Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

JUNE 2023

Real Assets Outlook

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Key themes

Key themes for 2023

Observations driving our outlook

What's next for inflation…

In our Outlook last year, we said the following "We believe inflation will likely begin falling later in 2022" and though that turned out to be true, we came to that conclusion because we believed the Fed would choke off the pressures of inflation. Coming into 2023, it appeared as though inflation would continue to retreat lower, albeit slowly, but unexpected price increases have complicated the picture. There are now banking instability issues, geopolitics, a softening economy and a dozen other headline issues weighing on investors' minds. But staying on inflation, we believe the Fed will do what it says and keep policy tight until inflation returns to their target level. We do not want to be on the other side of that trade. We expect rates to stay higher for longer and that could present challenges and opportunities across private markets which have broadly failed to adjust equity values for the new higher rate environment.

Dislocations in real estate

Market dynamics within real estate have shifted dramatically over the last year. The multi-decade decline in interest rates that have provided a tailwind in real estate reversed in mid-2022. Cap rates are typically correlated with changes in interest rates over the long term, however private real estate cap rates have not kept pace with the move to higher rates recently, reflecting reluctance to mark assets to the new rate regime. Transactions have slowed the last three quarters with wide bid-ask spreads persisting. Over the near term, we expect rising cap rates, slower growth and higher borrowing costs to continue to pressure private real estate valuations and likely trigger pockets of stress and distress. Further compounding issues, banks and other lenders have pulled back from the market creating a financing gap for asset owners.

Values remain elevated across infrastructure

Infrastructure was one of the few bright spots in 2022 as valuations held-up and transaction activity was robust. In a year when inflation and rising interest rates depressed equity and debt valuations, slowed transaction activity and disrupted capital markets, real assets (excl. real estate) performed remarkably well. The issue we see today is that valuations are stretched, debt costs are going up, but equity valuations have yet to adjust to a higher interest rate environment. A slowing of transaction activity would be one sign that sponsors are becoming more price sensitive. Until we see valuations adjust lower, especially in core/core plus infrastructure, we would be cautious about putting fresh capital into the asset class.

Declining interest in natural resources looks to continue

Commodity-related investments experienced a marked rebound in performance in 2021 and 2022, following years of disappointing performance. It was a vindication of sorts, in that when inflation finally took hold, the asset class delivered on the promise of providing an inflation hedge. After years of declining interest from investors, oil and gas companies rode high as they outperformed every other sector in the equity universe. And yet, with all this renewed attention, the fundraising environment for natural resource funds remains bleak. The challenging market for exits among oil/gas companies, the global trends in ESG and the declining rate of inflation, among other factors, has resulted in muted interest from institutional investors.

