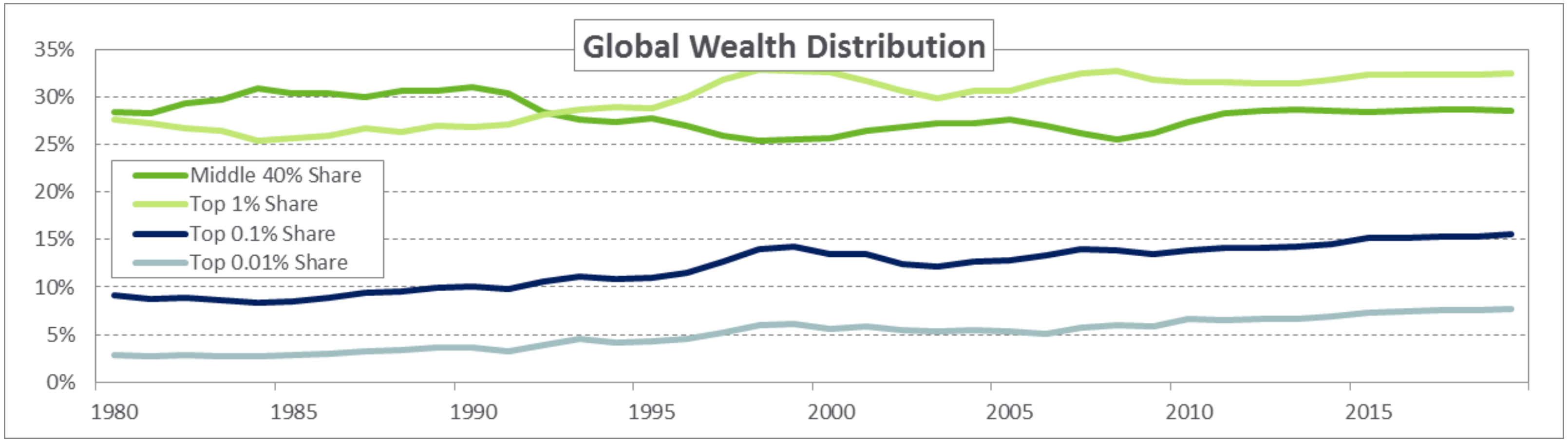
Populist movements across the world are shifting away from the political and economic orthodoxy of the last 50 years

Globalization is viewed with suspicion by a growing percentage of voters, shifting multiple countries to more nationalist policies

Fatigue over globalization is changing political platforms and increasing trade tensions. A reevaluation of established multilateral relationships likely increases geopolitical risks

The growth of populist movements, on the "left" and "right", destabilizes the political order and materializes as Globalization Backlash

An anti-establishment political bias and a drift from political orthodoxy heighten tail-risks in global markets, specifically currency markets, as voting patterns become more volatile with a wider range of outcomes associated with foreign policy, trade policy, and tax rates



Source: World Inequality Lab

EXPECTED EVOLUTION

As Globalization Backlash evolves, we do not see wealth inequality gaps shrinking – highlighting the long-term nature of theme

The origin of voters' economic unease remains and the popularity of anti-establishment political parties poses a risk to the global economic order. This trend suggests populism will continue to be used as a political tool to exploit the anxiety and fears of voters – shifting economic and political policy away from orthodoxy

The success of unconventional candidates and the greater frequency of contested elections is likely to incite volatility across markets

The bias to shift away from traditional political norms leaves currency markets prone to bouts of volatility. Europe is one example of a potential globalization backlash flashpoint

The extremes of the political spectrum across the developed world are likely to have a greater role in government as moderation is stretched

In many cases the role of government may be muted as parliamentary coalitions have narrow paths of consensus, heightening tail-risks and political instability as reforms are unable to be enacted

The battering of the established world order brings investment risks and opportunities for investors in global equity and currency markets

While market sentiment is sensitive to disruptions due to Globalization Backlash, a lack of political consensus limits regulatory action and can be a positive for equity markets

We do not envision Globalization Backlash providing a dedicated investment opportunity, but the rise of populist movements heightens market volatility and likely provides more frequent dislocations in equity, credit, and currency markets

EXPECTED EVOLUTION CONTINUED

US-China trade tensions are a full expression of our backlash theme

Levying tariffs is a dangerous game as both the US and China look to negotiate but must demonstrate strength for their domestic audience. US-China tariffs are the "new normal" and this dynamic can continue for the foreseeable future. We do not anticipate the trade dispute to escalate beyond tariff levies and prohibit the flow of goods and services

Markets have skeptically digested the US administration's rhetoric and expect a limited trade deal in the near-term, but a tighter US trade policy is a material risk for the global economy and investor sentiment

We continue to monitor the situation in the UK as Brexit represents a live case study for the effects of globalization backlash

Economic metrics across the country have turned lower in the time since the UK voted to leave the European Union. The deterioration in business and consumer confidence along with potential disruptions to the financial sector offer a cautionary tale. Yet the significant Tory victory in December signals the electorate's fatigue and wanting to "get Brexit done"

Source: China Customs, FactSet; *2019 represents total through 11/30/2019

POTENTIAL OUTCOMES AND IMPLICATIONS

	Description	Long-Term Market Implications
Pushback on Established World Order	NEPC base case expectation of continued tariffs, rising nationalism, and growing populist trends, which reflect globalization fatigue	Does not favor a specific investment action or asset class but includes more volatility for governments as coalitions shift with narrow paths of consensus. Likely leads to greater volatility for capital markets, particularly in currencies across the developed world
A More Balanced Global Wealth Distribution	Economic adjustments lead to long-term improvements in real income for lower income workers in the developed world and emerging market economies	Positive for equities and credit with some aspect of normalization in inflation and real interest rates. With economic productivity gains, monetary policy could decrease in importance
Expanding Protectionism	A severe reversal in globalization with a regression in trade and global economic integration	Greater protectionism negatively harms investor sentiment, business investment, geopolitical relations, and global supply chains. Developed nations, such as the US, with domestically available resources and consumers may have a relative structural advantage. This scenario generates lower global growth and higher volatility
Democracy Crumbles	Breakdowns in the social fabric of society and government. Populist movements become the "revolution" as economic structures and policies are refashioned	Holders of capital suffer under this path as investment markets across equity and fixed income experience severe negative outcomes

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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NEPC 2020 INVESTMENT OUTLOOK

ASSET CLASS ASSUMPTIONS

December 16, 2019

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

ASSET CLASS ASSUMPTIONS

INTRODUCTION

2020 ASSET CLASS OVERVIEW

2019 was a year of robust returns across most asset classes

Investors were rewarded with lucrative returns as global equities and bonds rallied

Falling global yields were a powerful tailwind

Fixed income benefitted as prices rose with falling yields

The discounting of future cash flows with lower rates, supports higher equity valuations

The economic backdrop weakened globally, but remains net positive

Accommodative monetary policy in the developed world was a positive for risk assets

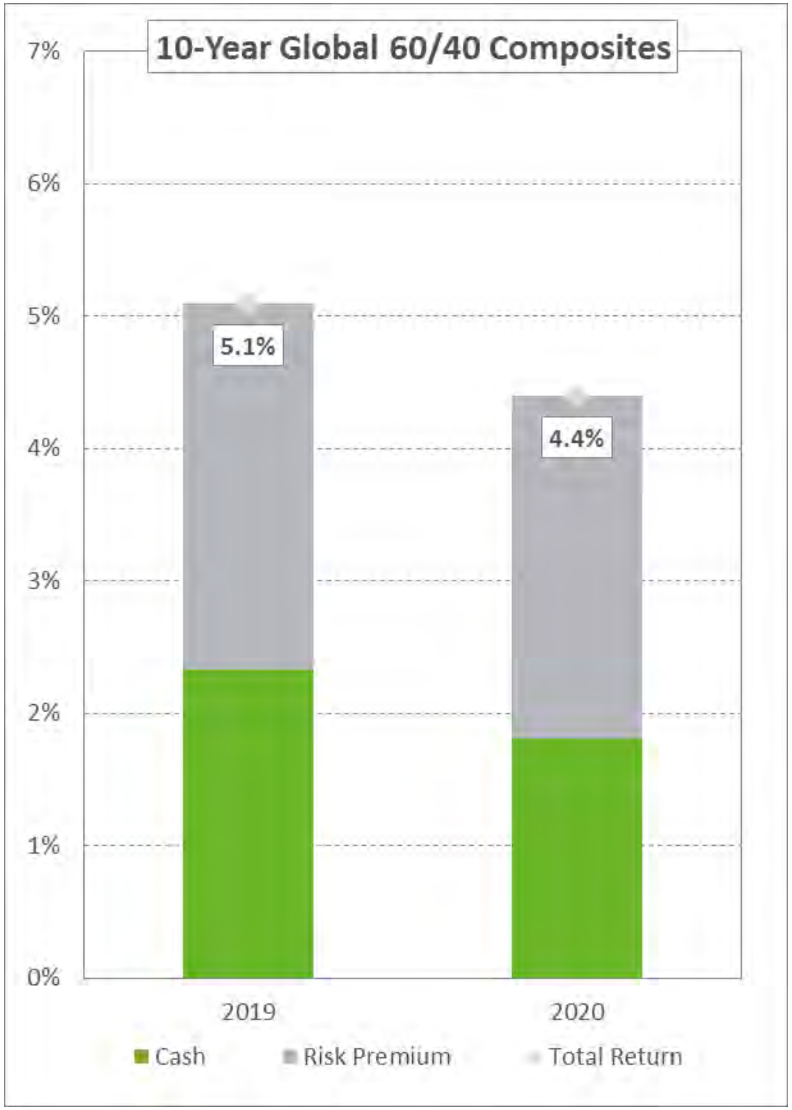
Market-based inflation expectations have declined considerably and reflect a lower expected inflation path over the long-term

The "lower for longer" period has extended out a decade due to central bank intervention

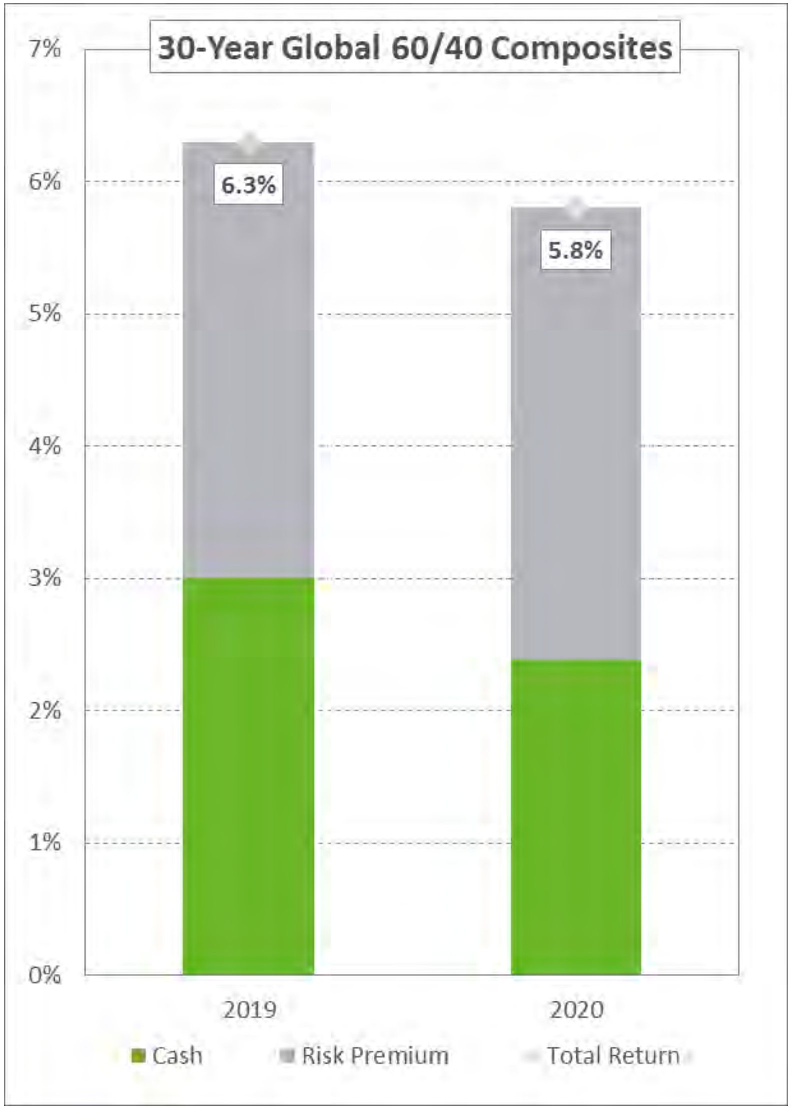
The combination of falling interest rates, robust returns in the prior year, and lower growth and inflation expectations generate declining return expectations for nearly all asset classes

These significant market movements resulted in a secular decline in NEPC's outlook – impacting both the 10-year and 30-year assumptions

THE IMPACT OF LOWER CASH RATES



Source: NEPC



Source: NEPC

FORECAST TIME HORIZON ADJUSTMENT

NEPC has adopted a 10-year return horizon and shifted from a 5-7 year outlook for capital market assumptions

- The 5-7 year time horizon was intended to correspond to the approximate length of the market cycle; recent structural changes in the economic environment signal longer cycles
- Themes and valuation shifts are likely to play out over a more extended time frame
- This adjustment allows clients to more easily reconcile forecasts from multiple sources

The 10-year horizon is representative of a long-term strategic view and should not be conflated with shorter-term market views

- Forecasts are influenced by the path of key inputs such as growth, rates, and inflation, as well as terminal values of valuations, spreads, and profit margins

This change in methodology introduces nuances relative to prior years:

- The change in assumptions over time should be muted as convergence toward a terminal value is incorporated over a longer time frame
- For 2020, 10-year forecasts would be slightly higher than a 5-7 year forecast as capital markets are assumed to normalize over time
- The decline in 2020 capital market expectations is predominantly driven by changes from the 2019 market environment rather than longer time horizon

2020 ADDITIONAL ENHANCEMENTS

The Asset Allocation Committee continues to refine the process

The rounding convention for capital market return assumptions have been changed to the nearest 10 basis points

- Historically, return assumptions were rounded to the nearest 25 basis points and this change should not be viewed as a message of increased precision

New asset class assumptions were added to assist in portfolio modeling

- Global Listed Infrastructure, Natural Resource Equities, Short TIPS, and Long TIPS

Adjustments were made to some asset classes to provide a better reflection of the underlying investment beta

- China Equity: Represents all shares, rather than a local-only investment mandate
- Private Debt – Credit Opportunities: Includes investment areas outside of direct lending and distressed debt. The opportunity represents mezzanine and other niche approaches

ASSUMPTION DEVELOPMENT

Capital market assumptions are published for over 65 asset classes

Assumptions include 10-year and 30-year return forecasts, volatility expectations, and correlations

NEPC publishes both 10- and 30-year return forecasts

10-year forecasts are appropriate for strategic asset allocation analysis and are influenced by global forecasts/pricing of growth, inflation, and yields, while valuations and spreads converge to NEPC-defined terminal values

30-year forecasts are appropriate for actuarial inputs and long-term planning

Based on data as of November 30

Assumptions are developed by the Asset Allocation Committee and approved by the Partners Research Committee (PRC)

Assumptions are developed with proprietary valuation models and rely on a core building block methodology

Asset Allocation Committee	
September	Asset Allocation Committee Assumptions Kickoff Finalize List of New Asset Class Assumptions
October	Review Draft of Asset Class Return Assumptions Discuss Outlook with NEPC Research Beta Groups
November	Finalize Volatility and Correlation Assumptions Final Update of Asset Class Models (As of 11/30)
December	Review Model Output and Create Return Assumptions Present Draft to the PRC Publish Assumptions on December 16th

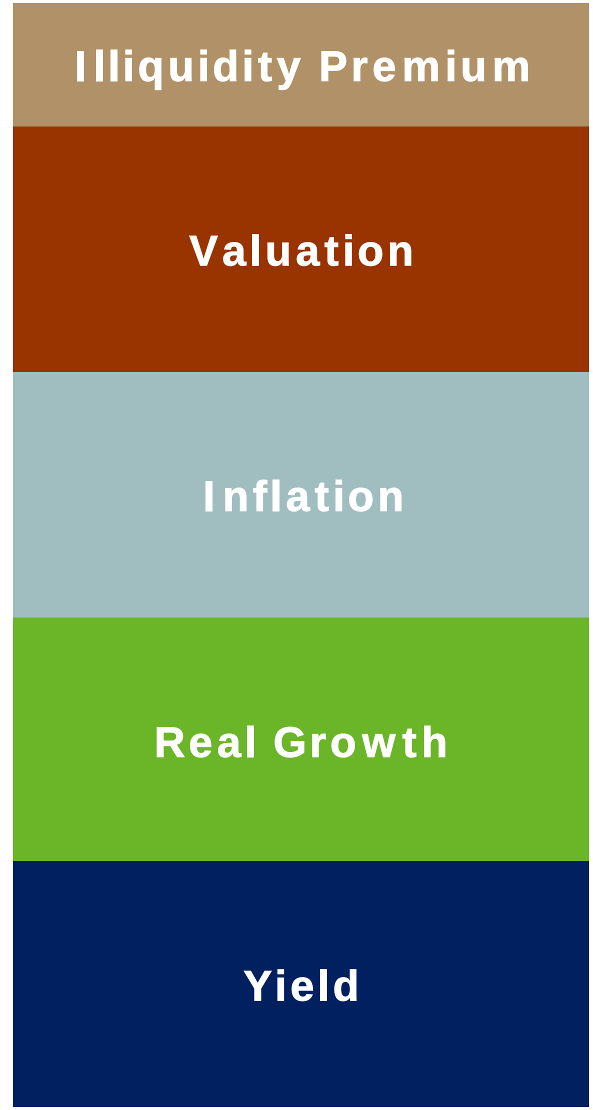
BUILDING BLOCKS METHODOLOGY

Forward-looking asset class models incorporate current and forecasted market and economic data to inform expected returns

Quantitative inputs combined with a conversion to long-term terminal values drive the 10-year outlook

Asset components are aggregated to capture core drivers of return across asset classes – forming the foundation of our building blocks framework

Building block components will differ for equity, fixed income, and real assets



CORE GEOMETRIC RETURN ASSUMPTIONS

	Asset Class	10-Year Return	30-Year Return	Volatility
	Cash	1.8%	2.4%	1.00%
	US Inflation	2.3%	2.5%	-
Equity	Large Cap Equities	5.0%	6.7%	16.50%
Equity	International Equities (Unhedged)	6.0%	7.0%	20.50%
Equity	Emerging International Equities	9.0%	9.2%	28.00%
Equity	*Global Equity**	*6.2%*	*7.5%*	*17.79%*
Equity	*Private Equity**	*9.4%*	*10.7%*	*24.58%*
Fixed Income	Treasuries	1.9%	2.7%	5.50%
Fixed Income	*Core Bonds**	*2.5%*	*3.4%*	*6.01%*
Fixed Income	TIPS	2.2%	2.7%	6.50%
Fixed Income	High Yield Bonds	4.1%	5.6%	12.50%
Fixed Income	*Private Debt**	*6.7%*	*7.8%*	*11.54%*
Real Assets	Commodities	4.0%	4.8%	19.00%
Real Assets	REITs	5.4%	6.5%	20.00%
Real Assets	Core Real Estate	5.2%	6.0%	13.00%
Real Assets	Private Real Assets: Infrastructure/Land	5.9%	6.7%	12.00%
Multi-Asset	*US 60/40**	*4.3%*	5.7%	*10.37%*
Multi-Asset	*Global 60/40**	*4.4%*	5.8%	*11.53%*
Multi-Asset	*Hedge Funds**	*5.0%*	5.9%	*8.18%*

*Calculated as a blend of other asset classes

MACRO ASSUMPTIONS

INFLATION OVERVIEW

Inflation is an integral component of our asset allocation assumptions

Represents an essential building block for developing asset class returns

Inflation building blocks are model-driven and informed by multiple sources for both the US and global asset classes

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

NEPC's US inflation expectation has declined relative to last year

This decline reflects market data including US CPI and IMF forecasts

Market-based inflation expectations reflect little to no inflation pressure

Inflation break-evens (difference between Treasury and TIPS yields) suggest inflation will be near current levels for the next twenty years

NEPC return assumptions incorporate higher inflation expectations than break-evens, but are in line with IMF forecasts and well below long-term averages

Region	10-Year Inflation Assumption	30-Year Inflation Assumption
United States	2.3%	2.5%

US INFLATION

Source: FactSet, NEPC

US inflation has slowly trended higher, but has yet to accelerate despite resilient economic growth and a tight labor market

Underlying inflation has risen with modest wage increases amidst strong employment

Market-based inflation expectations have declined considerably

Suppressed energy prices have minimized overall inflation price pressures

Energy is historically the most volatile component of CPI and a sustained decline in prices can cause inflation to remain muted

GLOBAL INFLATION

In most developed economies, core inflation is below central bank targets

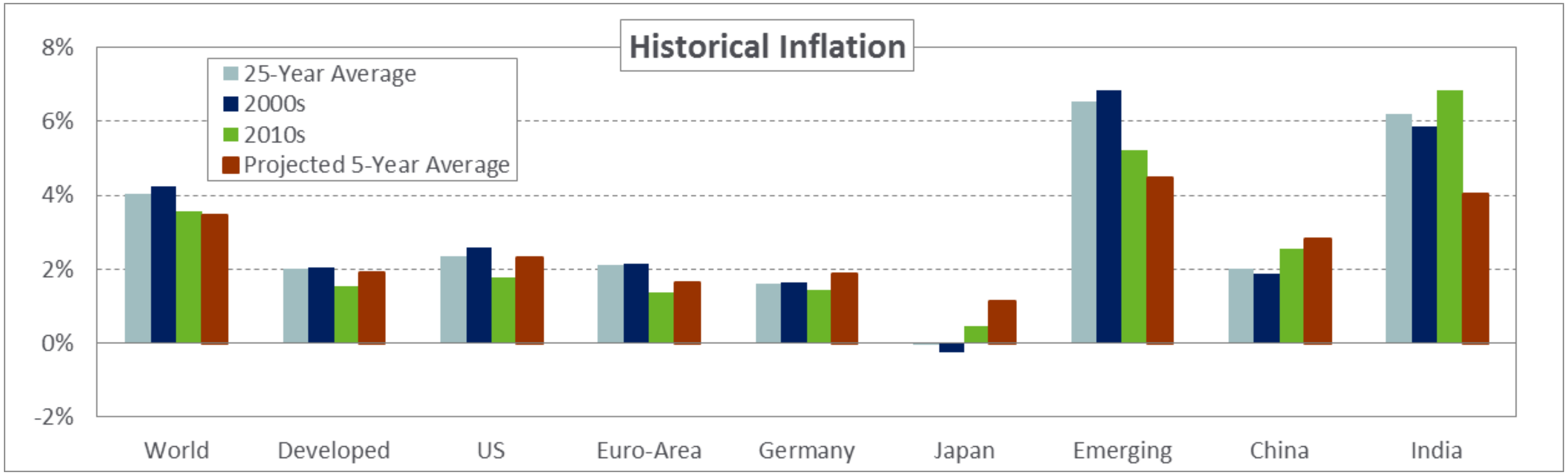
Globalization, deflationary technology, aging demographics and a decade of deleveraging are all deflationary headwinds

This trend will likely continue as global central banks rely on exhausted monetary policy programs following years of stimulus

A shift toward fiscal over monetary policy may be a source for potential inflation, but would require significant coordination and agreement across political spectrums

This may be an especially difficult prospect in the European Union given stark differences in opinion among member countries

Emerging market inflation remains well above the developed world, but is significantly lower than long-term averages



Source: IMF, FactSet, NEPC

US CASH EXPECTATIONS

Cash is a foundation for all asset classes

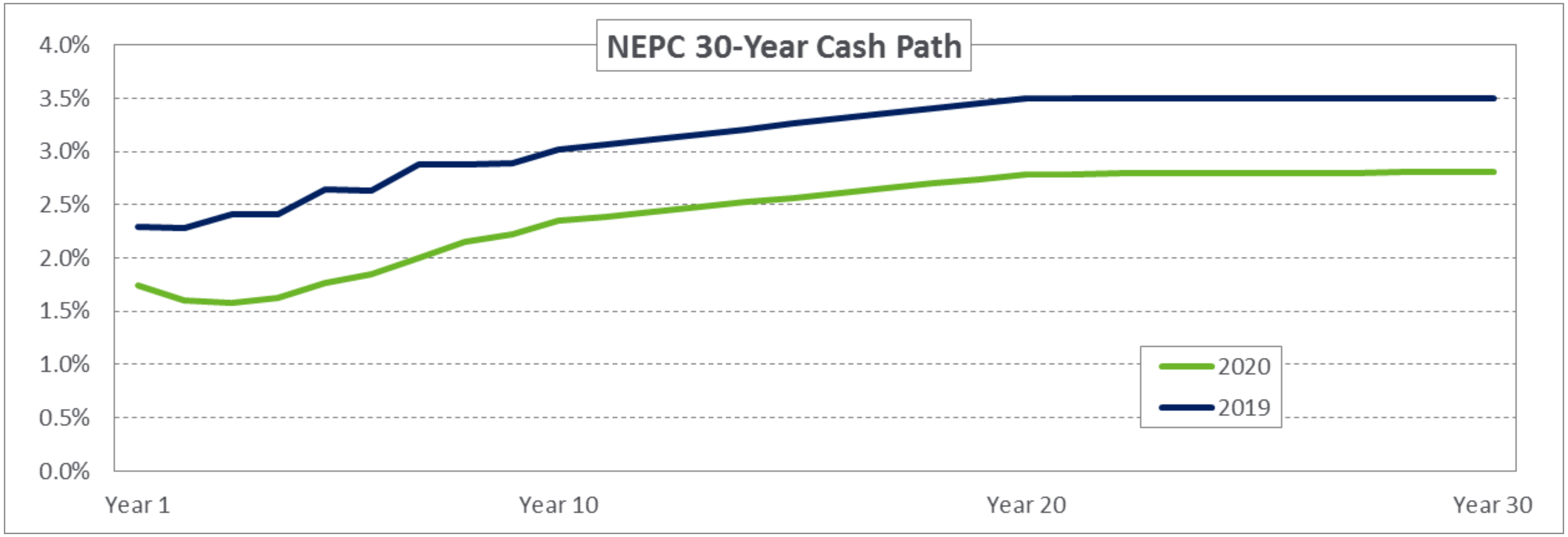
The assumption flows through as a direct building block component and as a relative value adjustment (cash + risk premia) in long-term return projections

Long-term cash assumption is a result of forecasted inflation plus a real interest rate path

US nominal rates are at a historically low point for NEPC's forecasts

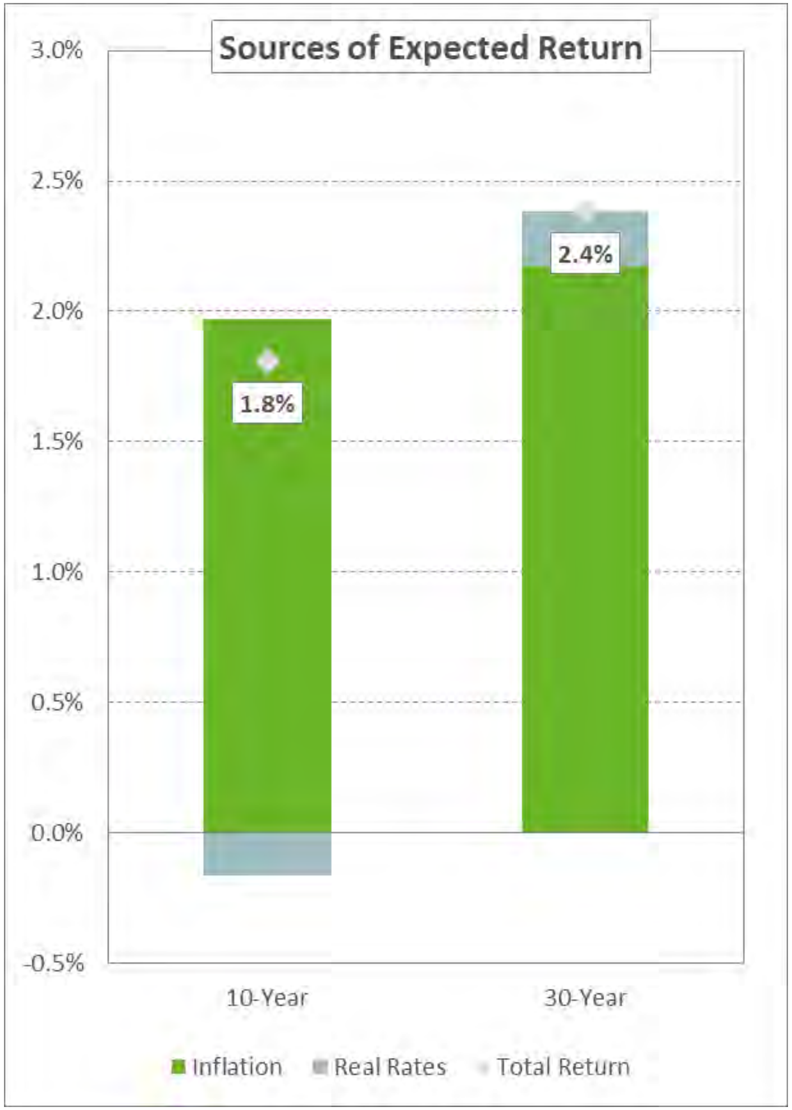
This level reflects recent rate cuts by the Federal Reserve and muted inflation pressures

Market expectations for a relatively flat curve and negligible inflation expectations create a low and flat expected path for cash



Source: Bloomberg, FactSet, NEPC

MACRO FOCUS: CASH



Source: NEPC

Rate cuts by the Fed and gravity of low global rates across developed world have depressed real yields across the curve

Rates outlook is lower for longer with little policy normalization priced into long-term yields

Market interest rate pricing in US (and across the world) reflects an expectation that key monetary authorities will keep rates low

- Reflects flexibility due to limited inflation pressure
- Acknowledges policymaker caution of having enough available firepower to navigate a downturn

US INTEREST RATE EXPECTATIONS

Real yields moved materially lower relative to last year with Fed rate cuts

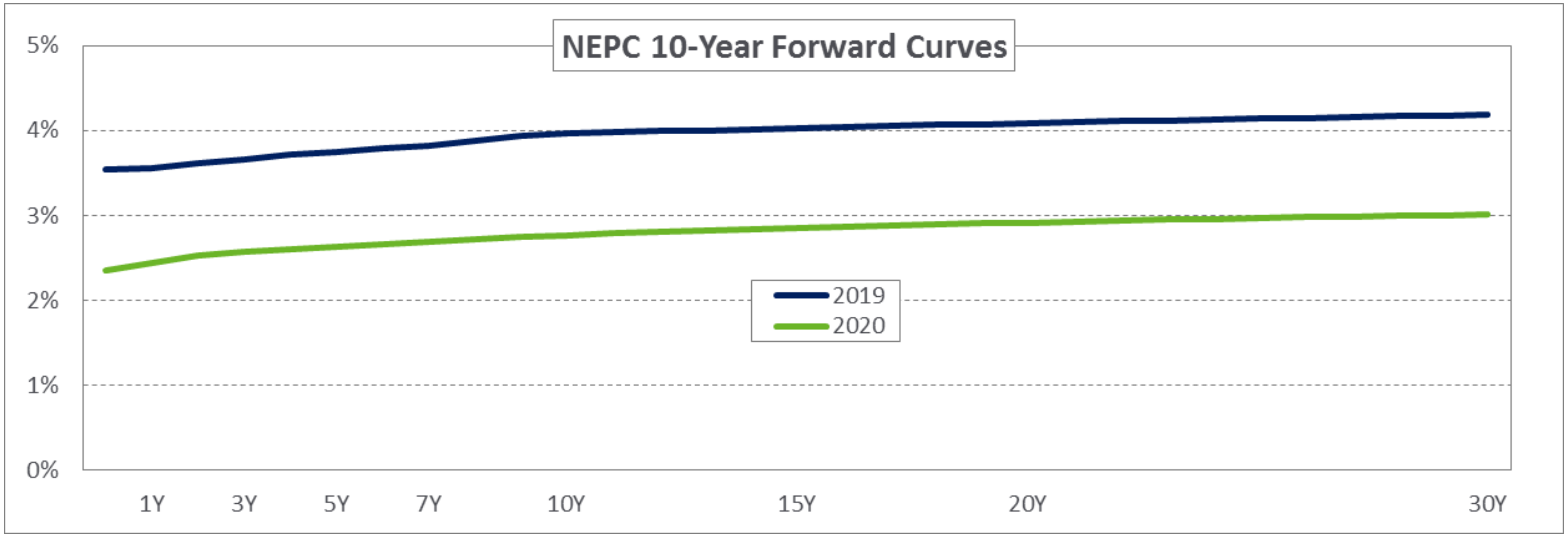
The real yield curve shifted down about 60 bps across the curve and continued to flatten over the past year

Slumping real yields reflect lower growth expectations

Long-term yields have been revised down considerably from last year

Low real rates depress the return outlook for risk assets over the long-term

Fed’s shift to a prolonged easing environment and lower inflation expectations have suppressed yield forecasts



Source: FactSet, NEPC

GLOBAL INTEREST RATE EXPECTATIONS

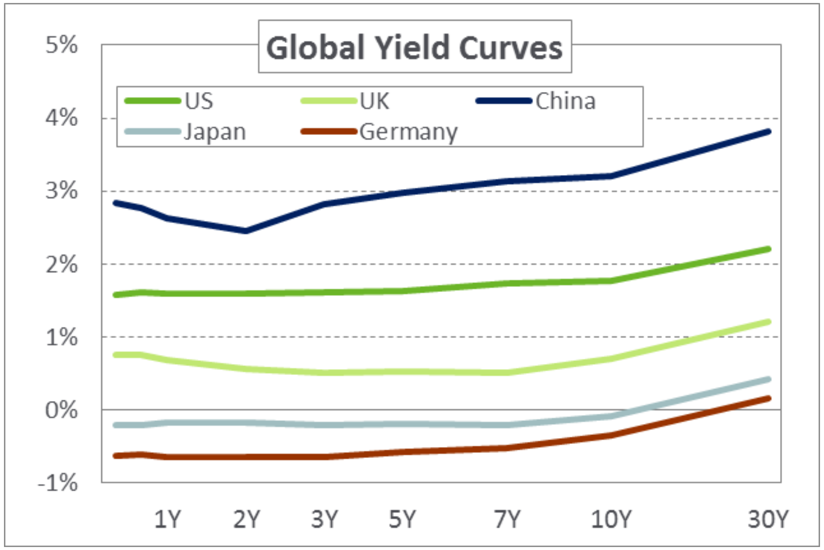
Government bond yields remain low across much of the world

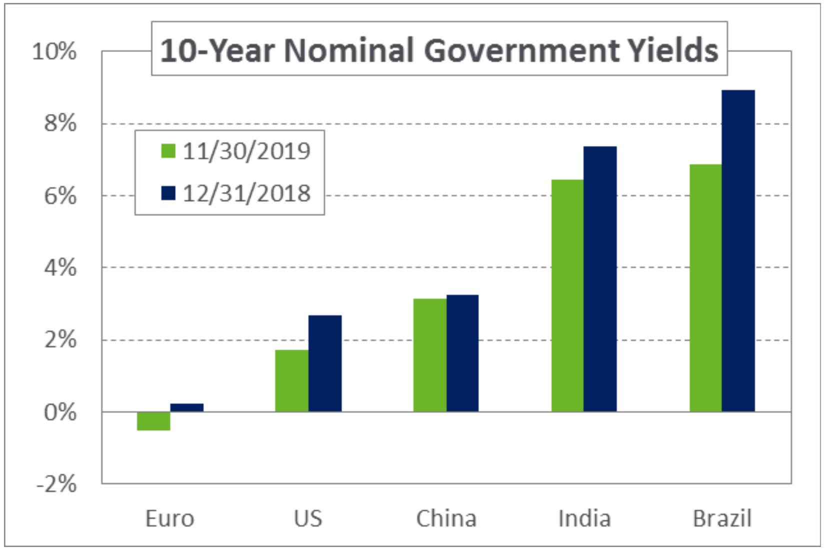
- Several developed country yield curves outside the US are in negative territory with weak growth, continued monetary stimulus and muted inflation
- The US curve remains low, but positive

The outlook for non-US developed fixed income is poor given negative real and nominal yields

Emerging market local interest rates are attractive relative to negative real yields in much of the developed world

- While real rates have declined, positive real rates provide a cushion for EM central banks to cut interest rates and ease monetary conditions as needed





Source: (Top) FactSet, NEPC
Source: (Bottom) FactSet, NEPC

EQUITY ASSUMPTIONS

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	An input representing P/E multiple contraction or expansion relative to long-term trend
Inflation	Represents market-specific inflation derived from index country revenue contribution and region-specific forecasted inflation
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Dividend Yield	Informed by current income distributed to shareholders with adjustments made to reflect market conditions and trends

Asset Class	2020 10-Year Return	2019 10-Year Return
US Large Cap	5.0%	6.2%
US Small/Mid-Cap	5.5%	6.4%
US Micro Cap	7.0%	7.1%
International (Unhedged)	6.0%	7.3%
International Small Cap	6.4%	7.6%
Emerging Markets	9.0%	9.2%
Emerging Markets Small Cap	9.2%	9.6%
China Equity	8.8%	7.9%
Hedge Funds – Long/Short	4.8%	5.7%
Global Equity	*6.2%*	*7.3%*
Private Equity	*9.4%*	*10.1%*

Source: NEPC
2019 return number reflects NEPC's implied 10-year assumption

EQUITY: REAL EARNINGS GROWTH

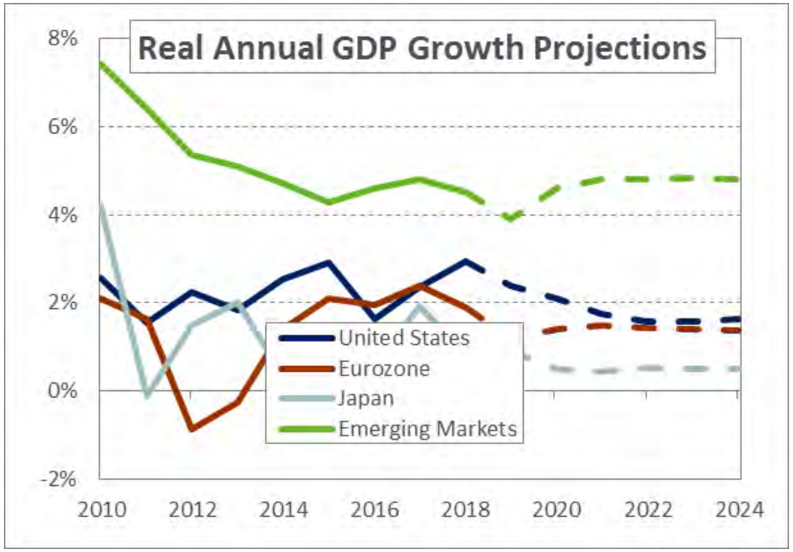
Global growth rates are subdued reflecting a cyclical slowdown, less favorable demographics, and US-China trade tensions

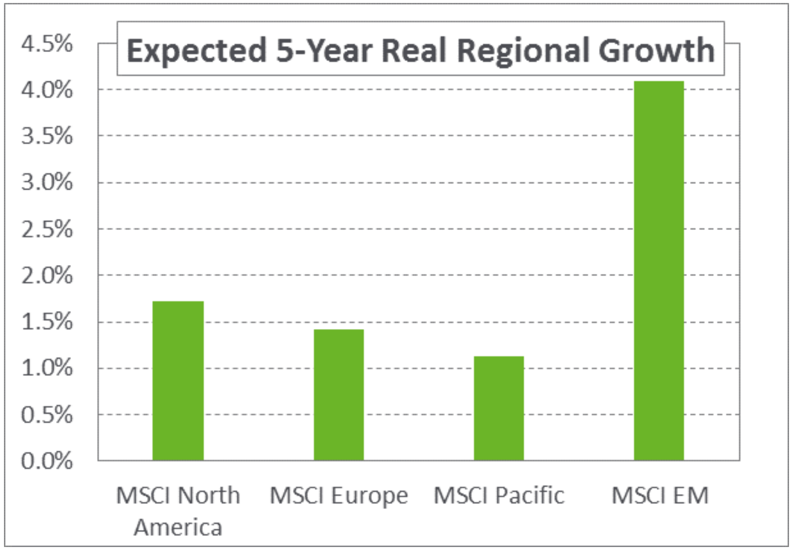
Regions more reliant on emerging markets for revenue generation are forecasted to enjoy higher expected real earnings growth

- International and emerging markets benefit from generating a much larger portion of revenues from this region than the US

Small caps have higher terminal values for real earnings growth relative to large caps

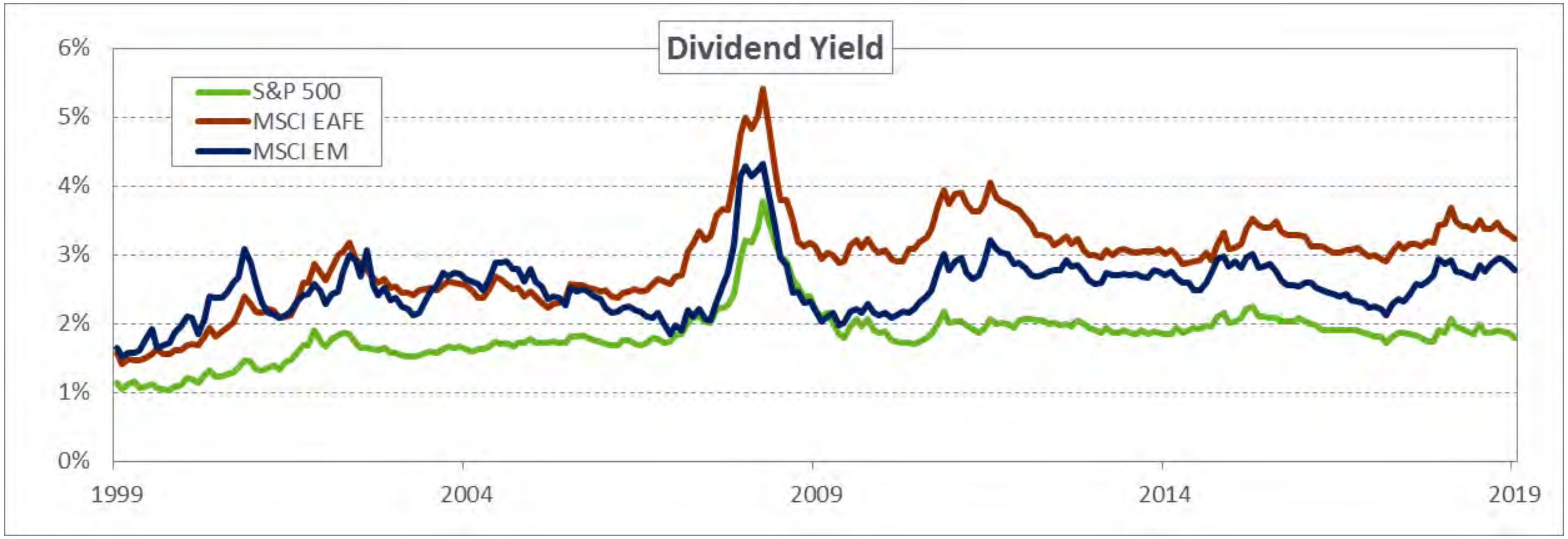
- This premium reflects a risk premium for small over large cap, which has existed historically
- In US markets, this represents a 50 basis point premium over large cap





Source: (Top) FactSet, NEPC
Source: (Bottom) IMF, MSCI, FactSet, NEPC

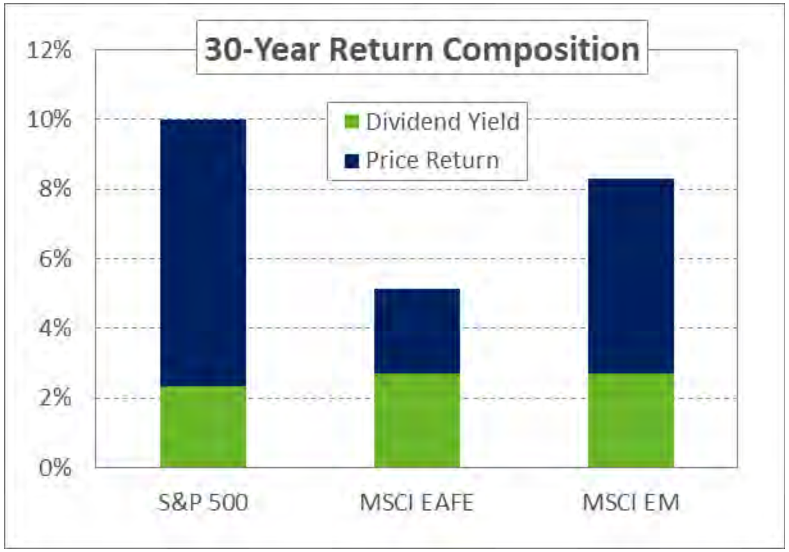
EQUITY: DIVIDEND YIELD



NEPC's long-term terminal value assumption for the S&P 500 dividend yield is 2.50%

EAFE and emerging markets offer structurally higher dividend yields relative to the US equity market

Long-term terminal value assumptions for the MSCI EAFE and MSCI Emerging Market dividend yields are 3.00% and 2.50%



Source: (Top) S&P, MSCI, FactSet, NEPC
Source: (Bottom) S&P, MSCI, FactSet, NEPC

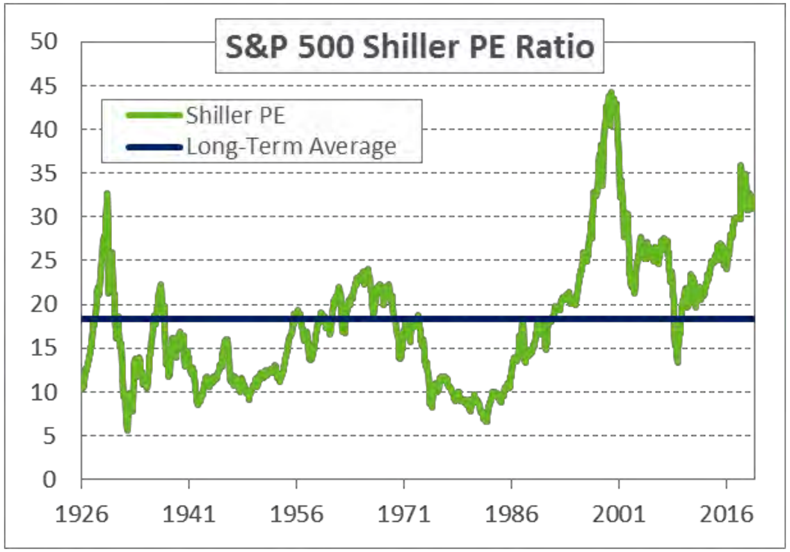
EQUITY: VALUATION

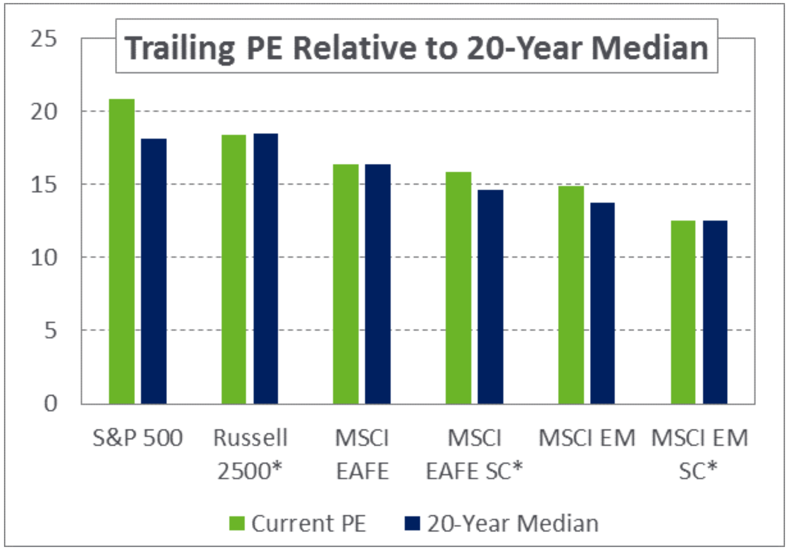
US equities have enjoyed multiple expansion as the extended US economic cycle supports earnings and profit margins

Terminal P/E values for the US are higher than historical averages to reflect expected low interest rates and higher discounting of future cashflows

Terminal values for EAFE are below current levels reflecting a less constructive market environment for investing in these regions

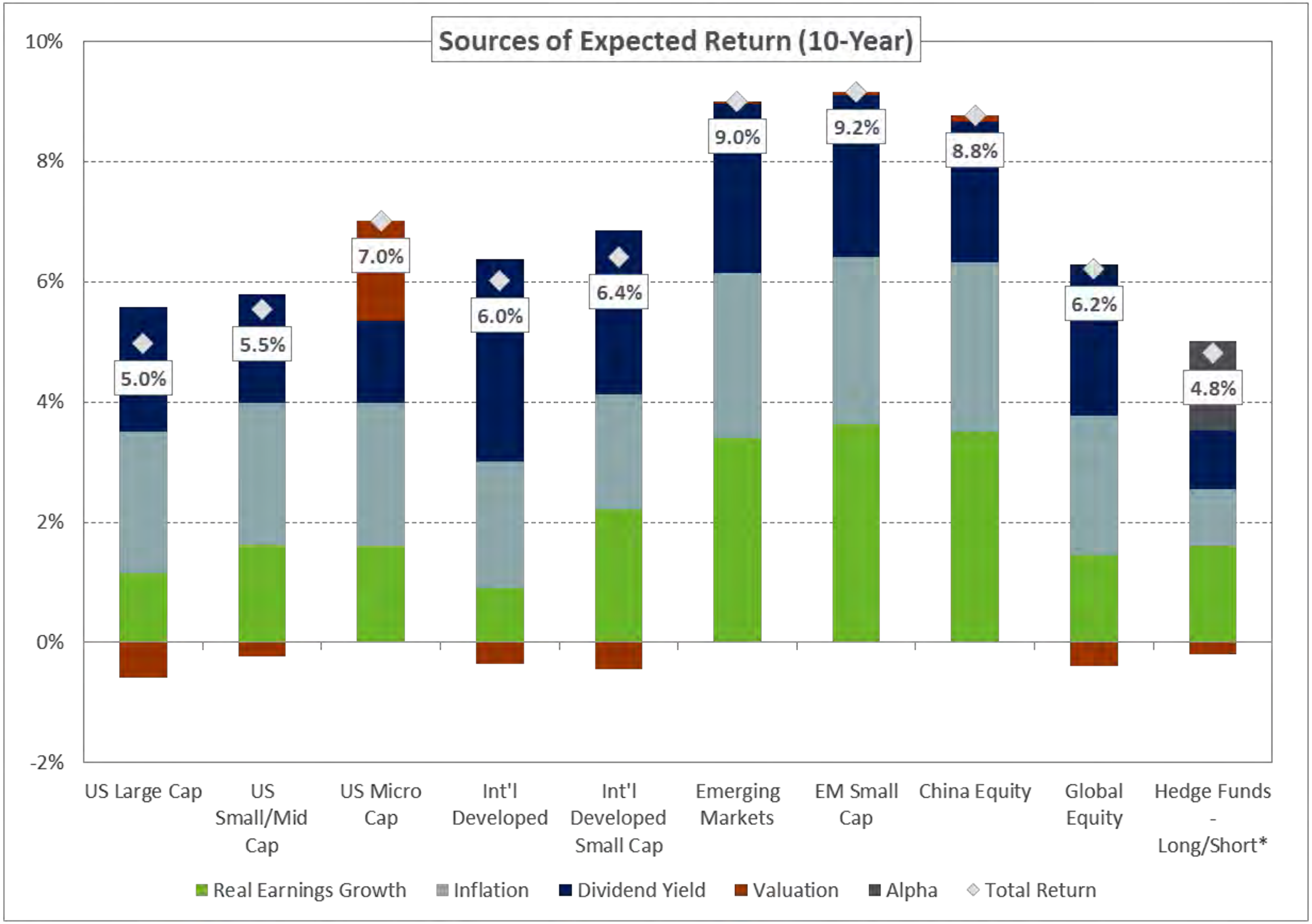
In emerging markets, equity and currency valuations remain near long-term averages, suggesting an attractive total return opportunity





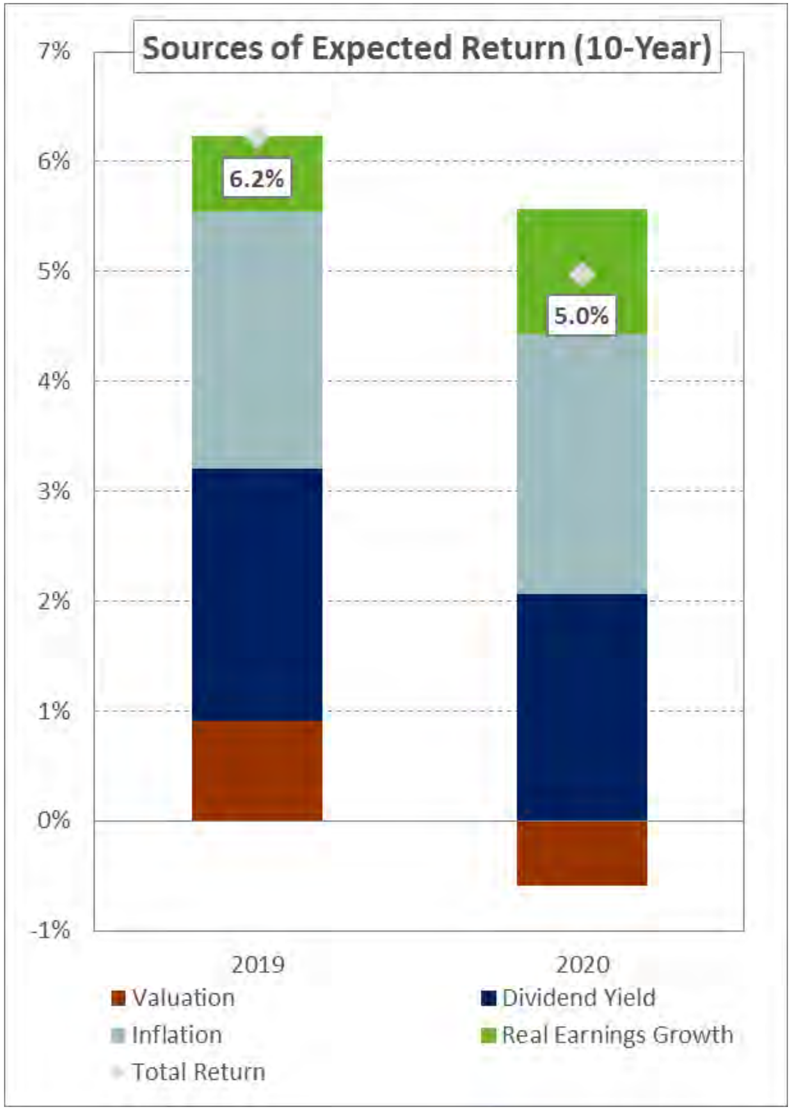
Source: (Top) S&P, Shiller, NEPC; long-term average beginning in 1926
Source: (Bottom) S&P, Russell, MSCI, FactSet, NEPC; *Small cap indices use index positive-adjusted earnings; MSCI EM Small Cap median calculated since 12/31/2008

EQUITY: BUILDING BLOCKS



Source: NEPC

EQUITY FOCUS: US LARGE CAP EQUITY



Source: NEPC

2019 return number reflects NEPC's implied 10-year assumption

The US large cap equity assumption is based on the S&P 500 Index, which derives 64% of revenues from North America, 16% from international developed markets, and 20% from emerging markets

- This revenue contribution is applied to IMF regional estimates and drives changes in real earnings growth and inflation blocks

Lower IMF estimates for global real growth and inflation result in smaller contributions to expected returns than previously forecasted

Profit margin assumptions remain elevated over the long-term, though slowly trend downward toward historical averages

A higher terminal value for valuations relative to previous years was incorporated to reflect the 'Permanent Interventions' Key Market Theme

STRATEGIC EQUITY VIEW

Academic research suggests a return premium exists for small cap over large cap equities

This notion is based on higher expected growth, less efficient analyst coverage, and an embedded risk premium for higher expected volatility

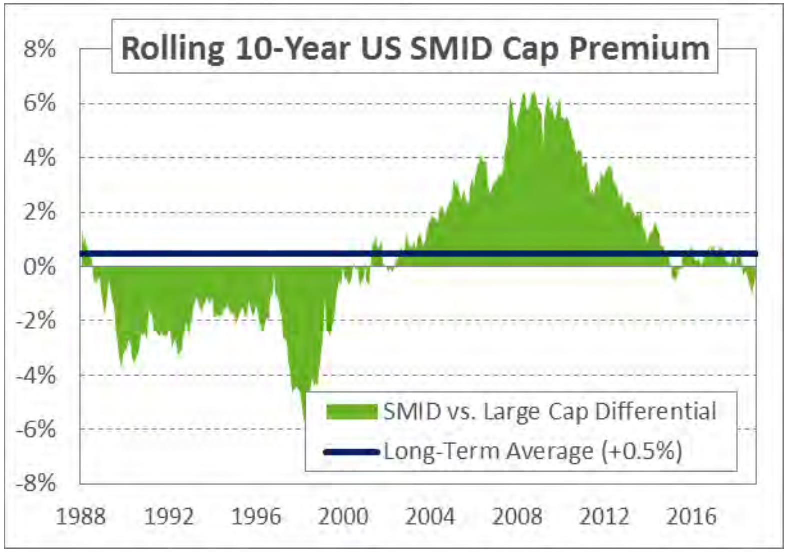
This premium has existed in the US and non-US developed markets

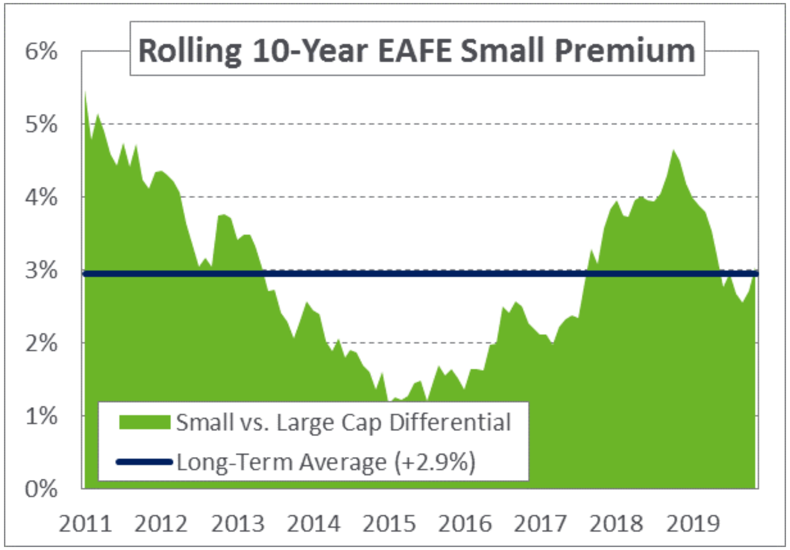
The premium in US markets exhibits cyclicality, while international developed markets demonstrate more consistent outperformance

NEPC encourages a strategic bias to US and international small cap relative to the MSCI ACWI

This recommended target should be considered in the context of total equity beta exposure

For example, investors with greater allocations to private equity might adopt an index weight to small caps





Source: (Top) S&P, Russell, FactSet, NEPC; relative to the S&P 500 Index
Source: (Bottom): MSCI, FactSet, NEPC; relative to the MSCI EAFE Index

FIXED INCOME ASSUMPTIONS

FIXED INCOME: ASSUMPTIONS

Fixed Income Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Government Rates Price Change	The valuation change resulting from a change in the current yield curve to forecasted rates
Credit Deterioration	The average loss for credit securities associated with an expected default cycle and recovery rates
Spread Price Change	The valuation change resulting from a change in credit spreads over the duration of the investment and highly sensitive to economic cycles
Credit Spread	Additional yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk associated with their valuation

Asset Class	2020 10-Year Return	2019 10- Year Return
TIPS	2.2%	3.2%
Treasuries	1.9%	2.5%
Investment-Grade Corporate Credit	3.4%	4.4%
MBS	2.5%	1.9%
High-Yield Bonds	4.1%	5.5%
Bank Loans	4.8%	5.5%
EMD (External)	4.1%	5.3%
EMD (Local Currency)	5.4%	6.8%
Non-US Bonds (Unhedged)	0.2%	0.9%
Municipal Bonds (1-10 Year)	1.9%	1.0%
High-Yield Municipal Bonds	3.2%	2.6%
Hedge Funds – Credit	4.8%	5.9%
Core Bonds	*2.5%*	*2.9%*
Private Debt	*6.7%*	*7.6%*

Source: NEPC
2019 return number reflects NEPC's implied 10-year assumption

FIXED INCOME: CREDIT SPREAD

In most areas of credit, spreads are at or below long-term median spread levels

Expected returns are lower – reflecting the anticipated lower spread yield and losses as spreads converge upward to long-term medians

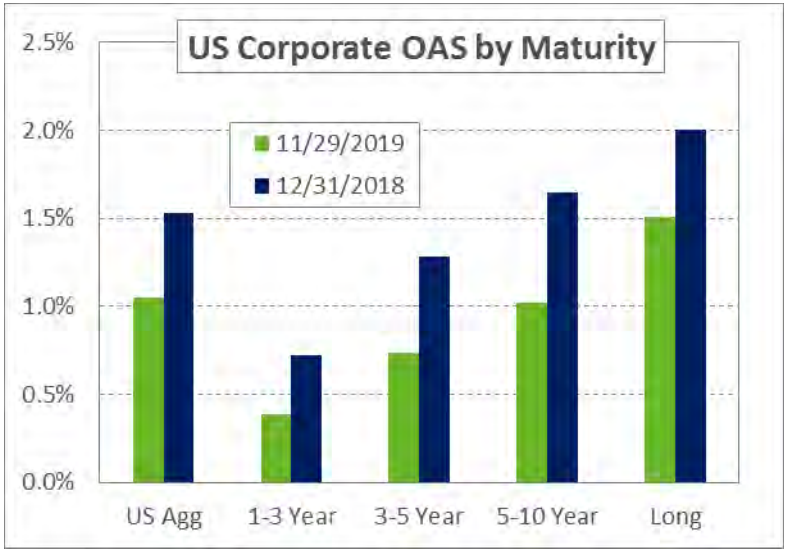
Spreads on CCC-rated bonds are above long-term medians given ongoing stress in the energy sector

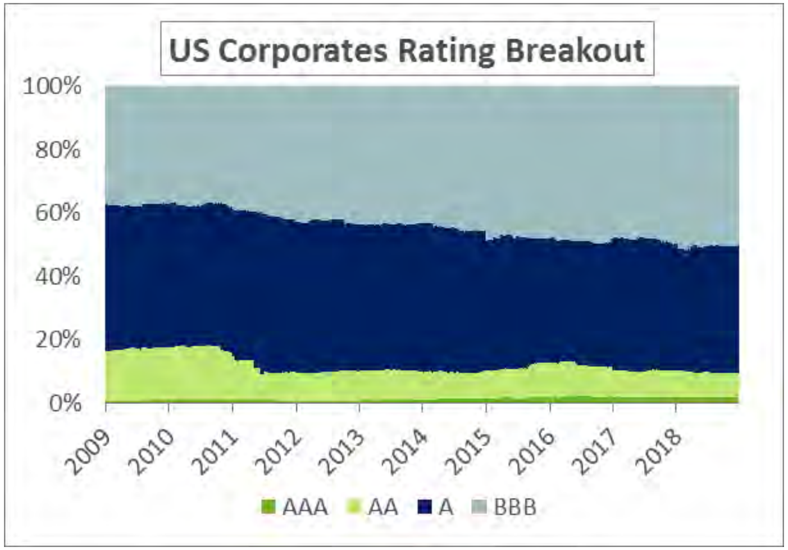
As a result, the return assumption increased as higher yields are captured throughout the forecast time horizon

Credit assumptions reflect a higher heightened risk environment

There are a record number of BBB-rated corporates – suggesting a greater risk of fallen angel downgrades

Corporate debt issuance has expanded rapidly in recent years with the majority of new debt rated BBB





Source: (Top) Barclays, FactSet, NEPC
Source: (Bottom) Barclays, FactSet, NEPC

FIXED INCOME: RATES PRICE CHANGE

Government Rates Price Change: The change in the level of interest rates, shape of the curve, and roll down that impact the price of a bond

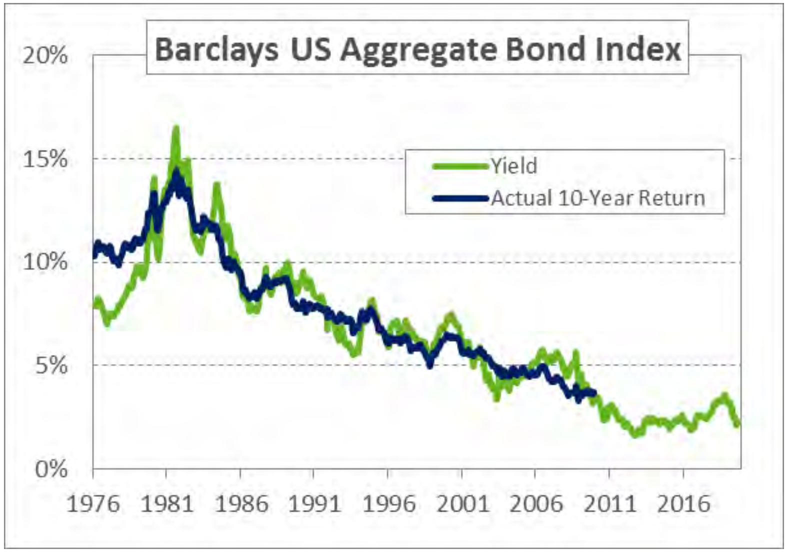
- Roll down refers to the price change due to the aging of a bond along the yield curve

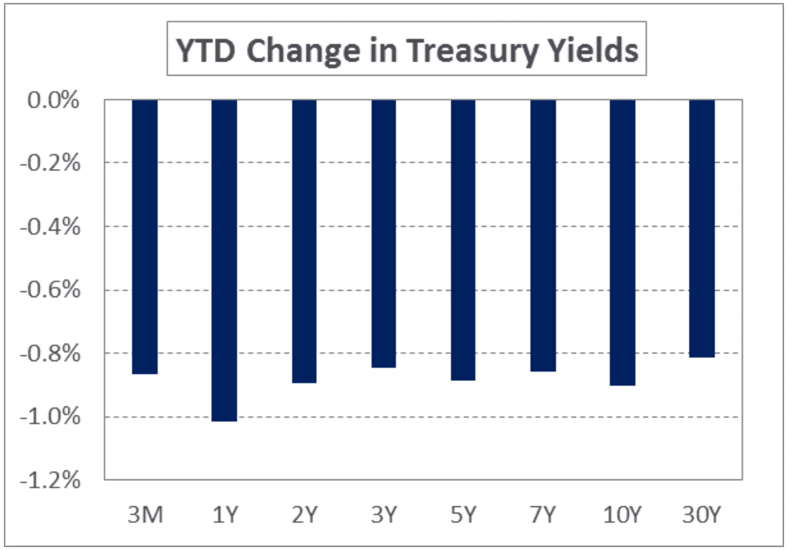
The rate price change is a significant component of total return and expectations of future rate increases can drag on future year returns

- The path of interest rates for each market is tied to both central bank actions and inflation expectations

Roll down offers some relief to rising rates when yield curves are steep, but the flatness of the current curve suggests this benefit is muted

- This dynamic often pushes investors to shorter duration bonds





Source: (Top) Barclays, FactSet, NEPC
Source: (Bottom) FactSet, NEPC

FIXED INCOME: SPREAD PRICE CHANGE

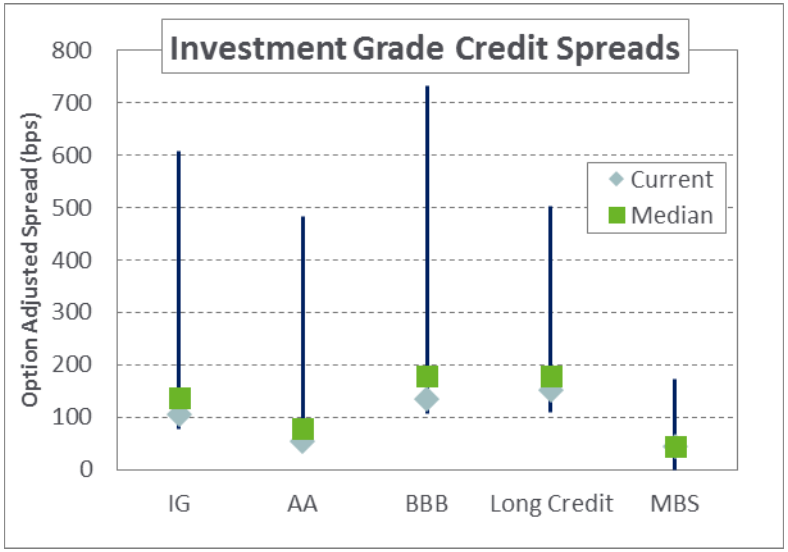
Credit spreads well below history imply a drag on expected returns as they converge toward long-term medians

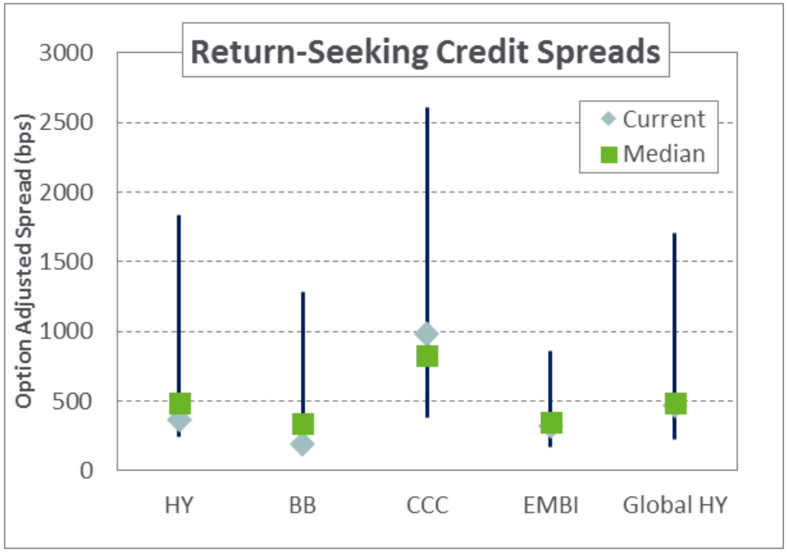
Low spreads temper excitement about lower-quality credit, where investors are not provided adequate compensation for risk relative to safer alternatives

Default and recovery rates across the credit complex are modeled using historical averages

Modestly higher expected default rates were incorporated in lower-quality credit, particularly in the BBB space, to reflect the increase as a percentage of the investment grade universe

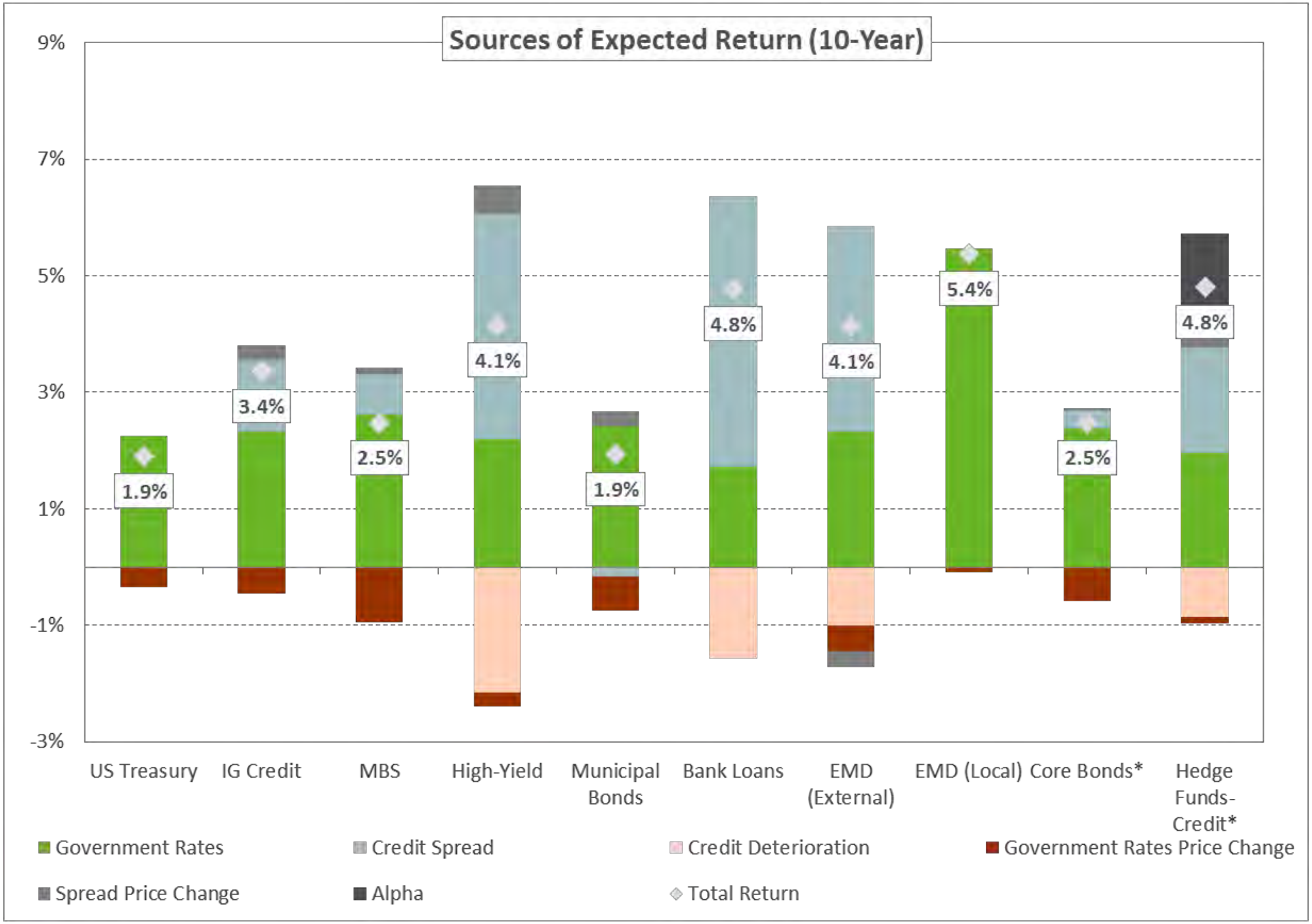
The 'Late-Cycle Dynamics' Key Market Theme may cause periods of stress in credit markets, which can cause spreads to unexpectedly blow out





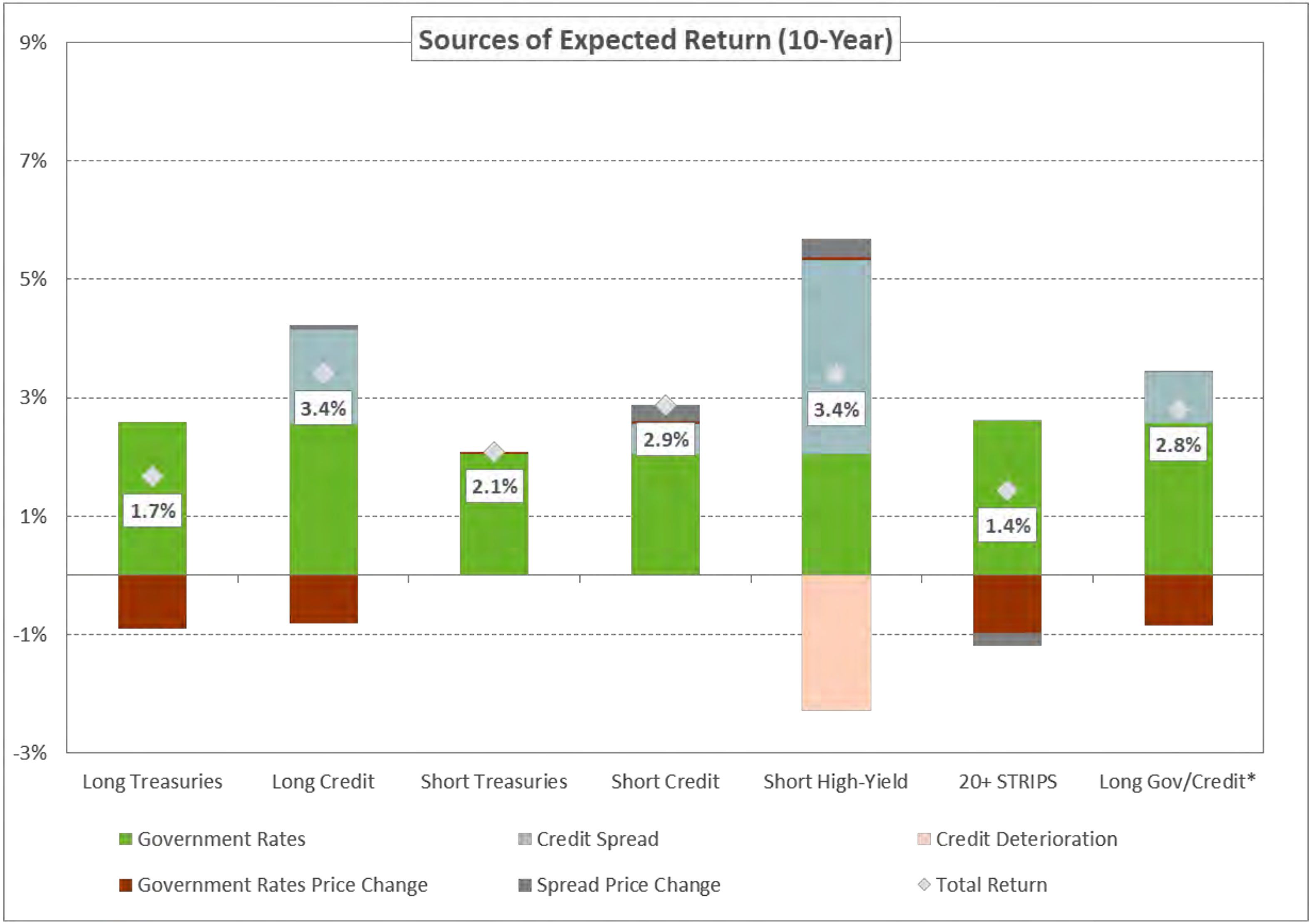
Source: (Top) Barclays, FactSet, NEPC; as of 01/31/2000
Source: (Bottom) Barclays, JPM, FactSet, NEPC; as of 01/31/2000

FIXED INCOME: BUILDING BLOCKS



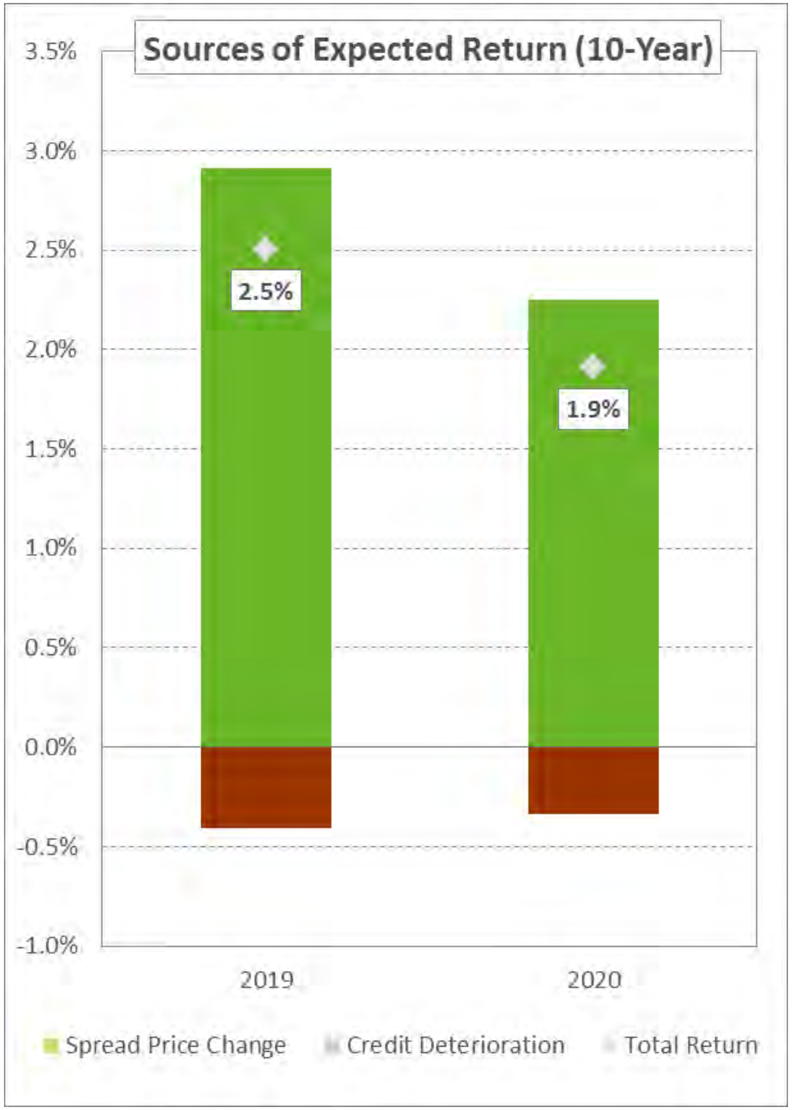
Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME FOCUS: TREASURIES



Source: NEPC
2019 return number reflects NEPC's implied 10-year assumption

US Treasury prices have risen significantly as the Fed cut rates to offset growth and trade concerns

The magnitude of returns experienced in recent years subdues the forward-looking outlook for most fixed income assets

Yields across the curve are near record lows, implying there is little upside potential for price gain

This also suggests lower total returns as lower yields are compounded over the forecast horizon

Lower long-term rate expectations reflect muted inflation levels and continued Fed accommodation

STRATEGIC FIXED INCOME VIEW

As part of a strategic allocation, safe-haven fixed income can provide downside protection and lower portfolio-level volatility

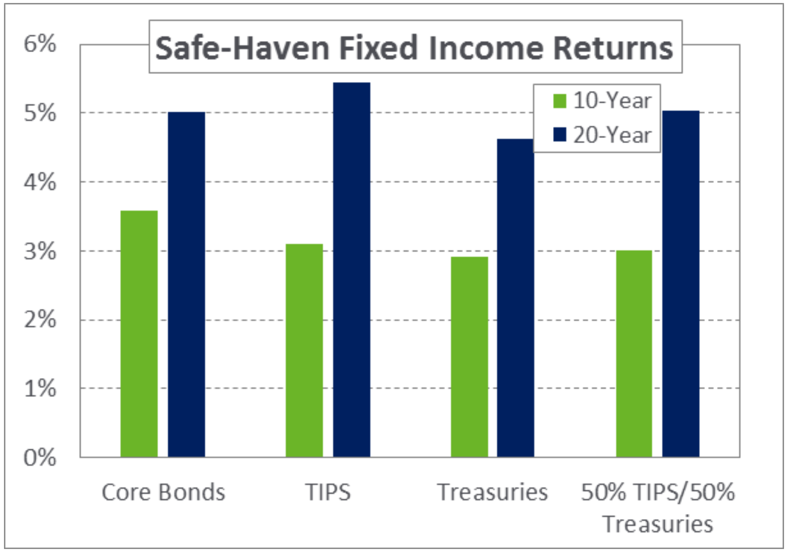
For investors without a natural hedge, NEPC suggests a strategic safe-haven allocation of 50% Treasuries and 50% TIPS

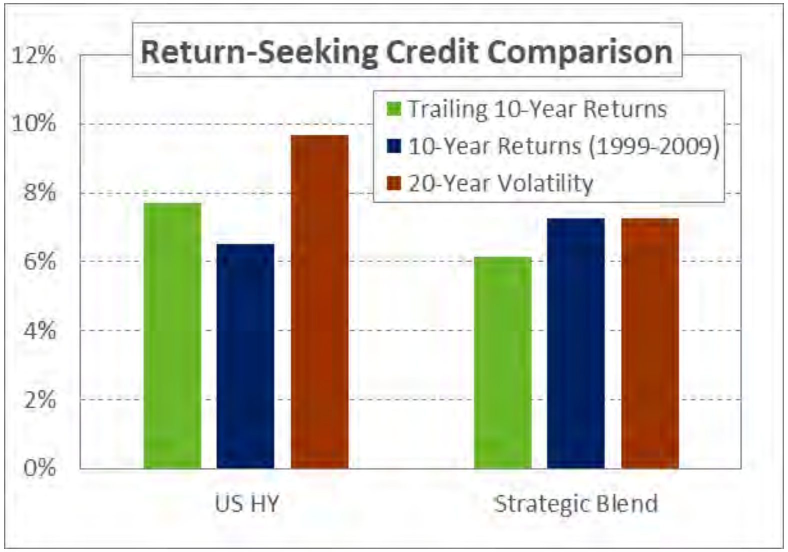
- Provides diversification and inflation protection without sacrificing returns
- The duration profile of this exposure should be considered relative to an investor's objectives and need for capital efficiency

A strategic allocation to return-seeking credit can enhance risk-adjusted returns with additional yield and diversification benefits

NEPC recommends an equal weight to bank loans, blended emerging market debt, and high-yield

- In this framework, investors should source capital calls for private debt from bank loans and high yield





Source: (Top) Barclays, FactSet, NEPC
Source: (Bottom) Barclays, S&P, JPM, FactSet, NEPC
*Represents 1/3 US High Yield, 1/3 Bank Loans, and 1/3 Blended EMD

REAL ASSETS ASSUMPTIONS

REAL ASSETS: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	The expected change in price of the underlying asset reverting to a long-term real average or terminal value assumption
Inflation	Incorporates the inflation paths as defined by TIPS breakeven expectations and NEPC expected inflation assumptions
Growth	Reflects market-specific growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Real Income	Represents the inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	2020 10-Year Return	2019 10- Year Return
Commodities	4.0%	4.4%
Midstream Energy	7.4%	8.5%
REITs	5.4%	6.9%
Public Infrastructure	5.3%	-
Public Resource Equity	7.3%	-
Core Real Estate	5.2%	6.0%
Non-Core Real Estate	6.4%	7.0%
Private RE Debt	5.0%	5.8%
Private Real Assets: Energy/ Metals	9.1%	9.7%
Private Real Assets: Infra/Land	5.9%	6.4%

Source: NEPC
2019 return number reflects NEPC’s implied 10-year assumption

REAL ASSETS: REAL INCOME

Equity-like real assets: Real income represents the inflation-adjusted dividend yield

Includes midstream energy, REITS, public infrastructure, natural resource and global infrastructure equities

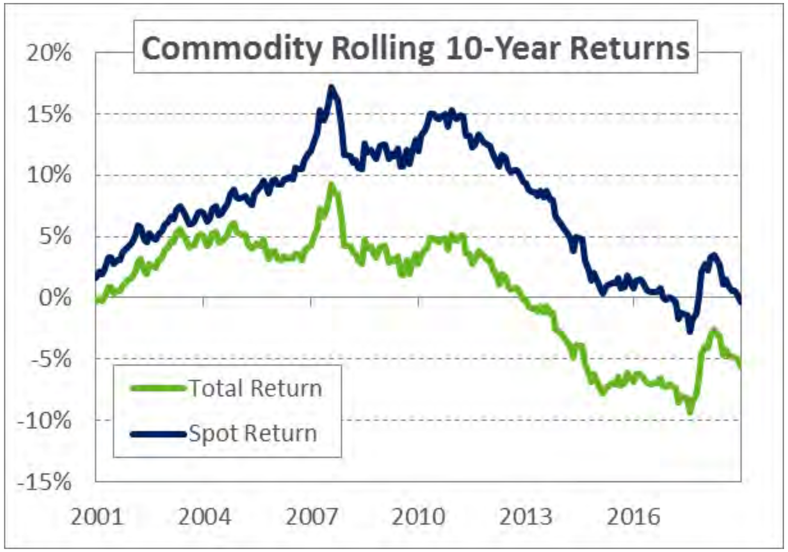
These publicly-traded real assets tend to have lucrative dividend yields relative to traditional global equity indices

Real Estate: Real income is a function of Net Operating Income

NOI growth exhibits a cyclical economic pattern and appears to have retreated off cyclical highs

Commodities: Real income includes the collateral return

A cash proxy is used to represent the collateral and as such, it represents the return on cash over the investment horizon



Real Assets Yields	12/31/18	11/30/19
Midstream Energy	6.8%	6.7%
Core Real Estate	4.6%	4.4%
US REITs	4.4%	3.5%
Global REITs	4.8%	4.1%
Global Infra Equities	4.4%	4.1%
Natural Resource Equities	4.1%	4.1%
US 10-Yr Breakeven Inflation	1.7%	1.6%
Commodity Index Roll Yield	-6.1%	0.5%

Source: (Top) Bloomberg, FactSet, NEPC

Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, FactSet, NEPC

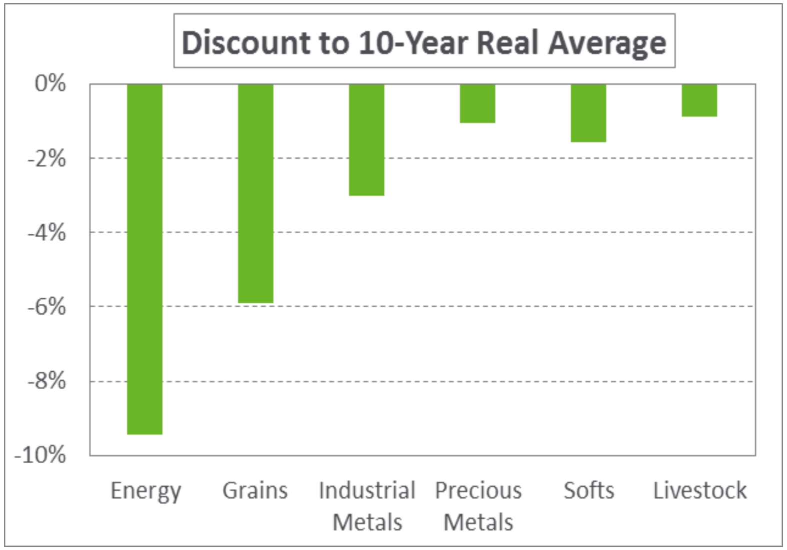
*Commodity Index Roll Yield represents a proprietary calculation methodology

REAL ASSETS: VALUATION

Commodity valuations represent spot price relative to the long-term real average of spot prices

Commodity prices continue to trade below their long-term real averages, particularly in the energy and grains sectors

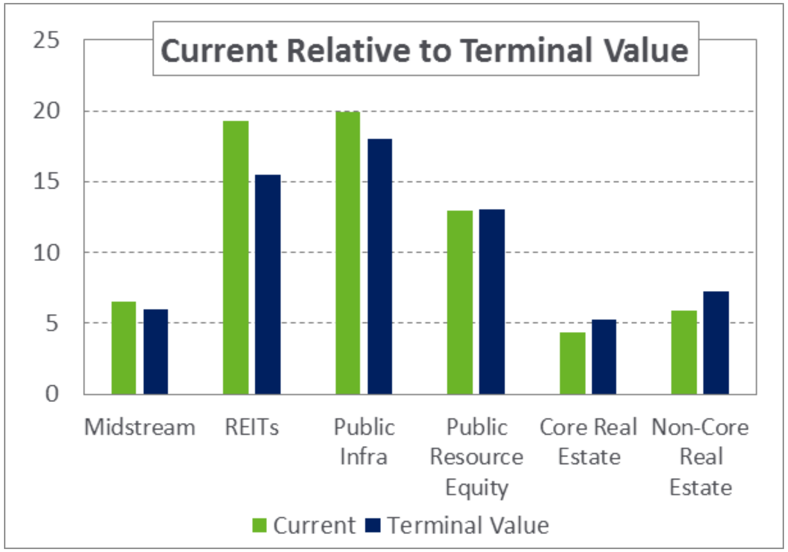
The potential for higher spot prices is additive to future expected returns



Valuation adjustments for other real assets reflect a terminal value with the relevant valuation metrics

For example, Price over Cashflow from Operations is used for midstream energy to reflect the cash flow intense nature of the business, whereas cap rates are used for real estate

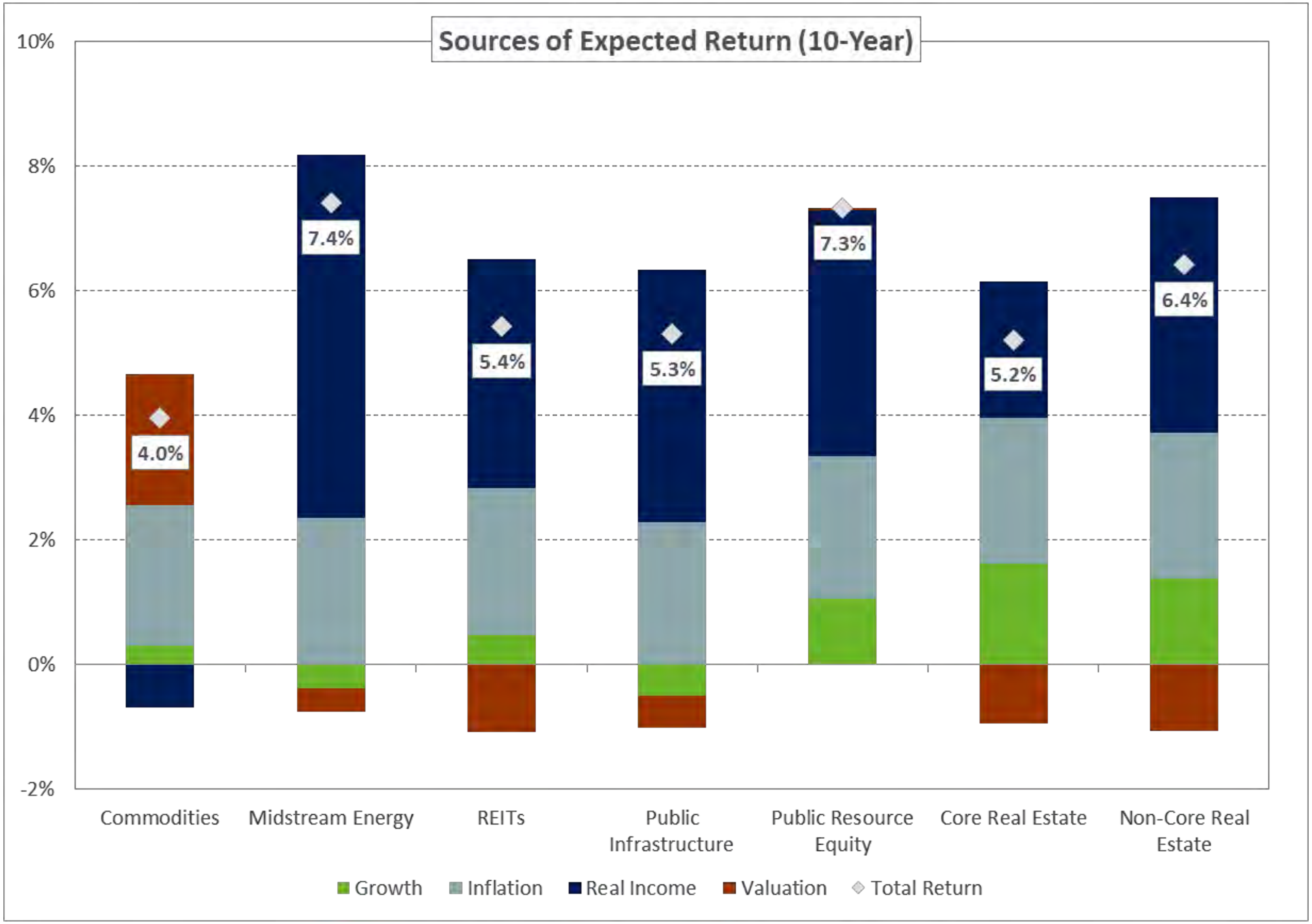
Elevated valuations in REITs are expected to detract from future returns as valuations trend downward toward long-term averages



Source: (Top) FactSet, NEPC

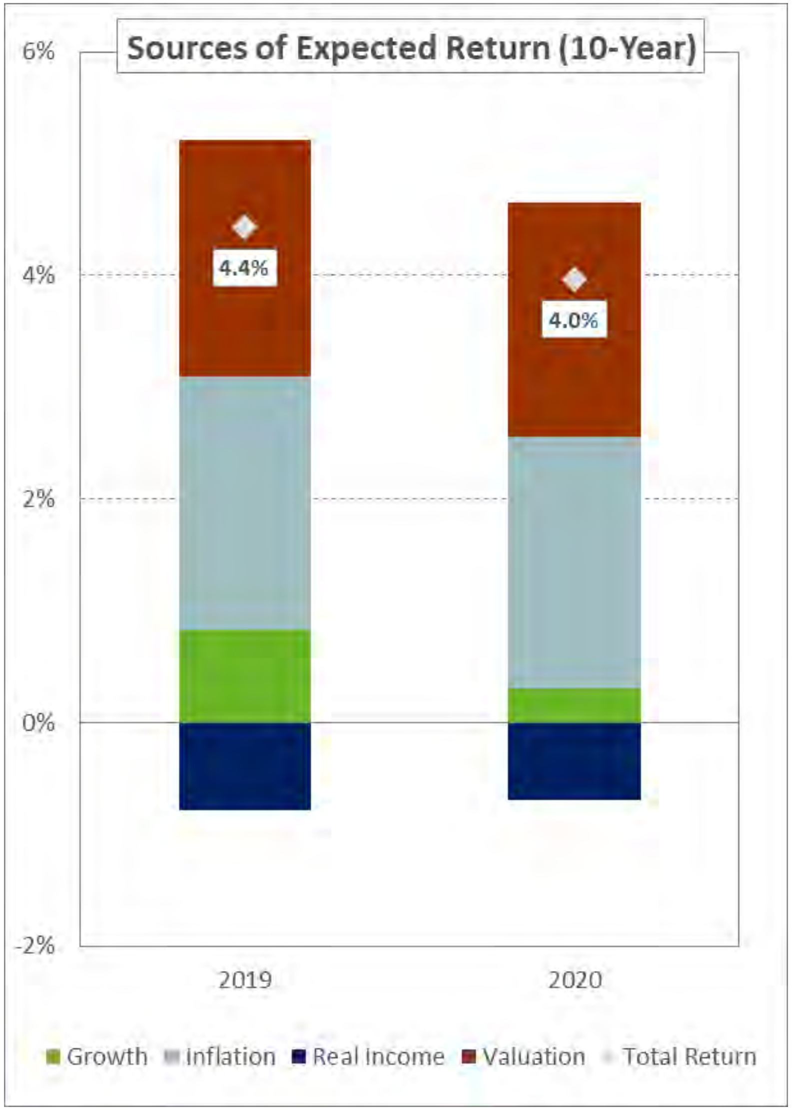
Source: (Bottom) Alerian, FTSE, S&P, FactSet, NEPC

REAL ASSETS: BUILDING BLOCKS



Source: NEPC

REAL ASSETS FOCUS: COMMODITIES



Source: NEPC

2019 return number reflects NEPC's implied 10-year assumption

The NEPC commodity assumption is constructed using the Bloomberg Commodity index, which is a liquid and highly diversified exposure to commodities

NEPC's 10-year return assumption declined reflecting the lower rate and inflation outlook

Commodity prices are generally well below long-term real averages – adding a valuation tailwind as spot prices are expected to trend upward

A negative roll yield continues to be a hurdle for investing in commodity futures

- Post-2008, spot returns have had consistently higher returns than total return indices – demonstrating the impact of negative roll yield on overall investments

STRATEGIC REAL ASSETS VIEW

Exposure to real assets can provide inflation protection, low correlation to traditional assets, and diversification benefits

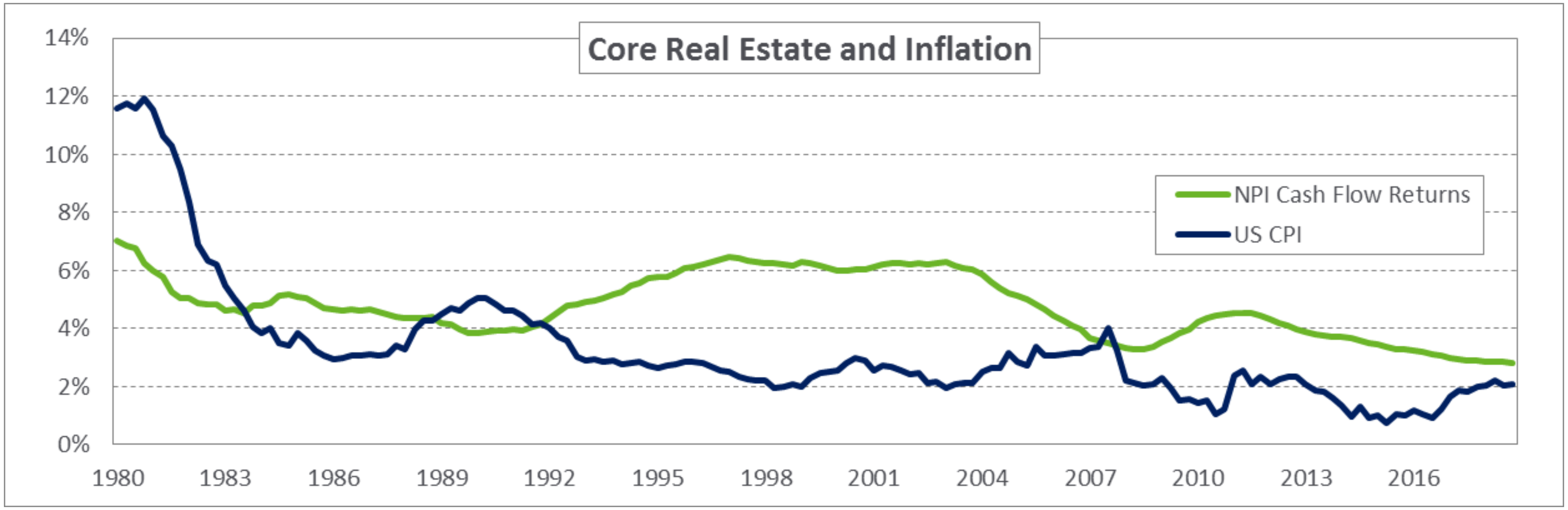
Across the complex, real assets exhibit different betas to inflation and inflation-sensitive objectives should influence an investor's strategic allocation decision

Within a real assets allocation, NEPC recommends a strategic allocation to infrastructure and real estate, which offer inflation-sensitive income

While commodities provide the most pure market beta to inflation, a persistently negative roll yield reduces expected long-term returns

For total return-focused investors, private real assets are preferred

Private equity energy strategies have historically outperformed public market proxies



Source: NCREIF, US Bureau of Statistics, NEPC

Lines incorporate a rolling 3-year average for NPI returns and inflation

ALTERNATIVES

PRIVATE MARKETS METHODOLOGY

Private market assumptions are constructed using betas to public market assumptions with an added illiquidity premia based on historical returns analysis relative to appropriate public market equivalents

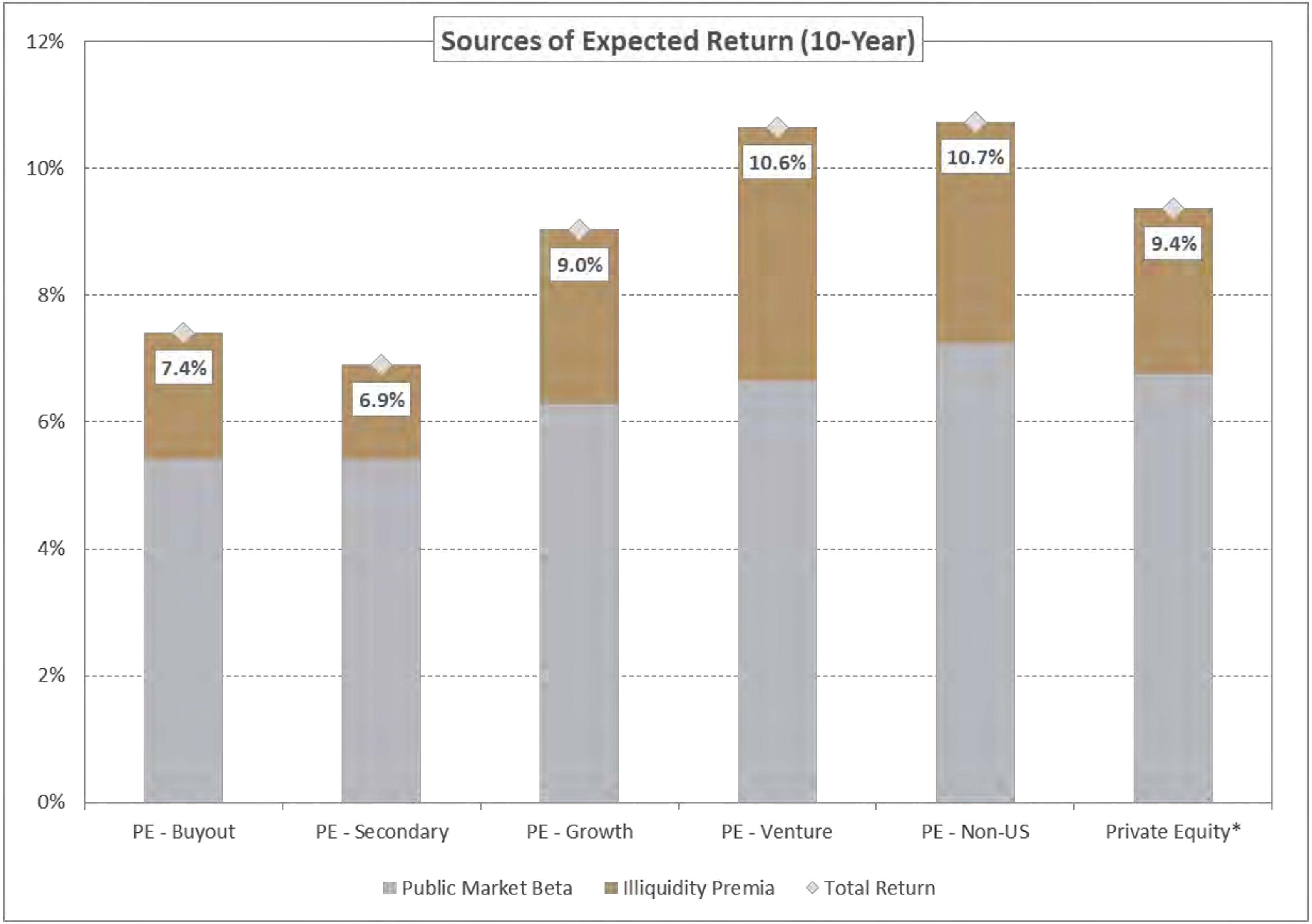
Private Equity – Buyout: 25% US Large Cap, 75% US Small/Mid Cap
Private Equity – Secondary: 25% US Large Cap, 75% US Small/Mid Cap
Private Equity – Growth: 50% US Small/Mid Cap, 50% US Microcap
Private Equity – Venture: 25% US Small/Mid Cap, 75% US Microcap
Private Equity – Non-US: 70% International Small Cap, 30% Emerging Small Cap
PE Composite: 34% Buyout, 34% Growth, 15 % Non-US, 8.5% Secondary, 8.5% Venture

Private Debt – Direct Lending: 100% Bank Loans
Private Debt – Distressed: 20% US Small/Mid Cap, 60% US High Yield, 20% Bank Loans
Private Debt – Credit Opportunities: 24% US SMID Cap, 33% US High Yield, 33% Bank Loans
Private Debt Composite: 50% Direct Lending, 25% Credit Opportunities, 25% Distressed

Private Real Assets – Energy: 30% Comm., 35% Midstream, 35% Public Resource Equity
Private Real Assets - Infra/Land: 30% Commodities, 70% Public Infrastructure
Private Real Estate Debt: 50% CMBS, 50% Core Real Estate

Changes to private market return assumptions will reflect changes to the underlying public market assumption and the illiquidity premia

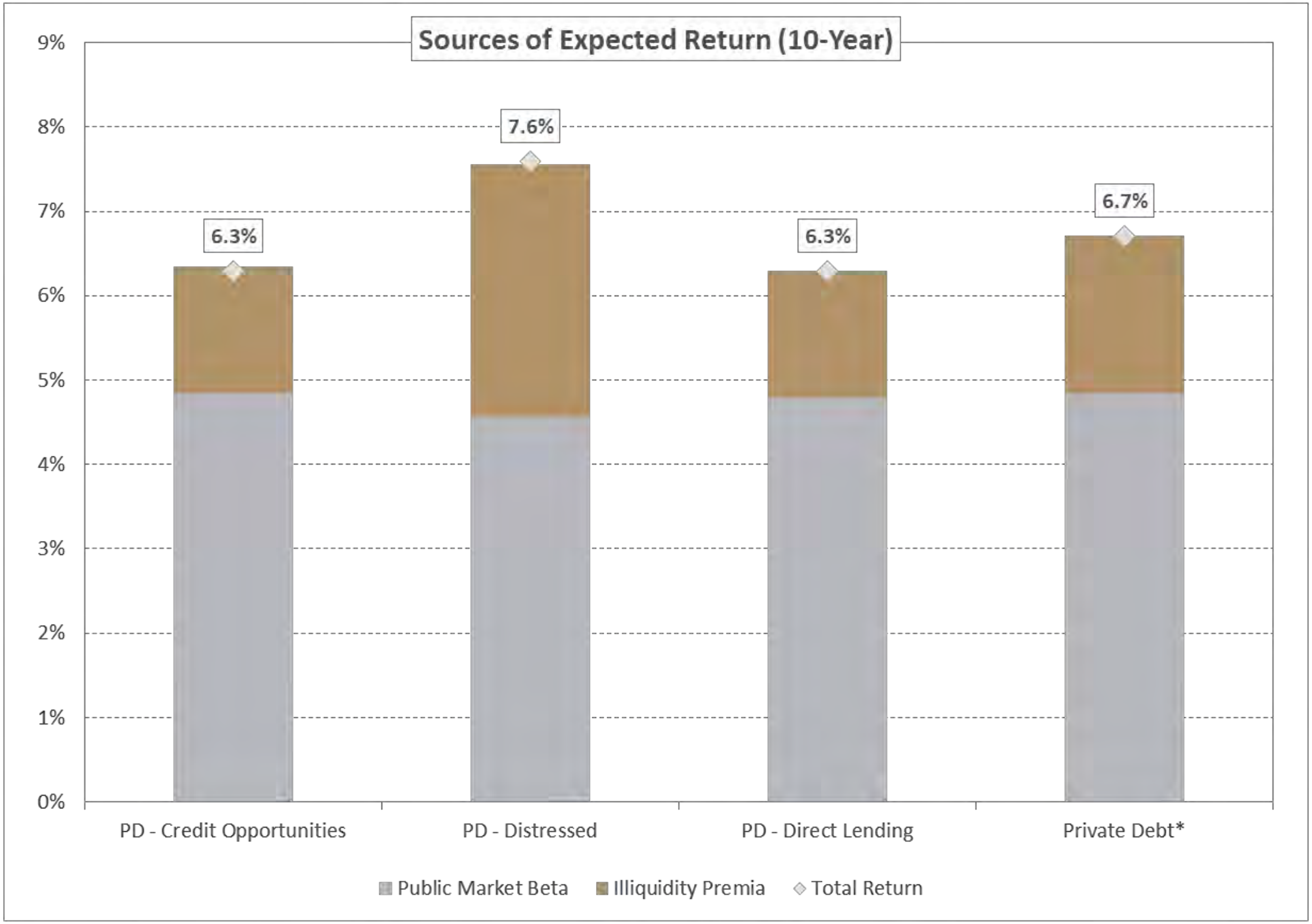
PRIVATE EQUITY BUILDING BLOCKS



Source: NEPC

*Private Equity is a derived composite of 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE

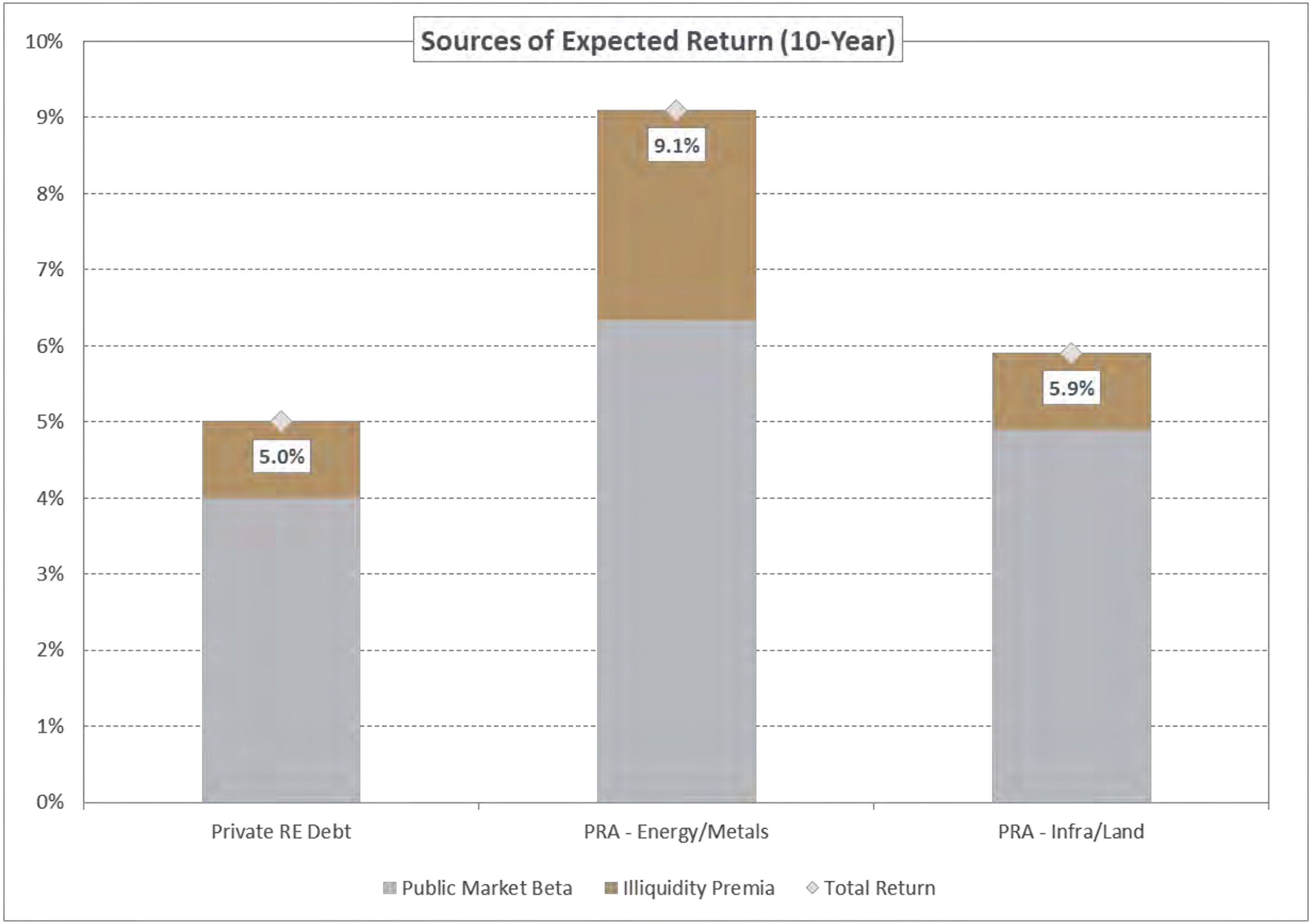
PRIVATE DEBT BUILDING BLOCKS



Source: NEPC

*Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending

PRIVATE REAL ASSETS BUILDING BLOCKS



Source: NEPC

APPENDIX

2020 CAPITAL MARKET FORECASTS

Asset Class	10-Year	30-Year	Volatility
Inflation	2.3%	2.5%	-
Cash	1.8%	2.4%	1.00%
US Leverage Cost	2.1%	2.7%	1.00%
Non-US Cash	0.4%	2.1%	1.00%
Large Cap Equities	5.0%	6.7%	16.50%
Small/Mid Cap Equities	5.5%	7.2%	20.00%
Int'l Equities (Unhedged)	6.0%	7.0%	20.50%
Int'l Equities (Hedged)	6.2%	7.2%	17.50%
Int'l Sm Cap Equities (Unhedged)	6.4%	7.5%	22.00%
Emerging Int'l Equities	9.0%	9.2%	28.00%
Emerging Int'l Sm Cap Equities	9.2%	9.2%	31.00%
Hedge Funds - Long/Short	4.8%	5.7%	11.50%
PE Buyout	7.4%	9.0%	18.50%
PE Growth	9.0%	10.4%	30.50%
PE Venture	10.6%	11.5%	45.00%
PE Secondary	6.9%	8.5%	21.00%
PE Non-US	10.7%	11.1%	33.00%
China Equity	8.8%	9.1%	29.50%
US Microcap Equity	7.0%	8.2%	25.00%

2020 CAPITAL MARKET FORECASTS

Asset Class	10-Year	30-Year	Volatility
TIPS	2.2%	2.7%	6.50%
Treasuries	1.9%	2.7%	5.50%
IG Corp Credit	3.4%	4.4%	7.50%
MBS	2.5%	3.4%	7.00%
High-Yield Bonds	4.1%	5.6%	12.50%
Bank Loans	4.8%	5.2%	9.00%
EMD (External)	4.1%	5.0%	13.00%
EMD (Local Currency)	5.4%	5.3%	13.00%
Non-US Bonds (Unhedged)	0.2%	2.1%	10.00%
Non-US Bonds (Hedged)	0.3%	2.3%	4.50%
Short TIPS (1-5 yr)	2.2%	2.8%	3.50%
Short Treasuries (1-3 yr)	2.1%	2.7%	2.50%
Short Credit (1-3 yr)	2.9%	3.6%	3.50%
Short HY (1-3 yr)	3.4%	4.1%	8.50%
Municipal Bonds	1.9%	2.6%	7.00%
Municipal Bonds (1-10 Year)	1.9%	2.6%	5.50%
High-Yield Municipal Bonds	3.2%	5.0%	12.00%
Hedge Funds - Credit	4.8%	5.9%	9.00%
PD Credit Opportunities	6.3%	7.5%	14.00%

2020 CAPITAL MARKET FORECASTS

Asset Class	10-Year	30-Year	Volatility
PD Distressed	7.6%	8.3%	14.00%
PD Direct Lending	6.3%	7.5%	11.00%
Long Treasuries	1.7%	2.7%	12.00%
Long TIPS	2.2%	2.7%	10.00%
Long Credit	3.4%	4.6%	12.00%
20+ YR STRIPS	1.4%	2.5%	21.00%
Corp - AAA	2.7%	3.6%	7.00%
Corp - AA	2.7%	3.6%	6.50%
Corp - A	3.0%	4.0%	7.50%
Corp - BBB	3.7%	4.6%	8.50%
Corp - BB	4.6%	6.2%	10.50%
Corp - B	4.4%	5.7%	12.50%
Corp - CCC/Below	0.7%	0.8%	20.00%
IG ABS/CMBS	2.8%	3.7%	9.00%
IG CLO	2.9%	3.5%	7.50%
HY Securitized	4.2%	5.6%	11.00%
HY CLO	5.3%	5.8%	11.00%
Taxable Muni Debt	2.8%	4.3%	8.00%
US 10 yr Treasuries	1.9%	2.9%	7.50%

2020 CAPITAL MARKET FORECASTS

Asset Class	10-Year	30-Year	Volatility
Non-US 10-Year Sovereign (Hedged)	0.4%	2.6%	5.50%
Commodities	4.0%	4.8%	19.00%
Midstream Energy	7.4%	7.1%	18.50%
REITs	5.4%	6.5%	20.00%
Public Infrastructure	5.3%	6.1%	18.50%
Public Resource Equity	7.3%	7.4%	22.00%
Core Real Estate	5.2%	6.0%	13.00%
Non-Core Real Estate	6.4%	7.4%	19.50%
Private RE Debt	5.0%	5.7%	11.00%
Private Real Assets - Energy/Metals	9.1%	9.0%	32.00%
Private Real Assets - Infra/Land	5.9%	6.7%	12.00%
Hedge Funds - Macro	5.0%	5.4%	9.50%
*Global Equity**	6.2%	7.5%	17.79%
*Private Equity**	*9.4%*	*10.7%*	*24.58%*
*Core Bonds**	*2.5%*	*3.4%*	*6.01%*
*Private Debt**	*6.7%*	*7.8%*	*11.54%*
*Long Govt/Credit**	*2.8%*	*3.9%*	*11.25%*
*Hedge Funds**	*5.0%*	*5.9%*	*8.18%*

*Assumptions are derived from the underlying equity, credit, and real assets building blocks

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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ABC SYSTEM

LIQUIDITY ANALYSIS

June 2019

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

BACKGROUND

- **NEPC and ABC Systems' staff annually perform a liquidity analysis of the system to ensure that the investment portfolio has ample liquidity to meet the benefit obligations and expected expenses of the program**

- **In performing this analysis, NEPC models a base case environment (where the system is operating in line with NEPC and actuarial assumptions) along with a stressed case environment**
  - Stress testing the liquidity profile ensures the system has ample liquidity to meet obligations throughout a wide range of adverse market environments

- **The liquidity profile of a system is largely dependent on the program's use of alternative investments**
  - Alternative investments can enhance the risk and return profile of the portfolio, but also involves locking up capital and using structures that are relatively illiquid
  - Correlations historically have been low to publicly traded assets, protecting the system from prolonged weakness in the public markets

- **The illiquid nature of alternative assets mandates the need for a liquidity management process**
  - As alternative managers draw down unfunded commitments, will there be enough liquidity to manage the total cash flows of the system?
  - Will liquid assets drop to a point that would force the sale of illiquid assets?

ASSUMPTIONS

- **Base Case**
  - Returns: NEPC 5-7 year expected returns used (currently 7.0% per year)
  - Benefit Payments and Expenses: based on actuarial projections (avg. $267M per year)
  - Contributions: based on actuarial projections (avg. $226M per year)
  - Commitments:
    - Currently $479M in commitments outstanding
    - Based on current pacing models, there is $835 million of additional commitments expected over the next 5 years
    - Capital Calls and Distributions: based on standard industry averages, with modifications (where applicable) for unique managers and/or strategies

- **Stressed Case**
  - Returns: 0.0% in Year 1, -17.1% in Year 2 (-2 standard deviations), -5.1% in Year 3 (-1 standard deviation), 7.0% in Year 4 (expected return), and -5.1% in Year 5 (-1 standard deviation). This represents a 5 year return of –4.4%/yr.
  - Benefit Payments: Same as base case
  - Contributions: Same as base case (assumes 7% actuarial return), with no upward adjustments from stressed market returns
  - Commitments: Same as base case (no adjustments from staff)
  - Capital Calls and Distributions: Same as base case except capital calls are doubled in Year 2 and distributions are halved in Year 2 and Year 3

- **NOTE:**
  - Throughout the entire financial crisis of 2008-2009, ABC System' never had a 5 year return that was negative. The worst 5 year return was 0.44% in March 2009

SUMMARY / OBSERVATIONS

- **The current liquidity profile is appropriate given the expected liquidity needs and current asset allocation**
  - The current portfolio is well-positioned to seek the benefits of a diversified allocation to private markets and staff has the flexibility to re-allocate additional capital should opportunities or market conditions dictate
  - Program is projected to need $40 million of annual liquidity over the next 5 years (less than 2% of the total fund), and has over $1.1 billion of assets with monthly liquidity (or better)

- **Under the base case, ABC System is projected to gradually shift towards a more liquid portfolio over the next 5 years**
  - The allocation to illiquid investments is projected to drop from 38% of assets to 29%.
  - This is based on asset allocation decisions approved in 2017 and 2018, which lowered the targeted allocation to private equity and hedge fund strategies

- **In the stressed case, negative market returns (denominator effect) raise allocations to private markets above targets**
  - While alternative investments diversify the portfolio and protect the fund from market losses under this scenario, they will become a larger percentage of the portfolio.
  - At the end of the stressed case simulation, the plan is 48% illiquid, which would be higher then the target allocation to alternatives of 37.5%
  - There are “tools” to help mitigate this (detailed on following page)

NEPC

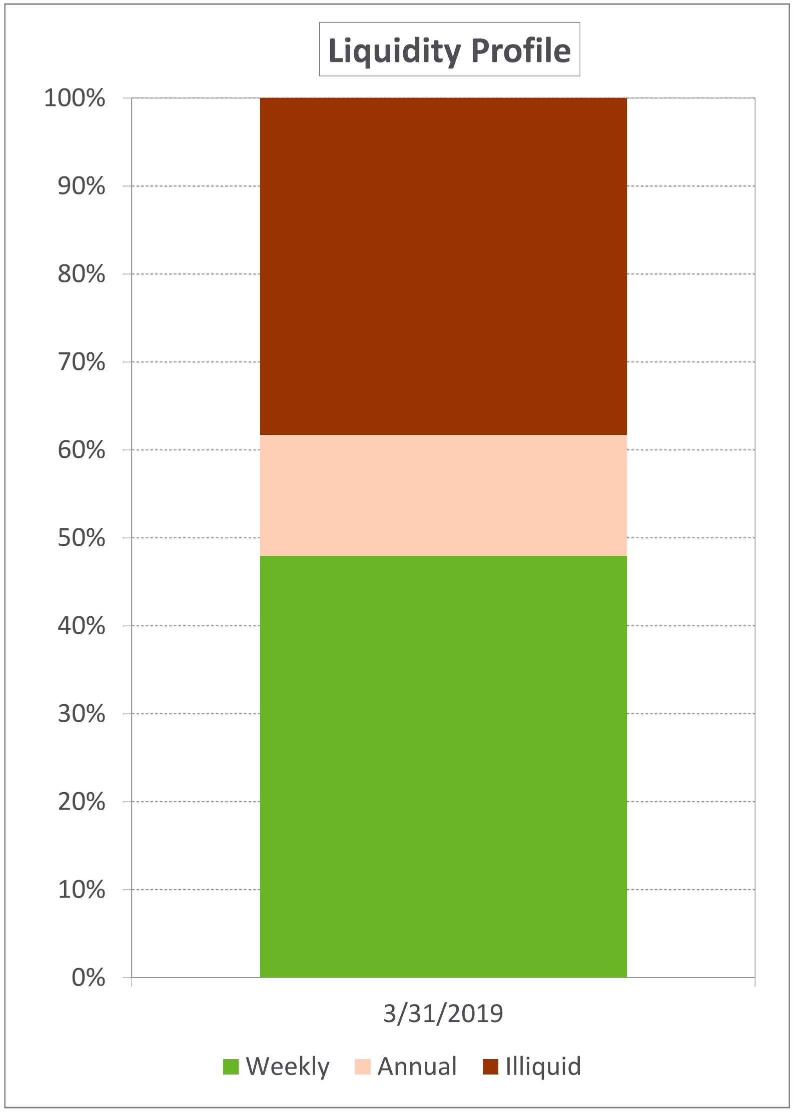
MANAGING ASSETS IN THE STRESSED CASE

- **Modeling a stressed market includes the following assumptions:**
  - The negative returns that are modeled under the stressed scenario reduces the overall market value of the fund (denominator effect)
  - At the same time, the system's commitments to illiquid strategies could generate capital calls which, together with falling public markets, could increase the allocation to alternatives and adversely impact the system's liquidity profile
  - If not managed appropriately, this can potentially lead to the forced liquidation of less liquid assets to remain compliant with the approved allocation ranges (which would likely be at a discount to current market valuations)

- **There are a number of tools available to system's management team which protect against this scenario, including:**
  - The CIO has authority to rebalance and manage the portfolio to minimize the risk of forced liquidations of illiquid assets
    - Not all alternatives are illiquid, and actively managing the portfolio during periods of stress is critical in managing difficult markets
  - Slowing the pace of future private market commitments
  - The modeling assumes no changes to the current contribution rates during this scenario, which would likely be recommended by the actuary during a prolonged market downturn

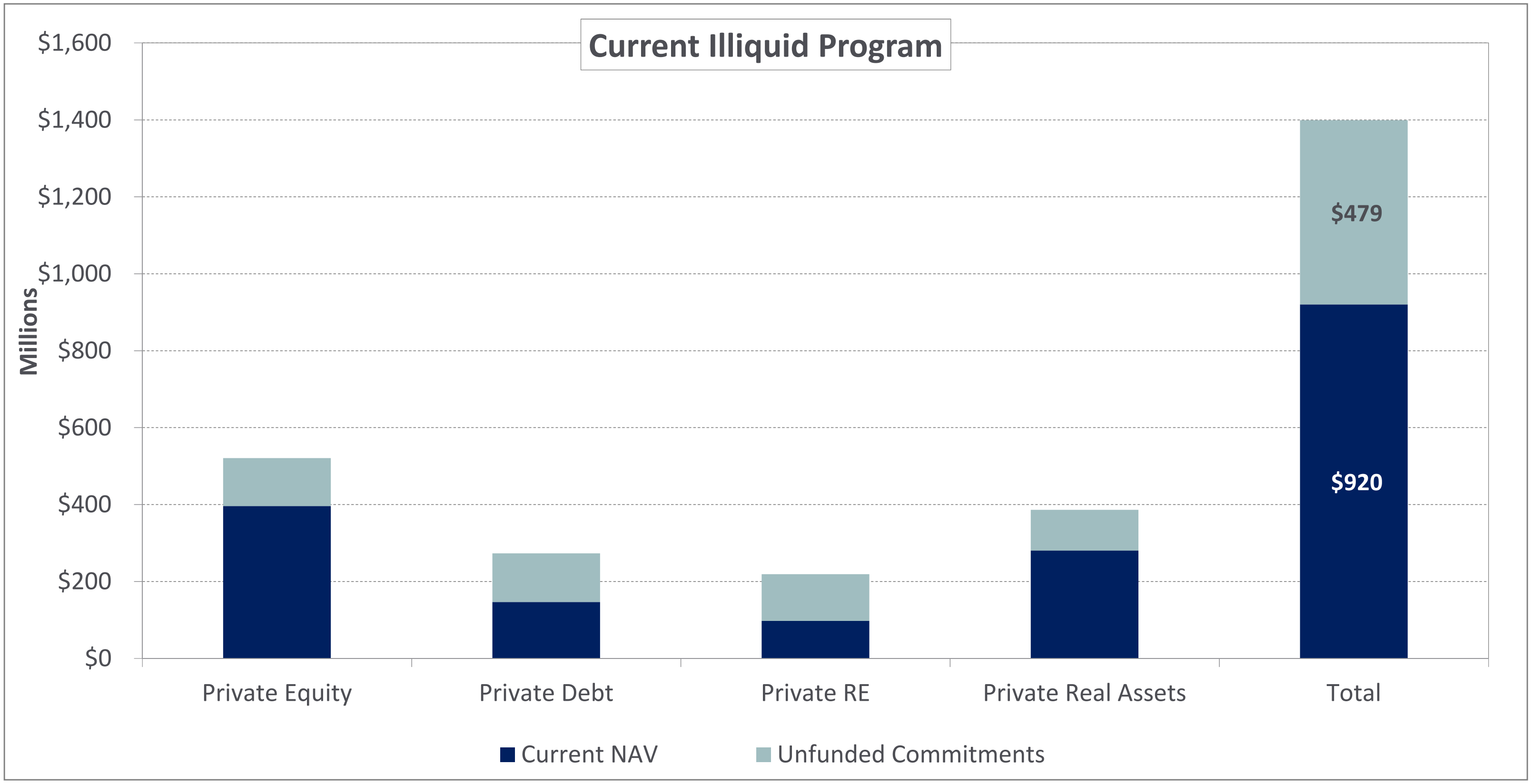
- **Note: During the stressed market environment, the use of alternatives and illiquid assets protects/diversifies the corpus of the fund from larger overall losses**
  - While liquidity management is an important element of the investment portfolio, there's also the overriding goal to safeguard and diversify system assets

EXISTING LIQUIDITY PROFILE



- **48.0% of total assets are available on at least a monthly basis to meet regular liquidity needs ($1.1 Billion)**
  - Benefit payments and expenses
  - Rebalancing
  - Capital calls
- **Additional 13.8% of assets available on at least an annual basis ($326 Million)**
  - Can be part of planned rebalancing but much less reliable for regular liquidity needs
- **Remaining 38.3% of assets are relatively illiquid ($905 Million)**
  - Intermittent distributions - hard to plan around
  - Could be sold in secondary markets, but likely at steep discount

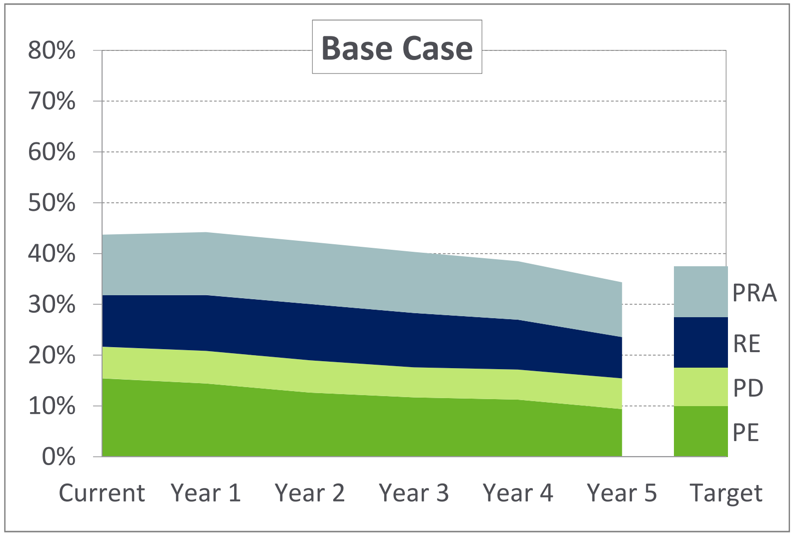
ILLIQUID PROGRAM SNAPSHOT

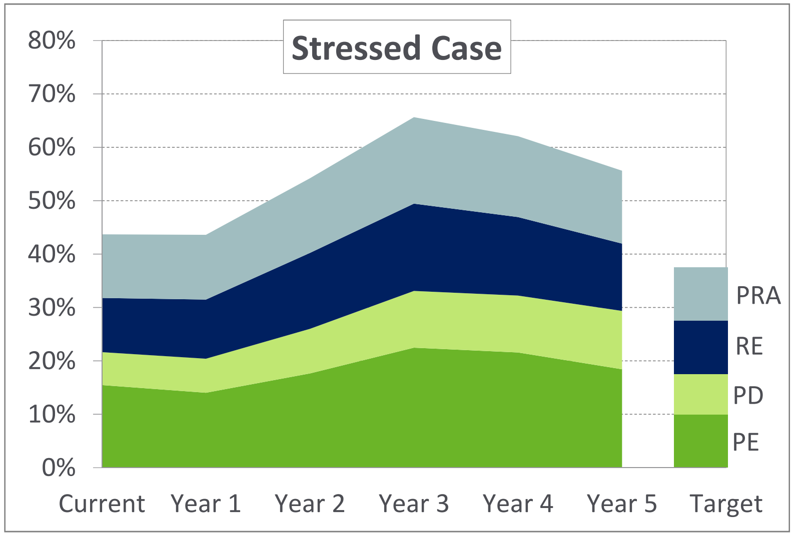


Based on data as of 9/30/2018
Private Debt only includes illiquid investments within opportunistic credit

- **Because of uncalled capital commitments the allocation to illiquid investments can rise even without any additional commitments**
  - Currently ≈$479M in uncalled private market commitments

ALTERNATIVE ASSET ALLOCATION

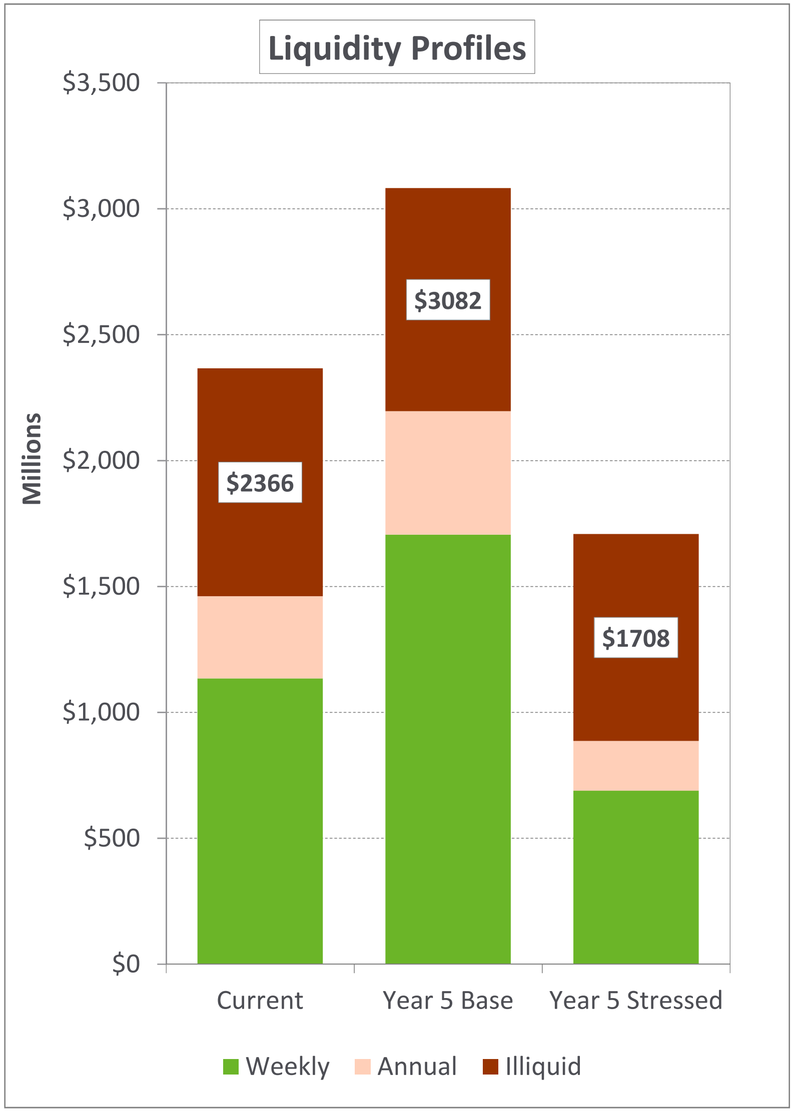


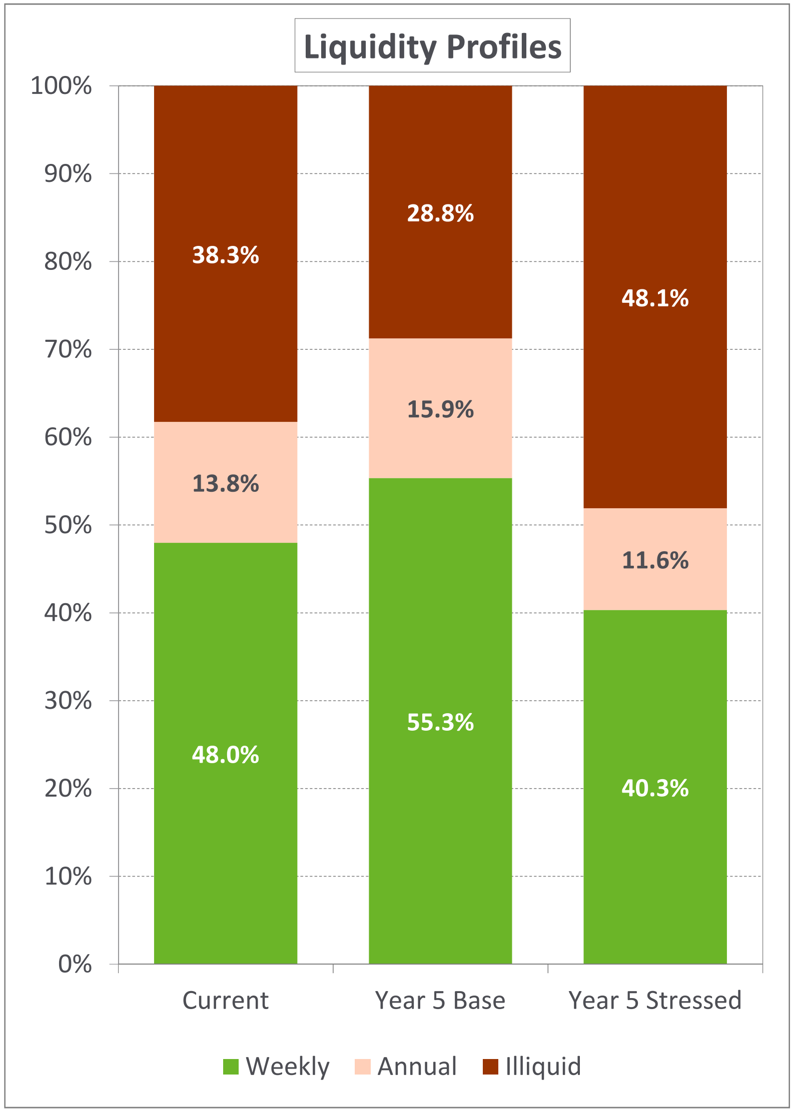


10% real estate target represents both Core and Non-Core Real Estate
Core Real Estate and Non-Core Real Estate are expected to grow at NEPC's 5-7 year return assumption of 6.00% and 7.00%, respectively

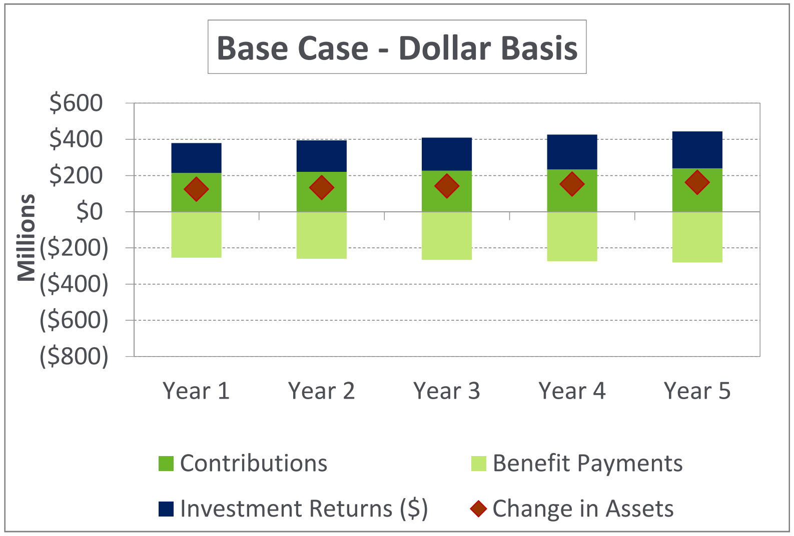
- **Allocation to alternative assets is expected to decline over the next five years in base case**
  - Maturity of illiquid program means distributions from existing investments overwhelm capital calls and projected commitments – causing allocations to fall
- **In the stressed case, the projected negative asset returns (denominator effect) raise allocations to private markets above targets**
  - It is possible to mitigate this issue by slowing pace of future commitments and adjusting the pacing plan

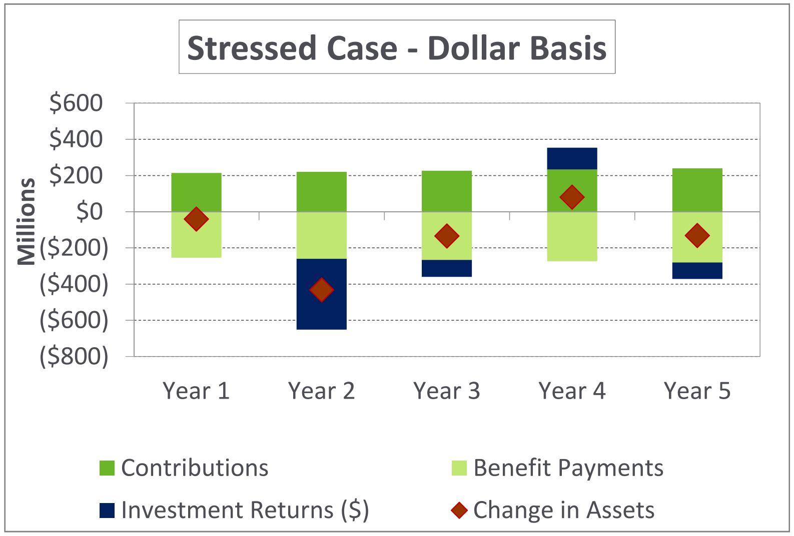
CHANGE IN LIQUIDITY PROFILE

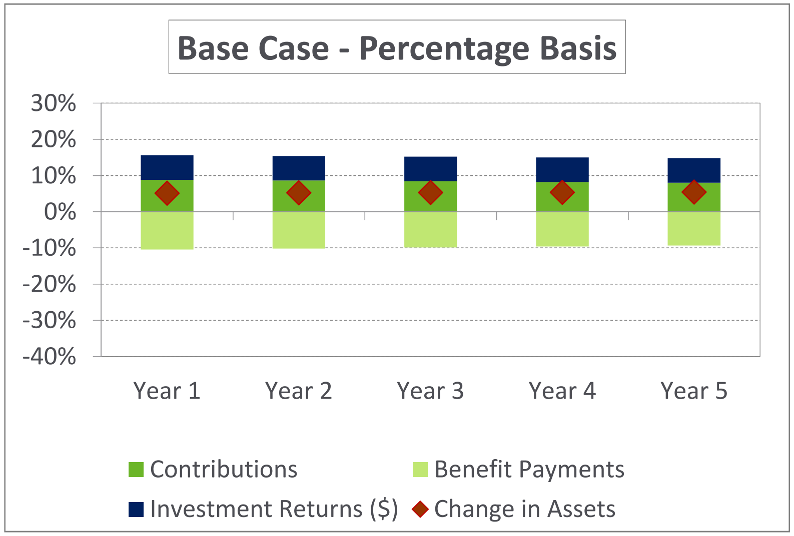


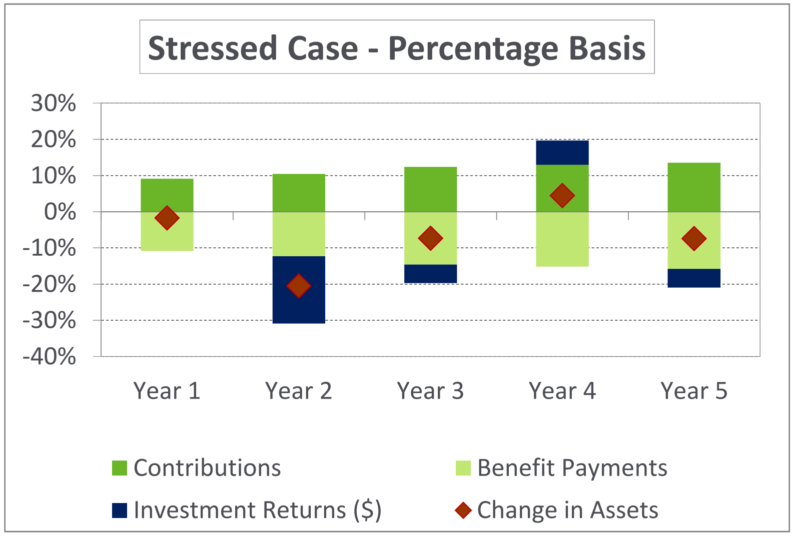


ANNUAL CHANGE IN ASSETS ATTRIBUTION









SUMMARY / CLOSING

- NEPC and ABC System' staff believe the current liquidity profile is appropriate given the expected liquidity needs and current asset allocation
- Recent changes to the asset allocation targets are expected to gradually tilt the portfolio towards more liquid strategies over the next 5 years
- ABC Systems' governance policies provide management and staff with the tools and authority to manage the portfolio during a stressed market environment
- NEPC will continue to monitor ABC Systems' overall liquidity profile on an annual basis (at a minimum), and will bring any concerns to the Board of Trustees as needed

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ALTERNATIVE INVESTMENT DISCLOSURES

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager’s realm of expertise or contemplated investment strategy

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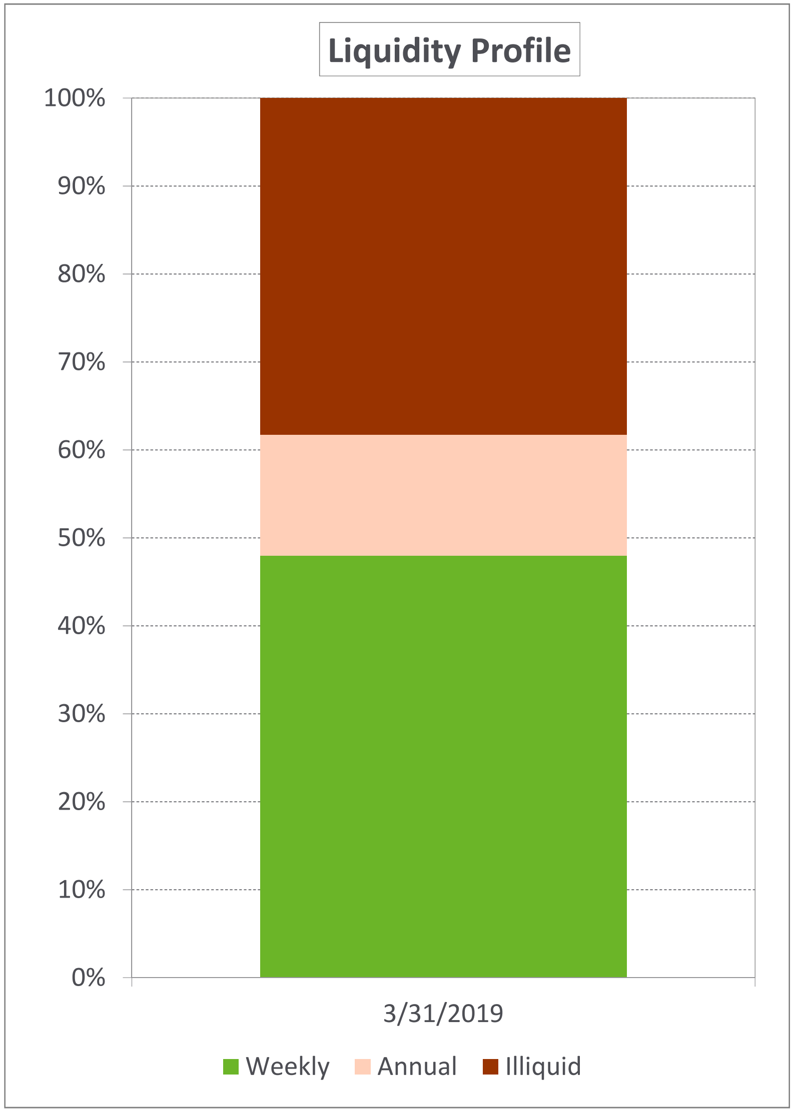
EXISTING LIQUIDITY PROFILE



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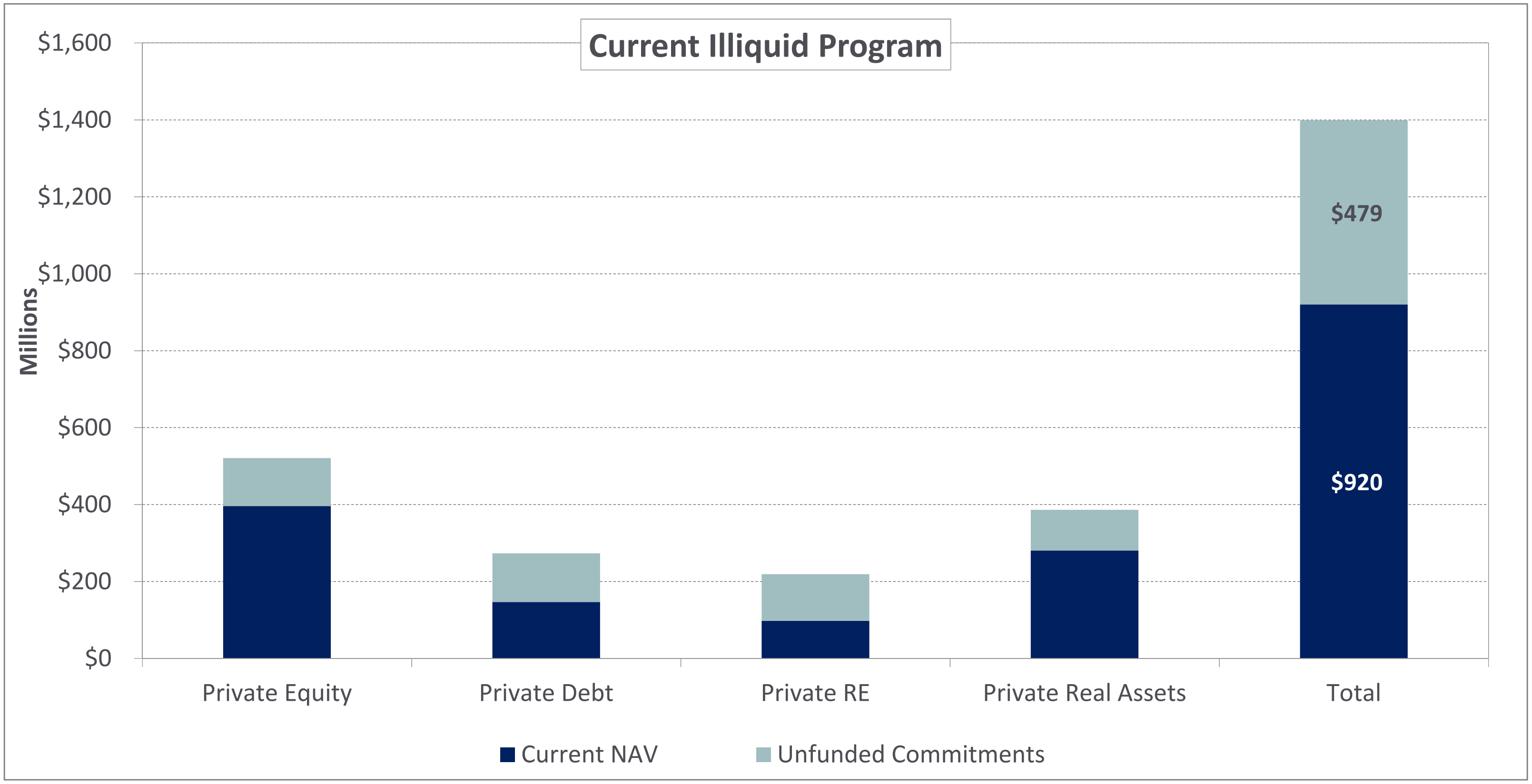
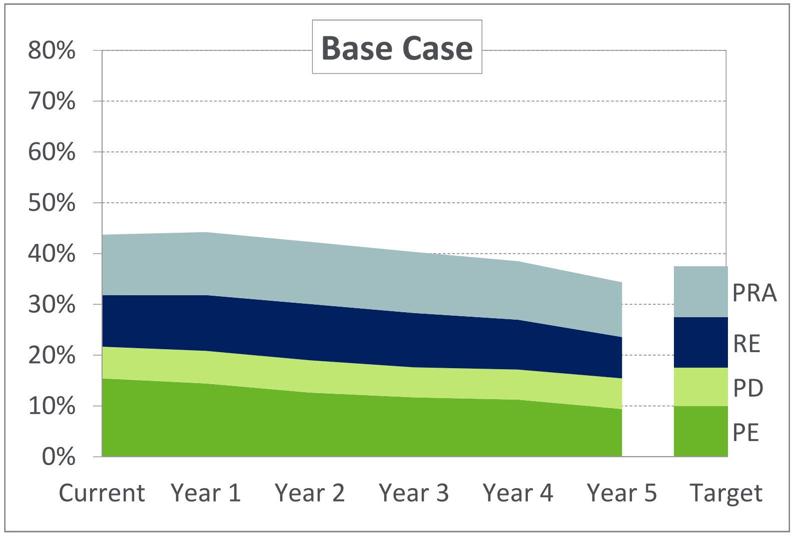
ILLIQUID PROGRAM SNAPSHOT

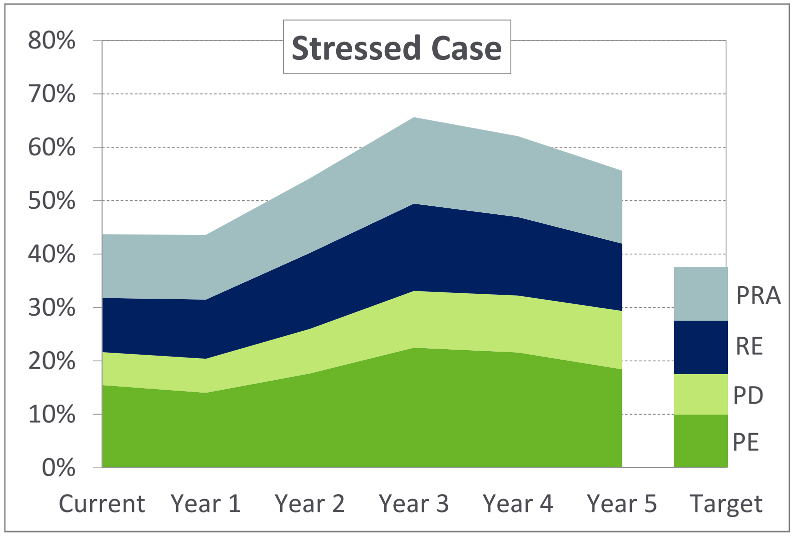


Based on data as of 9/30/2018
Private Debt only includes illiquid investments within opportunistic credit

- **Because of uncalled capital commitments the allocation to illiquid investments can rise even without any additional commitments**
  - Currently ≈$479M in uncalled private market commitments

ALTERNATIVE ASSET ALLOCATION

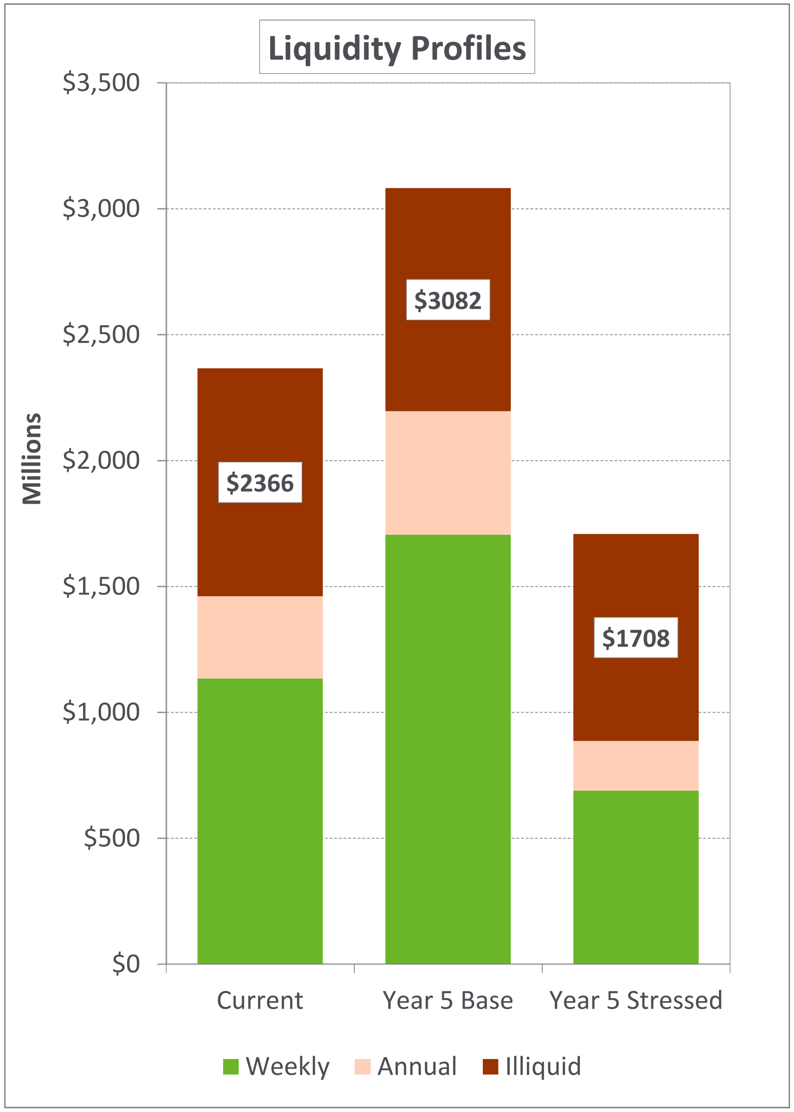


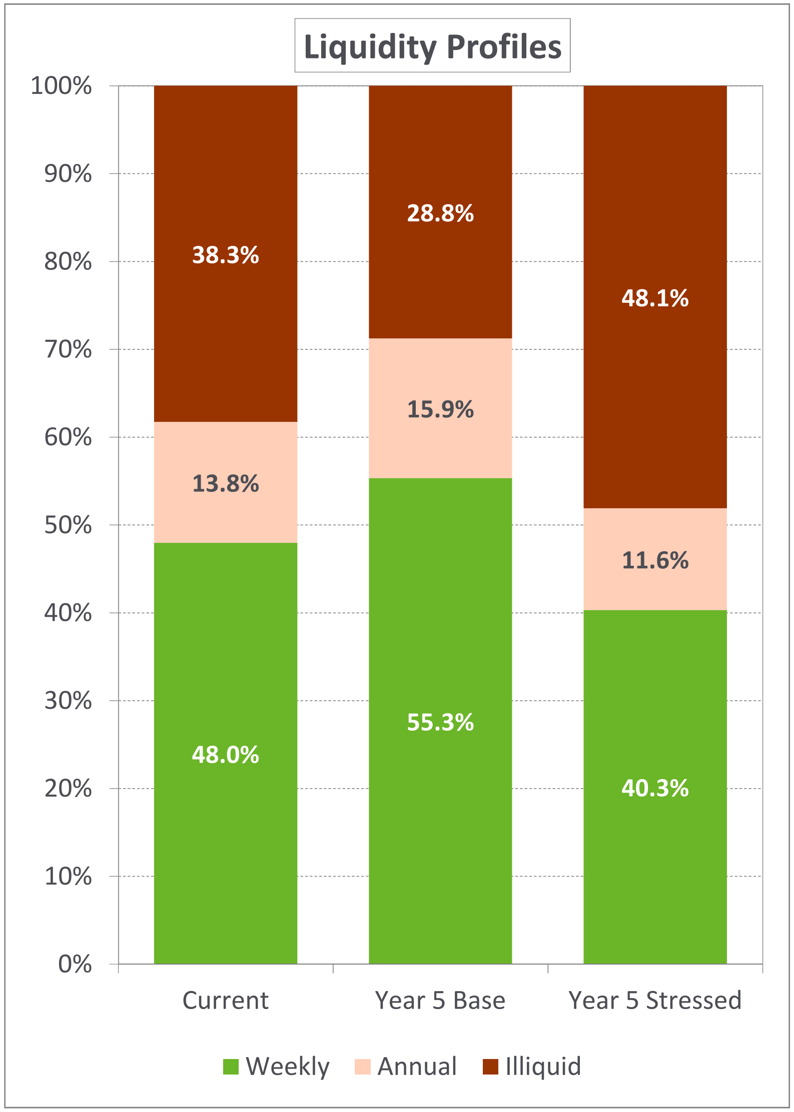


10% real estate target represents both Core and Non-Core Real Estate
Core Real Estate and Non-Core Real Estate are expected to grow at NEPC's 5-7 year return assumption of 6.00% and 7.00%, respectively

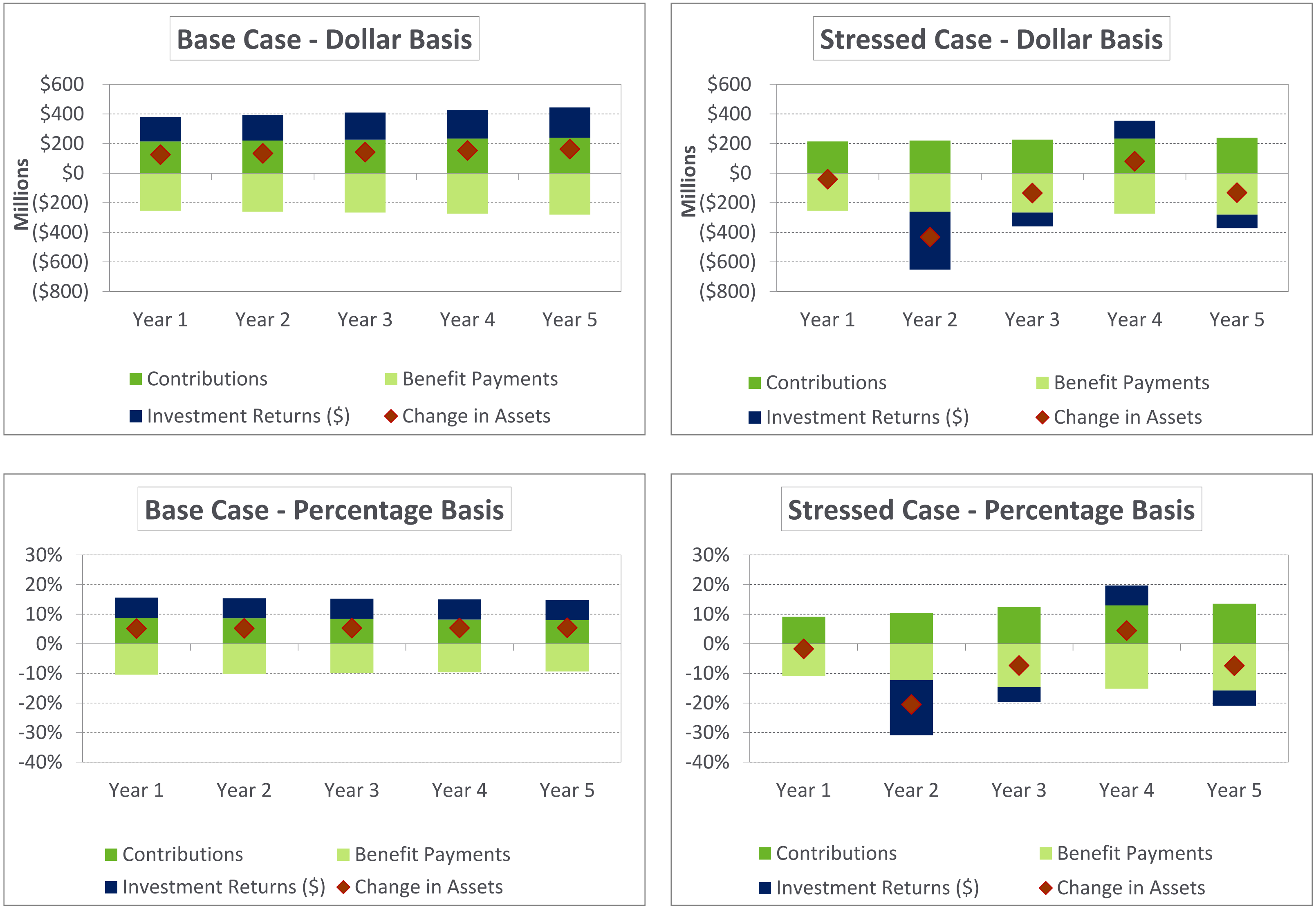
- **Allocation to alternative assets is expected to decline over the next five years in base case**
  - Maturity of illiquid program means distributions from existing investments overwhelm capital calls and projected commitments – causing allocations to fall
- **In the stressed case, the projected negative asset returns (denominator effect) raise allocations to private markets above targets**
  - It is possible to mitigate this issue by slowing pace of future commitments and adjusting the pacing plan

CHANGE IN LIQUIDITY PROFILE





ANNUAL CHANGE IN ASSETS ATTRIBUTION



SUMMARY / CLOSING

- NEPC and ABC System' staff believe the current liquidity profile is appropriate given the expected liquidity needs and current asset allocation
- Recent changes to the asset allocation targets are expected to gradually tilt the portfolio towards more liquid strategies over the next 5 years
- ABC Systems' governance policies provide management and staff with the tools and authority to manage the portfolio during a stressed market environment
- NEPC will continue to monitor ABC Systems' overall liquidity profile on an annual basis (at a minimum), and will bring any concerns to the Board of Trustees as needed

INFORMATION DISCLAIMER

- Past performance is no guarantee of future results
- The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time
- Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within
- All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses
- This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it

ALTERNATIVE INVESTMENT DISCLOSURES

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

1. **Performance can be volatile and investors could lose all or a substantial portion of their investment**
2. **Leverage and other speculative practices may increase the risk of loss**
3. **Past performance may be revised due to the revaluation of investments**
4. **These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms**
5. **A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value**
6. **These funds are not subject to the same regulatory requirements as registered investment vehicles**
7. **Managers may not be required to provide periodic pricing or valuation information to investors**
8. **These funds may have complex tax structures and delays in distributing important tax information**
9. **These funds often charge high fees**
10. **Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy**

CHARTING A COURSE FORWARD

AN UPDATE: NEPC 2020 ASSET ALLOCATION LETTER

APRIL 2020

CHARTING A COURSE FORWARD

NEPC Asset Allocation Committee

APRIL 2020

KEY TAKEAWAYS

- Rebalancing and diversification remain critical to successful portfolio construction
- This can be a time for investors to take on risk, but careful deployment and frequent reassessment are vital
- Set aside at least one quarter of spending needs in cash
- *Virus Trajectory* is our dominant and new key market theme; it will likely drive pricing in capital markets over the next 12-to-18 months
- *Permanent Interventions* remains an important key market theme as central banks and governments step in to contain the economic fallout from the global pandemic

These times are without precedent as we collectively experience the velocity and ferocity with which the new coronavirus ravages towns, cities, states and countries. This global pandemic demands unthinkable sacrifices and impossible choices.

At NEPC, above all else, we hope for the wellbeing and health of our families, friends, colleagues, clients, neighbors and those on the front lines battling the virus. We hope that our actions of today—social distancing, self-isolating and voluntary quarantining—will slow and, eventually, alter the destructive path of COVID-19. We also hope that the investment decisions our clients and we make today in the face of this tumult will set us on the course to not only preserve capital, but also grow it in the years to come, such that the losses of today pave the way for the gains of tomorrow.

To that end, we present this update of our 2020 asset allocation letter—typically an annual feature—as the investment landscape is virtually unrecognizable from just a few months ago. In a handful of weeks, the onslaught of the virus and the efforts to contain it have had a profound impact on our investment outlook. In addition, they have not only intensified and disrupted our key market themes, but also presented a new one. While the volatility ripping through markets will likely give rise to new investment opportunities, our steadfast commitment to disciplined rebalancing and diversification stands unchanged. Also unchanged: our belief that attempting to time the market is a fool's errand; we will know the day of the bottom only in retrospect and well into a recovery. Accordingly, we believe this can be a time for investors to begin to carefully lean into risk, be it through an outright increase in targets for risky assets or by adding lower-quality credit, distressed exposure, or high-conviction active strategies. At the same time, we also recommend keeping aside cash equaling at least one quarter of spending needs.

To be sure, it is important for us to acknowledge the uncertainties related to every aspect—social, economic and political—of COVID-19. Thus, our suggestions on potential strategies and courses of action are just that: suggestions. However, we also acknowledge that investments during periods of great uncertainty are often, in retrospect, the most lucrative. These challenging times can be the best ones for investment returns over the long term, but careful placement of risk and regular reviews are critical for success.

KEY MARKET THEMES

Our outlook and market valuations for the long term are informed by our key market themes that influence asset allocation and portfolio implementation. COVID-19 has not only had a significant impact on these themes, but also become one itself. The virus has terminated our key market theme of the United States being in the *Late Stage* of the market cycle, as it will likely tip the US and many others into recession.

Conversely, our theme of *Permanent Interventions* is amplified as central banks and governments step up efforts to offset the severe economic disruption brought about by the virus.

While our other themes—*China Transitions* and *Globalization Backlash*—remain relevant, they move to the background as these two dominant ones take center stage:

***I. Virus Trajectory*:** This is a new key market theme to come out of the COVID-19 pandemic. The virus' path is clearly the most pressing concern in the world, jeopardizing the health and wellbeing of millions, whipsawing capital markets and economies, fueling drastic monetary and fiscal measures, and compelling investors to seek the safety of cash. As cities, states and countries go through their individual cycles of infection, spread and containment of the virus, protocols for social distancing and lockdowns are being put into place, throwing into turmoil businesses while rendering millions jobless. The effectiveness (or lack of) of these restrictions will determine the pace at which they may be eased, marking the potential return to normalcy, or whatever the new normal may be – this path itself, much like the trajectory of the virus, is riddled with uncertainties.

To be sure, new cases of infection will not dissipate in a matter of weeks. However, a decline in their numbers that reverses the trend of exponential increases is a strong sign that the restrictions are starting to work. Indications of an initial "bend in the curve" have already brought a measure of calm—temporary, perhaps—to markets. A potential slowdown in the spread of the virus will likely allow investors to start the process of quantifying the economic and financial fallout from COVID-19.

There is also concern that lifting or loosening restrictions around movement and social interaction may fuel a second wave of the virus, forcing another spell of stringent stay-at-home measures in the fall. This theme may subside as many regions see cases wind down, but is unlikely to end until a vaccine can be effectively administered.

II. Permanent Interventions**:** We introduced this theme at the start of the year, based on the willingness of central banks and governments to step in to bolster market sentiment. At the time, we had no idea how aggressively and quickly this theme would manifest across the world as coronavirus tore through economies. We are encouraged by the wide-ranging response—moving rates to zero, unlimited and expanded quantitative easing plan, primary dealer credit facility, money-market liquidity facility—from the Federal Reserve and its peers. These measures will inject liquidity into markets, providing stability as investors reprice risk amid the pandemic.

In addition to using its handbook from the financial crisis, the Fed can also lend support to banks to stimulate economic activity; unlike 2008, when banks contributed to the crisis, they can be part of the solution this time around as they remain well capitalized. We believe the Fed's actions will have a positive, supportive impact on markets and the economy over time. While these actions alone cannot trigger a turning point, they are part of an important set of initial actions needed to get us to one.

Moving on to fiscal intervention, in the US, this has taken the form of the wide-ranging CARES Act, which is offering checks to promote spending, enhanced unemployment benefits, and loans/equity to the most challenged industries; at $2.2 trillion, it is close to 10% of GDP. Additional components will likely be tacked on as the extent of economic damage becomes clear in the coming weeks and months. Early indications show that other countries are following suit with even fiscally conservative Germany delivering a major fiscal response; France, Spain, Korea, Japan and China are also working on plans to bolster their economies during this challenging time.

Even with these massive monetary and fiscal initiatives, we wonder if they will be enough to pull the US economy out of a likely recession. What we do know is that these measures are strong, positive indicators of economic support that markets have been quick to price in.

BROAD OPPORTUNITIES

Using these key market themes as guiding posts, we find return expectations across risky assets more attractive than just a few months ago. At the same time, we see great uncertainty and a wide range of potential outcomes. Balancing these competing forces, we suggest these potential investment opportunities and actions:

1. **Commit to diversification and disciplined rebalancing**
2. **Favor areas with the strongest response against the virus and aggressive monetary and fiscal measures**
3. **Carefully increase targets to risky assets**
4. **Tactical investors can enhance risk posture within beta groups, particularly credit**

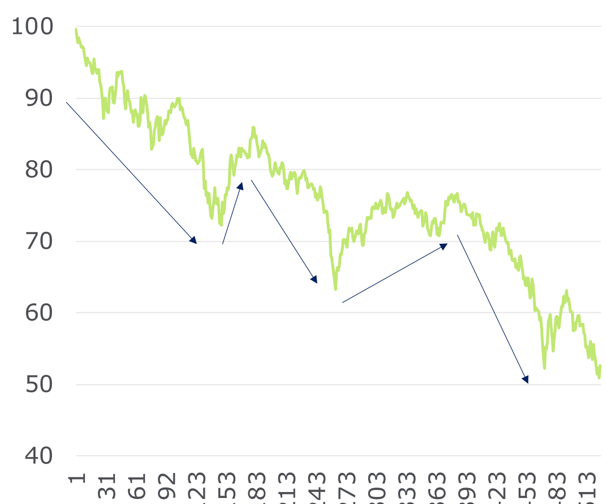
1. Commit to diversification and disciplined rebalancing:

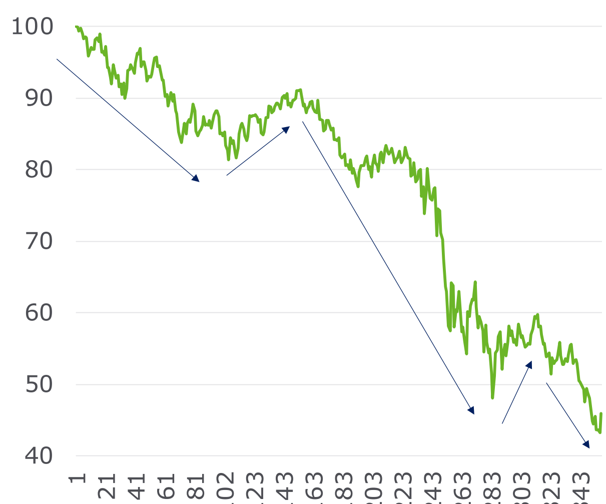
Investing entails going head-to-head with uncertainty. Investors earn a return in exchange for holding assets subject to a wide range of economic outcomes whose fate over time reveals a (hopefully) positive outcome. So, while risky assets offer greater promise today, there is also higher potential for an "L-shaped" recovery or even a severe depression-like environment. Should that scenario play out, the path of risky assets would appear unattractive today. Conversely, a robust recovery would mean strong prospective returns for equities and credit.

We manage some of this uncertainty by building portfolios that can withstand adverse environments. A diversified mix of assets can participate in market returns should the more favorable path play out and protect capital should more adverse scenarios emerge. Even if the diversification dampens returns, the role it plays can still be incredibly valuable.

As part of that diversified approach, the next step for investors is to rebalance towards long-term targets, and to remain committed to rebalancing as markets oscillate. While markets have calmed since crashing in mid-March, it is unlikely that recovery will be just as fast. The last two major drawdowns—the tech crash and the financial crisis—show multiple periods of substantial losses and sizable upswings, only for markets to further crater (Exhibit 1). This makes rebalancing a disciplined two-way undertaking involving leaning into asset classes that have experienced losses and trimming gains as they occur, while factoring in market dynamics/liquidity and the need for cash. To that end, we recommend investors hold a quarter's worth of cash to avoid potentially high transaction costs amid disruptions in market liquidity.

Exhibit 1





Market Swings in 2000

Trading Days	Price Change
148	-27.8%
181	18.7%
262	-26.2%
384	21.2%
526	-33.6%
Total Loss	-49.2%

Market Swings in 2007

Trading Days	Price Change
110	-18.4%
152	11.5%
284	-47.1%
314	24.2%
356	-27.6%
Total Loss	-56.8%

Source: FactSet, Oaktree Capital, NEPC

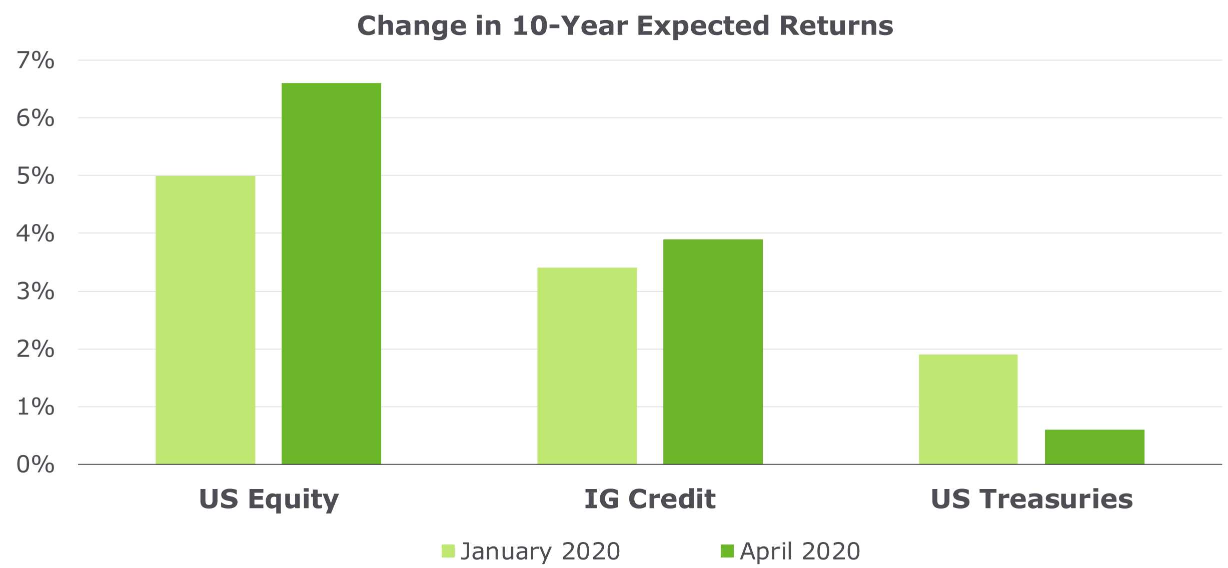
2. Favor areas with the strongest response against the virus and aggressive monetary and fiscal measures:

Countries and regions that have responded most forcefully on these fronts will likely emerge the most successful. This means the United States has a head start in an economic recovery even though it is currently roiled in the coronavirus pandemic. This also means countries like China, Korea and Taiwan that have effectively managed the outbreak are more likely to come out less scathed than other emerging economies. To be sure, the widely varying conditions in emerging countries make an overweight to emerging equities less effective. However, with a 10-year return forecast of over 10% for emerging market stocks, we continue to believe in a modest overweight; allocations to non-US developed market equities can be a funding source for an overweight to US and emerging market stocks.

3. Carefully increase targets to risky assets:

For investors comfortable with the risk profile of their asset allocation and portfolio construction, these uncertain times can offer up potentially lucrative investment opportunities. Indeed, our return expectations for equities and credit are now higher than they were at the start of 2020, with an extra 1%-to-1.5% expected annually over the next 10 years because of the recent drop in prices (Exhibit 2). Additionally, the relative attractiveness of these betas appears enhanced as falling Treasury rates erode the return prospects for safe-haven assets. Still, it is important to proceed with caution in these turbulent times as one's confidence in forward-return expectations could be misplaced. Accordingly, investors increasing targets to risky assets should balance their exposure with safe-haven assets.

Exhibit 2



Source: NEPC

4. **Tactical investors can enhance risk posture within beta groups, particularly credit:**

As an alternative to adjusting risk exposure at an asset allocation level, investors can consider structure-related maneuvers within beta groups; credit allocations could be especially interesting (though these still require further study).

To that end, our Research team is currently hard at work to uncover these opportunities across the world and the capital stack. Here is a list of possible actions:

- Shifting exposure of some investment-grade fixed-income to lower-quality credit, for instance, high-yield or emerging market debt
- Carving out fixed-income allocations to credit opportunities to capitalize on areas that have taken a recent hit but carry the potential for strong returns
- Committing to new areas of opportunity like distressed investments
- Pivoting hedged equity exposure to higher beta exposure
- Investigating high-conviction, capacity-constrained strategies for potential new commitments

We expect the coming months will bring some of these opportunities into sharp relief as we begin to grasp what lies ahead; some will be compelling while others will be passed up. We look forward to working through them and communicating ideas to our clients as we build conviction.

CONCLUSION

The battle between the uncertainties and dangers laid bare by COVID-19 and the defensive measures adopted by governments and central banks are likely to dominate markets in the weeks and months ahead. Making sense of this environment and assessing potential outcomes are a challenging exercise, making it even more important to proceed with caution. As our key market themes of *Virus Trajectory* and *Permanent Interventions* dominate market pricing, we are presented with an impossibly wide range of outcomes. To that we say: stay diversified, have the courage to rebalance into risky assets, and consider opportunities as they emerge. This will help position investors for long-term success.

NEPC

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LARGE CAP GROWTH EQUITY MANAGER REVIEW

NEPC RESEARCH

July 2018

TABLE OF CONTENTS

INTRODUCTION

INTRODUCTION TO ASSET CLASS

Large cap growth strategies emphasize stocks of U.S. companies deemed to have good growth potential. In most cases a growth stock is defined as a company whose earnings are expected to grow at an above-average rate versus its industry or the overall market. Because stock prices are based on future expectations, growth stocks tend to be more sensitive to market movements. Generally a large cap stock has a market capitalization of $10 billion or greater.

The recommended benchmark for large cap growth equities is the Russell 1000 Growth Index. The index is capitalization-weighted and includes U.S. common stocks as determined by Russell's country assignment rule. This rule relies on three key indicators: incorporation, headquarters, and trading. Companies that are incorporated, headquartered, and trade in the U.S. become a member of that country. In the case of a company whose 3 key indicators do not match, the primary location of assets or revenue is used to determine eligibility. When location of assets or revenue is not reported, country assignment will default to location of headquarters.

The Russell indices are reconstituted once a year effective July 1. The Russell 1000 Index represents the largest U.S. common stocks at the time of reconstitution (May 31). Historically, the Russell 1000 reflected the largest 1,000 stocks at the time of reconstitution; in 2007, Russell incorporated market capitalization banding to their methodology with the purpose of reducing unnecessary turnover. The Russell 1000 Growth Index represents a subset of the Russell 1000 Index determined to exhibit growth characteristics based on three variables: Price-to-book ratio, I/B/E/S forecast medium-term (2-year) growth estimate, and historical (5-year) sales-per-share growth. Similar to the market capitalization banding, in 2011, Russell incorporated a style banding to their methodology.

RESEARCH PROCESS

NEPC's investment manager research process identifies a Focused Placement List of strategies that we expect will provide superior investment performance over time. Our four step process used for identifying our Focused Placement List includes:

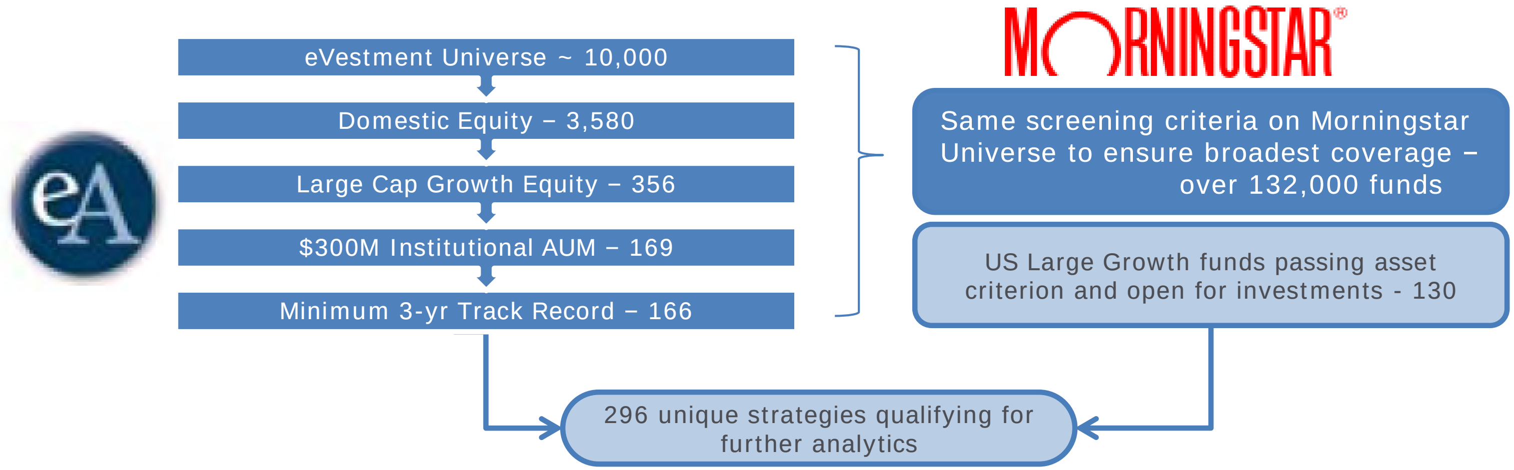
1. Universe Screening – Minimum inclusion criteria and screening are used to focus our analysis;
2. Quantitative Scoring – Proprietary quantitative analysis measuring the consistency and quality of alpha-only, net of fees returns;
3. Qualitative Research – Rigorous qualitative analysis of a strategy's key characteristics, focusing on identification of a clear and differentiating investment thesis to develop forward-looking conviction in future performance; and
4. Peer Review – Confirmation through careful peer review of each strategy by senior investment professionals to challenge each investment thesis and raise critical business issues.

We believe that this exhaustive process leads to identification of strategies with a reasonable probability of delivering consistent, high quality investment results. From time to time, we may include products specifically requested by clients.

RESEARCH PROCESS

1. Universe Screening

– The construction of the Focused Placement List begins with initial universe screening to identify candidates that meet acceptable criteria for further analysis.

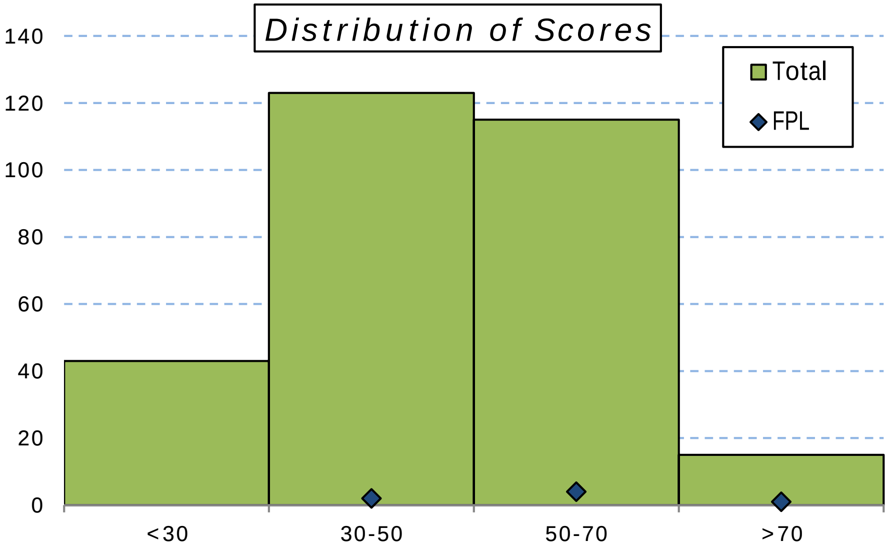


RESEARCH PROCESS

2. Quantitative Scoring

– Strategies are scored using our proprietary Performance Analytics Statistical Software (PASS) on metrics that we believe identify investment processes expected to consistently outperform the benchmark over the long term. All analysis is based on excess manager returns, net of all fees. For Large Cap Growth, strategies are scored 0-100. Scoring is weighted 70% quantitative and 30% qualitative, including the following factors:

- % of Rolling 3 Year Returns > 0%
- % of Rolling 3 Year Returns > 3%
- Rolling 3 Year Information Ratio
- Upside/Downside Capture
- Long Term Alpha Confidence (Statistical Significance)
- Qualitative NEPC Opinion – Firm & Team Stability,
- Quality of Investment Thesis



RESEARCH PROCESS

3. Qualitative Research

- Deep, qualitative research is conducted on a focused set of strategies identified through scoring and supplemented by our research teams' knowledge of strategies that appear compelling for further research.

- Our research efforts are focused on developing a deep understanding of each strategy's people, philosophy, & process, synthesizing those aspects into our interpretation of each strategy's investment thesis – the identification of a particular set of market inefficiencies and the conviction in a portfolio management team's ability to exploit those inefficiencies over the long-term, thereby, adding value over the benchmark.

- By focusing on investment thesis, our research remains forward-looking, supporting this investment view with critical knowledge of each organization, investment team, research support, investment process, performance expectations, and fees/available investment vehicles to identify strategies that we believe will provide quality excess returns above the relevant benchmark.

4. Peer Review

- The research process culminates in exhaustive peer review. The Large Cap Equity Advisory Group provides feedback and insight to the research team prior to vetting strategies in front of senior research and consulting professionals on NEPC's Due Diligence Committee. The research team presents each Focused Placement List candidate to the Due Diligence Committee. The committee challenges both the soundness of the investment thesis (NEPC's articulation of why the strategy is expected to outperform over the long-term) and all relevant factors that might effect the long-term stability of the strategy, including business factors at the firm level. Candidates approved by the Due Diligence Committee are placed on the Focused Placement List and included in searches conducted for that asset class.

SEARCH CANDIDATES

The table below summarizes the products available for each manager. This book serves only as a review. Search notices were not sent to the managers profiled within this book, therefore NEPC cannot guarantee placement in any products.

Firm	Product	Comments
Large Cap Growth Equity		
Manager A	Product A	Composite Track Record Shown
Manager B	Product A	Composite Track Record Shown
Manager C	Product A	Composite Track Record Shown
Manager D	Product A	Composite Track Record Shown
Manager E	Product A	Composite Track Record Shown

DISCLOSURE

Data Disclosure:

- Investment fees can have a significant effect on total returns. The results profiled herein reflect the deduction of management fees and other expenses, except where specifically noted.

NEPC Relationships:

- Manager C provides 401(k) record-keeping services to NEPC for a fee.

FIRM AND PRODUCT SUMMARY

DESCRIPTION

The following pages address portfolio-specific characteristics.

- **Firm and Product Summaries:**
  - On these pages, several portfolio characteristics are listed. The data here should match what you already know about the manager: do they have the staff to research this many ideas? How large is their trading staff if turnover is significant? How do they define their universe in terms of market capitalization?

- **Equity Style Comparison Summary:**
  - This chart points out the subtle difference between managers. The chart takes a snapshot of the managers and illustrates the different size, style and index-sensitivity of the products. The style data is based on actual portfolio holdings, rather than performance history.

FIRM AND PRODUCT SUMMARY

Firm / Product	Firm / Team Comments	Investment Style / Strategy	Performance Expectations	Portfolio Positioning	Other Comments
Large Cap Growth Equity					
Manager A - Product A	Majority owned by Parent Company A. Integrated global research platform. The PMs for the strategy process the Buy/Hold/Sell ratings with more granularity.	GARP The approach blends fundamental and quantitative alpha sources, seeking to incorporate the best of both worlds. Fundamentally-based stock selection reflects forward-looking insights from the analysts. Quantitatively-based stock selection reflects empirical long-term drivers of returns.	The blending of fundamental and quantitative stock selection allows them to outperform in most markets. In stable trending markets, the quantitative part should drive the outperformance. In more forward-looking markets, the fundamental part should drive	80-120 holdings optimized to a set of parameters. 1% outperformance target. 1.8%-2.2% tracking error target.	This is the lowest tracking error candidate.
Manager B - Product A	Firm is in the process of being acquired from UniCredit by Parent Company B.Co-PM decision-making. They leverage the central research team.	Growth. Strategy invests in high-quality growth companies. They emphasize sustainable, secular growers.	Should perform well in a fundamentally-driven market. Emphasis on high-quality companies should provide downside protection. Conversely strategy will struggle in low quality rallies when fundamentals are ignored.	35-45 stocks. Maximum position size is 6%. Sector weights are +/- 7% versus the benchmark. 3%-6% tracking error.	Parent Company B transaction expected to close in the first half of 2017.Commingled vehicle has a first mover fee of 30 bps until assets in the vehicle reach $200M.
Manager C - Product A	Sole PM decision-making. The PM is a member of the Large Cap Growth Investment Team and also leverages the centralized research team of industry analysts.	GARP. Process seeks companies with strong business models in growth industries and attractive financial characteristics. Target growth rate is 10%. PM does not have to agree with the research analysts.	Should perform well when fundamentals do well. Returns should not be too volatile as PM gradually builds and exits positions.	100-130 stocks. Minimum market cap of $5B. Sector weights are 0.5x to 2.0x for primary S&P 500 sectors, and 0.5x to 3.0x for primary Russell 1000 Growth sectors.	Employee A has been the PM since inception. This strategy was created as the minimal non-US option to Growth Stock strategy.

FIRM AND PRODUCT SUMMARY

Firm / Product	Firm / Team Comments	Investment Style / Strategy	Performance Expectations	Portfolio Positioning	Other Comments
Large Cap Growth Equity					
Manager D - Product A	Wholly-owned subsidiary of Parent Company D. Lead PM decision-making, supported by a dedicated team of career sector analysts.	Growth. Strategy emphasizes companies with undiscovered business momentum not currently priced in by the markets. Identifying a catalyst that will result in market recognition is key to unlocking valuation.	Emphasis on stock selection given tight sector constraints. Should perform well in fundamental growth markets. Will struggle in low quality rallies and other environments that ignore growth.	50-70 stocks. Individual positions are managed to +/-3%. They target sector neutrality but will allow +/-3% range around the benchmark to accommodate stock ideas.	
Manager E - Product A	Team joined when Manager E acquired Manager F in 2004. Stable team of PMs and analysts responsible for bottom-up research. Sole PM decision-maker for Premier Growth.	Strategy seeks robust and sustainable growth in companies. They invest when they identify gaps between their forecasts and market expectations for growth.	Should perform well when growth is in favor, or when fundamentals drive stock prices. During value headwinds, or when fundamentals are ignored, they will struggle.	80-100 stocks. Mid-to-large cap strategy with largest allocations to traditional growth sectors of Technology, Consumer Discretionary, and Healthcare.	Second generation investment team took over in 2004.

NEPC INVESTMENT THESIS

Firm / Product	NEPC Investment Thesis
Large Cap Growth Equity	
Manager A - Product A	Product A's Research Team's value-added comes from their hybrid stock selection approach leveraging their fundamental and quantitative teams. It is not a blackbox approach that follows straight stock ratings from the fundamental analysts and rankings from the quantitative models. Rather, the team makes adjustments to raw scores to account for analyst effectiveness and conviction, as well as stock volatility, in the fundamental rating and factor/model effectiveness, as well as stock volatility, in the quantitative scoring. The quantitative process supports investment breadth, as the portfolio can hold names not covered by their research team. The fundamental process leverages forward-looking insights of the research team where the models are limited.
Manager B - Product A	Product A's value-added is attributable to a clearly defined and repeatable risk-adjusted process that emphasizes high quality growth companies. Investments favor stability and predictability of growth versus accelerating growth. They tend to invest in mature growth companies where their research believes the growth profile is durable and the stock is trading at a discount to intrinsic value. This should lead to lower volatility in returns.
Manager C - Product A	Manager C's value-added comes from a fundamental research-oriented culture where individual portfolio managers on strategies leverage a large, stable team of industry analysts as well as other portfolio managers in the organization, many of whom were successful as analysts themselves. PM Employee A has been managing the Product A strategy since its inception in 1993 (Manager C Blue Chip Growth Fund). The strategy is a diversified option utilizing minimal non-US investments. The process generally seeks low double-digit projected earnings growth. The strategy has a lower growth hurdle than Manager C's other two growth equity strategies because it takes dividends into consideration in evaluating opportunities.
Manager D - Product A	Product A's value-added is attributable to a disciplined process supported by an experienced team of dedicated career analysts and portfolio managers who grew up as analysts. They believe that growth stocks don't stay growthy forever. Therefore they seek to identify growth opportunities that the market is underestimating or ignoring. Their research is framed around identifying the presence of three characteristics in potential investments: positive business momentum, valuations that indicate further appreciation is probable, and catalyst that leads to market recognition of the stock. This discipline frames all buy and sell decisions and focuses investments on better reward/risk opportunities.
Manager E - Product A	Product A's value-added is attributable to a stable team of experienced investment professionals responsible for executing a disciplined pure growth approach. The team conducts intensive, bottom-up research along the market cap spectrum to identify ideas that meet their criteria of robust and sustainable growth. Then their analysis focuses on determining market expectations for growth in the companies. Opportunities arise when there is a gap where they are more favorable on the growth prospects than the market.

FIRM COMPARISON SUMMARY

Firm Name	Location	Year Firm Founded	Total Assets Under Mgmt ($MM)	% Employee Owned	% Parent Owned	Parent Company Name	% Publicly Held	% Other Ownership
Large Cap Growth Equity								
Manager A	Location A	1924	480,563	20	80	Manager F	0	0
Manager B	Location B	1928	1,786,000	0	100	Parent Company B	0	0
Manager C	Location C	1937	1,014,200	17	0	NA	83	0
Manager D	Location D	1972	227,139	0	100	Parent Company D	0	0
Manager E	Location E	1981	377,749	0	100	Parent Company E	0	0

FIRM COMPARISON SUMMARY

Firm Name	Registered Investment Advisor	GIPS Compliant	Past or Pending Litigation	Firm uses Placement Agent
Large Cap Growth Equity				
Manager A	Yes	Yes	Yes	No
Manager B	Yes	Yes	Yes	Yes
Manager C	Yes	Yes	Yes	No
Manager D	Yes	Yes	Yes	Yes
Manager E	Yes	Yes	Yes	No

PRODUCT COMPARISON

Firm / Product	Inception Date	AUM ($MM)	# of Portfolio Managers	# of Research Analysts	# of Traders
Large Cap Growth Equity					
Manager A - Product A	2008	4,438	6	76	14
Manager B - Product A	1993	11,629	2	17	4
Manager C - Product A	1997	84,516	4	163	30
Manager D - Product A	1983	12,406	3	10	6
Manager E - Product A	2007	3,354	4	4	2

PRODUCT COMPARISON

Firm / Product	Vehicle Proposed	Reported Fee for $25.00 mm	Reported Fee in (bps)
Large Cap Growth Equity			
Manager A - Product A	Separate Account Commingled Fund Mutual Fund	75,000.00 82,500.00 112,500.00	30 33 45
Manager B - Product A	Separate Account Commingled Fund Mutual Fund	162,500.00 100,000.00 167,500.00	65 40 67
Manager C - Product A	Separate Account Commingled Fund Mutual Fund	125,000.00 142,500.00 142,500.00	50 57 57
Manager D - Product A	Separate Account Commingled Fund Mutual Fund	137,500.00 137,500.00 165,000.00	55 55 66
Manager E - Product A	Separate Account Mutual Fund	187,500.00 175,000.00	75 70

PRODUCT COMPARISON

Firm / Product	PRI Signatory (Y / N)	Strategy is Managed with ESG Considerations (Y / N)
Large Cap Growth Equity		
Manager A - Product A	Yes	Yes
Manager B - Product A	Yes	No
Manager C - Product A	Yes	No
Manager D - Product A	Yes	No
Manager E - Product A	Yes	Yes

PRODUCT COMPARISON

Firm / Product	Internal ESG Research Utilized (Y / N)	Third Party ESG Research Utilized (Y / N)	Manager Explanation of Research Methodologies Used
Large Cap Growth Equity			
Manager A - Product A	Yes	Yes	Most of our ESG-related insights originate from our own proprietary research into company financials, management teams and industry and ESG-related trends. However, we subscribe to multiple third-party ESG research providers including Sustainalytics and MSCI ESG Research. These providers were selected because they provide ESG-related data, company analysis and ratings, sector analysis and country analysis. In addition, we receive research support from a large and growing number of sell-side ESG investment analysts. Our investment team also relies upon ESG-related data provided by Bloomberg, Transparency International and other information services providers. Our investment team uses the knowledge gathered from the above activities and research providers in a variety of ways. For example, if an analyst or portfolio manager believes that a piece of ESG-related knowledge is material to client or shareholder value, that individual will incorporate that information into his or her financial model and/or valuation of the firm being evaluated. Our investment team uses a centralized repository for all research, which stores analyst and portfolio manager insights (including those related to ESG issues) for future use by the global investment team. In addition, our dedicated ESG analyst uses the knowledge and experience gathered from the above activities to develop research that ensures our ESG insights are shared across sectors and among the global investment team.
Manager B - Product A	No	No	NA
Manager C - Product A	No	No	NA
Manager D - Product A	No	No	NA
Manager E - Product A	Yes	Yes	By treating ESG issues as portfolio risk factors, we continue to support the independence of the research functions embedded in each our investment teams. Our independent Portfolio Risk Management and Analytics (PRMA) team provides a consistent framework for ESG risk reporting and analytics at Manager E.

EQUITY PRODUCT COMPARISON

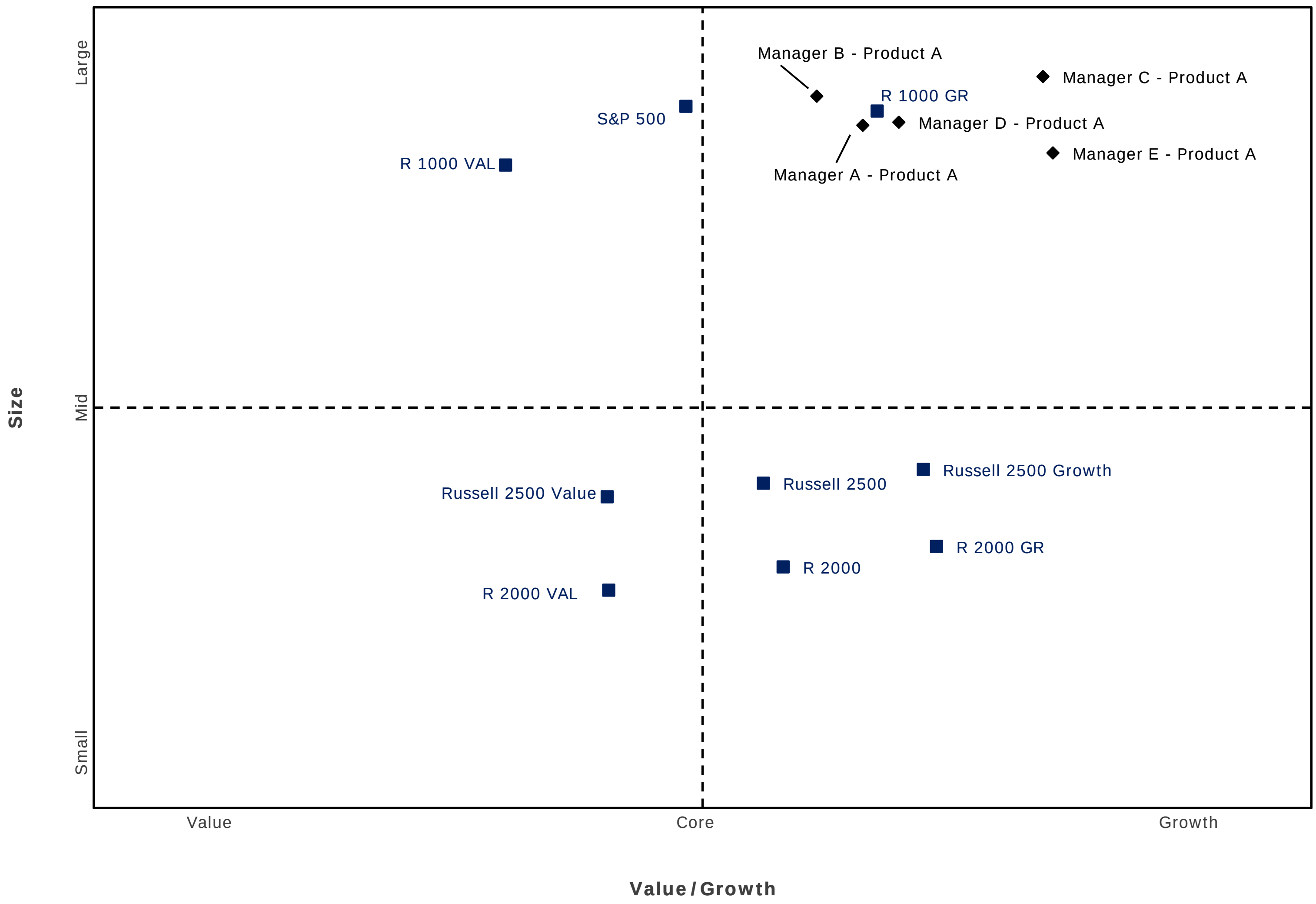
Firm / Product	Primary Equity Capitalization	Current Number of Holdings	Typical Holdings	Wgtd. Avg. Mkt. Cap ($MM)	Median Mkt. Cap ($MM)	Annual Turnover (%)	Max Cash Position (%)	Typical Cash (%)
Large Cap Growth Equity								
Manager A - Product A	Large Cap	86	100	220,799	82,699	60	NA*	1
Manager B - Product A	Large Cap	39	40	231,762	62,242	30	10	5
Manager C - Product A	Large Cap	122	120	255,495	41,090	29	5	2
Manager D - Product A	Large Cap	56	60	209,906	37,030	67	5	1
Manager E - Product A	Large Cap	83	80	191,395	31,420	40	5	5

*Not provided

EQUITY PRODUCT COMPARISON

Firm / Product	% Portfolio in Market Cap Range:						
	> $50 Billion (%)	$15-50 Billion (%)	$7.5-15 Billion (%)	$1.5-7.5 Billion (%)	$750-1.5 Billion (%)	$400-750 Million (%)	< $400 Million (%)
Large Cap Growth Equity							
Manager A - Product A	58	30	8	4	0	0	0
Manager B - Product A	73	22	4	0	0	0	0
Manager C - Product A	68	31	1	0	0	0	0
Manager D - Product A	54	38	7	2	0	0	0
Manager E - Product A	53	29	10	8	0	0	0

EQUITY SPECTRUM ANALYSIS



EQUITY STYLE CHARACTERISTICS

Firm / Product	Earnings Yield	Dividend Yield	EPS Growth	Fundamental Beta	Book / Price	Return on Equity
Large Cap Growth Equity						
Manager A - Product A	4.88	1.10	18.86	1.12	0.17	28.35
Manager B - Product A	4.56	1.25	12.75	0.97	0.16	31.81
Manager C - Product A	3.53	0.66	23.93	1.20	0.16	22.94
Manager D - Product A	4.23	1.10	18.32	1.06	0.14	29.54
Manager E - Product A	3.14	0.68	25.17	1.17	0.15	20.23
Benchmark						
Russell 1000 Growth	4.20	1.25	16.11	1.08	0.15	28.35

EQUITY SECTOR ALLOCATIONS

Firm / Product	Consumer Discretionary (%)	Consumer Staples (%)	Energy (%)	Financials (%)	Health Care (%)	Industrials (%)	Info. Tech. (%)	Materials (%)	Real Estate (%)	Tele. Serv. (%)	Utilities (%)	Other (%)
Large Cap Growth Equity												
Manager A - Product A	16.2	8.4	0.0	4.0	13.0	13.3	40.6	2.0	2.0	0.0	0.5	0.0
Manager B - Product A	16.0	6.6	1.3	8.7	16.2	6.7	41.1	3.4	0.0	0.0	0.0	0.0
Manager C - Product A	22.4	0.4	0.0	9.5	15.5	9.5	41.3	0.6	0.4	0.0	0.4	0.0
Manager D - Product A	18.2	6.8	0.9	4.3	12.7	13.2	38.3	3.2	2.4	0.0	0.0	0.0
Manager E - Product A	14.9	3.4	1.2	6.8	13.0	14.5	43.6	2.1	0.5	0.0	0.0	0.0
Benchmark												
Russell 1000 Growth	18.6	6.4	0.8	3.5	12.5	12.7	38.7	3.5	2.4	0.9	0.0	0.0

PERFORMANCE

INTRODUCTION TO PERFORMANCE ANALYSIS

The following performance charts show the historical record for the strategies under consideration. To manage client portfolios, each manager has a range of offerings (separate accounts, commingled funds or mutual funds) that allow all types of clients access to the strategy at reasonable prices.

Trailing Period Returns and Calendar Year Returns:

These pages highlight a manager's performance for quarter, year to date, 1, 3, 5, 7 & 10 year periods as well as calendar year returns.

Performance Summary:

These pages highlight a manager's excess performance over various periods. All managers are also shown from the inception of the shortest record referred to as LCD or Least Common Denominator.

Return Histogram:

These charts display the frequency of a manager's monthly excess performance data.

Rolling One Year and Three Year Excess Returns:

These charts demonstrate the manager's demonstrated relative performance versus the benchmark over time. Using each manager's one year return and subtracting the one year benchmark return shows how each manager has performed relative to the relevant benchmark. The same method is used for the three year charts.

Rolling One Year and Three Year Excess Return Versus Benchmark:

These charts demonstrate the manager's demonstrated relative performance behavior over up and down equity markets. The charts are displayed in order of benchmark performance along the X-Axis rather than chronological order. By looking at the Y-Coordinate you can determine whether or not the manager added or detracted value versus the benchmark over that one year period. Each dot represents the one year excess return versus the relevant benchmark. The same method is used for the three year charts.

Risk/Return Performance Charts:

These charts show the risk and return of the candidates and indicies for 3, 5, 7 & 10 year periods.

TRAILING PERIOD RETURNS - (NET OF FEES)

	Benchmark	Qtr	YTD	1 Year	3 Year	5 Year	7 Year	10 Year
Large Cap Growth Equity								
Manager A - Product A	1	1.2%	1.2%	19.7%	11.5%	15.2%	14.3%	11.8%
Manager B - Product A	1	0.8%	0.8%	14.6%	10.2%	13.9%	13.6%	10.7%
Manager C - Product A	1	5.7%	5.7%	30.8%	15.4%	18.5%	16.3%	12.8%
Manager D - Product A	1	1.4%	1.4%	20.4%	11.9%	14.8%	13.8%	11.4%
Manager E - Product A	1	5.3%	5.3%	28.0%	10.7%	13.7%	12.7%	12.0%

Actual Return

		Qtr	YTD	1 Year	3 Year	5 Year	7 Year	10 Year
1	**Russell 1000 Growth**	1.4%	1.4%	21.3%	12.9%	15.5%	14.1%	11.3%

CALENDAR YEAR RETURNS - (NET OF FEES)

	Bench mark	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Large Cap Growth Equity											
Manager A - Product A	1	27.4%	6.9%	4.8%	12.6%	37.4%	18.3%	2.3%	18.7%	38.8%	-39.7%
Manager B - Product A	1	23.1%	3.9%	6.6%	14.1%	33.4%	14.9%	6.8%	11.3%	34.3%	-32.0%
Manager C - Product A	1	36.7%	1.2%	11.4%	9.5%	41.8%	18.7%	1.7%	16.7%	43.1%	-42.4%
Manager D - Product A	1	29.9%	4.1%	6.4%	13.7%	30.9%	18.1%	2.5%	18.4%	29.5%	-34.5%
Manager E - Product A	1	34.3%	-3.3%	2.6%	8.9%	33.7%	16.9%	6.7%	21.2%	43.7%	-38.9%

		2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actual Index Return											
1	**Russell 1000 Growth**	30.2%	7.1%	5.7%	13.1%	33.5%	15.3%	2.6%	16.7%	37.2%	-38.4%

CALENDAR YEAR EXCESS RETURNS - (NET OF FEES)

	Benchmark	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Large Cap Growth Equity											
Manager A - Product A	1	-2.8%	-0.2%	-0.9%	-0.4%	3.9%	3.0%	-0.4%	2.0%	1.6%	-1.2%
Manager B - Product A	1	-7.1%	-3.2%	0.9%	1.1%	-0.1%	-0.3%	4.1%	-5.4%	-2.9%	6.5%
Manager C - Product A	1	6.5%	-5.9%	5.7%	-3.6%	8.3%	3.4%	-0.9%	0.0%	5.8%	-4.0%
Manager D - Product A	1	-0.3%	-3.0%	0.8%	0.7%	-2.5%	2.9%	-0.2%	1.7%	-7.7%	3.9%
Manager E - Product A	1	4.1%	-10.3%	-3.1%	-4.1%	0.2%	1.6%	4.0%	4.5%	6.4%	-0.5%

Actual Index Return

		2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
1	**Russell 1000 Growth**	30.2%	7.1%	5.7%	13.1%	33.5%	15.3%	2.6%	16.7%	37.2%	-38.4%

Manager Excess Return: > 3%, between 0% and 3%, between -0% and -3%, < -3%

EXCESS RETURNS PERFORMANCE SUMMARY - (NET OF FEES)

	Primary Benchmark	# of Months (Track Record)	% Positive (Mo.)	High (Mo.)	Low (Mo.)	Average (Mo.)	% > 0.5%	Rolling 1 Yr. Rtr.		Rolling 3 Yr. Rtr.	
								> 0%	> 3%	> 0%	> 3%
Large Cap Growth Equity											
Manager A - Product A	Russell 1000 Growth	123	50%	2.2%	(1.4%)	0.0%	18%	57%	14%	75%	0%
Manager B - Product A	Russell 1000 Growth	240	52%	15.8%	(9.8%)	0.1%	33%	51%	27%	69%	28%
Manager C - Product A	Russell 1000 Growth	240	55%	6.3%	(5.5%)	0.1%	38%	66%	31%	80%	24%
Manager D - Product A	Russell 1000 Growth	240	53%	3.7%	(6.4%)	0.1%	31%	53%	22%	61%	5%
Manager E - Product A	Russell 1000 Growth	240	57%	13.1%	(8.8%)	0.3%	42%	64%	45%	71%	49%

EXCESS RETURNS PERFORMANCE SUMMARY - (NET OF FEES)

	# of Months (Track Record)	Excess Return					Tracking Error				Information Ratio				Beta vs. Primary Benchmark
		1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	
Large Cap Growth Equity															
Manager A - Product A	123	(1.5%)	(1.4%)	(0.3%)	0.2%	0.4%	1.9%	2.0%	1.9%	2.0%	(0.74)	(0.15)	0.09	0.23	0.99
Manager B - Product A	240	(6.6%)	(2.7%)	(1.6%)	(0.5%)	(0.6%)	3.0%	2.7%	2.9%	3.4%	(0.88)	(0.61)	(0.18)	(0.18)	0.67
Manager C - Product A	240	9.5%	2.5%	2.9%	2.2%	1.5%	4.6%	4.5%	4.2%	3.9%	0.54	0.65	0.53	0.37	0.93
Manager D - Product A	240	(0.8%)	(1.0%)	(0.7%)	(0.3%)	0.1%	1.9%	2.0%	1.9%	2.9%	(0.53)	(0.37)	(0.13)	0.04	0.94
Manager E - Product A	240	6.8%	(2.2%)	(1.8%)	(1.4%)	0.6%	3.9%	4.1%	4.1%	4.0%	(0.57)	(0.44)	(0.35)	0.15	0.95

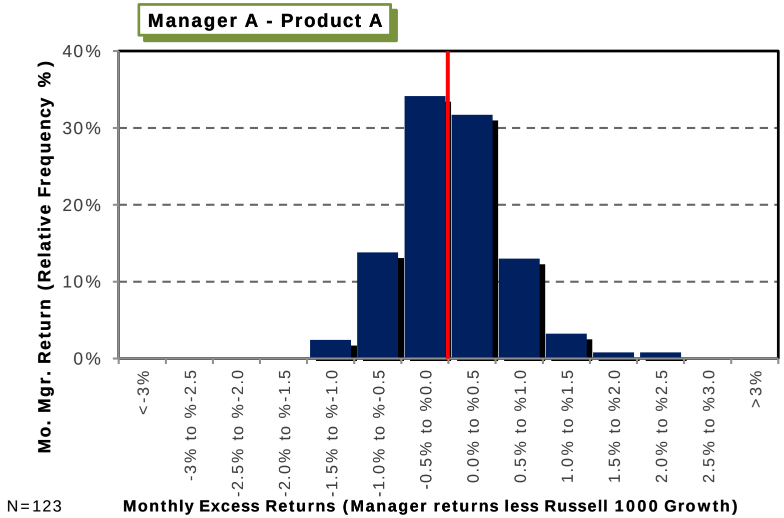
EXCESS RETURNS PERFORMANCE SUMMARY - (NET OF FEES) (LCD)

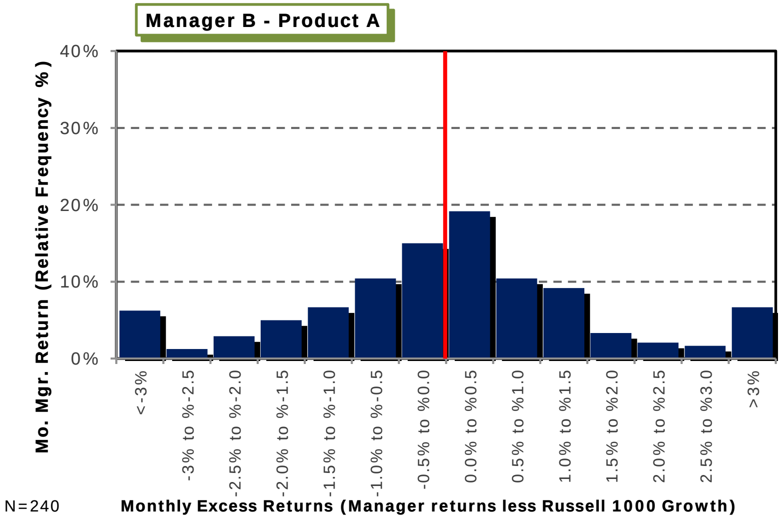
	Primary Benchmark	# of Months (Track Record)	% Positive (Mo.)	High (Mo.)	Low (Mo.)	Average (Mo.)	% > 0.5%	Rolling 1 Yr. Rtr.		Rolling 3 Yr. Rtr.	
								> 0%	> 3%	> 0%	> 3%
Large Cap Growth Equity											
Manager A - Product A	Russell 1000 Growth	123	50%	2.2%	(1.4%)	0.0%	18%	57%	14%	75%	0%
Manager B - Product A	Russell 1000 Growth	123	51%	3.3%	(2.4%)	0.0%	24%	45%	16%	51%	0%
Manager C - Product A	Russell 1000 Growth	123	54%	3.6%	(3.5%)	0.1%	43%	62%	31%	83%	8%
Manager D - Product A	Russell 1000 Growth	123	48%	3.4%	(4.7%)	0.0%	22%	47%	5%	43%	0%
Manager E - Product A	Russell 1000 Growth	123	53%	2.9%	(3.1%)	0.0%	33%	52%	31%	44%	31%

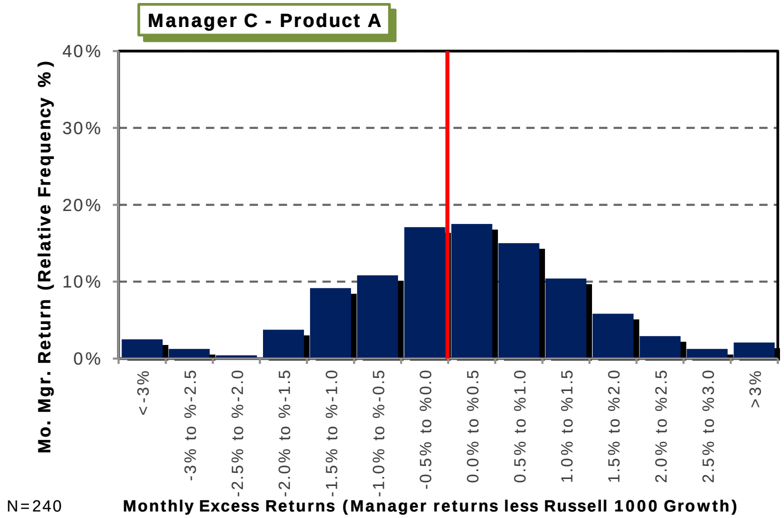
EXCESS RETURNS PERFORMANCE SUMMARY - (NET OF FEES) (LCD)

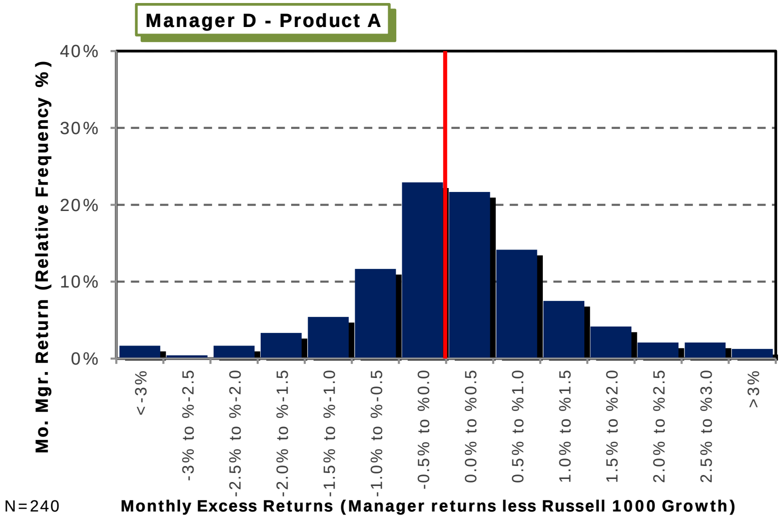
	# of Months (Track Record)	Excess Return					Tracking Error				Information Ratio				Beta vs. Primary Benchmark
		1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	
Large Cap Growth Equity															
Manager A - Product A	123	(1.5%)	(1.4%)	(0.3%)	0.2%	0.4%	1.9%	2.0%	1.9%	2.0%	(0.74)	(0.15)	0.09	0.23	0.99
Manager B - Product A	123	(6.6%)	(2.7%)	(1.6%)	(0.5%)	(0.6%)	3.0%	2.7%	2.9%	3.4%	(0.88)	(0.61)	(0.18)	(0.18)	0.87
Manager C - Product A	123	9.5%	2.5%	2.9%	2.2%	1.5%	4.6%	4.5%	4.2%	3.9%	0.54	0.65	0.53	0.37	1.08
Manager D - Product A	123	(0.8%)	(1.0%)	(0.7%)	(0.3%)	0.1%	1.9%	2.0%	1.9%	2.9%	(0.53)	(0.37)	(0.13)	0.04	0.95
Manager E - Product A	123	6.8%	(2.2%)	(1.8%)	(1.4%)	0.6%	3.9%	4.1%	4.1%	4.0%	(0.57)	(0.44)	(0.35)	0.15	1.02

EXCESS MONTHLY RETURNS HISTOGRAM - (NET OF FEES)



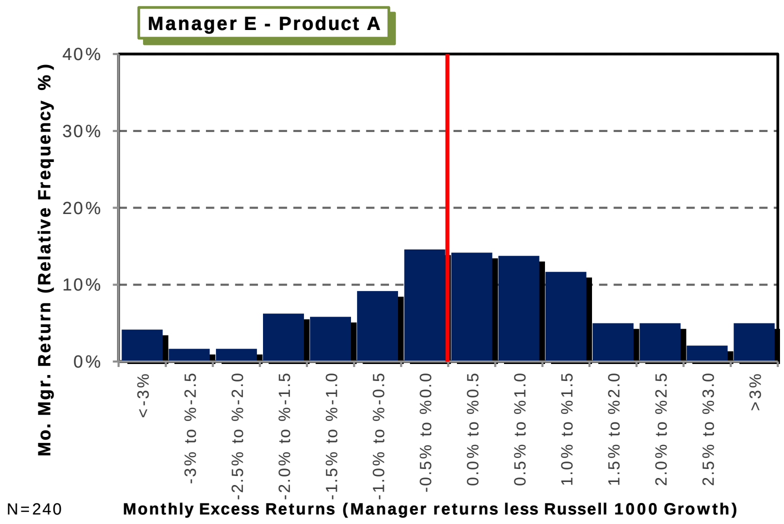






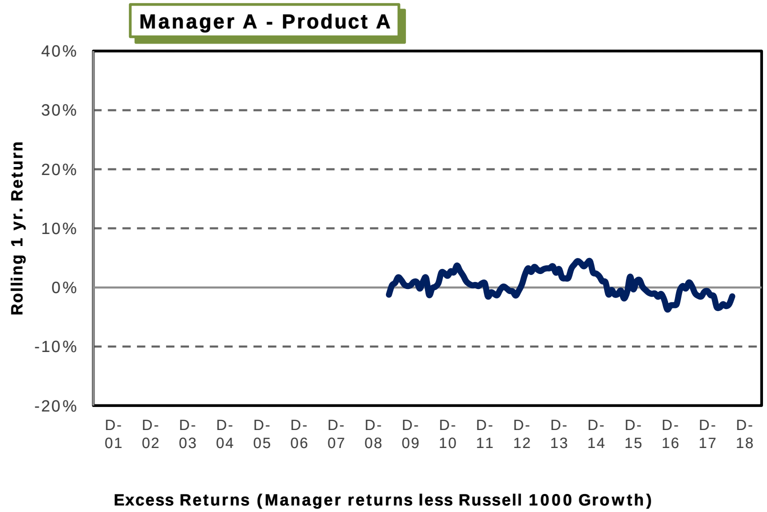
Large Cap Growth Equity

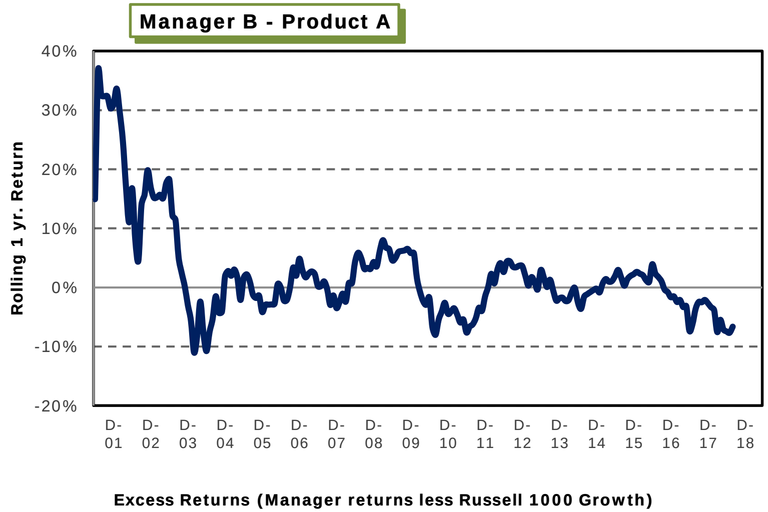
EXCESS MONTHLY RETURNS HISTOGRAM - (NET OF FEES)

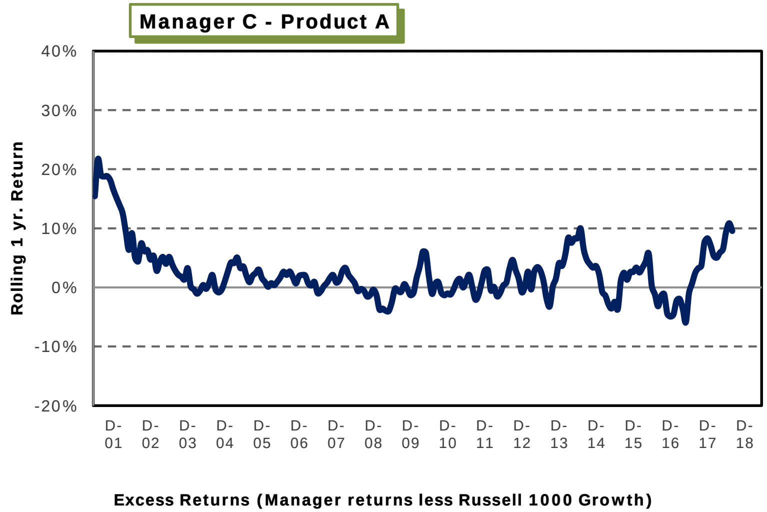


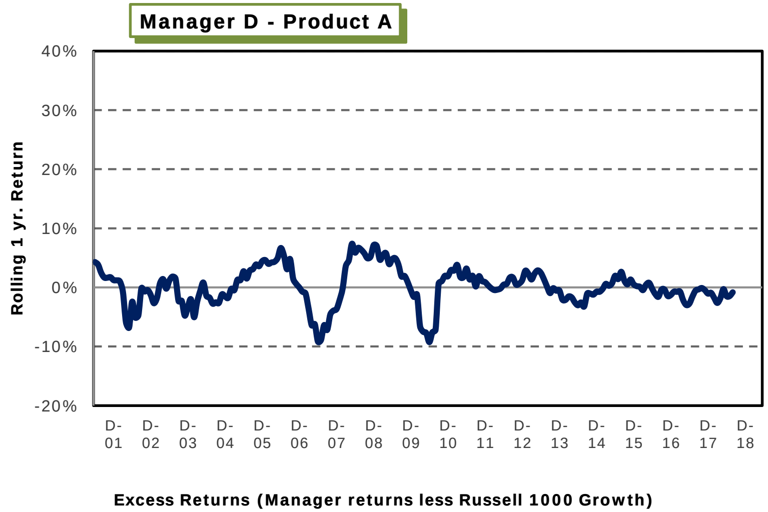
Large Cap Growth Equity

ROLLING 1 YEAR EXCESS RETURNS - (NET OF FEES)



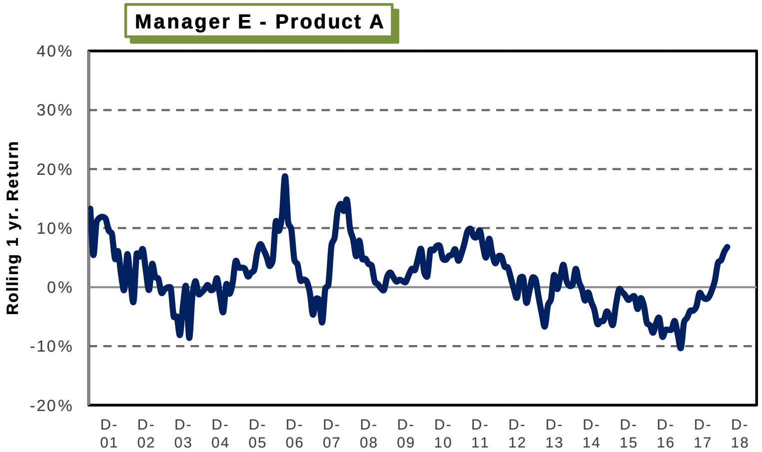






Large Cap Growth Equity

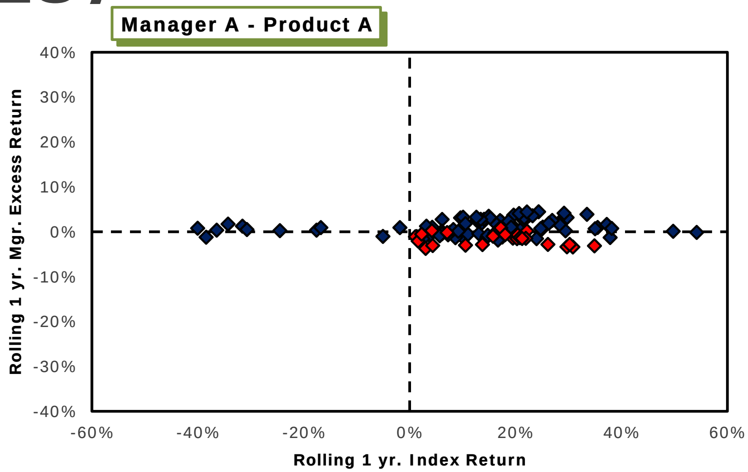
ROLLING 1 YEAR EXCESS RETURNS - (NET OF FEES)



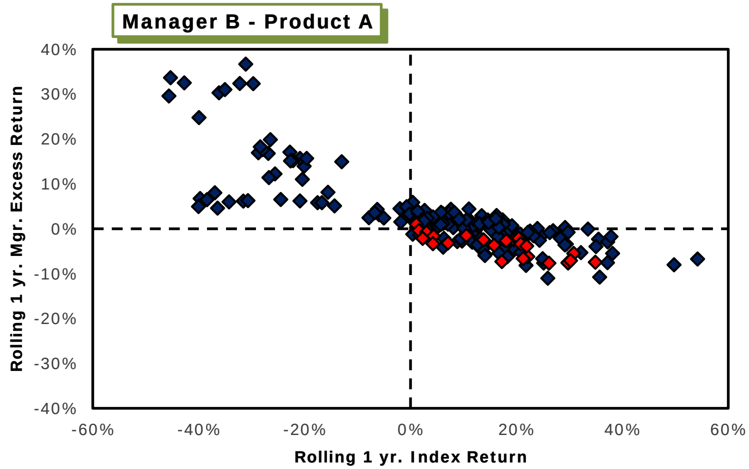
Excess Returns (Manager returns less Russell 1000 Growth)

Large Cap Growth Equity

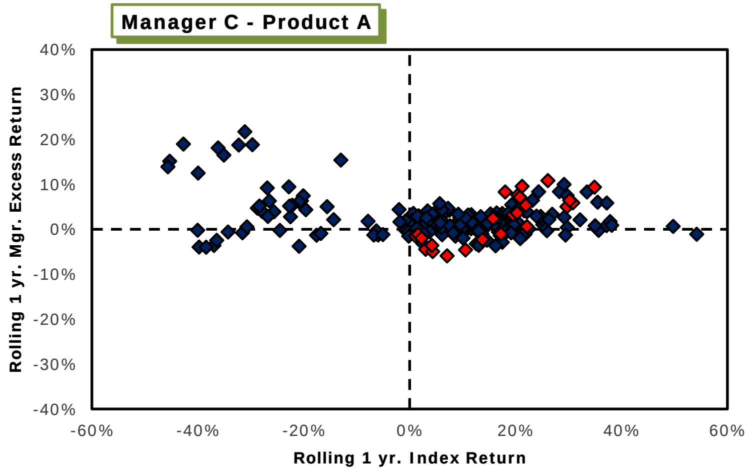
ROLLING 1 YEAR EXCESS RETURNS - (NET OF FEES)



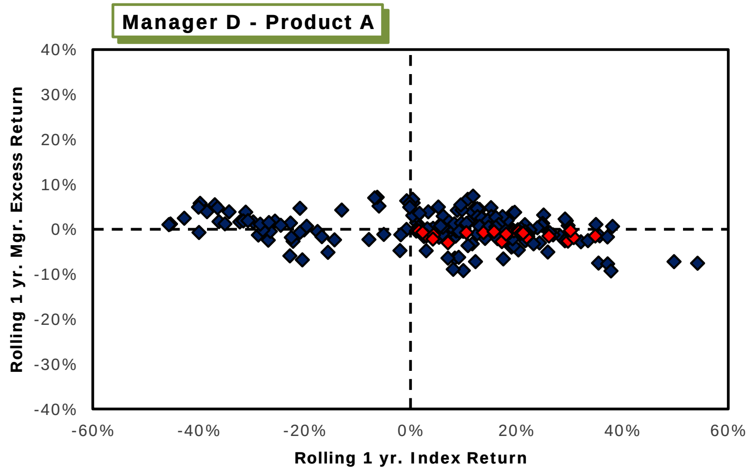
Excess Returns (Manager returns less Russell 1000 Growth)



Excess Returns (Manager returns less Russell 1000 Growth)



Excess Returns (Manager returns less Russell 1000 Growth)



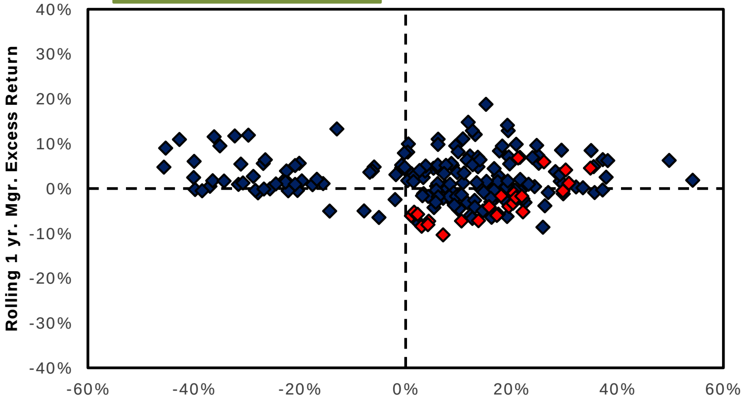
Excess Returns (Manager returns less Russell 1000 Growth)

◆ = Rolling 1 year periods; ◆ = Last 24 rolling 1 year periods

Large Cap Growth Equity

ROLLING 1 YEAR EXCESS RETURNS - (NET OF FEES)

Manager E - Product A

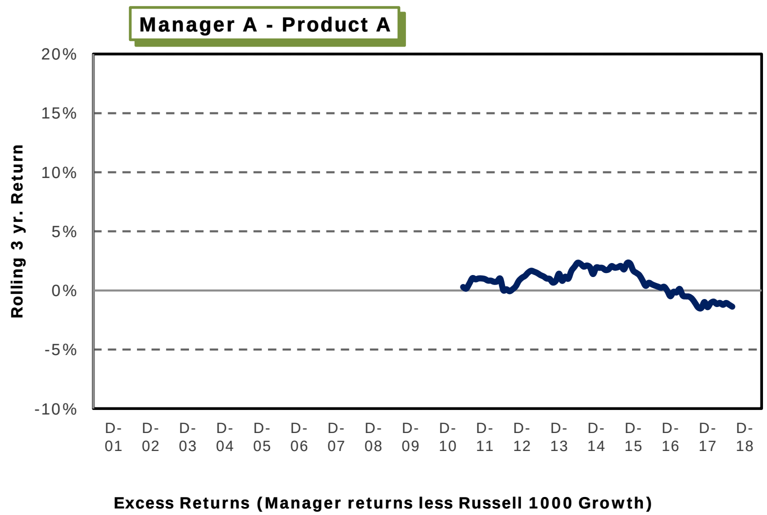


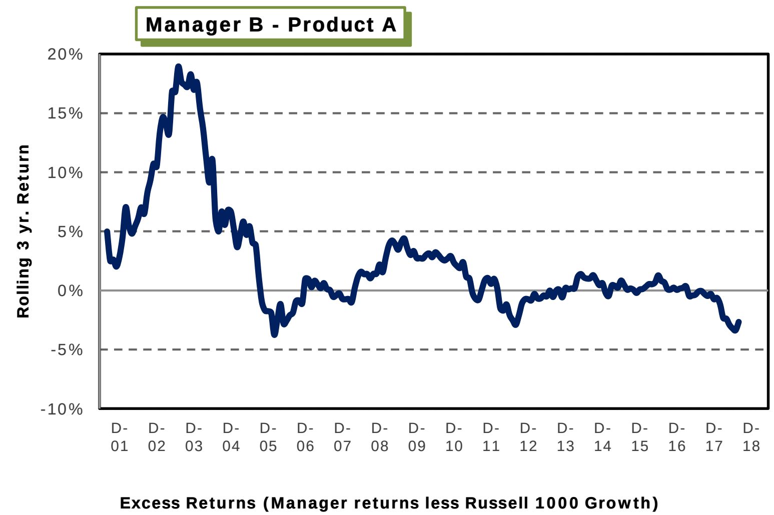
Excess Returns (Manager returns less Russell 1000 Growth)

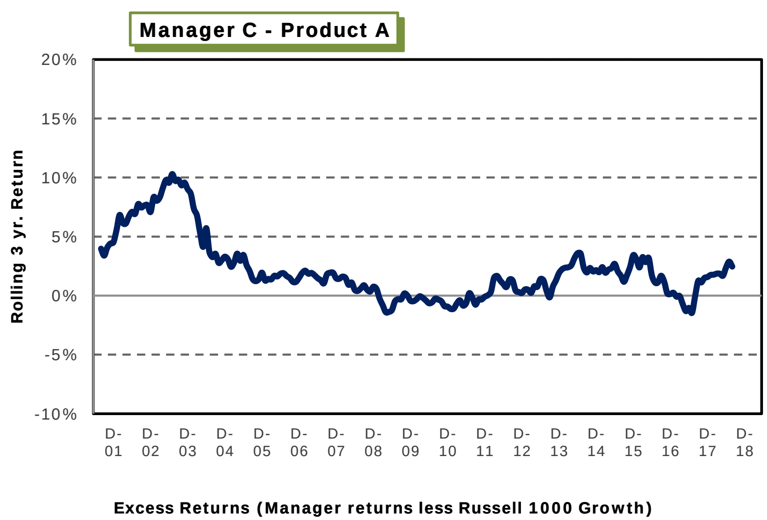
◆ = Rolling 1 year periods; ◆ = Last 24 rolling 1 year periods

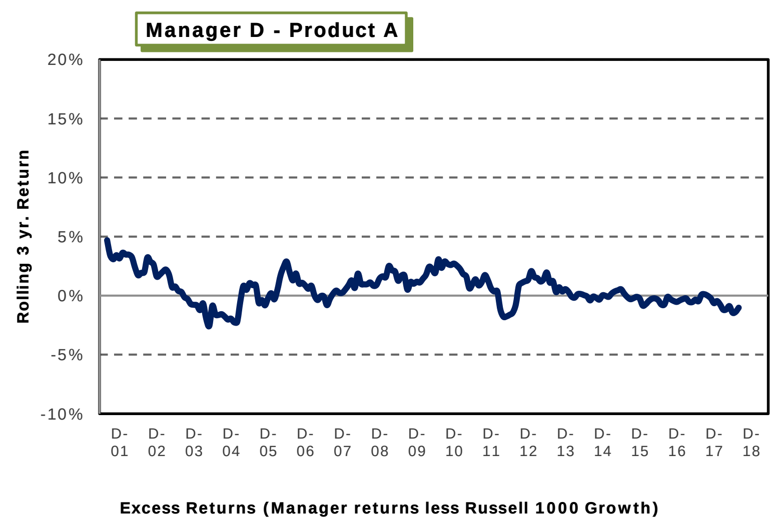
Large Cap Growth Equity

ROLLING 3 YEAR EXCESS RETURNS - (NET OF FEES)



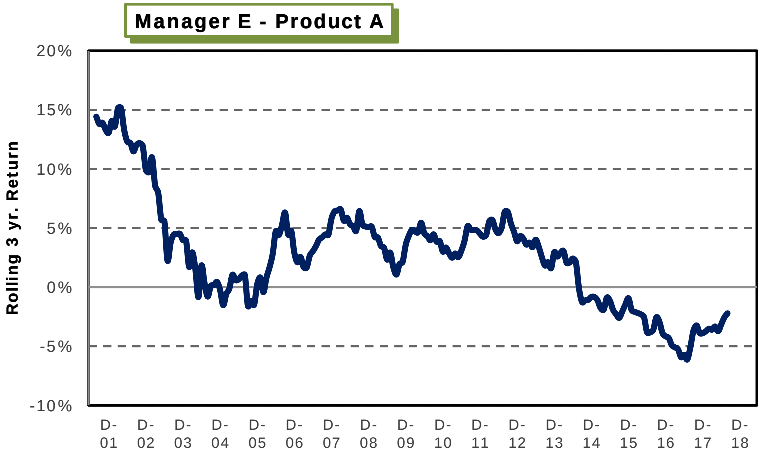






Large Cap Growth Equity

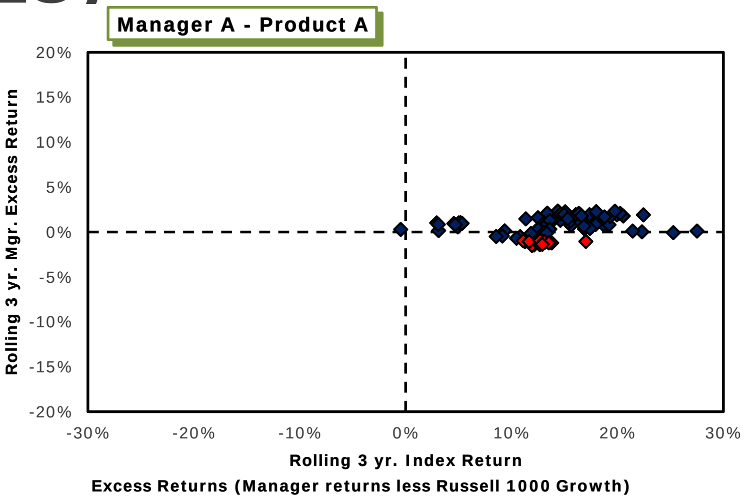
ROLLING 3 YEAR EXCESS RETURNS - (NET OF FEES)

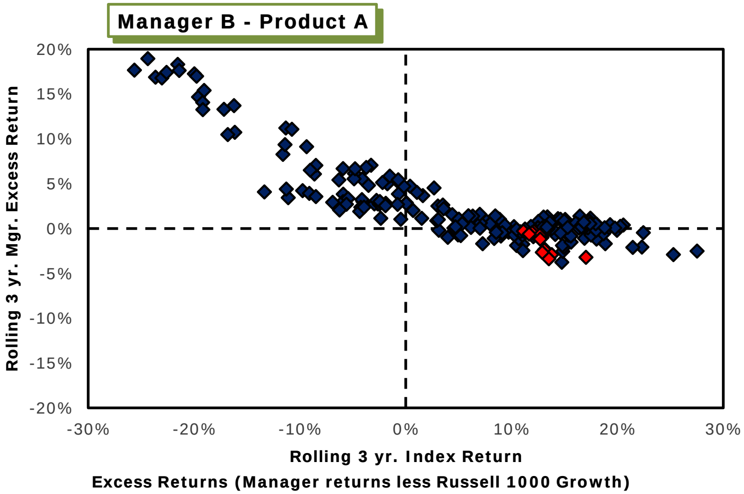


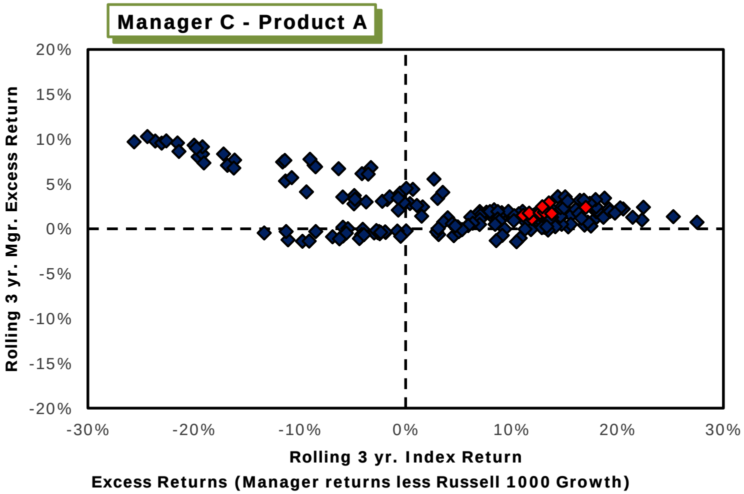
Excess Returns (Manager returns less Russell 1000 Growth)

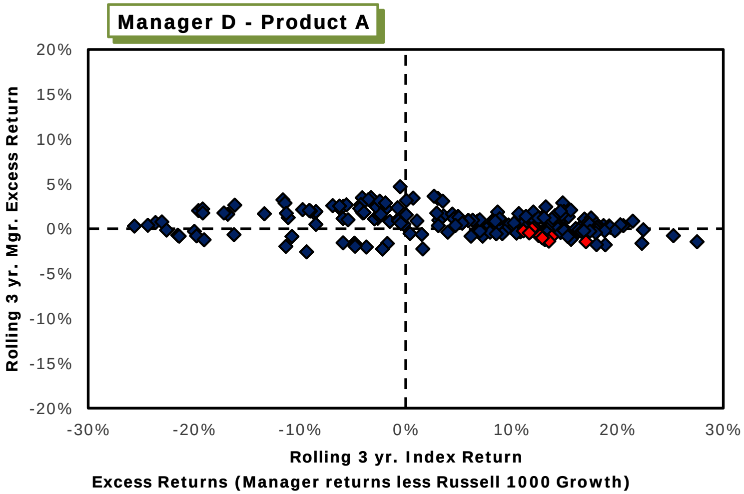
Large Cap Growth Equity

ROLLING 3 YEAR EXCESS RETURNS - (NET OF FEES)





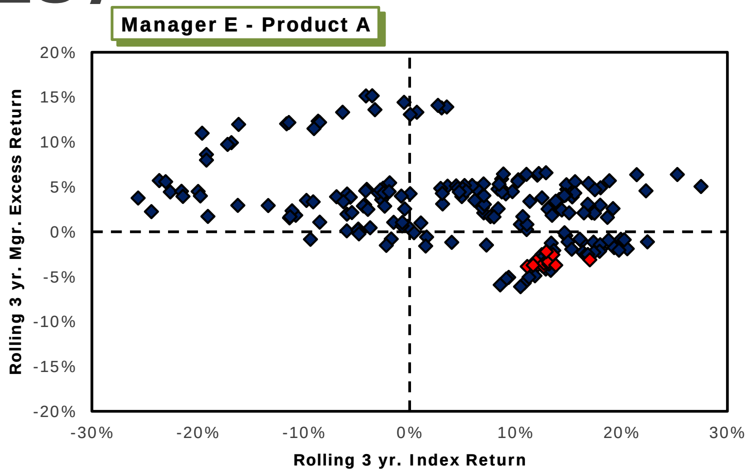




◆ = Rolling 3 year periods; ◆ = Last 12 rolling 3 year periods

Large Cap Growth Equity

ROLLING 3 YEAR EXCESS RETURNS - (NET OF FEES)

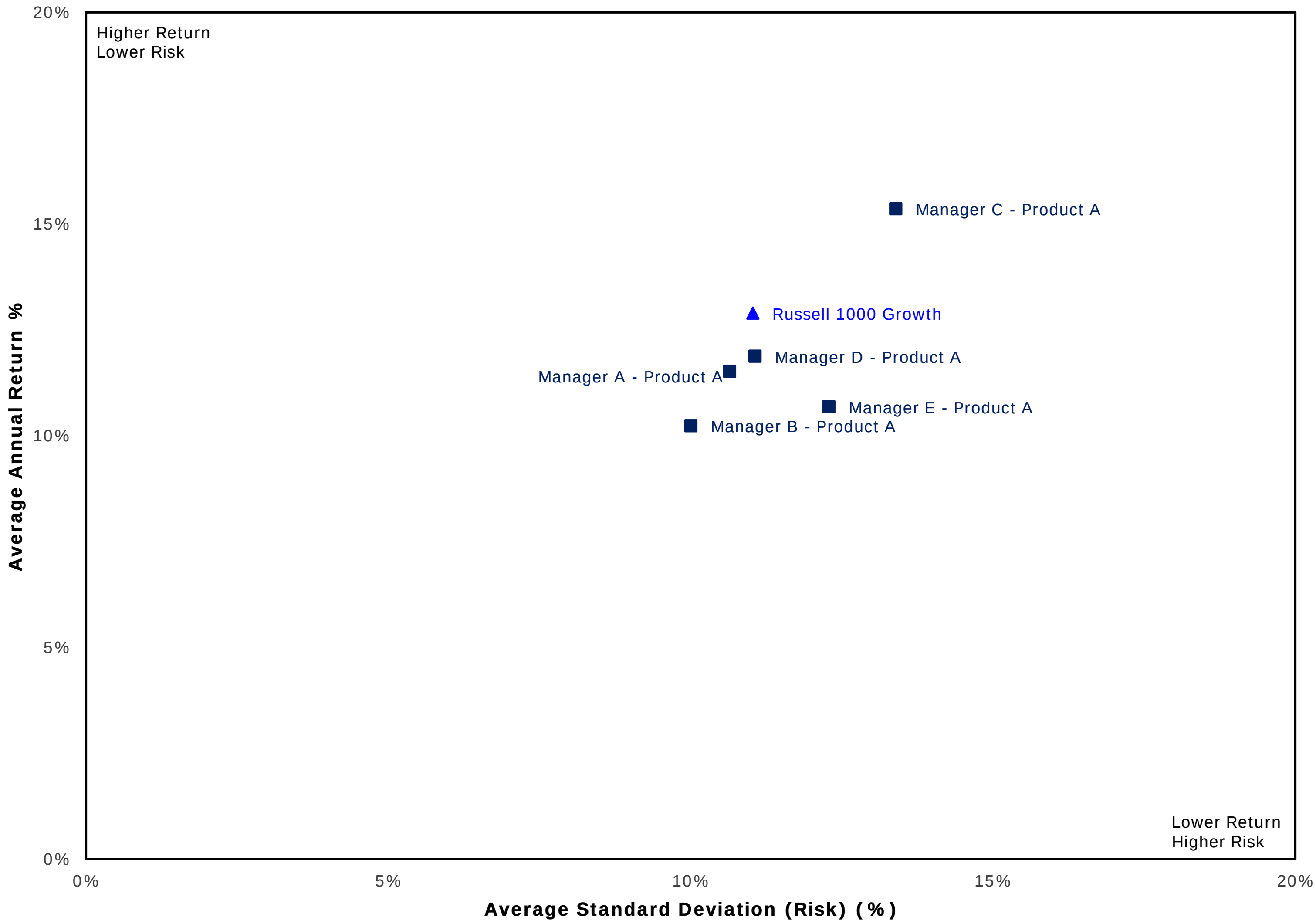


Excess Returns (Manager returns less Russell 1000 Growth)

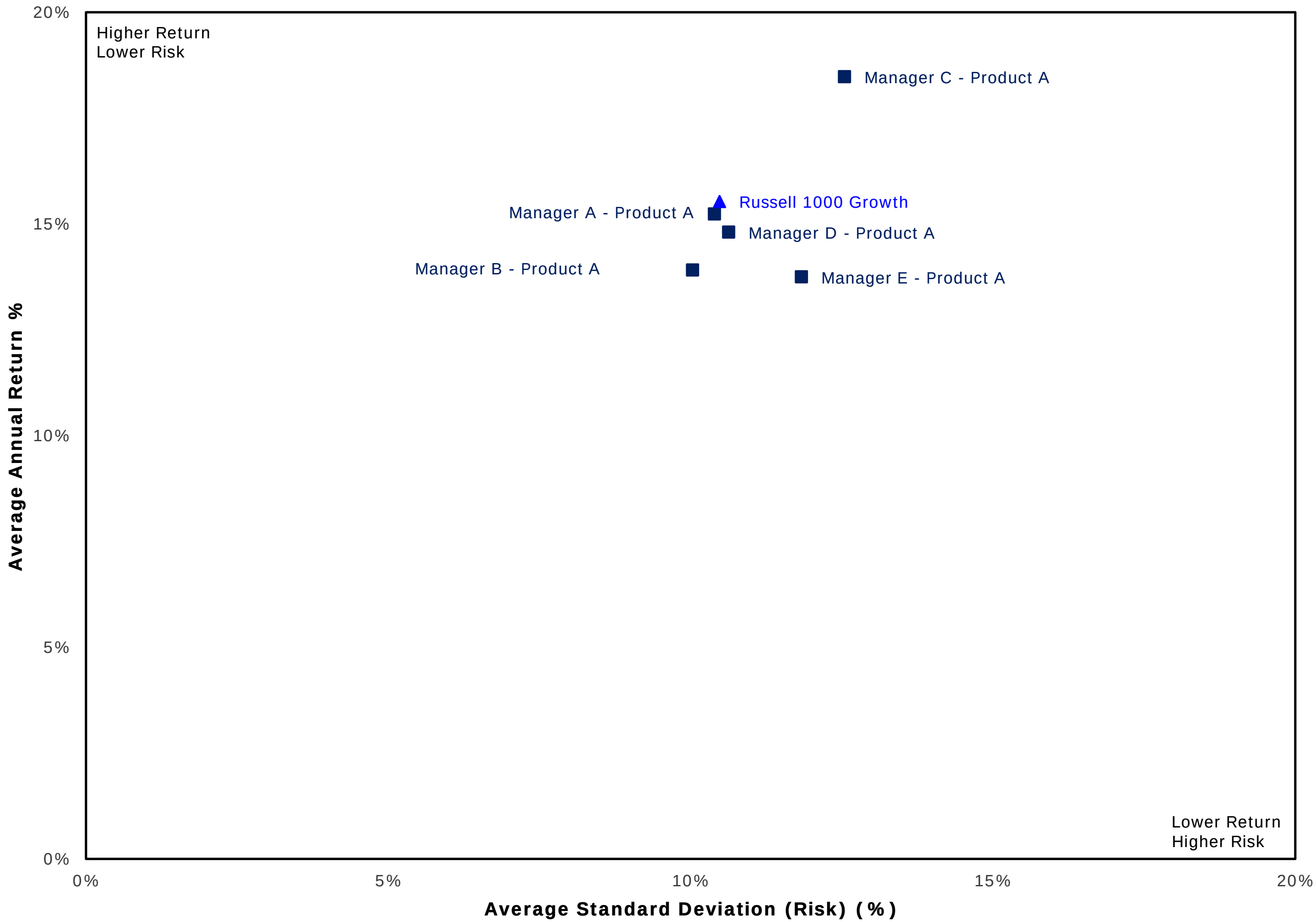
◆ = Rolling 3 year periods; ◆ = Last 12 rolling 3 year periods

Large Cap Growth Equity

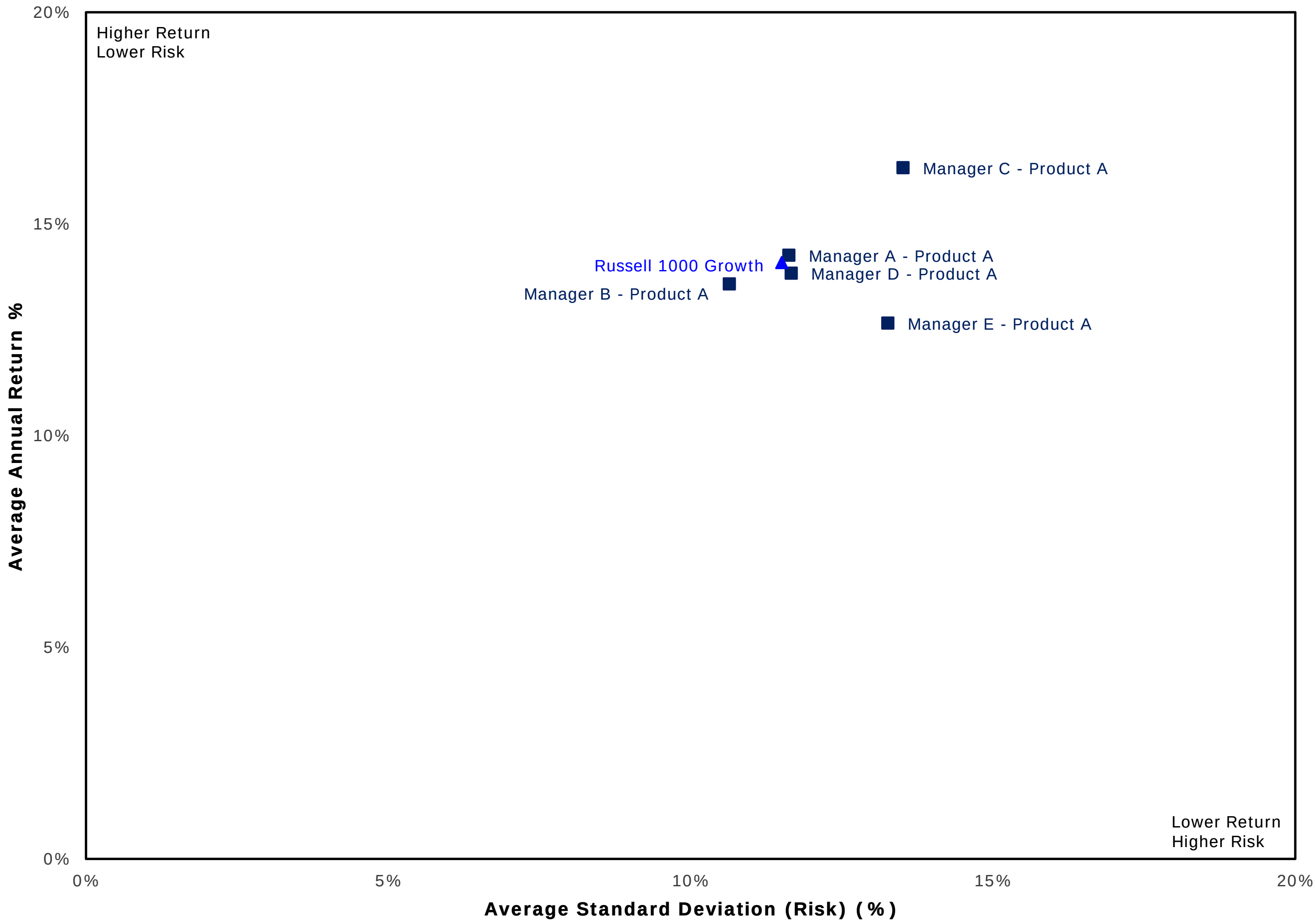
3 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



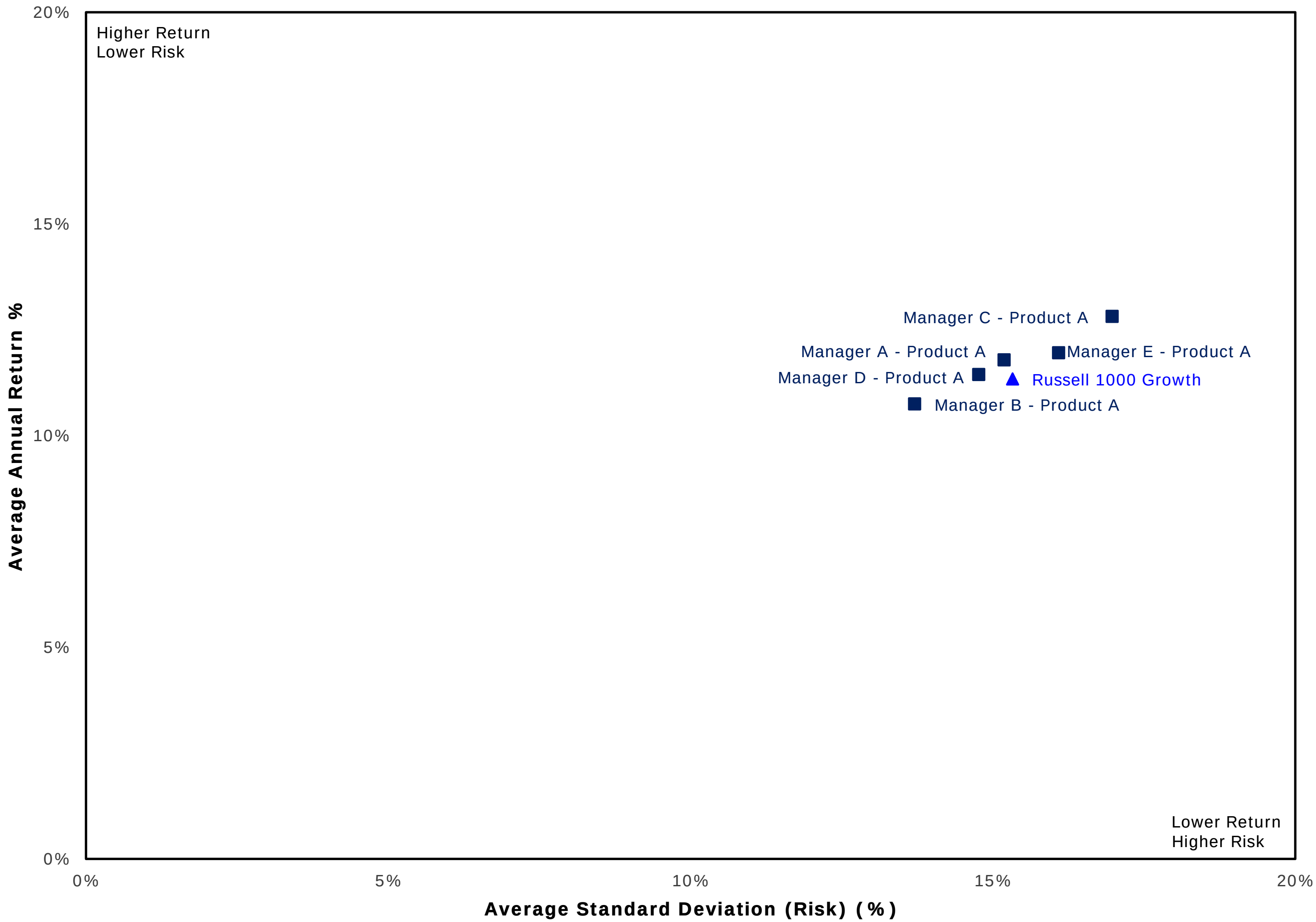
5 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



7 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



10 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



PROFILES

DESCRIPTION

The following pages contain profile descriptions regarding each Manager Firm and Investment Product including:

- **Firm Description**
- **NEPC Investment Thesis**
- **People**
- **Philosophy**
- **Investment Strategy**
- **Portfolio Structure**
- **Performance Expectations**
- **Biographies**

LARGE CAP GROWTH EQUITY

INVESTMENT FIRM / PRODUCT PROFILE

Manager A
Product A

Kiersten Christensen, Sr. Consultant
Source: NEPC and eVestment
February 2017

Firm Description

Manager A traces its investment management roots back to the 1940s, when the firm launched some of the country's first mutual funds. Over the years, Manager A expanded their investment management capabilities, managing money for its first tax-exempt clients in the 1970s. The firm is now a majority owned subsidiary of Parent Company A. Parent Company A is publicly traded on the New York Stock Exchange. Employees of Manager A collectively own approximately 22% of the firm through a stock option and stock grant program. Senior investment personnel and senior managers are all eligible to participate in the program.

NEPC Investment Thesis

Product A's value-added comes from their hybrid stock selection approach leveraging their fundamental and quantitative teams. It is not a blackbox approach that follows straight stock ratings from the fundamental analysts and rankings from the quantitative models. Rather, the team makes adjustments to raw scores to account for analyst effectiveness and conviction, as well as stock volatility, in the fundamental rating and factor/model effectiveness, as well as stock volatility, in the quantitative scoring. The quantitative process supports investment breadth, as the portfolio can hold names not covered by their research team. The fundamental process leverages forward-looking insights of the research team where the models are limited.

People

Product A comprises three portfolio managers responsible for massaging the stock rating data from the fundamental and quantitative research platforms. They emphasize a disciplined process of scoring the ratings output from Manager A's fundamental and quantitative research teams, making adjustments to the straight Buy/Hold/Sell recommendations. Employee A is the Lead Portfolio Manager for the Core and Growth strategies, Employee B for the low volatility strategies, and Employee C for the Value strategies. As the leads, they are responsible for the day-to-day oversight and construction of their respective strategies. However, they work together on how best to handle the raw data in their blended approach.

INVESTMENT FIRM / PRODUCT PROFILE

Manager A
Product A

Philosophy

At the root of their investment philosophy is the belief that fundamental research and quantitative research complement each other as two independent sources of alpha. Specifically, quantitative research provides a systematic, unbiased objective appraisal of company fundamentals and valuation while fundamental research provides a more forward-looking, qualitative assessment of company fundamentals and valuation. They also believe that the inherent strengths of one type of research generally offset the inherent weaknesses of the other. For instance, when quantitative models fail to handle asset bubbles and major market inflection points, subjective fundamental inputs are crucial.

Investment Strategy

Product A employs a "blended" approach to bottom-up stock selection, which leverages the firm’s fundamental and quantitative research work. By using both alpha sources, they juxtapose the strengths of one approach with the weaknesses of the other approach, and vice versa. The fundamental approach is forward-looking and emphasizes qualitative assessments of companies and industries to capture inflection points. The quantitative approach is systematic and objective in appraising a broad universe to capture the persistence of factors over the long term. By accommodating both approaches, they aim to build a portfolio that outperforms in different market environments.

The process takes two independent Manager A research inputs and converts the raw stock ratings into more granular stock scores to then construct the portfolio. Fundamental ratings are based on the research work of the firm’s centralized industry analysts. They cover approximately 600-650 companies, which represent approximately 85% of the large cap universe’s market capitalization. Quantitative ratings are the output from eight multi-factor sector models focused on 5 investment themes: (1) valuation, (2) earnings momentum, (3) price momentum, (4) quality of earnings, and (5) management signaling. The models, which have a 20%-50% weighting to valuation factors, score approximately 800 growth stocks comprised of the Russell 1000 Growth plus supplemental stocks from the Russell 1000 and S&P 500 that meet growth characteristics.

INVESTMENT FIRM / PRODUCT PROFILE

Manager A
Product A

The fundamental and quantitative ratings for each stock are adjusted for stock volatility and the effectiveness of the analyst and multi-factor sector model. Once the ratings are adjusted and converted into a fundamental and quantitative score, the two scores are added together to get the stock's blended score, which ranges from -3 to +3. The blended score is a quantitative representation of a combination of fundamental and quantitative research - done on a sector relevant basis - and there is a balanced distribution of scores (similar number of sell/underweight ideas as there are buy/overweight). Stocks with higher blended scores are generally fundamentally attractive companies that are selling at a discounted valuation to peers and are expected to have a higher return than stocks with lower blended scores.

The buy decision is determined by the blended score and those stocks with the highest blended scores typically are the largest overweight positions in the portfolio. The sell decision, similar to the buy decision, is determined by the blended score. A lower blended score is a sign to either underweight a position or keep it out of the portfolio. The lead portfolio manager actively reviews the portfolio (on a daily basis) and rebalances the portfolio every 4-6 weeks.

Portfolio
The portfolio holds 80-120 stocks, which generally have the highest blended scores, but may include stocks with lower scores for diversification purposes. The blended alpha scores are put into an optimizer that seeks to maximize expected return relative to risk while meeting the portfolio requirements. The target tracking error is 2% (1.8%-2.2%). Individual positions are limited to +/- 2% versus the Russell 1000 Growth. Approximately 65%-70% of the portfolio is Buy-rated on the fundamental side, and 10% is held due to only the quantitative rating. GICS sectors are managed to within +/- 3% versus the benchmark. Proprietary sectors and industries are managed to within +/- 0.75% of the corresponding weights in the benchmark. The market cap distribution is also managed to be similar to the index, based on optimizing three segments: 20% largest, 30% in the middle, and 50% smallest. Fundamental characteristics are a fallout from stock selection; however, given their attention to valuations, the portfolio should be in line with or cheaper than the benchmark. Annual turnover is 50%-80%, with a maximum level of 100%.

INVESTMENT FIRM/PRODUCT PROFILE

Manager A
Product A

Performance Expectations
Given their tracking error constraint, relative performance should be range-bound. The blending of fundamental and quantitative stock selection allows them to outperform in most markets. In stable trending markets, the quantitative part should drive the outperformance. At inflections or in more forward-looking markets, the fundamental part should drive the outperformance. The strategy will struggle during macro-driven markets or when irrational fears are prevalent.

BIOGRAPHIES OF KEY PROFESSIONALS

Manager A
Product A

Employee A, CFA, Investment Officer and Portfolio Manager

Employee A joined Manager A in 2001 and is a Portfolio Manager on the Product A Team. Prior to joining Manager A, Employee A spent 3 years as an analyst and Portfolio Manager at Manager B, 2 years as an Assistant Vice President at Manager G, and 3 years as an associate at Manager H. Employee A obtained his B.A. from the University of California, Berkeley and his M.B.A. from the University of Chicago. He is also a member of the Boston Security Analysts society and the CFA Institute.

INVESTMENT FIRM / PRODUCT PROFILE

Manager B
Product A

Kiersten Christensen, Sr. Consultant
Source: NEPC and eVestment
March 2017

Firm Description

Manager B traces their roots back to 1928, with the founding of the Fund A, the third-oldest mutual fund in the United States. In October 2000, Manager I, an Italian banking firm, acquired the Manager B. At the time, Manager I also merged its various global asset management businesses together under the holding company, Holding Company B. Holding Company B, headquartered in Milan, Italy, is the asset management arm of Manager I and operates under the trade name Manager B. In July 2017, Parent Company B, a European asset management firm, completed the acquisition of Manager B from Manager I. There is little overlap between Parent Company B's business and Manager B.

NEPC Investment Thesis

Product A's value-added is attributable to a clearly defined and repeatable risk-adjusted process that emphasizes high quality growth companies. Investments favor stability and predictability of growth versus accelerating growth. They tend to invest in mature growth companies where their research believes the growth profile is durable and the stock is trading at a discount to intrinsic value. This should lead to lower volatility in returns.

People

Product A Strategy is co-managed by Employee A, since 2007, and Employee B, since 2012, taking over for a departure. The two have worked together at Manager B since 2001. They leverage the firm's US Central Research Team, comprising analysts who are sector specialists and industry experts; average turnover on this team is 1-2 per year, including voluntary and involuntary departures. There is frequent communication with the analysts, both formally and informally, on stock ideas and industry trends, which guide the investment decisions and portfolio positioning. In addition to managing Product A, Employee A also serves as the Head of the US Growth Team and Employee B is also a portfolio manager on Manager B's US Disciplined Growth Strategy.

INVESTMENT FIRM / PRODUCT PROFILE

Manager B
Product A

Philosophy

Manager B believes pricing in the equity markets has increasingly been driven by passive strategies as well as by investors with short-term time horizons. Both create opportunities to invest as stocks prices decouple from long-term fundamentals. By buying a portfolio of high quality companies, defined as those that generate high returns on growth capital, possess sustainable competitive advantages, and capitalize on secular growth opportunities, and holding them over longer periods (4-6 years), they believe they can generate competitive returns while protecting against losses when markets decline.

Investment Strategy

Product A employs a bottom-up approach to investing growth equity assets. They emphasize investments in high-quality companies that exhibit three criteria. First, they seek companies with high returns on growth capital; these companies have returns on growth capital that are above the cost of capital and are equal to or higher than the base business. Second, companies must have sustainable competitive advantages with an economic moat around their business that can withstand competitive threats over the long term. Third, they want to find growth opportunities where companies have grown consistently over time and are benefiting from secular growth. Typical investments are companies that have strong market positions in industries that have growth potential due to technological change, product innovation, and/or pricing gains.

The investment process defines four distinct steps. Step 1 is quantitative screening. The strategy’s portfolio managers work with the firm's quantitative analysts to screen a universe of the Russell 1000 stocks with market capitalizations of $10 billion or greater. They look for factors such as long-term growth in sales, earnings, and cash flow, stability of growth, returns on capital, balance sheet strength, and valuation. This process identifies approximately 200 stocks that the strategy could conceivably own.

Manager B
Product A

Step 2 is fundamental research. Using the output from the screening process, Manager B's central research team supports fundamental analysis on the 200 companies. As sector specialists, the central research team collectively cover and rate about 200 stocks, which they believe should be owned. For screened ideas not actively covered, the analysts are typically very familiar with the companies to then support the Product A's research of them. The work involves analyzing the competitive position of a company, its growth prospects, and the quality of management among other factors. Of these 200 ideas, approximately 60-80 potential companies meet the strategy's investment criteria at any given time.

Step 3 is strategy-specific analysis. Strategy specific analysis centers on identifying the companies in the list of 60-80 that best meet the strategy's investment criteria. The analysts, in conjunction with the strategy's portfolio managers, perform an extensive valuation analysis using discounted cash flow to assess the intrinsic value of each stock. Instead of using a point estimate for valuation, the analysts create multiple scenarios and value each stock under each scenario. By doing so, they assess not only the potential upside to the stock over time but also the downside if things go wrong.

Step 4 is portfolio construction. Securities are conviction-weighted based on both their relative and absolute risk-return profiles. Proprietary tools based on Barra risk analytics are used as a guide in the portfolio construction process to ensure that individual securities, sectors, industries and factors are appropriately contributing to the portfolio's risk-return profile and objectives.

INVESTMENT FIRM/PRODUCT PROFILE

Manager B
Product A

Portfolio
The portfolio holds 35-45 securities. Individual positions are limited to 5% maximum at time of purchase and generally 6% maximum at market value (the firm's investment committee has approved the ability to own up to 8% in the three largest securities in the index). For diversification and risk mitigation, positions that are greater than 5% can not collectively represent more than 25% of the portfolio. Sector limits are +/-7% relative to the benchmark; 25% max per industry. Cash is typically less than 3%. Annual turnover is 15%-25%.

Performance Expectations
The strategy has three objectives: downside protection, lower volatility than the benchmark, and long-term capital appreciation. The strategy's focus on high quality companies should perform well when the economy is growing and hold up better than peers when economic growth is declining. Conversely, the strategy will face performance headwinds when economic growth is accelerating or expected to accelerate, as was the case in 2016. Expected tracking error is 3%-6%.

BIOGRAPHIES OF KEY PROFESSIONALS

Manager B
Product A

Employee A, Senior Vice President and Portfolio Manager
Employee A joined Manager B in 2001. He is leader of the US Growth Team and also Portfolio Manager on the Product A strategy, including the Manager B Fundamental Growth mutual fund. Previously, he was a portfolio manager for various Luxembourg-domiciled US equity funds at Manager J in Dublin, which eventually merged with Manager B. Before that, he was US portfolio manager at Manager K in Dublin and assistant US portfolio manager at Manager L in England. Employee A earned his MBA from the Cranfield School of Management in England.

Employee B, CFA, Senior Vice President and Portfolio Manager
Employee B joined Manager B in 1997. He is Portfolio Manager with a focus on large cap growth equities. He started at Manager B as an analyst on the Emerging Markets Team with a focus on developing markets in Asia. In 2004, he joined the US central research team with coverage for semiconductors within the Technology sector. In 2005, he expanded his coverage to US media names as well. In 2006, he became sector coordinator for Global Technology, Media, and Telecommunications and co-portfolio manager on US Disciplined Growth. In 2010, he became Head of US Equity Research. In 2012, he became co-portfolio manager on Product A. Employee B earned his BA from the College of the Holy Cross and his MBA from Babson College. He is a CFA charterholder.

INVESTMENT FIRM / PRODUCT PROFILE

Manager C
Product A

Kiersten Christensen, Sr. Consultant
Source: NEPC and eVestment
September 2016

Firm Description

Manager C was established in 1937 by Founder A as an independent investment advisory firm, and was incorporated in the state of Maryland in 1947. The firm began as an advisor for individual investors. In 1950, Manager C established its first retail mutual fund and in 1951 they accepted their first institutional separate account client. Manager C's fixed income group was founded in 1971 and includes high yield bonds along with investment grade and global bonds. In 1986, the firm became a publicly traded corporation, listed on the NASDAQ exchange. Approximately 15% of the firm is employee-owned outright, or through vested but unexercised stock options. It is the long-term goal of Manager C to grow in three major lines of business: institutional separate account management, defined contribution retirement plan management, and retail investment management.

NEPC Investment Thesis

Manager C's value-added comes from a fundamental research-oriented culture where individual portfolio managers on strategies leverage a large, stable team of industry analysts as well as other portfolio managers in the organization, many of whom were successful as analysts themselves. PM Employee A has been managing the Product A strategy since its inception in 1993 (Manager C Blue Chip Growth Fund). The strategy is a diversified option utilizing minimal non-US investments. The process generally seeks low double-digit projected earnings growth. The strategy has a lower growth hurdle than Manager C's other two growth equity strategies because it takes dividends into consideration in evaluating opportunities.

People

The Product A Investment Team comprises dedicated portfolio managers assigned to three related strategies. Each strategy has individual accountability. However, the portfolio managers meet to discuss stock ideas, topical opportunities, and market themes. PM Employee A has been managing the Product A strategy since its inception in 1993 (Manager C Blue Chip Growth Fund). Prior to becoming portfolio manager, he was a member of the research team with coverage in various industries and sectors.

INVESTMENT FIRM / PRODUCT PROFILE

Manager C
Product A

Philosophy
Manager C believes that a company's value is tied to their ability to produce sustainably high earnings and free cash flow growth. Demonstrating these financial strengths should give the company a competitive advantage.

Investment Strategy
Manager C employs a fundamental, bottom-up approach to investing in equity assets. The Product A investment process emphasizes companies: 1) with strong business models in growth industries; 2) demonstrating attractive financial characteristics; and 3) led by seasoned shareholder-friendly management. The portfolio manager leverages the broad centralized equity research team, as well as his fellow large cap growth portfolio managers to identify these ideas and research them. In constructing the portfolio, the portfolio manager has sole discretion and is guided by a sense of valuation and risk control.

The process starts with a universe of approximately 500 companies with market capitalizations greater than $5 billion. Idea generation focuses on attractive growth prospects. Fundamentally, these companies demonstrate the following criteria: solid revenue growth, consistent earnings growth (preferably above 10%), attractive free cash flow, and above-average ROIC. Approximately 200-300 companies are the focus of intense research; typically these companies are in growth-oriented industries in the consumer, financial services, health care, and technology sectors.

INVESTMENT FIRM / PRODUCT PROFILE

Manager C
Product A

Fundamental research, which represents collaboration between the industry research specialists, fellow portfolio managers in the organization, and the portfolio manager himself, combines company analysis and industry analysis. The analysts' work reflects both qualitative investigation and financial statement analysis. Qualitative investigation includes assessment of the company's business model, market position, management quality, and research and development initiatives. Financial statement analysis includes evaluation of the company's free cash flow, balance sheet strength, return on capital, EPS, and margins. In addition, being specialists, analysts have the responsibility of understanding all aspects of the industry a company operates in, including social, political, and economic trends. They review its secular growth prospects, including unit and volume growth, price stability and pricing power, profit margins, barriers to entry, and the intensity of the competitive environment. They also assess cyclical industry conditions, including drivers of demand and capacity additions or reductions.

Valuation analysis uses numerous metrics, such as estimated growth rate, enterprise value, P/E, and P/E to growth rate ratio. The analysts consider valuation relative to the company's history, its industry, its peers, and/or the market as a whole.

The portfolio manager augments the analysts' work with his own research. Typically, he stress tests the ratings and assumptions made by the analysts to reach his own conclusions. Generally, if there is disagreement on a company, it centers on valuation. In addition to conducting his own research, he leverages the other portfolio managers on the Product A Investment Team to identify and research growth ideas and growth areas to emphasize.

The portfolio manager has sole discretion to construct the portfolio. The primary benchmark is the Russell 1000 Growth, however there are some mandates that use the S&P 500.

INVESTMENT FIRM / PRODUCT PROFILE

Manager C
Product A

Portfolio
The Product A portfolio comprises 100-130 stocks. Individual position sizes range from 25 basis points to 5% of assets. Sector weights typically range from 0.5x to 2.0x for primary S&P 500 sectors, and 0.5x to 3.0x for primary Russell 1000 Growth sectors. A primary sector is defined by an index weight of 15% or greater. Turnover ranges from 30%-45%.

Performance Expectations
The strategy should perform well in fundamentally-driven markets. Returns should not be too volatile as the PM gradually builds and exits positions. Typically tracking error is 3%-4%. Given their consideration of dividends in addition to growth, their style will be more "core" than traditional growth managers, so they may participate to a far lesser extent in go-go growth markets.

BIOGRAPHIES OF KEY PROFESSIONALS

Manager C
Product A

Employee A, CFA, Vice President

Employee A is a Vice President of Manager C Group, Inc., and Manager C Associates, Inc. He is also a Portfolio Manager in the Equity Division. He is President of the Blue Chip Growth Fund and Chairman of the fund's Investment Advisory Committee. He is also Executive Vice President and an Investment Advisory Committee member of the Personal Strategy Funds and he serves as a Vice President and Investment Advisory Committee member of the Growth Stock Fund. In addition, he is an Investment Advisory Committee member of the Tax-Efficient Balanced Fund and Tax-Efficient Growth Fund. Prior to joining the firm in 1990, he was a Senior Manager with Manager M specializing in banking. Employee A earned his BA, summa cum laude, from the University of Notre Dame and his MBA from the Darden Graduate School of Business, University of Virginia where he was a Shermet Scholar with highest honors. He is a CFA charterholder and also has earned his Certified Public Accountant accreditation.

INVESTMENT FIRM/PRODUCT PROFILE

Manager D
Product A

Kiersten Christensen, Sr. Consultant
Source: NEPC and eVestment
August 2017

Firm Description

Manager D is a wholly-owned subsidiary of Parent Company D, a Fortune 500 company. Prior to May 2013, Parent Company D was a wholly-owned subsidiary of Manager N. Parent Company D comprises three main business units: Retirement Services, Insurance Solutions, and Investment Management. The history of Manager D began in 1973 when a predecessor firm registered as an investment adviser with the U.S. Securities and Exchange Commission. Manager D's sole line of business is investment management services and 100% of the firm’s revenues are attributable to investment management services. The investment platform is organized into four disciplines: fixed income, senior loans, equity, and multi-asset strategies.

NEPC Investment Thesis

Product A’s value-added is attributable to a disciplined process supported by an experienced team of dedicated career analysts and portfolio managers who grew up as analysts. They believe that growth stocks don't stay growthy forever. Therefore they seek to identify growth opportunities that the market is underestimating or ignoring. Their research is framed around identifying the presence of three characteristics in potential investments: positive business momentum, valuations that indicate further appreciation is probable, and catalyst that leads to market recognition of the stock. This discipline frames all buy and sell decisions and focuses investments on better reward/risk opportunities.

People

The US Growth Team supports Large Cap Growth, Concentrated Growth, and Mid Cap Growth. Portfolio managers Employee A, Head of US Growth, and Employee B, CIO, Equities, are responsible for the day-to-day management of the strategies. They leverage dedicated, career sector analysts who are responsible for making buy and sell recommendations. The analysts are given the freedom to use their experience within their sectors while adhering to the team's overarching investment discipline. Employee A has the ultimate investment authority, while Employee B serves as his backup.

INVESTMENT FIRM / PRODUCT PROFILE

Manager D
Product A

Philosophy

The US Growth Team's governing philosophy is that successful active growth investing requires a forecast that is different from what the market is discounting, and a stock's valuation and fundamentals should be considered in a relative framework. They believe that growth stocks typically stay growthy for about three to five years. Understanding expectations is key to growth investing, as changes in expectations explain the majority of a growth stock's change in relative price.

Investment Strategy

Product A employs a fundamental, bottom-up approach to investing equity assets. Given their investment philosophy, their proprietary research work focuses on dissecting consensus expectations for sales and earnings and understanding the assumptions embedded in a stock's price. Then they assess the reasonableness of those assumptions as well as the likelihood that the company will exceed the expectations embedded in the stock price. Investments target growth stocks deemed to have: positive business momentum; valuations that indicate further appreciation is probable; and market recognition that fundamental improvements are sustainable.

There are three steps to the investment process: initial screening, fundamental research process, and portfolio construction. They begin with a universe of growth stocks with market capitalizations greater than $2 billion (approximately 800 names) that pass a liquidity screen. To this eligible universe, they apply a proprietary screening model to rank stocks by sector, seeking business momentum (e.g., earnings momentum, gross margin expansion), valuation (e.g., free cash flow to enterprise value, price-to-sales), and market recognition (e.g., estimate revisions, relative price strength) factors. Investment ideas typically fall within the top 30% of the screens, representing about 240 names on the research list. Depending on the size of their sector, each analyst has coverage for 200-250 companies and is closely researching approximately 30-50 stocks at any given point in time. Generally, the analysts will have at least a working knowledge of the ideas that screen through.

Manager D
Product A

The goal of fundamental research is to develop a non-consensus view of a company’s growth prospects over a 2-year horizon that will result in a meaningful upward re-valuation of the stock price. First, the analyst determines the underlying assumptions embedded in consensus expectations. These expectations could include a company’s revenue growth, market share, operating margins or capital deployment policies. Understanding these embedded expectations is key to growth stock investing, since small changes in expectations can often lead to large changes in the valuation of a growth stock. Next, the analyst develops and confirms an investment thesis which differs from consensus. While each analyst utilizes a customized approach to research, there are common attributes shared among the companies they favor. For business momentum, they seek those companies whose revenue, earnings growth and profitability are likely to continue and for whom conditions are in place for growth and profitability to accelerate. In terms of valuation, the team looks for stocks that are attractively priced and have above-average potential to be re-valued higher. Regarding market recognition, they validate their expectations for estimate revisions, positive earnings surprises and strong relative price performance. Finally, the analyst must identify the path by which the stock's price will be revalued higher. In order for an idea to become a purchase candidate, the analyst must develop different views on the magnitude or duration of a company’s growth trajectory.

INVESTMENT FIRM/PRODUCT PROFILE

Manager D
Product A

Portfolio construction is a bottom-up process driven by the attractiveness of individual stocks in light of benchmark weight, expected return and perceived risk. The actual buy decision and the active weight are driven by analyst conviction, the expected upside return versus other stocks in the sector, and risk/reward potential. The portfolio managers and the analysts actively debate and discuss each idea before deciding to purchase a stock. All portfolio holdings are reviewed daily. The sell discipline is triggered by any one of the following reasons: stock price reflects all anticipated improvements, fundamentals deteriorate, or risk/reward profile is less attractive than other ideas in the sector.

Portfolio
The portfolio holds 50-70 stocks. Active individual stock weight typically does not exceed 300 basis points versus the benchmark. Sector weights will not exceed 300 basis points over the benchmark, as they target sector neutrality. The portfolio is primarily invested in US securities but may occasionally invest in ADRs (typically less than 5%). Cash is typically less than 5%. Annual turnover is generally around 80%, 50% representing new names and 30% representing adding/trimming positions.

Performance Expectations
The strategy should outperform in most fundamental growth markets. During low quality, speculative rallies, such as those typically seen during the early stages of an economic recovery, and other environments driven by sentiment, the strategy will face performance headwinds versus the benchmark.

BIOGRAPHIES OF KEY PROFESSIONALS

Manager D
Product A

Employee A, CFA, Head of US Growth and Portfolio Manager
Employee A joined the firm in 1994. He is the head of the US Growth Team and serves as a portfolio manager for the Large Cap Growth and Mid Cap Growth strategies. He started out his tenure at the firm as a quantitative analyst before transitioning to the fundamental equity team as an analyst covering Healthcare, Technology, and Industrials for the Large Cap Growth strategies. He joined the US Growth Team in 2000 and was named portfolio manager on Mid Cap Growth in 2005 and Large Cap Growth in 2008. Employee A earned his BA in economics, BS in finance, and MA in economics from the University of Connecticut. He is a CFA charterholder.

Employee B, Head of Equities and Portfolio Manager
Employee B joined the firm in 2004. He is Head of Equities and serves as portfolio manager for the Large Cap Growth and Mid Cap Growth strategies. He started out at the firm as an analyst on the US Growth Team covering Technology before transitioning to portfolio manager. Previously, he was an analyst covering Technology for Manager O and an analyst at Manager P before that. He is a member of the Institute of Electrical and Electronic Engineers. Employee B earned his BS in accounting from Arizona State University.

INVESTMENT FIRM / PRODUCT PROFILE

Manager E
Product A

Kiersten Christensen, Sr. Consultant
Source: NEPC and eVestment
February 2017

Firm Description

Manager E was founded in 1996 as the institutional asset management subsidiary of Parent Company E. Manager E was formed from existing in-house Parent Company E investment management teams and grew through the acquisition of investment boutiques. In November 1998, Manager R merged with Parent Company E. Consequently, the institutional asset management practices of the respective firms were combined under Manager E. In January 2003, the firm acquired the core investment products of Manager S, including U.S. Core Fixed Income, U.S. Small Cap Growth Equity, and Emerging Markets Equity. In November 2003, the firm acquired Manager T, a Portland (OR)-based small cap value manager and its investment team and staff members. On December 31, 2004, the firm acquired eight investment teams from Manager U. On December 31, 2008, Parent Company E acquired Manager V; through this transaction, Manager W merged with the Manager E investment platform. Manager E is a wholly-owned subsidiary of Parent Company E, which in turn is wholly-owned by Parent Company E, a publicly-listed company. Parent Company E also owns other registered advisers with different areas of client segment focus and/or investment product focus. These include specialty managers such as Manager X, Manager Y, and Manager Z.

NEPC Investment Thesis

Product A's value-added is attributable to a stable team of experienced investment professionals responsible for executing a disciplined pure growth approach. The team conducts intensive, bottom-up research along the market cap spectrum to identify ideas that meet their criteria of robust and sustainable growth. Then their analysis focuses on determining market expectations for growth in the companies. Opportunities arise when there is a gap where they are more favorable on the growth prospects than the market.

INVESTMENT FIRM / PRODUCT PROFILE

Manager E
Product A

People
Product A comprises three portfolio managers and five research analysts. All members are established investment professionals, with industry starts ranging from 1982 to 2005. Everyone conducts fundamental analyses on companies along the market cap spectrum. At least two members are responsible for covering every holding in their strategies. Employee A leads the team and is the lead portfolio manager for Product A.

Philosophy
The Product A investment philosophy is based on the belief that companies with superior growth characteristics generate stronger returns. They further believe that the market's pricing mechanism is less efficient beyond a year, and the gap between a company's future growth and the market expectations for that growth can be exploited.

Investment Strategy
Product A team employs a bottom-up approach to equity investing. They believe that the best companies exhibit both robust and sustainable growth, and that opportunities to invest arise when they can identify a gap between a company's future growth and the market expectations for that growth. The strategy follows a disciplined approach seeking three criteria: robust growth, sustainable growth, and underappreciated growth. Robust growth is defined as above-average growth, taking into consideration the company's industry and market cap. Sustainable growth is defined as growth that will continue for a long period of time. And underappreciated growth implies the market is underestimating the growth rate or the sustainability of the growth rate.

The investment team has iterative process. Idea generation is both qualitative and quantitative. Qualitatively, the team conducts more than 1,000 meetings per year and often sources opportunities from these meetings with companies along the supply chain, competitors, and industry experts. Quantitatively, they run weekly screens on the Russell 3000 to eliminate any biases they may have and ensure objectivity. In addition to some proprietary factors, the screens seek revenue growth trends, margin trends and earnings revision trends.

INVESTMENT FIRM / PRODUCT PROFILE

Manager E
Product A

For each idea, the team conducts rigorous fundamental research to deeply understand the company's business and long-term growth potential by examining principal sources of information, including annual reports, prospectuses, and publicly available filings with the Securities and Exchange Commission, such as Forms 10-K and 10-Q. Meetings with senior management, companies along the supply chain, competitors, and industry experts further deepen their analysis and conviction about the company meeting the criteria of robust growth and sustainable growth. They build proprietary business models using base, bull, and bear case scenarios.

Valuation analysis seeks to determine whether the company's growth is underappreciated by the market. In addition to interpolating the market expectation for growth, the team considers various valuation metrics for the company relative to history, the benchmark, and peers. They also compare their estimate of growth to buy side expectations, sell side expectations, and management expectations.

Investment discussions are framed around the three criteria of robust growth, sustained growth and underappreciated growth. Buy candidates must exhibit all three attributes. The strategy is managed on a team basis and adheres to the discipline. Once they make the buy decision, the position size is managed based on the magnitude of the gap. On an ongoing basis, positions are increased or trimmed based on whether the gaps are widening or narrowing.

The sell discipline is triggered when the team determines that a holding no longer meets their three criteria. Qualitatively, they can uncover deteriorating fundamentals, which will negatively impact future growth, thereby resulting in the position being sold. Quantitatively, they will sell or trim positions based on their weekly screens. Also, their continuous management of the gap will lead to trims if the gap narrows.

INVESTMENT FIRM / PRODUCT PROFILE

Manager E
Product A

Portfolio
The portfolio typically holds 80-100 stocks. Position sizes reflect the gaps between their estimates of future growth and the market expectations for growth. Individual positions are limited to 7% at market. Eligible investments have market capitalizations of $2 billion and above. For the three traditional growth sectors of Technology, Consumer Discretionary, and Healthcare, weights are managed to be 0.5x to 2.0x versus the Russell 1000 Growth benchmark. For all other sectors, weights are managed to be 0 to 5.0x versus the benchmark. Non-US holdings are allowed is they trade on a US exchange; generally the non-US allocation is less than 10% of assets. Typical annual portfolio turnover is 40% -- half from new name turnover and half from gap management.

Performance Expectations
The strategy should perform well when growth is in favor, or when fundamentals drive stock prices. It will struggle when value is in favor, when cyclical growth dominates the market, or when fundamentals are ignored.

BIOGRAPHIES OF KEY PROFESSIONALS

Manager E
Product A

Employee A, CFA, Managing Director and Senior Portfolio Manager
Employee A is a managing director and senior portfolio manager for the Product A team at Manager E. Employee A has oversight and portfolio management responsibility for the team's Small Capitalization, All Capitalization and Large Capitalization Growth portfolios. He joined Manager E with the acquisition of assets from Manager U. Employee A entered the investment industry in 1993 and joined Manager U in 1998 as a research analyst. Prior to Manager U, he was a research analyst with Manager AA and a trader with Manager AB. Employee A earned a bachelor's degree in finance from Miami University. He earned a master's degree in finance from the University of Wisconsin, Madison, and is an alumnus of the Applied Security Analysis Program. Employee A has earned the right to use the CFA designation.

Employee B, CFA, Managing Director and Senior Portfolio Manager
Employee B is a managing director and senior portfolio manager for the Product A team at Manager E. He joined Manager E from Manager U where he held a similar position. Employee B entered the investment industry in 1982 and prior to joining Manager U in 1994, he served as a managing partner of a private holding company. Previously, he was employed with Manager AC, Manager AD, and Manager AE. Employee B earned a bachelor's degree from Gustavus Adolphus College. He has earned the right to use the CFA designation.

APPENDIX

TOTAL FIRM ASSETS

Firm	YTD		2017		2016		2015	
	$MM	# of accounts	$MM	# of accounts	$MM	# of accounts	$MM	# of accounts
Large Cap Growth Equity								
Manager A	480,563	655	491,064	652	425,602	676	412,988	677
Manager B	1,786,000	201	1,686,000	120	240,777	139	243,448	122
Manager C	1,014,200	2,164	991,100	2,117	810,800	1,954	763,100	1,850
Manager D	227,139	1,738	231,684	1,759	216,993	1,693	208,520	1,676
Manager E	377,749	1,828	384,592	1,805	330,718	1,636	349,342	1,684

TOTAL PRODUCT ASSETS

Firm / Product	YTD		2017		2016		2015	
	$MM	# of accounts	$MM	# of accounts	$MM	# of accounts	$MM	# of accounts
Large Cap Growth Equity								
Manager A - Product A	4,438	13	4,563	14	3,796	15	3,578	11
Manager B - Product A	11,629	40	11,822	39	8,993	33	6,043	17
Manager C - Product A	84,516	52	78,788	52	56,539	48	55,344	43
Manager D - Product A	12,406	70	12,580	69	10,897	71	11,270	66
Manager E - Product A	3,354	22	3,353	23	4,329	31	7,252	35

PRODUCT ASSETS BY VEHICLE TYPE

Firm / Product	Separate Account		Commingled Fund		Inst. Mutual Fund	Retail Mutual Fund
	$MM	# of accounts	$MM	# of accounts	$MM	$MM
Large Cap Growth Equity						
Manager A - Product A	4,182	11	75	1	0	181
Manager B - Product A	2,756	37	103	1	4,385	4,404
Manager C - Product A	21,080	38	7,135	5	4,778	51,522
Manager D - Product A	4,927	37	621	26	6,178	681
Manager E - Product A	770	19	0	0	2,584	0

ACCOUNT MINIMUMS AND FEE SCHEDULES

Firm / Product	Separate Account Min. ($MM)	Commingled Fund Min. ($MM)	Mutual Fund Min. ($MM)	Separate Account Fee Schedule	Commingled Fund Fee Schedule	Mutual Fund Ticker and Fee
Large Cap Growth Equity						
Manager A - Product A	50	3	0	First $50 million - 0.30% Next $50 million - 0.25% Balance - 0.20%	First $50 million - 0.33% Next $50 million - 0.28% Balance - 0.23%	BRWVX - 0.45%
Manager B - Product A	25	3	5	First $25 million - 0.65% Next $25 million - 0.55% Next $50 million - 0.45% Balance - 0.40%	All Assets at 0.40%	PFGKX - 0.67%
Manager C - Product A	50	10	1	First $50 million - 0.50% Next $50 million - 0.45%	First $50 million - 0.57% Next $50 million - 0.55% Next $100 million - 0.45% Balance - 0.40%	TPLGX - 0.57%
Manager D - Product A	25	5	0	First $25 million - 0.55% Next $75 million - 0.45% Next $150 million - 0.40% Balance - 0.35%	First $50 million - 0.55% Next $50 million - 0.40% Balance - 0.35%	PLCIX - 0.66%
Manager E - Product A	10	NA	1	First $25 million - 0.75% Next $25 million - 0.65% Next $50 million - 0.60% Balance - 0.55%	Not Available	EKJYX - 0.70%

LITIGATION

Firm	Manager's explanation of Prior or Pending Litigation
Large Cap Growth Equity	
Manager A	Manager A is not currently the subject of any material litigation and has not been subject to material litigation during the past 5 years. However, from time to time, Manager A and its subsidiaries are named as defendants in litigation that Manager A believes is not likely to have a material adverse impact on the financial position of the company or its ability to provide services to clients.
Manager B	Affiliated entities and officers of Manager B have been parties to certain litigation, none of which has had or should have a material adverse impact on Manager B's ability to conduct its investment advisory business.
Manager C	Manager C, its subsidiaries, affiliates, officers, and employees (collectively the Company) has not been involved as a defendant in any notable litigation matter relating to any business practice or relating to services rendered to the firm's clients, with the exceptions of the cases noted below. At times, the Company may be a claimant or a plaintiff in various matters involving portfolio company investments. Additionally, from time to time in the normal course of business, the Company is named as a party to minor litigation matters involving the accounts of mutual fund shareholders, retirement plan participants, or of retail customers in the Company's brokerage unit. Often, the Company is named as a stakeholder. These minor litigation matters are not disclosed here. Pending Cases: Manager AF Bankruptcy Proceeding: Several of the Manager C Funds, sub advised clients, and institutional clients are included in a class of defendants in connection with a fraudulent transfer lawsuit that the Unsecured Creditors Committee (the Committee) of the Manager AF filed in Delaware bankruptcy court. In addition, various Manager C entities and certain of the Manager C Funds, institutional clients, and sub advised clients were sued in a number of federal and state courts in various states in connection with receipt of proceeds from a leveraged buyout (LBO) through which Manager AF converted to a privately owned company in 2007. These lawsuits alleged constructive fraudulent transfer claims in an attempt to recover payments made to shareholders at the time of the LBO. The lawsuits did not allege that any of the Manager C defendants engaged in wrongful conduct. The lawsuits were consolidated by the Multidistrict Litigation Panel for purposes of all pretrial proceedings. On September 23, 2013, the court in the consolidated cases granted our motion to dismiss those cases. The judge ruled that the plaintiff investors may not pursue the constructive fraudulent transfer lawsuits against Manager AF's former shareholders while the Litigation Trustee in the bankruptcy case also pursues his intentional fraudulent transfer claims against the same shareholders. The dismissal of the consolidated cases was appealed, and on March 29, 2016, the Second Circuit Court of Appeals affirmed the dismissal. The plaintiffs filed a petition for a writ of certiorari with the Supreme Court. The Supreme Court removed the petition from its December 9, 2016, calendar, and the matter has not yet been rescheduled. On January 9, 2017, the district court granted the motion to dismiss the intentional fraudulent transfer case brought by the bankruptcy trustee. On December 19, 2011, Employee X, through various entities, filed two lawsuits in Cook County, Illinois naming the other shareholder defendants as a means of preserving any rights of recovery the Employee X entities may have against former shareholders related to the LBO in the event that the LBO is found to have been a fraudulent conveyance.

LITIGATION

Firm	Manager's explanation of Prior or Pending Litigation
Large Cap Growth Equity	
Manager C (continued)	Employee Y v. Manager C: On April 27, 2016 a lawsuit was filed by Employee Y against Manager C in the United States District Court for the Northern District of California, alleging breach of fiduciary duty under Section 36(b) of the Investment Company Act of 1940. The Complaint was served on April 28, 2016, and we are defending the case. On August 4, 2016, the court granted our motion to transfer the case to the District of Maryland. The Court denied our motion to dismiss on March 31, 2017. We filed an answer to the complaint on April 17, 2017, and we are in the discovery phase of the litigation. Employee Z v. Manager C. Manager C, two of its subsidiaries, current and former members of its management committee, and trustees of the Manager C Retirement Program are named as defendants in a lawsuit filed on February 14, 2017 in the United States District Court for the District of Maryland. The Manager C Retirement Program is a retirement plan offered to Manager C employees. The plaintiff is a former employee who alleges breaches of fiduciary duty under ERISA with regard to the retirement plan. After we filed a motion to dismiss, an amended complaint was filed on July 20, 2017, which included additional plaintiffs (current and former employees) and added additional detail concerning certain allegations. We believe the complaint is without merit, and we are vigorously defending the case. We filed a motion to dismiss the amended complaint on September 12, 2017.
Manager D	As is typical of most financial organizations, from time-to-time Manager D and its affiliates may be involved in litigation, arbitration, inquiries, investigations, enforcement actions or various regulatory matters (collectively, Proceedings). To the best of our knowledge, there are currently no Proceedings related to investment management against Manager D or any of its officers that would be reasonably likely to have a material adverse impact on our ability to provide the investment management services outlined herein. In addition, we may, either alone or as part of a working group or consortium, assert or otherwise be involved in litigation or other legal proceedings in order to maximize value on investments.* *The above response is provided with respect to Manager D, the U.S. registered investment adviser that would be providing the services, and certain of its U.S. asset management affiliates. Certain additional information regarding legal and regulatory matters involving Manager D and its subsidiaries can be found in various publicly available documents and filings, including among others Manager D's filings with the SEC, and Manager D's Form ADV-Part 1A.
Manager E	Manager E is not involved in any current litigation or legal proceeding relating to investment advisory services offered to clients; however, Manager E may from time to time be engaged in legal employment related actions with current and former employees. Since being formed in 1996, Manager E has been involved in one legal dispute relating to investment advisory services offered to clients. The litigation was filed in 2009 by a municipality and raised questions of whether the purchase of a particular security was permitted by the client's guidelines and under Arizona law. Manager E entered into a settlement agreement in July 2010 with no admission of liability. Manager E is a wholly owned subsidiary of Parent Company E, which is indirectly wholly owned by Parent Company E. At any time, Parent Company E or its affiliates may be involved in litigation or administrative actions which were not caused by any acts or omissions of Manager E. None of these actions has caused a disruption to Manager E investment advisory business or services provided to its clients.

CONTACT INFORMATION

Manager	Location	U.S. Client Contact	Phone	Email
Large Cap Growth Equity				
Manager A	Location A	Contact A	(xxx) xxx-xxxx	ContactA@ManagerA.com
Manager B	Location B	Contact B	(xxx) xxx-xxxx	ContactB@ManagerB.com
Manager C	Location C	Contact C	(xxx) xxx-xxxx	ContactC@ManagerC.com
Manager D	Location D	Contact D	(xxx) xxx-xxxx	ContactD@ManagerD.com
Manager E	Location E	Contact E	(xxx) xxx-xxxx	ContactE@ManagerE.com

GLOSSARY OF TERMS

- **Beta:** A measure of volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta can be thought of as the tendency of a security's returns to respond to swings in the market. A beta of 1 indicates that the security's price will move with the market.

- **Correlation:** A statistical measure of how two securities move in relation to each other. Correlation is computed into a correlation coefficient which ranges between -1 to +1. A perfect positive correlations (+1) implies that as one security moves either up or down, the other security will move in the same direction. Alternatively, a perfect negative correlation (-1) means that if one security moves in either direction, the security that is perfectly negatively correlated will move by an equal amount in the opposite direction.

- **Information Ratio:** A measure of portfolio management's performance against risk and return relative to a benchmark or alternative measure.

- **Kurtosis:** A statistical measure used to describe the distribution of observed data around the mean. Kurtosis describes trends in charts. A high kurtosis portrays a chart with fat tails and a low, even distribution, whereas a low kurtosis portrays a chart with skinny tails and a distribution concentrated toward the mean.

- **Skewness:** A statistical term used to describe a situation's asymmetry in relation to a normal distribution. A positive skew describes a distribution favoring the right tail, whereas a negative skew describes a distribution favoring the left tail.

- **Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark. Tracking errors are reported as a "standard deviation percentage" difference. It represents the difference between the return of a fund and that of the benchmark the fund was trying to copy.

DISCLAIMER

- This report contains summary information regarding the investment management approaches described herein but is not a complete description of the investment objectives, policies or portfolio management and research that supports these approaches. This analysis does not constitute a recommendation to implement any of the aforementioned approaches.

- Past performance is no guarantee of future results.

- Information on market indices was provided by sources external to NEPC, and other data used to prepare this report was obtained directly from the investment manager(s). While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

NEGATIVE INTEREST RATES: HERE TO STAY

TIMOTHY F. MCCUSKER, FSA, CFA, CAIA,
CHIEF INVESTMENT OFFICER, PARTNER

March 2020

NEGATIVE INTEREST RATES: HERE TO STAY

Timothy F. McCusker, FSA, CFA, CAIA,
Chief Investment Officer, Partner

March 2020

KEY TAKEAWAYS

- Bonds remain a valuable diversifier to growth-sensitive assets
- Unintended consequences from negative rates have been minimal so far
- The likelihood of a global negative-rate environment, including the US, has increased but is still relatively low
- Investment actions can be split between two distinct scenarios:
  1. Avoid negative-yielding debt when it is a subset of developed-market bonds
  2. Review portfolio construction and asset allocation when negative-yielding bonds are pervasive, including the US

Many developed economies are in a period of sustained negative interest rates, as their central banks fight obstinately low inflation and anemic growth. What seemed like extreme—but temporary—monetary intervention in various parts of Europe and Japan now seems like the new normal. While these policies have little to show for in economic expansion or price increases, they fueled a record high of $17 trillion of negative-yielding debt globally in August 2019, according to data from Bloomberg; these bonds total $14.6 trillion, as of early March.

Central banks adopt a policy of negative rates for various reasons, including an expectation that negative short-term rates will dampen rates across the yield curve. This should lower borrowing costs, spurring banks to lend and promoting investment activity further out on the yield and risk curves, creating a wealth effect. That said, negative interest rates can also have potentially adverse consequences that become magnified and pronounced the longer they go on. These penalties include challenged banking business models, subdued investment returns, and, despite central bankers' best intentions to fuel spending, increased savings, as households try to offset the lower investment returns by squirreling away funds to prepare for life events such as college and retirement.

In the investment world, these sub-zero rates challenge long-held tenets of risk, reward and diversification. Furthermore, these negative rates, which initially appeared limited to parts of Europe and Japan, seem closer to home, as the gravity of global yields drags US yields to record lows. This unprecedented period offers no easy investment solutions: safer assets have low or even negative forward-looking returns, while higher returns will require shouldering increased anticipated volatility. Unfortunately, investors have few options for assets that offer diversification from risky investments but still carry positive returns.

At NEPC, we believe this stark new reality may require investors to reassess how they view risk in their portfolio. This does not mean investors cannot build portfolios that can weather various economic cycles. Be it through different sources of balance or the inclusion of negative bonds, right-sized, for the benefits they can still provide, investors have options to take on this challenge. Diversification and balance will always be important, even if rates become negative everywhere.

THE ROLE OF BONDS IN AN INVESTMENT PORTFOLIO

Let's consider why bonds sit in an investor's portfolio: They are a dependable source of income but, more importantly, they exhibit a reliable negative correlation to the growth risk that dominates most portfolios. That negative correlation is portfolio protection; bonds are return-yielding insurance. Would negative-yielding insurance be the worst possible investment to hold? Paying for insurance is not novel. We do it in our own lives, in our businesses and, if the environment forces it, we may have to do the same in our investment portfolios.

There are multiple reasons why this might make sense:

A. While negative-yielding bonds are clearly unattractive, they are likely more attractive than even more negative cash. An investor with an objective of outperforming cash may choose negative-yielding bonds, despite the likelihood of loss.

B. Certain investors may have liabilities or future commitments that are either implicitly or explicitly interest-rate sensitive and holding interest-rate-sensitive assets, such as bonds, may be appropriate regardless of yield due to their ability to reduce risk of the combined asset-liability structure.

C. Negative-yielding debt can still provide diversification to growth-sensitive assets. An investor may choose to hold these bonds within a diversified portfolio to balance against other risk exposures. The deterrent of a negative expected return could be more than offset by liquid and defensive portfolio characteristics they might provide.

D. As we have already seen in Europe and Japan, negative rates do not ensure a bottom in rates. Negative rates can become increasingly negative, providing surprising but positive returns to a portfolio, often when other assets are underperforming. An investor with a belief that rates will move lower, that is, even more negative, could buy negative-yielding bonds and earn a profit as the bonds' prices increase at lower yields.

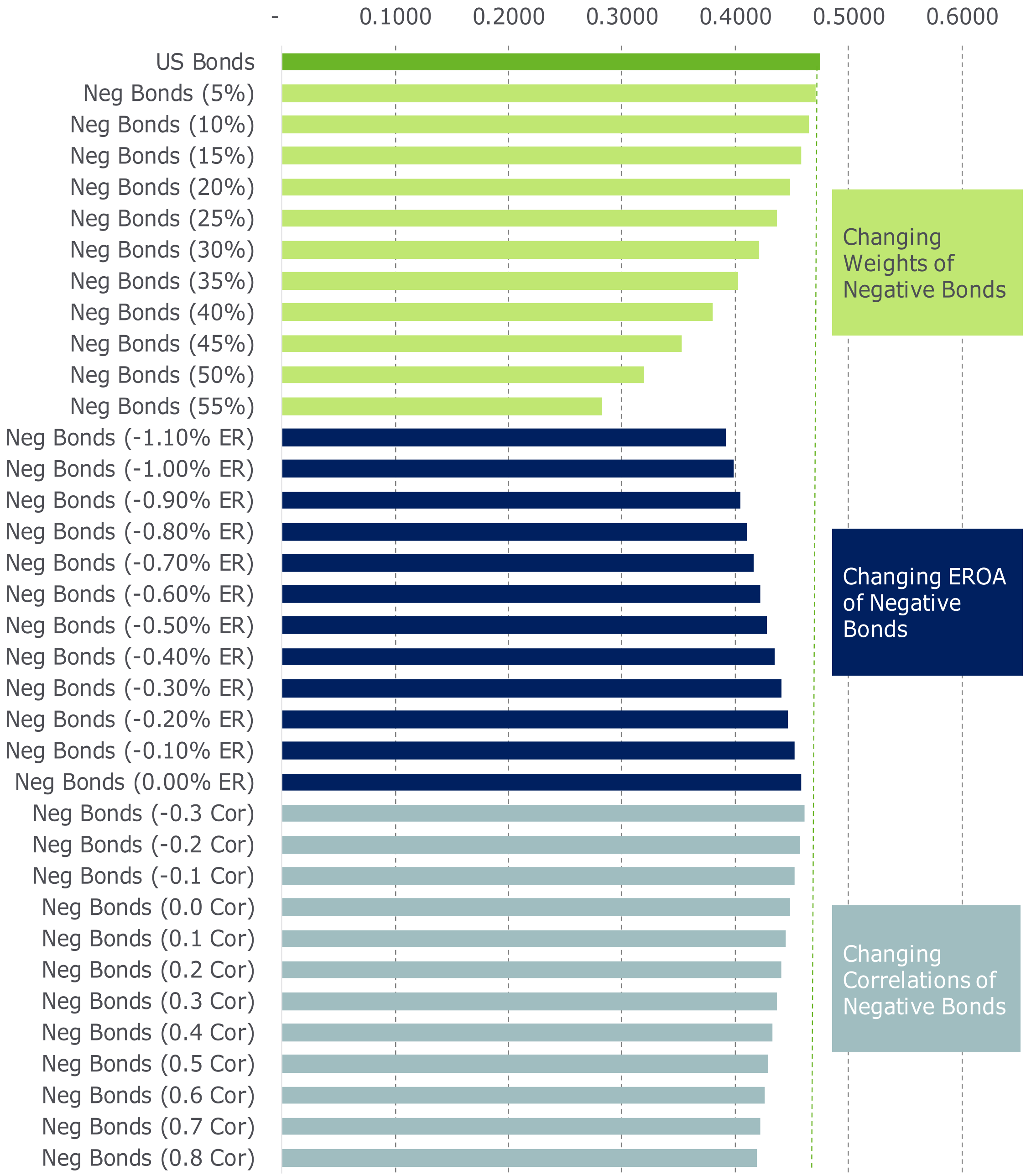
For US investors, we should think about two distinct environments when considering the challenges that negative-yielding bonds present. The first: the one we live in today, where negative-yielding debt has grown, but is still just a subset of investable developed bonds. Presently, positive-yielding alternatives exist to play the classic role of bonds in a portfolio. The second alternative: a potential future where investment choices are made against a backdrop where negative-yielding bonds are pervasive in the developed world, even in the United States.

NEGATIVE BONDS AS AN INVESTMENT CHOICE

This is the world we have been living in for some time. Investors seeking diversification are looking at a tradeoff with every asset in their portfolio and every potential asset that might be included. That tradeoff is between each asset's return potential and its expected portfolio benefit, that is, its correlation and risk. Of course, we would love to find high-performing assets with low volatility and negative correlation to the rest of the portfolio, but those assets are more likely to be found in fairy tales than as a choice in asset allocation models. Instead, we have low-return assets with good correlation benefits, for instance, bonds and commodities, or more favorable return assets with poor correlations in the equity and credit spectrums. For investors seeking bonds in their portfolio, they must make that same tradeoff within an asset class.

We studied how negative-yielding non-US bonds might fit alongside positive-yielding US bonds in a diversified portfolio (Exhibit 1). We took a US bond allocation and tried adding negative-yielding bonds at different levels within the bond allocation, different expected returns, and different correlations. Our findings indicate there are no set of allocation, return, or correlations, where negative bonds make sense. The Sharpe Ratio of these mixes is worse than just US bonds in every case.

Exhibit 1: Risk-Return Ratio Under Various Negative Rate Scenarios



Source: NEPC

In a world where negative-yielding bonds are among other positive-yielding bonds that have similar portfolio characteristics, investors probably should choose to look past negative-debt markets, sacrificing some diversification within their bond portfolio for enhanced returns and similar portfolio characteristics.

WHAT IF THERE IS NO CHOICE?

Not too long ago, the notion that all bond markets in the developed world, including the United States, could offer negative yields seemed farfetched. Today, investors can envision such a scenario. To be sure, the Federal Reserve would respond but, like its peers, it may not have the necessary ammunition to provide a substantial stimulatory response. Historically, a reduction in short-term rates of over four percentage points has been typically required to stimulate the US economy out of recession. With the current Fed policy rate at 1.50% to 1.75%, the firepower needed to promote growth may be lacking. While the central bank may at first try (again) a zero Fed Funds rate and quantitative easing program, it is not utterly fanciful to think that at some point the Fed may try a further reduction in rates below zero to spark the necessary growth to shake off a recession.

To be clear, this is not a prediction or a foregone conclusion. The US economy, despite entering its eleventh year of an economic expansion, appears still on solid footing. And regardless of when the economy ebbs and the Fed needs to act, the central bank and, to a lesser extent, the US government (if there is a coordinated monetary and fiscal response) have a powerful arsenal of tools, including a government balance sheet that can be levered up and the ability to inject fiscal stimulation directly into the economy, which may render it unnecessary to deploy negative rates.

That said, the decline in US rates over the last few months, and a deeper dive into negative yields in Europe and Japan have increased the possibility of an environment where negative rates are pervasive. Given the importance of bonds and the reliance on them in investors' portfolios, it is important to consider this scenario and develop a game plan to manage assets through such an unprecedented period.

The biggest challenge for investors: to build a risk-balanced portfolio when bonds—critically important to balance the typical portfolio's dominant growth risk—come with a negative yield. It is in sovereign debt markets that investors see the direct pricing and yields resulting from a negative-rate policy, but market expectations arising from negative yields extend far beyond sovereign rates.

A downward shift in rates should lower the discount rate for cashflows of other riskier asset classes and, all else equal, increase prices as sovereign yields form the baseline for the discounting of cashflows across all asset classes. While the path to these higher prices can be helpful for investors, it limits future upside as more of the future growth in cash flows is already priced in. This is less a story of negative yields and more about falling yields, whatever the starting point. This holds true even today after the most recent drop in rates. It will just be that much more dramatic if all rates are negative globally.

A starting point for investors in this scenario is that return expectations across the board will be low while they consider the portfolio benefit of bonds against an expected return that is negative. However, this does not mean that there are no options available for investors. We outline three below:

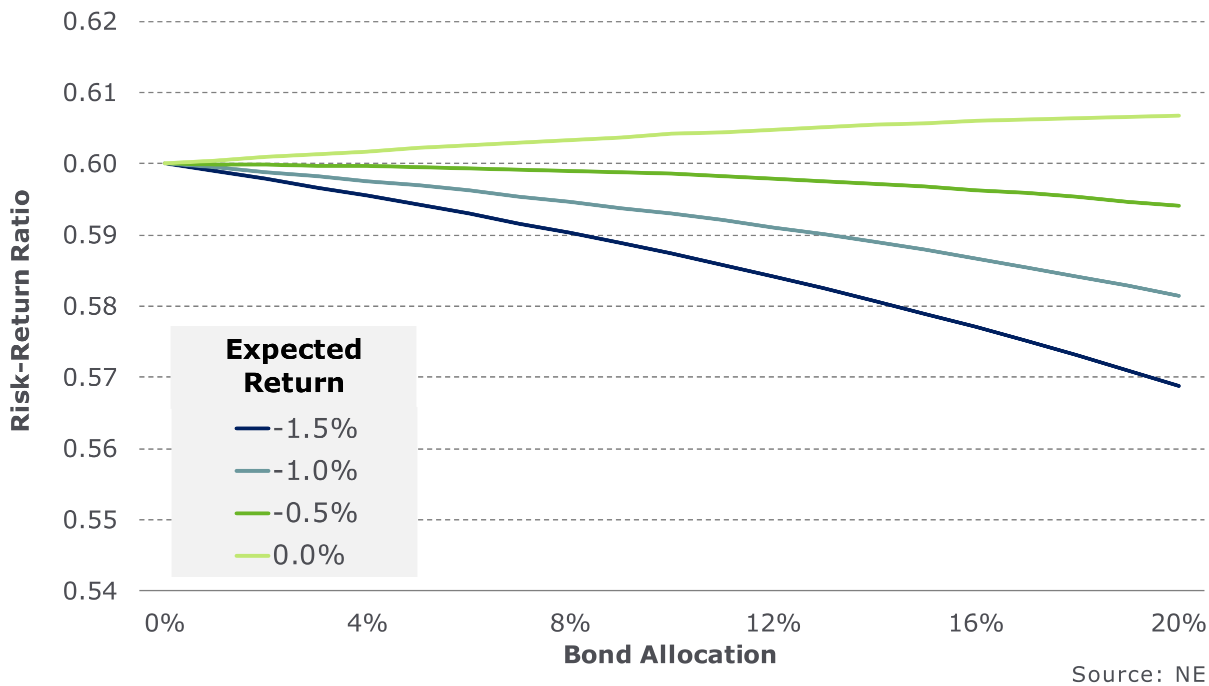
1. Investors may consider other alternatives beyond bonds for diversification. In this environment, with monetary policy maxed out, perhaps debt-driven fiscal policy will be used more actively to promote economic activity. These policies

would probably come at different times across countries and the debt build-up in each economy would likely lead to currency weakness relative to other currencies. As other countries join in, their currencies would weaken as well. This seems like an ideal environment to hold hard assets, including precious metals such as gold.

2. Focus on the principles of balance, and not the classic outcomes of balancing betas like equities, bonds and real assets. Instead, seek balance within asset classes, and attempt to more conservatively position the equity allocation by building up more defensive factors. Find high-quality but positive-yielding credit investments. Lastly, examine the prospects for higher-yielding markets, like emerging-market debt, and consider how risky these exposures really are given the environment. Study these markets to see if they are safer than their historical experience suggests. Sure, 10 or 20 years ago it would have been improbable to consider emerging-market bonds as safe-haven assets, but then again, $20 trillion of negative-yielding debt would have seemed unbelievable as well. Creative portfolio construction could minimize, but perhaps not eliminate, the need for safe-haven developed-market bonds.
3. A hardly creative but certainly uncomfortable solution would be to just own the negative-yielding bonds. An important reminder: regardless of the absolute level of negative-yield bonds, if the yield curve is positively sloping — could there be a starker financial market oxymoron than a positively-sloping negative-yield curve? — an investor is still likely to earn an excess return relative to cash. While this may bring scant comfort in a world of negative returns, it highlights the need for investors to act because negative-return bonds are still more attractive than negative-yielding cash.

We looked at whether it could be beneficial to hold bonds at negative yields (like the analysis above, but with all bonds assumed to be negative.) (Exhibit 2). We found that at slightly negative yields (up till negative 50 basis points), it can beneficial or, at least not too harmful, to hold negative-yielding bonds.

Exhibit 2: Risk-Return of Portfolio After Adding Negative Bonds



Source: NEPC

CONCLUSION

Negative yields appear here to stay in several parts of the world. Should negative rates remain isolated to these regions, it would seem US investors still have plenty of choices to effectively build diversified and risk-balanced portfolios. A potentially scary scenario is one in which the US and other developed countries join Europe and Japan in economic paralyses, and the combination of monetary response and muted inflation expectations send rates into negative territory across the globe. Investors will not only face muted return prospects, but also fewer options to achieve balance in portfolios.

This does not mean investment portfolios lose their ability to withstand various economic environments. It does mean that investors will need to reassess portfolio construction and investment risk. Bonds may remain a valued diversifier to growth-sensitive assets, but it may require creative portfolio construction, including finding other sources of defensiveness, such as sacrificing some quality in the form of lower-rated investment-grade fixed income and higher-quality emerging-market debt, to achieve higher expected returns. Of course, while considering this potential scenario is a useful exercise, the only thing we can predict with certainty is that the unexpected will inevitably happen. To this end, diversification and balance are critical, even if rates are negative everywhere. In fact, diversification and balance will always be important, especially if rates are negative everywhere.

Depending on how you define yield, holding a negative-yielding asset that offers the expectation of uncorrelated returns may not be as alien to portfolios as we may think. Hedge funds, in a zero-rate environment, could have surprisingly similar characteristics in a flashier package to negative-yielding bonds. There is an expected cash return of zero, so hedge funds essentially start with a meaningful negative yield when a fund's management fee of 1%-to-2% is tacked on. We may be okay paying this negative yield if we still expect positive returns along with, most importantly, positive returns when we really need it. Considering how hedge funds would survive in a negative-rate world instead of a zero-rate world is an interesting discussion for another time. Suffice to say, we do not think hedge funds are the ideal solution for portfolio protection in a negative-rate world as the reliability of their defensiveness is weak, and their fee structure would be challenged in the low-return world that we could expect if rates are negative.

DISCLAIMERS AND DISCLOSURES

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NEPC Private Markets
Investment Due Diligence Report

Thoma Bravo

Thoma Bravo Fund XIV

March 16, 2020

Product Rating: 1

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Executive Summary

Headquartered in San Francisco, CA with an additional office in Chicago, IL, Thoma Bravo, LLC (“Thoma Bravo” or the “Firm”) is a tech-focused buyout firm targeting controlling interests in software and tech-enabled services companies. The Firm is seeking to raise $14 billion for Thoma Bravo Fund XIV (the “Fund,” “Fund XIV”), to invest in 12 to 15 middle and large market companies that are operating in fragmented sub-sectors within software and can benefit from accretive add-on acquisitions and Thoma Bravo’s operational improvement capabilities. Target companies will tend to provide enhanced solutions to critical business processes, have predictable and recurring revenue streams, and have high cost and inconvenience of switching, which results in high retention and renewal rates. While the Firm will focus on software and tech-enabled services businesses that are domiciled in North America, its portfolio companies will tend to have a global customer base and serve a broad range of industries and end markets. Thoma Bravo will pursue a range of transactions to find the best relative value, including traditional LBO, corporate carve-outs and divestitures, and public to private.

In addition to the Firm’s six Managing Partners, the Fund will have a dedicated investment team of two Partners, five Principals, five Vice Presidents and 10 Associates. The Fund will also leverage its network of 23 Operating Partners and Advisors throughout the entire investment process to assist in developing and executing its value creation initiatives.

Positives:

- ***Strong and Consistent Track Record –*** Over the last two decades, Thoma Bravo has continued to generate market-leading returns even throughout the 2008 global financial crisis. When compared against the North America Buyout benchmark, three funds that were raised from 2000 to 2008 have, in most part, been fully realized in the first quartile while subsequent funds are continuing to track in the first quartile across all metrics (net TVPI, DPI and IRR). Across its 52 realized transactions, which represent $3.7 billion in cost, the Firm has achieved an aggregate gross exit multiple of 3.34x, returning $12.2 billion to its funds.

- ***Stable and Experienced Investment Team –*** The six Managing Partners responsible for Fund XIV have been working together at Thoma Bravo for at least 15 years, with three having founded the Firm in 1998. Two additional Partners, five Principals and five Vice Presidents will also be dedicated to the Fund.

- ***Operational Value-Add Resources –*** Thoma Bravo maintains a close network of 23+ Operating Partners and Advisors who will (i) support the investment team in sourcing and performing due diligence on prospective investments, (ii) assist in developing appropriate operating metrics, (iii) work with the management of portfolio companies to assess both cost reduction and revenue enhancement initiatives, as well as detailed plans to realize such opportunities, (iv) act as mentors or advisors to executives and (v) serve on the board of directors. Operating Partners are exclusive to Thoma Bravo while Operating Advisors are part-time relationships with the expectation of developing into exclusive partnerships.

- ***Attractive Target Sector –*** Thoma Bravo will target software and tech-enabled services companies that are providing greater productivity and more cost-effective solutions to critical business processes. Such businesses tend to exhibit low capital expenditures, recurring and predictable revenue streams for SaaS-based models and high switching costs for end users given their high value proposition. Also, while the Fund will focus on software companies, its portfolio companies will be serving a diversified set of industries and end markets.

- ***Meaningful GP Contribution –*** Thoma Bravo will be committing at least $500 million to the Fund, or approximately 4%. This level of commitment is higher than the market norm, which tends to be ~2% for funds of this size.

Negatives:

- ***Growth in Fund Size and Target Market –*** Thoma Bravo is seeking to raise $14 billion for Fund XIV, with no stated hard cap. As Thoma Bravo moves up market, the Firm will be targeting larger, more established businesses, which tend to attract more competition and thus transact at higher multiples. In addition, target companies could be more complex and difficult to effectuate operational improvements and sufficient revenue growth to meet Thoma Bravo's return expectations. Additionally, portfolio companies' increased enterprise values limits the number of potential acquirers going forward.

- ***High Technology Valuations–*** While a common phenomenon across most industries within private markets, the software and tech-enabled sector has experienced rapid growth in competition given the attractive investment characteristics of SaaS companies (i.e. strong growth trends, recurring revenues, market resilience for mission critical services, etc.). While current market volatility may have a dampening effect on valuations, the amount of competition for deals and the attractive financial characteristics of tech companies are likely to contribute to tech companies continuing to trade at a premium to other industries. While Thoma Bravo's average acquisition multiples have increased over time, NEPC believes the Fund will continue to generate attractive returns given its deep track record of implementing operational improvements, driving organic growth and executing on accretive add-on acquisitions.

- ***Increasing Levels of Leverage –*** Thoma Bravo's use of leverage has increased over time as the Firm has pursued larger, more established businesses. While this increases the risk profile of the Fund's investments, such companies tend to be market leading businesses with stronger growth prospects and higher customer retention rates, which helps to mitigate some of the default risk associated with high levels of debt financing.

- ***No Preferred Return –*** While the Fund does not have a preferred return, the GP will not be permitted to participate in the profits until the Fair Value Test is satisfied, which requires that either (i) the LP's fair market value of unrealized investments and contributions equal at least 125% of its total contributions or (ii) the total amount of distributions to the LPs equal or exceed the aggregate amount of LP contributions.

Thoma Bravo Fund XIV

Software and Tech-Enabled Services Buyout Strategy

Fund Characteristics

Investment Vehicle	Delaware Limited Partnership
Investment Manager	Thoma Bravo
Target Size / Max Size	$14 billion / None stated
Amount Raised	First close not yet held
Minimum Investment	GP Discretion
Target Final Close Date	Q3 2020
Investment Period	Six years from effective date
Fund Term	10 years from the Effective Date; subject to one one-year extension at the discretion of the GP and two additional one-year extensions at the approval of the LPAC
Sponsor's Investment	At least $500 million
Assets Under Management	$38.9 billion (November 2019 Form ADV)
Investment Focus	Software and tech-enabled services buyout, take private and corporate carve-out
Geographic Focus	North America
Projected # of Investments	12-15 platform companies
Deal Size	$600 million to $2.0 billion
Target Fund Return	2.0x net multiple and 20% net IRR
Leverage	At the fund-level, Thoma Bravo will have the option to use a line of credit for bridge financing purposes. At the deal-level, Thoma Bravo will use leverage to help finance acquisitions, as well as to optimize capital structure.
Annual Management Fee	1.5% on committed during the investment period; thereafter, 1.5% on aggregate amount of investment contributions less investment contributions for investments disposed of or permanently written off
Other Fees	100% management fee offset for transaction, advisory and break-up fee income received by the GP net of related expenses. The management fee offset does not include fees or compensation paid to the GP or its Operating Partner Group by portfolio companies for consulting services.
Organizational Costs	The Fund will bear up to $10 million in organizational costs; organizational costs in excess of this amount will be borne by the GP through an offset of management fees
Carried Interest	20%
Preferred Return	No preferred return; however, the GP will not be permitted to participate in the profits of the Fund until The Fair Value Test will be satisfied. Please refer to the "Distribution Waterfall" section in the memo for additional details.
Distribution Waterfall	First, 100% to the LP until such LP has received distributions equal to its aggregate contribution made with respect to investments which have been disposed of or permanently written off; second, 100% to the LP until such LP has received distributions equal to such LP's cost contributions; thereafter, 20% to the GP and 80% to the LP provided that the Fair Value Test is satisfied
ERISA Fiduciary	The GP intends to conduct the operations of the Fund so that the assets of the Fund will not be considered "plan assets" under ERISA
Fund Auditor	Ernst & Young
Fund Legal Counsel	Kirkland & Ellis
Placement Agents	None
Website	www.thomabravo.com

Firm Description

Firm Overview

Thoma Bravo is one of three successor firms to Golder Thoma & Co., which was founded in 1980 by Stanley Golder and Carl Thoma, who had worked together at First Chicago Corp.'s Venture Capital Group. It was there that Carl Thoma first developed and executed on the "buy-and-build" investment strategy of creating value through the consolidation of companies operating in fragmented industries through add-on acquisitions. Over time, as the firm added new Partners, Golder Thoma & Co. evolved into Golder, Thoma, Cressey, Rauner, Inc. ("GTCR") between 1980 and 1998. In 1998, GTCR split into two firms, one of which became Thoma Cressey Equity Partners ("TCEP"), formed by Carl Thoma, Bryan Cressey, Lee Mitchell and Orlando Bravo and the other retaining the GTCR banner and led by Stanley Golder. This split allowed the two firms to pursue distinct investment strategies and sector focuses.

From 1998 to 2007, TCEP raised Funds VI, VII and VIII to invest in middle market companies operating in the business services, healthcare and software sectors. In 2007, the firm revised its name to Thoma Cressey Bravo, Inc. ("TCB") in recognition of Orlando Bravo's contribution to the success of the Firm. Shortly thereafter in 2008, as it became clear that TCB was finding more success in its software transactions, the Firm evolved once more to split into two firms, Thoma Bravo and Cressey & Co., with the former focusing on software and tech-enabled services and the latter on healthcare.

Team Overview

Thoma Bravo's investment team for Thoma Bravo Fund XIV is comprised of 28 professionals: six Managing Partners, two Partners, five Principals, five Vice Presidents and 10 Associates. The Firm also has an Operations Group that is comprised of 23 professionals: 16 Operating Partners and seven Operating Advisors. The members of the Operations Group are not employees of Thoma Bravo, but rather are compensated by the portfolio companies for which they are providing services. The investment and operations teams are augmented by a support staff of 38, including finance, investor relations, compliance, capital markets, human resources, IT & security professionals and other administrative personnel. In addition to the investment team for the flagship fund, Thoma Bravo's Discover, Explore and Credit platforms maintain dedicated teams.

Recent Turnover / Key Departures

Below is the list of senior-level departures over the last decade:

Name	Title	Year Joined / Departed	Reason for Departure
Arvindh Kumar	Principal	2012 / 2017	Joined another PE firm (was not promoted to Partner)

Succession Planning

Of the six Managing Partners, four are in their 40s or early 50s, ensuring the mitigation of founder succession issues. In addition, ownership of the management company is shared equally and recalculated based on entrance or departure, reducing the need for any one partner's interest to be bought out upon retirement.

Fund Investment Strategy

Investment Strategy

Thoma Bravo's consolidation or "buy-and-build" strategy is intended to increase the value of profitable or cash flowing companies through rapid operating improvements that reduce costs and provide opportunities to reinvest these cost savings to increase revenue. Thereafter, the Firm will pursue add-on acquisitions to add new product offerings and/or new customers to accelerate growth. The Firm seeks to identify operating improvements and develop a plan with the portfolio companies' management teams well before the close so that such growth and cost saving initiatives can be implemented from the start. Thoma Bravo then seeks to use its consolidating investing experience to assist its portfolio companies in identifying, acquiring and integrating accretive acquisitions. Together, these initiatives are intended to transform the business into a larger, more profitable and valuable enterprise that is attractive to strategic or financial acquirers and public investors. Thoma Bravo seeks to triple the earnings of its portfolio companies in approximately four years.

The Thoma Bravo investment strategy has been developed over the years with the goal of producing superior returns and reducing risk. First, it focuses on the software and tech-enabled services sectors, which consists of a wide range of sub-sectors that are fragmented (i.e. similar businesses of varying sizes) and that have begun to consolidate. Consolidation occurs when organic revenue growth has slowed, making add-on acquisitions an attractive means of growth. Therefore, investments can be made in mature businesses that are growing at modest rates but whose growth can be enhanced through add-on acquisitions. Moreover, consolidating sectors tend to have lower acquisition multiples than fast growing sectors. The structure of consolidating industries also includes larger strategic acquirers, the presence of which can provide natural purchasers for an investment and often at prices higher than available from financial sponsors.

Second, Thoma Bravo seeks to invest in companies whose business model reduces volatility in revenues and earnings. This typically means companies with high quality revenue, such as revenue from recurring payments that do not require recurring sales efforts; from products or services that are critical to their customers; or from relationships that would be costly and disruptive for a customer to change. The software and tech-enabled companies in which Thoma Bravo seeks to invest have each of these characteristics: a substantial portion of their revenue comes from recurring subscription or maintenance payments; their customers use the software to run crucial elements of the customers' operations; and the relatively high cost and inconvenience of switching software providers create high renewal rates.

Third, Thoma Bravo focuses on businesses where the Firm believes it can create immediate operational improvements, which tends to increase earnings and thereby lowers the break-even multiple (the multiple of earnings at which the business has to be sold to recoup the investment). Making these operational improvements also minimizes business disruption and ensures that changes are made. Thoma Bravo believes that the software businesses it targets are attractive candidates for the Firm's operational value-add initiatives as such companies tend to be experiencing slower growth. When growth slows, savings can often be achieved through the adjustment of the cost structure to better match the business's revenue opportunities, which can be reinvested in revenue enhancing initiatives. To identify possible efficiencies, Thoma Bravo gathers operating metrics from "best in class" companies in the sub-sectors in which it is active and from the portfolio companies of prior Thoma Bravo funds.

Fourth, Thoma Bravo will, in most cases, retain existing management teams. The Firm believes that management team continuity reduces the risk associated with an investment, such as substantial operational disruptions and delay in meeting business goals. Retaining the existing management whenever possible also allows operating improvements to be discussed with management familiar with the business even before an investment is made, better ensuring that the post-acquisition initiatives are identified and agreed upon upfront. Thoma Bravo will often use its Operating Partners to assist management in meeting agreed-upon goals for the business; Operating Partners do not replace management but rather act as "coaches" and mentors to assist management in achieving Thoma Bravo's underwriting expectations.

Finally, Thoma Bravo seeks to base the capital structure for each investment on the current and future needs of the business, including potential add-on acquisitions. This is designed to provide the business with sufficient capital to fund future growth initiatives and most add-on acquisitions from its balance sheet rather than with additional capital calls from the Fund, which in turn is expected to improve the result of the investment. One of the attractive characteristics of software companies that the Fund will target is that most are strong cash flowing businesses with the ability to reduce debt relatively quickly. Rapid debt reduction makes it possible to use the new debt capacity to return capital to investors and/or pursue add-on acquisitions with additional investment from the Fund.

Target Return
The Fund is targeting a net multiple of at least 2.0x and a net IRR of 20%.

Target Fund Size
Thoma Bravo is seeking to raise $14 billion for Fund XIV. A hard cap has not been established.

Target Geographic Focus
The Fund will seek to invest in companies that are domiciled in North America, with most of its businesses generating revenues and holding operations across multiple geographies.

Target Deal Size
The Fund will seek to invest $600 million or more per investment.

Use of Leverage
The Fund does not expect to use fund-level leverage as a means to enhance investment returns. However, the Fund will have the option to use a line of credit for bridge financing purposes, which will not exceed 30% of total commitments to the Fund. Thoma Bravo will use investment-level leverage to help fund acquisitions and optimize capital structures.

Recycling of Capital
During the Investment Period, the General Partner generally will have the right to recall certain capital returned or distributed by the Fund to the Partners, including to make additional investments. Accordingly, during the life of the Fund, a Partner may be required to make capital contributions in excess of its Commitment (with certain limitations), and to the extent such recalled or retained amounts are invested, a Partner will be subject to the risks associated with such investments.

Manager’s View of Current Market Conditions
Several industry trends are converging to increase both the size of individual investments and the number of potential Software buyout opportunities. The size of investments has increased as a result of continuing consolidation in the large, fragmented software sectors. Acquisitions have allowed Software companies to gain additional customers, products and services, as well as the associated revenues of those businesses, while avoiding some or most of the operating costs when integrating them into existing companies. Many Software companies have continued to grow through strategic acquisitions, increasing the size of the investment opportunities available to the Thoma Bravo Equity Funds, and requiring larger amounts of capital to execute transactions. The number of opportunities has expanded because the business model of many Software companies is evolving from a traditional installed base of customers under a perpetual license model to a “software as a service” or “SaaS” model, where software is delivered remotely on a subscription basis. To illustrate the growth in this sector, public market capitalization of SaaS companies has grown from about $20 billion in 2007 to about $1 trillion today. Transitioning to a SaaS model generally negatively impacts revenue and profit in the short term and slows company growth. Faced with this situation, some Software management teams or boards of directors choose to seek an investor who can see the longer-term value that can be created while helping a company with a successful SaaS transition. Thoma Bravo believes this demand will result in potential investment opportunities, particularly among public companies.

As the scale of Software companies has grown through consolidation, more companies have looked to the public markets as a source of capital and eventual liquidity for their initial investors. As market valuations have increased in the current economic cycle, however, public Software companies are facing significant pressure to deliver quarter over quarter growth. When revenue or profit forecasts are missed, companies often lose significant value quickly, despite the fact that the underlying fundamentals of the business may remain strong. Public companies going through a SaaS transition, as described above, are particularly susceptible to this volatility. A number of hedge funds, sometimes referred to as "activist hedge funds," have sought to take advantage of this situation by acquiring a position in public Software companies whose stock price has fallen and then influencing the management and/or board to sell the company at a higher stock price to a strategic or financial buyer. Often, these situations can lead to promising "take private" transactions.

This growth of the Software market has produced not only increased investment opportunities, but is also expected to provide new opportunities to exit portfolio company investments. One factor contributing to the increase in investment opportunities is the growing interest in the software sectors from financial sponsors and strategic buyers not otherwise focused on the technology or software industries. These generalist sponsors have been some of the more active acquirers of Software assets, while traditionally non-technology focused strategic buyers like Danaher Corp., Siemens AG, Emerson Electric and General Electric have also made Software acquisitions.

Expected Fund Investor Base

Below is the composition of LPs for Funds XI, XII and XIII. While the LP composition for Fund XIV has not been finalized, the GP expects the investor base for the Fund to be similar to Funds XI, XII and XIII:

Investor Profile	% of Fund XI	% of Fund XII	% of Fund XIII
Public Pension	44%	47%	39%
Private Pension	11%	11%	9%
E&F	6%	3%	5%
High Net Worth	3%	2%	4%
Insurance Companies	6%	7%	9%
Fund of Funds	15%	5%	6%
Sovereign Wealth Funds	8%	21%	23%
State/Municipal Government	1%	0%	0%
GP/GP Affiliate	6%	4%	5%

Current Fund Investments

The Fund is not expected to make its first investment until later in 2020.

Example of a Prior Investment

Barracuda

Barracuda is a leading provider of security and data protection solutions for the small and medium-sized business market. The company addresses both on-premise and cloud environments through its appliances, subscriptions, and cloud-enabled products. The Thoma Bravo security team tracked Barracuda Networks, Inc. (NYSE: CUDA) for several years, maintaining consistent dialogue with the company since its initial dual-track sale process in 2013 (the company subsequently went public). In late 2015, Barracuda management expressed interest in selling the company, and Thoma Bravo submitted an initial Indication of Interest and participated in the company's mid-2016 sale process, which did not result in any final offers and the company cancelled the process. Following strong Q2 FY 2018 results, Thoma Bravo re-engaged with the company and entered into exclusivity shortly thereafter. After about a month of diligence, Barracuda's board of directors accepted Thoma Bravo's offer to purchase the company for $27.55 per share. The purchase price reflected a total enterprise value of $1.51 billion including fees and expenses, representing FY 2018E revenue and EBITDA multiples of 3.8x and 14.3x, respectively. The transaction closed in February 2018 and was funded with $751 million of equity and $760 million of debt. The equity was provided by Fund XII, a co-investor, and a rollover from the CEO.

Core to Thoma Bravo's thesis was Barracuda's strong market positioning, with approximately 180,000 customers in over 100 countries with minimal customer concentration. Barracuda's go-to-market strategy, all through channel partners, coupled with a strong marketing presence, enabled the company to introduce new products quickly and reach thousands of new customers annually. Barracuda represented an opportunity to invest in a leading security franchise, with exposure to multiple large and growing markets and strong financial characteristics: over 80% recurring revenue (growing double-digits), over 10% annual recurring revenue (ARR) growth, 21% NextGen ARR growth (Barracuda's newest and most innovative products), roughly 100% ARR retention, and approximately 80% gross margins.

Given the breadth of the company's offerings (network security, content security, email security, data backup) and its brand name recognition, Barracuda presented an ideal platform to pursue an aggressive "buy & build" strategy. The company recently competed two add-on acquisitions (Sonian and PhishLine) and maintains a robust pipeline of M&A opportunities. Thoma Bravo also developed a Day 1 cost plan to take out approximately $25 million of cost from the business, with only $9 million being headcount related, the remaining $16 million coming from reductions in marketing spend and third-party party G&A expense reductions.

As of 9/30/2019, the Barracuda investment reflects an unrealized return of 1.9X gross MoM and 52.8% gross IRR. This transaction highlights Thoma Bravo's outstanding reputation in the security management space and the ability to proactively develop relationships with strong management teams. The Barracuda team had previously worked with financial sponsors that did not properly implement their vision, and the company CEO referenced with confidence that the Thoma Bravo was the most capable firm to partner with Barracuda management and successfully drive value.

Deltek

Deltek, Inc. is the largest pure-play vendor and leading provider of project-focused enterprise software and information solutions for U.S. government contractors and professional services firms globally. Thoma Bravo identified Deltek (then a publicly-traded company) through an ongoing initiative to find investment opportunities in strong vertical software application markets and engaged the company CEO to discuss a take-private transaction. The company then hired an investment bank and led a competitive process, which Thoma Bravo was able to win due to their pre-process familiarity with Deltek and extensive experience investing in software application companies. Fund IX and Fund X/X-A, with support from co-investors, acquired Deltek in October 2012 for an enterprise valuation of approximately $1.1 billion, equating to a FY2012E pro forma EBITDA multiple of 9.5x.

Thoma Bravo viewed Deltek as a perfect fit for their consolidation investment strategy due to its market leading position and high quality of revenue. Deltek was and continues to be the market leader in the government contracting and A&E markets while also being the largest provider of government RFP data and information. Deltek also offered the opportunity to improve operating margins through cost rationalization and decreased public company expenses, which lowered the effective purchase price. Deltek's attractive and diverse revenue model was also key, with over 60% of revenue being recurring, maintenance renewal rates above 93%, consistent price increases of 5-6% per annum and low customer concentration.

Upon investment, Thoma Bravo worked closely with management to implement a cost savings plan, ultimately integrating two business units and resulting in ~$33 million in annual savings. EBITDA margins were increased from 22% pre-close to 32% post-close, and ultimately to 36% at the time of sale. Thoma Bravo also supported realignment into a global business with geographic sales units, modified the sales compensation plan to focus on annual contract value and helped accelerate a transition from a licensed software model to a SaaS business model. The company improved their go-to-market capability and renewed their focus on sales, resulting in organic growth improvement from 0% at closing to 8% at the time of sale. With Thoma Bravo's assistance, Deltek also made six accretive acquisitions over the Funds' ownership period to gain exposure in the higher growth Information Solutions and Professional Services verticals. Thoma Bravo also promoted Deltek's CFO to CEO, who was able to keep the company's senior leadership team together and highly motivated throughout Thoma Bravo's ownership.

After a competitive process, Thoma Bravo sold Deltek to Roper Technologies in December 2016, yielding a gross MoM of 4.3X and a gross IRR of 65.5%. The Deltek transaction is reflective of Thoma Bravo's core buy-and-build strategy and value creation capabilities, also highlighting Thoma Bravo's consistent track record of pre-empting and ultimately winning competitive processes to acquire strong businesses.

Fund Investment Process

Deal Sourcing

The investment process begins with targeting companies that appear to fit the Thoma Bravo "buy-and-build" strategy. In particular, over the years, the Firm has evaluated hundreds of software companies, developing extensive metrics and frameworks to assess the potential of a given investment opportunity. Pursuing this "buy-and-build" strategy has resulted in a rich knowledge of the software sector and the various end markets.

Building on the extensive expertise of the Firm, the Thoma Bravo's investment professionals study industry and company research reports and other data sources and seek the advice of executives, consultants and other experts active in the industries being examined. By conducting this analysis, the Firm seeks to build a depth of knowledge about an industry vertical and a presence in the field that will make it a preferred partner for management teams, external advisors and business owners. Thoma Bravo professionals then build a database of companies operating in the chosen vertical and begin contacting the most attractive companies in search of a platform acquisition opportunity and a management team that shares the Firm's vision for the industry. During this sourcing process, the Firm also will meet companies that may not have the scale to be platform opportunities, but could be part of the pool of add-on acquisition opportunities once an appropriate platform is identified.

Thoma Bravo typically follows a proactive program of contacting potential deal sources, including industry professionals and intermediaries, through face-to-face meetings, email correspondence, phone conversations and convention attendance. Contact made with sources is recorded in a database designed for this purpose. As it has been in the past, this proactive program is expected to be the source of most of the Firm's investment opportunities. The Firm generally will not pursue investment opportunities offered by investment banks through a large auction process unless the opportunities are in sectors that it already knows well from its research or prior investments and, typically, unless it already has had contact with the target company. Recently the Firm has focused much of its "greenfield" sourcing efforts on potential carve outs brought about by increased shareholder activism.

Thoma Bravo's history of buy-and-build investing, its position as a "strategic" buyer rather than a "financial" buyer because of its industry knowledge and its reputation as a "management team friendly investor" often is an attraction for management teams seeking private equity capital.

Investment Process

Thoma Bravo's formal due diligence on prospective investment opportunities is intended to be rigorous, hands-on and time-intensive. The partners have developed specific due diligence procedures to carefully evaluate important aspects of a prospective portfolio company. The effort typically includes interviews with industry competitors, customers, suppliers and former employees and an analysis of relevant issues, risks and opportunities. In most instances, one or more Operating Partners will participate in due diligence and contribute expertise, experience and insights to the process. Substantial external resources to complement the Firm's own internal abilities and expertise also are used and typically include accounting, legal, insurance and information technology experts. When appropriate, the Firm may also retain specialized consultants to examine certain investment-specific issues.

In addition to customary analysis of the market opportunity, competitive position, financial performance and business model, Thoma Bravo generally analyzes a company's operating metrics and compares them to the Firm's database of leading industry metrics to identify, often in conjunction with an Operating Partner, operational improvements that can be targeted for completion at or soon after closing. The firm also maintains a record of operational changes completed by many portfolio companies and expects to use this information to help identify the opportunities for improvement for new investments.

The due diligence process also typically allows Thoma Bravo to contact many companies that may be future add-on acquisitions or possible platform investments. If the platform investment is completed, the contacts made with these companies during due diligence can facilitate the subsequent add-on acquisition program.

The Firm makes a substantial effort during the due diligence process to reach an understanding with a target company's management on an operational improvement program, a three-to-five-year detailed budget and an add-on acquisition program. Management "buy-in" to these plans is critical since the Firm's strategy benefits from being able to partner with existing management teams that have customer and industry relationships and strong track records. If this cannot be accomplished during due diligence, the proposed investment generally will not be made.

Value Creation

Upon closing an investment, management is expected to immediately implement, with the guidance of Thoma Bravo and often one of its Operating Partners, the operational improvement plan agreed upon during the due diligence process. Management is then expected to begin operating the business to achieve a three-to-five-year financial plan agreed to with Thoma Bravo during the due diligence process. The Firm engages in its own budgeting process with respect to each investment and reviews performance versus budget throughout the life of an investment. This is intended to quickly identify and address any underperformance or risks of future problems. To support this strict focus, the partners maintain frequent contact with management and hold in-person board meetings and operational reviews on a regular basis. The Firm also works closely with management teams to highlight specific areas of operations that Thoma Bravo believes can be improved to drive higher revenues and improved profit margins, including pricing and delivery of software and support services, salesforce reorganizations, and sales channel structures.

Once the operating improvements are achieved and management is operating on plan, a consolidation strategy typically will be pursued to generate continued growth. Like operating plans, Thoma Bravo's consolidation plans are typically formulated pre-investment and are central to the investment thesis on which any investment is pursued. However, the investment return to which the investment is underwritten generally does not include the impact of acquisitions, so a successful consolidation program should produce a return that is incremental to the original plan. The Firm and its Operating Partners are actively involved with management in the pursuit, negotiation, consummation and integration of add-on acquisitions. The prior experience of the Firm's partners in executing acquisitions is an important element in this process.

In addition to supporting management teams with operating metrics, operational improvement plans, and rigorous budgeting and acquisition programs, Thoma Bravo typically provides other post-investment assistance (e.g., capital structure changes, personnel recruitment and customer introductions) to each portfolio company as required. The Firm's investment professionals also typically provide board of director oversight for all investments, with senior members of the investment team designated to serve in such capacities.

The goal for Thoma Bravo's investments is to maximize value that can be realized at the optimal time. Thoma Bravo focuses on managing and preparing for liquidity from the beginning of each investment. To accomplish this, the Firm seeks to build businesses that have the scale, scope, management and history of revenue and earnings growth to support exit alternatives. The Firm's partners consider the likelihood and potential of various exit scenarios as part of the development of an investment thesis prior to making an investment. Thoma Bravo expects to use the following methods of exiting investments in portfolio companies: (i) sales to strategic purchasers or financial purchasers; (ii) initial public offerings and (iii) recapitalizations (for initial or interim liquidity). Throughout the process of managing an investment, Thoma Bravo intends to proactively manage liquidity options by developing and cultivating relationships with potential strategic and financial purchasers, the investment community and lending sources. Operational improvements and add-on acquisitions are made with liquidity goals and relationships in mind. In addition, Thoma Bravo works to assure that portfolio companies are prepared for sale at any time by seeking to maintain a complete management team, appropriate financial reporting and consistent performance so it can move quickly to take advantage of changes in the valuation environment. Thoma Bravo believes its "buy-and-build" strategy helps companies achieve the scale and scope needed to significantly expand their universe of exit opportunities.

Risk Mitigation

Thoma Bravo believes that its buy-and-build investment strategy and process improvements position the Firm to potentially produce superior returns with lower risk. Thoma Bravo emphasizes immediate operational improvements to increase margins and accretive add-on acquisitions for achieving growth. They also aim to mitigate risk through acquiring companies at multiples that they believe offer relative value given the underperforming nature of the business. Their target investments are in sizeable and mature middle-market companies with predictable, recurring revenues. Thoma Bravo typically retains existing management of an acquired company to help preserve continuity and reduce risk arising from rapid changes.

Thoma Bravo's concentrated research and analysis on companies in its target markets allow the Firm to have clear visibility toward portfolio construction, thereby reducing blind pool risk. It also enables the Firm to move quickly when it has the opportunity to buy an attractive asset.

Fund Economics

Management Fee

Commencing on the Effective Date and during the investment period, the management fee will be 1.5% on committed capital. Thereafter, the management fee will be 1.5% on invested capital less the amount of investment contributions with respect to the portion of each investment that has been disposed of or written off.

Distribution Waterfall

Distributions of net cash proceeds attributable to the disposition of investments in portfolio companies, as well as distributions of securities in kind, including dividends and interest income, will be distributed as follow:

1. First, 100% to such LP until the cumulative amount distributed to such LP equals the sum of (i) such LP's funded commitment attributable to realized investments and unrealized investments and (ii) such LP's funded commitment attributable to all organizational expenses, management fees and other expenses paid to date;
2. Thereafter, 80% to such LP and 20% to the GP as carried interest granted the Fair Value Test is satisfied.

The Fair Value Test will be satisfied if, as of the determination date, either (i) such LP's share of aggregate fair market value of unrealized investments plus such LP's share of aggregate amount of investment proceeds then held in the Fund equals at least 125% of the aggregate amount of investment contributions made by such LP with respect to unrealized and realized investments that have not been fully disposed of or (ii) the cumulative amount of the Fund's distributions from all sources equals or exceeds the aggregate amount of such LP's aggregate capital contributions.

Allocation of Carried Interest

The Management Committee of the General Partner will allocate carried interest points prior to the commencement of the Fund. The actual allocations have not been determined, but it is expected that some carried interest will be allocated to all members of the Thoma Bravo investment staff above the level of Senior Associate, but that those persons who are designated members of the investment staff for the Fund will have interests that are a relatively larger portion of their total compensation so that the performance of the Fund will be a more significant determinant of their total compensation. Carried interest points in the Fund generally will vest over a period of ten years. The rate of annual vesting is expected to be such that participants will be approximately 65% vested at the fifth anniversary of the commencement of the Fund. Thoma Bravo may also continue its past practice of offering a "shadow" carry program for certain employees. This program enables such employees to earn future cash payments valued as if he/she held carried interest points in a portfolio company, based upon such employee's role in sourcing, due diligence, negotiation or financing an investment.

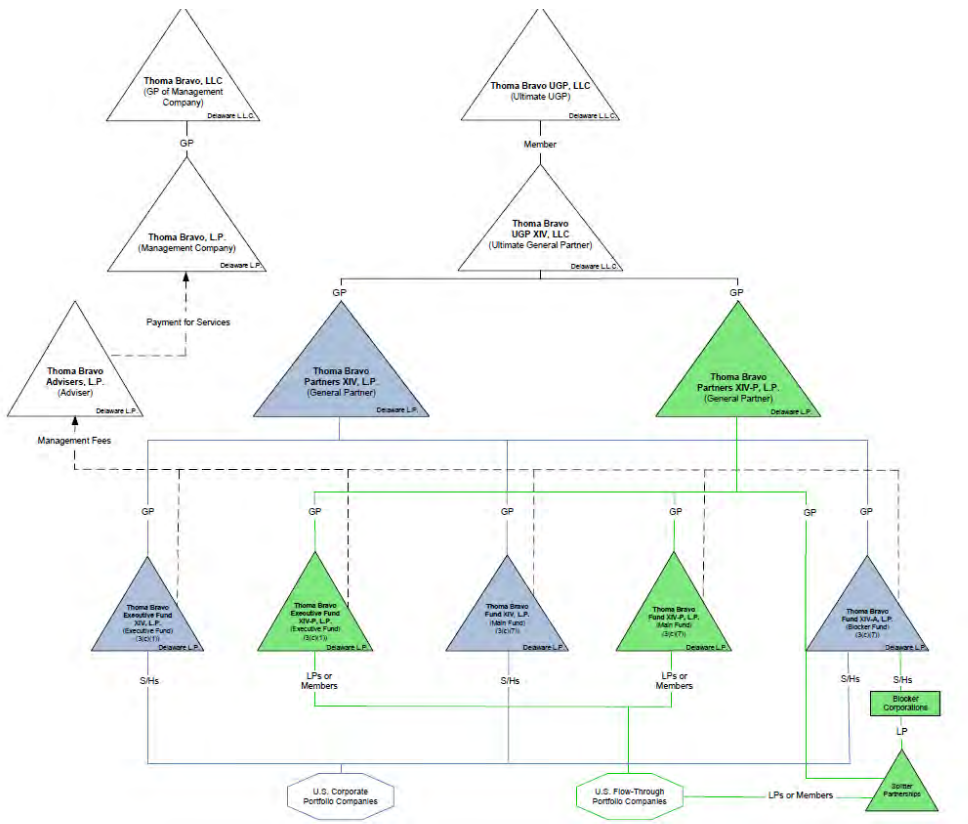
Other Fees and Expenses

In addition to the Management Fee, the Fund will pay, or reimburse the General Partner or any affiliate thereof for, all other fees, costs, expenses, liabilities and obligation relating to the Fund's and/or its subsidiaries activities, business, portfolio companies or actual or potential investments.

Fund Administration, Structure and Policies

Fund Structure

The Fund will be structured as a Delaware Limited Partnership:



K&E: 65,433,492.3

ERISA Provisions

The General Partner intends to conduct the operations of the Fund so that the assets of the Fund will not be considered “plan assets” under ERISA. Fiduciaries of such plans and accounts are urged to consult with their own legal and financial advisors before making an investment decision.

UBTI Considerations

The Fund may invest in assets that will cause a tax-exempt Limited Partner to have unrelated business taxable income (“UBTI”) within the meaning of Section 512 of the U.S. Internal Revenue Code of 1986 or a non-U.S. Limited Partner to have effectively connected income (“ECI”) as defined in Code 864(c). The Fund may also generate debt-financed UBTI under Code 514 as a result of the Fund’s borrowing activities.

To alleviate the reporting concerns of UBTI or ECI sensitive investors, Thoma Bravo will be creating Thoma Bravo Fund XIV-A, which will invest in parallel with Fund XIV, but will use off-shore blocker corporations when necessary. In these circumstances, the blocker entities will pay corporate taxes for investors in the Blocker Fund rather than generating pass through UBTI and/or ECI. The costs for the Blocker Fund and the underlying blocker corporations will be shared pro-rata across the investor base electing to invest in the Blocker Fund. While the Firm intends to use the Blocker Fund as a way to minimize the creation of UBTI or ECI for electing investors, it is not a guarantee that there will be no UBTI or ECI created for investors in the Blocker Fund.

Environmental, Social and Governance Considerations

Thoma Bravo has received a rating of 2 based on NEPC's proprietary ESG ratings system, where 5 indicates no integration and 1 indicates a best in class approach. The full ESG review is available in the appendix. Thoma Bravo has employed an ESG policy to inform their investment and portfolio oversight practices since 2014, relatively on the early side for US based private equity firms. The Firm has committed to consider material ESG risks and opportunities in the process of analyzing a potential investment and in the monitoring of existing portfolio investments. The investment team is tasked with identifying potential risks and opportunities in diligence and working with external providers to further diligence them if necessary. They will partner with management teams to support the development of plans to address the risks or opportunities and support a portfolio company's efforts to report internally and externally on their ESG approach and performance. They have pledged to be transparent in the approach to incorporating ESG considerations in investments by reporting annually on progress and outcomes. The Firm also strives to consider ESG principles in the conduct of its own business. Thoma Bravo publishes an annual ESG report that provides insight into its ESG initiatives and the progress being made by portfolio companies.

Labor Policy

Thoma Bravo does not maintain a formal labor policy with regards to the use of organized labor within its portfolio companies.

Key Person Provision

In the event that (i) there ceases to be at least three of the current Managing Partners active in the Fund's affairs, (ii) Orlando Bravo ceases to be active in the Fund's affairs, or (iii) there ceases to be at least one of Seth Boro, Scott Crabill and Holden Spaht active in the Fund's affairs, the Fund will not fund further investments, with the exception of follow-on or committed investments, unless the majority of LPs (as measured by commitments) grant a waiver. Also, in the event that the GP ceases to be controlled by current Thoma Bravo Managing Partners (or approved replacements), one of which must be Orlando Bravo, LPs holding 2/3 of aggregate commitments will have the right to terminate the funding of further investments, with the exception of follow-on or committed investments.

GP Removal Provisions

The GP may be removed for cause under certain conditions should a majority of the Aggregate LP commitments vote to dissolve the Partnership. These conditions include bankruptcy of the GP or situations where the GP has been deemed (as defined by the LP Agreement) to have participated in fraud, embezzlement or other misappropriation of assets or has committed a felony involving a breach of trust that results in a material dispute or has a material adverse effect on the Partnership.

LP Advisory Committee

The GP will establish an LP Advisory Committee ("LPAC") composed of LPs selected by the GP, all of whom will not be affiliated with the GP. The LPAC will provide such advice and counsel as is requested by the GP in connection with Fund investments, potential conflicts of interest and other Fund matters.

Reporting

The Fund will furnish to the Limited Partners (i) audited financial statements once per year within 90 days after year end, (ii) unaudited financial statements for the first three quarters of each fiscal year within 45 days after the end of the quarter, (iii) annual tax information necessary for each Partner's U.S. tax returns within 90 days after year end and (iv) descriptive investment information for each portfolio company periodically with the accompanying capital call notice, distribution notice or financial statement. Capital call notices will be provided at least 10 days in advance of their due date.

Valuation Policy

Thoma Bravo provides LPs with valuations of fund investments as of June 30th and December 31st each year together with an explanation of the methodology used to arrive at the valuations and commentary on Fund and portfolio company performance. The most recent valuations are reviewed on a quarterly basis as of March 31st and September 30th and changes in fair value are made where appropriate to reflect updated trading prices (for public securities), new investments, the sale or purchase of business assets, changes in financial performance that may be long-term, increases or decreases in debt, credit defaults or similar developments, in each case to the extend deemed material to the valuation.

Valuations of fund investments are intended to reflect the “fair value” of those investments. So that the annual fund financial statements comply with US GAAP, FASB Accounting Standards Codification Topic 820, Fair Value Measurements and Disclosures (“ASC Topic 820”) are applied in reaching the valuations. ASC Topic 820 generally defines fair value in terms of the price that would be received upon the sale of an asset in an orderly transaction between market participants at the measurement date under current market conditions.

For investments that are listed on a securities exchange, fair value is generally considered to be the latest sale price (or latest bid price if no sale price is available) on the date of valuation. Although a Fund’s Agreement of Limited Partnership may require a discount to value where the size of a Fund’s holdings compared to the trading volume would adversely affect marketability, ASC Topic 820 does not permit concentration risk discounts for purposed of financial statement valuations.

For private companies, a range of enterprise values of the company is estimated by considering a number of factors, including, but not limited to valuations of public companies, recent sales of comparable private and public companies, discounted estimated future cash flows of the company, third-party valuations, credible offers from third parties to acquire the company, and the value of recent investments in the company’s equity securities. From the computed estimated range, an enterprise value determined as the best estimate of the value is then applied to a “waterfall” of the company’s capital structure to determine the value of securities held by the Fund.

Litigation, Regulation and Compliance

Current Litigation

To the best of Thoma Bravo's knowledge, during the preceding 36 months, there are and have been no material proceedings (including regulatory inquiries or investigations, but excluding routine examinations or audits), lawsuits or judgments resolved, pending or, to their knowledge, threatened against Thoma Bravo, LLC (including, for this purpose, Thoma Cressey Bravo, Inc., and referred to collectively as "Thoma Bravo"), or any of its members or employees or any investment fund or partnership managed by Thoma Bravo or any of its partners or affiliates (each investment fund, a "Thoma Bravo Fund").

For purposes of this exhibit, "regulatory" shall have the following meaning: an action undertaken by the U.S. Securities and Exchange Commission (the "SEC"), the U.S. Commodities Futures Trading Commission, any other federal financial regulator claiming jurisdiction over registered investment advisers or their activities, the non-U.S. equivalents of such U.S. federal financial regulators, or any U.S. state financial regulator.

1. In connection with its acquisition of public companies in take-private transactions, Thoma Bravo frequently is named as a defendant in shareholder and class action lawsuits seeking to prevent the transaction at the price proposed. These lawsuits typically allege violations of U.S. federal and state securities laws.

2. On October 30, 2015, Peter Karmanos, Jr., the founder and previously an officer, director and shareholder of Compuware Corporation ("Compuware"), and certain members of his family who previously were shareholders of Compuware (the "Plaintiffs"), filed suit in the Circuit Court of Wayne County, Michigan, against Compuware, certain prior officers and members of the board of directors of Compuware, Elliott Management, LP, a hedge fund manager, and Thoma Bravo, LLC. On May 19, 2016, the Plaintiffs amended their complaint. In the amended complaint, the Plaintiffs asserted claims against defendants for common law fraud, fraudulent inducement, silent fraud, conversion, civil conspiracy, aiding and abetting, breach of fiduciary duty, unjust enrichment and breach of the Uniform Securities Act allegedly arising from the sale of Compuware to an investment fund Confidential Amanda Ryan NEPC 11.3 Litigation and Regulatory Matters Disclosure managed by Thoma Bravo. Plaintiffs sought actual and punitive damages and equitable relief, including rescission of the sale. On December 28, 2016, the judge in the case issued an order granting a motion that all claims against Thoma Bravo be dismissed. However, the Plaintiffs have appealed this order. On November 29, 2018, the State of Michigan Court of Appeals affirmed the trial court's ruling and the matter has now concluded.

Compliance Staff and Philosophy

The Firm's Management Committee has overall responsibility for compliance. Additionally, and in accordance with the Firm's Compliance Manual, all Firm employees have compliance obligations. Steven Schwab is the Firm's Chief Compliance Officer (CCO). He is supported by a Compliance and Legal Associate.

The Firm conducts periodic, risk-based internal training. The Firm does not conduct an annual training meeting; instead it prefers to conduct targeted training throughout the year. The periodic training is conducted by senior-level staff or third parties. Firm staff also attends training sessions conducted by outside industry experts. These experts may be lawyers, accountants and IT professionals. In addition, the Firm has made recent enhancements to training by deploying web-based training courses. Examples of training topics include: expense allocations, political contributions, cybersecurity, outside business activities, the Foreign Corrupt Practices Act (FCPA), code of conduct and marketing materials.

SEC Oversight

The Firm has been a registered investment adviser with the United States Securities and Exchange Commission (SEC) under Section 203 of the Investment Advisers Act of 1940 since March 2012. The Firm's file number is 801-73780.

In June 2015, the SEC requested that Thoma Bravo, LLC provide it with certain information on a voluntary, informal, and non-public basis. After discussions with the SEC, Thoma Bravo was advised that the information request was in connection with the gathering of information on the industry practice of accelerated monitoring fees that are sometimes charged by private equity firms to portfolio companies. Thoma Bravo voluntarily produced the information requested in July 2015, and it was noted that Thoma Bravo has never received an accelerated monitoring fee. In March 2016, the SEC issued a letter closing this matter.

The Manager's Form ADV was reviewed. There was no disciplinary history disclosed in Part 1A Item 11 (Disclosure Information) and there were no DRP (Disclosure Reporting Page) filings. Use this link to view Form ADV: https://adviserinfo.sec.gov/firm/summary/157041

Other Regulators

The Firm is not registered with or subject to other regulators.

Personal Trading

The following rules govern securities trading by all supervised persons of Thoma Bravo. In the event there are any uncertainties about the propriety of any trade being contemplated, employees are required to consult with the CCO or his designee:

1. ***Insider Trading Strictly Prohibited***. No supervised person may engage in any trade or order activity or investment if such activity is the result of exposure to material non-public information.

2. ***Front Running Strictly Prohibited.*** Supervised persons may not enter an order or make an investment that anticipates (i.e., front runs) or competes with a Thoma Bravo Fund order or investment.

3. ***Preclearance Required for IPOs***. Supervised persons may not acquire Beneficial Ownership in any Securities in an Initial Public Offering without obtaining prior approval of the CCO by submitting a clearance request either via the compliance software or email. For the avoidance of doubt, purchases or sales effected without prior input from or knowledge of the supervised person in any blind pool account or fully discretionary account need not be precleared.

4. ***Preclearance Required for Limited Offerings***. Supervised persons may not acquire beneficial ownership in any securities in a limited offering without obtaining prior approval of the CCO by submitting a clearance request either via the compliance software or email. For the avoidance of doubt, purchases or sales effected in any blind pool account or fully discretionary account need not be precleared.

5. ***Preclearance Required for Related Securities***. Supervised persons may not acquire or dispose of any securities of a publicly held Thoma Bravo portfolio company without obtaining prior approval of the CCO by submitting a clearance request via the compliance software.

6. ***Preclearance of Securities on Restricted List***. Supervised persons may not acquire or dispose of any securities on the restricted list without obtaining prior approval of the CCO by submitting a clearance request via the compliance software.

Firm Infrastructure

Office Locations
Thoma Bravo operates out of its two offices in San Francisco, CA and Chicago, IL.

Technology Resources and Systems
The Firm has two information technology facilities, consisting of its two business offices (Chicago, IL and San Francisco, CA). Hardware, applications and data are maintained at each location. The Firm seeks to use technology and software resources to enable its personnel to communicate reliably with each other and outside parties, obtain and retrieve data and information and work effectively from both its office and offsite locations. A detailed document of its technological resources and systems are available upon request.

Business Continuity Planning
The Firm has developed a Business Continuity and Disaster Recovery Plan ("Plan") to document its plan and procedures to manage significant business disruptions. The goal of the Plan is to keep communications and data resources available and operable when the offices of the Firm (Chicago or San Francisco) are not accessible or equipment in those offices is not functioning. The Plan has five principal features:

1. Keeping Thoma Bravo employees safe;
2. Maintaining external and internal firm communications;
3. Allowing access to digital data to the maximum extent feasible under the circumstances;
4. Mitigating the damage caused to firm systems and facilities; and
5. Permitting all employees to work effectively from locations other than the Firm's offices.

A detailed Plan will be available upon request.

Fund Administration/Back Office Resources
Thoma Bravo has 38 professionals across its compliance and legal, finance, human resources, information technology and security, and investor relations and marketing functions.

Firm Track Record

Prior Fund Track Record

Fund Name	Vintage	Commitments	Invested Capital	Reported Value	Distributions	Total Value	Net TVPI	Net DPI	Net IRR
TB Fund VII	2000	$554.2	$534.2	$4.4	$1,143.7	$1,148.0	2.15x	2.14x	24.8%
TB Fund VIII	2005	$765.0	$702.7	$4.6	$2,051.6	$2,056.2	2.93x	2.92x	18.3%
TB Fund IX	2008	$822.5	$772.5	$18.2	$2,881.5	$2,899.7	3.75x	3.73x	44.7%
TB Fund X	2011	$1,274.5	$1,442.4	$646.0	$3,166.1	$3,812.1	2.64x	2.19x	38.4%
TB SOF I	2013	$418.4	$446.2	$329.5	$723.3	$1,052.9	2.36x	1.62x	32.2%
TB Fund XI	2014	$3,662.0	$3,562.6	$5,485.4	$3,260.0	$8,745.3	2.45x	0.92x	28.0%
TB SOF II	2015	$1,064.9	$1,024.6	$1,244.7	$717.1	$1,961.8	1.91x	0.70x	21.0%
TB Fund XII	2016	$7,603.9	$7,025.5	$9,006.3	$311.3	$9,317.5	1.33x	0.04x	16.1%
TB Fund XIII	2018	$12,600.0	$4,187.1	$4,091.1	$0.0	$4,091.1	0.98x	0.00x	NM

Note: $ in millions. All data as of September 30, 2019. SOF (Special Opportunities Funds) are overage vehicles that Thoma Bravo raised to execute on larger transactions. Beginning in Fund XII, Thoma Bravo ceased raising overage vehicles. All deal-level performance reflects aggregate investment amounts allocated to the primary investing Flagship fund.

Track Record Benchmarking

Prior fund performances compared against the North America Buyout benchmark from Thomson One/Cambridge Associates:

Net TVPI Multiple					North America Buyouts			
Fund Name	Vintage	Net TVPI	Quartile Rank	Out (Under) Performance vs. Median	# of Funds	1st Quartile	Median	3rd Quartile
TB Fund VII	2000	2.15x	2	0.23x	56	2.43x	1.92x	1.51x
TB Fund VIII	2005	2.93x	1	1.35x	53	1.90x	1.57x	1.19x
TB Fund IX	2008	3.75x	1	1.98x	49	2.12x	1.77x	1.40x
TB Fund X	2011	2.64x	1	0.86x	21	2.16x	1.78x	1.58x
TB SOF I	2013	2.36x	1	0.85x	34	1.79x	1.51x	1.34x
TB Fund XI	2014	2.45x	1	0.97x	30	1.79x	1.49x	1.33x
TB SOF II	2015	1.91x	1	0.54x	37	1.51x	1.37x	1.21x
TB Fund XII	2016	1.33x	2	0.13x	37	1.36x	1.20x	1.10x

Net DPI Multiple					North America Buyouts			
Fund Name	Vintage	Net DPI	Quartile Rank	Out (Under) Performance vs. Median	# of Funds	1st Quartile	Median	3rd Quartile
TB Fund VII	2000	2.14x	2	0.28x	56	2.25x	1.86x	1.50x
TB Fund VIII	2005	2.92x	1	1.46x	53	1.82x	1.46x	1.14x
TB Fund IX	2008	3.73x	1	2.23x	49	1.95x	1.50x	1.25x
TB Fund X	2011	2.19x	1	1.08x	21	1.57x	1.11x	0.85x
TB SOF I	2013	1.62x	1	1.09x	34	0.95x	0.53x	0.29x
TB Fund XI	2014	0.92x	1	0.45x	30	0.70x	0.47x	0.26x
TB SOF II	2015	0.70x	1	0.46x	37	0.54x	0.24x	0.06x
TB Fund XII	2016	0.04x	2	0.02x	37	0.23x	0.03x	0.00x

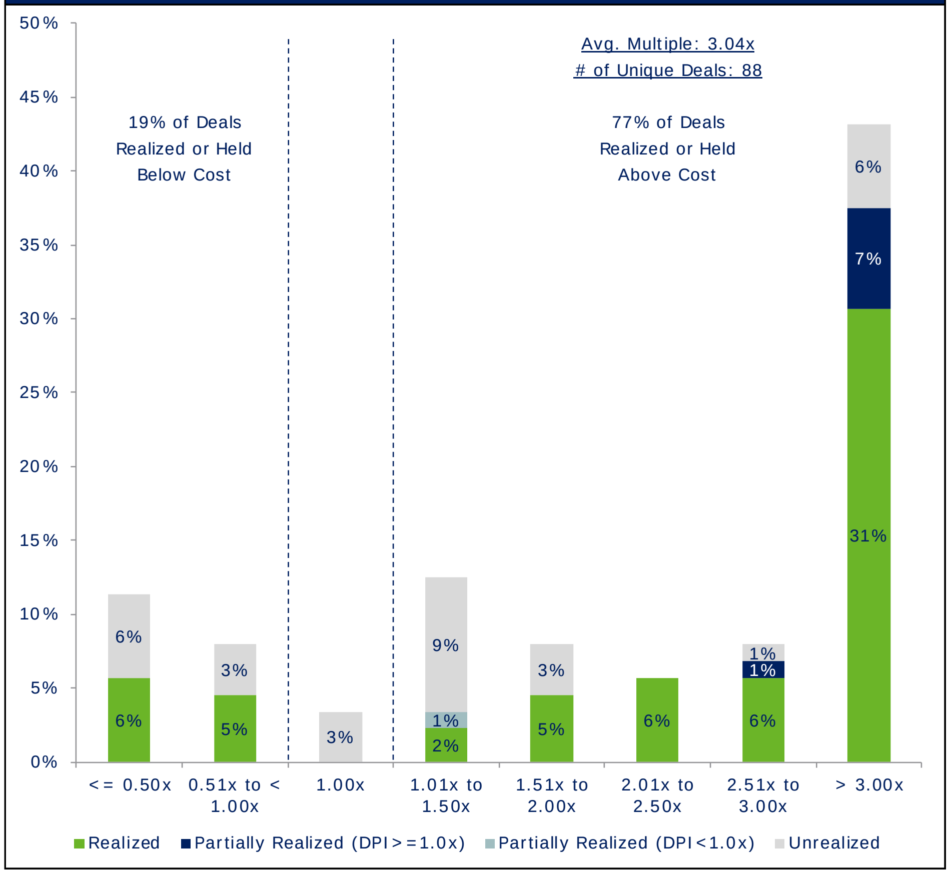
Net IRR					North America Buyouts			
Fund Name	Vintage	Net IRR	Quartile Rank	Out (Under) Performance vs. Median	# of Funds	1st Quartile	Median	3rd Quartile
TB Fund VII	2000	24.8%	1	10.6%	56	22.7%	14.2%	10.1%
TB Fund VIII	2005	18.3%	1	10.1%	53	13.1%	8.2%	3.0%
TB Fund IX	2008	44.7%	1	30.5%	49	20.9%	14.2%	10.2%
TB Fund X	2011	38.4%	1	23.0%	21	21.1%	15.5%	12.5%
TB SOF I	2013	32.2%	1	17.2%	34	19.9%	15.0%	9.7%
TB Fund XI	2014	28.0%	1	11.1%	30	24.8%	16.9%	12.7%
TB SOF II	2015	21.0%	1	4.8%	37	20.7%	16.2%	9.0%
TB Fund XII	2016	16.1%	2	5.6%	37	17.8%	10.5%	6.6%

Note: **GREEN** shaded cells indicate that the fund outperformed the respective quartile of the benchmark while **RED** shaded cells indicate that the fund under-performed the respective quartile of the benchmark. Amounts are net of fees, carried interest and expenses. Fund performance is as of September 30, 2019. Thomson One/Cambridge Associates benchmark data is as of September 30, 2019.

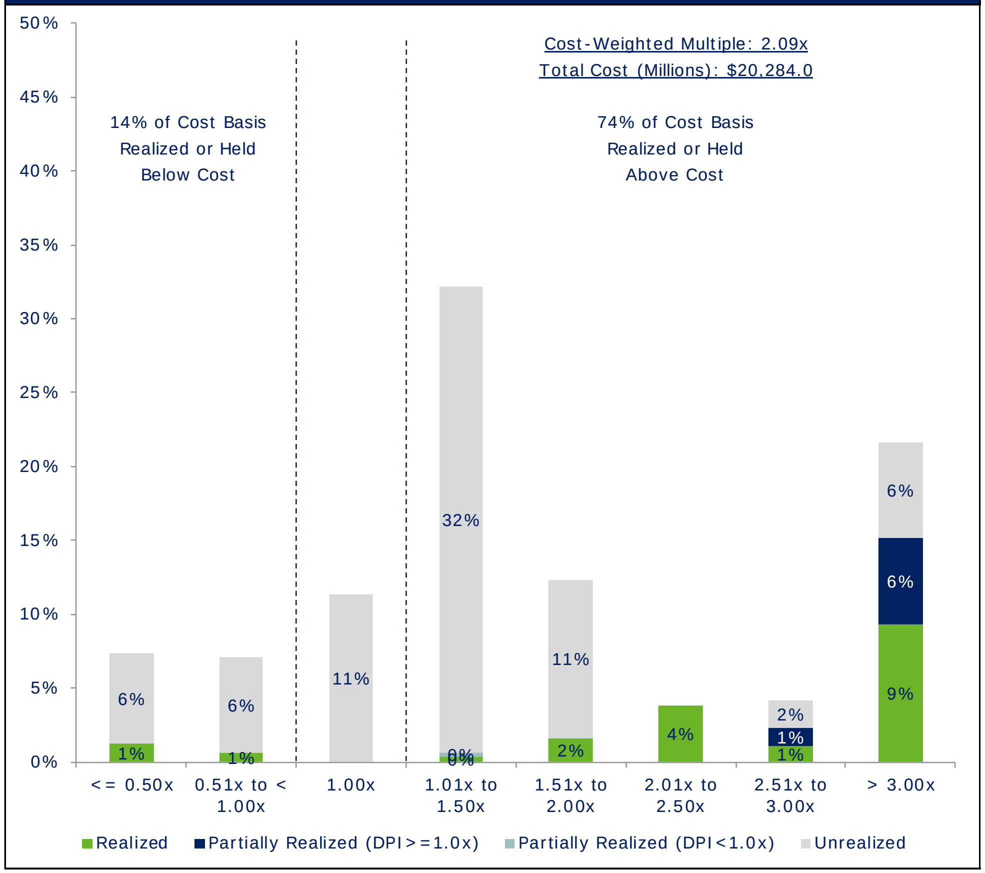
Dispersion of Investment-Level Returns

The charts below show the dispersion of investment-level returns by both the number and cost basis of investments.

Deal-Level Gross TVPI Multiple Dispersion (By Count)



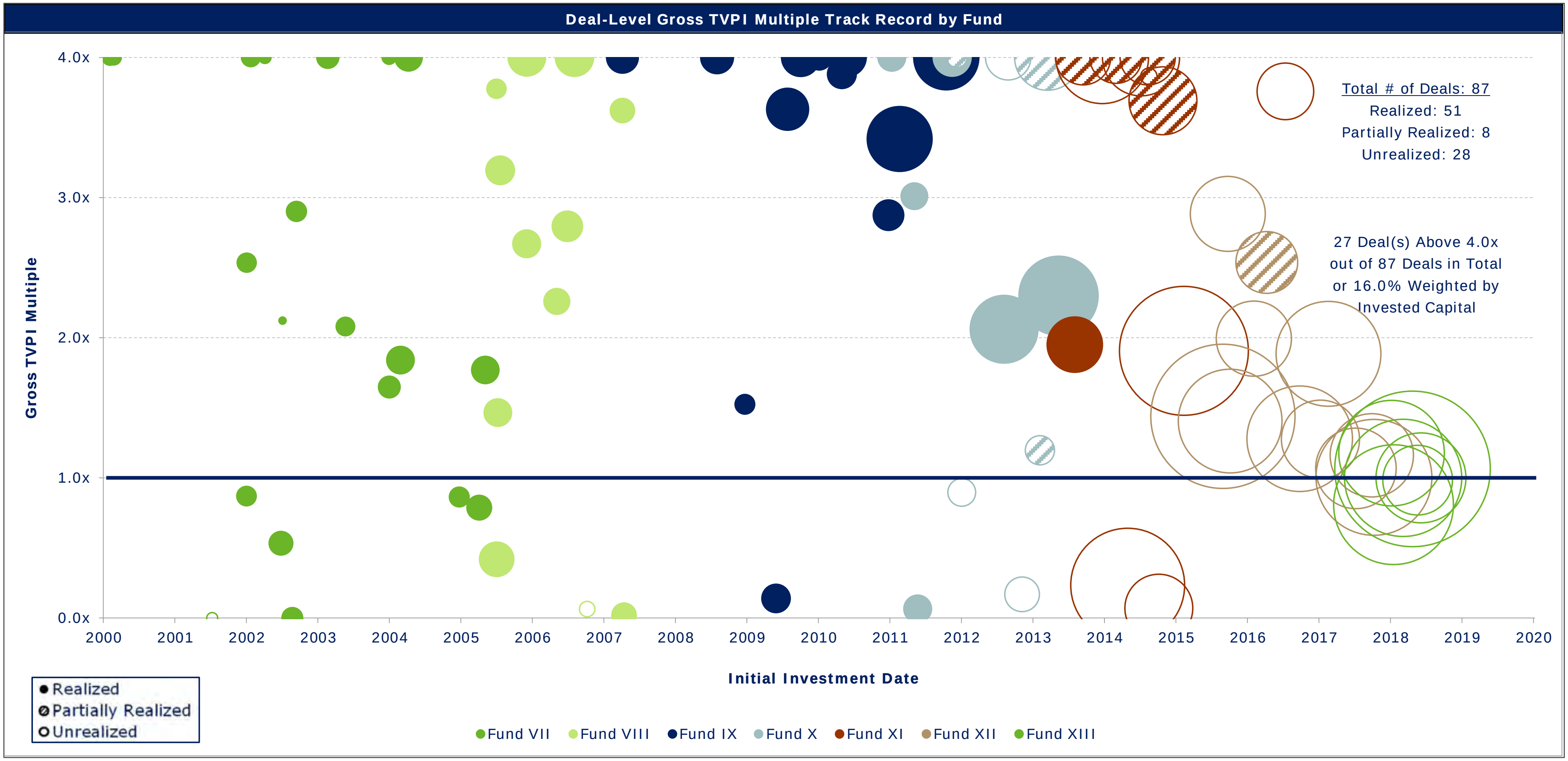
Deal-Level Gross TVPI Multiple Dispersion (By Cost)



Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Total Value to Paid-In Capital (TVPI) Deal Frequency Analysis

The chart below shows the individual investment TVPI multiples for prior funds as of September 30, 2019. The size of the bubbles indicates the relative size of the amount invested. For ease of visualization, return multiples have been capped at 4.0x.

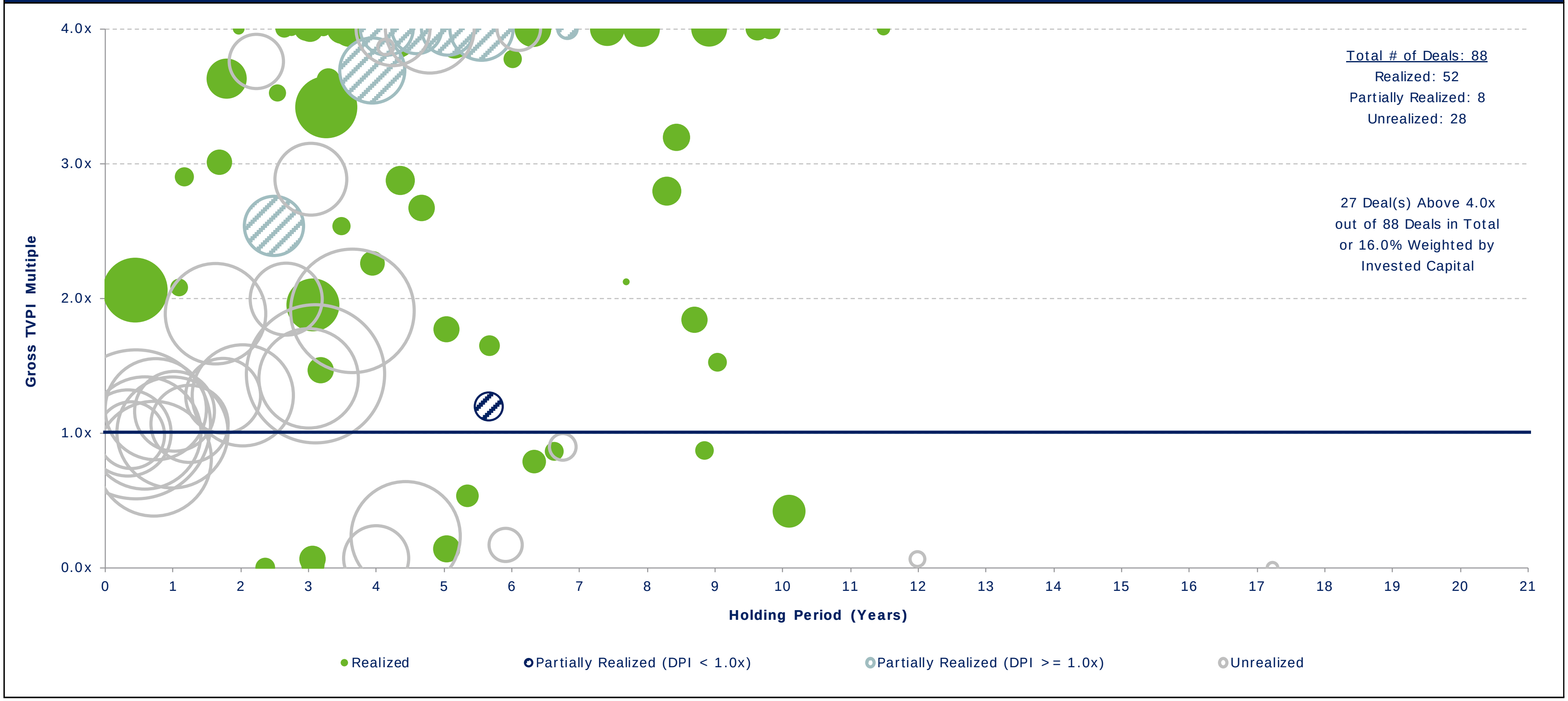


Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Total Value to Paid-In Capital (TVPI) Holding Period Analysis

The chart below shows the individual investment TVPI multiples for prior funds as of September 30, 2019. The size of the bubbles indicates the relative size of the amount invested. For ease of visualization, return multiples have been capped at 4.0x.

Deal-Level Gross TVPI Multiple vs. Time to Realization



Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

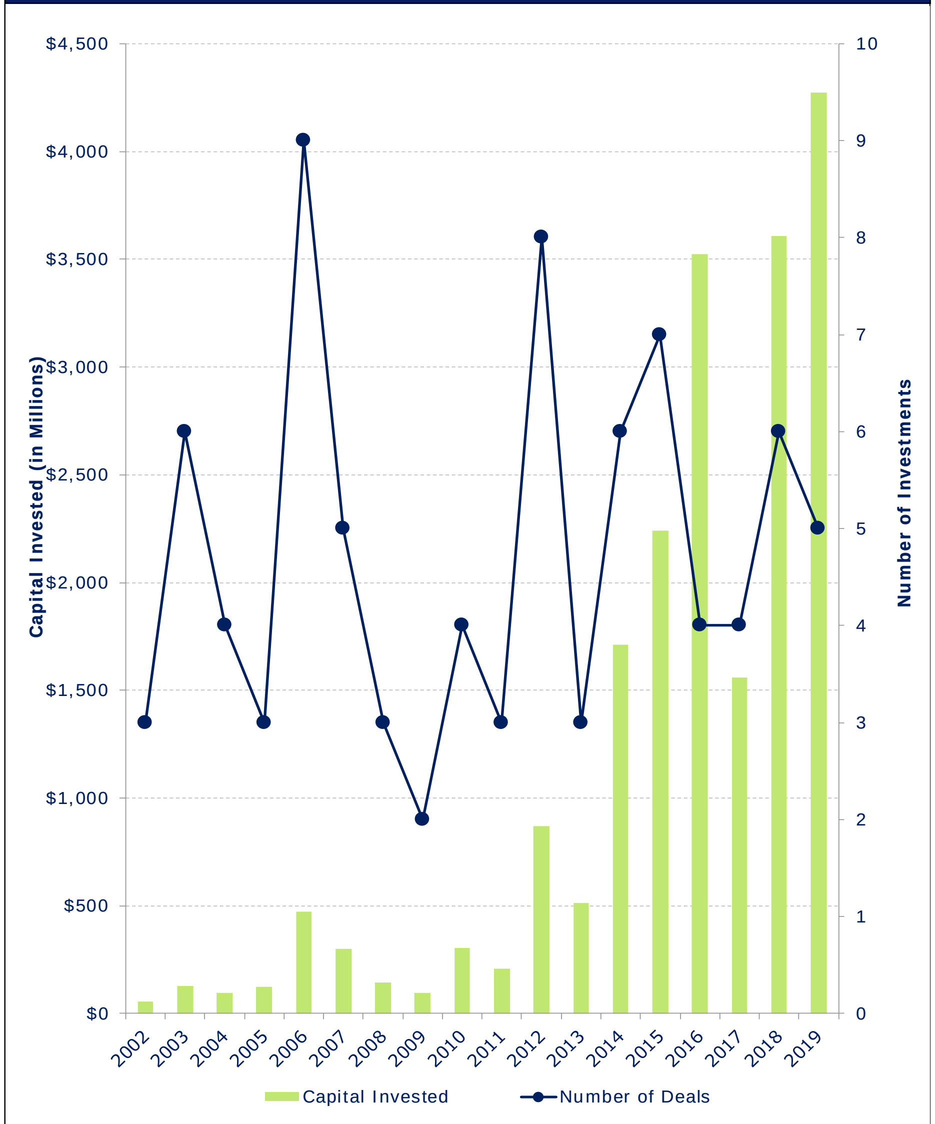
Thoma Bravo Fund XIV

Software and Tech-Enabled Services Buyout Strategy

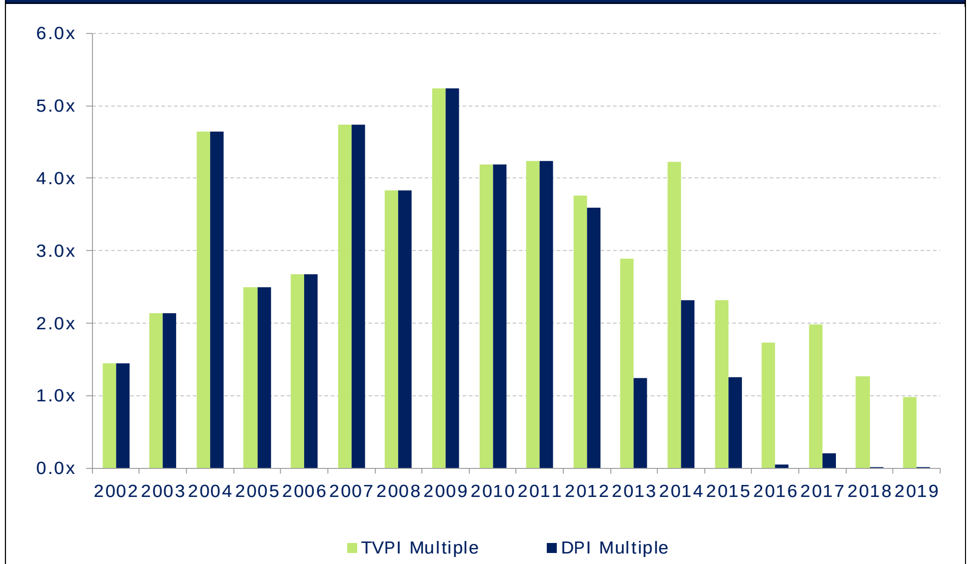
Investment Volume and Pacing Analysis

The charts below reflect the investment pacing of prior funds by the number and cost basis of investments as well as associated gross TVPI and DPI multiples.

Annual Deal Volume



Gross TVPI and DPI Multiples By Year of Investment



Year of Investment	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
2002	3	$56.2	$81.3	$0.0	$81.3	1.45x	1.45x
2003	6	$126.4	$269.7	$0.0	$269.7	2.13x	2.13x
2004	4	$97.3	$451.9	$0.0	$451.9	4.64x	4.64x
2005	3	$123.9	$309.5	$0.0	$309.5	2.50x	2.50x
2006	9	$472.7	$1,261.7	$0.0	$1,261.7	2.67x	2.67x
2007	5	$299.6	$1,419.5	$0.1	$1,419.6	4.74x	4.74x
2008	3	$142.7	$546.5	$0.0	$546.5	3.83x	3.83x
2009	2	$95.1	$497.7	$5.0	$497.7	5.23x	5.23x
2010	4	$305.5	$1,279.1	$0.0	$1,279.1	4.19x	4.19x
2011	3	$209.6	$888.5	$0.0	$888.5	4.24x	4.24x
2012	8	$869.5	$3,120.6	$151.7	$3,272.3	3.76x	3.59x
2013	3	$513.5	$636.7	$847.8	$1,484.5	2.89x	1.24x
2014	6	$1,712.9	$3,959.6	$3,275.1	$7,234.7	4.22x	2.31x
2015	7	$2,239.7	$2,823.8	$2,362.8	$5,186.5	2.32x	1.26x
2016	4	$3,524.6	$187.9	$5,900.5	$6,088.4	1.73x	0.05x
2017	4	$1,560.0	$312.6	$2,781.8	$3,094.4	1.98x	0.20x
2018	6	$3,609.3	$17.8	$4,573.1	$4,590.9	1.27x	0.00x
2019	5	$4,273.0	$48.9	$4,140.9	$4,189.8	0.98x	0.01x
Total	**87**	**$20,263.0**	**$18,316.9**	**$24,038.7**	**$42,350.6**	**2.09x**	**0.90x**

Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

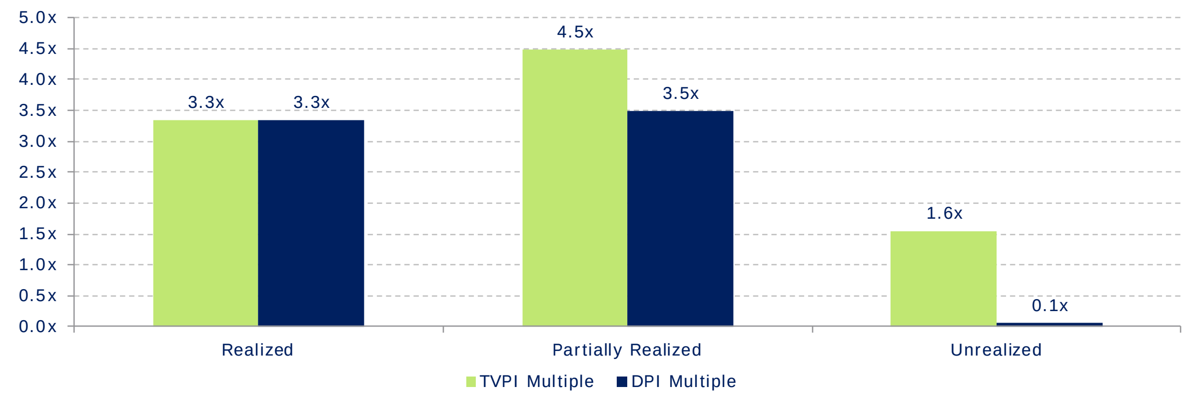
Thoma Bravo Fund XIV

Software and Tech-Enabled Services Buyout Strategy

Investment Realization Analysis

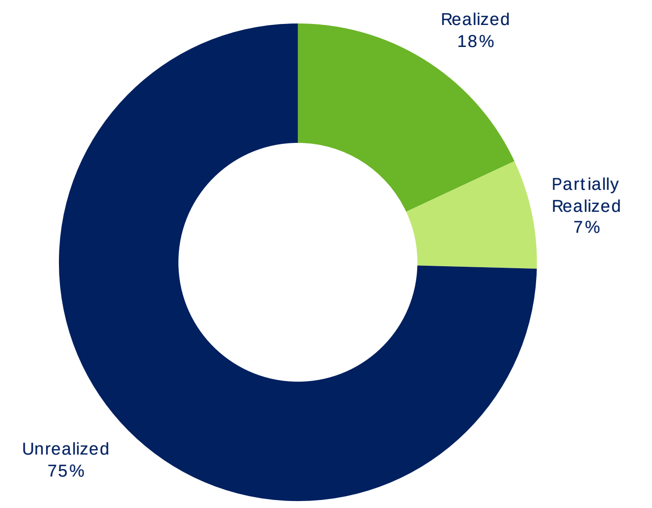
The charts below show the distribution of investments by their realization status as well as the associated gross TVPI and DPI multiples.

Gross DPI and TVPI Multiples

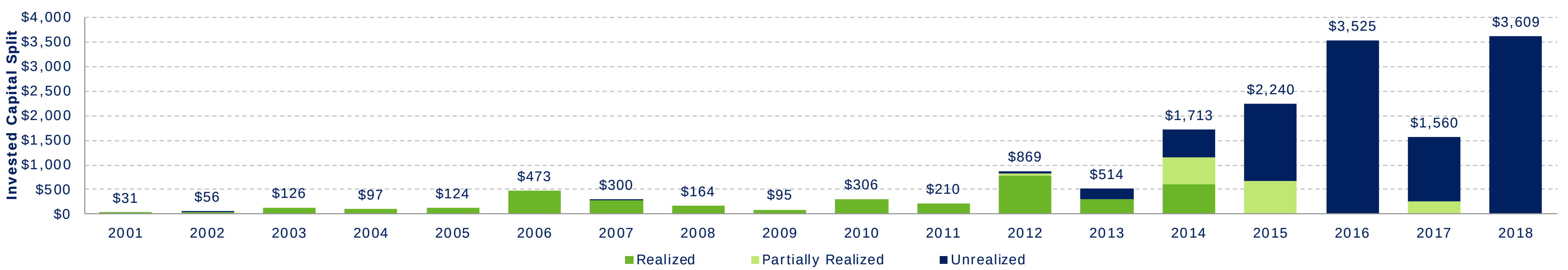


Investment Status	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
Realized	52	$3,659.4	$12,234.0	$5.5	$12,239.5	3.34x	3.34x
Partially Realized	8	$1,498.5	$5,230.9	$1,479.4	$6,710.3	4.48x	3.49x
Unrealized	28	$15,126.0	$925.9	$22,553.9	$23,479.8	1.55x	0.06x
Total	**88**	**$20,284.0**	**$18,390.8**	**$24,038.7**	**$42,429.6**	**2.09x**	**0.91x**

Invested Capital Split



Invested Capital Split by Year of Investment

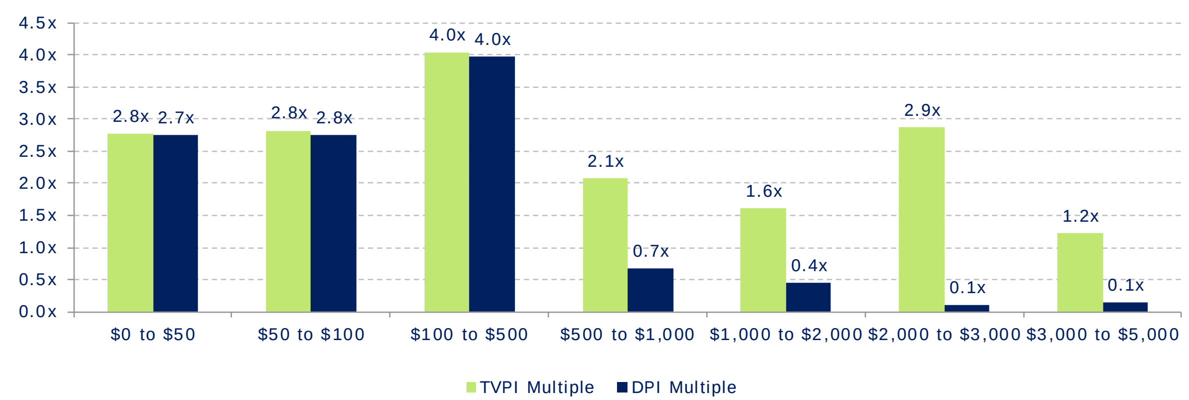


Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Enterprise Value Analysis

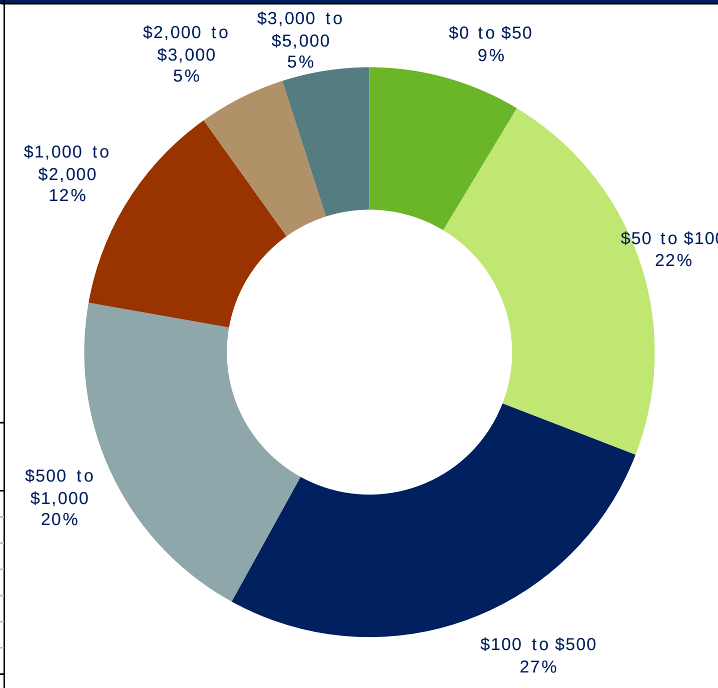
The charts below show the distribution of enterprise value of underlying portfolio companies in total and on an annual basis as well as the associated gross TVPI and DPI multiples for all deals since 2000.