Outlook summary

Outlook summary

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Core real estate	Core real estate was up 7.5% in 2022, primarily due to a strong start to the year in the first two quarters. The momentum has shifted however, as rising interest rates have put downward pressure on valuations. The appraisal process has been slow to recognize this as transactions have been falling since the 3rd quarter of 2022, hampering the ability to find comparable sales. Redemption queues are as high as they've been since the GFC. We expect further write-downs to hit core real estate funds in 2023.	— Cap rates have not yet fully adjusted to the new higher interest rate environment. 4th quarter of 2022 saw a modest adjustment, but we expect more to come over the next several quarters — Core real estate returns tend to have high correlation to overall GDP growth. There are risks to weakening fundamentals if a recession materializes.	We recommend clients continue to rebalance/reduce exposure to core ODCE funds where possible, although redemption exit queues are in place for most funds. We recommend continued diversification into alternative property types to reduce existing exposures to office, which may face longer term challenges.	**Negative**
Value-add real estate	Transaction levels have slowed down dramatically as wide bid-ask spreads are persisting. Value-add GPs are seeing few opportunities right now as sellers are still reluctant to transact at the clearing prices currently being offered. Increasing borrowing costs will likely apply pressure on returns for strategies reliant upon higher leverage. An economic slowdown is expected to reduce rent growth opportunities.	— Rising interest rates will increase borrowing costs on higher leveraged value-add strategies, pressuring total returns. — Slowing rent growth as the economy cools has the potential to further reduce forecasted returns	We continue to favor strategies with limited focus on office and those less reliant on high leverage. Asset management value-add will be important as cap rate compression and market growth will be less reliable sources of return. Patience will be a virtue for management teams as transactions, when they happen today, have yet to fully adjust for higher borrowing costs.	**Neutral**
Opportunistic real estate	Over the last couple of years, pockets of stress have occurred in Covid-19 affected sectors such as office, retail and hospitality. The rising interest rate environment is producing stress and distress across the real estate spectrum as the cost of financing balloons, loan-to-values move up and lenders pull out of the market. Borrowers will be forced to get creative with financing as they often lack fresh equity capital and want to minimize their dilution. Preferred equity gap financing, structured solutions and investments in debt may see attractive opportunities. We could see the reemergence of NPL portfolios in Europe as banks shed assets to shore-up their balance sheets.	— Rising interest rates will increase borrowing costs on higher leveraged strategies, pressuring total returns. — Competition could be a challenge as large sums of capital have been raised waiting for this opportunity to emerge. — Increasing construction costs due to materials and labor may pressure development strategies.	Non-core funds with vintage years during periods of economic stress tend to be some of the best performing vintages. The impact from higher rates will likely create more attractive entry points. Loans coming due at higher borrowing costs and at higher loan-to-values sets the stage for opportunities to provide rescue capital. GPs with experience in distressed situations and those able to be flexible up and down the cap stack are viewed favorably.	**Positive**
Real estate debt	Lending rates have increased, both from floating rate base rates as well as spreads. Traditional lending sources (banks and insurance companies) are retreating from writing loans as they move to reduce risk across their balance sheets. The wall of maturities coming due over the next few years will need refinancing and private lenders are well positioned to take advantage of the opportunity.	— Rising rates, while generally positive for lending strategies, could also decrease transaction volumes and therefore increase competition for deals. — Loan defaults are also on the horizon so having capabilities to structure workouts will be important	Senior lending strategies look attractive as borrowing costs have risen, both in base rates and spreads. Private capital providers look attractive as there will be less competition from traditional lending sources.	**Positive**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
REITs	REITs were down 27.0% in 2022, reflecting an implied cap rate increase across sectors. REITs rallied back in early 2023, erasing about half of the loss they experienced in 2022 but have more recently sold-off again as financials have come under pressure. While REITs valuations are somewhat pricing in a higher rate environment, we would not characterize the current valuations as cheap or compelling.	— REITs have higher leverage than core real estate — Rising interest rates can have a negative effect on REITs and all yield-sensitive assets over short periods. — REITs are sensitive to economic decline and general equity market volatility.	Verus believes REITs can provide liquid exposure to real estate with the following caveats: high sensitivity to equity market volatility over shorter holding periods, higher leverage and higher exposures to non-core sectors. Active management is preferred. REIT valuations are currently at a slight discount; however, this has been volatile and difficult to time. If we see a substantial sell-off in 2023, we could pivot to a positive outlook, but we are not there yet.	**Neutral**
Commodities	Commodities had another impressive year in 2022, led by the energy sector, which was up +36% for the year. The asset classes final year returns masked what was a highly volatile year as Fed rate rises began putting pressure on inflation forces. While still early in the year, commodities are experiencing selling pressure as central banks continue to tighten monetary policy in order to stamp out inflation.	— Central banks have signaled their primary goal is to contain inflation which, if successful, would be a headwind for commodities. — Investors have benefitted from steep backwardation in oil-related commodities, but as front month contracts move lower, the curve trade is likely to erode.	Verus does not view commodity futures as an attractive asset class to hold long term. As an inflation hedge, commodities are one of the best exposures to own that benefits from early stages of inflation. We are even more cautious about a position in commodities this year and would consider reallocating some of your exposure to more attractive segments of the market.	Negative
TIPS	Rising inflation has led to positive total returns and outperformance of TIPS relative to nominal bonds. Breakeven rates have risen sharply following the lows in 2020, especially in 5-year break-evens. Currently, TIPS have a negative yield and are susceptible to rising rates though that can be offset if inflation continues to exceed market expectations. The other concern is the unwinding of the Fed balance sheet where TIPS are widely held, putting additional selling pressure on the bonds.	— Decreasing inflation expectations or rising nominal interest rates would be a headwind to TIPS. — Continued low rates creates a high cost of carry.	Low absolute current yields and uncertain inflation expectations has led to low total return expectations for TIPS, especially relative to other real asset investment opportunities. If inflation continues higher, TIPS could provide protection to portfolios.	**Neutral**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Core Infrastructure	Performance in core infrastructure was strong in 2022, as capital flowed into the sector and valuations improved, especially for energy-related assets. Along with performance, the high inflationary environment increased LP interest in the asset class. Fundraising continues to increase as more managers offer evergreen fund structures. We expect the higher interest rate environment to be a headwind to valuations and would not be surprised to see write-downs beginning to ripple through the open-end market in 2023. While relatively resilient to recessionary forces, sub-sectors linked to GDP like transportation and logistics may also face challenges.	— Strong fundraising trends in infrastructure has elevated valuations and increased competition for high quality assets. — Infrastructure assets provide varying degrees of inflation protection. While some assets have contracted annual revenue increases tied to CPI, many others have pre-determined increases at 2-3% or no adjustments at all. — Core assets are sensitive to interest rates and with inflation trending down, increased costs of capital could erode margins and push valuations lower.	Entry today is less attractive given rich valuations and an elevated interest rate environment. We prefer allocations to value-add, although core can still maintain defense characteristics from sectors less exposed to GDP risk. We would recommend waiting on new commitments to core open-end infrastructure funds until we get a better sense for the path of interest rates and/or we begin to see funds adjust valuations lower to account for the higher cost of capital environment.	**Negative**
Value-add Infrastructure	Transaction activity has been robust the past 12 months, despite the rising rate environment. As inflation slows and cost of capital stays elevated, we would expect that to cool as buyers adjust valuations lower. There remains a significant capital need for more modern infrastructure in order to keep up with the digital economy and electrification of the grid. We would be cautious about strategies that expose investors to technology risk and/or commercialization risk in both sectors.	— Many GPs that have been successful in the sector have grown rapidly, raising $15+ billion-dollar funds. Deploying this amount of capital while still delivering alpha becomes a challenge for most private market managers. — Increased interest rates will have two affects: eroding margins as the cost of debt increases and increasing cap rates as investors demand a higher equity return. The change in expectations around what is "market value" is likely to slow transactions.	The asset class offers a compelling return profile that aligns well with long duration pools of capital. Value-add infrastructure comes with higher operational/execution risk than core so investors should expect a broader range of outcomes and greater emphasis on manager selection. Given the shift in interest rate environment, we expect valuations to improve but that transition could be bumpy.	**Neutral**