Gross DPI and TVPI Multiples

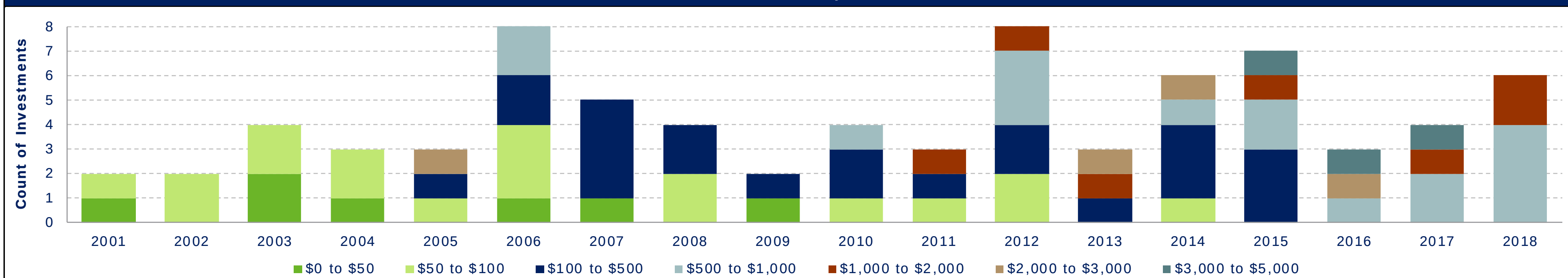


TEV Range (At Entry)	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
$0 to $50	7	$189.5	$520.4	$5.0	$525.4	2.77x	2.75x
$50 to $100	18	$621.0	$1,707.9	$46.4	$1,754.3	2.83x	2.75x
$100 to $500	22	$2,476.2	$9,834.9	$163.7	$9,998.6	4.04x	3.97x
$500 to $1,000	16	$4,251.7	$2,857.4	$5,948.0	$8,805.4	2.07x	0.67x
$1,000 to $2,000	10	$5,721.0	$2,526.8	$6,662.5	$9,189.3	1.61x	0.44x
$2,000 to $3,000	4	$2,109.2	$209.8	$5,838.2	$6,048.0	2.87x	0.10x
$3,000 to $5,000	4	$3,773.5	$512.5	$4,082.2	$4,594.7	1.22x	0.14x
Total	**81**	**$19,142.1**	**$18,169.7**	**$22,746.0**	**$40,915.7**	**2.14x**	**0.95x**

Count of Investments Per TEV



Count of Investments Per TEV by Year of Investment



Thoma Bravo Fund XIV

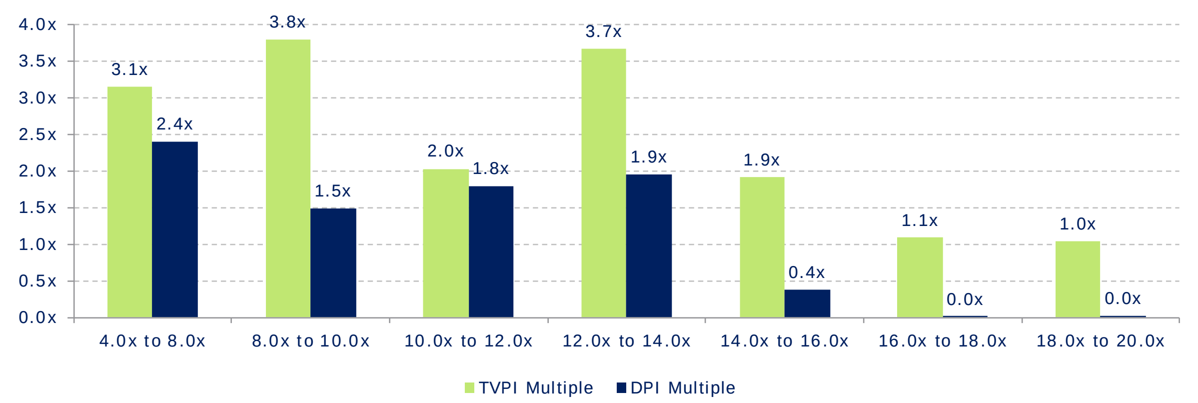
Software and Tech-Enabled Services Buyout Strategy

Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Purchase Price Analysis (EV/EBITDA)

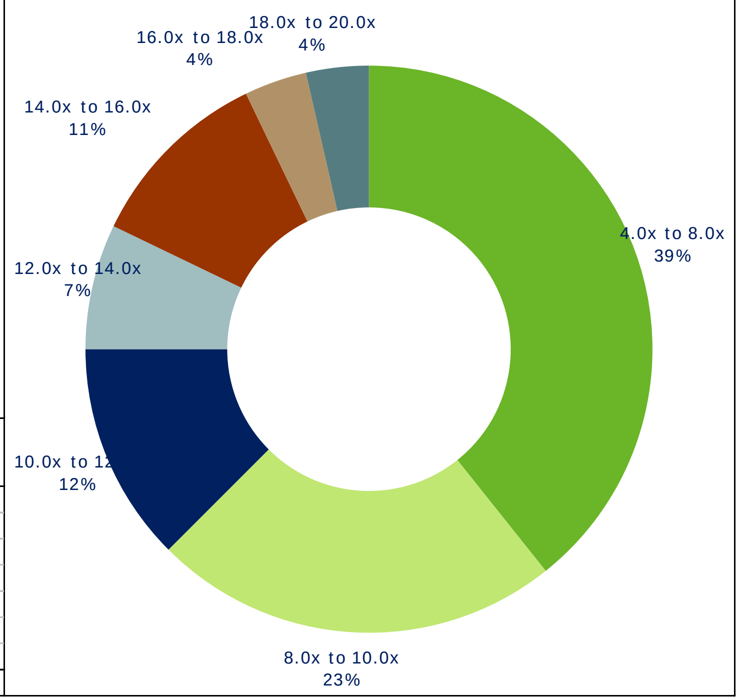
The charts below show the distribution of purchase price multiples (EV to EBITDA) in total and on an annual basis as well as the associated gross TVPI and DPI multiples for all deals since 2001.

Gross DPI and TVPI Multiples

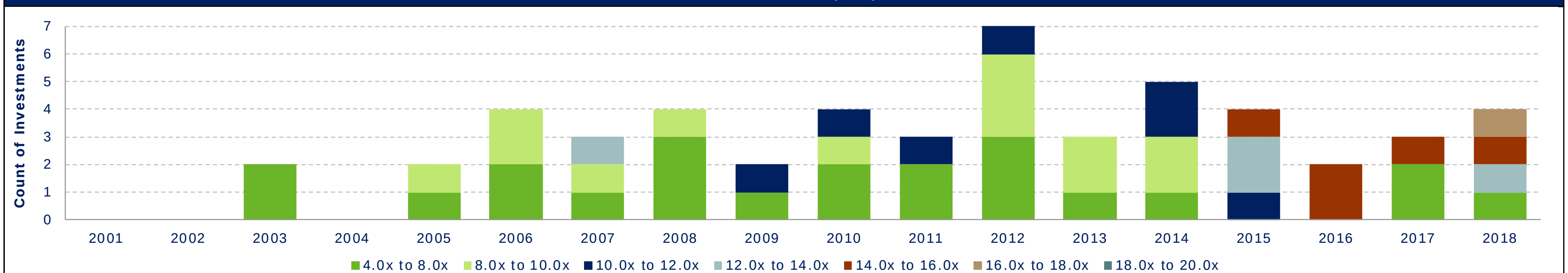


EBITDA Multiple (At Entry)	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
4.0x to 8.0x	22	$2,705.9	$6,494.2	$2,017.8	$8,512.0	3.15x	2.40x
8.0x to 10.0x	13	$1,724.0	$2,561.7	$3,981.9	$6,543.6	3.80x	1.49x
10.0x to 12.0x	7	$1,807.3	$3,239.8	$432.8	$3,672.7	2.03x	1.79x
12.0x to 14.0x	4	$1,063.6	$2,073.3	$1,822.9	$3,896.2	3.66x	1.95x
14.0x to 16.0x	6	$3,613.5	$1,353.2	$5,545.9	$6,899.1	1.91x	0.37x
16.0x to 18.0x	2	$772.3	$2.8	$837.5	$840.3	1.09x	0.00x
18.0x to 20.0x	2	$2,485.0	$48.6	$2,537.8	$2,586.4	1.04x	0.02x
Total	**56**	**$14,171.6**	**$15,773.7**	**$17,176.6**	**$32,950.3**	**2.33x**	**1.11x**

Count of Investments Per EBITDA Multiple



Count of Investments Per EBITDA Multiple by Year of Investment

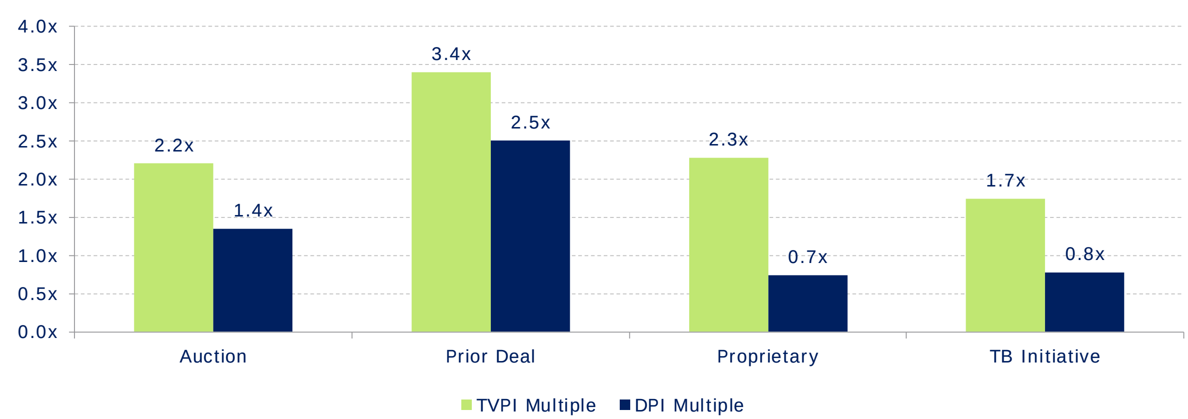


Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Deal Source Analysis

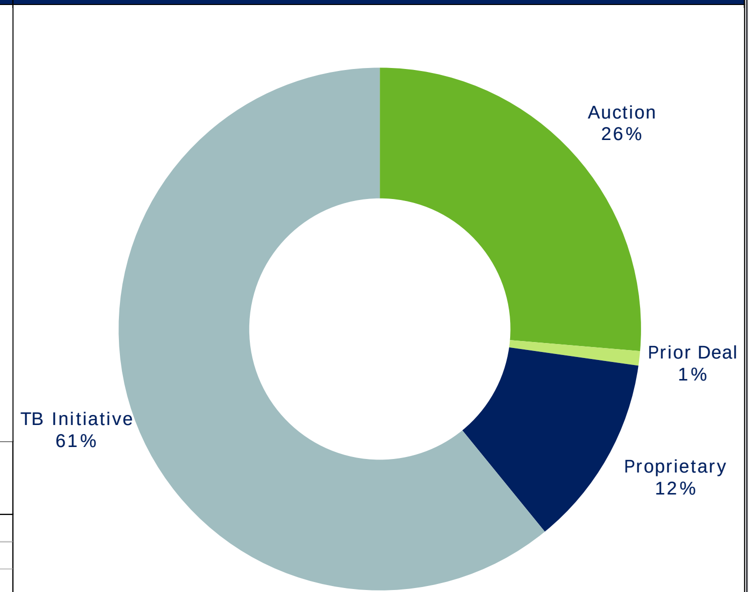
The charts below show the distribution of deal sources as well as the associated gross TVPI and DPI multiples. The analysis includes only the deal source for the initial platform investment and not related add-on acquisitions. "Other" denotes investments in public equities.

Gross DPI and TVPI Multiples

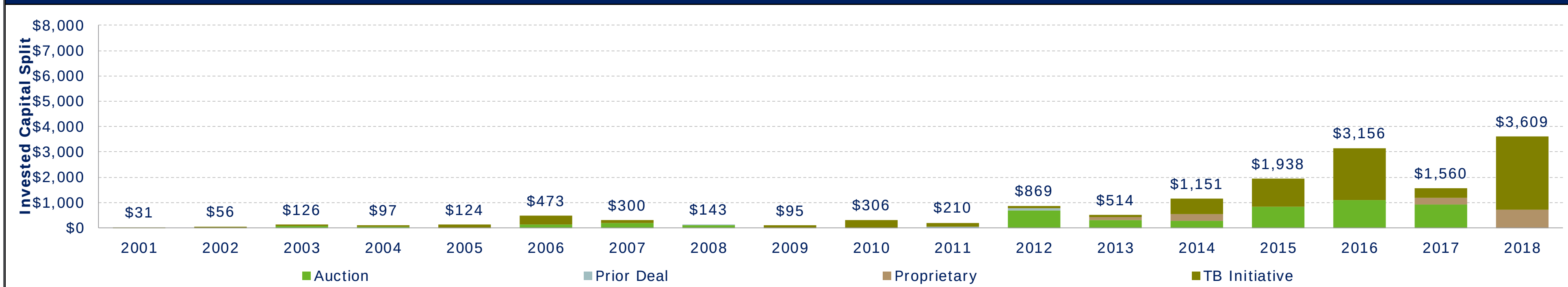


Deal Source	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
Auction	23	$5,013.8	$6,798.0	$4,255.8	$11,053.8	2.20x	1.36x
Prior Deal	4	$169.7	$425.3	$151.7	$577.0	3.40x	2.51x
Proprietary	6	$2,260.9	$1,685.5	$3,472.7	$5,158.1	2.28x	0.75x
TB Initiative	51	$11,586.5	$9,059.8	$11,188.2	$20,248.1	1.75x	0.78x
Total	**84**	**$19,030.9**	**$17,968.6**	**$19,068.4**	**$37,037.0**	**1.95x**	**0.94x**

Invested Capital Split



Invested Capital Split by Year of Investment

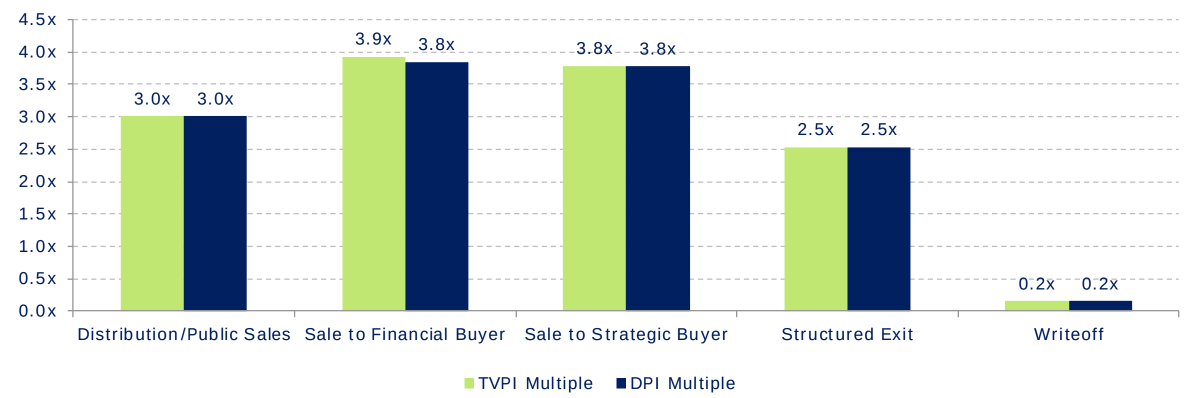


Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Type of Exit Analysis

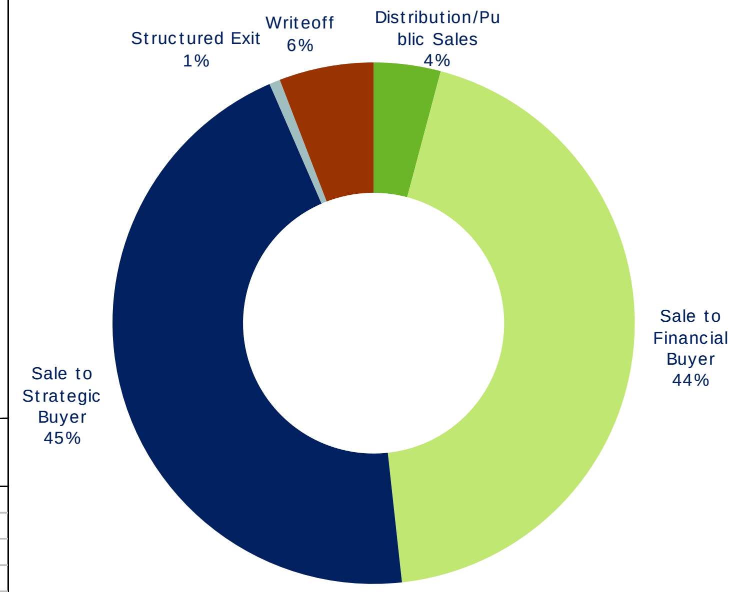
The charts below show the distribution of its exit strategies as well as the associated gross TVPI and DPI multiples.

Gross DPI and TVPI Multiples

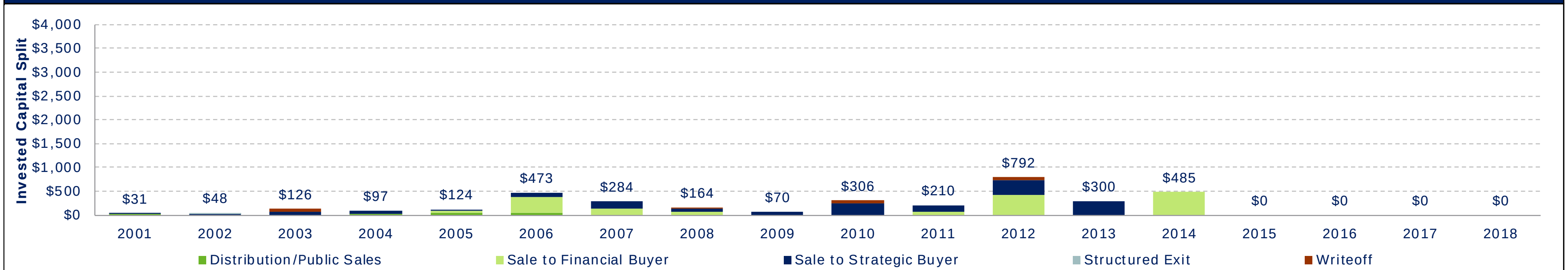


Type of Exit	Number of Deals	Capital Invested	Amount Distributed	Reported Value	Total Value	Weighted Gross TVPI	Weighted Gross DPI
Distribution/Public Sales	4	$145.3	$436.4	$0.0	$436.4	3.00x	3.00x
Sale to Financial Buyer	16	$1,548.8	$5,952.1	$128.9	$6,081.0	3.93x	3.84x
Sale to Strategic Buyer	25	$1,586.7	$5,996.5	$0.1	$5,996.7	3.78x	3.78x
Structured Exit	1	$23.6	$59.9	$0.0	$59.9	2.54x	2.54x
Writeoff	5	$205.3	$30.9	$0.0	$30.9	0.15x	0.15x
Total	**51**	**$3,509.7**	**$12,475.8**	**$129.0**	**$12,604.9**	**3.59x**	**3.55x**

Invested Capital Split



Invested Capital Split by Year of Investment



Note: Performance is as of September 30, 2019. Deal-level returns are gross of fees, carried interest and expenses.

Key Fund Professionals

Name	Title	Age	Joined Thoma Bravo	Years in Private Equity
Orlando Bravo	Managing Partner	50	1998	22
Carl Thoma	Managing Partner	71	1998	43
Seth Boro	Managing Partner	44	2005	18
Scott Crabill	Managing Partner	49	2002	21
Lee Mitchell	Managing Partner	75	1998	33
Holden Spaht	Managing Partner	45	1998	17

Detailed Biographies

Orlando Bravo, Managing Partner
Orlando Bravo is a Managing Partner and co-founder of Thoma Bravo. Prior to co-founding the Firm in 1998, Orlando led the software vertical at Thoma Cressey Equity Partners. Prior thereto, he worked in the M&A Group at Morgan Stanley & Co. in New York.

Orlando received his MBA from the Stanford Graduate School of Business, a law degree from Stanford Law School and BA in Economics and Political Science from Brown University.

Carl Thoma, Managing Partner
Carl Thoma is a Managing Partner and co-founder of Thoma Bravo. Prior to co-founding the Firm in 1998, Carl also co-founded Golder, Thoma & Co. with Stanley Golder in 1980, which over two decades evolved into Golder, Thoma, Cressey, Rauner, Inc., or more commonly known as GTCR. And, in 1998, Carl co-founded Thoma Cressey Equity Partners, which evolved into Thoma Bravo with the Firm's decision to focus on software and tech-enabled services. Prior thereto, Carl was with First Chicago Equity Group, where he helped to build one of the largest private equity business.

Carl received his MBA from the Stanford Graduate School of Business and BS in Accounting and Agriculture Economics from Oklahoma State University.

Seth Boro, Managing Partner
Seth Boro is a Managing Partner of Thoma Bravo and joined the Firm in 2005. Prior to Thoma Bravo, Seth worked at Summit Partners, where he focused on tech and business services investments. Prior thereto, he worked in Credit Suisse's Investment Banking Division in Toronto. Seth was named Partner of the Firm in 2010 and a Managing Partner in 2013.

Seth received his MBA from the Stanford Graduate School of Business and Bachelor of Commerce from the Queen's University School of Business in Canada.

Scott Crabill, Managing Partner
Scott Crabill is a Managing Partner of Thoma Bravo and joined the Firm in 2002. Prior to Thoma Bravo, Scott worked at Summit Partners, where he focused on software, tech and business services investments. Prior thereto, he worked at J.H. Whitney & Co. in Stamford, CT, where he executed on middle market buyout and growth equity financings across a broad range of industries. And, before entering the PE business, Scott worked at Hewlett-Packard as a Product Manager and at Alex, Brown & Sons in its Corporate Finance and M&A divisions.

Scott received his MBA from the Stanford Graduate School of Business and BS in Industrial Engineering from Stanford University.

Lee Mitchell, Managing Partner
Lee Mitchell is a Managing Partner of Thoma Bravo and was part of the founding team. Prior to Thoma Bravo, Lee was a Partner at Golder, Thoma, Cressey, Rauner, Inc., or more commonly known as GTCR, which he joined in 1994. Prior thereto, he was the CEO of one of the largest privately held

communications companies in the U.S. Before that, Lee was a Partner at Sidley Austin, LLP, where he specialized in corporate and regulatory matters, in its Chicago, Washington, DC and Asia offices.

Lee received his law degree from the University of Chicago Law School and BA from Wesleyan University.

Holden Spaht, Managing Partner

Holden Spaht is a Managing Partner of Thoma Bravo and joined the Firm in 1998 upon its inception. Prior to Thoma Bravo, Holden worked in Morgan Stanley's Corporate Finance Group in San Francisco, as well as its private investment group, Morgan Stanley Capital Partners, in London. Prior thereto, he worked at Thomas H. Lee Partners and at Morgan Stanley's Real Estate Fund. Holden was named a Partner in 2010 and a Managing Partner in 2013.

Holden received his MBA from Harvard Business School and BA in Economics from Dartmouth College.

Disclaimers and Disclosures

- Past performance is no guarantee of future results.
- The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.
- Information used to prepare this report was obtained directly from the investment manager, and market index data was provided by other external sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- NEPC may provide background information on fund structures or the impact of taxes but you should contact your legal counsel or tax professional for specific advice on such matters.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

In addition, it is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds, real estate and private equity:

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy

ESG Rating

General Fund Information	
Firm	Thoma Bravo
Fund	Thoma Bravo Fund XIV
Strategy-Type	Buyout
WMBE Firm	No

ESG Rating
ESG 2
ESG Ratings are on a scale of 1 through 5, with 1 indicating a best in class approach and 5 indicating no integration.

Analyst Opinion
Thoma Bravo has employed an ESG policy to inform their investment and portfolio oversight practices since 2014, relatively on the early side for US based private equity firms. The Firm has committed to consider material ESG risks and opportunities in the process of analyzing a potential investment and in the monitoring of existing portfolio investments. The investment team is tasked with identifying potential risks and opportunities in diligence, and working with external providers to further diligence them if necessary. They will partner with management teams to support the development of plans to address the risks or opportunities, and support a portfolio company's efforts to report internally and externally on their ESG approach and performance. They have pledged to be transparent in the approach to incorporating ESG considerations in investments by reporting annually on progress and outcomes. The Firm also strives to consider ESG principles in the conduct of its own business. Thoma Bravo publishes an annual ESG report that provides insight into its ESG initiatives and the progress being made by portfolio companies.

Evaluation Criteria and Commentary	
Firm-Level	
Firm-Level Commitment	Thoma Bravo has had an ESG policy in place since 2014. The purpose of the ESG policy is to allow the Firm to maintain an investment approach that incorporates ESG in a manner designed to safeguard and supports its funds' control equity investments.
Resources	The policy is maintained by Thoma Bravo's CCO and Director of Legal, though the management committee is responsible for its oversight. Investment professionals are trained on Thoma Bravo's ESG policy and matrix (discussed below).
Engagement Policies	Thoma Bravo has developed a set of ESG factors that form the basis of its ESG policy. This ESG matrix provides a framework for investment professionals to review ESG risks and opportunities as part of the due diligence process prior to committing to an investment. Thoma Bravo also considers ESG principles in the conduct of its own business.
Strategy-Level	
Overview	Based on the written ESG policy, Thoma Bravo does incorporate ESG purposefully in the investment process for all its equity funds, where they are more able to influence the integration of ESG in the investment. In a limited number of cases, Thoma Bravo would consider avoiding certain investments, though those do not typically relate to software companies.
Integration Process	Thoma Bravo integrates ESG considerations in the pre-investment phase, where potential issues are identified and documented for next steps. During the investment, ESG risk and opportunity management are included in a post-close plan, working in concert with management. They also support a company's process to report internally and externally on their ESG approach and performance.
Resources	Thoma Bravo initially partnered with PwC to develop an initial list of ESG metrics in 2017, and worked with Anthesis in 2018 to further refine the metrics. Thoma Bravo worked with B Analytics to develop a customized ESG data collection platform for portfolio companies.

NEPC, LLC

To: TCERA

From: William Bogle, Chief Compliance Officer

Date: January 13, 2021

Subject: Contract

NEPC would like to request the following additions to the proposed Terms & Conditions. We would be pleased to discuss these items at your convenience.

Responsibility of CONTRACTOR

CONTRACTOR shall have no responsibility or authority to (i) manage or in any way direct the investment of any assets of TCERA or (ii) enter into any agreement with any investment manager on behalf of, or otherwise bind, TCERA. Nothing contained herein shall require TCERA to engage any investment manager recommended by CONTRACTOR or to follow any advice provided by CONTRACTOR.

Acknowledgments

TCERA acknowledges and agrees that:

a. CONTRACTOR has not made and cannot make any promise, guarantee or other statement or representation regarding the future investment performance of TCERA's investments;
b. the past performance of the accounts of other clients of CONTRACTOR is not necessarily indicative of the future performance of TCERA's investments;
c. in the performance of its services under this Agreement, CONTRACTOR shall be entitled to rely on information furnished by investment managers, it being understood that CONTRACTOR shall have no liability for the accuracy or completeness of any information furnished or representation made by the investment managers, provided CONTRACTOR conducted due diligence and evaluation of such investment managers with reasonable care;
d. to the extent permitted by applicable law, CONTRACTOR will not be liable for any losses or expenses incurred as a result of any action or omission by an investment manager, custodian or unrelated third party;
e. with respect to funds-of-funds, if applicable, CONTRACTOR's analysis will be conducted at the fund-of-funds level and will not generally include a direct review of underlying funds; and
f. CONTRACTOR's services do not include tax or regulatory advice, or interpretation of legal documents.

Miscellaneous Terms

CONTRACTOR shall be permitted to give advice with respect to TCERA which differs from the advice made or recommended or actions taken with respect to such other accounts and clients even though the investment objectives may be the same or similar. CONTRACTOR shall not be obligated to give TCERA treatment more favorable than or preferential to that provided to such other accounts and clients.

Nothing in this Agreement shall limit or restrict CONTRACTOR or any of its shareholders, officers or employees from buying, selling, or trading in any securities for their own account or accounts, subject to CONTRACTOR's obligations as an SEC-registered entity and the restrictions set forth in CONTRACTOR's Code of Ethics and Personal Trading Policy. TCERA acknowledges that CONTRACTOR and its shareholders, officers, affiliates and employees, and its other clients, may at any time have, acquire, increase, decrease, or dispose of positions in investments which are at the same time being acquired or disposed of for TCERA.

Electronic Signatures and Records

Both the CONTRACTOR and TCERA consent to the use of electronic signatures. This Agreement, and any other documents requiring a signature hereunder, may be signed electronically. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the basis that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

FEE PROPOSAL

The initial term of the contract is expected to three years in duration with the option for two one-year extensions with contract terms to be established at the outset of the contract. The fee schedule below should represent expected compensation for the first five (5) years of the relationship with TCERA and should be guaranteed for that time period. Proposed fees must include travel, taxes and all expenses.

Proposer should submit an all inclusive annual fee for all services as follows:

All inclusive flat fee – year 1	$269,000
All inclusive flat fee – year 2	$277,000
All inclusive flat fee – year 3	$285,000
Sub Total (Years 1-3)	$831,000
All inclusive flat fee – year 4 (if extension is issued)	$294,000
All inclusive flat fee – year 5 (if extension is issued)	$303,000
Total Fees (Years 1-5)	$ 1,428,000

Special Project Fees if not included above
(Manager Searches, Asset/Liability Study, etc.)
per Project.
Attach separate fee schedule if necessary. N/A

(Searches, Asset/Liability studies, etc. are covered in the all-inclusive fee)

The final contract fee should represent the only compensation received by the consultant for services provided to TCERA. There should not be any other benefit, monetary or otherwise, that results from this relationship between the consultant and TCERA.

Tulare County Employees' Retirement Association (TCERA)

WARRANTIES CERTIFICATION

Name of Proposer: NEPC, LLC

The Proposer makes the following warranties and representations as a required element of the proposal. The truthfulness of the facts affirmed in the Warranties Certification and the continuing compliance with these requirements are conditions precedent to the award and continuation of a contract resulting from this RFP. Any exceptions to the Warranties or the Certification must be described in detail on a separate page attached hereto. TCERA reserves the right to determine in its sole discretion if such exception is substantive and a basis for the reject on the proposal.

WARRANTIES: The Proposer and its key professionals warrant and represent that:

1. Proposer is willing and able to commit sufficient staffing, expertise, services, systems, and any other resources necessary to provide the required services to TCERA as described in this RFP for the duration of the contact to be awarded as a result of this FRP Process.

2. Proposer is financially stable, has sufficient financial resources to provide services to TCERA, and will provide annual financial statements or Form ADV's to TCERA as proof of its financial condition.

3. Proposer's Fee Proposal submitted in response to this RFP has been arrived at independently, without consultation, communication, or agreement with any other Proposer or with any competitor for the purpose of restricting competition. Proposer has not and will not make any attempt to induce any other person or firm to submit or not to submit a response for the purpose of restricting competition.

4. Neither the Proposer nor any of its principals have, nor could they potentially have, a material conflict of interest in providing consulting services to TCERA. (TCERA's current trustees, staff, and service providers are listed in TCERA's CAFR available on the website www.tcera.org.

5. Neither the Proposing organization nor any of its officers or employees is currently under investigation by any regulatory agency, state or federal, for any reason.

6. At its own expense, Proposer has or shall obtain insurance coverage that shall remain in full force and effect for the duration of the contract to be awarded as a result of this RFP. Proposer understands required insurance includes professional liability, commercial general liability, and business auto liability. If selected as TCERA's Investment Consultant, upon notice of selection, Proposer is able to and shall promptly furnish Certificate(s) of Insurance as evidence of coverage to TCERA.

7. Proposer is able to demonstrate that it has the managerial, physical, and electronic safeguards to prevent unauthorized access to confidential or otherwise sensitive information. Any information concerning the business of TCERA that Proposer collects, acquires, or uses in connection with the services to TCERA shall be used solely for the purpose of providing services to TCERA.

8. Proposer accepts the terms and conditions contained within this RFP and agrees to be bound by the information and representations contained in the proposal submitted by Proposer.

9. The Proposer's proposal is made without collusion or fraud and the Proposer has not offered or received any financial or other inducements from any other proposer, supplier, manufacturer or subcontractor in connection with the proposal, and the Proposer has not conferred on any public employee having official responsibility for this RFP any payment, loan, subscription, advance, deposit of money, services or anything of value, in exchange for procuring the contract to be awarded as a result of this FRP.

PROPOSER'S CERTIFICATION

By affixing my signature below, I declare and certify that all of the foregoing warranties and representations made by the Proposer are true and correct and may be relied upon by TCERA:

__x__ without exception. ____ with the exceptions noted in the attached page. (Check one)

Signature	NEPC, LLC Firm
Managing Partner Title	1/20/2021 Date

Q4 2017 INVESTMENT PERFORMANCE REPORT

Sample ABC Client

Quarter Ending December 31, 2017

NEPC

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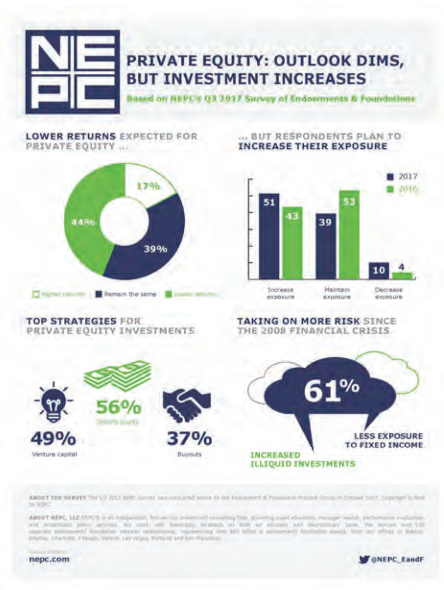
NEPC UPDATES

NEPC, LLC

HIGHLIGHTS OF FOURTH QUARTER HAPPENINGS AT NEPC



NEPC INSIGHTS

- White Paper: Terminated-Vested Lump Sum Payouts
- White Paper: Power Up Your Pension Plans
- Taking Stock: Could ESG Analysis Have Helped Equifax Investors?
- Taking Stock: Ten Years Since The Global Financial Crisis, Part 1: Then and Now
- Taking Stock: No Lull After the Storm for Puerto Rico Bonds
- Taking Stock: Tax Reform Update
- Market Chatter: It's Always Sunny on Sand Hill Road
- Market Chatter: The E-Commerce Grinch that Stole the US Storefront?
- Market Chatter: Endowment Tax Reform Leaves Less to be Thankful for
- NEPC's 2017 Hedge Fund Operational Due Diligence Survey Results
- NEPC's 2017 Defined Benefit Trends Survey Infographic
- NEPC's 2017 Defined Benefit Plan Trends Survey – Healthcare Highlights Infographic
- Taking Stock: What Do Revised Mortality Tables Mean for Terminated-Vested Lump Sum Payouts?
- 2017 Third Quarter Market Thoughts
- 2017 Q3 Endowment & Foundation Survey Results and Infographic

WEBINAR REPLAYS

- NEPC's 2017 Defined Benefit Plan Trends Survey

To download NEPC's recent insights and webinar replays, visit: www.NEPC.com/insights

RECENT UPDATES

- Our team continues to grow: Please join us in welcoming our senior consultant and insurance specialist, Andrew Coupe.
- NEPC was featured in over 35 news articles including *Bloomberg*, *Pensions & Investments* and *FundFire*, to name a few.
- NEPC's Chris Levell, ASA, CFA, CAIA, Partner, Client Strategy, was named a finalist in *Chief Investment Officer's* Consultant of the Year list.
- NEPC's Brandon Parrish, CFA, CAIA, Private Wealth Consultant, was featured in *Private Asset Management's* Top Read Stories for 2017 for his article "An Intuitive Approach for High Net Worth Clients."

HIGHLIGHTS OF FOURTH QUARTER HAPPENINGS AT NEPC

NEPC GIVES BACK

This quarter NEPC participated in four charity events: The Greater Boston Food Bank, American Cancer Society Denim Day, the Movember Movement and our Annual United Way Campaign.

- NEPC helped sort through 12,988 pounds of donated food from local grocery store donation bins. GBFB is the largest hunger-relief organization in New England and among the largest food banks in the country.

- ACS's Denim Day is one of the largest single-day fundraisers supporting the American Cancer Society's breast cancer programs. NEPC employees showed their support and raised a total of $2,310!

- NEPC's Movember Team, "You Demand Mo!" got involved in this year's Movember movement - a charity dedicated to help change the face of men's health on a global scale – raising $4,480.

- As part of NEPC's Annual United Way Campaign, our firm donated over $28,000 and held a volunteer event to assemble Literacy Kits. Literacy kits inspire creativity among volunteers and bring books to life to deepen children's reading experience.

SAVE THE DATE!

We will be hosting our 23rd Annual Investment Conference on May 14-15, 2018. More details to come!

Q4 2017 MARKET UPDATE

NEPC, LLC

MARKET ENVIRONMENT

Introduction

Like a record spinning right round, the music played on for US equities in 2017. Hitting new highs, the S&P 500 Index spent its ninth straight year in the black. The flagship US index has posted 14 consecutive months of gains with only one of the last 20 quarters in the red.

While non-US stocks joined the chorus only in 2017, they caught on pretty quickly with developed market equities up 25% in 2017, according to the MSCI EAFE Index. That said, it was emerging market equities that really hit the highest notes last year, with returns of 38%. Not to be left out, high-yield debt and dollar-denominated emerging market bonds outperformed within credit.

It was a banner year for global equities amid optimism around US corporate tax cuts and the continued acceleration of economic growth the world over. However, we would like to hit pause for a moment to remind investors that, at some point, the music will stop. To this end, we advise caution and vigilance. We recommend investors dial up exposure to safe-haven fixed-income assets—core bonds, municipal debt and Treasury InflationProtected Securities—back to strategic assetallocation targets. Furthermore, we suggest reducing assets that have outperformed expectations over a prolonged period, such as US stocks and highyield bonds, in favor of international equities and TIPS.

We believe non-US equities offer continued gains for investors as they benefit from easy financial conditions, synchronized global growth and a robust outlook for corporate earnings. As such, we recommend investors maintain an overweight position on international equities relative to market-cap benchmark weights.

Within developed markets, we believe a multi-year earnings recovery offers the potential for an elevated return. Preferring non-US small-cap and global equity strategies for implementation, we favor approaches that can exploit improving economic conditions in Europe and the ongoing corporate governance reforms in Japan.

MARKET ENVIRONMENT

Introduction Continued

Meanwhile, emerging market equities, despite their strong showing in 2017, offer potentially high total returns for investors. We reinforce our overweight recommendation to this segment as valuations and fundamentals remain compelling. Furthermore, strategies that invest lower in the market-capitalization spectrum relative to a traditional index offer investors a more pure exposure to improving local growth rates.

Shifting to fixed income, we favor TIPS over core bonds. The market-implied pricing of inflationary expectations remains attractive for TIPS, which are likely to benefit relative to core bonds should we see an uptick in inflation. In addition, duration exposure is a core asset-allocation building block and TIPS represent a safe-haven exposure that bolsters a portfolio during periods of market stress.

Across most return-seeking credit sectors, we believe spreads have reached levels that do not adequately compensate investors for risk. This includes high-yield bonds, US bank loans, and dollar-based emerging market debt. We suggest investors reallocate gains from liquid credit markets to other areas of the portfolio, such as equity, private markets, or idiosyncratic credit opportunities paired with safe-haven fixed income. For more tactically-oriented investors, we advocate emerging market local debt, as above average index yields and attractive currency valuations make it an appealing total-return opportunity.

While we currently have a positive outlook on global equities, we encourage investors to look for opportunities to manage portfolio volatility should the music stop. To this end, exposures, such as systematic global macro or long volatility, offer low-to-negative correlations to equity markets and help to mitigate the left-tail of a portfolio return distribution.

MARKET ENVIRONMENT

Global Equities

Global equities returned 5.7% in the fourth quarter and 24% for the year. Global stocks saw earnings per share rise nearly 19% in 2017, according to FactSet, the fastest growth since 2011.

The S&P 500 Index was up 6.6% in the fourth quarter, bolstered by the prospect of corporate tax cuts. Maintaining their lead, emerging market equities gained 7.4% in the fourth quarter and ended the year with returns of 37.3%. Healthcare and consumer discretionary dominated sector performance for the quarter, while utilities and telecommunication services lagged. Information technology led in 2017, largely driven by one stock, Chinese internet giant Tencent, which was up 114.3% for the year. Among countries, South Africa, Greece and India led performance, while Malta, Mexico and Pakistan were the stragglers.

Within private equity, buyout deal activity fell 2% in 2017, while the number of buyout exits dropped 11%. Fundraising totaled $180 billion last year, up 40% from 2016; mega buyout funds dominated with 11 funds larger than $5 billion accounting for over 60% of the capital raise.

Hedged equity strategies posted strong gains through the fourth quarter with the HFRI Equity Index up 3.2%. Quantitative strategies also drove returns, along with relative-value and other trading strategies, as a result of dispersion in isolated areas of the market. Mergers and acquisitions boosted hedged equity returns, particularly in the technology, healthcare, retail and manufacturing sectors.

Final Thoughts

As global equities show no signs of slowing down, investors must steer clear of complacency. At the cost of sounding like a broken record, we encourage investors to prepare for the inevitable market disruption by increasing exposure to strategies that help mitigate market drawdowns. While our investment outlook for 2018 is positive for risk assets as global economic growth improves, we believe caution is warranted.

INDEX PERFORMANCE SUMMARY AS OF 12/31/2017

	2010	2011	2012	2013	2014	2015	2016	Q1	Q2	Q3	Oct	Nov	Dec	Q4	YTD
MSCI EM	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	11.4%	6.3%	7.9%	3.5%	0.2%	3.6%	7.4%	37.3%
MSCI EAFE	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	7.2%	6.1%	5.4%	1.5%	1.0%	1.6%	4.2%	25.0%
MSCI ACWI	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	6.9%	4.3%	5.2%	2.1%	1.9%	1.6%	5.7%	24.0%
S&P 500	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	6.1%	3.1%	4.5%	2.3%	3.1%	1.1%	6.6%	21.8%
Russell 1000	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	6.0%	3.1%	4.5%	2.3%	3.0%	1.1%	6.6%	21.7%
Russell 2500	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	3.8%	2.1%	4.7%	1.5%	3.3%	0.3%	5.2%	16.8%
JPM GBI-EM Glob Div	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	6.5%	3.6%	3.6%	-2.8%	1.7%	2.0%	0.8%	15.2%
Russell 2000	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	2.5%	2.5%	5.7%	0.9%	2.9%	-0.4%	3.3%	14.6%
BC US STRIPS 20+ Yr	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	1.8%	6.1%	0.7%	0.1%	1.5%	2.8%	4.5%	13.7%
BC US Long Credit	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	1.7%	4.7%	2.2%	0.7%	0.4%	2.0%	3.2%	12.2%
BC US Govt/Cred Long	10.2%	22.5%	8.8%	-8.8%	19.3%	-3.3%	6.7%	1.6%	4.4%	1.5%	0.4%	0.5%	1.9%	2.8%	10.7%
JPM EMBI Glob Div	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	3.9%	2.2%	2.6%	0.4%	0.1%	0.7%	1.2%	10.3%
BC Muni High Yield	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	4.1%	2.0%	1.5%	0.3%	0.3%	1.3%	1.8%	9.7%
BC US Corporate HY	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	2.7%	2.2%	2.0%	0.4%	-0.3%	0.3%	0.5%	7.5%
BC Global Agg	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	1.8%	2.6%	1.8%	-0.4%	1.1%	0.3%	1.1%	7.4%
CS Hedge Fund	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	2.1%	0.8%	1.8%	1.3%	0.1%	-	1.4%	6.2%
BC Municipal	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	1.6%	2.0%	1.1%	0.2%	-0.5%	1.0%	0.7%	5.4%
FTSE NAREIT Eqy REITs	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	1.2%	1.5%	0.9%	-1.0%	2.7%	-0.2%	1.5%	5.2%
CS Leveraged Loan	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	1.2%	0.8%	1.1%	0.7%	0.1%	0.4%	1.2%	4.2%
BC US Agg Bond	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	0.8%	1.4%	0.8%	0.1%	-0.1%	0.5%	0.4%	3.5%
BC TIPS	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	1.3%	-0.4%	0.9%	0.2%	0.1%	0.9%	1.3%	3.0%
BBG Commodity	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	-2.3%	-3.2%	2.5%	2.1%	-0.5%	3.0%	4.7%	1.7%
BC US Govt/Cred 1-3	2.8%	1.6%	1.3%	0.6%	0.8%	0.7%	1.3%	0.4%	0.3%	0.3%	0.0%	-0.2%	0.0%	-0.2%	0.8%
Alerian MLP	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	3.9%	-6.4%	-3.0%	-4.1%	-1.4%	4.7%	-0.9%	-6.5%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse

EXECUTIVE SUMMARY

NEPC, LLC

EXECUTIVE SUMMARY

- **Asset Growth and Allocation**
  - As of December 31, 2017, the System's assets totaled $1.37 billion, an increase of $40.0 million during the quarter.
  - The System's equity allocation of 74.9% is slightly above the target of 73%. The System's fixed income allocation of 20.2% is slightly below the target of 22.0%.
- **Performance**
  - The System posted a 4.6% return during the quarter, ranking in the 1st percentile of public funds. The System outperformed both the Policy Index and Allocation Index.
    - For the trailing year, the System returned 21.0%, ranking in the 1st percentile of public funds.
    - 3-year annualized returns through December 31, 2017 were 8.8%, ranking in the 2nd percentile.
    - 5-year annualized returns through December 31, 2017 were 10.6%, ranking in the 3rd percentile.
    - 10-year annualized returns through December 31, 2017 were 7.2%, ranking in the 3rd percentile.

EXECUTIVE SUMMARY

What helped performance in the quarter

- The US Small/Mid Cap Equity Portfolio, which collectively returned 7.6%, outperformed the Russell 2500 Index by 240 basis points.
  - Manager D returned 9.5% for the quarter, outperforming the Russell 2500 Index by 430 basis points and ranking in the 4th percentile relative to their peers.
  - Manager B returned 9.0% for the quarter, outperforming the Russell 2500 Growth Index by 270 basis points and ranking in the 10th percentile relative to their peers.
  - Manager O returned 6.5% for the quarter, outperforming the Russell 2500 Value Index by 220 basis points and ranking in the 14th percentile relative to their peers.

- Manager H returned 7.4% for the quarter, outperforming the Russell 1000 Value Index by 210 basis points and ranking in the 21st percentile relative to their peers.

What hurt performance in the quarter

- The International Equity Portfolio, which collectively returned 3.3%, underperformed the International Policy Index[1] by 140 basis points.
  - Manager L returned 2.4% for the quarter, underperforming the International Policy Index[1] by 230 basis points and ranking in the 92nd percentile relative to their peers.

- Manager S returned 5.9% for the quarter, underperforming the Russell 1000 Growth Index by 200 basis points and ranking in the 73rd percentile relative to their peers.

[1] Int'l Equity Policy Index comprised of 85% MSCI EAFE Index and 15% MSCI Emerging Markets Index.

EXECUTIVE SUMMARY – MANAGER ALERTS

Manager S (Large Cap Growth Equity)

- Returned 5.9% for the quarter, underperforming the Russell 1000 Growth Index by 200 basis points
- This brings their underperformance since inception to 10 basis points, per annum

PERFORMANCE

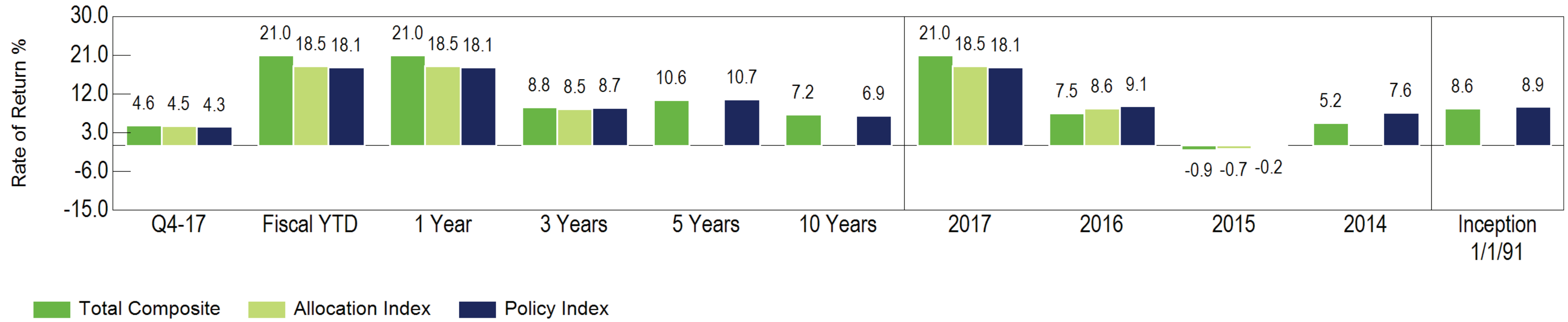
NEPC, LLC

Sample ABC Client

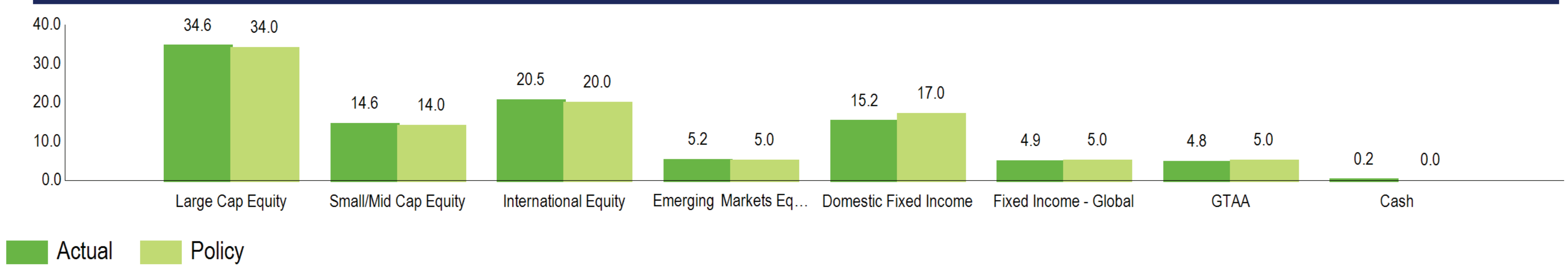
TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Return	Since
Total Composite	**$1,369,731,395**	**4.6%**	**1**	**21.0%**	**1**	**21.0%**	**1**	**8.8%**	**2**	**10.6%**	**3**	**7.2%**	**3**	**8.6%**	**Jan-91**
Allocation Index		*4.5%*	*2*	*18.5%*	*3*	*18.5%*	*3*	*8.5%*	*4*	*--*	*--*	*--*	*--*	*--*	*Jan-91*
Policy Index		*4.3%*	*6*	*18.1%*	*4*	*18.1%*	*4*	*8.7%*	*3*	*10.7%*	*2*	*6.9%*	*4*	*8.9%*	*Jan-91*
InvestorForce Public DB Net Median		*3.5%*		*14.5%*		*14.5%*		*7.0%*		*8.3%*		*5.6%*		*8.0%*	*Jan-91*

Return Summary
Ending December 31, 2017



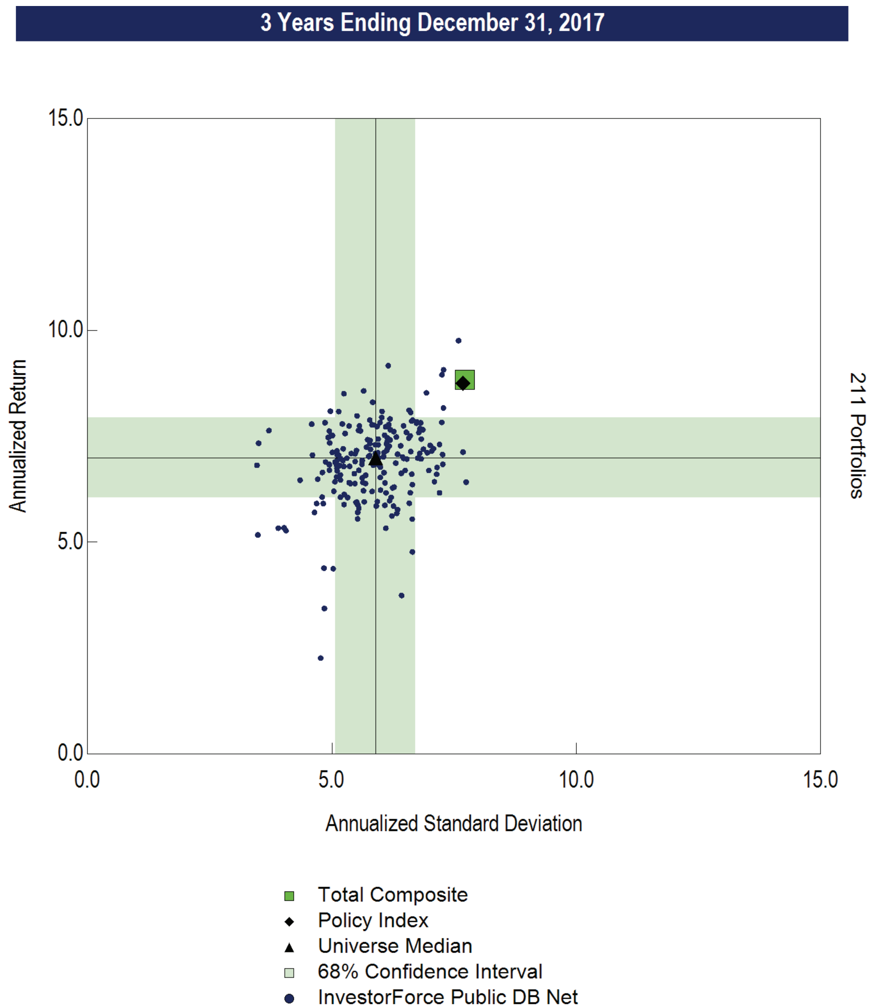
Actual vs Target Allocation (%)



Fiscal year ends December 31.

Sample ABC Client

TOTAL FUND RISK/RETURN - 3 YEARS

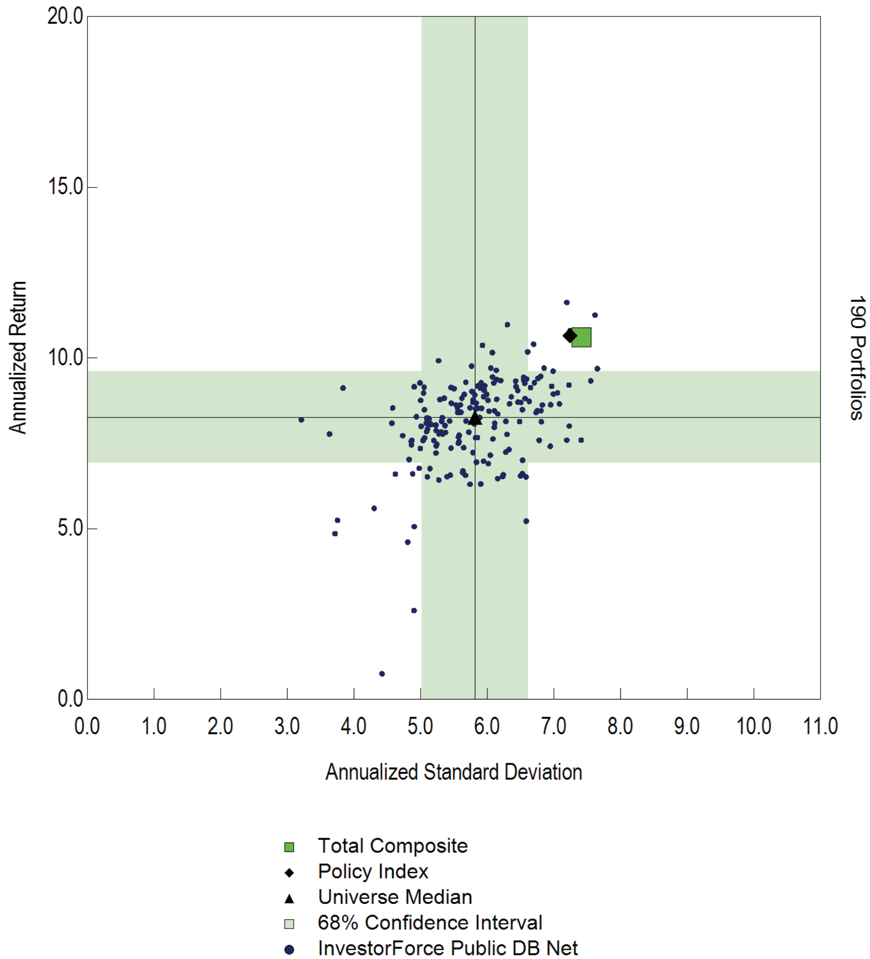


3 Years Ending December 31, 2017	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank
Total Composite	8.82%	2	7.73%	99
Policy Index	8.75%	3	7.69%	99

3 Years Ending December 31, 2017	Sharpe Ratio	Rank	Sortino Ratio	Rank
Total Composite	1.09	62	1.61	50
Policy Index	1.08	63	1.57	57

TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending December 31, 2017



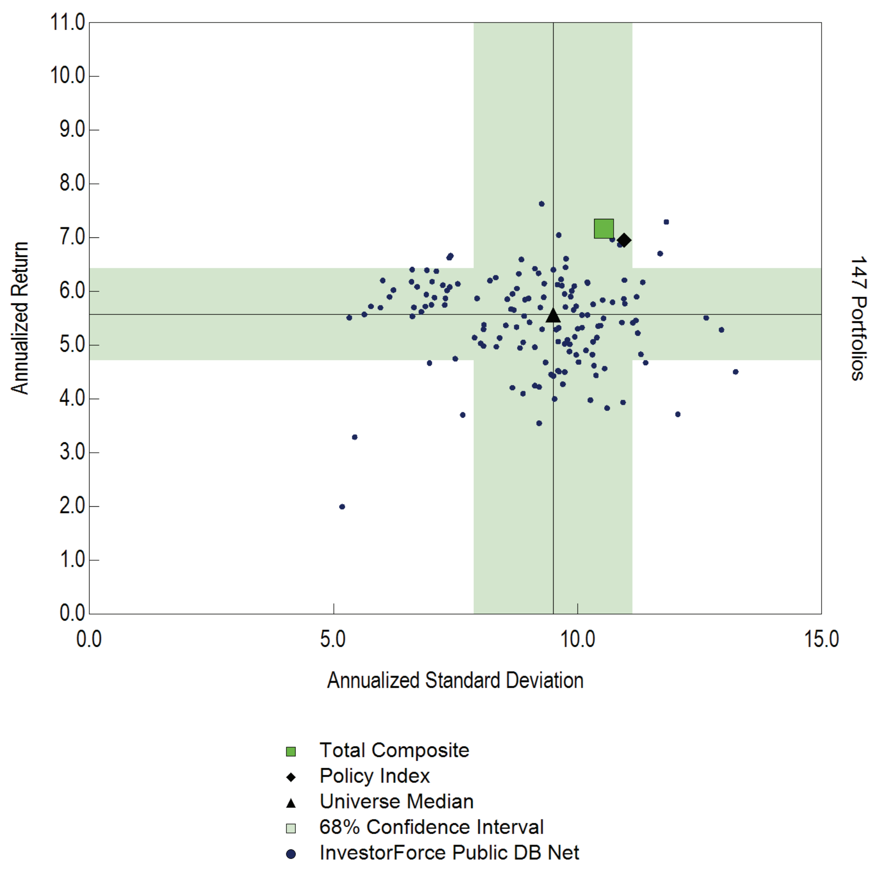
5 Years Ending December 31, 2017	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank
Total Composite	10.60%	3	7.42%	99
Policy Index	10.65%	2	7.24%	98

5 Years Ending December 31, 2017	Sharpe Ratio	Rank	Sortino Ratio	Rank
Total Composite	1.39	49	2.34	48
Policy Index	1.43	42	2.34	47

Sample ABC Client

TOTAL FUND RISK/RETURN - 10 YEARS

10 Years Ending December 31, 2017



10 Years Ending December 31, 2017	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank
Total Composite	7.17%	3	10.55%	85
Policy Index	6.95%	4	10.96%	91

10 Years Ending December 31, 2017	Sharpe Ratio	Rank	Sortino Ratio	Rank
Total Composite	0.65	28	0.86	26
Policy Index	0.61	39	0.78	36

Sample ABC Client

TOTAL FUND PERFORMANCE DETAIL

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Composite	**1,369,731,395**	**100.0**	**4.6**	**2**	**21.0**	**1**	**21.0**	**1**	**8.8**	**2**	**10.6**	**3**	**7.2**	**3**	**8.6**	**Jan-91**
Allocation Index			*4.5*	*3*	*18.5*	*3*	*18.5*	*3*	*8.5*	*4*	*--*	*--*	*--*	*--*	*--*	*Jan-91*
Policy Index			*4.3*	*6*	*18.1*	*4*	*18.1*	*4*	*8.7*	*3*	*10.7*	*3*	*6.9*	*5*	*8.9*	*Jan-91*
InvestorForce Public DB Net Median			*3.5*		*14.7*		*14.7*		*7.1*		*8.4*		*5.6*		*8.0*	*Jan-91*
Total Equity	**1,025,497,580**	**74.9**	**5.9**	**--**	**26.2**	**--**	**26.2**	**--**	**10.8**	**--**	**--**	**--**	**--**	**--**	**10.0**	**Sep-14**
Russell 3000			*6.3*	*--*	*21.1*	*--*	*21.1*	*--*	*11.1*	*--*	*15.6*	*--*	*8.6*	*--*	*10.9*	*Sep-14*
Total Domestic Equity	**673,140,016**	**49.1**	**6.9**	**25**	**23.6**	**27**	**23.6**	**27**	**10.8**	**35**	**14.8**	**46**	**8.5**	**52**	**10.2**	**Apr-91**
Domestic Equity Policy Index			*5.9*	*45*	*20.2*	*44*	*20.2*	*44*	*11.1*	*31*	*15.4*	*33*	*8.7*	*47*	*10.1*	*Apr-91*
eV All US Equity Net Median			*5.6*		*18.7*		*18.7*		*9.8*		*14.5*		*8.5*		*10.9*	*Apr-91*
Total Large Cap	**473,810,304**	**34.6**	**6.7**	**46**	**25.0**	**29**	**25.0**	**29**	**10.7**	**37**	**14.8**	**52**	**7.5**	**69**	**7.9**	**Jul-02**
Russell 1000			*6.6*	*48*	*21.7*	*46*	*21.7*	*46*	*11.2*	*27*	*15.7*	*33*	*8.6*	*39*	*9.1*	*Jul-02*
eV US Large Cap Equity Net Median			*6.5*		*21.1*		*21.1*		*10.0*		*14.8*		*8.3*		*9.0*	*Jul-02*
Manager N	235,530,636	17.2	6.6	48	21.8	46	21.8	46	--	--	--	--	--	--	20.7	Feb-16
S&P 500			*6.6*	*48*	*21.8*	*46*	*21.8*	*46*	*11.4*	*19*	*15.8*	*25*	*8.5*	*38*	*20.7*	*Feb-16*
eV US Large Cap Core Equity Net Median			*6.6*		*21.4*		*21.4*		*10.2*		*14.8*		*8.3*		*19.4*	*Feb-16*
Manager S	115,736,206	8.4	5.9	73	32.7	22	32.7	22	11.4	52	16.1	48	9.2	43	9.7	Jul-07
Russell 1000 Growth			*7.9*	*16*	*30.2*	*38*	*30.2*	*38*	*13.8*	*16*	*17.3*	*17*	*10.0*	*21*	*9.8*	*Jul-07*
eV US Large Cap Growth Equity Net Median			*6.7*		*28.5*		*28.5*		*11.6*		*16.0*		*8.9*		*9.1*	*Jul-07*
Manager H	122,526,656	8.9	7.4	21	23.9	4	23.9	4	12.3	3	16.5	4	--	--	16.5	Jan-13
Russell 1000 Value			*5.3*	*73*	*13.7*	*86*	*13.7*	*86*	*8.7*	*56*	*14.0*	*49*	*7.1*	*61*	*14.0*	*Jan-13*
eV US Large Cap Value Equity Net Median			*6.2*		*16.7*		*16.7*		*9.0*		*14.0*		*7.5*		*14.0*	*Jan-13*

Note: Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
Policy Index comprised of 17% S&P 500, 8.5% Russell 1000 Growth, 8.5% Russell 1000 Value, 14% Russell 2000, 20% MSCI EAFE, 5% MSCI EM, 17% Barclays Aggregate, 5% CITI WGBI and 5% to the 60% MSCI World (Net)/40% Barclays Aggregate Index as of 10/1/2015.
Domestic Equity Policy Index comprised of 26% S&P 500, 26% Russell 1000 Growth, 26% Russell 1000 Value and 22% Russell 2000 Index.
Manager N was funded as of 1/20/2016. Performance calculation starts from first full month of performance.
Fiscal year ends December 31.

Sample ABC Client

TOTAL FUND PERFORMANCE DETAIL

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total US Small/Mid Cap	**199,329,712**	**14.6**	**7.6**	**15**	**20.2**	**33**	**20.2**	**33**	**11.0**	**26**	**14.8**	**32**	**11.9**	**6**	**12.2**	**Aug-02**
Russell 2500			*5.2*	*54*	*16.8*	*52*	*16.8*	*52*	*10.1*	*38*	*14.3*	*38*	*9.2*	*49*	*11.3*	*Aug-02*
eV US Small-Mid Cap Equity Net Median			*5.5*		*17.1*		*17.1*		*9.3*		*13.7*		*9.1*		*11.3*	*Aug-02*
Manager C	48,399,506	3.5	5.1	27	13.8	55	13.8	55	12.0	25	15.3	33	12.4	5	12.5	Oct-93
Russell 2000			*3.3*	*64*	*14.6*	*49*	*14.6*	*49*	*10.0*	*52*	*14.1*	*53*	*8.7*	*56*	*9.2*	*Oct-93*
eV US Small Cap Equity Net Median			*3.9*		*14.4*		*14.4*		*10.0*		*14.3*		*9.0*		*11.2*	*Oct-93*
Manager D	50,630,656	3.7	9.5	4	25.7	14	25.7	14	15.5	1	17.6	2	13.2	2	12.9	Jul-07
Russell 2500			*5.2*	*54*	*16.8*	*52*	*16.8*	*52*	*10.1*	*38*	*14.3*	*38*	*9.2*	*49*	*8.0*	*Jul-07*
eV US Small-Mid Cap Equity Net Median			*5.5*		*17.1*		*17.1*		*9.3*		*13.7*		*9.1*		*8.0*	*Jul-07*
Manager B	52,400,781	3.8	9.0	10	27.6	26	27.6	26	8.6	66	--	--	--	--	10.2	Nov-13
Russell 2500 Growth			*6.3*	*35*	*24.5*	*54*	*24.5*	*54*	*10.9*	*37*	*15.5*	*28*	*9.6*	*33*	*11.0*	*Nov-13*
eV US Small-Mid Cap Growth Equity Net Median			*5.9*		*24.9*		*24.9*		*10.2*		*13.8*		*8.7*		*9.2*	*Nov-13*
Manager O	47,898,769	3.5	6.5	14	14.0	34	14.0	34	7.1	78	--	--	--	--	7.0	Nov-13
Russell 2500 Value			*4.3*	*52*	*10.4*	*73*	*10.4*	*73*	*9.3*	*36*	*13.3*	*53*	*8.8*	*51*	*9.5*	*Nov-13*
eV US Small-Mid Cap Value Equity Net Median			*4.4*		*12.4*		*12.4*		*8.6*		*13.4*		*8.8*		*9.2*	*Nov-13*
Total International Equity	**281,195,163**	**20.5**	**3.3**	**81**	**30.5**	**30**	**30.5**	**30**	**10.1**	**36**	**9.2**	**46**	**2.3**	**73**	**6.6**	**Mar-96**
Int'l Equity Policy Index			*4.7*	*37*	*26.8*	*49*	*26.8*	*49*	*8.1*	*64*	*7.4*	*82*	*2.0*	*85*	*5.5*	*Mar-96*
eV All EAFE Equity Net Median			*4.2*		*26.6*		*26.6*		*8.9*		*9.0*		*3.4*		*7.1*	*Mar-96*
Manager A	143,603,204	10.5	4.2	50	31.2	27	31.2	27	9.7	39	9.2	45	3.8	44	8.3	May-96
Int'l Equity Policy Index			*4.7*	*37*	*26.8*	*49*	*26.8*	*49*	*8.1*	*64*	*7.4*	*82*	*2.0*	*85*	*5.3*	*May-96*
eV All EAFE Equity Net Median			*4.2*		*26.6*		*26.6*		*8.9*		*9.0*		*3.4*		*7.0*	*May-96*
Manager L	137,591,959	10.0	2.4	92	29.8	33	29.8	33	10.4	32	10.5	28	--	--	11.2	Jun-10
Int'l Equity Policy Index			*4.7*	*37*	*26.8*	*49*	*26.8*	*49*	*8.1*	*64*	*7.4*	*82*	*2.0*	*85*	*8.1*	*Jun-10*
eV All EAFE Equity Net Median			*4.2*		*26.6*		*26.6*		*8.9*		*9.0*		*3.4*		*9.8*	*Jun-10*
Total Emerging Market Equity	**71,162,400**	**5.2**	**6.5**	**54**	**34.2**	**69**	**34.2**	**69**	**--**	**--**	**--**	**--**	**--**	**--**	**21.7**	**Jun-16**
MSCI Emerging Markets			*7.4*	*30*	*37.3*	*48*	*37.3*	*48*	*9.1*	*52*	*4.3*	*74*	*1.7*	*75*	*28.7*	*Jun-16*
eV Emg Mkts Equity Net Median			*6.7*		*37.1*		*37.1*		*9.1*		*5.4*		*2.7*		*27.5*	*Jun-16*
Manager M	71,162,400	5.2	6.5	54	34.2	69	34.2	69	--	--	--	--	--	--	21.7	Jun-16
MSCI Emerging Markets			*7.4*	*30*	*37.3*	*48*	*37.3*	*48*	*9.1*	*52*	*4.3*	*74*	*1.7*	*75*	*28.7*	*Jun-16*
eV Emg Mkts Equity Net Median			*6.7*		*37.1*		*37.1*		*9.1*		*5.4*		*2.7*		*27.5*	*Jun-16*

Note: Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
Int'l Equity Policy Index comprised of 85% MSCI EAFE Index and 15% MSCI Emerging Markets Index.

Sample ABC Client

TOTAL FUND PERFORMANCE DETAIL

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Fixed Income	**276,214,497**	**20.2**	**0.1**	**91**	**5.2**	**5**	**5.2**	**5**	**2.4**	**57**	**2.0**	**75**	**4.1**	**71**	**5.9**	**Jan-91**
BBgBarc US Aggregate TR			*0.4*	*66*	*3.5*	*66*	*3.5*	*66*	*2.2*	*69*	*2.1*	*62*	*4.0*	*77*	*5.9*	*Jan-91*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*6.0*	*Jan-91*
Total Domestic Fixed Income	**208,552,859**	**15.2**	**0.3**	**81**	**3.1**	**85**	**3.1**	**85**	**2.2**	**71**	**1.9**	**78**	**4.1**	**73**	**5.9**	**Jan-91**
BBgBarc US Aggregate TR			*0.4*	*66*	*3.5*	*66*	*3.5*	*66*	*2.2*	*69*	*2.1*	*62*	*4.0*	*77*	*5.9*	*Jan-91*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*6.0*	*Jan-91*
Manager I	52,591,378	3.8	0.4	70	3.5	69	3.5	69	2.5	47	2.3	43	4.3	53	4.3	Jan-03
BBgBarc US Aggregate TR			*0.4*	*66*	*3.5*	*66*	*3.5*	*66*	*2.2*	*69*	*2.1*	*62*	*4.0*	*77*	*4.1*	*Jan-03*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*4.3*	*Jan-03*
Manager R	51,752,478	3.8	0.0	94	2.5	94	2.5	94	1.9	86	1.8	90	3.7	88	5.4	Jan-93
Manager R Policy Index			*-0.2*	*99*	*2.1*	*97*	*2.1*	*97*	*1.8*	*93*	*1.6*	*96*	*3.7*	*87*	*5.4*	*Jan-93*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*5.6*	*Jan-93*
Manager O	51,771,958	3.8	0.3	79	3.0	88	3.0	88	1.8	92	1.7	93	--	--	3.1	Apr-11
BBgBarc US Aggregate TR			*0.4*	*66*	*3.5*	*66*	*3.5*	*66*	*2.2*	*69*	*2.1*	*62*	*4.0*	*77*	*3.3*	*Apr-11*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*3.5*	*Apr-11*
Manager F	52,437,045	3.8	0.4	65	3.4	77	3.4	77	2.5	45	2.4	37	--	--	3.6	May-11
BBgBarc US Aggregate TR			*0.4*	*66*	*3.5*	*66*	*3.5*	*66*	*2.2*	*69*	*2.1*	*62*	*4.0*	*77*	*3.1*	*May-11*
eV US Core Fixed Inc Net Median			*0.4*		*3.8*		*3.8*		*2.4*		*2.3*		*4.4*		*3.3*	*May-11*
Total Global Fixed Income	**67,661,639**	**4.9**	**-0.5**	**99**	**12.8**	**2**	**12.8**	**2**	**2.7**	**22**	**--**	**--**	**--**	**--**	**2.0**	**Aug-14**
Citi WGBI			*1.0*	*26*	*7.5*	*51*	*7.5*	*51*	*1.7*	*59*	*0.1*	*87*	*2.7*	*88*	*0.2*	*Aug-14*
eV Global Agg Fixed Inc Net Median			*0.8*		*7.5*		*7.5*		*2.0*		*1.1*		*3.5*		*0.9*	*Aug-14*
Manager K	67,661,639	4.9	-0.5	99	12.8	2	12.8	2	2.7	22	--	--	--	--	2.0	Aug-14
Citi WGBI			*1.0*	*26*	*7.5*	*51*	*7.5*	*51*	*1.7*	*59*	*0.1*	*87*	*2.7*	*88*	*0.2*	*Aug-14*
eV Global Agg Fixed Inc Net Median			*0.8*		*7.5*		*7.5*		*2.0*		*1.1*		*3.5*		*0.9*	*Aug-14*

Domestic Fixed Income Composite performance history includes Brandywine data for August and September 2014.
Note: Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
Manager R Policy Index comprised of 100% Barclays Intermediate Govt/Credit as of 7/1/2014 and 100% Barclays Aggregate as of 12/31/1992.

TOTAL FUND PERFORMANCE DETAIL

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total GAA	**65,434,284**	**4.8**	**5.0**	**11**	**15.9**	**39**	**15.9**	**39**	**--**	**--**	**--**	**--**	**--**	**--**	**12.7**	**Jun-16**
60% MSCI World (Net) / 40% BBgBarc Agg			*3.4*	*53*	*14.5*	*48*	*14.5*	*48*	*6.6*	*18*	*7.9*	*19*	*5.0*	*44*	*11.0*	*Jun-16*
eV Global TAA Net Median			*3.4*		*13.7*		*13.7*		*4.9*		*4.9*		*4.8*		*10.3*	*Jun-16*
Manager E	65,434,284	4.8	5.0	11	15.9	39	15.9	39	--	--	--	--	--	--	12.7	Jun-16
60% MSCI World (Net) / 40% BBgBarc Agg			*3.4*	*53*	*14.5*	*48*	*14.5*	*48*	*6.6*	*18*	*7.9*	*19*	*5.0*	*44*	*11.0*	*Jun-16*
eV Global TAA Net Median			*3.4*		*13.7*		*13.7*		*4.9*		*4.9*		*4.8*		*10.3*	*Jun-16*
Cash	**2,585,034**	**0.2**	**0.3**	**13**	**1.8**	**1**	**1.8**	**1**	**0.8**	**14**	**0.5**	**13**	**0.5**	**67**	**3.5**	**Jan-91**
91 Day T-Bills			*0.3*	*36*	*0.9*	*78*	*0.9*	*78*	*0.4*	*82*	*0.3*	*80*	*0.3*	*99*	*2.6*	*Jan-91*
eV US Cash Management Net Median			*0.3*		*1.0*		*1.0*		*0.6*		*0.4*		*0.6*		*2.3*	*Jan-91*
Manager G	2,585,034	0.2	0.3	13	1.8	1	1.8	1	0.8	14	0.5	13	0.5	67	3.5	Jan-91
91 Day T-Bills			*0.3*	*36*	*0.9*	*78*	*0.9*	*78*	*0.4*	*82*	*0.3*	*80*	*0.3*	*99*	*2.6*	*Jan-91*
eV US Cash Management Net Median			*0.3*		*1.0*		*1.0*		*0.6*		*0.4*		*0.6*		*2.3*	*Jan-91*

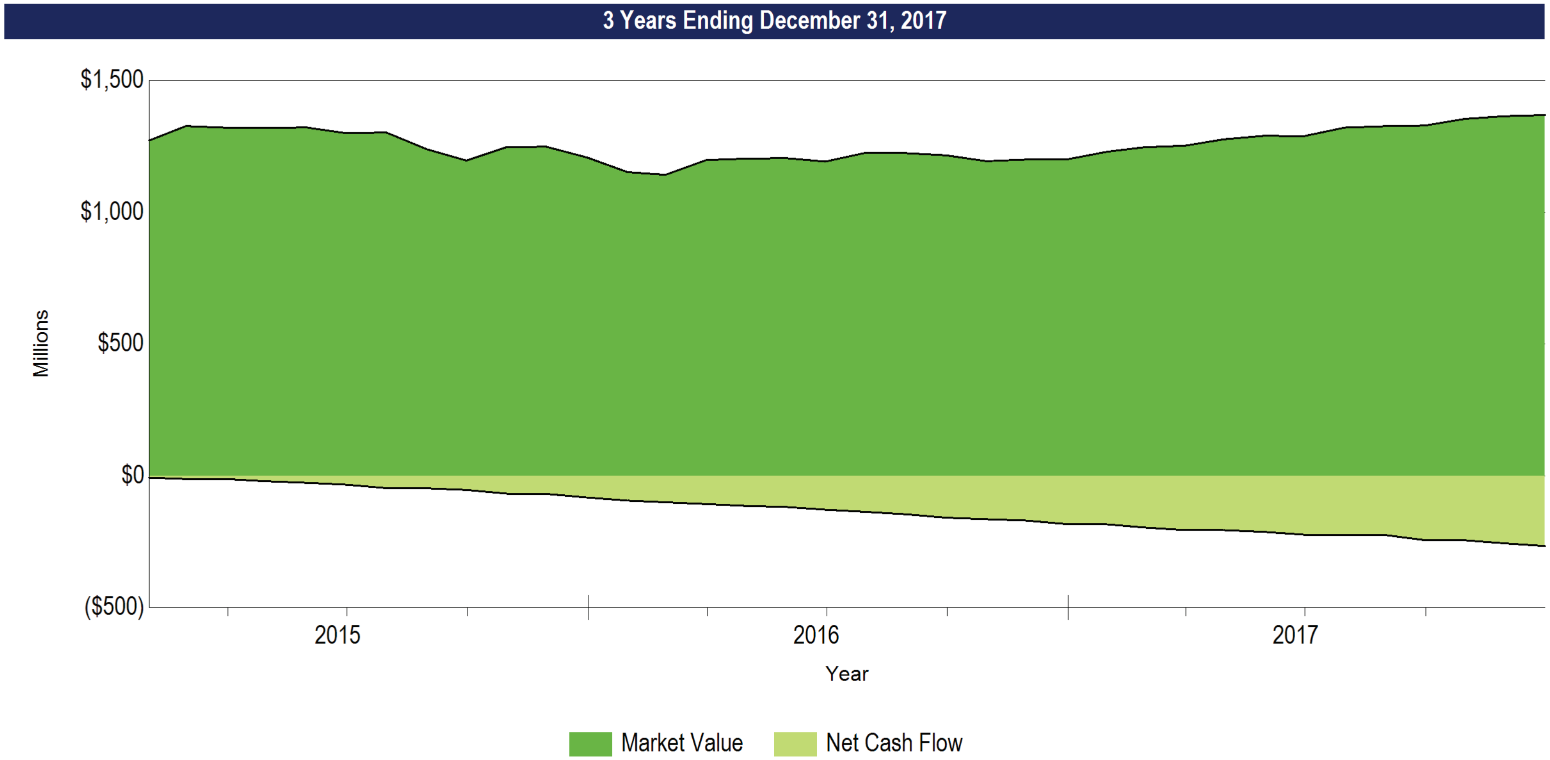
TOTAL FUND ASSET GROWTH SUMMARY BY MANAGER

	Quarter Ending December 31, 2017					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Manager A	$137,780,062	$0	-$174,616	-$174,616	$5,997,759	$143,603,204
Manager B	$48,130,842	$0	-$55,832	-$55,832	$4,325,772	$52,400,781
Manager C	$46,063,483	$0	-$86,650	-$86,650	$2,422,673	$48,399,506
Manager D	$48,598,732	$0	-$2,593,018	-$2,593,018	$4,624,942	$50,630,656
Manager E	$62,322,738	$0	-$43,376	-$43,376	$3,154,923	$65,434,284
Manager F	$52,228,731	$0	-$26,329	-$26,329	$234,643	$52,437,045
Manager G	$6,607,962	$20,056,561	-$24,093,814	-$4,037,254	$14,325	$2,585,034
Manager H	$114,090,329	$0	-$220,788	-$220,788	$8,657,115	$122,526,656
Manager I	$52,322,815	$86,589	-$1,737	$84,852	$183,710	$52,591,378
Manager J	$27,246	$0	-$22,108	-$22,108	$28	$5,166
Manager K	$64,985,285	$3,000,000	-$95,884	$2,904,116	-$227,763	$67,661,639
Manager L	$140,334,492	$0	-$6,323,236	-$6,323,236	$3,580,703	$137,591,959
Manager M	$66,752,886	$0	-$52,019	-$52,019	$4,461,533	$71,162,400
Manager N	$229,525,228	$0	-$9,008,361	-$9,008,361	$15,013,769	$235,530,636
Manager O	$51,627,829	$0	-$40,230	-$40,230	$184,358	$51,771,958
Manager P	$44,983,462	$0	-$123,202	-$123,202	$3,038,509	$47,898,769
Manager Q	$11,639	$0	$0	$0	$0	$11,639
Manager R	$51,751,985	$0	-$32,304	-$32,304	$32,797	$51,752,478
Manager S	$111,620,693	$0	-$2,643,289	-$2,643,289	$6,758,802	$115,736,206
Total	**$1,329,766,441**	**$23,143,150**	**-$45,636,793**	**-$22,493,643**	**$62,458,597**	**$1,369,731,395**

Z TERMINATED represents accounts that fully liquidated during the Quarter.

Sample ABC Client

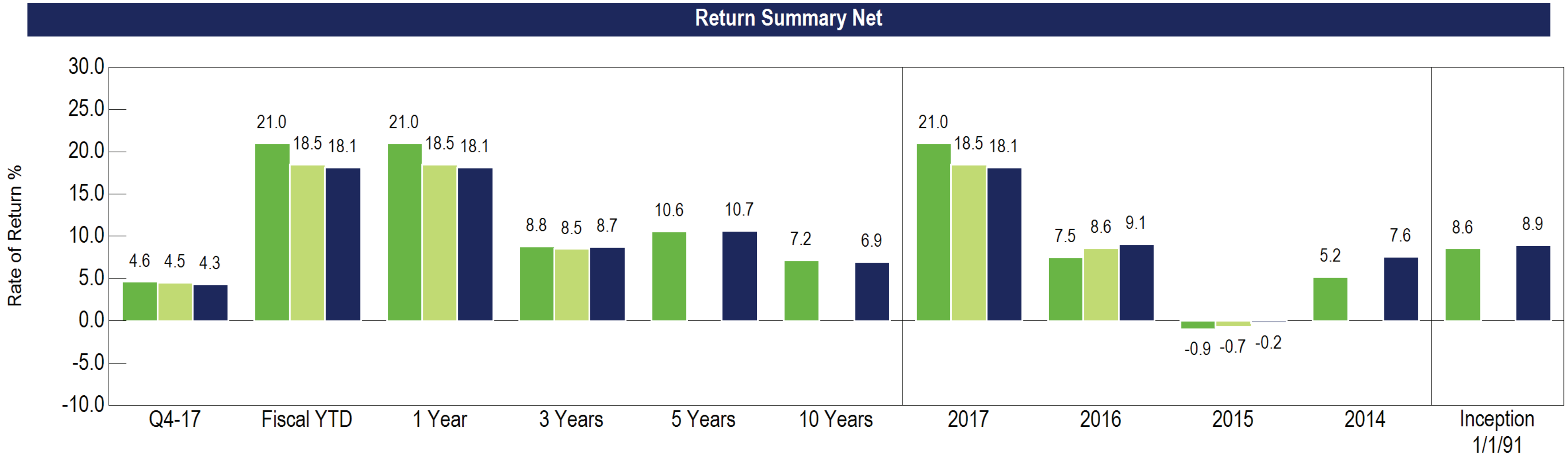
TOTAL FUND ASSET GROWTH SUMMARY

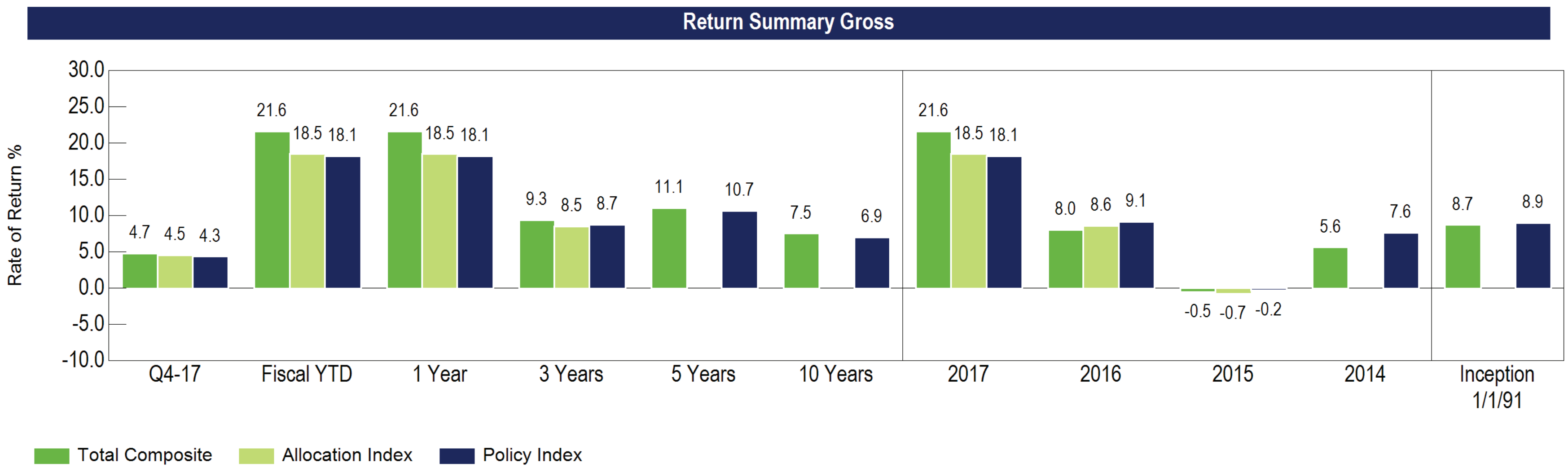


	Last Three Months	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	$1,329,766,441	$1,201,118,626	$1,201,118,626	$1,295,769,442
Net Cash Flow	-$22,493,643	-$83,180,621	-$83,180,621	-$266,783,319
Net Investment Change	$62,458,597	$251,793,390	$251,793,390	$340,745,272
Ending Market Value	$1,369,731,395	$1,369,731,395	$1,369,731,395	$1,369,731,395

Sample ABC Client

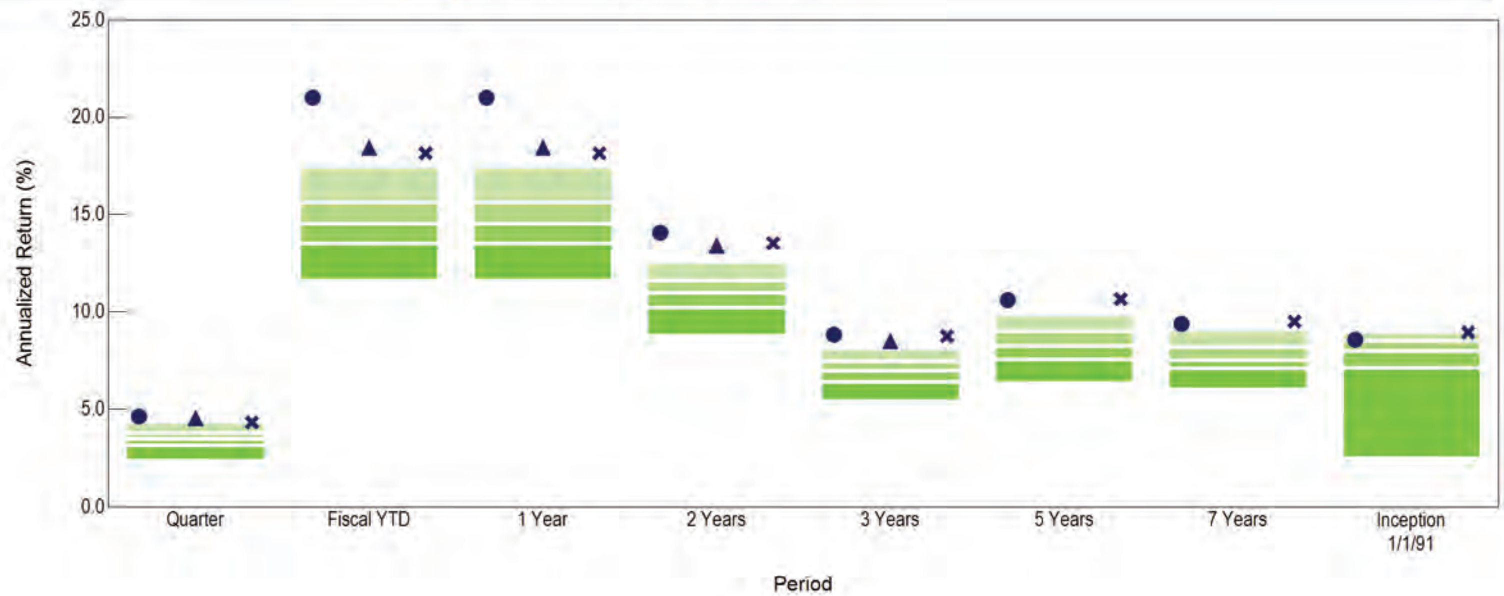
TOTAL FUND RETURN SUMMARY





TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

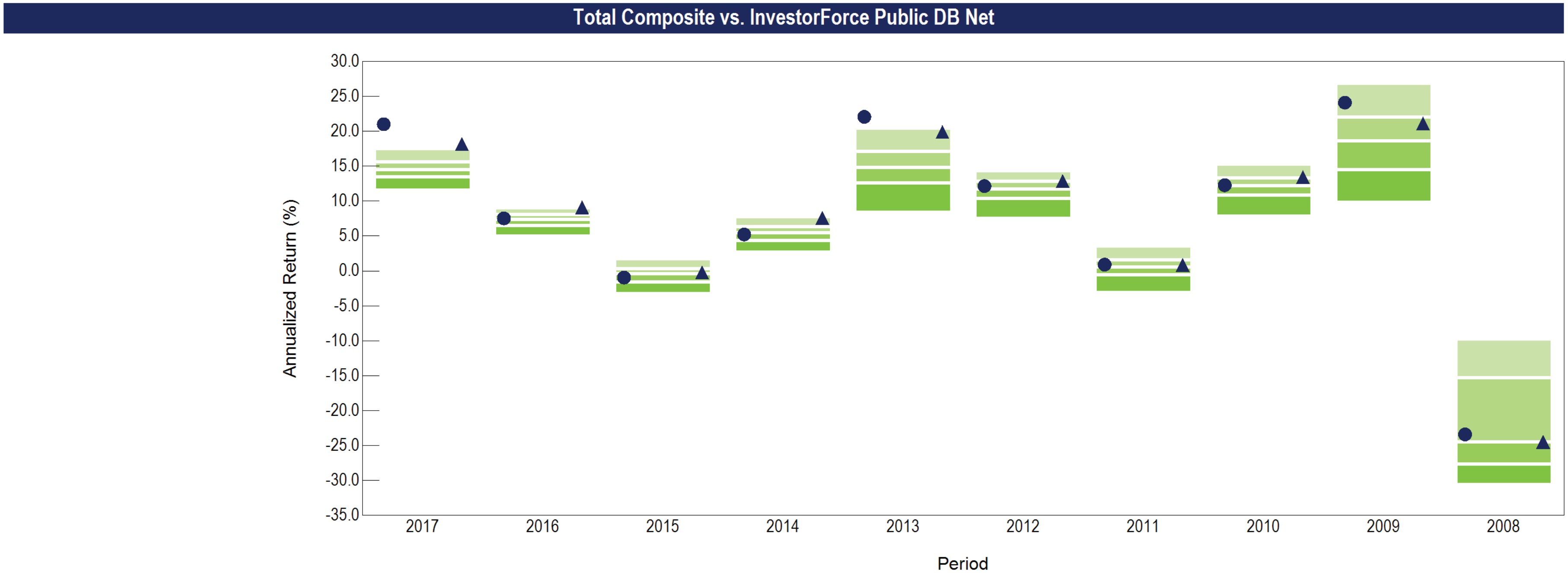
Total Composite vs. InvestorForce Public DB Net



	Return (Rank)															
5th Percentile	4.3		17.4		17.4		12.5		8.1		9.8		9.0		8.9	
25th Percentile	3.8		15.6		15.6		11.6		7.5		9.0		8.2		8.5	
Median	3.5		14.5		14.5		11.0		7.0		8.3		7.5		8.0	
75th Percentile	3.1		13.5		13.5		10.2		6.4		7.6		7.1		7.2	
95th Percentile	2.4		11.6		11.6		8.8		5.4		6.4		6.0		2.5	
# of Portfolios	218		218		218		215		211		190		167		39	
● Total Composite	4.6	(1)	21.0	(1)	21.0	(1)	14.1	(1)	8.8	(2)	10.6	(3)	9.4	(2)	8.6	(24)
▲ Allocation Index	4.5	(2)	18.5	(3)	18.5	(3)	13.4	(2)	8.5	(4)	--	(--)	--	(--)	--	(--)
× Policy Index	4.3	(6)	18.1	(4)	18.1	(4)	13.5	(2)	8.7	(3)	10.7	(2)	9.5	(2)	8.9	(5)

Sample ABC Client

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

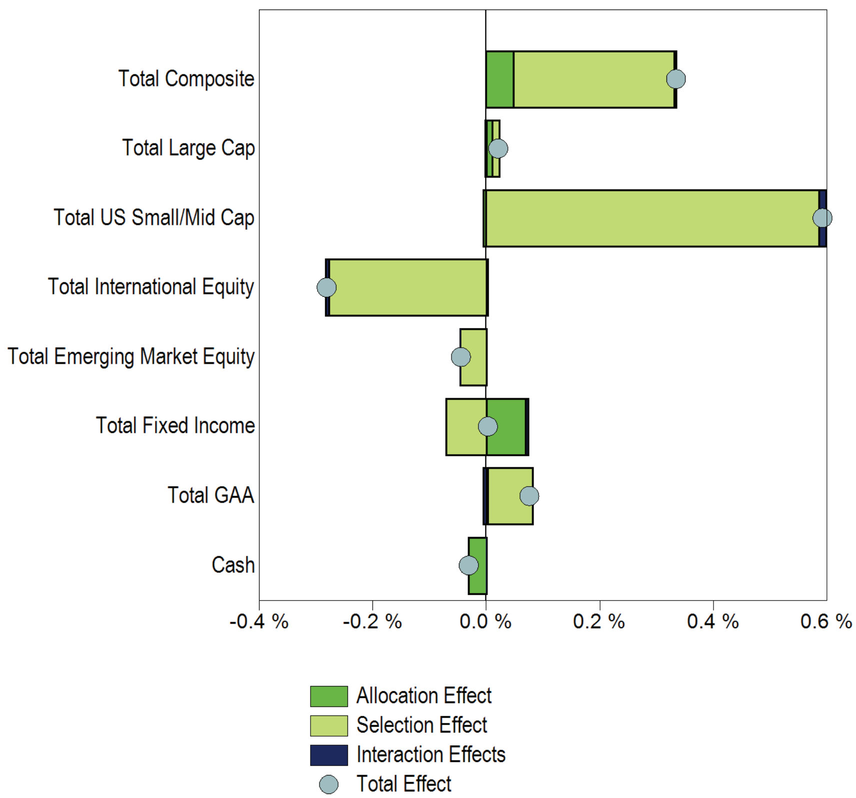


	Return (Rank)																			
5th Percentile	17.4		9.0		1.7		7.7		20.4		14.3		3.6		15.3		26.8		-9.8	
25th Percentile	15.6		8.1		0.4		6.4		17.2		12.9		1.6		13.4		22.0		-15.2	
Median	14.5		7.4		-0.4		5.5		14.9		11.8		0.6		12.2		18.6		-24.4	
75th Percentile	13.5		6.6		-1.5		4.4		12.7		10.4		-0.5		10.9		14.5		-27.6	
95th Percentile	11.6		5.0		-3.2		2.7		8.4		7.6		-3.1		7.9		9.9		-30.5	
# of Portfolios	218		269		262		210		191		159		137		131		128		125	
● Total Composite	21.0	(1)	7.5	(47)	-0.9	(68)	5.2	(59)	22.1	(1)	12.1	(43)	0.9	(41)	12.3	(49)	24.1	(14)	-23.4	(47)
▲ Policy Index	18.1	(4)	9.1	(5)	-0.2	(44)	7.6	(7)	19.9	(8)	12.8	(27)	0.8	(42)	13.4	(25)	21.1	(32)	-24.5	(51)

Sample ABC Client

TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects Relative to Total Fund Policy Index
6 Months Ending December 31, 2017



Attribution Summary
3 Months Ending December 31, 2017

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Large Cap	6.7%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Total US Small/Mid Cap	7.6%	3.3%	4.2%	0.6%	0.0%	0.0%	0.6%
Total International Equity	3.3%	4.7%	-1.4%	-0.3%	0.0%	0.0%	-0.3%
Total Emerging Market Equity	6.5%	7.4%	-0.9%	0.0%	0.0%	0.0%	0.0%
Total Fixed Income	0.1%	0.4%	-0.3%	-0.1%	0.1%	0.0%	0.0%
Total GAA	5.0%	3.4%	1.6%	0.1%	0.0%	0.0%	0.1%
Cash	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**4.6%**	**4.3%**	**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.3%**

Returns are calculated using the benchmark return and weight of composites shown and may differ from returns shown on the performance summary.

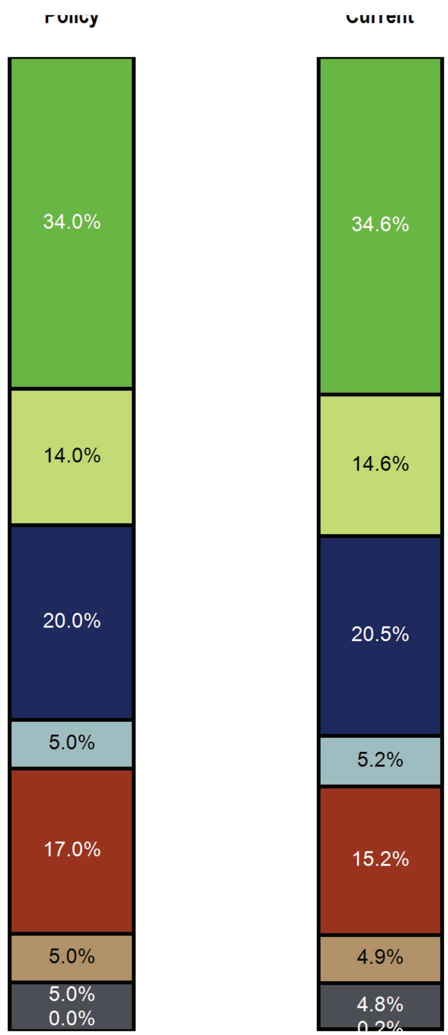
TOTAL FUND RISK STATISTICS

5 Years Ending December 31, 2017													
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Total Composite	100.00%	10.60%	3	7.42%	99	--	--	1.39	49	2.28	46	--	--
Allocation Index	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Equity	74.87%	--	--	--	--	--	--	--	--	--	--	--	--
Russell 3000	--	15.58%	--	9.75%	--	0.00%	--	1.57	--	2.60	--	0.00%	--
Total Domestic Equity	49.14%	14.78%	46	9.84%	20	-0.09%	37	1.47	23	2.40	30	1.66%	1
Domestic Equity Policy Index	--	15.45%	33	10.09%	26	0.00%	36	1.50	20	2.43	29	0.00%	1
Total Large Cap	34.59%	14.78%	52	9.72%	31	-0.91%	54	1.49	38	2.67	25	1.64%	2
Russell 1000	--	15.71%	33	9.59%	26	0.00%	32	1.61	15	2.73	22	0.00%	1
Total US Small/Mid Cap	14.55%	14.76%	32	11.02%	19	2.23%	24	1.32	18	2.12	28	3.29%	13
Russell 2500	--	14.33%	38	12.19%	53	0.00%	56	1.15	43	1.81	55	0.00%	1
Total International Equity	20.53%	9.16%	46	11.94%	81	1.84%	55	0.74	57	1.18	66	3.49%	35
Int'l Equity Policy Index	--	7.42%	82	11.59%	67	0.00%	88	0.62	85	1.05	82	0.00%	1
Total Emerging Market Equity	5.20%	--	--	--	--	--	--	--	--	--	--	--	--
MSCI Emerging Markets	--	4.35%	74	14.39%	69	0.00%	74	0.28	73	0.48	66	0.00%	1
Total Fixed Income	20.17%	1.97%	75	3.11%	85	-0.19%	81	0.55	87	0.77	82	0.99%	83
BBgBarc US Aggregate TR	--	2.10%	62	2.85%	51	0.00%	64	0.64	65	0.90	58	0.00%	1
Total Domestic Fixed Income	15.23%	1.93%	78	2.67%	22	-0.05%	70	0.62	71	0.85	71	0.36%	21
BBgBarc US Aggregate TR	--	2.10%	62	2.85%	51	0.00%	64	0.64	65	0.90	58	0.00%	1
Total Global Fixed Income	4.94%	--	--	--	--	--	--	--	--	--	--	--	--
Citi WGBI	--	0.12%	87	5.41%	92	0.00%	87	-0.03	87	-0.04	87	0.00%	1
Total GAA	4.78%	--	--	--	--	--	--	--	--	--	--	--	--
60% MSCI World (Net) / 40% BBgBarc Agg	--	7.86%	19	6.04%	38	0.00%	24	1.26	5	2.11	4	0.00%	1
Cash	0.19%	0.53%	13	1.05%	99	0.26%	13	0.25	76	0.37	77	1.04%	99
91 Day T-Bills	--	0.27%	80	0.11%	42	0.00%	80	0.00	80	--	--	0.00%	1

ASSET ALLOCATION

Sample ABC Client

TOTAL FUND ASSET ALLOCATION VS. POLICY TARGETS

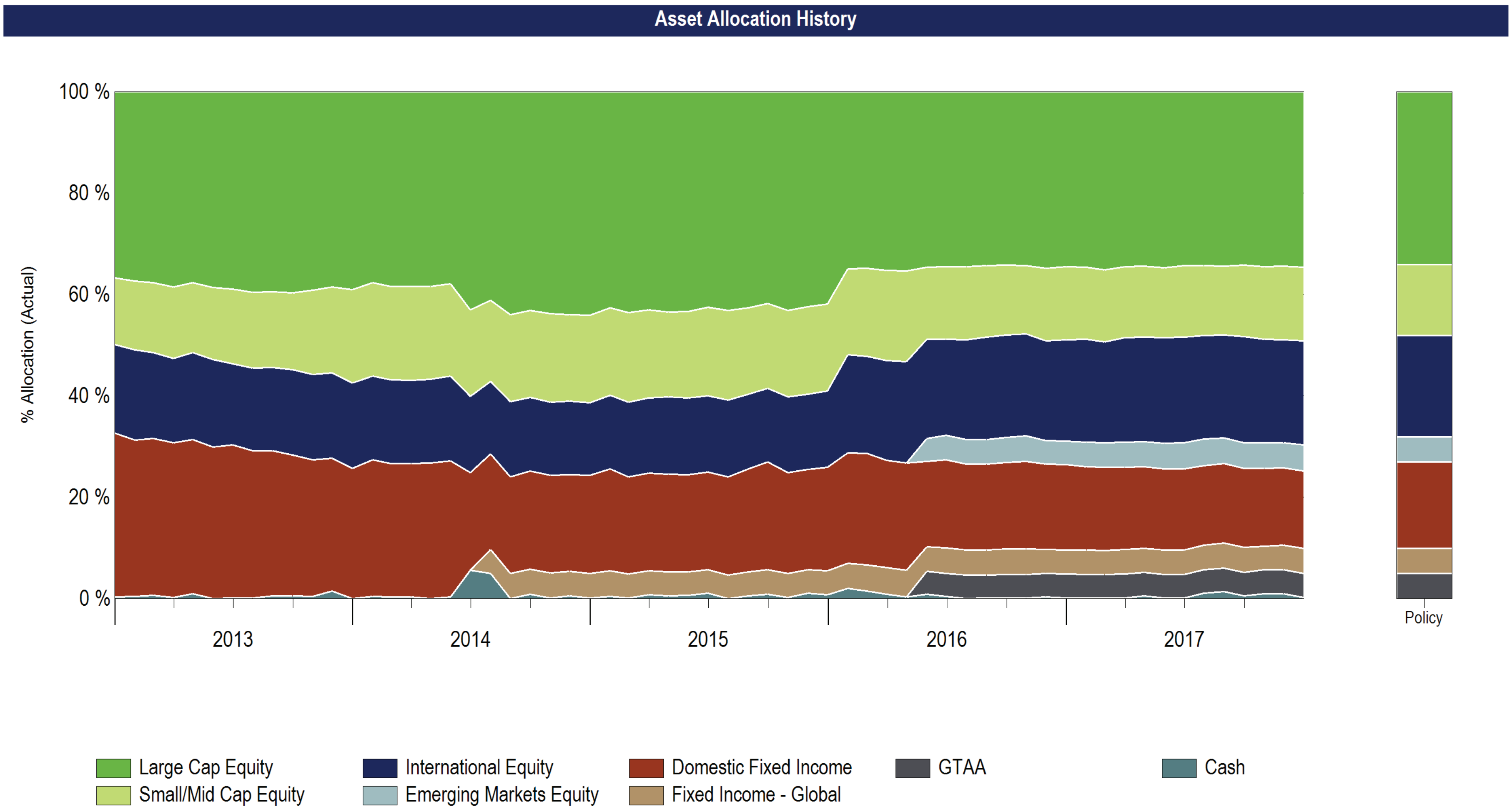


Asset Allocation vs. Target	Current	Policy	Current	Difference*	Policy Range	Within Range
Large Cap Equity	$473,810,304	34.0%	34.6%	0.6%	29.0% - 39.0%	**Yes**
Small/Mid Cap Equity	$199,329,712	14.0%	14.6%	0.6%	9.0% - 19.0%	**Yes**
International Equity	$281,195,163	20.0%	20.5%	0.5%	15.0% - 25.0%	**Yes**
Emerging Markets Equity	$71,162,400	5.0%	5.2%	0.2%	2.5% - 7.5%	**Yes**
Domestic Fixed Income	$208,552,859	17.0%	15.2%	-1.8%	12.0% - 22.0%	**Yes**
Fixed Income - Global	$67,661,639	5.0%	4.9%	-0.1%	2.5% - 7.5%	**Yes**
GTAA	$65,434,284	5.0%	4.8%	-0.2%	2.5% - 7.5%	**Yes**
Cash	$2,585,034	0.0%	0.2%	0.2%	0.0% - 5.0%	**Yes**
Total	**$1,369,731,395**	**100.0%**	**100.0%**			

*Difference between Policy and Current Allocation

Sample ABC Client

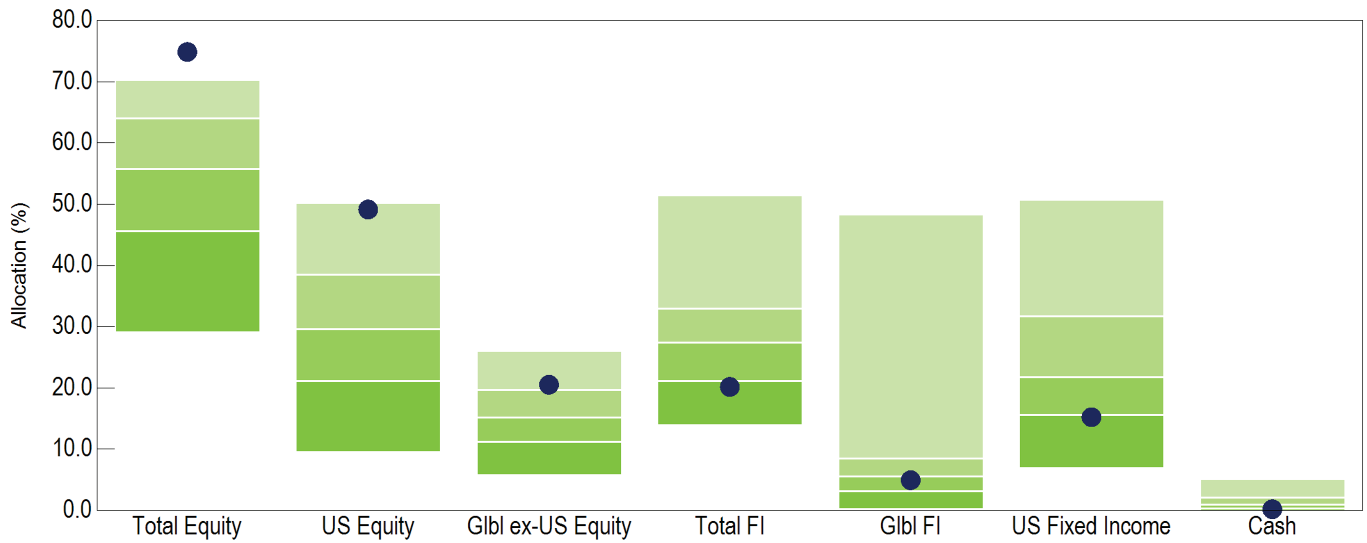
TOTAL FUND ASSET ALLOCATION HISTORY



Sample ABC Client

TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

Total Plan Allocation vs. InvestorForce Public DB Net
As of December 31, 2017



Allocation (Rank)	Total Equity		US Equity		Glbl ex-US Equity		Total FI		Glbl FI		US Fixed Income		Cash	
5th Percentile	70.3		50.2		26.0		51.5		48.4		50.8		5.1	
25th Percentile	64.2		38.6		19.8		33.1		8.6		31.8		2.2	
Median	55.9		29.7		15.2		27.5		5.6		21.9		1.1	
75th Percentile	45.8		21.3		11.3		21.2		3.3		15.6		0.4	
95th Percentile	29.1		9.6		5.8		14.0		0.4		7.0		0.0	
# of Portfolios	209		155		176		206		31		151		193	
● **Total Composite**	74.9	(2)	49.1	(6)	20.5	(20)	20.2	(78)	4.9	(52)	15.2	(77)	0.2	(84)

MONITORING/POLICY VERIFICATIONS

DUE DILIGENCE MONITOR

Investment Options	Manager Changes/ Announcements (Recent Quarter)	NEPC Due Diligence Committee Recommendations
Manager M	Loss of Personnel: Manager M Investment Team Change 10/2017	No Action
Manager T *S&P 500 Index*	Other: Manager T Organizational Announcements 11/2017	No Action
Manager O *Core Fixed Income*	Change of Firm Ownership: Manager O Ownership Change 12/2017	No Action

NEPC Due Diligence Status Key	
No Action	Informational items have surfaced; no action is recommended.
Watch	Issues have surfaced to be concerned over; manager can participate in future searches, but current and prospective clients must be made aware of the issues.
Hold	Serious issues have surfaced to be concerned over; manager cannot be in future searches unless a client specifically requests, but current and prospective clients must be made aware of the issues.
Client Review	Very serious issues have surfaced with a manager; manager cannot be in future searches unless a client specifically requests. Current clients must be advised to review the manager.
Terminate	We have lost all confidence in the product; manager would not be recommended for searches and clients would be discouraged from using. The manager cannot be in future searches unless a client specifically requests. Current clients must be advised to replace the manager.

DUE DILIGENCE UPDATES

Investment Option	Commentary	NEPC Rating
Manager M	Manager M's Emerging Markets Equity team notified NEPC that it is losing one of the team's most junior members, Employee A, who will be leaving to pursue opportunities outside of the industry. Employee A started with the team in 2013, took a family break and rejoined in August 2016 covering Latin America. Employee B, Head of Research who covered LatAm for 15 years before Employee A came back, will be providing oversight as current team member Employee C takes over coverage. Employee C was previously Employee A's back up on Latin America. The team has also decided to promote its European institutional PM Employee D to the associate PM role and will be looking to fill her previous role. NEPC Research is comfortable with the depth of existing coverage and recommends NO ACTION.	**Preferred**
Manager T *S&P 500 Index*	NEPC was notified by Manager T of an upcoming number of C-suite transitions. Employee E, CEO, will be retiring at the end of 2018 after 30 years with the firm. Employee E will remain with Manager T as chairman throughout 2019. Concurrently, Employee F, vice chairman of Manager T, and president and CEO of Manager T has been appointed by Manager T's board of directors to the role of President and Chief Operating Officer. Following Employee E's retirement, Employee F will assume the CEO role. In addition, Employee G, Executive Vice President and Global Head of Product and Marketing at Manager T has been named president and CEO of Manager T. Employee G has been a part of the leadership team at Manager T since he joined the firm in April 2016. NEPC is comfortable with the transition of responsibilities at Manager T given the extended duration between the announcement and the transition. There should be minimal impact to investment personnel. NEPC Research recommends a due diligence status of NO ACTION.	**Preferred**
Manager O *Core Fixed Income*	Manager O has informed NEPC Research that Company A will purchase a 24.75% minority stake in Manager O from Group A. Currently, Group A holds a 60% stake in the firm, with Manager O management and employees owning the balance of 40%, on a fully diluted basis. As a result of this transaction, Manager O employee ownership will increase to 44.07%, and Group A will maintain a 31.18% stake in the company. This announcement is the latest in a trend of Asian interest in the US asset management industry following SoftBank's acquisition of Fortress Investment Group earlier this year. Group A bought its original 60% stake in Manager O from French bank Société Générale in 2013, and still plans to hold on to its remaining ownership. There is no plan at this time to divest further. NEPC Research recommends No Action. After speaking with Manager O, it is clear that there will be no change to investment philosophy, process, or product offerings as a result of this transaction. There is comfort in the fact that Manager O will remain operating autonomously. NEPC Research believes that Group A does not plan to divest further at this time.	**Neutral**

NEPC

DUE DILIGENCE UPDATES

NEPC Due Diligence Rating Key	
Preferred	A high conviction investment product. Product has a clear and economically-grounded investment thesis, and is managed by an investment team that is sufficiently resourced and incented to execute on the thesis.
Preferred Conditional	A strategy that meets the definition of Preferred as described above, but may only be suitable for certain clients due to unique characteristics of the strategy, e.g. higher risk attributes such as concentration, transparency, etc.
Neutral	A satisfactory investment product. No major flaws, but may be lacking a compelling investment thesis, or NEPC's conviction regarding the investment team's ability to execute on the thesis may be less than that of Preferred products.
Not Recommended	Serious issues have been identified with an investment manager or product. This rating is similar to the Client Review or Terminate rating for client-owned products.
Not Rated	Due diligence has not been completed on the product or manager.

INVESTMENT MANAGER MONITORING - OUTPUT

Manager	Performance vs. Index			Performance vs. Universe			Company Changes		
	1 yr 20% <	3 yr 10% <	5 yr <	1 yr 4th quartile	3 yr < 50%	5 yr < 50%	Portfolio Mangers	Ownership	Score
Manager S		X	X		X				3
Manager H									2
Manager D									2
Manager C				X					3
Manager B		X	n/a		X	n/a			2
Manager O		X	n/a		X	n/a			2
Manager A									3
Manager L									4
Manager I									3
Manager P		X	X	X	X	X			3
Manager R				X	X	X			3
Manager F				X					3
Manager K			n/a			n/a			3
Manager E		n/a	n/a		n/a	n/a			3
Manager M		n/a	n/a		n/a	n/a			3

Score:

1. Significantly Outperformed – > 5%
2. Slightly Outperformed – between 2%-5%
3. Performed within expectations – between 0 and +/- 2%
4. Slight Underperformance – between (-2% - 5%)
5. Significantly Underperformed - < (-5%)

INVESTMENT MANAGER MONITORING - WATCH LIST CRITERIA

The watch list is a mechanism used by the Board to express its general discomfort or loss of confidence in an investment management firm. Discomfort may be caused by deficiency in performance, departure of key personnel, material changes in managed assets and clients, financial instability, change in organizational or ownership structure, consultant downgrade, investment strategy or style deviation, contravention of any term or condition of the Investment Management Agreement or any other issue believed to undermine the Board's confidence in the Investment Manager.

Based on criteria that are indicators of legitimate relationship and investment performance problems, both qualitative and quantitative criteria of the Investment Manager shall be monitored on an ongoing basis.

Qualitative criteria include the Investment Manager's business, people, investment process and downgrade in research rating. Non-compliance with qualitative criteria will trigger a due diligence review and may lead to a recommendation to Watch List or terminate the Investment Manager.

Quantitative analysis of performance will focus on the following:

- 1- year return less than the index by 20%
- 3- year return less than the Index by 10%
- 5- year return less than the index.
- 1- year performance placement in the fourth quintile of peers
- 3- year performance placement below the median manager (50% percentile) in their appropriate universe.
- 5- year performance placement below the median manager (50% percentile) in their appropriate universe.

Violations of any qualitative or multiple quantitative criteria will trigger an automatic due diligence review, which may lead to placement on the Watch List or termination. A firm placed on the Watch List will remain on the Watch List for at least two consecutive quarters. A firm may be removed from the Watch List at the discretion of the Board. The Watch List policy does not limit the Board's ability to retain or terminate the Investment Manager. Any Investment Manager on the Watch List may be restricted from receiving additional funding by the Board. If the Board determines (with advice from the consultant) the manager is unlikely (without style drift) to meet the requirements, the manager will be terminated.

POLICY VERIFICATION – EQUITIES

Quarterly Manager Policy Compliance Verfication - Domestic Equities

Sample ABC Client

	Manager H	Manager S	Manager T	Manager C	Manager D
Fulfilled all reporting requirements	Yes	Yes	Yes	Yes	Yes
Portfolio complies with Investment Guidelines	Yes	Yes	Yes	Yes	Yes
Derivative holdings in full compliance	Yes	Yes	Yes	Yes	Yes

POLICY VERIFICATION – EQUITIES

Quarterly Manager Policy Compliance Verfication - Equities
Sample ABC Client

	Manager A	Manager B	Manager L [2]	Manager O	Manager M
Fulfilled all reporting requirements	Yes	Yes	Yes	Yes	Yes
Portfolio complies with Investment Guidelines	N/A	Yes	Yes	Yes	Yes
Derivative holdings in full compliance	N/A	Yes	No	Yes	Yes

[1] Manager A is a mutual fund and follows the respective guidelines set forth in their Prospectus or Offering memorandum.

[2] Manager L utilizes foreign currency forwards. The use of derivatives other than forwards, such as exchange-traded options, is very rare, and is generally limited to circumstances where they are seeking to hedge the exposure of a portfolio holding; or, where they are seeking a short-term solution to equitize cash as a result of flows. Manager L complies with all relevant local regulations when trading derivatives. Given the firm's limited use of derivatives, they have not implemented specific written compliance policies or procedures with respect to currency hedging or derivatives.

POLICY VERIFICATION – FIXED INCOME

Quarterly Manager Policy Compliance Verfication - Fixed Income

Sample ABC Client

	Manager F	Manager I	Manager K	Manager P	Manager R
Fulfilled all reporting requirements	Yes	Yes	Yes	Yes	Yes
Portfolio complies with Investment Guidelines	Yes	Yes	N/A	Yes	Yes
Derivative holdings in full compliance	Yes	Yes	N/A	Yes	Yes

[1] Manager K is a mutual fund and follows the respective guidelines set forth in their Prospectus or Offering memorandum

POLICY VERIFICATION – GAA

Quarterly Manager Policy Compliance Verfication - GAA

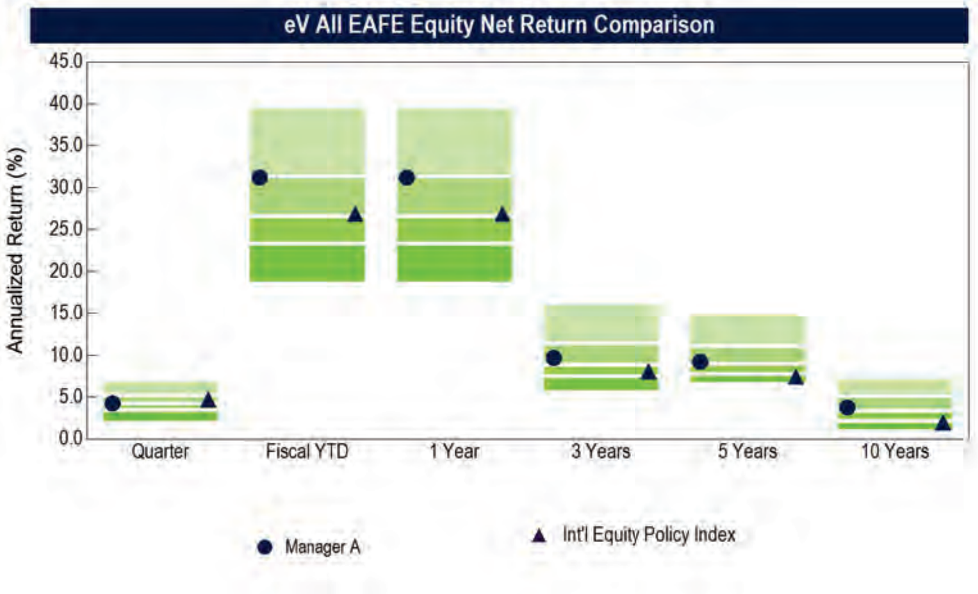
Sample ABC Client

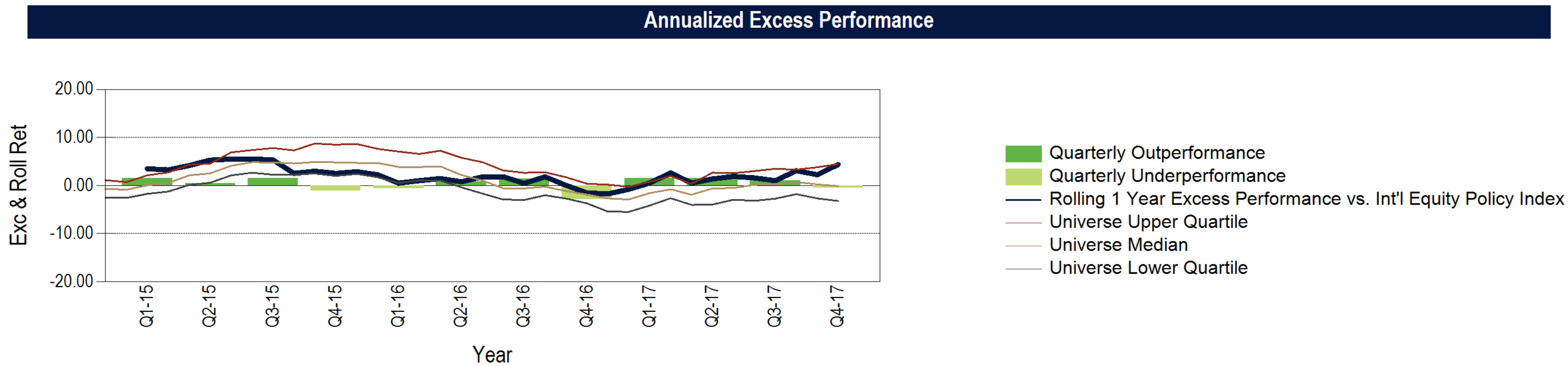
	Manager E
Fulfilled all reporting requirements	Yes
Portfolio complies with Investment Guidelines	Yes
Derivative holdings in full compliance	Yes

MANAGER PROFILES

Sample ABC Client

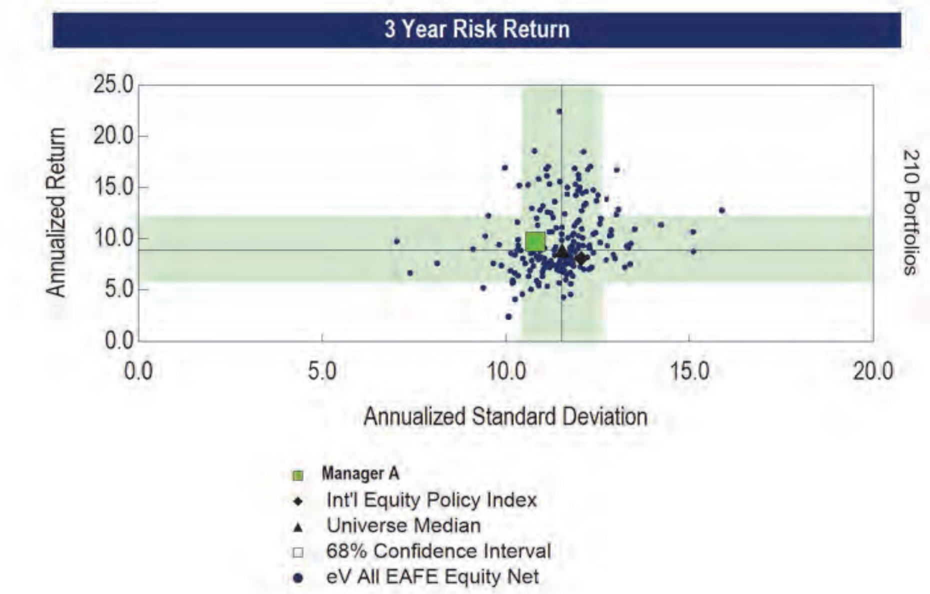
Manager A

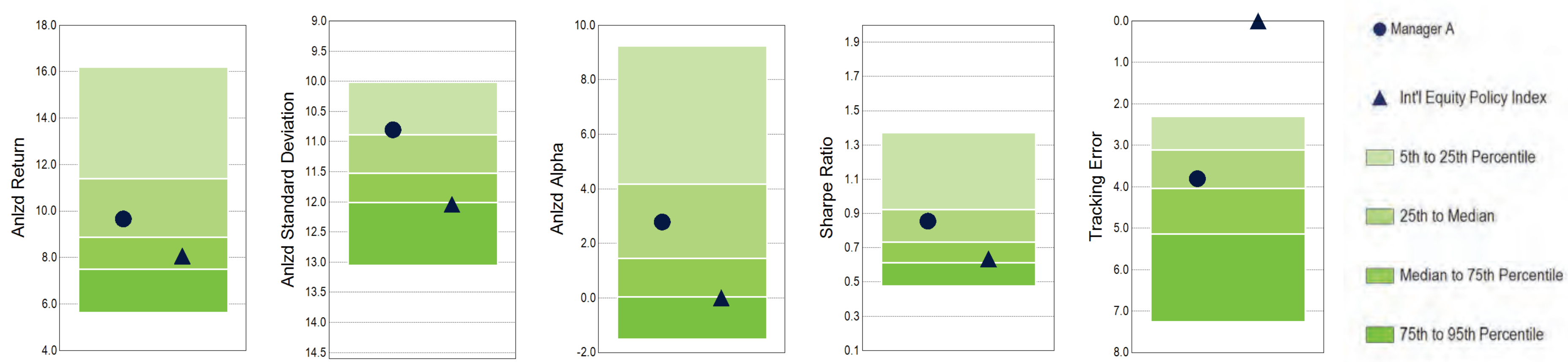




Sample ABC Client

Manager A

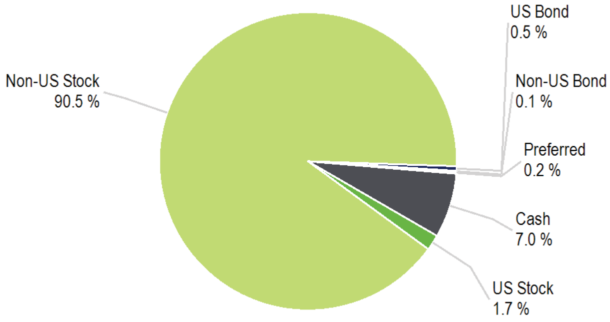




Sample ABC Client

Manager A

Mutual Fund Allocation as of December 31, 2017



Portfolio Fund Information as of December 31, 2017

Ticker	RERGX
Morningstar Category	Foreign Large Growth
Average Market Cap ($mm)	49,692.3
Net Assets ($mm)	65,715.1
% Assets in Top 10 Holdings	22.1
Total Number of Holdings	386
Manager Name	Mark E. Denning
Manager Tenure	26
Expense Ratio	0.5%
Closed to New Investors	No

Fund Characteristics as of December 31, 2017

Sharpe Ratio (3 Year)	0.9
Average Market Cap ($mm)	49,692.3
Price/Earnings	16.2
Price/Book	2.1
Price/Sales	1.7
Price/Cash Flow	6.8
Dividend Yield	1.8
Number of Equity Holdings	246
R-Squared (3 Year)	0.9
Alpha (3 Year)	0.2%

Top Holdings as of December 31, 2017

SAMSUNG ELECTRONICS CO LTD	3.3%
AIA GROUP LTD	2.6%
BRITISH AMERICAN TOBACCO PLC	2.5%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	2.0%
ALIBABA GROUP HOLDING LTD ADR	2.0%
RELIANCE INDUSTRIES LTD	2.0%
AIRBUS SE	2.0%
HDFC BANK LTD	2.0%
TENCENT HOLDINGS LTD	1.9%
SOFTBANK GROUP CORP	1.8%

Sector Allocation as of December 31, 2017

BASIC MATERIALS	7.0%
COMMUNICATION SERVICES	3.8%
CONSUMER CYCLICAL	11.6%
CONSUMER DEFENSIVE	9.9%
ENERGY	6.3%
FINANCIAL SERVICES	19.6%
HEALTHCARE	6.0%
INDUSTRIALS	9.4%
REAL ESTATE	1.4%
TECHNOLOGY	22.5%
UTILITIES	2.6%

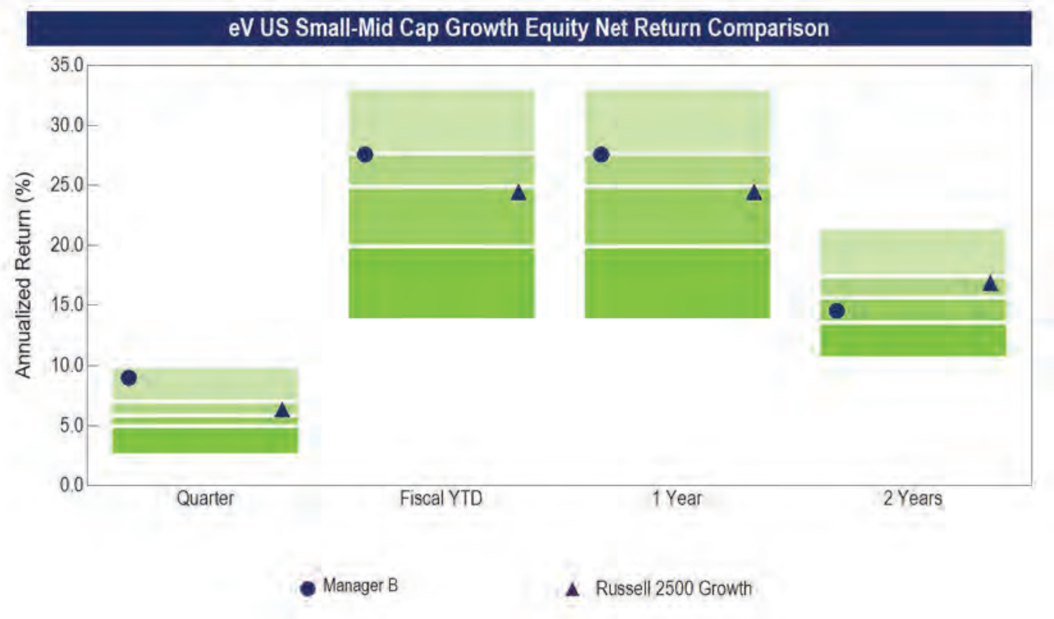
Top Countries as of December 31, 2017

Japan	14.1%
United Kingdom	13.6%
India	8.9%
China	7.4%
South Korea	6.9%
Hong Kong	5.7%
France	5.3%
Netherlands	4.6%
Germany	3.8%

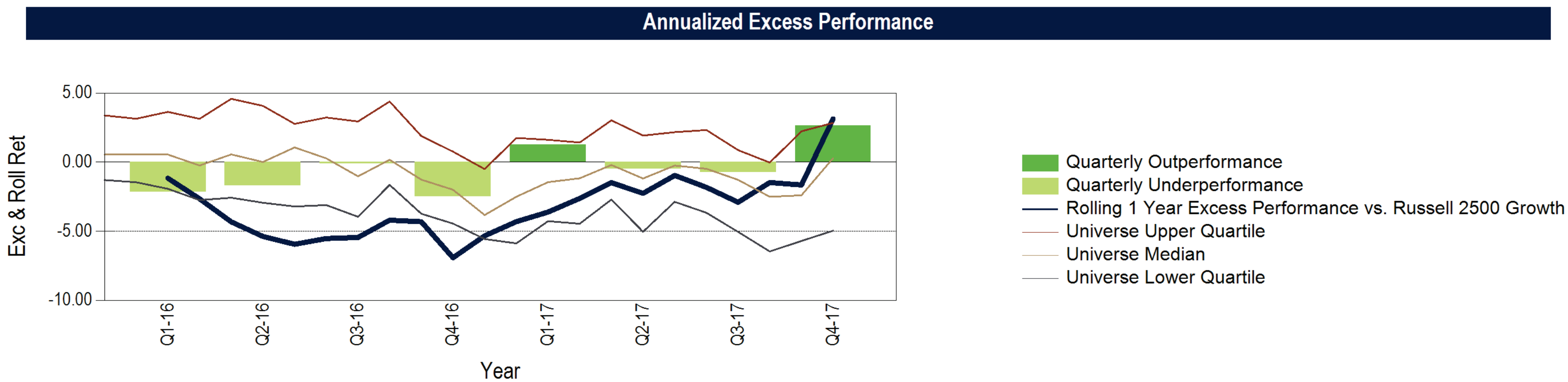
Top Regions as of December 31, 2017

ASIA EMERGING	19.1%
EUROZONE	19.1%
ASIA DEVELOPED	16.4%
JAPAN	14.2%
UNITED KINGDOM	13.7%

Manager B



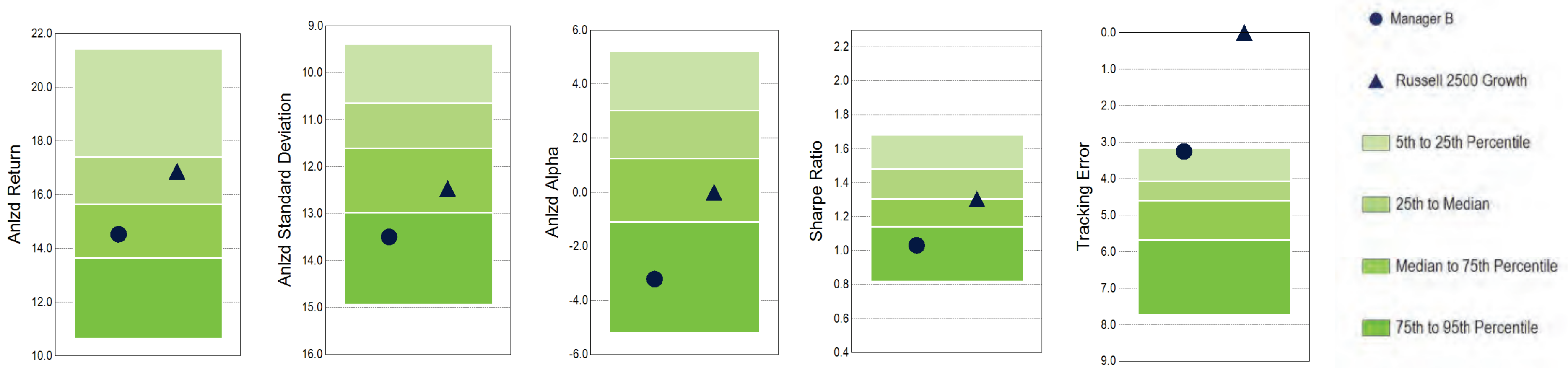
eV US Small-Mid Cap Growth Equity Net Return Comparison
Annualized Return (%)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Quarter
Fiscal YTD
1 Year
2 Years
Manager B
Russell 2500 Growth



Annualized Excess Performance
Exc & Roll Ret
5.00
0.00
-5.00
-10.00
Q1-16
Q2-16
Q3-16
Q4-16
Q1-17
Q2-17
Q3-17
Q4-17
Year
Quarterly Outperformance
Quarterly Underperformance
Rolling 1 Year Excess Performance vs. Russell 2500 Growth
Universe Upper Quartile
Universe Median
Universe Lower Quartile

Sample ABC Client

Manager B



Manager B

Characteristics	Portfolio	Russell 2500 Growth
Number of Holdings	64	1,435
Weighted Avg. Market Cap. ($B)	7.7	5.5
Median Market Cap. ($B)	6.3	1.4
Price To Earnings	36.3	25.9
Price To Book	6.5	6.7
Price To Sales	4.1	3.7
Return on Equity (%)	23.2	14.7
Yield (%)	0.5	0.7
Beta	1.0	1.0
R-Squared	0.9	1.0

Top Positive Contributors	Relative Contribution %	Return %
CHINA LODGING GROUP SPN. ADR 1:4	0.5%	22.3%
GRUBHUB	0.5%	36.3%
PULTEGROUP	0.5%	22.0%
MERCADOLIBRE	0.5%	21.6%
UNITED RENTALS	0.4%	23.9%
TOTAL SYSTEM SERVICES	0.4%	20.9%
COPART	0.4%	25.7%
OLD DOMINION FGT.LINES	0.4%	19.6%
NORDSON	0.3%	23.8%
DIAMONDBACK ENERGY	0.3%	28.9%

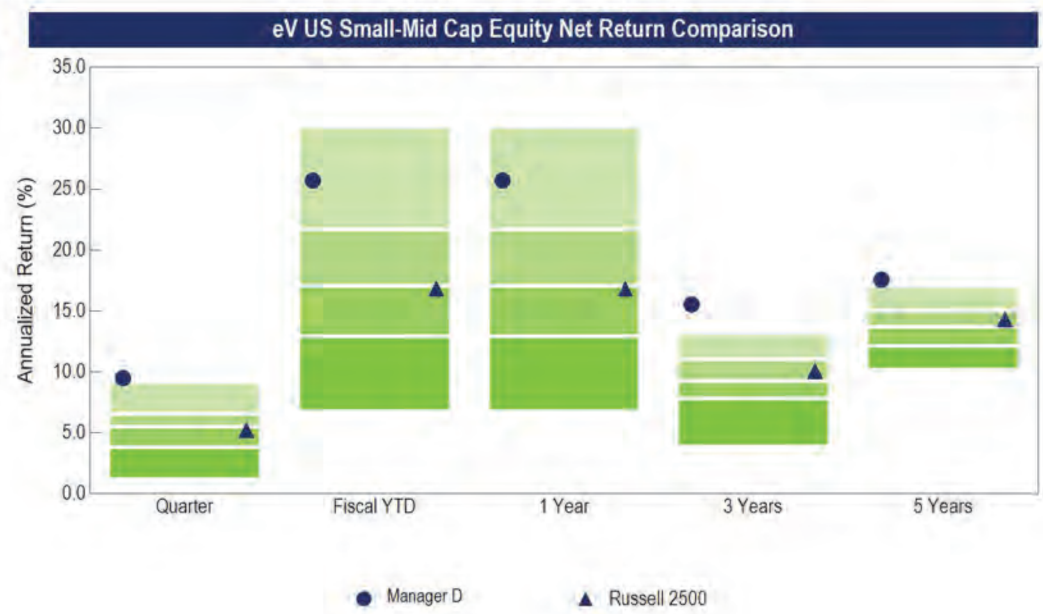
Top Negative Contributors	Relative Contribution %	Return %
MEDIDATA SOLUTIONS	-0.3%	-18.8%
MOMENTA PHARMACEUTICALS	-0.2%	-24.6%
TESARO	-0.2%	-35.8%
NAVIENT	-0.1%	-10.2%
CSRA	-0.1%	-7.3%
CAMBREX	-0.1%	-12.7%
PRESTIGE BRANDS HOLDINGS	-0.1%	-11.3%
VAIL RESORTS	-0.1%	-6.0%
GUIDEWIRE SOFTWARE	-0.1%	-4.6%
LITHIA MOTORS 'A'	-0.1%	-5.4%

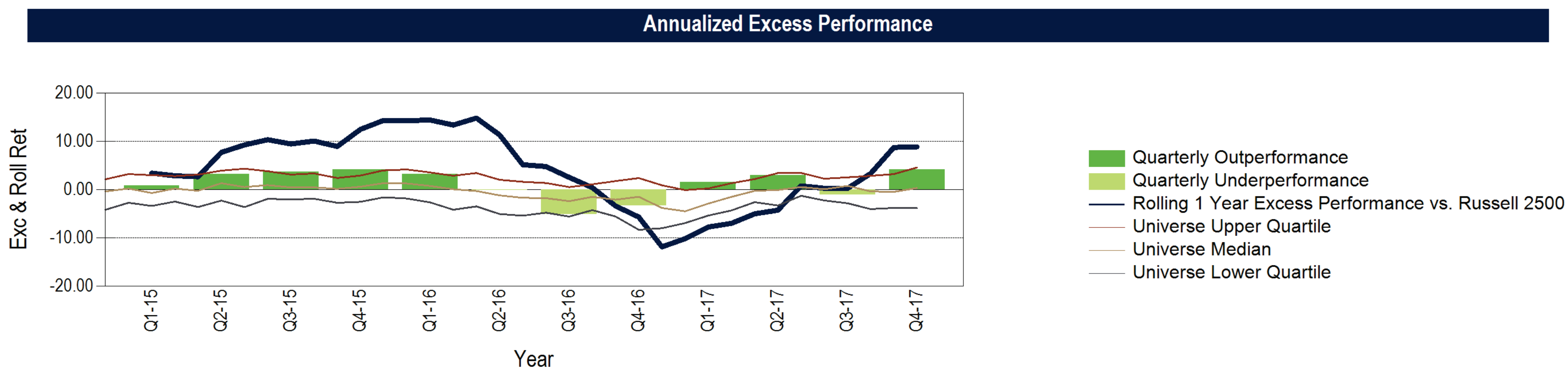
Equity Sector Attribution

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.4%		0.2%		0.0%		0.2%	18.9%	7.5%	3.5%	1.6%
Materials	0.1%		0.1%		0.0%		0.0%	6.1%	4.8%	4.0%	6.6%
Industrials	1.3%		1.5%		0.0%		-0.1%	16.4%	8.6%	17.3%	19.1%
Consumer Discretionary	0.0%		0.0%		0.0%		0.0%	8.4%	8.5%	16.0%	14.9%
Consumer Staples	0.0%		--		0.0%		--	--	8.3%	0.0%	2.3%
Health Care	-1.0%		-1.3%		0.1%		0.2%	-3.8%	3.4%	14.9%	18.1%
Financials	-0.2%		-0.2%		-0.1%		0.1%	6.4%	9.5%	5.7%	7.5%
Information Technology	1.3%		1.2%		0.0%		0.1%	10.2%	5.4%	26.7%	25.3%
Telecommunication Services	0.0%		--		0.0%		--	--	1.2%	0.0%	0.8%
Utilities	0.0%		--		0.0%		--	--	7.0%	0.0%	0.4%
Real Estate	0.3%		0.4%		0.0%		-0.2%	14.3%	3.5%	2.1%	3.6%
Cash	-0.6%		0.0%		-0.6%		0.0%	0.3%	--	9.8%	0.0%
Portfolio	**1.6%**	**=**	**1.8%**	**+**	**-0.5%**	**+**	**0.2%**	**7.9%**	**6.4%**	**100.0%**	**100.0%**

Sample ABC Client

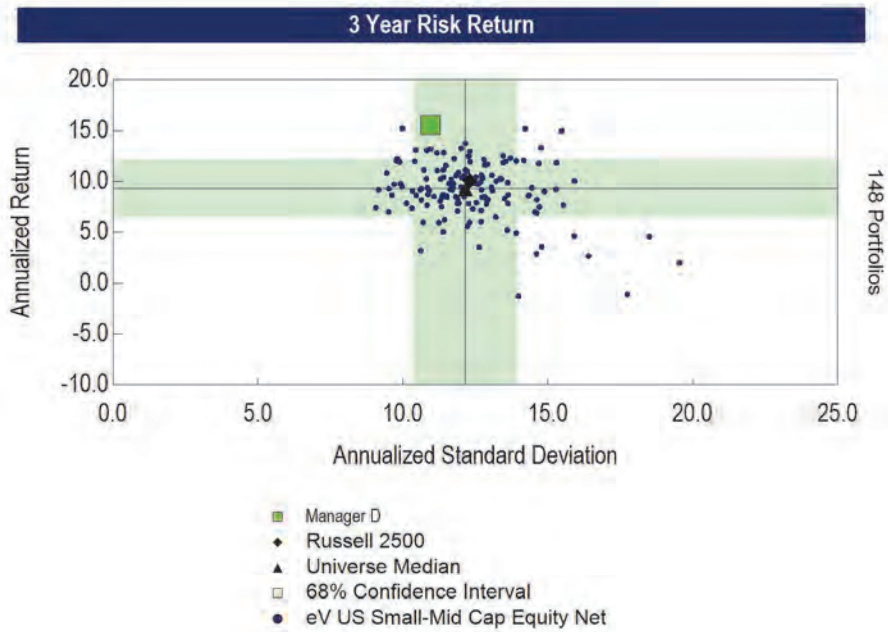
Manager D

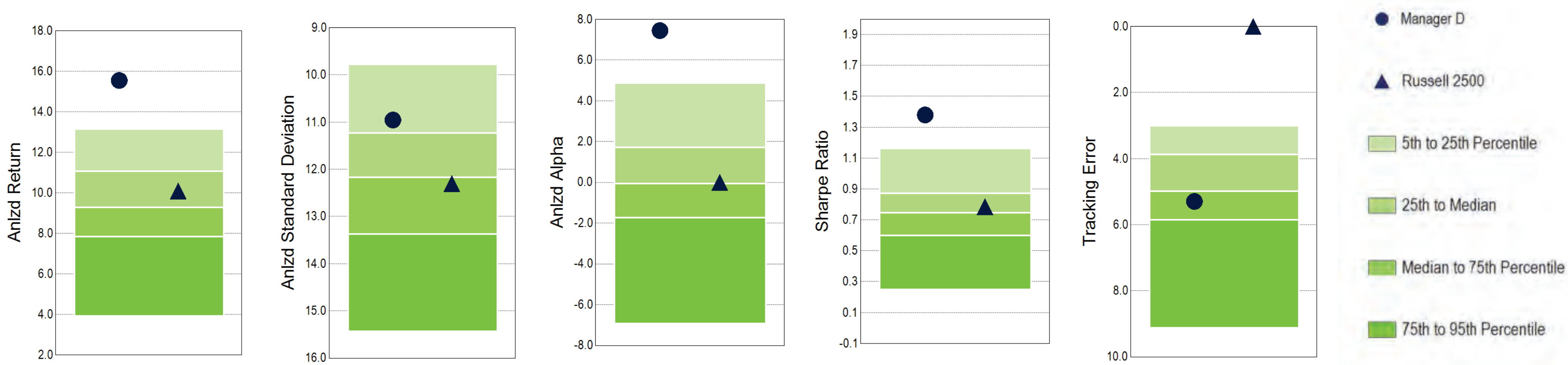




Sample ABC Client

Manager D





Sample ABC Client

Manager D

Characteristics	Portfolio	Russell 2500
Number of Holdings	47	2,472
Weighted Avg. Market Cap. ($B)	8.6	5.1
Median Market Cap. ($B)	7.6	1.2
Price To Earnings	43.5	22.4
Price To Book	6.4	3.7
Price To Sales	3.4	3.2
Return on Equity (%)	20.2	10.6
Yield (%)	0.7	1.2
Beta	0.8	1.0
R-Squared	0.8	1.0

Top Positive Contributors	Relative Contribution %	Return %
ANSYS	0.8%	20.3%
SEI INVESTMENTS	0.6%	18.2%
WEX	0.6%	25.9%
TRANSUNION	0.5%	16.3%
MANHATTAN ASSOCS.	0.4%	19.2%
NORDSON	0.4%	23.8%
LENNOX INTL.	0.3%	16.6%
CARLISLE COS.	0.3%	13.7%
JACK HENRY & ASSOCS.	0.3%	14.1%
JONES LANG LASALLE	0.3%	20.9%

Top Negative Contributors	Relative Contribution %	Return %
HENRY SCHEIN	-0.2%	-14.8%
SALLY BEAUTY HOLDINGS	-0.1%	-4.2%
GARTNER 'A'	0.0%	-1.0%
APTARGROUP	0.0%	0.3%
WESTAMERICA BANCORP.	0.0%	0.7%
KIRBY	0.0%	1.3%
RPM INTERNATIONAL	0.0%	2.7%
CHURCH & DWIGHT CO.	0.1%	4.0%
TRIMBLE	0.1%	3.5%
ACUITY BRANDS	0.1%	2.8%

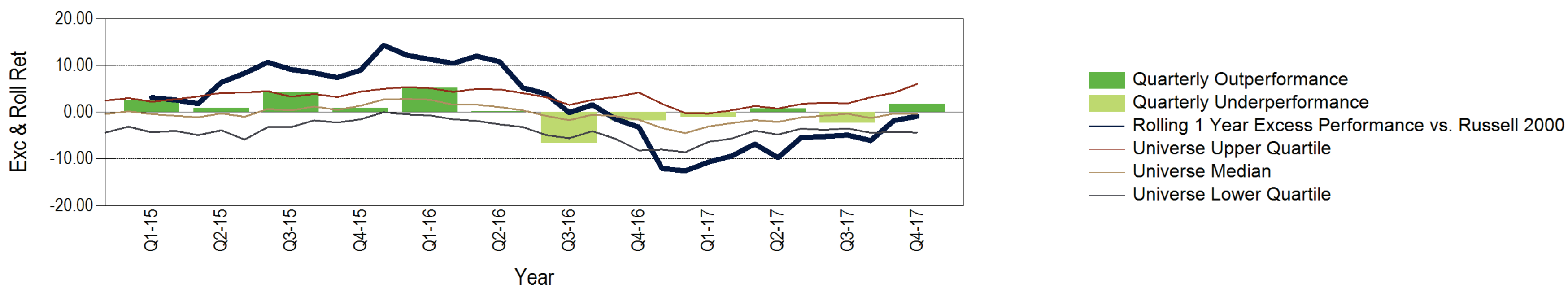
Equity Sector Attribution

	Attribution Effects										Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects				Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.1%		--		-0.1%		--				--	7.8%	0.0%	4.3%
Materials	-0.2%		-0.4%		-0.1%		0.2%				1.2%	7.2%	3.2%	5.9%
Industrials	0.9%		0.4%		0.2%		0.2%				10.8%	8.1%	24.8%	16.1%
Consumer Discretionary	-0.2%		-0.2%		-0.1%		0.1%				6.5%	8.0%	8.6%	12.5%
Consumer Staples	0.0%		-0.1%		0.0%		0.0%				4.0%	6.0%	1.3%	2.9%
Health Care	0.3%		0.3%		-0.1%		0.0%				4.9%	2.1%	13.3%	11.6%
Financials	1.1%		1.0%		0.0%		0.2%				10.2%	4.3%	19.4%	16.4%
Information Technology	2.0%		1.3%		0.0%		0.7%				12.8%	4.7%	25.2%	16.3%
Telecommunication Services	0.0%		--		0.0%		--				--	-0.7%	0.0%	0.6%
Utilities	0.1%		--		0.1%		--				--	2.6%	0.0%	3.8%
Real Estate	0.5%		1.8%		0.3%		-1.5%				20.9%	2.0%	1.5%	9.6%
Cash	-0.1%		0.0%		-0.1%		0.0%				0.3%	--	2.9%	0.0%
Portfolio	**4.2%**	**=**	**4.2%**	**+**	**0.1%**	**+**	**-0.1%**				**9.5%**	**5.2%**	**100.0%**	**100.0%**

Sample ABC Client

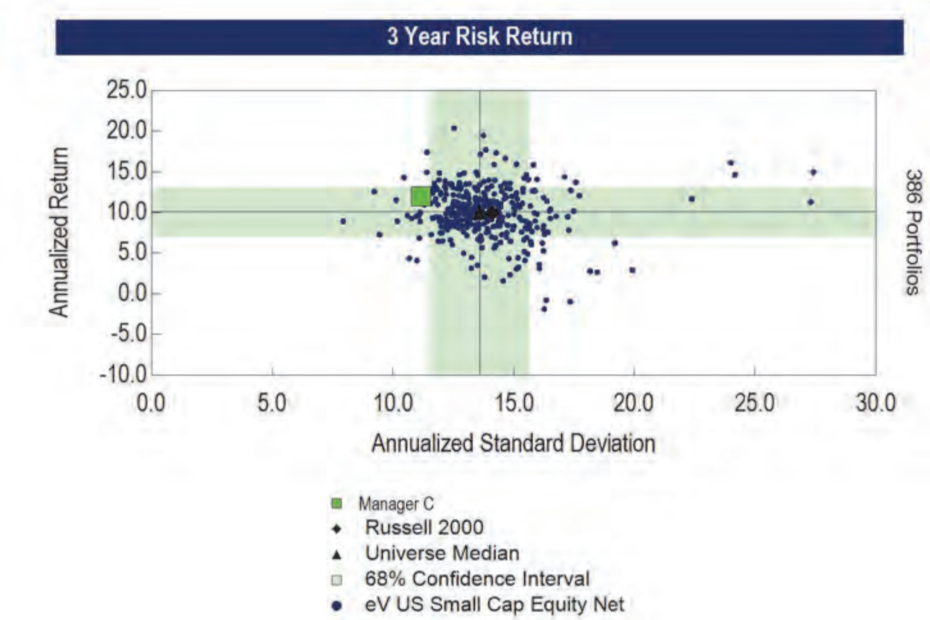
Manager C

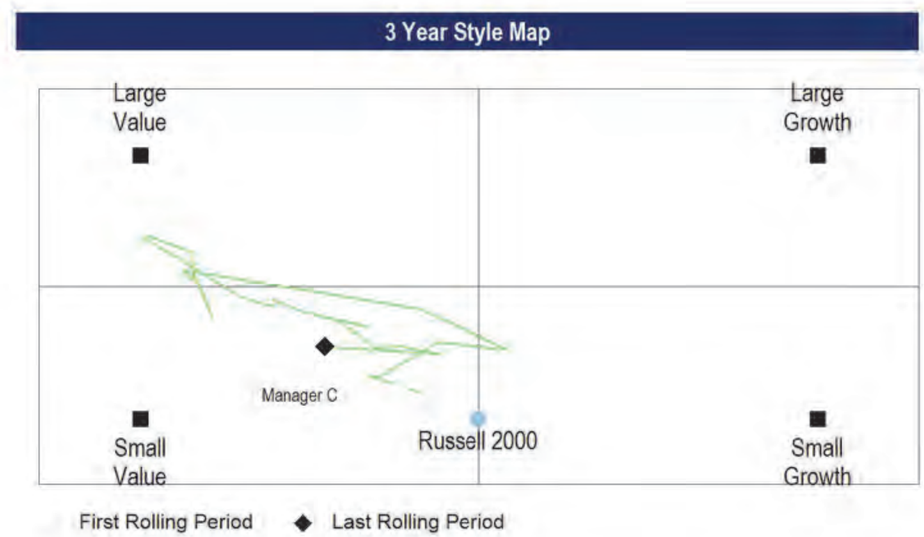
Annualized Excess Performance

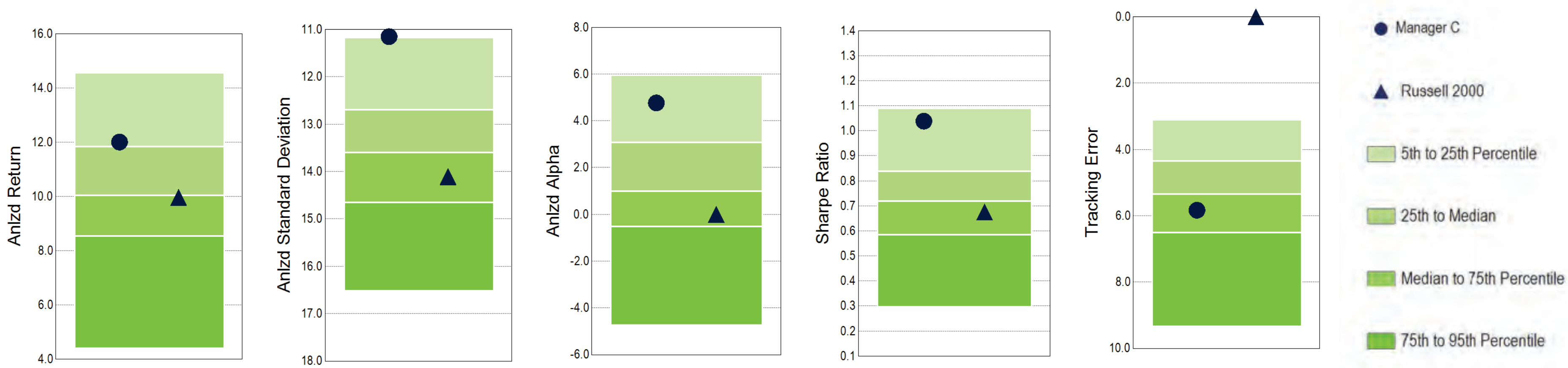


Sample ABC Client

Manager C







Sample ABC Client

Manager C

Characteristics	Portfolio	Russell 2000
Number of Holdings	57	1,983
Weighted Avg. Market Cap. ($B)	3.4	2.4
Median Market Cap. ($B)	2.8	0.8
Price To Earnings	36.0	18.4
Price To Book	5.4	3.3
Price To Sales	3.4	3.1
Return on Equity (%)	17.8	7.8
Yield (%)	1.0	1.0
Beta	0.7	1.0
R-Squared	0.8	1.0

Top Positive Contributors	Relative Contribution %	Return %
WEX	0.8%	25.9%
MANHATTAN ASSOCS.	0.7%	19.2%
CHOICE HOTELS INTL.	0.6%	21.8%
COLUMBIA SPORTSWEAR	0.4%	17.1%
MORNINGSTAR	0.4%	14.4%
POOL	0.3%	20.2%
BEACON ROOFING SUPPLY	0.3%	24.4%
J & J SNACK FOODS	0.2%	16.0%
ARTISAN PTNS.ASTMGMT.	0.2%	23.2%
BLACKBAUD	0.2%	7.7%

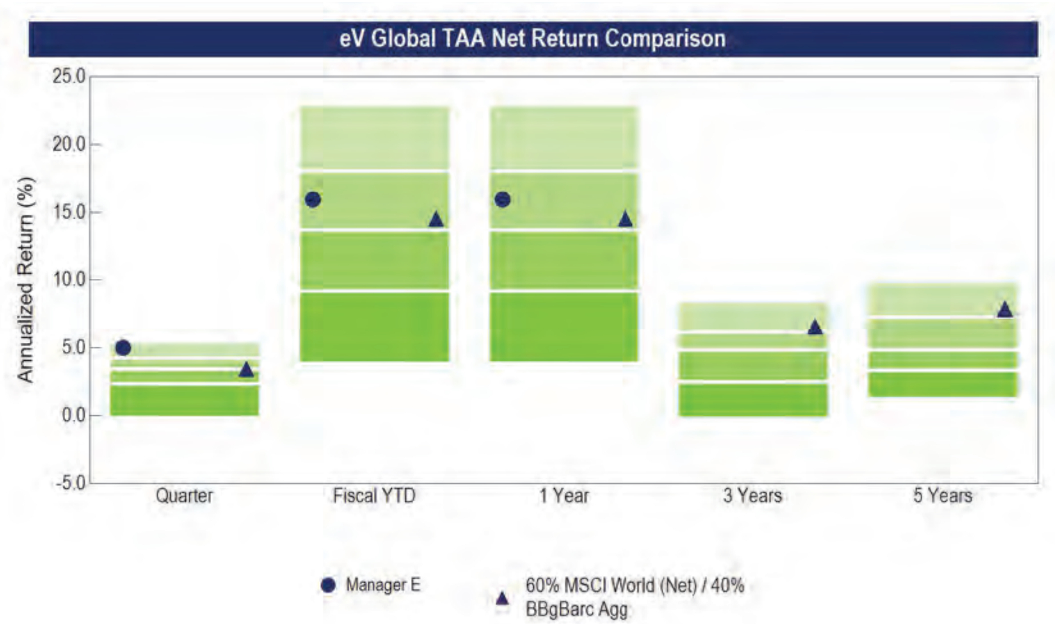
Top Negative Contributors	Relative Contribution %	Return %
NAVIGATORS GROUP	-0.3%	-16.4%
DORMAN PRODUCTS	-0.3%	-14.6%
SCANSOURCE	-0.2%	-18.0%
EXPONENT	-0.1%	-3.5%
EPLUS	-0.1%	-18.7%
SALLY BEAUTY HOLDINGS	-0.1%	-4.2%
INTEGRA LFSC.HDG.	-0.1%	-5.2%
IBERIABANK	-0.1%	-5.2%
SENSIENT TECHS.	0.0%	-4.5%
STEPAN	0.0%	-5.4%

Equity Sector Attribution

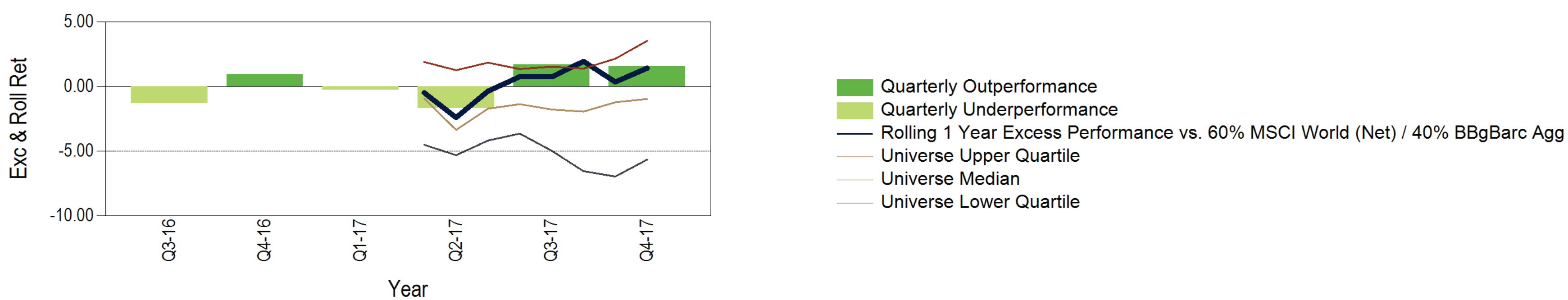
	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.1%		0.0%		-0.1%		0.0%	8.0%	6.8%	0.8%	3.6%
Materials	-0.3%		-0.3%		0.0%		-0.1%	-1.4%	4.2%	5.7%	4.5%
Industrials	-0.1%		-0.2%		0.2%		-0.1%	5.1%	6.4%	19.9%	14.9%
Consumer Discretionary	0.3%		0.1%		0.1%		0.0%	8.8%	7.9%	14.9%	12.1%
Consumer Staples	0.2%		0.0%		0.2%		0.0%	7.3%	7.1%	7.6%	2.7%
Health Care	0.3%		0.4%		0.1%		-0.2%	5.0%	2.4%	6.8%	15.4%
Financials	0.4%		0.4%		0.0%		-0.1%	4.0%	1.7%	15.6%	18.1%
Information Technology	1.3%		1.1%		-0.1%		0.3%	7.5%	1.0%	22.0%	17.1%
Telecommunication Services	0.1%		--		0.1%		--	--	-4.0%	0.0%	0.8%
Utilities	0.1%		--		0.1%		--	--	1.0%	0.0%	3.7%
Real Estate	0.2%		0.1%		0.2%		0.0%	0.4%	-0.4%	1.2%	7.1%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.3%	--	4.2%	0.0%
Portfolio	**2.2%**	**=**	**1.7%**	**+**	**0.6%**	**+**	**-0.1%**	**5.6%**	**3.3%**	**98.7%**	**100.0%**

Sample ABC Client

Manager E

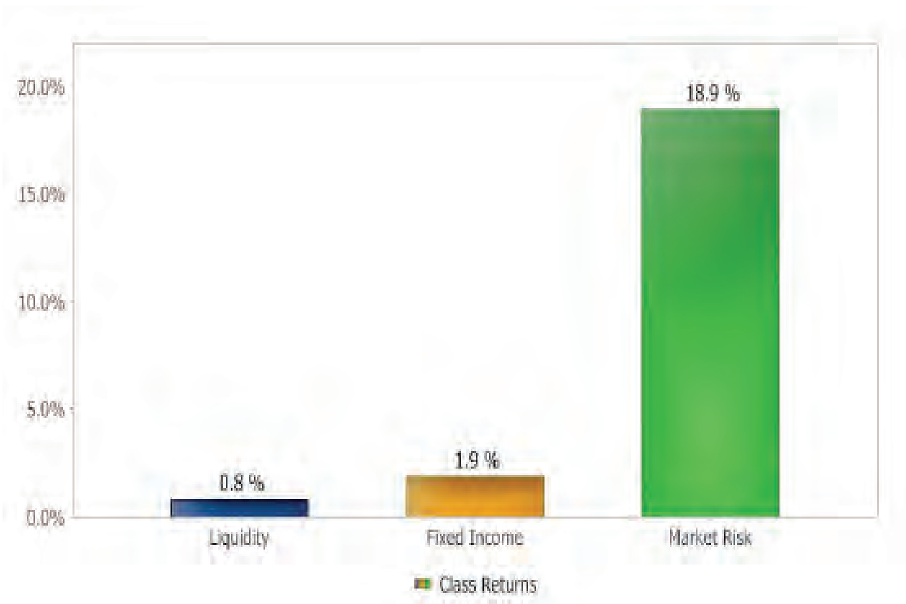


Annualized Excess Performance

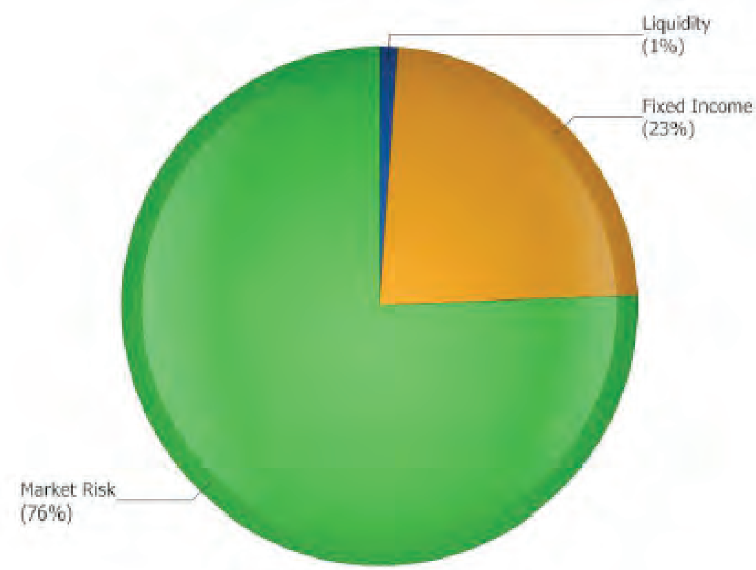


Manager E

Building Block Returns - Since Inception



Portfolio Class Allocation

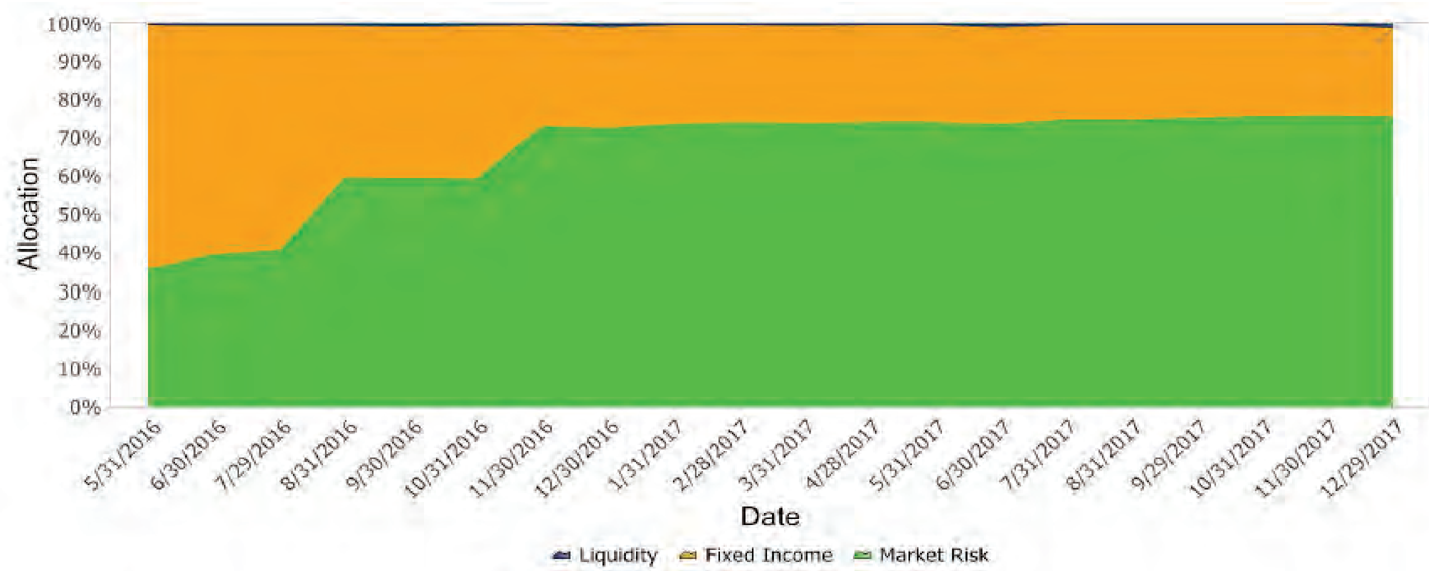


Source: Balentine

Sample ABC Client

Manager E

Asset Class Allocation Over Time



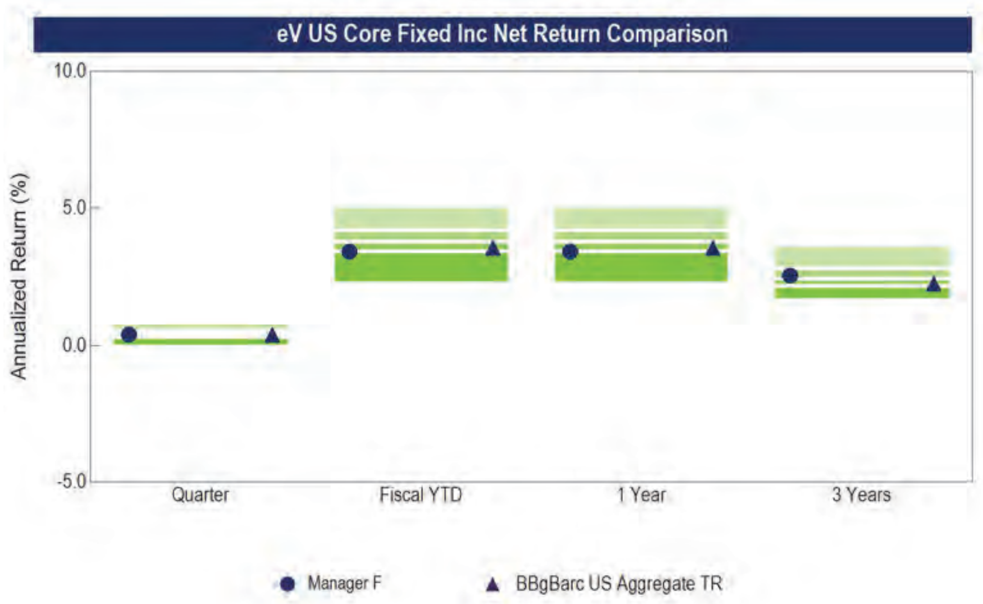
Policy Overview

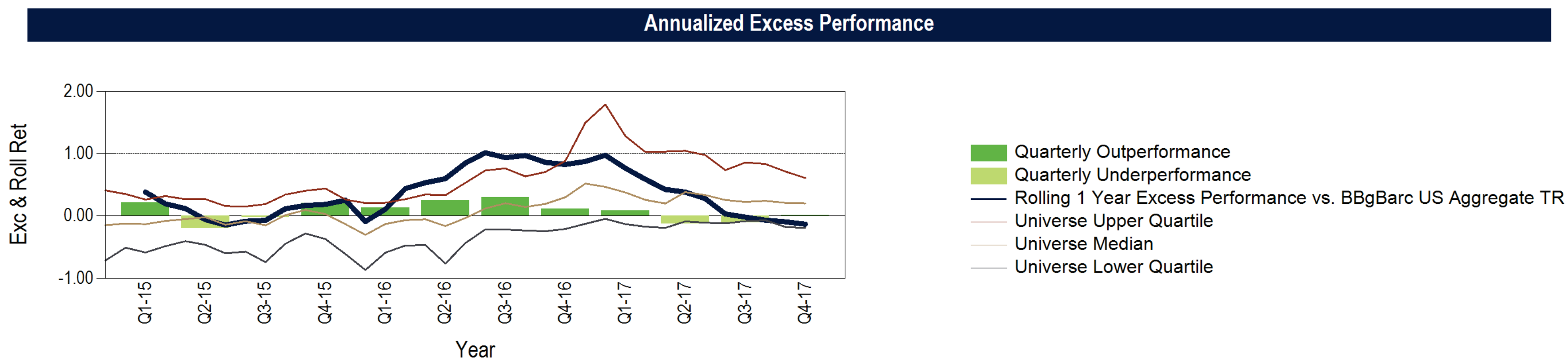
	Allocation	Tolerance Band	Target	Difference	Market Value	Target Value	Difference
Fulton County	**100.0 %**	**--**	**100.0 %**	**0.0 %**	**65,434,284**	**65,434,284**	**0**
Liquidity	1.1 %	0.0 - 40.0 %	0.0 %	1.1 %	736,269	0	736,269
Fixed Income	23.3 %	20.0 - 65.0 %	40.0 %	-16.7 %	15,235,354	26,173,713	-10,938,359
Market Risk	75.6 %	35.0 - 80.0 %	60.0 %	15.6 %	49,462,661	39,260,570	10,202,090
Manager Skill	0.0 %	0.0 - 0.0 %	0.0 %	0.0 %	0	0	0
Private Capital	0.0 %	0.0 - 0.0 %	0.0 %	0.0 %	0	0	0

Source: Balentine

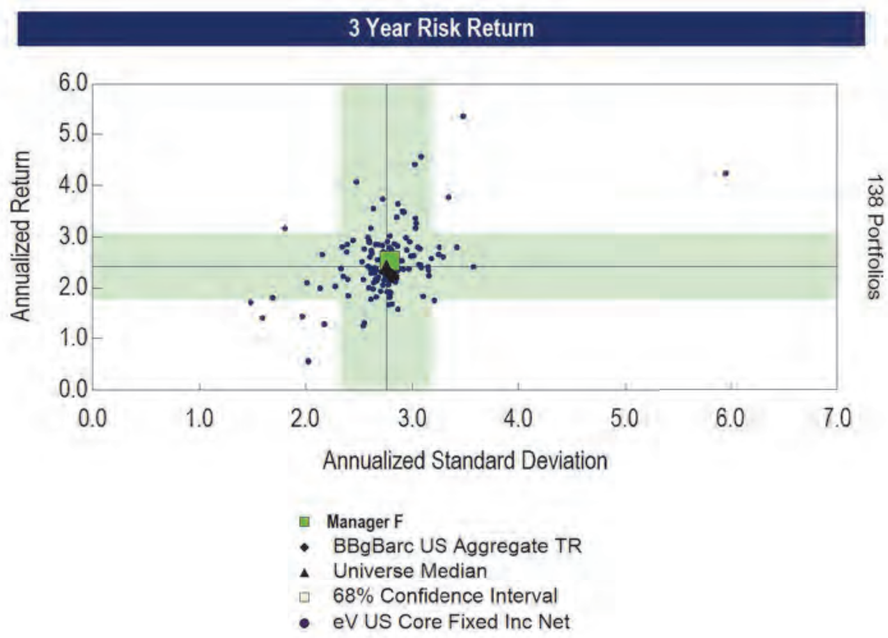
Sample ABC Client

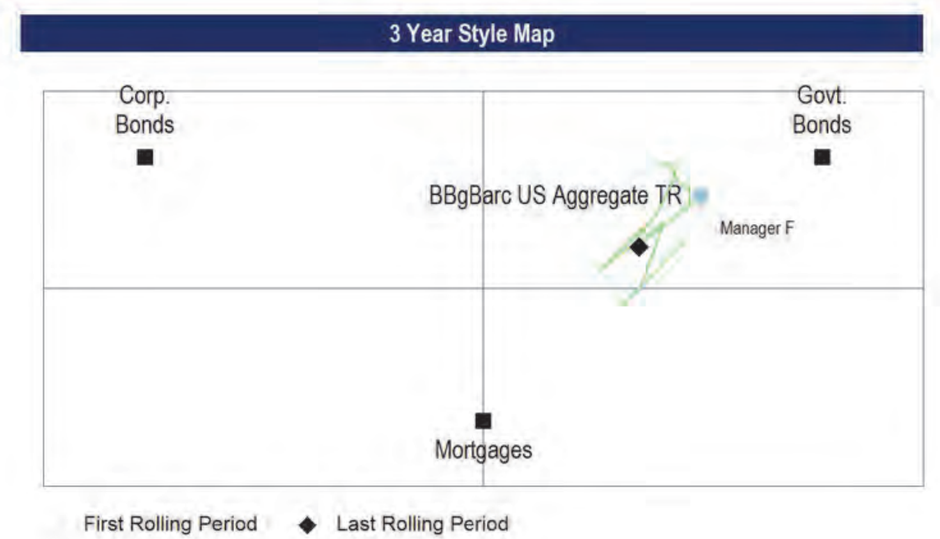
Manager F

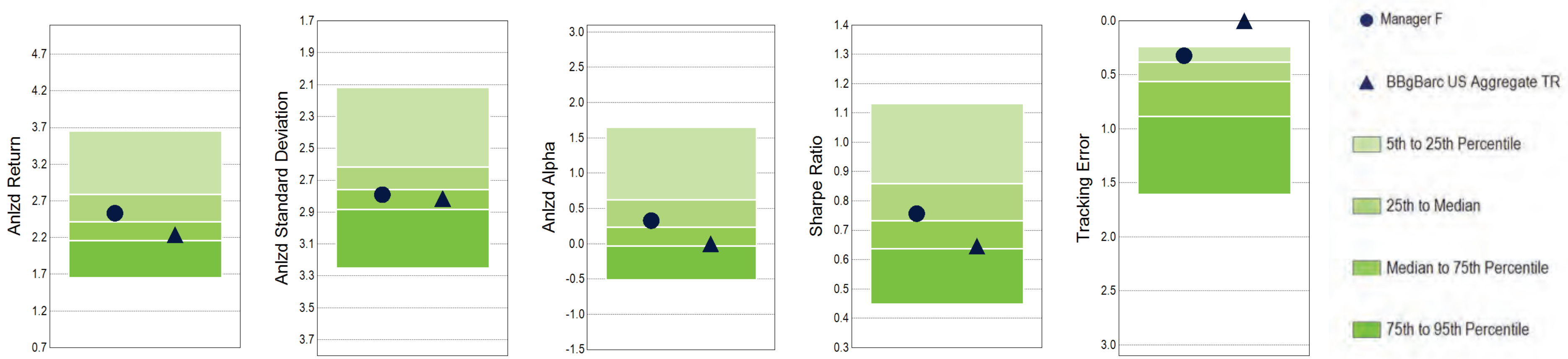




Manager F

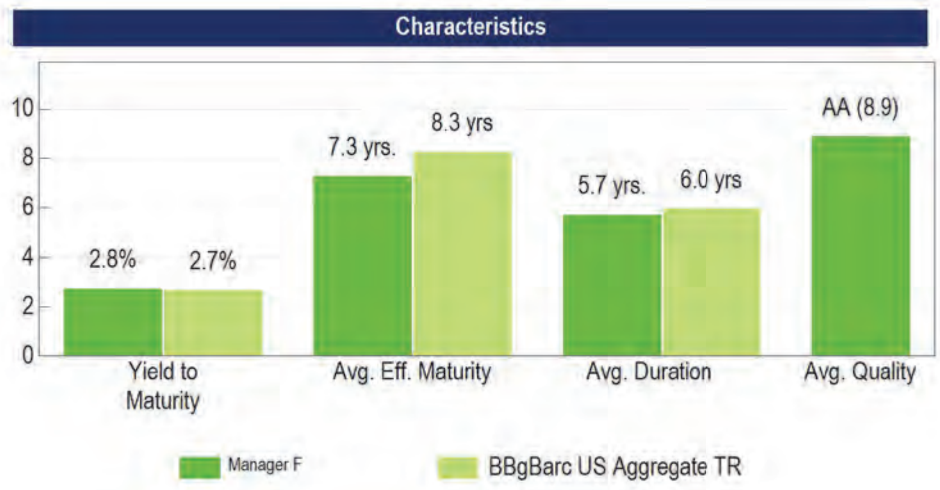

3 Year Risk Return
Annualized Return
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Annualized Standard Deviation
138 Portfolios
Manager F
BBgBarc US Aggregate TR
Universe Median
68% Confidence Interval
eV US Core Fixed Inc Net


3 Year Style Map
Corp.
Bonds
Govt.
Bonds
BBgBarc US Aggregate TR
Manager F
Mortgages
First Rolling Period
Last Rolling Period


Anlzd Return
4.7
4.2
3.7
3.2
2.7
2.2
1.7
1.2
0.7
Anlzd Standard Deviation
1.7
1.9
2.1
2.3
2.5
2.7
2.9
3.1
3.3
3.5
3.7
Anlzd Alpha
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
Sharpe Ratio
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
Tracking Error
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Manager F
BBgBarc US Aggregate TR
5th to 25th Percentile
25th to Median
Median to 75th Percentile
75th to 95th Percentile

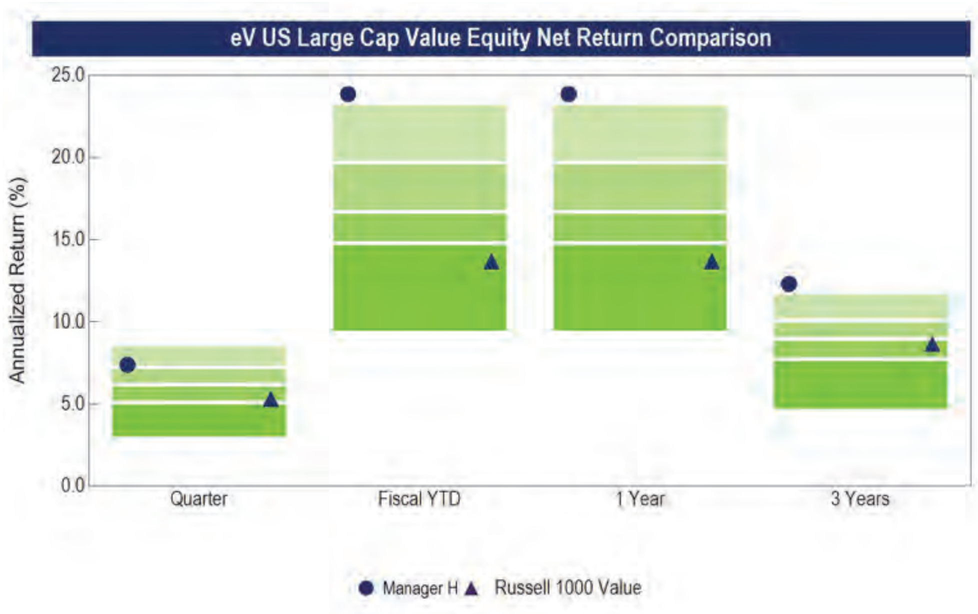
Sample ABC Client

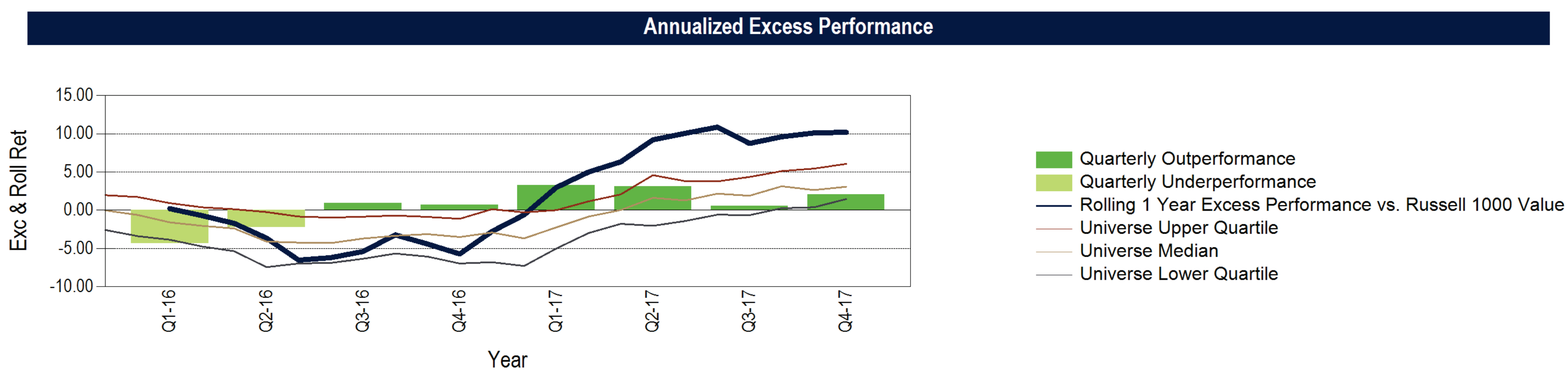
Manager F



Sample ABC Client

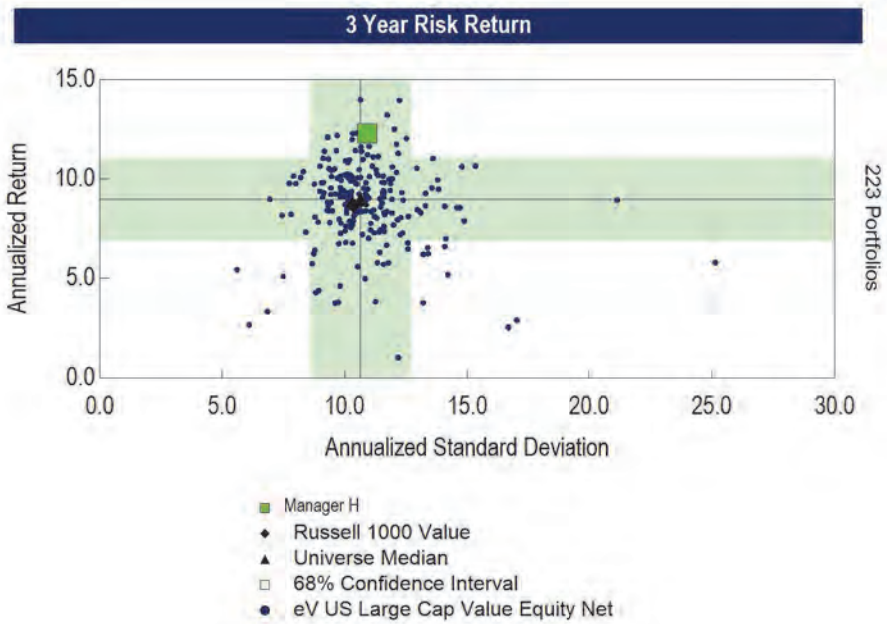
Manager H

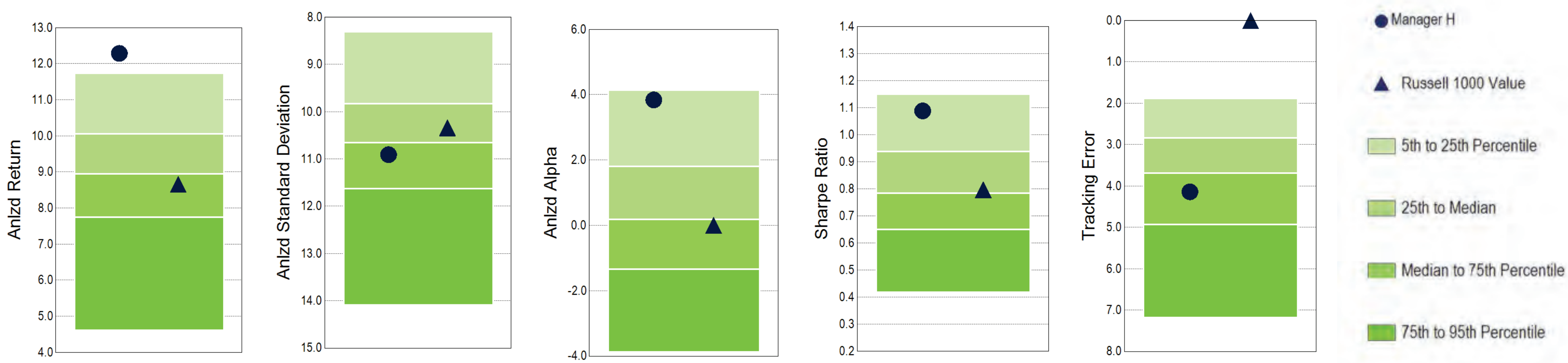




Sample ABC Client

Manager H





Sample ABC Client

Manager H

Characteristics	Portfolio	Russell 1000 Value
Number of Holdings	31	713
Weighted Avg. Market Cap. ($B)	219.8	119.4
Median Market Cap. ($B)	75.7	9.4
Price To Earnings	25.6	21.0
Price To Book	5.6	2.7
Price To Sales	3.4	2.9
Return on Equity (%)	17.7	11.5
Yield (%)	1.1	2.3
Beta	1.0	1.0
R-Squared	0.9	1.0

Top Positive Contributors	Relative Contribution %	Return %
AMAZON.COM	1.1%	21.6%
MARRIOTT INTL.'A'	1.0%	23.4%
MICROSOFT	1.0%	15.4%
TWENTY-FIRST CENTURY FOX CL.B	0.7%	32.3%
UNITEDHEALTH GROUP	0.6%	12.9%
ALPHABET 'C'	0.5%	9.1%
BERKSHIRE HATHAWAY 'B'	0.4%	8.1%
PEPSICO	0.2%	8.4%
ECOLAB	0.2%	4.6%
GOLDMAN SACHS GP.	0.2%	7.7%

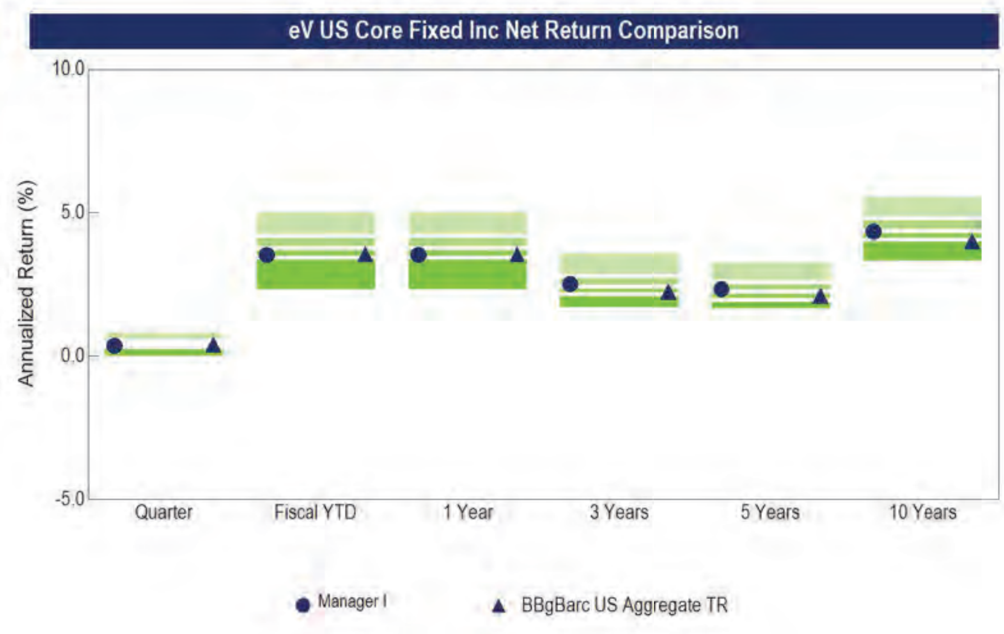
Top Negative Contributors	Relative Contribution %	Return %
AON CLASS A	-0.5%	-8.1%
DISH NETWORK 'A'	-0.3%	-11.9%
ORACLE	-0.1%	-1.8%
LIBERTY TRIP ADVI.HDG. SR.A	0.0%	-23.7%
TRIPADVISOR 'A'	0.0%	-15.0%
THERMO FISHER SCIENTIFIC	0.0%	0.4%
FIDELITY NAT.INFO.SVS.	0.0%	1.1%
ILG	0.0%	7.1%
NOBLE ENERGY	0.0%	3.1%
JP MORGAN CHASE & CO.	0.0%	12.6%

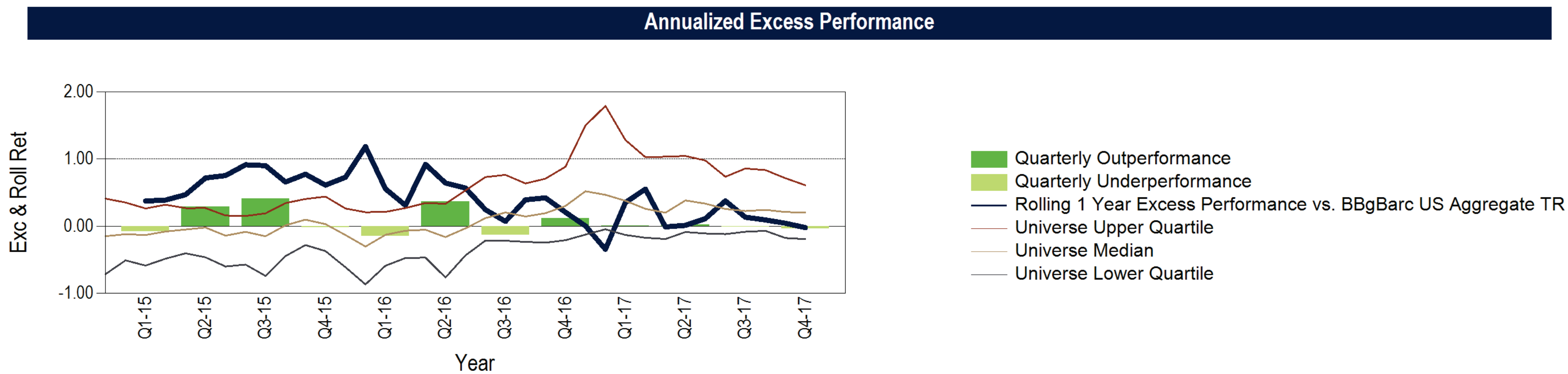
Equity Sector Attribution

	Attribution Effects				Returns		Sector Weights	
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.1%	0.1%	-0.1%	-0.1%	7.0%	6.4%	2.2%	10.9%
Materials	-0.1%	-0.1%	0.1%	-0.1%	4.6%	8.8%	4.4%	2.8%
Industrials	0.3%	--	0.3%	--	--	1.4%	0.0%	8.6%
Consumer Discretionary	1.6%	0.5%	0.0%	1.0%	12.9%	5.7%	21.3%	6.8%
Consumer Staples	0.2%	0.3%	0.1%	-0.1%	7.4%	4.0%	4.9%	8.7%
Health Care	0.7%	0.8%	0.2%	-0.4%	8.2%	2.1%	7.4%	13.9%
Financials	-0.6%	-0.7%	0.3%	-0.3%	5.8%	8.5%	35.6%	26.1%
Information Technology	0.0%	-0.3%	0.7%	-0.4%	7.2%	10.3%	21.6%	8.2%
Telecommunication Services	0.1%	--	0.1%	--	--	2.1%	0.0%	3.0%
Utilities	0.3%	--	0.3%	--	--	0.5%	0.0%	6.2%
Real Estate	0.2%	--	0.2%	--	--	1.8%	0.0%	4.9%
Cash	-0.1%	0.0%	-0.1%	0.0%	0.3%	--	2.7%	0.0%
Portfolio	**2.4%**	**= 0.6%**	**+ 2.0%**	**+ -0.3%**	**7.7%**	**5.3%**	**100.0%**	**100.0%**

Sample ABC Client

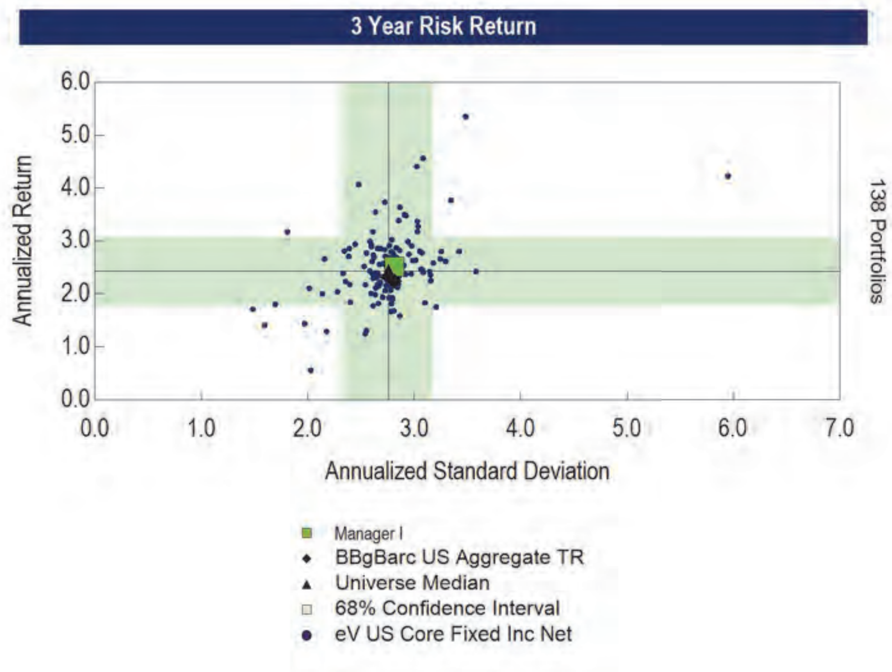
Manager I

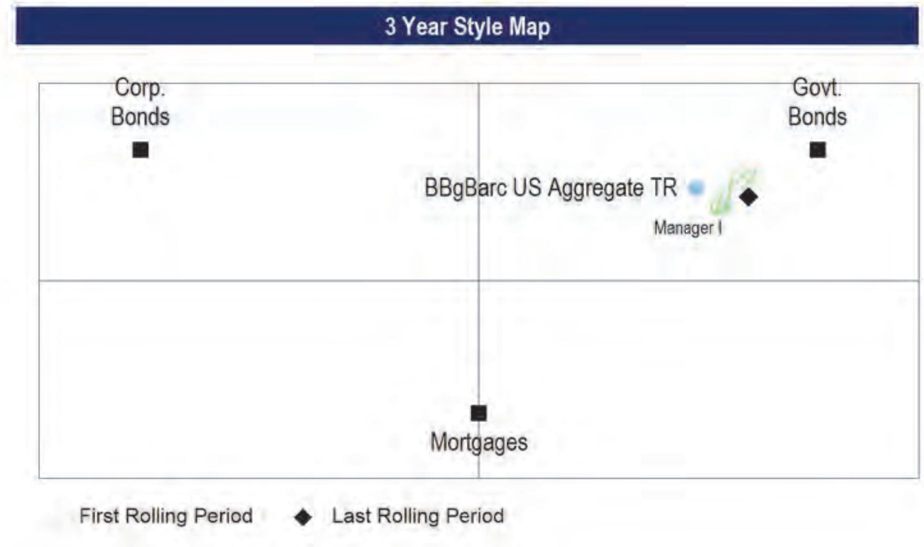


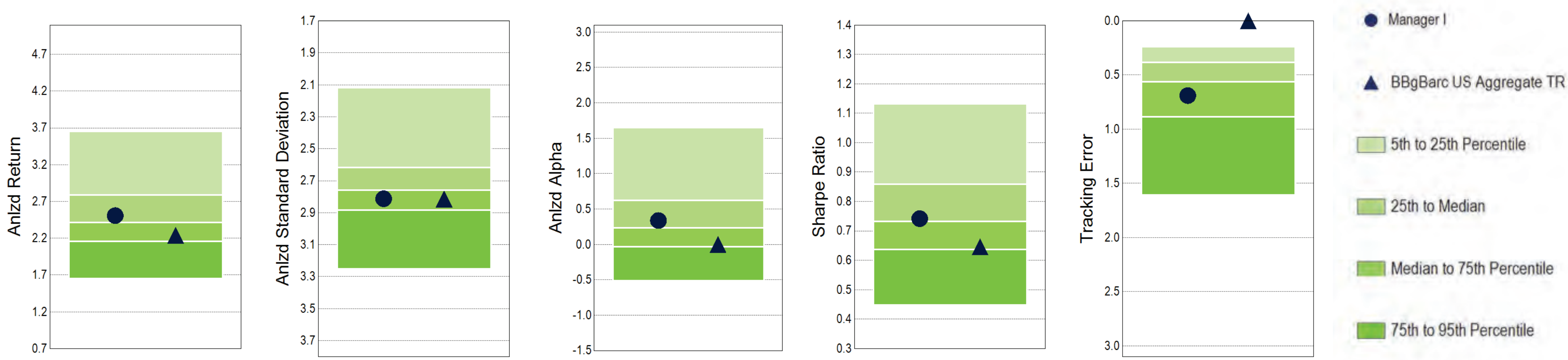


Sample ABC Client

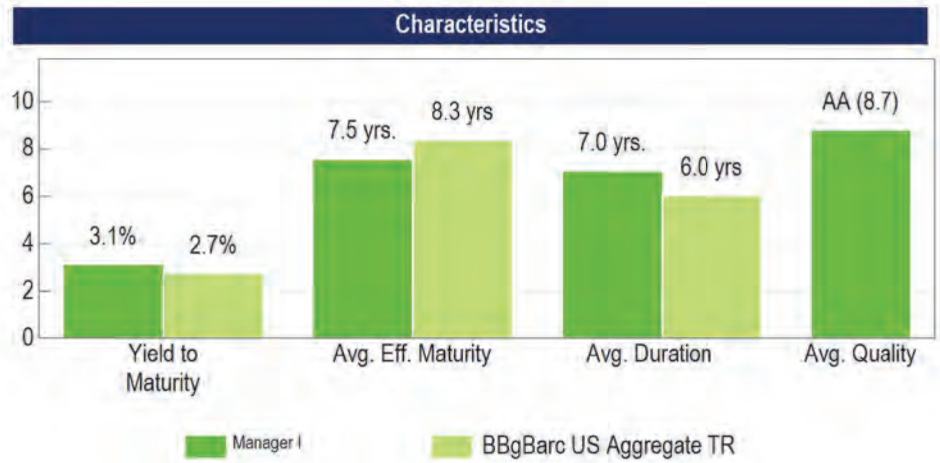
Manager I

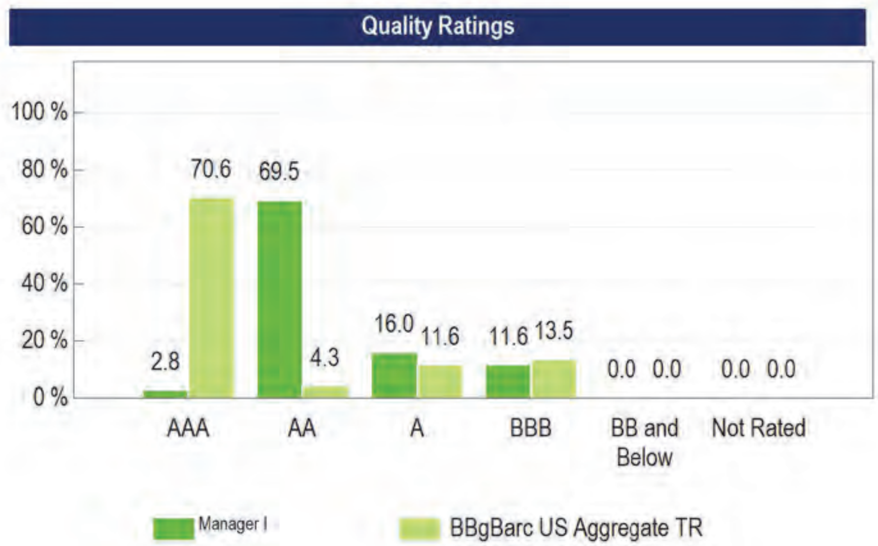






Manager I

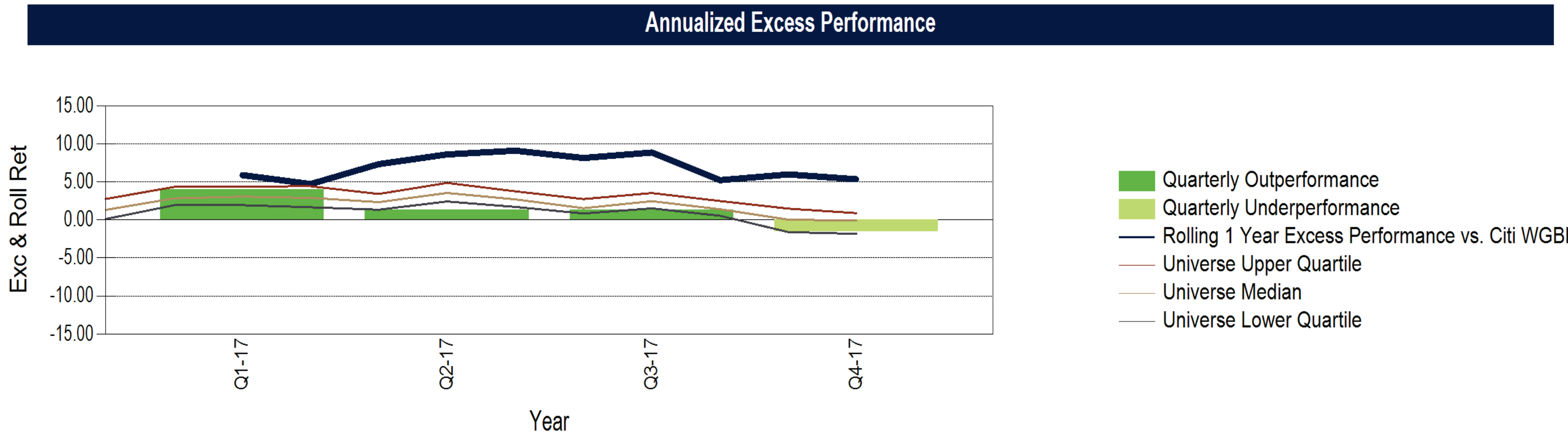

Characteristics
10
8
6
4
2
0
3.1%
2.7%
7.5 yrs.
8.3 yrs
7.0 yrs.
6.0 yrs
AA (8.7)
Yield to Maturity
Avg. Eff. Maturity
Avg. Duration
Avg. Quality
Manager I
BBgBarc US Aggregate TR


Quality Ratings
100 %
80 %
60 %
40 %
20 %
0 %
2.8
70.6
69.5
4.3
16.0
11.6
11.6
13.5
0.0
0.0
0.0
0.0
AAA
AA
A
BBB
BB and Below
Not Rated
Manager I
BBgBarc US Aggregate TR


Sectors
100 %
80 %
60 %
40 %
20 %
0 %
4.4
43.9
28.2
25.7
50.6
29.9
5.1
0.5
3.4
0.0
7.3
0.0
1.1
0.0
UST / Agency
Corp
MBS
ABS
Foreign
Muni
Other
Manager I
BBgBarc US Aggregate TR

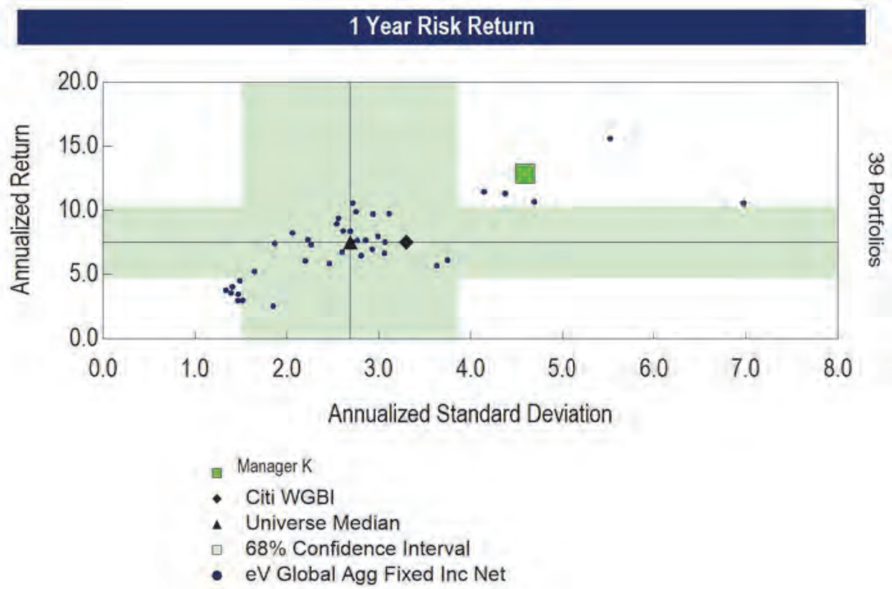
Sample ABC Client

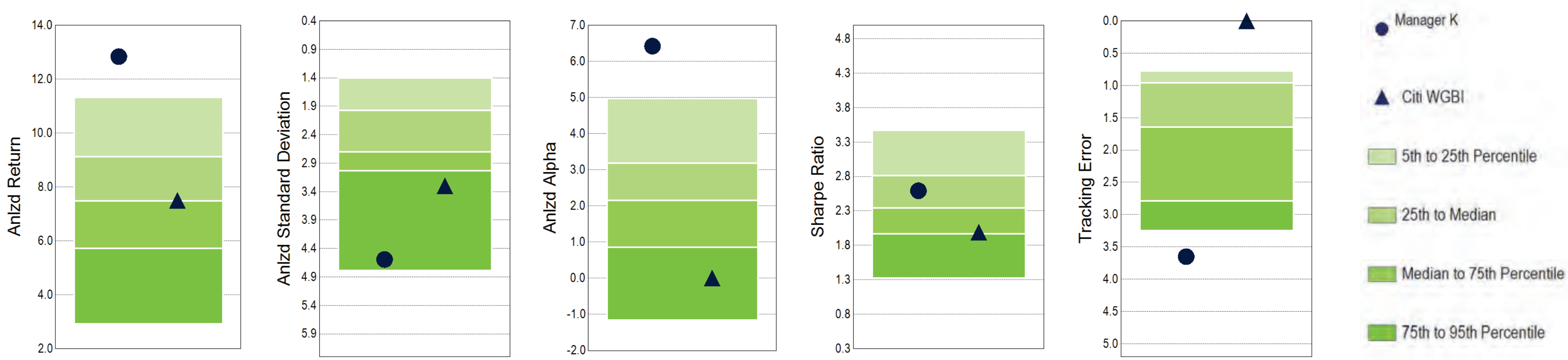
Manager K



Sample ABC Client

Manager K

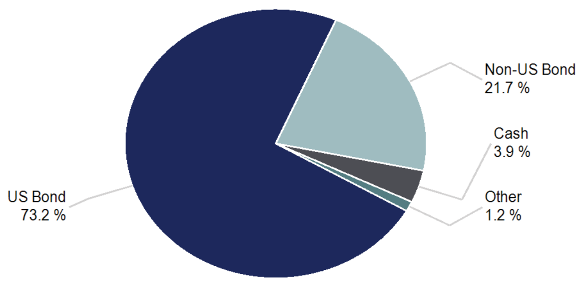




Sample ABC Client

Manager K

Mutual Fund Allocation as of December 31, 2017



Top Countries as of December 31, 2017	
United States	77.2%
Australia	6.9%
Mexico	6.5%
Poland	4.3%
France	2.9%
Supranational	1.5%
Spain	0.7%

Fund Characteristics as of December 31, 2017	
Sharpe Ratio (3 Year)	0.3
Average Duration	4.1
Average Coupon	4.1%
Average Effective Maturity	8.2
R-Squared (3 Year)	0.6
Alpha (3 Year)	0.1%
Beta (3 Year)	1.0

Top Holdings as of December 31, 2017	
US TREASURY NOTE 1.075%	12.4%
UK TSY 1.25 2018 BONDS REGS 07/18 1.25	6.0%
NOTA DO TESOURO NACIONAL NOTES 01/27 10	4.9%
MEX BONOS DESARR FIX RT SR UNSECURED 11/42 7.75	4.3%
US TREASURY NOTE 0.89%	3.4%
REPUBLIC OF SOUTH AFRICA BONDS 02/48 8.75	3.1%
OBRIGACOES DO TESOURO SR UNSECURED 144A REGS 10/25 2	3.1%
UNITED MEXICAN STATES 8.5%	3.1%
AUSTRALIAN GOVERNMENT SR UNSECURED REGS 10/19 2.75	2.9%
MEX BONOS DESARR FIX RT SR UNSECURED 05/29 8.5	2.9%

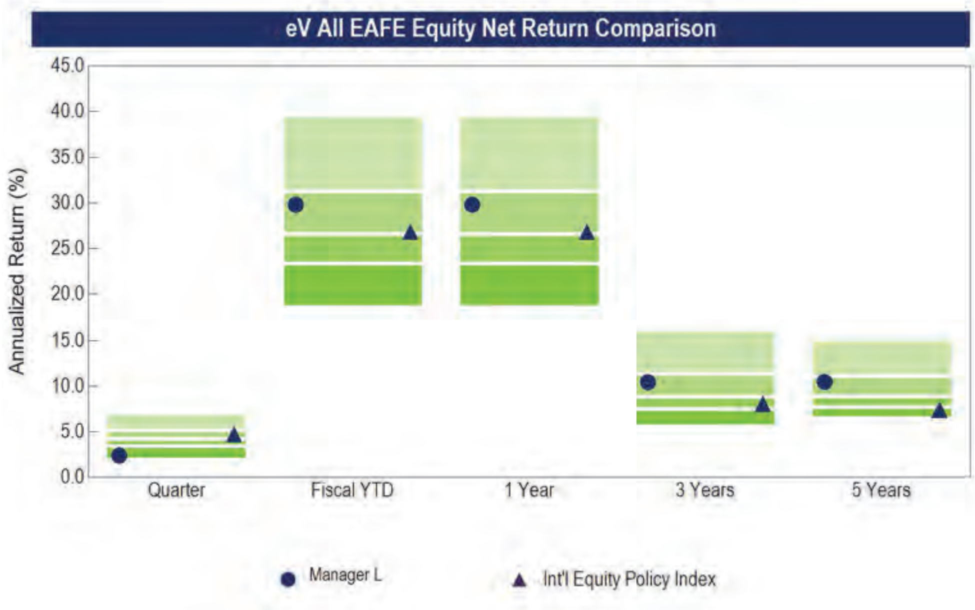
Fixed Income Sectors as of December 31, 2017	
GOVERNMENT	76.0%
MUNICIPAL	0.7%
CORPORATE	18.5%
SECURITIZED	0.9%
CASH & EQUIVALENTS	4.0%
DERIVATIVE	0.0%

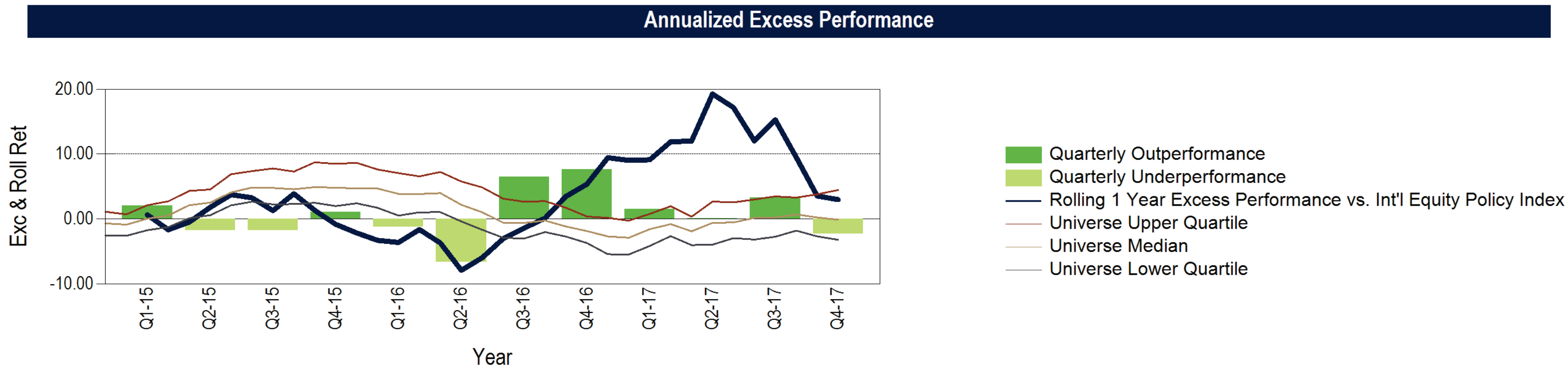
Credit Quality as of December 31, 2017	
AAA	26.8%
AA	16.5%
A	30.8%
BBB	11.0%
BB	13.6%
B	0.9%
Below B	0.2%
Not Rated	0.1%

Maturities as of December 31, 2017	
1 to 3 Years	37.6%
3 to 5 Years	5.2%
5 to 7 Years	3.1%
7 to 10 Years	13.0%
10 to 15 Years	5.4%
15 to 20 Years	1.3%
20 to 30 Years	17.4%
Greater than 30 Years	4.1%

Sample ABC Client

Manager L

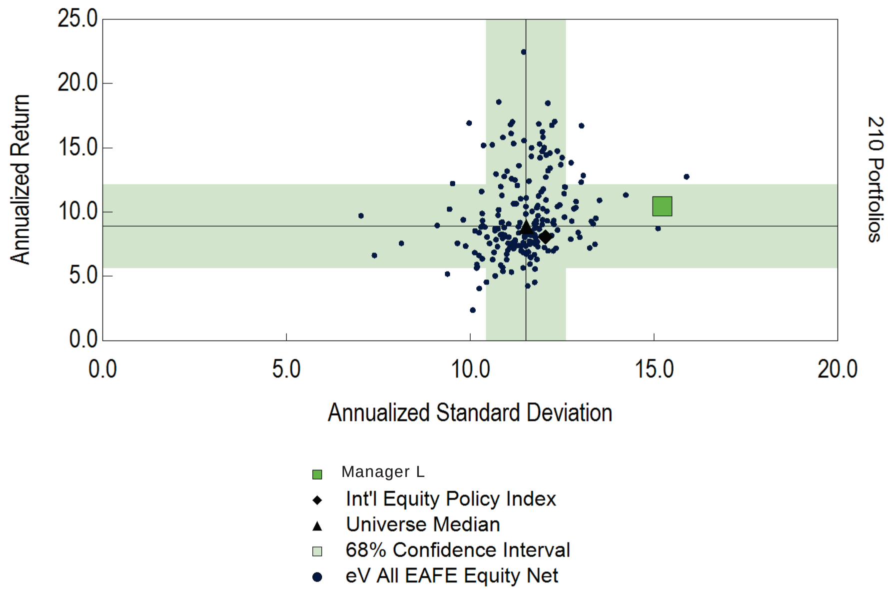




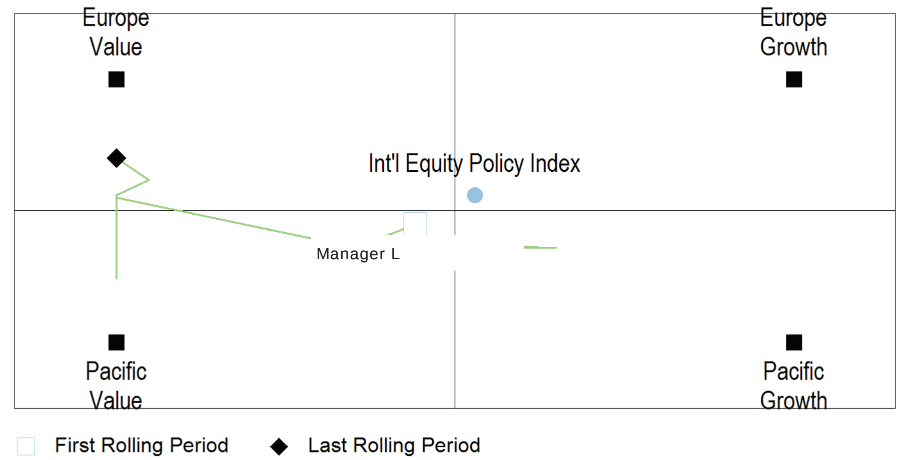
Sample ABC Client

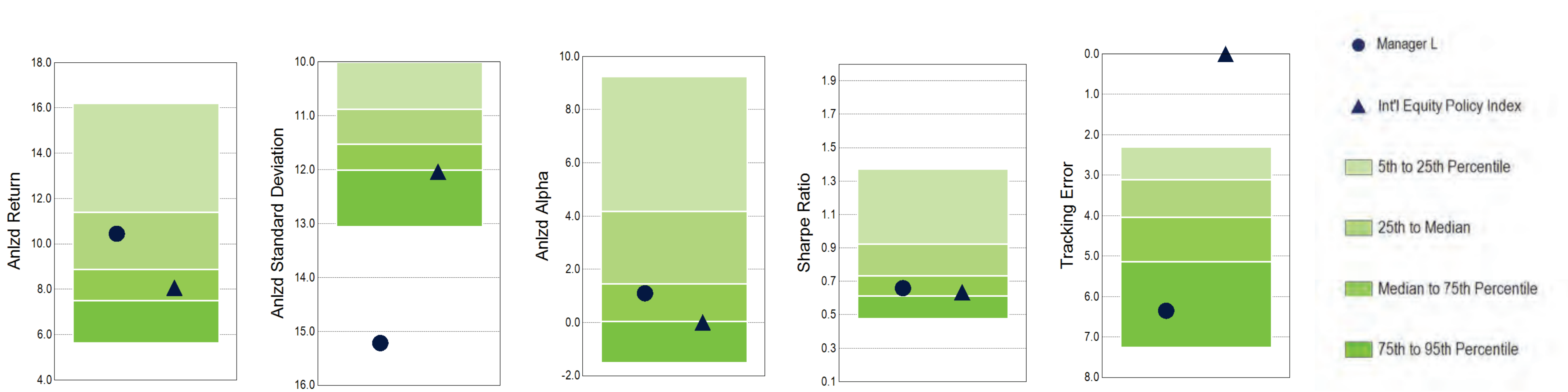
Manager L

3 Year Risk Return



3 Year Style Map

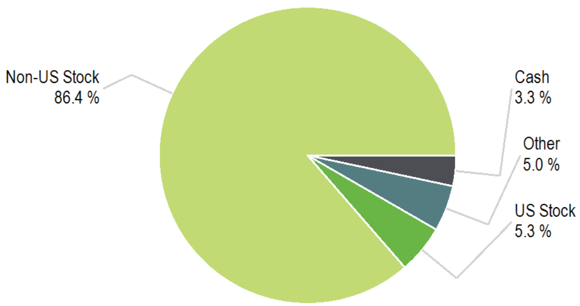




Sample ABC Client

Manager L

Mutual Fund Allocation as of December 31, 2017



Portfolio Fund Information as of December 31, 2017

Ticker	OAKIX
Morningstar Category	Foreign Large Blend
Average Market Cap ($mm)	39,595.5
Net Assets ($mm)	31,225.7
% Assets in Top 10 Holdings	41.4
Total Number of Holdings	93
Manager Name	David G. Herro
Manager Tenure	25
Expense Ratio	1.0%
Closed to New Investors	No

Fund Characteristics as of December 31, 2017

Sharpe Ratio (3 Year)	0.7
Average Market Cap ($mm)	39,595.5
Price/Earnings	13.2
Price/Book	1.6
Price/Sales	1.1
Price/Cash Flow	3.8
Dividend Yield	3.3
Number of Equity Holdings	55
R-Squared (3 Year)	0.8
Alpha (3 Year)	0.1%

Top Holdings as of December 31, 2017

LLOYDS BANKING GROUP PLC	5.1%
DAIMLER AG	4.8%
GLENCORE PLC	4.6%
BNP PARIBAS	4.6%
BAYERISCHE MOTOREN WERKE AG	4.2%
CREDIT SUISSE GROUP AG	3.9%
INTESA SANPAOLO	3.7%
HENNES & MAURITZ AB B	3.7%
TOYOTA MOTOR CORP	3.5%
ALLIANZ SE	3.4%

Sector Allocation as of December 31, 2017

BASIC MATERIALS	9.5%
COMMUNICATION SERVICES	2.8%
CONSUMER CYCLICAL	31.1%
CONSUMER DEFENSIVE	4.2%
ENERGY	0.0%
FINANCIAL SERVICES	33.3%
HEALTHCARE	1.4%
INDUSTRIALS	15.1%
REAL ESTATE	0.0%
TECHNOLOGY	2.7%
UTILITIES	0.0%

Top Countries as of December 31, 2017

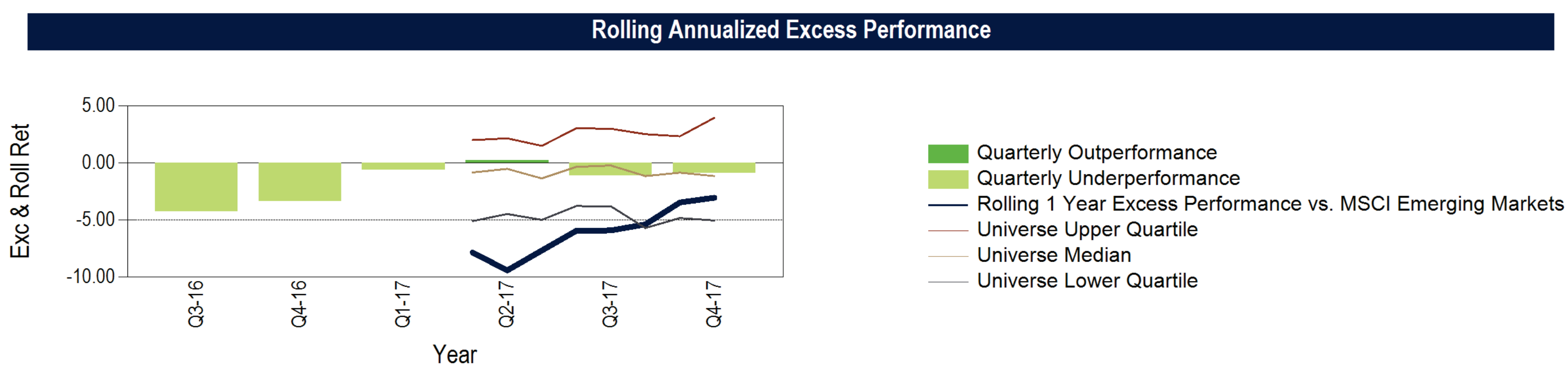
United Kingdom	24.0%
Germany	16.1%
France	15.2%
Switzerland	11.0%
Sweden	6.0%
United States	5.8%
Japan	5.1%
Italy	4.1%
Netherlands	3.0%
India	2.8%

Top Regions as of December 31, 2017

EUROZONE	39.9%
UNITED KINGDOM	24.0%
EUROPE EXEURO	17.0%
UNITED STATES	5.8%
JAPAN	5.1%

Sample ABC Client

Manager M



Sample ABC Client

Manager M

Characteristics	Portfolio	MSCI Emerging Markets
Number of Holdings	51	846
Weighted Avg. Market Cap. ($B)	62.3	89.8
Median Market Cap. ($B)	11.8	6.0
Price To Earnings	23.7	22.1
Price To Book	4.8	3.3
Price To Sales	3.8	2.7
Return on Equity (%)	21.7	18.1
Yield (%)	1.8	2.1
Beta		1.0
R-Squared		1.0

Top Positive Contributors	Relative Contribution %	Return %
NASPERS	0.9%	28.9%
FIRSTRAND	0.8%	44.7%
AIA GROUP	0.6%	15.6%
SM INVESTMENTS	0.5%	14.1%
CLICKS GROUP	0.4%	25.0%
BRAC BANK	0.4%	24.5%
TATA CONSULTANCY SVS.	0.3%	13.8%
FUYAO GLASS INDUSTRY GP. CO.'H'	0.3%	16.1%
SAMSUNG ELTN.PREF.	0.3%	8.4%
TAIWAN SEMICON.SPN.ADR 1:5	0.2%	5.6%

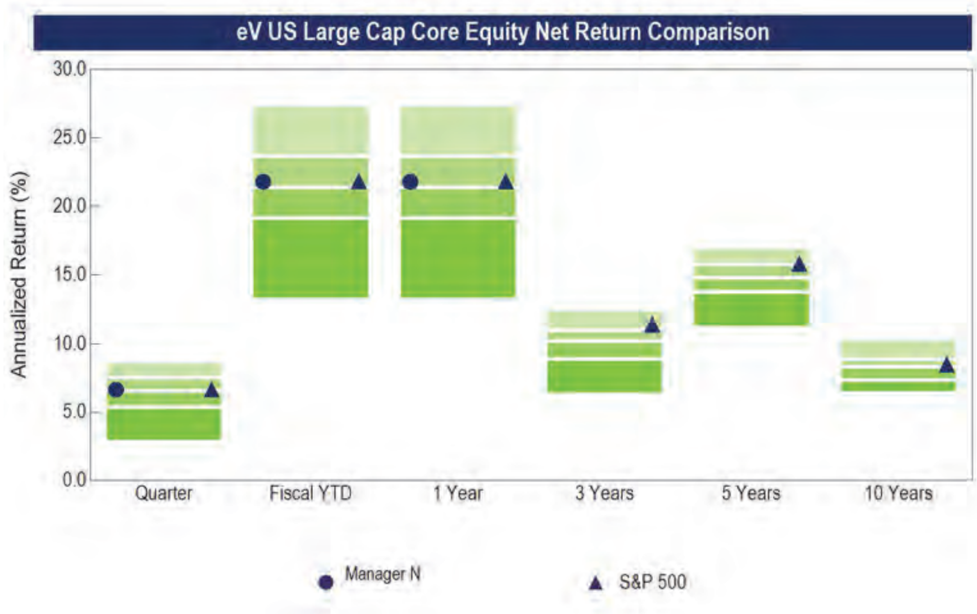
Top Negative Contributors	Relative Contribution %	Return %
PING AN INSURANCE (GROUP) OF CHIN 'H'	-0.3%	35.6%
PJSC MAGNIT GDR (REG S)	-0.3%	-33.2%
SAMSUNG ELECTRONICS	-0.2%	6.3%
CHINA MERCHANTS PORT HOLDINGS	-0.2%	-15.2%
BNC.BRADESCO PF.SPN.ADR 1:1	-0.2%	-5.0%
KIMBERLY-CLARK DE MEXICO 'A'	-0.1%	-11.2%
TOTVS ON	-0.1%	-8.6%
UNILEVER (UK)	-0.1%	-3.0%
MONDI	-0.1%	-3.7%
WEIFU HIGH TECH.GP.'B'	-0.1%	-7.2%

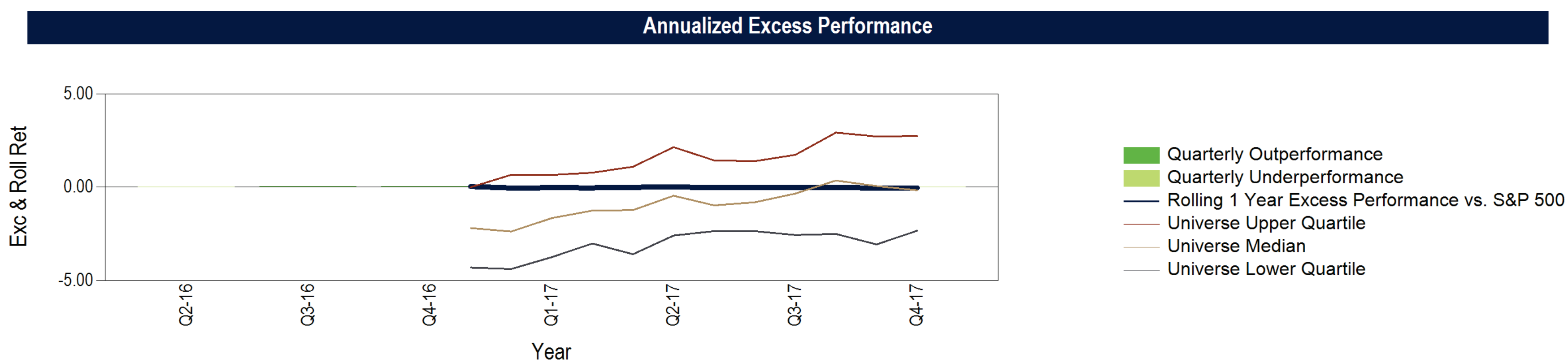
Equity Sector Attribution

	Attribution Effects							Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.2%		--		-0.1%		--	--	7.8%	0.0%	6.8%
Materials	-0.4%		-0.6%		0.0%		0.2%	2.7%	8.5%	5.2%	7.1%
Industrials	0.2%		0.3%		-0.1%		-0.1%	7.0%	4.6%	7.6%	5.4%
Consumer Discretionary	1.2%		0.7%		0.0%		0.5%	17.6%	8.8%	12.7%	10.3%
Consumer Staples	-0.4%		-0.4%		0.1%		-0.2%	3.7%	7.4%	14.8%	6.5%
Health Care	-0.4%		-0.2%		0.2%		-0.3%	3.4%	17.4%	4.6%	2.3%
Financials	0.1%		-0.2%		0.0%		0.3%	8.3%	8.1%	25.8%	23.5%
Information Technology	-0.7%		-0.7%		0.0%		-0.1%	4.2%	7.1%	22.8%	27.6%
Telecommunication Services	0.0%		-0.1%		0.1%		0.1%	0.0%	3.0%	2.1%	5.1%
Utilities	0.1%		--		0.1%		--	--	1.1%	0.0%	2.6%
Real Estate	0.0%		0.0%		0.0%		0.0%	2.8%	2.8%	2.2%	2.9%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.3%	--	2.1%	0.0%
Portfolio	**-0.5%**	**=**	**-1.2%**	**+**	**0.3%**	**+**	**0.3%**	**6.8%**	**7.3%**	**100.0%**	**100.0%**

Sample ABC Client

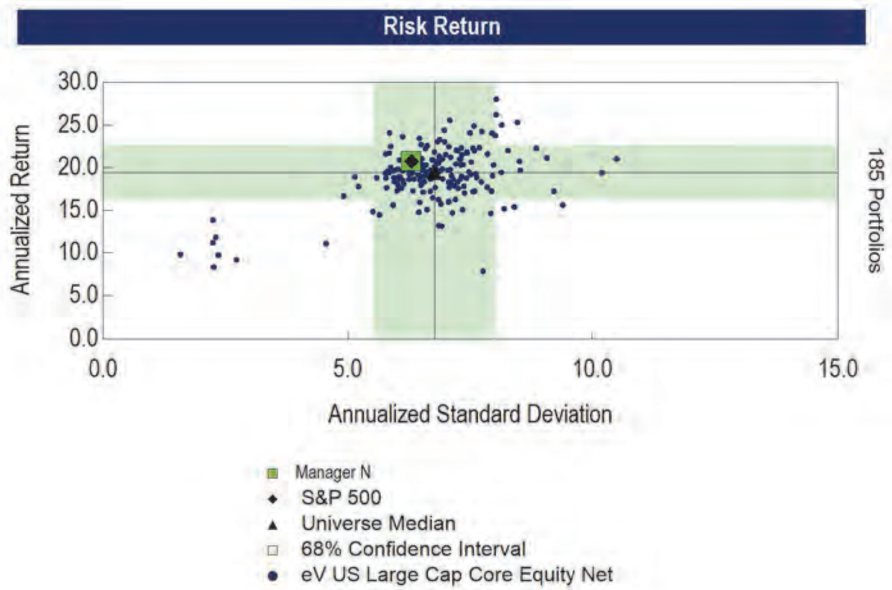
Manager N

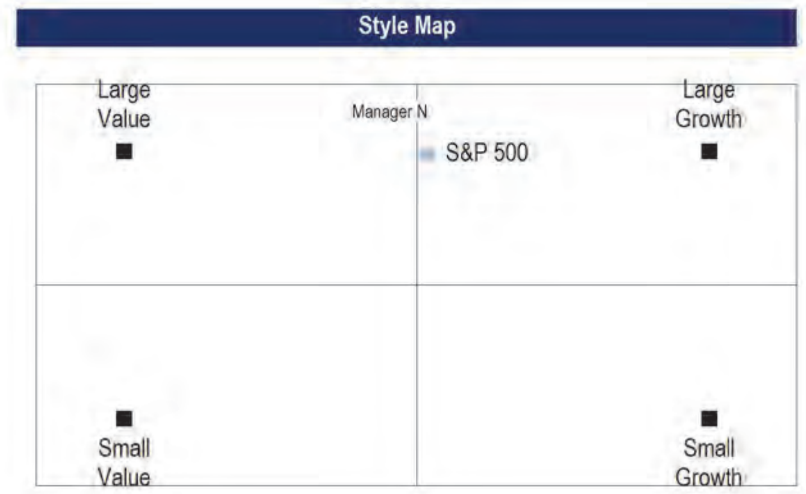


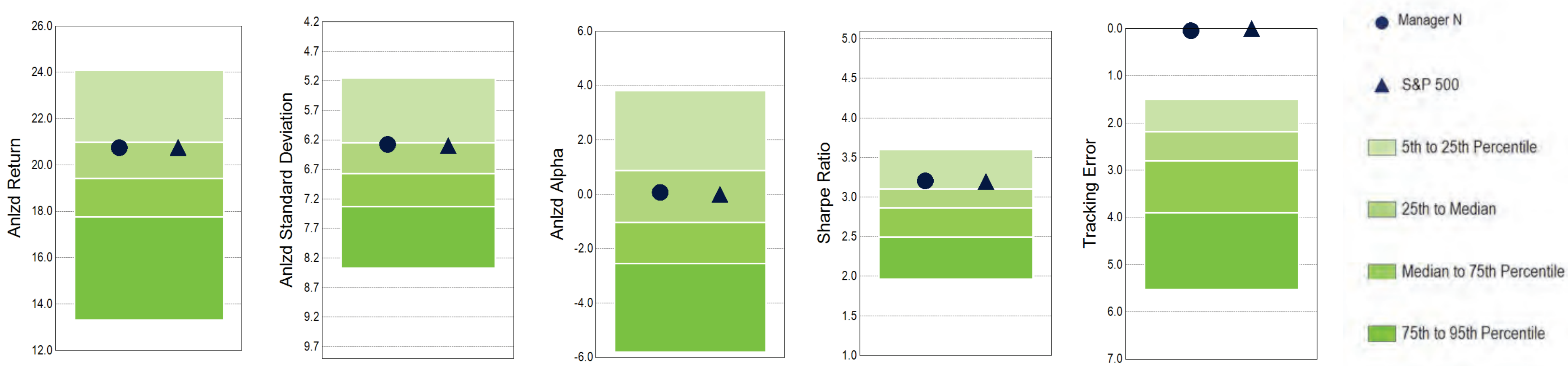


Sample ABC Client

Manager N



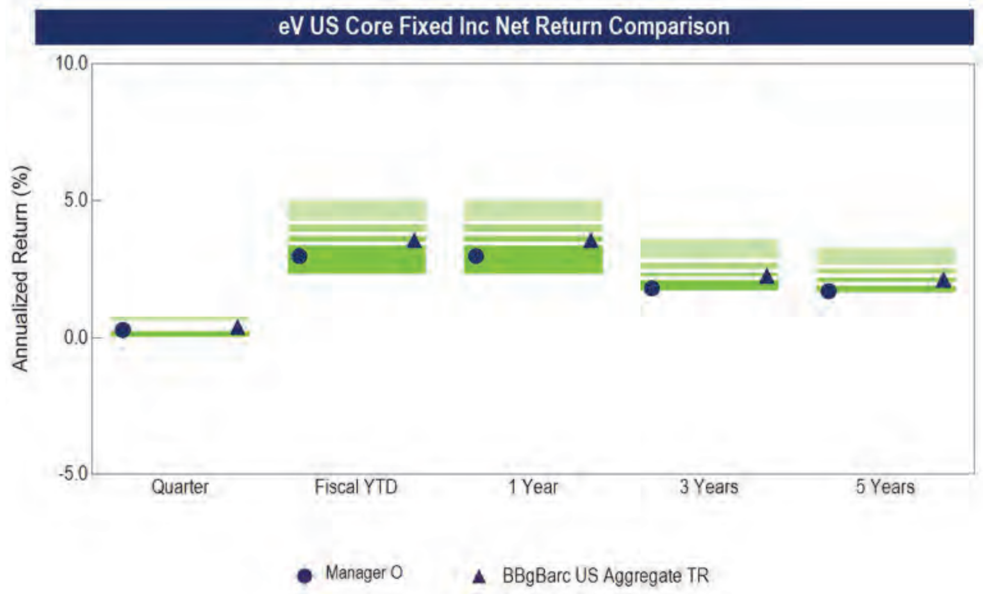


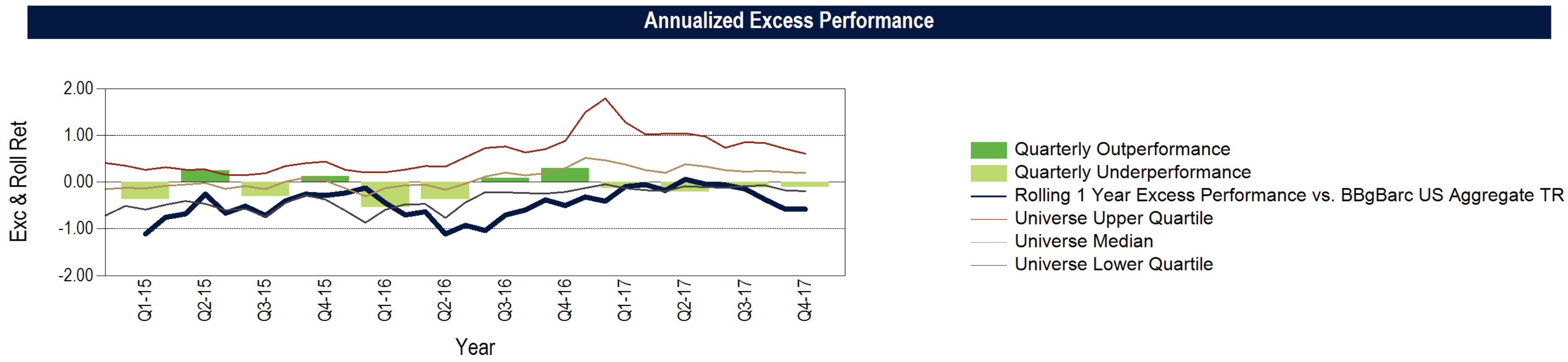


Data starts at the inception date: 2/1/2016.

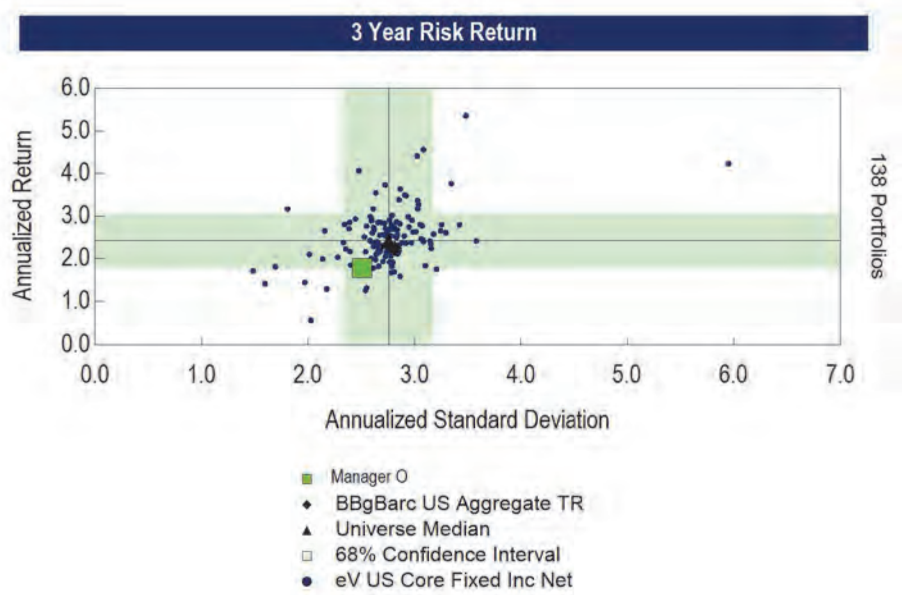
Sample ABC Client

Manager O

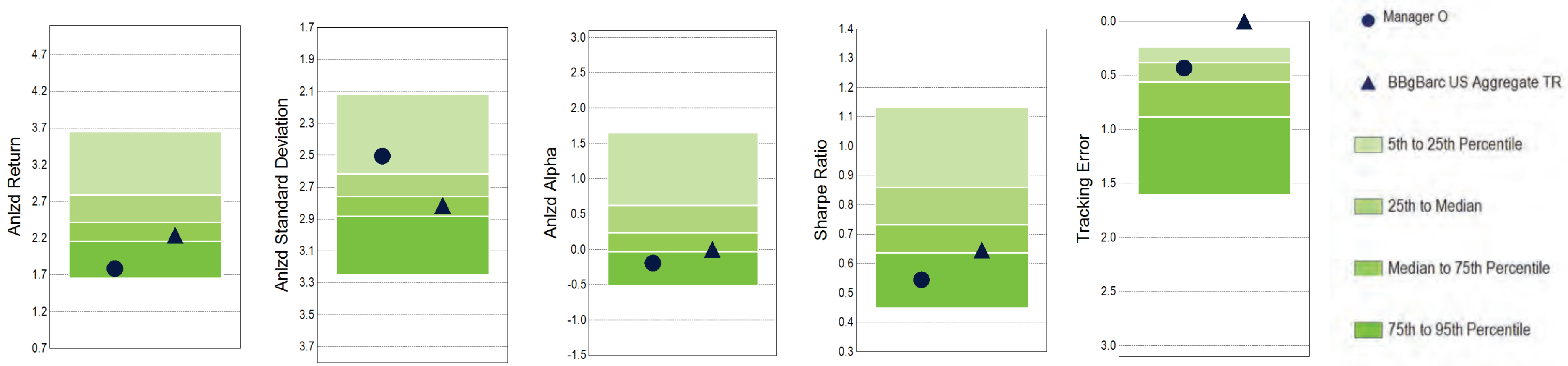




Manager O

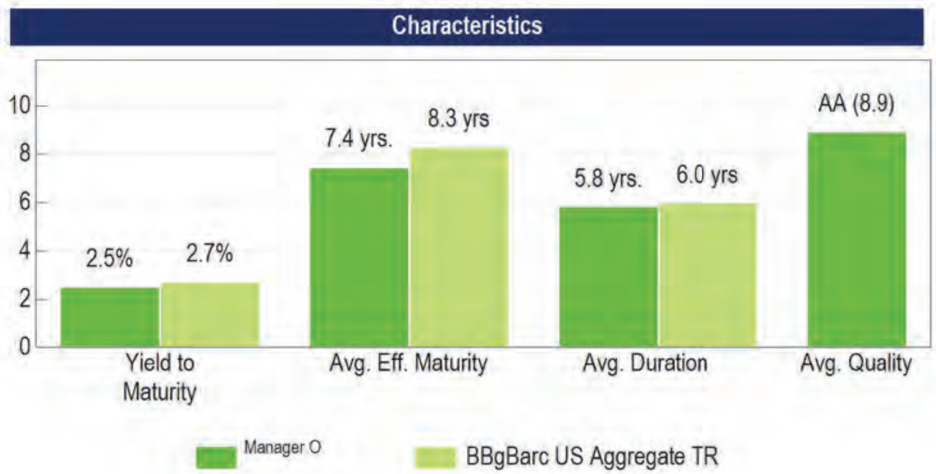

3 Year Risk Return
Annualized Return
Annualized Standard Deviation
138 Portfolios
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Manager O
BBgBarc US Aggregate TR
Universe Median
68% Confidence Interval
eV US Core Fixed Inc Net


3 Year Style Map
Corp. Bonds
Govt. Bonds
BBgBarc US Aggregate TR
Manager O
Mortgages
First Rolling Period
Last Rolling Period


Anlzd Return
Anlzd Standard Deviation
Anlzd Alpha
Sharpe Ratio
Tracking Error
Manager O
BBgBarc US Aggregate TR
5th to 25th Percentile
25th to Median
Median to 75th Percentile
75th to 95th Percentile

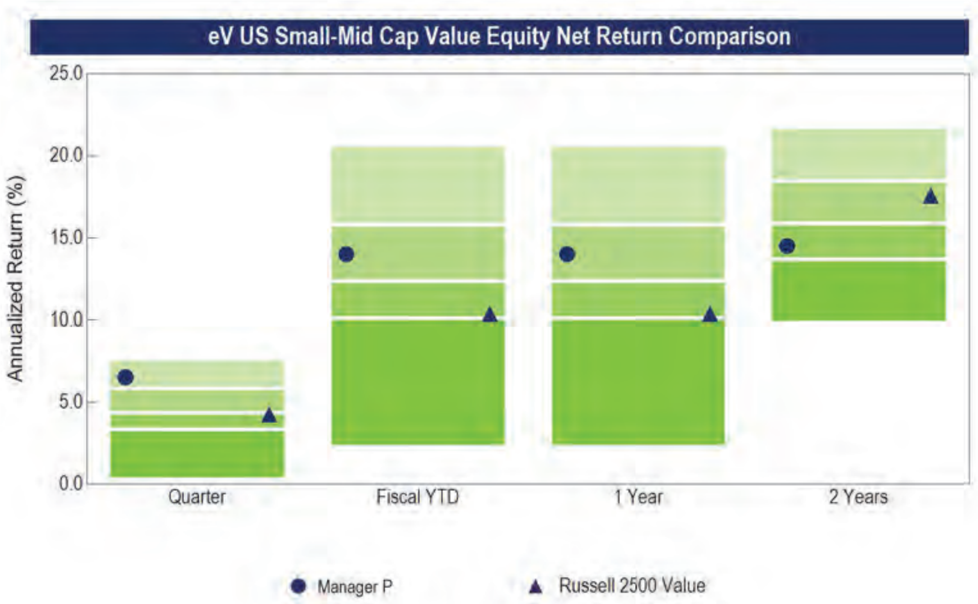
Sample ABC Client

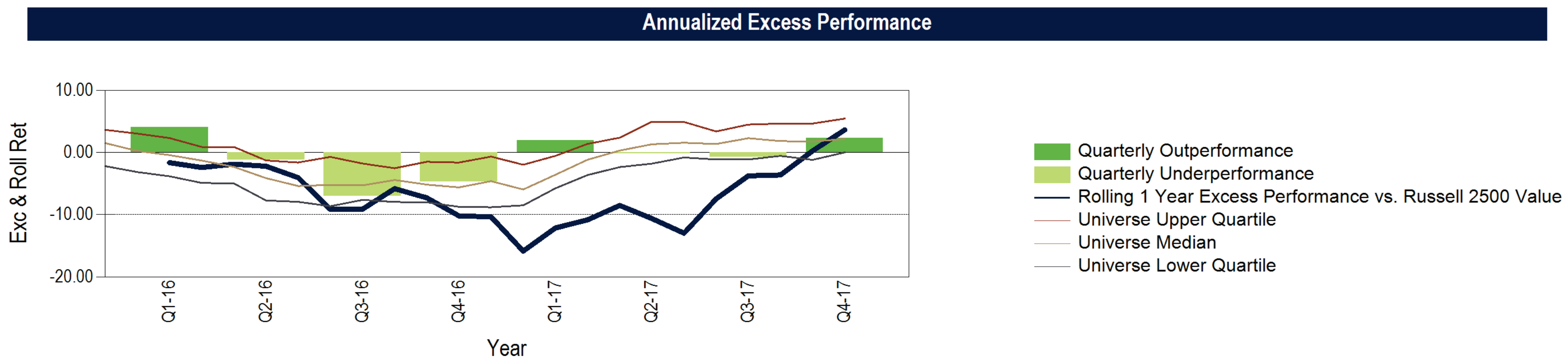
Manager O



Sample ABC Client

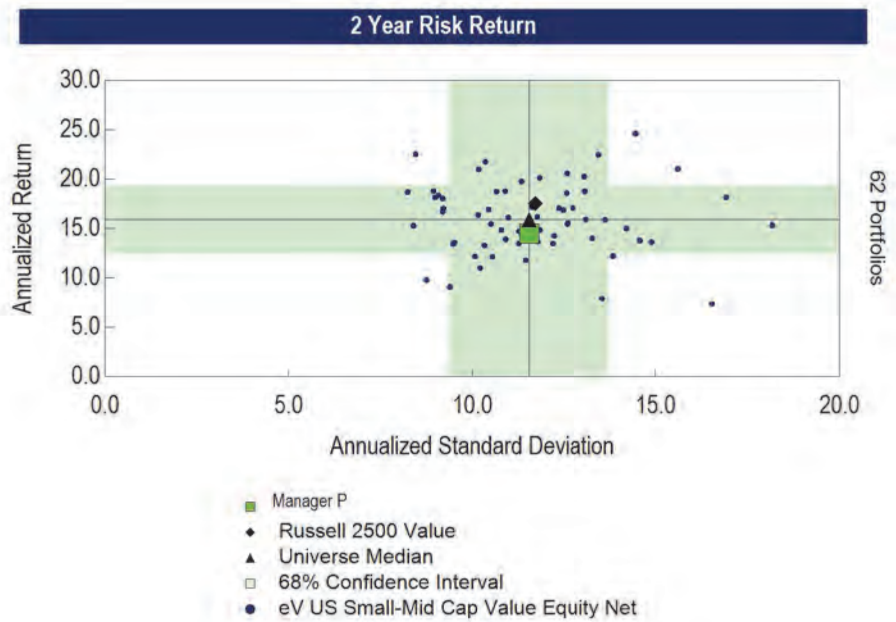
Manager P

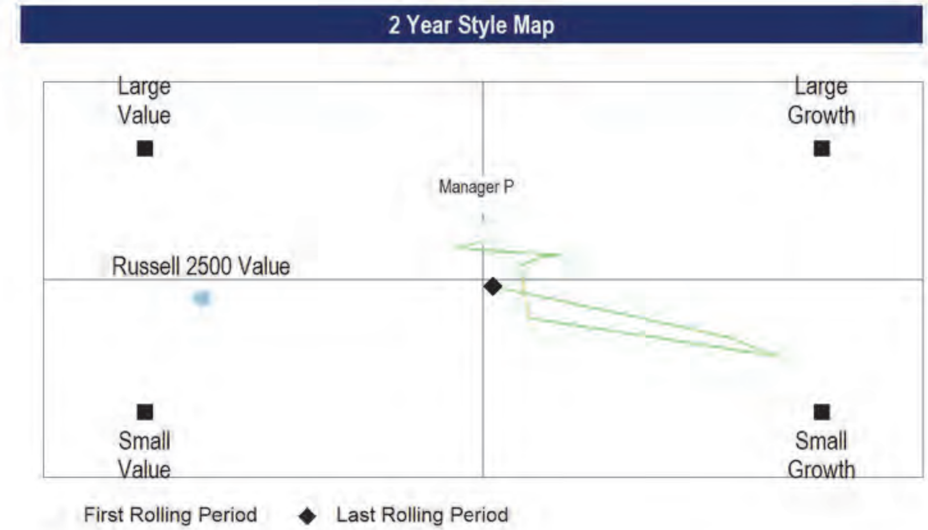


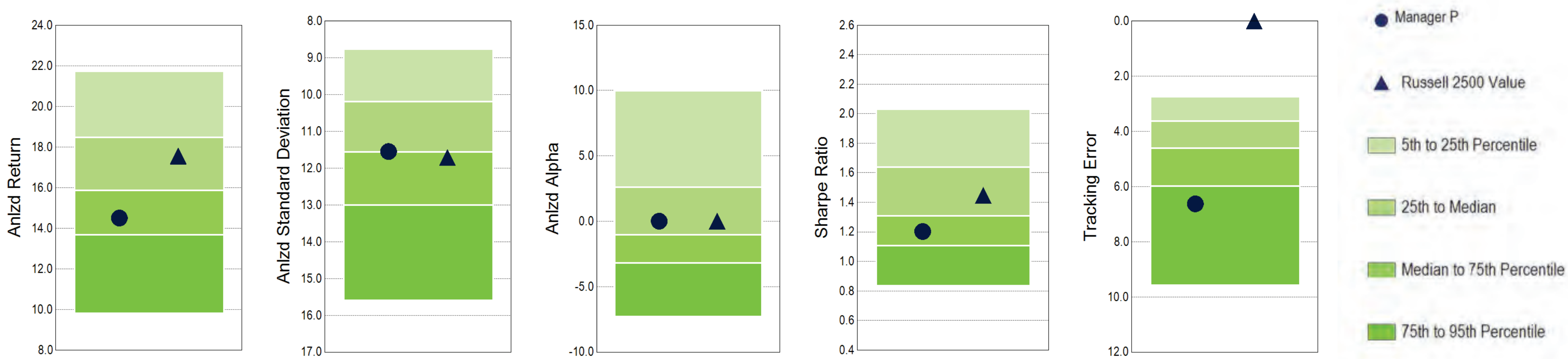


Sample ABC Client

Manager P







Sample ABC Client

Manager P

Characteristics	Portfolio	Russell 2500 Value
Number of Holdings	27	1,752
Weighted Avg. Market Cap. ($B)	7.7	4.8
Median Market Cap. ($B)	5.2	1.0
Price To Earnings	34.6	19.3
Price To Book	5.3	2.2
Price To Sales	2.5	2.9
Return on Equity (%)	19.9	7.5
Yield (%)	0.9	1.8
Beta	0.9	1.0
R-Squared	0.7	1.0

Top Positive Contributors	Relative Contribution %	Return %
OLD DOMINION FGT.LINES	1.4%	19.6%
COPART	1.4%	25.7%
DOLLAR TREE	0.9%	23.6%
USG	0.9%	18.1%
MSC INDL.DIRECT 'A'	0.9%	28.7%
LAMB WESTON HOLDINGS	0.7%	20.8%
ARMSTRONG WORLD INDS.	0.6%	18.1%
DECKERS OUTDOOR	0.5%	17.3%
EATON VANCE NV.	0.5%	14.9%
DST SYS.	0.4%	13.4%

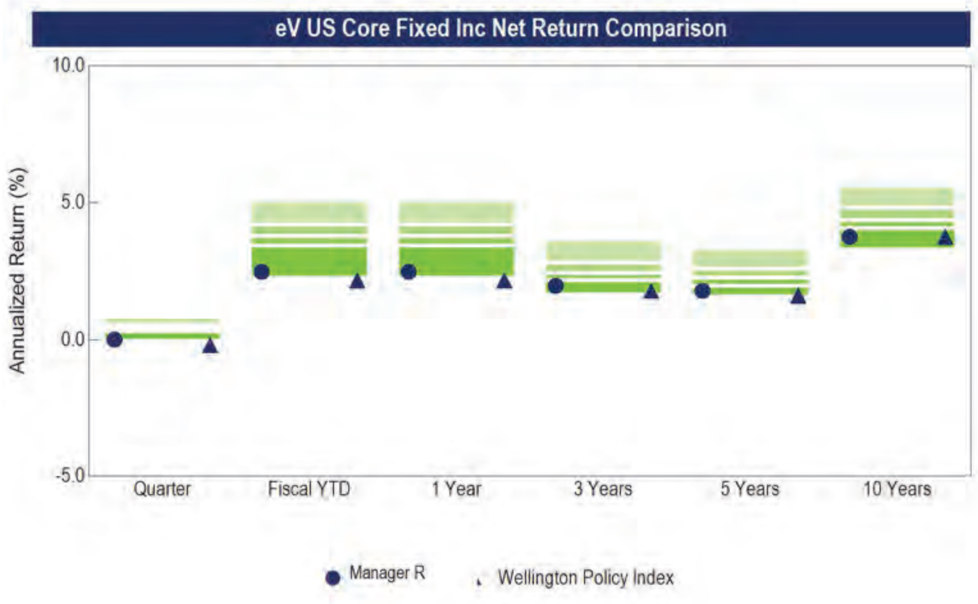
Top Negative Contributors	Relative Contribution %	Return %
CARMAX	-0.8%	-15.4%
EDGEWELL PERSONAL CARE	-0.7%	-18.4%
MBIA	-0.4%	-15.9%
NEWMARKET	-0.4%	-6.2%
POST HOLDINGS	-0.3%	-10.2%
HASBRO	-0.2%	-6.4%
ORBITAL ATK	-0.1%	-1.0%
TEMPUR SEALY INTL.	0.0%	-2.8%
WHITE MOUNTAINS IN.GP.	0.0%	-0.7%
SENSATA TECHS.HLDG.	0.0%	6.3%

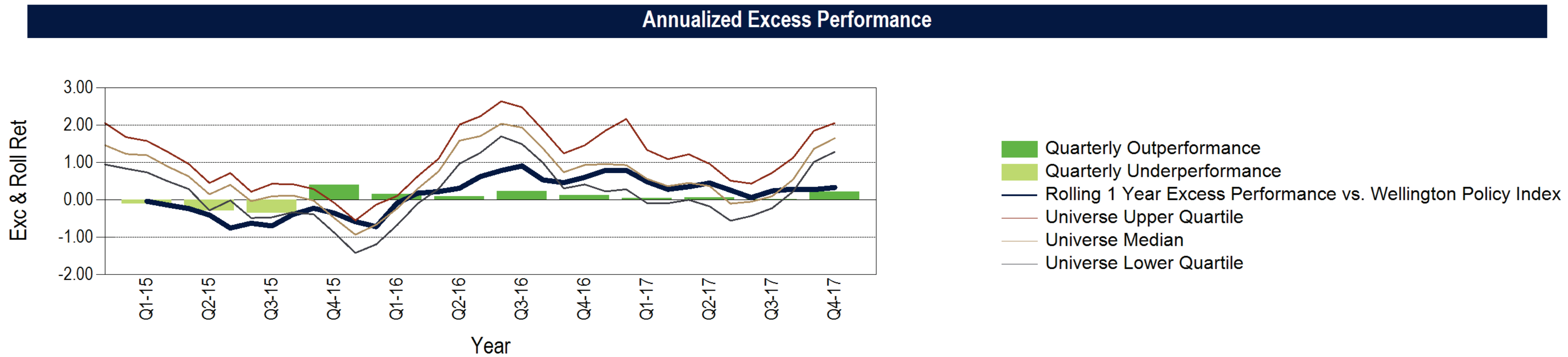
Equity Sector Attribution

	Attribution Effects					Returns		Sector Weights			
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.2%		--		-0.2%		--	--	7.8%	0.0%	6.7%
Materials	-0.7%		-0.5%		0.3%		-0.5%	0.3%	9.9%	10.9%	5.3%
Industrials	3.4%		1.3%		0.6%		1.6%	16.8%	7.5%	30.7%	13.6%
Consumer Discretionary	-0.5%		-0.4%		0.4%		-0.4%	3.7%	7.5%	21.6%	10.4%
Consumer Staples	-0.7%		-0.1%		0.1%		-0.6%	0.8%	4.7%	18.5%	3.4%
Health Care	0.3%		--		0.3%		--	--	-1.6%	0.0%	5.7%
Financials	0.0%		-0.3%		0.2%		0.1%	1.8%	2.9%	12.4%	24.4%
Information Technology	0.4%		0.9%		0.1%		-0.5%	13.4%	3.0%	3.3%	8.3%
Telecommunication Services	0.0%		--		0.0%		--	--	-4.5%	0.0%	0.4%
Utilities	0.1%		--		0.1%		--	--	2.3%	0.0%	6.9%
Real Estate	0.4%		0.5%		0.3%		-0.4%	5.3%	1.6%	2.7%	14.9%
Cash	0.0%		--		--		--	--	--	0.0%	0.0%
Portfolio	**2.7%**	**=**	**1.4%**	**+**	**2.1%**	**+**	**-0.8%**	**6.9%**	**4.3%**	**100.0%**	**100.0%**

Sample ABC Client

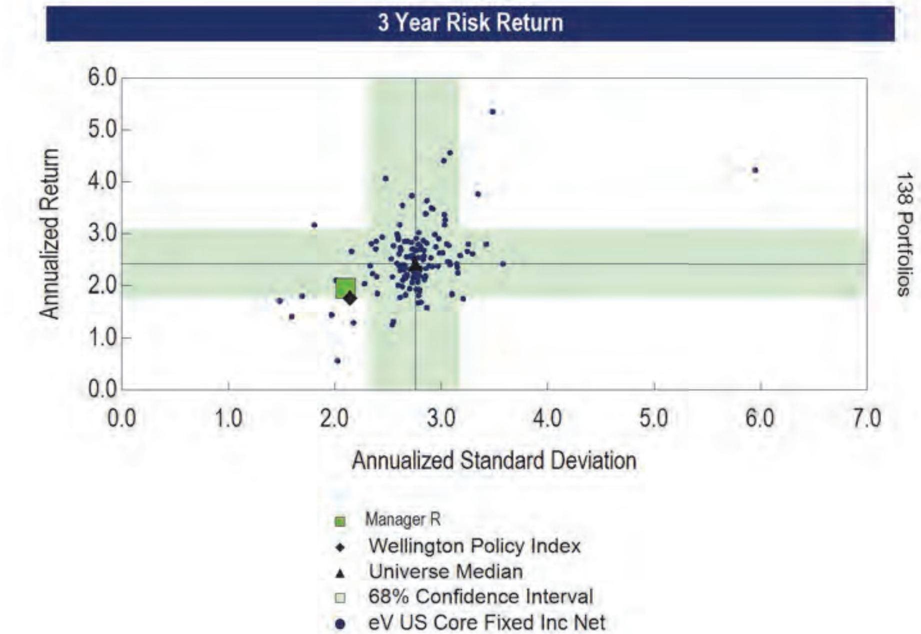
Manager R

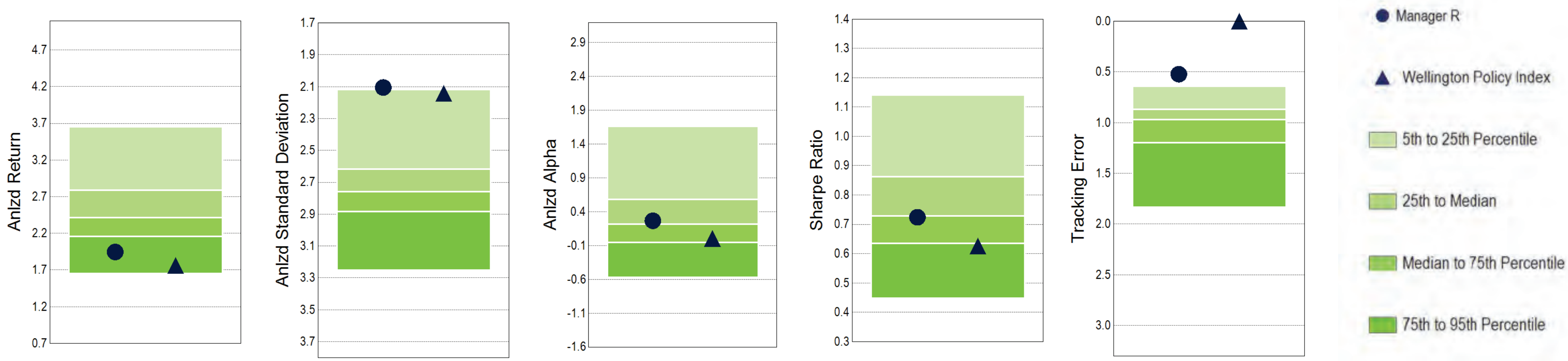




Sample ABC Client

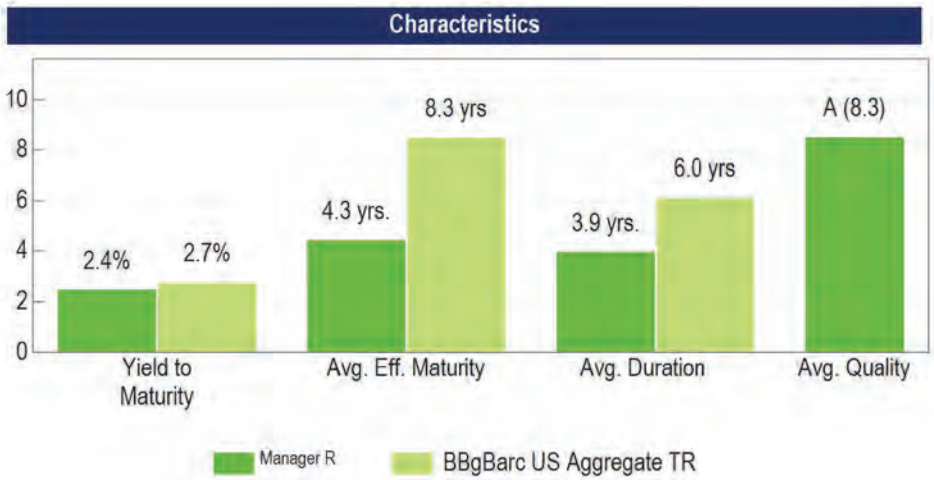
Manager R

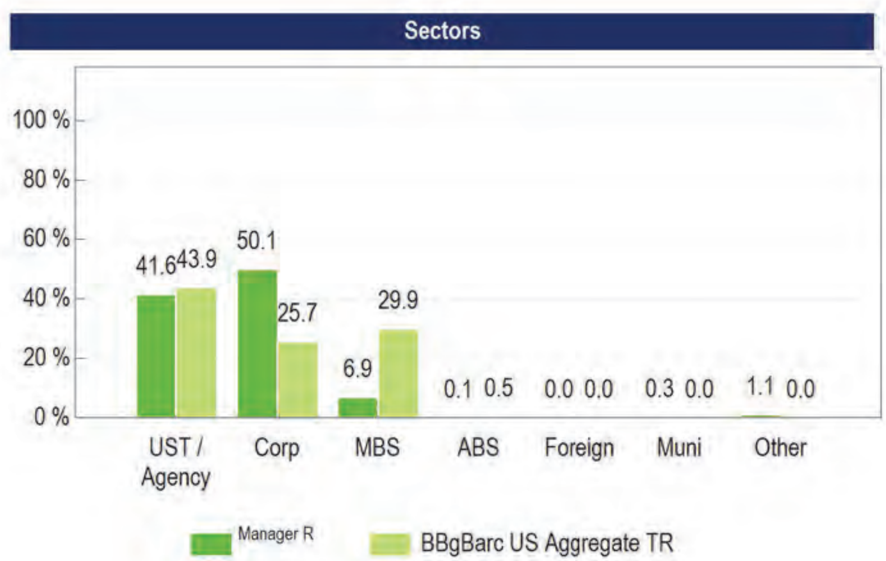




Sample ABC Client

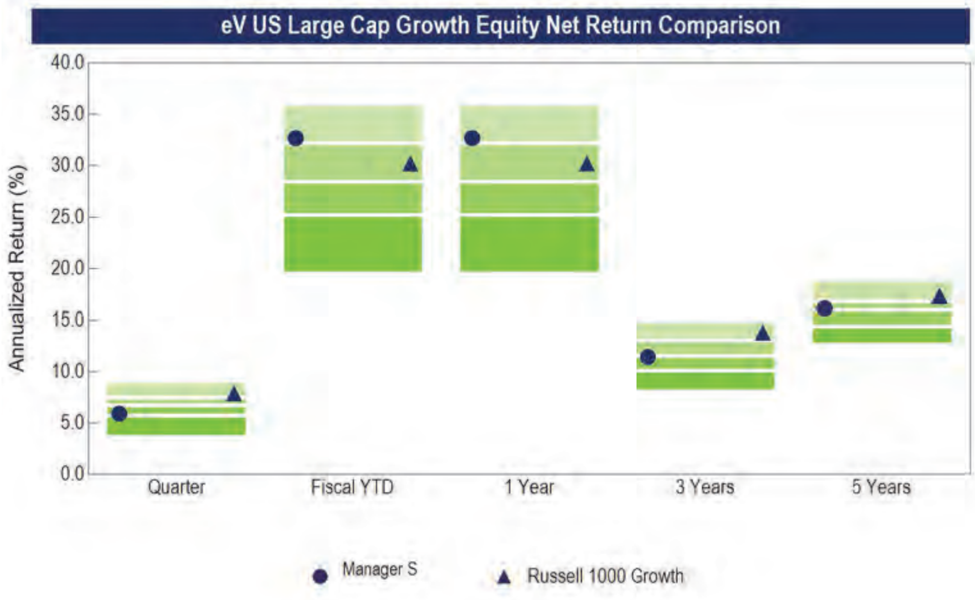
Manager R

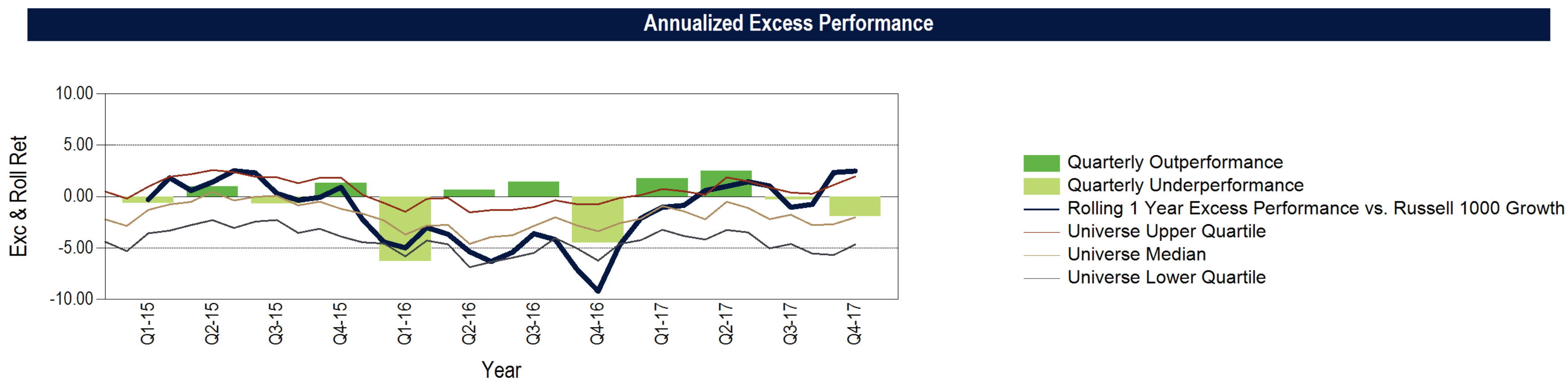




Sample ABC Client

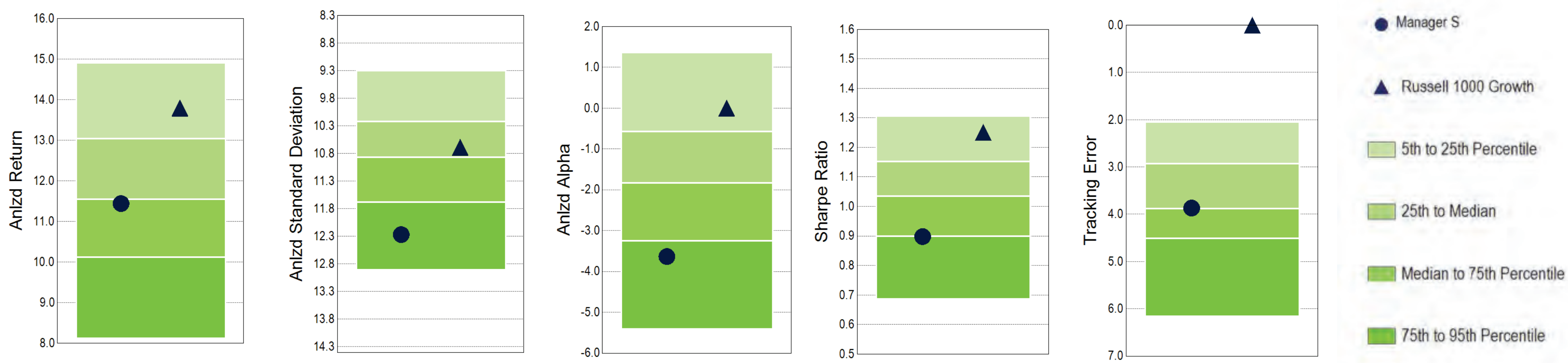
Manager S





Sample ABC Client

Manager S



Sample ABC Client

Manager S

Characteristics	Portfolio	Russell 1000 Growth
Number of Holdings	57	551
Weighted Avg. Market Cap. ($B)	198.6	204.5
Median Market Cap. ($B)	67.4	11.7
Price To Earnings	32.6	28.8
Price To Book	9.9	7.7
Price To Sales	5.6	4.7
Return on Equity (%)	28.3	27.7
Yield (%)	0.8	1.3
Beta	1.1	1.0
R-Squared	0.9	1.0

Top Positive Contributors	Relative Contribution %	Return %
SPLUNK	0.5%	24.7%
AMAZON.COM	0.3%	21.6%
SALESFORCE.COM	0.3%	9.4%
VISA 'A'	0.2%	8.5%
UNITEDHEALTH GROUP	0.2%	12.9%
ZOETIS	0.2%	13.2%
SHERWIN-WILLIAMS	0.2%	14.8%
HILTON WORLDWIDE HDG.	0.2%	15.2%
UNION PACIFIC	0.2%	16.3%
SERVICENOW	0.1%	10.9%

Top Negative Contributors	Relative Contribution %	Return %
CELGENE	-0.5%	-28.4%
APPLE	-0.4%	10.2%
EXPEDIA	-0.3%	-16.6%
BOSTON SCIENTIFIC	-0.2%	-15.0%
BOEING	-0.2%	16.6%
MICROSOFT	-0.2%	15.4%
CTRIP.COM INTL.ADR 8:1	-0.2%	-16.4%
CHARTER COMMS.CL.A	-0.1%	-7.6%
ELECTRONIC ARTS	-0.1%	-11.0%
COMCAST 'A'	-0.1%	4.5%

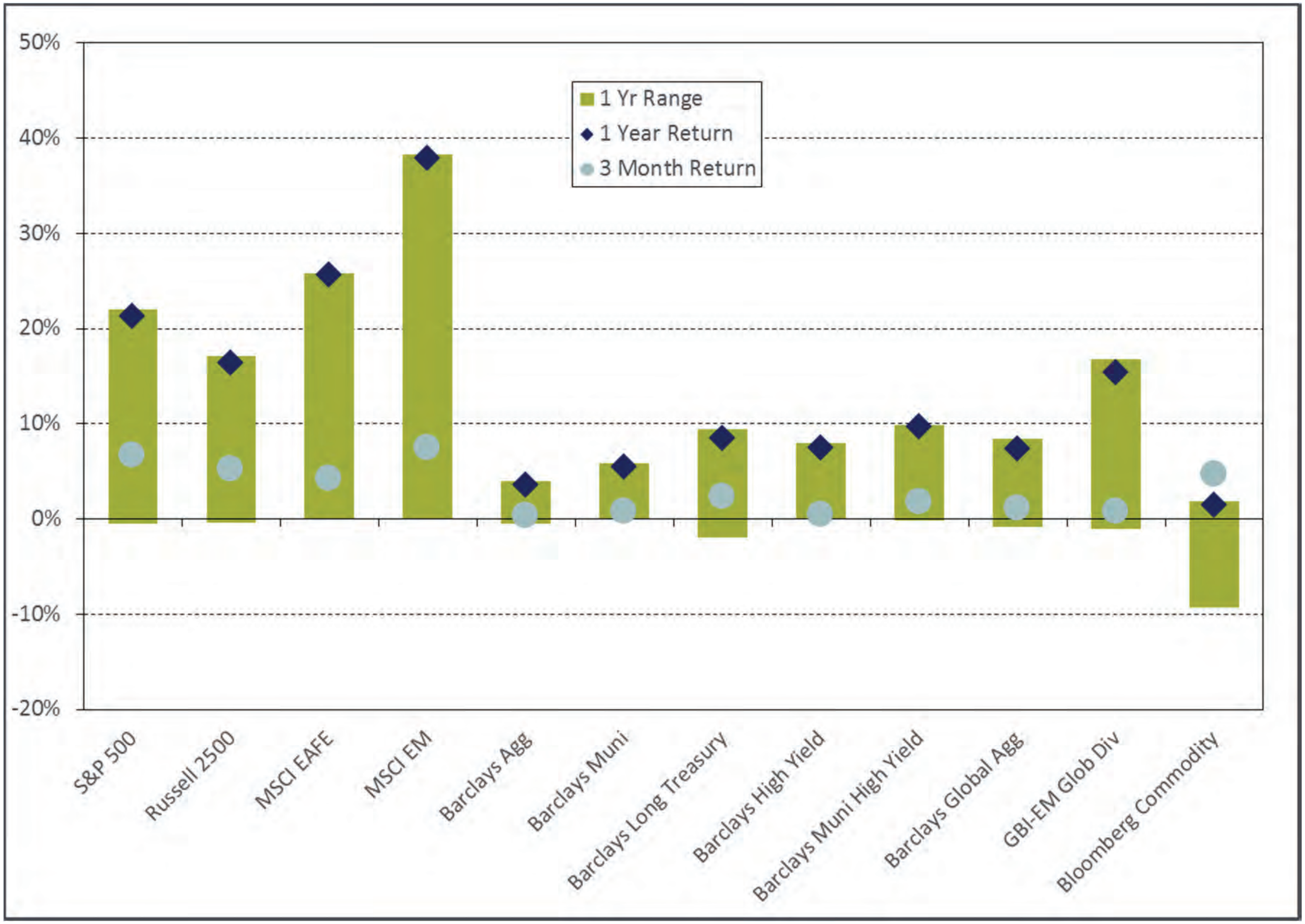
Equity Sector Attribution

	Attribution Effects									Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%		--		0.0%		--	--	6.3%	0.0%	0.9%
Materials	0.1%		0.2%		0.0%		0.0%	9.9%	5.6%	2.7%	3.8%
Industrials	-0.4%		-0.4%		-0.1%		0.1%	7.1%	10.1%	9.4%	12.5%
Consumer Discretionary	-0.9%		-0.9%		0.0%		0.0%	5.8%	10.6%	18.3%	17.8%
Consumer Staples	-0.1%		--		-0.1%		--	--	9.5%	0.0%	6.8%
Health Care	-0.5%		-0.2%		-0.3%		-0.1%	-0.5%	0.8%	18.0%	13.6%
Financials	0.0%		0.0%		0.0%		0.0%	7.0%	6.8%	3.5%	3.4%
Information Technology	-0.2%		-0.2%		0.1%		-0.1%	8.0%	8.7%	46.0%	37.6%
Telecommunication Services	0.0%		--		0.0%		--	--	7.7%	0.0%	1.0%
Utilities	0.0%		--		0.0%		--	--	11.4%	0.0%	0.0%
Real Estate	0.0%		0.0%		0.0%		0.0%	4.9%	5.6%	1.9%	2.6%
Cash	0.0%		--		--		--	--	--	0.0%	0.0%
Portfolio	**-1.9%**	**=**	**-1.5%**	**+**	**-0.4%**	**+**	**-0.1%**	**5.9%**	**7.9%**	**100.0%**	**100.0%**

APPENDIX

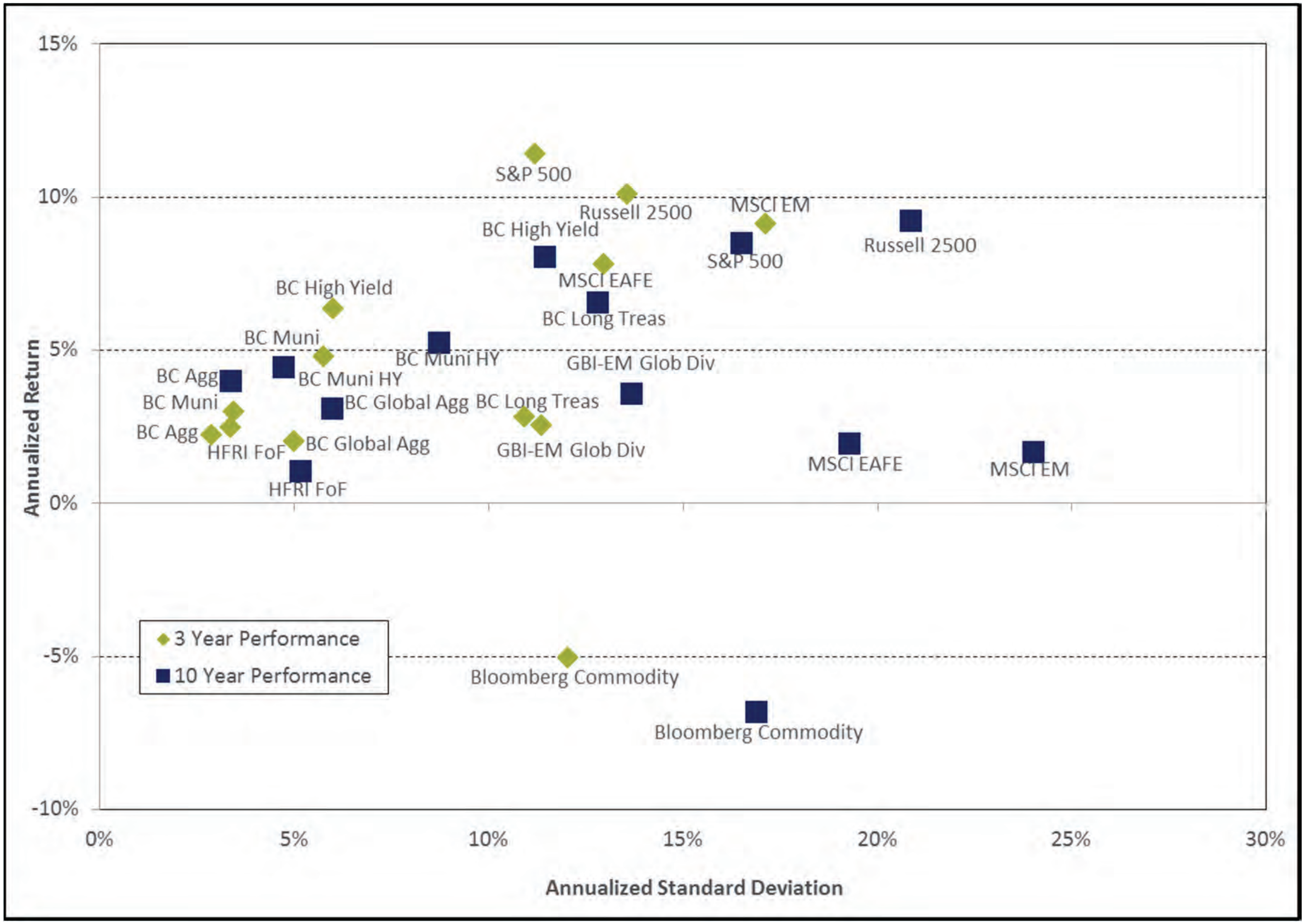
NEPC, LLC

NEAR TERM BROAD MARKET PERFORMANCE SUMMARY AS OF 12/31/2017



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan
**1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago*

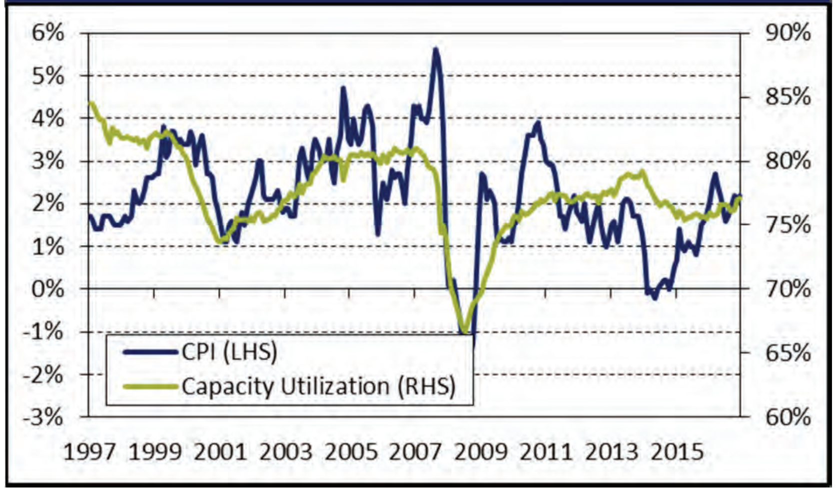
LONG TERM BROAD MARKET PERFORMANCE SUMMARY AS OF 12/31/2017



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan

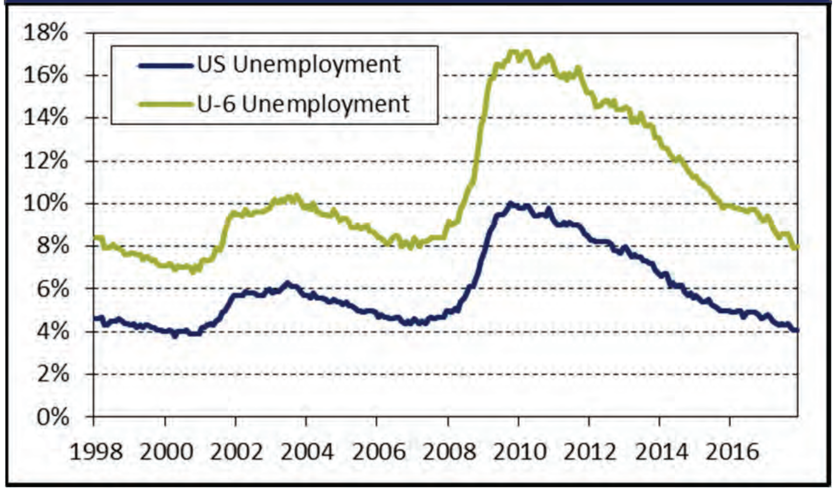
US ECONOMIC INDICATORS

Inflation continues to hover around 2%



Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics

Unemployment remains near historic lows



Source: Bloomberg, Bureau of Labor Statistics

Corporate profits as a % of GDP have increased slightly

Source: Bloomberg, Bureau of Economic Analysis

Manufacturing has retreated slightly, though remains elevated

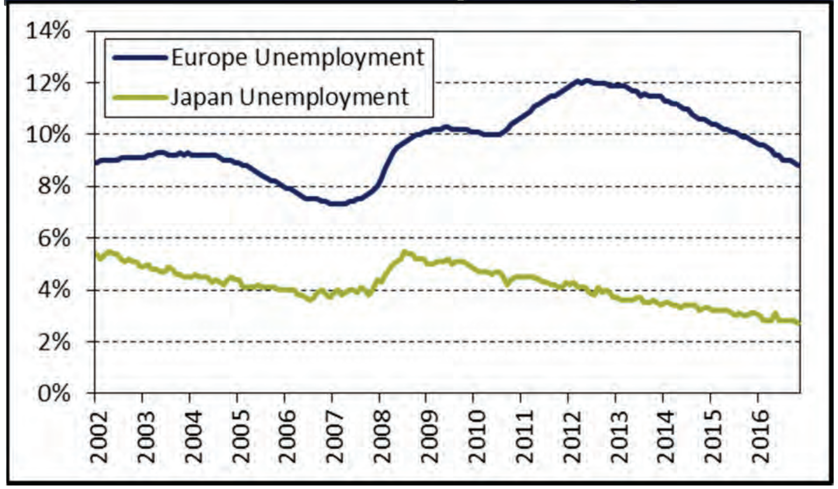
Source: Bloomberg, Institute for Supply Management

INTERNATIONAL ECONOMIC INDICATORS

Euro and Japan inflation have increased slightly

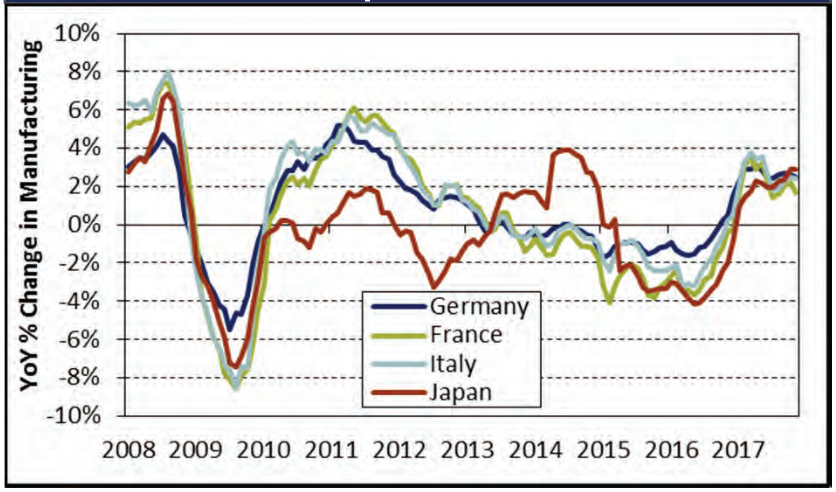
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Unemployment numbers continue to grind lower in Europe and Japan



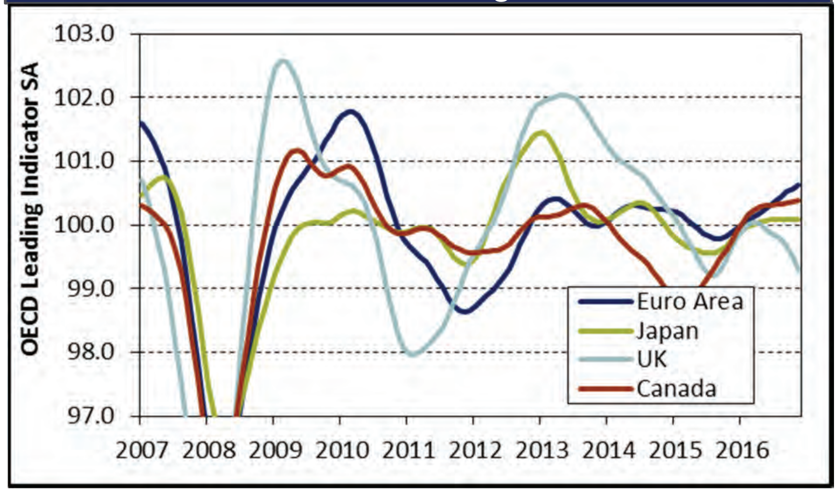
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Manufacturing has slowed slightly in European countries



Source: Bloomberg, OECD, Eurostat

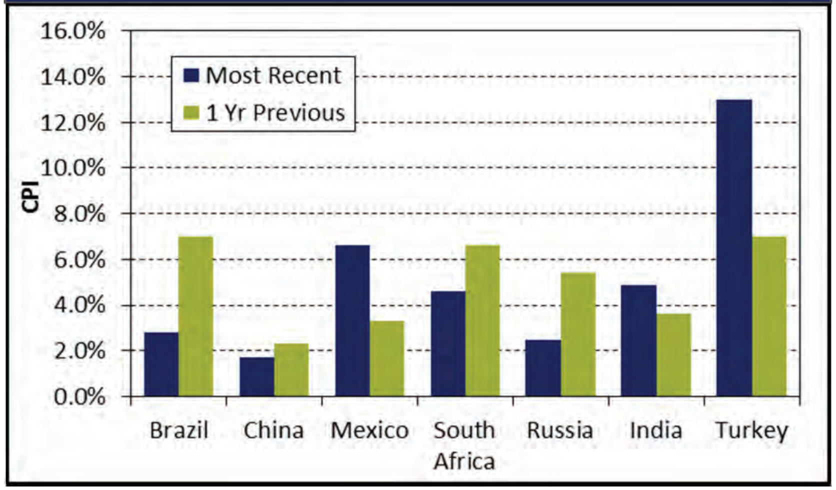
Ex-UK, Euro-area leading indicators remain strong



Source: Bloomberg, OECD

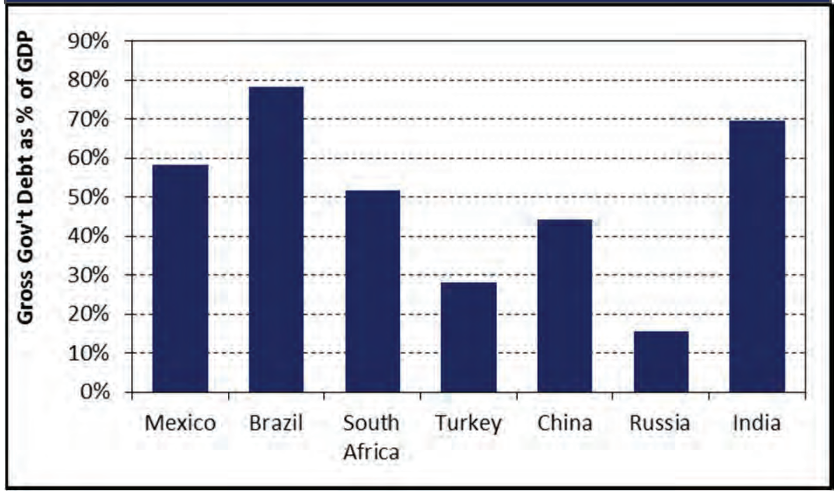
EMERGING MARKET ECONOMIC INDICATORS

EM inflation varies by country



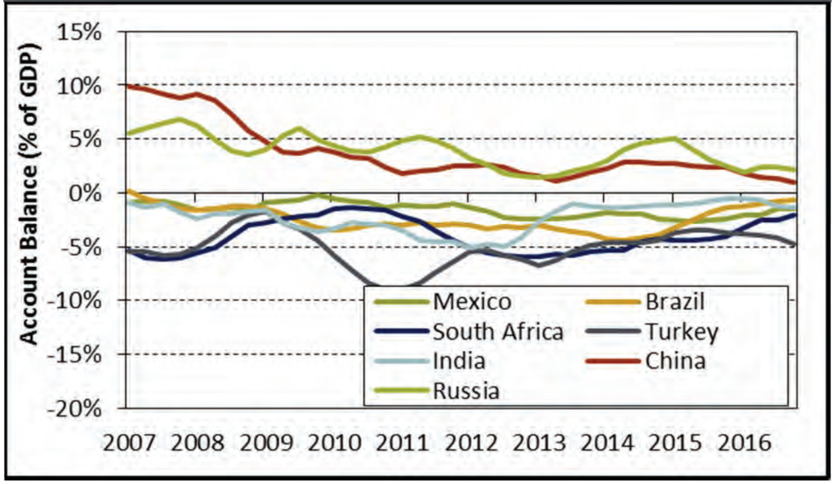
Source: Bloomberg

Relatively healthy debt/GDP ratios



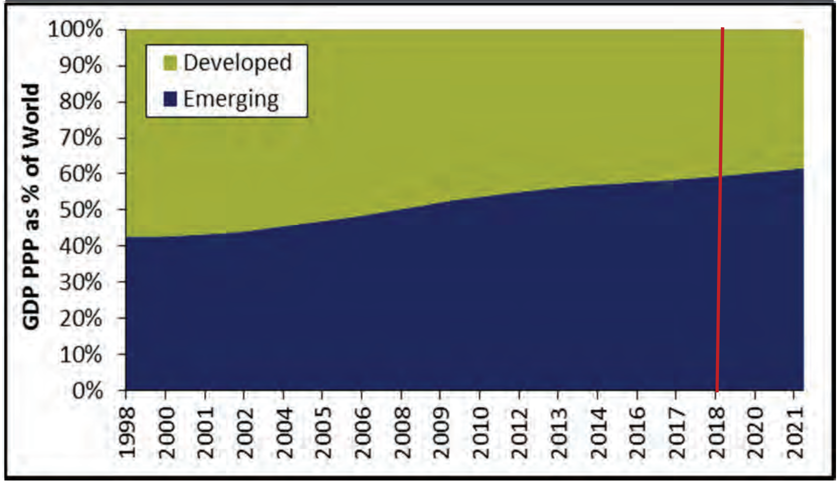
Source: Bloomberg, IMF

Account balances remain steady



Source: Bloomberg

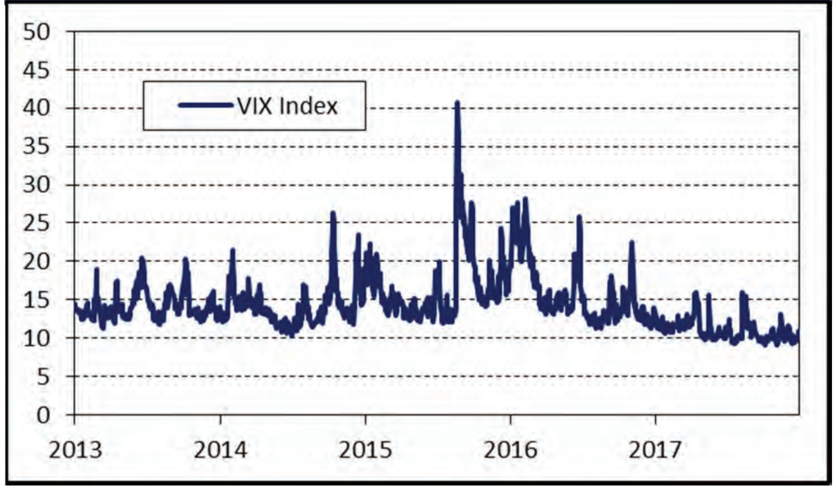
EM continues trending higher as a percent of global output



Source: Bloomberg, IMF

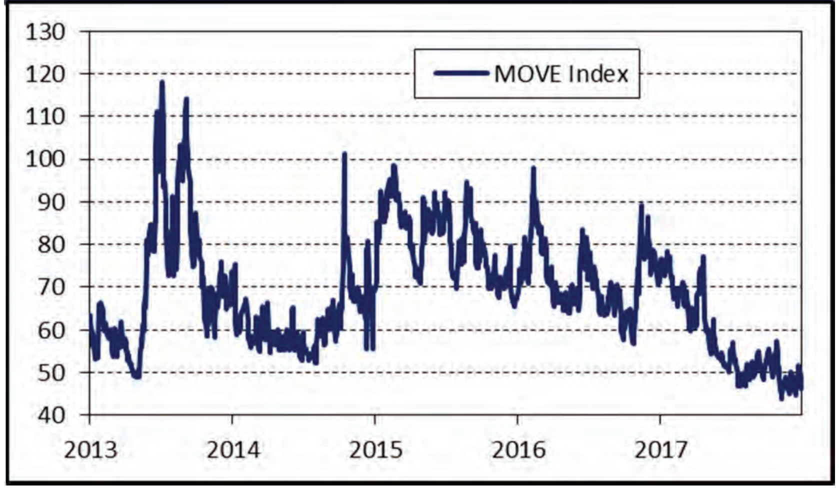
VOLATILITY

Equity volatility remains near historic lows



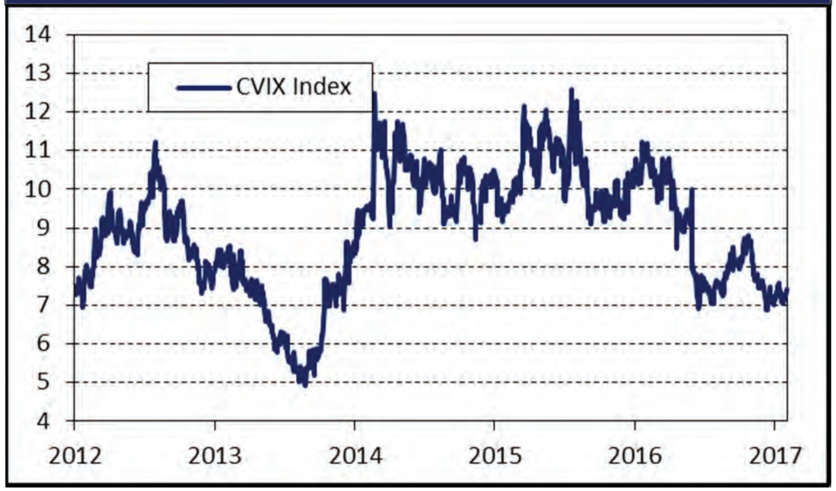
Source: Bloomberg, CBOE

Treasury volatility continues to decline



Source: Bloomberg, Merrill Lynch

Currency volatility remains low



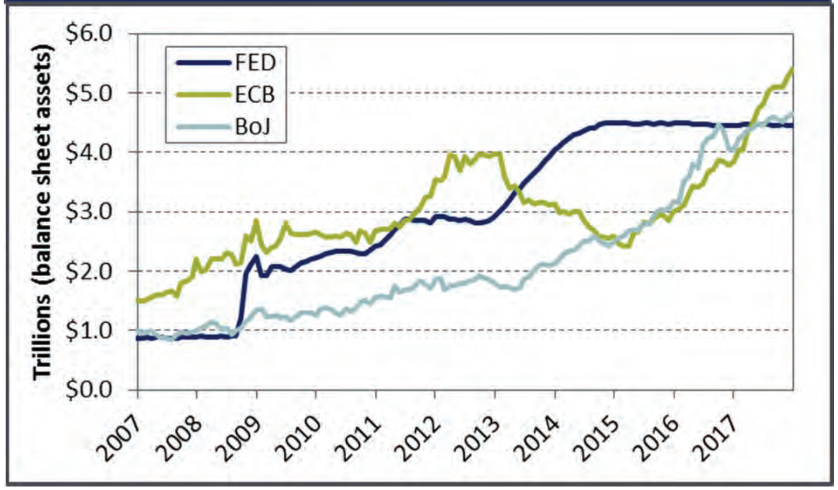
Source: Bloomberg, Deutsche Bank

Commodity volatility is trending downward

Source: Bloomberg, Merrill Lynch

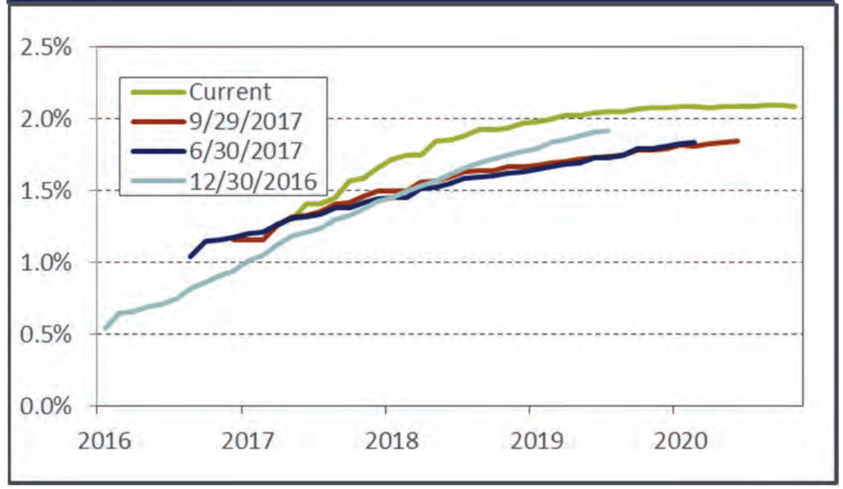
CENTRAL BANKS

Euro strength continues to impact total balance sheet assets



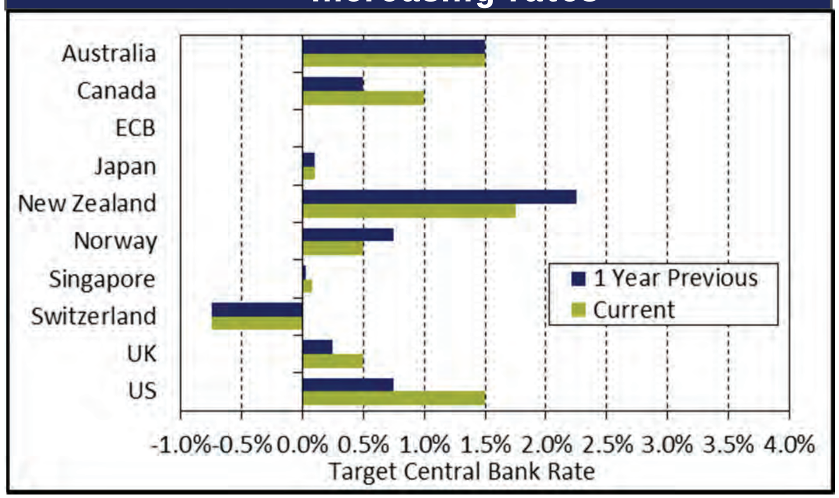
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

The yield curve has shifted upward with a December Fed hike



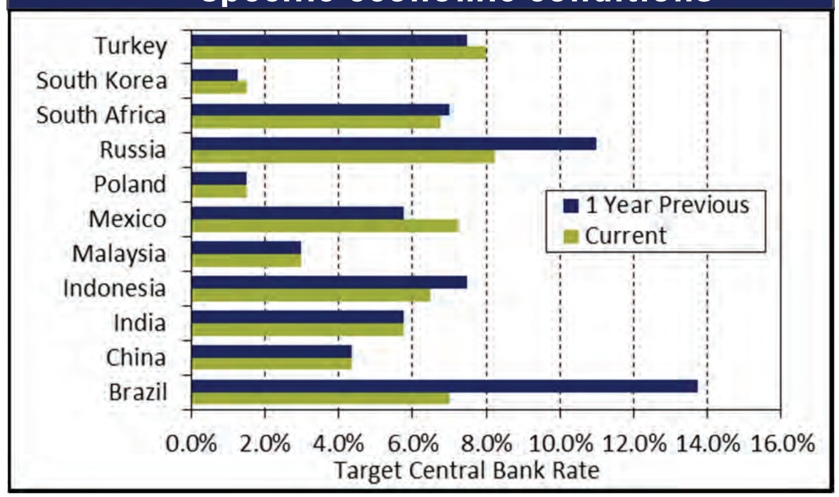
Source: Bloomberg, Federal Reserve

Developed markets have broadly started increasing rates



Source: Bloomberg

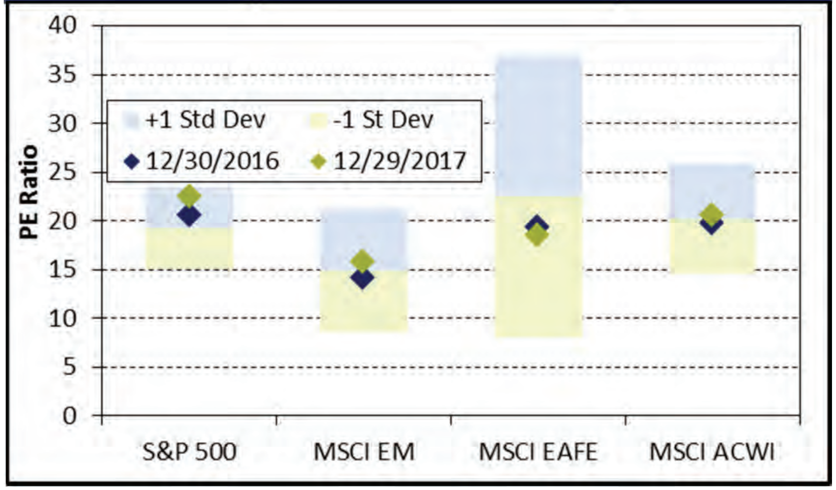
EM central bank policies vary by country-specific economic conditions



Source: Bloomberg

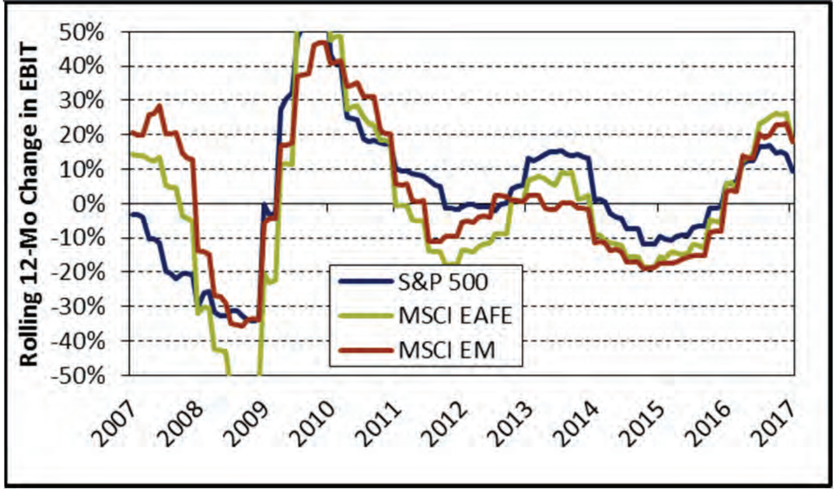
GLOBAL EQUITY

Ex-EAFE, global equity valuations are higher relative to last year



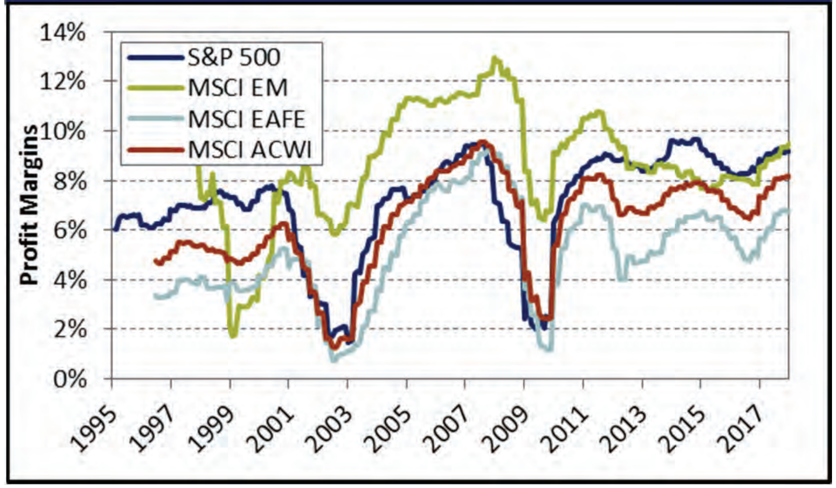
*Source: Bloomberg, Standard and Poors, MSCI *MSCI EAFE is ex UK Telecom*
**Standard deviation calculations on 20 years of data except S&P 500 (30 years)*

Rolling annual earnings growth is trending lower, though still remains elevated



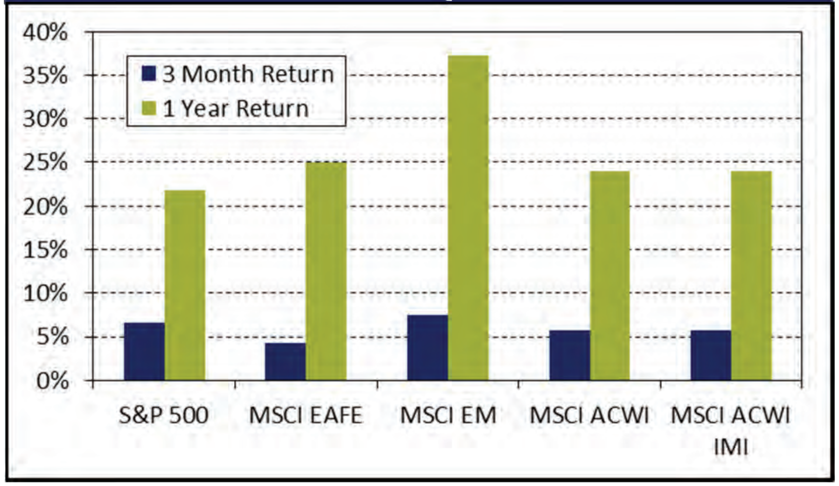
Source: Bloomberg, Standard and Poors, MSCI

Profit margins continue to increase



Source: Bloomberg, MSCI

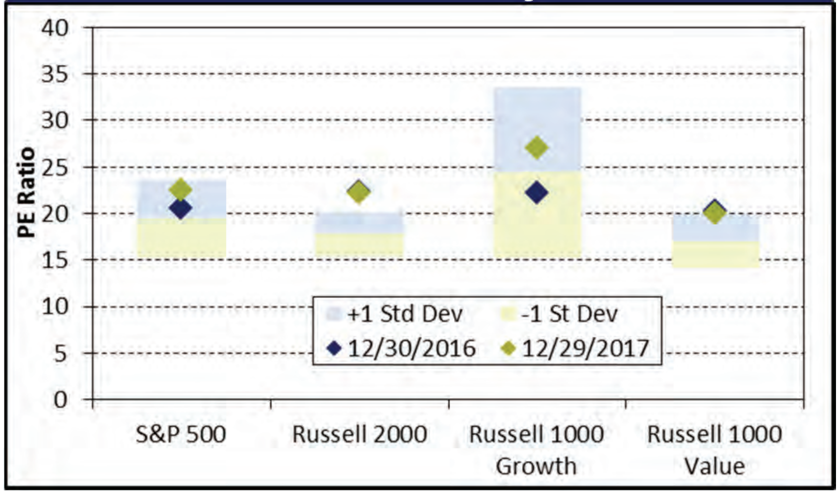
Equities continue to experience strong short-term performance



Source: Bloomberg, MSCI

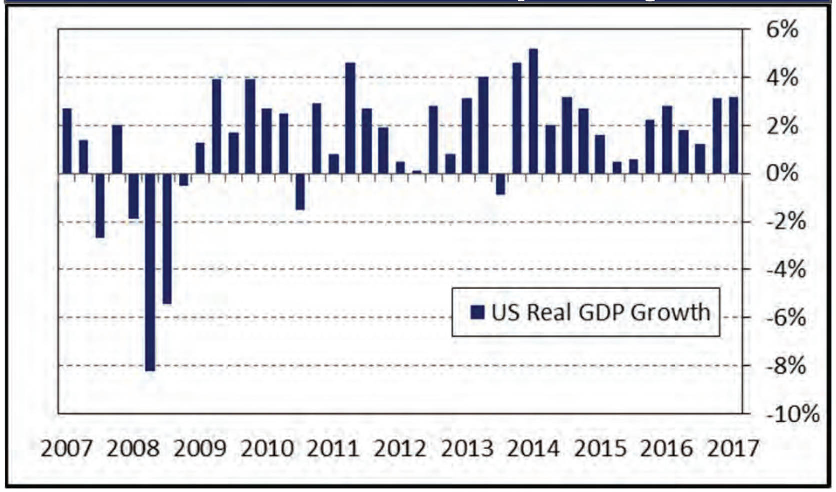
US EQUITY

The S&P 500 PE remains elevated relative to history



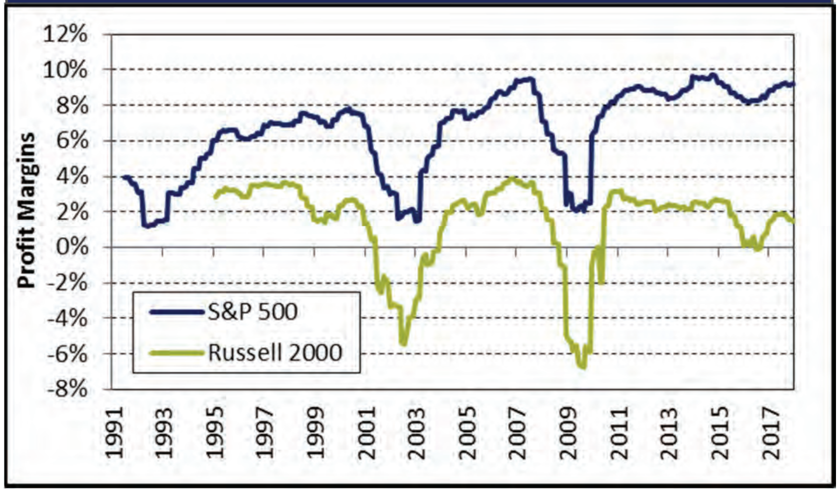
*Source: Bloomberg, Standard and Poors, Russell *Russell 2000 PE is index adjusted positive* Standard deviation calculations based on 20 years of data*

The Q3 real GDP growth revision to 3.3% marked a three-year high



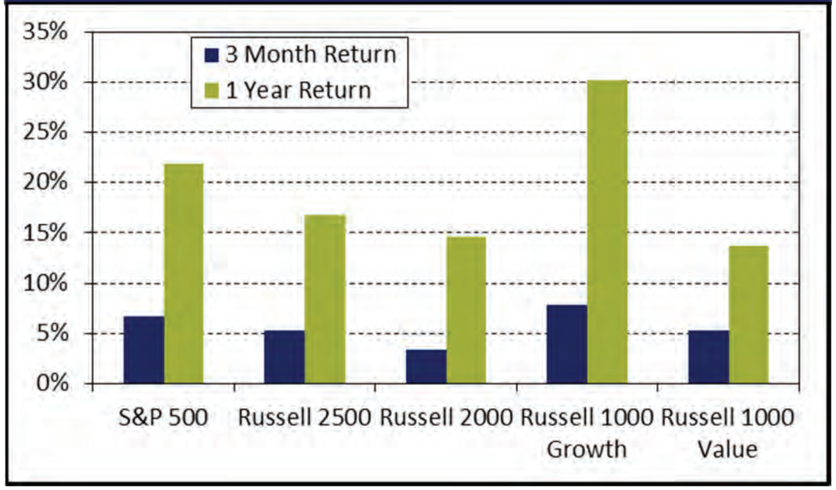
Source: Bloomberg, Bureau of Economic Analysis

Russell 2000 margins have begun trending lower



Source: Bloomberg, Standard and Poors, Russell

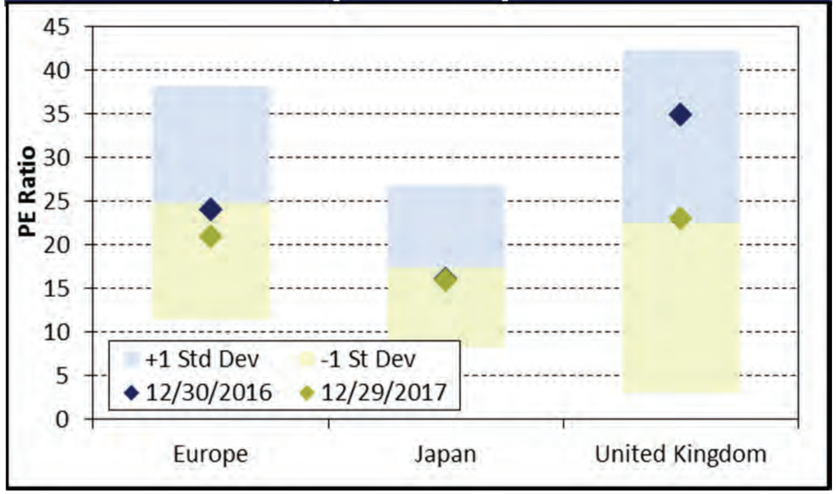
US equities continue to post positive returns



Source: Bloomberg, Standard and Poors, Russell

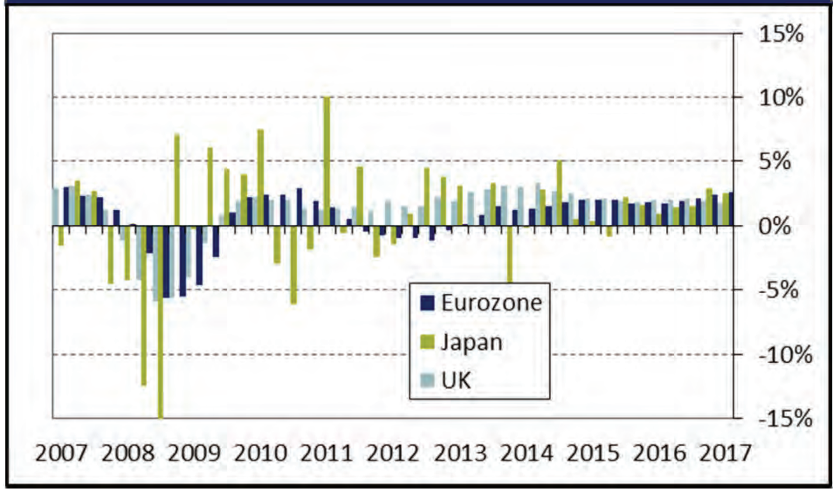
INTERNATIONAL EQUITY

International equity PEs remain below the previous year



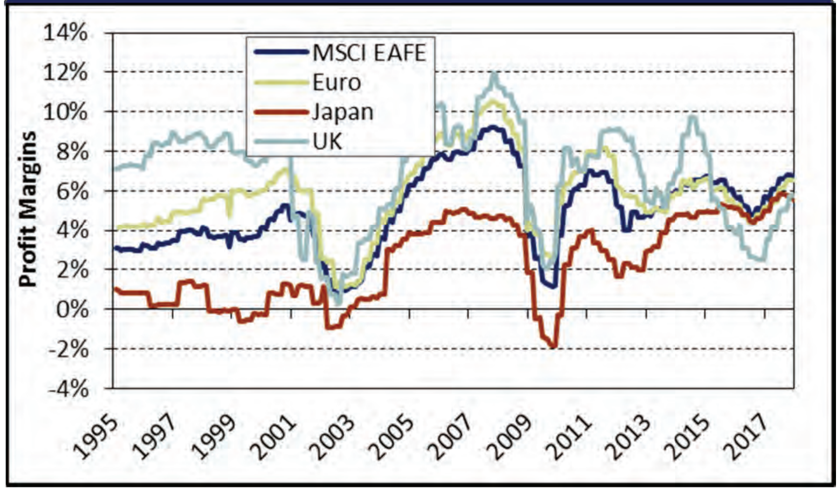
Source: Bloomberg, MSCI, FTSE *UK represented by FTSE 100 Index
*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

UK GDP growth continues to decline



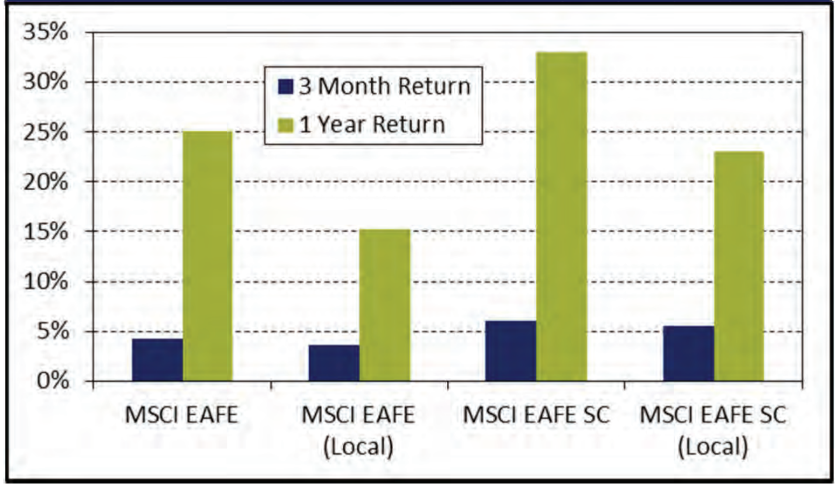
Source: Bloomberg

Profit margins continue trending higher



Source: Bloomberg, MSCI

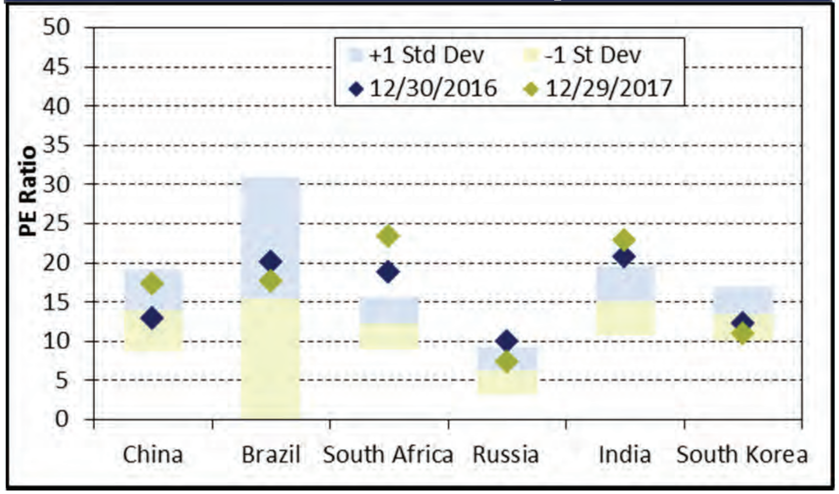
Small cap slightly outperformed broad indices over the near term



Source: Bloomberg, MSCI

EMERGING MARKETS EQUITY

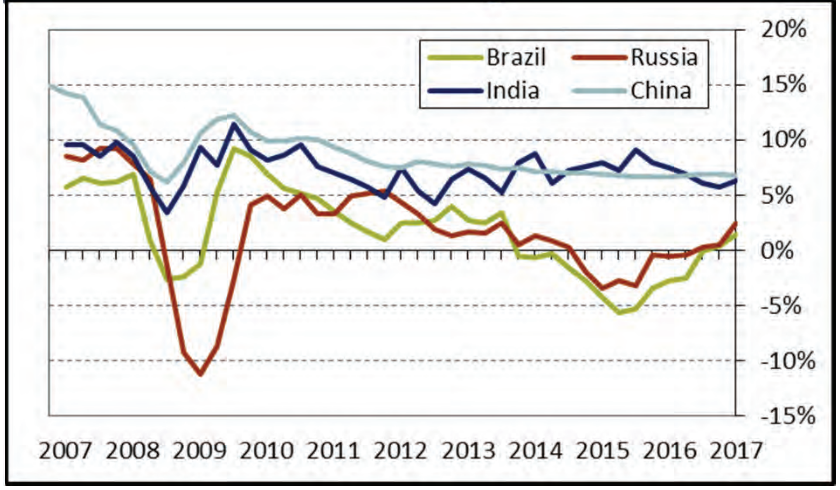
EM country valuations vary significantly relative to last year



Source: Bloomberg, MSCI

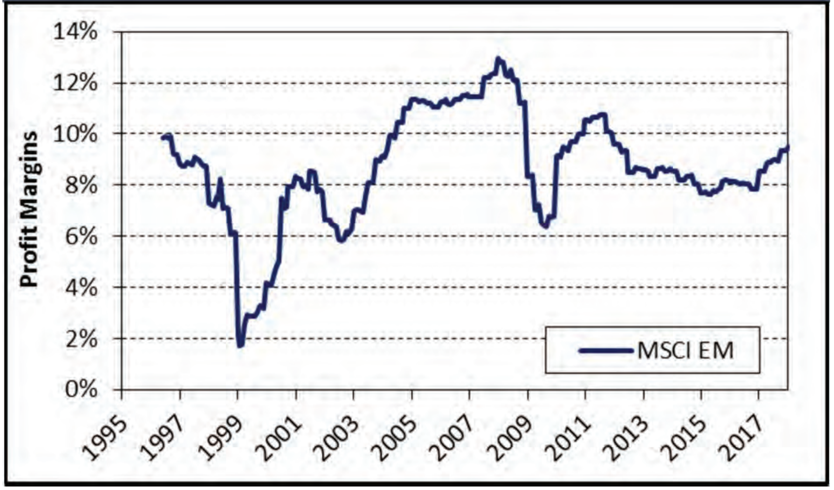
**Standard deviation calculations based on 20 years of data, with Russia since 01/1998*

Ex-China, EM profit margins continue to rebound off earnings contractions



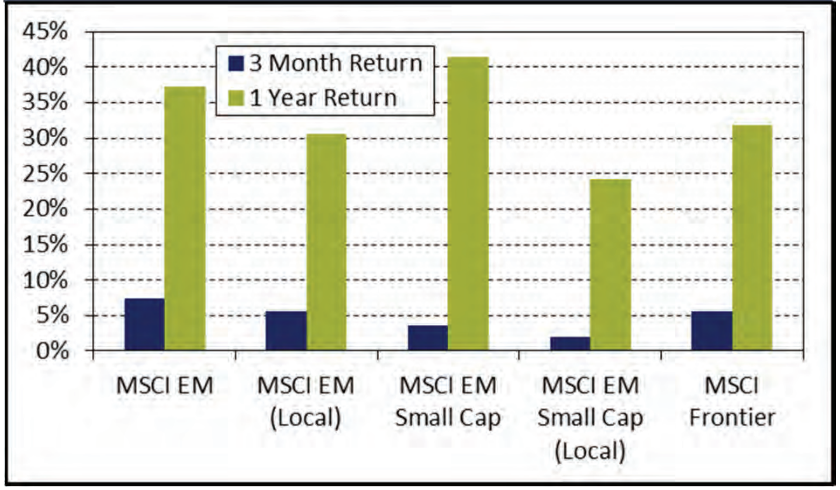
Source: Bloomberg

Profit margins remain elevated



Source: Bloomberg, MSCI

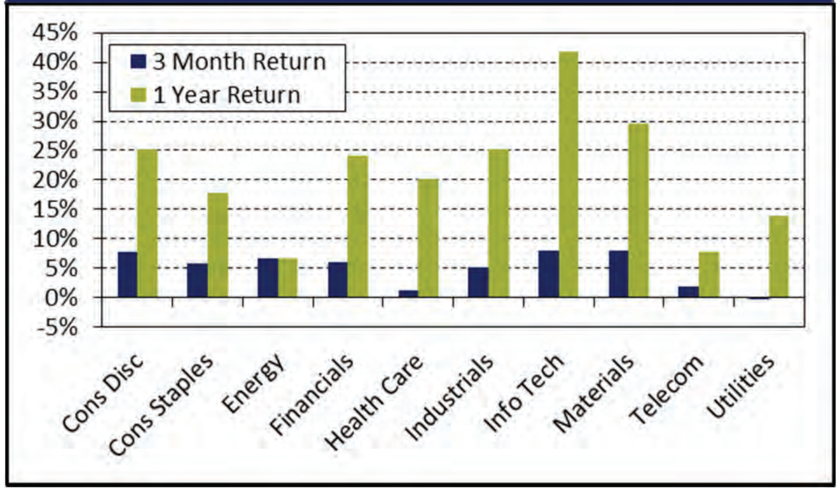
EM returns show continued strength



Source: Bloomberg, MSCI

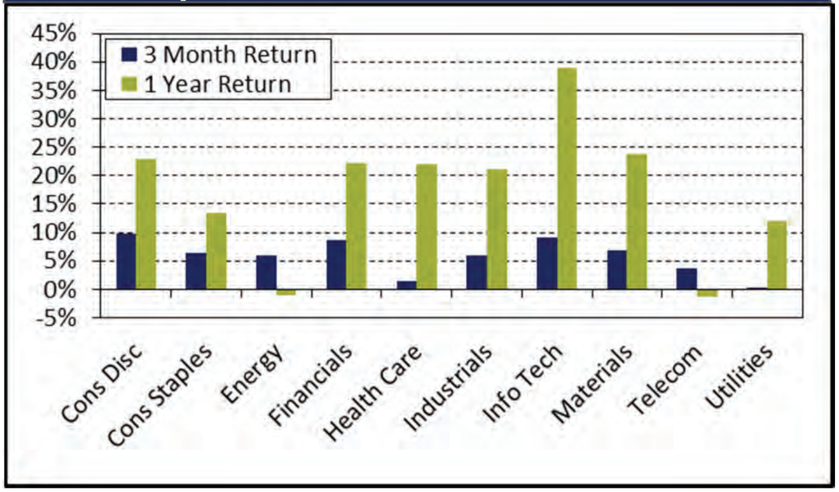
GLOBAL EQUITY BY SECTOR

Info Tech and Consumer Discretionary lead MSCI ACWI short-term returns



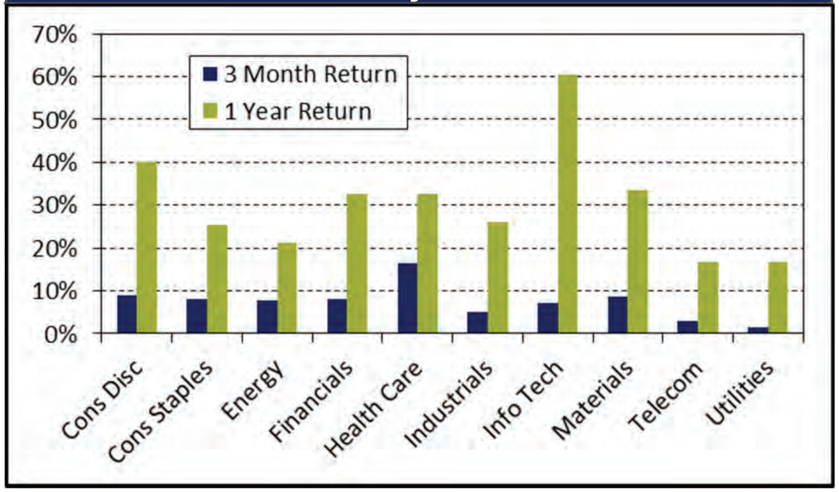
Source: Bloomberg, MSCI

The S&P 500 experienced positive performance across all sectors



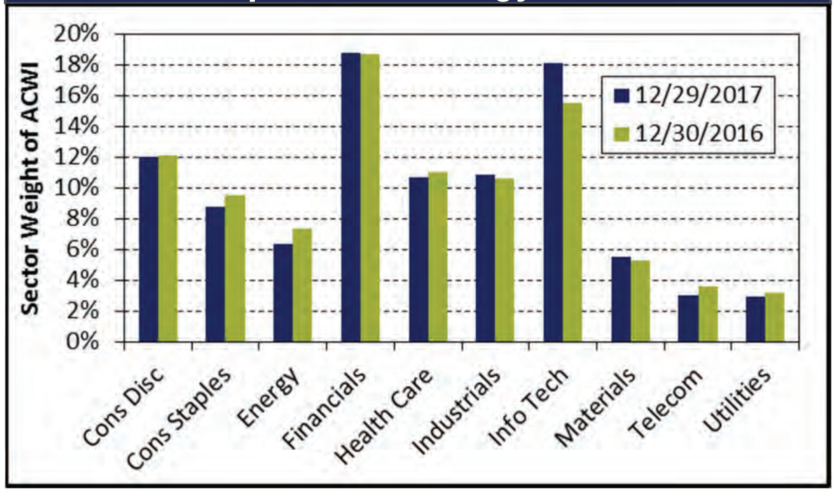
Source: Bloomberg, Standard and Poors

EM short-term returns continue to be driven by Health Care



Source: Bloomberg, MSCI

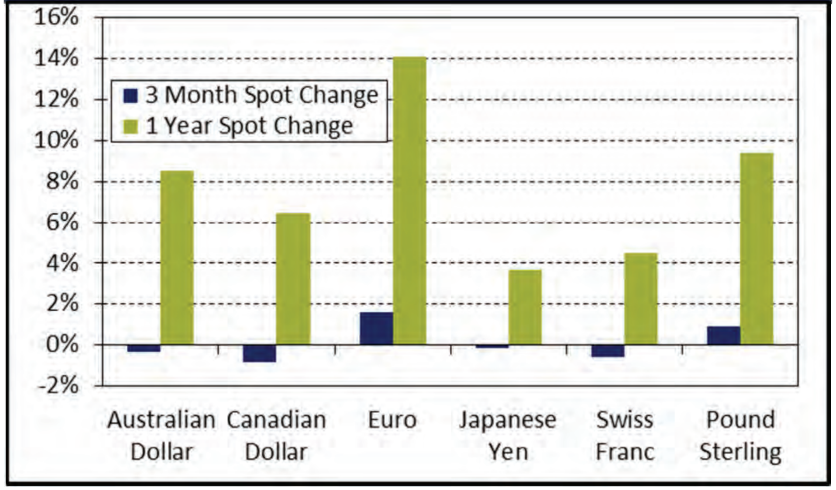
Info Tech sector weight has increased at the expense of Energy and Telecom



Source: Bloomberg, MSCI

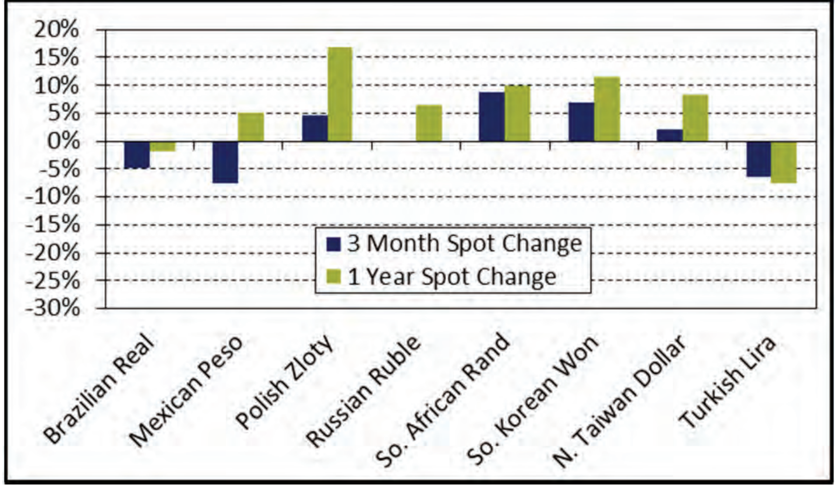
CURRENCIES

In the near-term, the Euro and the Pound strengthened relative to the USD



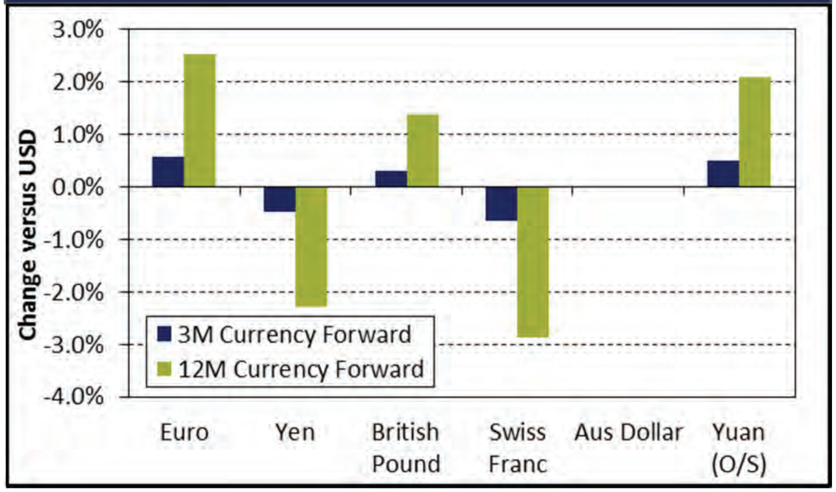
Source: Bloomberg

EM currencies remain mixed relative to the dollar



Source: Bloomberg

USD expectations vary across developed markets



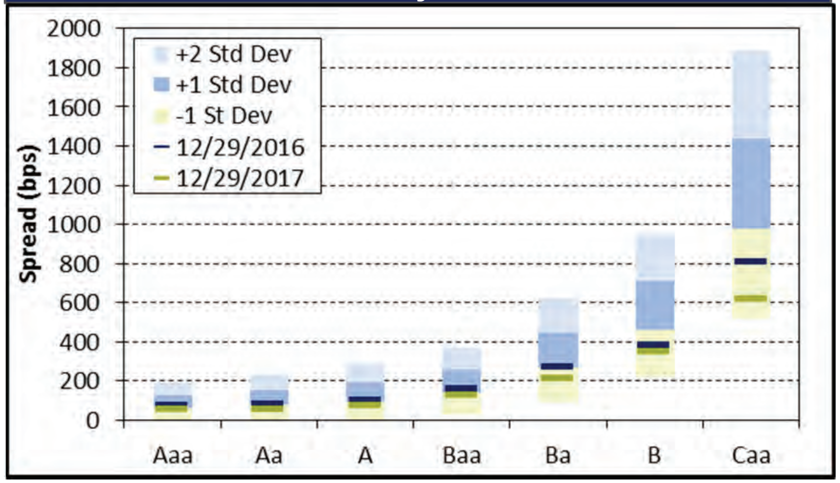
Source: Bloomberg

The dollar continues to decline

Source: Bloomberg, Federal Reserve

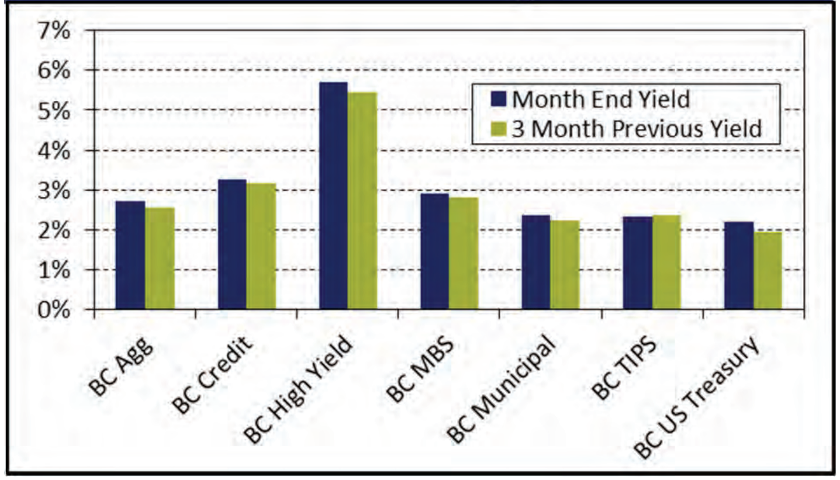
US FIXED INCOME

Spreads remain lower than the previous year



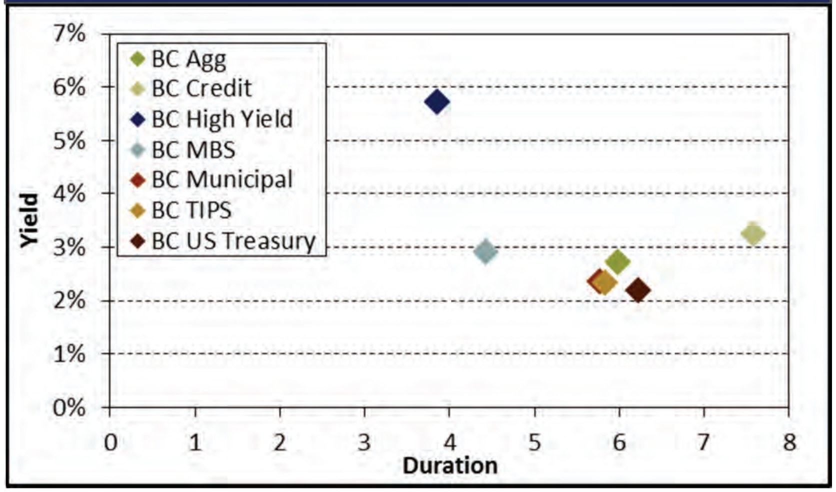
Source: Bloomberg, Barclays
*Standard deviation calculations based on 20 years of data

Yields are modestly higher relative to three months ago



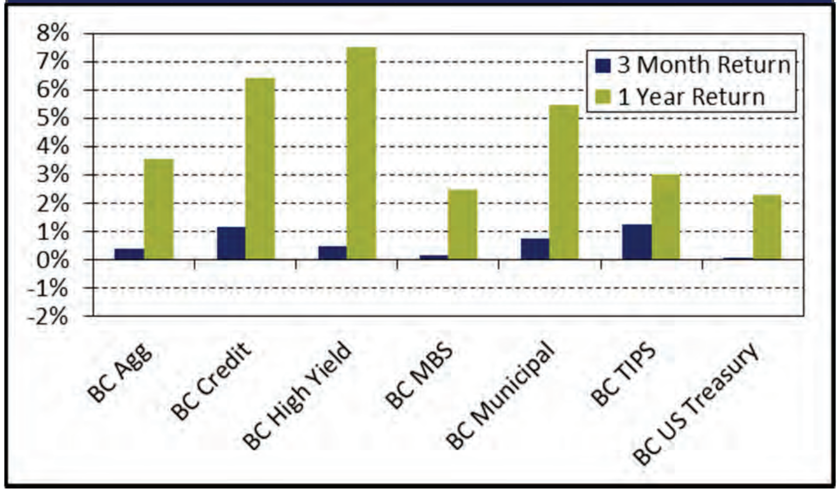
Source: Bloomberg, Barclays

Similar duration / yield profiles among core indices



Source: Bloomberg, Barclays

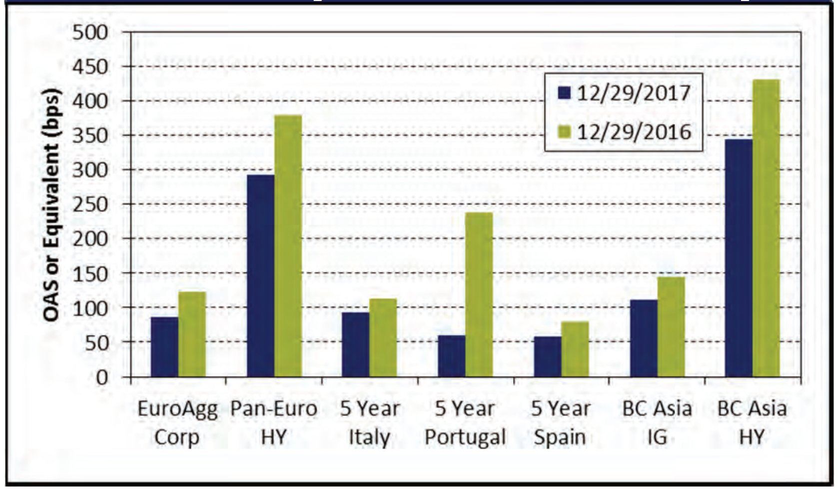
Fixed income indices were slightly positive over the short-term



Source: Bloomberg, Barclays

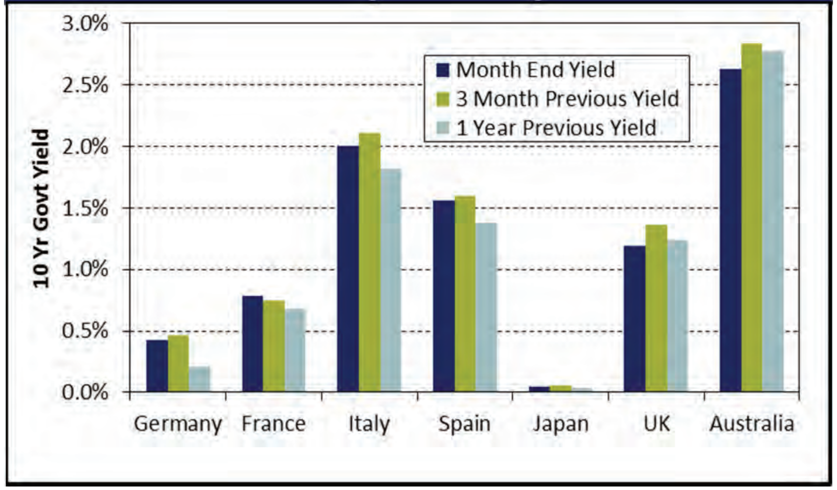
INTERNATIONAL DEVELOPED FIXED INCOME

Periphery yields have broadly declined over the year relative to Germany



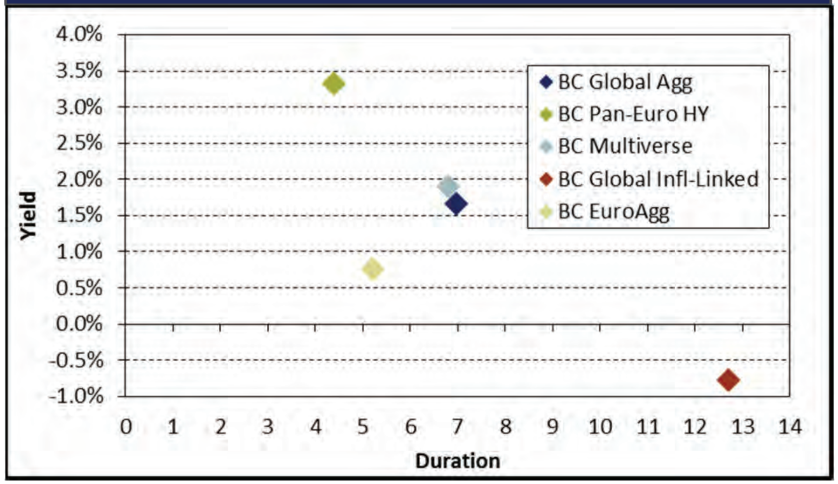
*Source: Barclays, Bloomberg, *European periphery spreads are over equivalent German Bund*

Ex-UK and Australia, yields are higher than the previous year



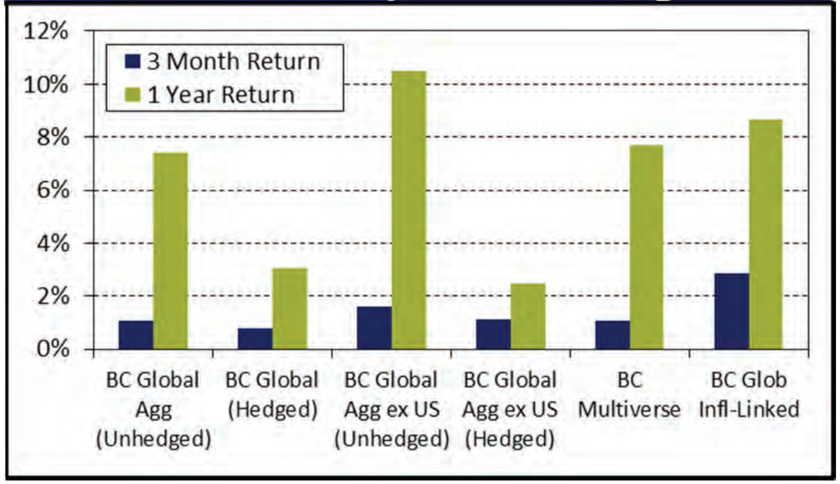
Source: Bloomberg

Low yields persist in global bond universe



Source: Bloomberg, Citigroup, Barclays

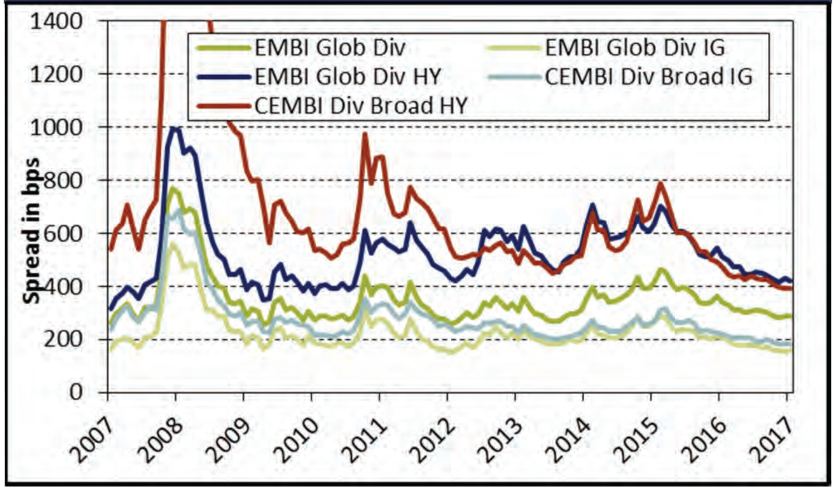
In the near-term, unhedged global bond indices outperformed hedged



Source: Bloomberg, Citigroup, Barclays

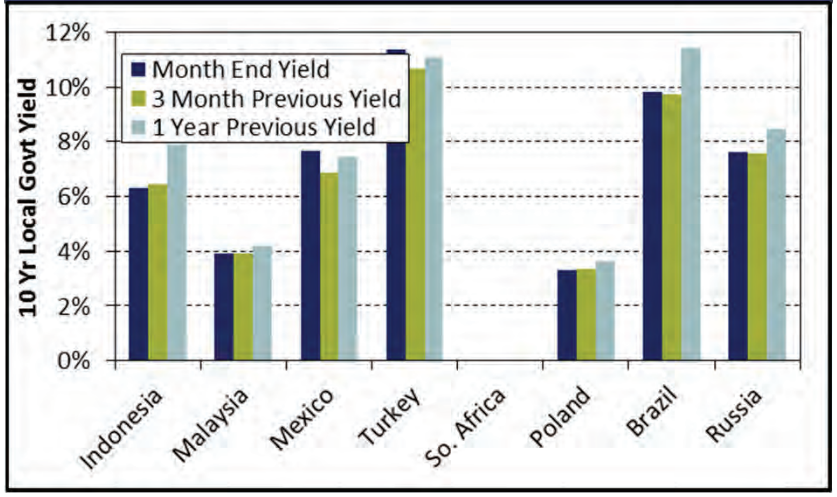
EMERGING MARKETS FIXED INCOME

EM spreads continue to compress



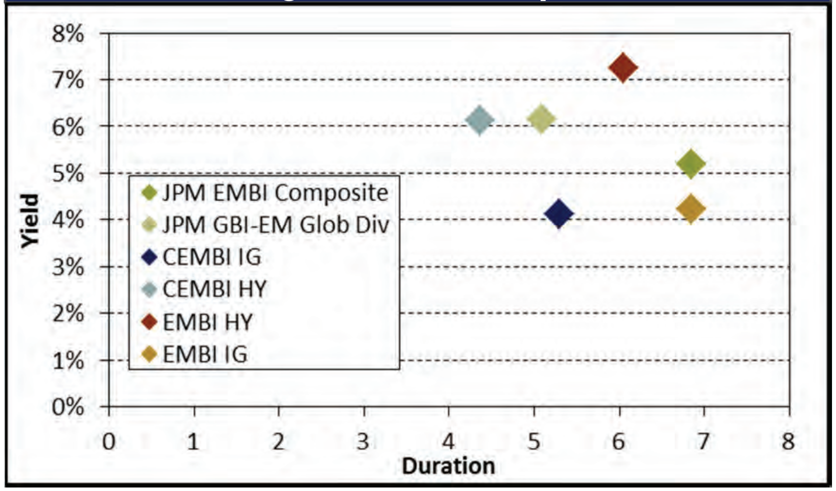
Source: Bloomberg, JP Morgan

Yields have broadly increased relative to three months prior



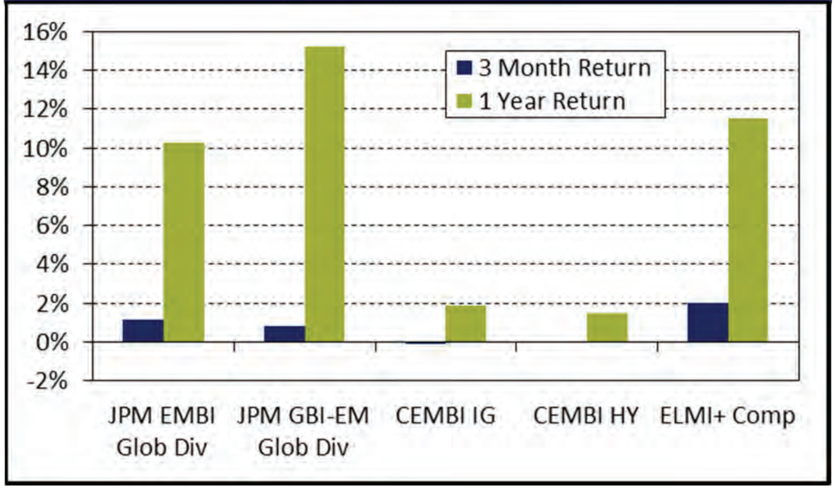
Source: Bloomberg

EM yields appear attractive relative to global counterparts



Source: Bloomberg, JP Morgan

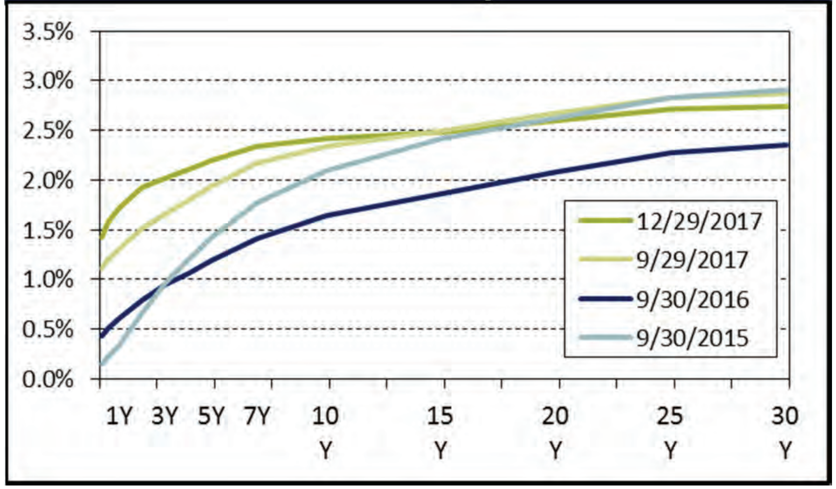
EM fixed income returns were slightly positive to flat over the short-term



Source: Bloomberg, JP Morgan

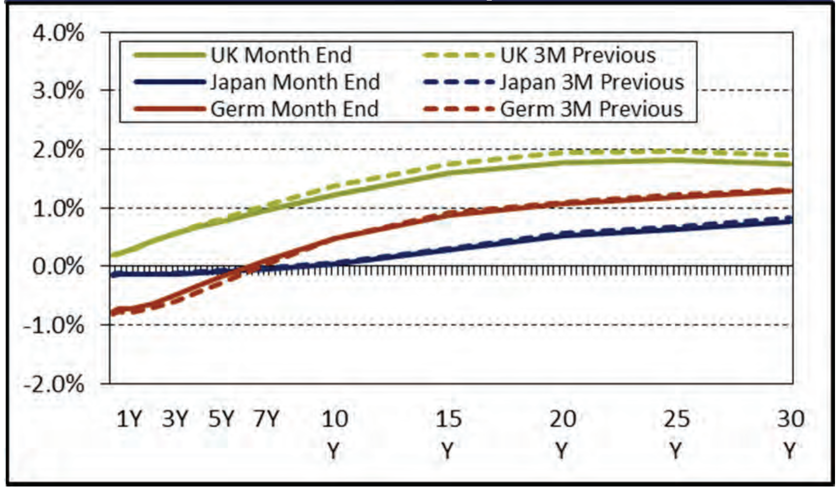
RATES

The curve has flattened relative to three months prior



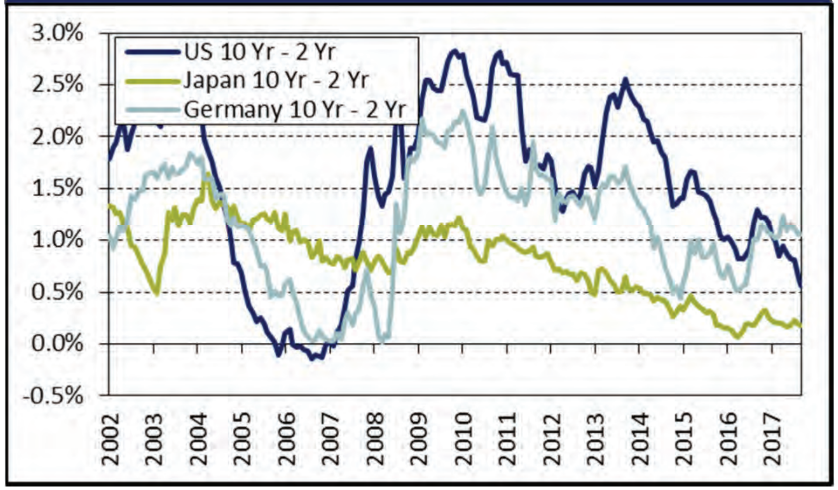
Source: Bloomberg

Longer term rate expectations have declined relative to previous months



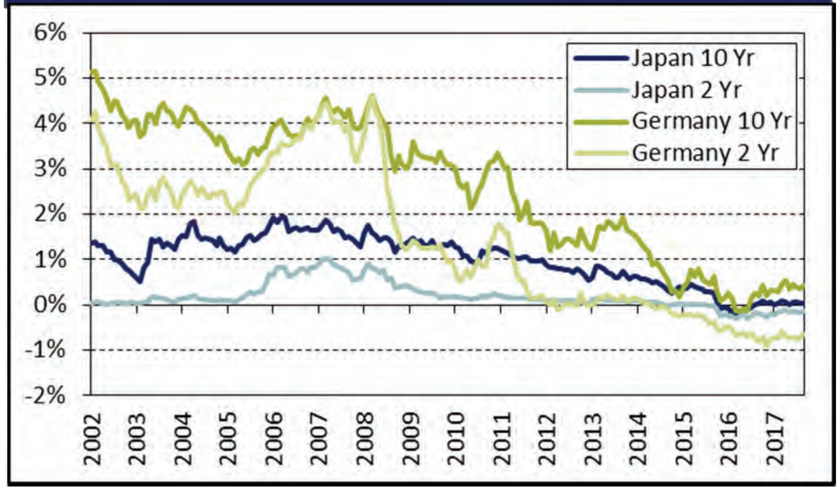
Source: Bloomberg

10-2 spreads continue to decline



Source: Bloomberg

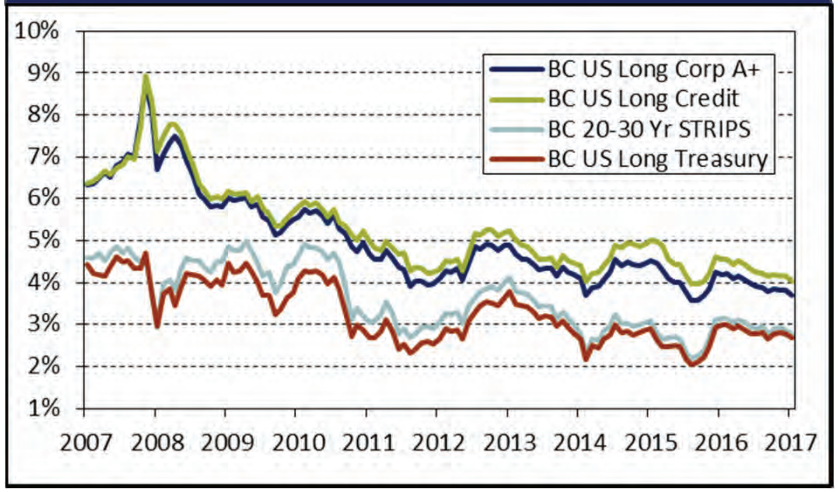
Sovereign bond yields remain relatively flat



Source: Bloomberg

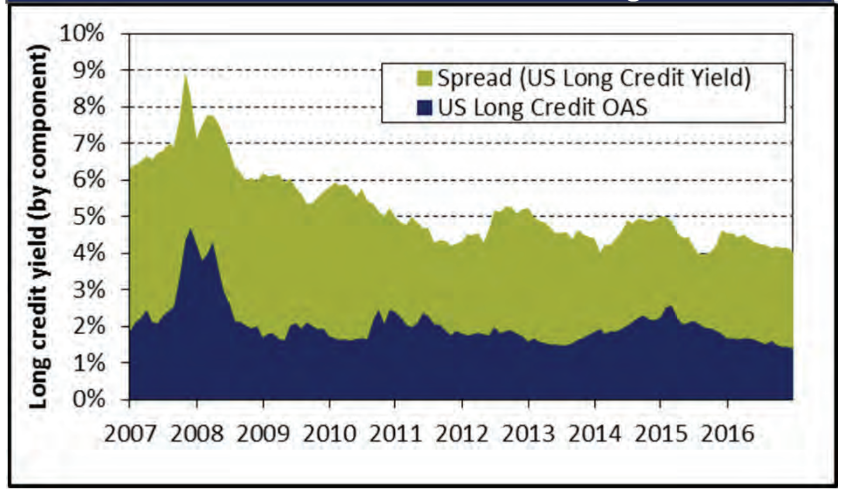
LONG RATES AND LIABILITY

Long duration yields continue to grind lower



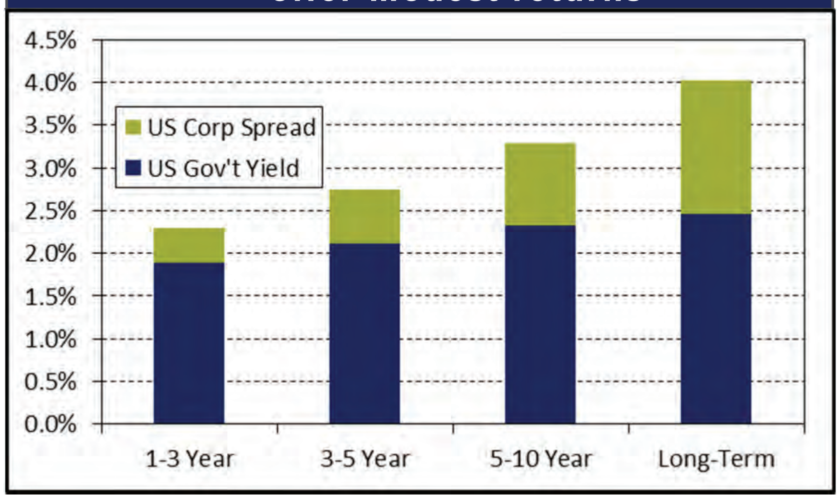
Source: Bloomberg, Citigroup, Barclays

Long credit yield is in line with the long-term historical average



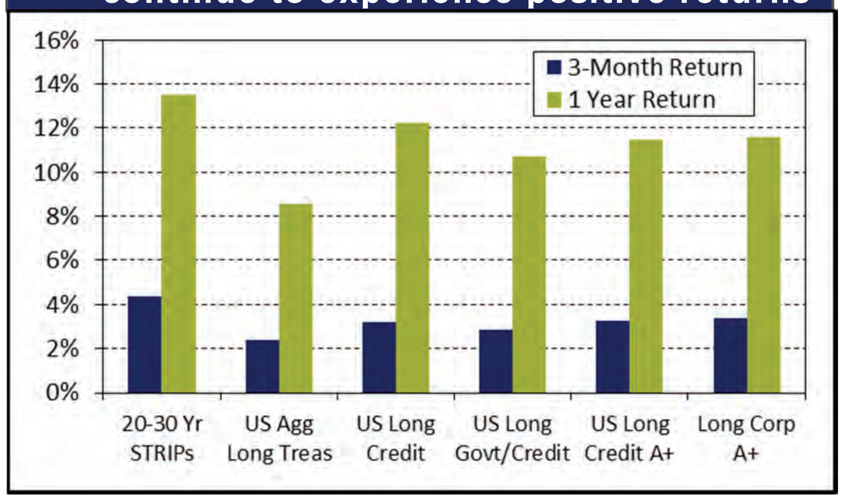
Source: Bloomberg, US Treasury, Barclays, NEPC

Yield and spread components continue to offer modest returns



Source: Bloomberg, Barclays

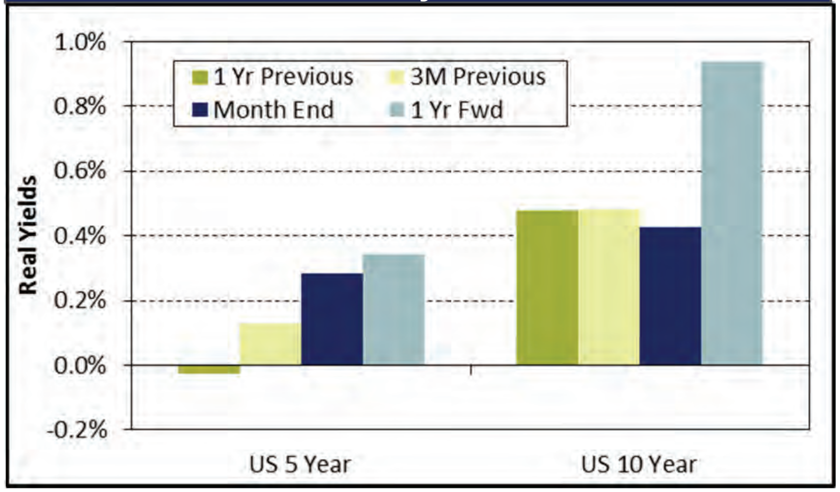
Long duration fixed income indices continue to experience positive returns



Source: Bloomberg, Barclays

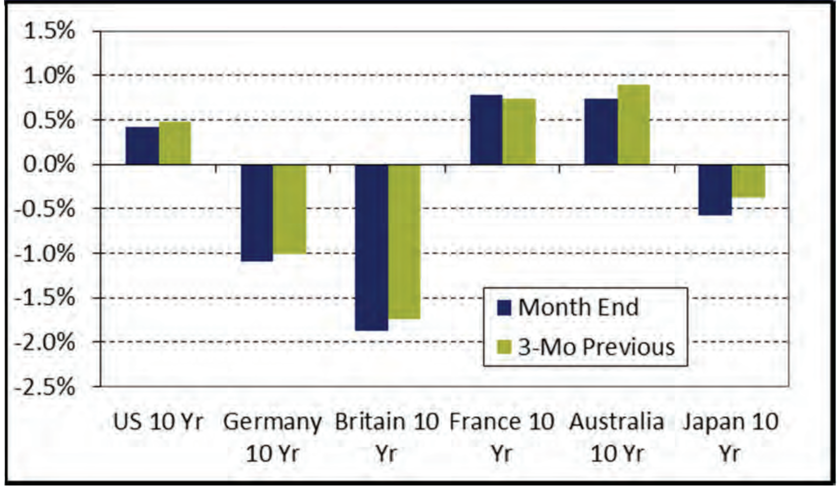
INFLATION AND REAL RATES

Changes in 5 and 10 year real yields echo a flatter yield curve



Source: Bloomberg

Ex-France, developed market real yields have declined in recent months

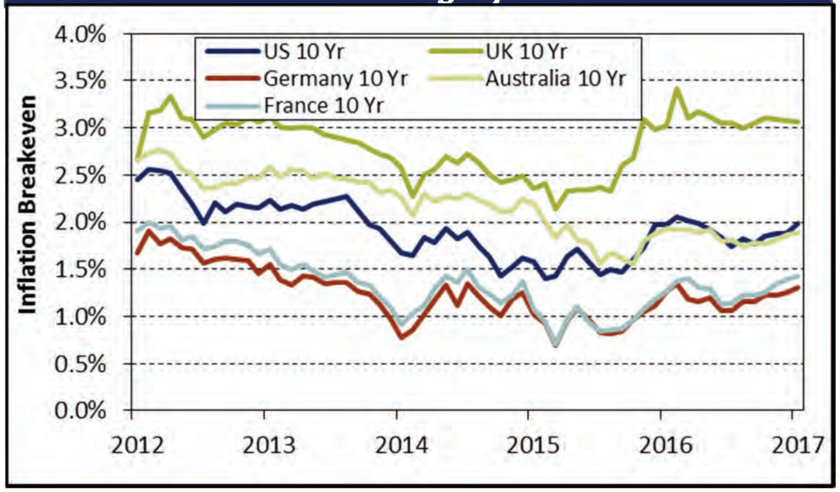


Source: Bloomberg

US inflation expectations continue to rise

Source: Bloomberg

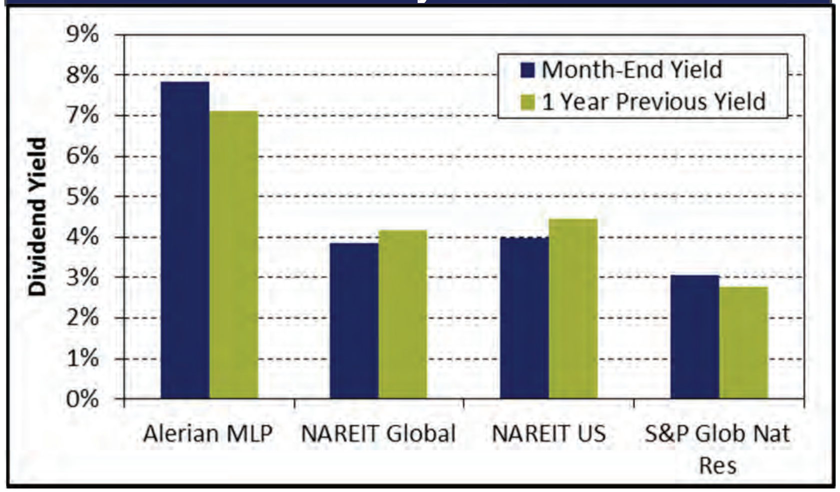
Ex-UK, inflation expectations have begun trending upward



Source: Bloomberg

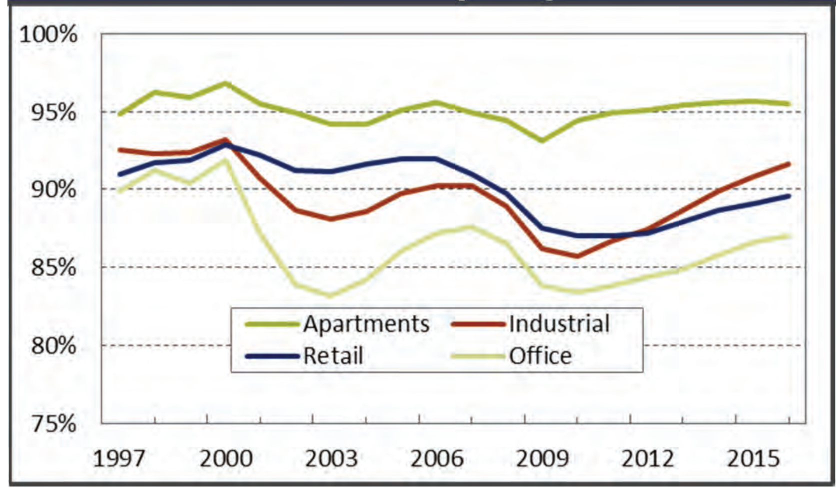
INFLATION-SENSITIVE GROWTH ASSETS

MLP yields have increased relative to last year



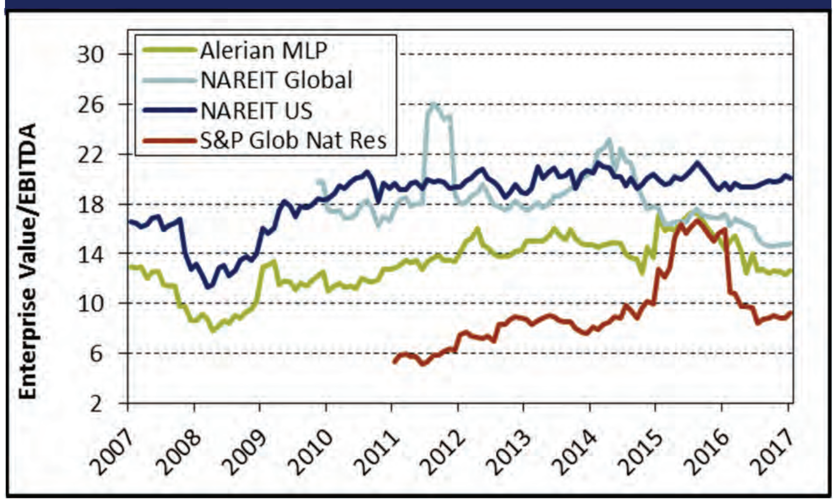
Source: Bloomberg, Alerian, NAREIT, Standard and Poors

Sustained recovery in commercial real estate occupancy rates



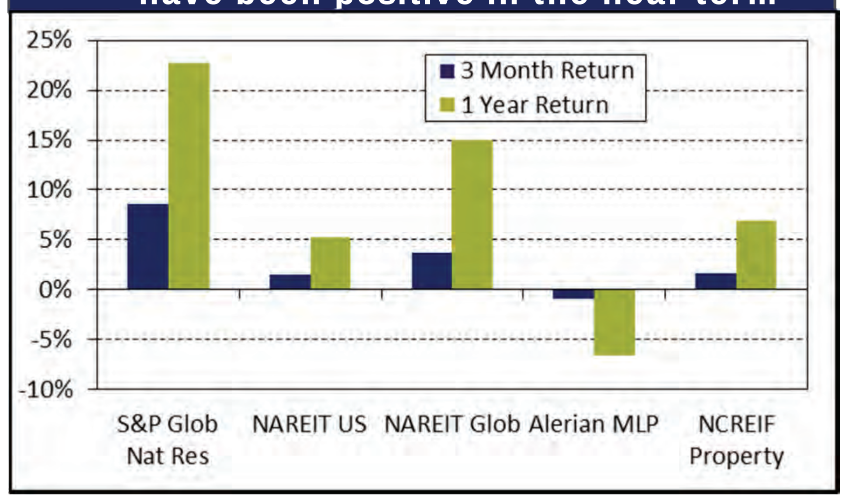
Source: CBRE

US REIT valuations have steadied



Source: Bloomberg, US Census Bureau

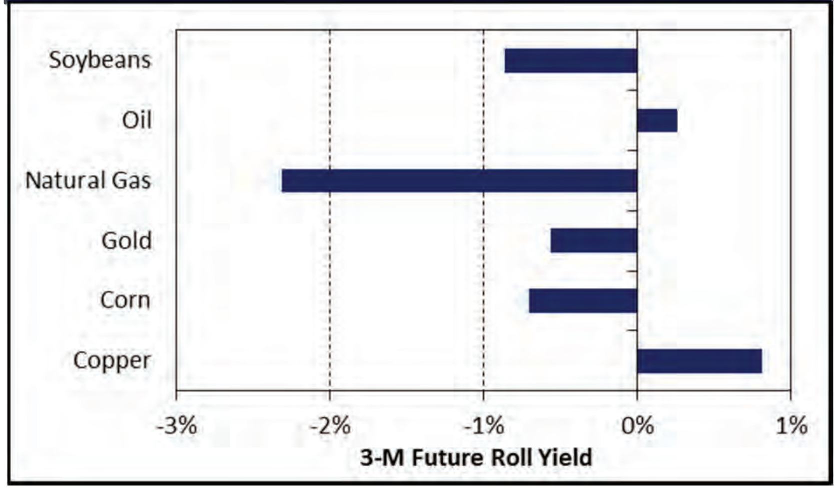
Ex-MLPs, inflation-sensitive growth assets have been positive in the near term



Source: Bloomberg, Alerian, NAREIT, Standard and Poors

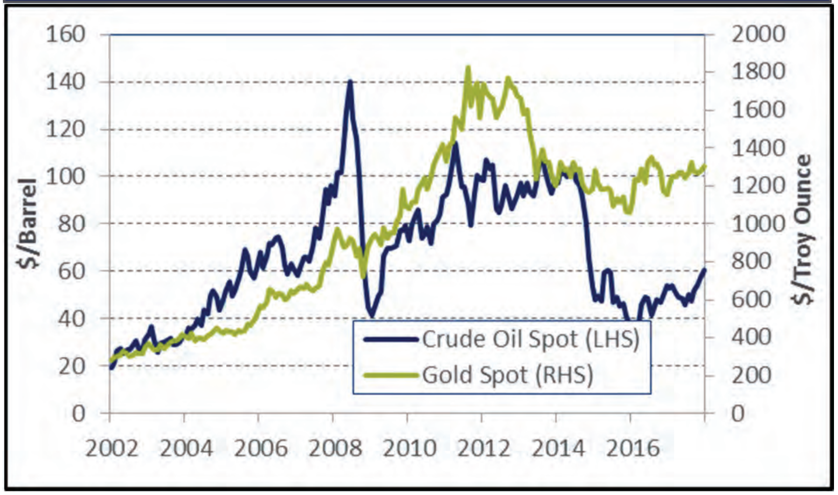
COMMODITIES

Ex-oil and copper, 3-month roll yields remain negative



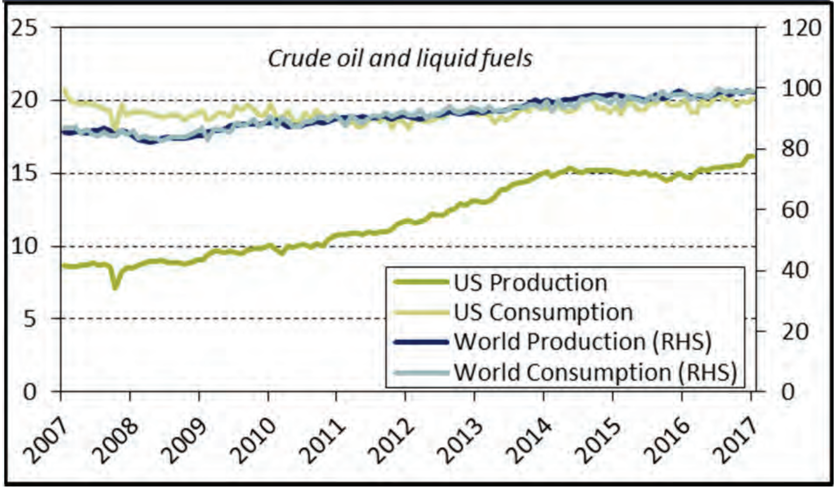
Source: Bloomberg

Spot oil has continued to increase



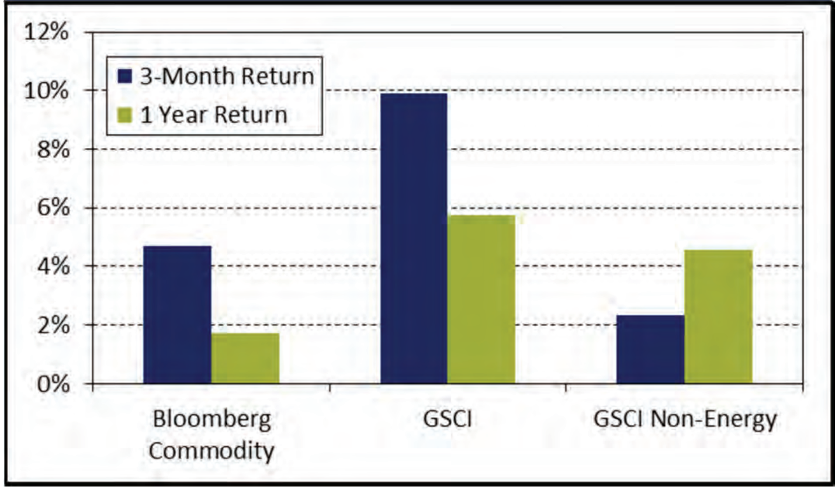
Source: Bloomberg

US production experienced a slight uptick in volume



*Source: Bloomberg, US Department of Energy *Crude oil and liquid fuels*

GSCI Non-Energy underperformed in the near term



Source: Bloomberg, Standard and Poors

Glossary of Investment Terminology – Risk Statistics

Alpha - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

Alpha Jensen - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

Annualized Excess Return over Benchmark - Annualized fund return minus the annualized benchmark return for the calculated return.

Annualized Return - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

Beta - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

Information Ratio - A measure of the risk adjusted return of a financial security, asset, or portfolio.

Formula:
(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return – Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

R-Squared – Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

Sharpe Ratio - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

Sortino Ratio - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

Formula:
*Calculation Average (X-Y)/Downside Deviation (X-Y) * 2*
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

Standard Deviation - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

Formula:
(Annualized Return of Portfolio – Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)

Tracking Error - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula:
*Tracking Error = Standard Deviation (X-Y) * √(# of periods per year)*
Where X = periods portfolio return and Y = the period's benchmark return
For monthly returns, the periods per year = 12
For quarterly returns, the periods per year = 4

Treynor Ratio - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula:
(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta

Up/Down Capture Ratio - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0

DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark <0

Source: *Investor Force*

 # Of Portfolios/Observations[1] – The total number of data points that make up a specified universe

Allocation Index[3] - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect[2] - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

Agency Bonds (Agencies)[3] - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

Asset Backed Securities (ABS)[3] - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

Attribution[3] - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

Average Effective Maturity[4] - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

Batting Average[1] - A measurement representing an investment manager's ability to meet or beat an index.

Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.

Brinson Fachler (BF) Attribution[1] - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution[1] - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

Corporate Bond (Corp) [4] - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

Correlation[1] - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

Glossary of Investment Terminology

Coupon[4] – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

Currency Effect[1] - Is the effect that changes in currency exchange rates over time affect excess performance.

Derivative Instrument[3] - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

Downside Deviation[1] - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

Formula:
Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

Duration[3] - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio[1] – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond[3] - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark[4] - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

Hurdle Rate[4] - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects[2] - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median[3] - The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration[3] - The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)[3] - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni) [4] - A debt security issued by a state, municipality or county to finance its capital expenditures.

Net Investment Change[1] – Is the change in an investment after accounting for all Net Cash Flows.

Performance Fee[4] - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

Glossary of Investment Terminology

Policy Index[3] - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

Price to Book (P/B)[4] - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

Price to Earnings (P/E)[3] - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

Price to Sales (P/S)[4] - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

Return on Equity (ROE)[4] - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

Selection (or Manager) Effect[2] - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee[1] – A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first $10M invested, 0.90% on the next $10M, and 0.80% on the remaining balance).

Total Effects[2] - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return[1] - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe[3] - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation[1] – Standard Deviation of Positive Returns

Weighted Avg. Market Cap.[4] - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)[3] - The current yield of a security is the current indicated annual dividend rate divided by current price.
Yield to Maturity[3] -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

Information Disclosure

- **Past performance is no guarantee of future results.**
- **NEPC uses, as its data source, the plan's custodian bank or fund service company, and NEPC relies on those sources for security pricing, calculation of accruals, and all transactions, including income payments, splits, and distributions. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **The Investment Performance Analysis (IPA) is provided as a management aid for the client's internal use only. Portfolio performance reported in the IPA does not constitute a recommendation by NEPC.**
- **Information in this report on market indices and security characteristics is received from sources external to NEPC. While efforts are made to ensure that this external data is accurate, NEPC cannot accept responsibility for errors that may occur.**
- **This report may contain confidential or proprietary information and may not be copied or redistributed.**

Information Disclaimer

- Past performance is no guarantee of future results.

- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.

- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.

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- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.

- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.

- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.

- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

TCERA
Investment Consulting Services Request for Proposal

SUBMISSION CHECKLIST

Item	Included in RFP Response
Transmittal Letter and Minimum Requirements Certification	✓
Complete Responses to Section VII Technical Proposal	✓
Exhibit A – Biographies of Proposed Team Members	✓
Exhibit B -- Form ADV (Part I & II)	✓
Exhibit C – Organizational Chart	✓
Exhibit D – Copy of Proposing Firm's Code of Ethics	✓
Exhibit E – List of Current Clients Representative Client List	✓
Exhibit F – Public Fund References	✓
Exhibit G - Sample Asset Allocation and Asset/Liability Modeling Study	✓
Exhibit H - Five Years of Capital Market Assumptions	✓
Exhibit I – Sample Quarterly Performance Report and Flash Report	✓
Exhibit J - Sample White Paper/Research Report & List of Recent Research Generated	✓
Exhibit K – Sample of Investment Manager Research/Due Diligence Report	✓
Exhibit L – Sample of "Finals" Report for Recent Public Markets Search	Please see our sample manager search report ✓
Exhibit M – Fee Proposal	✓
Exhibit N – Warranties Certification	✓
Exhibit O – Statement of Minimum Qualifications	✓

MANDATORY REQUIREMENTS CERTIFICATION

NEPC, LLC

Name of Proposer: ______________________________

The undersigned Proposer hereby represents and warrants to TCERA that the Proposer meets the Mandatory Requirements described in this RFP as restated below and will provide sufficient information in the response to this RFP to assure TCERA that the Proposer meets these requirements:

1. The investment consulting firm must be a registered advisor under the Investment Company Act of 1940.

2. The investment consulting firm must have provided investment consulting services comparable to the duties contained in this RFP to at least three (3) defined benefit public retirement systems, each of which must have had at least $1 billion in current assets for at least five (5) continuous years.

3. The investment consulting firm must be able to maintain a satisfactory data processing interface with TCERA's custodian bank, on-line connection or other electronic means, at the firm's expense, for the purposes of compiling all required reviews and reports. TCERA's current custodian bank is BNY Mellon.

4. The investment consulting firm must agree to disclose all potential, current conflicts of interest as well as potential conflicts as they might occur, and annually disclose all sources of revenue from sources and affiliations other than investment consulting.

5. The investment consulting firm must agree to disclose pending litigation against the firm at the time a suit is filed. The investment consulting firm will confirm annually whether any such litigation exists.

6. The individual assigned to TCERA as the primary consultant must have a minimum of ten (10) total years of experience in the public/private defined benefit pension fund area.

7. The investment consulting firm must be directly responsible for the management of the account, and all personnel responsible for working on the account must be employees of the firm.

8. The investment consulting firm must not have, nor potentially have, a material conflict of interest to include, but not limited to: TCERA's Board, staff, actuary, auditor, investment managers, or other consultants.

9. The investment consulting firm must carry Errors and Omissions coverage and other insurance coverage as discussed in Section V. Insurance Requirements.

The Proposer confirms that the Proposer will serve in a fiduciary capacity and hereby confirms its fiduciary status with TCERA if the contract is awarded.

Failure to sign and return this statement may disqualify the proposal from further consideration.

Michael P. Manning

Signature

1/20/21

Date

Michael P. Manning, CFA, CAIA

Printed Name

Managing Partner

Title

MONTHLY FLASH REPORT

ABC CLIENT

Month Ending July 31, 2018

CALENDAR YEAR INDEX PERFORMANCE

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Q1	Q2	July	YTD
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-0.8%	3.4%	3.7%	6.5%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	-0.7%	3.6%	3.5%	6.4%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	-0.1%	7.8%	1.7%	9.5%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-0.2%	5.7%	1.9%	7.5%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-1.5%	-1.2%	2.5%	-0.4%
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	1.4%	-8.0%	2.2%	-4.6%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	-1.0%	0.5%	3.0%	2.6%
Private Equity*	13.7%	19.7%	7.9%	12.5%	20.6%	12.7%	9.6%	8.3%	19.9%	3.2%	-	-	3.2%
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-0.8%	0.8%	-0.5%	-0.5%
BC Municipal Bond	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	5.4%	-1.1%	0.9%	0.2%	0.0%
BC Muni High Yield	32.7%	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	0.6%	3.1%	0.4%	4.0%
BC US Corp High Yield	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-0.9%	1.0%	1.1%	1.3%
BC US Aggregate	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	-1.5%	-0.2%	0.0%	-1.6%
BC Global Aggregate	2.6%	5.2%	6.4%	1.6%	-4.0%	-0.5%	-3.6%	1.6%	7.5%	1.4%	-2.8%	-0.2%	-1.6%
BC Long Treasuries	-12.9%	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.3%	0.3%	-1.5%	-4.4%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	12.2%	-3.8%	-2.7%	1.5%	-5.0%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	13.7%	-4.6%	0.9%	-2.3%	-5.9%
JPM GBI-EM Glob Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	4.4%	-10.4%	1.9%	-4.7%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	10.1%	-1.7%	-3.5%	2.6%	-2.8%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	4.2%	1.6%	0.8%	0.8%	3.2%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	0.5%	0.1%	-	0.6%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-0.4%	0.4%	-2.1%	-2.1%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	-11.1%	11.8%	6.6%	5.9%
FTSE NAREIT Eq REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	5.2%	-8.2%	10.0%	0.8%	1.8%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse, Thomson One
*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag

MARKET COMMENTARY – JULY 2018

Market Environment

Developed market equities forged ahead in July as robust economic data and strong corporate earnings offset concerns around escalating trade tensions between the United States and China. The S&P 500 returned 3.7% last month as US GDP growth hit 4.1% in the second quarter. A healthy earnings season pushed the MSCI Europe Index up 3.3%. Emerging market equities rebounded, up 2.2%, according to the MSCI EM Index; despite these gains, emerging markets posted their worst quarter since 2015 with losses of nearly 8% in the second quarter, as a stronger US dollar eroded returns and concerns swirled around election results in Turkey and Mexico.

In fixed income, the 10-year US Treasury yield rose to 2.96% in July, up 10 basis points from the previous month. Still, the spread between the 10-year and two-year Treasuries continued to narrow, ending the month at 0.28% -- the smallest differential since 2007. Yields also rose on German and Japanese 10-year bonds, increasing 14 and three basis points, respectively. Emerging market bonds were in the black with gains of 2.6% and 1.9%, according to the JPM EMBI Global Diversified and JPM GBI-EM Global Diversified indexes, respectively.

The oil rally came to an end last month amid concerns around oversupply, causing spot prices to decline 7.3% in July. In contrast, master limited partnerships (MLPs) maintained their winning streak, returning 6.6% on the month, as the industry continues to consolidate and streamline.

Our global outlook remains intact. We support the addition of international and emerging market equities, particularly as the sustainability of US earnings and economic growth comes into question. We believe short term volatility is likely here to stay as trade discussions are in flux. We recommend adding safe-haven fixed income exposure to mitigate the impact of potential market draw-downs.

EXECUTIVE SUMMARY – COMMENTARY

Total Plan Performance vs. Allocation and Policy Indexes

- For the month of July, the System returned 2.4%, outperforming both the Policy Index and the Allocation Index.

Managers - Notable Outperformers:

- Manager L (Global Fixed Income)
  - Returned 1.5%, outperforming the Citi WGBI Index by 190 basis points for the month
  - This brings their outperformance since inception to 140 basis points, per annum
- Manager D (SMID Cap Equity)
  - Returned 3.6%, outperforming the Russell 2500 Index by 170 basis points for the month
  - This brings their outperformance since inception to 470 basis points, per annum
- Manager O (Emerging Markets Equity)
  - Returned 3.8%, outperforming the MSCI Emerging Markets Index by 160 basis points for the month
  - This brings their underperformance since inception to 410 basis points, per annum
- Manager C (Small Cap Equity)
  - Returned 2.8%, outperforming the Russell 2000 Index by 110 basis points for the month
  - This brings their outperformance since inception to 330 basis points, per annum

There were no notable underperformers for the month of July.

ABC Client

TOTAL FUND PERFORMANCE DETAIL - PRELIMINARY

	Market Value 6/30/18 ($)	Market Value 7/31/18 ($)	% of Portfolio	Policy %	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Composite	**1,351,353,375**	**1,383,495,459**	**100.0**	**100.0**	**2.4**	**4.0**	**11.0**	**8.9**	**9.0**	**8.3**	**8.5**	**Jan-91**
Allocation Index					*2.0*	*2.8*	*9.7*	*8.4*	*--*	*--*	*--*	*Jan-91*
Policy Index					*2.1*	*3.1*	*9.9*	*8.6*	*8.9*	*8.0*	*8.9*	*Jan-91*
Total Equity	**983,324,542**	**1,007,814,887**	**72.8**	**73.0**	**3.0**	**5.4**	**14.5**	**10.9**	**--**	**--**	**9.9**	**Sep-14**
MSCI ACWI					*3.0*	*2.6*	*11.0*	*8.9*	*9.0*	*6.4*	*7.0*	*Sep-14*
Total Domestic Equity	**659,020,953**	**675,183,637**	**48.8**	**48.0**	**3.2**	**9.4**	**19.7**	**12.3**	**12.7**	**10.6**	**10.4**	**Apr-91**
Domestic Equity Policy Index					*3.3*	*6.5*	*15.9*	*12.0*	*12.5*	*10.5*	*10.0*	*Apr-91*
Total Large Cap	**463,211,158**	**474,706,301**	**34.3**	**34.0**	**3.6**	**9.5**	**19.2**	**12.8**	**12.8**	**9.8**	**8.3**	**Jul-02**
Russell 1000					*3.5*	*6.4*	*16.2*	*12.2*	*13.0*	*10.7*	*9.2*	*Jul-02*
Manager P	228,924,204	237,464,302	17.2		3.7	6.5	16.3	--	--	--	18.5	Feb-16
S&P 500					*3.7*	*6.5*	*16.2*	*12.5*	*13.1*	*10.7*	*18.5*	*Feb-16*
Manager U	118,365,043	116,155,825	8.4		2.4	16.9	26.5	14.0	15.9	11.8	10.7	Jul-07
Russell 1000 Growth					*2.9*	*10.4*	*22.8*	*14.8*	*15.8*	*12.4*	*10.3*	*Jul-07*
Manager H	115,902,349	121,065,574	8.8		4.5	8.3	18.0	13.0	14.1	--	16.3	Jan-13
Russell 1000 Value					*4.0*	*2.2*	*9.5*	*9.5*	*10.0*	*9.0*	*12.9*	*Jan-13*
Total US Small/Mid Cap	**195,809,795**	**200,477,336**	**14.5**	**14.0**	**2.4**	**9.2**	**21.0**	**10.9**	**12.1**	**13.6**	**12.3**	**Aug-02**
Russell 2500					*1.9*	*7.5*	*17.3*	*11.1*	*11.3*	*10.9*	*11.4*	*Aug-02*
Manager C	49,468,343	50,850,180	3.7		2.8	11.6	20.9	12.9	13.2	14.2	12.7	Oct-93
Russell 2000					*1.7*	*9.5*	*18.7*	*12.0*	*11.3*	*10.4*	*9.4*	*Oct-93*
Manager D	48,627,961	50,369,687	3.6		3.6	8.7	21.3	14.5	14.7	14.9	13.0	Jul-07
Russell 2500					*1.9*	*7.5*	*17.3*	*11.1*	*11.3*	*10.9*	*8.3*	*Jul-07*
Manager J	48,602,334	49,438,545	3.6		1.7	8.0	21.1	8.1	--	--	10.6	Nov-13
Russell 2500 Growth					*1.9*	*10.1*	*22.2*	*11.1*	*12.7*	*11.6*	*11.9*	*Nov-13*
Manager R	49,111,158	49,818,924	3.6		1.4	8.4	20.3	7.6	--	--	7.9	Nov-13
Russell 2500 Value					*2.0*	*5.0*	*12.8*	*11.0*	*10.0*	*10.1*	*9.5*	*Nov-13*

Notes:
- Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
- Policy Index comprised of 17% S&P 500, 8.5% Russell 1000 Growth, 8.5% Russell 1000 Value, 14% Russell 2000, 15% MSCI EAFE, 5% MSCI EM, 12% Barclays Aggregate, 5% CITI WGBI, 5% to the 60% MSCI World (Net)/40% Barclays Aggregate Index, 5% MSCI ACWI ex US Small Cap, and 5% S&P/LSTA Leveraged Loan as of 1/1/2018.
- Domestic Equity Policy Index comprised of 35% S&P 500, 18% Russell 1000 Growth, 29% Russell 1000 Value and 18% Russell 2000 Index as of 1/1/2018.
- Fiscal year ends December 31.

TOTAL FUND PERFORMANCE DETAIL - PRELIMINARY

	Market Value 6/30/18 ($)	Market Value 7/31/18 ($)	% of Portfolio	Policy %	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total International Equity	**324,303,589**	**332,631,250**	**24.0**	**25.0**	**2.6**	**-2.2**	**4.7**	**7.0**	**6.6**	**3.6**	**6.3**	**Mar-96**
Int'l Equity Policy Index					*2.1*	*-1.6*	*5.6*	*5.7*	*5.9*	*3.6*	*5.7*	*Mar-96*
Manager B	100,495,768	102,636,772	7.4		2.1	0.3	7.1	7.2	7.9	5.2	8.1	May-96
Int'l Equity Policy Index					*2.1*	*-1.6*	*5.6*	*5.7*	*5.9*	*3.6*	*5.5*	*May-96*
Manager M	94,694,547	97,490,223	7.0		3.0	-4.9	1.2	6.4	5.9	--	9.7	Jun-10
Int'l Equity Policy Index					*2.1*	*-1.6*	*5.6*	*5.7*	*5.9*	*3.6*	*7.4*	*Jun-10*
Total International Small Cap Equity	**64,170,514**	**65,103,902**	**4.7**	**5.0**	**1.5**	**--**	**--**	**--**	**--**	**--**	**-6.4**	**Feb-18**
MSCI ACWI ex US Small Cap					*0.7*	*-2.3*	*7.5*	*8.9*	*8.1*	*6.3*	*-6.8*	*Feb-18*
Manager A	64,170,514	65,103,902	4.7		1.5	--	--	--	--	--	-6.4	Feb-18
MSCI ACWI ex US Small Cap					*0.7*	*-2.3*	*7.5*	*8.9*	*8.1*	*6.3*	*-6.8*	*Feb-18*
Total Emerging Market Equity	**64,942,761**	**67,400,353**	**4.9**	**5.0**	**3.8**	**-3.8**	**4.6**	**--**	**--**	**--**	**13.6**	**Jun-16**
MSCI Emerging Markets					*2.2*	*-4.6*	*4.4*	*8.9*	*5.3*	*2.9*	*17.7*	*Jun-16*
Manager O	64,942,761	67,400,353	4.9		3.8	-3.8	4.6	--	--	--	13.6	Jun-16
MSCI Emerging Markets					*2.2*	*-4.6*	*4.4*	*8.9*	*5.3*	*2.9*	*17.7*	*Jun-16*

Notes:
- Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
- Int'l Equity Policy Index comprised of 60% MSCI EAFE Index, 20% MSCI EM, and 20% MSCI ACWI ex US Small Cap as of 1/1/2018.

ABC Client

TOTAL FUND PERFORMANCE DETAIL - PRELIMINARY

	Market Value 6/30/18 ($)	Market Value 7/31/18 ($)	% of Portfolio	Policy %	1 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fixed Income	**301,967,605**	**303,465,999**	**21.9**	**22.0**	**0.5**	**-0.4**	**0.0**	**2.4**	**2.4**	**4.0**	**5.8**	**Jan-91**
BBgBarc US Aggregate TR					*0.0*	*-1.6*	*-0.8*	*1.5*	*2.2*	*3.7*	*5.7*	*Jan-91*
Total Domestic Fixed Income	**165,432,548**	**165,476,306**	**12.0**	**12.0**	**0.0**	**-0.8**	**-0.3**	**1.7**	**2.3**	**3.9**	**5.7**	**Jan-91**
BBgBarc US Aggregate TR					*0.0*	*-1.6*	*-0.8*	*1.5*	*2.2*	*3.7*	*5.7*	*Jan-91*
Manager I	54,480,556	54,409,613	3.9		-0.1	-1.2	-0.3	1.9	2.7	4.2	4.1	Jan-03
BBgBarc US Aggregate TR					*0.0*	*-1.6*	*-0.8*	*1.5*	*2.2*	*3.7*	*3.9*	*Jan-03*
Manager T	56,766,235	56,839,307	4.1		0.1	-1.0	-0.9	1.4	2.0	3.6	5.3	Jan-93
Manager T Policy Index					*0.0*	*-0.9*	*-1.0*	*1.0*	*1.9*	*3.5*	*5.2*	*Jan-93*
Manager F	54,185,652	54,227,279	3.9		0.1	-1.3	-0.6	1.9	2.6	--	3.1	May-11
BBgBarc US Aggregate TR					*0.0*	*-1.6*	*-0.8*	*1.5*	*2.2*	*3.7*	*2.6*	*May-11*
Bank Loans	**71,944,158**	**72,459,973**	**5.2**	**5.0**	**0.7**	**--**	**--**	**--**	**--**	**--**	**2.1**	**Feb-18**
S&P/LSTA Leveraged BB Loan Index					*0.7*	*2.4*	*3.8*	*3.9*	*3.7*	*4.2*	*1.6*	*Feb-18*
Manager N	71,944,158	72,459,973	5.2		0.7	--	--	--	--	--	2.1	Feb-18
S&P/LSTA Leveraged BB Loan Index					*0.7*	*2.4*	*3.8*	*3.9*	*3.7*	*4.2*	*1.6*	*Feb-18*
Total Global Fixed Income	**64,590,899**	**65,529,720**	**4.7**	**5.0**	**1.5**	**-1.7**	**-2.0**	**3.8**	**--**	**--**	**1.3**	**Aug-14**
Citi WGBI					*-0.4*	*-1.3*	*-0.4*	*2.5*	*0.8*	*2.0*	*-0.1*	*Aug-14*
Manager L	64,590,899	65,529,720	4.7		1.5	-1.7	-2.0	3.8	--	--	1.3	Aug-14
Citi WGBI					*-0.4*	*-1.3*	*-0.4*	*2.5*	*0.8*	*2.0*	*-0.1*	*Aug-14*
Total GAA	**64,898,819**	**66,048,972**	**4.8**	**5.0**	**1.8**	**0.9**	**8.0**	**--**	**--**	**--**	**9.6**	**Jun-16**
60% MSCI World (Net) / 40% BBgBarc Agg					*1.9*	*1.6*	*6.7*	*6.1*	*6.7*	*5.9*	*8.7*	*Jun-16*
Manager E	64,898,819	66,048,972	4.8		1.8	0.9	8.0	--	--	--	9.6	Jun-16
60% MSCI World (Net) / 40% BBgBarc Agg					*1.9*	*1.6*	*6.7*	*6.1*	*6.7*	*5.9*	*8.7*	*Jun-16*
Cash	**1,162,409**	**6,165,601**	**0.4**	**0.0**	**0.2**	**1.0**	**2.5**	**1.1**	**0.9**	**0.5**	**3.5**	**Jan-91**
91 Day T-Bills					*0.2*	*1.0*	*1.5*	*0.8*	*0.5*	*0.3*	*2.6*	*Jan-91*
Manager G	1,162,409	6,165,601	0.4		0.2	1.0	2.5	1.1	0.9	0.5	3.5	Jan-91
91 Day T-Bills					*0.2*	*1.0*	*1.5*	*0.8*	*0.5*	*0.3*	*2.6*	*Jan-91*

Notes:
- Performance prior to 2010 is gross of manager fees; otherwise, returns are net of fees.
- Domestic Fixed Income Composite performance history includes Manager X data for August and September 2014.
- Manager I - In February the custodian bank reported a buy for a security at the original face value. This security has since been sold out of the portfolio.
- Manager T Policy Index comprised of 100% Barclays Intermediate Govt/Credit as of 7/1/2014 and 100% Barclays Aggregate as of 12/31/1992.

ASSET GROWTH SUMMARY BY MANAGER

	Month Ending July 31, 2018							
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Fees	Net Investment Change	Ending Market Value	Month Return
Manager A	$64,170,514	$0	$0	$0	-$18,989	$933,388	$65,103,902	1.5%
Manager B	$100,495,768	$0	$0	$0	-$41,910	$2,141,005	$102,636,772	2.1%
Manager C	$49,468,343	$0	$0	$0	$0	$1,381,837	$50,850,180	2.8%
Manager D	$48,627,961	$0	$0	$0	$0	$1,741,726	$50,369,687	3.6%
Manager E	$64,898,819	$0	$0	$0	$0	$1,150,153	$66,048,972	1.8%
Manager F	$54,185,652	$0	$0	$0	$0	$41,628	$54,227,279	0.1%
Manager G	$1,162,409	$5,000,639	$0	$5,000,639	$0	$2,553	$6,165,601	0.2%
Manager H	$115,902,349	$0	$0	$0	$0	$5,163,225	$121,065,574	4.5%
Manager I	$54,480,556	$0	$0	$0	$0	-$70,943	$54,409,613	-0.1%
Manager J	$48,602,334	$0	$0	$0	$0	$836,211	$49,438,545	1.7%
Manager K	$9,357	$0	$0	$0	$0	$1,038	$10,394	11.1%
Manager L	$64,590,899	$0	$0	$0	-$31,673	$938,821	$65,529,720	1.5%
Manager M	$94,694,547	$0	$0	$0	-$77,180	$2,795,676	$97,490,223	3.0%
Manager N	$71,944,158	$0	$0	$0	-$24,153	$515,815	$72,459,973	0.7%
Manager O	$64,942,761	$0	$0	$0	-$28,083	$2,457,592	$67,400,353	3.8%
Manager P	$228,924,204	$0	$0	$0	-$2,812	$8,540,098	$237,464,302	3.7%
Manager Q	$107	$0	$0	$0	$0	$0	$107	0.2%
Manager R	$49,111,158	$0	$0	$0	$0	$707,767	$49,818,924	1.4%
Manager S	$10,205	$0	$0	$0	$0	$0	$10,205	0.0%
Manager T	$56,766,235	$0	$0	$0	$0	$73,073	$56,839,307	0.1%
Manager U	$118,365,043	$272	-$5,000,000	-$4,999,728	$0	$2,790,510	$116,155,825	2.4%
Total	**$1,351,353,375**	**$5,000,911**	**-$5,000,000**	**$911**	**-$224,800**	**$32,141,173**	**$1,383,495,459**	**2.4%**

Returns are net of manager fees.