Energy Transition	New development projects of renewable assets will continue to accelerate as solar and wind farms are now the cheapest form of new build electricity. Outside of traditional solar & wind, there are potentially higher returning opportunities for newer technologies such as battery storage and CC&S. Policies like the Inflation Reduction Act will act as a catalyst, increasing adoption and making technologies more viable. Growth in electric vehicles is expected to strain our existing power generation capabilities and transmission infrastructure which presents an investment opportunity but does challenge the transition away from hydrocarbons.	— The market is becoming more competitive with over 4x as much capital fundraised today as compared to the last decade. — Several approaches that reduce our carbon emissions such as green hydrogen and carbon capture technology are nascent and commercially unproven. Investments in this space will take venture-like risk and rely on significant cost reductions as well as favorable policy regimes to be successful.	Energy demand growth will increase opportunities in the energy transition sector but the opportunity to achieve an attractive return remains difficult given competition. Sectors like EV infrastructure and Distributed Energy Resources offer decreased technology risk and attractive markets for growth. Tailwinds for the strategy make for interesting opportunities though we are seeing risk underpriced in the marketplace so backing the right manager will be critical.	**Neutral**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Oil & Gas	Much of what we wrote about Oil/Gas investing in 2022 still applies now. The one crucial difference is that tightening central bank policy now brings demand uncertainty and higher financing costs for producers. Reinvestment in new oil & gas supply is still an issue, even with higher commodity prices, as E&P companies favor returning cash to investors and governments place additional burdens on hydrocarbon extraction. There remains tailwinds in favor of commodity producers but the demand picture from slowing economic activity adds additional risk. We still believe that private markets capital that funded a lot of the growth in energy production will continue to shrink as institutions shift capital towards cleaner forms of energy.	— Oil/gas producers made record profits in 2022, though those are set to come down as commodity prices fall and operating costs skyrocket. The temptation to allocate capital to the sector is understandable but for private capital investors, we still believe the exit risk is too high for us to gain comfort. Older oil/gas funds are still struggling for liquidity and absent a complete reversal of a low carbon future, we think that will only get worse 7-10 years down the road as funds investing today look for an exit. — Longer-term, oil demand is expected to decline as non-carbon sources of power outcompete hydrocarbons.	Higher commodity prices continue to reward owners of commodity producers with record profits. There was a time when investing in oil/gas funds was a reasonable strategy, albeit highly cyclical. Today, the challenges in liquidity, regulatory policy and demand uncertainty make underwriting formidable. For investors with a confident view on the direction of energy commodity prices, we would consider public market investment opportunities in E&P over an illiquid private fund investment.	**Negative**
Midstream Energy / MLPs	Midstream indices were up around 30% in 2022, outperforming most other sectors. The last two Outlooks highlighted the challenges that private midstream funds would face in deploying capital to traditional gathering and processing deals and that was largely accurate. Public midstream companies are outcompeting private funds with a lower cost of capital and the opportunity set is narrower today than it was 10 years ago. While we were negative on the midstream asset class last year, we still find it challenging to recommend an investment in an asset class with long-term demand uncertainty.	— The public midstream market appears stronger and more attractive than it has been in recent years but the long-term outlook for the asset class remains weak. The near-term performance for the asset class is likely to be attractive but tactical trades into the asset class have been incredibly challenging to time. After two years of exceptionally high returns, MLPs are still trailing listed infrastructure by a wide margin on a 5-, 7- and 10-year basis.	We retain a negative outlook for midstream energy, despite the positive tailwinds that higher oil/gas prices could bring to this sector in the near-term. Longer-term, we think the unknown risks remain too high for our comfort.	**Negative**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Mining	There has been a lot of hype around demand growth in industrial metals as the transition to clean energy moves forward. Notable price jumps in metals/minerals like Lithium, Cobalt and Copper over the past few years as demand has surged lend credibility to the story. We see the same long-term trends as others and have been positive on the sector for many years. Industrial metals did soften in 2022 and are down so far in 2023 though long-term the tailwinds of demand appear intact. That said, a global economic slowdown and uncertainty around China consumption has put near-term pressure on many mining commodities. We still prefer the tailwinds of mining to petroleum but would not be surprised if prices cool off in 2023.	— Global GDP growth and the economy in China are the two biggest risks in the sector. China represents a disproportionately large buyer of industrial metals, so its economy and industrial output have a large impact on metal prices. — Recycling, substitution and more efficient extraction methods are always a concern as commodity prices move higher. High commodity prices tend to end the same way, with lower commodity prices as either demand falls or with unexpected surges in supply. — Investors need to be keenly aware of the jurisdictions that they have exposure to, and the companies track record on ESG issues.	Longer-term, we believe the demand outlook looks favorable for several industrial metals. We would not be surprised to see near-term price weakness as new supply comes online but that could be a more interesting entry point. The mining majors are flush with cash which could trigger an M&A cycle which would be good for the junior miners. However, there are a host of idiosyncratic risks in funding mining operations outside of the macro-economic environment. We will look for skilled GPs with a track record of successfully managing these risks while generating attractive returns.	**Positive**
Timberland	Timberland was up 12.9% in 2022, most of which was appreciation driven. Unlike other commodity sectors that experienced meaningfully higher prices, sawtimber prices, at least for southern pine, were up a modest 1.6% in 2022. Income, as a component of the NCREIF Timberland return, was actually lower in 2022 than it was in 2021. Land values went up in 2022 due to lower discount rates but we question how sustainable that will be if cash flows are flat to negative YoY. Housing starts have collapsed in the past 12 months as mortgage rates more than doubled, which is a bearish sign for lumber demand. Overall, we do not see returns keeping up with their 2021 and 2022 levels for the asset class.	— Projected lower inflation levels, slowing housing construction and higher input costs are just some of the issues creating headwinds for the asset class. The Southern U.S. timber region has yet to see the sawtimber price appreciation that other regions have experienced and appear set to miss out on the surging lumber prices that hit consumer the last few years. — Liquidity has been an issue for the asset class for the better part of a decade and fundraising trends have yet to improve to the point that we could see transactions becoming robust.	Despite the last two years of above average returns, we would continue to avoid allocations to timberland. There are more attractive options available in real assets and many that have cash flows that justify the higher valuation. Fundraising has been slow to non-existent for closed-end timber funds for several years which has resulted in a slow transaction market.	**Negative**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Agriculture	After several years of flat cropland prices, 2021 and 2022 saw a meaningful jump in land values on the back of higher commodity prices. Supply disruptions from Covid and more recently, the War in Ukraine, sent grain prices to multi-decade highs that have begun to stabilize in 2023. Fundraising has been slow in the last few years as income returns remained unattractive, and investors favored other asset classes. Still, agriculture investments remain a reasonable hedge against inflation and provide a stable return profile from land appreciation and yield. Structural drivers are making agriculture more attractive as global demand rises and the amount of arable land remains relatively stable.	— Agriculture is a highly illiquid asset class that is not suited to tactical investment opportunities. The asset class does look more attractive today, relative to recent history, but enthusiasm should be tempered given the long hold periods (>10 years) and volatile commodity prices. We would recommend diversifying across crop types and geography within the U.S. — The War in Ukraine has revealed the extent to which Eastern Europe and Ukraine have been major suppliers of certain grains and their disruptions impact on global commodities. It has also highlighted the risk that comes from investing outside stable markets like the U.S. While Ukraine was not a preferred destination for U.S. institutional investors in agriculture, the returns available in emerging economies are not high enough to overcome the currency and economic/political risk.	Agriculture crops are broadly broken down into row and permanent crops with row crops benefiting the most from recent supply disruptions. Row crops also make up around 75% of all acreage planted in the U.S. so liquidity and market depth is greater, relative to permanent crops. That said, row crops have lower income potential and less value-add optionality. For investors seeking pure-play cropland investments, we would recommend diversifying across row and permanent crops focused on the U.S. market. The fragmented nature of farmland in the U.S. has made scaling a challenge so we would be weary of strategies seeking to deploy large pools of capital (>$1B). We also view agriculture investments where crop and land are a component of a broader value-add investment strategy as attractive.	**Neutral**