ABC Client

FEE SCHEDULE

Account	Fee Schedule	Market Value As of 7/31/2018	% of Portfolio	Est. Minimum Annual Fee ($)	Estimated Annual Fee ($)	Estimated Annual Fee (%)
Manager P	0.02% of First 100.0 Mil, 0.01% Thereafter	$237,464,302	17.2%	$10,000	$33,746	0.01%
Manager U	0.60% of First 30.0 Mil, 0.50% of Next 30.0 Mil, 0.40% of Next 40.0 Mil, 0.35% of Next 100.0 Mil, 0.30% Thereafter	$116,155,825	8.4%		$546,545	0.47%
Manager H	1.00% of First 5.0 Mil, 0.75% Thereafter	$121,065,574	8.8%		$920,492	0.76%
Manager C	0.75% of Assets	$50,850,180	3.7%		$381,376	0.75%
Manager D	0.75% of Assets	$50,369,687	3.6%		$377,773	0.75%
Manager J	0.45% of Assets	$49,438,545	3.6%		$222,473	0.45%
Manager R	0.83% of Assets	$49,818,924	3.6%		$413,497	0.83%
Manager B	0.49% of Assets	$102,636,772	7.4%		$502,920	0.49%
Manager M	0.95% of Assets	$97,490,223	7.0%		$926,157	0.95%
Manager A	0.35% of Assets	$65,103,902	4.7%		$227,864	0.35%
Manager O	0.50% of Assets, plus max. 0.20% for operating expenses	$67,400,353	4.9%		$337,002	0.50%
Manager I	0.25% of First 20.0 Mil, 0.20% of Next 30.0 Mil, 0.18% of Next 50.0 Mil, 0.12% of Next 100.0 Mil, 0.10% Thereafter	$54,409,613	3.9%		$117,937	0.22%
Manager T	0.25% of First 25.0 Mil, 0.23% of Next 25.0 Mil, 0.20% of Next 25.0 Mil, 0.18% Thereafter	$56,839,307	4.1%		$132,429	0.23%
Manager Q	0.35% of First 25.0 Mil, 0.25% of Next 75.0 Mil, 0.20% Thereafter	$107	0.0%		$0	0.35%
Manager F	0.20% of First 100.0 Mil, 0.18% of Next 40.0 Mil, 0.15% of Next 300.0 Mil, 0.10% Thereafter	$54,227,279	3.9%		$108,455	0.20%
Manager N	0.40% of Assets	$72,459,973	5.2%		$289,840	0.40%
Manager L	0.58% of Assets	$65,529,720	4.7%		$380,072	0.58%
Manager E	0.30% of First 50.0 Mil, 0.20% Thereafter	$66,048,972	4.8%		$182,098	0.28%
Manager G	No Fee	$6,165,601	0.4%		--	--
Investment Management Fee		**$1,383,474,860**	**100.0%**		**$5,763,675**	**0.42%**

DISCLOSURES

Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

NEPC STRATEGIC OUTLOOK

12/31/2020 ASSET CLASS ASSUMPTIONS

January 2021

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

ASSET CLASS ASSUMPTIONS

INTRODUCTION

ASSET CLASS ASSUMPTIONS OVERVIEW

NEPC's capital market assumptions are available each quarter and currently reflect 12/31/20 market data

Asset class returns are lower and reflect a wide range of outcomes related to the pandemic's economic impact

Maintain a dedicated safe-haven allocation to serve as a source of liquidity and to provide downside protection

Consider higher strategic equity targets as the long-term return differential relative to fixed income is wide

NEPC's Key Market Theme of *Permanent Interventions* sustains elevated valuations and lift our return outlook

ASSUMPTION DEVELOPMENT

Assumptions are published for over 70 asset classes

NEPC publishes 10- and 30-year return forecasts

Based on data as of 12/31/20

Assumptions are developed with NEPC valuations models and rely on a building block approach

The 10-year return outlook is intended to support strategic asset allocation analysis

30-year return assumptions are used for actuarial inputs and long-term planning

Asset Allocation Process
Finalize list of new asset classes
Calculate asset class volatility and correlation assumptions
Set model terminal values, growth and inflation inputs
Models updated at quarter-end
Review model outputs and produce return assumptions
Assumptions released on the 15th calendar day after quarter-end

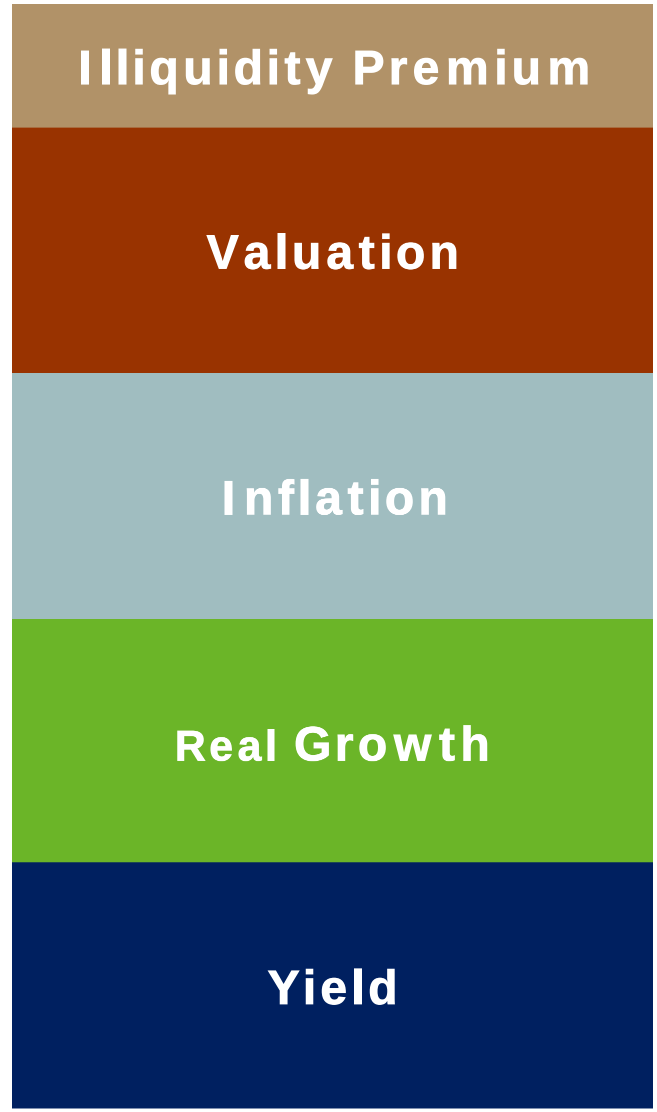
BUILDING BLOCKS METHODOLOGY

Asset models reflect current and forecasted market data to inform expected returns

Systematic inputs are paired with a long-term trend rate path for terminal values

Model inputs are aggregated to capture key return drivers for each asset class

Building block inputs will differ for equity, fixed income, and real assets



CORE GEOMETRIC RETURN ASSUMPTIONS

	Asset Class	10-Year Return	30-Year Return	Volatility
	Cash	0.8%	1.9%	0.6%
	US Inflation	2.0%	2.2%	-
Equity	US Large-Cap Equity	5.4%	6.3%	16.6%
	Non-US Developed Equity	5.9%	6.5%	19.7%
	Emerging Market Equity	7.5%	8.4%	28.7%
	*Global Equity**	*6.2%*	*7.0%*	*18.1%*
	*Private Equity**	*9.3%*	*10.1%*	*24.8%*
Fixed Income	US Treasury Bond	0.9%	2.0%	5.3%
	*US Aggregate Bond**	*1.4%*	*2.7%*	*5.7%*
	US TIPS	1.0%	2.1%	5.8%
	US High Yield Corporate Bond	2.9%	5.0%	11.5%
	*Private Debt**	*6.1%*	*7.5%*	*11.9%*
Real Assets	Commodity Futures	0.9%	3.3%	18.5%
	US REIT	5.5%	6.7%	21.4%
	Gold	2.9%	3.7%	16.4%
	Core Real Estate	4.4%	5.6%	15.0%
	Private Real Assets - Infrastructure	5.4%	6.6%	12.5%
Multi-Asset	*60% S&P 500 & 40% US Aggregate*	*4.1%*	5.1%	*10.3%*
	60% MSCI ACWI & 40% US Aggregate	*4.6%*	*5.6%*	*11.19%*
	*Hedge Fund**	*4.0%*	5.2%	*8.7%*

*Calculated as a blend of other asset classes

MACRO ASSUMPTIONS

INFLATION OVERVIEW

Inflation is an essential building block for developing asset class return assumptions

Inflation assumptions are model-driven and informed by multiple inputs for both the US and global assets

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, global interest rate curves, and break-even inflation expectations

NEPC's US inflation expectation continues to reflect minimal expected inflation pressures over the long-term

We anticipate near-term volatility in our inflation assumptions as market-based inflation expectations discount the full range of economic scenarios associated with the pandemic and response

Region	10-Year Inflation Assumption	30-Year Inflation Assumption
United States	2.0%	2.2%

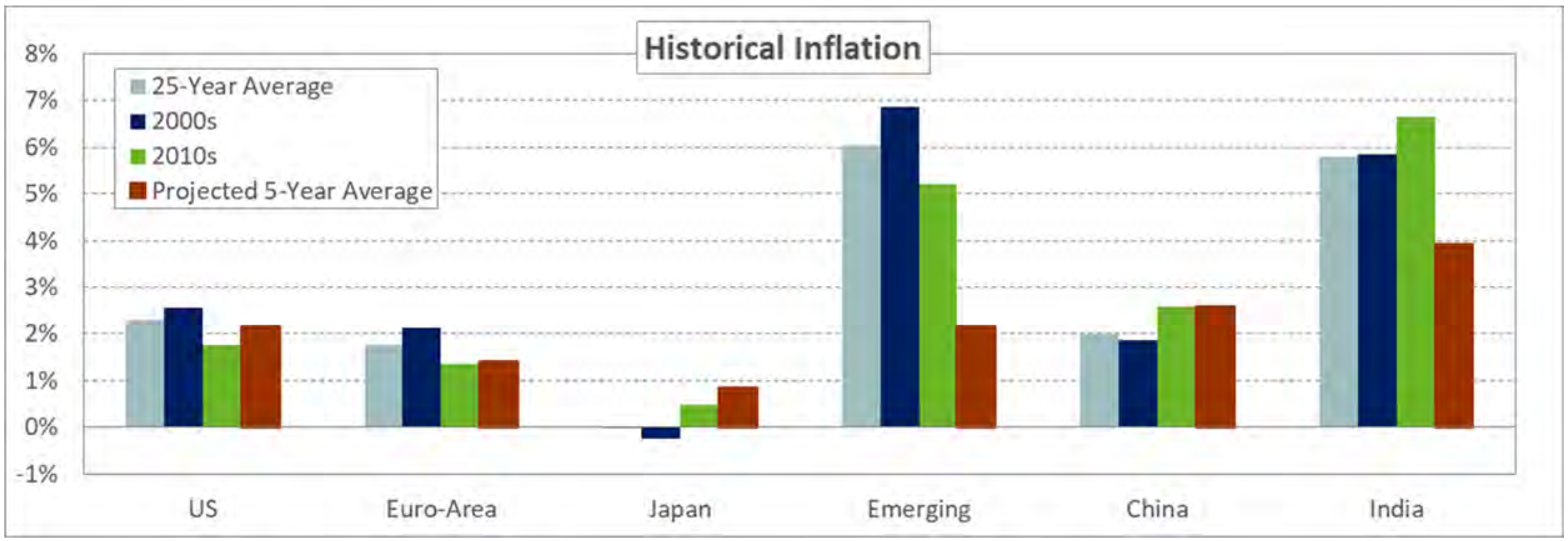
GLOBAL INFLATION

Core inflation remains well below central bank targets

COVID-19, globalization, aging demographics, and deflationary technology trends are inflation headwinds influencing markets

Global inflation break-even expectations suggest inflation will be near current levels for the long-term

Emerging market inflation remains above the developed world, but is significantly lower than long-term averages



Source: IMF, FactSet, NEPC

US CASH EXPECTATIONS

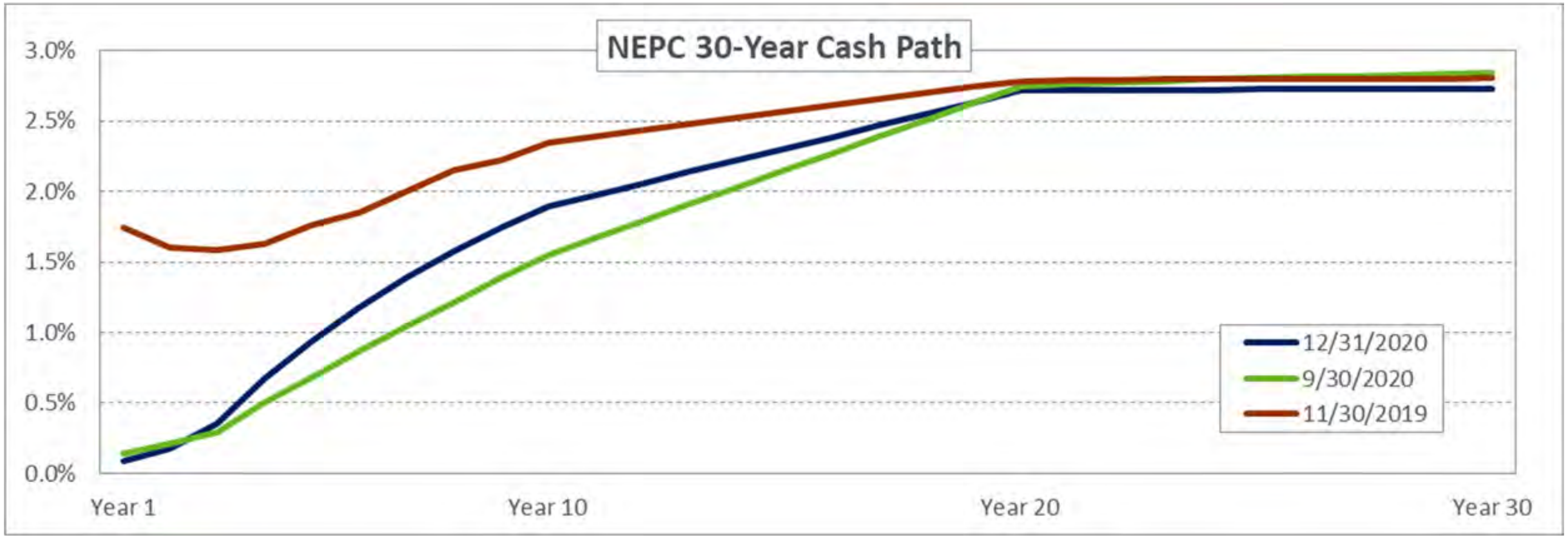
Cash is a foundational input for all asset class returns

The assumption is a direct building block input and is a relative value factor (cash + risk premia) in long-term return projections

Cash assumptions reflect inflation and real interest rates

US nominal rates are near historic lows for NEPC forecasts

Market expectations of suppressed real rates and minimal inflation create a slow trending path for cash to reach NEPC's long-term target



Source: Bloomberg, FactSet, NEPC

GLOBAL INTEREST RATE EXPECTATIONS

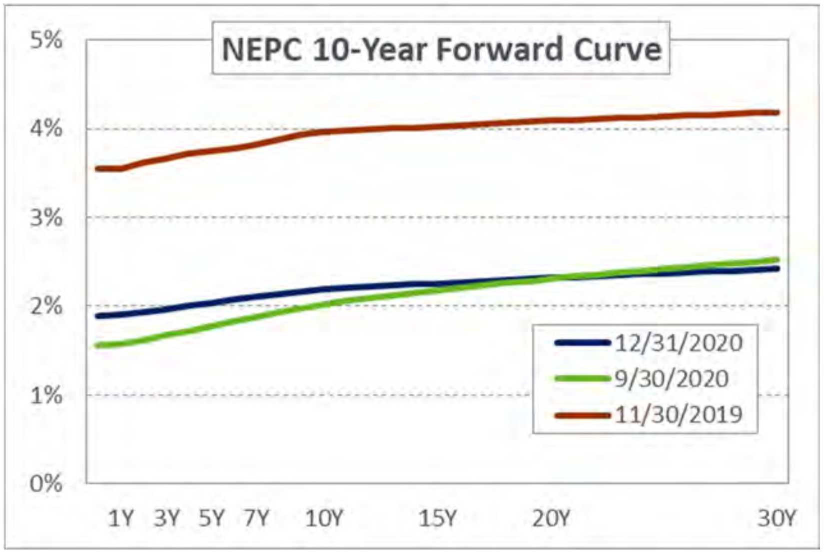
Negative real yields reflect central bank intervention

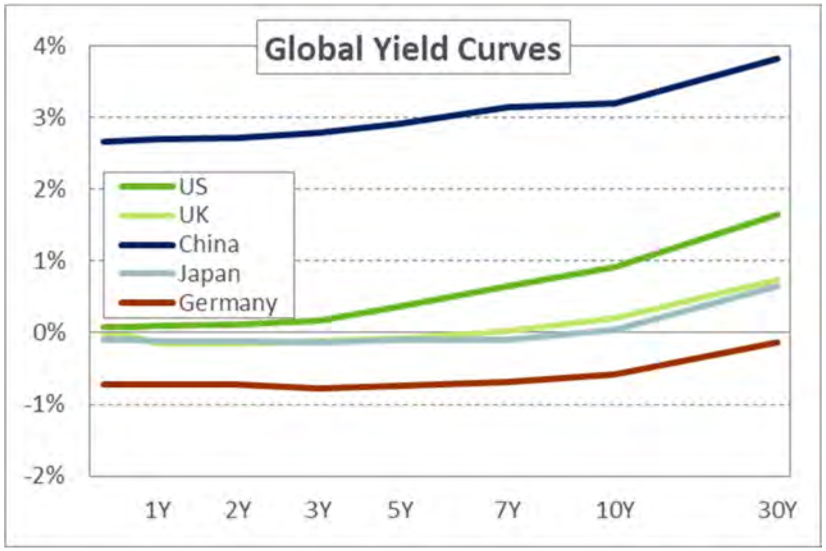
Low real rates depress returns for all assets in the long-term

The Fed's easy policy and low inflation suppress long term yield forecasts

The outlook for Japan and Europe bonds are poor due to negative nominal yields

Emerging market interest rates are higher relative to the developed world





Source: (Top) FactSet, NEPC
Source: (Bottom) FactSet, NEPC

EQUITY ASSUMPTIONS

EQUITY ASSUMPTIONS OVERVIEW

Equity return assumptions have declined from the prior quarter as stock prices have rebounded sharply

Discounting future earnings with lower interest rates supports higher equity valuation multiples over time

- Price-to-earnings and profit margin multiples have been adjusted higher to reflect our Key Market Theme of *Permanent Interventions*

Consider higher strategic equity targets as the long-term return differential relative to fixed income is wide

We recommend that strategic asset allocation targets for emerging market equity reflect an overweight

- The return assumption for emerging equity is highest among public equity and we encourage sourcing from EAFE exposure

NEPC encourages a modest strategic bias to small-cap relative to exposure in the MSCI ACWI IMI

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	Represents P/E multiple contraction or expansion relative to long-term trend
Inflation	Market-specific inflation based on country revenue and region-specific inflation
Real Earnings Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Dividend Yield	Income distributed to shareholders adjusted to reflect market trends

Asset Class	12/31/20 10-Year Return	Change from 09/30/20
US Large-Cap Equity	5.4%	-0.4%
US Small/Mid-Cap Equity	5.7%	-0.7%
US Microcap Equity	6.6%	-0.6%
Non-US Developed Equity	5.9%	-0.3%
Non-US Developed Small-Cap Equity	6.1%	-0.3%
Emerging Market Equity	7.5%	-0.5%
Emerging Market Small-Cap Equity	8.1%	-0.4%
China Equity	7.0%	-
Hedge Fund - Equity	4.0%	-0.3%
*Global Equity**	*6.2%*	*-0.4%*
*Private Equity**	*9.3%*	*-0.7%*

Source: NEPC
*Calculated as a blend of other asset classes

EQUITY: REAL EARNINGS GROWTH

Global growth rates reflect the concerns of COVID-19 and US-China trade tensions

Regions more reliant on EM for revenue generation are forecasted to enjoy higher real earnings growth

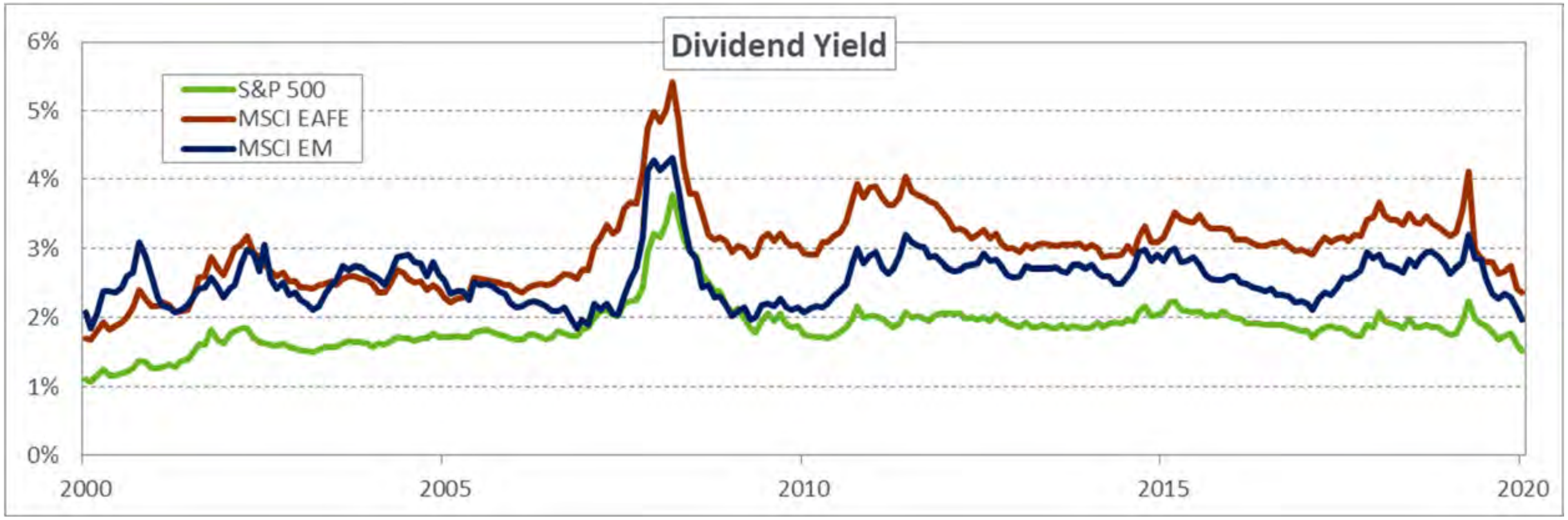
Non-US stocks benefit from a greater portion of revenue from EM than US stocks

Small-caps have elevated long-term targets for real earnings growth relative to large-cap equities

This suggests a forward-looking risk premium for small- & mid-caps over large-cap

Source: (Bottom) IMF, MSCI, FactSet, NEPC

EQUITY: DIVIDEND YIELD



The 20 year terminal value estimate for the S&P 500 dividend yield is 2.50%

Non-US stocks offer higher dividend yields relative to the US over the long-term

Terminal value dividend yield inputs for MSCI EM and EAFE are 2.5% and 3.0%

Source: (Top) S&P, MSCI, FactSet, NEPC
Source: (Bottom) S&P, MSCI, FactSet, NEPC

EQUITY: VALUATION

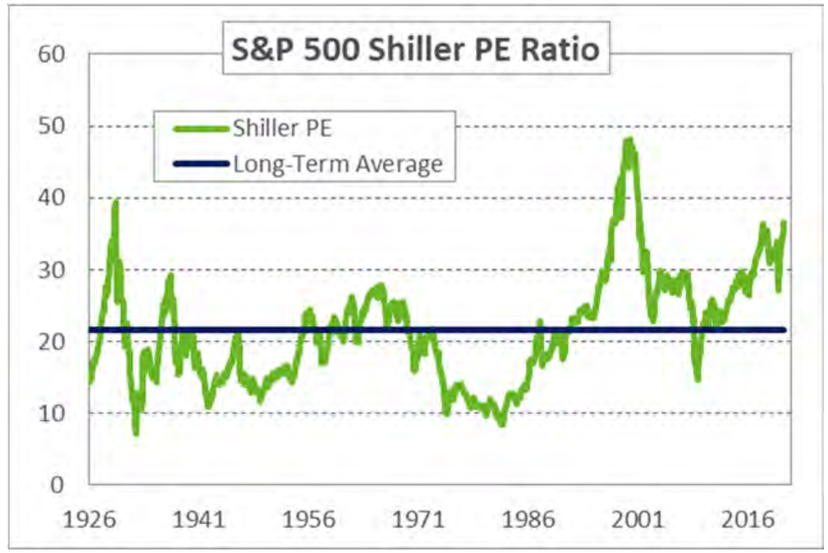
US large-cap stocks appear overvalued relative to long-term averages

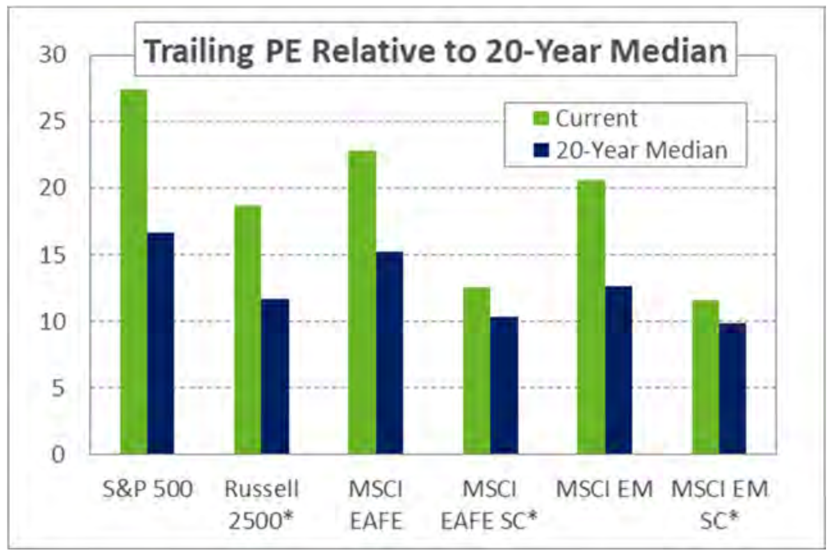
Yet low interest rates and inflation can support higher P/E levels

P/E terminal value inputs are higher for the US and reflect easy Fed policy and low interest rates levels

EAFE P/E levels reflect a less constructive market outlook

Emerging market equities offer an attractive total return opportunity relative to developed markets

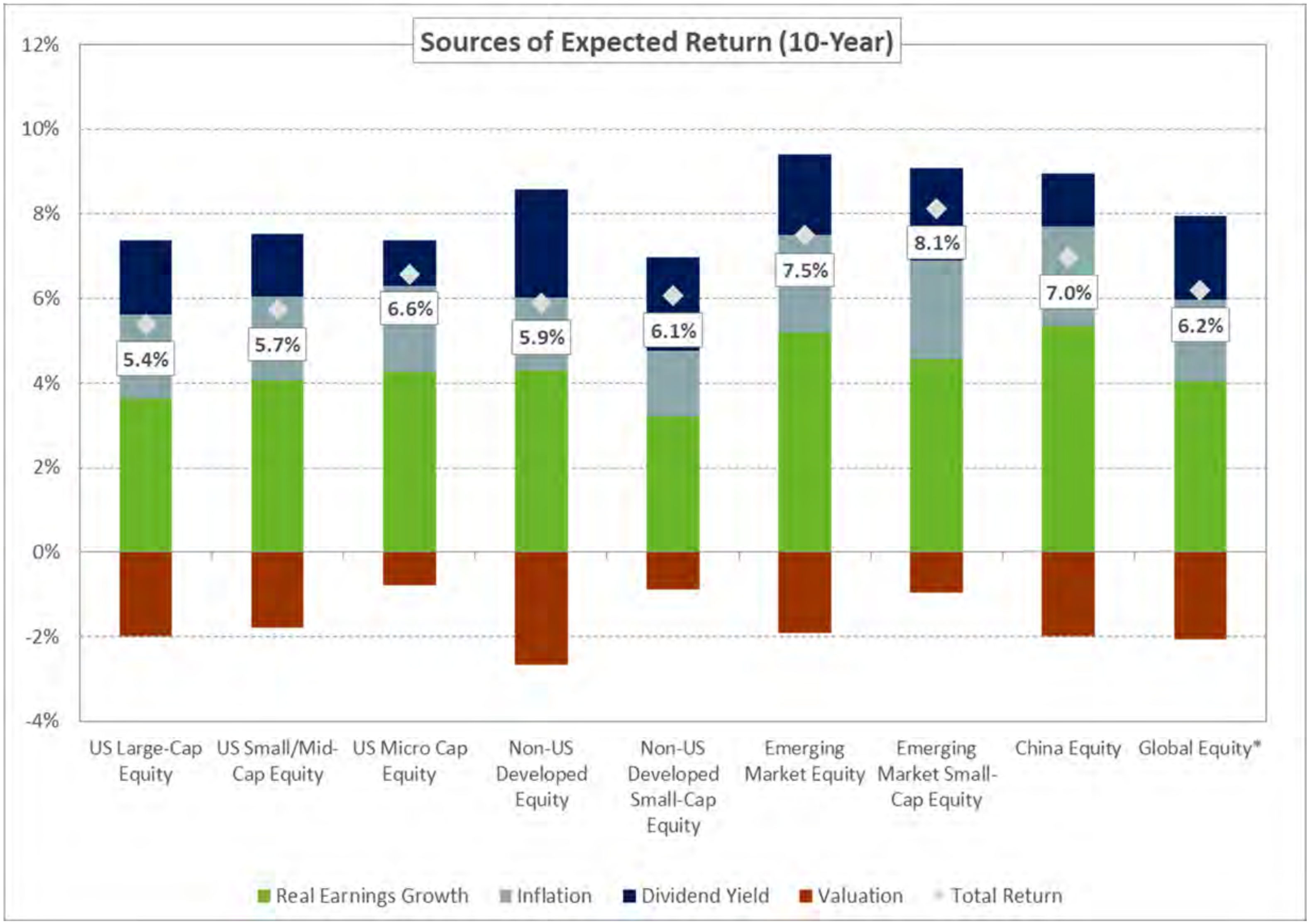




Source: (Top) S&P, Shiller, NEPC; long-term average beginning in 1926

Source: (Bottom) S&P, Russell, MSCI, FactSet, NEPC; *Small cap indices valuations based on EV/EBITDA multiples; MSCI EM Small Cap median calculated since 3/31/2003

EQUITY: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME ASSUMPTIONS

FIXED INCOME ASSUMPTIONS OVERVIEW

Credit return assumptions are lower from the prior quarter with credit spreads continuing to tighten

While return assumptions are low for safe-haven assets, we continue to endorse a dedicated Treasury allocation

We recommend a strategic blend of 50% US Treasuries and 50% TIPS for total return focused investors

Safe-haven instruments may differ by investor

The fixed income profile and duration should reflect risk objectives, liability/commitment structure, and desire for capital efficiency

Return-seeking credit investments look to earn income and exploit shifts in credit spreads and market cycles

We believe a strategic blend of 50% high yield, 25% levered loans, and 25% blended EMD offers an improved beta profile for return-seeking credit relative to US high yield

FIXED INCOME: ASSUMPTIONS

Fixed Income Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Government Rates Price Change	Valuation change due to shifts in the current yield curve to forecasted rates
Credit Deterioration	The average loss for credit assets due to defaults and recovery rates
Spread Price Change	Valuation change due to shifts in credit spreads over the duration of the investment
Credit Spread	Yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk

Asset Class	12/31/20 10-Year Return	Change From 09/30/20
US TIPS	1.0%	+0.2%
US Treasury Bond	0.9%	+0.3%
US Corporate Bond	2.2%	-0.2%
US Mortgage-Backed Securities	1.2%	+0.4%
US High Yield Corporate Bond	2.9%	-0.7%
US Leveraged Loan	3.9%	+0.1%
Emerging Market External Debt	3.0%	-1.0%
Emerging Market Local Currency Debt	5.0%	-0.4%
Non-US Government Bond	0.6%	-
US Municipal Bond (1-10 Year)	1.1%	+0.1%
US High Yield Municipal Bond	2.8%	-0.5%
Hedge Fund - Credit	3.9%	-0.2%
*US Aggregate Bond**	*1.4%*	*+0.2%*
*Private Debt**	*6.1%*	*-0.2%*

Source: NEPC
*Calculated as a blend of other asset classes

FIXED INCOME: CREDIT SPREADS

Credit spreads are broadly below long-term medians

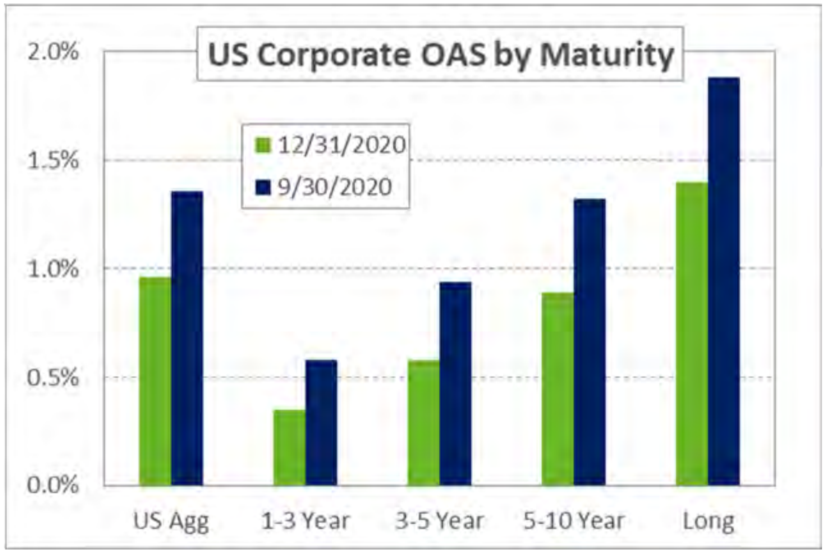
Spreads tightened in the last quarter across credit qualities

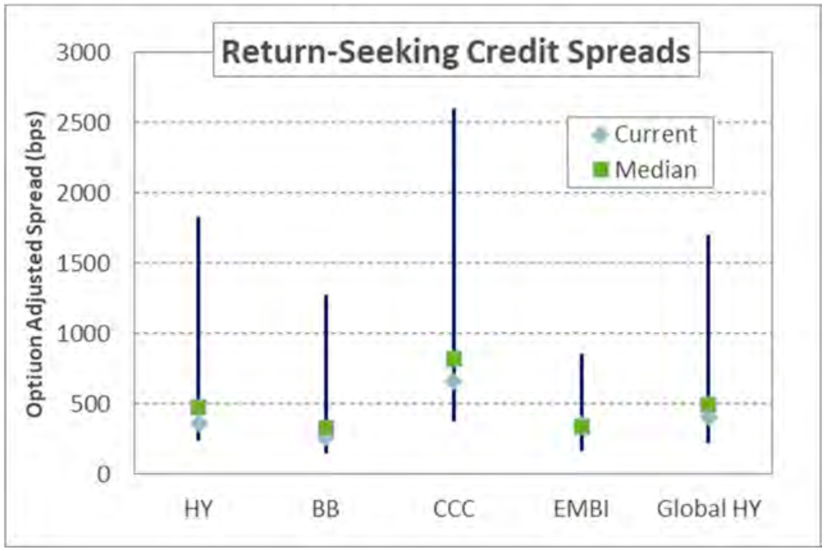
Lower spread levels reduce future return expectations

Credit spread assumptions reflect potential disruption

With a record number of BBB rated corporates, fallen angel downgrades are a greater risk

Default and recovery rates assumptions are based on long-term history





Source: (Top) Barclays, FactSet, NEPC
Source: (Bottom) Barclays, JPM, FactSet, NEPC; as of 12/31/2000

FIXED INCOME: RATES PRICE CHANGE

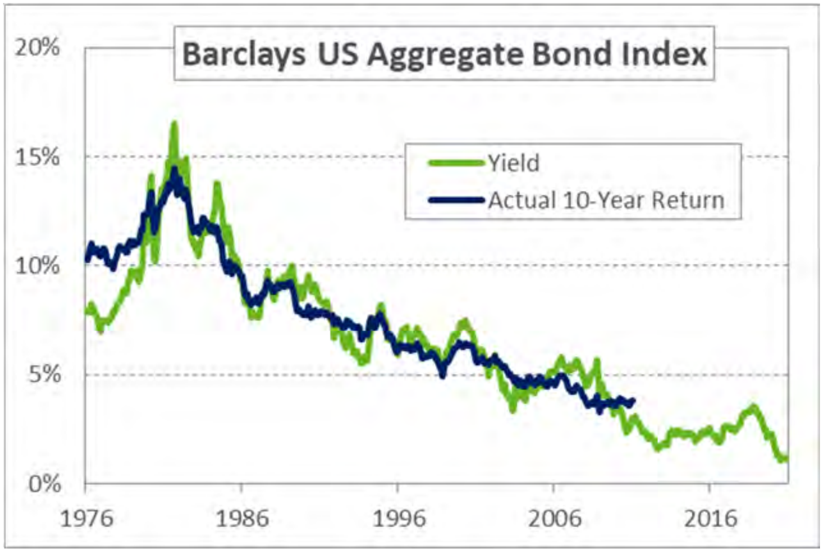
Rates price change reflects shifts in interest rates, the yield curve, and roll down

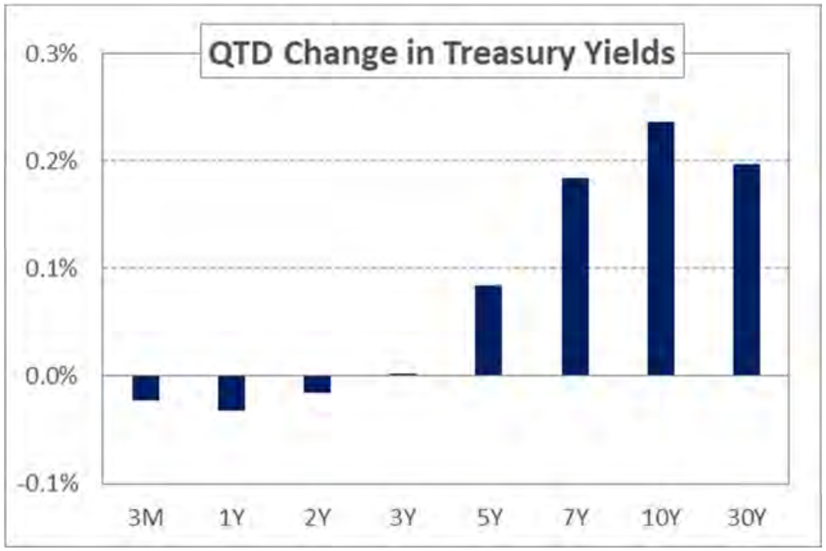
Roll down refers to the price change due to the aging of a bond along the yield curve

Rates price change is a big component of total return

Interest rate increases are a headwind to future returns

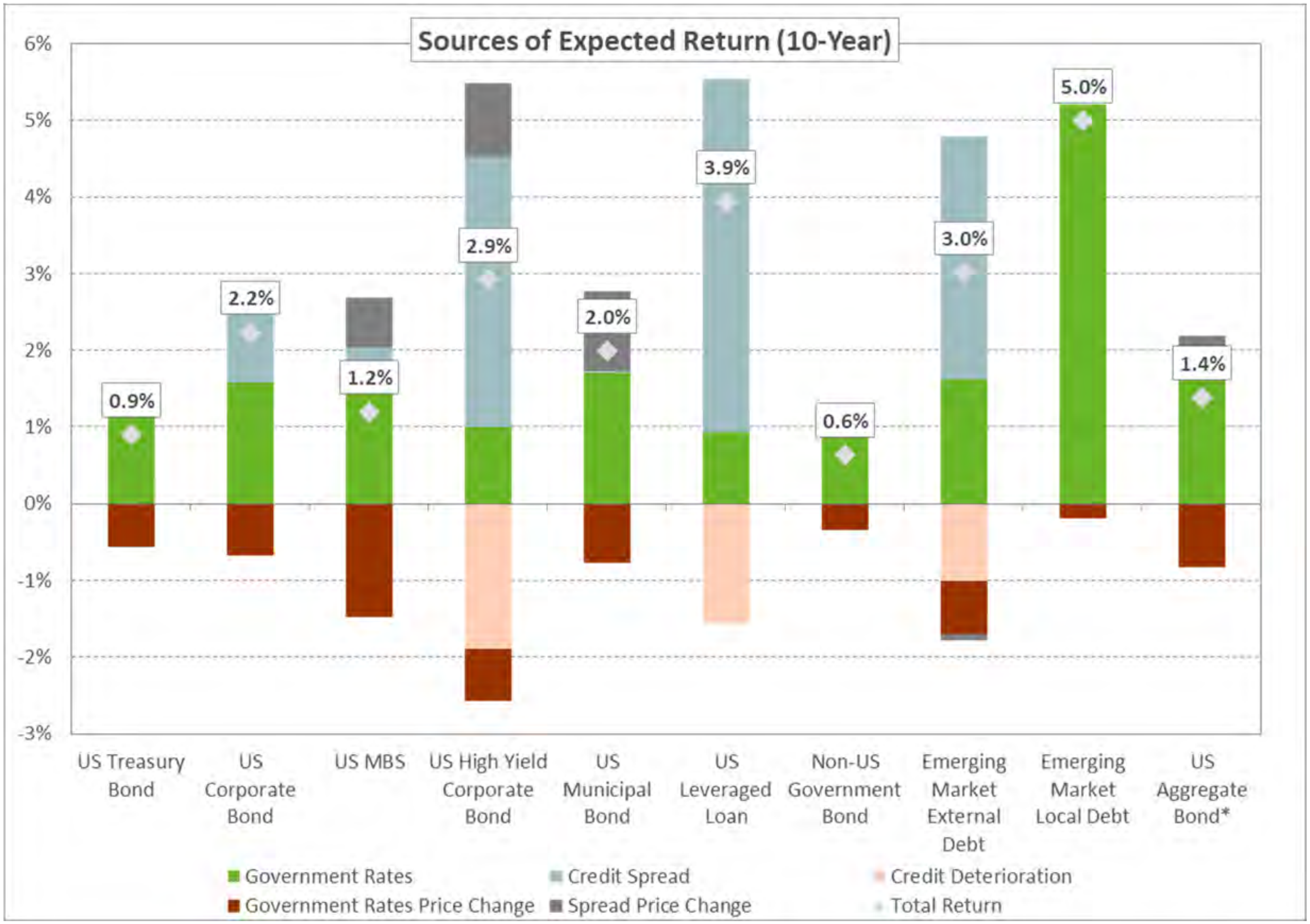
Roll down offers relief for rising rates when the yield curve is steep





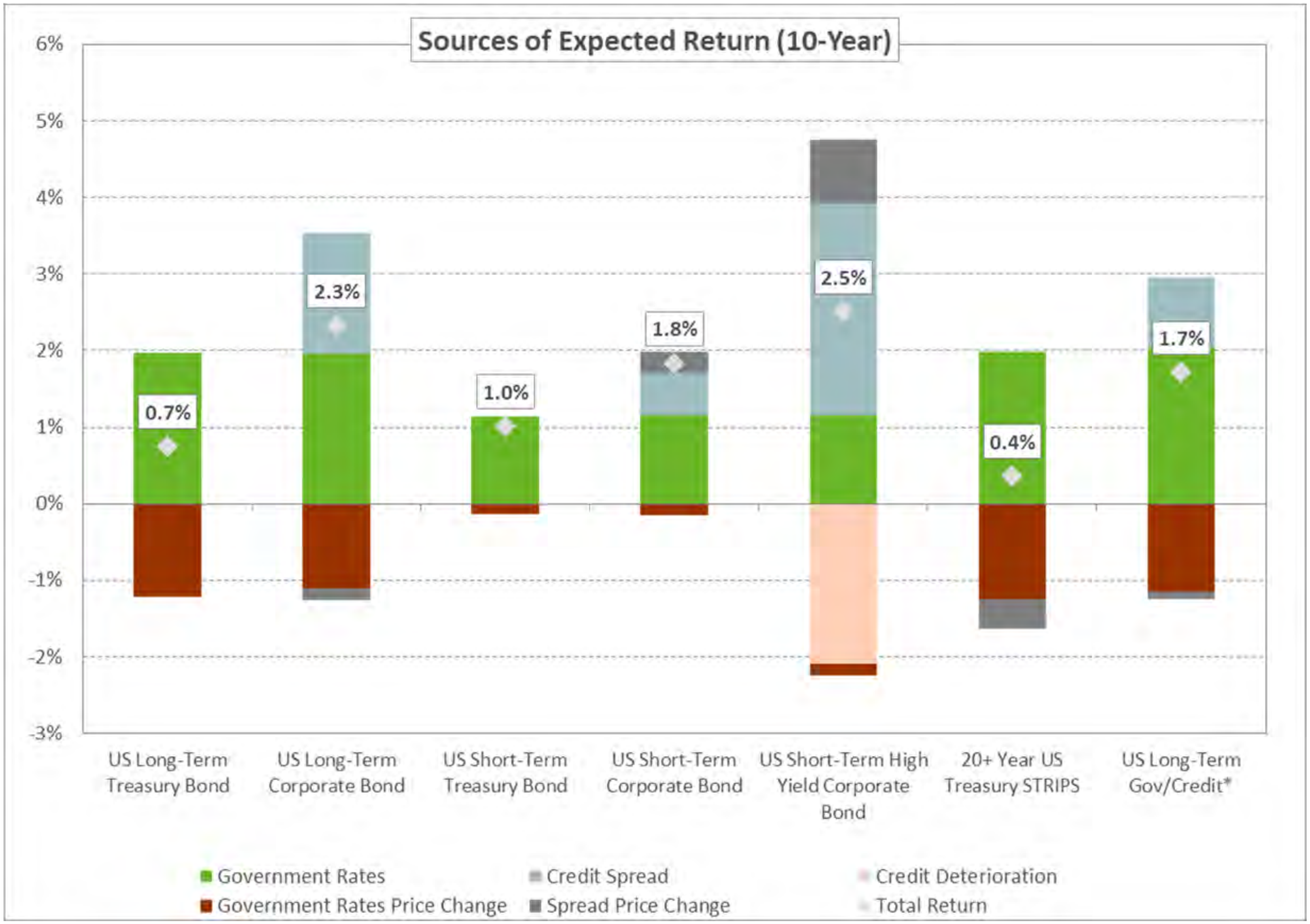
Source: (Top) Barclays, FactSet, NEPC
Source: (Bottom) FactSet, NEPC

FIXED INCOME: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

REAL ASSET ASSUMPTIONS

REAL ASSET ASSUMPTIONS OVERVIEW

The strategic outlook for real assets reflects a high level of uncertainty due to subdued inflation expectations

Real assets offer a meaningful portfolio diversification benefit, but are exposed to a wide range of potential inflation scenarios

Real assets exhibit different betas to inflation and each asset class is exposed to various economic factors

Diversification and correlation benefits are helpful to a portfolio but must be carefully considered relative to the expected risk premium

Inflation-sensitivity and portfolio objectives influence an investor's strategic allocation to real assets

We encourage investors to remove commodity futures from strategic allocation targets due to persistent negative roll yield

Strategic targets to Gold should be carefully weighed relative to the long-term macroeconomic environment

Gold exposure can be a challenge to investor risk-tolerance given its volatility profile and lack of a consistent risk premium

REAL ASSET: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	The change in price of the asset moving to a terminal value or real average level
Inflation	Based on the inflation paths as defined by TIPS breakeven and NEPC assumptions
Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Real Income	The inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	12/31/20 10-Year Return	Change From 09/30/20
Commodity Futures	0.9%	+0.3%
Midstream Energy	7.4%	-0.6%
US REIT	5.5%	-0.2%
Global Infrastructure Equity	5.9%	-0.3%
Global Natural Resources Equity	6.7%	-0.4%
Gold	2.9%	N/A
Core Real Estate	4.4%	+0.2%
Non-Core Real Estate	5.5%	+0.4%
Private Debt - Real Estate	*4.1%*	*+0.2%*
Private Real Assets - Natural Resources	*8.0%*	*-0.2%*
Private Real Assets - Infrastructure	*5.4%*	*-0.1%*

Source: NEPC
*Calculated as a blend of other asset classes

REAL ASSET: REAL INCOME

Equity-Like: Real income is inflation-adjusted dividend

Includes public infrastructure, REITS, midstream energy, and natural resource equity

Real Estate: Real income is net operating income

NOI growth exhibits a cyclical economic pattern

Commodities: Real income includes collateral return

Collateral is based on a cash proxy over the time horizon

Real Assets Yields	9/30/20	12/31/20
Midstream Energy	9.9%	7.9%
Core Real Estate	4.4%	4.3%
US REIT	4.1%	3.8%
Global REIT	4.8%	4.3%
Global Infrastructure Equity	4.1%	3.1%
Global Natural Resources Equity	4.5%	3.5%
US 10-Yr Breakeven Inflation	1.6%	2.0%
Commodity Index Roll Yield*	-6.7%	-0.1%

Source: (Top) Bloomberg, FactSet, NEPC
Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, FactSet, NEPC
*Commodity Index Roll Yield represents a proprietary calculation methodology

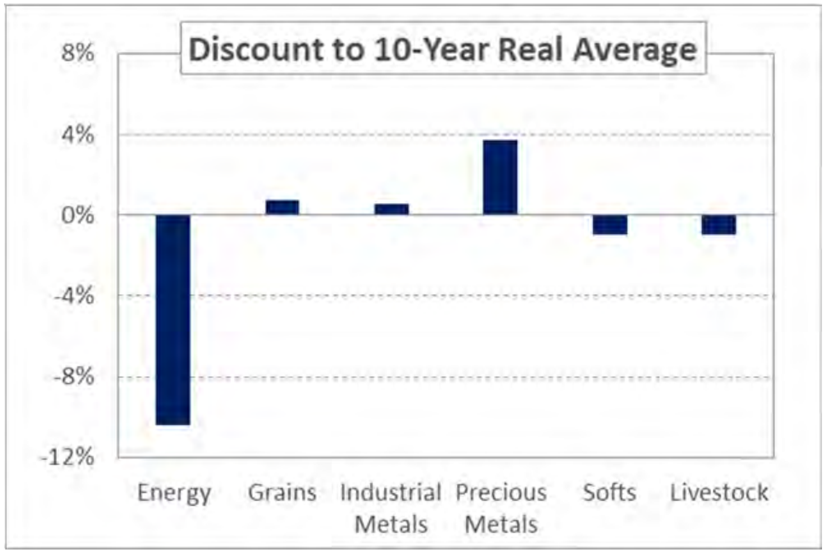
REAL ASSET: VALUATION

Commodity valuations are based on the long-term real average of spot prices

Energy commodity prices are trading below their long-term real averages

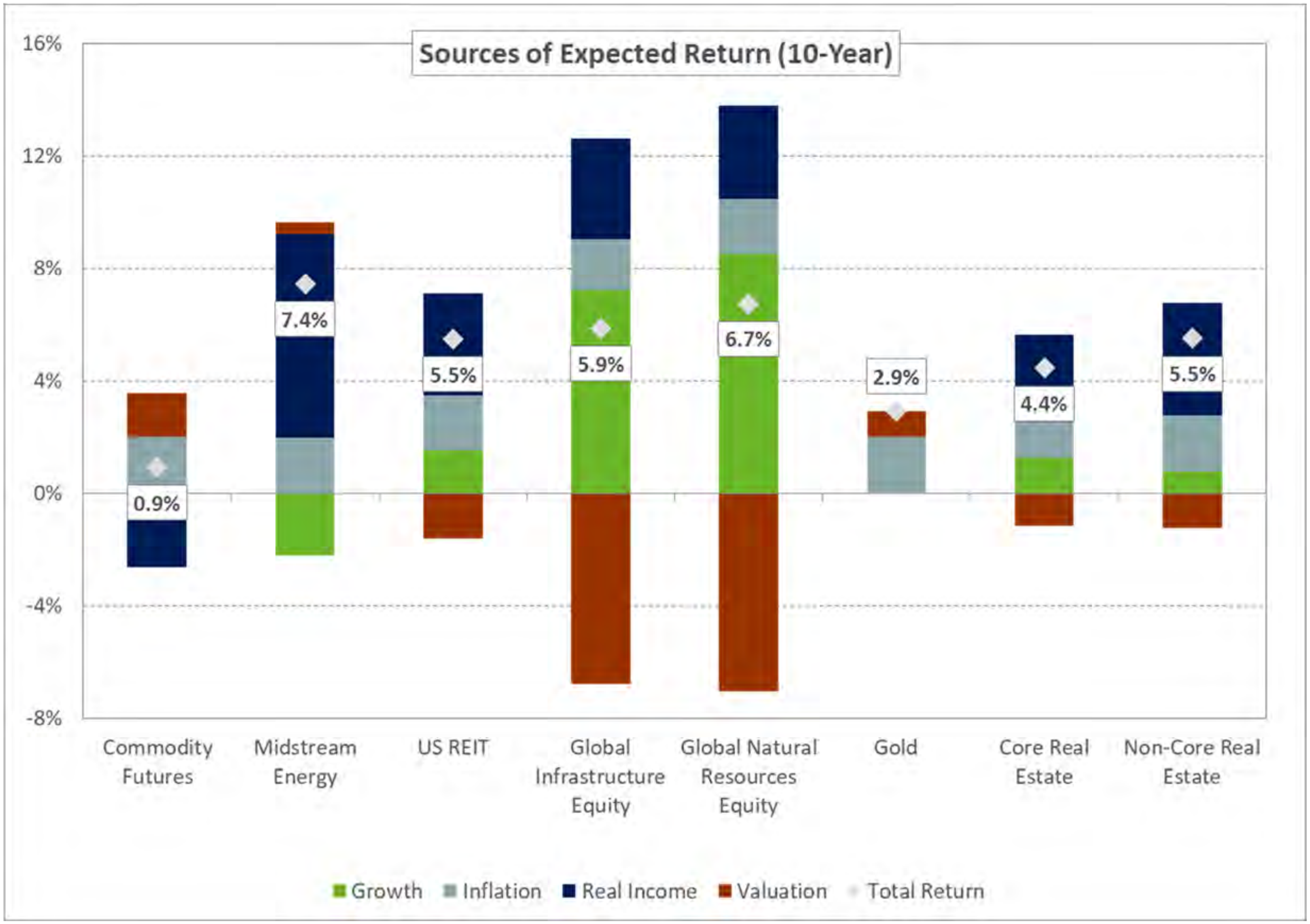
Valuation assumptions for other real assets are based on various valuation inputs

Cap rates are used for core real estate and price-to-cash flow from operations is used for midstream energy



Source: (Top) FactSet, NEPC
Source: (Bottom) FactSet, NEPC

REAL ASSET: BUILDING BLOCKS



Source: NEPC

ALTERNATIVES

ALTERNATIVES METHODOLOGY

Private market assumptions are constructed from betas to public markets with an added illiquidity premia

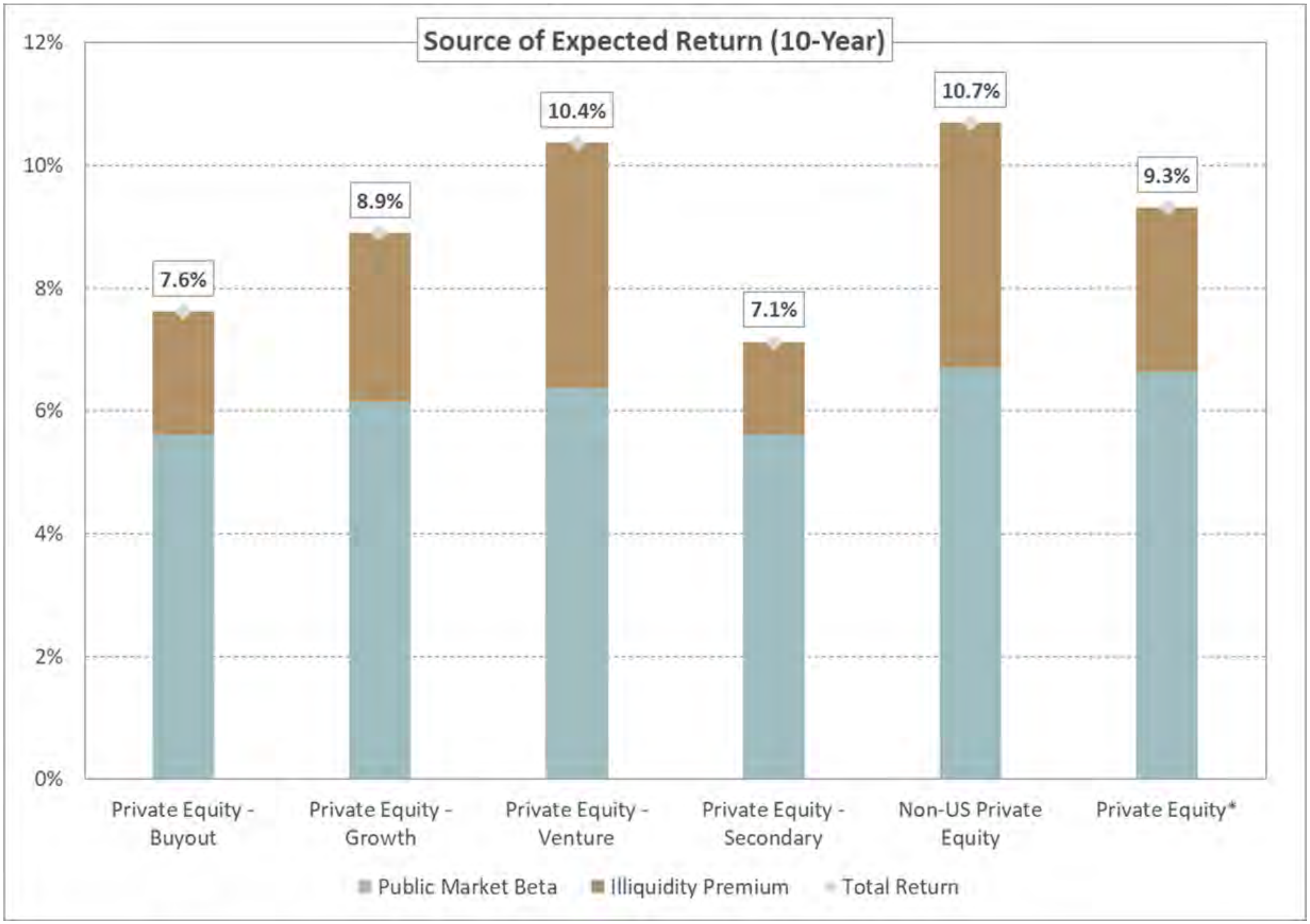
Historically, the observed illiquidity premium has been a significant component driving private market returns

Hedge fund assumptions are constructed from betas to public markets with an added alpha assumption

Alpha based on historical manager universe performance relative to a market-based benchmark

Source: Thomson One, S&P, FactSet

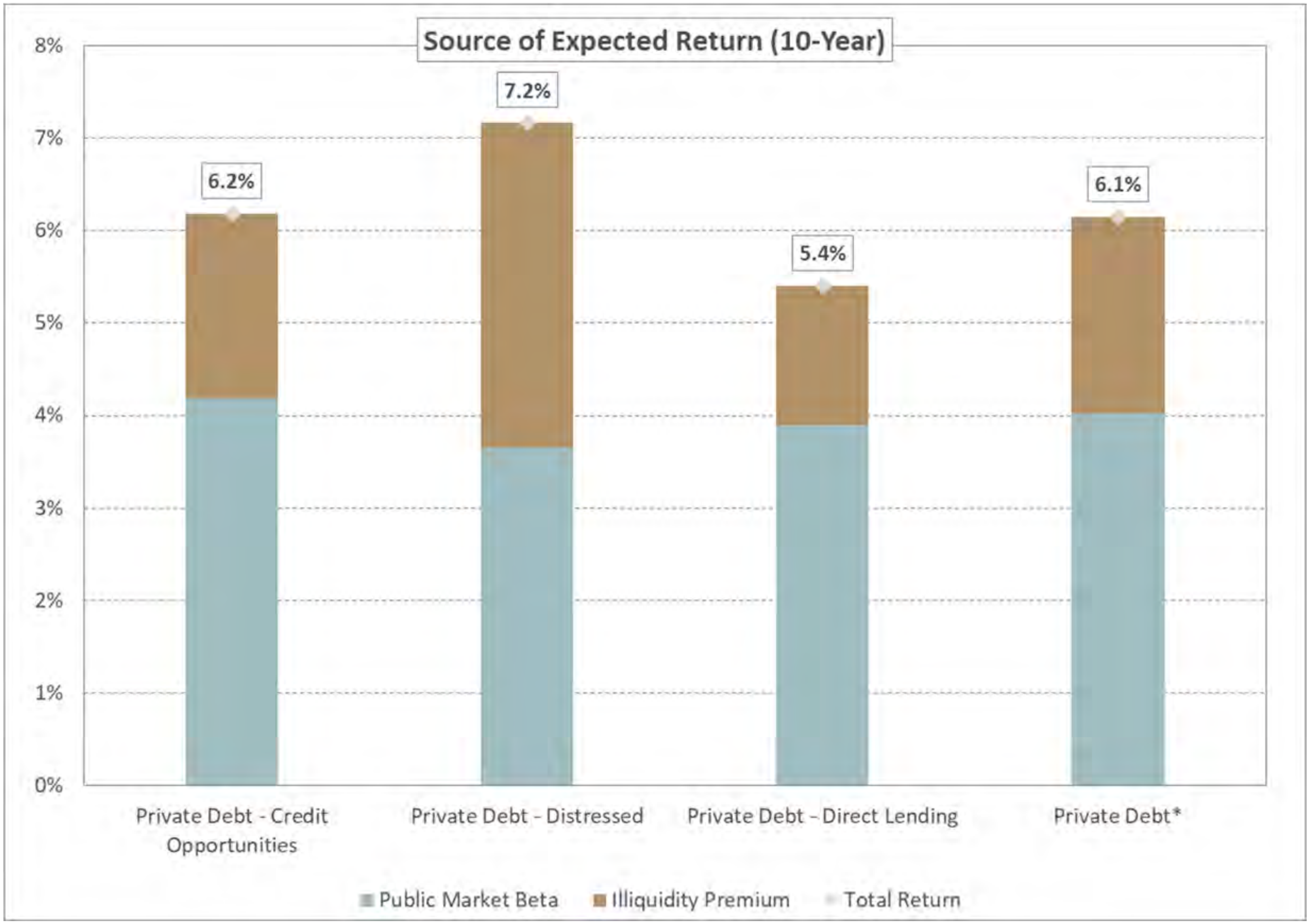
PRIVATE EQUITY BUILDING BLOCKS



Source: NEPC

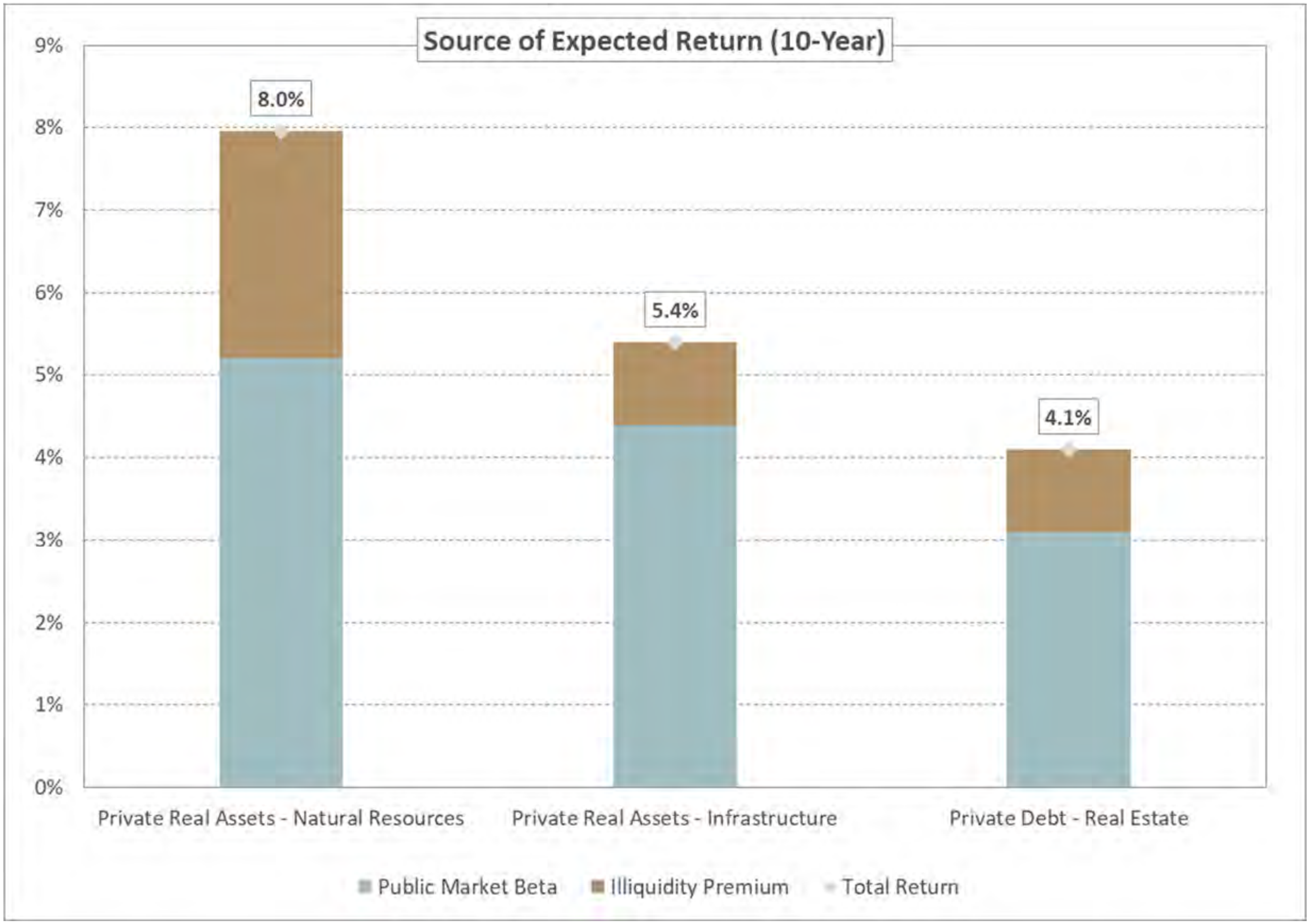
*Private Equity is a derived composite of 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE

PRIVATE DEBT BUILDING BLOCKS



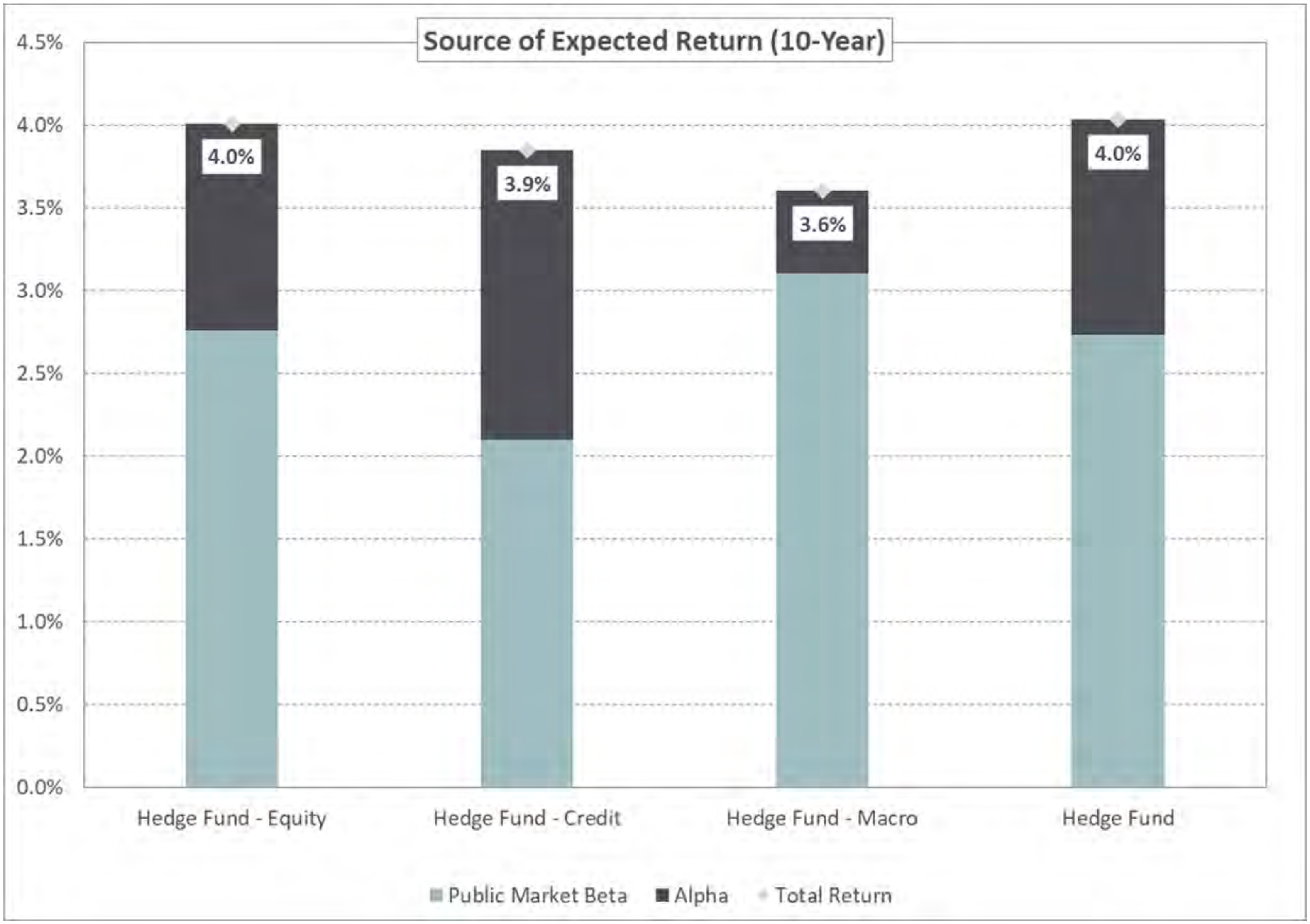
Source: NEPC
*Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending

PRIVATE REAL ASSET BUILDING BLOCKS



Source: NEPC

HEDGE FUND BUILDING BLOCKS



Source: NEPC
*Hedge Funds is a derived composite of 40% Long/Short, 40% Credit, 20% Macro

APPENDIX

10-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
Inflation	2.0%	1.6%	+0.4%
Cash	0.8%	0.6%	+0.2%
US Leverage Cost	1.2%	0.9%	+0.3%
Non-US Cash	0.0%	0.0%	-
US Large-Cap Equity	5.4%	5.8%	-0.4%
US Small/Mid-Cap Equity	5.7%	6.4%	-0.7%
Non-US Developed Equity	5.9%	6.2%	-0.3%
Non-US Developed Equity (USD Hedge)	6.1%	6.6%	-0.5%
Non-US Developed Small-Cap Equity	6.1%	6.4%	-0.3%
Emerging Market Equity	7.5%	8.0%	-0.5%
Emerging Market Small-Cap Equity	8.1%	8.5%	-0.4%
Hedge Fund - Equity	4.0%	4.3%	-0.3%
Private Equity - Buyout	7.6%	8.3%	-0.7%
Private Equity - Growth	8.9%	9.6%	-0.7%
Private Equity - Venture	10.4%	11.0%	-0.6%
Private Equity - Secondary	7.1%	7.8%	-0.7%
Non-US Private Equity	10.7%	11.0%	-0.3%
China Equity	7.0%	7.0%	-
US Microcap Equity	6.6%	7.2%	-0.6%

10-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
US TIPS	1.0%	0.8%	+0.2%
US Treasury Bond	0.9%	0.6%	+0.3%
US Corporate Bond	2.2%	2.4%	-0.2%
US Mortgage-Backed Securities	1.2%	0.8%	+0.4%
US High Yield Corporate Bond	2.9%	3.6%	-0.7%
US Leveraged Loan	3.9%	3.8%	+0.1%
Emerging Market External Debt	3.0%	4.0%	-1.0%
Emerging Market Local Currency Debt	5.0%	5.4%	-0.4%
Non-US Government Bond	0.6%	0.6%	-
Non-US Government Bond (USD Hedge)	0.8%	0.9%	-0.1%
US Municipal Bond	2.0%	2.0%	-
US Municipal Bond (1-10 Year)	1.1%	1.0%	+0.1%
US High Yield Municipal Bond	2.8%	3.3%	-0.5%
Hedge Fund - Credit	3.9%	4.1%	-0.2%
Private Debt - Credit Opportunities	6.2%	6.6%	-0.4%
Private Debt - Distressed	7.2%	7.7%	-0.5%
Private Debt - Direct Lending	5.4%	5.3%	+0.1%
US Securitized Bond	1.8%	1.6%	+0.2%
US Collateralized Loan Obligation	2.3%	2.1%	+0.2%
US High Yield Securitized Bond	2.3%	1.8%	+0.5%
US High Yield Collateralized Loan Obligation	4.6%	4.6%	-

10-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
US Short-Term TIPS (1-3 Year)	1.1%	0.8%	+0.3%
US Short-Term Treasury Bond (1-3 Year)	1.0%	0.7%	+0.3%
US Short-Term Corporate Bond (1-3 Year)	1.8%	1.6%	+0.2%
US Short-Term High Yield Corporate Bond	2.5%	2.6%	-0.1%
US Intermediate-Term TIPS (3-10 Year)	0.9%	-	-
US Intermediate-Term Treasury Bond	1.0%	-	-
US Intermediate-Term Corporate Bond	2.3%	-	-
US Long-Term Treasury Bond (10-30 Year)	0.7%	0.4%	+0.3%
US Long-Term TIPS (10-30 Year)	1.0%	0.8%	+0.2%
US Long-Term Corporate Bond	2.3%	2.8%	-0.5%
20+ Year US Treasury STRIPS	0.4%	0.0%	+0.4%
US Corporate Bond - AAA	1.5%	1.5%	-
US Corporate Bond - AA	1.6%	1.7%	-0.1%
US Corporate Bond - A	1.9%	2.0%	-0.1%
US Corporate Bond - BBB	2.5%	2.9%	-0.4%
US Corporate Bond - BB	3.9%	4.4%	-0.5%
US Corporate Bond - B	3.0%	3.8%	-0.8%
US Corporate Bond - CCC/Below	-3.4%	-2.4%	-1.0%
US Taxable Municipal Bond	2.5%	2.5%	-
10 Year US Treasury Bond	0.9%	0.5%	+0.4%
10 Year Non-US Govt. Bond (USD Hedge)	-0.1%	-0.1%	-

10-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
Commodity Futures	0.9%	0.6%	+0.3%
Midstream Energy	7.4%	8.0%	-0.6%
US REIT	5.5%	5.7%	-0.2%
Global Infrastructure Equity	5.9%	6.2%	-0.3%
Global Natural Resources Equity	6.7%	7.1%	-0.4%
Gold	2.9%	-	-
Core Real Estate	4.4%	4.2%	+0.2%
Non-Core Real Estate	5.5%	5.1%	+0.4%
Private Debt - Real Estate	4.1%	3.9%	+0.2%
Private Real Assets - Natural Resources	8.0%	8.2%	-0.2%
Private Real Assets - Infrastructure	5.4%	5.5%	-0.1%
Hedge Fund - Macro	3.6%	4.1%	-0.5%
*Global Equity**	6.2%	6.6%	-0.4%
*Private Equity**	9.3%	10.0%	-0.7%
*US Aggregate Bond**	1.4%	1.2%	+0.2%
*Private Debt**	6.1%	6.3%	-0.2%
*US Long-Term Government/Credit**	1.7%	1.8%	-0.1%
*Hedge Fund**	4.0%	4.3%	-0.3%

*Calculated as a blend of other asset classes

30-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
Inflation	2.2%	2.1%	+0.1%
Cash	1.9%	1.8%	+0.1%
US Leverage Cost	2.2%	2.1%	+0.1%
Non-US Cash	1.1%	1.2%	-0.1%
US Large-Cap Equity	6.3%	6.4%	-0.1%
US Small/Mid-Cap Equity	6.6%	6.8%	-0.2%
Non-US Developed Equity	6.5%	6.6%	-0.1%
Non-US Developed Equity (USD Hedge)	6.7%	7.0%	-0.3%
Non-US Developed Small-Cap Equity	6.8%	6.9%	-0.1%
Emerging Market Equity	8.4%	8.7%	-0.3%
Emerging Market Small-Cap Equity	8.6%	8.9%	-0.3%
Hedge Fund - Equity	5.0%	5.2%	-0.2%
Private Equity - Buyout	8.5%	8.7%	-0.2%
Private Equity - Growth	9.8%	10.0%	-0.2%
Private Equity - Venture	10.7%	10.9%	-0.2%
Private Equity - Secondary	8.0%	8.2%	-0.2%
Non-US Private Equity	10.7%	10.9%	-0.2%
China Equity	7.8%	8.1%	-0.3%
US Microcap Equity	7.4%	7.6%	-0.2%

30-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
US TIPS	2.1%	2.1%	-
US Treasury Bond	2.0%	1.9%	+0.1%
US Corporate Bond	3.7%	3.7%	-
US Mortgage-Backed Securities	2.3%	2.2%	+0.1%
US High Yield Corporate Bond	5.0%	5.2%	-0.2%
US Leveraged Loan	4.8%	4.7%	+0.1%
Emerging Market External Debt	4.5%	4.8%	-0.3%
Emerging Market Local Currency Debt	5.1%	5.3%	-0.2%
Non-US Government Bond	1.7%	1.5%	+0.2%
Non-US Government Bond (USD Hedge)	1.9%	1.8%	+0.1%
US Municipal Bond	2.3%	2.3%	-
US Municipal Bond (1-10 Year)	1.9%	1.9%	-
US High Yield Municipal Bond	3.9%	4.1%	-0.2%
Hedge Fund - Credit	5.3%	5.4%	-0.1%
Private Debt - Credit Opportunities	7.0%	7.1%	-0.1%
Private Debt - Distressed	7.8%	7.9%	-0.1%
Private Debt - Direct Lending	7.4%	7.0%	+0.4%
US Securitized Bond	3.1%	3.0%	+0.1%
US Collateralized Loan Obligation	3.3%	3.1%	+0.2%
US High Yield Securitized Bond	4.5%	4.3%	+0.2%
US High Yield Collateralized Loan Obligation	5.7%	5.6%	+0.1%

30-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
US Short-Term TIPS (1-3 Year)	2.0%	2.0%	-
US Short-Term Treasury Bond (1-3 Year)	2.0%	1.9%	+0.1%
US Short-Term Corporate Bond (1-3 Year)	3.7%	2.8%	+0.9%
US Short-Term High Yield Corporate Bond	3.5%	3.3%	+0.2%
US Intermediate-Term TIPS (3-10 Year)	2.1%	-	-
US Intermediate-Term Treasury Bond	2.1%	-	-
US Intermediate-Term Corporate Bond	3.8%	-	-
US Long-Term Treasury Bond (10-30 Year)	1.9%	1.8%	+0.1%
US Long-Term TIPS (10-30 Year)	2.0%	2.0%	-
US Long-Term Corporate Bond	3.8%	4.0%	-0.2%
20+ Year US Treasury STRIPS	1.7%	1.5%	+0.2%
US Corporate Bond - AAA	2.8%	2.8%	-
US Corporate Bond - AA	2.9%	2.9%	-
US Corporate Bond - A	3.3%	3.3%	-
US Corporate Bond - BBB	3.9%	4.0%	-0.1%
US Corporate Bond - BB	5.6%	5.8%	-0.2%
US Corporate Bond - B	4.9%	5.1%	-0.2%
US Corporate Bond - CCC/Below	-0.8%	-0.5%	-0.3%
US Taxable Municipal Bond	3.9%	3.9%	-
10 Year US Treasury Bond	2.3%	2.1%	+0.2%
10 Year Non-US Govt. Bond (USD Hedge)	1.1%	1.1%	-

30-YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**12/31/2020**	**9/30/2020**	**Delta**
Commodity Futures	3.3%	3.6%	-0.3%
Midstream Energy	7.3%	7.9%	-0.6%
US REIT	6.7%	6.8%	-0.1%
Global Infrastructure Equity	6.6%	6.7%	-0.1%
Global Natural Resources Equity	7.0%	7.2%	-0.2%
Gold	3.7%	-	-
Core Real Estate	5.6%	5.5%	+0.1%
Non-Core Real Estate	7.0%	6.9%	+0.1%
Private Debt - Real Estate	5.2%	5.1%	+0.1%
Private Real Assets - Natural Resources	8.5%	8.9%	-0.4%
Private Real Assets - Infrastructure	6.6%	6.8%	-0.2%
Hedge Fund - Macro	4.7%	4.7%	-
*Global Equity**	7.0%	7.2%	-0.2%
*Private Equity**	10.1%	10.3%	-0.2%
*US Aggregate Bond**	2.7%	2.6%	+0.1%
*Private Debt**	7.5%	7.3%	+0.2%
*US Long-Term Government/Credit**	3.1%	3.1%	-
*Hedge Fund**	5.2%	5.4%	-0.2%

*Calculated as a blend of other asset classes

PRIVATE MARKETS COMPOSITES

Assumed public market beta composites for private market return assumptions are detailed below:

Private Equity:

Private Equity – Buyout: 25% US Large Cap, 75% US Small/Mid Cap

Private Equity – Secondary: 25% US Large Cap, 75% US Small/Mid Cap

Private Equity – Growth: 50% US Small/Mid Cap, 50% US Microcap

Private Equity – Venture: 25% US Small/Mid Cap, 75% US Microcap

Private Equity – Non-US: 70% International Small Cap, 30% Emerging Small Cap

PE Composite: 34% Buyout, 34% Growth, 15 % Non-US, 8.5% Secondary, 8.5% Venture

Private Debt:

Private Debt – Direct Lending: 100% Bank Loans

Private Debt – Distressed: 20% US Small/Mid Cap, 60% US High Yield, 20% Bank Loans

Private Debt – Credit Opportunities: 34% US SMID Cap, 33% US High Yield, 33% Bank Loans

Private Debt Composite: 50% Direct Lending, 25% Credit Opportunities, 25% Distressed

Private Real Assets:

Private Real Assets – Energy: 30% Comm., 35% Midstream, 35% Public Resource Equity

Private Real Assets - Infra/Land: 30% Commodities, 70% Public Infrastructure

Private Real Estate Debt: 50% CMBS, 50% Core Real Estate

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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NEPC 2019 INVESTMENT OUTLOOK

ASSET CLASS ASSUMPTIONS

January 16, 2019

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

ASSET CLASS ASSUMPTIONS

INTRODUCTION

2019 ASSET CLASS OVERVIEW

NEPC asset class assumptions offer both an intermediate (5-7 years) and long term (30 years) forecast horizon

November 30th replaced by December 31st market data for inputs to asset class models

Return expectations for credit asset classes are broadly higher relative to last year due to interest rate increases and wider credit spreads

Despite the increase in return expectations, we encourage caution when investing in lower-quality credit exposure as we expect default rates to trend higher in the current late-cycle market environment

US equity return expectations increased relative to last year following a sizable correction in the fourth quarter of 2018

Our outlook for international developed equities is less optimistic than prior years, resulting in a significantly lower 5-7 year return expectation

We continue to refine and enhance our process where appropriate

New asset class assumptions were added this year to provide greater differentiation in credit, including investment and speculative grade corporate ratings (AAA-CCC)

Private equity and private debt sub-strategies were added to offer a distinction among private market implementation options with different volatility and return profiles

Asset class correlation and volatility assumptions were adjusted to integrate private markets and new asset classes, to improve risk modeling and scenario analysis

ASSUMPTION DEVELOPMENT

Capital market assumptions are published for over 60 asset classes

- Assumptions include 5-7 year and 30 year return forecasts, average annual volatility expectations, and correlations

The 5-7 year forecast is designed to capture the return outlook for the current investment cycle

- 30 year return assumptions reflect a long-term outlook and are informed by the historical relationships among asset classes

Assumptions are published annually in December and use market data as of November 30

- Assumptions are developed by the Asset Allocation Committee and approved by the Partners Research Committee (PRC)

Assumptions are developed with proprietary valuation models and rely on a core building block methodology

Asset Allocation Committee	
September	Asset Allocation Committee Assumptions Kickoff Finalize List of New Asset Class Assumptions
October	Review Draft of Asset Class Return Assumptions Discuss Outlook with NEPC Research Beta Groups
November	Finalize Volatility and Correlation Assumptions Final Update of Asset Class Models (As of 11/30)
December	Review Model Output and Create Return Assumptions Present Draft to the PRC Publish Assumptions on December 14th

MODIFIED ASSUMPTIONS AS OF DECEMBER 31

Significant market movements during the month of December caused the Asset Allocation Committee to update the capital market return assumptions created as of November 30th

Volatility and correlation assumptions were unchanged from the November 30th figures

Asset Class	12/31 5-7 Year Return Assumption	11/30 5-7 Year Return Assumption	Rationale
US Inflation	2.25%	2.50%	5-Year, 5-Year forward inflation expectations fell to 2%
Cash	2.50%	2.75%	The market no longer expects any Fed rate increases in 2019; our US inflation assumption declined 25 basis points
Large Cap US Equities	6.00%	5.00%	The S&P 500 Index fell 9% during December
Treasuries	2.50%	3.00%	The 10-year US Treasury yield fell 30 basis points during December; lower inflation
US High Yield	5.25%	4.75%	Spreads increased 108 bps during December; lower rates

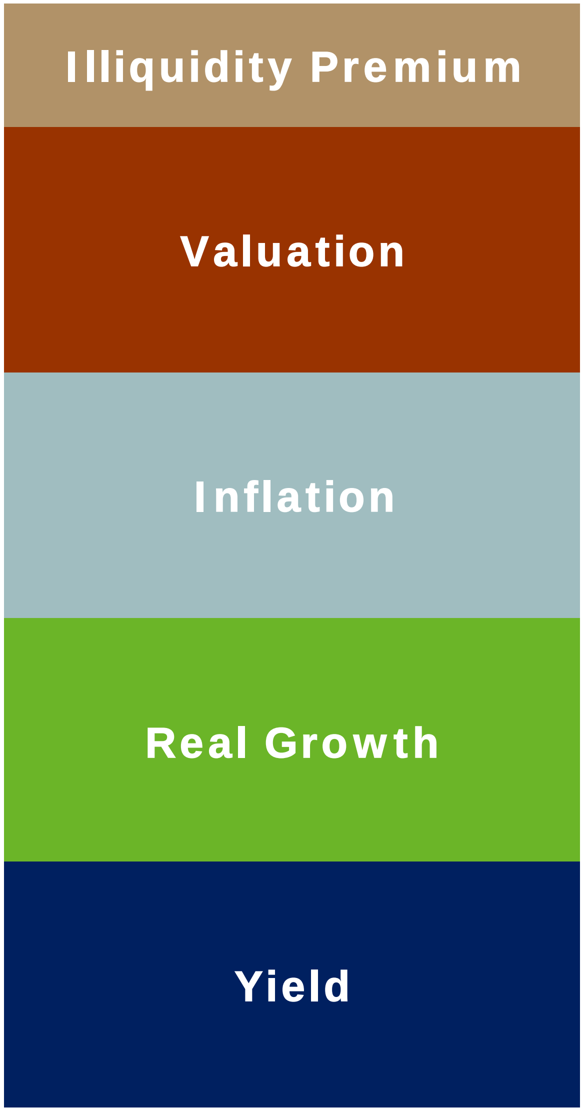
BUILDING BLOCKS METHODOLOGY

Forward-looking asset class models incorporate current and forecasted market and economic data to inform expected returns

Quantitative inputs combined with qualitative factors and investor sentiment (capital flows, etc.) drive the 5-7 year return outlook

Components are combined to capture core drivers of return across asset classes – forming the foundation of our building blocks framework

Building blocks will vary across equity, credit, and real assets

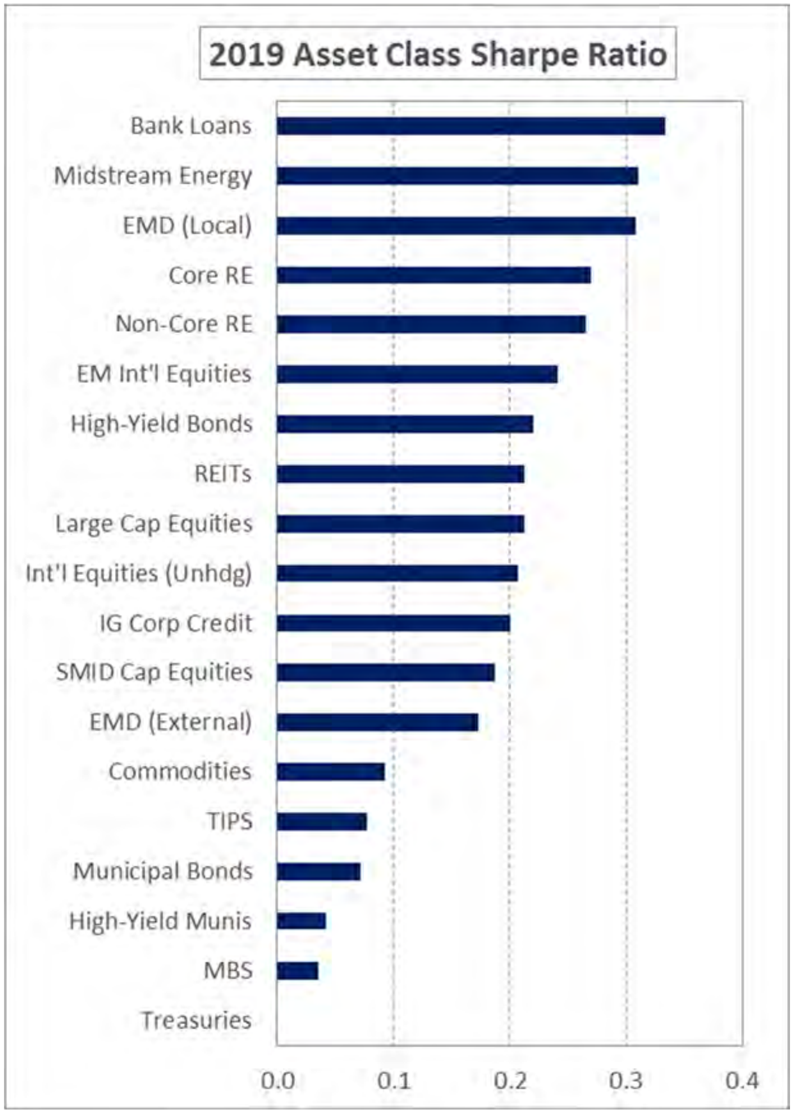


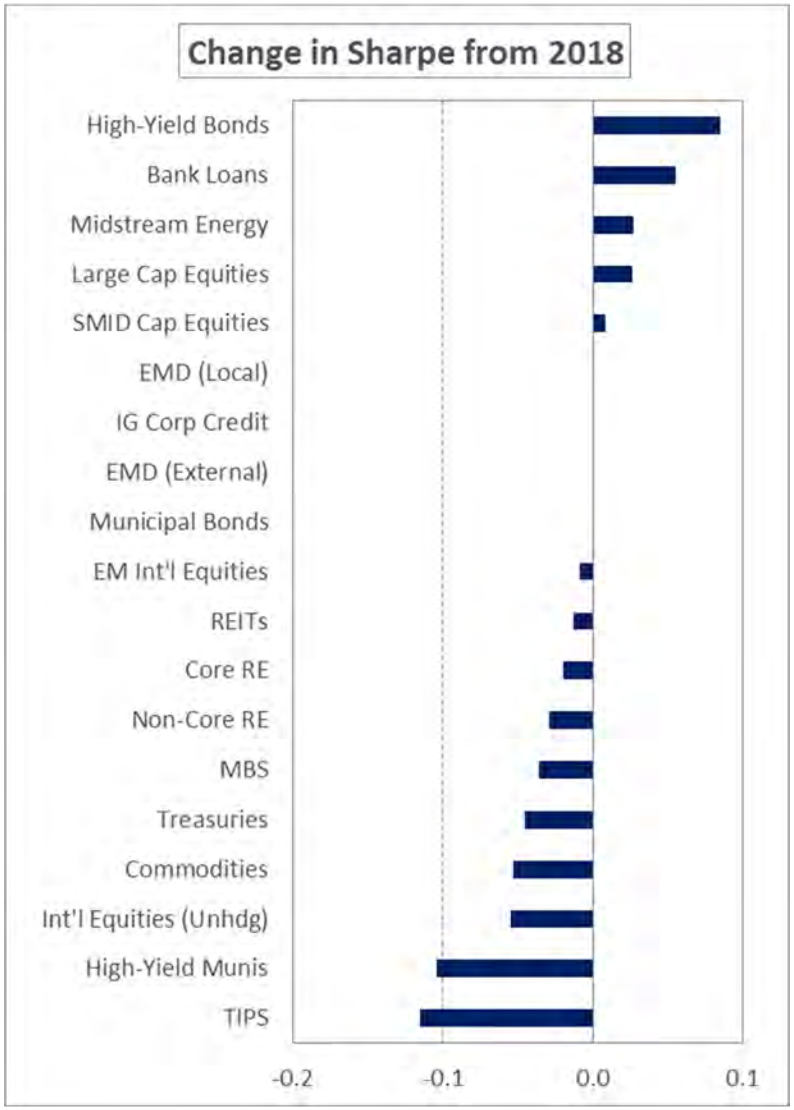
CORE RETURN ASSUMPTIONS

	Asset Class	5-7 Year Return	Change 2019-2018	Volatility
	Cash	2.50%	**+.50%**	1.00%
	US Inflation	2.25%	**-0.25%**	-
Equity	Large Cap Equities	6.00%	**+0.75%**	16.50%
Equity	International Equities (Unhedged)	6.75%	**-0.75%**	20.50%
Equity	Emerging International Equities	9.25%	**+0.25%**	28.00%
Equity	*Private Equity**	*10.01%*	***+2.01%***	*24.16%*
Rates/Credit	Treasuries	2.50%	**+0.25%**	5.50%
Rates/Credit	*Core Bonds**	*3.04%*	***+0.29%***	*6.10%*
Rates/Credit	Municipal Bonds (1-10 Year)	3.00%	**+0.50%**	5.50%
Rates/Credit	High Yield Bonds	5.25%	**+1.50%**	12.50%
Rates/Credit	*Private Debt**	*7.60%*	***+1.10%***	*11.97%*
Real Assets	Commodities	4.25%	**-0.50%**	19.00%
Real Assets	Midstream Energy	8.25%	**+1.00%**	18.50%
Real Assets	REITs	6.75%	**+0.25%**	20.00%
Real Assets	Core Real Estate	6.00%	**+0.25%**	13.00%
Multi-Asset	*US 60/40**	*5.07%*	***+0.53%***	*10.45%*
Multi-Asset	*Global 60/40**	*5.08%*	***+0.17%***	*10.95%*
Multi-Asset	*Hedge Funds**	*5.74%*	***-0.09%***	*8.15%*

Calculated as a blend of other asset classes – see page 39 for additional details

RELATIVE ASSET CLASS ATTRACTIVENESS





Source: NEPC

MACRO ASSUMPTIONS

INFLATION OVERVIEW

Inflation is an integral component of our asset allocation assumptions

- Represents an essential building block for developing asset class returns

Inflation building blocks are model driven and informed by multiple sources for both the US and global asset classes

- Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

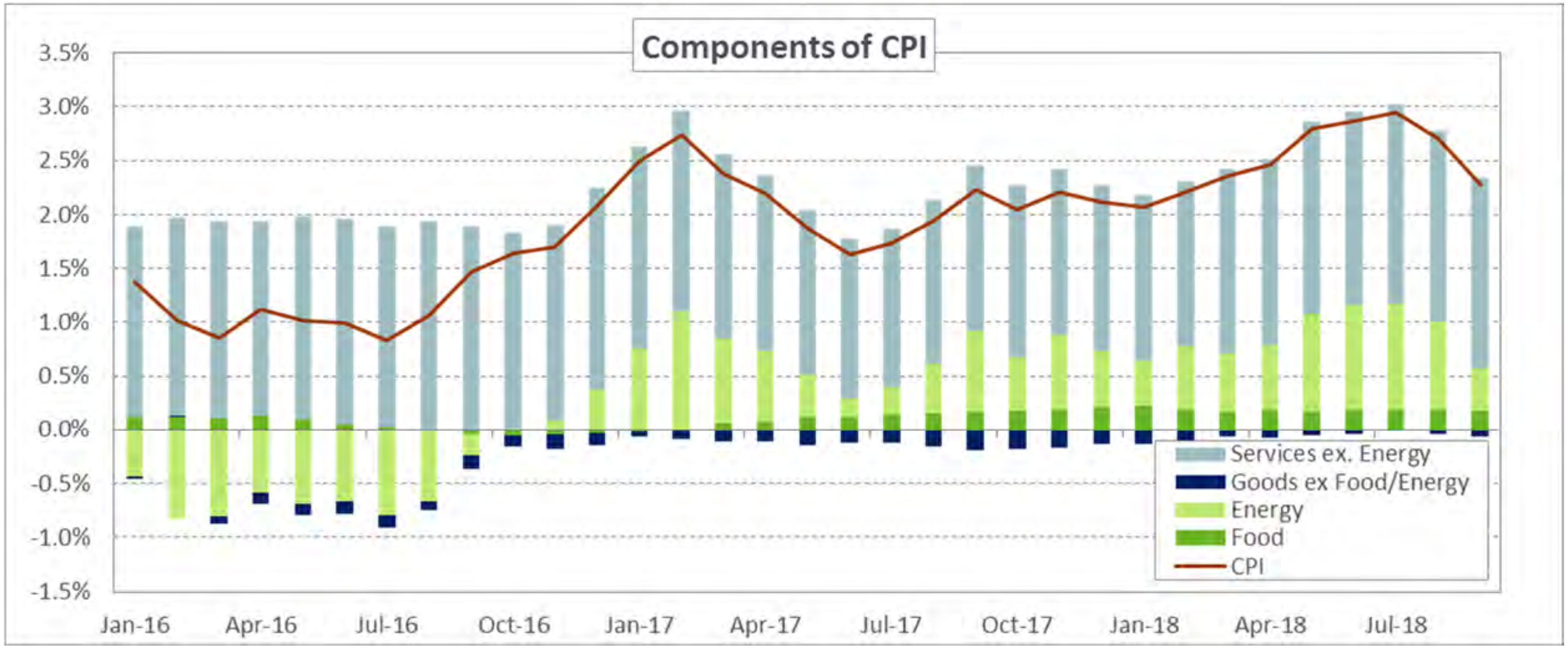
US inflation is based upon the TIPS breakeven inflation curve adjusted for expectations of economic activity, employment, and capacity levels

Global inflation expectations are informed by consensus forecasts across countries along with implied inputs from global bond curves

- The 30 year global inflation forecast assumes purchase power parity holds across the globe and country specific inflation levels converge to a terminal value

Region	5-7 Year Inflation Assumption	30-Year Inflation Assumption
United States	2.25%	2.75%
Global	3.00%	3.25%

US INFLATION



Source: Bloomberg, NEPC

US inflation has increased, but has yet to materially accelerate despite strong economic growth and a tight labor market

Underlying inflation has risen with a modest increase in wages due to the tightening labor market but market-based inflation expectations have declined considerably this year

A significant decline in energy prices in the latter half of 2018 has minimized overall price pressures

Energy is historically the most volatile component of CPI and a sustained decline in prices can cause inflation to remain muted

GLOBAL INFLATION

In most developed economies, core inflation has failed to reach or exceed central bank targets

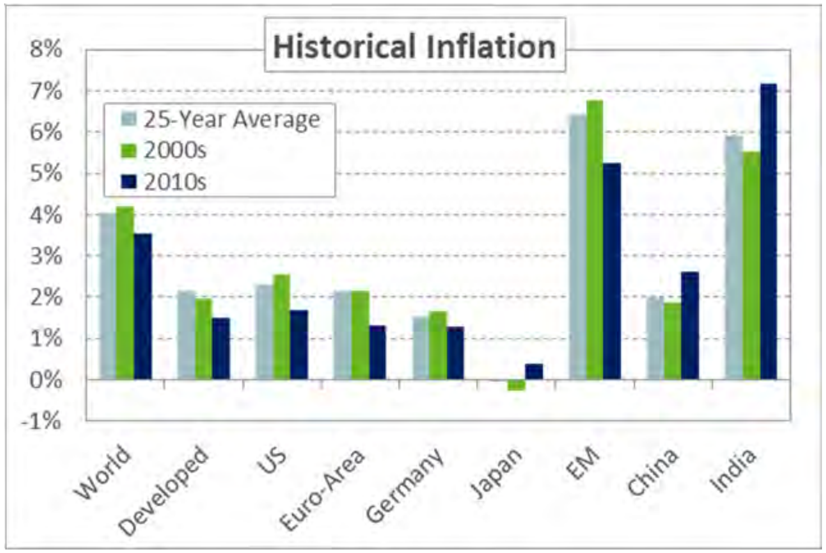
- The European Central Bank is expected to end the expansion of its quantitative easing program at the end of the year despite a weakening economic outlook

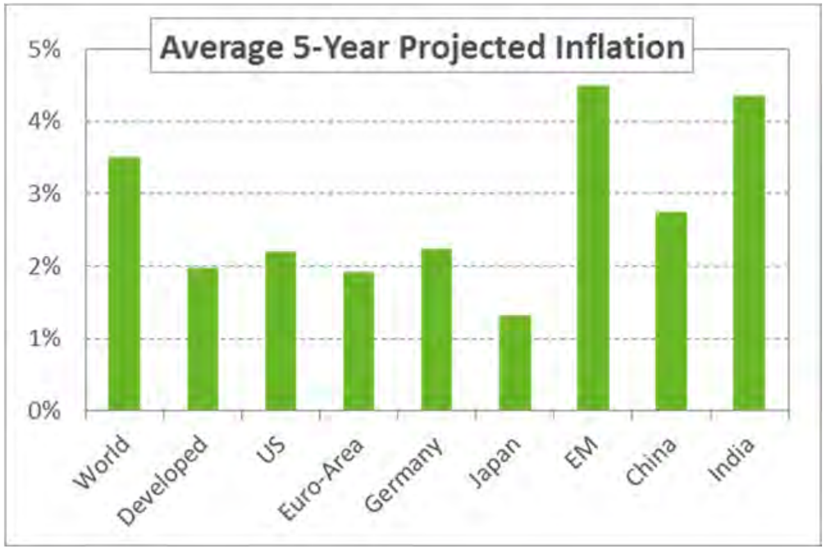
- Japan has been the only developed economy to drive inflation above historical levels, although still less than other countries

Emerging market inflation remains significantly lower than long-term averages in most economies

- Turkey and Argentina remain notable outliers as idiosyncratic risks and inconsistent monetary policy have fueled rising prices

- Lower inflation is likely to give select countries room to ease monetary policy, as needed, to bolster economic growth





Source: (Top) IMF, NEPC
Source: (Bottom) IMF, NEPC

US CASH EXPECTATIONS

Cash is a foundation for all asset classes

The assumption flows through as a direct building block component or as a relative value adjustment (cash + risk premia)

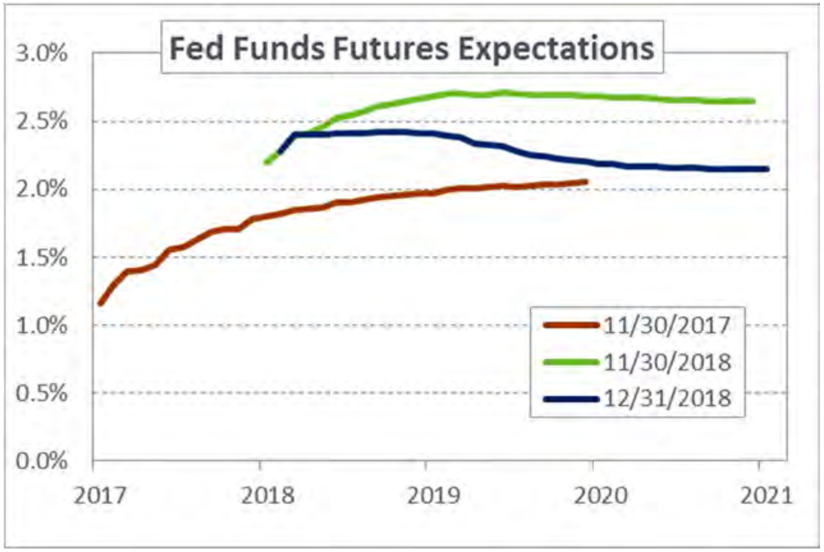
The longer-term cash assumption is a result of the inflation assumption in conjunction with our forecasted real interest rate path

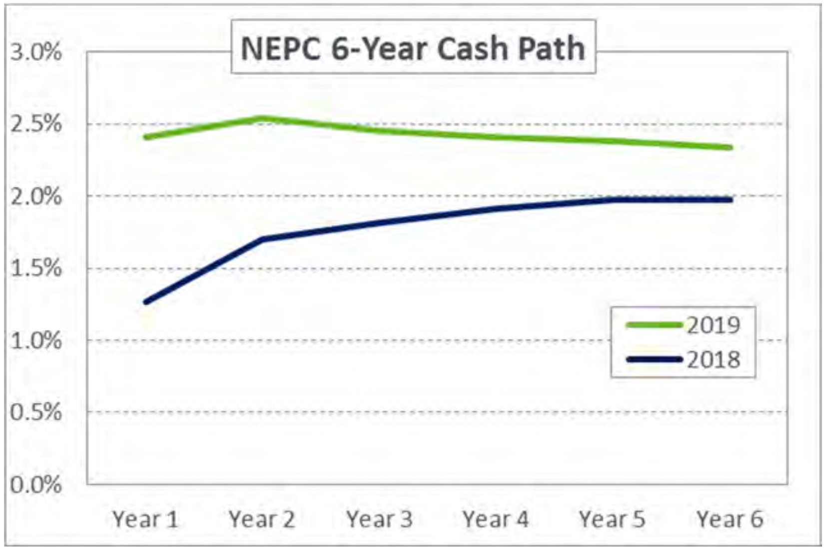
The Fed has shifted from a "lower for longer" policy to a more balanced posture of raising rates relative to changes in inflation

With Fed action impacting the front-end of the yield curve, a progressively flatter yield curve has formed as longer-term rate expectations remain muted

Markets are discounting a more muted pace of rate hikes relative to Fed projections, especially after December markets

Key risks to our overall investment outlook are an increased pace in Fed rate hikes or a Fed misstep disrupting capital markets





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

US INTEREST RATE EXPECTATIONS

Real yields moved materially higher relative to last year with continued Fed rate hikes and subdued inflation

The real yield curve flattened relative to last year, with an inversion at the 2 year point

Late-cycle expectations of growth and continued Fed rate hikes increase market forward-looking expectations

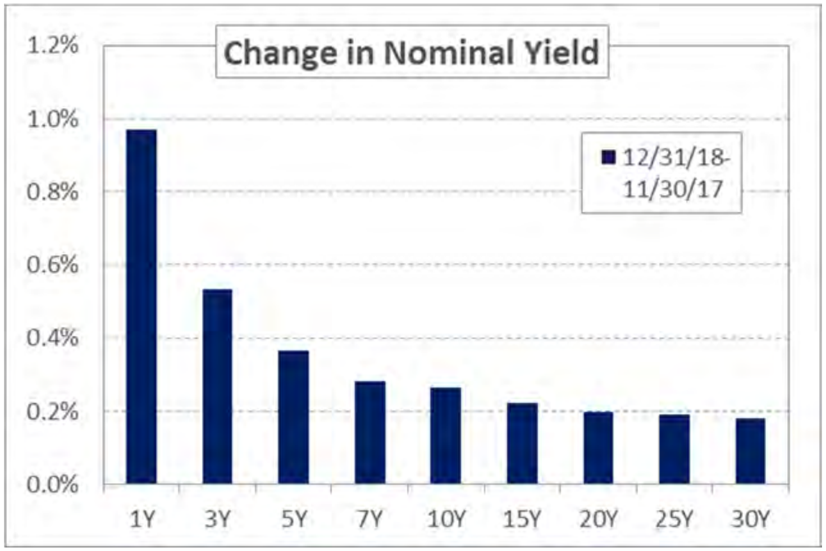
Long-term yields continue to rise but remain low relative to history in the US

Low real rates depress the return outlook for risk assets over the long-term

The flatter nominal curve is likely to invert during the late cycle

Uncertainty has surfaced surrounding the path of rates for 2019 and beyond

The Fed has recently expressed a willingness to slow the pace via a wait-and-see approach should material risks to the US economy develop



Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

GLOBAL INTEREST RATE EXPECTATIONS

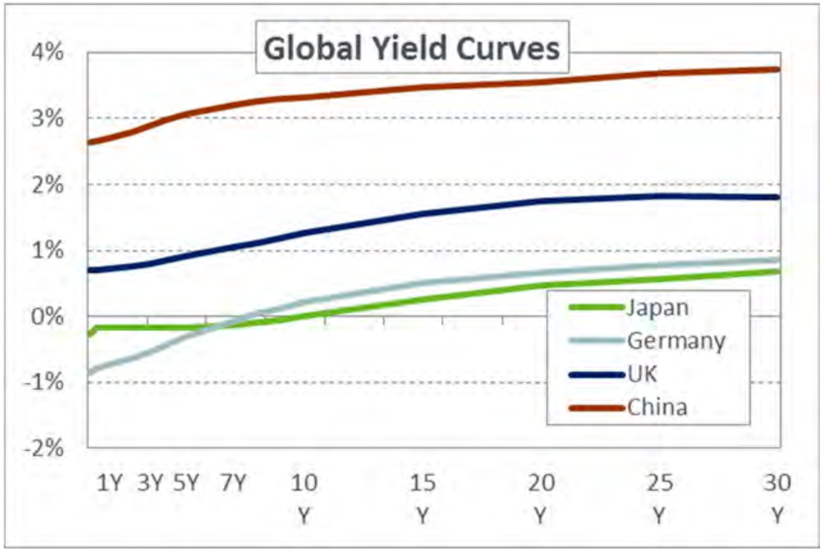
Government bond yields remain low across much of the developed world

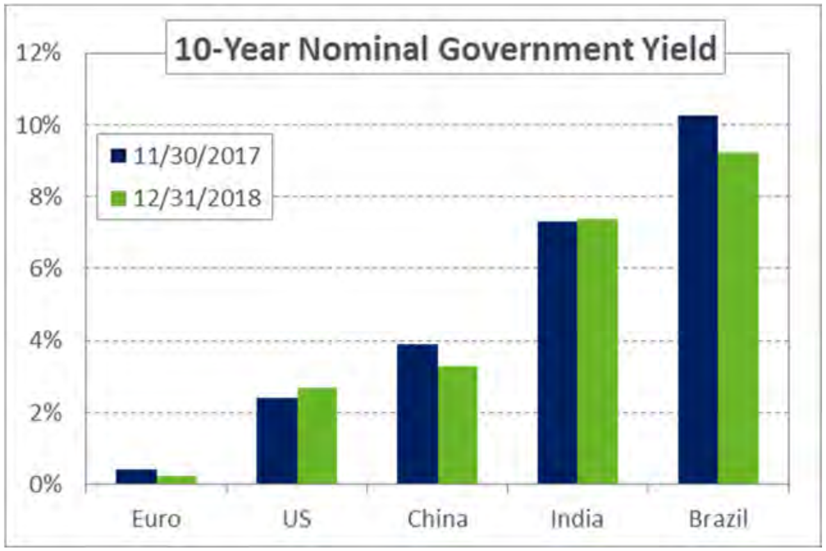
European sovereign yields have increased relative to Germany due to political and economic concerns

- Ongoing political turmoil in the UK and budget concerns in Italy caused periphery yields to increase during the year
- German bund yields are lower due to heightened demand for safe-haven assets in Europe

Emerging market local interest rates are attractively priced as real yields remain elevated

- Emerging market yields continue to retain a healthy premia over developed world rates
- Additionally, positive real rates provide a larger cushion for EM central banks to cut interest rates and ease monetary conditions





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

EQUITY ASSUMPTIONS

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	An input representing P/E multiple contraction or expansion relative to long-term trend
Inflation	Represents market-specific inflation derived from index country revenue contribution and region-specific forecasted inflation
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Dividend Yield	Informed by current income distributed to shareholders with adjustments made to reflect market conditions and trends

Asset Class	5-7 Year Return	Change 2019-2018
US Large Cap	6.00%	+0.75%
US Small/Mid-Cap	6.25%	+0.50%
US Micro Cap	7.25%	N/A
International (Unhedged)	6.75%	-0.75%
International Small Cap	7.25%	-0.50%
Emerging International	9.25%	+0.25%
Emerging Intl. Small Cap	9.50%	+0.25%
China Local	9.50%	N/A
Hedge Funds – Long/Short	5.50%	-0.75%
Global Equity	*6.99%*	*+0.11%*
Private Equity	*10.01%*	*+2.01%*

EQUITY: REAL EARNINGS GROWTH

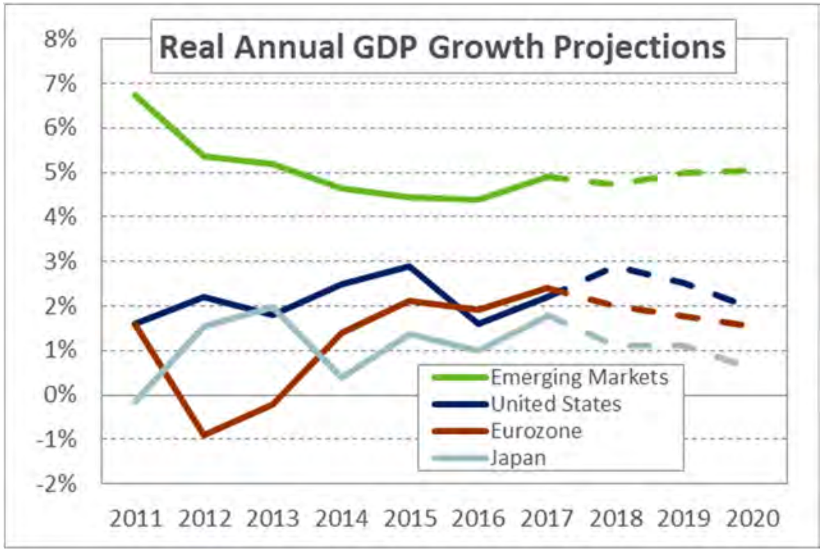
US growth accelerated relative to the rest of the world during 2018

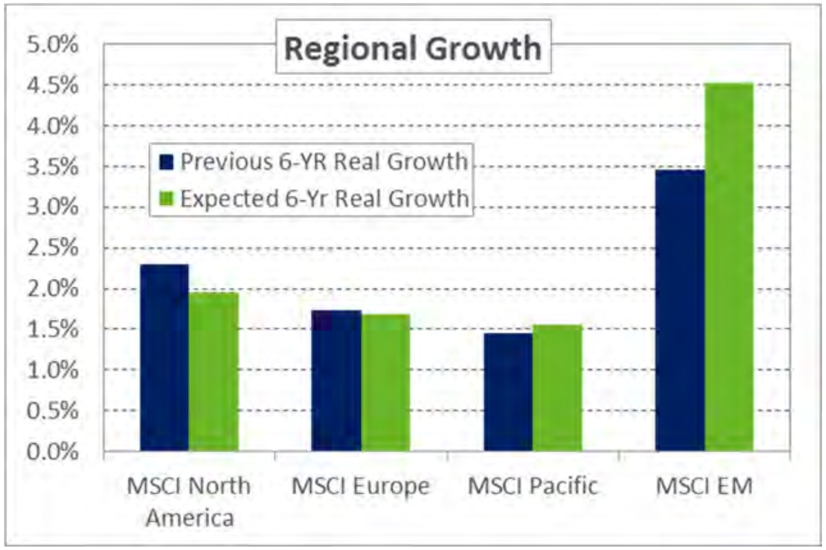
- Strong earnings growth fueled by corporate tax cuts helped support US equities
- Additionally, fiscal stimulus and pre-purchases from China for tariffed goods fueled above-trend GDP growth

Global trade tensions and political-economic concerns regarding Europe have led to a weaker growth outlook for international developed economies

Strong economic growth is expected to continue in the emerging markets

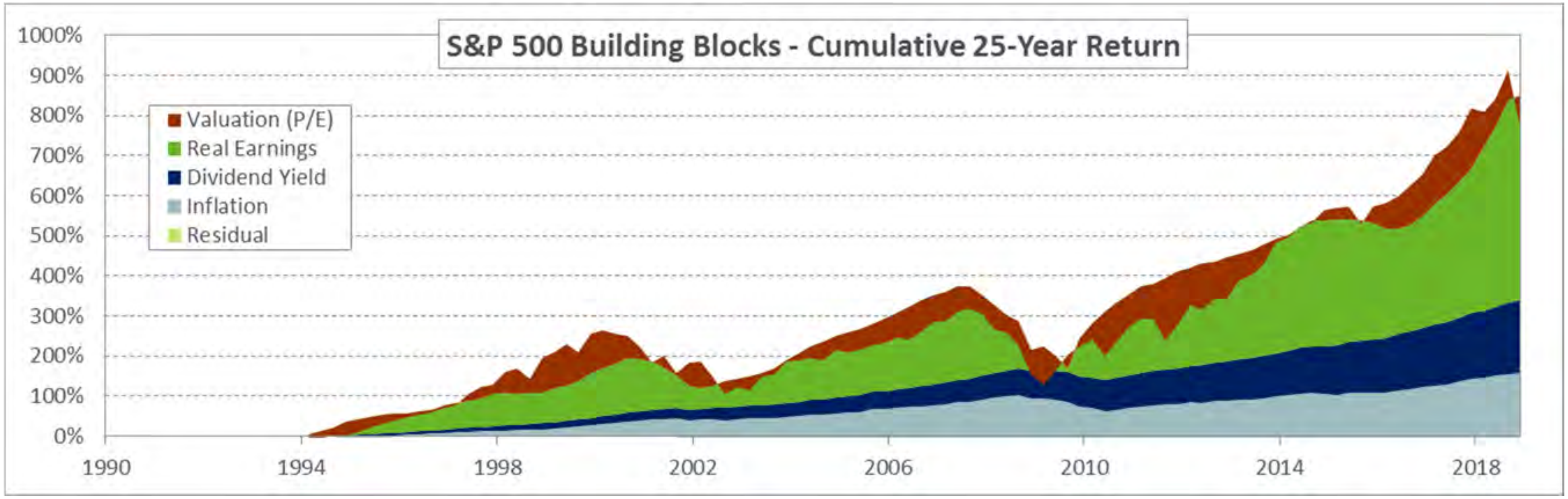
- However, China's real growth is expected to slow in future years as the country transitions to a consumption based model
- Ongoing reforms in southeast Asia and India are expected to boost investment, productivity, and per-capita growth





Source: (Top) Bloomberg, NEPC
Source: (Bottom) IMF, MSCI, Bloomberg, NEPC

EQUITY: DIVIDEND YIELD

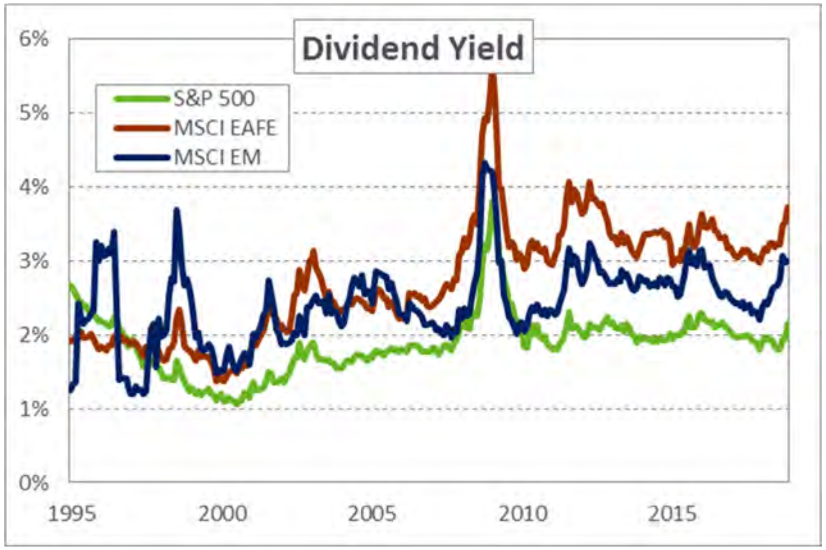


Global dividend payouts hit record levels this year

Much of the growth came from emerging markets following years of declining dividend yields

Corporate tax cuts in the US helped increase dividend payout rates

International and emerging markets continue to offer higher dividend yields relative to the US equity market



Source: (Top) S&P, Bloomberg, NEPC
Source: (Bottom) S&P, MSCI, Bloomberg, NEPC

EQUITY: VALUATION

US equities were an outlier relative to global equities this year

US equities benefited from an extended US economic cycle and added fuel from the fiscal stimulus package

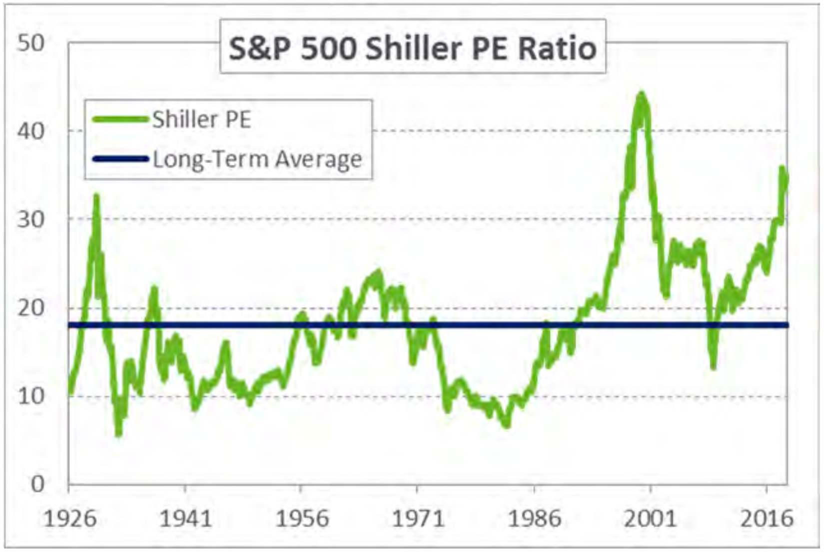
Strong earnings growth fueled by corporate tax cuts pushed valuations lower for large-cap US equities

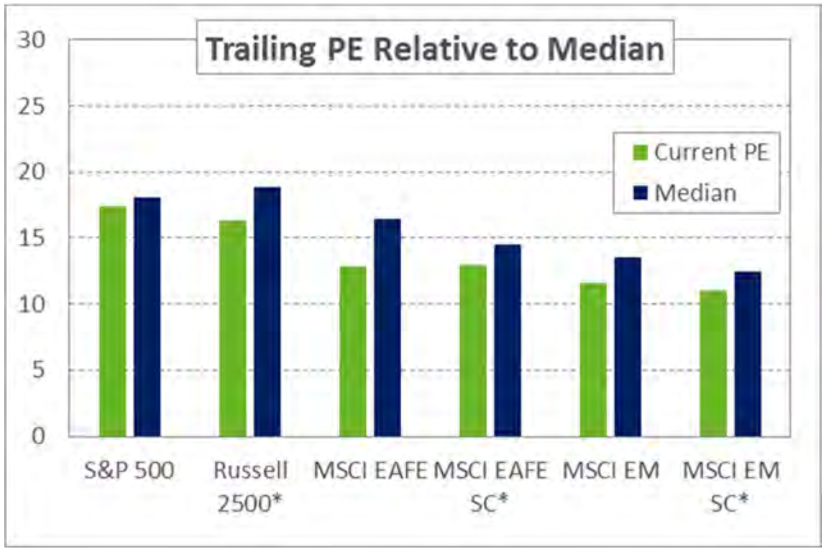
Increased volatility in December resulting from fears of a global slowdown erased gains made throughout the year

International and emerging market valuations fell despite strong earnings growth as price declines were fueled by negative sentiment and US-China trade tensions

We anticipate the negative sentiment and macro concerns weighing on emerging markets to moderate

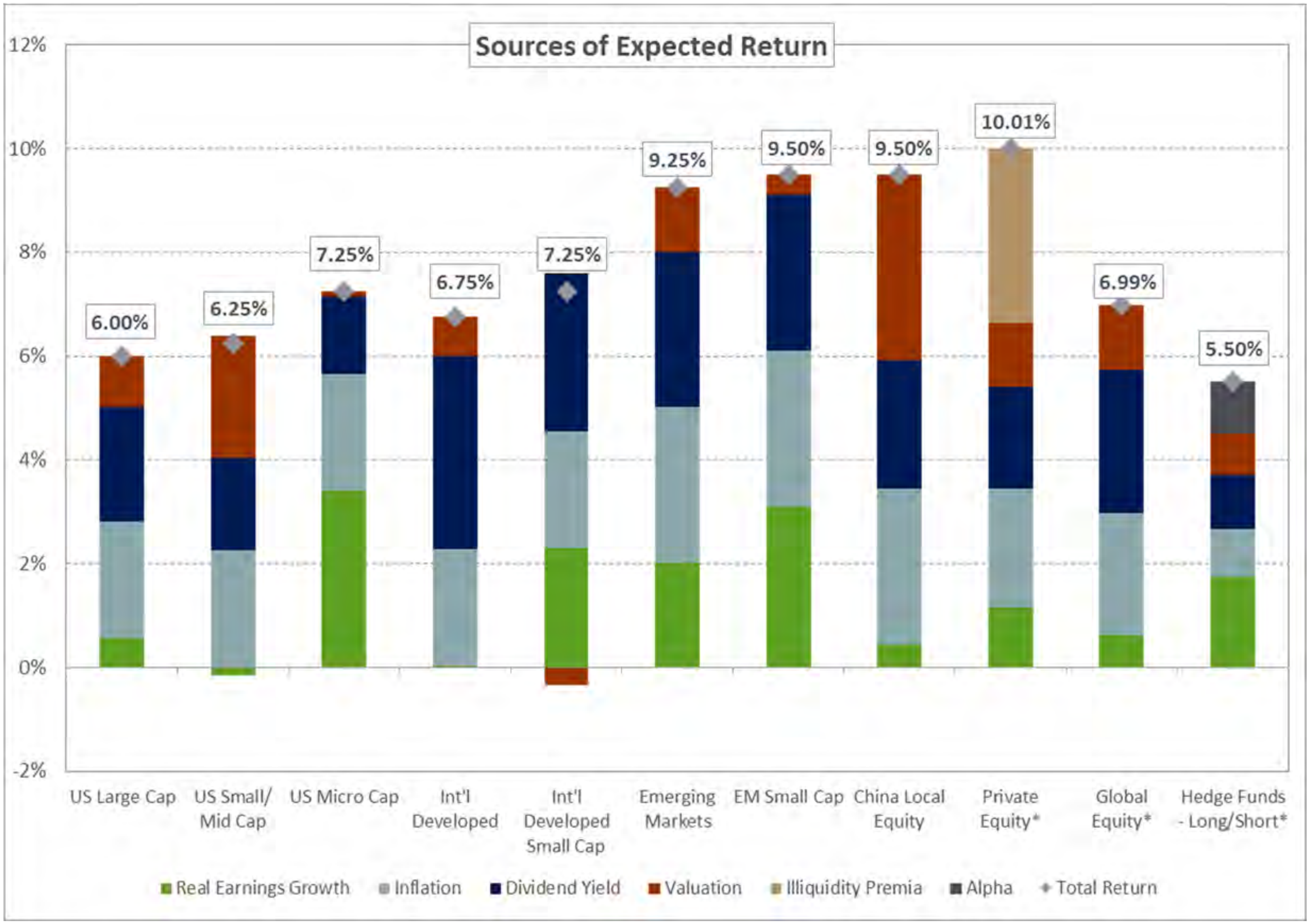
Attractive equity and currency valuations support an overweight to emerging markets due to the high total-return potential





Source: (Top) S&P, Shiller, NEPC; long-term average beginning in 1926
Source: (Bottom) S&P, Russell, MSCI, Bloomberg, NEPC
**Small cap indices use index positive-adjusted earnings*

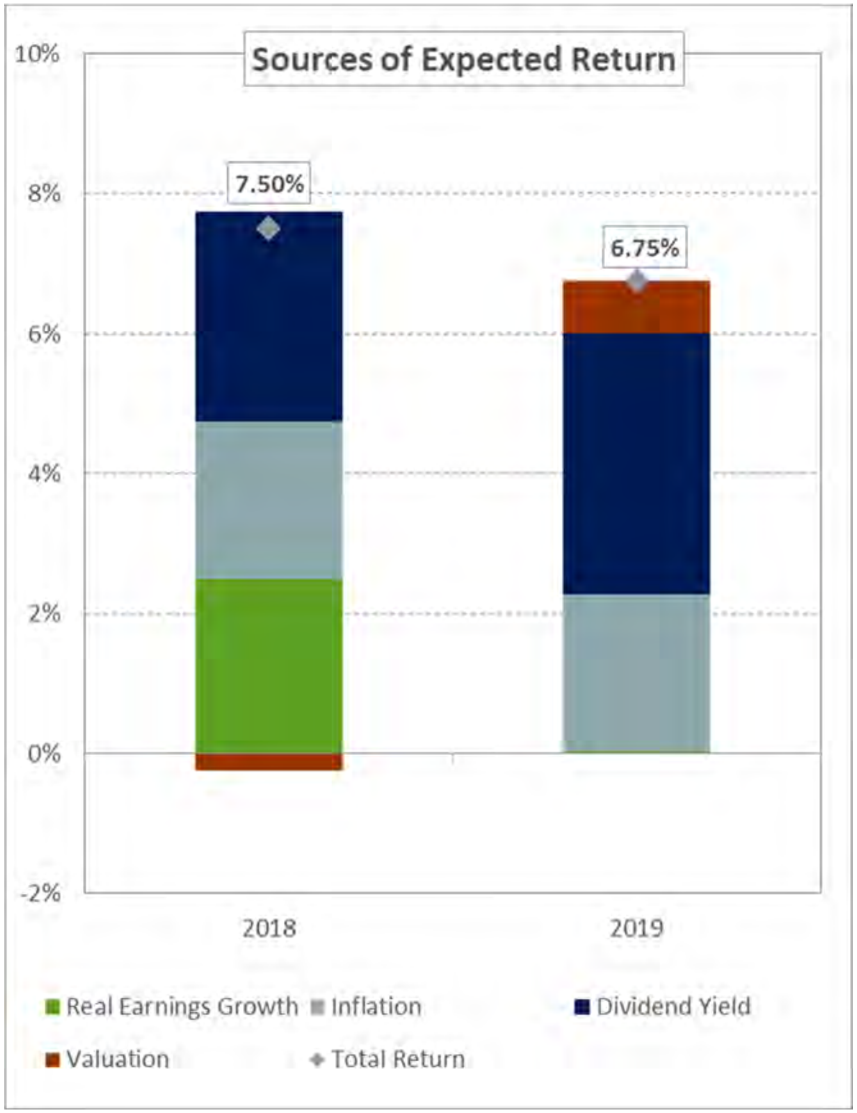
EQUITY: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

**Calculated as a blend of other classes – see page 39 for additional details*

EQUITY FOCUS: INTERNATIONAL EQUITY



Source: NEPC

2019 building blocks incorporate a weakening growth outlook for Europe and a downward adjustment to profit margins

Our thesis of improving fundamentals has come to fruition, but negative sentiment continues to weigh on valuations

Globalization backlash, slowing growth, trade policy, and a constrained central bank have negatively impacted Europe

This has been reflected in no P/E expansion, even though the equity risk premia warrants a higher multiple

As a result, the bifurcation between Europe and Japan has become more pronounced as Japan remains an attractive opportunity

On a pure valuation basis, EAFE could still offer attractive returns should these underlying issues resolve, but we now believe that to be less likely

We encourage investors to reduce any overweight to non-US developed equities

RATES & CREDIT ASSUMPTIONS

RATES & CREDIT: ASSUMPTIONS

Rate & Credit Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Government Rates Price Change	The valuation change resulting from a change in the current yield curve to forecasted rates
Spread Price Change	The valuation change resulting from a change in credit spreads over the duration of the investment and highly sensitive to economic cycles
Credit Deterioration	The average loss for credit securities associated with an expected default cycle and recovery rates
Credit Spread	Additional yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk associated with their valuation

Asset Class	5-7 Year Return	Change 2019-2018
TIPS	3.00%	-0.25%
Treasuries	2.50%	+0.25%
Investment-Grade Corporate Credit	4.00%	+0.50%
MBS	2.75%	+0.25%
High-Yield Bonds	5.25%	+1.50%
Bank Loans	5.50%	+1.00%
EMD (External)	4.75%	+0.50%
EMD (Local Currency)	6.50%	+0.50%
Non-US Bonds (Unhedged)	0.75%	+0.25%
Municipal Bonds (1-10 Year)	3.00%	+0.50%
High-Yield Municipal Bonds	3.00%	-0.75%
Hedge Funds – Credit	5.50%	+0.50%
Core Bonds	*3.04%*	*+0.29%*
Private Debt	*7.60%*	*+1.10%*

RATES & CREDIT: CREDIT SPREAD

Credit spreads rose across investment and speculative grade debt relative to 2018's below average spread levels

The later stages of an economic cycle often see an increase in credit spreads as the probability of defaults trend upward

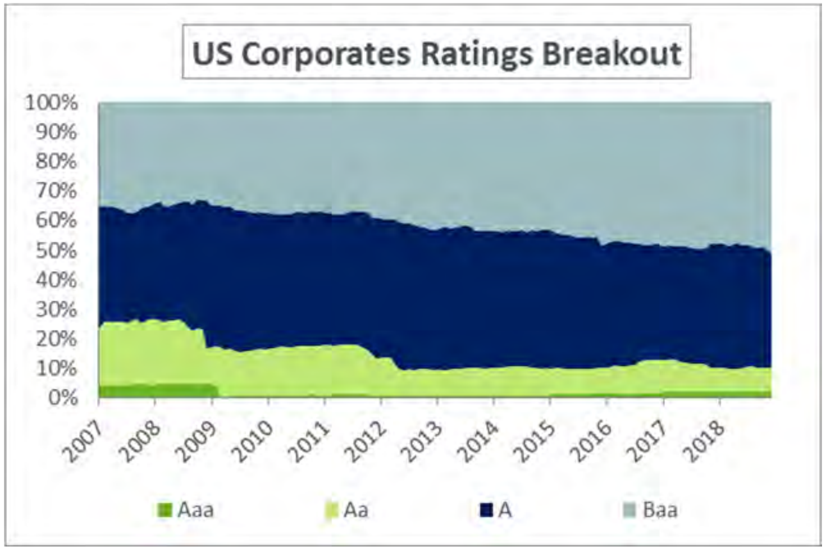
Lower-quality credit spreads increased most significantly during the year, partially due to the fall in the price of oil

Higher credit spreads partially reflect the risk in investment grade credit

There are a record number of BBB-rated corporates – suggesting a greater risk of fallen angel downgrades

Corporate debt issuance has expanded rapidly in recent years with the majority of new debt rated BBB

As such, we advocate for a reduction in lower-quality credit that does not provide adequate compensation for the associated risk



Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC

RATES & CREDIT: RATES PRICE CHANGE

Government Rates Price Change: The change in the level of interest rates, shape of the curve, and roll down that impact the price of a bond

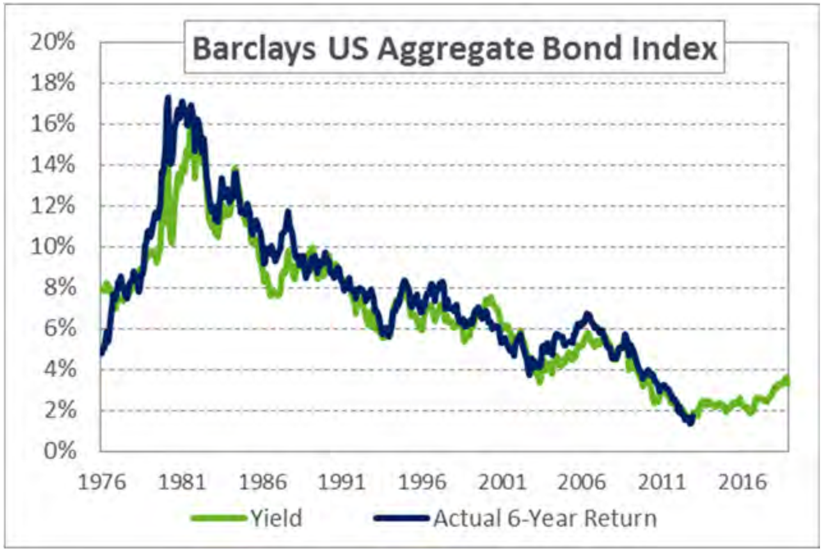
Roll down refers to the price change due to the aging of a bond along the yield curve

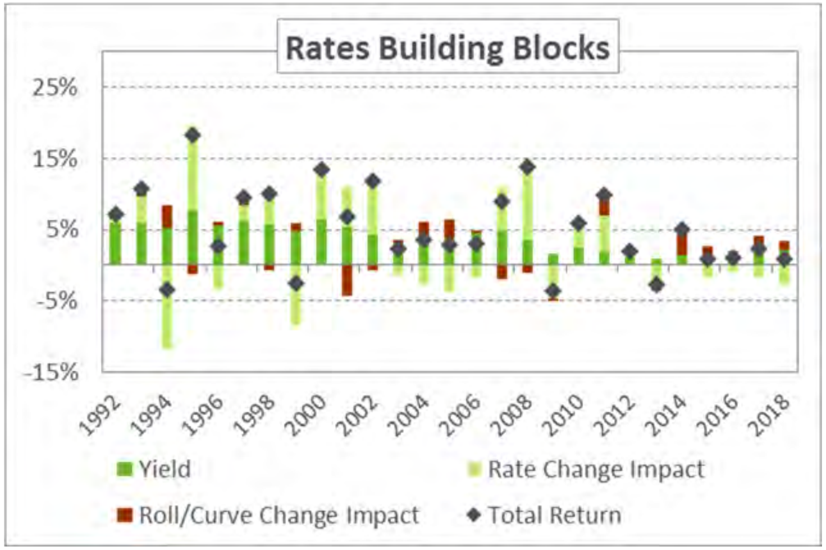
The rate price change is a significant component of total return and expectations of higher rates can drag on future year returns

The path of interest rates for each market is tied to both central bank actions and inflation expectations

Roll down offers some relief to rising rates when yield curves are steep

As the yield curve flattens the benefit of the roll down is muted, often pushing investors to shorter duration bonds





Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC

RATES & CREDIT: SPREAD PRICE CHANGE

Credit spreads broadly remain near historic medians

Above-average credit spreads are generally associated with a late-cycle environment as credit default risks increase

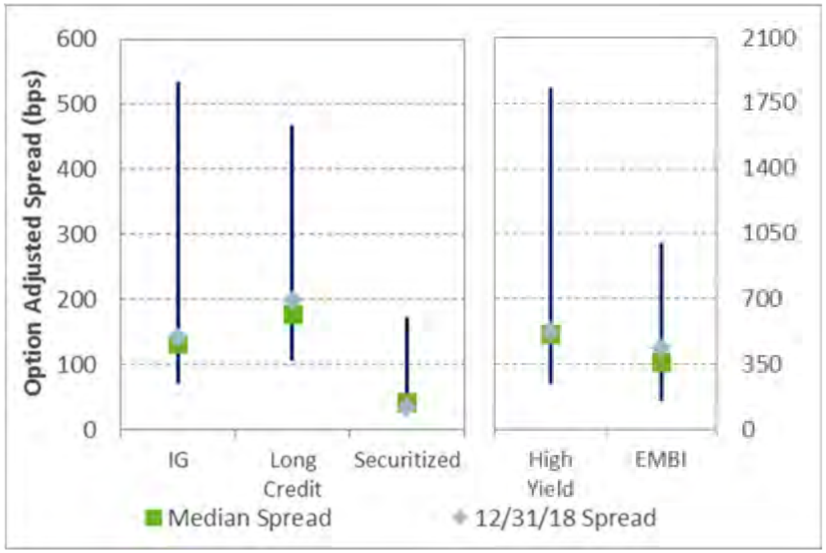
Despite the spread increase relative to 2018, we do not believe lower-quality credit exposure compensates investors for the risk relative to safer alternatives

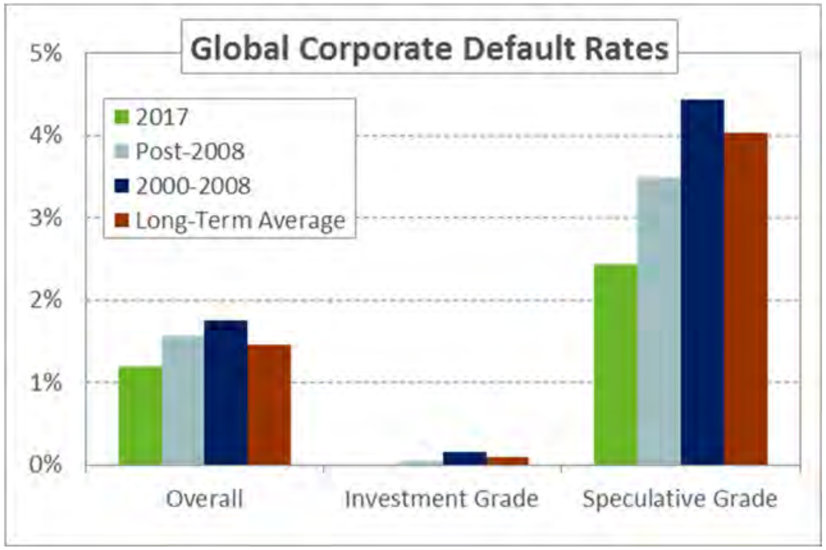
The number of defaults decreased last year to a three-year low despite residual stress from the energy sector and an uptick in retail defaults

Higher expected default rates were incorporated in our building blocks

This can be attributed to the increase in lower-quality (BBB) credit as a percentage of the investment grade universe

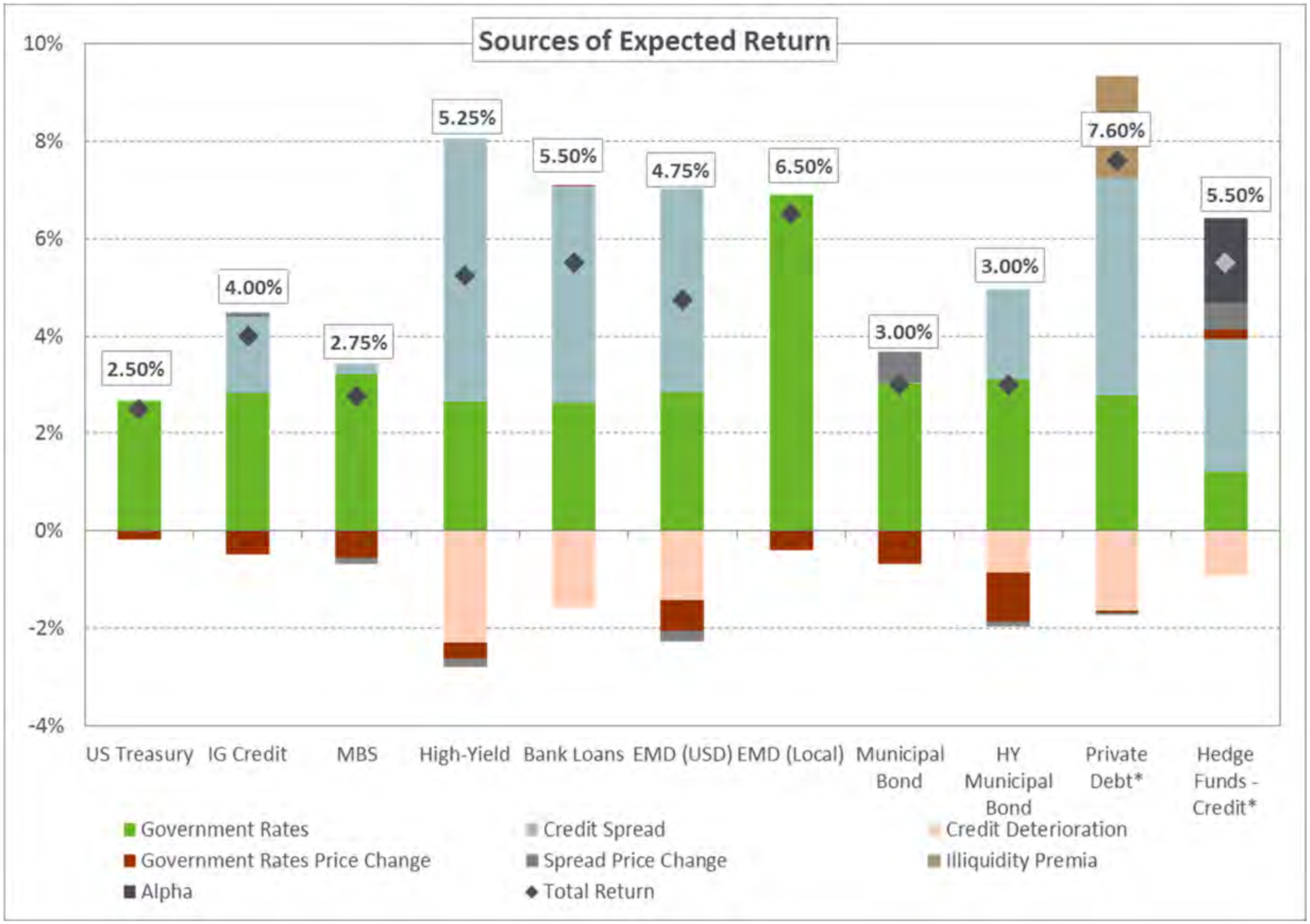
This is also a reflection of the late cycle environment and the stress generally seen within the high yield market during these periods





Source: (Top) JPM, Bloomberg, NEPC. As of 01/31/2000
Source: (Bottom) S&P, NEPC

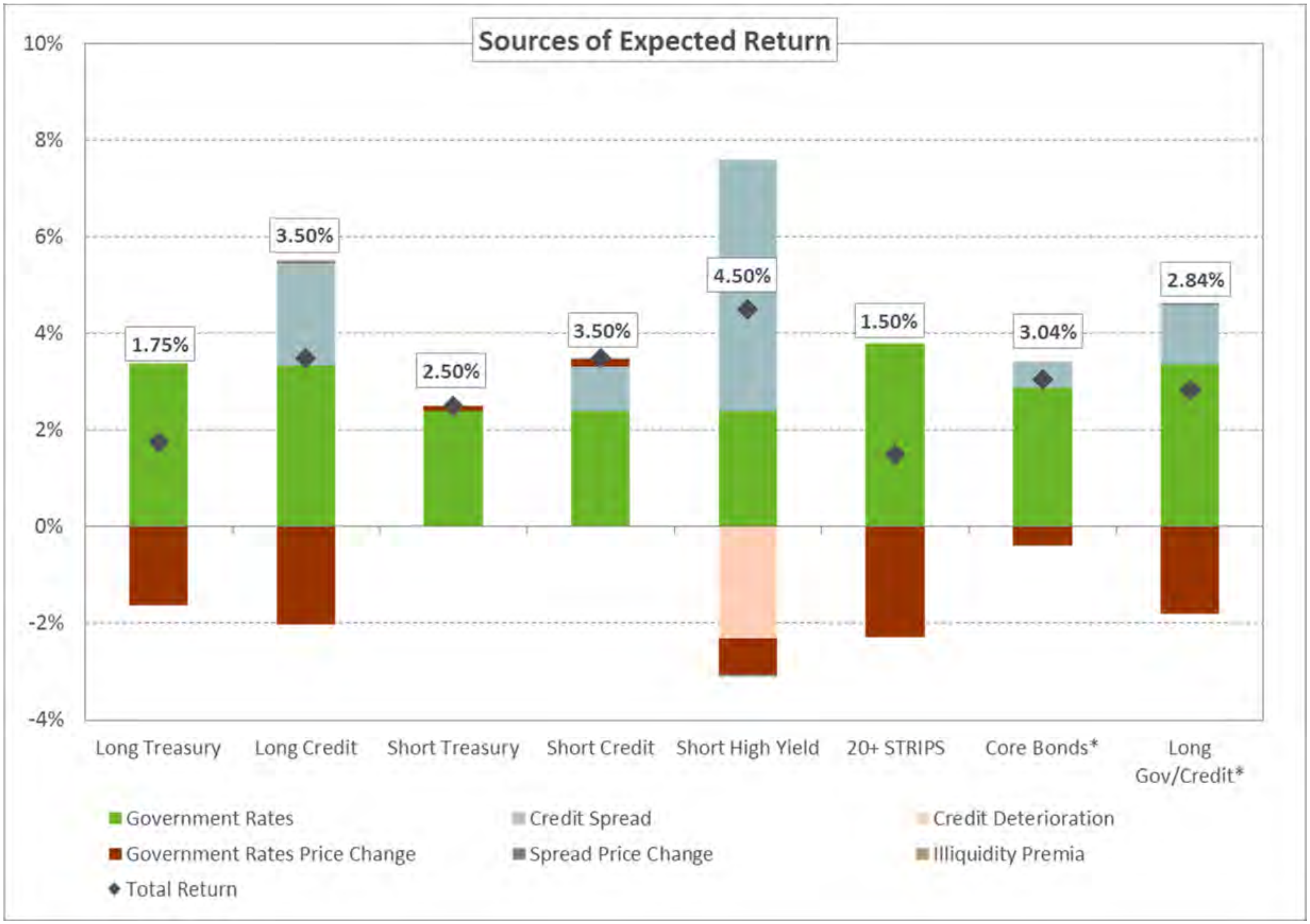
CREDIT: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

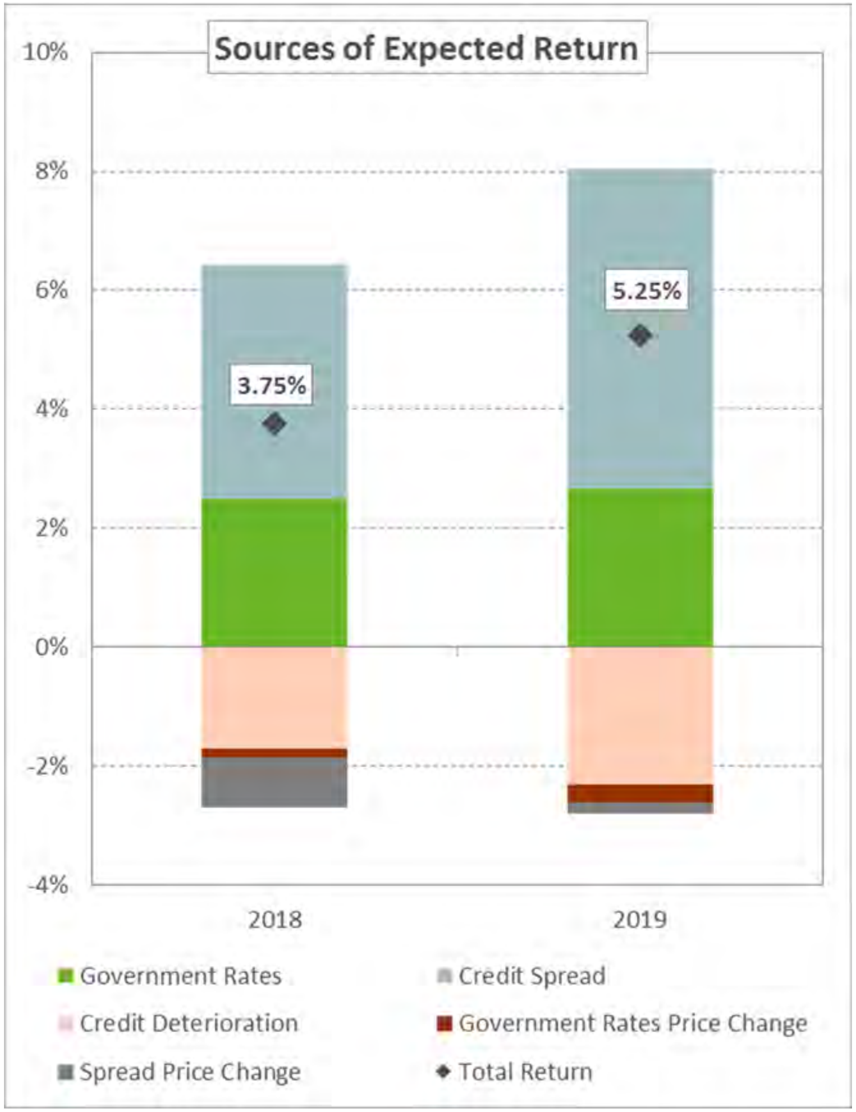
*Calculated as a blend of other classes – see page 39 for additional details

CREDIT: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC
**Calculated as a blend of other classes – see page 39 for additional details*

CREDIT FOCUS: US HIGH YIELD



Source: NEPC

2019 building blocks reflect higher interest rates, credit spreads, and default rates relative to last year

Higher default rates were incorporated to account for the late cycle

While the return assumption increased significantly, we are not constructive on lower-quality credit

Despite higher interest rates, with credit spreads near medians we encourage moving away from lower quality credit to safe-haven options

Lower-rated credit exposure is not adequately compensating for the added risk relative to safer alternative

We encourage reducing exposure to credit segments that have performed well over a prolonged period, such as high yield and bank loans

REAL ASSETS ASSUMPTIONS

REAL ASSETS: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	The expected change in price of the underlying asset reverting to a long-term real average or terminal value assumption
Inflation	Incorporates the inflation paths as defined by TIPS breakeven expectations and NEPC expected inflation assumptions
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Real Income	Represents the inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	5-7 Year Return	Change 2019-2018
Commodities	4.25%	-0.50%
Midstream Energy	8.25%	+1.00%
REITs	6.75%	+0.25%
Core Real Estate	6.00%	+0.25%
Non-Core Real Estate	7.00%	-
Private RE Debt	5.75%	N/A
Private Real Assets: Energy/Metals	9.50%	+1.50%
Private Real Assets: Infrastructure/Land	6.25%	+0.25%

REAL ASSETS: REAL INCOME

Equity-like real assets: Real income represents the inflation-adjusted dividend yield

Includes midstream energy, REITS, natural resource and global infrastructure equities

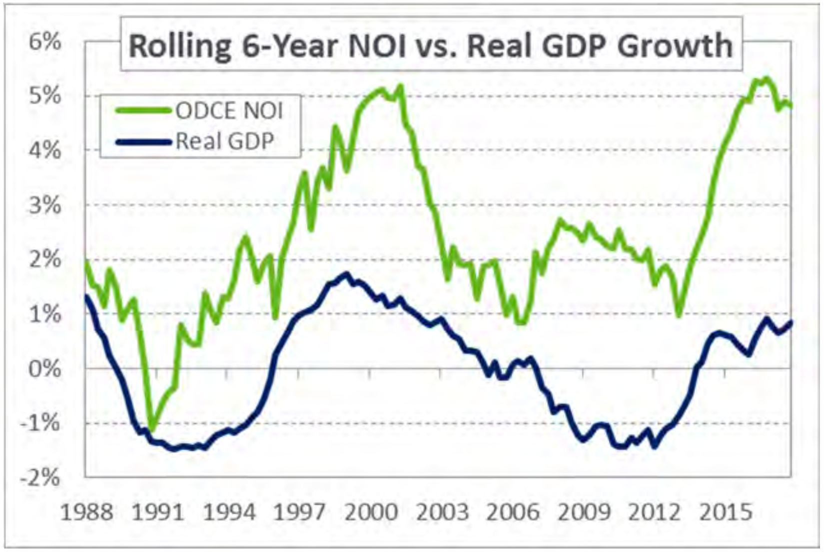
Midstream energy continues to offer an attractive yield relative to most other risk assets despite the downward trend in yields resulting from MLP industry simplification

Real Estate: Real income is a function of Net Operating Income (NOI)

NOI growth exhibits a cyclical economic pattern and appears to have peaked

Commodities: Real income is represented by collateral return

A cash proxy is used to represent the collateral and as such, it represents the return on cash over the investment horizon



Real Asset Yields	11/30/17	12/31/18
Midstream Energy	8.1%*	6.8%
Core Real Estate	4.7%	4.6%
US REITs	4.3%	4.8%
Global REITs	3.4%	3.9%
Global Infrastructure Equities	3.9%	4.4%
Natural Resource Equities	3.2%	4.1%
US 10-Yr Breakeven Inflation	1.9%	1.7%
Commodity Index Roll Yield	-1.4%	-6.1%

Source: (Top) Alerian, NAREIT, NCREIF, Bloomberg, NEPC;
**Represents Alerian MLP Index Dividend Yield*
Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, Bloomberg, NEPC

REAL ASSETS: VALUATION

Commodity valuations are measured relative to the long-term real average of spot prices

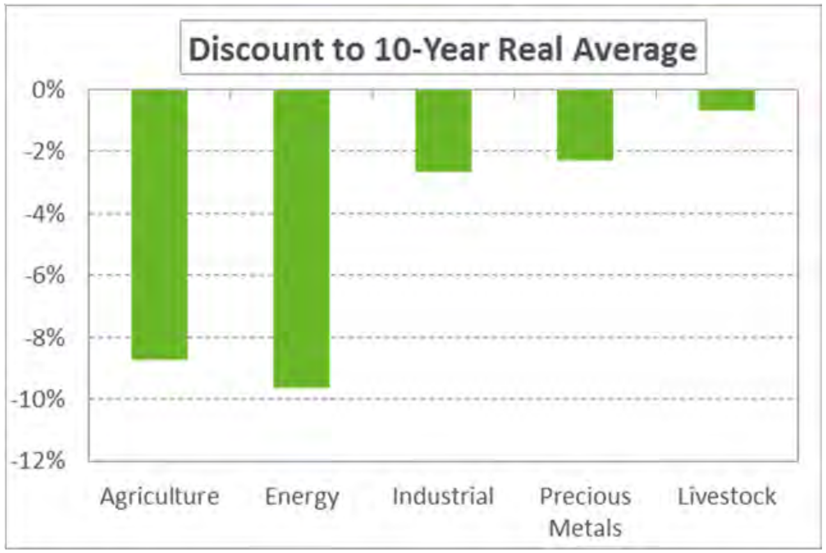
Commodity prices continue to trade below their long-term real averages, particularly in the energy and agriculture sectors

Roll yield continues to be a hurdle for investing in commodity futures

Post-2008, spot returns have had consistently higher returns than total return indices – demonstrating the impact of negative roll yield on overall investments

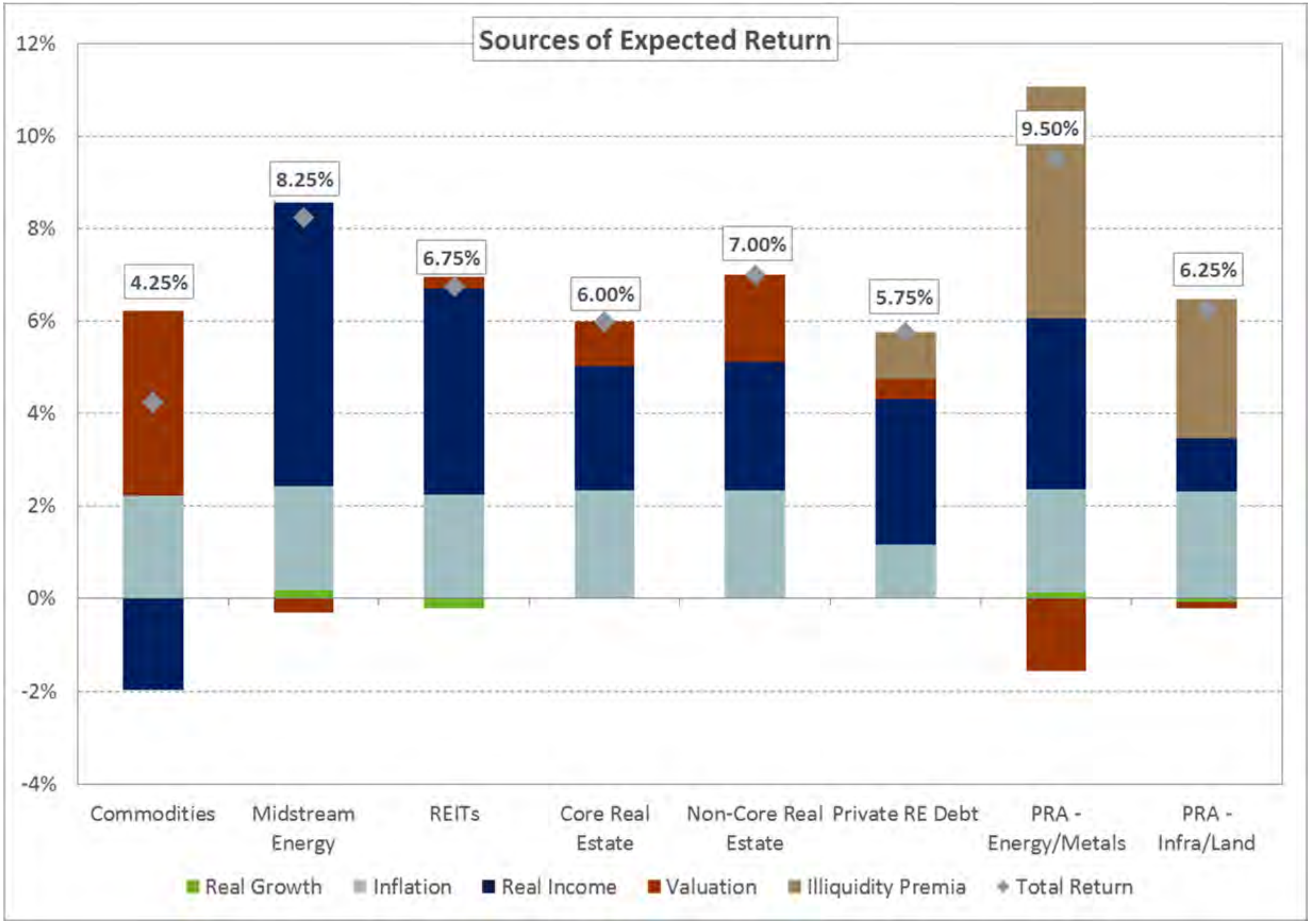
In the latter half of 2018, crude oil declined significantly from a glut of global supply

Natural gas represents the largest component of the Bloomberg Commodity index – the significant increase in natural gas prices during 2018 distorted the index roll yield relative to last year



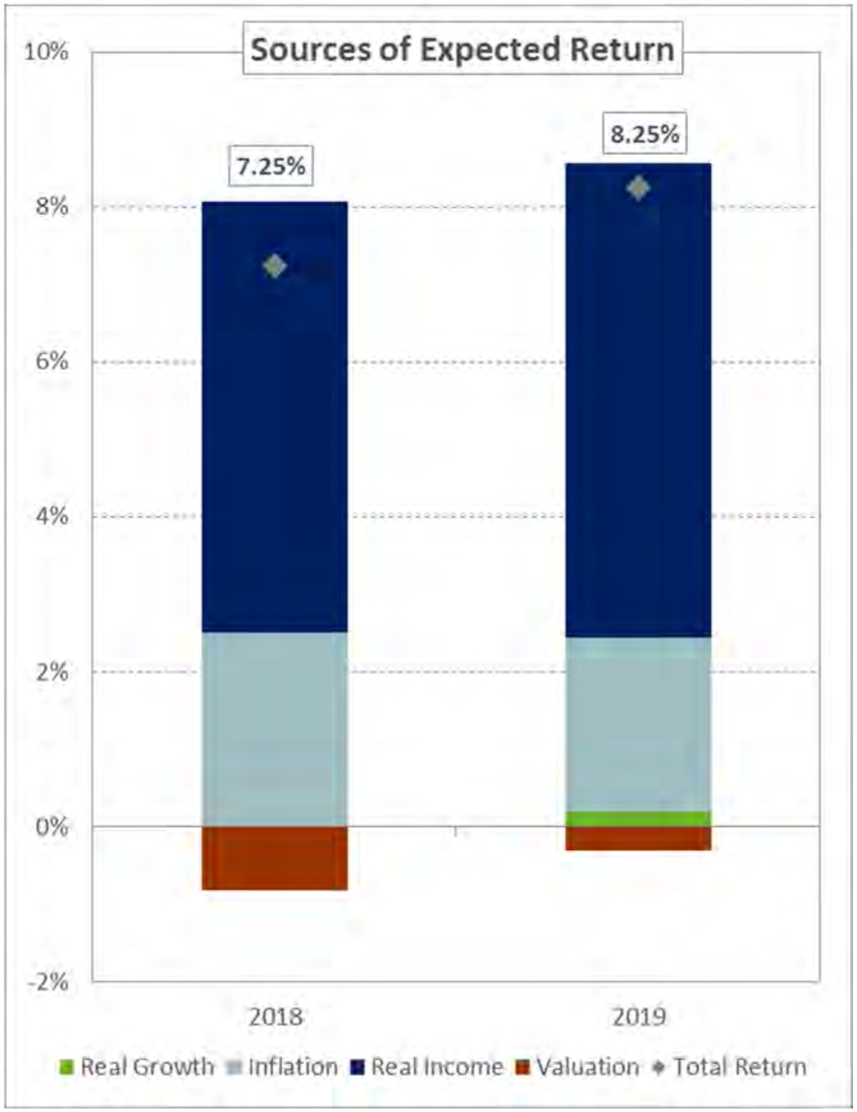
Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

REAL ASSETS: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

REAL ASSETS FOCUS: MIDSTREAM ENERGY



Source: NEPC

The assumption was constructed using the Alerian Midstream Energy Index as a reference, rather than the Alerian MLP Index, which was used in prior years

Shifting away from an exclusive MLP assumption reflects the full opportunity set for the midstream space as industry consolidation has reduced the number of MLPs relative to C-corporations

The Alerian MLP Index is now reflects a higher percentage of lower quality, higher yielding companies that have yet to simplify their operating structures

Distribution yields are likely to decline over time as MLPs transition to a corporate structure, but we believe midstream energy continues to offer a compelling total return

DERIVED COMPOSITES

NEPC, LLC

DERIVED COMPOSITES

Derived composites are the result of the sum of equity, credit, and real asset building blocks

Global 60/40: 60% global equity and 40% global bonds

US 60/40: 60% US equity and 40% core bonds

Risk Parity: Average of AQR GRP EL 10%, Bridgewater All Weather, Panagora Multi-Asset

Global Equity: Market-weighted blend of MSCI ACWI IMI (US, Non-US Developed, Emerging)

Private Equity: 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE

Core Bonds: Market weighted blend of Bloomberg Barclays US Aggregate Bond Index (Treasuries, IG Credit, MBS)

Private Debt: 50% Direct Lending, 25% Mezzanine, 25% Distressed

Real Assets (Liquid): Weighted blend of TIPS, global equities, REITs, and commodities

Hedge Funds: Weighted blend of 40% HF equity, 40% HF credit, and 20% HF macro

Asset Class	5-7 Year Return	Change 2019-2018
Global 60/40	5.08%	**+0.17%**
US 60/40	5.07%	**+0.53%**
Risk Parity	4.67%	**-0.44%**
Global Asset Allocation	5.73%	**+0.29%**
Global Equity	*6.99%*	***+0.11%***
Private Equity	10.01%	**+2.01%**
Core Bonds	*3.04%*	***+0.29%***
Private Debt	7.60%	**+1.10%**
Real Assets (Liquid)	5.79%	***-0.08%***
Hedge Funds	*5.74%*	***-0.09%***

PRIVATE MARKETS METHODOLOGY

In previous years, private equity and private debt assumptions were constructed using betas to public market assumptions with an added illiquidity premia

For 2019, sub-strategies were incorporated to offer a distinction among private market implementation options with different risk/return profiles

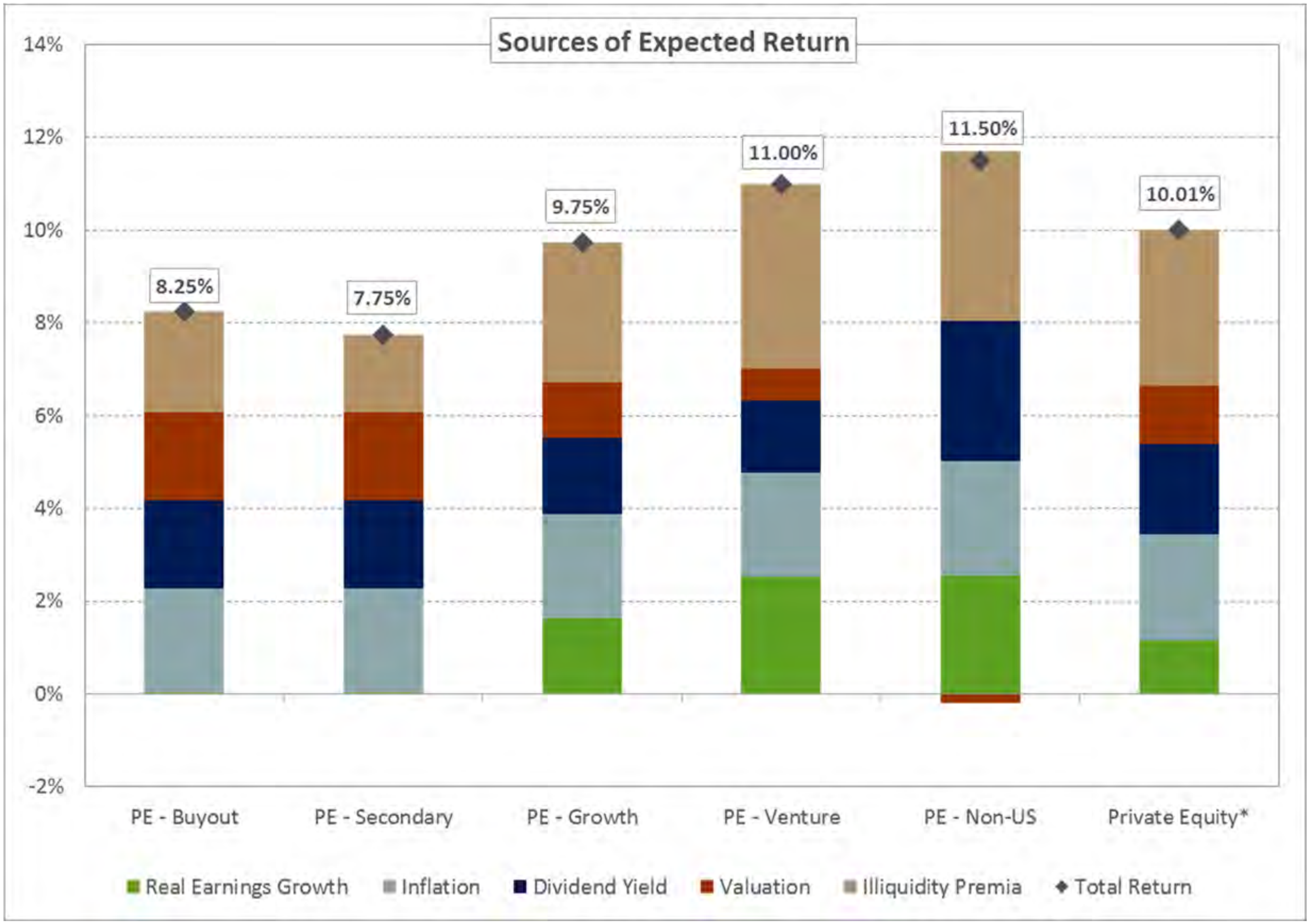
- The sub-strategies were constructed using the same build-up methodology using public market betas and an illiquidity premia based on historical returns analysis relative to appropriate public market equivalents

The composite Private Equity and Private Debt line items are derived from a custom blend of sub-strategies

- Private Equity: 34% Buyout, 34% Growth, 15 % Non-US, 8.5% Secondaries, 8.5% Venture
- Private Debt: 50% Direct Lending, 25% Mezzanine, 25% Distressed

The methodology change generally resulted in a higher return expectations from incorporating the granularity of the sub-strategies and including a non-US component

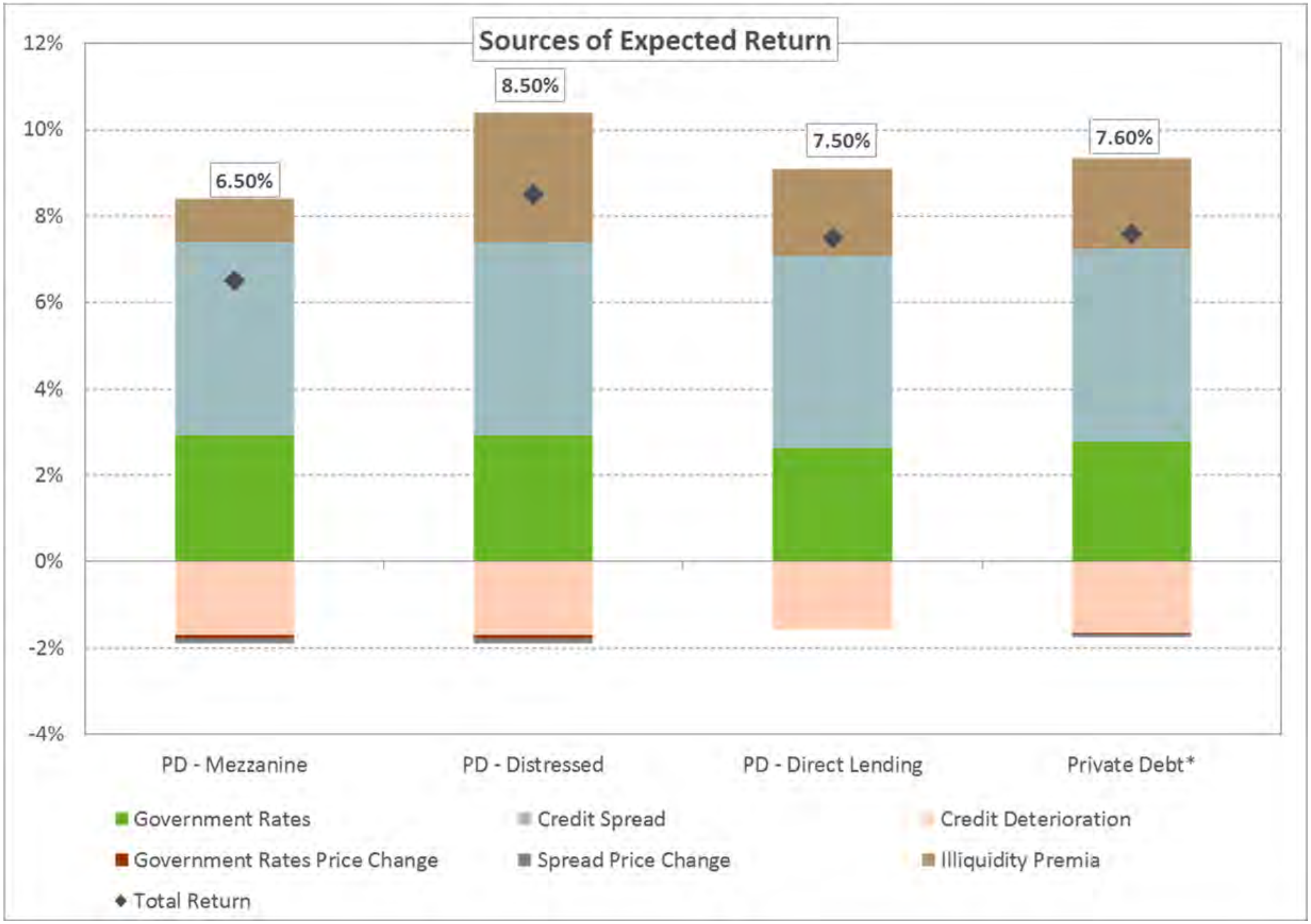
PRIVATE EQUITY: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

**Private Equity is a derived composite of 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE*

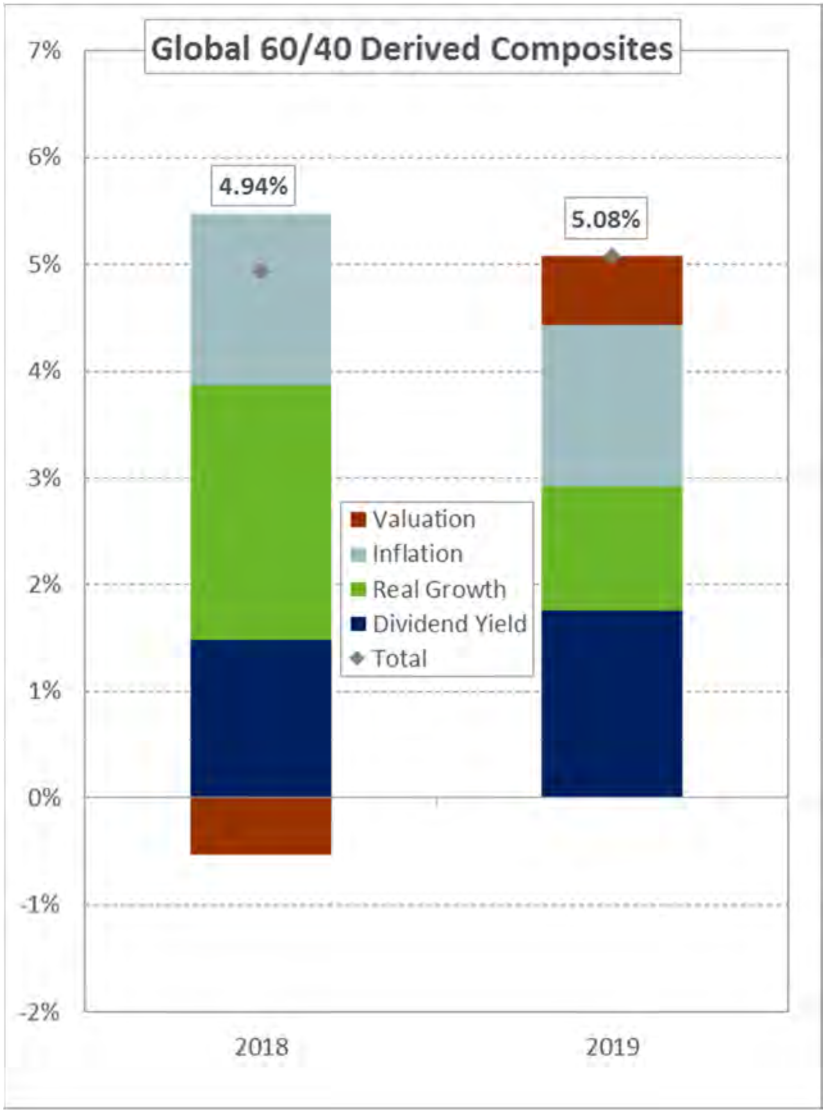
PRIVATE DEBT: BUILDING BLOCKS (5-7 YEARS)



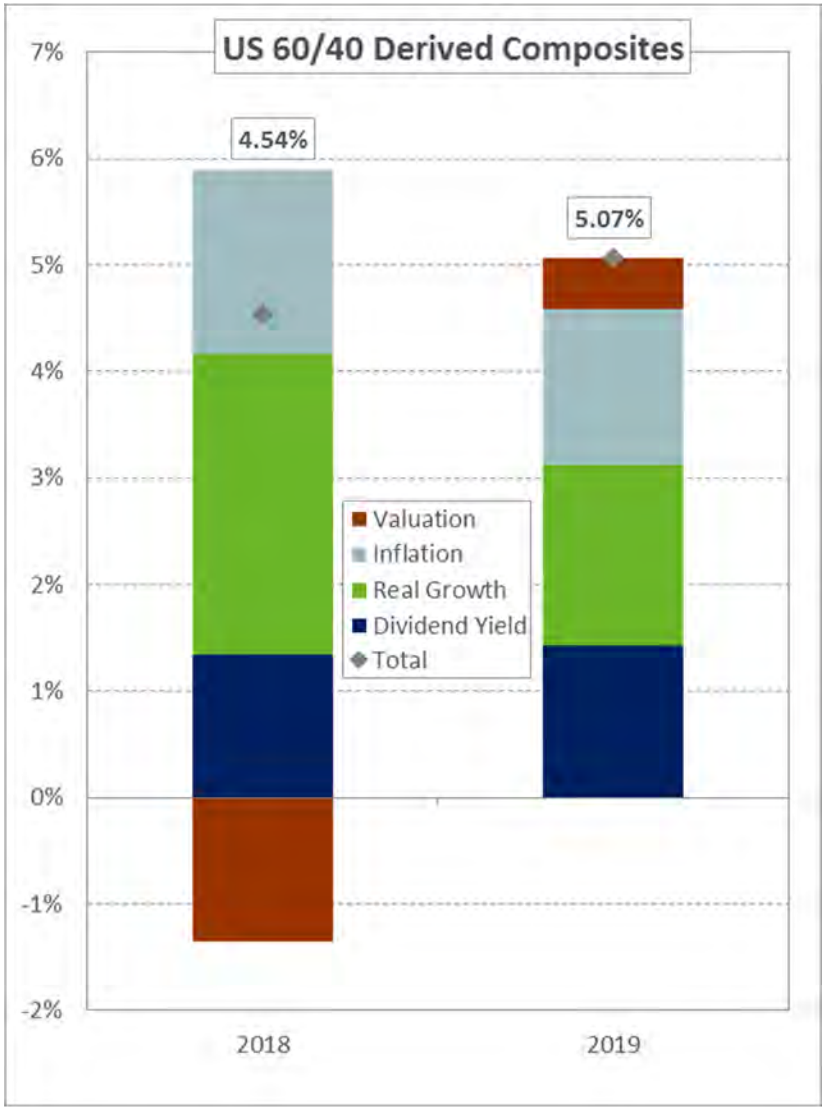
Source: NEPC

**Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending*

GLOBAL VS. US 60/40 DERIVED COMPOSITES



Source: NEPC



Source: NEPC

APPENDIX

2019 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	2.50%	2.00%	+0.50%
Large Cap Equities	6.00%	5.25%	+0.75%
Small/Mid Cap Equities	6.25%	5.75%	+0.50%
Int'l Equities (Unhedged)	6.75%	7.50%	-0.75%
Int'l Sm Cap Equities (Unhedged)	7.25%	7.75%	-0.50%
Emerging Int'l Equities	9.25%	9.00%	+0.25%
Emerging Int'l Sm Cap Equities	9.50%	9.25%	+0.25%
Hedge Funds - Long/Short	5.50%	6.25%	-0.75%
TIPS	3.00%	3.25%	-0.25%
Treasuries	2.50%	2.25%	+0.25%
IG Corp Credit	4.00%	3.50%	+0.50%
MBS	2.75%	2.50%	+0.25%
High-Yield Bonds	5.25%	3.75%	+1.50%
Bank Loans	5.50%	4.50%	+1.00%
EMD (External)	4.75%	4.25%	+0.50%
EMD (Local Currency)	6.50%	6.00%	+0.50%
Municipal Bonds	3.00%	2.50%	+0.50%
High-Yield Municipal Bonds	3.00%	3.75%	-0.75%
Hedge Funds – Credit	5.50%	5.00%	+0.50%

2019 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	1.75%	2.00%	-0.25%
Long Credit	3.50%	4.00%	-0.50%
IG CLO	4.00%	N/A	N/A
HY CLO	6.00%	N/A	N/A
Commodities	4.25%	4.75%	-0.50%
Midstream Energy	8.25%	7.25%	+1.00%
REITs	6.75%	6.50%	+0.25%
Core Real Estate	6.00%	5.75%	+0.25%
Non-Core Real Estate	7.00%	7.00%	-
Private RE Debt	5.75%	N/A	N/A
Private Real Assets - Energy/Metals	9.50%	8.00%	+1.50%
Private Real Assets - Infra/Land	6.25%	6.00%	+0.25%
Hedge Funds - Macro	6.00%	6.25%	-0.25%
*Global Equity**	*6.99%*	*6.88%*	*+0.11%*
*Private Equity**	*10.01%*	*8.00%*	*+2.01%*
*Core Bonds**	*3.04%*	*2.75%*	*+0.29%*
*Private Debt**	*7.60%*	*6.50%*	*+1.10%*
*Long Govt/Credit**	*2.84%*	*3.26%*	*-0.42%*
*Hedge Funds**	*5.74%*	*5.83%*	*-0.09%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

2019 VOLATILITY FORECASTS

Volatility			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	1.00%	1.00%	-
Large Cap Equities	16.50%	17.50%	-1.00%
Small/Mid Cap Equities	20.00%	21.00%	-1.00%
Int'l Equities (Unhedged)	20.50%	21.00%	-0.50%
Int'l Sm Cap Equities (Unhedged)	22.00%	22.00%	-
Emerging Int'l Equities	28.00%	28.00%	-
Emerging Int'l Sm Cap Equities	31.00%	31.00%	-
Hedge Funds - Long/Short	11.00%	11.00%	-
TIPS	6.50%	6.50%	-
Treasuries	5.50%	5.50%	-
IG Corp Credit	7.50%	7.50%	-
MBS	7.00%	7.00%	-
High-Yield Bonds	12.50%	13.00%	-0.50%
Bank Loans	9.00%	9.00%	-
EMD (External)	13.00%	13.00%	-
EMD (Local Currency)	13.00%	13.00%	-
Municipal Bonds	7.00%	7.00%	-
High-Yield Municipal Bonds	12.00%	12.00%	-
Hedge Funds - Credit	9.50%	9.50%	-

2019 VOLATILITY FORECASTS

Volatility			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	12.00%	12.00%	-
Long Credit	12.00%	12.00%	-
IG CLO	7.50%	N/A	N/A
HY CLO	11.00%	N/A	N/A
Commodities	19.00%	19.00%	-
Midstream Energy	18.50%	19.00%	-0.50%
REITs	20.00%	21.00%	-1.00%
Core Real Estate	13.00%	13.00%	-
Non-Core Real Estate	17.00%	17.00%	-
Private RE Debt	11.00%	N/A	N/A
Private Real Assets - Energy/Metals	21.00%	21.00%	-
Private Real Assets - Infra/Land	12.00%	12.00%	-
Hedge Funds - Macro	9.50%	9.50%	-
*Global Equity**	*17.57%*	*18.22%*	*-0.65%*
*Private Equity**	*24.16%*	*23.00%*	*+1.16%*
*Core Bonds**	*6.10%*	*5.99%*	*+0.11%*
*Private Debt**	*11.97%*	*13.00%*	*-1.03%*
*Long Gov/Credit**	*11.26%*	*11.25%*	*+0.01%*
*Hedge Funds**	*8.15%*	*9.07%*	*-0.92%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

2019 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	3.00%	2.75%	+0.25%
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	7.75%	7.75%	-
Int'l Sm Cap Equities (Unhedged)	8.00%	8.00%	-
Emerging Int'l Equities	9.25%	9.25%	-
Emerging Int'l Sm Cap Equities	9.50%	9.50%	-
Hedge Funds - Long/Short	6.50%	7.25%	-0.75%
TIPS	4.00%	3.75%	+0.25%
Treasuries	3.75%	3.25%	+0.50%
IG Corp Credit	5.75%	4.75%	+1.00%
MBS	3.75%	3.25%	+0.50%
High-Yield Bonds	6.50%	5.50%	+1.00%
Bank Loans	5.50%	5.50%	-
EMD (External)	6.25%	5.00%	+1.25%
EMD (Local Currency)	6.75%	6.50%	+0.25%
Municipal Bonds	3.75%	3.50%	+0.25%
High-Yield Municipal Bonds	5.25%	5.50%	-0.25%
Hedge Funds - Credit	6.75%	5.25%	+1.50%

2019 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	3.75%	3.50%	+0.25%
Long Credit	6.00%	5.25%	+0.75%
IG CLO	4.50%	N/A	N/A
HY CLO	6.25%	N/A	N/A
Commodities	5.50%	5.50%	-
Midstream Energy	7.50%	7.50%	-
REITs	7.00%	6.75%	+0.25%
Core Real Estate	6.25%	6.50%	-0.25%
Non-Core Real Estate	7.25%	7.50%	-0.25%
Private RE Debt	6.25%	N/A	N/A
Private Real Assets - Energy/Metals	9.50%	7.75%	+1.75%
Private Real Assets - Infra/Land	7.00%	6.25%	+0.75%
Hedge Funds - Macro	6.50%	6.25%	+0.25%
*Global Equity**	*8.18%*	*8.24%*	*-0.06%*
*Private Equity**	*11.15%*	*9.50%*	*+1.65%*
*Core Bonds**	*4.37%*	*3.75%*	*+0.62%*
*Private Debt**	*8.11%*	*7.50%*	*+0.61%*
*Long Gov/Credit**	*5.14%*	*4.62%*	*+0.52%*
*Hedge Funds**	*6.76%*	*6.34%*	*+0.42%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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ASSET CLASS ASSUMPTIONS

NEPC 2018 INVESTMENT OUTLOOK

December 15, 2017

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

ASSET CLASS ASSUMPTIONS

INTRODUCTION

2018 ASSET CLASS ASSUMPTIONS

NEPC asset class assumptions offer both an intermediate (5-7 years) and long term (30 years) forecast horizon

- November 30th market data is used for inputs to the asset class models

The 5-7 year return expectations for US credit and equity asset classes are broadly lower due to continued increases in valuation levels

- Credit-based asset class expectations have declined considerably from prior year, with credit spreads moving below long-term medians across most sectors

The outlook for non-US equities remains attractive over 5-7 years supported by improvement in corporate earnings and economic growth

We anticipate US inflation will gradually move higher and average 2.5%

We continue to refine and enhance our process where appropriate

- The asset class assumption for Real Estate has been split into Core and Non-Core to offer a distinction between the volatility and return profile
- Core has a greater income orientation with broad exposure to commercial real estate beta and Non-Core is oriented to capital appreciation with increased use of leverage

ASSUMPTION DEVELOPMENT

Capital market assumptions are published for over 40 asset classes

Assumptions include 5-7 year and 30 year return forecasts, average annual volatility expectations, and correlations

The 5-7 year forecast is designed to capture the return outlook for the current investment cycle

30 year return assumptions reflect a long-term outlook and are informed by the historical relationships among asset classes

Assumptions are published annually on December 15th and use market data as of November 30th

Assumptions are developed by the Asset Allocation Committee and approved by the Partners Research Committee (PRC)

Return assumptions are developed with proprietary valuation models and rely on a core building block methodology

Asset Allocation Committee	
September	Asset Allocation Committee Assumptions Kickoff Finalize List of New Asset Class Assumptions
October	Review Draft of Asset Class Return Assumptions Discuss Outlook with NEPC Research Beta Groups
November	Finalize Volatility and Correlation Assumptions Final Update of Asset Class Models (As of 11/30)
December	Review Model Output and Create Return Assumptions Present Draft to the PRC Publish Assumptions on December 15th

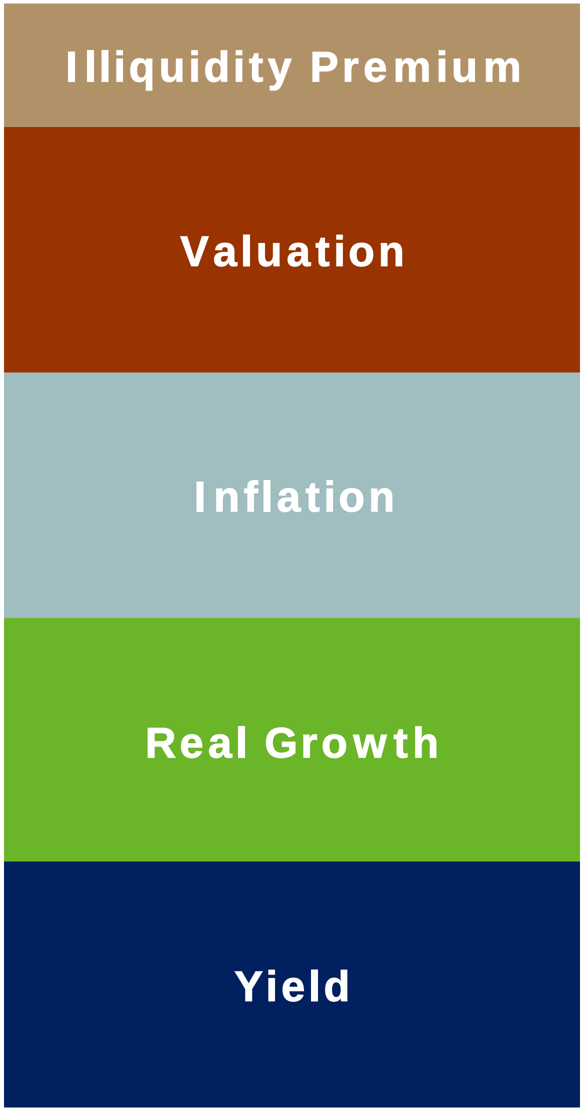
BUILDING BLOCKS METHODOLOGY

Forward-looking asset class models incorporate current and forecasted market and economic data to inform expected returns

Quantitative inputs combined with qualitative factors and investor sentiment (capital flows, etc.) drive the 5 to 7 year return outlook

Components are combined to capture core drivers of return across asset classes – forming the foundation of our building blocks framework

Building blocks will vary across equity, credit, and real assets

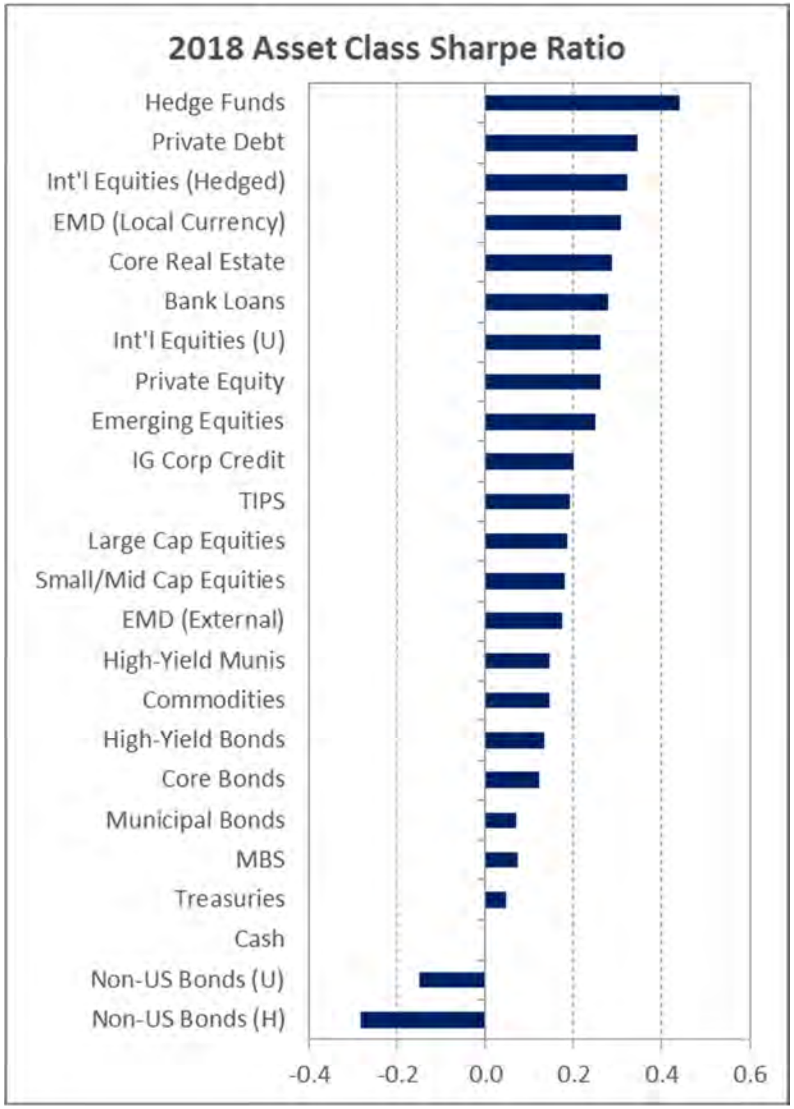


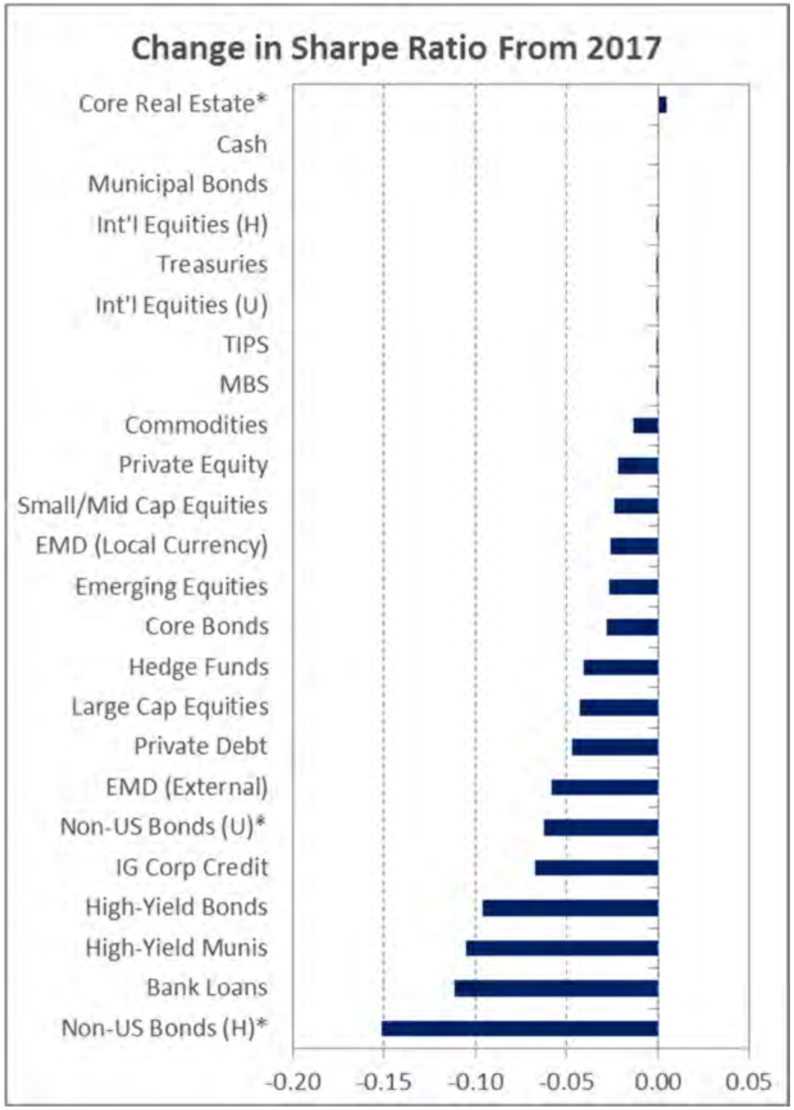
5-7 YEAR RETURN ASSUMPTIONS

	Asset Class	5-7 Year Return	Change 2018-2017	Volatility
	Cash	2.00%	+.25%	1.00%
	US Inflation	2.50%	-	-
Equity	Large Cap Equities	5.25%	-.50%	17.50%
	International Equities (Unhedged)	7.50%	+.25%	21.00%
	Emerging International Equities	9.00%	-.50%	28.00%
	Private Equity	8.00%	-.25%	23.00%
Rates/Credit	Treasuries	2.25%	+.25%	5.50%
	Core Bonds	2.75%	+.10%	5.99%
	Municipal Bonds 1-10 Year	2.50%	-	5.50%
	High Yield Bonds	3.75%	-1.00%	13.00%
	Private Debt	6.50%	-.75%	13.00%
Real Assets	Commodities	4.75%	-	19.00%
	REITs	6.50%	-	21.00%
	Core Real Estate	5.75%	-.25%	13.00%
Multi-Asset	US 60/40*	4.54%	-.24%	10.99%
	Global 60/40*	4.91%	-.13%	11.78%
	Hedge Funds*	5.83%	-.10%	9.07%

**Calculated as a blend of other asset classes*

RELATIVE ASSET CLASS ATTRACTIVENESS





Source: NEPC

**Impacted by methodology changes for Core Real Estate (reduction in volatility) and Non-US Bonds (formerly was Global Bonds)*

MACRO ASSUMPTIONS

INFLATION OVERVIEW

Inflation is an integral component of our asset allocation assumptions

Represents an essential building block for developing asset class returns

Inflation building blocks are model driven and informed by multiple sources for both the US and global asset classes

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

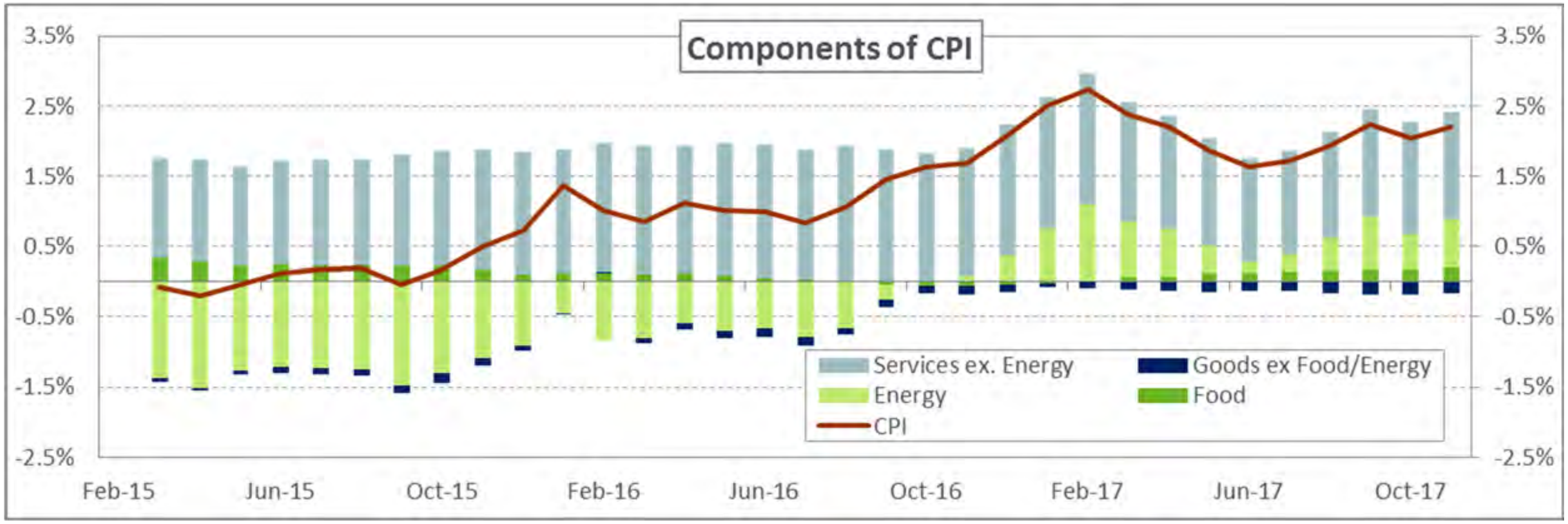
US inflation is based upon the TIPS breakeven inflation curve adjusted for expectations of economic activity, employment, and capacity levels

Global inflation expectations are informed by consensus forecasts across countries along with implied inputs from global bond curves

The 30 year global inflation forecast assumes purchase power parity holds across the globe and country specific inflation levels converge to a terminal value

Region	5-7 Year Inflation Assumption	30-Year Inflation Assumption
United States	2.50%	2.75%
Global	3.00%	3.25%

US INFLATION



Source: Bloomberg, NEPC

Low inflation continued throughout 2017 despite strong economic growth, tightening labor market, and early signs of wage gains

These metrics were thought to help inflation accelerate, yet the Fed's 2% inflation target has been a difficult target for the US economy to maintain

A seemingly transitory drop in certain CPI elements, such as healthcare costs and vehicles, have minimized price pressures in 2017 even as the impact from energy prices has turned positive

The Fed's preferred inflation measure, the personal consumption expenditures (PCE), remains below their 2% target

However, other more inclusive indicators such as the NY Fed Underlying Inflation Gauge, point to an increase in inflation in the coming years, but still below the long-term average

GLOBAL INFLATION

In most developed economies, core inflation has failed to reach or exceed central bank targets despite improved domestic demand and labor markets

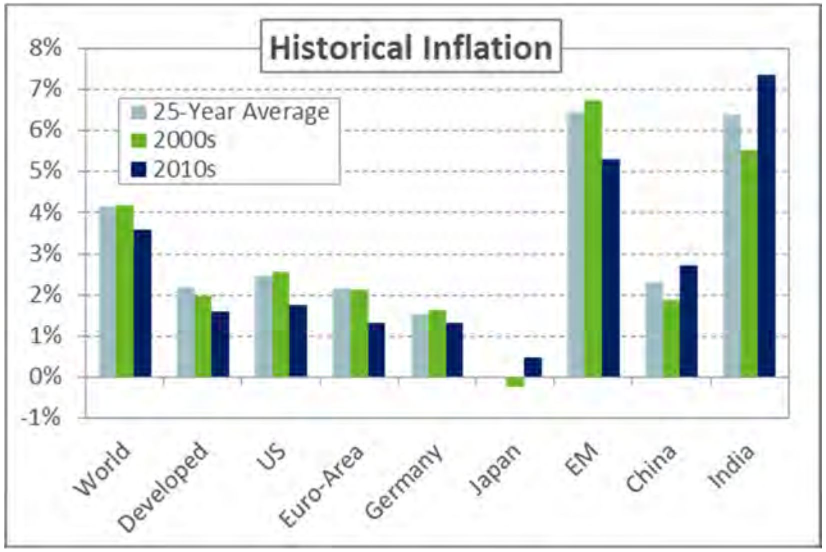
Ultra accommodative monetary policy remains in place for Europe and Japan to fuel higher levels of inflation

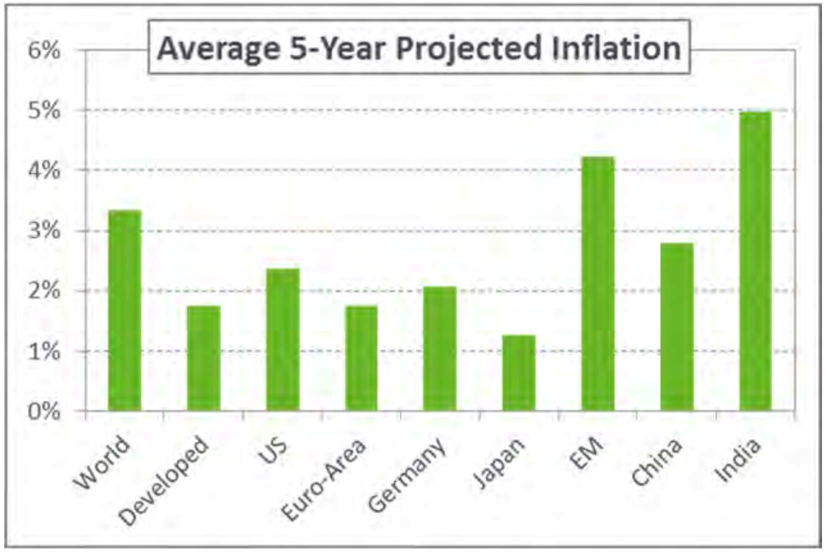
The UK is an exception to this trend as significant depreciation of the pound has led to higher consumer prices

Emerging market inflation has broadly declined over the last 24 months

This is in part due to the large fiscal correction and prudent monetary policy actions that followed the currency declines of prior years

Core inflation particularly in Russia and Brazil have declined significantly as the effect of high real interest rates weakens inflationary trends





Source: (Top) IMF, NEPC
Source: (Bottom) IMF, NEPC

US CASH EXPECTATIONS

Cash is the basic cornerstone of all asset class forecasts

The assumption flows through as a direct building block component or as a relative value adjustment (cash + risk premia)

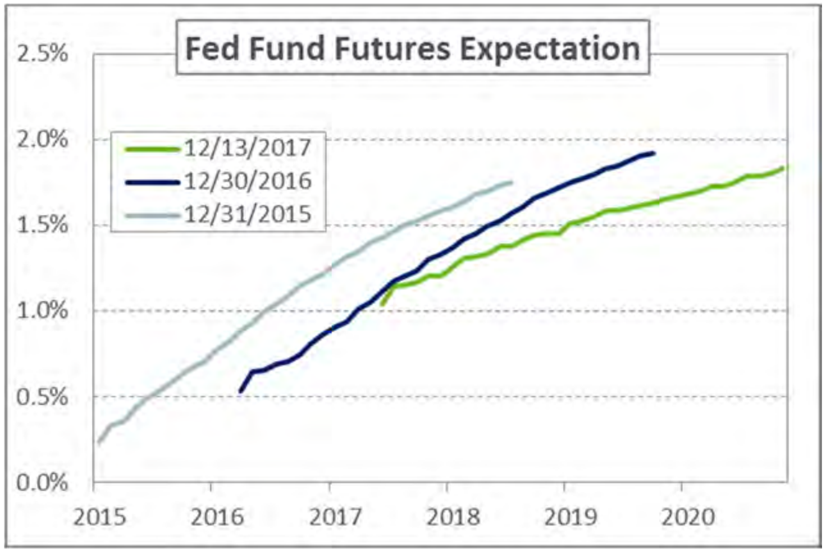
The longer-term cash assumption is a result of the inflation assumption in conjunction with our forecasted real interest rate path

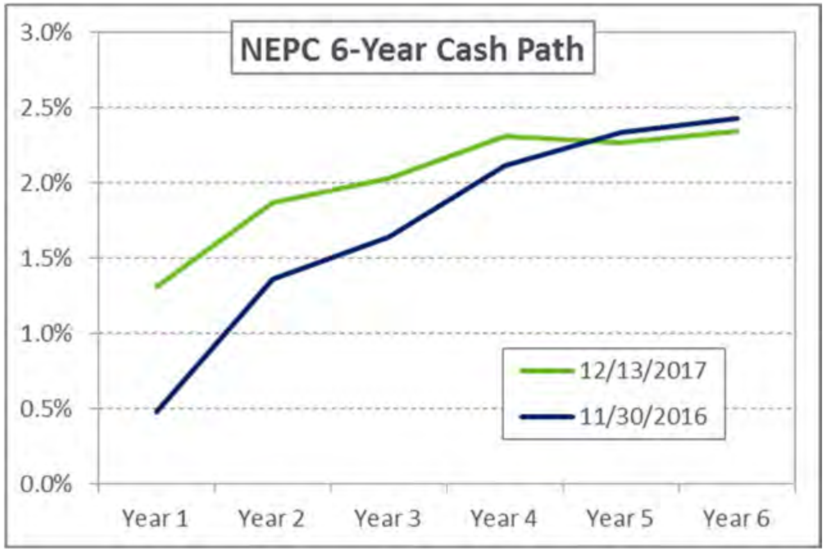
After three Fed rate hikes in 2017, expectations for increased short term interest rates project higher still

A progressively flatter yield curve has formed as longer-term rate expectations remain muted

Market prices reflect only two rate hikes in 2018, despite FOMC expectations of three

A key risk to our overall investment outlook is the ending of Fed gradualism and rate increases beyond market expectations





Source: (Top) Bloomberg
Source: (Bottom) Bloomberg, NEPC
Charts as of 12/13/2017

US INTEREST RATE EXPECTATIONS

Real yields are marginally higher relative to last year

Continued strength in economic data and expectation of future Fed rate hikes have improved the outlook for real yields

While higher, real rates remain below long-term averages, reinforcing the subdued outlook for fixed income

Long-term expectations for real yields remain positive but low in the US

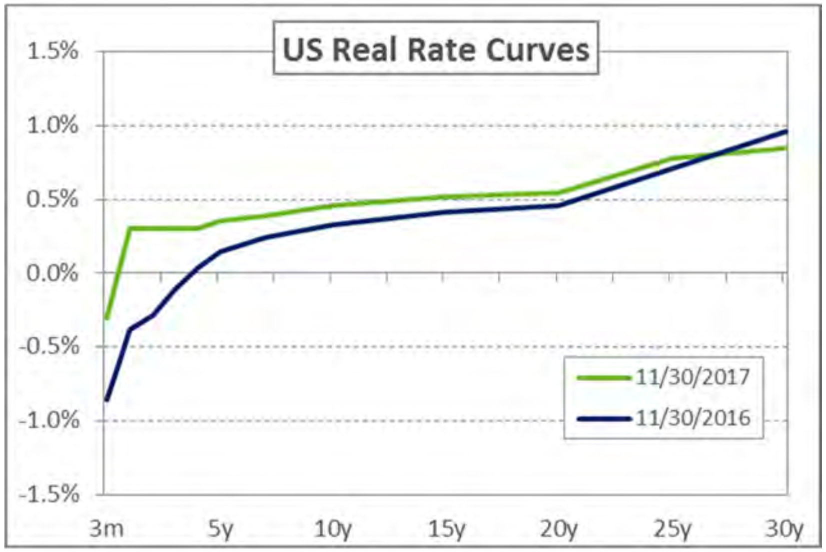
Low real rates depress the return outlook for risk assets over the long-term

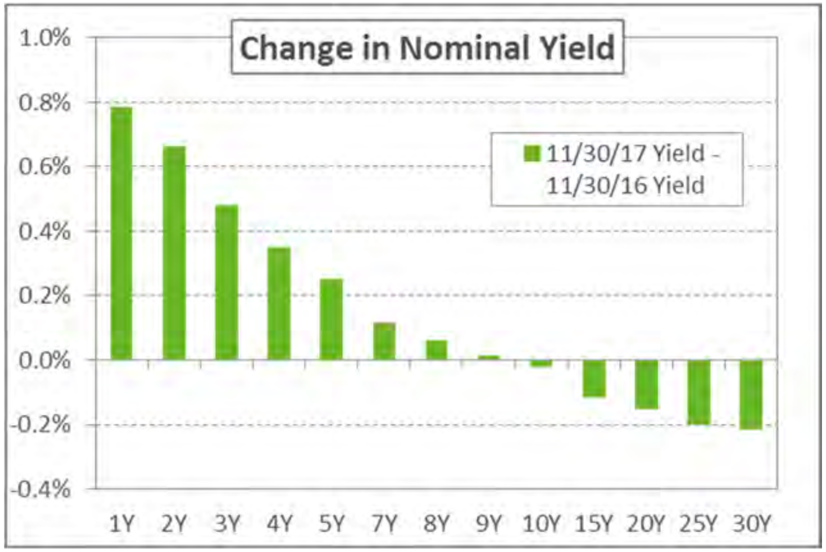
Interest rate increases have been slower than what the market has discounted

Additional uncertainty surrounding the path of rates is possible in 2018

Potential disruption with the confirmation of new Fed Chairman Jerome Powell

Tax cuts could push interest rates higher due to the larger federal deficits and debt issuance needs





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg

GLOBAL INTEREST RATE EXPECTATIONS

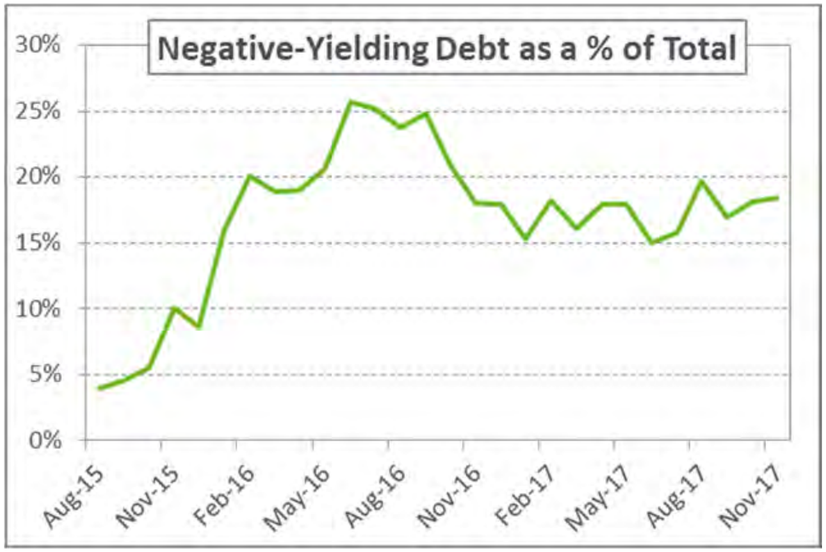
Government bond yields remain low and negative in much of the developed world

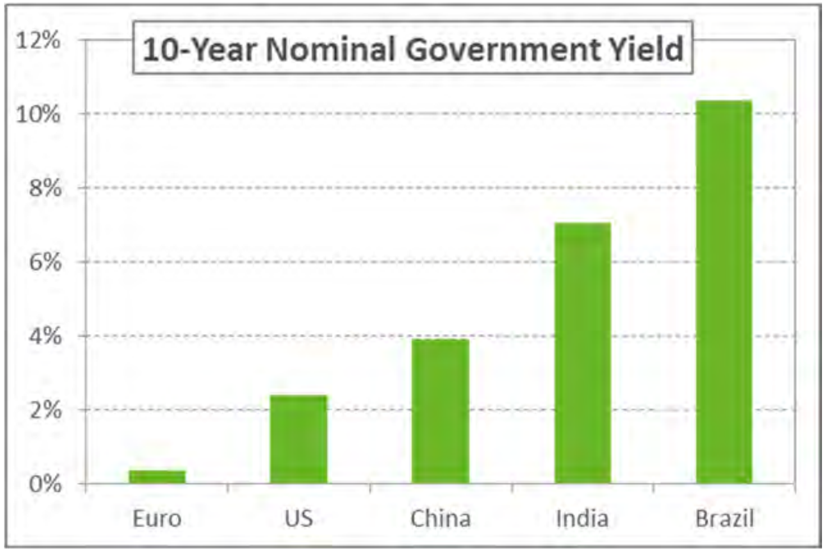
European sovereign yields have declined relative to Germany as political and economic risk declines

- Spain and other periphery nations have showed positive economic momentum
- France's election of Emmanuel Macron was seen as a stabilizing event for the country and the EU as a whole

Emerging market local interest rates are attractively priced as real yields remain elevated

- Emerging market yields continue to retain a healthy premia over developed world rates
- Additionally, positive real rates provide a larger cushion for EM central banks to cut interest rates and ease monetary conditions





Source: (Top) Bloomberg
Source: (Bottom) Bloomberg

EQUITY ASSUMPTIONS

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	An input representing P/E multiple contraction or expansion relative to long-term trend
Inflation	Represents market-specific inflation derived from index country revenue contribution and region-specific forecasted inflation
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Dividend Yield	Informed by current income distributed to shareholders with adjustments made to reflect market conditions and trends

Asset Class	5-7 Year Return	Change 2018-2017
US Large Cap	5.25%	-.50%
US Small/Mid-Cap	5.75%	-.25%
International (Unhedged)	7.50%	+.25%
International (Hedged)	7.82%	+.25%
International Small Cap	7.75%	+.25%
Emerging International	9.00%	-.50%
Emerging Intl. Small Cap	9.25%	-.75%
Private Equity	8.00%	-.25%
Hedge Funds – Long/Short	6.25%	-
Global Equity	*6.88%*	*-.33%*

EQUITY: REAL EARNINGS GROWTH

Global growth was stronger than expected during 2017

Synchronized global growth is likely to persist with continued favorable market growth conditions

The broad outlook for developed economies has improved as a real earnings recovery has begun

The UK remains a notable outlier as the country continues sorting through Brexit

Emerging economies are broadly expected to continue strong growth

Chinese real growth is expected to slow in future years as the country transitions to a more consumer based economy

Reforms in India and southeast Asia are expected to boost investment, productivity, and per-capita growth

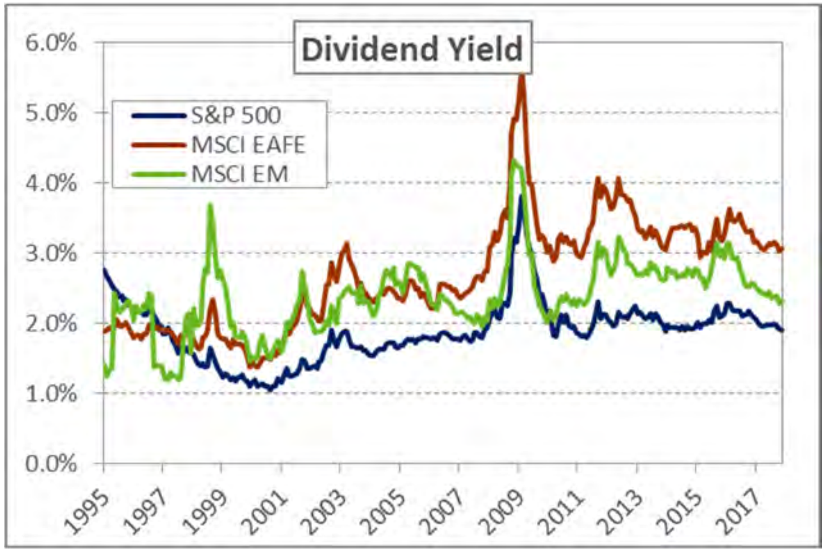
Source: (Top) Bloomberg, NEPC

Source: (Bottom) IMF, MSCI, Bloomberg

EQUITY: DIVIDEND YIELD

Real dividends per share have increased over time, but prices have increased at a faster rate, leading to falling yields

International and Emerging Markets continue to offer a more attractive dividend yield relative to the US



Source: (Top) S&P, NEPC, Bloomberg
Source: (Bottom) S&P, MSCI, Bloomberg

EQUITY: VALUATION

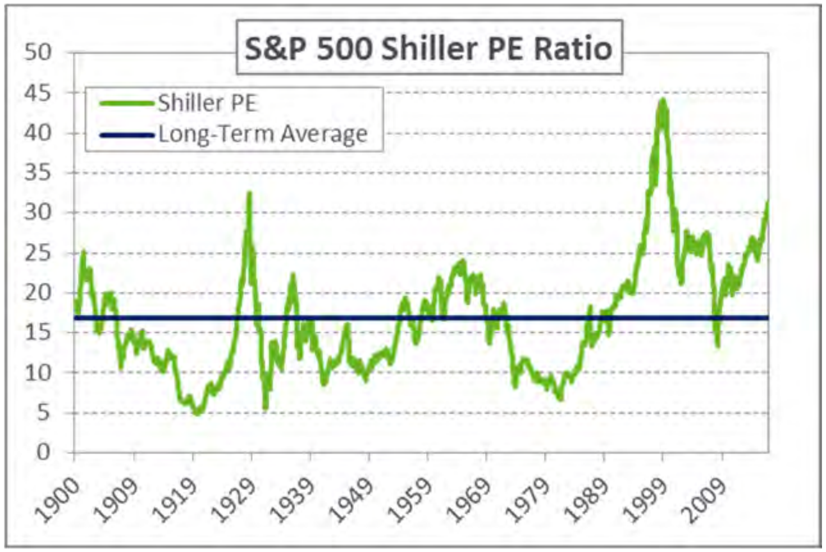
Global equities broadly pushed higher in 2017 supported by macroeconomic data, robust earnings, and easy financial conditions

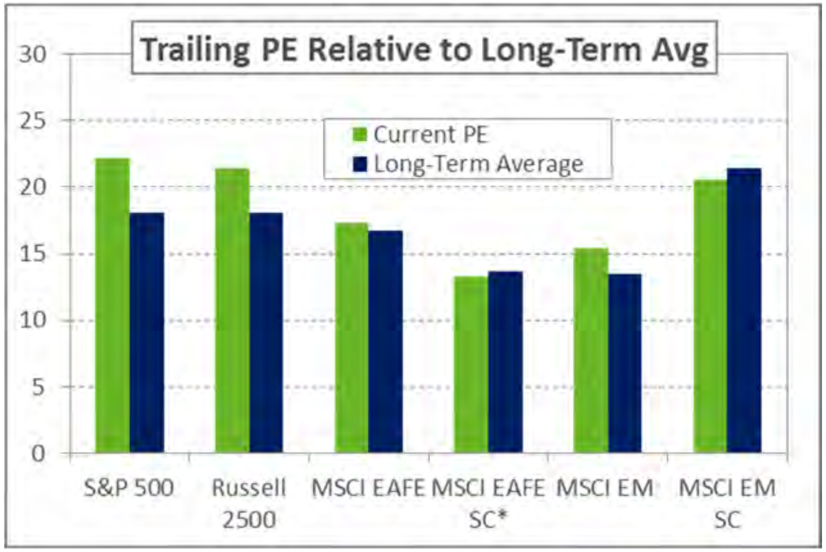
While earnings growth in the US came in stronger than expected, price gains continued to outpace – leading to further P/E multiple expansion

Recovering corporate earnings for international developed markets have allowed valuations to remain relatively attractive

A multi-year earnings recovery in Europe and Japan offers the potential for an elevated return in these markets

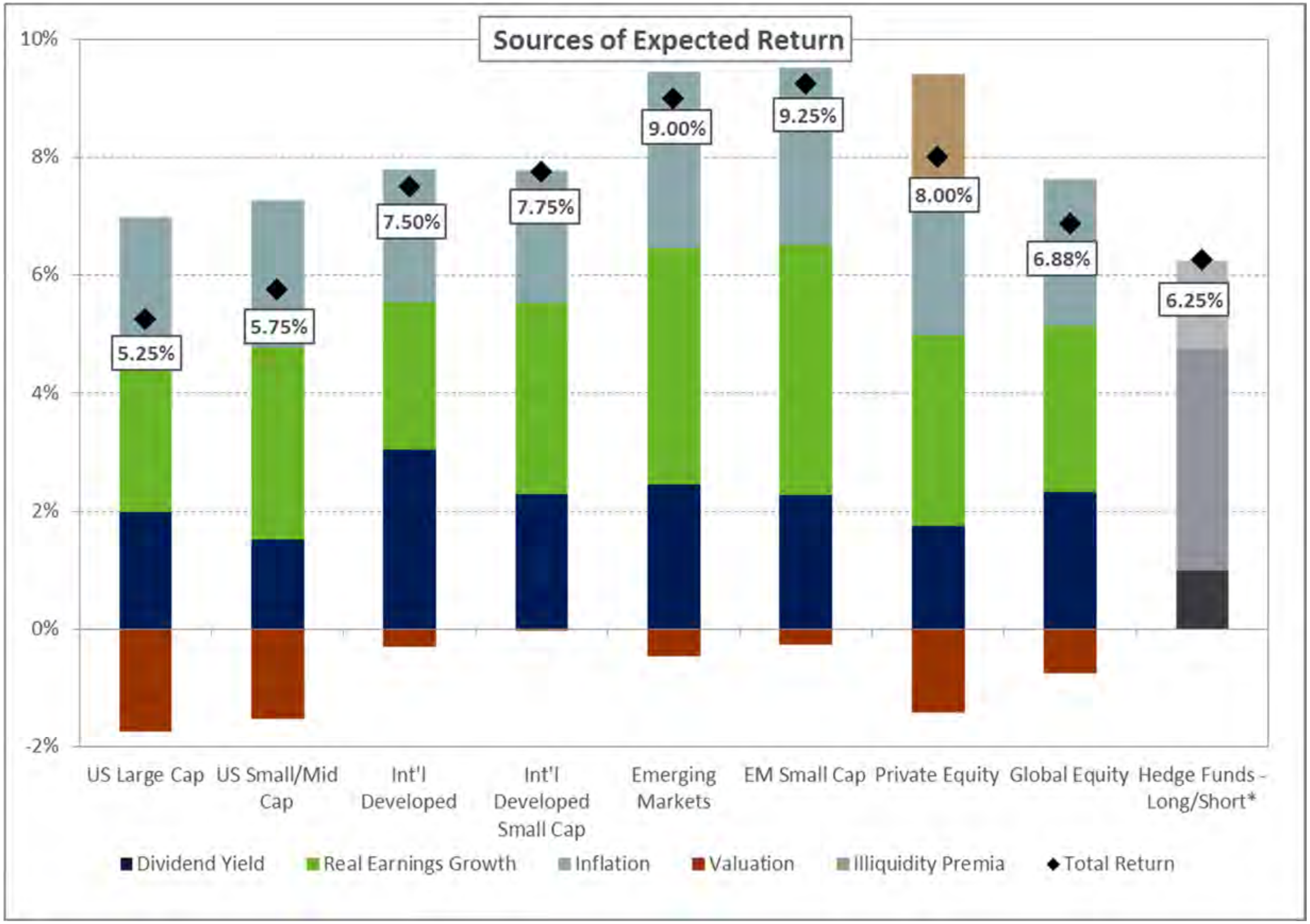
While emerging market equities posted the strongest gains for 2017, valuations remain close to long-term averages relative to domestic markets





Source: (Top) S&P, Shiller
Source: (Bottom) S&P, Russell, MSCI, Bloomberg
**Reflects index-adjusted positive P/E values*

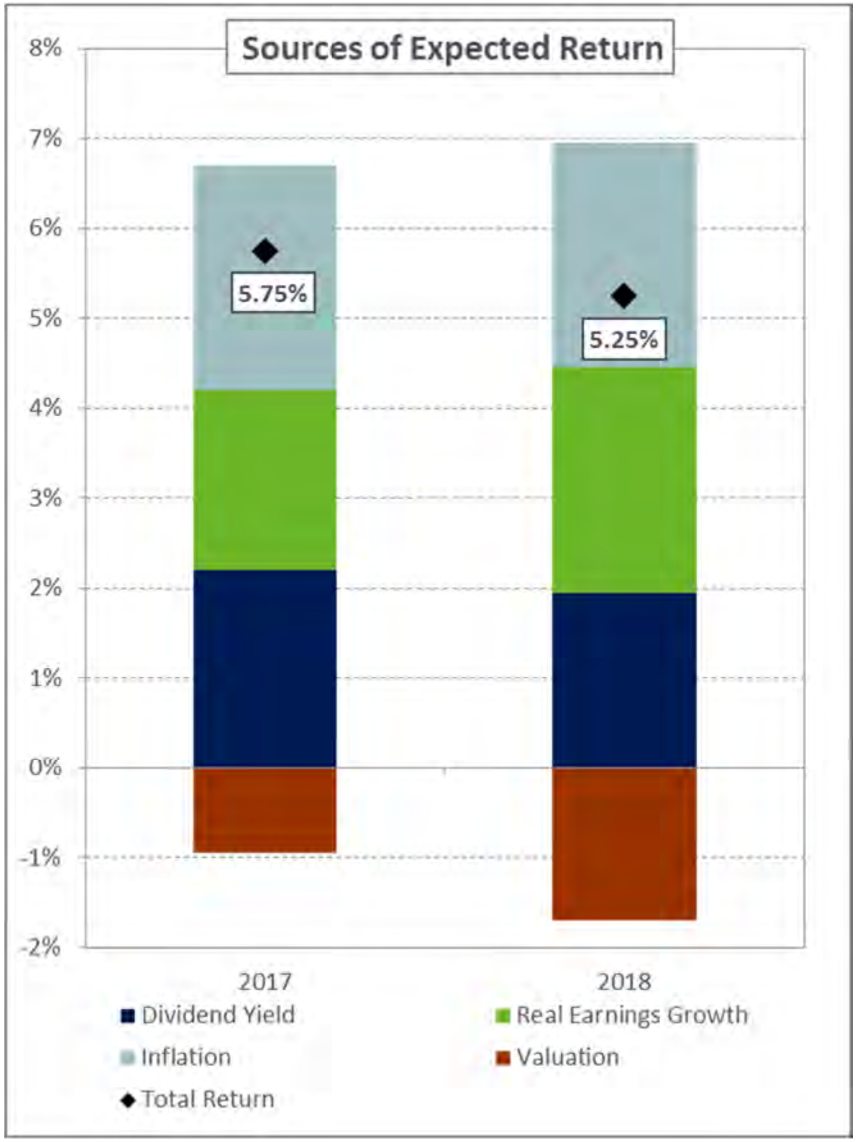
EQUITY: BUILDING BLOCKS



Source: NEPC

**Hedge Funds are discussed in detail in the Multi-Asset section*

EQUITY EXAMPLE: LARGE CAP US EQUITY



- **Relative to 2017, the 2018 building blocks incorporate:**
  - Modestly higher growth to reflect strength in global growth
  - A more significant valuation adjustment to reflecting multiple expansion
- **Despite only a 50 basis point reduction in the 5-7 year outlook, more generous assumptions were applied:**
  - Profit margins are assumed to remain near current elevated levels
  - Assumed P/E multiple is expected to mean revert half way to the long-term average

RATES & CREDIT ASSUMPTIONS

RATES & CREDIT: ASSUMPTIONS

Rate & Credit Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Government Rates Price Change	The valuation change resulting from a change in the current yield curve to forecasted rates
Spread Price Change	The valuation change resulting from a change in credit spreads over the duration of the investment and highly sensitive to economic cycles
Credit Deterioration	The average loss for credit securities associated with an expected default cycle and recovery rates
Credit Spread	Additional yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk associated with their valuation

Asset Class	5-7 Year Return	Change 2018-2017
Treasuries	2.25%	+.25%
Investment-Grade Corporate Credit	3.50%	-.25%
Municipal Bonds	2.50%	+.25%
TIPS	3.25%	+.25%
High-Yield Bonds	3.75%	-1.00%
High-Yield Municipal Bonds	3.75%	-.50%
Bank Loans	4.50%	-.75%
Global Bonds (Unhedged)	*1.17%*	*+.17%*
EMD (External)	4.25%	-.50%
EMD (Local Currency)	6.00%	-.75%
Private Debt	6.50%	-.75%
Core Bonds	*2.75%*	*+.10%*

RATES & CREDIT: CREDIT SPREAD

Strong global growth and yield-seeking investor behavior has compressed credit spreads

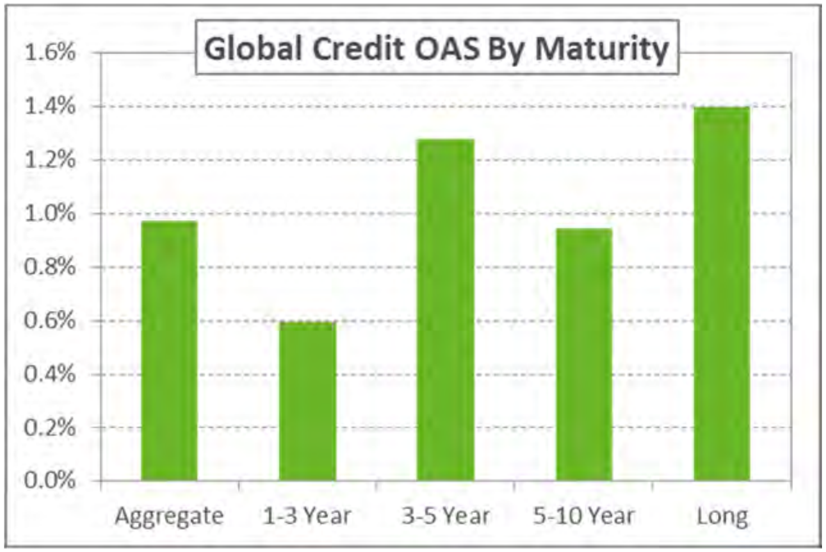
- Economic growth usually translates to tighter credit spreads due to a lower probability of defaults

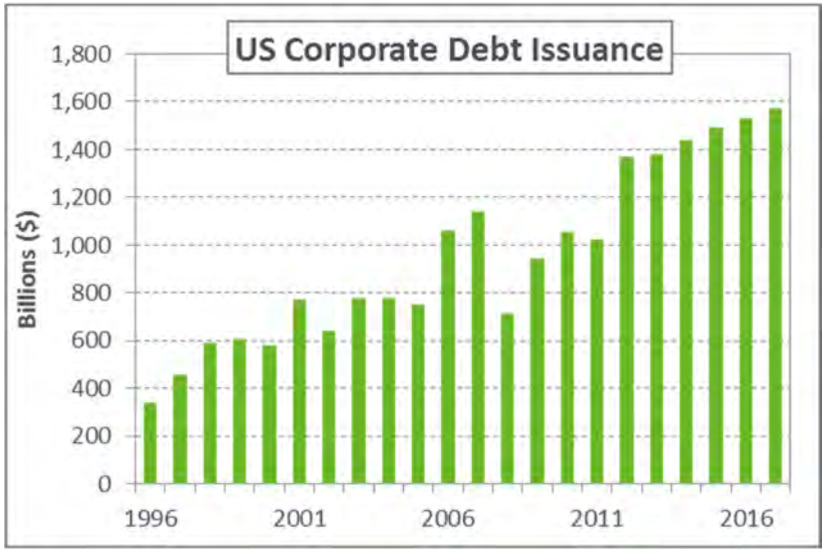
- In Europe, the ECB's decision to include corporate bonds in its quantitative easing program has also contributed to smaller credit risk premiums globally

Low borrowing costs have encouraged record issuance in both investment grade and high yield bonds

- Passive ownership of credit has increased significantly, even with a larger denominator

- The outlook for US credit is subdued with limited return opportunities as credit spreads trade below long-term medians





Source: (Top) Barclays, Bloomberg
Source: (Bottom) SIFMA

RATES & CREDIT: RATES PRICE CHANGE

Rates price change include changes in the level of interest rates, changes to the shape of the curve, and roll down

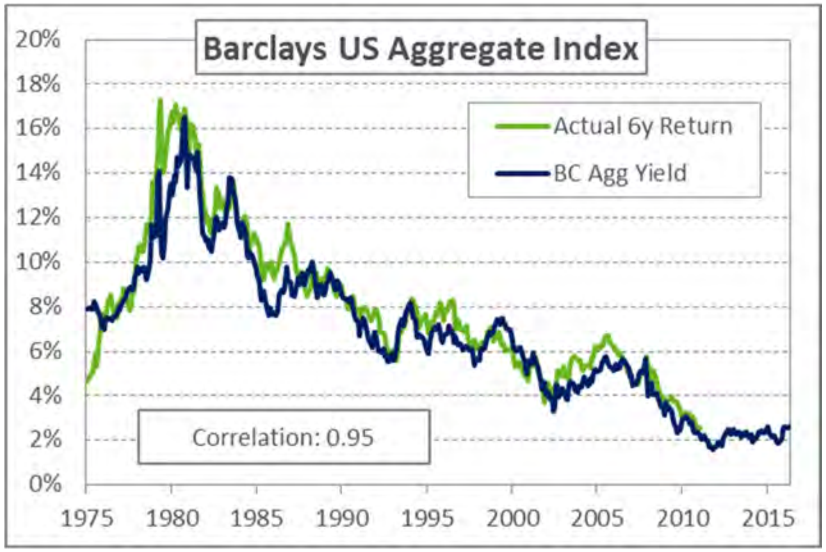
- Roll down refers to expected price change due to aging of a bond along the curve

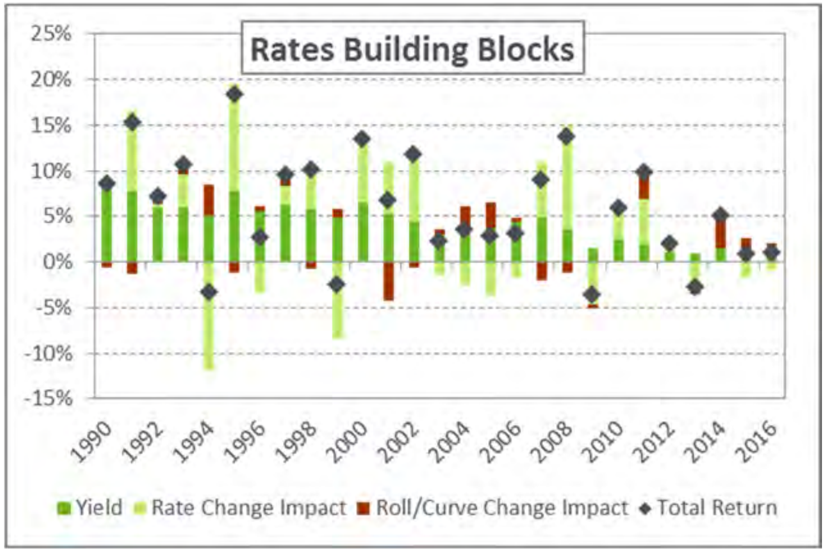
Rate change impact often dominates total return and is a likely detractor in the coming cycle, given expectations of modestly higher rates

- Path of interest rates for each market is tied to both central bank actions and inflation expectations

Roll down offers some relief to rising rates when yield curves are steep

- As yield curve flattens this can be a drag, pushing investors to shorter duration bonds





Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC

RATES & CREDIT: SPREAD PRICE CHANGE

Credit spreads continued to tighten throughout the year and remain below long-term averages

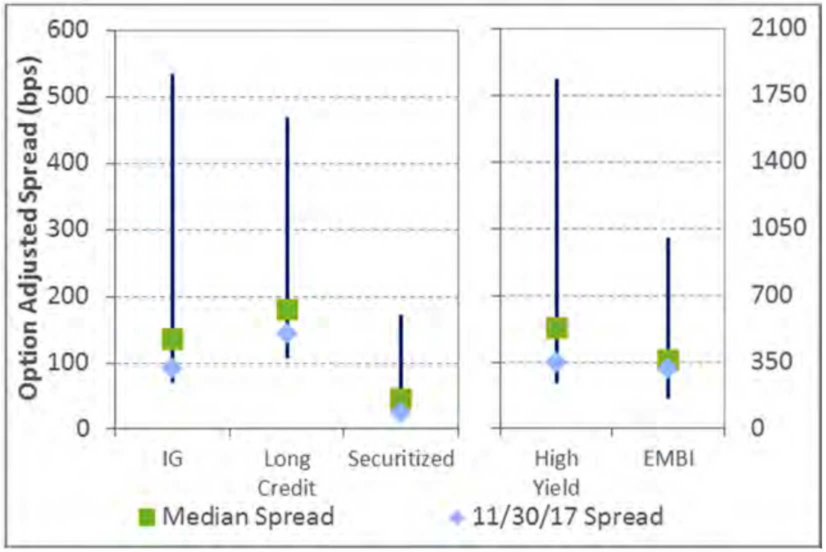
With positive economic indicators and strong technicals, spreads could grind lower

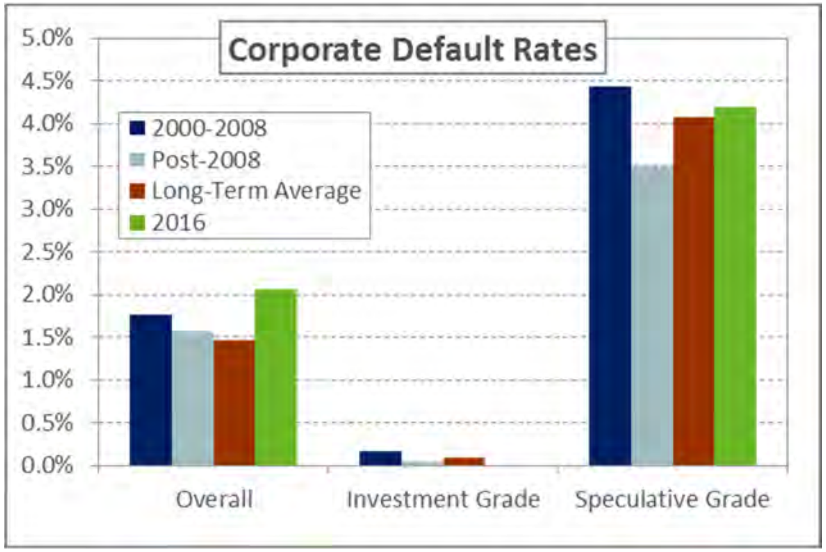
The number of defaults increased last year as a result of the depressed energy and natural resources sector

Over 50% of credit defaults occurred within the energy sector

Nearly all other sectors experienced default rates well below long-term averages

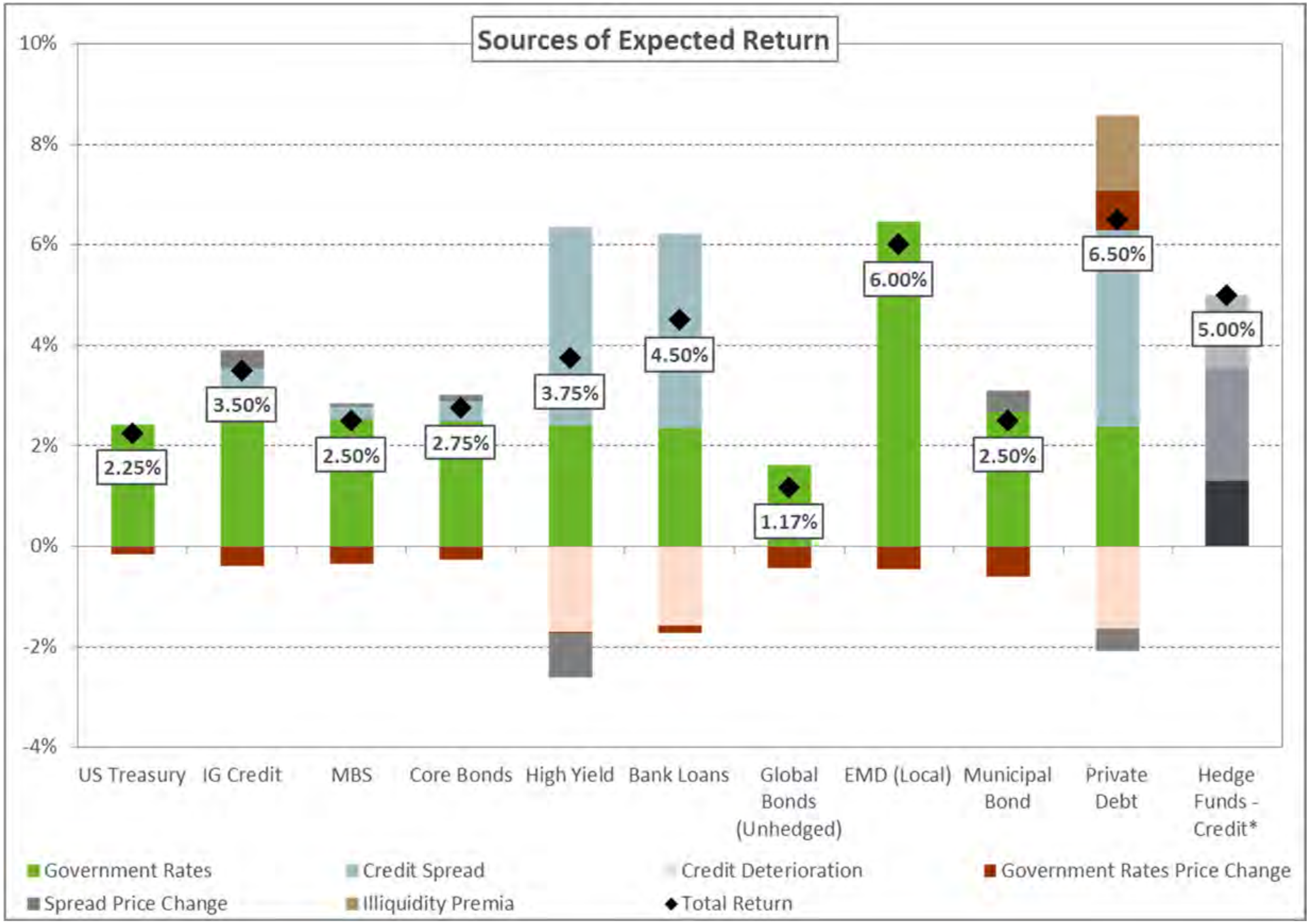
Credit spreads near historic lows suggest investors are receiving less compensation for taking on risk





Source: (Top) JPM, Bloomberg, NEPC. As of 01/31/2000
Source: (Bottom) S&P, NEPC

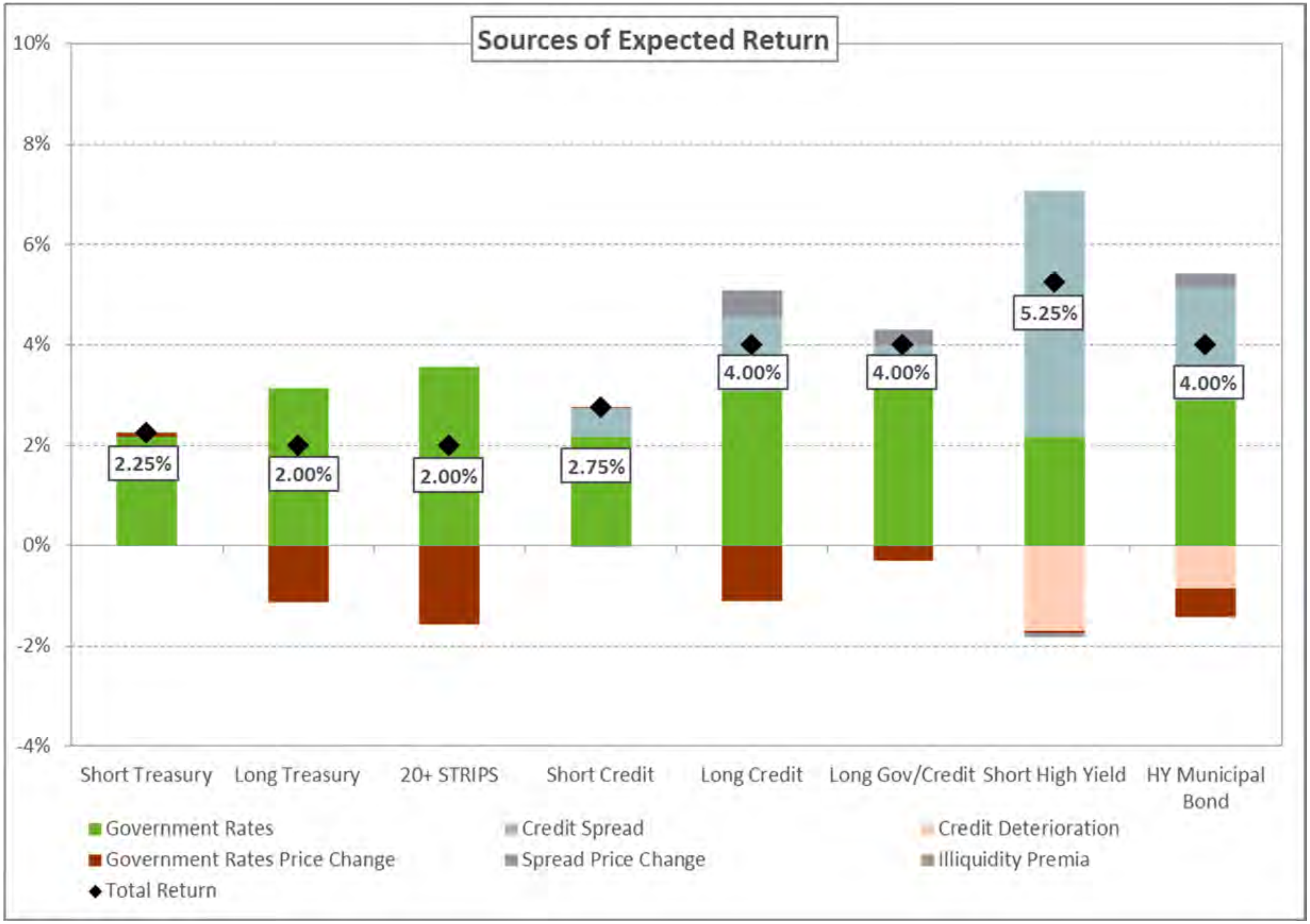
CREDIT: BUILDING BLOCKS



Source: NEPC

**Hedge Funds are discussed in detail in the Multi-Asset section*

CREDIT: BUILDING BLOCKS



Source: NEPC

REAL ASSETS ASSUMPTIONS

REAL ASSETS: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	The expected change in price of the underlying asset reverting to a long-term real average or terminal value assumption
Inflation	Incorporates the inflation paths as defined by TIPS breakeven expectations and NEPC expected inflation assumptions
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Real Income	Represents the inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	5-7 Year Return	Change 2018-2017
Commodities	4.75%	-
MLPs	7.25%	+.25%
REITs	6.50%	-
Core Real Estate	5.75%	-.25%
Non-Core Real Estate	7.00%	N/A
Private Real Assets: Energy/Metals	8.00%	-.25%
Private Real Assets: Infrastructure/Land	6.00%	-
Real Assets (Liquid)	*5.87%*	*-.05%*

REAL ASSETS: REAL INCOME

Equity-like investments: Real income represents the inflation-adjusted dividend yield

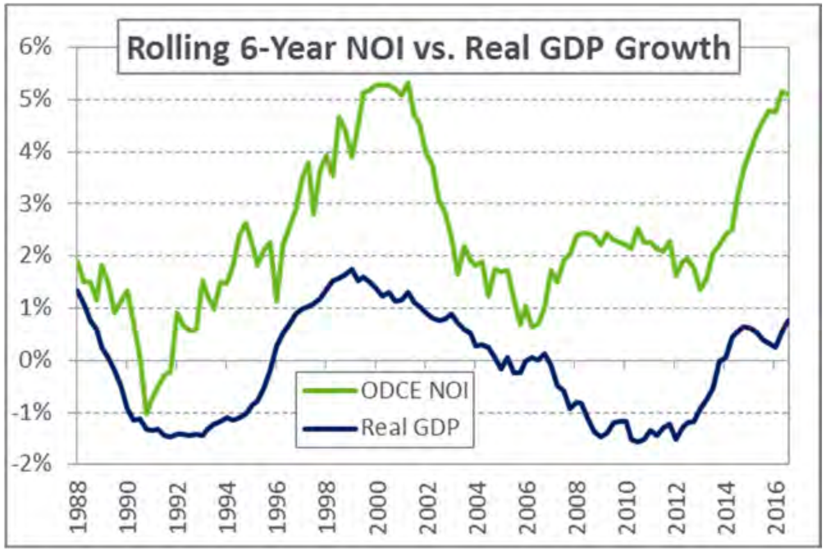
- Includes MLPs, natural resource equities, global infrastructure equities, and REITs
- Notably, MLP yields have increased relative to last year in combination with generally stronger balance sheets and a double-digit price decline

Real Estate: Real income growth is a function of Net Operating Income (NOI) growth

- Rolling 6-year NOI growth exhibits cyclically economic pattern and appears to be at or near its peak

Commodities: Real income is represented by collateral return

- A cash proxy is used to represent the collateral and as such, it represents the return on cash over the investment horizon



Real Asset Yields	11/30/16	11/30/17
MLPs	7.4%	8.1%
Core Real Estate	4.7%	4.6%
US REITs	4.6%	4.0%
Global REITs	4.2%	3.6%
Global Infrastructure Equities	4.1%	3.9%
Natural Resource Equities	3.0%	3.3%
US 10-Yr Breakeven Inflation	2.0%	1.9%
Commodity Index Roll Yield	-6.5%	-1.4%

Source: (Top) NCREIF, Bloomberg, NEPC
Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, Bloomberg

REAL ASSETS: VALUATION

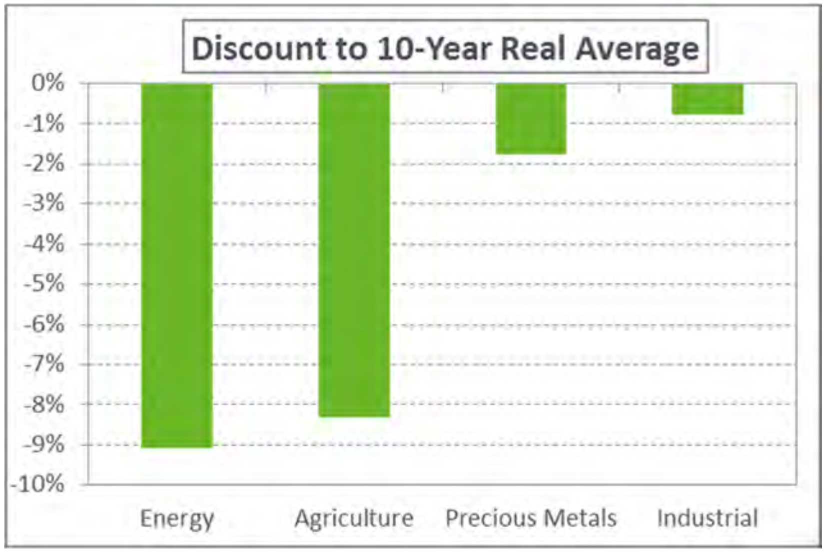
Change in commodity valuations can be attributed to both roll yield and change in spot price

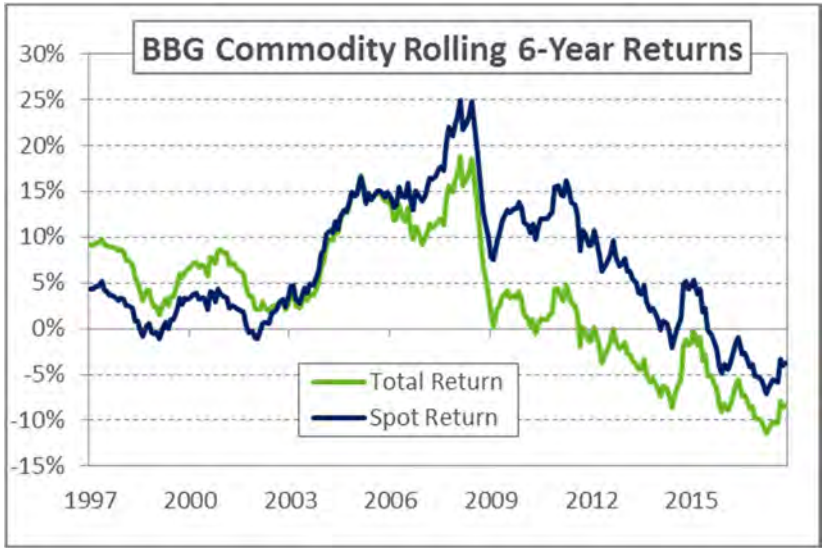
Commodity prices continue to trade below their long-term real averages, particularly in the energy and agriculture sectors

Roll yield continues to be a hurdle for investing in commodity futures

Post-2008, spot returns have had consistently higher returns than total return indices – demonstrating the impact of negative roll yield on overall investments

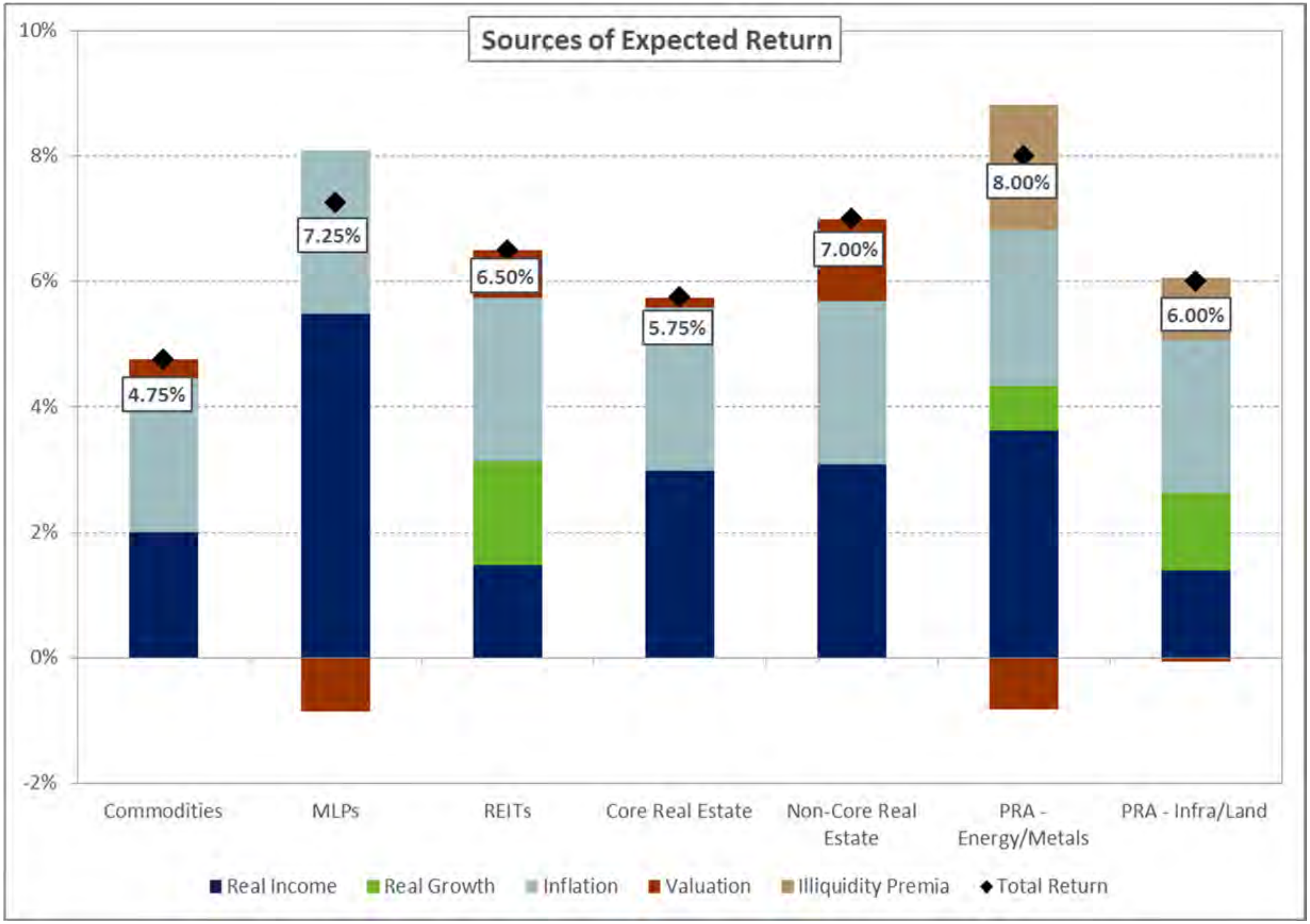
In the latter half of 2017, commodity prices rallied off mid-year lows, causing the negative roll yield to be much smaller relative to last year





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

REAL ASSETS: BUILDING BLOCKS



Source: NEPC

MULTI-ASSET & DERIVED COMPOSITES

NEPC, LLC

MULTI-ASSET & DERIVED COMPOSITES

Multi-asset assumptions are the result of the sum of equity, credit, and real asset building blocks

Global 60/40: 60% global equity and 40% global bonds

US 60/40: 60% US equity and 40% core bonds

Risk Parity 10% Vol: Average of 3 common risk parity exposures

GAA Strategies: Average of 3 common GAA exposures

Global Equity: Market weighted blend of MSCI ACWI IMI (US, Non-US Developed, Emerging)

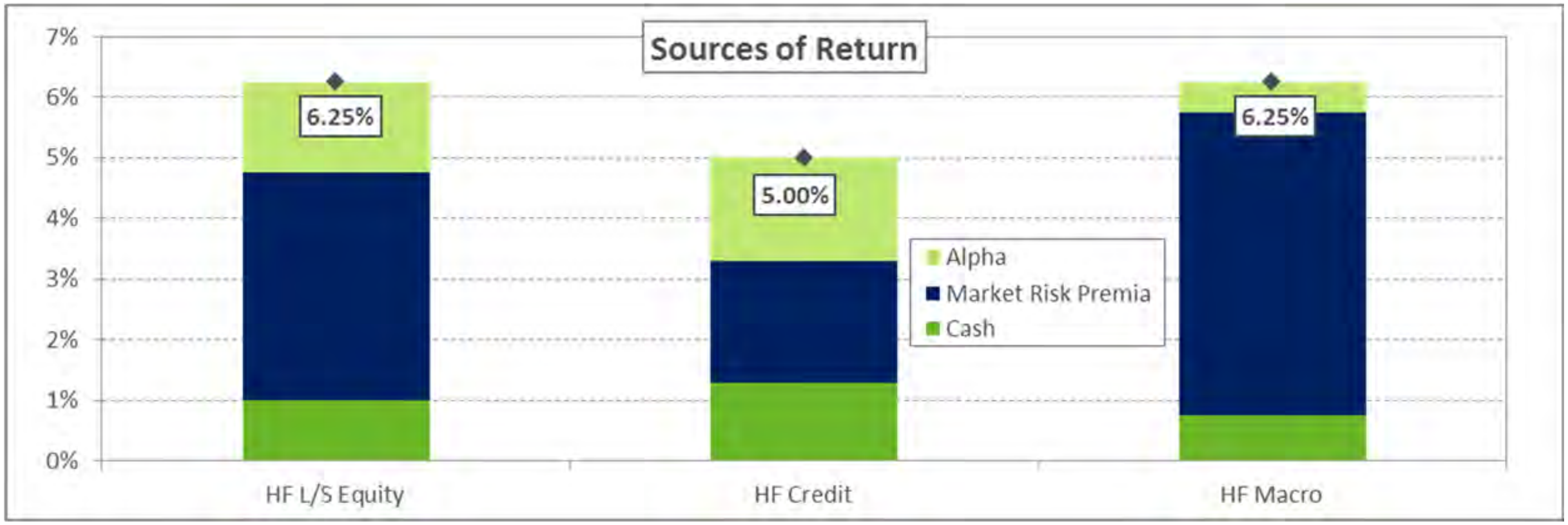
Core Bonds: Market weighted blend of Bloomberg Barclays US Aggregate Bond Index (Treasuries, IG Credit, MBS)

Real Assets (Liquid): Weighted blend of TIPS, global equities, REITs, and commodities

Hedge Funds: Weighted blend of 40% HF equity, 40% HF credit , and 20% HF macro

Asset Class	5-7 Year Return	Change 2018-2017
Global 60/40	4.91%	-.13%
US 60/40	4.54%	-.24%
Risk Parity 10% Vol	5.11%	+.04%
GAA Strategies	5.44%	-.11%
Hedge Funds – Macro Strategies	6.25%	-
Global Equity	6.88%	-.33%
Core Bonds	2.75%	+.10%
Real Assets (Liquid)	5.87%	-.05%
Hedge Funds	5.83%	-.12%

HEDGE FUND ASSUMPTIONS



Source: NEPC

	Equity	Credit	Macro
Underlying Market Beta	Global Equity	High Yield, $ EMD, Bank Loans	Relative Value (Rates, Equity, Commodities)

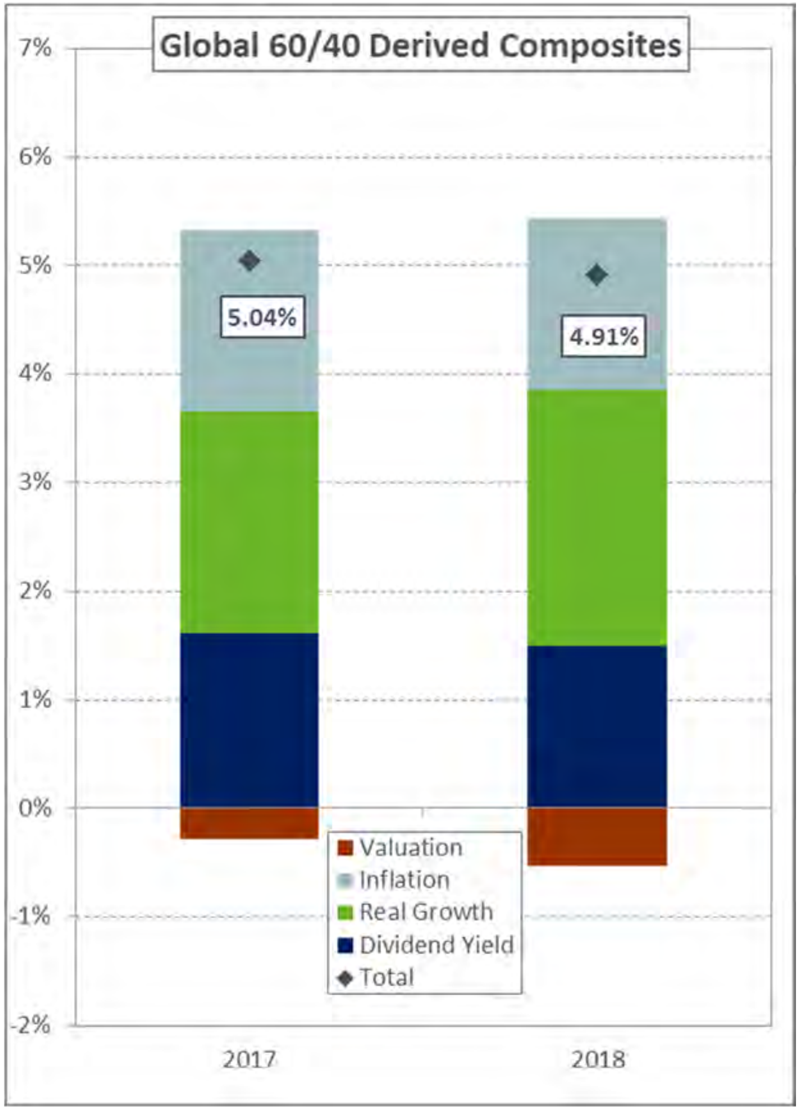
Hedge fund assumption constructed from building blocks of broad hedge fund categories

Build up of 40% Equity, 40% Credit, and 20% Macro-related strategies

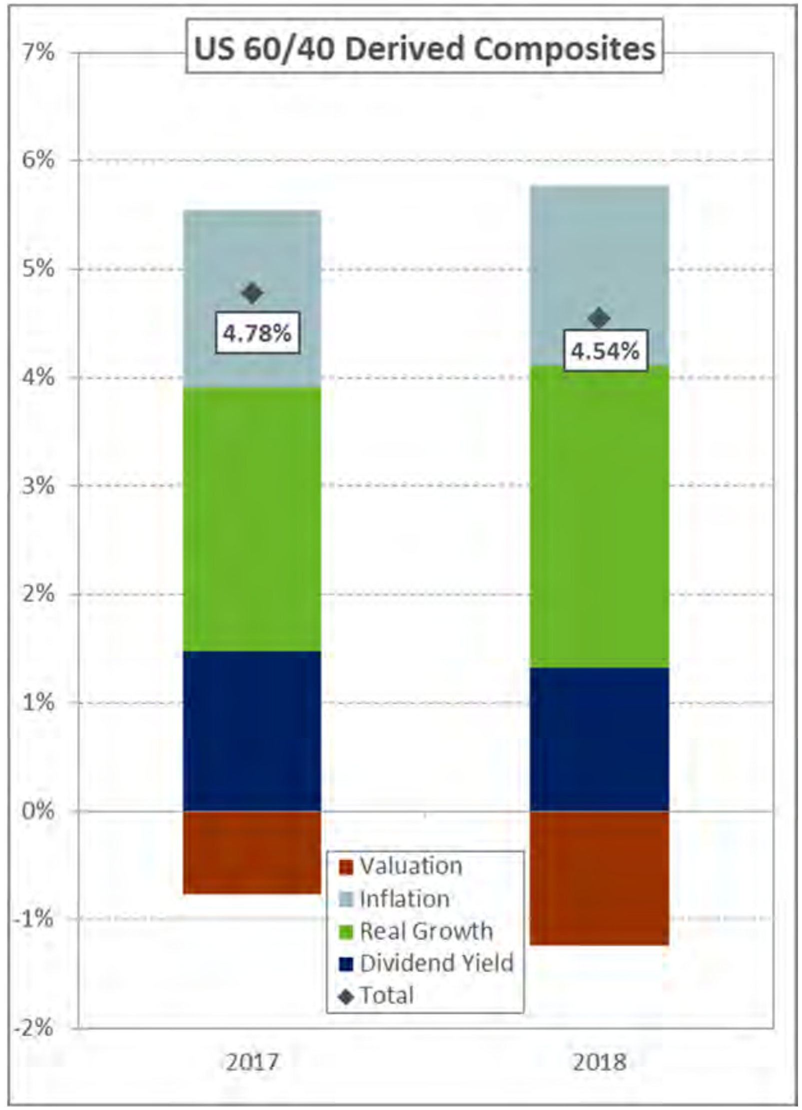
Based on analysis of historical return, risk and correlation for underlying strategies and total universe

Use NEPC-standard market betas as building blocks as well as an alpha component

GLOBAL VS. US 60/40 DERIVED COMPOSITES



Source: NEPC



Source: NEPC

APPENDIX

NEPC, LLC

2018 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2018**	**2017**	**2018-2017**
Cash	2.00%	1.75%	+0.25%
Treasuries	2.25%	2.00%	+0.25%
IG Corp Credit	3.50%	3.75%	-0.25%
MBS	2.50%	2.25%	+0.25%
Core Bonds*	2.75%	2.65%	+0.10%
TIPS	3.25%	3.00%	+0.25%
High-Yield Bonds	3.75%	4.75%	-1.00%
Bank Loans	4.50%	5.25%	-0.75%
Non-US Bonds (Unhedged)	0.50%	1.00%	-0.50%
Non-US Bonds (Hedged)	0.73%	1.09%	-0.36%
EMD External	4.25%	4.75%	-0.50%
EMD Local Currency	6.00%	6.75%	-0.75%
Large Cap Equities	5.25%	5.75%	-0.50%
Small/Mid Cap Equities	5.75%	6.00%	-0.25%
Int'l Equities (Unhedged)	7.50%	7.25%	+0.25%
Int'l Equities (Hedged)	7.82%	7.57%	+0.25%
Emerging Int'l Equities	9.00%	9.50%	-0.50%
Private Equity	8.00%	8.25%	-0.25%
Private Debt	6.50%	7.25%	-0.75%
Core Real Estate	5.75%	6.00%	-0.25%
Commodities	4.75%	4.75%	-
Hedge Funds**	5.83%	5.95%	-0.12%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2018 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2018**	**2017**	**2018-2017**
Short Treasuries	2.25%	2.00%	+0.25%
US 10 Yr. Treasury	2.25%	2.00%	+0.25%
Long Treasuries	2.00%	1.75%	+0.25%
20+ Year STRIPS	1.75%	1.50%	+0.25%
Short Credit	2.75%	2.75%	-
Long Credit	4.00%	4.25%	-0.25%
Long Government/Credit*	3.26%	3.33%	-0.07%
Non-US Cash**	0.50%	0.25%	+0.25%
Non-US Inflation-Linked Bonds	1.75%	1.00%	+0.75%
Short High Yield	4.25%	5.00%	-0.75%
Municipal Bonds (1-10 Year)	2.50%	-	-
High Yield Municipal Bonds	3.75%	4.25%	-0.50%
Global Equity*	6.88%	7.21%	-0.33%
MLPs	7.25%	7.00%	+0.25%
REITs	6.50%	6.50%	-
Real Assets (Liquid)**	5.87%	5.92%	-0.05%
Non-Core Real Estate	7.00%	N/A	N/A
Private Real: Energy/Metals	8.00%	8.25%	-0.25%
Private Real: Infrastructure/Land	6.00%	6.00%	-
Hedge Funds - Long/Short	6.25%	6.25%	-
Hedge Funds – Credit	5.00%	5.25%	-0.25%
Hedge Funds – Macro	6.25%	6.25%	-

* Assumption based on market weighted blend of index components
** Custom weighted blend of underlying asset classes

2018 VOLATILITY FORECASTS

Volatility			
Asset Class	**2018**	**2017**	**2018-2017**
Cash	1.00%	1.00%	-
Treasuries	5.50%	5.50%	-
IG Corp Credit	7.50%	7.50%	-
MBS	7.00%	7.00%	-
Core Bonds*	5.99%	6.03%	-0.04%
TIPS	6.50%	6.50%	-
High-Yield Bonds	13.00%	13.00%	-
Bank Loans	9.00%	9.00%	-
Non-US Bonds (Unhedged)	10.00%	8.50%	+1.50%
Non-US Bonds (Hedged)	4.50%	5.00%	-0.50%
EMD External	13.00%	13.00%	-
EMD Local Currency	13.00%	15.00%	-2.00%
Large Cap Equities	17.50%	17.50%	-
Small/Mid Cap Equities	21.00%	21.00%	-
Int'l Equities (Unhedged)	21.00%	21.00%	-
Int'l Equities (Hedged)	18.00%	18.00%	-
Emerging Int'l Equities	28.00%	28.00%	-
Private Equity	23.00%	23.00%	-
Private Debt	13.00%	14.00%	-1.00%
Core Real Estate	13.00%	15.00%	-2.00%
Commodities	19.00%	19.00%	-
Hedge Funds**	9.07%	8.74%	-0.33%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).
** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2018 VOLATILITY FORECASTS

Volatility			
Asset Class	2018	2017	2018-2017
Short Treasuries	2.50%	2.50%	-
US 10 Yr. Treasury	7.50%	7.50%	-
Long Treasuries	12.00%	12.00%	-
20+ Yr. STRIPS	19.00%	19.00%	-
Short Credit	3.50%	3.50%	-
Long Credit	12.00%	13.00%	-1.00%
Long Government/Credit*	11.26%	12.01%	-0.75%
Non-US Cash**	1.00%	1.00%	-
Non-US 10 Yr. Sovereigns**	6.50%	6.50%	-
Non-US Inflation-Linked Bonds (H)	5.50%	6.00%	-0.50%
Short High Yield	8.50%	9.00%	-0.50%
Municipal Bonds (1-10 Year)	5.50%	-	-
Global Equity***	18.22%	18.26%	-0.04%
MLPs	19.00%	20.00%	-1.00%
REITs	21.00%	21.00%	-
Real Assets (Liquid)****	13.06%	12.83%	+0.23%
Non-Core Real Estate	17.00%	N/A	N/A
Private Real: Energy/Metals	21.00%	21.00%	-
Private Real: Infrastructure/Land	12.00%	14.00%	-2.00%
Hedge Funds - Long/Short	11.00%	11.00%	-
Hedge Funds – Credit	9.50%	9.50%	-
Hedge Funds – Macro	9.50%	9.50%	-

* Assumption based on market weighted blend of index components
** Custom weighted blend of underlying asset classes

2018 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2018**	**2017**	**2018-2017**
Cash	2.75%	3.00%	-0.25%
Treasuries	3.25%	3.50%	-0.25%
IG Corp Credit	4.75%	5.00%	-0.25%
MBS	3.25%	3.50%	-0.25%
Core Bonds*	3.75%	4.00%	-0.25%
TIPS	3.75%	3.75%	-
High-Yield Bonds	5.50%	5.75%	-0.25%
Bank Loans	5.50%	6.00%	-0.50%
Non-US Bonds (Unhedged)	2.50%	2.75%	-0.25%
Non-US Bonds (Hedged)	2.77%	2.87%	-0.10%
EMD External	5.00%	5.75%	-0.75%
EMD Local Currency	6.50%	6.50%	-
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	7.75%	7.75%	-
Int'l Equities (Hedged)	8.14%	8.14%	-
Emerging Int'l Equities	9.25%	9.50%	-0.25%
Private Equity	9.50%	9.50%	-
Private Debt	7.50%	8.00%	-0.50%
Core Real Estate	6.50%	6.50%	-
Commodities	5.50%	5.50%	-
Hedge Funds**	6.34%	6.47%	-0.13%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).
** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2018 30 YEAR RETURN FORECASTS

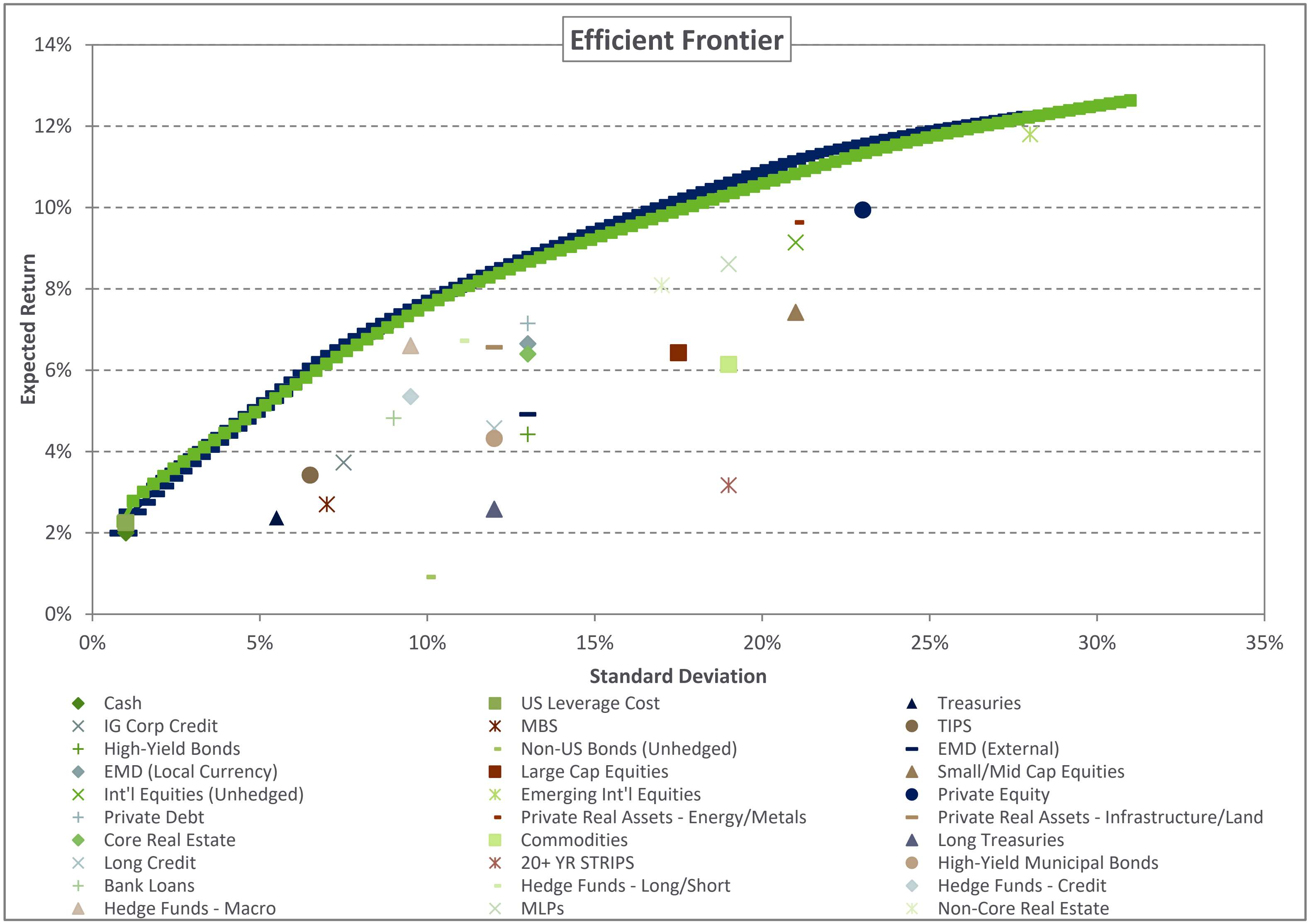
Geometric Expected Return			
Asset Class	**2018**	**2017**	**2018-2017**
Short Treasuries	3.00%	3.00%	-
US 10 Yr. Treasury	3.50%	3.50%	-
Long Treasuries	3.50%	3.75%	-0.25%
20+ Yr. STRIPS	3.50%	3.75%	-0.25%
Short Credit	3.75%	3.75%	-
Long Credit	5.25%	5.75%	-0.50%
Long Government/Credit*	4.62%	5.04%	-0.42%
Non-US Cash**	2.00%	2.00%	-
Non-US 10 Yr. Sovereigns**	2.50%	2.50%	-
Non-US Inflation-Linked Bonds	3.00%	2.75%	+0.25%
Short High Yield	5.25%	5.75%	-0.50%
Municipal Bonds (1-10 Year)	3.25%	-	-
Global Equity***	8.24%	8.35%	-0.11%
MLPs	7.50%	7.50%	-
REITs	6.75%	6.75%	-
Real Assets (Liquid)****	6.75%	6.79%	-0.04%
Non-Core Real Estate	7.50%	N/A	N/A
Private Real: Energy/Metals	7.75%	7.75%	-
Private Real: Infrastructure/Land	6.25%	6.00%	+0.25%
Hedge Funds - Long/Short	7.25%	7.25%	-
Hedge Funds – Credit	5.25%	5.50%	-0.25%
Hedge Funds – Macro	6.25%	6.25%	-

* Assumption based on market weighted blend of index components
** Custom weighted blend of underlying asset classes

2018 CORRELATIONS

Asset Class	Cash	US Lev	Tsy	IG	MBS	TIPS	HY	Non-US Bonds (U)	Non-US Bonds (H)	EMD (Ext)	EMD (Loc)	Large Cap	SMID	Int'l (U)	Int'l (H)	EME	PE	PD	PRA - Egy/Met	PRA: Infra/ Land	Core RE	Comm odities
Cash	1.00	0.90	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.20	0.00	-0.05	0.15	0.10	0.10
US Lev	0.90	1.00	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.25	0.00	-0.05	0.15	0.10	0.10
Treasuries	0.20	0.20	1.00	0.65	0.85	0.65	0.10	0.45	0.70	0.20	0.10	-0.10	-0.15	-0.10	-0.10	-0.20	-0.15	-0.35	-0.20	-0.05	0.10	-0.10
IG	0.10	0.10	0.65	1.00	0.75	0.65	0.55	0.45	0.60	0.60	0.50	0.25	0.25	0.30	0.30	0.35	0.30	0.15	0.20	0.10	0.15	0.15
MBS	0.25	0.25	0.85	0.75	1.00	0.65	0.30	0.45	0.60	0.35	0.25	0.10	0.10	0.05	0.05	-0.10	0.10	-0.15	-0.05	-0.05	0.05	0.00
TIPS	0.35	0.35	0.65	0.65	0.65	1.00	0.20	0.40	0.65	0.30	0.25	-0.10	-0.10	-0.05	-0.05	-0.10	-0.10	-0.10	-0.05	0.05	0.10	0.30
HY	-0.05	-0.05	0.10	0.55	0.30	0.20	1.00	0.10	0.20	0.70	0.55	0.65	0.70	0.65	0.65	0.70	0.60	0.65	0.50	0.40	0.35	0.20
Non-US Bonds (U)	0.10	0.10	0.45	0.45	0.45	0.40	0.10	1.00	0.40	0.30	0.35	0.00	-0.05	0.35	0.05	0.25	-0.15	-0.10	-0.10	0.05	0.15	0.10
Non-US Bonds (H)	0.15	0.15	0.70	0.60	0.60	0.65	0.20	0.40	1.00	0.30	0.20	-0.10	-0.15	-0.10	-0.10	-0.20	-0.20	-0.10	-0.15	0.00	0.05	-0.10
EMD (Ext)	0.05	0.05	0.20	0.60	0.35	0.30	0.70	0.30	0.30	1.00	0.75	0.55	0.55	0.60	0.60	0.70	0.35	0.50	0.40	0.35	0.25	0.35
EMD (Local)	0.05	0.05	0.10	0.50	0.25	0.25	0.55	0.35	0.20	0.75	1.00	0.60	0.50	0.70	0.65	0.80	0.40	0.60	0.40	0.40	0.40	0.50
Large Cap	-0.10	-0.10	-0.10	0.25	0.10	-0.10	0.65	0.00	-0.10	0.55	0.60	1.00	0.90	0.70	0.75	0.65	0.70	0.60	0.65	0.50	0.40	0.30
SMID Cap	-0.15	-0.15	-0.15	0.25	0.10	-0.10	0.70	-0.05	-0.15	0.55	0.50	0.90	1.00	0.65	0.70	0.65	0.75	0.65	0.70	0.50	0.40	0.30
Int'l Eqty (U)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.35	-0.10	0.60	0.70	0.70	0.65	1.00	0.85	0.70	0.60	0.75	0.55	0.45	0.35	0.40
Int'l Eqty (H)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.05	-0.10	0.60	0.65	0.75	0.70	0.85	1.00	0.70	0.65	0.75	0.60	0.45	0.40	0.30
EM	-0.10	-0.10	-0.20	0.35	-0.10	-0.10	0.70	0.25	-0.20	0.70	0.80	0.65	0.65	0.70	0.70	1.00	0.45	0.80	0.50	0.40	0.30	0.55
PE	-0.20	-0.25	-0.15	0.30	0.10	-0.10	0.60	-0.15	-0.20	0.35	0.40	0.70	0.75	0.60	0.65	0.45	1.00	0.65	0.85	0.60	0.50	0.25
PD	0.00	0.00	-0.35	0.15	-0.15	-0.10	0.65	-0.10	-0.10	0.50	0.60	0.60	0.65	0.75	0.75	0.80	0.65	1.00	0.65	0.50	0.40	0.30
PRA - Egy/Met	-0.05	-0.05	-0.20	0.20	-0.05	-0.05	0.50	-0.10	-0.15	0.40	0.40	0.65	0.70	0.55	0.60	0.50	0.85	0.65	1.00	0.75	0.45	0.35
PRA – Infra/Land	0.15	0.15	-0.05	0.10	-0.05	0.05	0.40	0.05	0.00	0.35	0.40	0.50	0.50	0.45	0.45	0.40	0.60	0.50	0.75	1.00	0.70	0.40
Core RE	0.10	0.10	0.10	0.15	0.05	0.10	0.35	0.15	0.05	0.25	0.40	0.40	0.40	0.35	0.40	0.30	0.50	0.40	0.45	0.70	1.00	0.30
Commodities	0.10	0.10	-0.10	0.15	0.00	0.30	0.20	0.10	-0.10	0.35	0.50	0.30	0.30	0.40	0.30	0.55	0.25	0.30	0.35	0.40	0.30	1.00

2018 EFFICIENT FRONTIER



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- Past performance is no guarantee of future results.
- The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.
- Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.
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NEPC, LLC

YOU DEMAND MORE. So do we.[SM]

2017 Assumptions

NEPC Capital Market Assumptions

December 15, 2016

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | SAN FRANCISCO

Asset Class Assumptions

2017 5-to-7 Year Return Forecasts

Geometric Expected Return			
Asset Class	**2016**	**2017**	**2017-2016**
Cash	1.50%	1.75%	0.25%
Treasuries	1.75%	2.00%	0.25%
IG Corp Credit	3.75%	3.75%	-
MBS	2.00%	2.25%	0.25%
Core Bonds*	2.46%	2.65%	0.19%
TIPS	2.50%	3.00%	0.50%
High-Yield Bonds	5.25%	4.75%	-0.50%
Bank Loans	5.50%	5.25%	-0.25%
Global Bonds (Unhedged)	1.00%	1.00%	-
Global Bonds (Hedged)	1.09%	1.09%	-
EMD External	4.75%	4.75%	-
EMD Local Currency	6.50%	6.75%	0.25%
Large Cap Equities	6.00%	5.75%	-0.25%
Small/Mid Cap Equities	6.25%	6.00%	-0.25%
Int'l Equities (Unhedged)	7.25%	7.25%	-
Int'l Equities (Hedged)	7.57%	7.57%	-
Emerging Int'l Equities	9.75%	9.50%	-0.25%
Private Equity	8.50%	8.25%	-0.25%
Private Debt	7.50%	7.25%	-0.25%
Real Estate	6.50%	6.00%	-0.50%
Commodities	4.50%	4.75%	0.25%
Hedge Funds**	5.75%	5.95%	0.20%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).
** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2017 30-Year Return Forecasts

Geometric Expected Return			
Asset Class	**2016**	**2017**	**2017-2016**
Cash	3.00%	3.00%	-
Treasuries	3.25%	3.50%	0.25%
IG Corp Credit	5.00%	5.00%	-
MBS	3.50%	3.50%	-
Core Bonds*	3.89%	4.00%	0.11%
TIPS	4.00%	3.75%	-0.25%
High-Yield Bonds	5.75%	5.75%	-
Bank Loans	6.00%	6.00%	-
Global Bonds (Unhedged)	2.75%	2.75%	-
Global Bonds (Hedged)	2.87%	2.87%	-
EMD External	6.00%	5.75%	-0.25%
EMD Local Currency	6.50%	6.50%	-
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	8.00%	7.75%	-0.25%
Int'l Equities (Hedged)	8.39%	8.14%	-0.25%
Emerging Int'l Equities	9.50%	9.50%	-
Private Equity	9.50%	9.50%	-
Private Debt	8.00%	8.00%	-
Real Estate	6.50%	6.50%	-
Commodities	5.50%	5.50%	-
Hedge Funds**	6.50%	6.47%	-0.03%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).
** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2017 Volatility Forecasts

Volatility			
Asset Class	**2016**	**2017**	**2017-2016**
Cash	1.00%	1.00%	-
Treasuries	5.50%	5.50%	-
IG Corp Credit	7.50%	7.50%	-
MBS	7.00%	7.00%	-
Core Bonds*	6.03%	6.03%	-
TIPS	6.50%	6.50%	-
High-Yield Bonds	13.00%	13.00%	-
Bank Loans	9.00%	9.00%	-
Global Bonds (Unhedged)	8.50%	8.50%	-
Global Bonds (Hedged)	5.00%	5.00%	-
EMD External	13.00%	13.00%	-
EMD Local Currency	15.00%	15.00%	-
Large Cap Equities	17.50%	17.50%	-
Small/Mid Cap Equities	21.00%	21.00%	-
Int'l Equities (Unhedged)	21.00%	21.00%	-
Int'l Equities (Hedged)	18.00%	18.00%	-
Emerging Int'l Equities	27.00%	28.00%	1.00%
Private Equity	23.00%	23.00%	-
Private Debt	15.00%	14.00%	-1.00%
Real Estate	15.00%	15.00%	-
Commodities	19.00%	19.00%	-
Hedge Funds**	9.00%	8.74%	-0.26%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).
** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

2017 5-to-7 Year Return Forecasts

Geometric Expected Return			
Asset Class	**2016**	**2017**	**2017-2016**
Short Treasuries	1.75%	2.00%	0.25%
US 10 Yr. Treasury	1.75%	2.00%	0.25%
Long Treasuries	2.25%	1.75%	-0.50%
20+ Yr. STRIPS	2.00%	1.50%	-0.50%
Short Credit	2.50%	2.75%	0.25%
Long Credit	5.50%	4.25%	-1.25%
Long Government/Credit*	4.31%	3.33%	-0.98%
Global Cash**	0.00%	0.25%	0.25%
Global 10 Yr. Sovereigns**	0.25%	0.50%	0.25%
Global Inflation-Linked Bonds	2.00%	1.00%	-1.00%
Short High Yield	4.75%	5.00%	0.25%
Municipal Bonds	2.25%	2.25%	-
Global Equity***	7.23%	7.08%	-0.15%
MLPs	7.00%	7.15%	0.15%
REITs	6.75%	6.50%	-0.25%
Real Assets (Liquid)****	5.85%	5.99%	0.14%
Private Real: Energy/Metals	-	8.25%	-
Private Real: Infrastructure/Land	-	6.00%	-
Hedge Funds - Long/Short	6.25%	6.25%	-
Hedge Funds – Credit	5.25%	5.25%	-
Hedge Funds – Macro	6.00%	6.25%	0.25%

* Assumption based on market weighted blend of index components (Long Treasuries and Long Credit)
** Custom weighted blend of Australia, Canada, Germany, Japan, and United Kingdom
*** Assumption based on market weighted blend of index components (MSCI ACWI IMI)
**** Real Assets (Liquid) is a custom blend of TIPS, Global Equity, and Commodities

2017 30-Year Return Forecasts

Geometric Expected Return			
Asset Class	**2016**	**2017**	**2017-2016**
Short Treasuries	3.00%	3.00%	-
US 10 Yr. Treasury	3.50%	3.50%	-
Long Treasuries	3.50%	3.75%	0.25%
20+ Yr. STRIPS	3.50%	3.75%	0.25%
Short Credit	3.75%	3.75%	-
Long Credit	5.75%	5.75%	-
Long Government/Credit*	4.95%	5.04%	0.09%
Global Cash**	1.50%	2.00%	0.50%
Global 10 Yr. Sovereigns**	2.50%	2.50%	-
Global Inflation-Linked Bonds	2.75%	2.75%	-
Short High Yield	5.75%	5.75%	-
Municipal Bonds	3.75%	3.75%	-
Global Equity***	8.32%	8.24%	-0.08%
MLPs	7.50%	7.50%	-
REITs	6.75%	6.75%	-
Real Assets (Liquid)****	7.00%	6.94%	-0.06%
Private Real: Energy/Metals	-	7.75%	-
Private Real: Infrastructure/Land	-	6.00%	-
Hedge Funds - Long/Short	7.25%	7.25%	-
Hedge Funds – Credit	5.50%	5.50%	-
Hedge Funds – Macro	6.25%	6.25%	-

* Assumption based on market weighted blend of index components (Long Treasuries and Long Credit)
** Custom weighted blend of Australia, Canada, Germany, Japan, and United Kingdom
*** Assumption based on market weighted blend of index components (MSCI ACWI IMI)
**** Real Assets (Liquid) is a custom blend of TIPS, Global Equity, and Commodities

2017 Volatility Forecasts

Volatility			
Asset Class	**2016**	**2017**	**2017-2016**
Short Treasuries	2.50%	2.50%	-
US 10 Yr. Treasury	7.50%	7.50%	-
Long Treasuries	12.00%	12.00%	-
20+ Yr. STRIPS	18.00%	19.00%	1.00%
Short Credit	3.50%	3.50%	-
Long Credit	13.00%	13.00%	-
Long Government/Credit*	12.02%	12.01%	-0.01%
Global Cash**	1.00%	1.00%	-
Global 10 Yr. Sovereigns**	6.50%	6.50%	-
Global Inflation-Linked Bonds	6.00%	6.00%	-
Short High Yield	9.00%	9.00%	-
Municipal Bonds	7.00%	7.00%	-
Global Equity***	17.95%	18.04%	0.09%
MLPs	21.00%	20.00%	-1.00%
REITs	21.00%	21.00%	-
Real Assets (Liquid)****	12.79%	12.86%	0.07%
Private Real: Energy/Metals	-	21.00%	-
Private Real: Infrastructure/Land	-	14.00%	-
Hedge Funds - Long/Short	11.50%	11.00%	-0.50%
Hedge Funds – Credit	8.00%	9.50%	1.50%
Hedge Funds – Macro	9.50%	9.50%	-

* Assumption based on market weighted blend of index components (Long Treasuries and Long Credit)
** Custom weighted blend of Australia, Canada, Germany, Japan, and United Kingdom
*** Assumption based on market weighted blend of index components (MSCI ACWI IMI)
**** Real Assets (Liquid) is a custom blend of TIPS, Global Equity, and Commodities

We use market data for all asset class assumptions as of November 30th

Assumptions combine historical data and forward looking analysis

- Expected returns based on current market pricing and forward looking estimates
- Volatility informed by history but adjusted to reflect non-normality
- Correlations based on long-term data but recognize ongoing shifts in asset relationships

Forward-looking asset class models to determine expected return are based on current market pricing and a building blocks approach

- Expected return equals yield plus change in price (valuation, roll down, defaults, etc.)
- Country/regional inflation and real growth estimates are key economic observations
- Qualitative inputs and investor sentiment (capital flows, etc.) inform the return outlook

Asset class assumptions are prepared by the Asset Allocation Committee

- Asset Allocation team plus members from consulting practice groups meet to develop ideas for Key Market Themes, Strategic Policy Actions, and Current Opportunities

Partners Research Committee approves asset class assumptions

We continue to refine our assumptions process where appropriate and changes are evolutionary rather than revolutionary

Separated the asset class assumption for private real assets into two categories; energy/metals and infrastructure/land

- Draws a more clear distinction between the volatility and return profile of the two assets
- Energy/metals reflects the higher volatility of the underlying commodity input
- Infrastructure/land reflects the lower volatility of infrastructure, timber, and farmland

Refined our equity models to reflect market specific growth and inflation building blocks for each equity asset class

- Building blocks are constructed from country growth and inflation inputs derived from the allocation of revenues across geographic regions
- International equity models expanded to include both a top-down index view and bottom-up country models based upon underlying country index weights

Broadened our global bond country list to reflect a wider range of potential index exposures for both developed and emerging markets

- Global fixed income model now captures more than 30 local interest rate markets

Our outlook for US CPI is 2.5% over 5-7 years and 2.75% over 30 years

Our assumption is informed by break-even inflation expectations and local price indices

Inflation is an integral component of our asset allocation assumptions

Represents an essential building block for creating asset class returns

There are multiple inflation sources used to inform our asset class views

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, and break-even inflation expectations

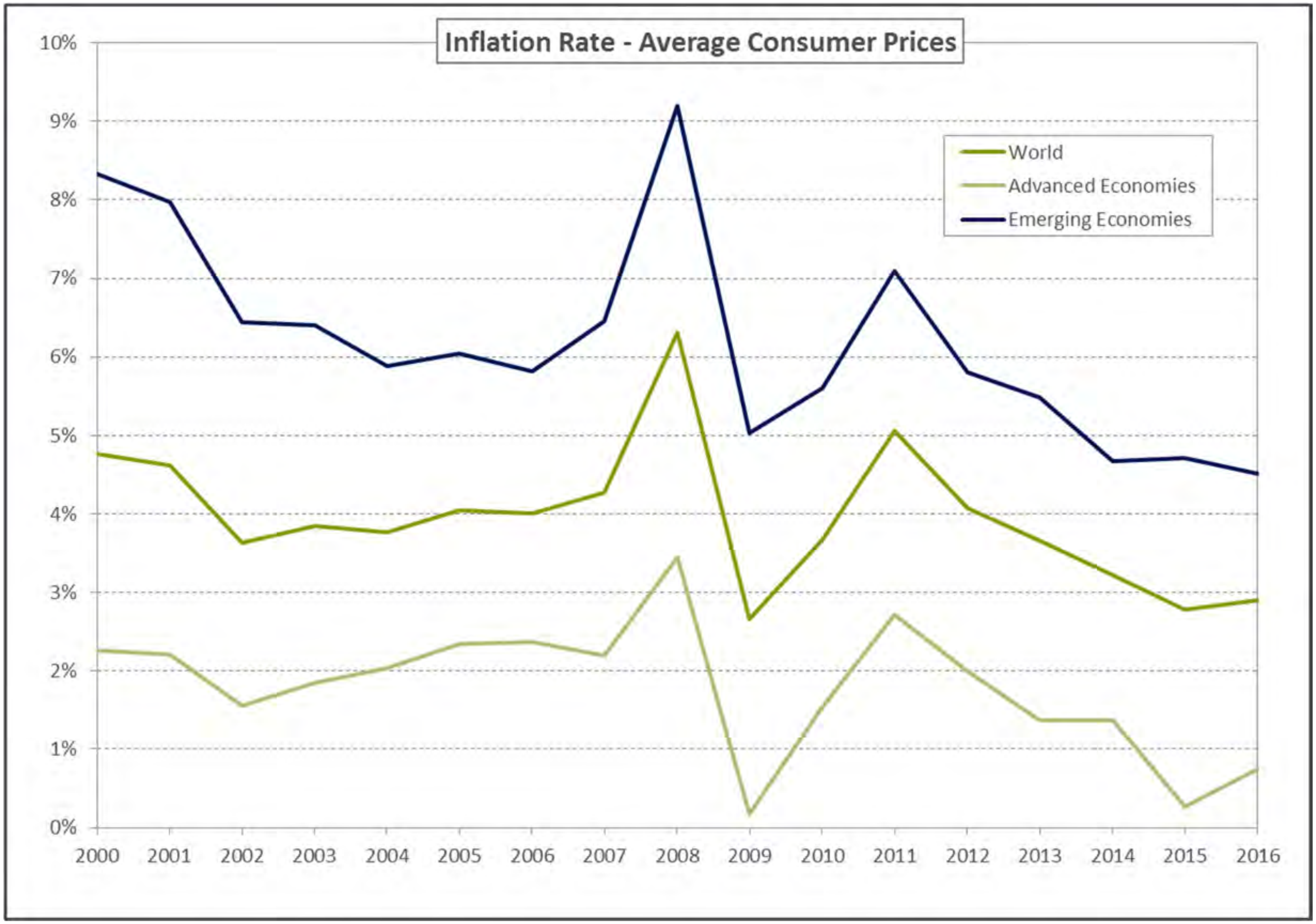
Asset classes include various inflation inputs incorporating global inflation data and/or local market inputs

Equity inflation expectations over 5-7 years are each constructed from country inflation inputs derived from the allocation of revenues across geographic regions

Over 30 years we assume equity markets will converge to a global inflation building block that assumes a terminal value of 3.25%

Fixed income assumptions for developed and emerging markets incorporate country specific inflation expectations as implied by forward interest rate curves

Global Inflation Forecasts



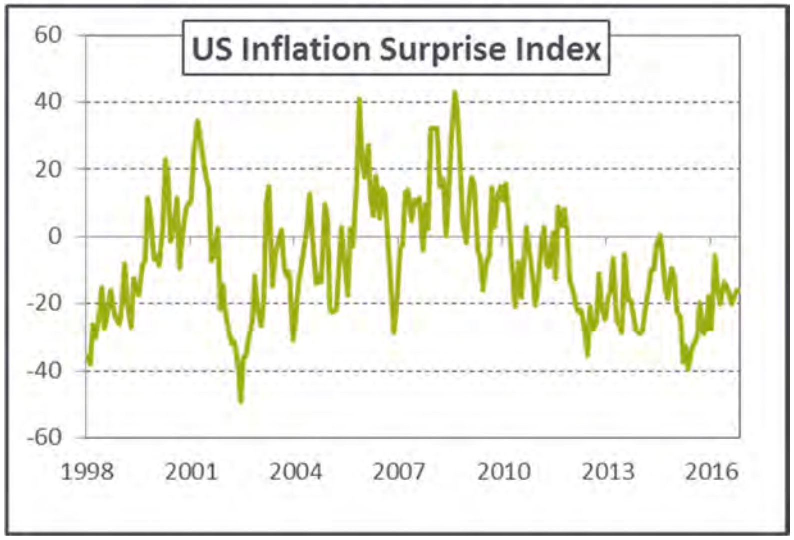
Source: IMF, Bloomberg

Realized US Inflation Remains Relatively Low

Source: Bureau of Labor Statistics, Bloomberg

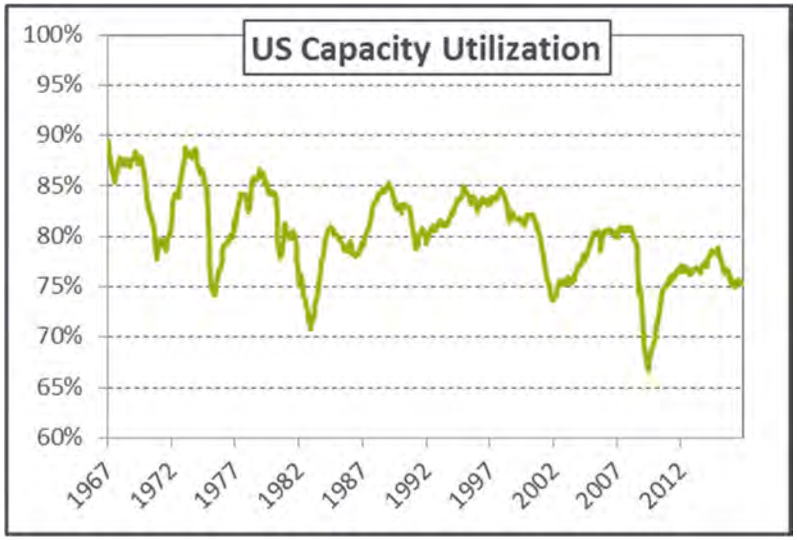
US Markets are Discounting Marginally Higher US Inflation

Source: Bloomberg



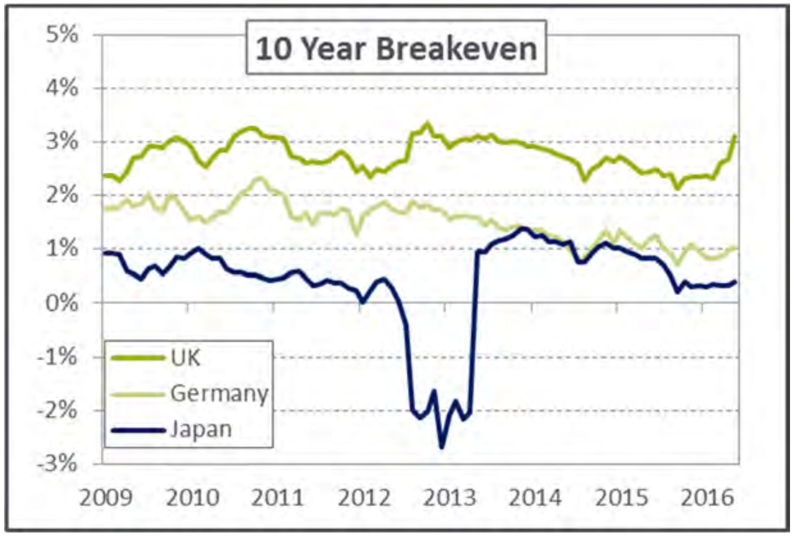
Source: Citigroup Global Markets, Bloomberg

Source: Bureau of Labor Statistics, Bloomberg



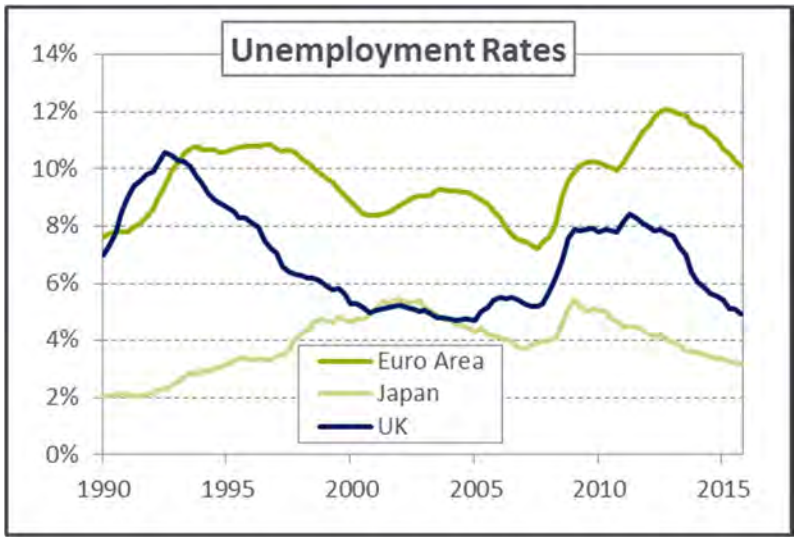
Source: Federal Reserve, Bloomberg

Economic Factors Driving Developed Market Inflation Remain Muted

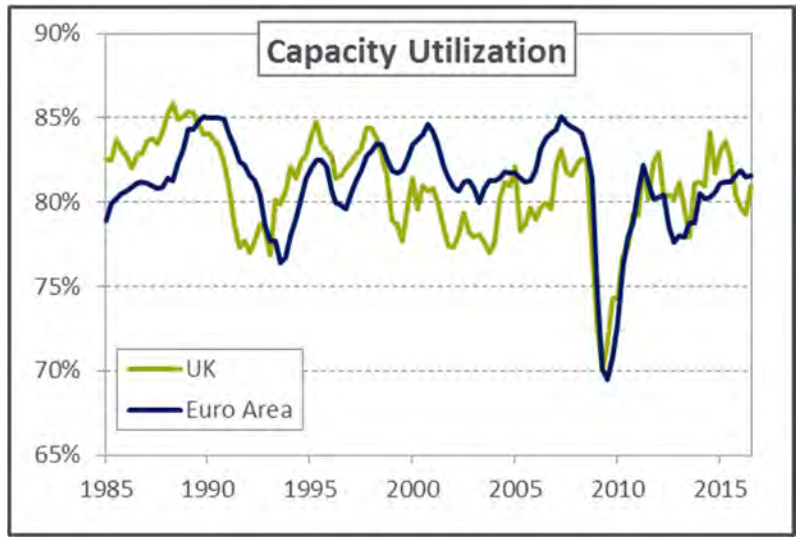


Source: Bloomberg

Source: Citigroup Global Markets, Bloomberg

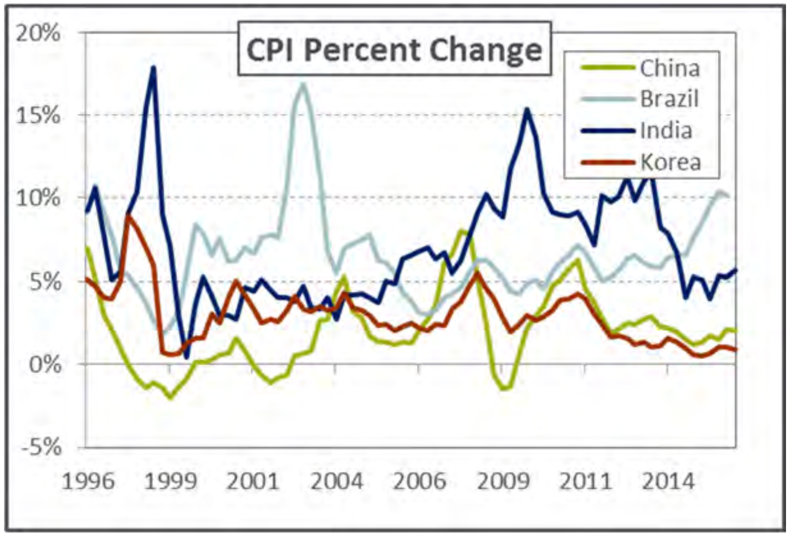


Source: Bloomberg

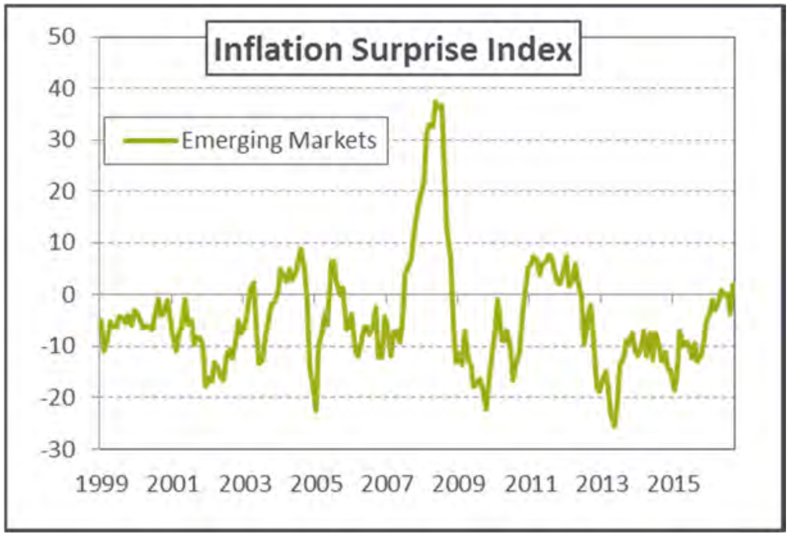


Source: OECD, Bloomberg

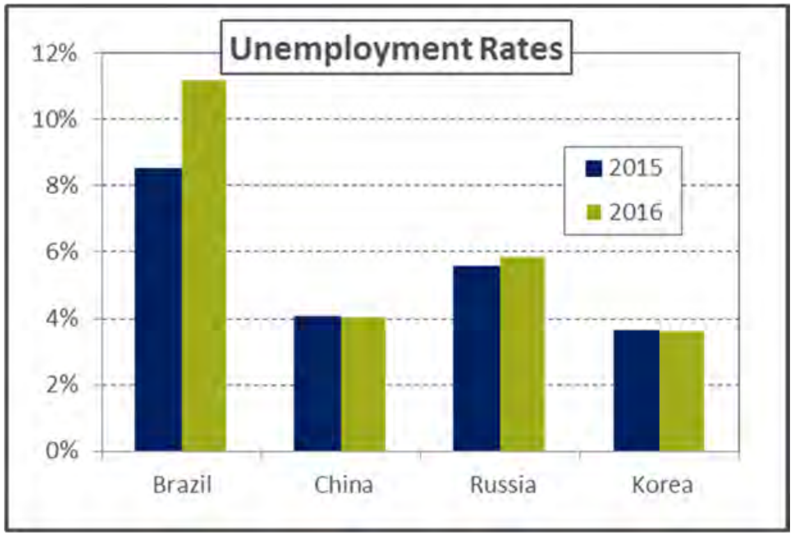
Emerging Market Inflation is Influenced by Country and Regional Dynamics



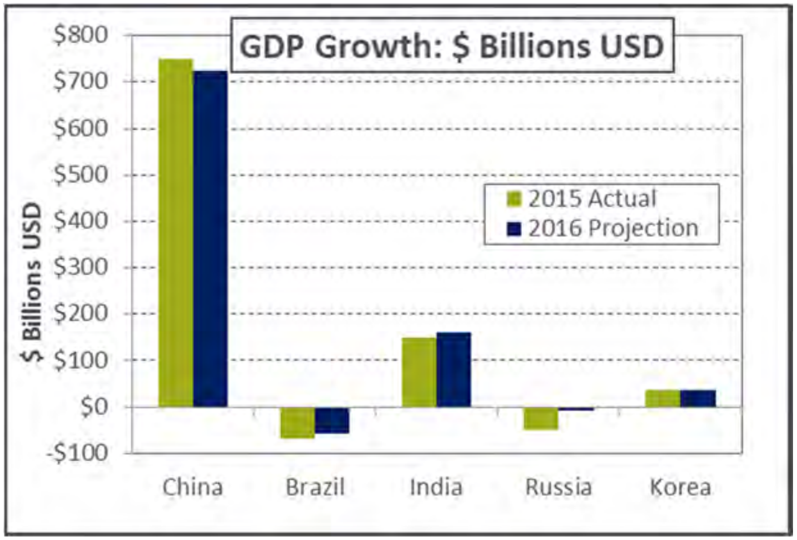
Source: IMF, Bloomberg



Source: Citigroup, Bloomberg

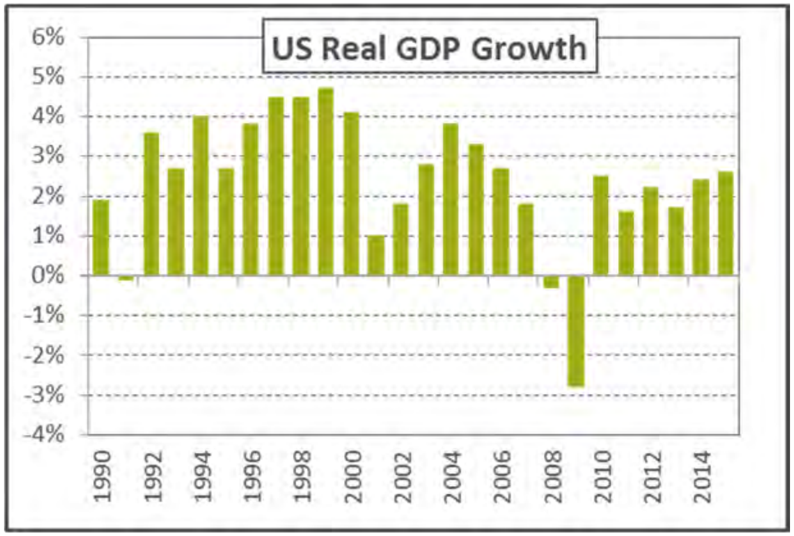


Source: IMF

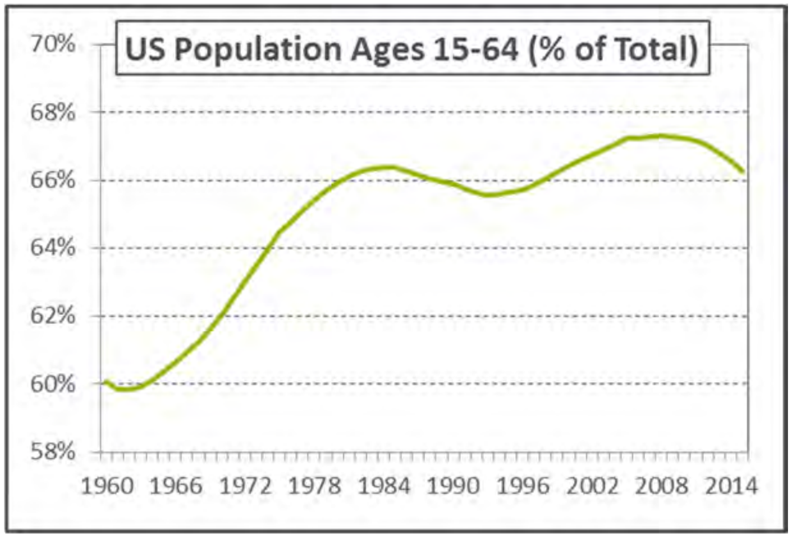


Source: The World Bank, Bloomberg

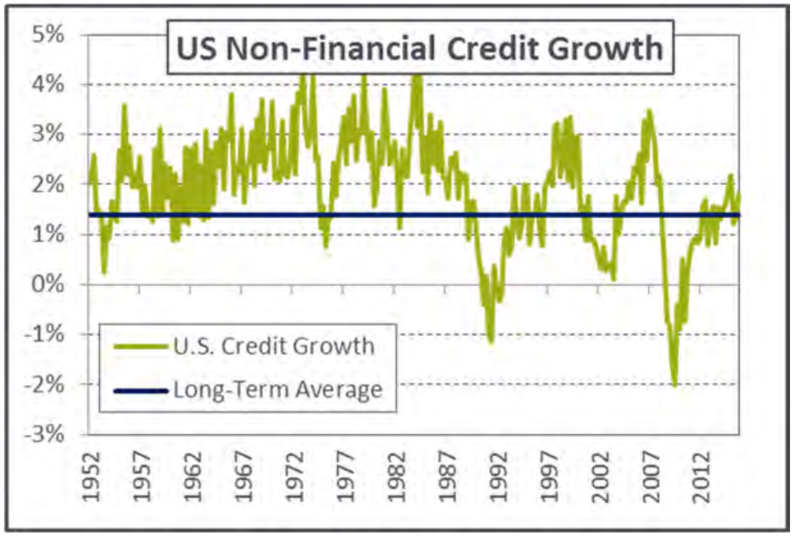
US Growth Remains Subdued Relative to Prior Economic Expansions



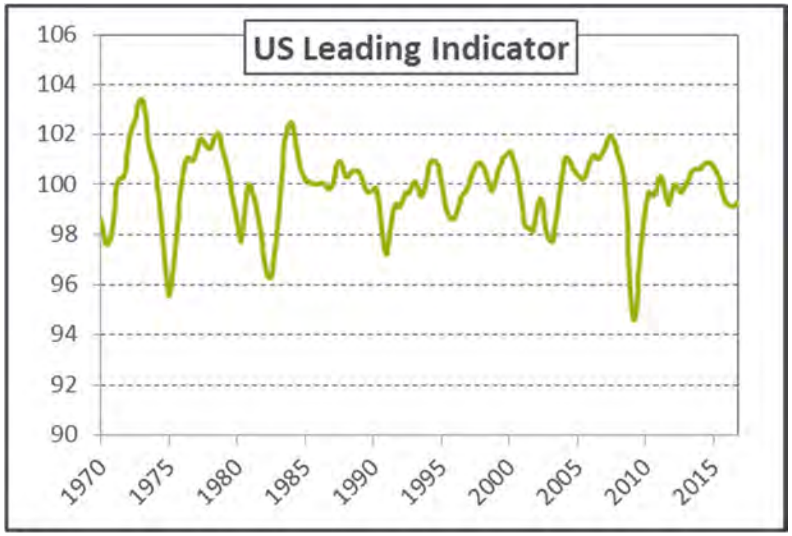
Source: Bloomberg



Source: The World Bank

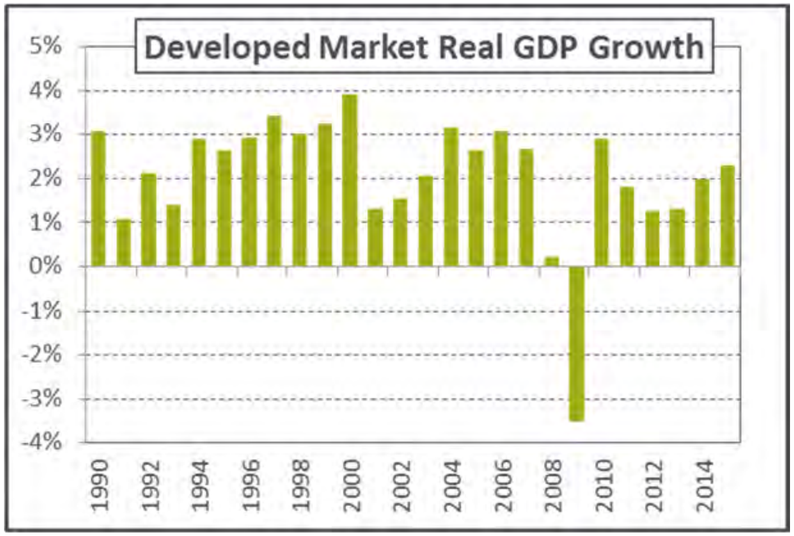


Source: Bank of International Settlements

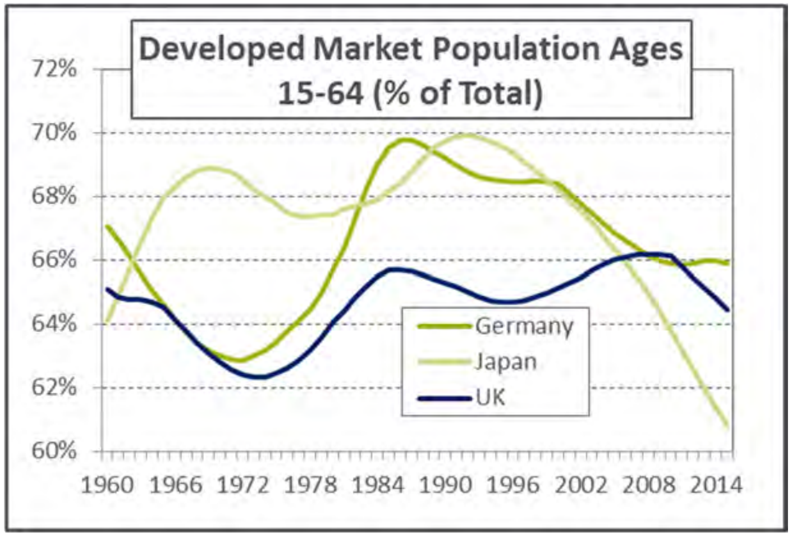


Source: OECD, Bloomberg

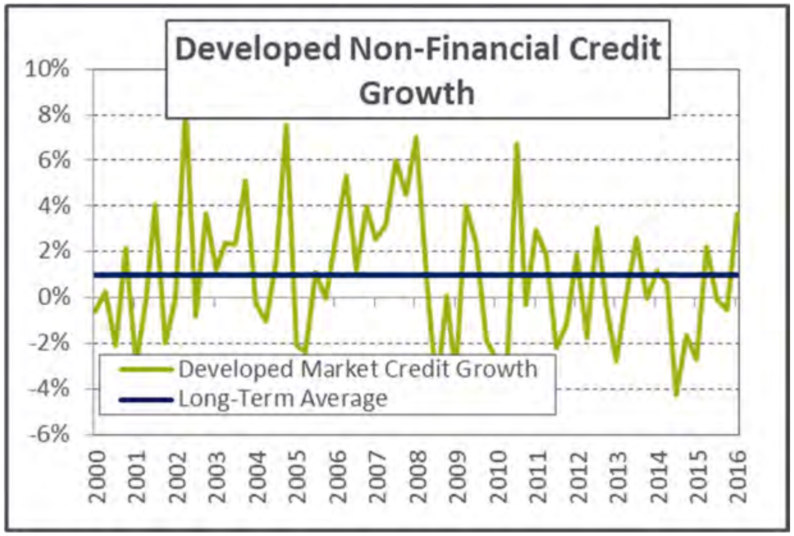
Developed Market Growth Rates are Improving



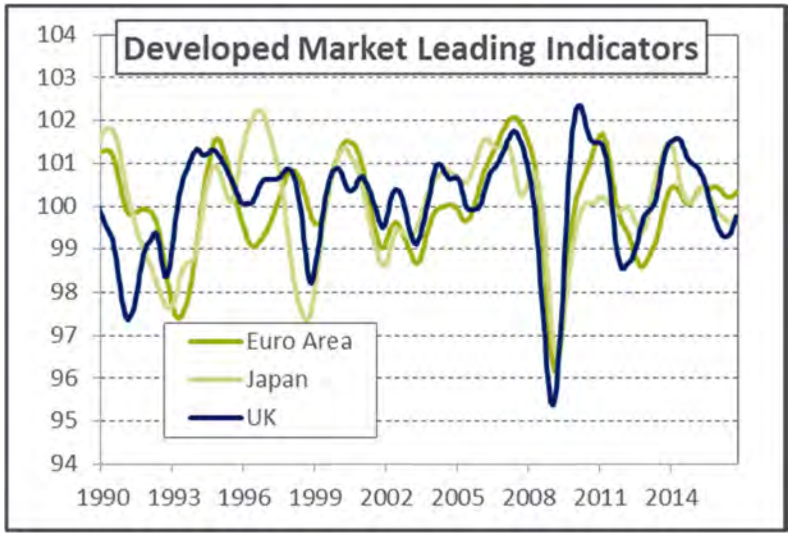
Source: OECD, Bloomberg



Source: The World Bank

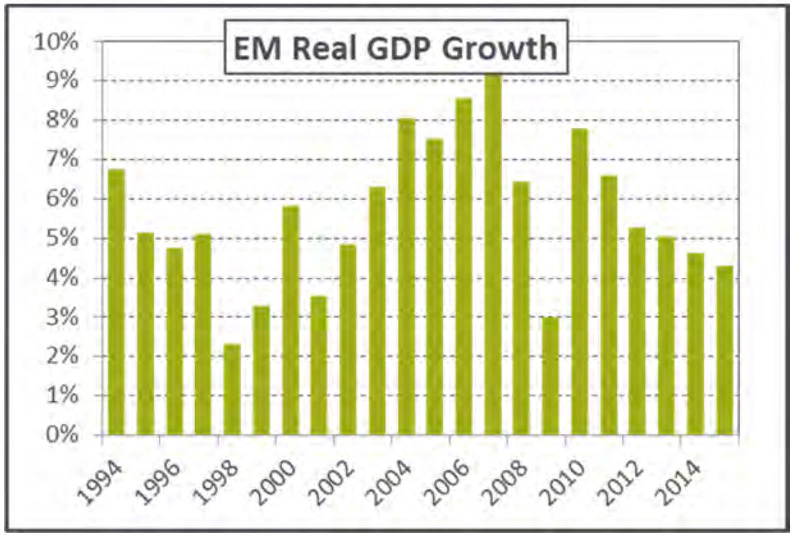


Source: Bank of International Settlements

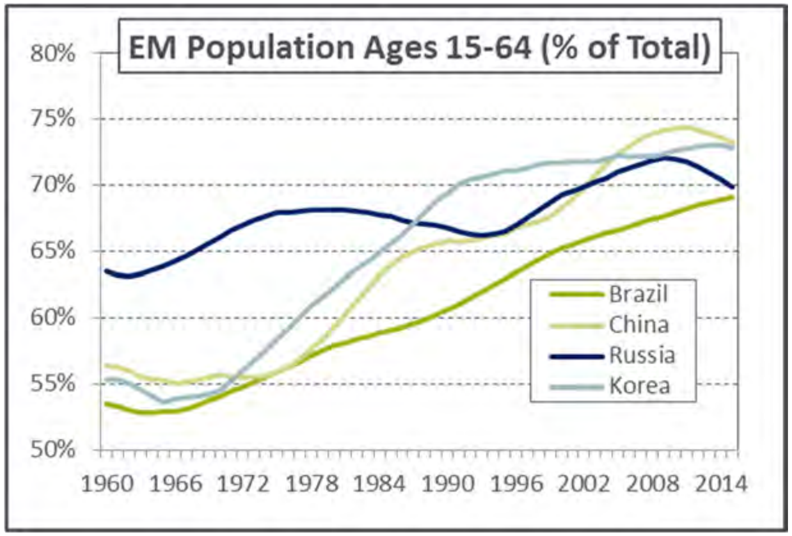


Source: OECD, Bloomberg

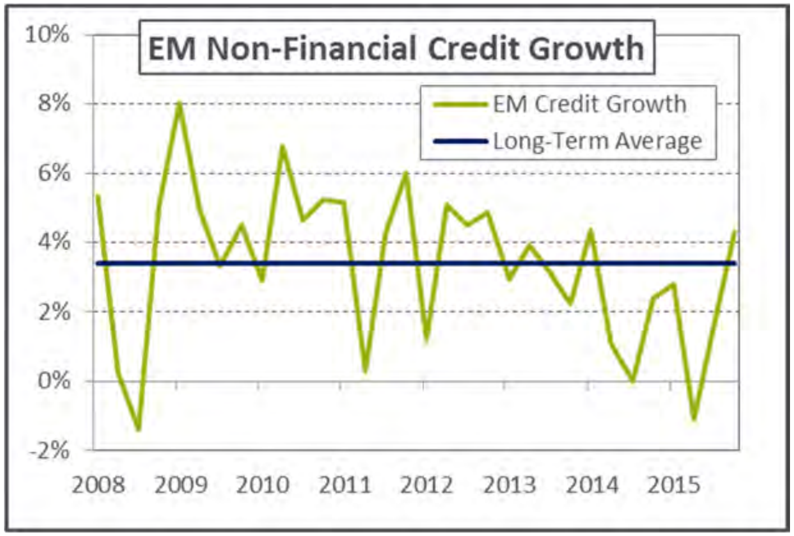
Emerging Market Growth Relative to Developed Markets is Expanding



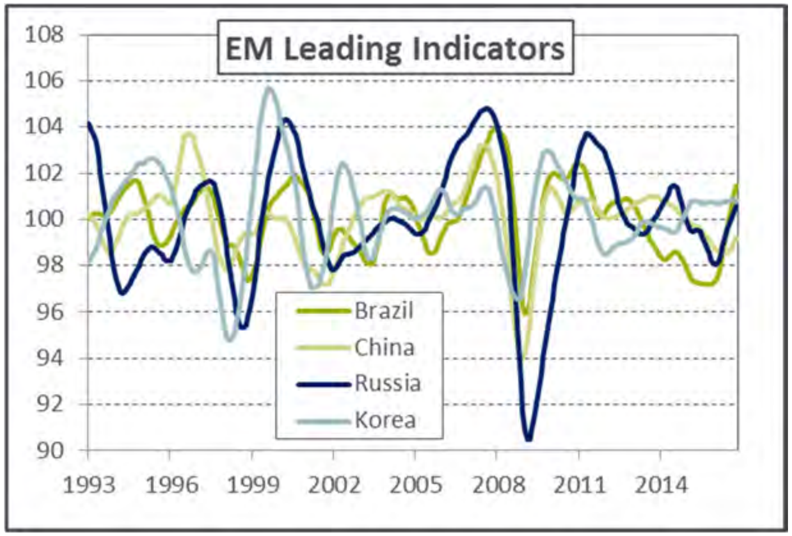
Source: Bloomberg



Source: The World Bank

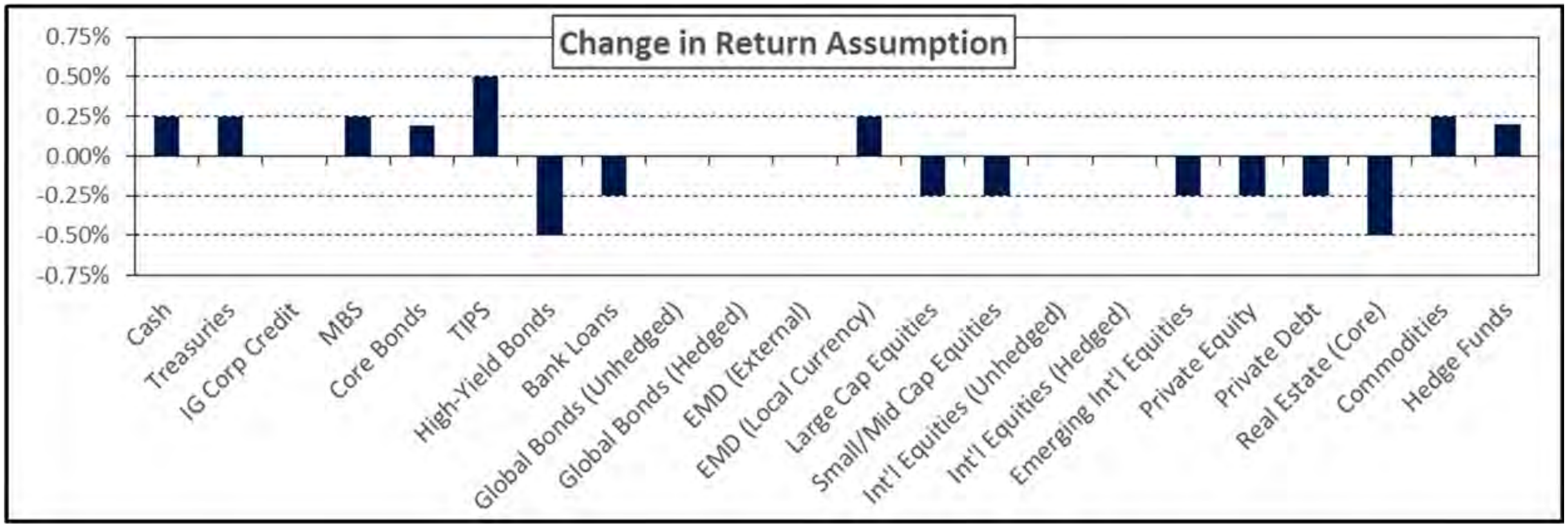


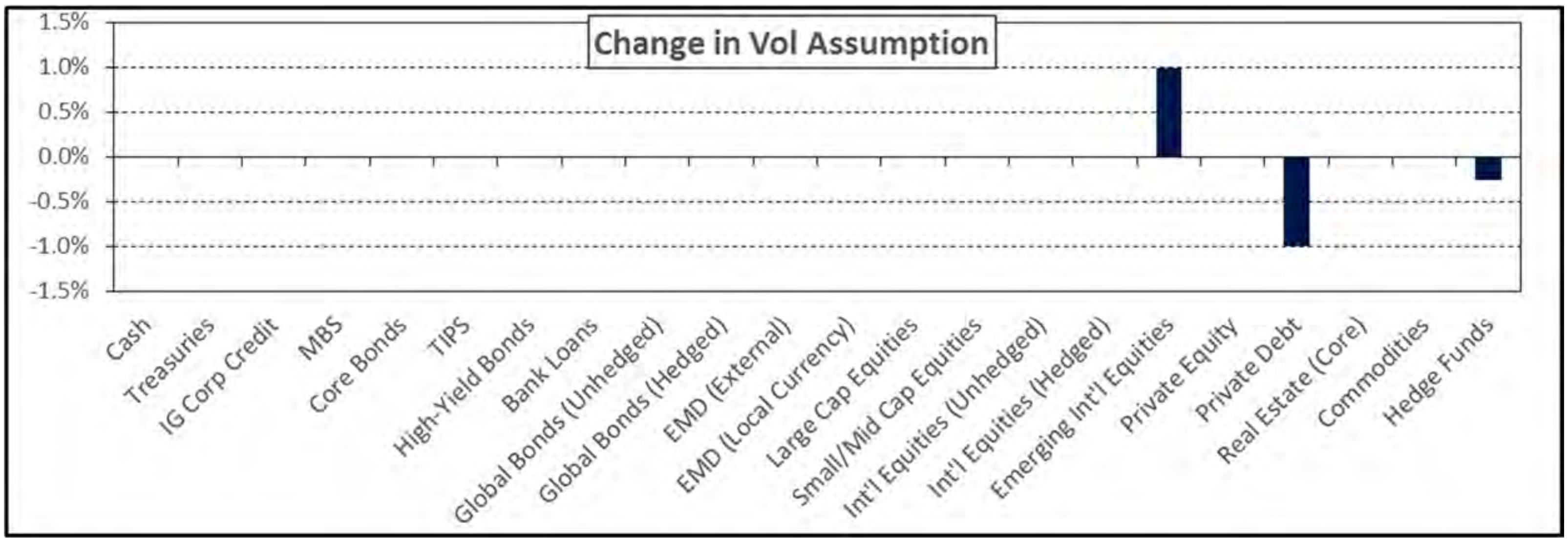
Source: Bank of International Settlements



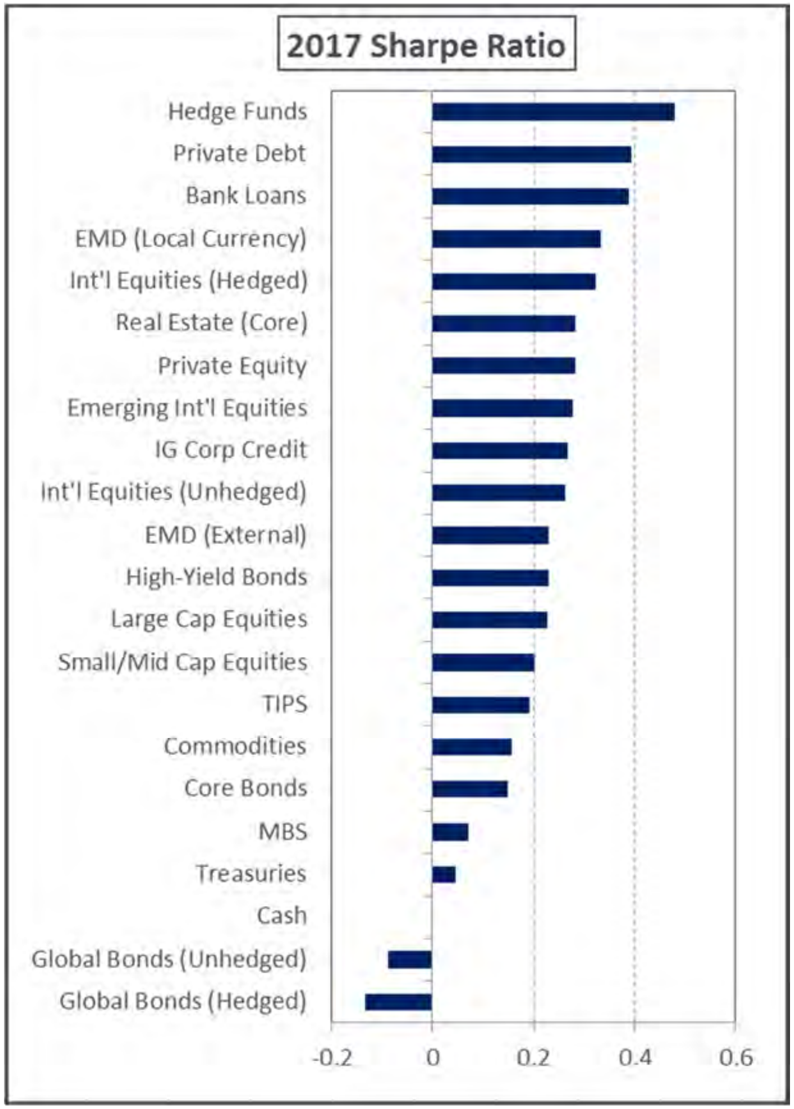
Source: OECD, Bloomberg

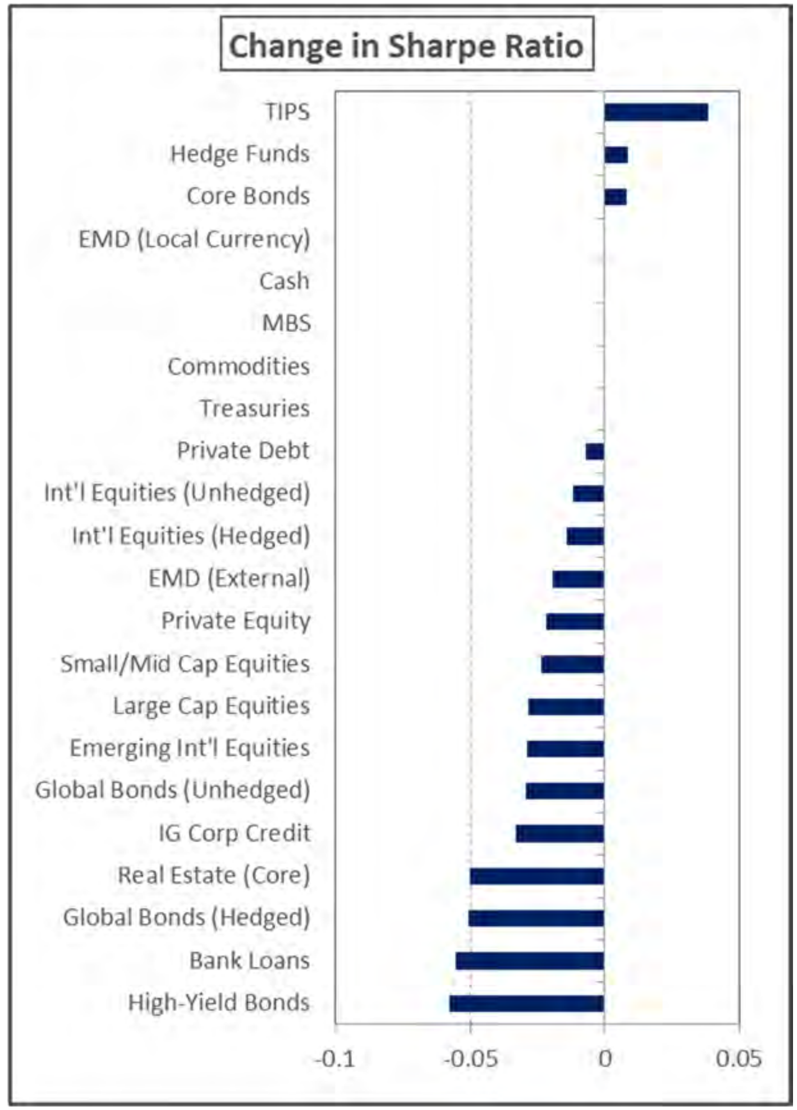
Summary of Changes to 2017 Return and Volatility Expectations





Summary of Changes to 2017 Return and Volatility Expectations

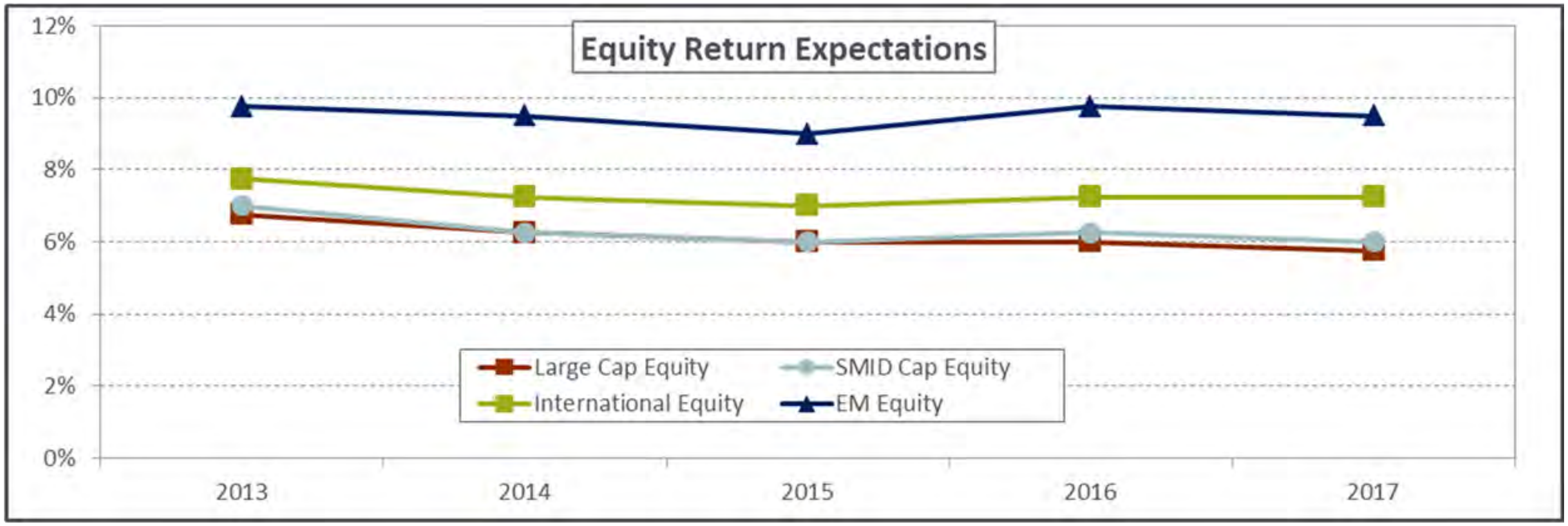


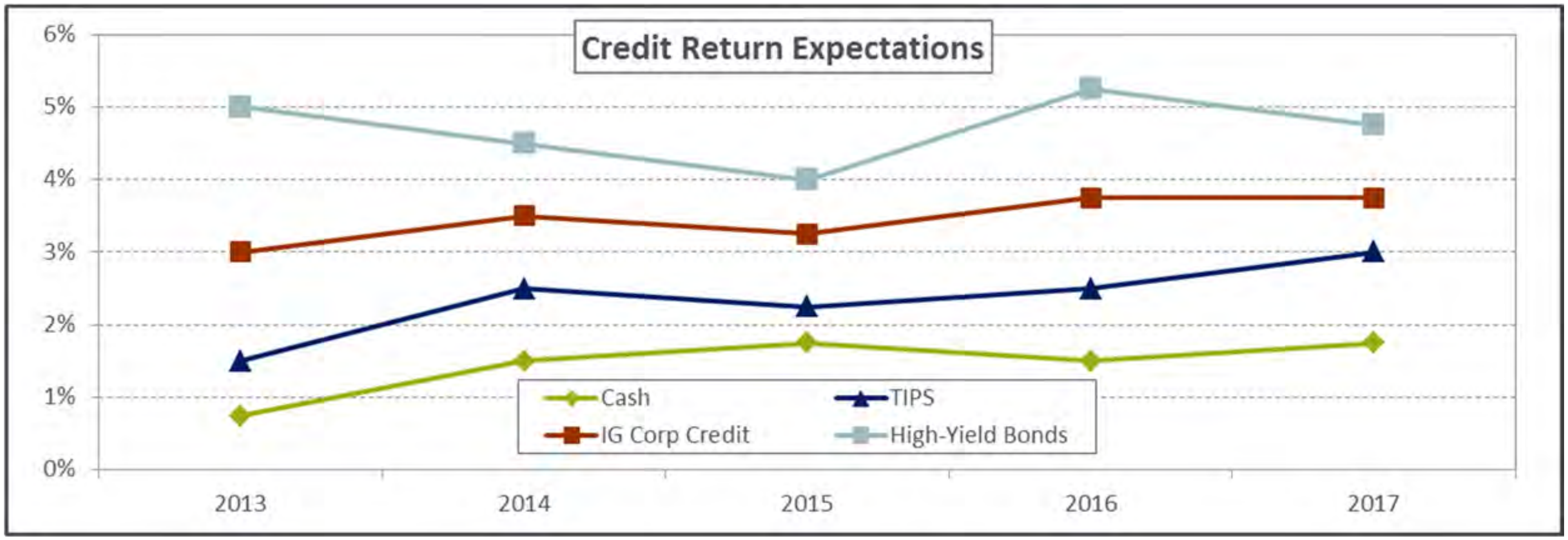


2017 Correlations

Asset Class	Cash	Treas.	IG Corp Credit	MBS	TIPS	HY Bonds	Global Bonds	EMD (Ext)	EMD (Lcl)	Large Cap	Small/ Mid Cap	Int'l Eqty	EM Int'l	Priv Equity	Priv Debt	PRA - Energy	PRA – Infr./ Land	Real Estate (Core)	Bank Loans	HF - L/S	HF - Credit	HF - Macro
Cash	1.00																					
Treasuries	0.20	1.00																				
IG Corp Credit	0.10	0.65	1.00																			
MBS	0.25	0.90	0.75	1.00																		
TIPS	0.35	0.65	0.60	0.70	1.00																	
High-Yield Bonds	-0.05	0.20	0.55	0.30	0.20	1.00																
Global Bonds	0.10	0.50	0.50	0.45	0.40	0.10	1.00															
EMD (External)	0.05	0.35	0.65	0.35	0.30	0.60	0.25	1.00														
EMD (Local)	0.05	0.30	0.60	0.25	0.25	0.60	0.30	0.80	1.00													
Large Cap Equities	-0.10	-0.10	0.45	0.10	0.00	0.65	0.00	0.55	0.65	1.00												
Small/Mid Cap Equities	-0.15	-0.15	0.45	0.10	-0.10	0.70	-0.05	0.55	0.60	0.90	1.00											
Int'l Equities	-0.10	0.00	0.30	0.05	-0.05	0.65	0.35	0.60	0.70	0.70	0.60	1.00										
Emerging Int'l Equities	-0.10	-0.10	0.25	-0.10	-0.10	0.70	0.05	0.70	0.80	0.60	0.65	0.70	1.00									
Private Equity	-0.20	-0.15	0.30	0.10	-0.10	0.60	-0.15	0.35	0.40	0.70	0.75	0.60	0.45	1.00								
Private Debt	0.00	-0.35	0.15	-0.15	-0.10	0.65	-0.10	0.50	0.60	0.60	0.65	0.75	0.80	0.65	1.00							
Private Real Assets Energy/Metals	-0.05	-0.20	0.20	-0.05	-0.05	0.50	-0.10	0.40	0.40	0.65	0.70	0.55	0.50	0.85	0.65	1.00						
Private Real Assets Infrastructure/Land	0.15	-0.05	0.10	-0.05	0.05	0.40	0.05	0.35	0.40	0.50	0.50	0.45	0.40	0.60	0.50	0.75	1.00					
Real Estate (Core)	0.10	0.10	0.15	0.05	0.10	0.35	0.15	0.25	0.40	0.40	0.40	0.35	0.30	0.50	0.40	0.45	0.70	1.00				
Bank Loans	0.00	-0.35	0.10	-0.20	-0.05	0.65	-0.10	0.25	0.25	0.50	0.55	0.50	0.50	0.55	0.70	0.55	0.35	0.20	1.00			
Hedge Funds – L/S	0.00	-0.25	0.35	-0.10	0.15	0.60	0.15	0.60	0.70	0.75	0.80	0.80	0.80	0.75	0.80	0.70	0.45	0.20	0.50	1.00		
Hedge Funds – Credit	0.00	-0.10	0.40	0.00	0.25	0.65	0.00	0.55	0.55	0.55	0.55	0.60	0.60	0.70	0.75	0.65	0.40	0.15	0.65	0.70	1.00	
Hedge Funds - Macro	0.00	0.15	0.45	0.25	0.45	0.35	0.30	0.45	0.45	0.25	0.25	0.30	0.40	0.40	0.40	0.40	0.30	0.15	0.25	0.50	0.50	1.00

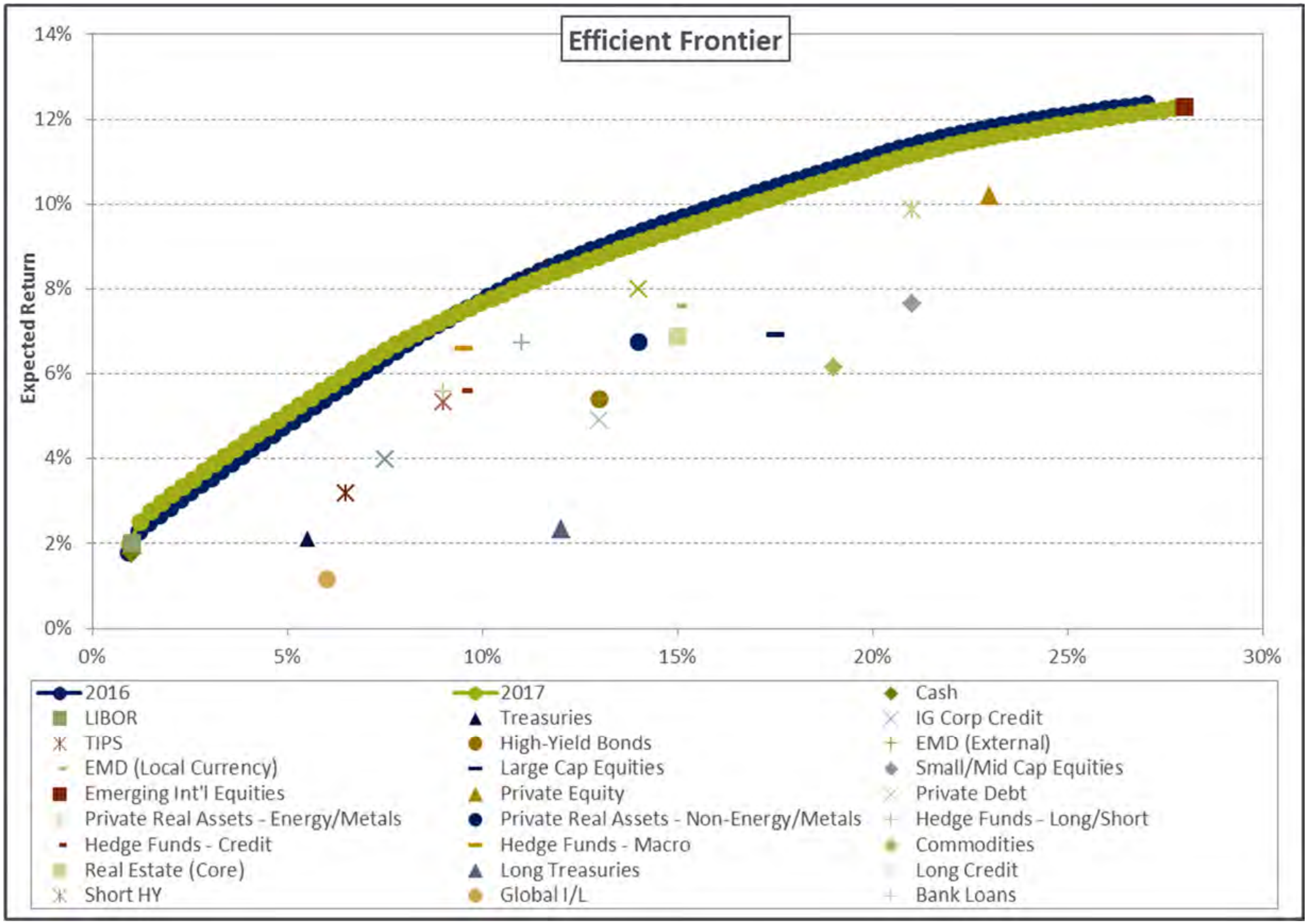
Historic 5-7 Year Return Expectations





Portfolio Construction

Efficient Frontier Comparison



2016 and 2017 Efficient Frontier Portfolios: 10% Standard Deviation

	2016 Unconstrained	2016 Constrained	2017 Unconstrained	2017 Constrained
Large Cap Equities	0%	9%	0%	0%
Int'l Equities (Unhedged)	0%	5%	0%	0%
Int'l Equities (Hedged)	0%	5%	12%	23%
Emerging Int'l Equities	9%	6%	8%	8%
Total Equity	**9%**	**24%**	**20%**	**31%**
TIPS	0%	0%	0%	12%
IG Corp Credit	0%	7%	0%	0%
Bank Loans	0%	0%	4%	7%
EMD (Local)	0%	0%	0%	10%
20+ STRIPS	0%	0%	0%	5%
Long Treasuries	0%	6%	0%	0%
Long Credit	36%	25%	0%	0%
Total Fixed Income	**36%**	**38%**	**4%**	**34%**
Private Equity	3%	0%	0%	0%
Private Debt	4%	2%	0%	0%
Private Real Assets	13%	13%	10%	9%
Real Estate (Core)	27%	19%	14%	2%
Hedge Funds	7%	0%	52%	24%
Total Alternatives	**55%**	**35%**	**76%**	**35%**
Commodities	0%	3%	0%	0%
Total Other	**0%**	**3%**	**0%**	**0%**

Expected Return (5-7 years)	***7.4%***	***6.9%***	***7.3%***	***6.9%***
Expected Return (30 years)	***7.6%***	***7.4%***	***7.5%***	***7.3%***
Standard Dev of Asset Return	***10.0%***	***10.0%***	***10.0%***	***10.0%***

Diversified Portfolio Return/Risk Comparison

	Sample Allocation	65/35	Risk Parity[1]
Large Cap Equities	0%	35%	0%
Small/Mid Cap Equities	0%	15%	0%
Int'l Equities (Unhedged)	0%	12%	0%
Emerging Int'l Equities	0%	3%	0%
Global Equities	50%	0%	0%
Total Equity	**50%**	**65%**	**0%**
Core Bonds	10%	25%	0%
High-Yield Bonds	0%	5%	0%
Global Bonds (Unhedged)	0%	5%	0%
Global Multi-Sector	15%	0%	0%
Total Fixed Income	**25%**	**35%**	**0%**
Private Equity	10%	0%	0%
Private Debt	5%	0%	0%
Real Estate	5%	0%	0%
Hedge Funds	5%	0%	0%
Total Alternatives	**25%**	**0%**	**0%**
Global Asset Allocation	0%	0%	0%
Risk Parity	0%	0%	100%
Total Other	**0%**	**0%**	**100%**
2016 Expected Return (5-7 years)	***6.6%***	***5.5%***	***5.4%***
2016 Expected Return (30 years)	***7.7%***	***6.9%***	***6.8%***
2016 Standard Deviation	***13.0%***	***12.4%***	***12.6%***
2017 Expected Return (5-7 years)	***6.5%***	***5.4%***	***5.1%***
2017 Expected Return (30 years)	***7.6%***	***6.9%***	***6.6%***
2017 Standard Deviation	***13.0%***	***12.4%***	***12.6%***

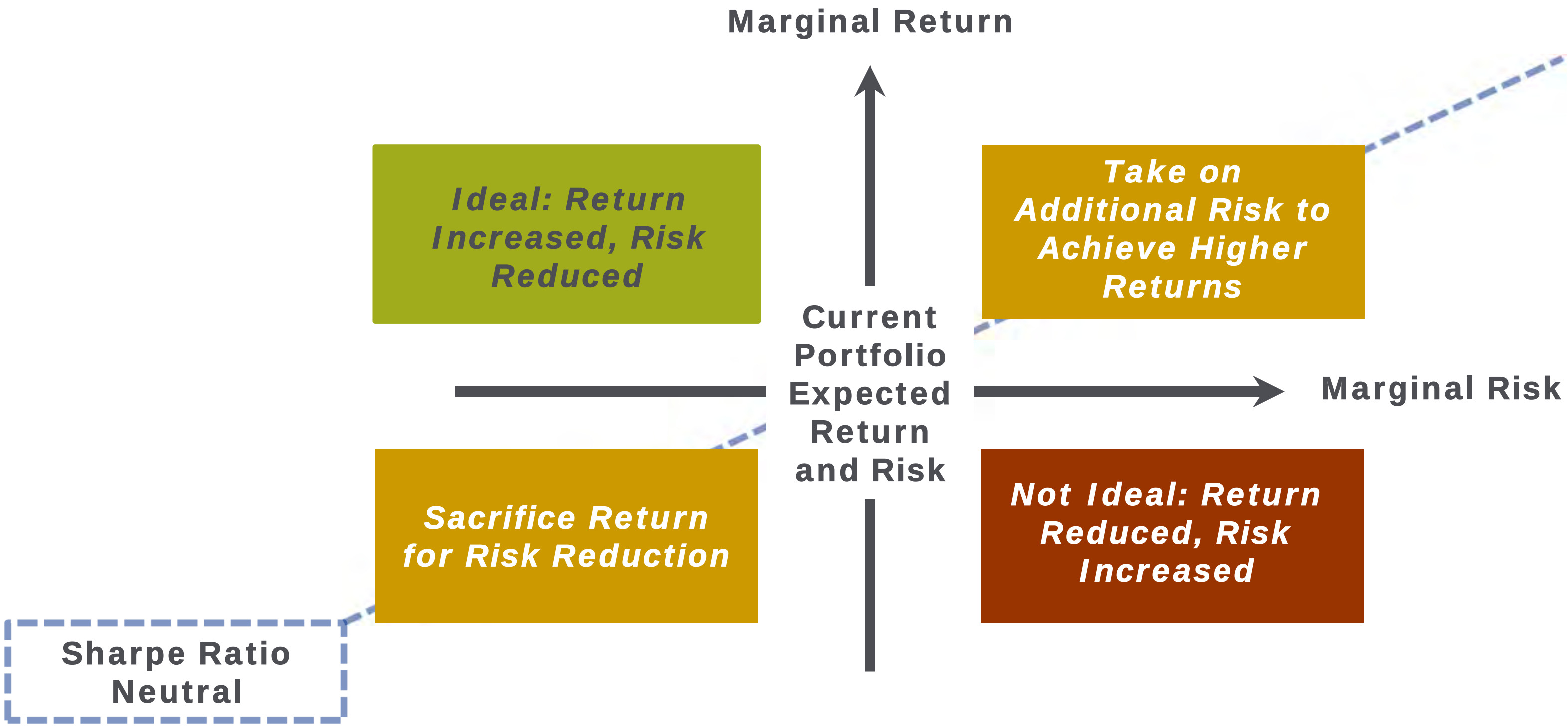
[1]Equal weight to AQR, Panagora and Bridgewater products

Thinking about the marginal impact on risk and return from each asset class can be useful in evaluating asset allocation decisions

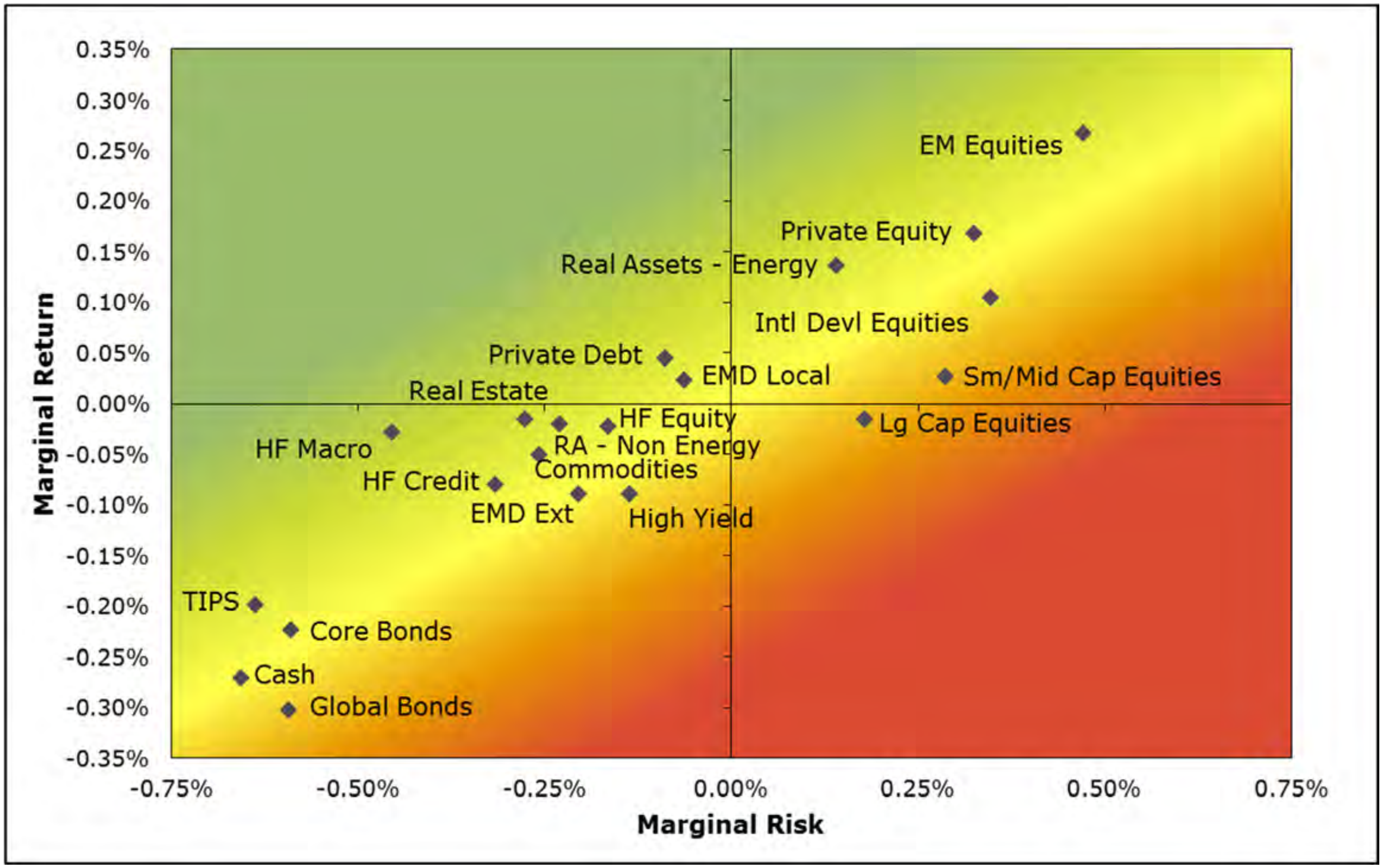
In the analysis that follows, the marginal impact of increasing an allocation to a given asset class is plotted for a progressive portfolio and a traditional 65/35 allocation

Uses mean-variance assumptions

Certain limitations (particularly liquidity) should be considered outside of this framework



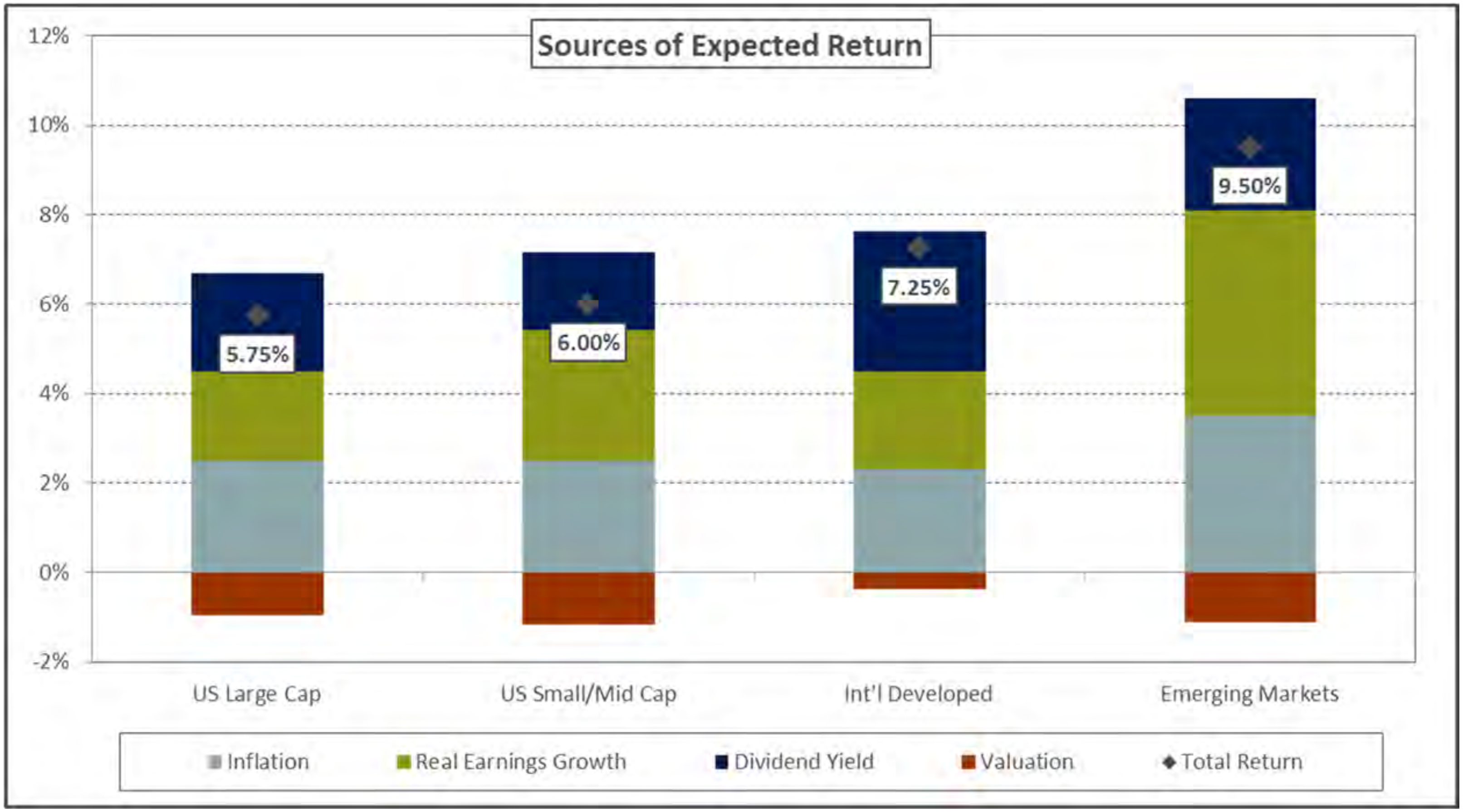
Portfolio Efficiency Heat Map: 5% Allocation Changes (Sample Allocation)



Most Efficient Marginal Asset Classes	
Asset Class	**Change in Sharpe Ratio**
Hedge Funds – Macro	*0.013*
Real Estate (Core)	*0.008*
Private Debt	*0.006*

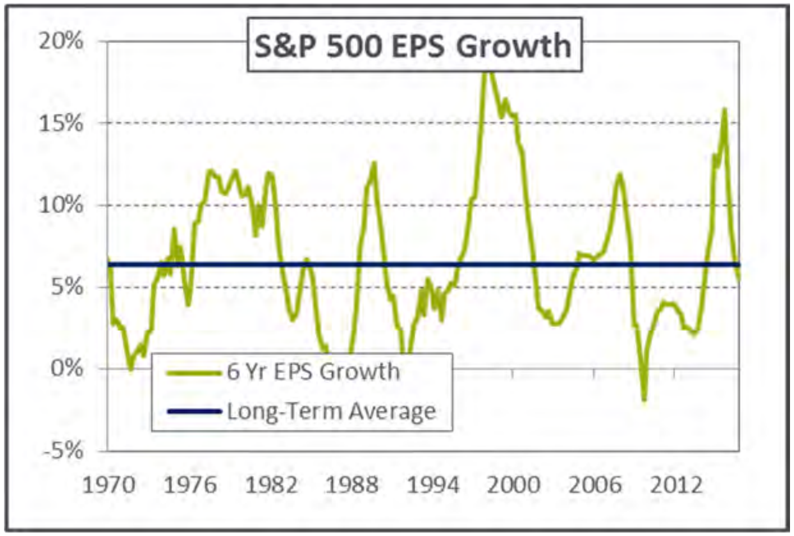
Least Efficient Marginal Asset Classes	
Asset Class	**Change in Sharpe Ratio**
Small/Mid Cap Equities	*(0.007)*
Large Cap Equities	*(0.007)*
Global Bonds (Unhedged)	*(0.005)*

Assumption Development

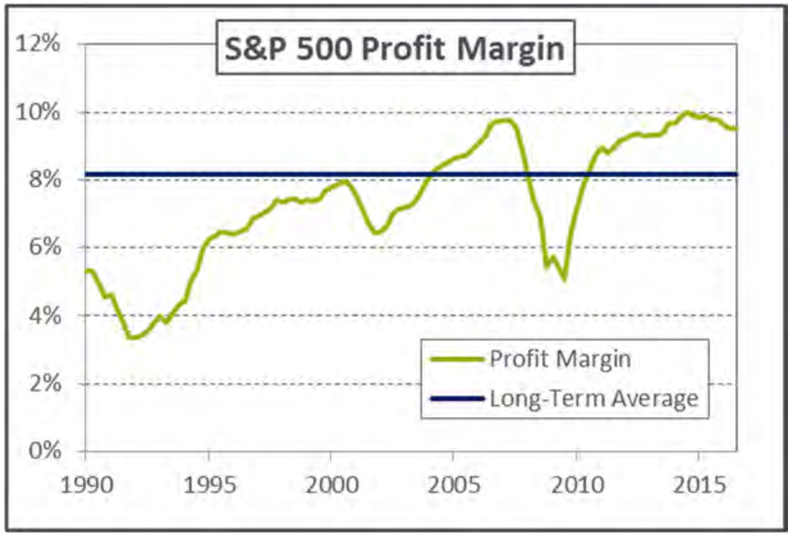


Index Current	US Large Cap	US Small/Mid Cap	Int'l Developed	Emerging Markets
Trailing P/E	20.6	31.6	16.9	14.3
Profit Margin	9.5%	4.2%	6.2%	8.0%
Dividend Yield	2.1%	1.7%	3.3%	2.5%

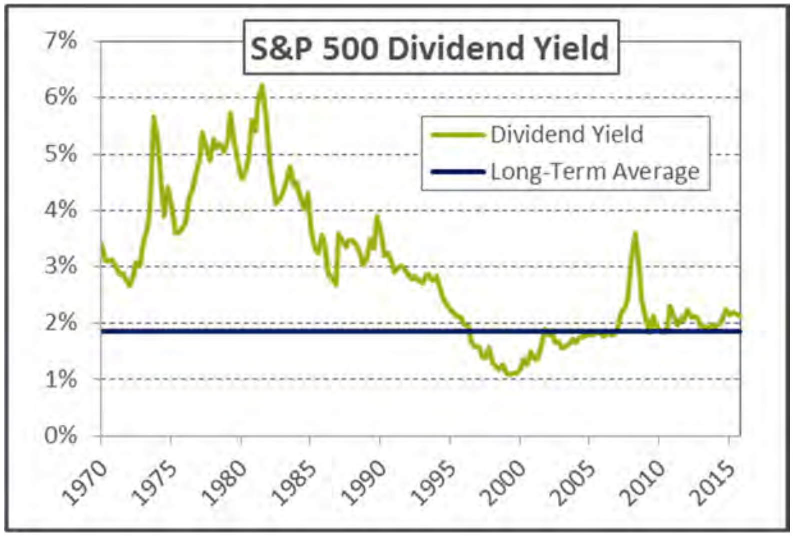
US Large Cap Equity Building Blocks



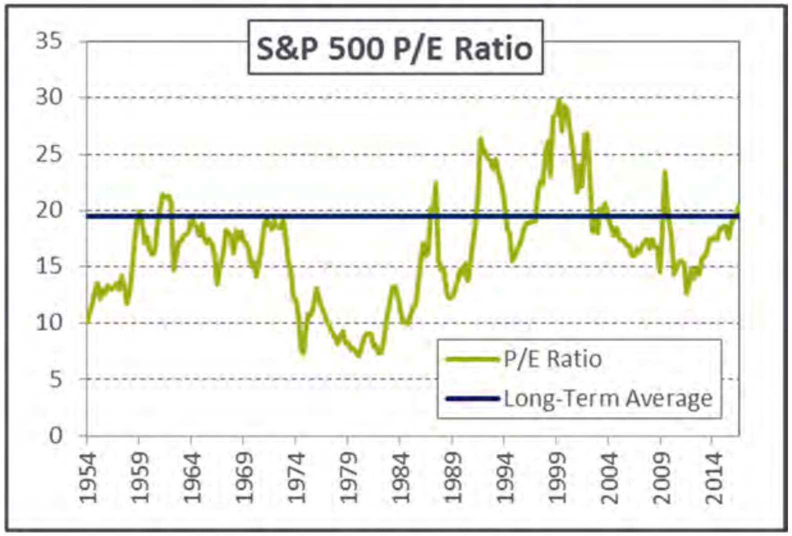
Source: Standard & Poors, NEPC, Bloomberg



Source: Standard & Poors, NEPC, Bloomberg

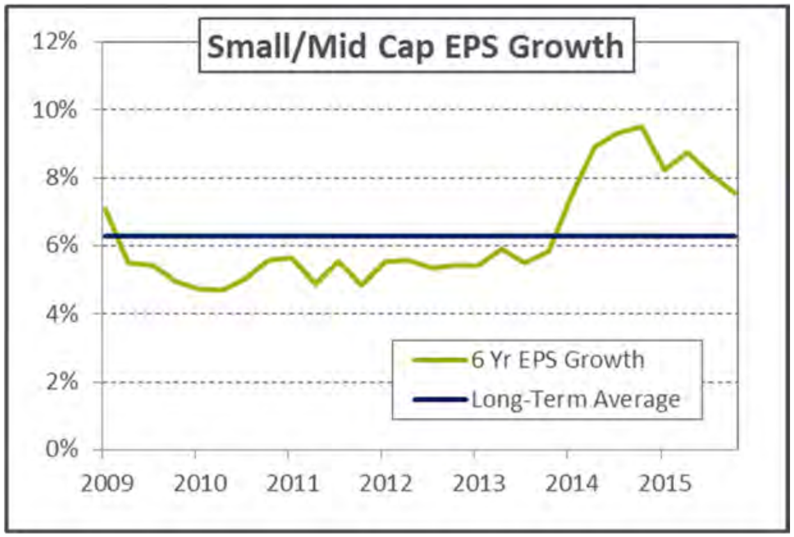


Source: Standard & Poors, NEPC, Bloomberg

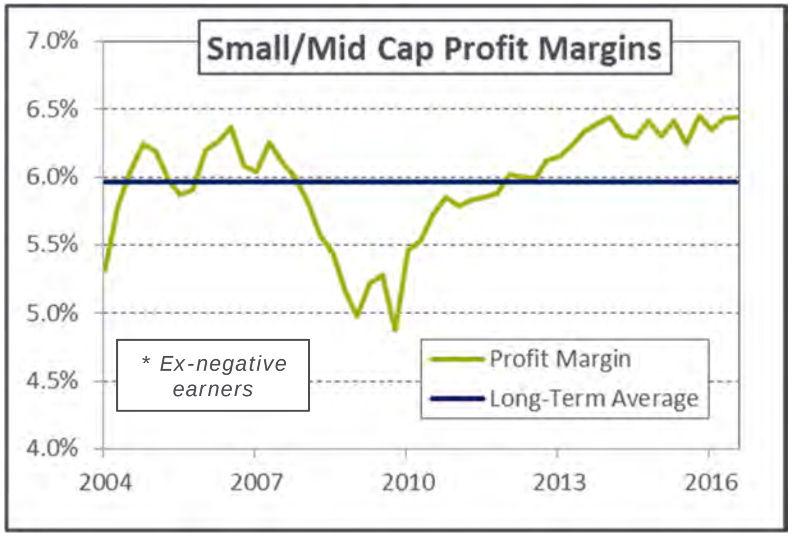


Source: Standard & Poors, NEPC, Bloomberg

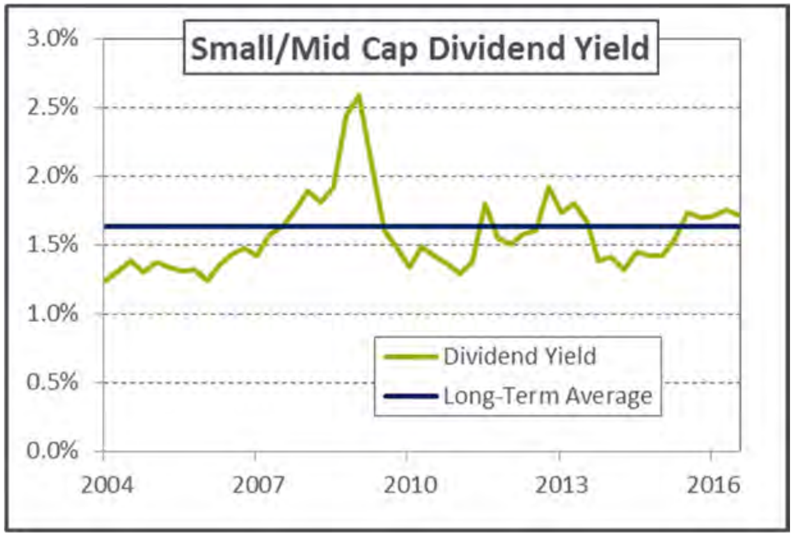
US Small/Mid Cap Equity Building Blocks



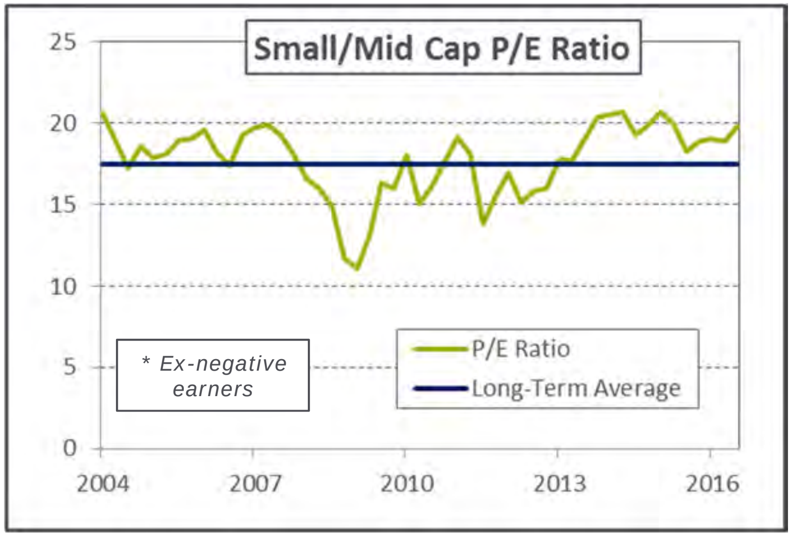
Source: Russell, NEPC, Bloomberg



Source: Russell, NEPC, Bloomberg

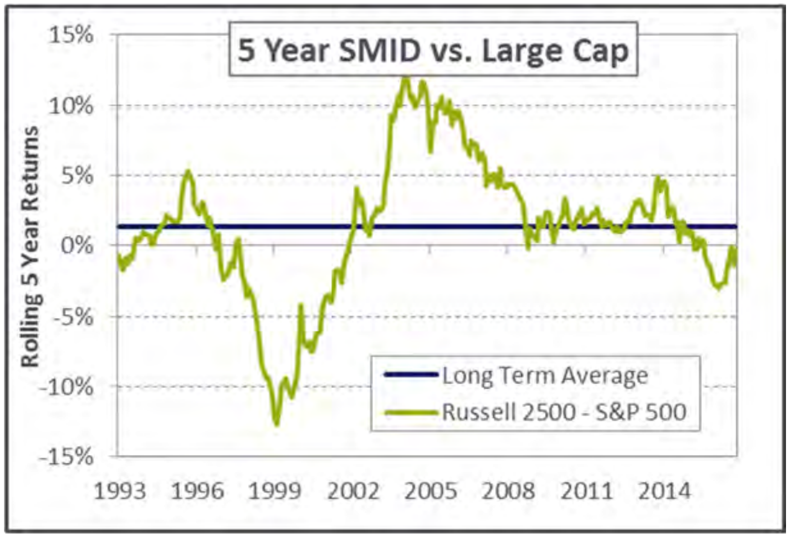


Source: Russell, NEPC, Bloomberg
*Long-term average uses 10 years of data

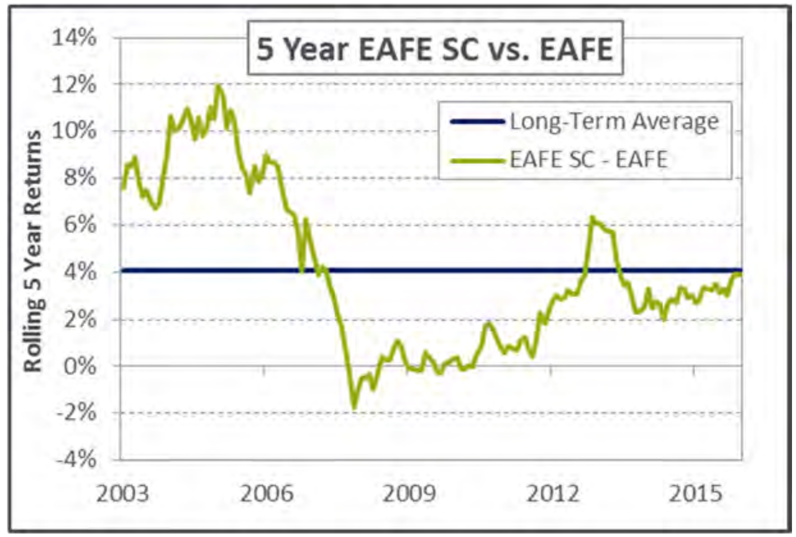


Source: Russell, NEPC, Bloomberg
*Long-term average uses 10 years of data

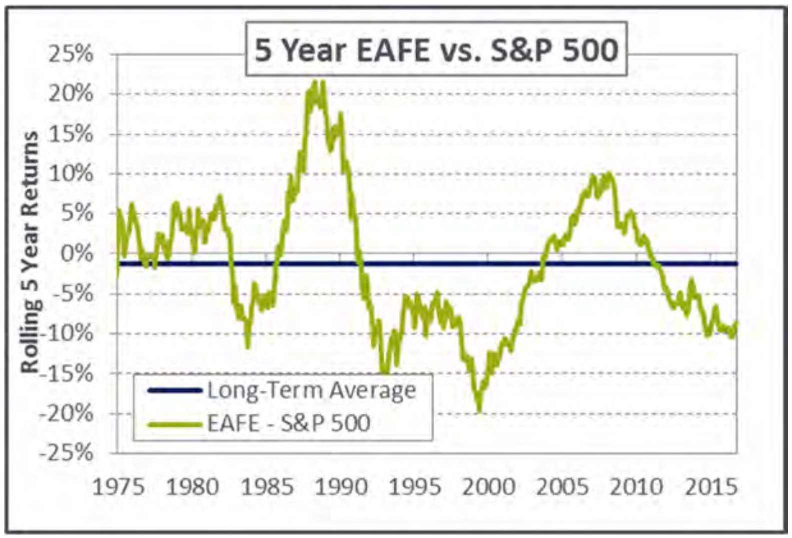
Relative Equity Performance



Source: Standard & Poors, Russell, Bloomberg

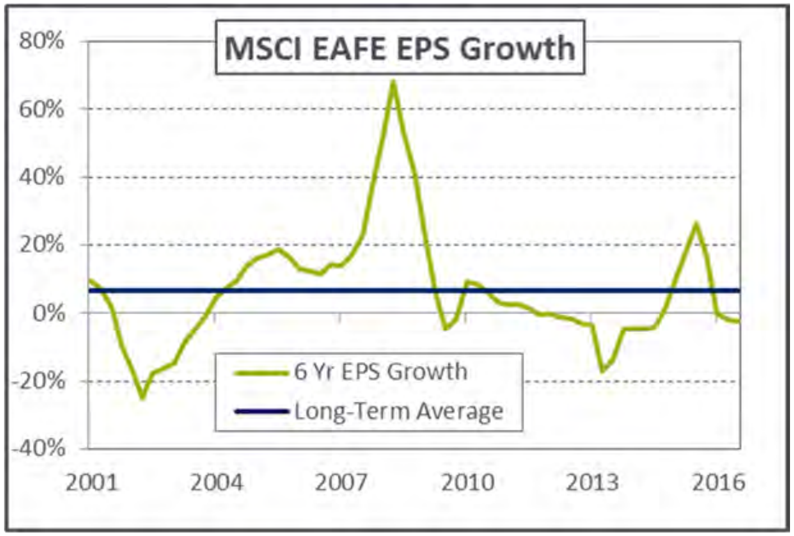


Source: Standard & Poors, MSCI, Bloomberg

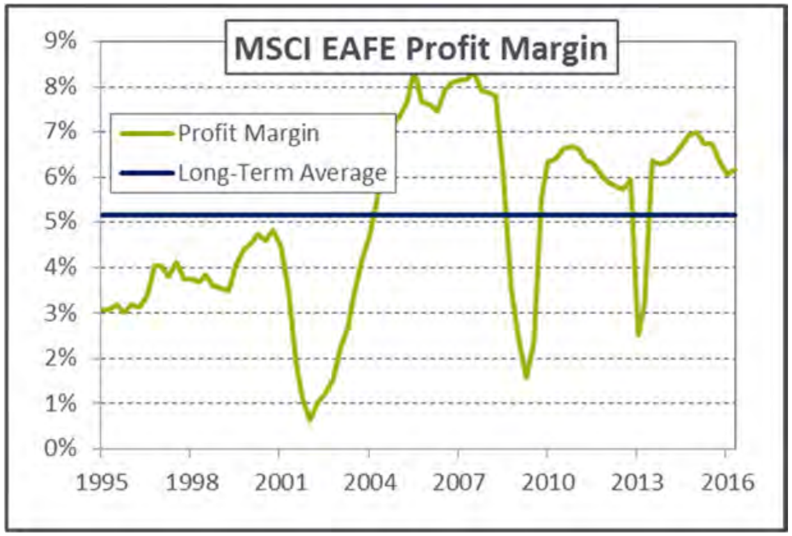


Source: Standard & Poors, MSCI, Bloomberg

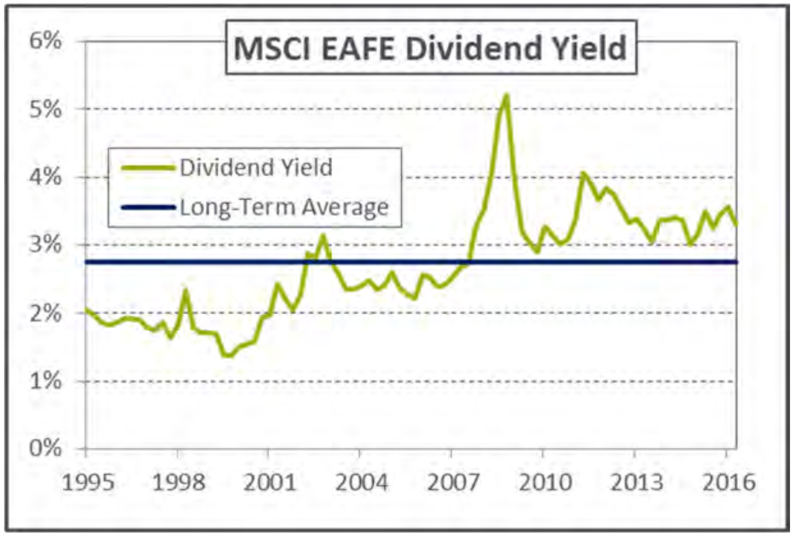
Source: MSCI, Bloomberg



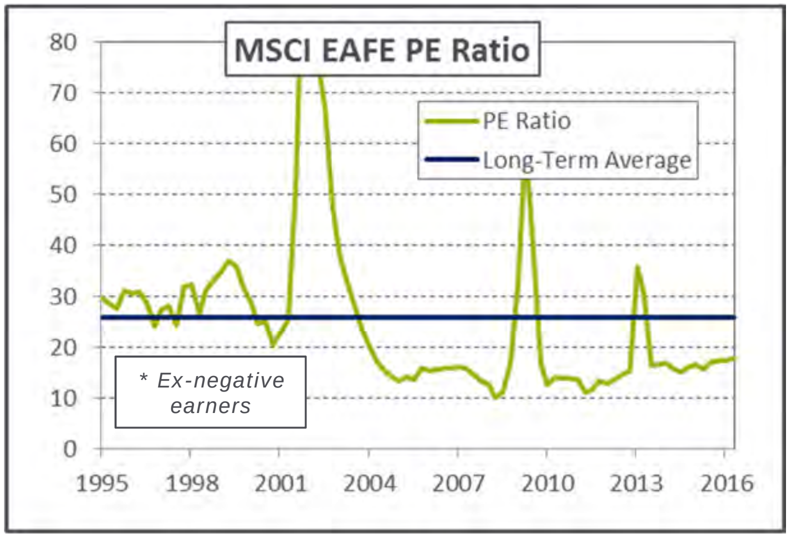
Source: MSCI, NEPC, Bloomberg



Source: MSCI, NEPC, Bloomberg

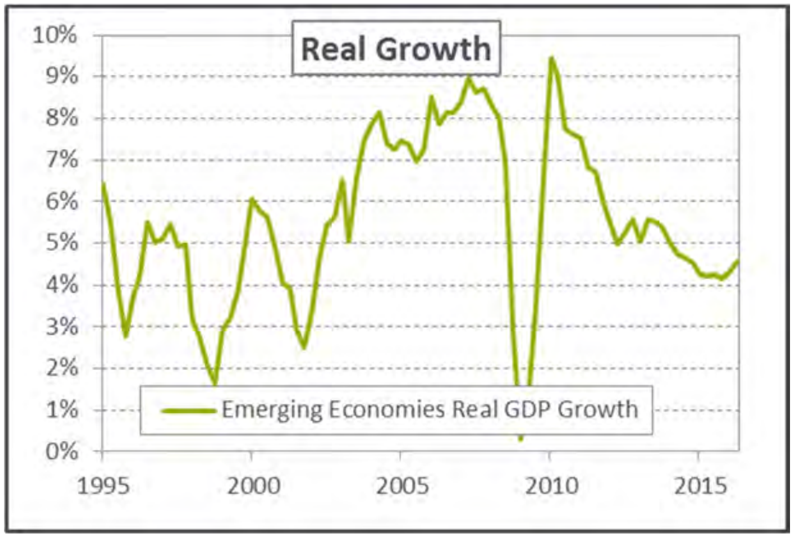


Source: MSCI, NEPC, Bloomberg

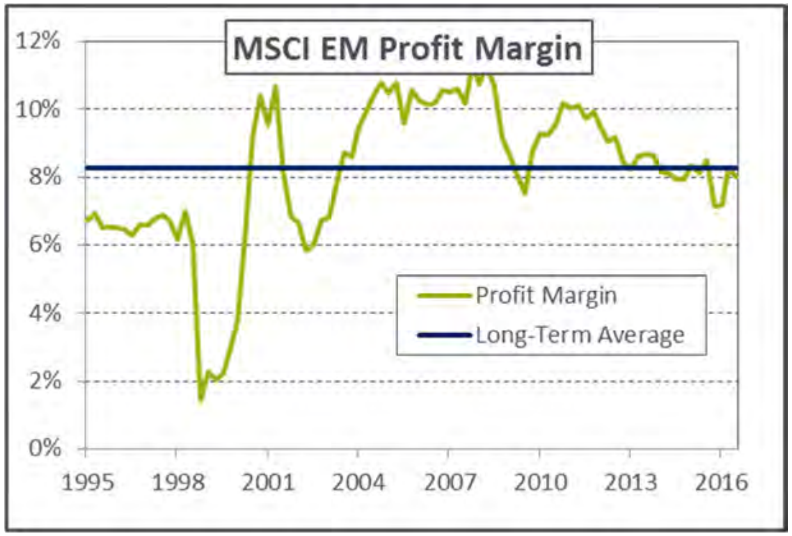


Source: MSCI, NEPC, Bloomberg

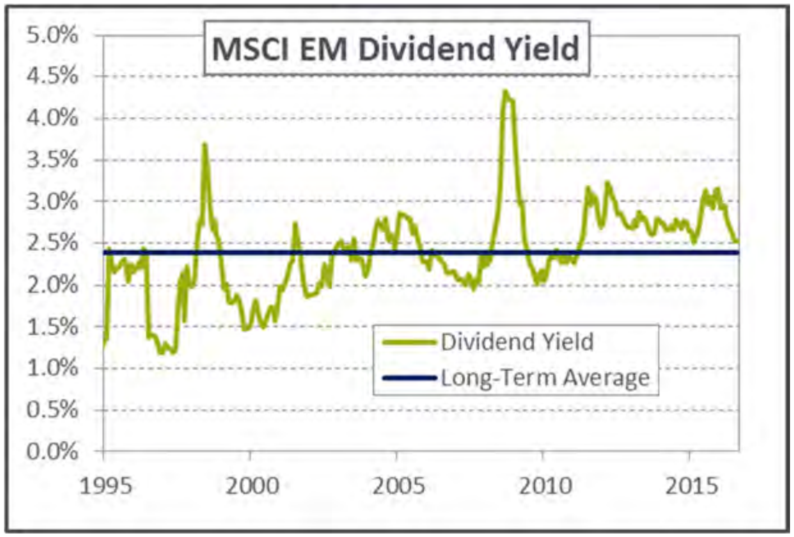
Emerging Equity Building Blocks



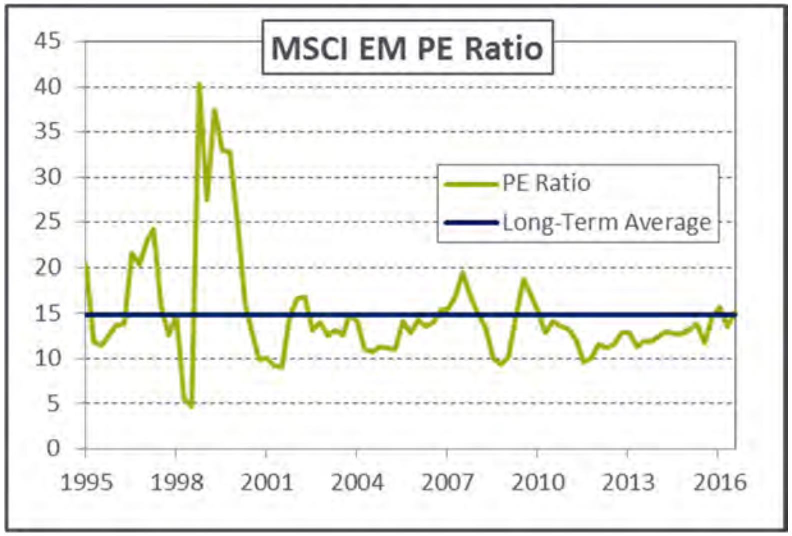
Source: Bloomberg



Source: MSCI, NEPC, Bloomberg



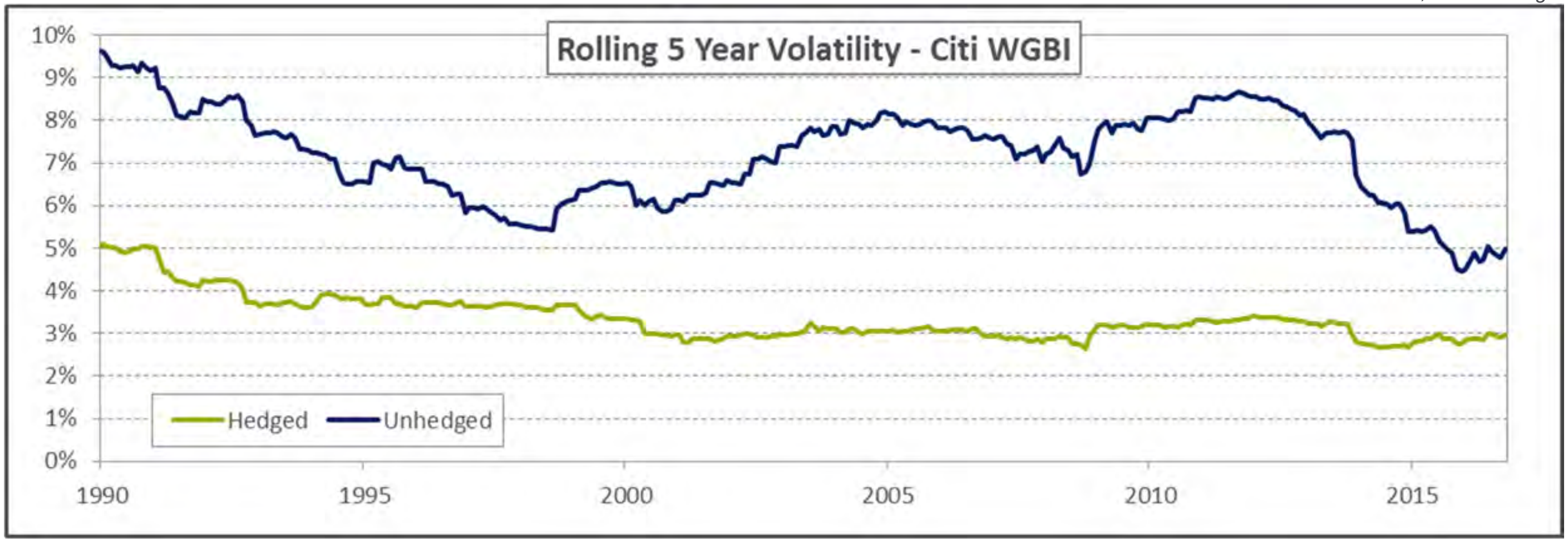
Source: MSCI, NEPC, Bloomberg
* Long-term average uses 10 years of data



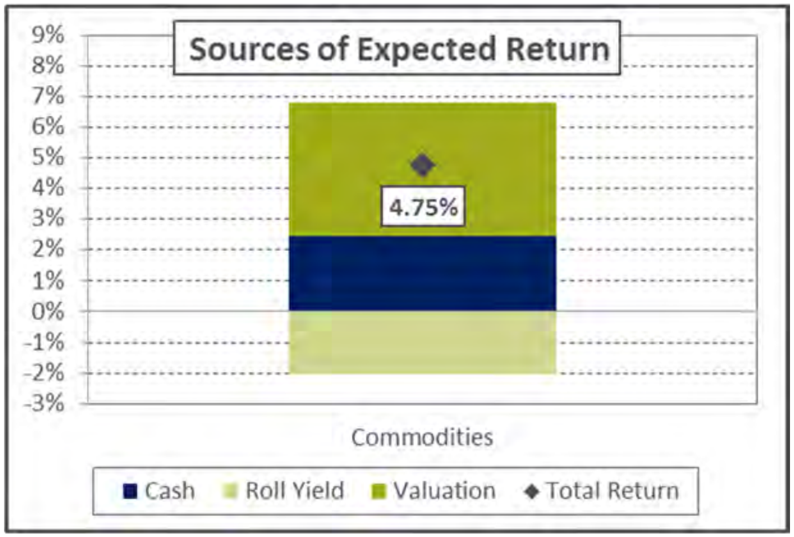
Source: MSCI, NEPC, Bloomberg

Currency Hedged Asset Class Assumptions

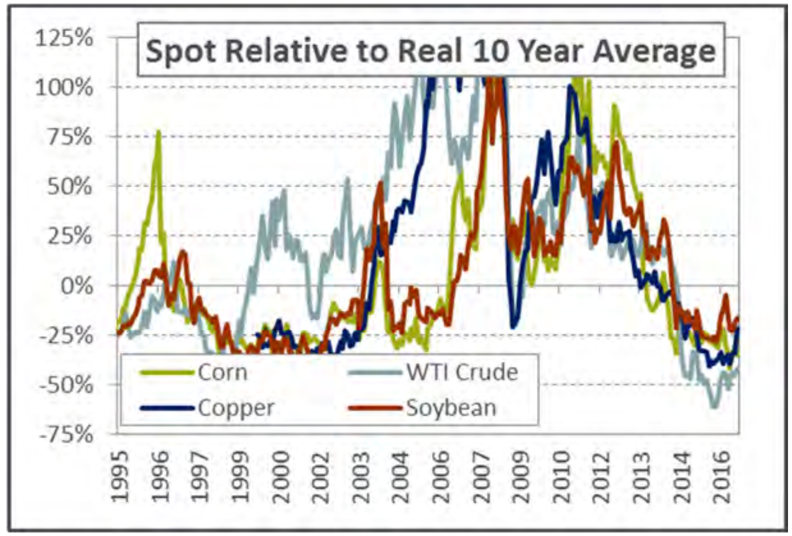
Source: MSCI, Bloomberg



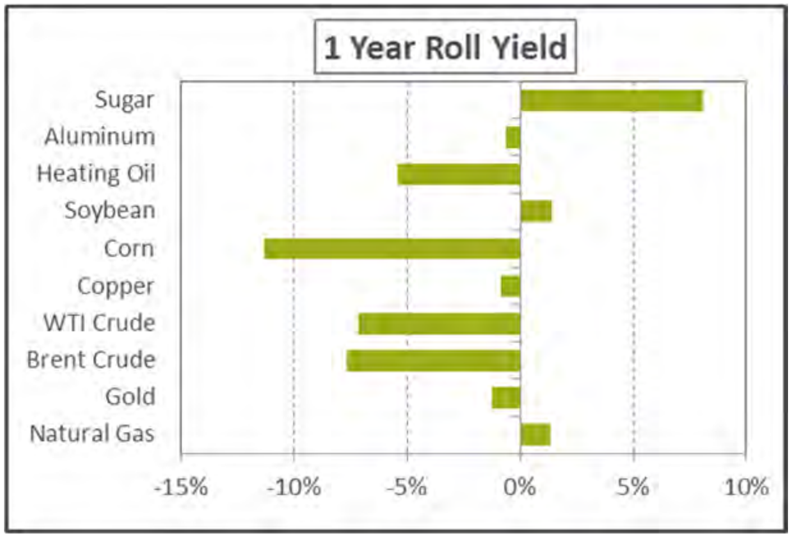
Source: Citigroup, Bloomberg



Source: NEPC



Source: Bloomberg, NEPC

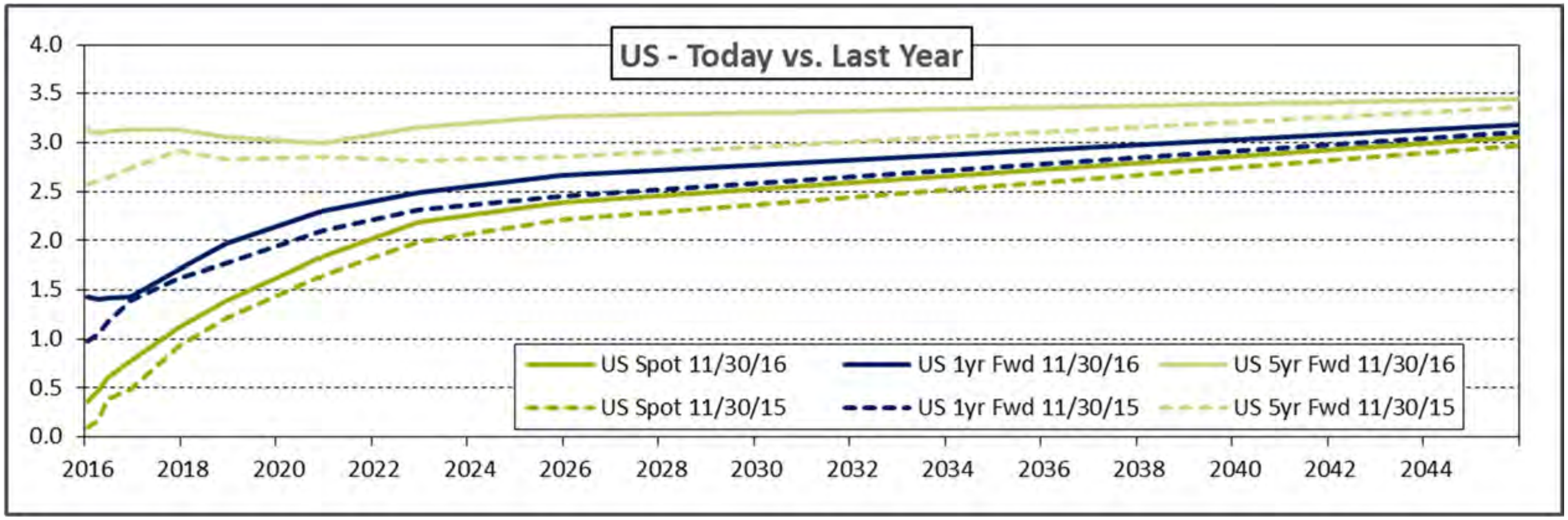


Source: Bloomberg

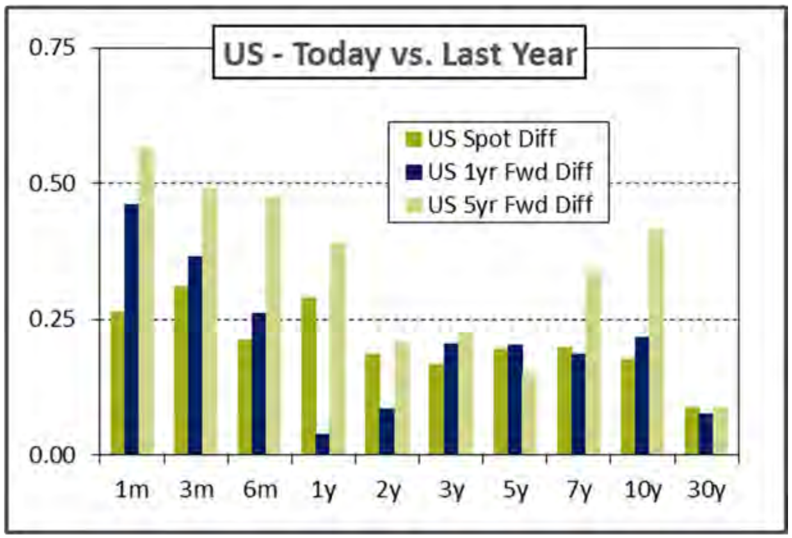
Commodity prices have rebounded over the past year, but mostly sit below 10 year real averages

Negative roll yield continues to be a drag on commodity returns

US Treasury Spot and Forward Curves are the Backdrop for Lower Bond Returns



Source: Bloomberg



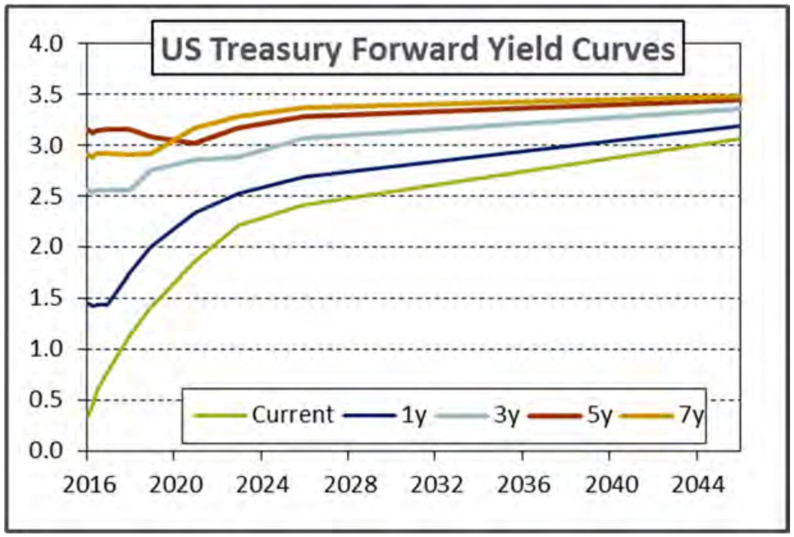
Source: Bloomberg

Spot and futures curves have increased relative to prior year

Short end of the curve experienced the greatest relative change given market expectations for a Fed rate hike

Uneven changes in the five year forward curve cause a slight hump at the short end of the curve

Rising Rates Expected to Impact Developed Market Fixed Income Returns



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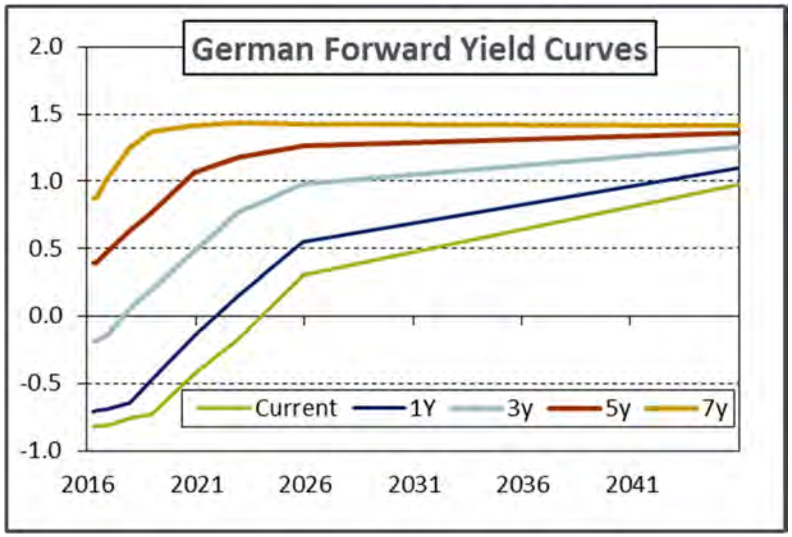