Current conditions and outlooks

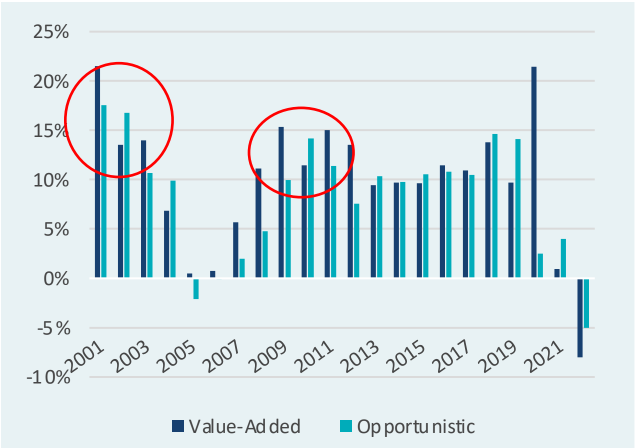
Real estate performance – Recent history

- Core real estate (NFI-ODCE Index) was up 7.5% in 2022, primarily due to a strong start to the year in the first two quarters. The momentum has shifted however as rising interest rates have put downward pressure on valuations. Returns turned negative in 4Q'22 (-5.0%) and continued in 1Q'23 (-3.3%). We expect further write-downs to hit core real estate funds in 2023.
- Property type sector dispersion remained high in 2022 with industrial (+14.6%) and multifamily (+7.1%) leading the way. Office and retail were the laggards with office turning negative at -3.4%.
- Public real estate securities (REITs) were early to recognize the changing landscape within real estate. In 2022, REITs were down 26.9% (Wilshire REIT Index). Valuations have rebounded a little in early 2023 with REITs returning a positive 2.3% in 1Q'23.
- Non-core real estate vintage funds have historically outperformed during recessionary years and early recovery periods (e.g., 2000-2003 and 2009-2011) as market dislocations created attractive entry valuations. Given the recent stress in the market, current non-core vintages could be attractive, especially opportunistic strategies with a focus on distress.

NCREIF PROPERTY INDEX RETURNS (CORE)

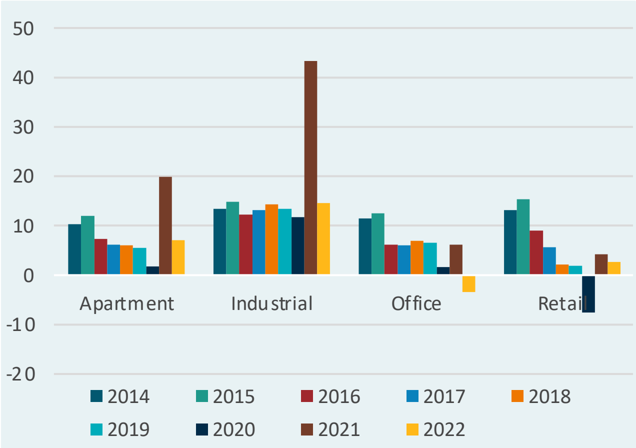
Source: NCREIF, as of 12/31/22

VINTAGE YEAR MEDIAN RETURN (%)
NON-CORE REAL ESTATE



Source: Thomason Reuters, as of 9/30/22

CORE SECTOR ANNUAL RETURNS (%)