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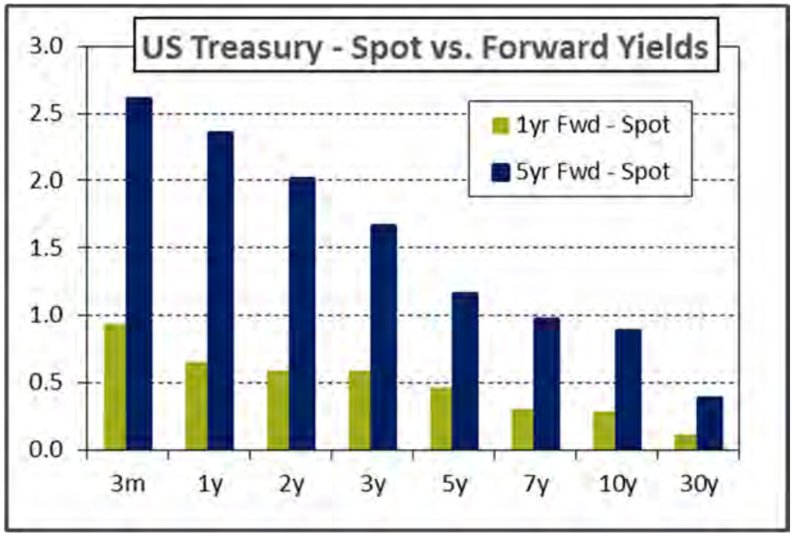

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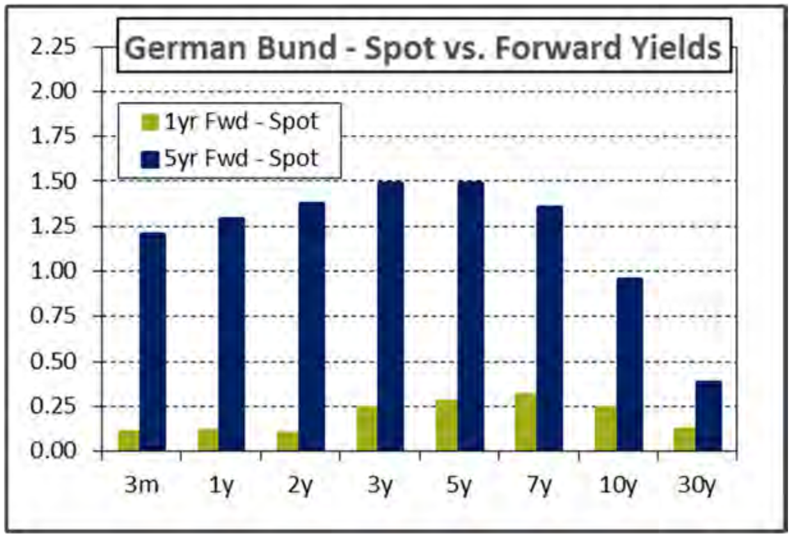
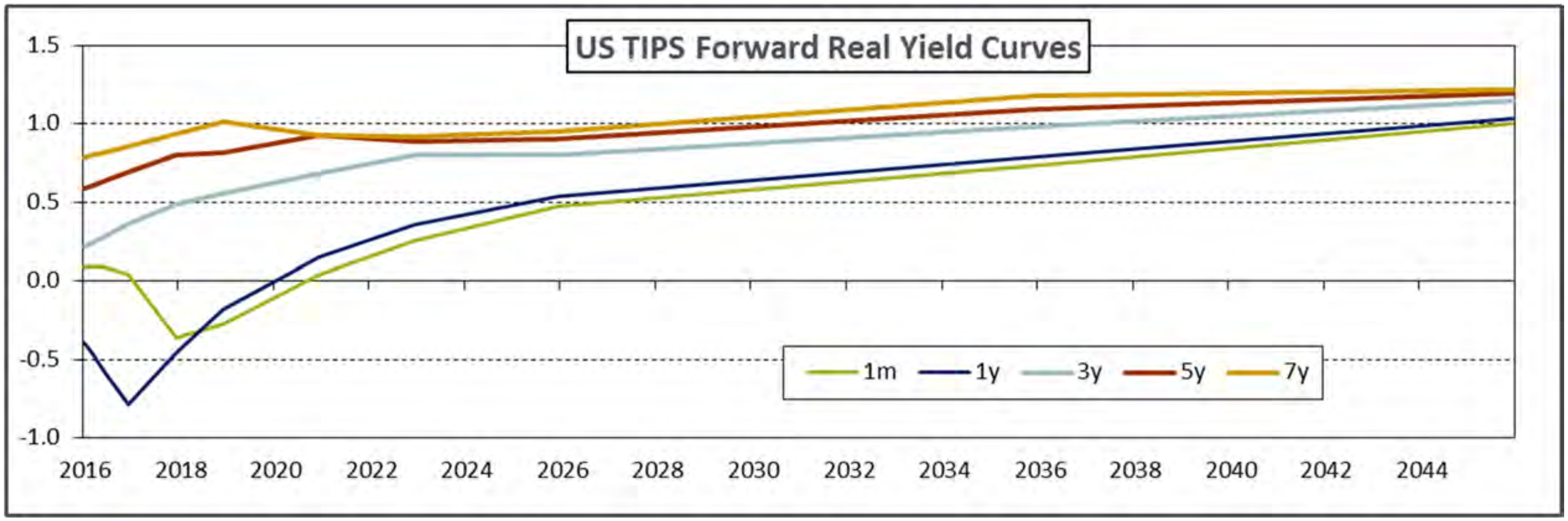


Source: Bloomberg

Low Real Yields in US Support Risky Asset Returns in the Near Term



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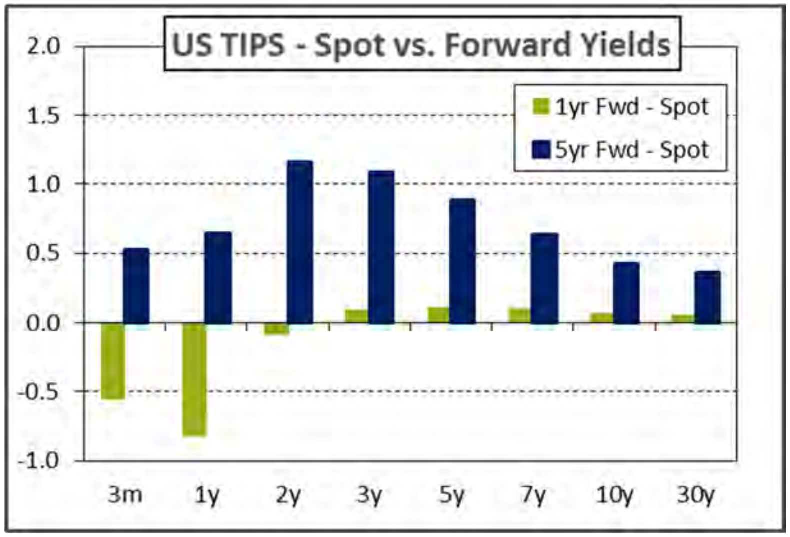
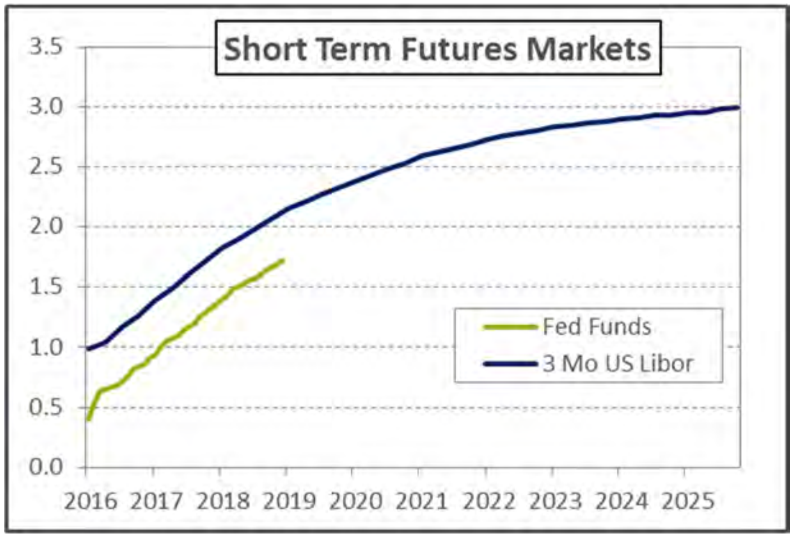


Source: Bloomberg

Long-term real yields remain positive but low in the US

Low real rates depress return outlook for risk assets over the long-term

Interest rate increases have been slower than what the market discounted over the last few years



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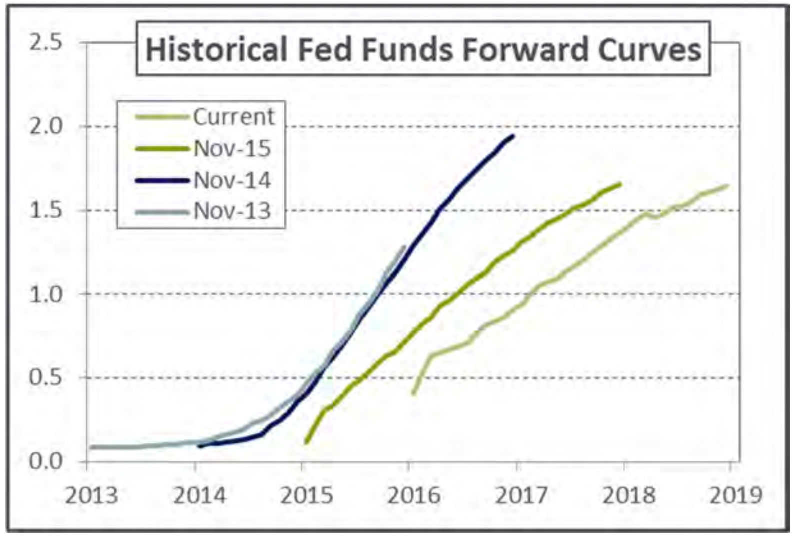

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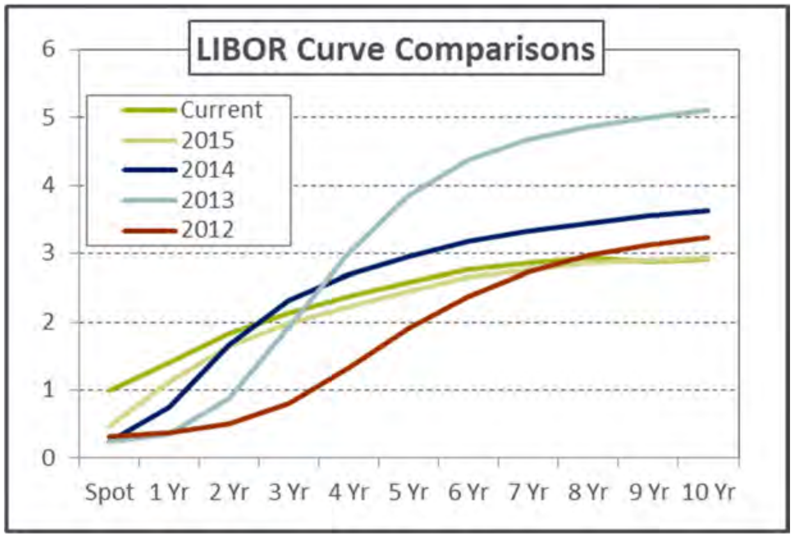


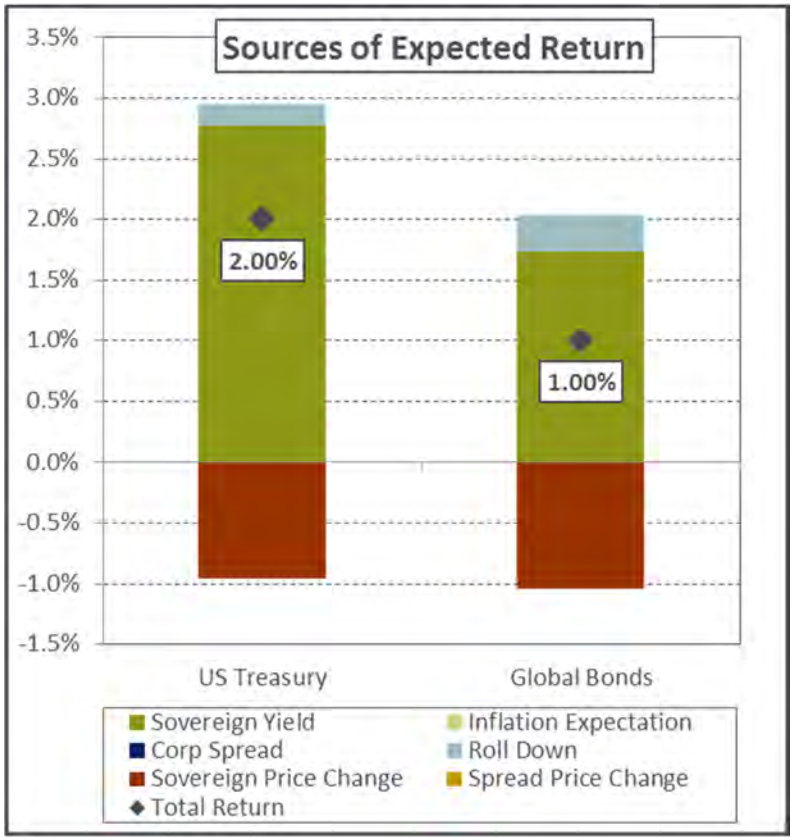
Source: Bloomberg

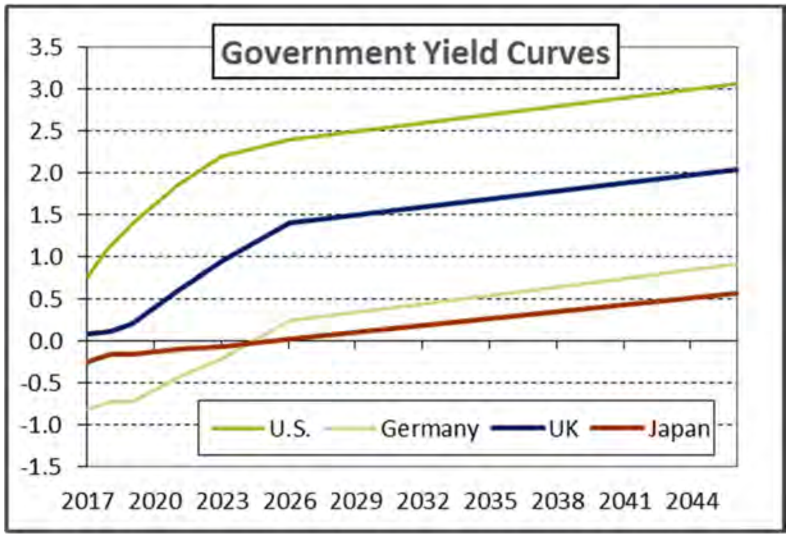
Though short-term interest rate expectations have increased, the lower for longer sentiment continues

This is echoed by the progressively flatter yield curve

The market has priced in the likelihood of the Fed funds rate target exceeding 1.0% in 2017

Assumption Development – Developed Market Government Debt



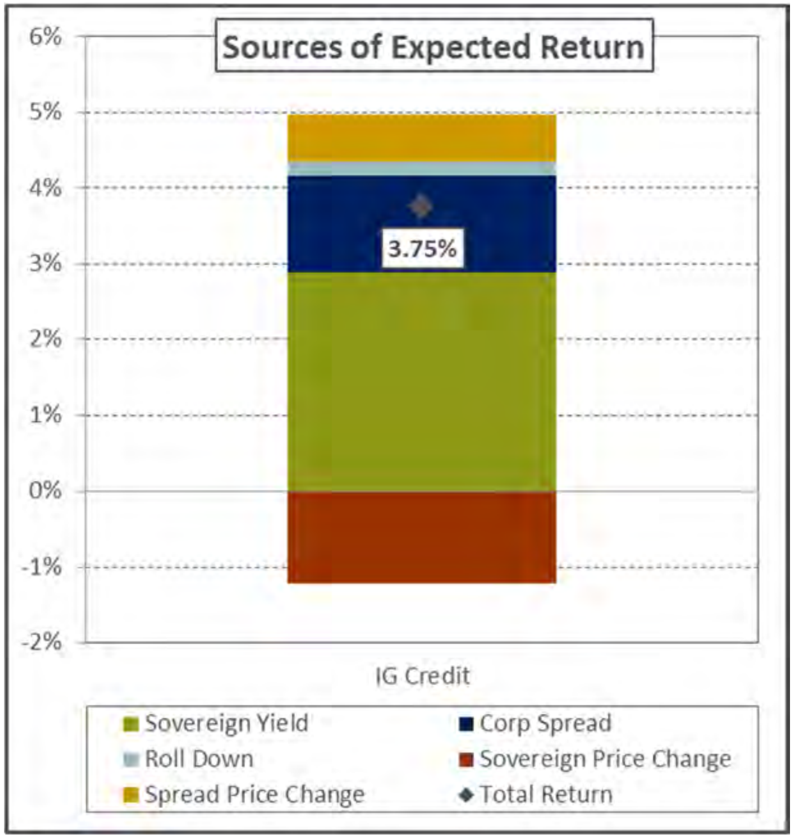


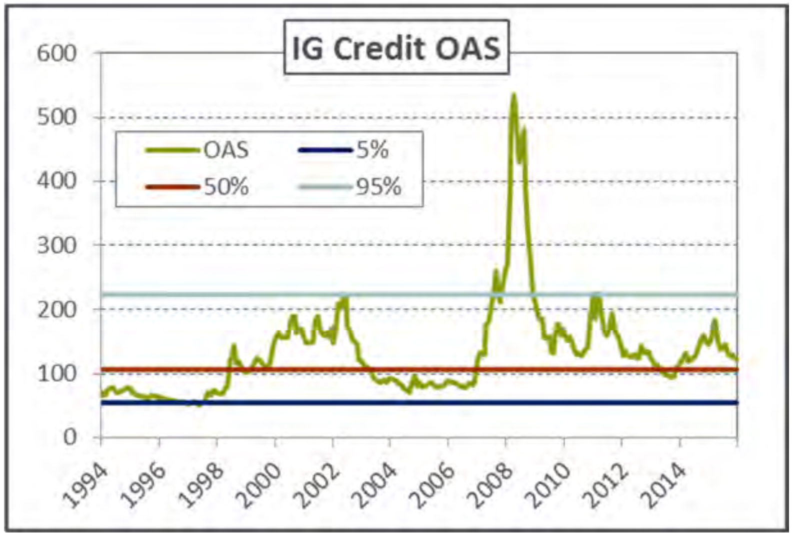
Source: Bloomberg

Global yields remain low and negative in much of Europe

US yields are higher but face pressure from potential rate hikes and increases in inflation

Index Current	US Treasury	Global Sovereign
Yield	1.8	1.0
OAS	-	-
Duration	6.1	7.9
Quality	AA+/Aaa	A+/Aa2
MV (Millions)	6,861,998	24,389,136



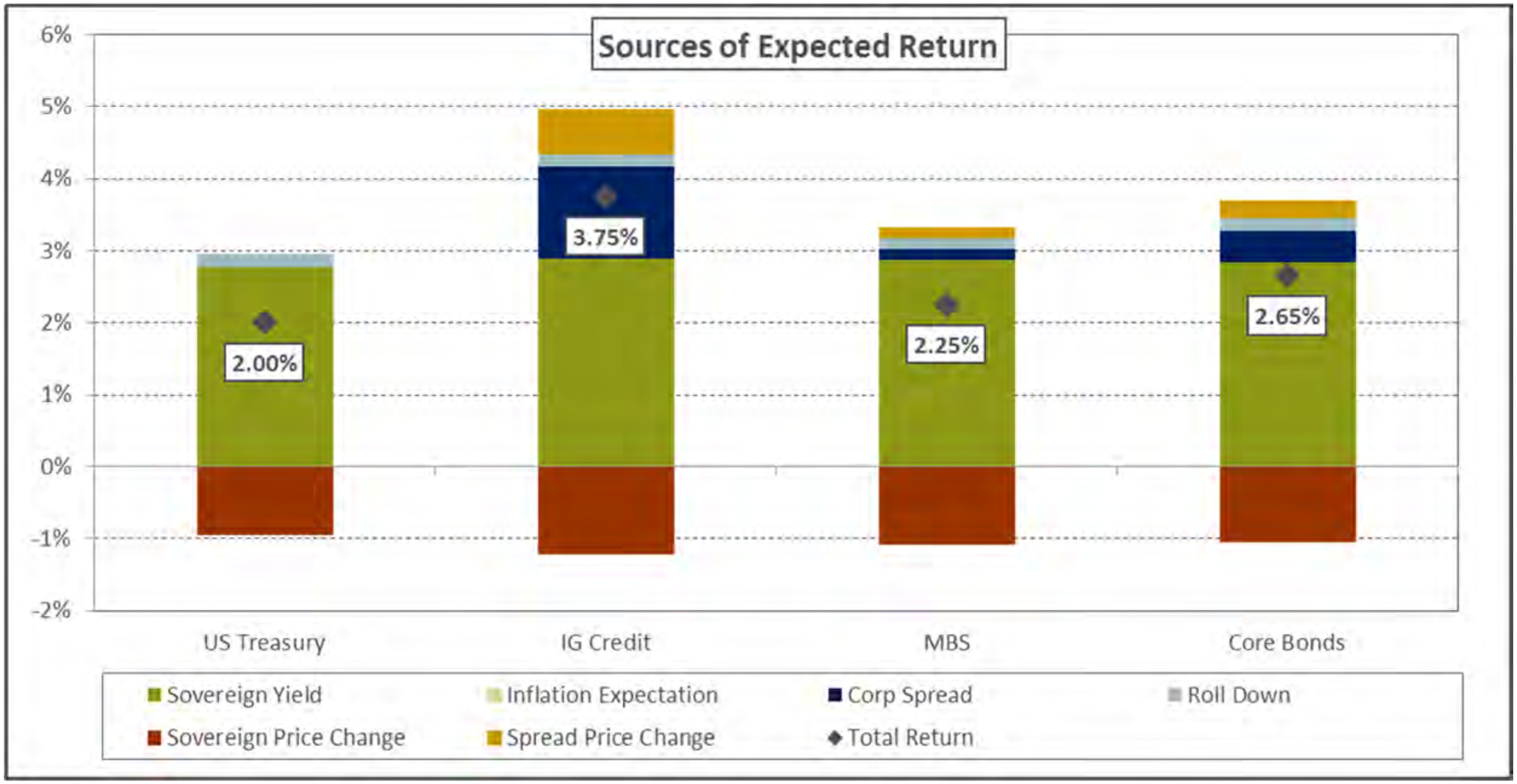


Source: Barclays, Bloomberg

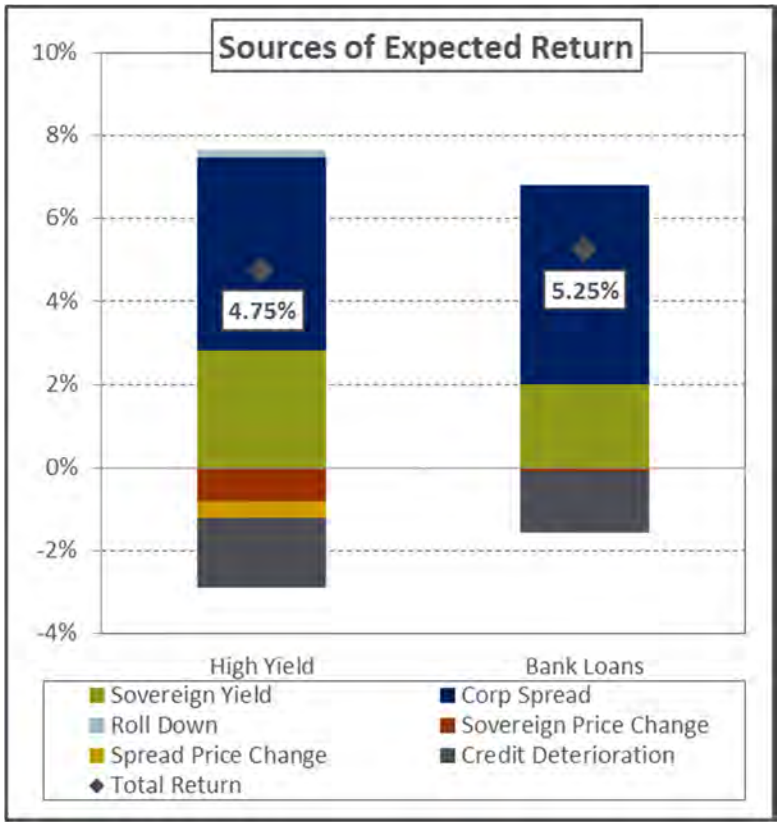
Index Current	US Credit
Yield	3.3
OAS	1.2
Duration	7.0
Quality	A-/A3
MV (Millions)	5,942,232

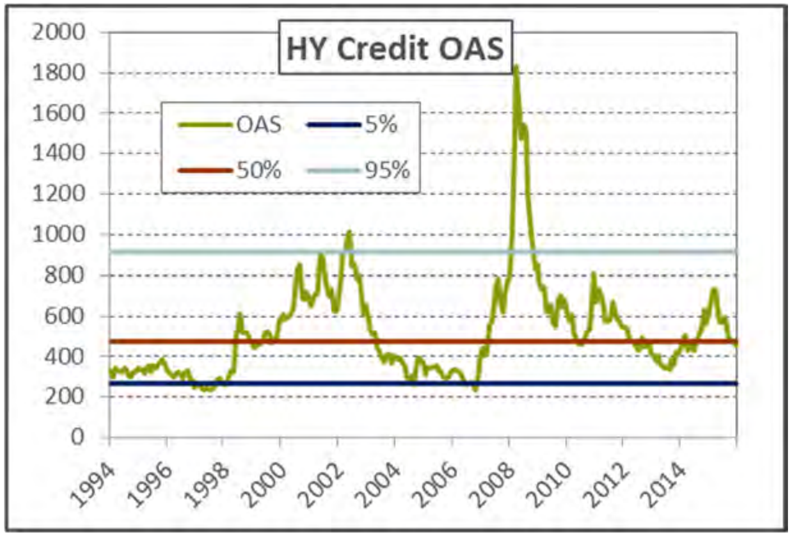
Credit spreads have declined in the last year but remain in line with long-term medians

Issuance continues to increase as investor demand for yield persists



Index Current	US Treasury	US Credit	US MBS	US Aggregate
Yield	1.83	3.3	2.8	2.6
OAS	-	1.2	0.2	0.5
Duration	6.1	7.0	4.5	5.9
Quality	AA+/Aaa	A-/A3	AAA/Aaa	A/Aa2
MV (Millions)	6,861,998	5,942,232	5,353,011	19,034,388





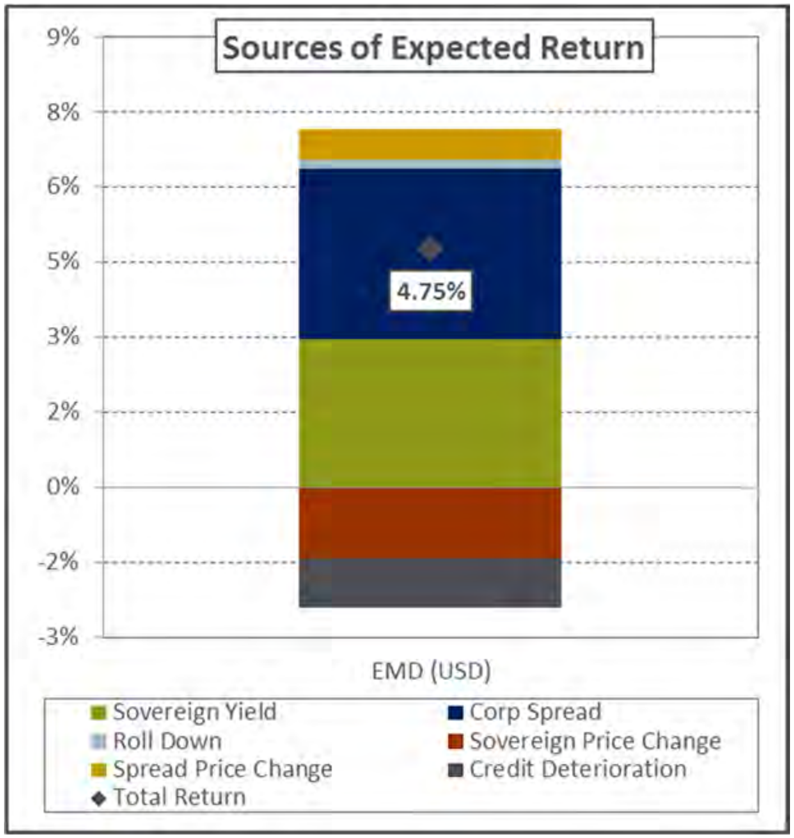
Source: Barclays, Bloomberg

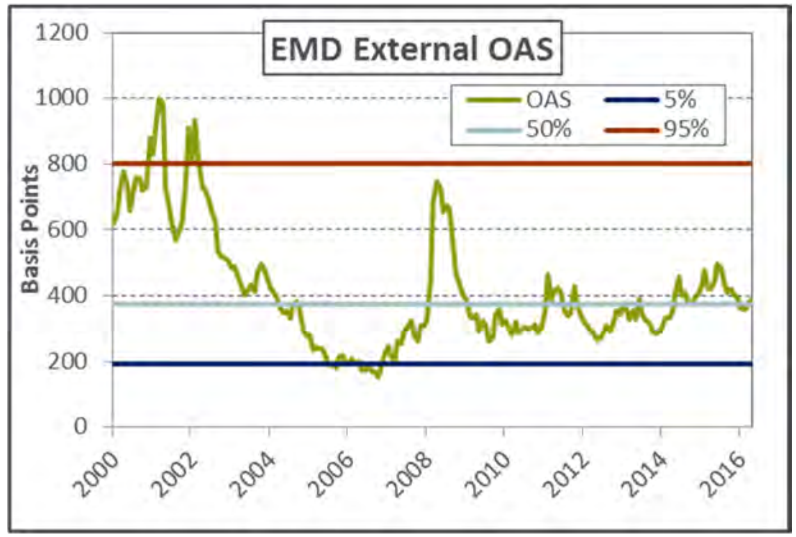
Index Current	BC US Corporate High Yield Index	CS Levered Loan Index*
Yield	6.6	5.4
OAS	4.6	4.5
Duration	4.2	N/A
Quality	BB-/B1	B/Ba2
MV (mm)	1,325,927	950,327

Slightly lower expected returns given strong 2016 performance

High yield spreads decreased from last year but remain in line with long-term median

**Credit Suisse data as of 10/31/2016.*
OAS represents discount margin
Yield and discount margin for 3-year life





Source: Barclays, Bloomberg

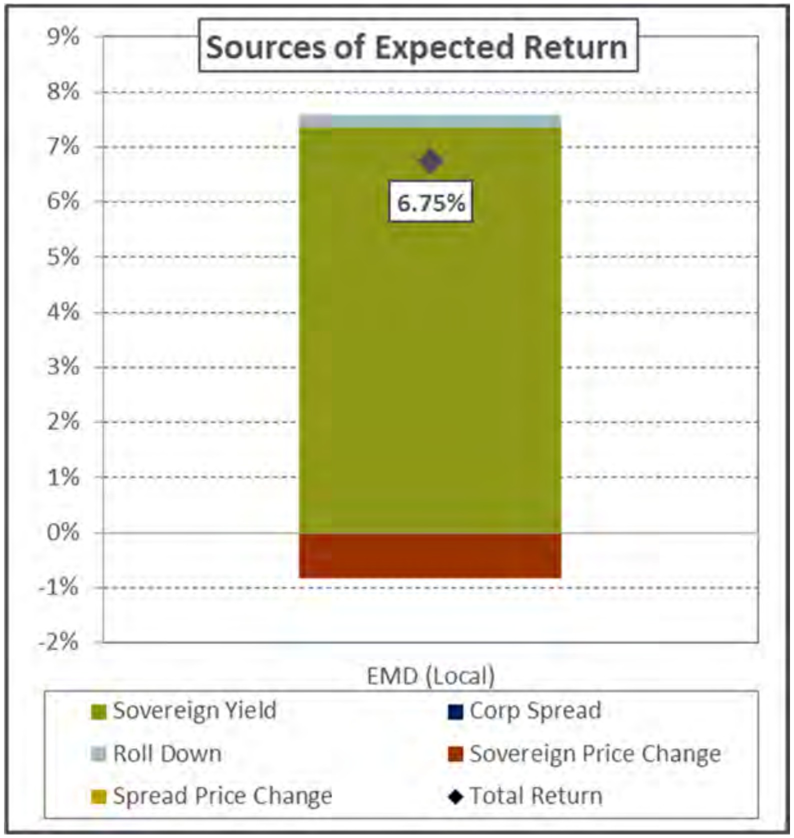
Index Current	JPM EMBI Global Div
Yield	6.1
OAS	3.9
Duration	6.6
Quality	BB+/Ba1
MV (mm)	755,400

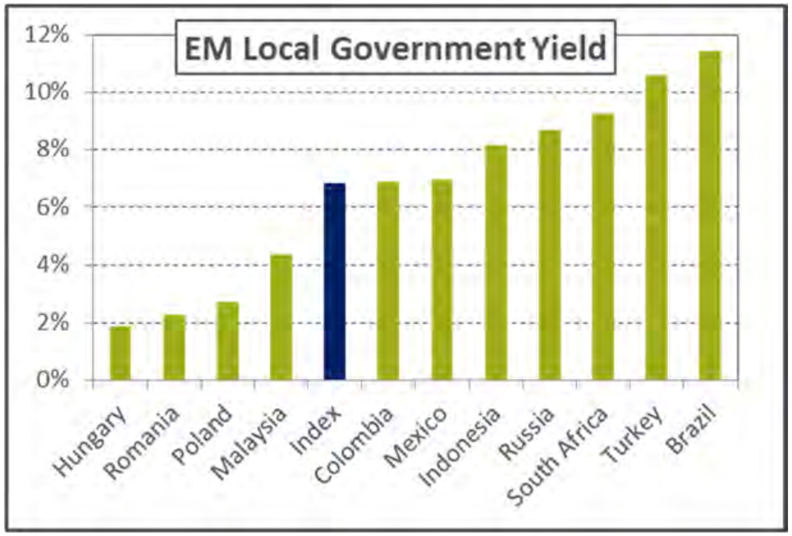
External debt return assumption remains unchanged from last year

Dollar denominated borrowers face greater challenges due to dollar strength

EMD external spreads remain in line with the long-term median

Assumption Development – Emerging Market Debt (Local)



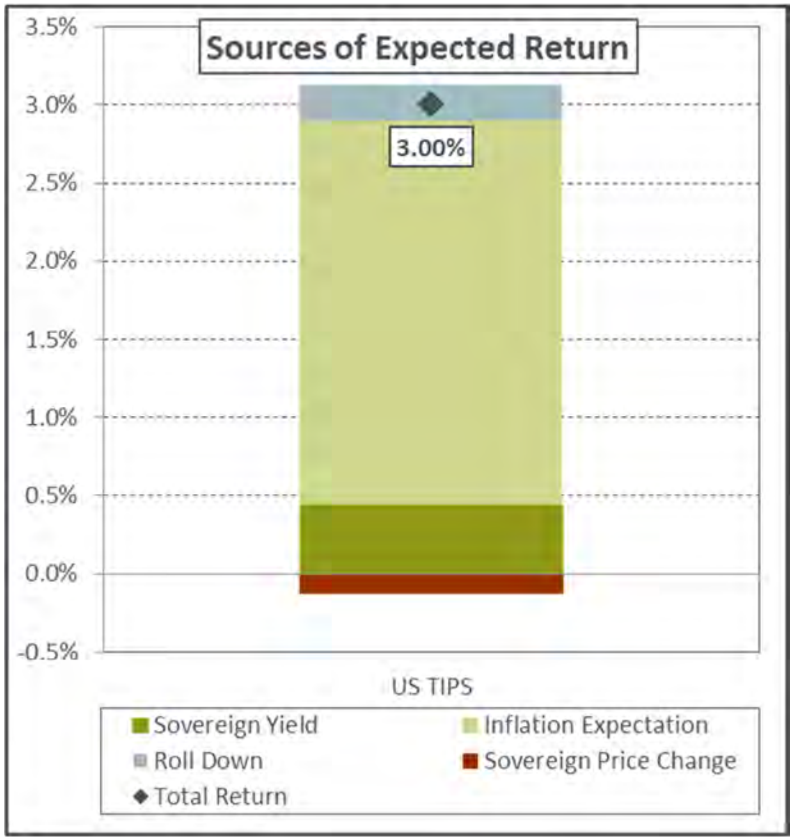


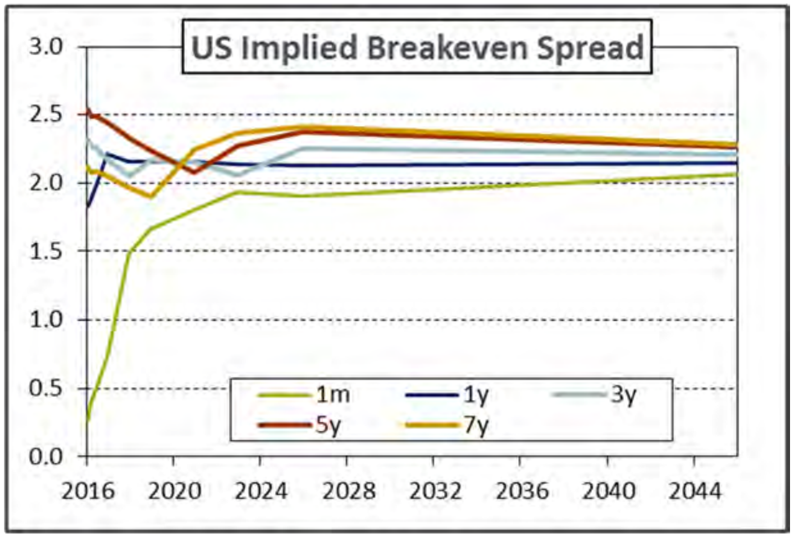
Source: Barclays, Bloomberg

Index Current	JPM GBI EM Global Div
Yield	6.8
OAS	-
Duration	4.9
Quality	BBB/Baa2
MV (mm)	965,900

Emerging local debt yields remain attractive in a low global yield environment

Currencies on a PPP basis trade at fair-to-undervalued following sizable adjustments over the last five years





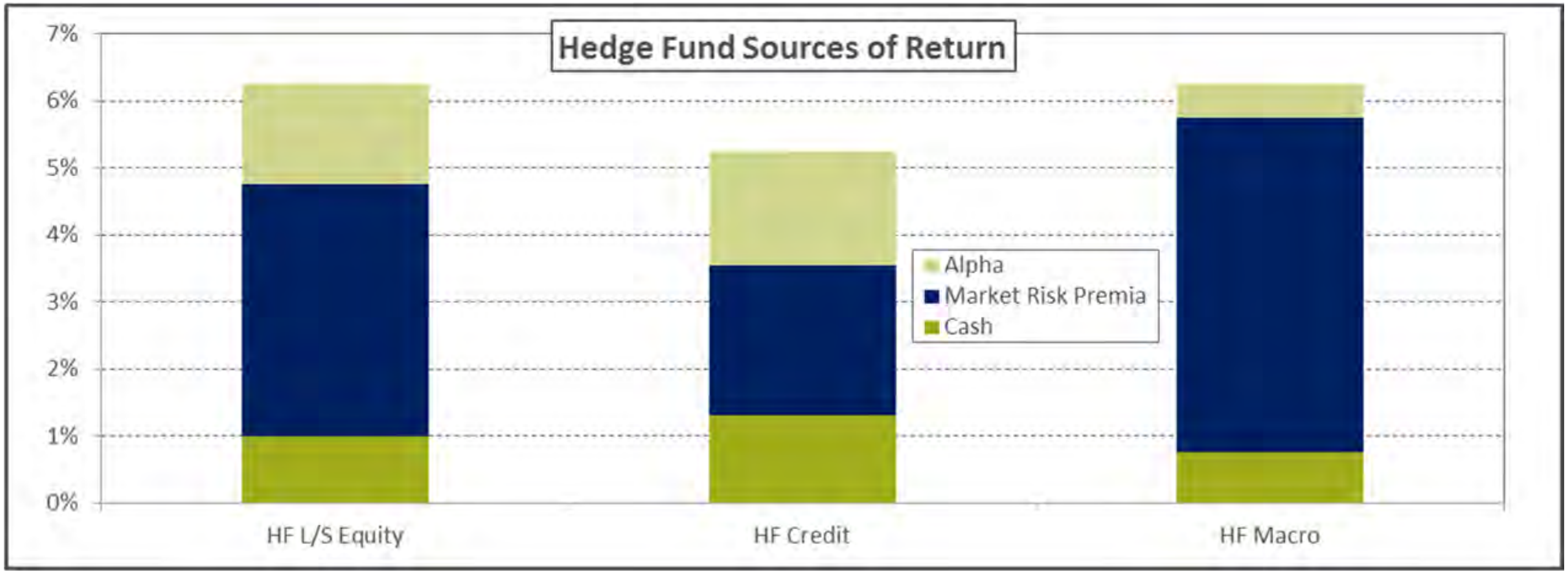
Source: Bloomberg

Index Current	US TIPS
Yield	2.1
OAS	0.0
Duration	5.5
Quality	AAA/Aaa
MV (mm)	984,892

Implied inflation breakevens remain relatively low but are higher from last year

Expected TIPS return incorporates current market pricing with adjustments to the path of inflation over time

Assumption Development – Hedge Funds



	Equity	Credit	Macro
Underlying Market Beta	Global Equity	Blended from High Yield, EMD, Bank Loans	Relative Value (Rates, Equity, Commodities)

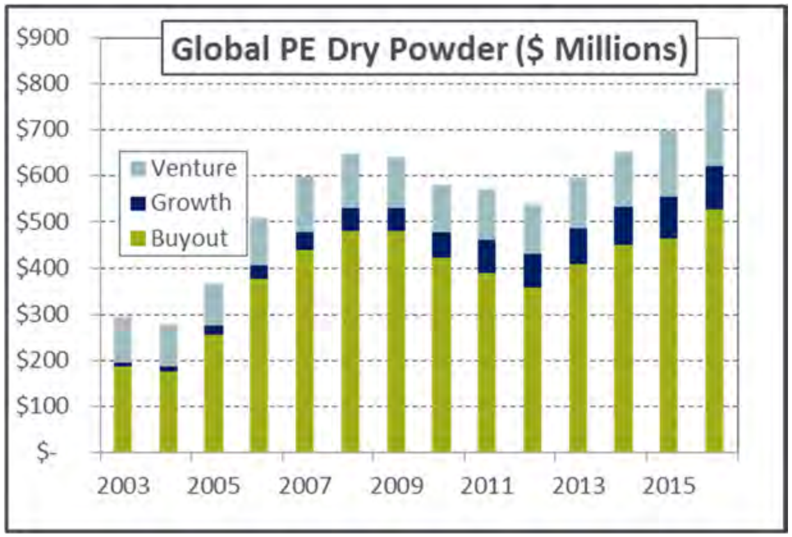
Hedge fund assumption constructed from building blocks of broad hedge fund categories

Build up of 40% Equity, 40% Credit, and 20% Macro-related strategies

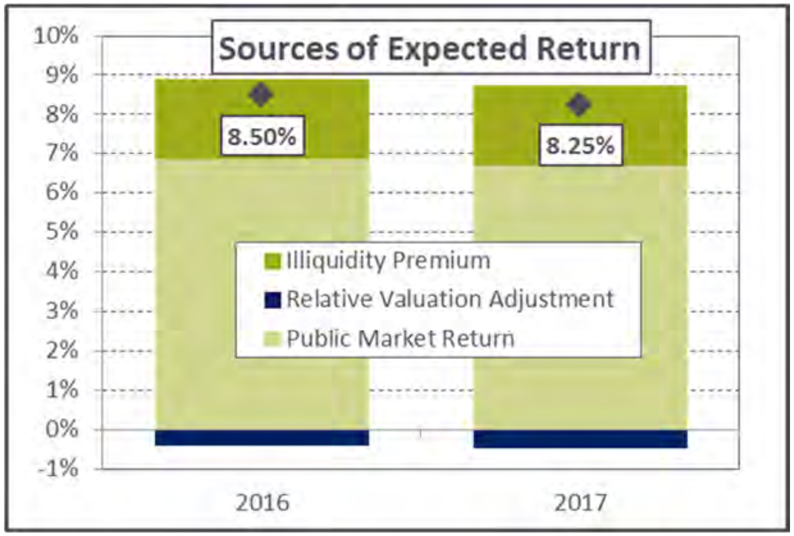
Based on analysis of historical return, risk and correlation for underlying strategies and total universe

Use NEPC standard market betas as building blocks as well as an alpha component

Source: S&P Capital IQ LCD



Source: Preqin



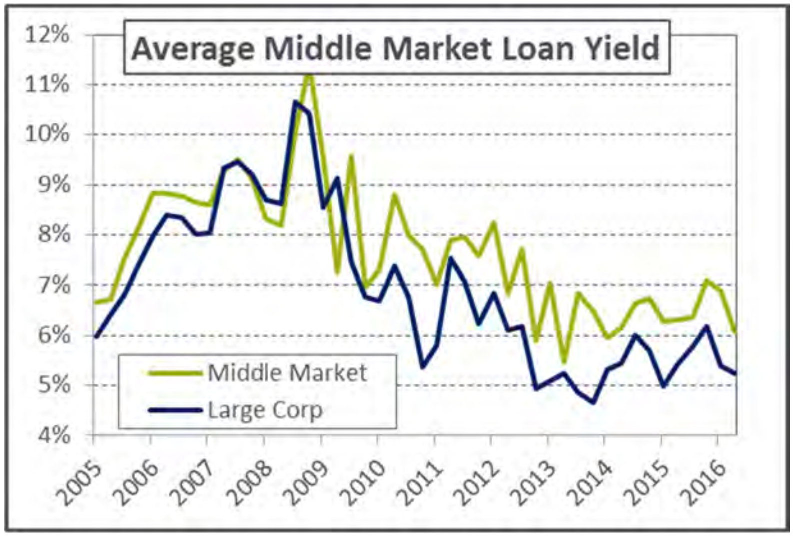
Slightly lower return expectation for private equity driven by:

Lower public market return expectation

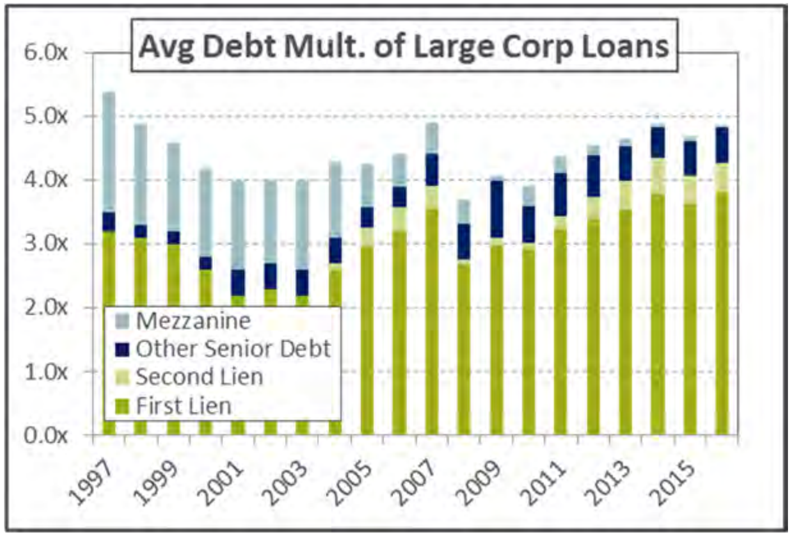
Broad increase in private commitments crowding the marketplace

Relatively high purchase price multiples

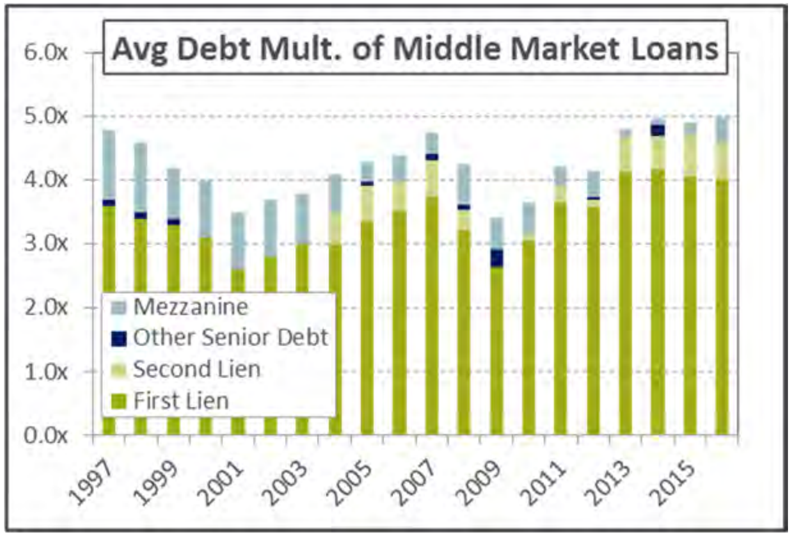
Private equity assumption reflects 40% buyout, 25% growth equity, 20% secondaries, 15% venture. Public market equivalent defined as blend of 70% US small/mid cap equities and 30% non-US developed market equities.



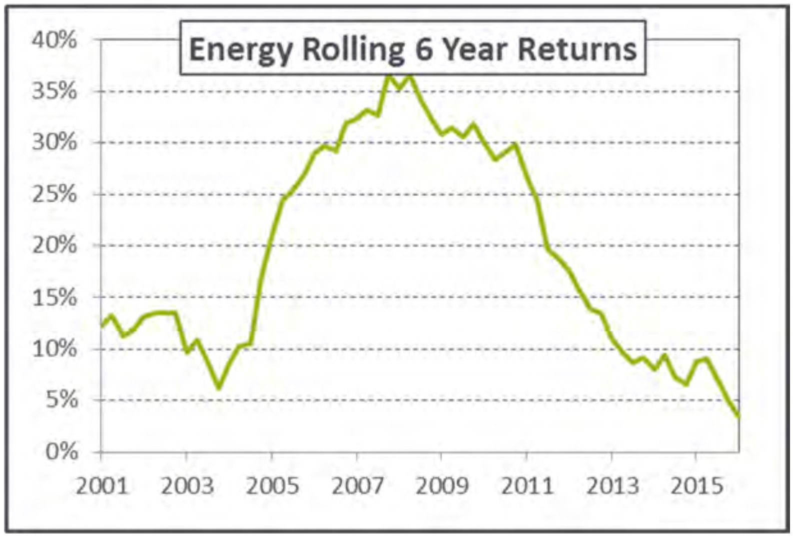
Source: S&P Capital IQ LCD



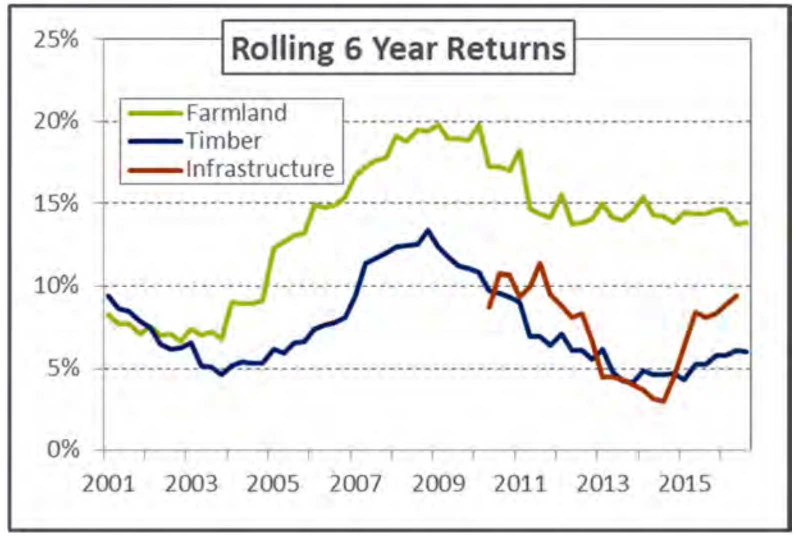
Source: S&P Capital IQ



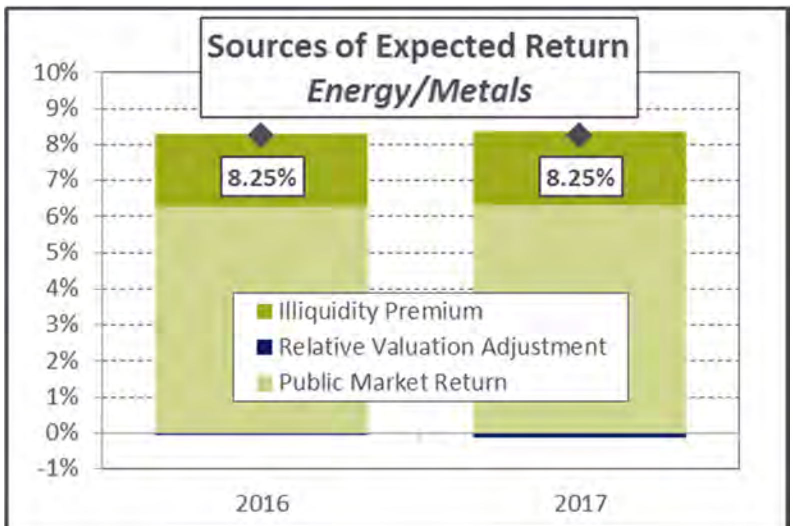
Private debt assumption reflects 50% direct lending, 25% mezzanine, 25% distressed debt. Public market equivalent defined as blend of 50% high yield bonds and 50% bank loans.

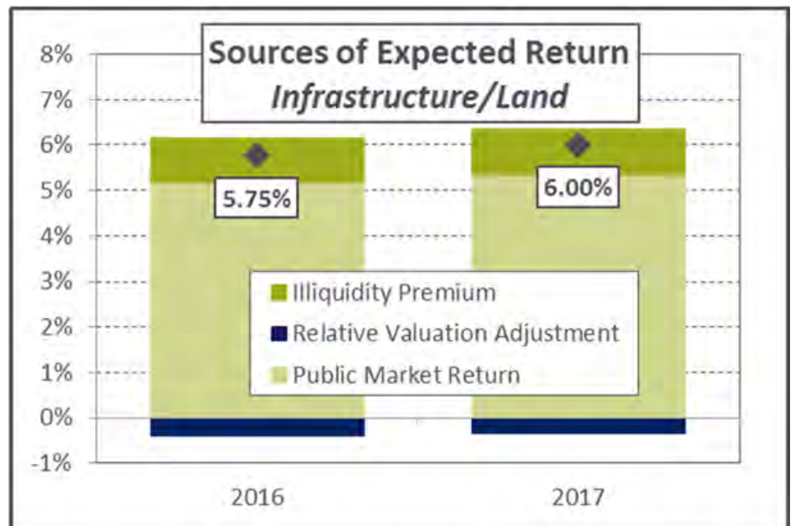


Source: MSCI, Thomson Reuters



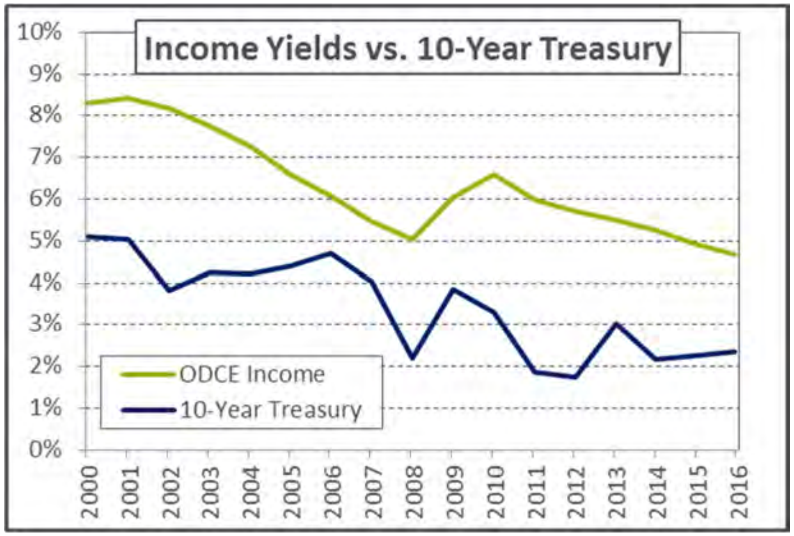
Source: NCREIF, Thomson Reuters



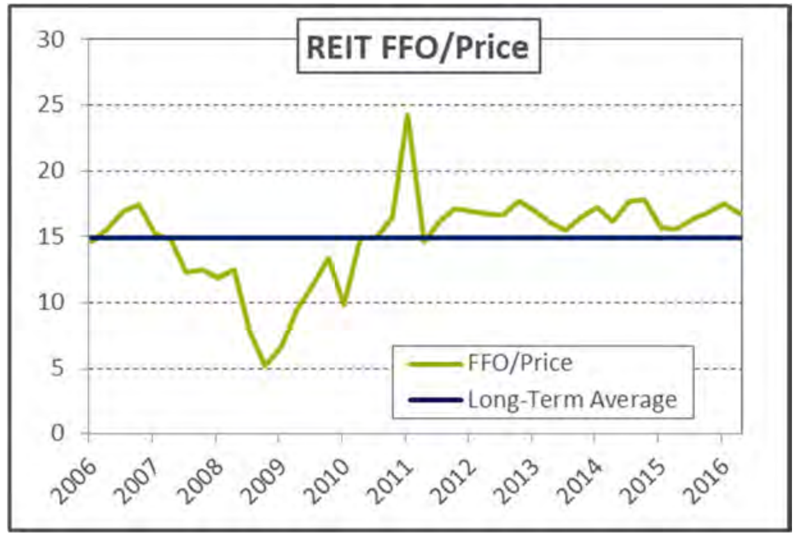


Private real assets – energy/metals assumption reflects 75% energy, 25% metals/mining. Public market equivalent defined as 50% commodities, 25% global equities, 25% MLPs. Private real assets – infrastructure/land assumption reflects 50% infrastructure, 25% timber, 25% farmland. Public market equivalent defined as 33% commodities, 33% developed equities (70% US SMID, 30% int'l developed small cap), 33% TIPS.

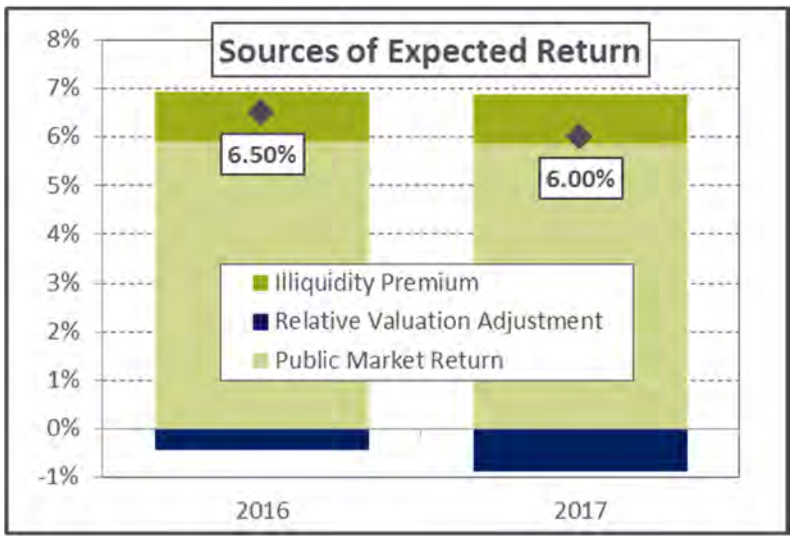
Assumption Development – Real Estate and REITs



Sources: NCREIF, US Department of Treasury



Source: NAREIT, Bloomberg



Core real estate expected return has decreased due to above average valuations and lower income yields

Despite a lower return assumption, real estate remains an important asset allocation tool for diversification and correlation benefits

Real estate assumption reflects US core holdings as represented by the NCREIF ODCE. REIT assumption represented by the FTSE NAREIT Index. Public market equivalent defined as 100% REITs with embedded leverage adjustment (21% for ODCE vs. 41% for NAREIT)

Asset Class Building Blocks Summary

- **Global Equity Building Blocks**
  - **Inflation:** Represents global inflation expectation over forecast period
  - **Real Earnings Growth:** Represents assumption for real growth for each market
  - **Profit Margin Adjustment:** Return due to shift of profit margins to forecast value
  - **Dividend Yield:** Represents dividend yield expectation over forecast period
  - **Valuation:** Return due to shift of current price/earnings ratio to forecast value
- **Commodities Building Blocks**
  - **Valuation:** Return from commodity spot price reverting to long term real average
  - **Roll yield:** Average annual yield to roll futures contract over forecast period
  - **Cash:** Expected US cash rate over forecast period
- **Fixed Income Building Blocks**
  - **Sovereign Yield:** Average expected government bond yield over forecast period
  - **Sovereign Price Change:** Expected price change due to changes in interest rates
  - **Roll Down:** Expected price change due to ageing of a bond along the yield curve
  - **Credit Spread:** Average expected credit spread over forecast period
  - **Spread Price Change:** Return due to shift of current credit spread to forecast value
  - **Credit Deterioration:** Return from credit downgrade and default over forecast period
  - **Real Yield:** Average expected government real yield over forecast period (TIPS)
  - **Real Yield Price Change:** Expected price change due to changes in real rates
  - **Inflation Expectation:** Expected inflation accrual over the forecast period (TIPS)
- **Private Markets Building Blocks**
  - **Illiquidity Premium:** Return associated with illiquidity factor specific to asset class
  - **Relative Valuation Adjustment:** Qualitative adjustment reflecting asset class views
  - **Public Market Return:** Return associated with equivalent public market beta

Information Disclaimer

- **Past performance is no guarantee of future results.**
- **The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**
- **This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.**

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

1. **Performance can be volatile and investors could lose all or a substantial portion of their investment**
2. **Leverage and other speculative practices may increase the risk of loss**
3. **Past performance may be revised due to the revaluation of investments**
4. **These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms**
5. **A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value**
6. **These funds are not subject to the same regulatory requirements as registered investment vehicles**
7. **Managers may not be required to provide periodic pricing or valuation information to investors**
8. **These funds may have complex tax structures and delays in distributing important tax information**
9. **These funds often charge high fees**
10. **Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy**

NEPC, LLC

YOU DEMAND MORE. *So do we.*[SM]

NEPC 2016 Outlook

Assumptions and Actions for Clients

December 15, 2015

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Overview

Key Themes and Background

Key Themes and Background for 2016

- **NEPC's 2016 Assumptions and Actions cover both an intermediate (5-7 years) and long term (30 years) forecast horizon**
  - Similar to prior years, November 30 market data is used for all assumption inputs

- **US economic cycle and US central bank policy are at the forefront of major cyclical and secular forces informing our Assumptions and Actions**
  - These factors interact to create a supportive environment for risk assets in the near term but ultimately push long term capital market forecasts lower relative to history

- **The US economy is nearly 7 years removed from the previous recession but the health of US consumers can extend the expansion**
  - Prolonged US economic cycle has the potential to push the US dollar higher straining commodity markets and international borrowers with dollar based debt

- **Influence of central bank policies in the developed world remain broadly supportive for risk assets but come with long term effects**
  - US policy is diverging from Europe and Japan but slow expected pace of hikes provides a positive backdrop for US equities and credit in the near term

- **Emerging Market growth compressed yet still stronger than developed; fears of further adjustments in China remain a near-term concern**
  - Large currency adjustments across most emerging countries healthy for future prospects
  - Chinese Yuan (RMB) devaluation has been incremental relative to other EM FX adjustments

Corporate Profits: Mid-Late Cycle

Source: St. Louis Federal Reserve

Economic Growth Levels: Mid Cycle

Source: St. Louis Federal Reserve

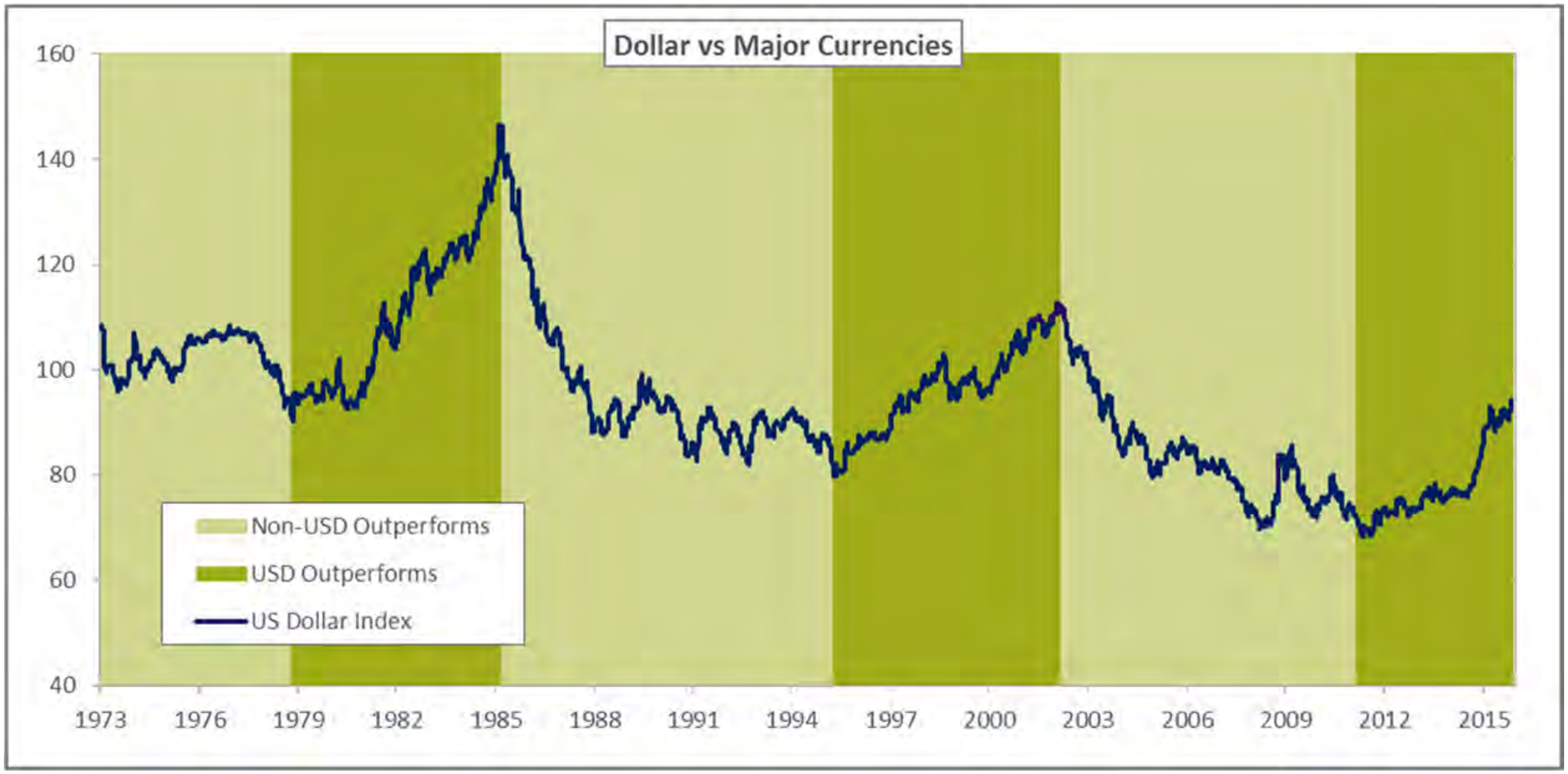
Wage Growth: Early Cycle

Source: St. Louis Federal Reserve

Where Are We In the Economic Cycle?

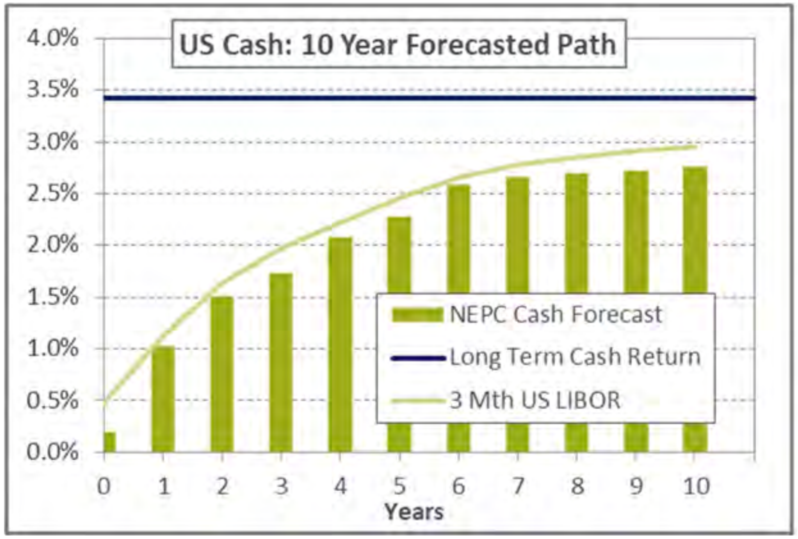
- **Relative to the average length of economic cycles the US expansion is in its later stages**
- **Improvements in wage growth and consumer spending can potentially extend expansion**
- **Continued US expansion provides a positive foundation for US risk assets**

US Dollar Cycle Characterized by Peaks of Overvaluation

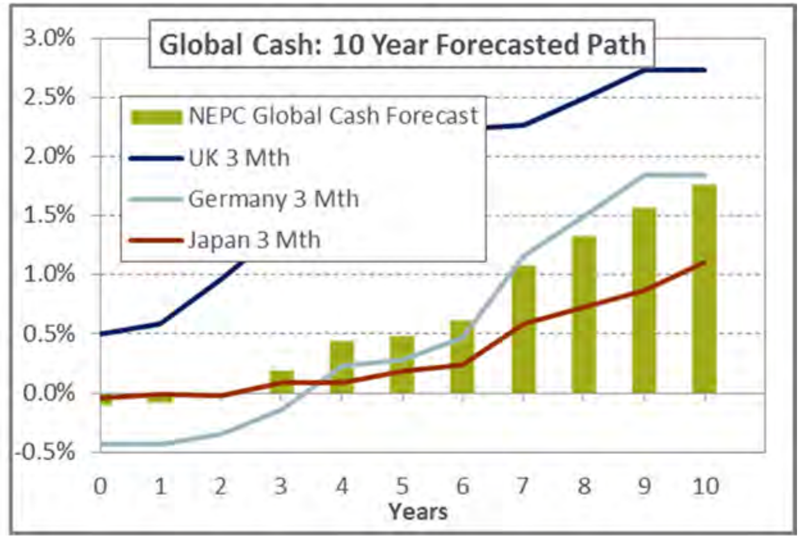


Source: Bloomberg, NEPC

- **A prolonged US economic expansion is likely to have a significant influence on the US dollar cycle**
  - Continued growth in consumer spending and US economy have the potential to push the US dollar to levels last seen in the late 1990's
- **US dollar strength is interconnected with US Federal Reserve policy**
  - Fed must balance the path of future interest rate increases relative to the disruptive effects of a strong dollar on global markets



Source: Bloomberg, NEPC

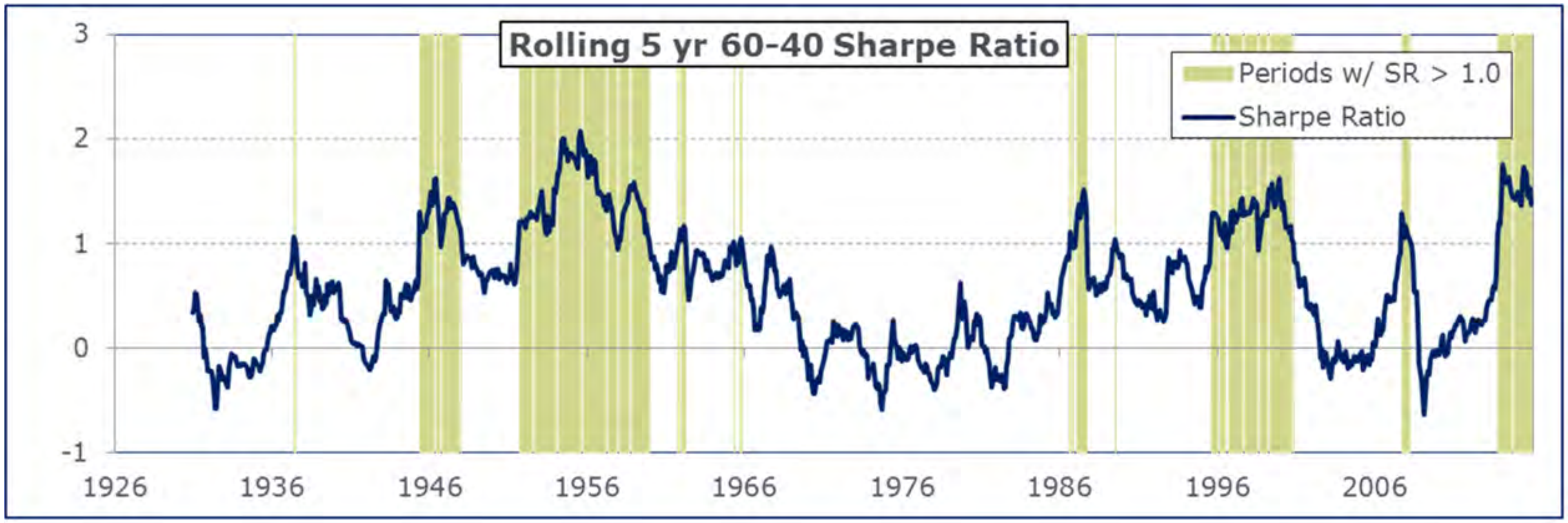


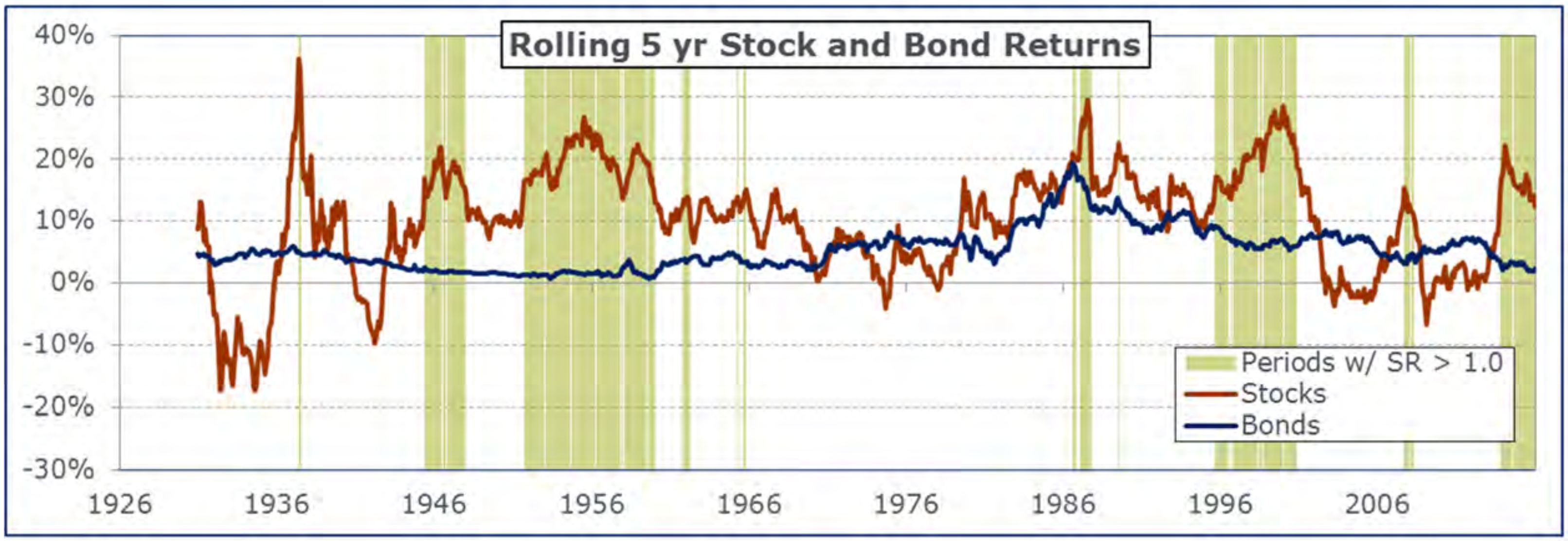
Source: Bloomberg, NEPC

- **Accommodative global monetary policies flow through to markets distorting the traditional asset return profile**
  - QE and negative interest rates suppress income while supporting higher valuations
  - Provides near term support for market conditions in Europe and Japan

- **Potential extended period of low cash rates beyond the market expectations pose challenges for all investors**
  - Subdued long term cash expectations in the developed world compress long term expected returns for both fixed income and equity

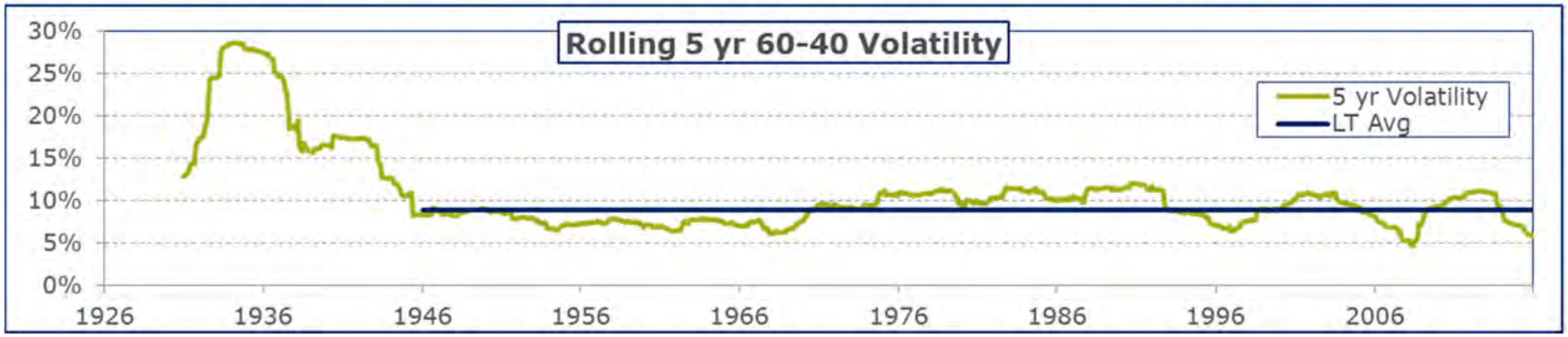
Maybe Occam is Right…Is The Simplest Solution the Best?





Source: Shiller, Bloomberg, NEPC

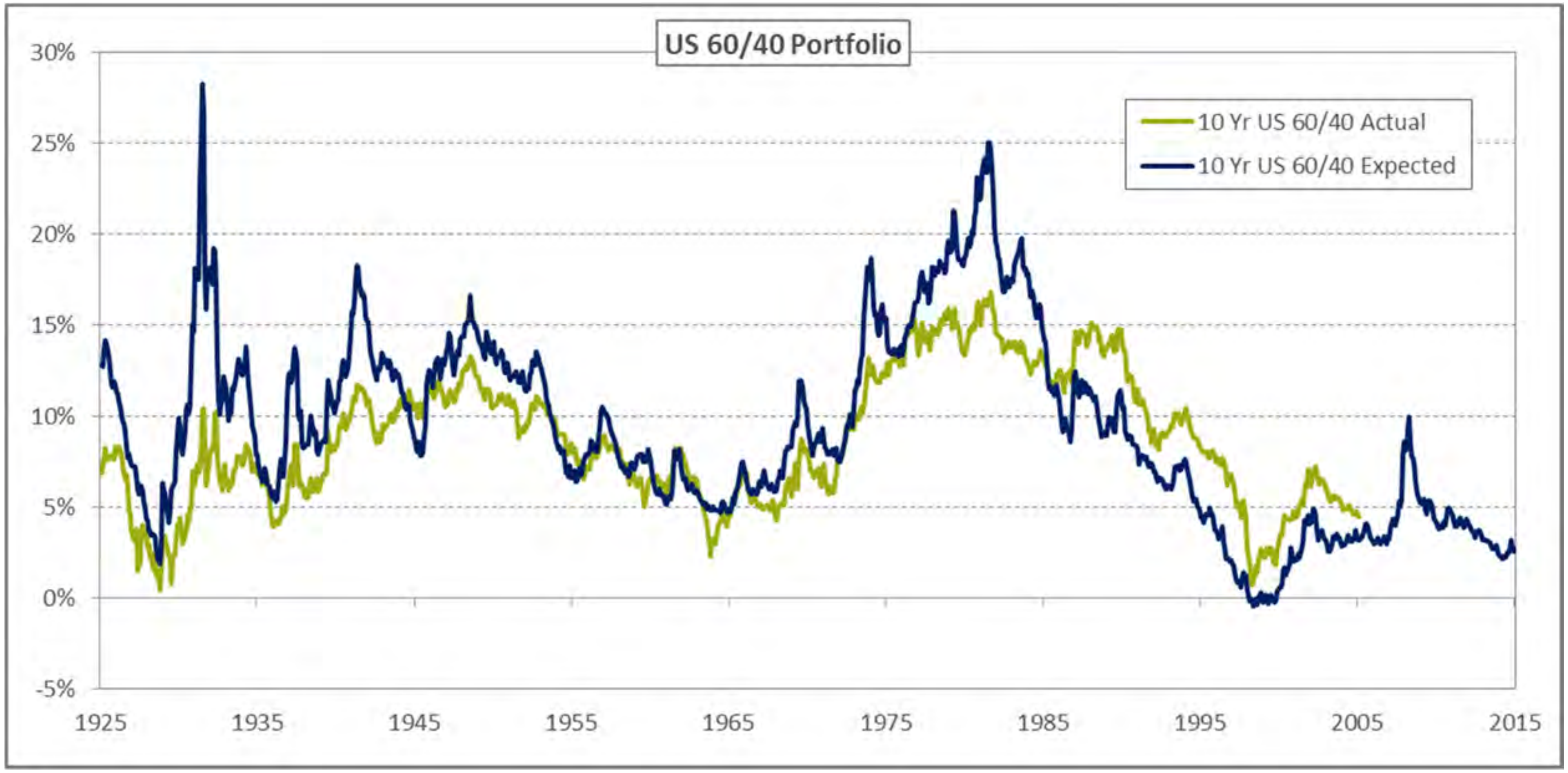
- **Occam's razor (in Latin *lex parsimoniae*: 'law of parsimony'):**
  – Among competing hypotheses, the one with the fewest assumptions should be selected
  – Interpretation: preference for fewer unknowns
    - But on any assumption – **better to be right than wrong**



- **What must you believe to expect 60/40 provides a 5 year Sharpe Ratio greater than 1.0?**
  – Assume Bonds return roughly 2.25% = 0.9% return contribution
  – Assume cash returns are in line with expectations (5-7 year assumption = 1.50%)
  – Assume volatility of 60-40 portfolio stays within a reasonable historical range
- **Equities must return 11-21% annualized over 5 years!**
  – Assuming range of 6-12% for 5 year annualized 60-40 volatility

Source: Wikipedia, Shiller, Bloomberg, NEPC

Low Global Cash Rates Suppress Long Term Return Expectations



Source: Shiller Data, NEPC

- **US centric portfolios like 60/40 have worked historically but forward looking return prospects are subdued**
  - Asset prices can be sustained but low yields portend below average expected returns
- **Conventional investment approaches may fall short going forward**
  - Index focused approaches, such as core bonds, suboptimal in current environment
  - Adjustments will be necessary to effectively meet and exceed long-term objectives

NEPC 2016 Observations and Actions

2016 Capital Market Observations

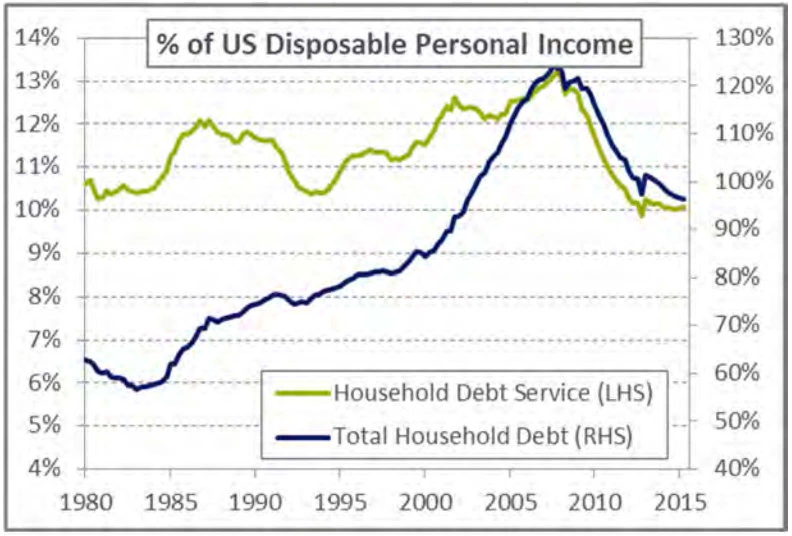
- **US economic expansion continues as Federal Reserve begins policy shift**
  - Economic conditions and health of US consumers remain supportive for growth
  - Profit margin declines and strong dollar are a challenge to corporate profitability
- **Central Banks continue to dictate the global investment outlook**
  - Path of Fed policy over next two years matters more than timing of the next Fed action
  - ECB and BoJ likely to maintain and extend accommodative policies
  - Easing in China is broadly stimulative but currency policy is unpredictable
- **Persistent strength of US dollar reveals global market weakness**
  - World economy has experienced a "dollar recession" as global output slows
  - Dollar strength tightens global monetary conditions and strains global growth
- **Weak growth should not lead to a financial crisis in emerging markets**
  - Negative asset returns reflect adjustments necessary for future economic success
  - Further political and market reforms are necessary for improved economic conditions
- **Stressed credit liquidity magnifies the scale of price movements**
  - Central bank easing and positive investor sentiment have masked deterioration in liquidity
  - Credit markets ability to absorb an exodus from crowded positions could be challenged

NEPC 2016 General Actions for Clients

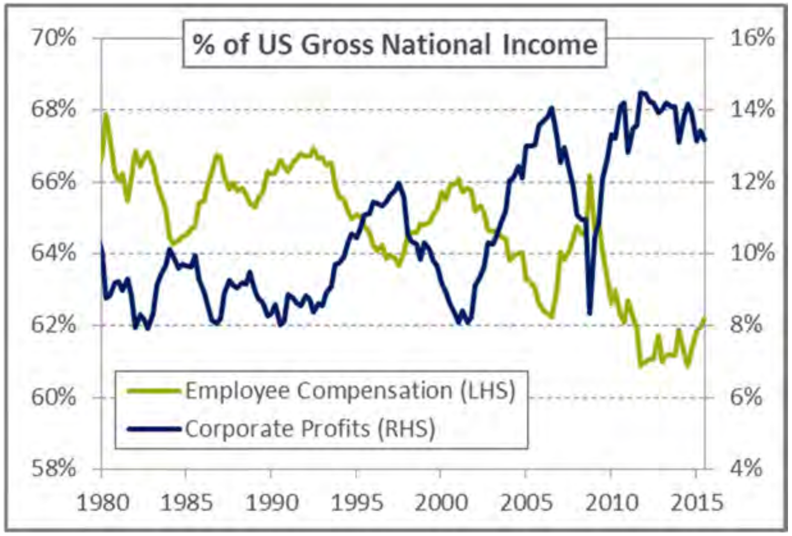
- **Maintain exposure to US risk assets in a low return environment**
  - Lower returns expected but risk premia can still be harvested as cycle extends
  - Economic cycle is in the advanced stages but macro policy remains supportive
  - Low core bond returns warrant a more positive tilt to equity, especially after sell-offs
- **Overweight non-US developed market equities**
  - Central bank support and dollar strength provide a positive economic backdrop
  - Corporate earnings remain well below 2007 levels despite recent earnings recovery
  - EAFE equity markets offer the potential for outsized returns relative to US equities
- **Reaffirm commitment to emerging market equities**
  - Valuations and long-term fundamentals suggest an overweight
  - China uncertainty, dollar pressure and idiosyncratic country risks temper excitement
  - Overweight small-cap and consumer focused strategies relative to broad mandates
- **Seek tactical fixed income strategies but preserve duration exposure**
  - Spreads have widened but credit selection is critical as credit cycle matures
  - US duration continues to have a role in a diversified and risk-aware portfolio
  - TIPS offer an attractive duration profile with inflation expectations at secular lows
- **Explore positive yielding assets revealed from energy market distress**
  - Private strategy returns are compelling but suggest patience
  - Focus on segments of the public markets that offer a yield

Capital Market Observations

- **US GDP continues to strengthen modestly**
  - Consumer spending supported by healthy balance sheets
  - Low energy prices and debt service have provided stimulation
- **US economy shows resilience against headwinds**
  - Fed support through quantitative easing has been removed
  - Dollar strength pressures profit margins of global companies
  - Subdued global growth and challenges in certain emerging markets
- **Corporate profits begin to lag from secular highs**
  - Buybacks and financial engineering have buttressed earnings per share
  - Profitability has begun to slow from rising dollar and wage pressures



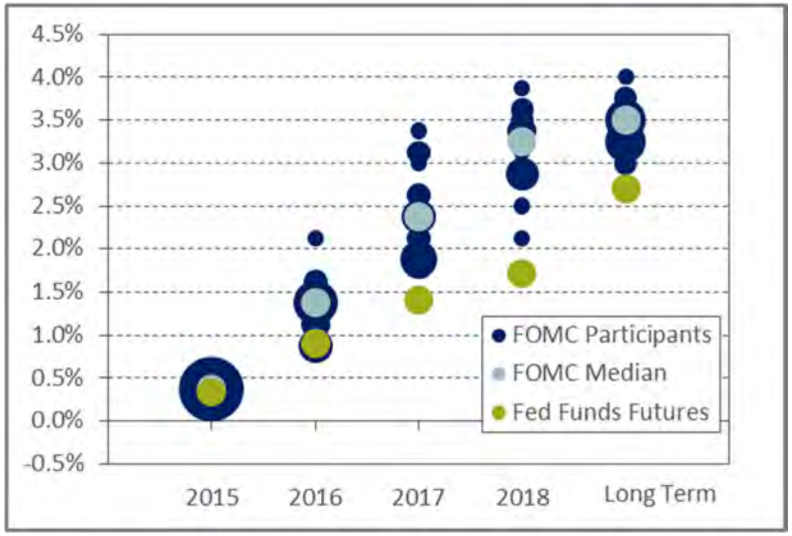
Source: St. Louis Federal Reserve



Source: St. Louis Federal Reserve

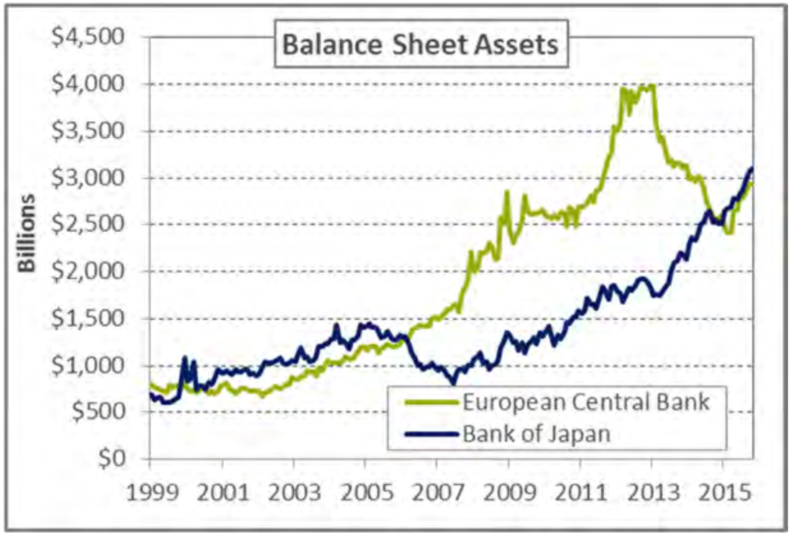
Follow The Money – Central Banks Continue to Drive Capital Market Results

- **Next steps in Fed policy closely watched but path is a bigger (and more important) unknown**
  - 25 basis point increase unlikely to cause economic slowdown
  - Rate increases beyond market expectations could prove challenging for asset prices
  - Long-term terminal Fed Funds rate determines pricing for all assets



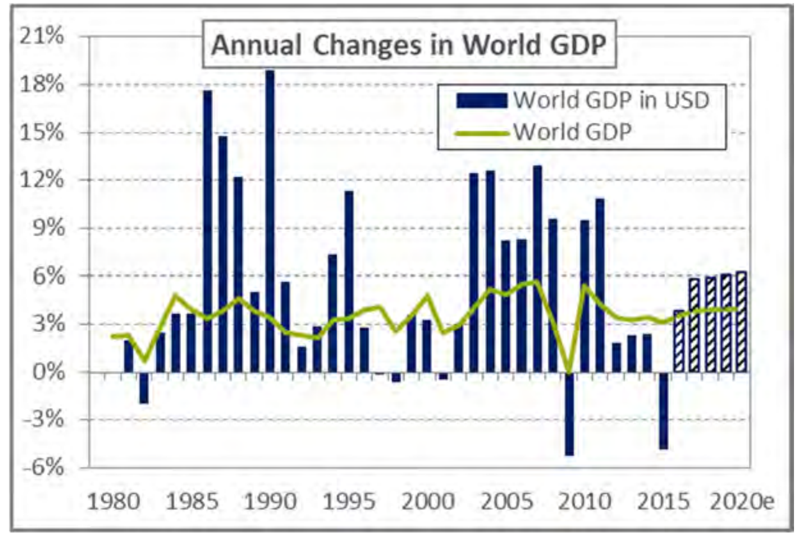
Source: FOMC, Bloomberg

- **Monetary stimulation in Europe and Japan has been effective**
  - Both regions require further accommodation to continue gradual economic recovery
  - Effectiveness of easing may be challenged with bond yields and credit spreads relatively low
  - However, zero interest rate bound has been broken, offering room for further easing



Source: European Central Bank, Bank of Japan, Bloomberg

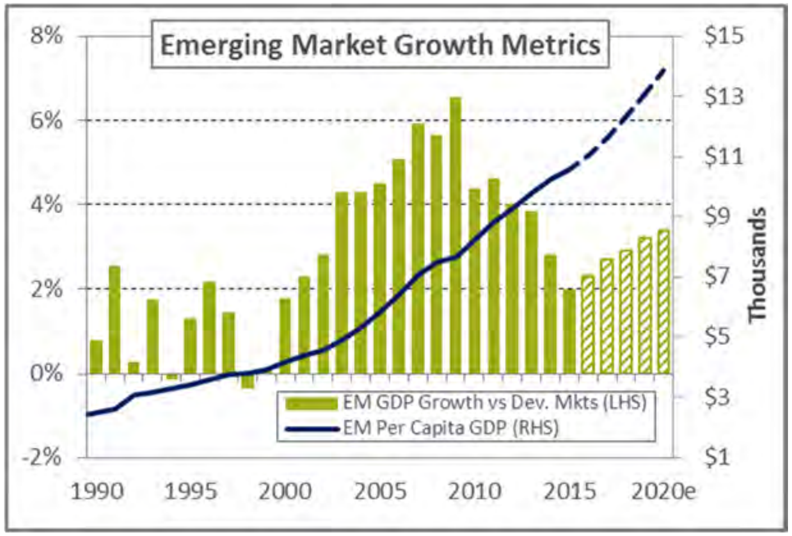
- **Positive global GDP growth masks challenges of a strong dollar**
- **World economy has suffered a "dollar recession" as global GDP in USD terms has declined by nearly $4 trillion**
  - Appreciation in US dollar strains global liquidity and reveals underlying market weakness
  - Pressures commodity markets and credit growth for international borrowers holding dollar based debt
- **Dollar strength impacts global economy in meaningful ways**
  - Improves competitiveness for countries and companies heavily reliant on exports to the US
  - Represents a headwind to US corporate earnings and exports
  - Fed is forced to balance slower interest rate increases or pushing the dollar higher



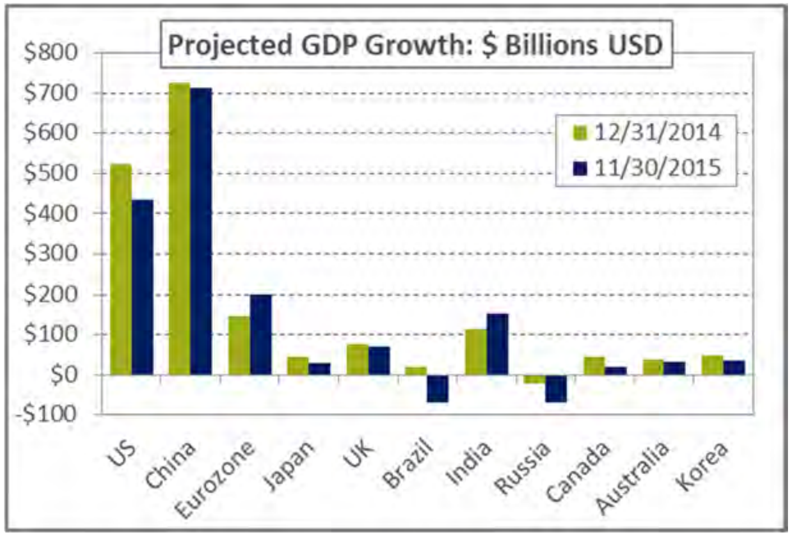
Source: IMF

Source: St. Louis Federal Reserve

- **Emerging market growth premium relative to developed world remains but is subdued**
  - Per Capita GDP continues to rise, pushing standard of living higher and supporting consumer growth
- **Initiative to reform reflects the distinct and varied outlook across countries**
  - Political challenges and commodity market distress are material risks for both Russia and Brazil
  - Reform minded countries are realizing economic adjustments necessary for sustainable growth and economic success
- **Economic conditions across emerging world are distinct but China is the focus**
  - China remains the growth engine for the world but is transitioning to a new economic model



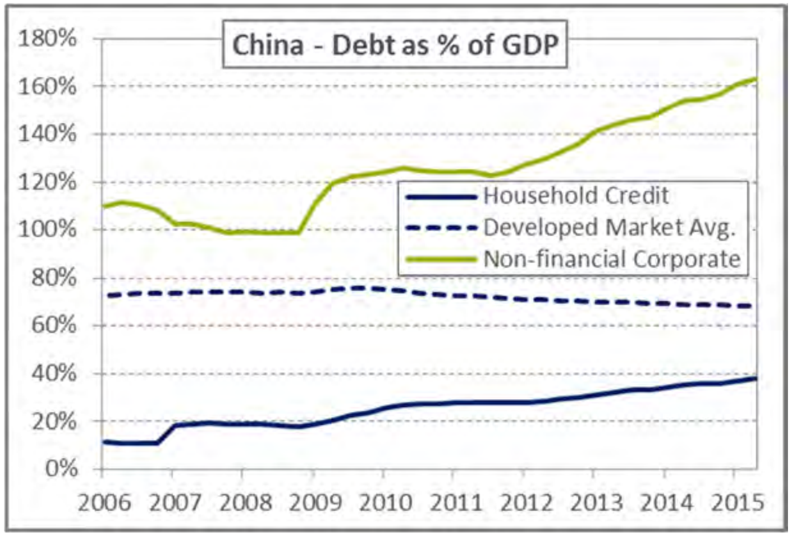
Source: IMF



Source: Bloomberg

- **Decline in fixed investment is lowering China's growth rate**
  - Broad implications for many emerging economies and commodity producers
- **Shift is underway from an export and investment led economy to a consumer focus**
  - Adjustment is paired with ongoing market reforms to liberalize currency and financial markets
  - Continued strength of the US dollar may force a more aggressive currency adjustment from China
- **Consumer spending likely to be the economic growth engine**
  - Retail sales have been immune to the extreme stock market volatility
  - Significant capacity for long-term credit growth among households

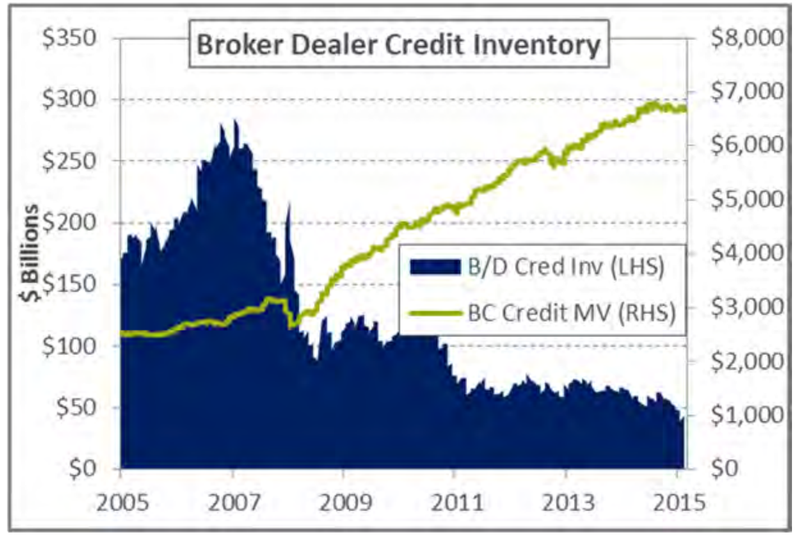
Source: Bloomberg



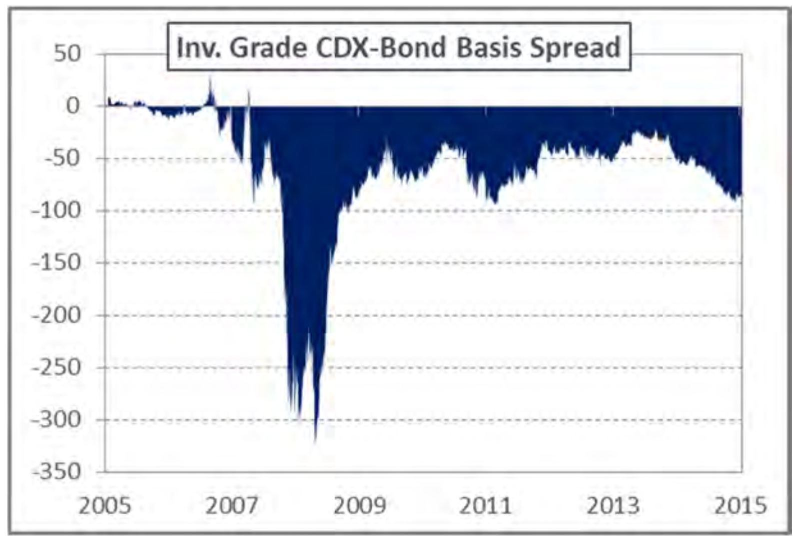
Source: Bank for International Settlements

Credit Market Liquidity Warrants Caution

- **Underlying market conditions remain fragile despite rebound from August sell-off**
  - Credit markets' could be challenged to absorb exodus from crowded positions
- **Credit inventories lower today with less bank capital at risk**
  - Liquidity provisions of new regulatory model are untested in true crisis
- **Derivative exposure less reliable**
  - Variable and negative CDX basis makes hedging unpredictable
- **Certain factors in place that can help stave off a liquidity crisis**
  - Low rate policies, bullish sentiment, positive economic results
- **Dynamic active strategies with disciplined credit approach can exploit periods of stress**



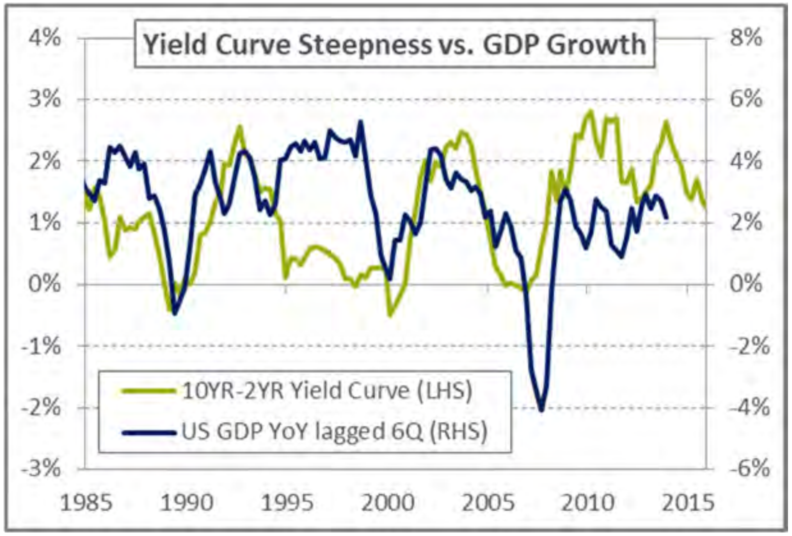
Source: NY Federal Reserve



Source: Barclays Capital

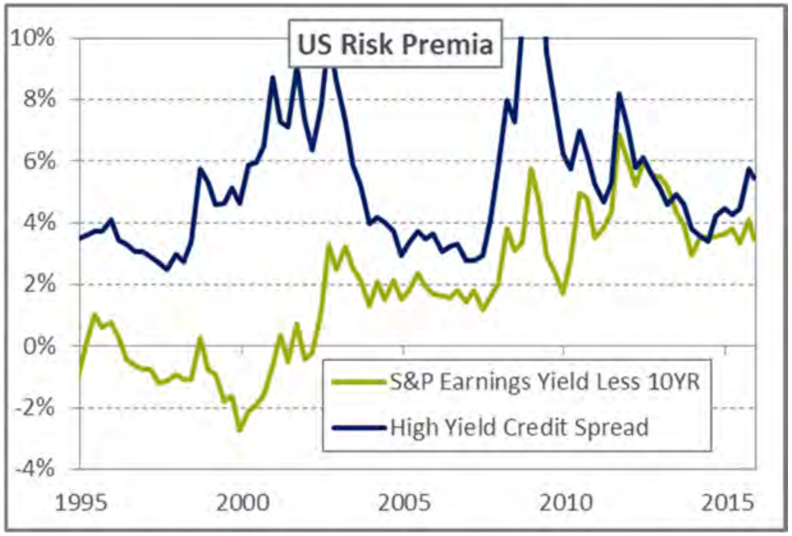
General Client Actions

- **Influence of monetary policy provides basis for extended US economic cycle**
  - Continued growth supports accrual of risk premia even in a low expected return environment
  - Profit margin pressures and enhanced credit risk are challenges of a maturing economic cycle



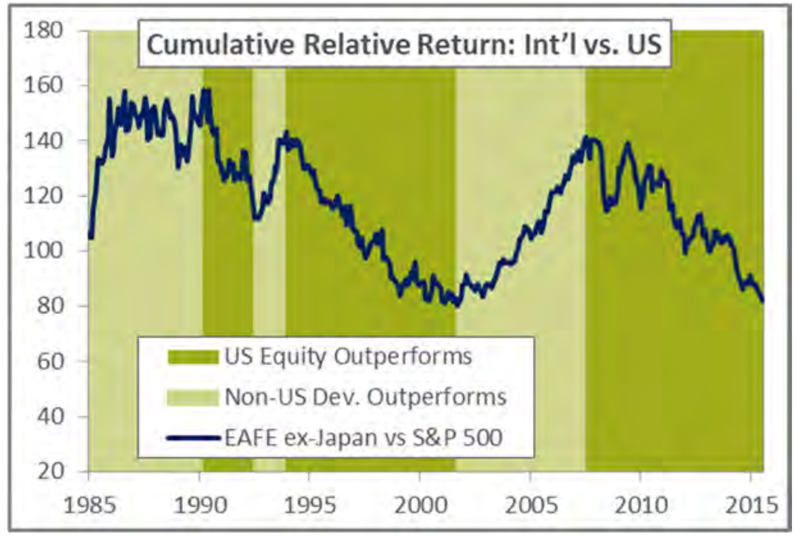
Source: Bloomberg

- **US equity and credit markets offer reasonable risk premia**
  - Equity markets are near fair value but distortion from monetary policy supports continued positive returns
  - Pressure of stronger dollar and energy market distress are a headwind for returns
  - Focus on niche strategies and hedge funds to exploit potential volatility in equity and credit markets

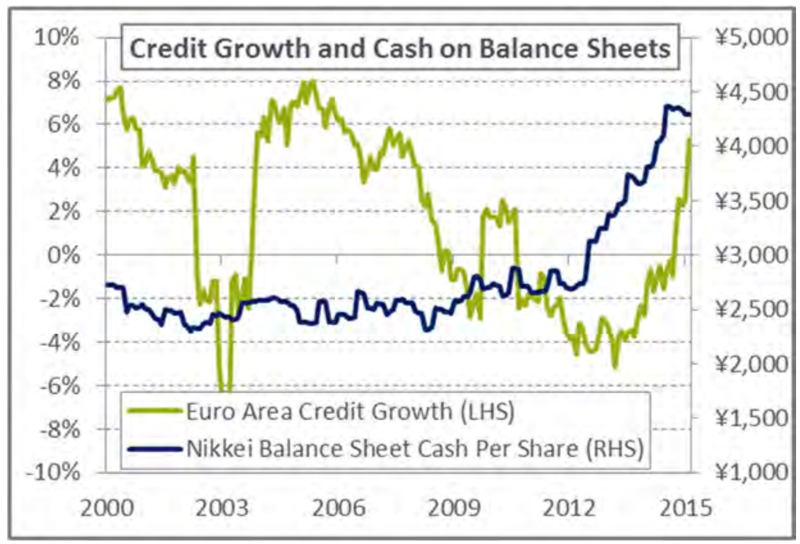


Source: Bloomberg

- **Europe and Japan have faced major economic challenges**
  - For Japan, these challenges extend over the previous two decades
  - Non-US equity returns relative to domestic are highly cyclical
- **Success of US monetary action galvanized unprecedented action by the European Central Bank and Bank of Japan**
  - Seeking positive response in both capital markets and real economy
- **Equities and other risky asset markets likely to benefit**
  - Stimulus promotes credit growth, spending and earnings
  - Japanese companies flush with cash also seeking improved profitability
- **Hedging a portion of non-US developed currency exposure remains a strategic goal**
  - Dollar strength likely to persist as Fed policy lifts off

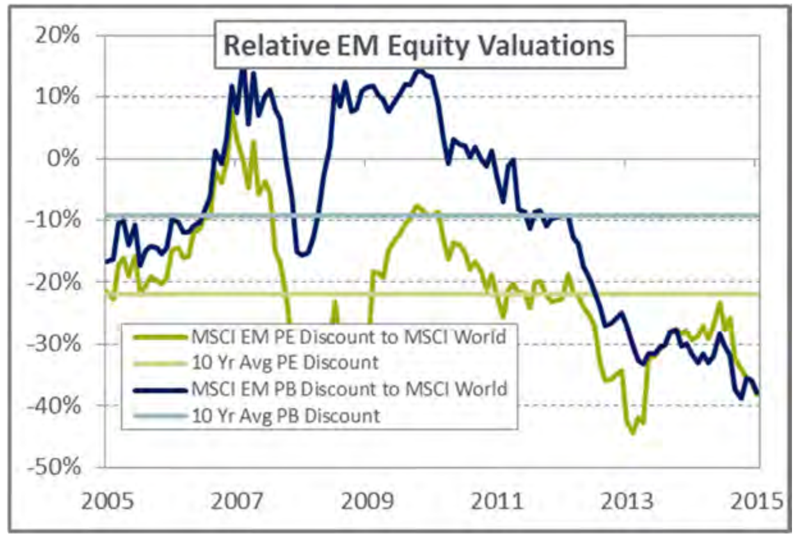


Source: Standard & Poors, MSCI, Bloomberg



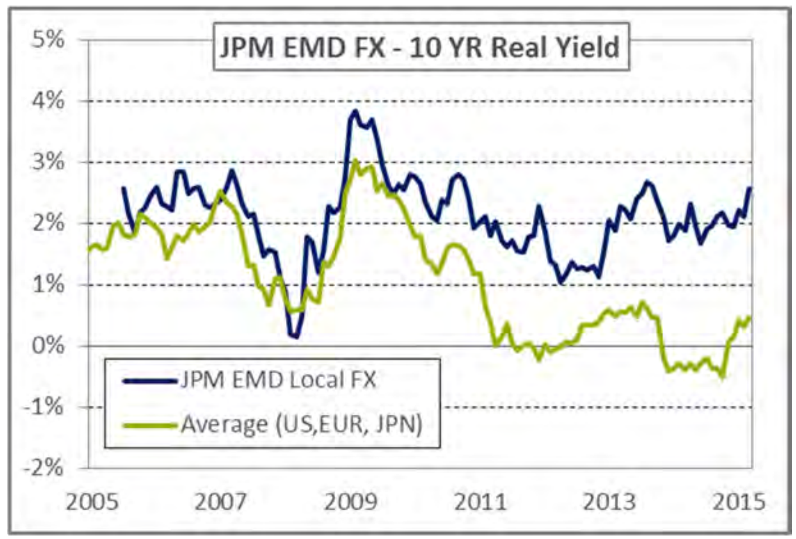
Source: TSE, ECB, Bloomberg

- **Fundamentals of emerging markets suggest higher return potential than developed world**
  - Valuations appear reasonable especially versus developed world
  - Superior real yields and fundamentals expected to flow through to higher returns over time



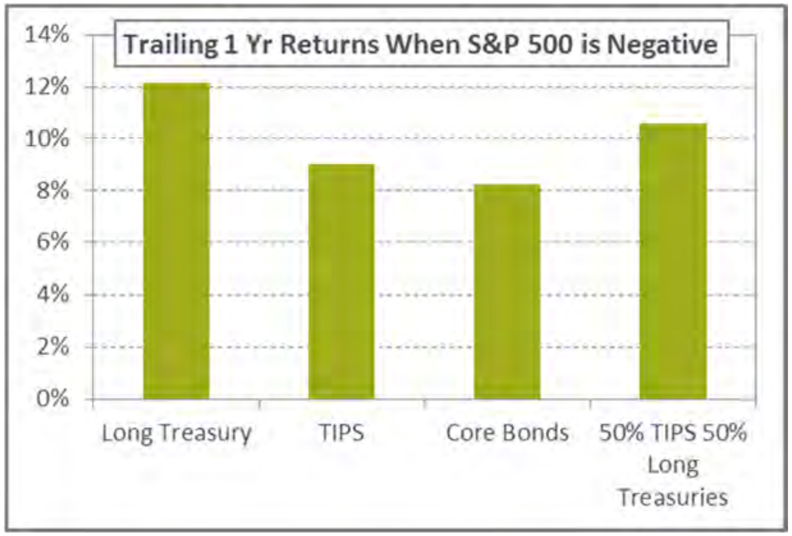
Source: MSCI, Bloomberg

- **Unique risks across countries suggest caution and patience**
  - China continues slow process to delicately rebalance economy
  - Commodity dependent countries face financial challenges as they adjust to lower prices
  - Credit dependence, particularly for dollar based borrowers could cause further strain

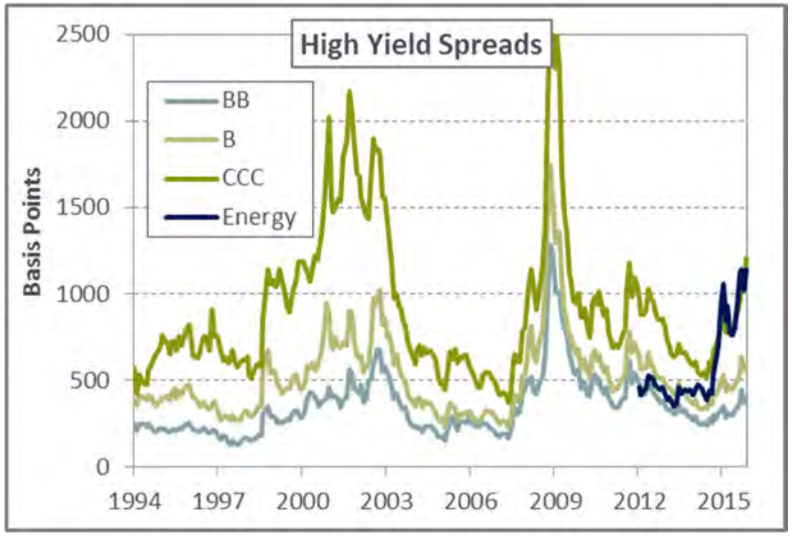


Source: JP Morgan, Bloomberg

- **Safe haven exposure is critical as an asset allocation building block**
  - Provides unique stability in times of equity market stress
- **Partial allocation to TIPS diversifies safe haven exposure**
  - Current low inflation breakevens make TIPS attractive relative to nominal US Treasuries
- **Tactical bond strategies and unique credit exposures are key portfolio components**
  - Mitigate the impact of a rising interest rate environment
  - Credit selection is key given challenging environment today across credit qualities and sectors
  - Global multi-sector credit, absolute return fixed income, credit hedge funds, private lending are a focus

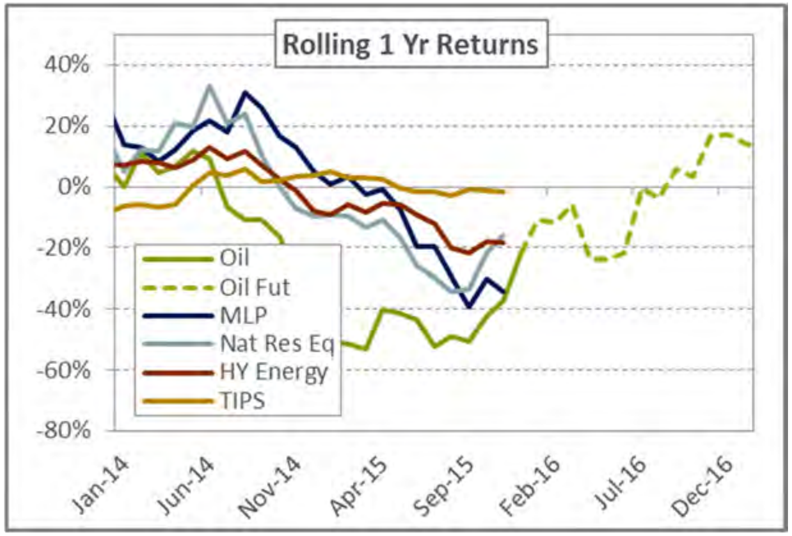


Source: Barclays, Bloomberg

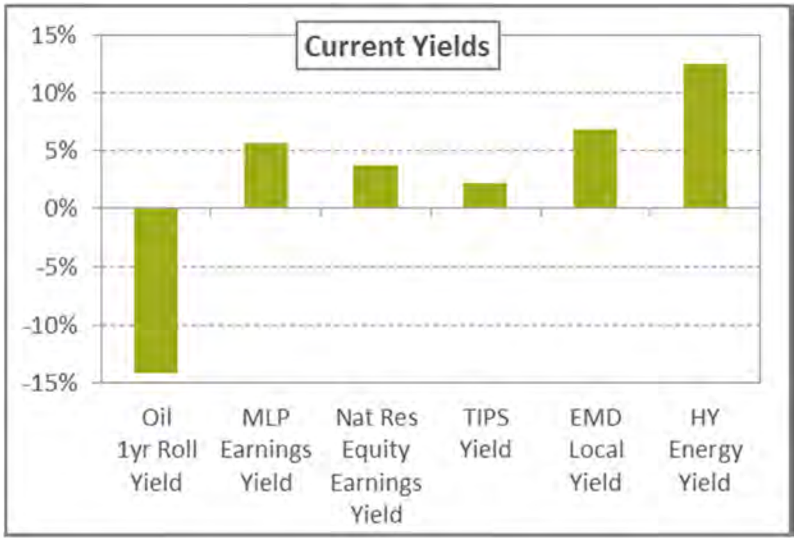


Source: Barclays, Bloomberg

- **Massive oil selloff generated distress across commodity markets**
  - Impacted oil-related and other inflation sensitive assets
  - Selloff in related asset classes may present opportunities for active managers and private strategies
- **Seek inflation sensitive asset classes that offer positive yield**
  - Oil futures commodity roll yield is strongly negative
  - Other asset classes may offer attractive price upside
- **Private market strategies may be more attractive**
  - Patient capital can seize high return opportunities as they materialize



Source: Alerian, Standard & Poors, Barclays, JP Morgan, Bloomberg



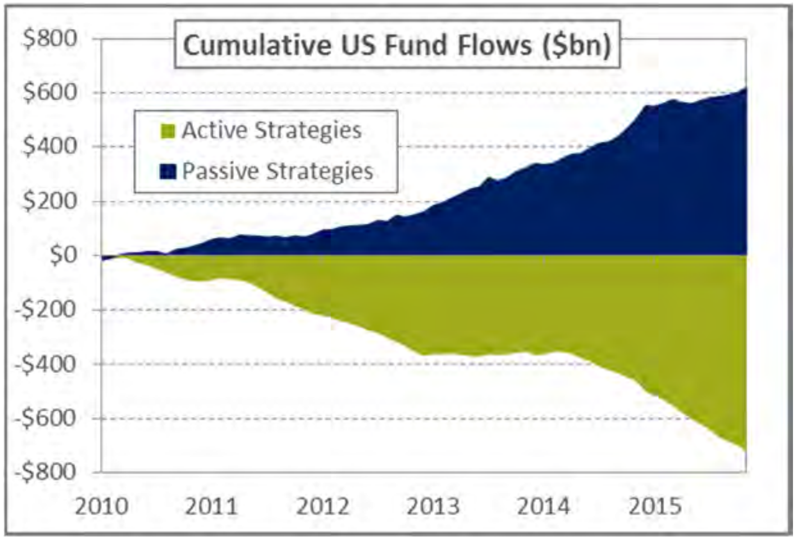
Source: Alerian, Standard & Poors, Barclays, JP Morgan, Bloomberg

Active Management – An Accelerating Trend to Passive Implementation

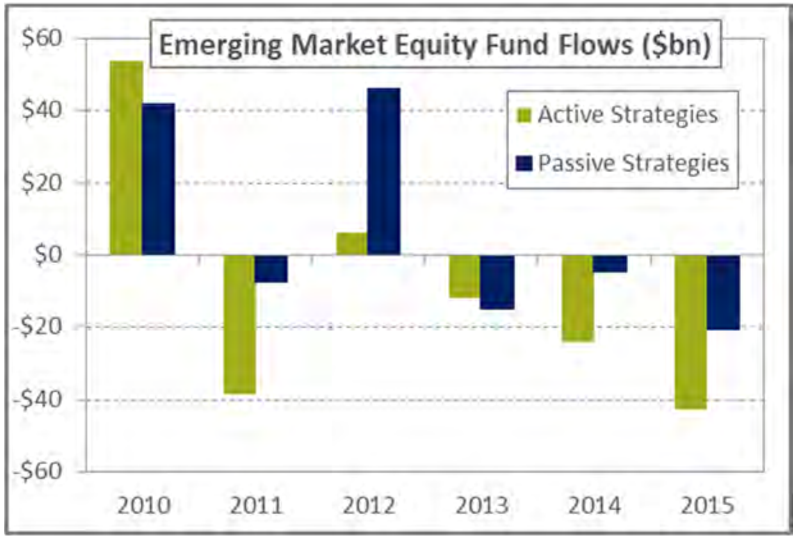
- **Passive trends a headwind for traditional active management**
  - Remain committed to high conviction active managers
  - Give managers greater discretion, but evaluate effectiveness of investment thesis over time
  - Reduced regional constraints provide expanded opportunity for alpha in global equity strategies

- **Untether exposures from traditional benchmark risks and bias in Emerging Markets**
  - Make use of small cap and consumer focused equity strategies
  - Use non-traditional strategies with reduced constraints across markets to capitalize on divergences

- **Conviction in ability to generate alpha as well as uniqueness of strategy must align with fees**



Source: EPFR Global



Source: EPFR Global

Strategy Implementation Views: 10 Considerations

- **Global Equity**
  - Global strategies can exploit regional divergences but is not a total equity replacement
- **Non-US Developed Equity**
  - Make use of currency hedged to fund overweight allocation
- **Emerging Market Equity**
  - Small cap and Consumer focused approach
- **Core Fixed Income**
  - Barbell Unconstrained with TIPS/Long Bonds
- **Credit Exposure**
  - Think outside the “benchmark box” dynamic credit strategies, Private Lending
- **Emerging Market Debt**
  - Blended approach and consider complementing with EM Macro HF
- **Overlay**
  - Provides disciplined rebalance approach
- **Risk Parity**
  - Risk balanced inflation-sensitive assets exposure preferrable to long only commodities
- **Inflation-Sensitive Assets**
  - Make use of multi-asset inflation focused strategies to fund private real assets
- **Opportunistic Allocations**
  - Create an opportunistic “bucket” to exploit future market dislocations

2016 Asset Class Assumptions

Development of Asset Class Assumptions

- **We use November 30 market data for all asset class assumptions**
- **Combination of historical data and forward looking analysis**
  - Expected returns based on current market pricing and forward looking estimates
  - Volatility and correlations based on history, while recognizing current uncertainty
- **Historical data is used to frame current market environment as well as to compare to similar historical periods**
  - Incorporates historical index returns, volatility, correlations, valuations, and yields
- **Forward-looking analysis is based on current market pricing and a building blocks approach**
  - Return equals yield + changes in price (valuation, defaults, etc.)
  - Use of key economic observations (inflation, real growth, dividends, etc.)
  - Structural themes (supply and demand imbalances, capital flows, etc.)
- **Assumptions prepared by Asset Allocation Committee**
  - Asset Allocation team plus members of various consulting practice groups meet to develop themes and assumptions
  - Public markets, hedge fund and private market research teams provide insights
- **Assumptions and Actions reviewed and approved by Partners Research Committee**

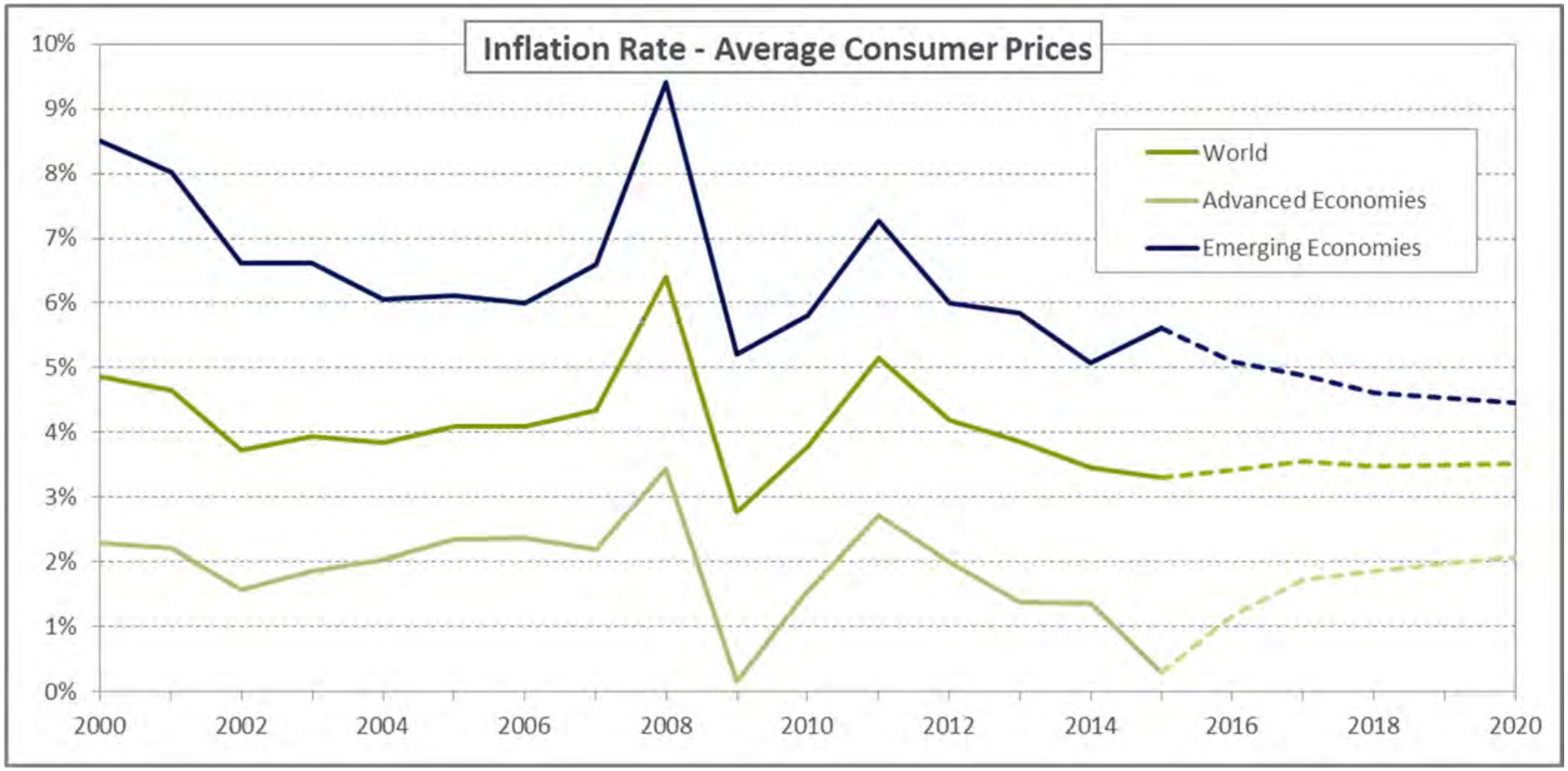
Changes To Assumption Development

- **We continue to refine and enhance our process where appropriate**
  - Changes are evolutionary rather than revolutionary
    - Addition of a dedicated 20+ Year STRIPS assumption
- **Added international small cap equity and emerging market small cap**
  - Recognizes the differentiated opportunity set associated with global small-cap equities
- **Fixed income model redesigned to highlight underlying building block market assumptions**
  - Includes major fixed income market drivers (yield, roll down, price change, credit, etc)
- **Broadened global bond country list to reflect index market exposure**
  - Inclusion of higher yielding government bond markets (Australia, Canada, Mexico, etc)
- **Refined commodity model to better account for market contango**
  - Developed improved curve forecast for each major commodity
  - Accounts for the significant negative roll yield of select commodities
- **Further refined development of asset class volatility assumptions**
  - Asset classes with evidence of autocorrelation adjusted to reflect experienced volatility

Inflation

- **Inflation is an integral component of our asset allocation assumptions**
  - An essential building block for projecting returns in stocks, bonds, and commodities
- **There are several measures of inflation used to inform our view, all with some type of shortcoming**
  - Global forecasts, local consumer and producer price indices, TIPS break-even inflation
- **Institutional investment pools will experience asset inflation globally, encompassing both developed and emerging countries**
  - We use a 3% global inflation forecast over 5-7 years for our equity building blocks
    - Akin to assuming purchasing power parity holds across markets
  - Can be different from inflation experienced in local country liabilities or spending needs
    - Our expectation of US CPI is 2.25% over 5-7 years and 2.75% over 30 years
- **Muted credit growth leaves inflation expectations unchanged in the near term, pressure for higher long-term inflation continues to build**
  - Money supply (M2) continued to expand while velocity remains depressed
  - Global monetary policy likely to remain stimulative in 2016
- **Given long-term inflation pressures, a modestly higher inflation assumption (3.25%) is used for determining 30 year equity return expectations**

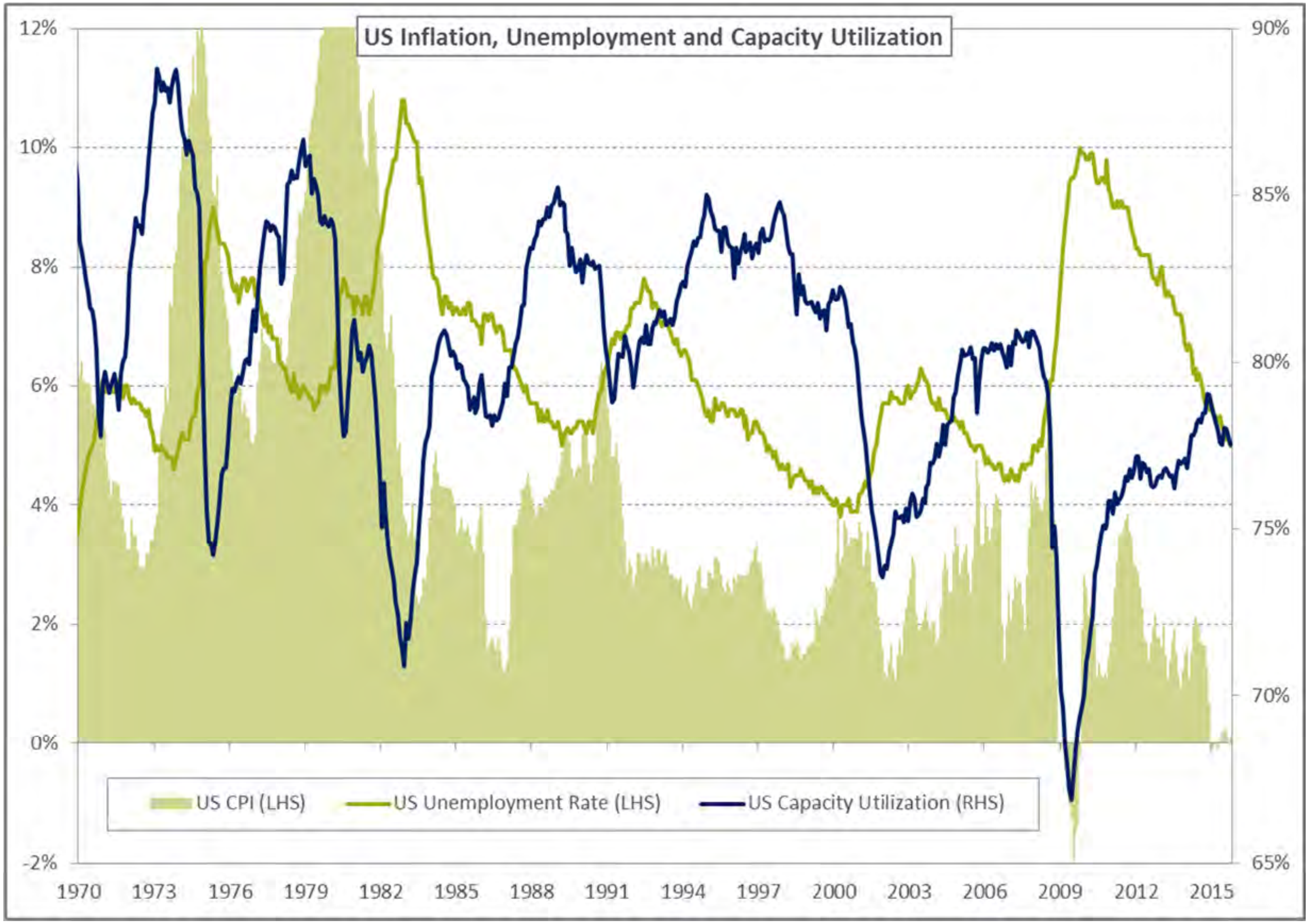
Global Inflation Forecasts



Source: IMF

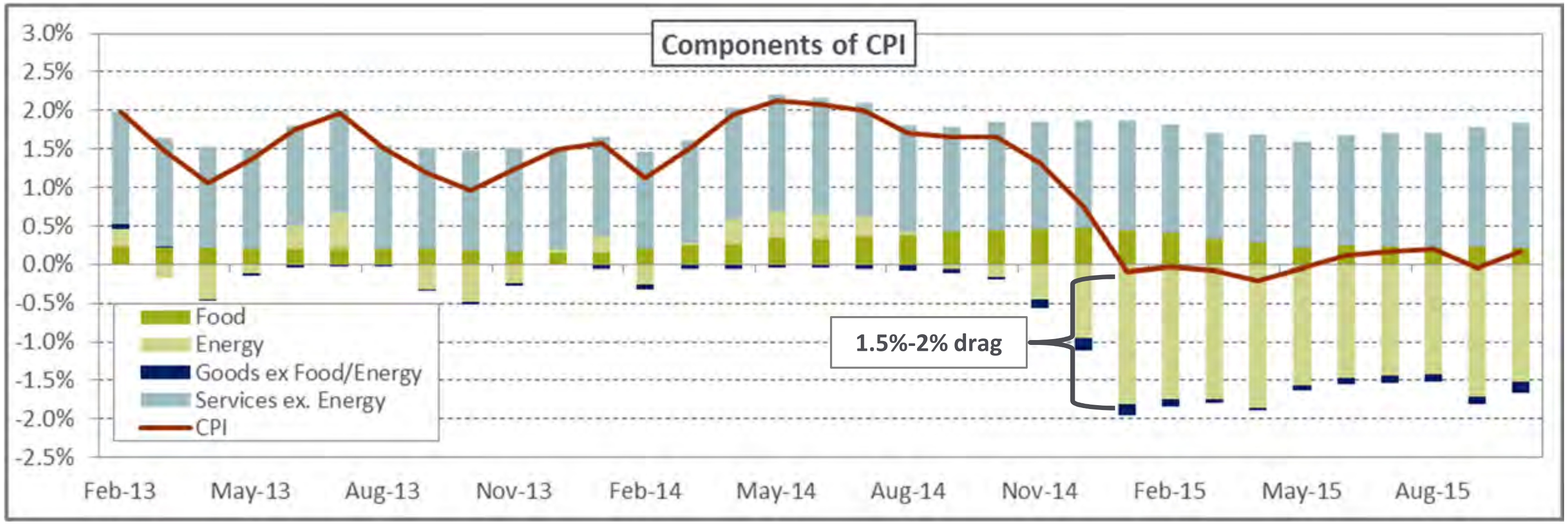
- **World inflation forecasts range from 3.4-3.6% annually over the next five years**
  - Investment programs with a developed markets bias likely to experience less inflation than the global average

Realized US Inflation Has Stayed Low Despite Economy Showing Capacity Improvements

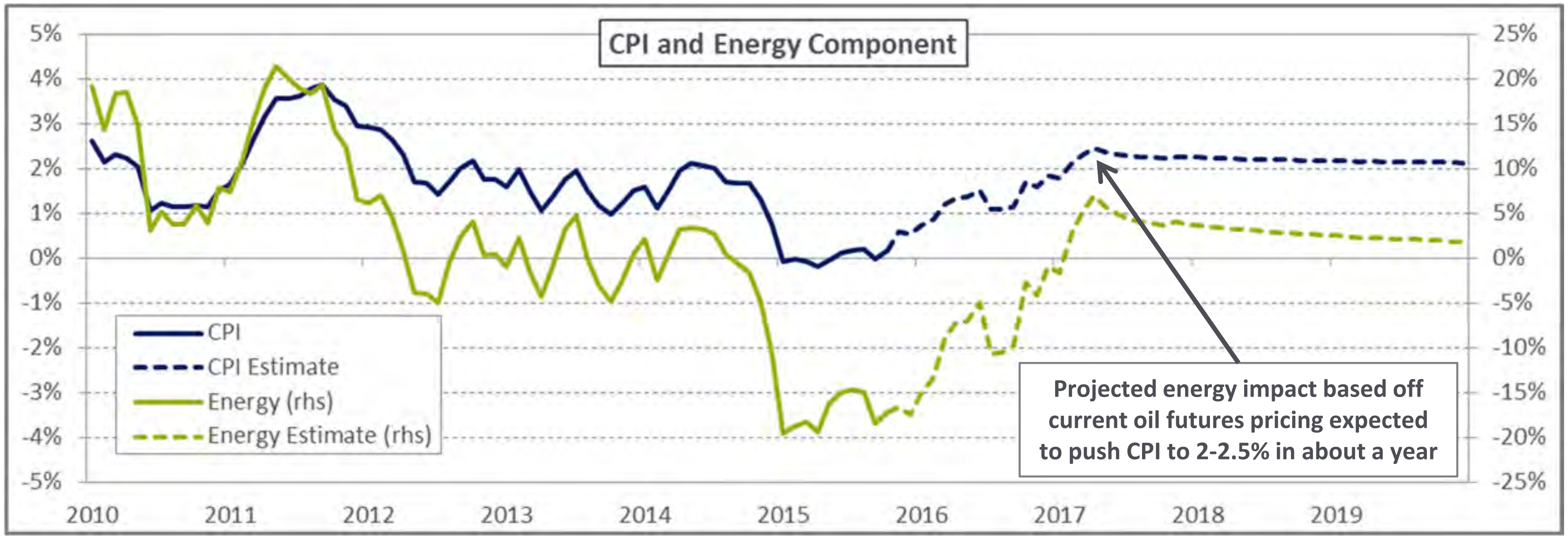


Source: Bureau of Labor Statistics, Federal Reserve, Bloomberg

Negative Energy Impact on CPI Expected to Fall Off in Early 2016

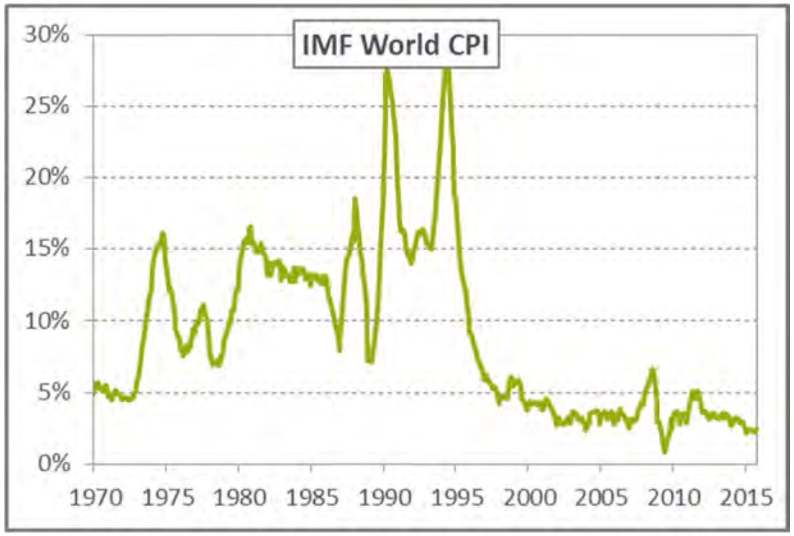


Source: Bureau of Labor Statistics, Bloomberg

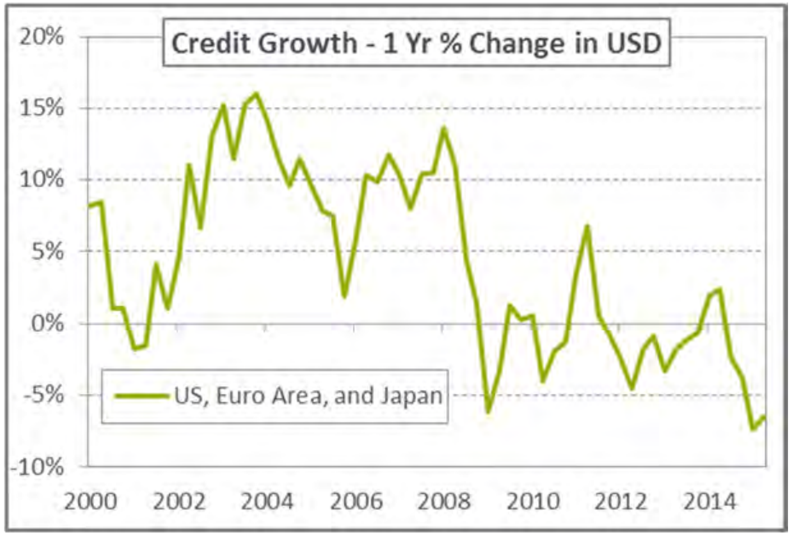


Source: Bureau of Labor Statistics, Bloomberg

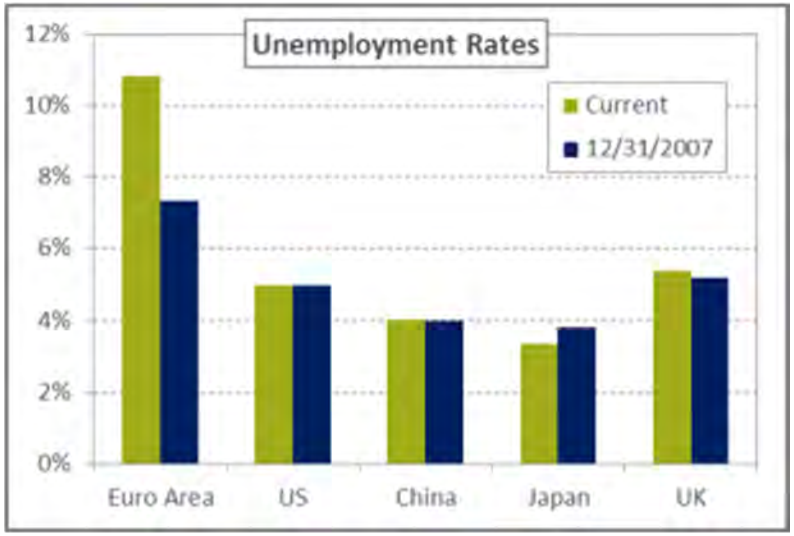
Global Economic Factors Driving Inflation Remain Subdued



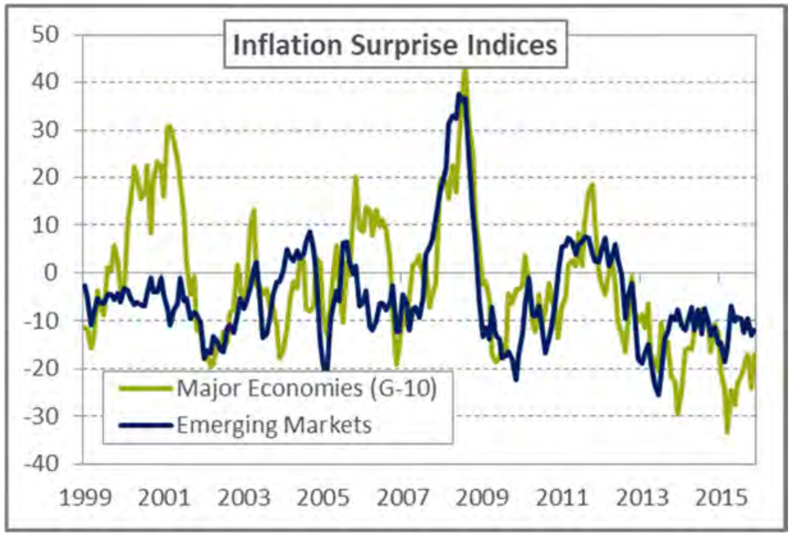
Source: IMF, Bloomberg



Source: Bank for International Settlements



Source: Bloomberg



Source: Citigroup, Bloomberg

2016 5-to-7 Year Return Forecasts

Geometric Expected Return			
Asset Class	**2015**	**2016**	**2016-2015**
Cash	1.75%	1.50%	-0.25%
Treasuries	1.75%	1.75%	
IG Corp Credit	3.25%	3.75%	0.50%
MBS	2.00%	2.00%	
*Core Bonds**	*2.30%*	*2.46%*	0.16%
TIPS	2.25%	2.50%	0.25%
High-Yield Bonds	4.00%	5.25%	1.25%
Bank Loans	4.50%	5.50%	1.00%
Global Bonds (Unhedged)	1.00%	1.00%	
Global Bonds (Hedged)	1.13%	1.09%	-0.04%
EMD External	4.50%	4.75%	0.25%
EMD Local Currency	5.50%	6.50%	1.00%
Large Cap Equities	6.00%	6.00%	
Small/Mid Cap Equities	6.00%	6.25%	0.25%
Int'l Equities (Unhedged)	7.00%	7.25%	0.25%
Int'l Equities (Hedged)	7.39%	7.57%	0.18%
Emerging Int'l Equities	9.00%	9.75%	0.75%
Private Equity	8.50%	8.50%	
Private Debt	7.50%	7.50%	
Private Real Assets	8.00%	8.25%	0.25%
Real Estate	6.50%	6.50%	
Commodities	5.25%	4.50%	-0.75%
Hedge Funds	5.75%	5.75%	

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

2016 30-Year Return Forecasts

Geometric Expected Return			
Asset Class	**2015**	**2016**	**2016-2015**
Cash	3.25%	3.00%	-0.25%
Treasuries	3.50%	3.25%	-0.25%
IG Corp Credit	4.75%	5.00%	0.25%
MBS	3.75%	3.50%	-0.25%
*Core Bonds**	*3.98%*	*3.89%*	*-0.09%*
TIPS	4.00%	4.00%	
High-Yield Bonds	5.75%	5.75%	
Bank Loans	6.00%	6.00%	
Global Bonds (Unhedged)	2.25%	2.75%	0.50%
Global Bonds (Hedged)	2.41%	2.87%	0.46%
EMD External	6.00%	6.00%	
EMD Local Currency	6.75%	6.50%	-0.25%
Large Cap Equities	7.50%	7.50%	
Small/Mid Cap Equities	7.75%	7.75%	
Int'l Equities (Unhedged)	8.00%	8.00%	
Int'l Equities (Hedged)	8.47%	8.39%	-0.08%
Emerging Int'l Equities	9.25%	9.50%	0.25%
Private Equity	9.50%	9.50%	
Private Debt	8.00%	8.00%	
Private Real Assets	7.75%	7.75%	
Real Estate	6.50%	6.50%	
Commodities	5.75%	5.50%	-0.25%
Hedge Funds	6.75%	6.50%	-0.25%

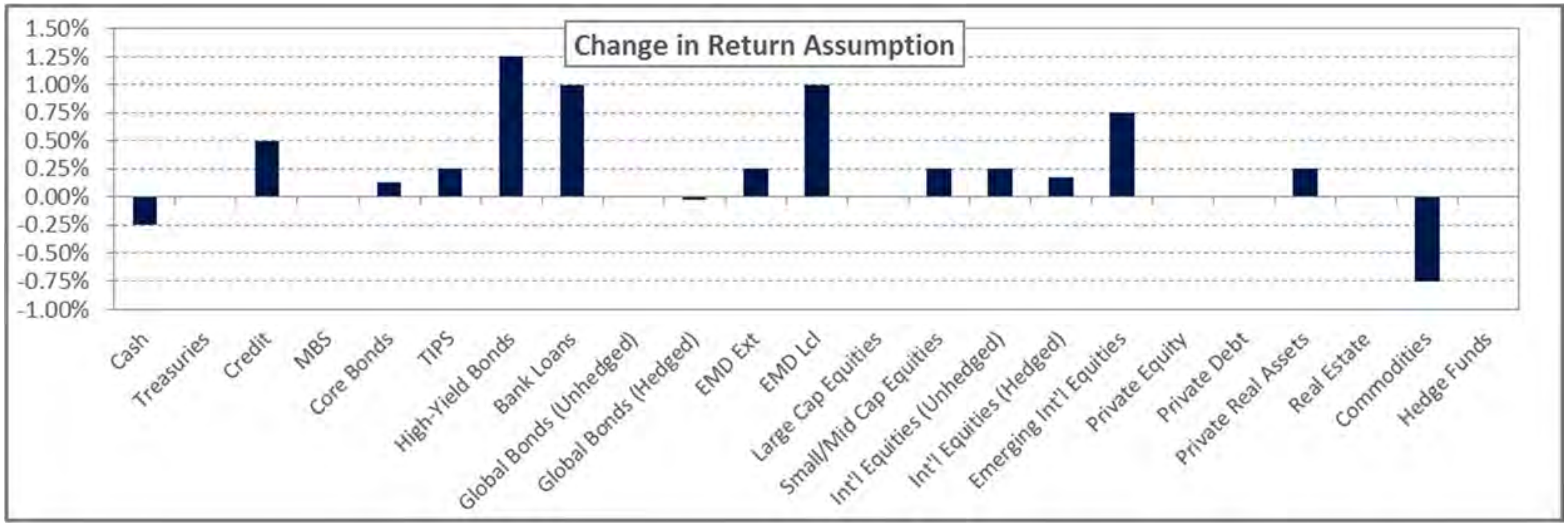
* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

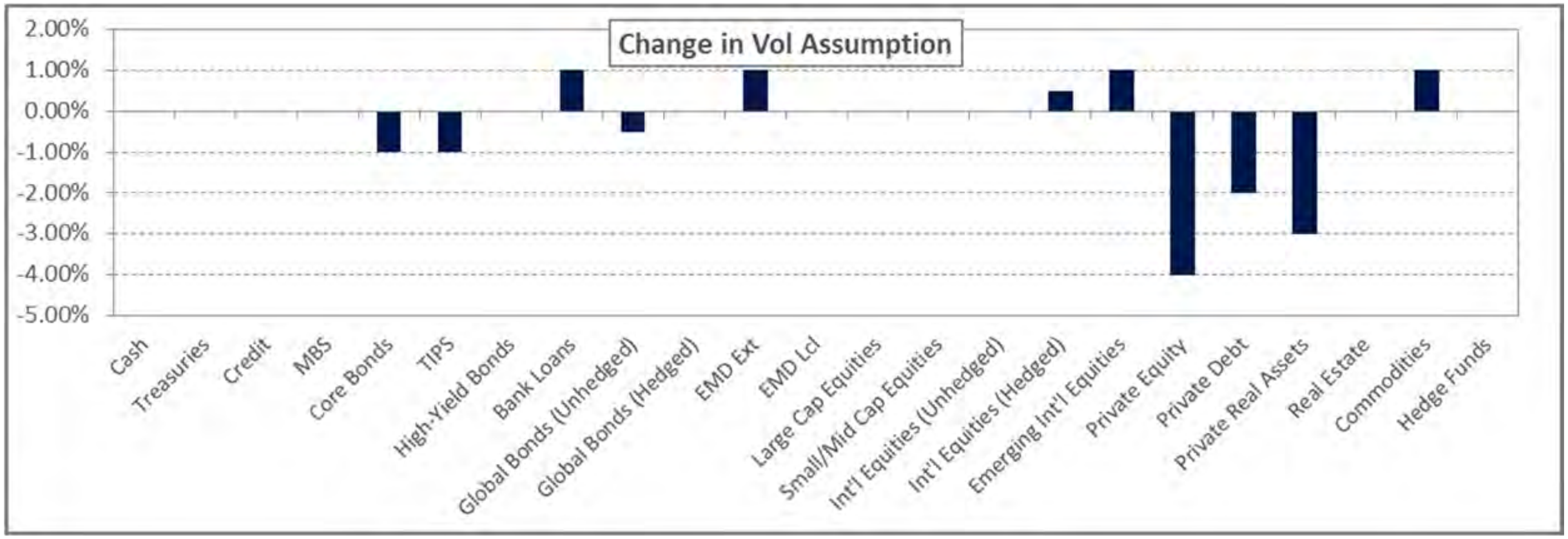
2016 Volatility Forecasts

Volatility			
Asset Class	**2015**	**2016**	**2016-2015**
Cash	1.00%	1.00%	
Treasuries	5.50%	5.50%	
IG Corp Credit	7.50%	7.50%	
MBS	7.00%	7.00%	
*Core Bonds**	*6.03%*	*6.03%*	
TIPS	7.50%	6.50%	-1.00%
High-Yield Bonds	13.00%	13.00%	
Bank Loans	8.00%	9.00%	1.00%
Global Bonds (Unhedged)	9.00%	8.50%	-0.50%
Global Bonds (Hedged)	5.00%	5.00%	
EMD External	12.00%	13.00%	1.00%
EMD Local Currency	15.00%	15.00%	
Large Cap Equities	17.50%	17.50%	
Small/Mid Cap Equities	21.00%	21.00%	
Int'l Equities (Unhedged)	21.00%	21.00%	
Int'l Equities (Hedged)	17.50%	18.00%	0.50%
Emerging Int'l Equities	26.00%	27.00%	1.00%
Private Equity	27.00%	23.00%	-4.00%
Private Debt	17.00%	15.00%	-2.00%
Private Real Assets	23.00%	20.00%	-3.00%
Real Estate	15.00%	15.00%	
Commodities	18.00%	19.00%	1.00%
Hedge Funds	9.00%	9.00%	

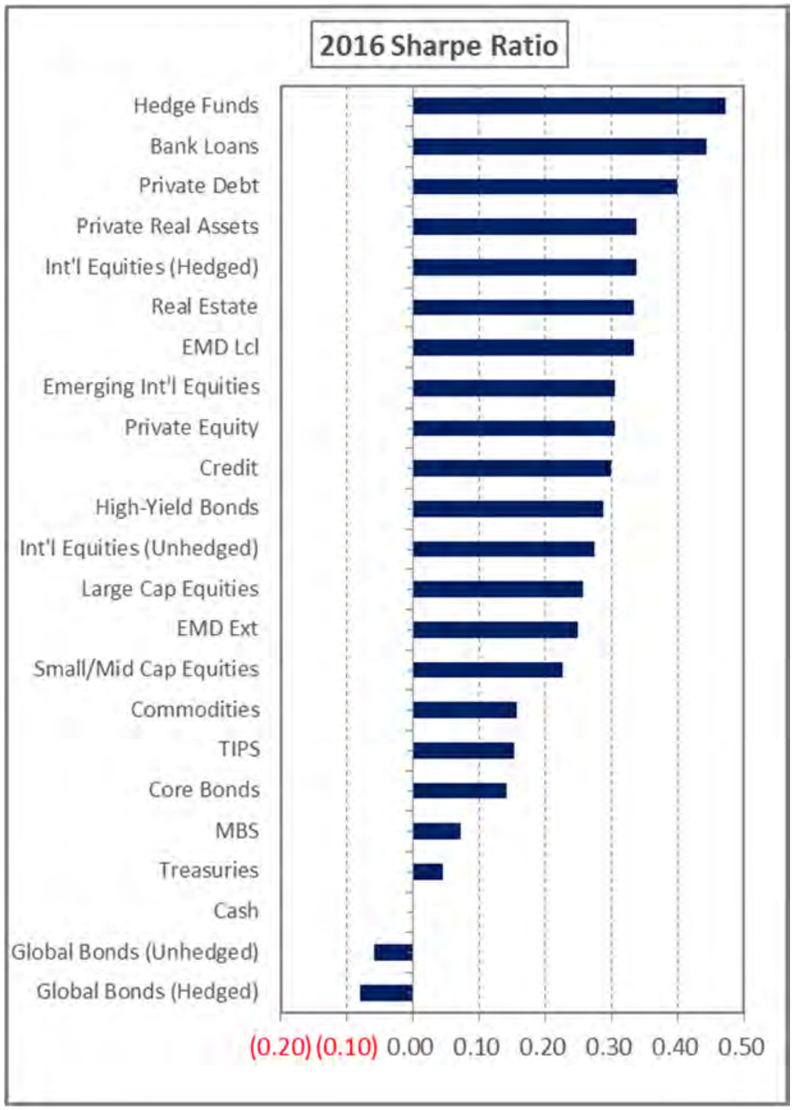
* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

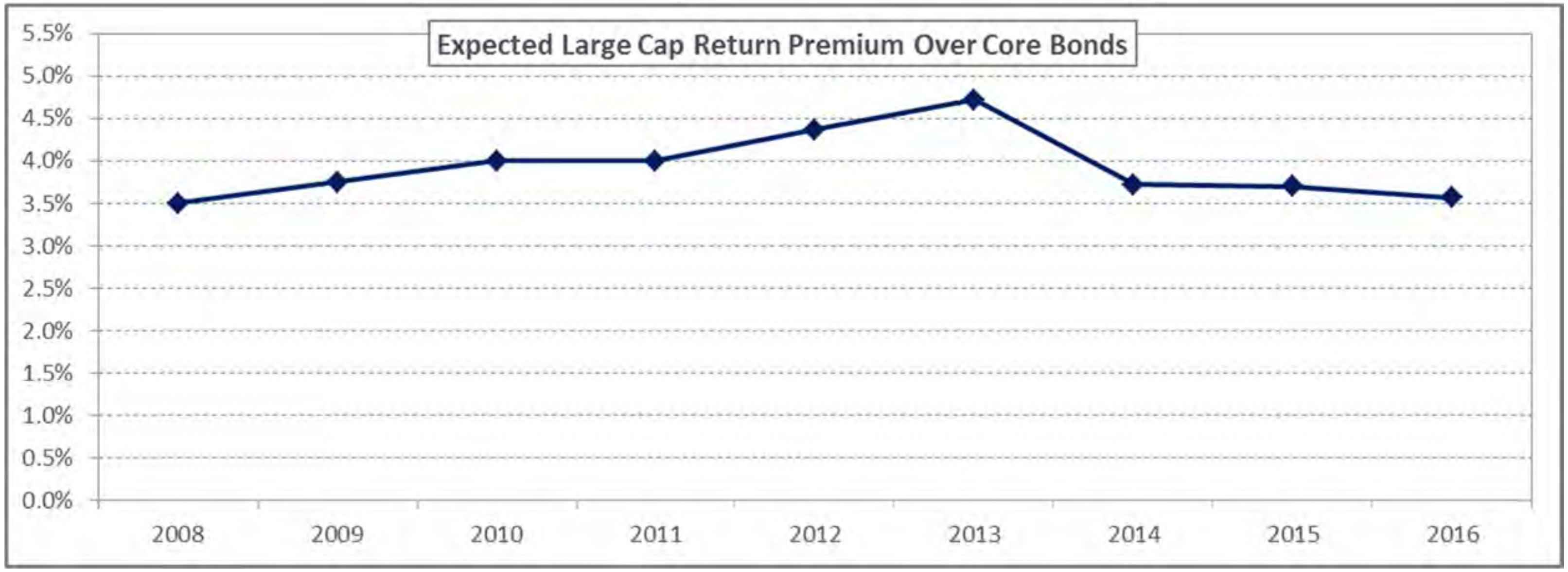
Summary of Changes to 2016 Return and Volatility Expectations





Relative Asset Class Attractiveness





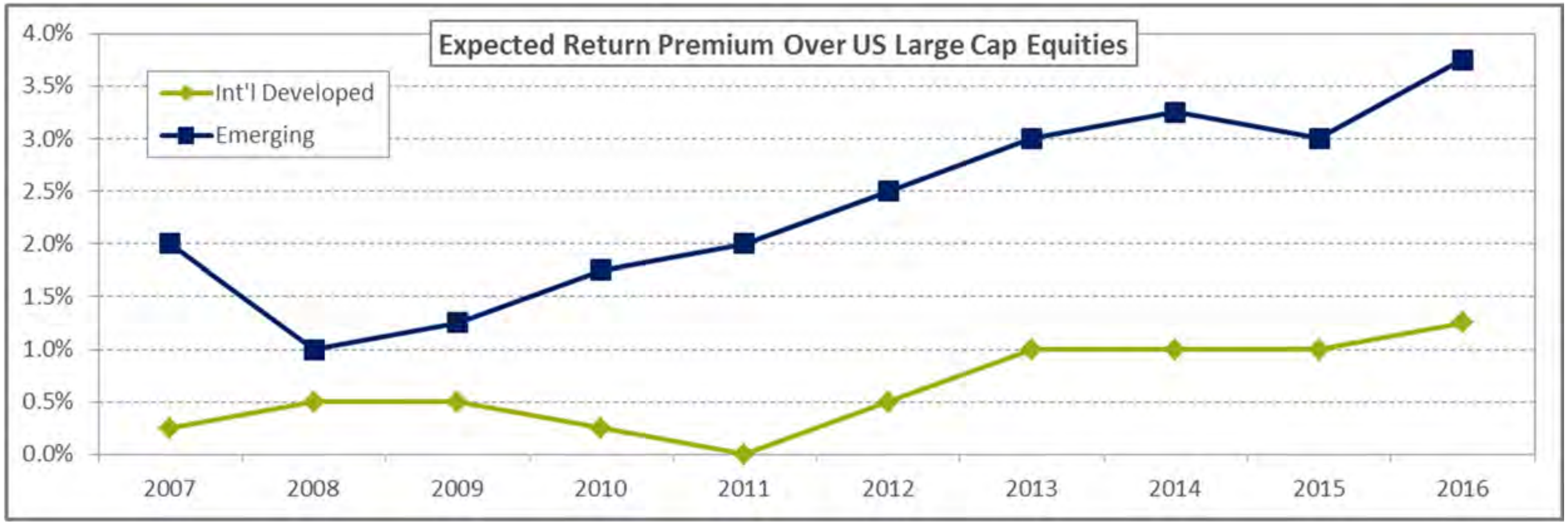
Source: Bloomberg, Morningstar Direct, NEPC

NEPC 5-7 Year Assumptions

	Long Term Avg	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cash	**3.42%[1]**	4.00%	3.00%	2.00%	2.00%	1.25%	0.75%	1.50%	1.75%	1.50%
Core Bonds	**7.70%[2]**	5.00%	5.50%	3.75%	3.00%	2.88%	2.03%	2.53%	2.30%	2.43%
Large Cap	**10.05%[1]**	8.50%	9.25%	7.75%	7.00%	7.25%	6.75%	6.25%	6.00%	6.00%
Int'l Developed	**8.84%[3]**	9.00%	9.75%	8.00%	7.00%	7.75%	7.75%	7.25%	7.00%	7.25%

1. *Reflects average annual return since 1926*
2. *Reflects average annual return since 1976*
3. *Reflects average annual return since 1970*

Comparison of International Equity and US Large Cap Equity Expectations



- **Total return expectations for non-US equities are higher vs. last year**
- **Expectations for US equities are the same despite a relatively flat year**
  - Increased spread of 1.25% for developed non-US relative to US large cap
  - Increased premium for emerging equity as valuations have become more attractive
- **Meaningful downside risks remain in developed and emerging world**
- **While we expect investors to be compensated over 5-7 years with a higher relative return for holding non-US equities, it is appropriate to use active management to mitigate exposure to downside risks**

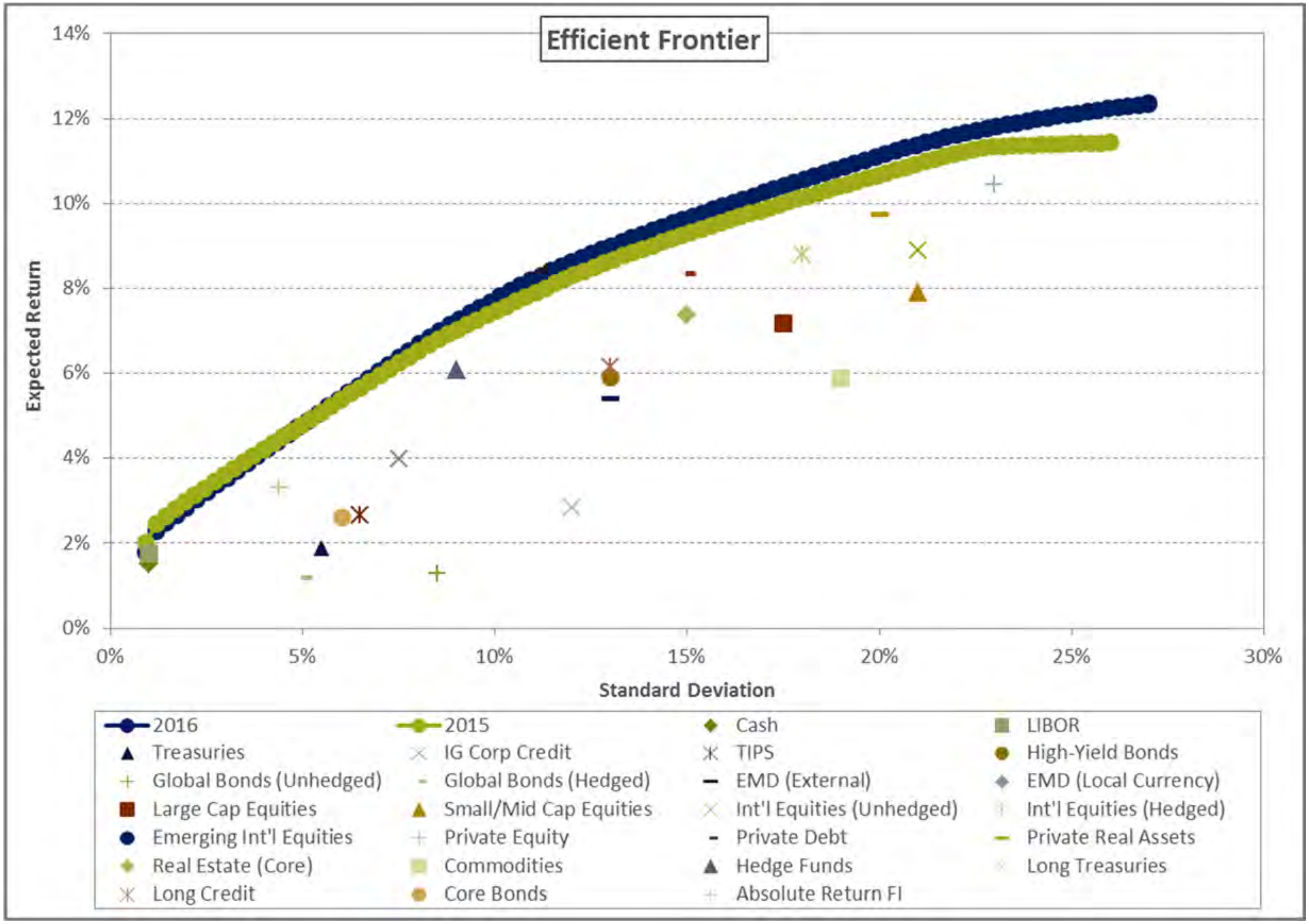
2016 Correlations

Asset Class	Cash	Treas	Credit	MBS	TIPS	HY	Glob Bonds	Glob (H)	EMD (Ext)	EMD (Loc)	Large Cap	Sm / Mid	Intl Eq	Intl Eq (H)	EM Eq	Priv Eq	Priv Debt	Priv Real	Real Estate	Cmdy	Hedge Funds
Cash	1.00																				
Treasuries	0.20	1.00																			
IG Corp Credit	0.10	0.65	1.00																		
MBS	0.25	0.90	0.75	1.00																	
TIPS	0.00	0.65	0.60	0.70	1.00																
High-Yield Bonds	-0.05	0.20	0.55	0.30	0.20	1.00															
Global Bonds (Unhedged)	0.10	0.50	0.50	0.45	0.40	0.10	1.00														
Global Bonds (Hedged)	0.15	0.80	0.65	0.70	0.65	0.20	0.60	1.00													
EMD (External)	0.05	0.35	0.65	0.35	0.30	0.60	0.25	0.35	1.00												
EMD (Local Currency)	0.05	0.30	0.60	0.25	0.25	0.60	0.30	0.25	0.80	1.00											
Large Cap Equities	-0.10	-0.10	0.45	0.10	0.00	0.65	0.00	-0.10	0.55	0.65	1.00										
Small/Mid Cap Equities	-0.15	-0.15	0.45	0.10	-0.10	0.70	-0.05	-0.15	0.55	0.60	0.90	1.00									
Int'l Equities (Unhedged)	-0.10	0.00	0.30	0.05	-0.05	0.65	0.35	0.00	0.60	0.70	0.70	0.60	1.00								
Int'l Equities (Hedged)	0.00	0.00	0.30	0.05	-0.05	0.65	0.05	0.00	0.60	0.65	0.75	0.65	0.85	1.00							
Emerging Int'l Equities	-0.10	-0.10	0.25	-0.10	-0.10	0.70	0.05	-0.05	0.70	0.80	0.60	0.65	0.70	0.70	1.00						
Private Equity	-0.20	-0.15	0.30	0.10	-0.10	0.60	-0.15	-0.20	0.35	0.40	0.70	0.75	0.60	0.65	0.45	1.00					
Private Debt	0.00	-0.35	0.15	-0.15	-0.10	0.65	-0.10	-0.10	0.50	0.60	0.60	0.65	0.75	0.75	0.80	0.65	1.00				
Private Real Assets	0.15	-0.20	0.05	-0.15	0.00	0.40	-0.05	-0.05	0.40	0.40	0.55	0.60	0.50	0.50	0.50	0.65	0.60	1.00			
Real Estate (Core)	0.25	-0.05	0.15	0.05	0.10	0.25	0.05	-0.05	0.20	0.30	0.40	0.40	0.35	0.40	0.30	0.50	0.40	0.40	1.00		
Commodities	0.10	-0.10	0.10	-0.10	0.30	0.20	0.10	-0.10	0.35	0.45	0.30	0.30	0.35	0.35	0.40	0.25	0.30	0.45	0.30	1.00	
Hedge Funds	0.00	-0.20	0.35	-0.15	0.20	0.60	0.05	-0.20	0.55	0.60	0.60	0.65	0.70	0.65	0.70	0.75	0.80	0.65	0.25	0.50	1.00

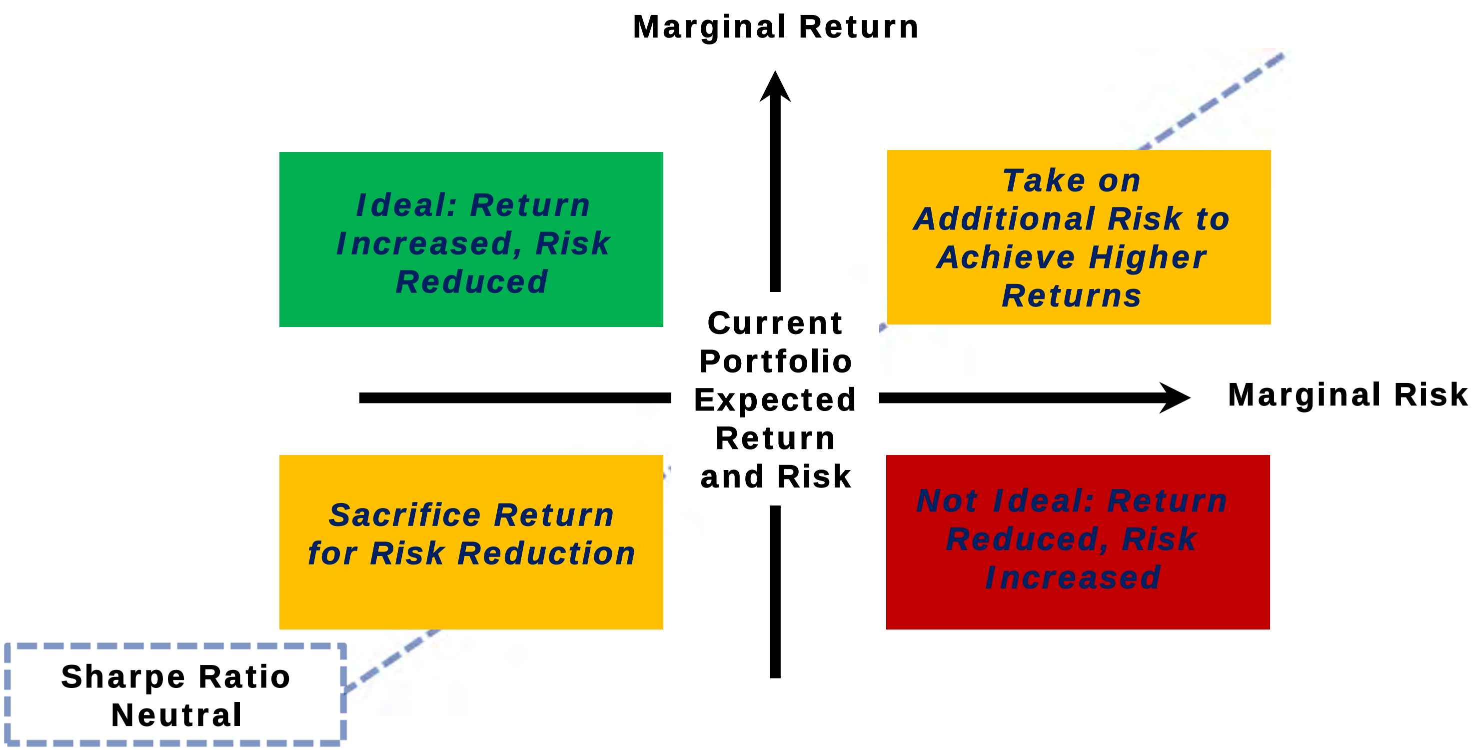
Diversified Portfolio Return/Risk Comparison

	65/35	Risk Parity[1]	Progressive Allocation
Large Cap Equities	35%	0%	15%
Small/Mid Cap Equities	15%	0%	5%
Int'l Equities (Hedged)	0%	0%	5%
Int'l Equities (Unhedged)	12%	0%	5%
Emerging Int'l Equities	3%	0%	5%
Total Equity	**65%**	**0%**	**35%**
Core Bonds	25%	0%	0%
High-Yield Bonds	5%	0%	0%
Global Bonds (Unhedged)	5%	0%	0%
Global Multi-Sector	0%	0%	10%
Absolute Return FI	0%	0%	5%
Long Treasuries	0%	0%	5%
Total Fixed Income	**35%**	**0%**	**20%**
Private Equity	0%	0%	10%
Private Debt	0%	0%	5%
Hedge Funds	0%	0%	10%
Total Alternatives	**0%**	**0%**	**25%**
Global Asset Allocation	0%	0%	10%
Risk Parity	0%	100%	10%
Total Other	**0%**	**100%**	**20%**
2015 Expected Return (5-7 years)	***5.4%***	***5.7%***	***6.5%***
2015 Expected Return (30 years)	***6.9%***	***7.0%***	***7.6%***
2015 Standard Deviation	***12.4%***	***12.4%***	***12.2%***
2016 Expected Return (5-7 years)	***5.5%***	***6.1%***	***6.5%***
2016 Expected Return (30 years)	***6.9%***	***7.5%***	***7.6%***
2016 Standard Deviation	***12.4%***	***13.2%***	***11.9%***

Efficient Frontier Comparison

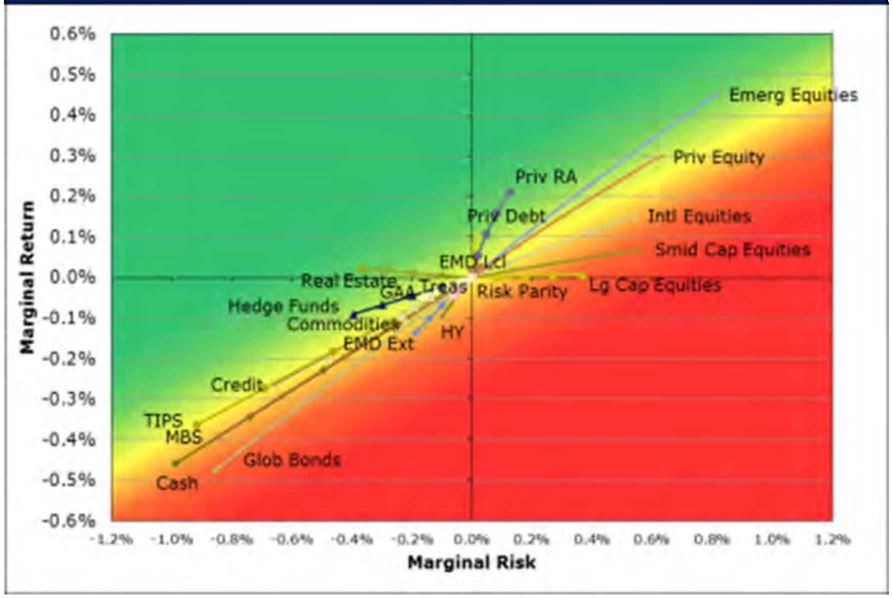


- **Thinking about the marginal impact on risk and return from each asset class can be useful in evaluating asset allocation decisions**
  - In the analysis that follows, the marginal impact of increasing an allocation to a given asset class is plotted for a progressive portfolio and a traditional 65/35 allocation
- **Uses mean-variance assumptions**
  - Certain limitations (particularly liquidity) should be considered outside of this framework

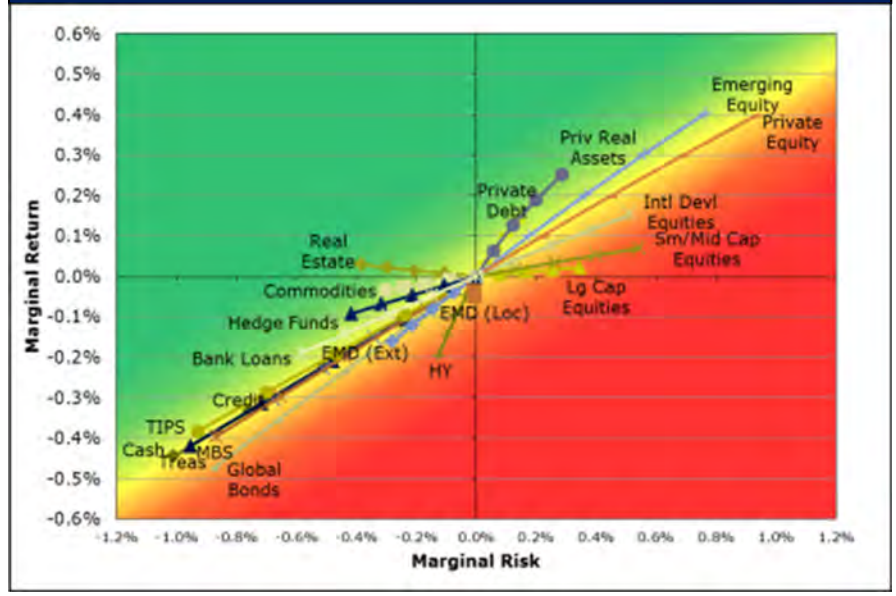


2016 vs. 2015 (Progressive Allocation; 2% Increments)

2016



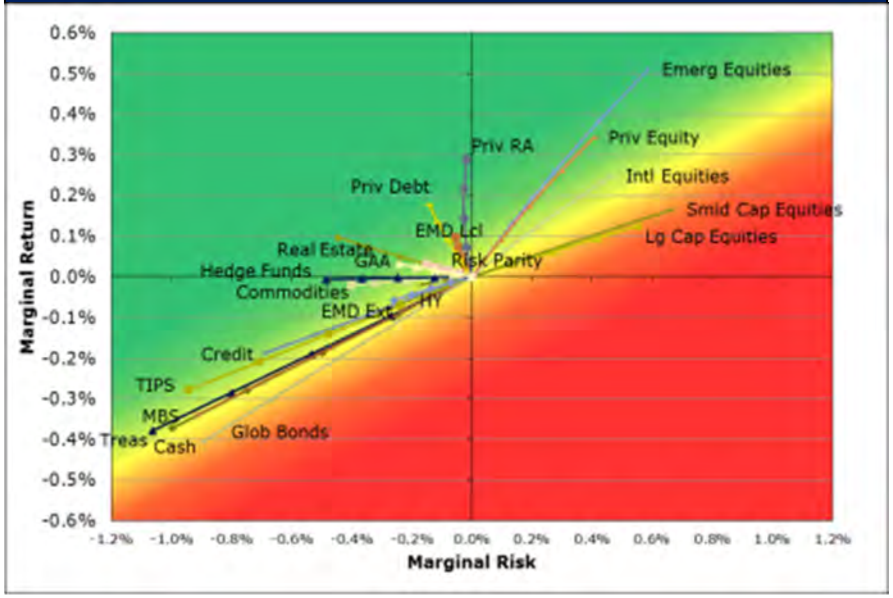
2015



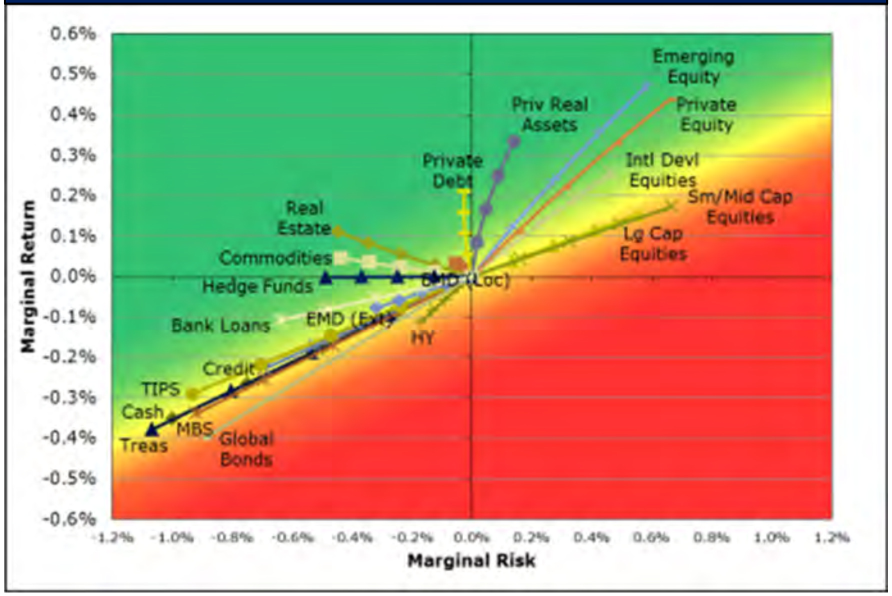
- **General takeaways for a progressive allocation**
  - Emerging equities are the most attractive liquid asset classes on the margin
  - Private real assets are a beneficial complement to a private equity and debt program
  - Real estate provides a meaningful level of diversification

2016 vs. 2015 (65/35 Allocation; 2% Increments)

2016



2015



- **Lower Sharpe ratio of 65/35 means a flatter diagonal**
  - Easier to make improvements from a lower starting point
- **More dispersion around diagonal = larger opportunity set for improving efficiency**
  - More balanced global equity allocation
  - Emerging market local debt provides return and diversification benefits
  - If appropriate, increased return through illiquid alternatives program
  - TIPS relative to other safe haven fixed income assets improves the risk/return profile

2015 and 2016 Efficient Frontier Portfolios: 10% Standard Deviation

	2015 Unconstrained	2015 Constrained	2016 Unconstrained	2016 Constrained
Large Cap Equities	0%	8%	0%	9%
Int'l Equities (Unhedged)	0%	4%	0%	5%
Int'l Equities (Hedged)	0%	4%	0%	5%
Emerging Int'l Equities	11%	5%	9%	6%
Total Equity	**11%**	**21%**	**9%**	**24%**
IG Corp Credit	0%	0%	0%	7%
Long Treasuries	0%	8%	0%	6%
Long Credit	29%	25%	36%	25%
Total Fixed Income	**29%**	**33%**	**36%**	**38%**
Private Equity	2%	1%	3%	0%
Private Debt	0%	4%	4%	2%
Private Real Assets	9%	6%	13%	13%
Real Estate (Core)	31%	23%	27%	19%
Hedge Funds	18%	1%	7%	0%
Total Alternatives	**60%**	**35%**	**55%**	**35%**
Commodities	0%	11%	0%	3%
Total Other	**0%**	**11%**	**0%**	**3%**
Expected Return (5-7 years)	***7.2%***	***6.8%***	***7.4%***	***6.9%***
Expected Return (30 years)	***7.5%***	***7.3%***	***7.6%***	***7.4%***
Standard Dev of Asset Return	***10.0%***	***10.0%***	***10.0%***	***10.0%***

Themes for 2016 Asset Class Assumptions

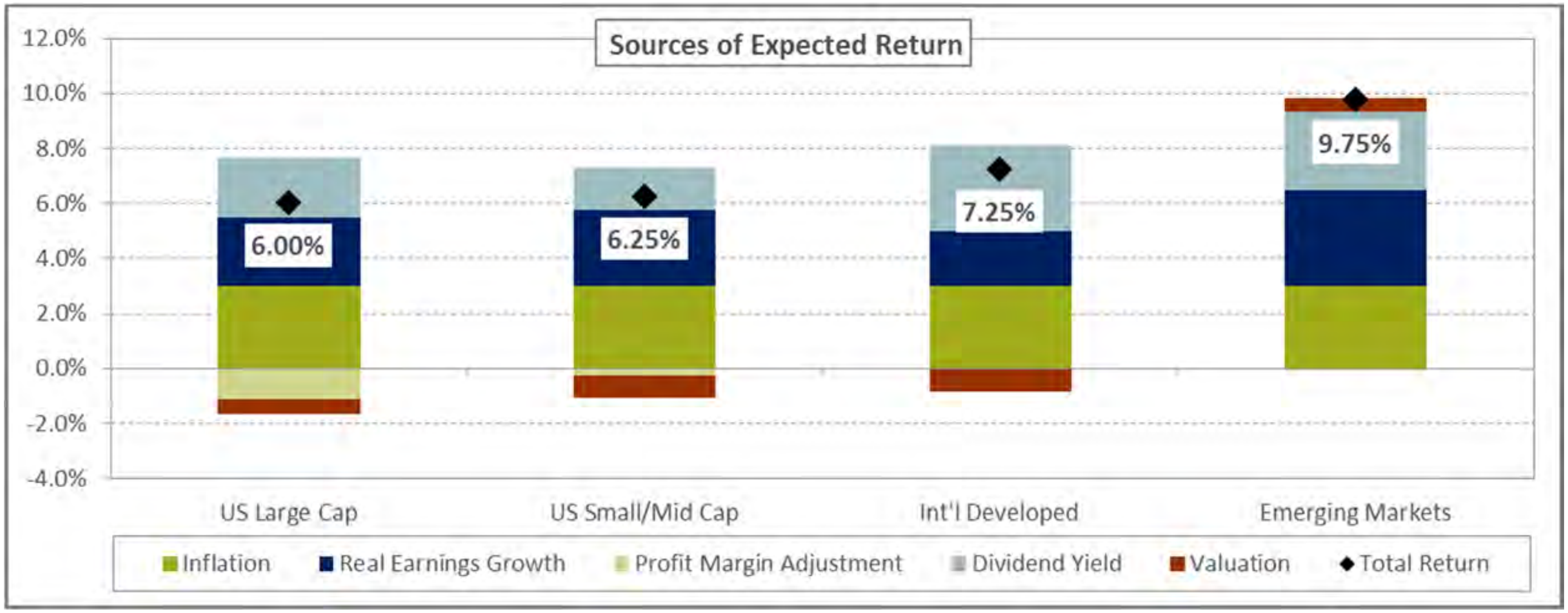
- **5-7 year return expectations moderately higher among global equity and credit assets relative to prior year**
  - Expected return outlook broadly remains subdued
  - Recent performance of emerging markets leads to increase in expectations
  - Expectations of slow Fed policy tightening reduce cash forecasts
  - Increase in expectations for credit markets reflect higher credit spread levels
  - Hedge Fund expectations unchanged but incorporate anticipation of greater divergences across and within global markets

- **30-year returns have similar themes to 5-7 year forecasts**
  - Lower cash assumption flows through to long-term fixed income returns
  - Equity market assumptions largely unchanged

- **Volatility expectations reduced incrementally in certain asset classes**
  - Private Market reductions echo normalized environment and asset class experience
  - Volatility for emerging markets and commodities increased to reflect probability of higher risk moments

Assumption Development

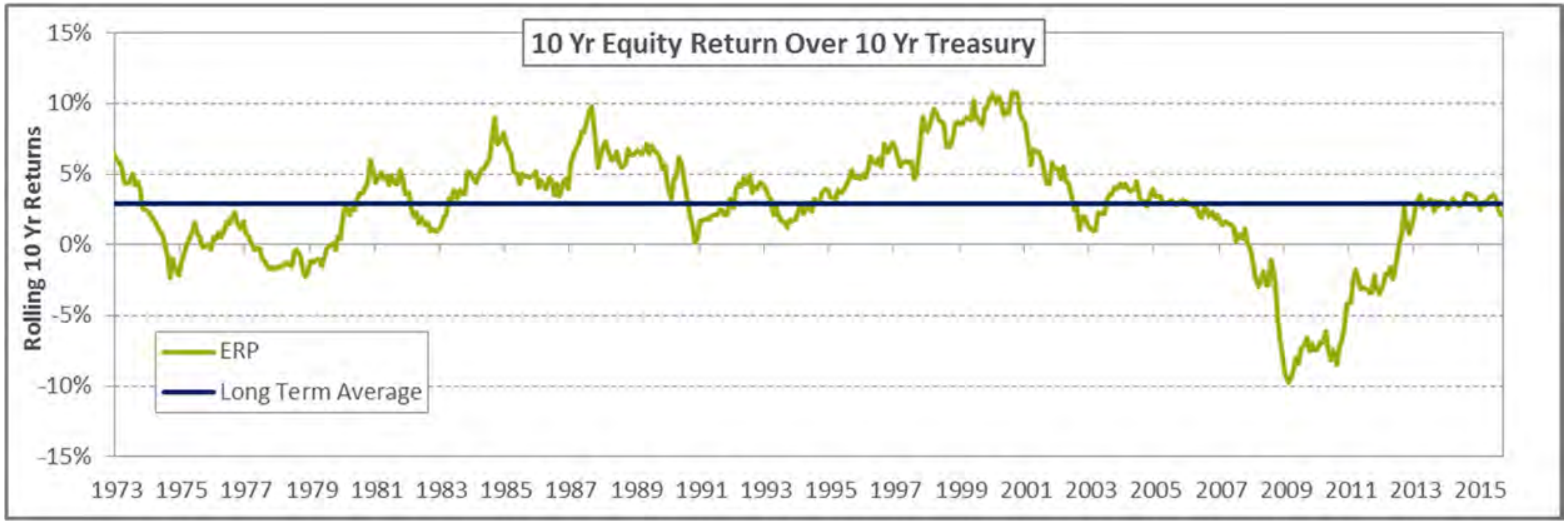
Assumption Development – Global Equities



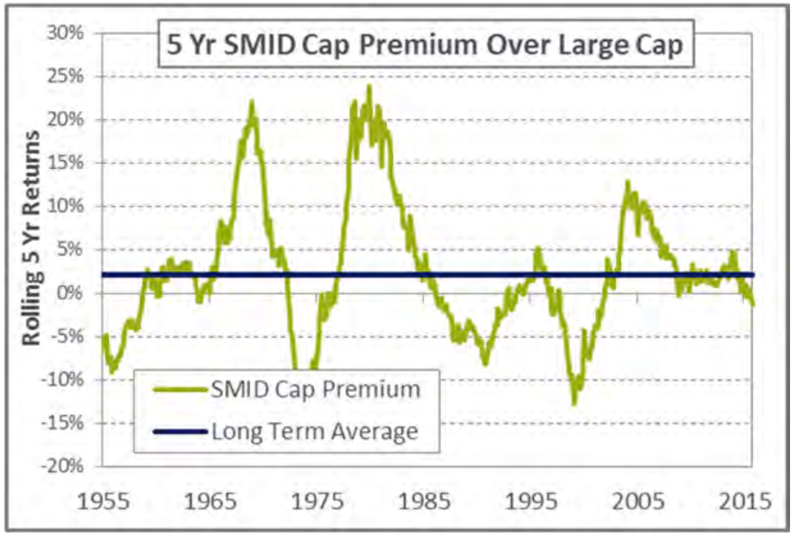
Index Current	US Large Cap	US Small/Mid Cap	Int'l Developed	Emerging Markets
Forward P/E	17.6	23.3	15.8	11.6
Profit Margins	8.3%	2.8%	6.0%	8.1%
Dividend Yield	2.1%	1.6%	3.2%	3.1%

- **Real earnings growth assigned to each market over forecast period**
- **Valuation input based on current P/E trending to forecast value**
- **Profit margin adjustment shifts from current to forecast value**
- **Dividend yield based on current yield trending to forecast value**
- **Global inflation input of 3.0% flows through all global equity markets**

Low Interest Rates Supportive of an Elevated US Risk Premium



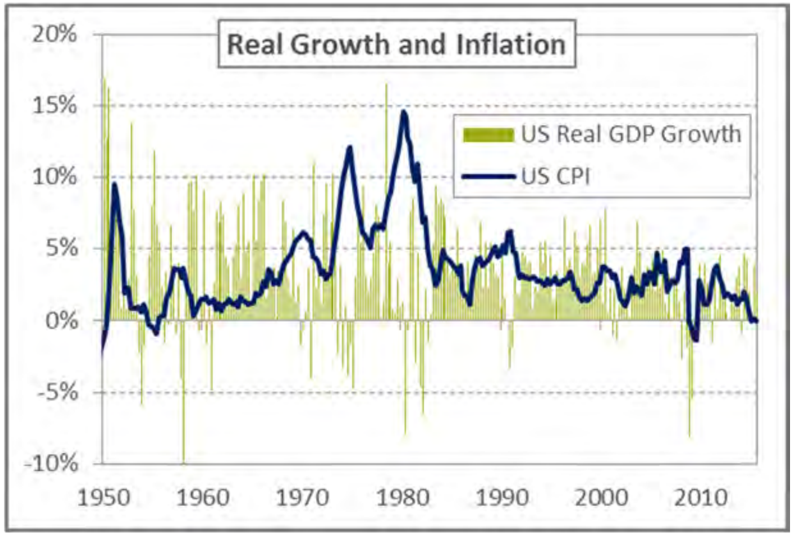
Source: Standard & Poors, Federal Reserve, NEPC, Bloomberg

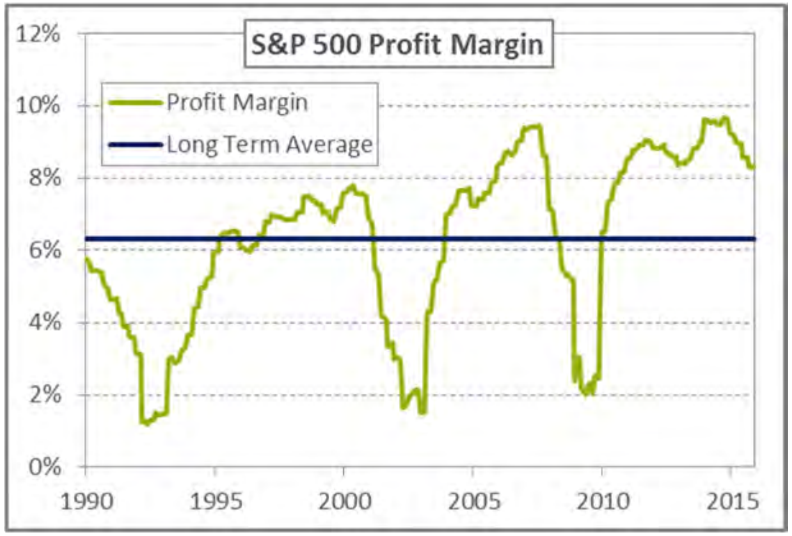


Source: Morningstar Direct, Bloomberg

- **Equity Risk Premium over 10 year Treasury is volatile**
  - Stock and bond forecasts imply an Equity Risk Premium of 4.25%
  - While above the long term average, about 37.50% of observations exceed this level since 1962
- **Small / Mid Cap equities have historically earned a premium over Large Cap equities**
  - Trailing 5 year premium below historical average

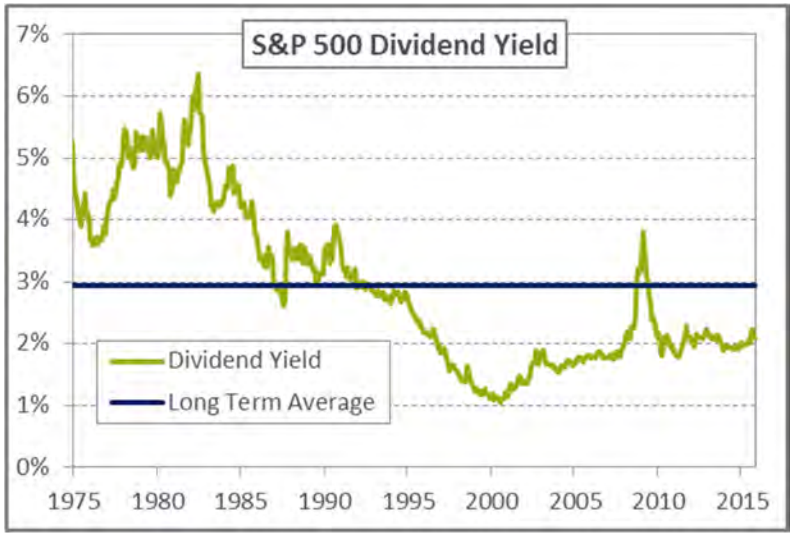
US Large Cap Equity Building Blocks

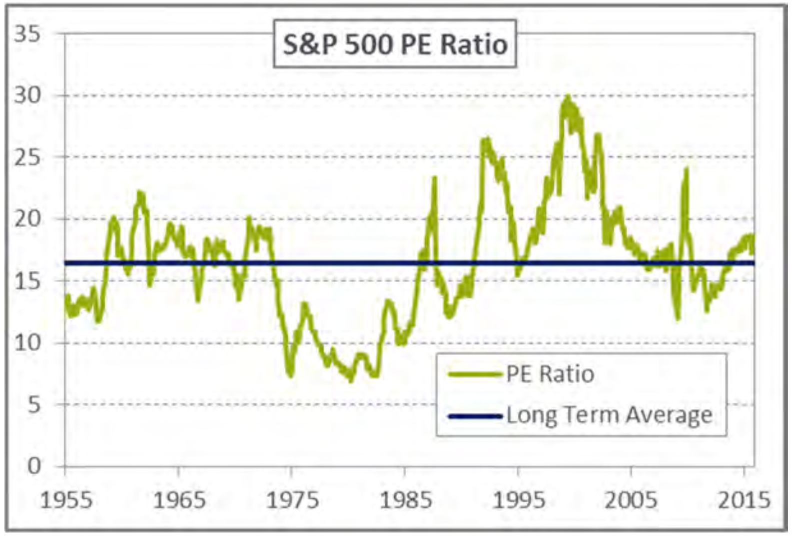




Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Bloomberg

Source: Standard & Poors, Bloomberg

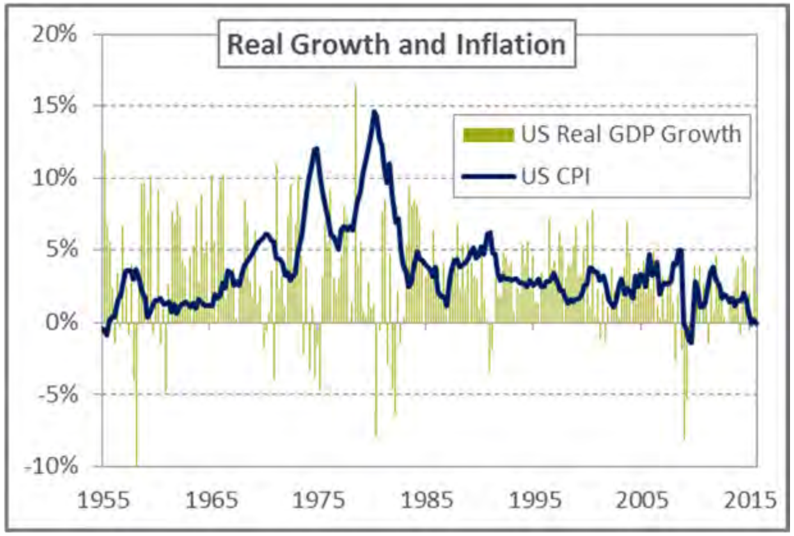




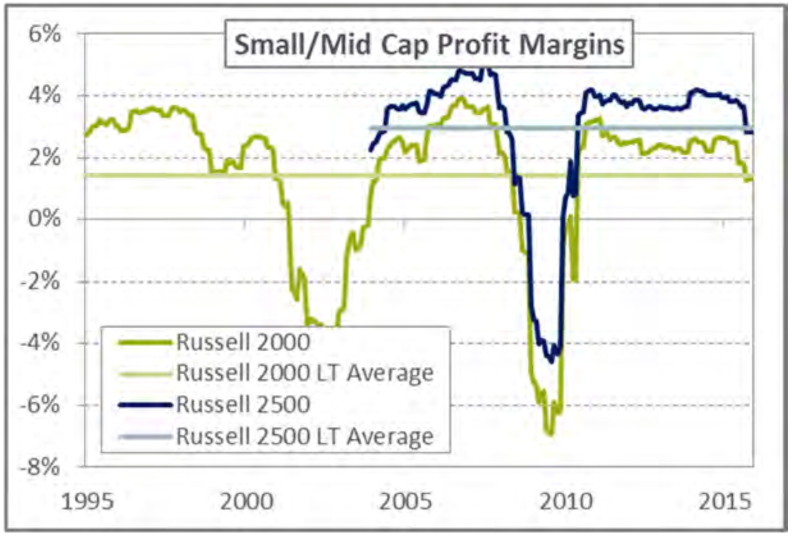
Source: Standard & Poors, Bloomberg

Source: Standard & Poors, Bloomberg

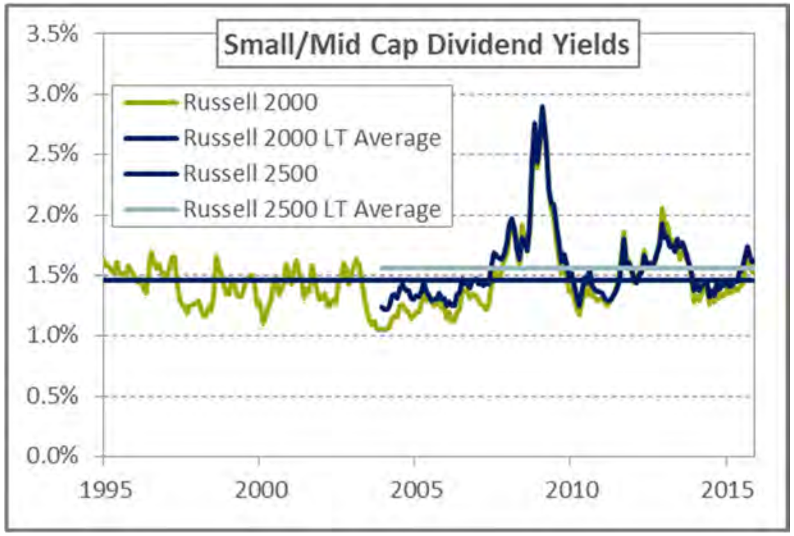
US Small/Mid Cap Equity Building Blocks



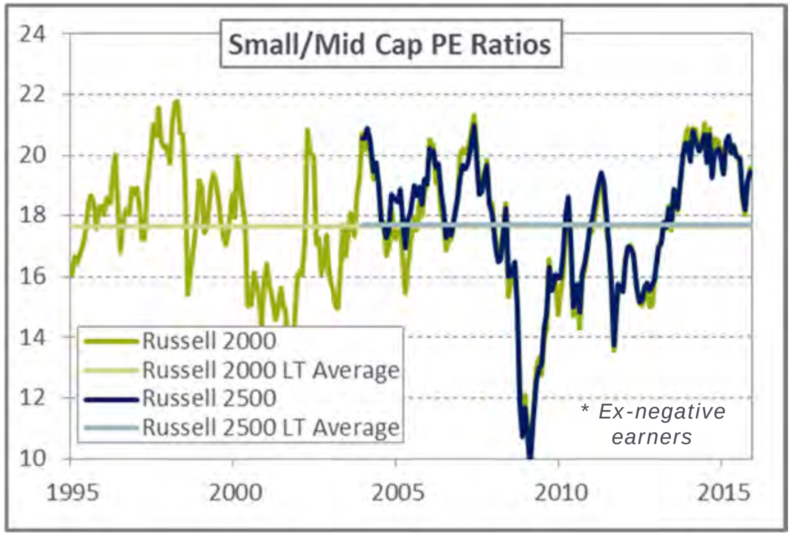
Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Bloomberg