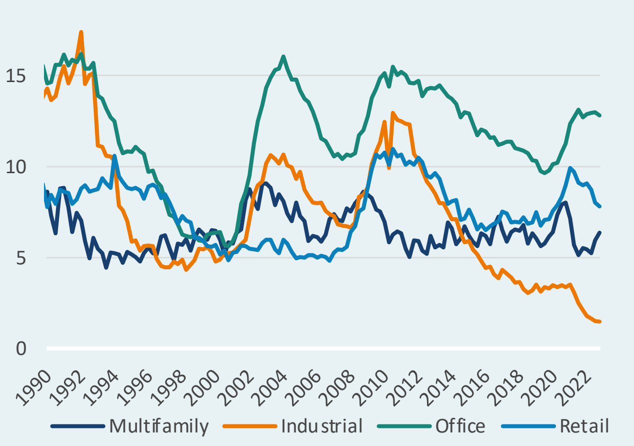


Source: NCREIF, as of 12/31/22

Real estate fundamentals

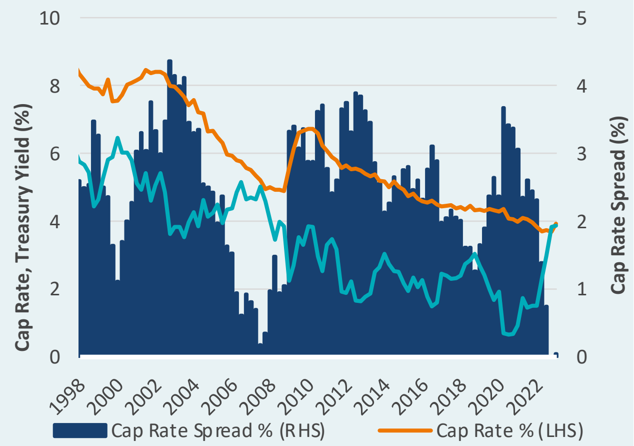
- Private real estate fundamentals have remained relatively steady in terms of vacancy rates and rental growth, with the office sector being a notable exception.
- Cap rates spreads however, have shrunk to zero as cap rates have yet to fully adjust to the higher interest rate environment. While cap rates and interest rates do not trade in lock step over shorter time periods, they generally correlate with each other over the long run. Since mid 2022, interest rates have climbed 2.5%, while cap rates have climbed only 0.5% combined in Q4’22 and Q1’22. The valuation process tends to lag, and we expect upward pressure on cap rates to continue through 2023.
- Vacancy rates for office have stayed elevated as the sector remains under pressure from continued work from home trends. Vacancy rates for industrial, retail and multifamily remain low, although there has been an uptick over the last couple of quarters.
- NOI growth has come down from the highs of 2021 and early 2022 but remain positive for all sectors including office, although office has been bouncing around zero.

VACANCY BY PROPERTY TYPE



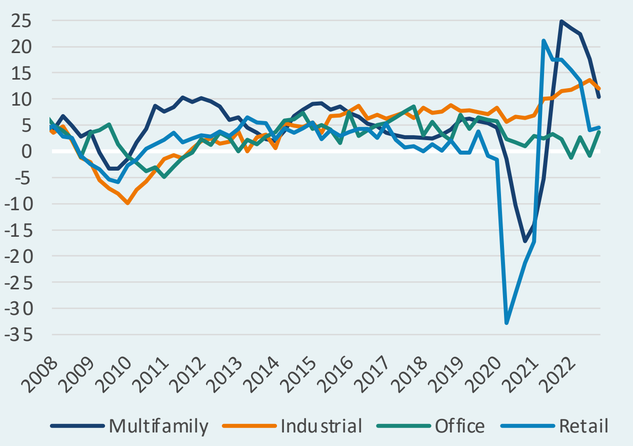
Source: NCREIF, as of 12/31/22

CAP RATE SPREADS



Source: FRED, NCREIF, as of 12/31/22

4-QTR ROLLING NOI GROWTH (%) BY PROPERTY TYPE

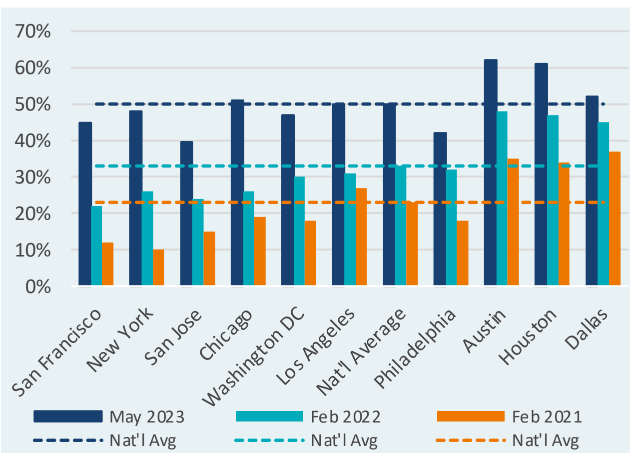


Source: NCREIF, as of 12/31/22

Challenges in office

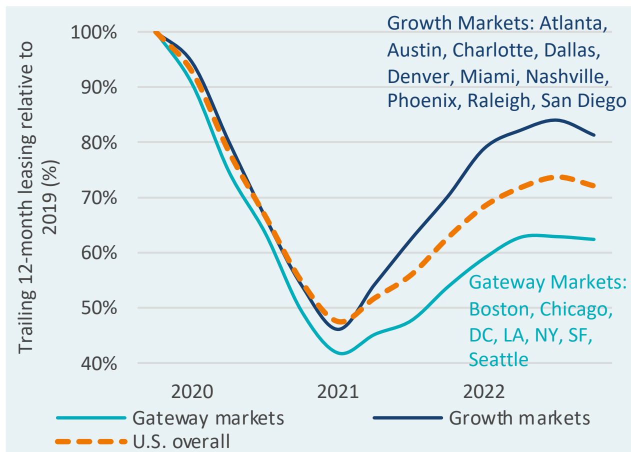
- Employees have increased office utilization from a year ago with the pandemic in the rearview mirror, however structural shifts remain with most companies embracing a hybrid work environment. Physical occupancy remains around 50% of pre-covid levels.
- Domestic migration has aided some office markets with stronger leasing volumes relative to gateway markets. Even growthier markets are still experiencing a decline in leasing relative to pre-pandemic levels.
- We continue to see a bifurcation in demand with new leasing activity gravitating towards newer office buildings with more attractive amenities. Office buildings delivered since 2015 have experienced positive net absorption since Covid began while all other buildings are facing net tenant outflows.
- The leasing cycle for office tends to averages 5-7 years, so many leases are still paying at pre-pandemic levels. We are in the midst of the rental re-pricing as well as overall asset valuation uncertainty. It will take several years to work through the system and fully reset pricing. Capital seeking investment in the office sector has dried up and re-financing is a challenge as lenders are all reducing exposures to the sector.