Source: Russell, Bloomberg

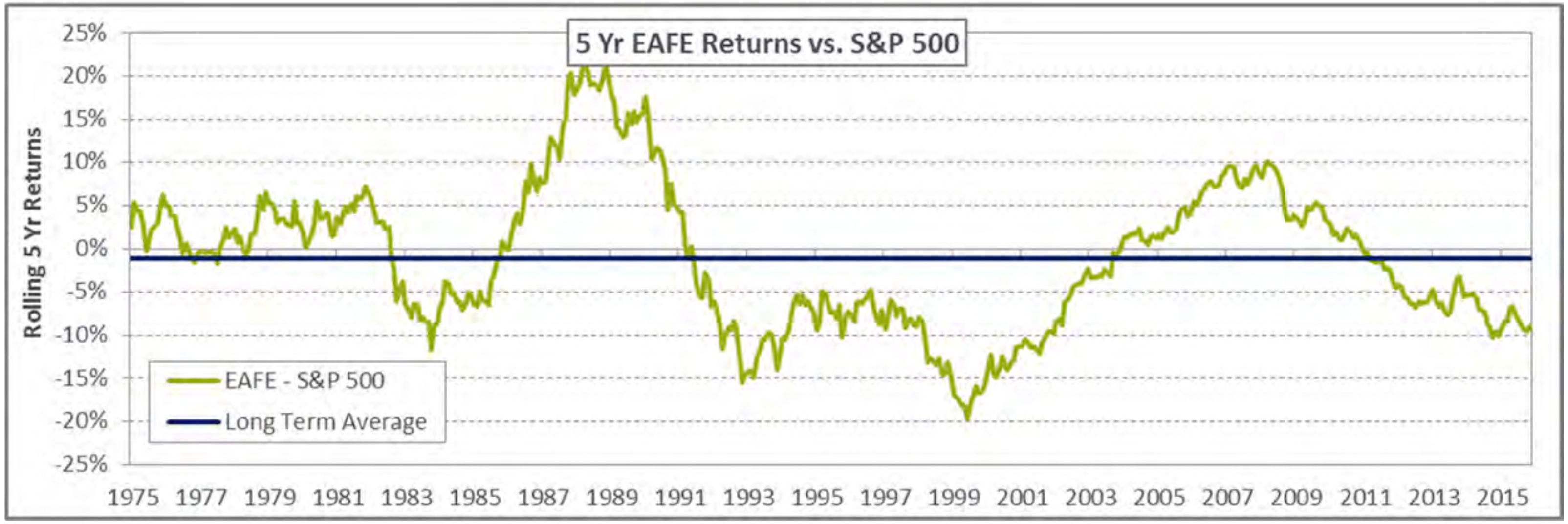


Source: Russell, Bloomberg

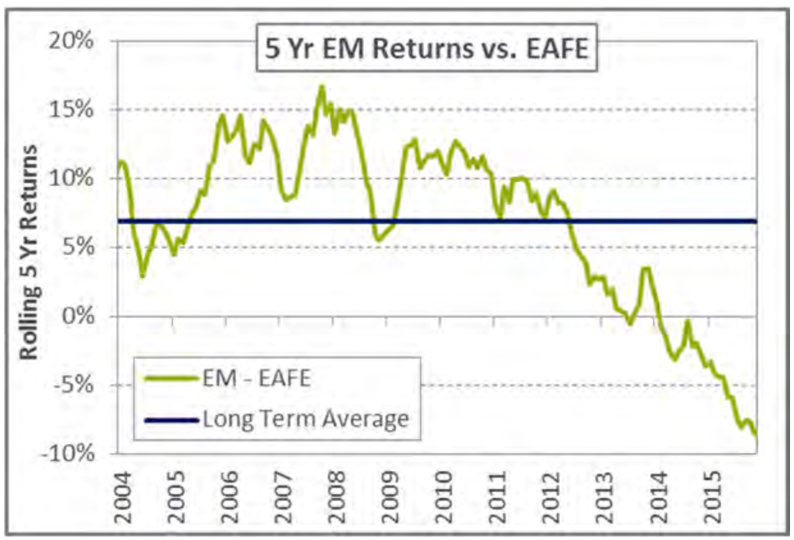


Source: Russell, Bloomberg

Recent Cyclical Underperformance of International Developed Market Equities Relative to US



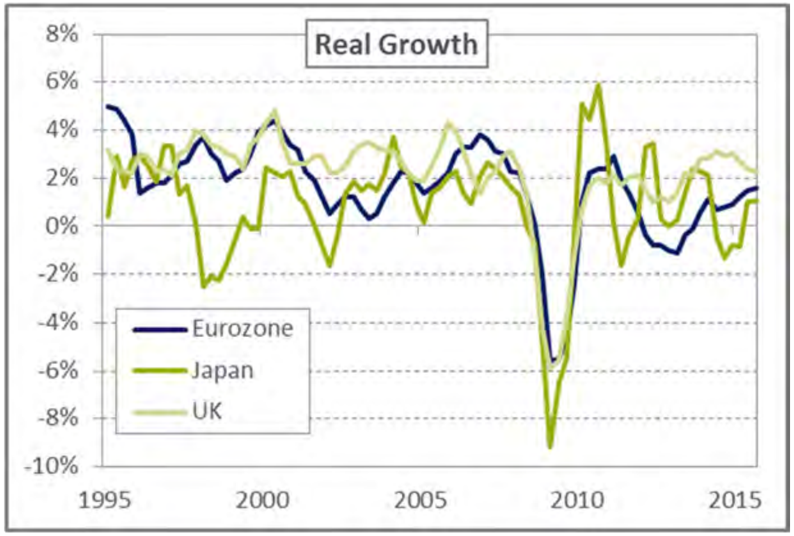
Source: Standard & Poors, MSCI, Bloomberg



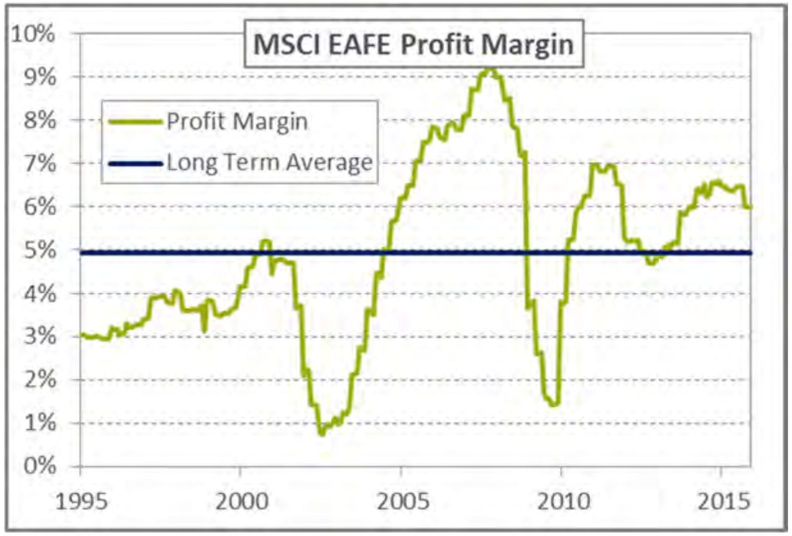
Source: MSCI, Bloomberg

- **Developed markets supported by central bank policy**
  - Low growth prospects but economic improvement can be found in Europe and Japan
  - Earnings and margins remain subdued relative to history
- **Emerging growth differential is less but remains well above developed world**
  - Valuations near long term average

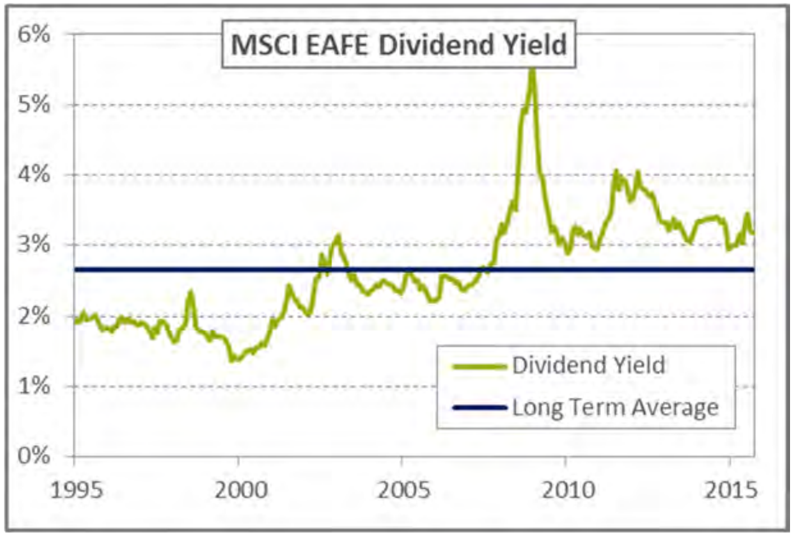
International Developed Equity Building Blocks



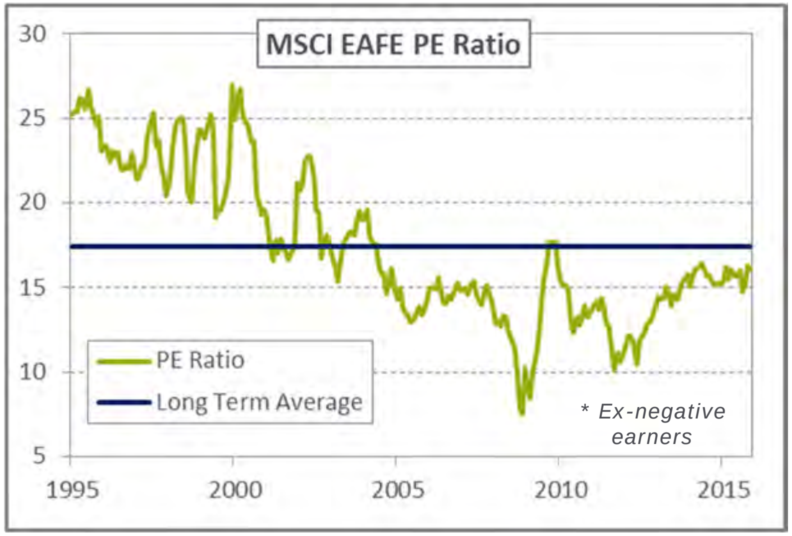
Source: Economic and Social Research Institute Japan, Bloomberg



Source: MSCI, Bloomberg

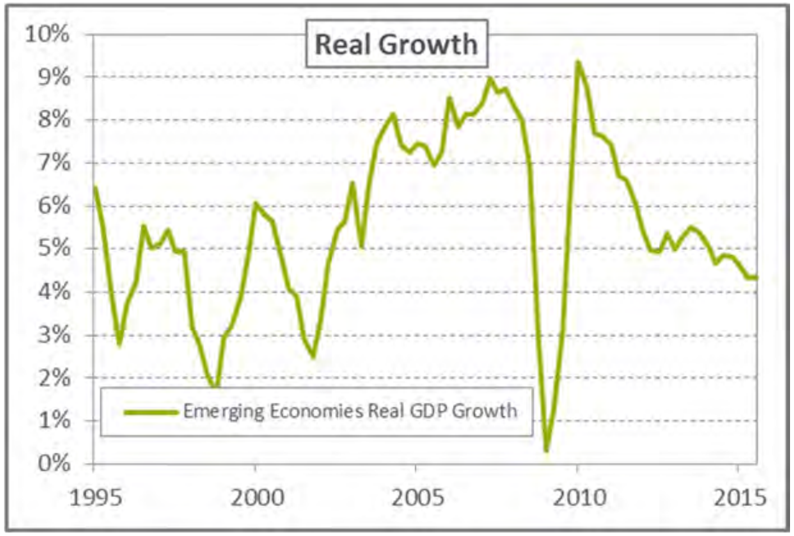


Source: MSCI, Bloomberg

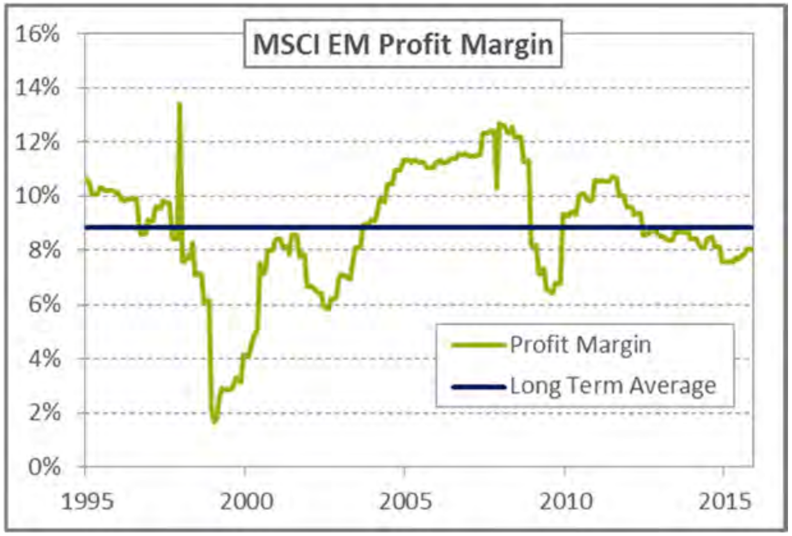


Source: MSCI, Bloomberg

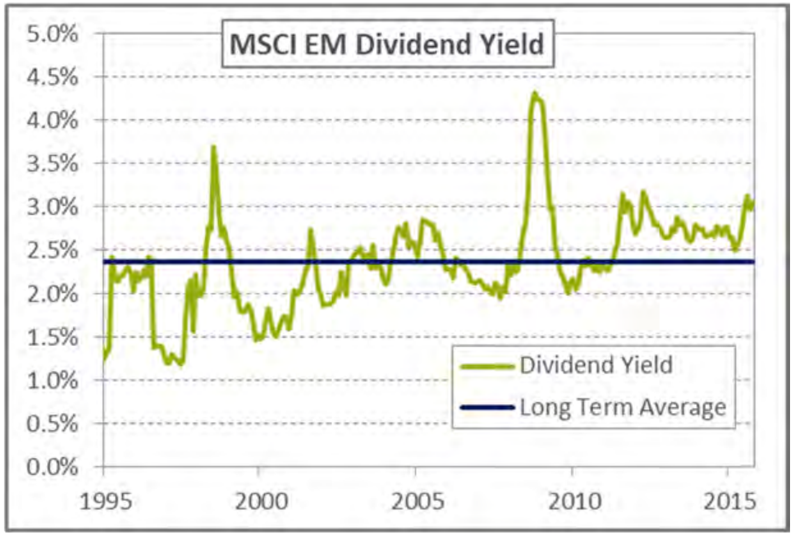
Emerging Equity Building Blocks



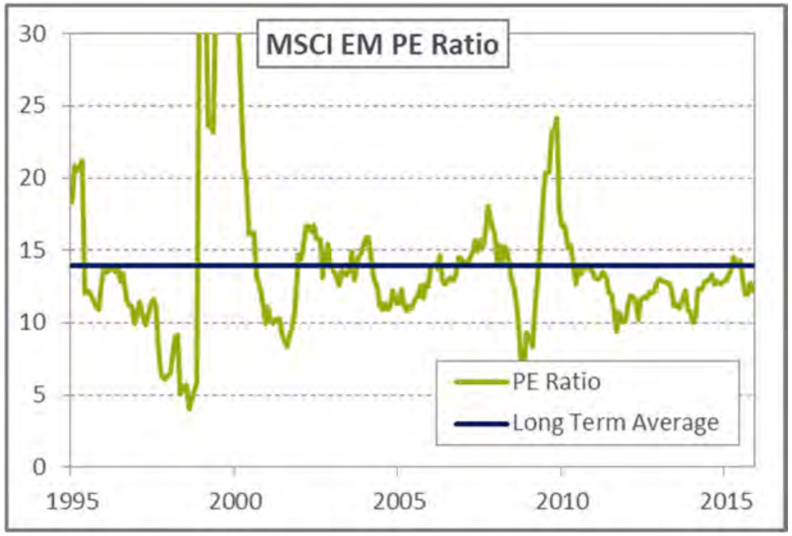
Source: Bloomberg



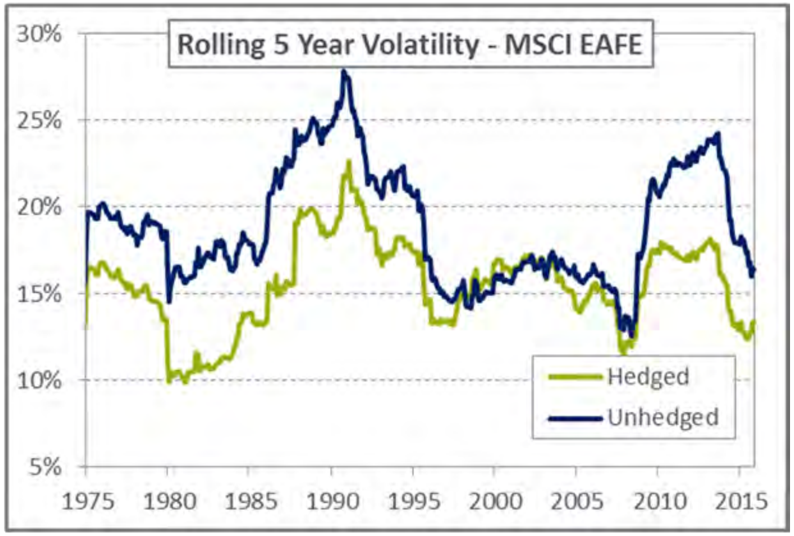
Source: MSCI, Bloomberg



Source: MSCI, Bloomberg



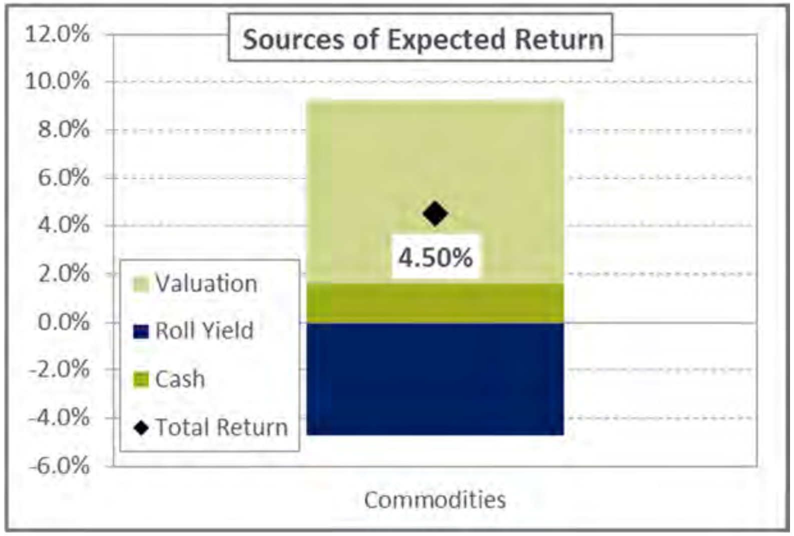
Source: MSCI, Bloomberg

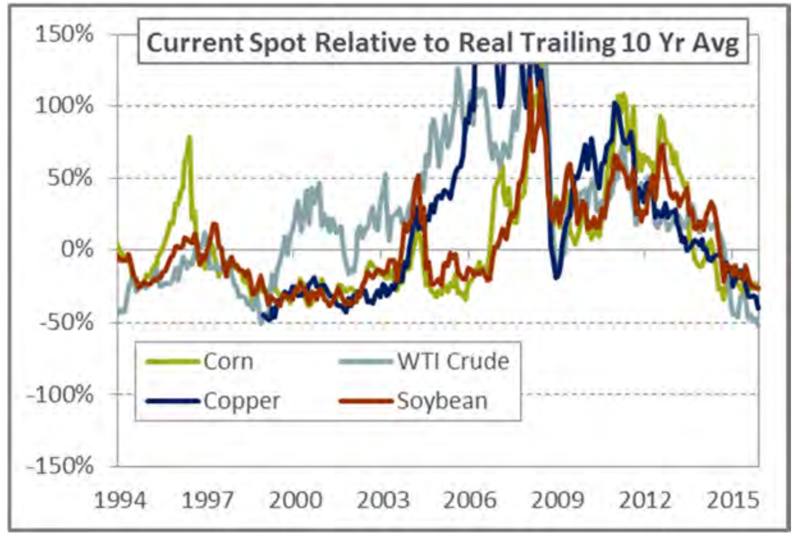


Source: MSCI, Bloomberg

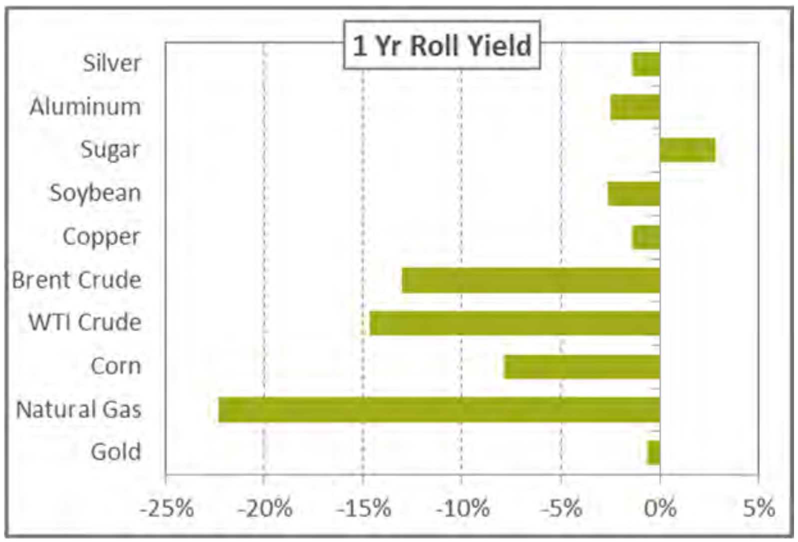
Source: Citigroup, Bloomberg

- **Developed market currency exposure has largely been an uncompensated risk over the last 25 years**
- **Historically it has been a source of volatility and provided limited diversification benefit**
  - Volatility differential (or currency impact on volatility) has persisted in recent history, most notably in MSCI EAFE
- **We use similar arithmetic returns (net of hedging costs) with lower expected volatility for hedged asset class based on relative risk contribution from currency exposure**





Source: Bloomberg, NEPC

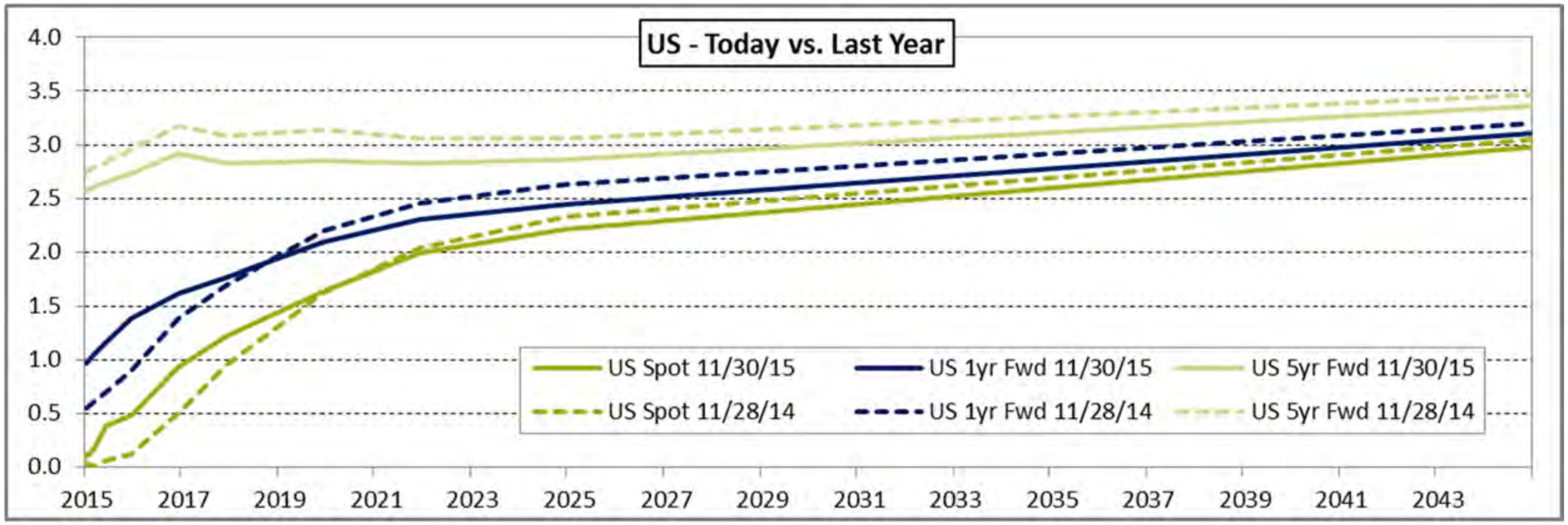


Source: Bloomberg

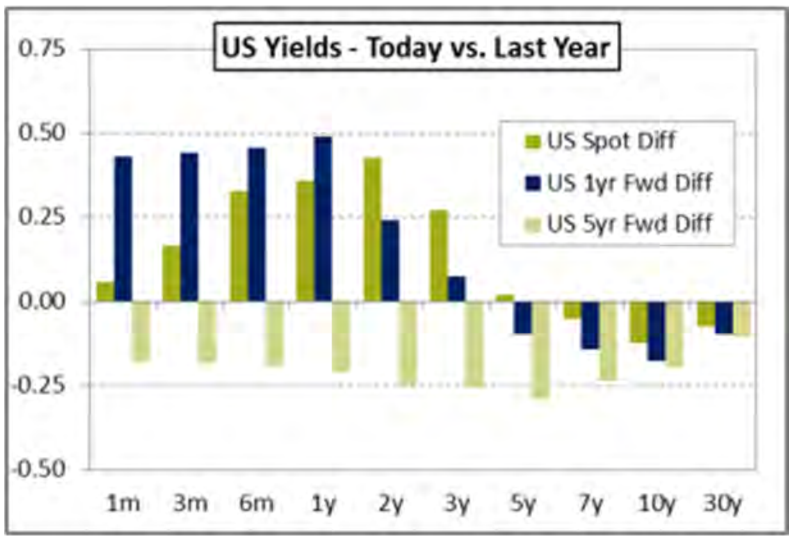
- **Roll yield in contango is a significant drag on future commodity returns**
  - Current roll yield forecast to narrow over 5-7 years to -3.0%
  - Expectations for Fed Funds increase aids cash input

- **Spot prices are trading well below long term averages**
  - Spot prices forecast to revert to long term average over 10 years

US Treasury Spot and Forward Curves are the Backdrop for Lower Bond Returns



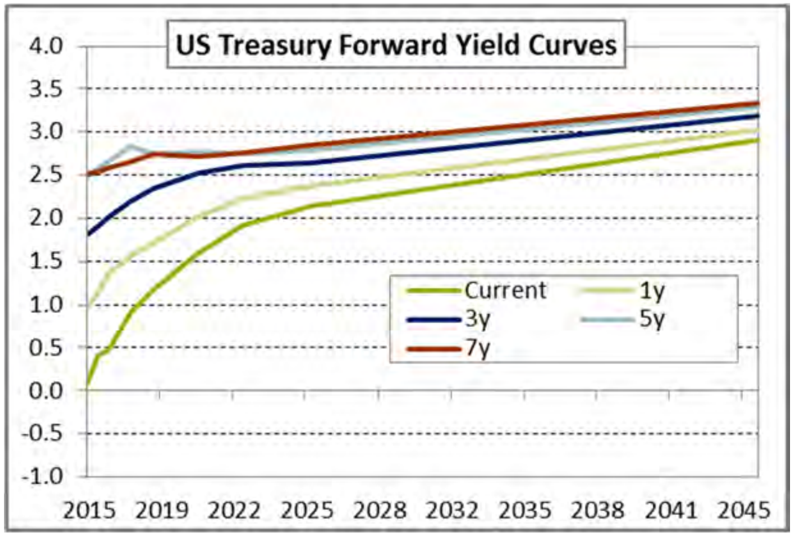
Source: Bloomberg



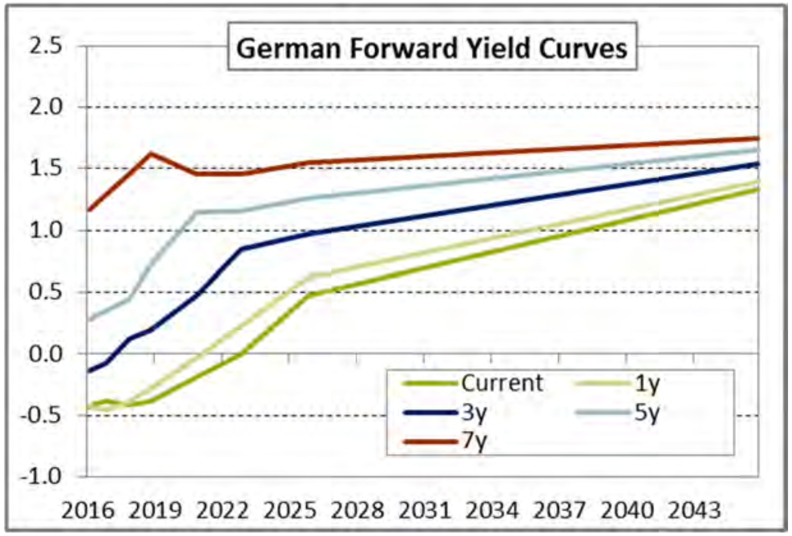
Source: Bloomberg

- **Spot curve elevated relative to prior year at the short end of the curve**
  - Reflects nearing of rate hike cycle but with changing expectations that increases will play out more slowly than previously anticipated
  - Extension of the same trend from one year ago
- **Five year forwards are lower**
  - Entire curve is lower driving lower cash and treasury assumptions

Rising Rates Expected to Impact Developed Market Fixed Income Returns



Source: Bloomberg



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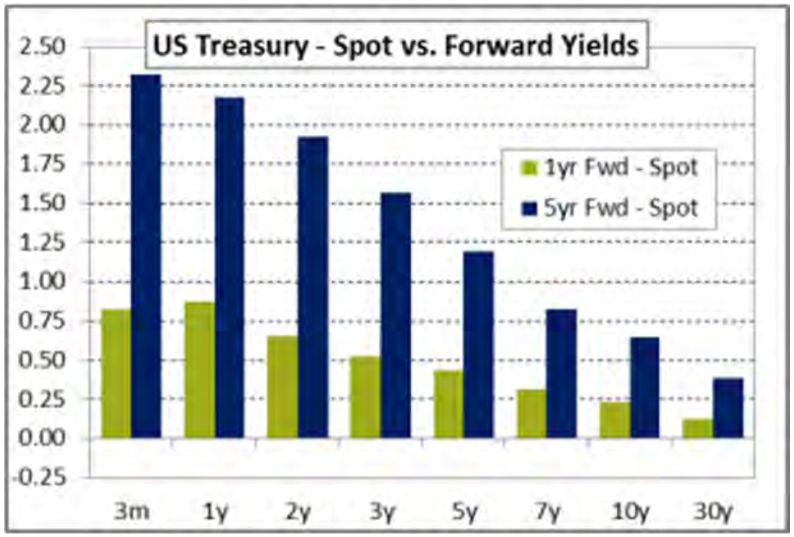

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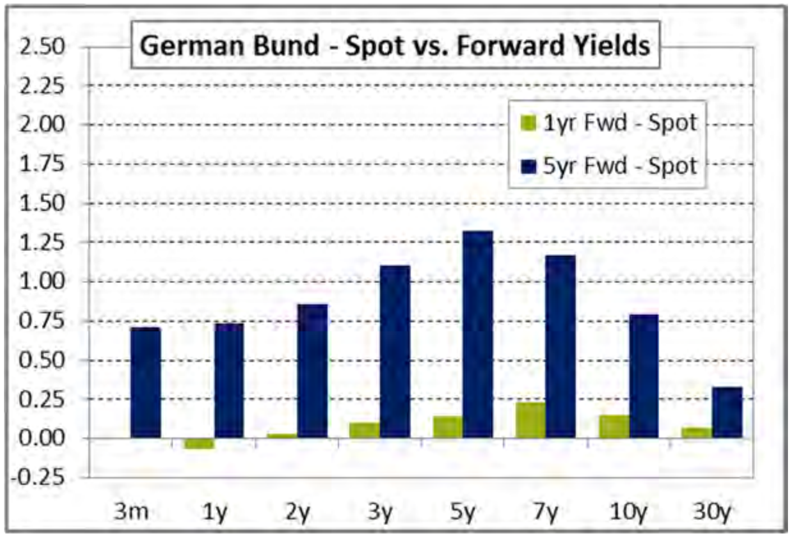
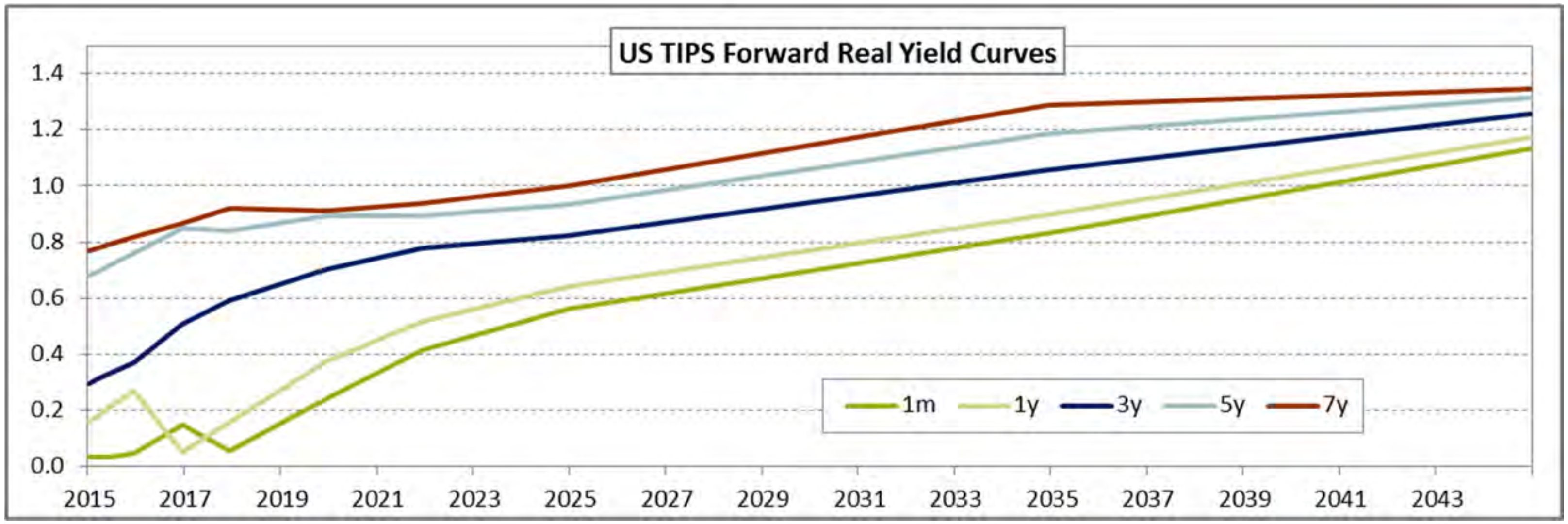
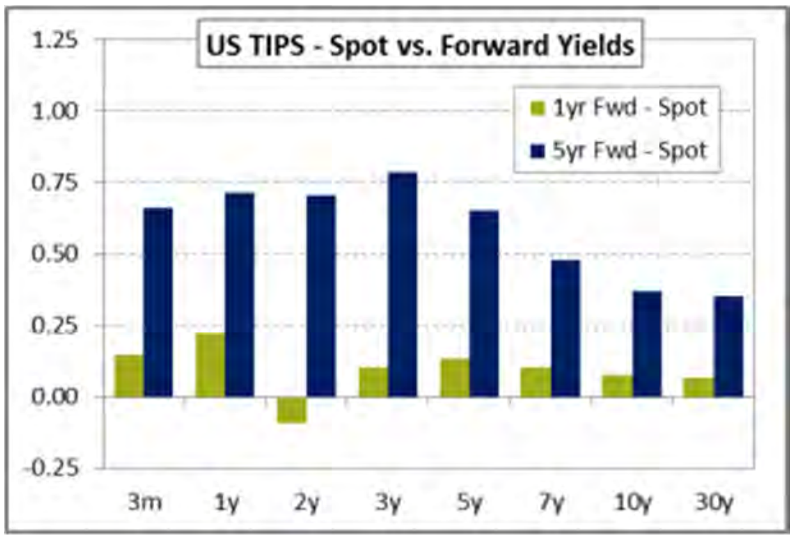


Source: Bloomberg

Low Real Yields in US Support Risky Asset Returns in the Near Term

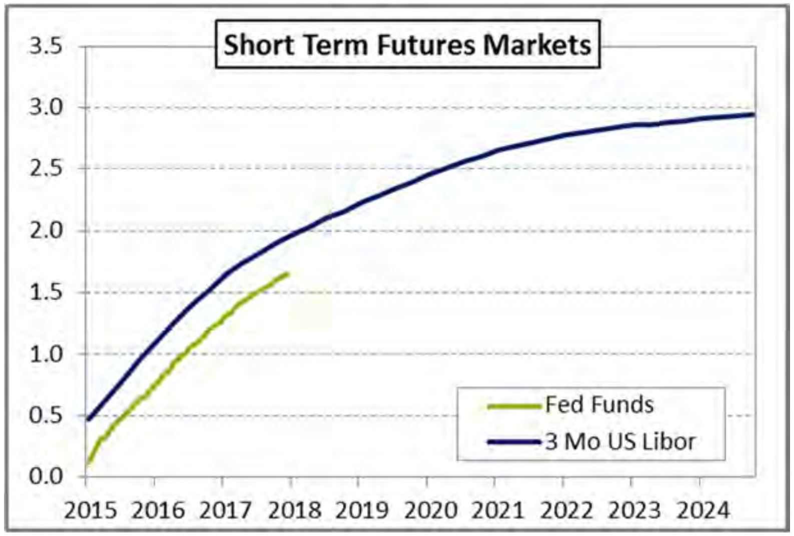


Source: Bloomberg

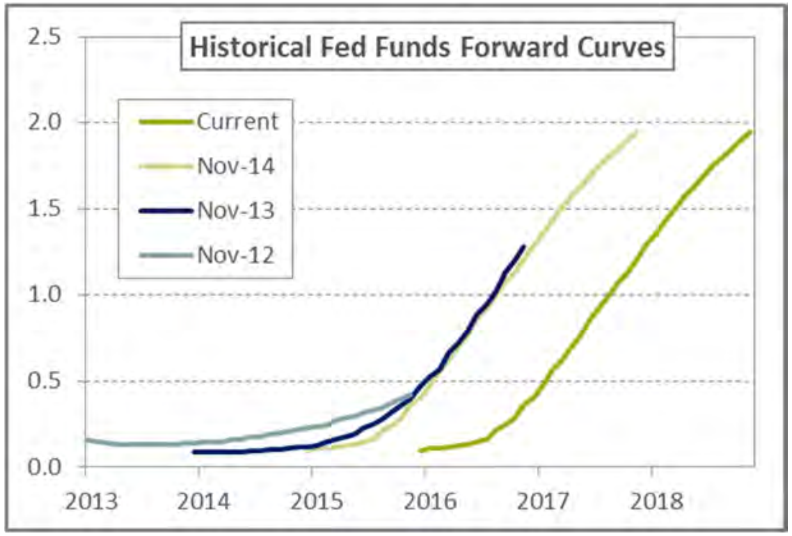


Source: Bloomberg

- **Market expects positive real yields going forward in US**
  - Hikes are slower than what has been priced in the last few years
- **Long term real yield is subdued**
  - Indicative of secular lower return expectations as real yields underlie all risk assets
- **Increase in real yields beyond expectations is a key risk**
  - Low risk today but likely an issue if inflation moves higher



Source: Bloomberg



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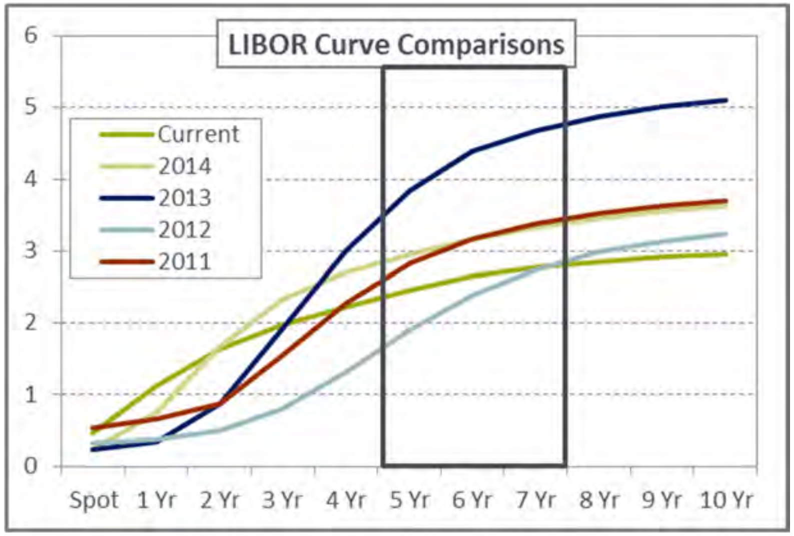
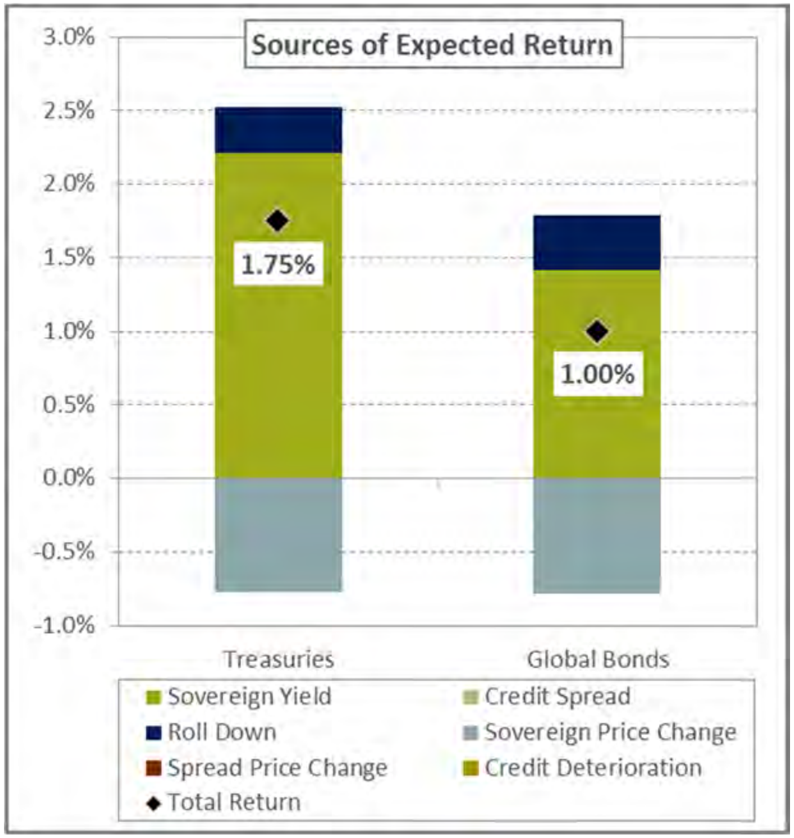
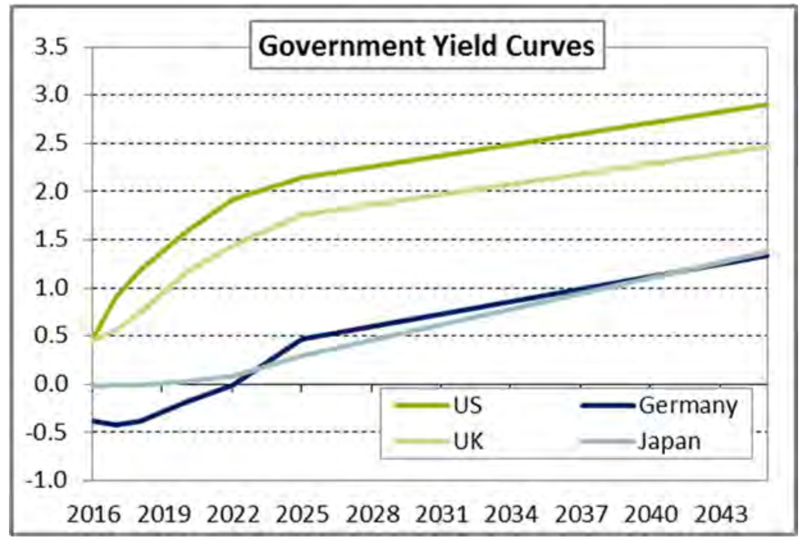


Source: Bloomberg

- **Fed Funds market similar to past years**
  - Fed hike likely as economic data appears supportive of higher rates
- **Longer term cash rate expectations are subdued**
  - LIBOR curve provides evidence
- **Cash forecast lower at 1.5%**
  - Lower long term cash yields also portend lower expected returns

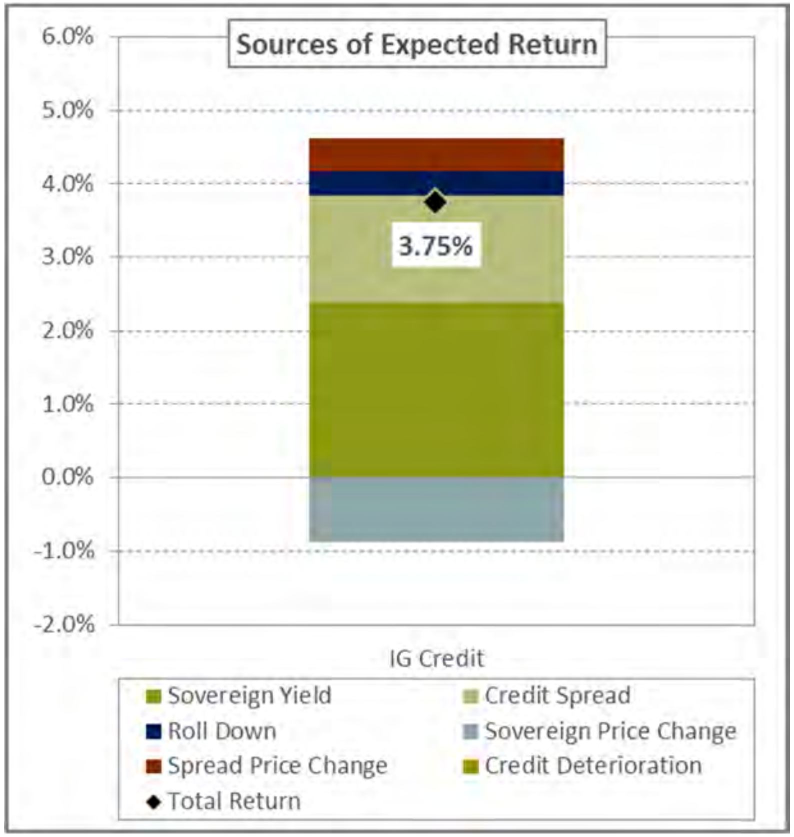


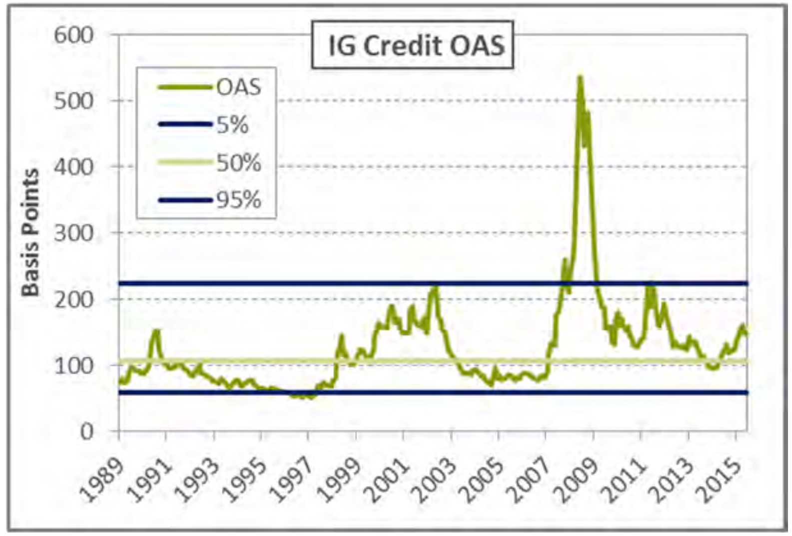
Index Current	US Treasury	Global Sovereign
Yield	1.6	1.1
OAS	-	-
Duration	5.9	7.5
Quality	AAA/AAA	AA2/AA3
MV (mm)	6,589,175	23,026,329



Source: Bloomberg

- **Depressed yields globally**
  - Negative through much of Europe
  - Rising rate expectations lower future returns relative to expected yield
- **US is most attractive safe haven market, despite expected rate hikes**
  - Correlation/liquidity benefits in times of crisis make treasuries an important asset allocation tool

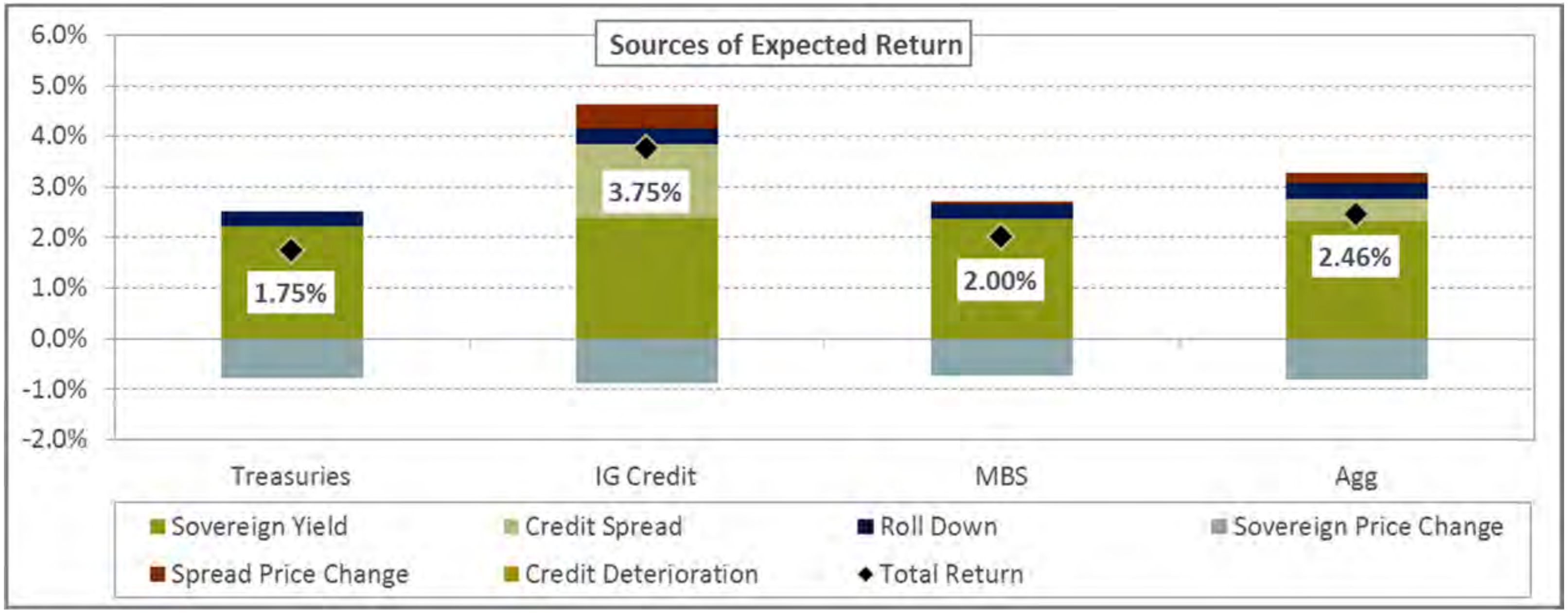




Source: Barclays, Bloomberg

Index Current	US Credit
Yield	3.4
OAS	1.5
Duration	7.0
Quality	A2/A3
MV (mm)	5,447,909

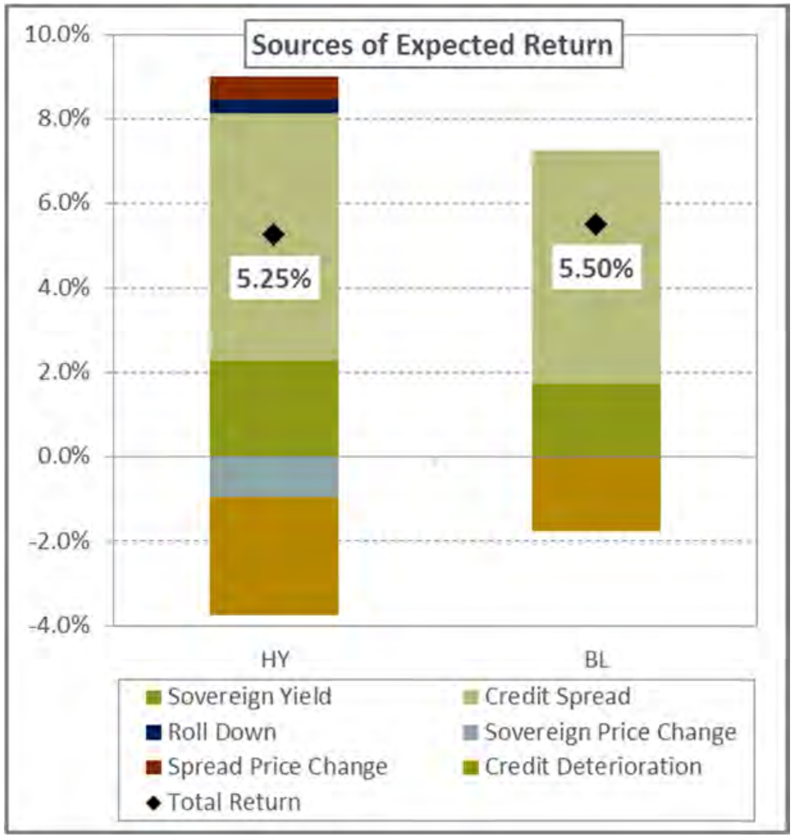
- **Credit spreads have widened off cycle lows**
  - Market liquidity is lower relative to prior years and may be a challenge in later stages of credit cycle
  - Forecast assumes slower spread compression to long term median
- **Relatively steep credit curve adds to return**
  - Roll return and spread price change benefits from steep credit curve

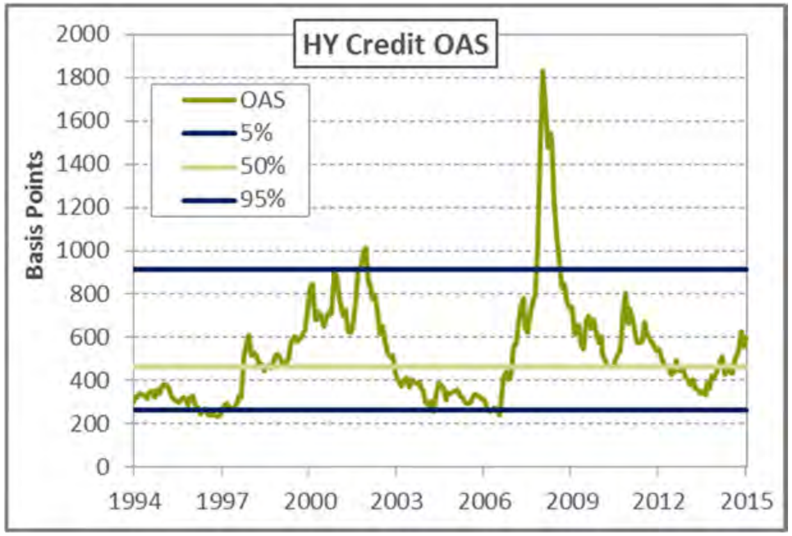


Index Current	US Treasury	US Credit	US Mortgage Backed Securities	US Aggregate
Yield	1.6	3.4	2.7	2.5
OAS	-	1.5	0.2	0.5
Duration	5.9	7.0	4.4	5.7
Quality	AAA/AAA	A2/A3	AAA/AAA	AA1/AA2
MV (mm)	6,589,175	5,447,909	5,192,695	18,204,827

- **Low yields persist throughout US investment grade universe**
- **Expectations of rising rates expected to be 50-75 basis point drag**
- **MBS returns continue to compress toward that of Treasuries**

Assumption Development – US High Yield and Bank Loans



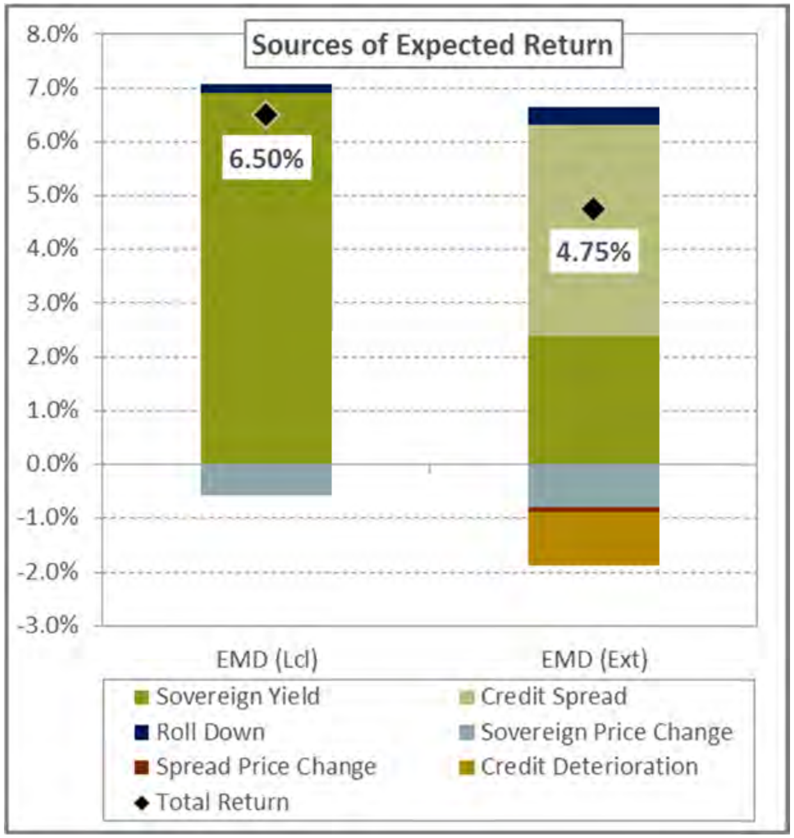


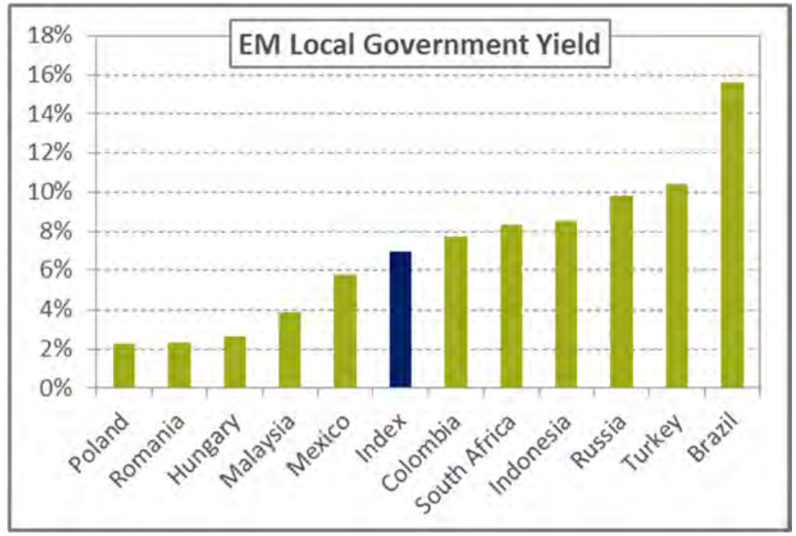
Source: Barclays, Bloomberg

Index Current	BC US Corporate High Yield	Credit Suisse Levered Loan Index
Yield	8.0	6.9
OAS	6.0	6.2
Duration	4.3	0.1
Quality	Ba3/B1	Ba2
MV (mm)	1,261,041	944,881

- **High yield spreads attractive but well below crisis peaks**
  - Energy a key driver today
  - Default rates and downgrades likely to increase at this point in cycle
- **Bank loans not exposed to rate changes with floating rate**
  - Less liquid market with larger retail presence than pre-crisis

Assumption Development – Emerging Market Debt

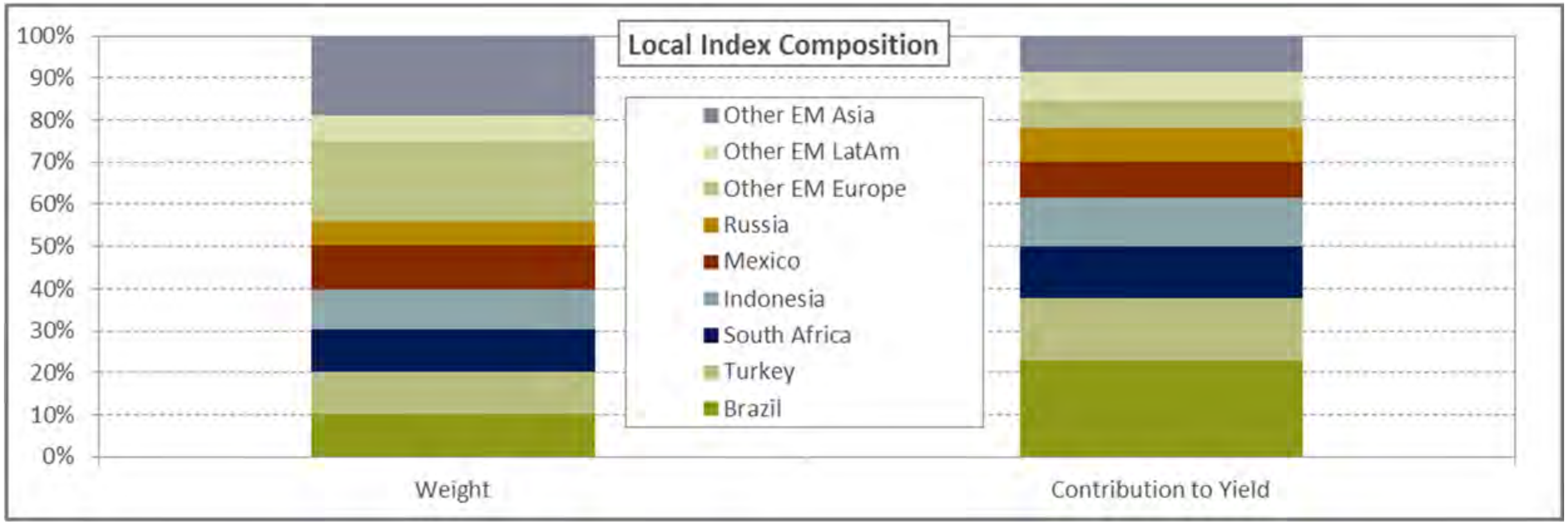




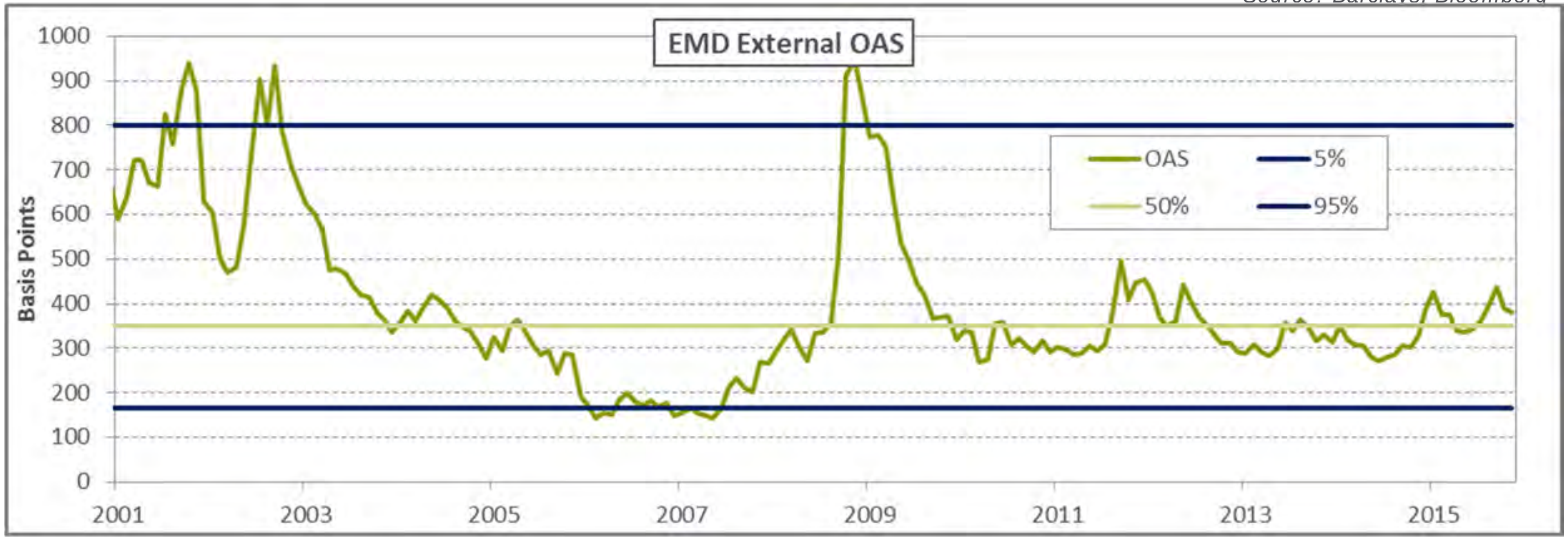
Source: Barclays, Bloomberg

Index Current	JPM GBI EM Global Div	JPM EMBI Global Div
Yield	6.9	6.1
OAS	-	3.9
Duration	4.8	6.6
Quality	Baa2	Baa3
MV (mm)	840,908	687,743

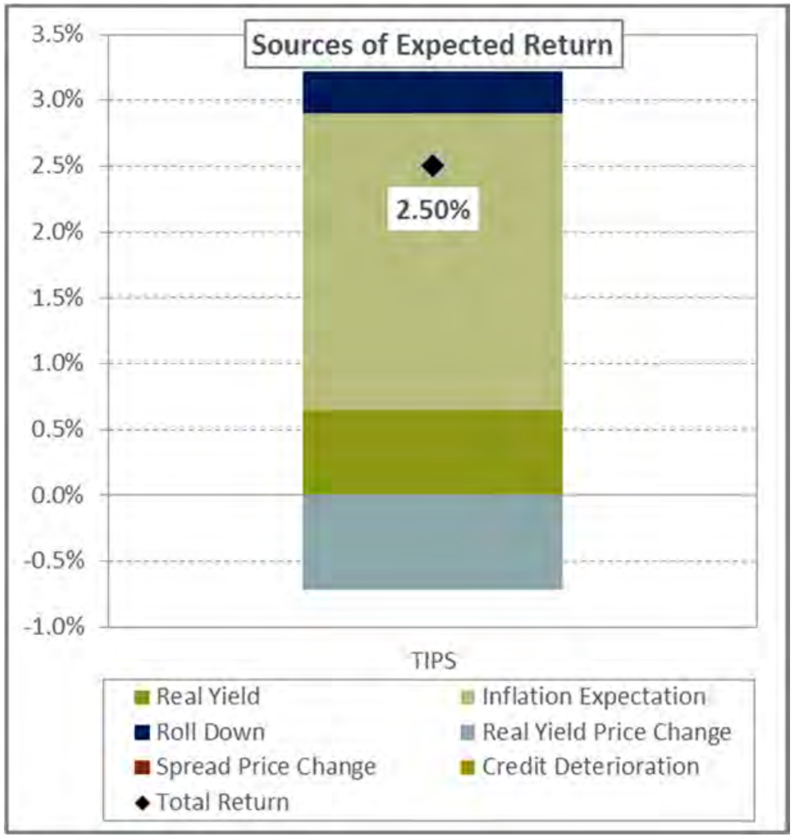
- **Local yields high; average ≈7 %**
  - Countries facing political/geopolitical pressures (Brazil, Turkey, Russia) account for 50% of the index yield
  - More stable countries included in low global yield back drop
- **Currencies at fair value to cheap**
  - Given uncertainty we make some accommodation for further deterioration in stressed currencies in near term
- **External debt priced at fair value**
  - Dollar denominated borrowers face repayment challenges due to dollar strength

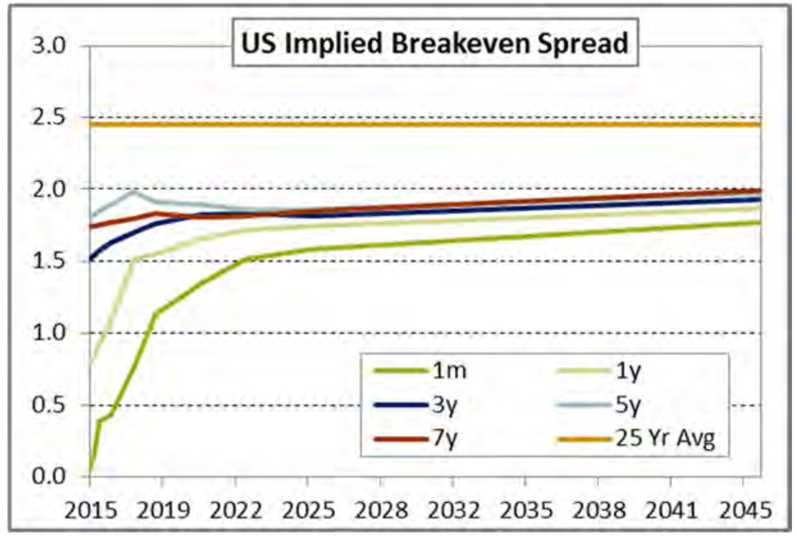


Source: Barclays, Bloomberg



Source: JP Morgan, Bloomberg





Source: Bloomberg

Index Current	US Treasury: US TIPS
Yield	2.1
OAS	0.0
Duration	5.5
Quality	AAA/AAA
MV (mm)	984,892

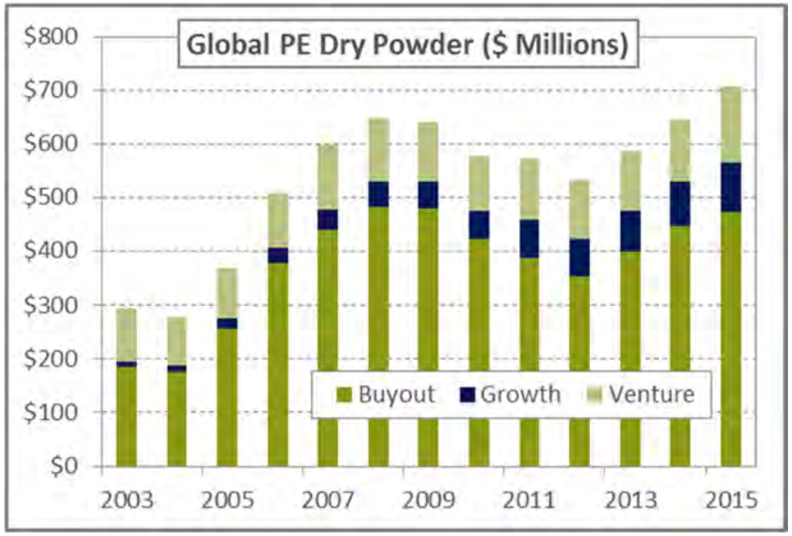
- **Implied inflation breakevens are exceptionally low**
  - Average 1.75% over next 5-7 years
  - Fed targets approximately 2.0%
  - Average over last 25 years is 2.45%
  - NEPC assumes 2.25%
- **TIPS will appreciate if inflation is realized higher than expected**
  - Nominal Treasuries more exposed to interest rate increases should inflation expectations move higher
  - Current bias to TIPS but may not be as liquid in times of stress

Assumption Development – Hedge Funds

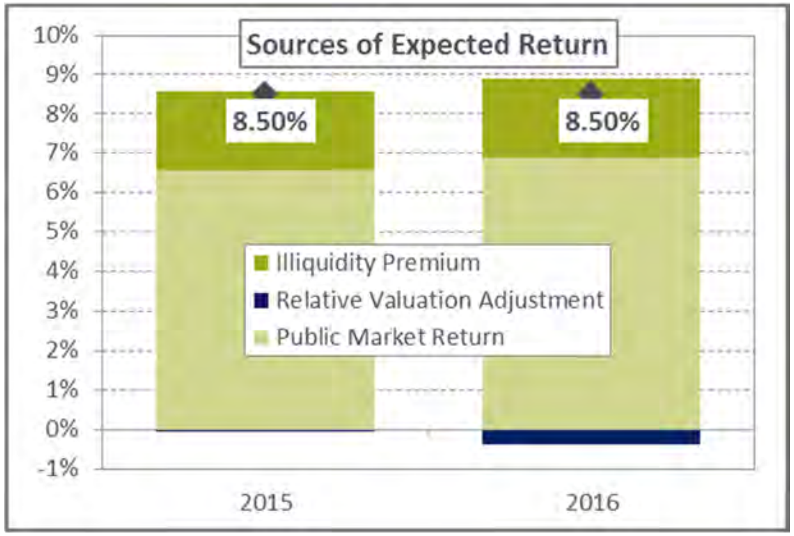
- **Hedge fund assumption constructed from building blocks of broad hedge fund categories**
  - Build up of 45% Equity, 45% Credit, and 10% Macro related strategies
  - Based on analysis of historical return, risk and correlation for underlying strategies and total universe
  - Use NEPC standard market betas as building blocks as well as an alpha component
- **2016 hedge fund assumption is unchanged**
  - Higher return premia from equity and credit markets offset slightly lower cash expectations relative to prior year

	Hedge Funds	Equity Hedge Funds	Credit Hedge Funds	Macro Hedge Funds
Beta Exposure	0.5	0.5	0.5	0.5
Underlying Market Beta	Blended beta from equity, credit, macro	Global Equity	Global Credit	Relative Value (Rates, equity, Commodities)
Total Return (5-7 yr)	5.75%	6.25%	5.25%	6.00%
Volatility Expectation	9.00%	11.50%	8.00%	9.50%

Source: S&P Capital IQ

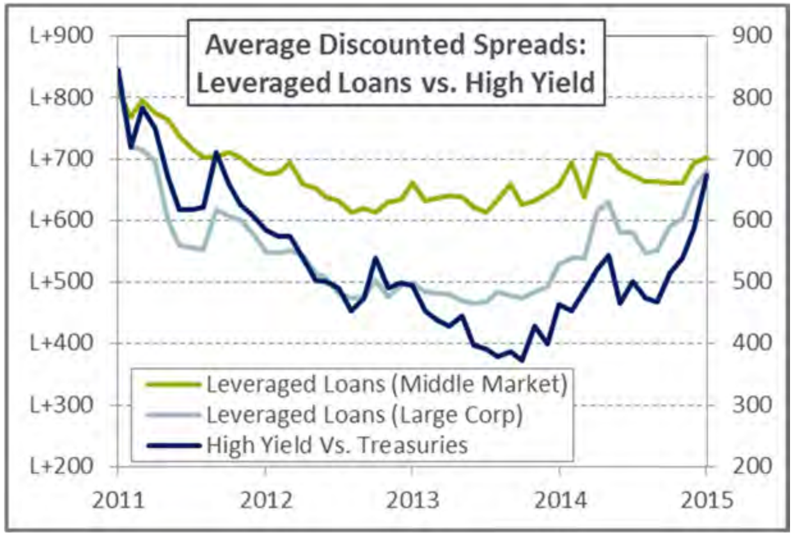


Source: Preqin

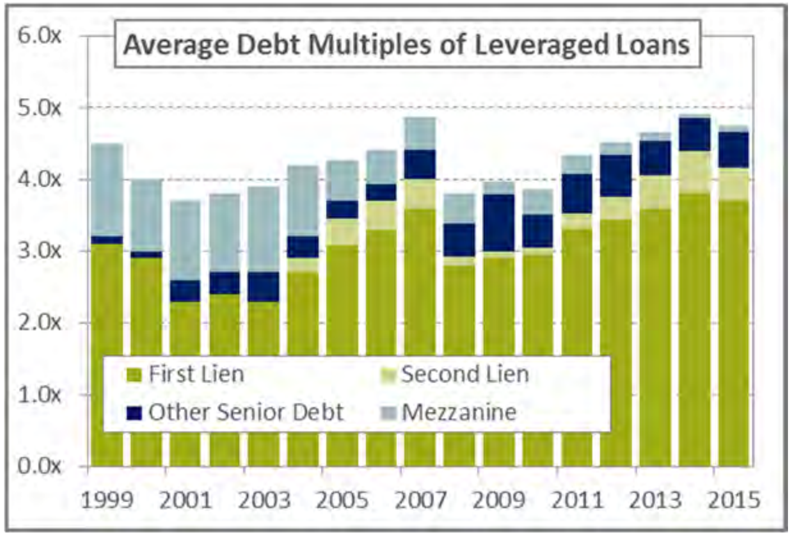


- **Global equity risk premia higher relative to prior year**
- **However, seeing increasing headwinds in private structures**
  - Purchase price multiples high relative to history
  - Dry powder has increased, particularly in the US

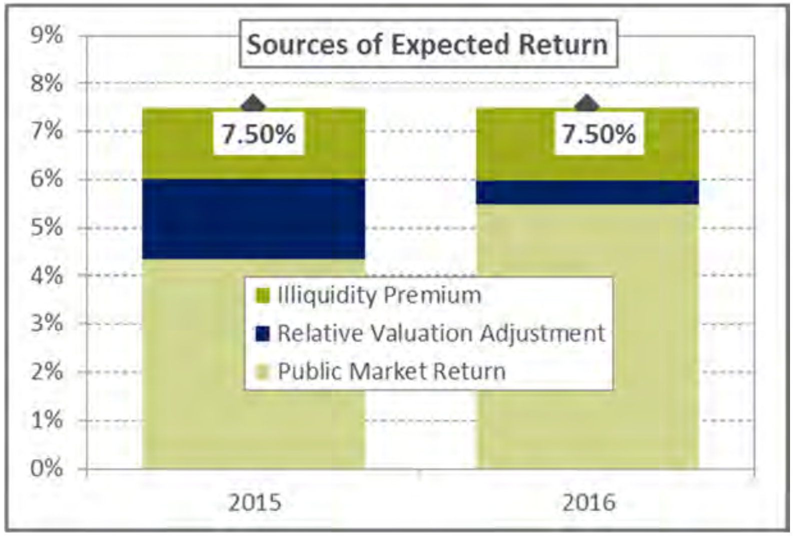
Private equity assumption reflects 40% buyout, 25% growth equity, 20% secondaries, 15% venture. Public market equivalent defined as blend of 70% U.S. small/mid cap equities and 30% non-US developed market equities.



Sources: S&P Capital IQ, BarCap Live

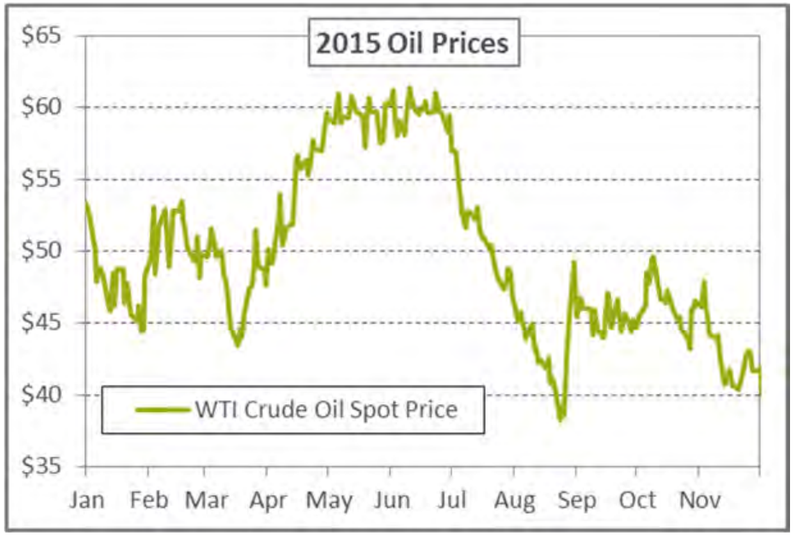


Source: S&P Capital IQ

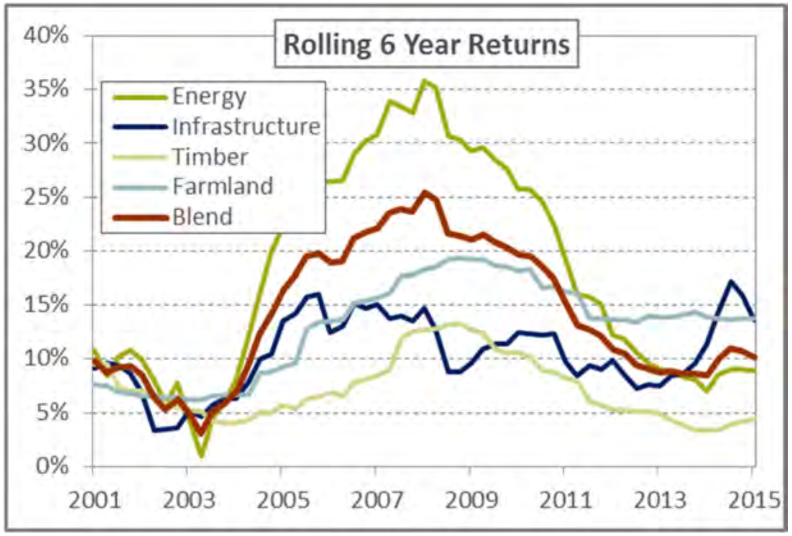


- **Spreads on public and private credit have converged**
- **Debt multiples near cycle highs**
- **Higher equity participation changes risk profile for debt**
  - Opportunity set for mezzanine has shrunk noticeably

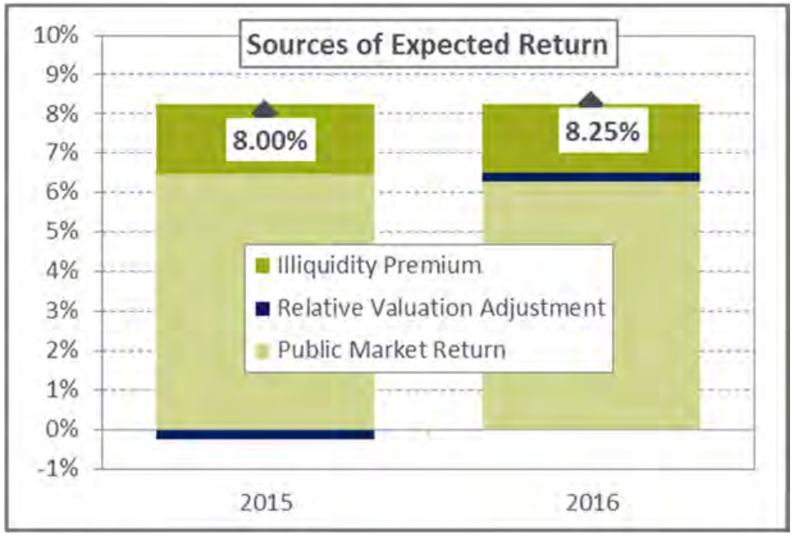
Private debt assumption reflects 50% direct lending, 25% mezzanine, 25% distressed debt. Public market equivalent defined as blend of 50% high yield bonds and 50% bank loans.



Source: Bloomberg



Source: NCREIF, Bloomberg

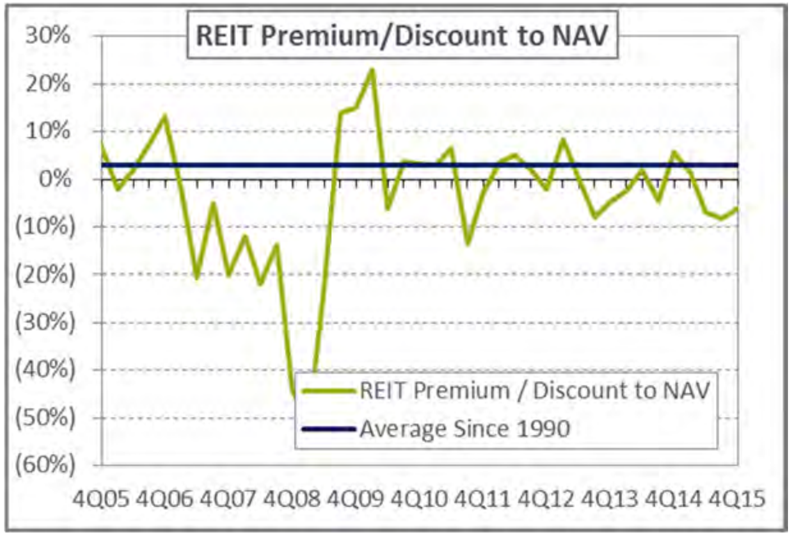


- **Amidst significant volatility, oil prices continued downward trend that began in Q3 2014**
  - Current lows are an attractive entry point for private strategies
- **Private strategies may mitigate financial stress in challenging market for liquid commodities**

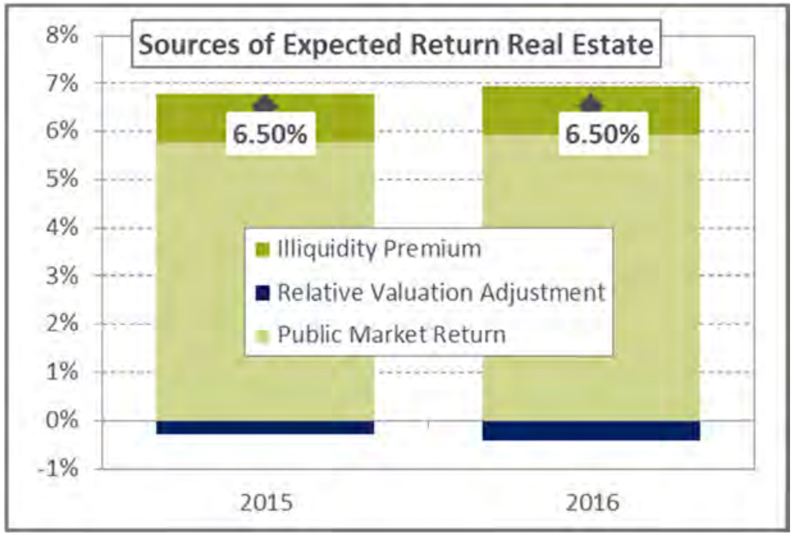
Private real assets assumption reflects 50% energy, 25% infrastructure, 25% timber/agriculture. Public market equivalent defined as blend of 50% commodities, 25% natural resource equities, 25% MLPs.

Assumption Development – Real Estate and REITs

Sources: NCREIF, US Department of Treasury



Source: Wells Fargo Securities



- **Core real estate outlook largely unchanged over 5-7 years**
- **REITs are trading at discounts to NAV but still at historically high multiples**

Real estate assumption reflects U.S. core holdings as represented by the NCREIF ODCE. REIT assumption represented by the FTSE NAREIT Index. Public market equivalent defined as 100% REITs with embedded leverage adjustment (21% for ODCE vs. 45% for NAREIT)

Asset Class Building Blocks Summary

- **Global Equity Building Blocks**
  - **Inflation:** Represents global inflation expectation over forecast period
  - **Real Earnings Growth:** Represents assumption for real growth for each market
  - **Profit Margin Adjustment:** Return due to shift of profit margins to forecast value
  - **Dividend Yield:** Represents dividend yield expectation over forecast period
  - **Valuation:** Return due to shift of current price/earnings ratio to forecast value
- **Commodities Building Blocks**
  - **Valuation:** Return from commodity spot price reverting to long term real average
  - **Roll yield:** Average annual yield to roll futures contract over forecast period
  - **Cash:** Expected US cash rate over forecast period
- **Fixed Income Building Blocks**
  - **Sovereign Yield:** Average expected government bond yield over forecast period
  - **Sovereign Price Change:** Expected price change due to changes in interest rates
  - **Roll Down:** Expected price change due to ageing of a bond along the yield curve
  - **Credit Spread:** Average expected credit spread over forecast period
  - **Spread Price Change:** Return due to shift of current credit spread to forecast value
  - **Credit Deterioration:** Return from credit downgrade and default over forecast period
  - **Real Yield:** Average expected government real yield over forecast period (TIPS)
  - **Real Yield Price Change:** Expected price change due to changes in real rates
  - **Inflation Expectation:** Expected inflation accrual over the forecast period (TIPS)
- **Private Markets Building Blocks**
  - **Illiquidity Premium:** Return associated with illiquidity factor specific to asset class
  - **Relative Valuation Adjustment:** Qualitative adjustment reflecting asset class views
  - **Public Market Return:** Return associated with equivalent public market beta

Information Disclaimer

- **Past performance is no guarantee of future results.**
- **The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**
- **This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.**

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

1. **Performance can be volatile and investors could lose all or a substantial portion of their investment**
2. **Leverage and other speculative practices may increase the risk of loss**
3. **Past performance may be revised due to the revaluation of investments**
4. **These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms**
5. **A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value**
6. **These funds are not subject to the same regulatory requirements as registered investment vehicles**
7. **Managers may not be required to provide periodic pricing or valuation information to investors**
8. **These funds may have complex tax structures and delays in distributing important tax information**
9. **These funds often charge high fees**
10. **Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy**

FORM ADV

UNIFORM APPLICATION FOR INVESTMENT ADVISER REGISTRATION AND REPORT BY EXEMPT REPORTING ADVISERS

WARNING: Complete this form truthfully. False statements or omissions may result in denial of your application, revocation of your registration, or criminal prosecution. You must keep this form updated by filing periodic amendments. See Form ADV General Instruction 4.

Item 1 Identifying Information

Responses to this Item tell us who you are, where you are doing business, and how we can contact you. If you are filing an *umbrella registration*, the information in Item 1 should be provided for the *filing adviser* only. General Instruction 5 provides information to assist you with filing an *umbrella registration*.

A. Your full legal name (if you are a sole proprietor, your last, first, and middle names):
NEPC, LLC

B. (1) Name under which you primarily conduct your advisory business, if different from Item 1.A.
NEPC, LLC

List on Section 1.B. of Schedule D any additional names under which you conduct your advisory business.

(2) If you are using this Form ADV to register more than one investment adviser under an *umbrella registration*, check this box ☐

If you check this box, complete a Schedule R for each relying adviser.

C. If this filing is reporting a change in your legal name (Item 1.A.) or primary business name (Item 1.B.(1)), enter the new name and specify whether the name change is of
☐ your legal name or ☐ your primary business name:

D. (1) If you are registered with the SEC as an investment adviser, your SEC file number: **801-37227**

(2) If you report to the SEC as an *exempt reporting adviser*, your SEC file number:

(3) If you have one or more Central Index Key numbers assigned by the SEC ("CIK Numbers"), all of your CIK numbers:

No Information Filed

E. (1) If you have a number ("*CRD* Number") assigned by the *FINRA's CRD* system or by the IARD system, your *CRD* number: **110562**

If your firm does not have a CRD number, skip this Item 1.E. Do not provide the CRD number of one of your officers, employees, or affiliates.

(2) If you have additional *CRD* Numbers, your additional *CRD* numbers:

No Information Filed

F. *Principal Office and Place of Business*

(1) Address (do not use a P.O. Box):

Number and Street 1:		Number and Street 2:	
255 STATE STREET			
City:	State:	Country:	ZIP+4/Postal Code:
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

List on Section 1.F. of Schedule D any office, other than your principal office and place of business, at which you conduct investment advisory business. If you are applying for registration, or are registered, with one or more state securities authorities, you must list all of your offices in the state or states to which you are applying for registration or with whom you are registered. If you are applying for SEC registration, if you are registered only with the SEC, or if you are reporting to the SEC as an exempt reporting adviser, list the largest twenty-five offices in terms of numbers of employees as of the end of your most recently completed fiscal year.

(2) Days of week that you normally conduct business at your *principal office and place of business:*
◉ Monday - Friday ○ Other:

Normal business hours at this location:
8:30 AM TO 5:00 PM

(3) Telephone number at this location:
617-374-1300

(4) Facsimile number at this location, if any:
617-374-1313

(5) What is the total number of offices, other than your *principal office and place of business*, at which you conduct investment advisory business as of the end of your most recently completed fiscal year?
7

G. Mailing address, if different from your *principal office and place of business* address:

Number and Street 1: Number and Street 2:

City: State: Country: ZIP+4/Postal Code:

If this address is a private residence, check this box: ☐

H. If you are a sole proprietor, state your full residence address, if different from your *principal office and place of business* address in Item 1.F.:

Number and Street 1: Number and Street 2:

City: State: Country: ZIP+4/Postal Code:

	Yes	No
I. Do you have one or more websites or accounts on publicly available social media platforms (including, but not limited to, Twitter, Facebook and LinkedIn)?	◉	○

If "yes," list all firm website addresses and the address for each of the firm's accounts on publicly available social media platforms on Section 1.I. of Schedule D. If a website address serves as a portal through which to access other information you have published on the web, you may list the portal without listing addresses for all of the other information. You may need to list more than one portal address. Do not provide the addresses of websites or accounts on publicly available social media platforms where you do not control the content. Do not provide the individual electronic mail (e-mail) addresses of employees or the addresses of employee accounts on publicly available social media platforms.

J. Chief Compliance Officer

(1) Provide the name and contact information of your Chief Compliance Officer. If you are an *exempt reporting adviser*, you must provide the contact information for your Chief Compliance Officer, if you have one. If not, you must complete Item 1.K. below.

Name: Other titles, if any:

Telephone number: Facsimile number, if any:

Number and Street 1: Number and Street 2:

City: State: Country: ZIP+4/Postal Code:

Electronic mail (e-mail) address, if Chief Compliance Officer has one:

(2) If your Chief Compliance Officer is compensated or employed by any *person* other than you, a *related person* or an investment company registered under the Investment Company Act of 1940 that you advise for providing chief compliance officer services to you, provide the *person's* name and IRS Employer Identification Number (if any):

Name:

IRS Employer Identification Number:

K. Additional Regulatory Contact Person: If a person other than the Chief Compliance Officer is authorized to receive information and respond to questions about this Form ADV, you may provide that information here.

Name: Titles:

Telephone number: Facsimile number, if any:

Number and Street 1: Number and Street 2:

City: State: Country: ZIP+4/Postal Code:

Electronic mail (e-mail) address, if contact person has one:

	Yes	No
L. Do you maintain some or all of the books and records you are required to keep under Section 204 of the Advisers Act, or similar state law, somewhere other than your *principal office and place of business*?	○	◉

If "yes," complete Section 1.L. of Schedule D.

	Yes	No
M. Are you registered with a *foreign financial regulatory authority*?	○	◉

Answer "no" if you are not registered with a foreign financial regulatory authority, even if you have an affiliate that is registered with a foreign financial regulatory authority. If "yes," complete Section 1.M. of Schedule D.

	Yes	No
N. Are you a public reporting company under Sections 12 or 15(d) of the Securities Exchange Act of 1934?	○	◉

	Yes	No
O. Did you have $1 billion or more in assets on the last day of your most recent fiscal year?	○	◉

If yes, what is the approximate amount of your assets:

○ $1 billion to less than $10 billion

○ $10 billion to less than $50 billion

○ $50 billion or more

For purposes of Item 1.O. only, "assets" refers to your total assets, rather than the assets you manage on behalf of clients. Determine your total assets using the total assets shown on the balance sheet for your most recent fiscal year end.

P. Provide your *Legal Entity Identifier* if you have one:

A *legal entity identifier* is a unique number that companies use to identify each other in the financial marketplace. You may not have a *legal entity identifier*.

SECTION 1.B. Other Business Names

No Information Filed

SECTION 1.F. Other Offices

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1: 1155 BREWERY PARK BOULEVARD		Number and Street 2: SUITE 240	
City: DETROIT	State: Michigan	Country: United States	ZIP+4/Postal Code: 48207

If this address is a private residence, check this box: ☐

Telephone Number: (313) 568-1401	Facsimile Number, if any: (313) 568-1408

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
4

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1: 5113 PIPER STATION DRIVE		Number and Street 2: SUITE 205	
City: CHARLOTTE	State: North Carolina	Country: United States	ZIP+4/Postal Code: 28277

If this address is a private residence, check this box: ☐

Telephone Number: 704-542-7474	Facsimile Number, if any: 704-542-7171

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform

Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
2

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1:		Number and Street 2:	
400 GALLERIA PARKWAY		SUITE 1960	
City:	State:	Country:	ZIP+4/Postal Code:
ATLANTA	Georgia	United States	30339

If this address is a private residence, check this box: ☐

Telephone Number:	Facsimile Number, if any:
617-374-1300	

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
6

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1:		Number and Street 2:	
30 SOUTH WACKER DRIVE		SUITE 1290	
City:	State:	Country:	ZIP+4/Postal Code:
CHICAGO	Illinois	United States	60606

If this address is a private residence, check this box: ☐

Telephone Number:	Facsimile Number, if any:
312-585-9680	617-374-1313

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
10

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1:		Number and Street 2:	
9440 WEST SAHARA AVENUE		SUITE 225	
City:	State:	Country:	ZIP+4/Postal Code:
LAS VEGAS	Nevada	United States	89117

If this address is a private residence, check this box: ☐

Telephone Number:	Facsimile Number, if any:
(702) 248-4121	(702) 248-6207

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
4

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1:		Number and Street 2:	
900 VETERANS BOULEVARD		SUITE 340	
City:	State:	Country:	ZIP+4/Postal Code:
REDWOOD CITY	California	United States	94063-3954

If this address is a private residence, check this box: ☐

Telephone Number:
(650) 364-7000

Facsimile Number, if any:
(650) 364-7100

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
7

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest twenty-five offices (in terms of numbers of *employees*).

Number and Street 1:
222 SW COLUMBIA STREET

Number and Street 2:
SUITE 1650

City:	State:	Country:	ZIP+4/Postal Code:
PORTLAND	Oregon	United States	97201

If this address is a private residence, check this box: ☐

Telephone Number:
971-271-5141

Facsimile Number, if any:
617-374-1313

If this office location is also required to be registered with FINRA or a *state securities authority* as a branch office location for a broker-dealer or investment adviser on the Uniform Branch Office Registration Form (Form BR), please provide the *CRD* Branch Number here:

How many *employees* perform investment advisory functions from this office location?
6

Are other business activities conducted at this office location? (check all that apply)

☐ (1) Broker-dealer (registered or unregistered)
☐ (2) Bank (including a separately identifiable department or division of a bank)
☐ (3) Insurance broker or agent
☐ (4) Commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
☐ (5) Registered municipal advisor
☐ (6) Accountant or accounting firm
☐ (7) Lawyer or law firm

Describe any other *investment-related* business activities conducted from this office location:

SECTION 1.I. Website Addresses

List your website addresses, including addresses for accounts on publicly available social media platforms where you control the content (including, but not limited to, Twitter, Facebook and/or LinkedIn). You must complete a separate Schedule D Section 1.I. for each website or account on a publicly available social media platform.

Address of Website/Account on Publicly Available Social Media Platform: HTTPS://WWW.LINKEDIN.COM/COMPANY/28060/

Address of Website/Account on Publicly Available Social Media Platform: HTTP://WWW.NEPC.COM

Address of Website/Account on Publicly Available Social Media Platform:	HTTPS://WWW.FACEBOOK.COM/NEPCLLC/
Address of Website/Account on Publicly Available Social Media Platform:	HTTPS://TWITTER.COM/NEPC_LLC
Address of Website/Account on Publicly Available Social Media Platform:	HTTPS://TWITTER.COM/NEPC_EANDF

SECTION 1.L. Location of Books and Records

No Information Filed

SECTION 1.M. Registration with Foreign Financial Regulatory Authorities

No Information Filed

Item 2 SEC Registration/Reporting

Responses to this Item help us (and you) determine whether you are eligible to register with the SEC. Complete this Item 2.A. only if you are applying for SEC registration or submitting an *annual updating amendment* to your SEC registration. If you are filing an *umbrella registration*, the information in Item 2 should be provided for the *filing adviser* only.

A. To register (or remain registered) with the SEC, you must check **at least one** of the Items 2.A.(1) through 2.A.(12), below. If you are submitting an *annual updating amendment* to your SEC registration and you are no longer eligible to register with the SEC, check Item 2.A.(13). Part 1A Instruction 2 provides information to help you determine whether you may affirmatively respond to each of these items.

You (the adviser):

☑ (1) are a **large advisory firm** that either:

(a) has regulatory assets under management of $100 million (in U.S. dollars) or more; or

(b) has regulatory assets under management of $90 million (in U.S. dollars) or more at the time of filing its most recent *annual updating amendment* and is registered with the SEC;

☐ (2) are a **mid-sized advisory firm** that has regulatory assets under management of $25 million (in U.S. dollars) or more but less than $100 million (in U.S. dollars) and you are either:

(a) not required to be registered as an adviser with the *state securities authority* of the state where you maintain your *principal office and place of business*; or

(b) not subject to examination by the *state securities authority* of the state where you maintain your *principal office and place of business*;

*Click **HERE** for a list of states in which an investment adviser, if registered, would not be subject to examination by the state securities authority.*

(3) Reserved

☐ (4) have your *principal office and place of business* **outside the United States**;

☐ (5) are **an investment adviser (or subadviser) to an investment company** registered under the Investment Company Act of 1940;

☐ (6) are **an investment adviser to a company which has elected to be a business development company** pursuant to section 54 of the Investment Company Act of 1940 and has not withdrawn the election, and you have at least $25 million of regulatory assets under management;

☑ (7) are a **pension consultant** with respect to assets of plans having an aggregate value of at least $200,000,000 that qualifies for the exemption in rule 203A-2(a);

☐ (8) are a **related adviser** under rule 203A-2(b) that *controls*, is *controlled* by, or is under common *control* with, an investment adviser that is registered with the SEC, and your *principal office and place of business* is the same as the registered adviser;

If you check this box, complete Section 2.A.(8) of Schedule D.

☐ (9) are an **adviser** relying on rule 203A-2(c) because you **expect to be eligible for SEC registration within 120 days;**

If you check this box, complete Section 2.A.(9) of Schedule D.

☐ (10) are a **multi-state adviser** that is required to register in 15 or more states and is relying on rule 203A-2(d);

If you check this box, complete Section 2.A.(10) of Schedule D.

☐ (11) are an **Internet adviser** relying on rule 203A-2(e);

☐ (12) have **received an SEC order** exempting you from the prohibition against registration with the SEC;

If you check this box, complete Section 2.A.(12) of Schedule D.

☐ (13) are **no longer eligible** to remain registered with the SEC.

State Securities Authority Notice Filings* and State Reporting by *Exempt Reporting Advisers

C. Under state laws, SEC-registered advisers may be required to provide to *state securities authorities* a copy of the Form ADV and any amendments they file with the SEC. These are called *notice filings*. In addition, *exempt reporting advisers* may be required to provide *state securities authorities* with a copy of reports and any amendments they file with the SEC. If this is an initial application or report, check the box(es) next to the state(s) that you would like to receive notice of this and all subsequent filings or reports you submit to the SEC. If this is an amendment to direct your *notice filings* or reports to additional state(s), check the box(es) next to the state(s) that you would like to receive notice of this and all subsequent filings or reports you submit to the SEC. If this is an amendment to your registration to stop your *notice filings* or reports from going to state(s) that currently receive them, uncheck the box(es) next to those state(s).

Jurisdictions

[ ] AL	[x] IL	[ ] NE	[ ] SC
[ ] AK	[ ] IN	[x] NV	[ ] SD
[ ] AZ	[ ] IA	[x] NH	[ ] TN
[ ] AR	[ ] KS	[x] NJ	[x] TX
[x] CA	[ ] KY	[ ] NM	[ ] UT
[ ] CO	[x] LA	[x] NY	[ ] VT
[x] CT	[ ] ME	[x] NC	[ ] VI
[ ] DE	[ ] MD	[ ] ND	[ ] VA
[ ] DC	[x] MA	[x] OH	[ ] WA
[x] FL	[x] MI	[ ] OK	[ ] WV
[x] GA	[x] MN	[x] OR	[ ] WI
[ ] GU	[ ] MS	[ ] PA	[ ] WY
[ ] HI	[ ] MO	[ ] PR	
[ ] ID	[ ] MT	[ ] RI	

If you are amending your registration to stop your notice filings or reports from going to a state that currently receives them and you do not want to pay that state's notice filing or report filing fee for the coming year, your amendment must be filed before the end of the year (December 31).

SECTION 2.A.(8) Related Adviser

If you are relying on the exemption in rule 203A-2(b) from the prohibition on registration because you *control*, are *controlled* by, or are under common *control* with an investment adviser that is registered with the SEC and your *principal office and place of business* is the same as that of the registered adviser, provide the following information:

Name of Registered Investment Adviser

CRD Number of Registered Investment Adviser

SEC Number of Registered Investment Adviser
-

SECTION 2.A.(9) Investment Adviser Expecting to be Eligible for Commission Registration within 120 Days

If you are relying on rule 203A-2(c), the exemption from the prohibition on registration available to an adviser that expects to be eligible for SEC registration within 120 days, you are required to make certain representations about your eligibility for SEC registration. By checking the appropriate boxes, you will be deemed to have made the required representations. You must make both of these representations:

- [ ] I am not registered or required to be registered with the SEC or a *state securities authority* and I have a reasonable expectation that I will be eligible to register with the SEC within 120 days after the date my registration with the SEC becomes effective.
- [ ] I undertake to withdraw from SEC registration if, on the 120th day after my registration with the SEC becomes effective, I would be prohibited by Section 203A(a) of the Advisers Act from registering with the SEC.

SECTION 2.A.(10) Multi-State Adviser

If you are relying on rule 203A-2(d), the multi-state adviser exemption from the prohibition on registration, you are required to make certain representations about your eligibility for SEC registration. By checking the appropriate boxes, you will be deemed to have made the required representations.

If you are applying for registration as an investment adviser with the SEC, you must make both of these representations:

- [ ] I have reviewed the applicable state and federal laws and have concluded that I am required by the laws of 15 or more states to register as an investment adviser with the *state securities authorities* in those states.
- [ ] I undertake to withdraw from SEC registration if I file an amendment to this registration indicating that I would be required by the laws of fewer than 15 states to register as an investment adviser with the *state securities authorities* of those states.

If you are submitting your *annual updating amendment*, you must make this representation:

- [ ] Within 90 days prior to the date of filing this amendment, I have reviewed the applicable state and federal laws and have concluded that I am required by the laws of at least 15 states to register as an investment adviser with the *state securities authorities* in those states.

SECTION 2.A.(12) SEC Exemptive *Order*

If you are relying upon an SEC *order* exempting you from the prohibition on registration, provide the following information:

Application Number:
803-

Date of *order*:

Item 3 Form of Organization

If you are filing an *umbrella registration*, the information in Item 3 should be provided for the *filing adviser* only.

A. How are you organized?

- ○ Corporation
- ○ Sole Proprietorship
- ○ Limited Liability Partnership (LLP)
- ○ Partnership
- ◉ Limited Liability Company (LLC)
- ○ Limited Partnership (LP)
- ○ Other (specify):

If you are changing your response to this Item, see Part 1A Instruction 4.

B. In what month does your fiscal year end each year?
DECEMBER

C. Under the laws of what state or country are you organized?

State	Country
Delaware	United States

If you are a partnership, provide the name of the state or country under whose laws your partnership was formed. If you are a sole proprietor, provide the name of the state or country where you reside.

If you are changing your response to this Item, see Part 1A Instruction 4.

Item 4 Successions

	Yes	No
A. Are you, at the time of this filing, succeeding to the business of a registered investment adviser, including, for example, a change of your structure or legal status (e.g., form of organization or state of incorporation)?	○	◉

If "yes", complete Item 4.B. and Section 4 of Schedule D.

B. Date of Succession: (MM/DD/YYYY)

If you have already reported this succession on a previous Form ADV filing, do not report the succession again. Instead, check "No." See Part 1A Instruction 4.

SECTION 4 Successions

No Information Filed

Item 5 Information About Your Advisory Business - Employees, Clients, and Compensation

Responses to this Item help us understand your business, assist us in preparing for on-site examinations, and provide us with data we use when making regulatory policy. Part 1A Instruction 5.a. provides additional guidance to newly formed advisers for completing this Item 5.

Employees

If you are organized as a sole proprietorship, include yourself as an employee in your responses to Item 5.A. and Items 5.B.(1), (2), (3), (4), and (5). If an employee performs more than one function, you should count that employee in each of your responses to Items 5.B.(1), (2), (3), (4), and (5).

A. Approximately how many *employees* do you have? Include full- and part-time *employees* but do not include any clerical workers.

300

B. (1) Approximately how many of the *employees* reported in 5.A. perform investment advisory functions (including research)?

100

(2) Approximately how many of the *employees* reported in 5.A. are registered representatives of a broker-dealer?

0

(3) Approximately how many of the *employees* reported in 5.A. are registered with one or more *state securities authorities* as *investment adviser representatives*?

1

(4) Approximately how many of the *employees* reported in 5.A. are registered with one or more *state securities authorities* as *investment adviser representatives* for an investment adviser other than you?

0

(5) Approximately how many of the *employees* reported in 5.A. are licensed agents of an insurance company or agency?

0

(6) Approximately how many firms or other *persons* solicit advisory *clients* on your behalf?

0

In your response to Item 5.B.(6), do not count any of your employees and count a firm only once – do not count each of the firm's employees that solicit on your behalf.

Clients

In your responses to Items 5.C. and 5.D. do not include as "clients" the investors in a private fund you advise, unless you have a separate advisory relationship with those investors.

C. (1) To approximately how many *clients* for whom you do not have regulatory assets under management did you provide investment advisory services during your most recently completed fiscal year?

319

(2) Approximately what percentage of your *clients* are non-*United States persons*?

0%

D. *For purposes of this Item 5.D., the category "individuals" includes trusts, estates, and 401(k) plans and IRAs of individuals and their family members, but does not include businesses organized as sole proprietorships.*
The category "business development companies" consists of companies that have made an election pursuant to section 54 of the Investment Company Act of 1940. Unless you provide advisory services pursuant to an investment advisory contract to an investment company registered under the Investment Company Act of 1940, do not answer (d)(1) or (d)(3) below.

Indicate the approximate number of your *clients* and amount of your total regulatory assets under management (reported in Item 5.F. below) attributable to each of the following type of *client*. If you have fewer than 5 *clients* in a particular category (other than (d), (e), and (f)) you may check Item 5.D.(2) rather than respond to Item 5.D.(1).

The aggregate amount of regulatory assets under management reported in Item 5.D.(3) should equal the total amount of regulatory assets under management reported in Item 5.F.(2)(c) below.

If a *client* fits into more than one category, select one category that most accurately represents the *client* to avoid double counting *clients* and assets. If you advise a registered investment company, business development company, or pooled investment vehicle, report those assets in categories (d), (e), and (f) as applicable.

Type of *Client*	**(1) Number of *Client(s)***	**(2) Fewer than 5 *Clients***	**(3) Amount of Regulatory Assets under Management**
(a) Individuals (other than *high net worth individuals*)		☐	$
(b) *High net worth individuals*	35	☐	$ 599,000,000
(c) Banking or thrift institutions	4	☐	$ 0
(d) Investment companies			$
(e) Business development companies			$
(f) Pooled investment vehicles (other than investment companies and business development companies)			$
(g) Pension and profit sharing plans (but not the plan participants or government pension plans)	145	☐	$ 16,488,000,000
(h) Charitable organizations	76	☐	$ 5,638,000,000
(i) State or municipal *government entities* (including government pension plans)	70	☐	$ 279,000,000
(j) Other investment advisers		☐	$
(k) Insurance companies	12	☐	$ 0
(l) Sovereign wealth funds and foreign official institutions		☐	$
(m) Corporations or other businesses not listed above	43	☐	$ 6,522,000,000
(n) Other:		☐	$

Compensation Arrangements

E. You are compensated for your investment advisory services by (check all that apply):

- ☑ (1) A percentage of assets under your management
- ☑ (2) Hourly charges
- ☐ (3) Subscription fees (for a newsletter or periodical)
- ☑ (4) Fixed fees (other than subscription fees)
- ☐ (5) Commissions
- ☑ (6) *Performance-based fees*
- ☐ (7) Other (specify):

Item 5 Information About Your Advisory Business - Regulatory Assets Under Management

Regulatory Assets Under Management

	Yes	No
F. (1) Do you provide continuous and regular supervisory or management services to securities portfolios?	◉	○

(2) If yes, what is the amount of your regulatory assets under management and total number of accounts?

		U.S. Dollar Amount		Total Number of Accounts
Discretionary:	(a)	$ 29,526,000,000	(d)	67
Non-Discretionary:	(b)	$ 0	(e)	0
Total:	(c)	$ 29,526,000,000	(f)	67

Part 1A Instruction 5.b. explains how to calculate your regulatory assets under management. You must follow these instructions carefully when completing this Item.

(3) What is the approximate amount of your total regulatory assets under management (reported in Item 5.F.(2)(c) above) attributable to *clients* who are non-*United States persons*?

$ 0

Item 5 Information About Your Advisory Business - Advisory Activities

Advisory Activities

G. What type(s) of advisory services do you provide? Check all that apply.

- ☐ (1) Financial planning services
- ☑ (2) Portfolio management for individuals and/or small businesses
- ☐ (3) Portfolio management for investment companies (as well as "business development companies" that have made an election pursuant to section 54 of the Investment Company Act of 1940)
- ☐ (4) Portfolio management for pooled investment vehicles (other than investment companies)
- ☑ (5) Portfolio management for businesses (other than small businesses) or institutional *clients* (other than registered investment companies and other pooled investment vehicles)
- ☑ (6) Pension consulting services
- ☑ (7) Selection of other advisers (including *private fund* managers)
- ☐ (8) Publication of periodicals or newsletters
- ☐ (9) Security ratings or pricing services
- ☐ (10) Market timing services
- ☐ (11) Educational seminars/workshops
- ☐ (12) Other(specify):

Do not check Item 5.G.(3) unless you provide advisory services pursuant to an investment advisory contract to an investment company registered under the Investment Company Act of 1940, including as a subadviser. If you check Item 5.G.(3), report the 811 or 814 number of the investment company or investment companies to which you provide advice in Section 5.G.(3) of Schedule D.

H. If you provide financial planning services, to how many *clients* did you provide these services during your last fiscal year?

- ○ 0
- ○ 1 - 10
- ○ 11 - 25
- ○ 26 - 50
- ○ 51 - 100
- ○ 101 - 250
- ○ 251 - 500
- ○ More than 500

  If more than 500, how many?
  (round to the nearest 500)

In your responses to this Item 5.H., do not include as "clients" the investors in a private fund you advise, unless you have a separate advisory relationship with those investors.

	Yes	No
I. (1) Do you participate in a *wrap fee program*?	○	◉

(2) If you participate in a *wrap fee program*, what is the amount of your regulatory assets under management attributable to acting as:

(a) *sponsor* to a *wrap fee program*

$

(b) portfolio manager for a *wrap fee program*?

$

(c) *sponsor* to and portfolio manager for the same *wrap fee program*?

$

If you report an amount in Item 5.I.(2)(c), do not report that amount in Item 5.I.(2)(a) or Item 5.I.(2)(b).

If you are a portfolio manager for a wrap fee program, list the names of the programs, their sponsors and related information in Section 5.I.(2) of Schedule D.

If your involvement in a wrap fee program is limited to recommending wrap fee programs to your clients, or you advise a mutual fund that is offered through a wrap fee program, do not check Item 5.I.(1) or enter any amounts in response to Item 5.I.(2).

		Yes	No
J.	(1) In response to Item 4.B. of Part 2A of Form ADV, do you indicate that you provide investment advice only with respect to limited types of investments?	○	◉
	(2) Do you report *client* assets in Item 4.E. of Part 2A that are computed using a different method than the method used to compute your regulatory assets under management?	◉	○

K. Separately Managed Account *Clients*

	Yes	No
(1) Do you have regulatory assets under management attributable to *clients* other than those listed in Item 5.D.(3)(d)-(f) (separately managed account *clients*)?	◉	○

If yes, complete Section 5.K.(1) of Schedule D.

	Yes	No
(2) Do you engage in borrowing transactions on behalf of any of the separately managed account *clients* that you advise?	○	◉

If yes, complete Section 5.K.(2) of Schedule D.

	Yes	No
(3) Do you engage in derivative transactions on behalf of any of the separately managed account *clients* that you advise?	○	◉

If yes, complete Section 5.K.(2) of Schedule D.

	Yes	No
(4) After subtracting the amounts in Item 5.D.(3)(d)-(f) above from your total regulatory assets under management, does any custodian hold ten percent or more of this remaining amount of regulatory assets under management?	◉	○

If yes, complete Section 5.K.(3) of Schedule D for each custodian.

SECTION 5.G.(3) Advisers to Registered Investment Companies and Business Development Companies

No Information Filed

SECTION 5.I.(2) *Wrap Fee Programs*

No Information Filed

SECTION 5.K.(1) Separately Managed Accounts

After subtracting the amounts reported in Item 5.D.(3)(d)-(f) from your total regulatory assets under management, indicate the approximate percentage of this remaining amount attributable to each of the following categories of assets. If the remaining amount is at least $10 billion in regulatory assets under management, complete Question (a). If the remaining amount is less than $10 billion in regulatory assets under management, complete Question (b).

Any regulatory assets under management reported in Item 5.D.(3)(d), (e), and (f) should not be reported below.

If you are a subadviser to a separately managed account, you should only provide information with respect to the portion of the account that you subadvise.

End of year refers to the date used to calculate your regulatory assets under management for purposes of your *annual updating amendment* . Mid-year is the date six months before the end of year date. Each column should add up to 100% and numbers should be rounded to the nearest percent.

Investments in derivatives, registered investment companies, business development companies, and pooled investment vehicles should be reported in those categories. Do not report those investments based on related or underlying portfolio assets. Cash equivalents include bank deposits, certificates of deposit, bankers' acceptances and similar bank instruments.

Some assets could be classified into more than one category or require discretion about which category applies. You may use your own internal methodologies and the conventions of your service providers in determining how to categorize assets, so long as the methodologies or conventions are consistently applied and consistent with information you report internally and to current and prospective clients. However, you should not double count assets, and your responses must be consistent with any instructions or other guidance relating to this Section.

(a)

Asset Type		Mid-year	End of year
(i)	Exchange-Traded Equity Securities	3 %	5 %
(ii)	Non Exchange-Traded Equity Securities	0 %	0 %
(iii)	U.S. Government/Agency Bonds	4 %	4 %
(iv)	U.S. State and Local Bonds	0 %	0 %
(v)	*Sovereign Bonds*	0 %	0 %
(vi)	Investment Grade Corporate Bonds	3 %	4 %
(vii)	Non-Investment Grade Corporate Bonds	0 %	0 %
(viii)	Derivatives	0 %	0 %
(ix)	Securities Issued by Registered Investment Companies or Business Development Companies	29 %	28 %
(x)	Securities Issued by Pooled Investment Vehicles (other than Registered Investment Companies or Business Development Companies)	61 %	59 %
(xi)	Cash and Cash Equivalents	0 %	0 %
(xii)	Other	0 %	0 %

Generally describe any assets included in "Other"

(b)

Asset Type		End of year
(i)	Exchange-Traded Equity Securities	%
(ii)	Non Exchange-Traded Equity Securities	%
(iii)	U.S. Government/Agency Bonds	%
(iv)	U.S. State and Local Bonds	%
(v)	*Sovereign Bonds*	%
(vi)	Investment Grade Corporate Bonds	%
(vii)	Non-Investment Grade Corporate Bonds	%
(viii)	Derivatives	%
(ix)	Securities Issued by Registered Investment Companies or Business Development Companies	%
(x)	Securities Issued by Pooled Investment Vehicles (other than Registered Investment Companies or Business Development Companies)	%
(xi)	Cash and Cash Equivalents	%
(xii)	Other	%

Generally describe any assets included in "Other"

SECTION 5.K.(2) Separately Managed Accounts - Use of *Borrowings*and Derivatives

☐ **No information is required to be reported in this Section 5.K.(2) per the instructions of this Section 5.K.(2)**

If your regulatory assets under management attributable to separately managed accounts are at least $10 billion, you should complete Question (a). If your regulatory assets under management attributable to separately managed accounts are at least $500 million but less than $10 billion, you should complete Question (b).

(a) In the table below, provide the following information regarding the separately managed accounts you advise. If you are a subadviser to a separately managed account, you should only provide information with respect to the portion of the account that you subadvise. End of year refers to the date used to calculate your regulatory assets under management for purposes of your *annual updating amendment*. Mid-year is the date six months before the end of year date.

In column 1, indicate the regulatory assets under management attributable to separately managed accounts associated with each level of gross notional exposure. For purposes of this table, the gross notional exposure of an account is the percentage obtained by dividing (i) the sum of (a) the dollar amount of any *borrowings* and (b) the *gross notional value* of all derivatives, by (ii) the regulatory assets under management of the account.

In column 2, provide the dollar amount of *borrowings* for the accounts included in column 1.

In column 3, provide aggregate *gross notional value* of derivatives divided by the aggregate regulatory assets under management of the accounts included in column 1 with respect to each category of derivatives specified in 3(a) through (f).

You may, but are not required to, complete the table with respect to any separately managed account with regulatory assets under management of less than $10,000,000.

Any regulatory assets under management reported in Item 5.D.(3)(d), (e), and (f) should not be reported below.

(i) Mid-Year

Gross Notional	(1) Regulatory Assets Under	(2)	

Exposure	Management	Borrowings	(3) Derivative Exposures					
			(a) *Interest Rate Derivative*	(b) *Foreign Exchange Derivative*	(c) *Credit Derivative*	(d) *Equity Derivative*	(e) *Commodity Derivative*	(f) *Other Derivative*
Less than 10%	$	$	%	%	%	%	%	%
10-149%	$	$	%	%	%	%	%	%
150% or more	$	$	%	%	%	%	%	%

Optional: Use the space below to provide a narrative description of the strategies and/or manner in which *borrowings* and derivatives are used in the management of the separately managed accounts that you advise.

(ii) End of Year

Gross Notional Exposure	(1) Regulatory Assets Under Management	(2) *Borrowings*	(3) Derivative Exposures					
			(a) *Interest Rate Derivative*	(b) *Foreign Exchange Derivative*	(c) *Credit Derivative*	(d) *Equity Derivative*	(e) *Commodity Derivative*	(f) *Other Derivative*
Less than 10%	$	$	%	%	%	%	%	%
10-149%	$	$	%	%	%	%	%	%
150% or more	$	$	%	%	%	%	%	%

Optional: Use the space below to provide a narrative description of the strategies and/or manner in which *borrowings* and derivatives are used in the management of the separately managed accounts that you advise.

(b) In the table below, provide the following information regarding the separately managed accounts you advise as of the date used to calculate your regulatory assets under management for purposes of your *annual updating amendment*. If you are a subadviser to a separately managed account, you should only provide information with respect to the portion of the account that you subadvise.

In column 1, indicate the regulatory assets under management attributable to separately managed accounts associated with each level of gross notional exposure. For purposes of this table, the gross notional exposure of an account is the percentage obtained by dividing (i) the sum of (a) the dollar amount of any *borrowings* and (b) the *gross notional value* of all derivatives, by (ii) the regulatory assets under management of the account.

In column 2, provide the dollar amount of *borrowings* for the accounts included in column 1.

You may, but are not required to, complete the table with respect to any separately managed accounts with regulatory assets under management of less than $10,000,000.

Any regulatory assets under management reported in Item 5.D.(3)(d), (e), and (f) should not be reported below.

Gross Notional Exposure	(1) Regulatory Assets Under Management	(2) *Borrowings*
Less than 10%	$	$
10-149%	$	$
150% or more	$	$

Optional: Use the space below to provide a narrative description of the strategies and/or manner in which *borrowings* and derivatives are used in the management of the separately managed accounts that you advise.

SECTION 5.K.(3) Custodians for Separately Managed Accounts

Complete a separate Schedule D Section 5.K.(3) for each custodian that holds ten percent or more of your aggregate separately managed account regulatory assets under management.

(a) Legal name of custodian:
NORTHERN TRUST CORPORATION

(b) Primary business name of custodian:
NORTHERN TRUST

(c) The location(s) of the custodian's office(s) responsible for *custody* of the assets :

City:	State:	Country:
CHICAGO	Illinois	United States

		Yes	No
(d)	Is the custodian a *related person* of your firm?	○	◉

(e) If the custodian is a broker-dealer, provide its SEC registration number (if any)

-

(f)	If the custodian is not a broker-dealer, or is a broker-dealer but does not have an SEC registration number, provide its *legal entity identifier* (if any)	
(g)	What amount of your regulatory assets under management attributable to separately managed accounts is held at the custodian? $ 13,039,311,639	

(a)	Legal name of custodian: WELLS FARGO & COMPANY	
(b)	Primary business name of custodian: WELLS FARGO BANK, N.A.	
(c)	The location(s) of the custodian's office(s) responsible for *custody* of the assets : City: SIOUX FALLS; State: South Dakota; Country: United States	
		Yes No
(d)	Is the custodian a *related person* of your firm?	No
(e)	If the custodian is a broker-dealer, provide its SEC registration number (if any) -	
(f)	If the custodian is not a broker-dealer, or is a broker-dealer but does not have an SEC registration number, provide its *legal entity identifier* (if any)	
(g)	What amount of your regulatory assets under management attributable to separately managed accounts is held at the custodian? $ 3,407,008,752	

(a)	Legal name of custodian: THE BANK OF NEW YORK MELLON	
(b)	Primary business name of custodian: BNY MELLON	
(c)	The location(s) of the custodian's office(s) responsible for *custody* of the assets : City: PITTSBURGH; State: Pennsylvania; Country: United States	
		Yes No
(d)	Is the custodian a *related person* of your firm?	No
(e)	If the custodian is a broker-dealer, provide its SEC registration number (if any) -	
(f)	If the custodian is not a broker-dealer, or is a broker-dealer but does not have an SEC registration number, provide its *legal entity identifier* (if any)	
(g)	What amount of your regulatory assets under management attributable to separately managed accounts is held at the custodian? $ 3,737,209,419	

(a)	Legal name of custodian: U.S. BANK	
(b)	Primary business name of custodian: U.S. BANK	
(c)	The location(s) of the custodian's office(s) responsible for *custody* of the assets : City: MINNEAPOLIS; State: Minnesota; Country: United States	
		Yes No
(d)	Is the custodian a *related person* of your firm?	No
(e)	If the custodian is a broker-dealer, provide its SEC registration number (if any) -	
(f)	If the custodian is not a broker-dealer, or is a broker-dealer but does not have an SEC registration number, provide its *legal entity identifier* (if any)	
(g)	What amount of your regulatory assets under management attributable to separately managed accounts is held at the custodian? $ 4,564,647,332	

Item 6 Other Business Activities

In this Item, we request information about your firm's other business activities.

A. You are actively engaged in business as a (check all that apply):

- [ ] (1) broker-dealer (registered or unregistered)
- [ ] (2) registered representative of a broker-dealer
- [ ] (3) commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
- [ ] (4) futures commission merchant
- [ ] (5) real estate broker, dealer, or agent
- [ ] (6) insurance broker or agent
- [ ] (7) bank (including a separately identifiable department or division of a bank)
- [ ] (8) trust company
- [ ] (9) registered municipal advisor
- [ ] (10) registered security-based swap dealer
- [ ] (11) major security-based swap participant
- [ ] (12) accountant or accounting firm
- [ ] (13) lawyer or law firm
- [ ] (14) other financial product salesperson (specify):

If you engage in other business using a name that is different from the names reported in Items 1.A. or 1.B.(1), complete Section 6.A. of Schedule D.

		Yes	No
B. (1)	Are you actively engaged in any other business not listed in Item 6.A. (other than giving investment advice)?	○	◉
(2)	If yes, is this other business your primary business?	○	○

If "yes," describe this other business on Section 6.B.(2) of Schedule D, and if you engage in this business under a different name, provide that name.

		Yes	No
(3)	Do you sell products or provide services other than investment advice to your advisory *clients*?	○	◉

If "yes," describe this other business on Section 6.B.(3) of Schedule D, and if you engage in this business under a different name, provide that name.

SECTION 6.A. Names of Your Other Businesses

No Information Filed

SECTION 6.B.(2) Description of Primary Business

Describe your primary business (not your investment advisory business):

If you engage in that business under a different name, provide that name:

SECTION 6.B.(3) Description of Other Products and Services

Describe other products or services you sell to your *client*. You may omit products and services that you listed in Section 6.B.(2) above.

If you engage in that business under a different name, provide that name:

Item 7 Financial Industry Affiliations

In this Item, we request information about your financial industry affiliations and activities. This information identifies areas in which conflicts of interest may occur between you and your *clients*.

A. This part of Item 7 requires you to provide information about you and your *related persons*, including foreign affiliates. Your *related persons* are all of your *advisory affiliates* and any *person* that is under common *control* with you.

You have a *related person* that is a (check all that apply):

- [ ] (1) broker-dealer, municipal securities dealer, or government securities broker or dealer (registered or unregistered)
- [ ] (2) other investment adviser (including financial planners)
- [ ] (3) registered municipal advisor
- [ ] (4) registered security-based swap dealer
- [ ] (5) major security-based swap participant
- [ ] (6) commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
- [ ] (7) futures commission merchant
- [ ] (8) banking or thrift institution
- [ ] (9) trust company
- [ ] (10) accountant or accounting firm
- [ ] (11) lawyer or law firm
- [ ] (12) insurance company or agency
- [ ] (13) pension consultant
- [ ] (14) real estate broker or dealer
- [ ] (15) sponsor or syndicator of limited partnerships (or equivalent), excluding pooled investment vehicles

☐ (16) sponsor, general partner, managing member (or equivalent) of pooled investment vehicles

Note that Item 7.A. should not be used to disclose that some of your employees perform investment advisory functions or are registered representatives of a broker-dealer. The number of your firm's employees who perform investment advisory functions should be disclosed under Item 5.B.(1). The number of your firm's employees who are registered representatives of a broker-dealer should be disclosed under Item 5.B.(2).

Note that if you are filing an umbrella registration, you should not check Item 7.A.(2) with respect to your relying advisers, and you do not have to complete Section 7.A. in Schedule D for your relying advisers. You should complete a Schedule R for each relying adviser.

For each related person, including foreign affiliates that may not be registered or required to be registered in the United States, complete Section 7.A. of Schedule D.

You do not need to complete Section 7.A. of Schedule D for any related person if: (1) you have no business dealings with the related person in connection with advisory services you provide to your clients; (2) you do not conduct shared operations with the related person; (3) you do not refer clients or business to the related person, and the related person does not refer prospective clients or business to you; (4) you do not share supervised persons or premises with the related person; and (5) you have no reason to believe that your relationship with the related person otherwise creates a conflict of interest with your clients.

You must complete Section 7.A. of Schedule D for each related person acting as qualified custodian in connection with advisory services you provide to your clients (other than any mutual fund transfer agent pursuant to rule 206(4)-2(b)(1)), regardless of whether you have determined the related person to be operationally independent under rule 206(4)-2 of the Advisers Act.

SECTION 7.A. Financial Industry Affiliations

No Information Filed

Item 7 *Private Fund* Reporting

	Yes	No
B. Are you an adviser to any *private fund*?	○	●

If "yes," then for each private fund that you advise, you must complete a Section 7.B.(1) of Schedule D, except in certain circumstances described in the next sentence and in Instruction 6 of the Instructions to Part 1A. If you are registered or applying for registration with the SEC or reporting as an SEC exempt reporting adviser, and another SEC-registered adviser or SEC exempt reporting adviser reports this information with respect to any such private fund in Section 7.B.(1) of Schedule D of its Form ADV (e.g., if you are a subadviser), do not complete Section 7.B.(1) of Schedule D with respect to that private fund. You must, instead, complete Section 7.B.(2) of Schedule D.

In either case, if you seek to preserve the anonymity of a private fund client by maintaining its identity in your books and records in numerical or alphabetical code, or similar designation, pursuant to rule 204-2(d), you may identify the private fund in Section 7.B.(1) or 7.B.(2) of Schedule D using the same code or designation in place of the fund's name.

SECTION 7.B.(1) *Private Fund* Reporting

No Information Filed

SECTION 7.B.(2) *Private Fund* Reporting

No Information Filed

Item 8 Participation or Interest in *Client* Transactions

In this Item, we request information about your participation and interest in your *clients*' transactions. This information identifies additional areas in which conflicts of interest may occur between you and your *clients*. Newly-formed advisers should base responses to these questions on the types of participation and interest that you expect to engage in during the next year.

Like Item 7, Item 8 requires you to provide information about you and your *related persons*, including foreign affiliates.

Proprietary Interest in *Client* Transactions

	Yes	No
A. Do you or any *related person*:		
(1) buy securities for yourself from advisory *clients*, or sell securities you own to advisory *clients* (principal transactions)?	○	●
(2) buy or sell for yourself securities (other than shares of mutual funds) that you also recommend to advisory *clients*?	●	○
(3) recommend securities (or other investment products) to advisory *clients* in which you or any *related person* has some other proprietary (ownership) interest (other than those mentioned in Items 8.A.(1) or (2))?	○	●

Sales Interest in *Client* Transactions

	Yes	No
B. Do you or any *related person*:		
(1) as a broker-dealer or registered representative of a broker-dealer, execute securities trades for brokerage customers in which advisory *client* securities are sold to or bought from the brokerage customer (agency cross transactions)?	○	●

(2) recommend to advisory *clients*, or act as a purchaser representative for advisory *clients* with respect to, the purchase of securities for which you or any *related person* serves as underwriter or general or managing partner? ○ ●

(3) recommend purchase or sale of securities to advisory *clients* for which you or any *related person* has any other sales interest (other than the receipt of sales commissions as a broker or registered representative of a broker-dealer)? ○ ●

Investment or Brokerage Discretion

C. Do you or any *related person* have *discretionary authority* to determine the: **Yes No**

(1) securities to be bought or sold for a *client's* account? ● ○

(2) amount of securities to be bought or sold for a *client's* account? ● ○

(3) broker or dealer to be used for a purchase or sale of securities for a *client's* account? ○ ●

(4) commission rates to be paid to a broker or dealer for a *client's* securities transactions? ○ ●

D. If you answer "yes" to C.(3) above, are any of the brokers or dealers *related persons*? ○ ○

E. Do you or any *related person* recommend brokers or dealers to *clients*? ○ ●

F. If you answer "yes" to E. above, are any of the brokers or dealers *related persons*? ○ ○

G. (1) Do you or any *related person* receive research or other products or services other than execution from a broker-dealer or a third party ("soft dollar benefits") in connection with *client* securities transactions? ○ ●

(2) If "yes" to G.(1) above, are all the "soft dollar benefits" you or any *related persons* receive eligible "research or brokerage services" under section 28(e) of the Securities Exchange Act of 1934? ○ ○

H. (1) Do you or any *related person*, directly or indirectly, compensate any *person* that is not an *employee* for *client* referrals? ○ ●

(2) Do you or any *related person*, directly or indirectly, provide any *employee* compensation that is specifically related to obtaining *clients* for the firm (cash or non-cash compensation in addition to the *employee's* regular salary)? ○ ●

I. Do you or any *related person*, including any *employee*, directly or indirectly, receive compensation from any *person* (other than you or any *related person*) for *client* referrals? ○ ●

In your response to Item 8.I., do not include the regular salary you pay to an employee.

In responding to Items 8.H. and 8.I., consider all cash and non-cash compensation that you or a related person gave to (in answering Item 8.H.) or received from (in answering Item 8.I.) any person in exchange for client referrals, including any bonus that is based, at least in part, on the number or amount of client referrals.

Item 9 Custody

In this Item, we ask you whether you or a *related person* has *custody* of *client* (other than *clients* that are investment companies registered under the Investment Company Act of 1940) assets and about your custodial practices.

A. (1) Do you have *custody* of any advisory *clients'*: **Yes No**

(a) cash or bank accounts? ○ ●

(b) securities? ○ ●

If you are registering or registered with the SEC, answer "No" to Item 9.A.(1)(a) and (b) if you have custody solely because (i) you deduct your advisory fees directly from your clients' accounts, or (ii) a related person has custody of client assets in connection with advisory services you provide to clients, but you have overcome the presumption that you are not operationally independent (pursuant to Advisers Act rule 206(4)-2(d)(5)) from the related person.

(2) If you checked "yes" to Item 9.A.(1)(a) or (b), what is the approximate amount of *client* funds and securities and total number of *clients* for which you have *custody*:

U.S. Dollar Amount	Total Number of *Clients*
(a) $	(b)

If you are registering or registered with the SEC and you have custody solely because you deduct your advisory fees directly from your clients' accounts, do not include the amount of those assets and the number of those clients in your response to Item 9.A.(2). If your related person has custody of client assets in connection with advisory services you provide to clients, do not include the amount of those assets and number of those clients in your response to 9.A.(2). Instead, include that information in your response to Item 9.B.(2).

B. (1) In connection with advisory services you provide to *clients*, do any of your *related persons* have *custody* of any of your advisory *clients'*: **Yes No**

(a) cash or bank accounts? ○ ●

(b) securities? ○ ●

You are required to answer this item regardless of how you answered Item 9.A.(1)(a) or (b).

(2) If you checked "yes" to Item 9.B.(1)(a) or (b), what is the approximate amount of *client* funds and securities and total number of *clients* for which your *related persons* have *custody*:

U.S. Dollar Amount	Total Number of *Clients*

(a) $ (b)

C. If you or your *related persons* have *custody* of *client* funds or securities in connection with advisory services you provide to *clients*, check all the following that apply:

(1) A qualified custodian(s) sends account statements at least quarterly to the investors in the pooled investment vehicle(s) you manage. ☐

(2) An *independent public accountant* audits annually the pooled investment vehicle(s) that you manage and the audited financial statements are distributed to the investors in the pools. ☐

(3) An *independent public accountant* conducts an annual surprise examination of *client* funds and securities. ☐

(4) An *independent public accountant* prepares an internal control report with respect to custodial services when you or your *related persons* are qualified custodians for *client* funds and securities. ☐

If you checked Item 9.C.(2), C.(3) or C.(4), list in Section 9.C. of Schedule D the accountants that are engaged to perform the audit or examination or prepare an internal control report. (If you checked Item 9.C.(2), you do not have to list auditor information in Section 9.C. of Schedule D if you already provided this information with respect to the private funds you advise in Section 7.B.(1) of Schedule D).

	Yes	No
D. Do you or your *related person(s)* act as qualified custodians for your *clients* in connection with advisory services you provide to *clients*?		
(1) you act as a qualified custodian	○	◉
(2) your *related person(s)* act as qualified custodian(s)	○	◉

If you checked "yes" to Item 9.D.(2), all related persons that act as qualified custodians (other than any mutual fund transfer agent pursuant to rule 206(4)-2(b)(1)) must be identified in Section 7.A. of Schedule D, regardless of whether you have determined the related person to be operationally independent under rule 206(4)-2 of the Advisers Act.

E. If you are filing your *annual updating amendment* and you were subject to a surprise examination by an *independent public accountant* during your last fiscal year, provide the date (MM/YYYY) the examination commenced:

F. If you or your *related persons* have *custody* of *client* funds or securities, how many *persons*, including, but not limited to, you and your *related persons,* act as qualified custodians for your *clients* in connection with advisory services you provide to *clients?*

SECTION 9.C. ***Independent Public Accountant***

No Information Filed

Item 10 Control Persons

In this Item, we ask you to identify every *person* that, directly or indirectly, *controls* you. If you are filing an *umbrella registration*, the information in Item 10 should be provided for the *filing adviser* only.

If you are submitting an initial application or report, you must complete Schedule A and Schedule B. Schedule A asks for information about your direct owners and executive officers. Schedule B asks for information about your indirect owners. If this is an amendment and you are updating information you reported on either Schedule A or Schedule B (or both) that you filed with your initial application or report, you must complete Schedule C.

	Yes	No
A. Does any *person* not named in Item 1.A. or Schedules A, B, or C, directly or indirectly, *control* your management or policies?	◉	○

If yes, complete Section 10.A. of Schedule D.

B. If any *person* named in Schedules A, B, or C or in Section 10.A. of Schedule D is a public reporting company under Sections 12 or 15(d) of the Securities Exchange Act of 1934, please complete Section 10.B. of Schedule D.

SECTION 10.A. ***Control Persons***

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)

CHARLTON, RICHARD, MINARD

CRD Number (if any)

1170953

Effective Date	Termination Date
12/31/2007	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

CHAIRMAN EMERITUS

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)

GILL, SEAN, W. B.

CRD Number (if any)

5656793

Effective Date	Termination Date
03/31/2009	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)

LOUGHLIN, CHRISTINE, ALLISON

CRD Number (if any)

2635862

Effective Date	Termination Date
03/31/2013	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)

MANNING, MICHAEL, PATRICK

CRD Number (if any)

2138898

Effective Date	Termination Date
01/01/2008	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

MANAGING PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE.

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)

Moseley, Douglas, Wheeler

CRD Number (if any)

6924171

Effective Date	Termination Date
03/31/2018	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Firm or Organization Name

NEW ENGLAND PENSION CONSULTANTS TRUST

CRD Number (if any)

Effective Date	Termination Date
01/01/2008	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:

IT IS THE TRUST FOR NEPC, LLC.

You must complete a separate Schedule D Section 10.A. for each *control person* not named in Item 1.A. or Schedules A, B, or C that directly or indirectly *controls* your management or policies.

Individual Name (if applicable) (Last, First, Middle)
SHETH, NEIL, NIRANJAN

CRD Number (if any)
2378922

Effective Date	Termination Date
03/31/2015	

Business Address:

Number and Street 1		Number and Street 2	
255 STATE STREET			
City	State	Country	ZIP+4/Postal Code
BOSTON	Massachusetts	United States	02109

If this address is a private residence, check this box: ☐

Briefly describe the nature of the *control*:
PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE

SECTION 10.B. *Control Person* Public Reporting Companies

No Information Filed

Item 11 Disclosure Information

In this Item, we ask for information about your disciplinary history and the disciplinary history of all your *advisory affiliates*. We use this information to determine whether to grant your application for registration, to decide whether to revoke your registration or to place limitations on your activities as an investment adviser, and to identify potential problem areas to focus on during our on-site examinations. One event may result in "yes" answers to more than one of the questions below. In accordance with General Instruction 5 to Form ADV, "you" and "your" include the *filing adviser* and all *relying advisers* under an *umbrella registration*.

Your *advisory affiliates* are: (1) all of your current *employees* (other than *employees* performing only clerical, administrative, support or similar functions); (2) all of your officers, partners, or directors (or any *person* performing similar functions); and (3) all *persons* directly or indirectly *controlling* you or *controlled* by you. If you are a "separately identifiable department or division" (SID) of a bank, see the Glossary of Terms to determine who your *advisory affiliates* are.

If you are registered or registering with the SEC or if you are an exempt reporting adviser, you may limit your disclosure of any event listed in Item 11 to ten years following the date of the event. If you are registered or registering with a state, you must respond to the questions as posed; you may, therefore, limit your disclosure to ten years following the date of an event only in responding to Items 11.A.(1), 11.A.(2), 11.B.(1), 11.B.(2), 11.D.(4), and 11.H.(1)(a). For purposes of calculating this ten-year period, the date of an event is the date the final order, judgment, or decree was entered, or the date any rights of appeal from preliminary orders, judgments, or decrees lapsed.

You must complete the appropriate Disclosure Reporting Page ("DRP") for "yes" answers to the questions in this Item 11.

	Yes	No
Do any of the events below involve you or any of your *supervised persons*?	○	◉

For "yes" answers to the following questions, complete a Criminal Action DRP:

	Yes	No
A. In the past ten years, have you or any *advisory affiliate*:		
(1) been convicted of or pled guilty or nolo contendere ("no contest") in a domestic, foreign, or military court to any *felony*?	○	◉
(2) been *charged* with any *felony*?	○	◉

If you are registered or registering with the SEC, or if you are reporting as an exempt reporting adviser, you may limit your response to Item 11.A.(2) to charges that are currently pending.

	Yes	No
B. In the past ten years, have you or any *advisory affiliate*:		
(1) been convicted of or pled guilty or nolo contendere ("no contest") in a domestic, foreign, or military court to a *misdemeanor* involving: investments or an *investment-related* business, or any fraud, false statements, or omissions, wrongful taking of property, bribery, perjury, forgery, counterfeiting, extortion, or a conspiracy to commit any of these offenses?	○	◉
(2) been *charged* with a *misdemeanor* listed in Item 11.B.(1)?	○	◉

If you are registered or registering with the SEC, or if you are reporting as an exempt reporting adviser, you may limit your response to Item 11.B.(2) to charges that are currently pending.

For "yes" answers to the following questions, complete a Regulatory Action DRP:

	Yes	No
C. Has the SEC or the Commodity Futures Trading Commission (CFTC) ever:		
(1) *found* you or any *advisory affiliate* to have made a false statement or omission?	○	◉

(2) *found* you or any *advisory affiliate* to have been *involved* in a violation of SEC or CFTC regulations or statutes?

(3) *found* you or any *advisory affiliate* to have been a cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted?

(4) entered an *order* against you or any *advisory affiliate* in connection with *investment-related* activity?

(5) imposed a civil money penalty on you or any *advisory affiliate*, or *ordered* you or any *advisory affiliate* to cease and desist from any activity?

D. Has any other federal regulatory agency, any state regulatory agency, or any *foreign financial regulatory authority*:

(1) ever *found* you or any *advisory affiliate* to have made a false statement or omission, or been dishonest, unfair, or unethical?

(2) ever *found* you or any *advisory affiliate* to have been *involved* in a violation of *investment-related* regulations or statutes?

(3) ever *found* you or any *advisory affiliate* to have been a cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted?

(4) in the past ten years, entered an *order* against you or any *advisory affiliate* in connection with an *investment-related* activity?

(5) ever denied, suspended, or revoked your or any *advisory affiliate's* registration or license, or otherwise prevented you or any *advisory affiliate*, by *order*, from associating with an *investment-related* business or restricted your or any *advisory affiliate's* activity?

E. Has any *self-regulatory organization* or commodities exchange ever:

(1) *found* you or any *advisory affiliate* to have made a false statement or omission?

(2) *found* you or any *advisory affiliate* to have been *involved* in a violation of its rules (other than a violation designated as a "*minor rule violation*" under a plan approved by the SEC)?

(3) *found* you or any *advisory affiliate* to have been the cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted?

(4) disciplined you or any *advisory affiliate* by expelling or suspending you or the *advisory affiliate* from membership, barring or suspending you or the *advisory affiliate* from association with other members, or otherwise restricting your or the *advisory affiliate's* activities?

F. Has an authorization to act as an attorney, accountant, or federal contractor granted to you or any *advisory affiliate* ever been revoked or suspended?

G. Are you or any *advisory affiliate* now the subject of any regulatory *proceeding* that could result in a "yes" answer to any part of Item 11.C., 11.D., or 11.E.?

For "yes" answers to the following questions, complete a Civil Judicial Action DRP:

H. (1) Has any domestic or foreign court: **Yes No**

(a) in the past ten years, *enjoined* you or any *advisory affiliate* in connection with any *investment-related* activity?

(b) ever *found* that you or any *advisory affiliate* were *involved* in a violation of *investment-related* statutes or regulations?

(c) ever dismissed, pursuant to a settlement agreement, an *investment-related* civil action brought against you or any *advisory affiliate* by a state or *foreign financial regulatory authority*?

(2) Are you or any *advisory affiliate* now the subject of any civil *proceeding* that could result in a "yes" answer to any part of Item 11.H.(1)?

Item 12 Small Businesses

The SEC is required by the Regulatory Flexibility Act to consider the effect of its regulations on small entities. In order to do this, we need to determine whether you meet the definition of "small business" or "small organization" under rule 0-7.

Answer this Item 12 only if you are registered or registering with the SEC **and** you indicated in response to Item 5.F.(2)(c) that you have regulatory assets under management of less than $25 million. You are not required to answer this Item 12 if you are filing for initial registration as a state adviser, amending a current state registration, or switching from SEC to state registration.

For purposes of this Item 12 only:

- Total Assets refers to the total assets of a firm, rather than the assets managed on behalf of *clients*. In determining your or another *person's* total assets, you may use the total assets shown on a current balance sheet (but use total assets reported on a consolidated balance sheet with subsidiaries included, if that amount is larger).
- *Control* means the power to direct or cause the direction of the management or policies of a *person*, whether through ownership of securities, by contract, or otherwise. Any *person* that directly or indirectly has the right to vote 25 percent or more of the voting securities, or is entitled to 25 percent or more of the profits, of another *person* is presumed to *control* the other *person*.

Yes No

A. Did you have total assets of $5 million or more on the last day of your most recent fiscal year?

If "yes," you do not need to answer Items 12.B. and 12.C.

B. Do you:

(1) *control* another investment adviser that had regulatory assets under management (calculated in response to Item 5.F.(2)(c) of Form ADV) of $25 million or more on the last day of its most recent fiscal year?

(2) *control* another *person* (other than a natural person) that had total assets of $5 million or more on the last day of its most recent fiscal year?

C. Are you:

(1) *controlled* by or under common *control* with another investment adviser that had regulatory assets under management (calculated in response to Item 5.F.(2)(c) of Form ADV) of $25 million or more on the last day of its most recent fiscal year?

(2) *controlled* by or under common *control* with another *person* (other than a natural person) that had total assets of $5 million or more on the last day of its most recent fiscal year?

Schedule A

Direct Owners and Executive Officers

1. Complete Schedule A only if you are submitting an initial application or report. Schedule A asks for information about your direct owners and executive officers. Use Schedule C to amend this information.
2. Direct Owners and Executive Officers. List below the names of:
   (a) each Chief Executive Officer, Chief Financial Officer, Chief Operations Officer, Chief Legal Officer, Chief Compliance Officer(Chief Compliance Officer is required if you are registered or applying for registration and cannot be more than one individual), director, and any other individuals with similar status or functions;
   (b) if you are organized as a corporation, each shareholder that is a direct owner of 5% or more of a class of your voting securities, unless you are a public reporting company (a company subject to Section 12 or 15(d) of the Exchange Act);
   Direct owners include any *person* that owns, beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 5% or more of a class of your voting securities. For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.
   (c) if you are organized as a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 5% or more of your capital;
   (d) in the case of a trust that directly owns 5% or more of a class of your voting securities, or that has the right to receive upon dissolution, or has contributed, 5% or more of your capital, the trust and each trustee; and
   (e) if you are organized as a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 5% or more of your capital, and (ii) if managed by elected managers, all elected managers.
3. Do you have any indirect owners to be reported on Schedule B? (•) Yes ( ) No
4. In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner or executive officer is an individual.
5. Complete the Title or Status column by entering board/management titles; status as partner, trustee, sole proprietor, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).
6. Ownership codes are: NA - less than 5% B - 10% but less than 25% D - 50% but less than 75%
   A - 5% but less than 10% C - 25% but less than 50% E - 75% or more
7. (a) In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.
   (b) In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15(d) of the Exchange Act.
   (c) Complete each column.

FULL LEGAL NAME (Individuals: Last Name, First Name, Middle Name)	DE/FE/I	Title or Status	Date Title or Status Acquired MM/YYYY	Ownership Code	*Control Person*	PR	*CRD* No. If None: S.S. No. and Date of Birth, IRS Tax No. or Employer ID No.
CHARLTON, RICHARD, MINARD	I	CHAIRMAN EMERITUS, TRUSTEE OF NEW ENGLAND PENSION CONSULTANTS TRUST	01/2016	A	Y	N	1170953
MANNING, MICHAEL, PATRICK	I	MANAGING PARTNER	12/2007	A	Y	N	2138898
BOGLE, WILLIAM, YATES	I	CHIEF COMPLIANCE OFFICER	12/2007	NA	N	N	2542058
NEW ENGLAND PENSION CONSULTANTS TRUST	DE	MEMBER	12/2007	A	Y	N	04-3503479
GILL, SEAN, W. B.	I	PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE	03/2009	NA	Y	N	5656793
LOUGHLIN, CHRISTINE, ALLISON	I	PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE	03/2013	NA	Y	N	2635862
SHETH, NEIL, NIRANJAN	I	PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE	03/2015	NA	Y	N	2378922
LOMBARDI, MATTHEW, JON	I	CHIEF FINANCIAL OFFICER	01/2016	NA	N	N	2009725
Moseley, Douglas, Wheeler	I	PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE	03/2018	NA	Y	N	6924171

Schedule B

Indirect Owners

1. Complete Schedule B only if you are submitting an initial application or report. Schedule B asks for information about your indirect owners; you must first complete Schedule A, which asks for information about your direct owners. Use Schedule C to amend this information.
2. Indirect Owners. With respect to each owner listed on Schedule A (except individual owners), list below:
   (a) in the case of an owner that is a corporation, each of its shareholders that beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 25% or more of a class of a voting security of that corporation;

   For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.
   (b) in the case of an owner that is a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 25% or more of the partnership's capital;
   (c) in the case of an owner that is a trust, the trust and each trustee; and
   (d) in the case of an owner that is a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 25% or more of the

LLC's capital, and (ii) if managed by elected managers, all elected managers.

3. Continue up the chain of ownership listing all 25% owners at each level. Once a public reporting company (a company subject to Sections 12 or 15(d) of the Exchange Act) is reached, no further ownership information need be given.
4. In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner is an individual.
5. Complete the Status column by entering the owner's status as partner, trustee, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).
6. Ownership codes are: C - 25% but less than 50% E - 75% or more
   D - 50% but less than 75% F - Other (general partner, trustee, or elected manager)
7. (a) In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.
   (b) In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15(d) of the Exchange Act.
   (c) Complete each column.

FULL LEGAL NAME (Individuals: Last Name, First Name, Middle Name)	DE/FE/I	Entity in Which Interest is Owned	Status	Date Status Acquired MM/YYYY	Ownership Code	*Control Person*	PR	*CRD* No. If None: S.S. No. and Date of Birth, IRS Tax No. or Employer ID No.
CHARLTON, RICHARD, MINARD	I	NEW ENGLAND PENSION CONSULTANTS TRUST	TRUSTEE	12/2007	C	Y	N	1170953

Schedule D - Miscellaneous

You may use the space below to explain a response to an Item or to provide any other information.

Schedule R

No Information Filed

DRP Pages

CRIMINAL DISCLOSURE REPORTING PAGE (ADV)

No Information Filed

REGULATORY ACTION DISCLOSURE REPORTING PAGE (ADV)

No Information Filed

CIVIL JUDICIAL ACTION DISCLOSURE REPORTING PAGE (ADV)

No Information Filed

Part 2

Exemption from brochure delivery requirements for SEC-registered advisers

SEC rules exempt SEC-registered advisers from delivering a firm brochure to some kinds of clients. If these exemptions excuse you from delivering a brochure to *all* of your advisory clients, you do not have to prepare a brochure.

	Yes	No
Are you exempt from delivering a brochure to all of your clients under these rules?	○	●

If no, complete the ADV Part 2 filing below.

Amend, retire or file new brochures:

Brochure ID	Brochure Name	Brochure Type(s)
48672	FORM ADV PART 2A	High net worth individuals, Pension plans/profit sharing plans, Pension consulting, Foundations/charities, Government/municipal, Other institutional, Selection of Other Advisers/Solicitors

Execution Pages

DOMESTIC INVESTMENT ADVISER EXECUTION PAGE

You must complete the following Execution Page to Form ADV. This execution page must be signed and attached to your initial submission of Form ADV to the SEC and all amendments.

Appointment of Agent for Service of Process

By signing this Form ADV Execution Page, you, the undersigned adviser, irrevocably appoint the Secretary of State or other legally designated officer, of the state in which you maintain your *principal office and place of business* and any other state in which you are submitting a *notice filing*, as your agents to receive service, and agree that such *persons* may accept service on your behalf, of any notice, subpoena, summons, *order* instituting *proceedings*, demand for arbitration, or other process or papers, and you further agree that such service may be made by registered or certified mail, in any federal or state action, administrative *proceeding* or arbitration brought against you in any place subject to the jurisdiction of the United States, if the action, *proceeding*, or arbitration (a) arises out of any activity in connection with your investment advisory business that is subject to the jurisdiction of the United States, and (b) is *founded*, directly or indirectly, upon the provisions of: (i) the Securities Act of 1933, the Securities Exchange Act of 1934, the Trust Indenture Act of 1939, the Investment Company Act of 1940, or the Investment Advisers Act of 1940, or any rule or regulation under any of these acts, or (ii) the laws of the state in which you maintain your *principal office and place of business* or of any state in which you are submitting a *notice filing*.

Signature

I, the undersigned, sign this Form ADV on behalf of, and with the authority of, the investment adviser. The investment adviser and I both certify, under penalty of perjury under the laws of the United States of America, that the information and statements made in this ADV, including exhibits and any other information submitted, are true and correct, and that I am signing this Form ADV Execution Page as a free and voluntary act.

I certify that the adviser's books and records will be preserved and available for inspection as required by law. Finally, I authorize any *person* having *custody* or possession of these books and records to make them available to federal and state regulatory representatives.

Signature: WILLIAM Y. BOGLE	Date: MM/DD/YYYY 03/31/2020
Printed Name: WILLIAM Y. BOGLE	Title: CHIEF COMPLIANCE OFFICER
Adviser *CRD* Number: 110562	

***NON-RESIDENT* INVESTMENT ADVISER EXECUTION PAGE**

You must complete the following Execution Page to Form ADV. This execution page must be signed and attached to your initial submission of Form ADV to the SEC and all amendments.

1. Appointment of Agent for Service of Process

By signing this Form ADV Execution Page, you, the undersigned adviser, irrevocably appoint each of the Secretary of the SEC, and the Secretary of State or other legally designated officer, of any other state in which you are submitting a *notice filing*, as your agents to receive service, and agree that such persons may accept service on your behalf, of any notice, subpoena, summons, *order* instituting *proceedings*, demand for arbitration, or other process or papers, and you further agree that such service may be made by registered or certified mail, in any federal or state action, administrative *proceeding* or arbitration brought against you in any place subject to the jurisdiction of the United States, if the action, *proceeding* or arbitration (a) arises out of any activity in connection with your investment advisory business that is subject to the jurisdiction of the United States, and (b) is *founded*, directly or indirectly, upon the provisions of: (i) the Securities Act of 1933, the Securities Exchange Act of 1934, the Trust Indenture Act of 1939, the Investment Company Act of 1940, or the Investment Advisers Act of 1940, or any rule or regulation under any of these acts, or (ii) the laws of any state in which you are submitting a *notice filing*.

2. Appointment and Consent: Effect on Partnerships

If you are organized as a partnership, this irrevocable power of attorney and consent to service of process will continue in effect if any partner withdraws from or is admitted to the partnership, provided that the admission or withdrawal does not create a new partnership. If the partnership dissolves, this irrevocable power of attorney and consent shall be in effect for any action brought against you or any of your former partners.

3. *Non-Resident* Investment Adviser Undertaking Regarding Books and Records

By signing this Form ADV, you also agree to provide, at your own expense, to the U.S. Securities and Exchange Commission at its principal office in Washington D.C., at any Regional or District Office of the Commission, or at any one of its offices in the United States, as specified by the Commission, correct, current, and complete copies of any or all records that you are required to maintain under Rule 204-2 under the Investment Advisers Act of 1940. This undertaking shall be binding upon you, your heirs, successors and assigns, and any *person* subject to your written irrevocable consents or powers of attorney or any of your general partners and *managing agents*.

Signature

I, the undersigned, sign this Form ADV on behalf of, and with the authority of, the *non-resident* investment adviser. The investment adviser and I both certify, under penalty of perjury under the laws of the United States of America, that the information and statements made in this ADV, including exhibits and any other information submitted, are true and correct, and that I am signing this Form ADV Execution Page as a free and voluntary act.

I certify that the adviser's books and records will be preserved and available for inspection as required by law. Finally, I authorize any *person* having *custody* or possession of these books and records to make them available to federal and state regulatory representatives.

Signature:	Date: MM/DD/YYYY
Printed Name:	Title:
Adviser *CRD* Number: 110562	

Item 1 – Cover Page

NEPC, LLC

255 State Street
Boston, MA 02109

617-374-1300

www.NEPC.com

Date of this Brochure: 3/31/2020

Contacts:
William Y. Bogle - Chief Compliance Officer
Steven F. Charlton, CFA - Director of Consulting Services

This Brochure provides information about the qualifications and business practices of NEPC, LLC (“NEPC”). If you have any questions about the contents of this Brochure, please contact us at 617-374-1300.

The information in this Brochure has not been approved or verified by the United States Securities and Exchange Commission (the “SEC”) or by any state securities authority.

NEPC is a registered investment adviser. Registration of an Investment Adviser does not imply any level of skill or training.

Additional information about NEPC also is available on the SEC’s website at www.adviserinfo.sec.gov .

Item 2 – Material Changes

There are no material changes to our most recent brochure that was dated March 31, 2019. We updated Item 4 - *Advisory Business* - to reflect our current assets under advisement and number of personnel, we updated Item 5 – *Fees and Compensation* - to provide additional details about the fees we charge, and we updated Item 13 – *Review of Accounts* - to reflect a name change of the vendor we utilize for client performance reports, from InvestorForce to Investment Metrics, LLC. We also made several other minor edits. We do not consider any of these updates to be a material change.

Item 3 - Table of Contents

Item 4 – Advisory Business

NEPC is an independent, full-service investment consulting firm. NEPC has been providing financial consulting services as its sole line of business since 1986, based on three main principles: maintain independence, provide proactive advice to help our clients meet or exceed their goals and objectives, and service our clients with seasoned professionals.

NEPC is owned and controlled by its active partners. NEPC's founder and Chairman Emeritus, Mr. Richard M. Charlton, retired from active involvement on January 1, 2016.

NEPC provides advice on both traditional and alternative assets. Services generally include:

- the development and/or refinement of investment policies, objectives and guidelines and their periodic review, thereafter;
- asset-based asset allocation studies;
- liability-based asset allocation studies every three to five years
- manager and custodian searches;
- quarterly investment performance reports and accompanying executive summaries;
- monthly flash reports; and
- our annual investment conference.

In general, NEPC does not provide investment management services in the context of managing a portfolio of stocks, bonds or other instruments; rather, NEPC provides customized investment advice, acting as a fiduciary under ERISA Section 3(21), which often includes recommendations of specific third-party investment managers. NEPC does not serve as an attorney, accountant, tax adviser or insurance agent.

In addition to traditional advisory consulting services, NEPC provides some clients with discretionary consulting services, which typically include the services listed above along with additional discretionary services described in Item 16 in this brochure.

NEPC provides its consulting services to 385 retainer clients with total assets of approximately $1.1 trillion[1] which consist of approximately $1,122 billion in advisory assets and $29 billion in discretionary assets. Our 76 senior consultants average 23 years of investment experience[2].

[1] As of 12/31/2019
[2] As of 12/31/2019

Item 5 – Fees and Compensation

NEPC offers fixed, hourly and asset-based fees. In addition, we offer performance-based fees to certain clients. When calculating either an asset-based fee or a performance-based fee, we rely on a valuation provided by an independent third party (typically the client's custodian bank) since NEPC does not determine asset values.

Fees are generally quoted on a full retainer basis, encompassing all the services provided by NEPC. On occasion, fees are quoted on a project basis for a defined time period or scope of work. Some clients choose to reimburse us for reasonable travel expenses, while others prefer that our fee includes travel. Certain clients may be subject to a minimum fee. In all cases, the fee is agreed upon prior to NEPC's retention and is specified in a written agreement with each client.

NEPC will generally bill its fees on a quarterly basis, to be paid in arrears. Accounts initiated or terminated during a calendar quarter will be charged a prorated fee. Upon termination of any account, any prepaid, unearned fees will be promptly refunded, and any earned, unpaid fees will be due and payable. All our fees are quoted, paid and received in hard dollars.

NEPC does not have a standard fee schedule, and all fees are subject to negotiation, however the table below provides some general guidelines and typical fee ranges.

Service	Description	Fee Ranges
Performance Measurement	Periodic reports on investment performance.	The fee varies depending on the number of investment managers and size of the investment program.
Advisory Services	Advice on asset allocation and manager selection, and ongoing monitoring of the portfolio.	Generally 5 to 20 basis points on the total asset value*. Fees may be higher or lower depending on amount of assets, the type of investments utilized and the level of service desired.
Discretionary Services	All the services listed above, plus implementation of our team's advice. Delegated Services is a variation of this level of service.	Generally 10 to 50 basis points on the total asset value*. Fees may be higher or lower depending on amount of assets, the type of investments utilized and the level of service desired.
Other Services	Customized services as mutually agreed upon	Negotiable

* May include amounts committed to private investments.

Fee Differentials: NEPC's annual fee for advisory or discretionary services could vary based upon various objective and subjective factors, including, but not limited to, the total amount of assets placed under management/advisement and the complexity of the engagement. NEPC may also propose to charge a flat fee based upon the same criteria. Similarly-situated clients could pay different fees. In addition, similar services may be available from other advisers for similar or lower fees.

Additional Fees: Investment managers, custodian banks and record-keepers charge management, custody and/or transaction fees. In addition to NEPC's investment advisory fee referenced above, clients will also incur these third-party fees in connection with their investment program.

Item 6 – Performance-Based Fees and Side-By-Side Management

As noted in Item 5, in addition to fixed, hourly and asset-based fees, we offer performance-based fees. These fees connect our compensation to the success of the plan or, in the case of Liability Driven Investment (“LDI”) -related performance fees, to our success in closing the gap in a client’s funded status. The fee is agreed upon prior to NEPC’s retention by each client and is specified in a written agreement with each client.

Performance-based fee arrangements may create an incentive for NEPC to recommend investments which may be riskier or more speculative than those which would be recommended under a different fee arrangement. NEPC has procedures designed and implemented to ensure that all clients are treated fairly, and to prevent this conflict from influencing the allocation of investment opportunities among clients.

Some of the third-party investment managers that NEPC recommends from time to time also charge a performance-based fee.

Item 7 – Types of Clients

NEPC provides investment advice to a variety of clients, including corporations, charitable organizations, healthcare organizations, public funds, Taft-Hartley Funds and high net worth individuals and families. These clients include several plan types including defined benefit, defined contribution, endowment, foundation, health and welfare, insurance, operating and taxable assets.

NEPC does not have a minimum account size for its clients.

Item 8 – Methods of Analysis, Investment Strategies and Risk of Loss

Our client portfolios are generally designed to achieve specified target rates of return at predetermined risk levels. Accordingly, these portfolios generally contain domestic equities, fixed income and cash equivalents, international equities and global fixed income, real estate, alternative assets and various hedging strategies.

In our role as a consultant, NEPC seldom becomes involved at the security level with a client. Rather, we focus on the asset class, the interaction among asset classes and the traditional and alternative asset investment managers who have demonstrated proficiency managing the various asset classes.

For funds-of-funds, analysis is conducted at the fund-of-funds level and will not generally include a direct review of underlying funds.

NEPC seeks to identify top-tier investment managers through the work of our experienced research staff. It is a thorough and continuous process, with the following steps[3]:

- NEPC's search process typically begins with our research team screening both our proprietary internal databases and external databases for candidate managers that meet the minimum criteria.
- Next, we conduct a performance review by utilizing internally-developed and/or third-party systems. This enables the examination of each candidate manager's excess return stream, or "alpha," over time.
- Once we have identified a set of managers for further analysis, asset class specialists meet with each manager to assess the investment team, understand the firm's business focus, review investment philosophy, determine consistency of investment style, verify return attribution and liquidity, and dissect the investment process (see discussion of the "Five P's" below). If the manager meets the established criteria, we document the manager's investment thesis.
- The specialist then brings the manager to NEPC's centralized Due Diligence Committee for vetting. The Due Diligence Committee is made up of senior members of the firm, including Partners and Senior Consultants. Any outstanding issues or questions from the vetting session are pursued by the analyst and readdressed to the Committee. Successfully vetted investment managers are considered research-qualified and are added to a Focused Placement List ("FPL") at the research analyst's discretion.

The criteria we use to evaluate managers are based on what we sometimes refer to as the Five P's. They are:

- **People:** We want to be comfortable not only with the key individuals responsible for an investment product, but also the organization that holds them together. Our belief is that organizations that focus on stability and high levels of career satisfaction have a higher likelihood of outperformance. Ownership, incentives and overall professional stability, among other factors, are examined in considerable detail.

[3] Steps may vary depending on the asset class under consideration.

- **Philosophy:** We believe it is important to understand the basic thesis that drives a manager's investment process. For example, we want to know if the manager fundamentally believes in growth, value, bottom-up or top-down investing, and whether or not that philosophy is consistent with the actual implementation.
- **Process:** We conduct considerable qualitative and quantitative analysis on the process followed by each firm we recommend to our clients. We are thoroughly familiar with the research, buy decision, portfolio construction and sell decision, and we compare managers on a consistent basis.
- **Performance:** The performance phase of our analysis takes place after the firm's people, philosophy and process pass muster. Strong performance is less relevant without a stable organization, an investment philosophy that makes sense, and a well-documented, repeatable investment process. When analyzing performance, we look at both up-market and down-market results.
- **Price:** Finally, we carefully analyze manager fee structures. We track all components of the fees our clients can be expected to pay, including management fees, entry/exit fees, performance fees and minimum fees. We also determine whether or not most favored nation fees are offered, and the degree to which managers are willing to negotiate fees.

The culmination of our evaluation process is the investment thesis that we develop. We believe that, similar to stocks or bonds evaluated by active investment managers, we should have levels of conviction about managers and their ability to outperform. The evaluation process outlined above coupled with the interviews and due diligence we conduct with and on investment managers allows us to form opinions about the managers with whom our clients work.

Managers that prove favorable based on the Five P's may subsequently be recommended for a client portfolio, but only if they are a good "fit" within the investment program. Factors include return expectations, risk tolerance, liquidity needs, and legal or regulatory constraints. The fit is also determined by the correlation between each candidate's performance and the risk and return characteristics of the other managers in the client's investment program.

Please Note: Investment Risk. Investing in securities involves a risk of loss that clients should be prepared to bear. Clients should also understand that alternative assets (including hedge funds, real estate and private equity) are often illiquid or subject to lock-ups, and are not subject to the same regulatory requirements as registered investment vehicles. We work with clients to mitigate the risk of loss through diversification, asset allocation decisions and the use of hedging strategies. Clients should not assume that future performance of any specific investment or investment strategy (including the investments and/or investment strategies recommended or undertaken by NEPC) will be profitable or meet any specific target or level of performance.

Item 9 – Disciplinary Information

Registered investment advisers are required to disclose all material facts regarding any legal or disciplinary events that would be material to your evaluation of NEPC or the integrity of NEPC's management. NEPC has no information applicable to this Item.

Item 10 – Other Financial Industry Activities and Affiliations

NEPC is an independent firm and has no information applicable to this Item.

From time to time, NEPC may work with a client, or a client who has an affiliate, that could be considered a money manager. NEPC generally provides the same services to these clients that we do to most clients; that is, we advise the employee retirement plans of these companies, or provide advice on the selection of third-party investment managers. We do not consider these relationships to present a material conflict of interest; however, all such relationships are disclosed to any client that is considering an investment with a firm that falls into this category.

Item 11 – Code of Ethics

NEPC maintains a Code of Ethics that provides all employees with guidance on proper conduct in fulfilling its obligation as a fiduciary to its clients and in complying with SEC rules. The Code of Ethics stresses the importance of avoiding activities, interests and relationships that might interfere with, or give the appearance of interfering with, making decisions in the best interests of NEPC clients. Employees are reminded that they must at all times (1) place the interests of clients first, (2) conduct all personal securities transactions in full compliance with the Code of Ethics, and (3) avoid taking inappropriate advantage of their position. Among other things, the Code of Ethics requires employees to:

- disclose material facts and actual or potential conflicts that may affect the services provided to clients;
- act in the best interests of clients and place the interests of clients above the interests of NEPC personnel whenever a conflict may be present;
- not engage in any activity that conflicts with the interests of clients;
- avoid taking inappropriate advantage of their position (e.g., by using knowledge of a client's portfolio transactions to profit by the market effect of those transactions); and
- conduct all personal trading in full compliance with the Code of Ethics, including all pre-trade clearance and reporting requirements.

The Code of Ethics also requires employees to make certain disclosures regarding their trading and personal portfolios, restricts investments in private placements and new issues, and restricts the acceptance of gifts.

NEPC's Code of Ethics is administered and enforced by its Chief Compliance Officer. All employees must acknowledge the terms of the Code of Ethics annually, or as material amendments occur. A copy of the Code of Ethics will be provided to any client or potential client upon request.

NEPC's officers and employees may purchase, sell or hold investment accounts or interests in privately offered investment funds that are managed by third-party investment advisory firms recommended from time to time by NEPC to its clients. This could present a potential conflict of interest to NEPC. Accordingly, NEPC has implemented policies pursuant to which such accounts and investments are reviewed prior to opening and periodically thereafter. In addition, securities trading by employees (including any investments in privately offered funds) is subject to the requirements of NEPC's Code of Ethics.

Item 12 – Brokerage Practices

NEPC has no information applicable to this Item. We do not engage in direct trading of securities, or select brokers to execute trades.

Item 13 – Review of Accounts

NEPC reviews client accounts on a periodic basis and provides an in-depth performance measurement report to most of our clients on a quarterly basis. Personal presentations are scheduled at the request of each client, and normally occur at least quarterly. All client relationships are covered on a team basis, ensuring both continuity and consistency.

Account reviews evaluate traditional and alternative manager performance, the impact of policy and fund structure on overall plan performance, and the overall market environment. The performance appraisal process focuses initially on plan structure and diversification, and subsequently on the performance of managers within each asset class and their interaction with one-another. In conducting these reviews, market and/or peer group comparisons are used, when available, to understand both return and risk measures.

In servicing our clients, we generally use our Investment Performance Analysis ("IPA") report, designed to our specifications but programmed and maintained by Investment Metrics, LLC. These reports feature extensive risk diagnostics, including various measures of volatility, market sub effects, risk-adjusted returns, a wide variety of portfolio characteristics and their respective influences on performance.

As stated above, reviews normally occur on a periodic basis. In addition to regular meetings with clients, NEPC will often schedule supplementary meetings upon the occurrence of extraordinary events within the client's portfolio, such as the loss of key personnel by an investment manager.

Item 14 – Client Referrals and Other Compensation

NEPC has no information applicable to this Item. NEPC does not use a third party to solicit business and does not accept or pay referral fees or commissions.

Item 15 – Custody

NEPC has no information applicable to this Item. Neither NEPC nor any related person holds any funds or securities for clients. For our discretionary clients (see Item 16), we often have authority to transfer monies between investment manager accounts, but we are not permitted to withdraw money from the client's portfolio and we are not deemed to have custody of client assets.

Item 16 – Investment Discretion

In general, NEPC acts on an advisory basis and does not manage client assets or engage in trading activities. For certain clients, however, NEPC acts as a discretionary advisor. These "discretionary services" could include responsibility for such functions as asset allocation, rebalancing, and manager selection or termination. As a *manger of managers*, NEPC, on behalf of the client, allocates assets among unaffiliated separate account managers and private investment funds that maintain day-to-day discretionary trading authority for the designated assets, consistent with the client's guidelines.

For a discretionary client, NEPC acts as a fiduciary under ERISA Section 3(38). In all such instances we rely on an investment policy statement approved by the client and follow NEPC's standard procedures to formulate advice. Before our advice is implemented, it is reviewed by a centralized internal decision-making group to maintain appropriate checks and balances.

A plan sponsor or other type of investor may elect to give NEPC discretion for a number of reasons. This type of arrangement can make sense for clients who don't have expertise in-house, want to outsource day-to-day plan transactions, or simply are short-staffed. NEPC's level of discretion varies by client, and ranges from full discretion over all asset classes and managers to discretion over just one particular asset class, such as private equity. The client retains responsibility for approving an investment policy document, and NEPC generally assumes responsibility for all other investment decisions. Our services generally do not include legal advice or functions carried out by a third-party administrator such as anti-money laundering checks, or KYC and OFAC compliance. The client will execute a Certificate of Authority to grant NEPC the level of authority desired by the client.

As part of NEPC's discretionary advice service offering, NEPC may act as a sub-advisor, providing advice on the selection of investment managers. In this type of client relationship, the General Partner or Investment Manager of an investment fund may hire NEPC to evaluate and select managers that the Investment Manager would subsequently hire to manage some, or all, of the investment fund.

In the event that an advisory client of NEPC invests in a fund sub-advised by NEPC, the advisory client will receive a fee rebate to ensure that NEPC does not profit twice from the same investment.

Item 17 – Voting Client Securities

As a matter of firm policy and practice, NEPC does not have any authority to and does not vote proxies on behalf of advisory clients. Plan sponsor clients retain the responsibility for receiving and voting proxies for all securities maintained in client portfolios. NEPC may from time to time provide advice to clients regarding proxy voting services or the clients' voting of proxies.

NEPC votes mutual fund proxies for certain discretionary clients. In these cases, NEPC will vote in the best interest of shareholders, as determined by NEPC in accordance with its written proxy voting policy. NEPC authorizes the clients' investment managers to vote proxies for individual securities.

Item 18 – Financial Information

As a registered investment adviser NEPC is required in this Item to provide you with certain financial information or disclosures about its financial condition. NEPC has no financial condition that impairs its ability to meet contractual and fiduciary commitments to clients, and has not been the subject of a bankruptcy proceeding.

This brochure supplement provides information about:

Samuel M. Austin, III
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 8/7/2017

Item 1 – Cover Page

This brochure supplement provides information about Samuel Austin that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1961

Education: BA, Boston University
MBA, Boston University

Business background for the preceding five years: Mr. Austin joined NEPC in 2017. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC he was a Senior Vice President and member of the Investment Committee with FIS Group. Prior to FIS Mr. Austin was with Virtus Investment Partners, Barclays Global Investors and Bankers Trust Company.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

J. David Barnes, CFA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 10/3/2011

Item 1 – Cover Page

This brochure supplement provides information about J. David Barnes that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1976

Education: BBA, Georgia Southern University

Business background for the preceding five years: Mr. Barnes joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, David was an investment consultant with Hewitt EnnisKnupp where he advised clients on solutions for all types of investment programs and led the firm's U.S.-based global, non-U.S., and emerging markets equity research team. Before that he was an investment consultant with Towers Watson Investment Consulting and Hewitt Investment Group.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Margaret Belmondo, CIMA®
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 10/13/2017

Item 1 – Cover Page

This brochure supplement provides information about Margaret Belmondo that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1979

Education: BA, Villanova University

Business background for the preceding five years: Ms. Belmondo joined NEPC in 2016. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Margaret was a Director with The PFM Group. She also spent over ten years at SEI Investments.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Ross A. Bremen, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Ross A. Bremen that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BA, Northwestern University
MBA, Northwestern University

Business background for the preceding five years: Mr. Bremen joined NEPC in 2005. He is a senior member of NEPC's research team. He is also a consultant specializing in defined contribution plans, involved with client projects ranging from plan design, governance, and investment manager selection to asset allocation studies and policy formation. Prior to joining NEPC he was a Senior Investment Consultant at Hewitt Associates.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Timothy R. Bruce
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2018

Item 1 – Cover Page

This brochure supplement provides information about Timothy R. Bruce that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1975

Education: BA, Brown University

Business background for the preceding five years: Tim joined NEPC in 2008. He is a senior consultant involved in research and due diligence activities, in addition to providing consulting advice to a variety of clients. Prior to joining NEPC Tim was an Investment Analyst for Partners Healthcare.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Michael D. Cairns, CEBS
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Michael D. Cairns that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1966

Education: BS, Illinois College

Business background for the preceding five years: Mike joined NEPC in 2007. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Mike was an Investment Consultant at The Marco Consulting Group, where he was the lead investment consultant on over twenty client relationships.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Richard M. Charlton
Chairman Emeritus

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/30/2016

Item 1 – Cover Page

This brochure supplement provides information about Richard M. Charlton that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1942

Education: BS, University of Detroit
MBA, Wayne State University

Business background for the preceding five years: Mr. Charlton founded NEPC in 1986. Through March 31, 2011 he was NEPC's Chief Executive Officer, and through December 31, 2015 he served as Chairman of the Board. As of January 1, 2016, Mr. Charlton is NEPC's Chairman Emeritus.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Steven F. Charlton, CFA
Partner / Director of Consulting Services

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Steven F. Charlton that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1968

Education: BA, St. Lawrence University

Business background for the preceding five years: Mr. Charlton joined NEPC in 1996. He oversees NEPC's consulting services group. Steve also works directly with several clients as a consultant involved with all types of projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Richard K. Ciccione
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 8/7/2017

Item 1 – Cover Page

This brochure supplement provides information about Richard K. Ciccione that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1977

Education: BA, Bucknell University
MBA, Kellogg School of Management, Northwestern University

Business background for the preceding five years: Mr. Ciccione joined NEPC in 2017. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Rick was an Investment Consultant at LCG Associates, Inc. He also worked at Arbor Research & Trading, Lehman Brothers and Alliance Bernstein.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kristen E. Colvin, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2019

Item 1 – Cover Page

This brochure supplement provides information about Kristen E. Colvin that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1983

Education: BA, College of the Holy Cross
MS, Boston University

Business background for the preceding five years: Ms. Colvin re-joined NEPC in 2018 from MFS Investment Management where she was a director within the Investment Solutions Group. At NEPC she works with defined contribution and defined benefit plans in various aspects of plan analysis, including asset allocation studies, investment manager selection, performance measurement and other projects. Kristen originally joined NEPC in 2005 as an Analyst on the DC team, leaving in 2011 as a Consultant.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

KC Connors, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about KC Connors that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1967

Education: BS, Indiana University
MBA, University of Chicago

Business background for the preceding five years: Ms. Connors joined NEPC in 2010. She is a senior member of NEPC's Consulting Services Team and oversees the Endowment/Foundation and Healthcare practice groups. She also works directly with several clients as a consultant involved with asset allocation, policy formation and review, and investment manager selection. KC's background includes expertise in plan consolidations and mergers, risk budgeting, liability-driven investing and alternative investments. Prior to joining NEPC, KC was a Principal at Jeffrey Slocum & Associates and worked with pension plans, endowments/foundations, health care systems, family offices and offshore captives. She was a member of Slocum's senior management team overseeing planning, hedge funds, legal, risk management and human resources.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Andrew Coupe
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 10/13/2017

Item 1 – Cover Page

This brochure supplement provides information about Andrew Coupe that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1980

Education: BS, University of Leeds
Certificate in Education, St. Martin's College
MBA, St. Aquinas College

Business background for the preceding five years: Mr. Coupe joined NEPC in 2017. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Andrew was a Senior Consultant for the Insurance Investment Advisory Group at Towers Watson. He also spent several years at Wells Canning and worked at The Institute for International Research.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Wyatt L. Crumpler
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/30/2016

Item 1 – Cover Page

This brochure supplement provides information about Wyatt L. Crumpler that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1966

Education: BS, University of Tennessee, Knoxville
MBA, Duke University Fuqua School of Business.

Business background for the preceding five years: Mr. Crumpler joined NEPC in 2015. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to NEPC, Wyatt held the position of Senior Vice President and Chief Investment Officer at American Beacon Advisors, Inc. where he served in the capacity of an outsourced CIO and managed the defined contribution investment options. Prior to American Beacon, Wyatt spent 13 years with American Airlines in increasing roles of responsibilities, ultimately serving as a Managing Director in the Finance and Accounting area.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Lynda K. Dennen, ASA
Senior Research Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/31/2012

Item 1 – Cover Page

This brochure supplement provides information about Lynda K. Dennen that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1968

Education: BA, Colgate University

Business background for the preceding five years: Ms. Dennen joined NEPC in 2006. She is a senior research consultant on the Asset Allocation team. Lynda is responsible for Liability-Driven Investing manager research, and works with consultants on asset-liability studies and risk budgeting projects for clients. Ms. Dennen previously covered fixed income managers and was a member of the Due Diligence committee. Prior to becoming a consultant, Lynda worked as an analyst for NEPC, assisting consultants with asset allocation, asset liability studies, and investment manager selection. Prior to joining NEPC, Ms. Dennen was employed by Mercer Human Resource Consulting, Inc. as a Consulting Actuary.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Brian S. Donoghue
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2013

Item 1 – Cover Page

This brochure supplement provides information about Brian S. Donoghue that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1975

Education: BA, University of Massachusetts, Amherst
MBA, Clark University

Business background for the preceding five years: Mr. Donoghue joined NEPC in 2006. He is a consultant specializing in Defined Contribution plans and is involved with client projects ranging from plan design, governance, and investment manager selection to asset allocation studies and policy formation. Prior to joining NEPC, Brian was a Client Service Manager at Fidelity Investments where he served as a key contact and record-keeping plan expert on multiple DC plans. He also consulted on plan design with all levels of plan sponsors.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Scott Driscoll
Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Scott Driscoll that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1978

Education: BS, Bentley College

Business background for the preceding five years: Mr. Driscoll joined NEPC in 2003. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Scott worked as an analyst for NEPC, assisting consultants with client reporting, performance measurement, and technical projects.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Chenae L. Edwards, CPA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Chenae L. Edwards that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1984

Education: BS, North Carolina A&T State University
MBA, Tuck School of Business at Dartmouth

Business background for the preceding five years: Ms. Edwards joined NEPC in 2013. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Chenae was with Goldman Sachs, Sovereign's Capital and PricewaterhouseCoopers.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

John M. Elliot
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about John M. Elliot that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1969

Education: AB, University of California, Berkeley

Business background for the preceding five years: Mr. Elliot joined NEPC in 2003. He oversees the Taft-Hartley practice group and also works directly with several clients as a consultant involved with all types of projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kristin R. Finney-Cooke
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Kristin R. Finney-Cooke that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BS, Howard University
MBA, University of Chicago

Business background for the preceding five years: Ms. Finney-Cooke joined NEPC in 2010. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Kristin was a Principal at Mercer Investment Consulting with broad responsibility in all facets of client management, providing public and corporate clients with advice on asset allocation, investment policy development, manager selection, performance measurement and risk management.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Timothy P. Fitzgerald
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Timothy P. Fitzgerald that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1972

Education: BA, University of Massachusetts at Amherst

Business background for the preceding five years: Tim joined NEPC in 2008. He works with defined contribution and defined benefit plans in all aspects of plan analysis, including asset allocation studies, investment manager selection, performance measurement and other projects. Prior to joining NEPC, Tim was employed by TF Title and Recording as a Principal. He also worked at State Street Bank and Trust Company as a Senior Custody/Accounting Specialist.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Stacey K. Flier, CFA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Stacey Flier that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BA, University of Puget Sound
MBA, Portland State University

Business background for the preceding five years: Ms. Flier joined NEPC in 2017. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC she was with CTC | MyCFO and its predecessor, CTC Consulting, where she worked with private clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

William Forde, CAIA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about William Forde that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1982

Education: BA, Tufts University

Business background for the preceding five years: Mr. Forde joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Will was with Brown Brothers Harriman.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Jason Gerda, CAIA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Jason Gerda that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1977

Education: BS, University of New Hampshire

Business background for the preceding five years: Mr. Gerda joined NEPC in 2005. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Jason was with State Street Bank.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Sean W. B. Gill, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Sean W. B. Gill that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1971

Education: BSFS, Georgetown University
MBA, University of Notre Dame
JD, Loyola University

Business background for the preceding five years: Mr. Gill joined NEPC in 2000. He is a senior member of NEPC's research team. He also works directly with clients on designing alternative asset investment policy guidelines, portfolio structuring, plan implementation, manager selection, and performance measurement and monitoring.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Daniel S. Gimbel
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 6/20/2017

Item 1 – Cover Page

This brochure supplement provides information about Daniel S. Gimbel that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1960

Education: BS, University of Southern California

Business background for the preceding five years: Mr. Gimbel joined NEPC in 2017. He is a consultant involved with various types of client projects including asset allocation, policy formation and review, portfolio construction and investment manager selection. Prior to joining NEPC he was with CTC | MyCFO and its predecessor, CTC Consulting, where he worked with private clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Sebastian Grzejka
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/30/2016

Item 1 – Cover Page

This brochure supplement provides information about Sebastian Grzejka that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1982

Education: BS, University of Massachusetts

Business background for the preceding five years: Mr. Grzejka joined NEPC in 2005. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Sebastian worked as an analyst for NEPC, assisting consultants with client reporting, performance measurement, and technical projects.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kristi J. Hanson, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Kristi Hanson that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1964

Education: BS, University of Idaho

Business background for the preceding five years: Ms. Hanson joined NEPC in 2017 as a Partner and Director of Taxable Research. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC she was with CTC | MyCFO and its predecessor, CTC Consulting, where she worked with private clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Karen M. Harding, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Karen Harding that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1969

Education: BA, Oregon State University
MBA, Portland State University

Business background for the preceding five years: Ms. Harding joined NEPC in 2017. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC she was with CTC | MyCFO and its predecessor, CTC Consulting, where she worked with private clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Eric R. Harnish, CPA
Senior Research Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Eric R. Harnish that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1969

Education: BA, Duke University
MBA, Dartmouth College

Business background for the preceding five years: Mr. Harnish joined NEPC in 2009. He is a Consultant involved in NEPC's private markets research and due diligence. Prior to joining NEPC, Eric spent seven years in the Private Edge Group at State Street where he focused on performance reporting, consulting services, investment monitoring and due diligence.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Richard J. Harper, CFA, CAIA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Richard J. Harper that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1969

Education: BSBA, American University
MBA, Babson College

Business background for the preceding five years: Mr. Harper joined NEPC in 2001. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Rich worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Daniel Hennessy, CFA, CAIA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Daniel Hennessy that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1974

Education: BA, Pomona College
MBA, The Wharton School, University of Pennsylvania

Business background for the preceding five years: Mr. Hennessy joined NEPC in 2014. He is a senior consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Daniel was a Senior Consultant with Alan Biller and Associates where he serviced a variety of institutional clients. Prior to joining Allan Biller, Daniel was Founder and Principal of Accretive Research & Management LLC, and prior to that he was a Vice President at Franklin Templeton Investments.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Everett L. Humphreys, III, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 4/1/2019

Item 1 – Cover Page

This brochure supplement provides information about Everett L. Humphreys, III that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1968

Education: BA, Louisiana State University
MPA, Louisiana State University
MSF, Louisiana State University

Business background for the preceding five years: Mr. Humphreys joined NEPC in 1997. He oversees the Public Fund and Taft-Hartley practice group and also works directly with several clients as a consultant involved with all types of projects including asset allocation, policy formation and review, and manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Paul R. Kenney, Jr., CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Paul R. Kenney, Jr. that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1961

Education: BA, Saint Michael's College
MSF, Bentley College

Business background for the preceding five years: Mr. Kenney joined NEPC in 2002. He is a member of the Healthcare practice group and also works directly with several clients as a consultant involved with all types of projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Paul J. Kerry, ASA, EA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 10/3/2011

Item 1 – Cover Page

This brochure supplement provides information about Paul J. Kerry that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1955

Education: BS, University of Lowell

Business background for the preceding five years: Mr. Kerry joined NEPC in 2009. He is a consultant involved with client projects ranging from plan design studies, M&A analyses, development of compliance strategies, and a variety of other technical projects. Prior to joining NEPC, Paul was a Vice President at Fidelity Investments. Paul provided strategic consulting services to some of Fidelity's largest mid-corporate clients including Starbucks, QVC, Scholastic Inc., L.L. Bean, and the National Basketball Association. Prior to that he was with Charles Schwab and Watson Wyatt.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Christopher J. Klapinsky, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Christopher J. Klapinsky that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1973

Education: BA, Denison University

Business background for the preceding five years: Mr. Klapinsky joined NEPC in 2001. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Chris worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Catherine M. Konicki, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Catherine M. Konicki that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1957

Education: BS, Boston College
MBA, Boston College

Business background for the preceding five years: Ms. Konicki joined NEPC in 1991. She oversees the Endowment/Foundation practice group and also works directly with several clients as a consultant involved with all types of projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

John R. Krimmel, CPA, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/30/2016

Item 1 – Cover Page

This brochure supplement provides information about John R. Krimmel that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1962

Education: BS, Millikin University
MS in Accounting Science, University of Illinois

Business background for the preceding five years: Mr. Krimmel joined NEPC in 2010. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and manager searches. Prior to NEPC, John was a Senior Consultant and Senior Vice President at Callan Associates with broad responsibility in all facets of client management with public, corporate and endowment/foundation clientele. John was a member of Callan's Manager Research Committee and Alternatives Review Committee. Prior to Callan, John was the Chief Investment Officer at the Kentucky Retirement System and at the State Universities Retirement System of Illinois.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kevin M. Leonard
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Kevin M. Leonard that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1968

Education: BA, Assumption College

Business background for the preceding five years: Mr. Leonard joined NEPC in 2007. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Kevin worked at Segal Advisors as a lead consultant in the public, Taft-Hartley, hospital and endowment marketplace.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Christopher A. Levell, ASA, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Christopher A. Levell that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1964

Education: BS, University of Illinois

Business background for the preceding five years: Mr. Levell joined NEPC in 2005. He is a senior member of NEPC's research team. He also works directly with several clients as a consultant involved with asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC Chris worked at Mercer Investment Consulting as a lead consultant and an asset-liability project consultant, and he developed Mercer's U.S. asset-liability modeling capability.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Christine A. Loughlin, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Christine A. Loughlin that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BA, University of Massachusetts, Amherst
MSF, London Business School

Business background for the preceding five years: Ms. Loughlin joined NEPC in 2003. She oversees the Defined Contribution practice group and also works directly with several clients as a consultant involved with all types of projects including plan design, governance, asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Michael P. Manning, CFA, CAIA
Managing Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/30/2016

Item 1 – Cover Page

This brochure supplement provides information about Michael P. Manning that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1968

Education:	BA, Notre Dame MBA, University of Chicago

Business background for the preceding five years: Mr. Manning joined NEPC in 1997. He was named President in 2004 and Managing Partner in 2011. He is a member of NEPC's Executive Committee and Management Group. In addition to his responsibilities overseeing NEPC's business, Mike also works directly with several clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's Executive Committee is responsible for supervising Mr. Manning. Members of the committee can be contacted at 617.374.1300.

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Allan C. Martin
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Allan C. Martin that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1945

Education: BA, Stanford University
MBA, Stanford University

Business background for the preceding five years: Mr. Martin joined NEPC in 2000. He is a senior member of NEPC's Consulting Services Team and a member of the Public Fund practice group. He works directly with several clients as a consultant involved with asset allocation, policy formation and review, and investment manager selection. Allan manages our West Coast consulting services and is responsible for our Western Region client service and marketing.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Timothy F. McCusker, CFA, CAIA, FSA
Partner, Chief Investment Officer

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2015

Item 1 – Cover Page

This brochure supplement provides information about Timothy F. McCusker that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1979

Education: BA, Colgate University

Business background for the preceding five years: Mr. McCusker joined NEPC in 2006. He is NEPC's Chief Investment Officer, the key investment strategist for the firm, and oversees all research at NEPC. Additionally, Tim is a member of the firm's Management Group. He also works directly with several clients, and is a member of the Asset Allocation committee. Prior to joining NEPC, Tim was an associate at Towers Perrin.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

David W. Moore, CEBS
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2013

Item 1 – Cover Page

This brochure supplement provides information about David W. Moore that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BBA, Temple University
MBA, University of Detroit, Mercy

Business background for the preceding five years: Mr. Moore joined NEPC in 2006. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Dave worked at Ford Motor Company as a Manager of Fixed Income in their Portfolio Management Dept. where his responsibilities included investing global cash and pricing commercial paper, developing fixed income strategies, performance reporting and oversight of external asset managers.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Douglas W. Moseley
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Douglas W. Moseley that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1970

Education: BS, University of Massachusetts, Amherst
MBA, Bentley College

Business background for the preceding five years: Mr. Moseley joined NEPC in 1998. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Phillip R. Nelson
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2018

Item 1 – Cover Page

This brochure supplement provides information about Phillip Nelson that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1979

Education: BA, University of California Irvine

Business background for the preceding five years: Mr. Nelson joined NEPC in 2011. He is a senior consultant involved in research and due diligence activities. Prior to joining NEPC, Phill worked at Pinnacle West Capital Corporation, Yoshikami Capital Management and Merrill Lynch.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kristine Pelletier
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2019

Item 1 – Cover Page

This brochure supplement provides information about Kristine Pelletier that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1980

Education: BA, Simmons College
MBA, University of Virginia

Business background for the preceding five years: Ms. Pelletier joined NEPC in 2008. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Krissy was a research analyst with Wellington Management.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Scott F. Perry, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/31/2012

Item 1 – Cover Page

This brochure supplement provides information about Scott F. Perry that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1978

Education: BSBA, Bucknell University
MBA, Babson College

Business background for the preceding five years: Mr. Perry joined NEPC in 2006. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Scott worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, Scott worked as an analyst at Ashton Partners, an investor relations advisory firm, where he monitored and analyzed daily industry news and stock performance for clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Samuel J. Pollack
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Samuel J. Pollack that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1975

Education: BA, Haverford College
MBA, Northwestern University – Kellogg School of Management

Business background for the preceding five years: Mr. Pollack joined NEPC in 2015. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Sam was a Senior Consultant at DiMeo Schneider & Associates, and a Vice President at Duff & Phelps.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kelly A. Regan
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Kelly A. Regan that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1981

Education: BA, Boston University
MSF, Brandeis University

Business background for the preceding five years: Ms. Regan joined NEPC in 2007. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Kelly worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Before NEPC, Kelly was affiliated with Investors Bank & Trust, Cambium Learning, LLC, and Highland Net Lease Capital, LLC.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

James E. Reichert
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2014

Item 1 – Cover Page

This brochure supplement provides information about James E. Reichert that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1978

Education: BA, Boston College

Business background for the preceding five years: Mr. Reichert joined NEPC in 2007. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, James worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, he was a Senior Fixed Income Operations Manager at State Street Global Advisors where he was responsible for all aspects of operations for over 200 fixed income accounts and Mutual Funds.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Kristin M. Reynolds, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/31/2012

Item 1 – Cover Page

This brochure supplement provides information about Kristin M. Reynolds that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1977

Education: BA, Simmons College
MBA, Simmons Graduate School of Management

Business background for the preceding five years: Ms. Reynolds joined NEPC in 2003. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Kristin worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Brian A. L. Roberts
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2018

Item 1 – Cover Page

This brochure supplement provides information about Brian A. L. Roberts that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1975

Education: BA, Colorado College
MBA, University of Denver

Business background for the preceding five years: Brian joined NEPC in 2009. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Brian is also a member of the Discretionary Team, helping with the implementation and execution of NEPC's Discretionary Services. Prior to becoming a consultant, Brian worked as an analyst for NEPC. Before NEPC, Brian was employed at AllianceBernstein, providing support to a team of Financial Advisors for high net-worth clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Jay E. Roney
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 4/1/2019

Item 1 – Cover Page

This brochure supplement provides information about Jay E. Roney that supplements the NEPC, LLC (“NEPC”) brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC’s brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1964

Education: BS, University of Maine at Orono
MBA, Northeastern University

Business background for the preceding five years: Mr. Roney joined NEPC in 2001. He is a consultant involved with all types of projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Matthew Rowell
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Matthew Rowell that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1982

Education: BS from The Citadel, The Military College of South Carolina

Business background for the preceding five years: Mr. Rowell joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Matt was with Wells Fargo & Company and Evergreen Investments.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Daniel Runnals
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Dan Runnals that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1988

Education: BA, Kenyon College

Business background for the preceding five years: Mr. Runnals joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Dan was with Northwestern Mutual.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Sarah N. Samuels, CFA, CAIA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 4/1/2019

Item 1 – Cover Page

This brochure supplement provides information about Sarah N. Samuels that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1981

Education: BA, University of New Hampshire
MBA, Boston University

Business background for the preceding five years: Ms. Samuels joined NEPC in 2019. She is a senior consultant involved in research and due diligence activities, with oversight of the team that covers traditional asset classes. Prior to joining NEPC Sarah was Managing Director at the Wellesley College Investment Office. For the previous seven years she was with the Massachusetts Pension Reserves Investment Management (PRIM) Board, most recently serving as Deputy Chief Investment Officer.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

John S. Shanklin, CFA, CAIA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about John S. Shanklin that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1951

Education: BS, University of Illinois
MBA, Northwestern University

Business background for the preceding five years: Mr. Shanklin joined NEPC in 2006. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, John was a Senior Consultant at Alan D. Biller & Associates and Segal Advisors.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Neil N. Sheth
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/31/2012

Item 1 – Cover Page

This brochure supplement provides information about Neil N. Sheth that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1971

Education: BS, University of Pennsylvania

Business background for the preceding five years: Mr. Sheth joined NEPC in 2009. He is a consultant involved in NEPC's hedge fund research and due diligence. Prior to joining NEPC, Neil worked at Berkshire Partners in Boston where he started a fundamentals-based, concentrated, long/short global value hedge fund. Prior to Berkshire Partners, Neil worked with two different private equity firms that focused on communications/media services and technologies (M/C Venture Partners and General Atlantic, LLC).

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Bradley S. Smith, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 10/10/2011

Item 1 – Cover Page

This brochure supplement provides information about Bradley S. Smith that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1963

Education: BA, Hampden-Sydney College

Business background for the preceding five years: Mr. Smith joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Brad was with Hewitt EnnisKnupp where he was the Eastern Region leader of the core consulting practice. He had responsibility for managing the traditional consulting team and he has extensive experience in discretionary consulting. Prior to the Hewitt/EnnisKnupp merger, Brad held the position of CEO for Hewitt's U.S. Consulting practice.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Carolyn Smith
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Carolyn Smith that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1963

Education: BS, University of Utah

Business background for the preceding five years: Ms. Smith joined NEPC in 2006. She is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Carolyn worked as a Senior Consultant at Watson Wyatt. She was responsible for developing and managing client relationships, designing investment programs for defined benefit and defined contribution plans, asset liability modeling, risk budgeting, investment policy development, manager searches, 401(k)/403(b) vendor selection and performance monitoring.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Don C. Stracke, CFA
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Don C. Stracke that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1958

Education: BS, Farleigh Dickinson University
MBA, Rutgers University

Business background for the preceding five years: Mr. Stracke joined NEPC in 2009. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Don was the Director of Marketing/Client Service at Shenkman Capital Management and Attalus Capital. At both firms he was responsible for the overall management and execution of sales, marketing, and client service. Prior to Attalus, Don spent seven years as the Director of Corporate Client Services for Dresdner RCM Global Investors.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Keith Stronkowsky
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2013

Item 1 – Cover Page

This brochure supplement provides information about Keith Stronkowsky that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1973

Education: BS, Springfield College
MBA, Case Western Reserve University

Business background for the preceding five years: Mr. Stronkowsky joined NEPC in 2008. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Mr. Stronkowsky worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, Keith was with State Street Corporation and PanAgora Asset Management.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Michael P. Sullivan
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/31/2017

Item 1 – Cover Page

This brochure supplement provides information about Michael P. Sullivan that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1979

Education: BA, Saint Anselm College
MS, Boston College

Business background for the preceding five years: Mr. Sullivan joined NEPC in 2006. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Mr. Sullivan worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, Mike was a Senior Analyst Account Manager at International Data Corporation where he supported research requests for financial clients.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Craig A. Svendsen, CFA
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 7/31/2011

Item 1 – Cover Page

This brochure supplement provides information about Craig A. Svendsen that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1972

Education: BA, Bucknell University
MSF, Northeastern University

Business background for the preceding five years: Mr. Svendsen joined NEPC in 2004. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

NEPC's consultants are members of practice groups and consulting teams, who jointly formulate and monitor the advice provided to clients. The teams are supervised by NEPC's Managing Partner, Michael P. Manning. Mr. Manning can be contacted at 617.374.1300 or MManning@NEPC.com .

Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Michael J. Valchine
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/1/2014

Item 1 – Cover Page

This brochure supplement provides information about Michael J. Valchine that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1977

Education: BS, Oakland University
MSF, Walsh College

Business background for the preceding five years: Mr. Valchine joined NEPC in 2007. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Mr. Valchine worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, Mike was a Registered Client Associate within the Merrill Lynch Institutional Consulting Group.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Eric C. Vallo
Senior Consultant

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 3/1/2014

Item 1 – Cover Page

This brochure supplement provides information about Eric C. Vallo that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1972

Education: BS, Miami University
MBA, University of Colorado

Business background for the preceding five years: Mr. Vallo joined NEPC in 2009. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to becoming a consultant, Mr. Vallo worked as an analyst for NEPC, assisting consultants with client reporting, manager searches, and technical projects. Prior to joining NEPC, Eric was with Chrysler LLC / DaimlerChrysler Corporation, PacWest Racing Group, and Deloitte & Touche LLP.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.

This brochure supplement provides information about:

Gary A. Wyniemko
Partner

NEPC, LLC
255 State Street
Boston, MA 02109
617-374-1300
www.NEPC.com

Date of this Supplement: 1/1/2020

Item 1 – Cover Page

This brochure supplement provides information about Gary A. Wyniemko that supplements the NEPC, LLC ("NEPC") brochure. You should have received a copy of that brochure. Please contact our Chief Compliance Officer, William Y. Bogle, at 617-374-1300 or WBogle@NEPC.com if you did not receive NEPC's brochure or if you have any questions about the contents of this supplement.

Item 2 – Educational Background and Business Experience

Year of Birth: 1977

Education: BBA, University of Michigan-Dearborn
MBA, University of Michigan-Dearborn

Business background for the preceding five years: Mr. Wyniemko joined NEPC in 2011. He is a consultant involved with all types of client projects including asset allocation, policy formation and review, and investment manager selection. Prior to joining NEPC, Gary was with Henry Ford Health System, Dura Automotive Systems, Merrill Lynch and H&R Block Financial Advisors.

Item 3 - Disciplinary Information

None.

Item 4 – Other Business Activities

None.

Item 5 – Additional Compensation

None.

Item 6 – Supervision

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Item 7 – Requirements for State-Registered Advisers

This item is not applicable as NEPC is not registered with individual states.