OFFICE PHYSICAL USAGE TRENDS



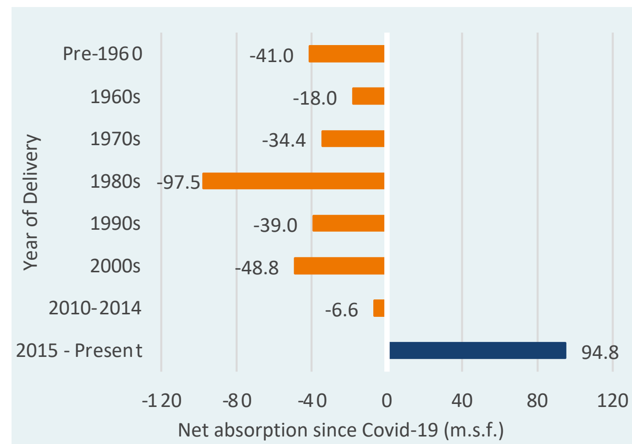
Source: Kastle, 5/8/23

REGIONAL LEASING VOLUME TRACKING OFFICE RE-ENTRY



Source: JLL, March 2023

FLIGHT TO QUALITY – NET LEASING ACTIVITY

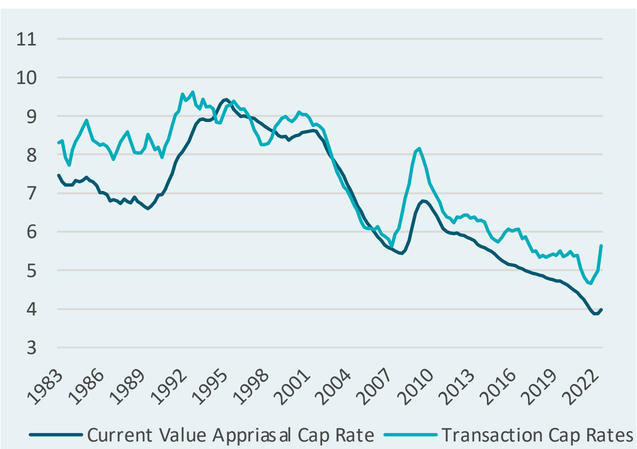


Source: JLL, March 2023

Cap rates

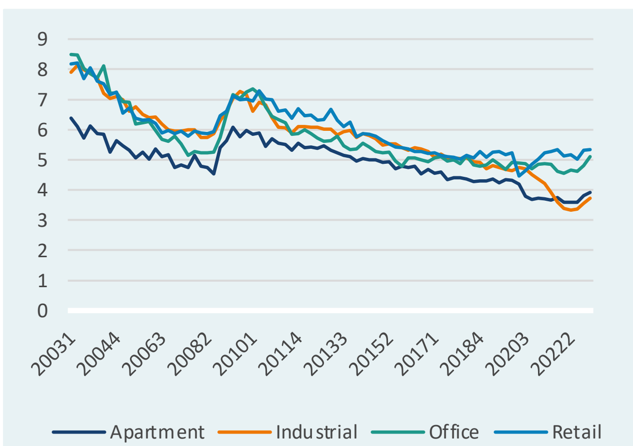
- Private real estate appraisal cap rates have been slow to react to the rising interest rate environment. This is not atypical, as the appraisal process generally lags when there is a decline in transaction volumes and fewer comparable sales or "comps" for appraisers to use as a data set.
- For transactions that are taking place, there is a widening gap with appraised values indicated there is more downside to come in private valuations as they adjust to "market".
- We have also seen a widening gap over the last several years between property types as industrial and multifamily have been more in favor with investors versus office and retail. There has been a small uptick in cap rates for all property types over the last couple of quarters.
- We can also look to the public real estate markets for an idea of where cap rates are heading. We have seen implied cap rates move higher in the REIT market, lending additional credence to our view that cap rates in private real estate are set to move further this year. Usually, implied cap rates are more volatile but can be a leading indicator directionally as they are quicker to respond than the appraisal process.

PRIVATE CAP RATES (4-QTR MOVING AVERAGES)



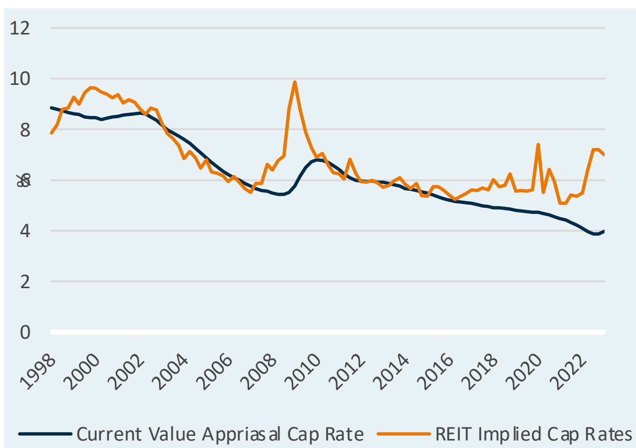
Source: NCREIF, 3/31/2023

CURRENT VALUE CAP RATES BY PROPERTY TYPE



Source: NCREIF, 3/31/2023

PRIVATE CAP RATES VS REIT IMPLIED CAP RATES



Source: NCREIF, JPMorgan, March 2023

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Real estate – New supply and absorption

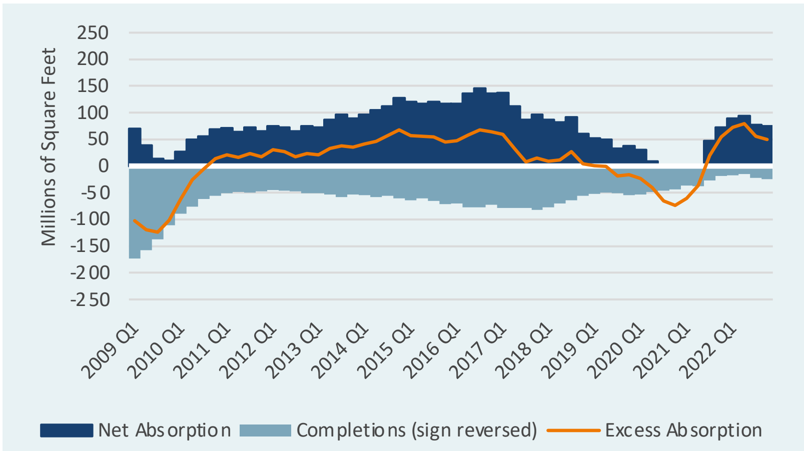
Demand has declined recently while new completions remains elevated.

Office remains severely oversupplied as demand has fallen off and completions in process pre-Covid continue to deliver.

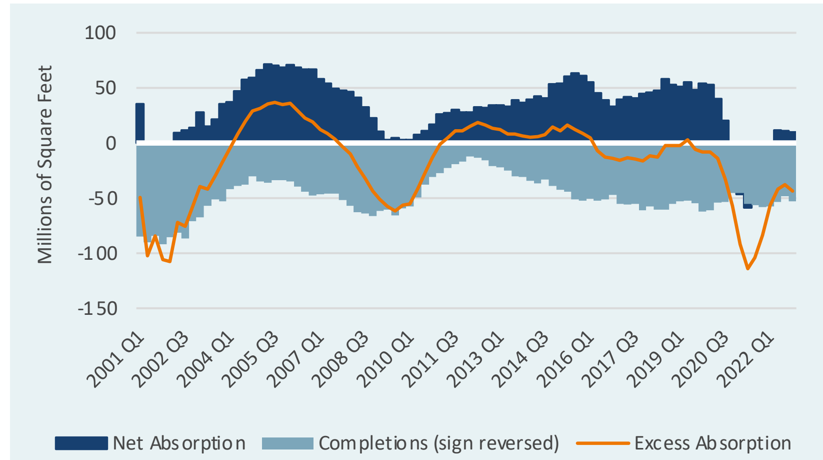
Demand has dropped recently for multi-family and industrial while completions remain elevated. Net absorption has turned negative on multifamily and is now flat in industrial.

Retail is the one bright spot for this metric, as new completions remain muted while leasing activity has picked up.

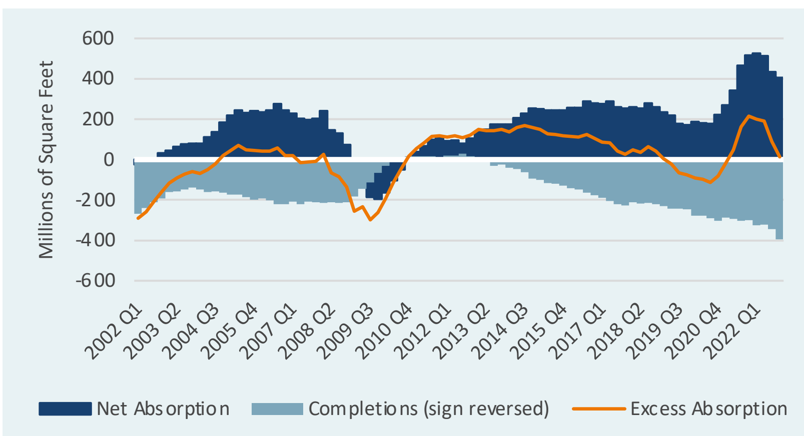
RETAIL



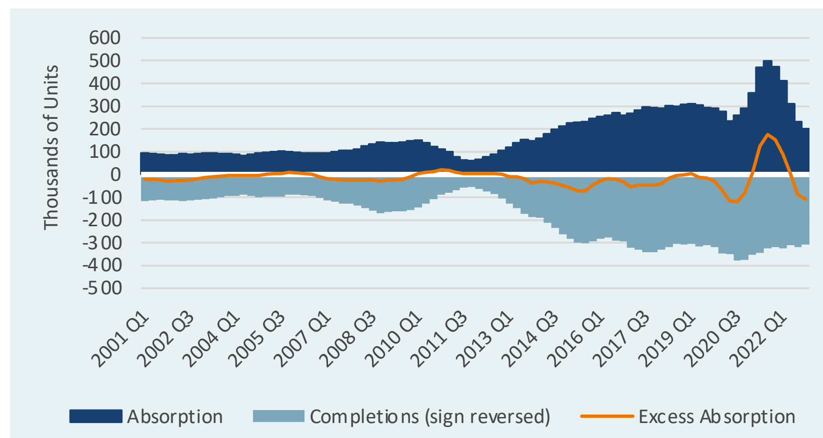
OFFICE



INDUSTRIAL



MULTIFAMILY



Source: American Realty Advisors utilizing CoStar data as of 12/31/22

Real estate fundraising

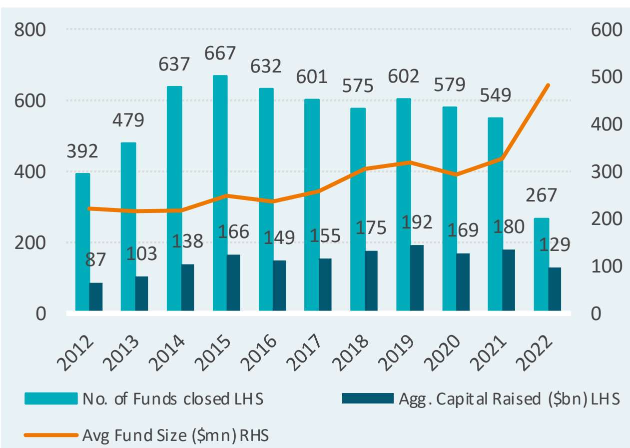
— The number of funds closed declined substantially over the last year with the total amount of capital raised coming down slightly, leading to a much higher average fund size.

— Dry powder in the closed-end fund space has come down in recent years off record highs but remain elevated. Transaction volumes declined in the second half of 2022.

— The majority of closed-end funds that closed the last couple of years were targeting opportunistic and distressed strategies, a shift from prior years where value add was substantially higher.

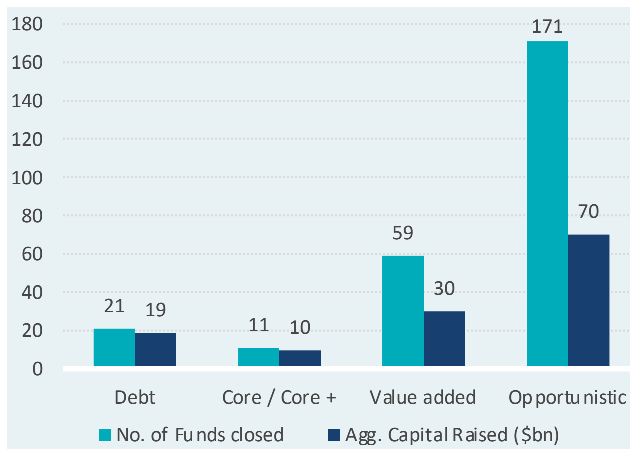
— Current core real estate open-end fund redemption queues total over $33 billion from 20 core funds that Verus recently surveyed, which has grown more than two-fold in the last year. Core funds are in the process of re-pricing, delivering negative returns, and with some investor's overweight real estate, redemption activity has hit levels not seen since the GFC.

HISTORICAL PRIVATE REAL ESTATE CLOSED-END FUNDRAISING ($B)



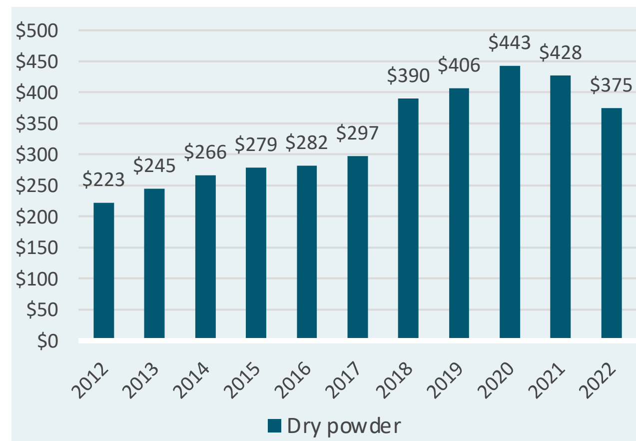
Source: Pitchbook, as of 12/31/22

20222 PRIVATE REAL ESTATE CLOSED-END FUNDRAISING ($B) BY STRATEGY



Source: Pitchbook, as of 12/31/22 (Opportunistic includes Distressed)

DRY POWDER ($B) – CLOSED-END FUNDS



Source: Pitchbook, 12/31/2022

Real estate debt

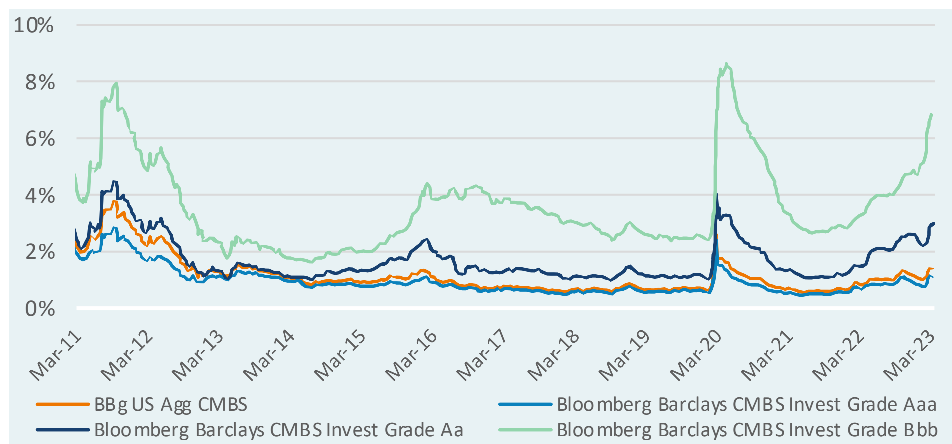
- Lending standards have tightened up for all loan types. Private lending spreads have widened, and lenders are requiring more conservative loan-to-values for new loans. CMBS spreads for most tranches have steadily increased over the last year.
- Rising interest rates are benefitting floating rate lending strategies going forward. Base rates have increased significantly as the Secured Overnight Financing Rate (SOFR) has risen from near zero to over 5% in the last year.
- Within real estate debt strategies, we are less favorable about the riskier segment of the loan market (i.e. construction loans, structured equity, etc.) as LTVs come down and lenders become owners. Having the capital and operational capabilities to assume ownership is necessary in this market environment.
- We would also caution that some evergreen debt strategies are experiencing defaults/write-downs and are likely to see additional valuation pressures, especially in the office sector.
- Transaction volumes have fallen off over the last several quarters, although for deals that are taking place, private capital is facing less competition from traditional lenders (banks and insurance companies) as many are de-risking their portfolios.

PRIVATE LENDING SPREADS

	Stable Asset Whole Loans	Transitional Asset Whole Loans	Lower Risk Mezzanine	Transitional Asset Mezzanine & Preferred Equity	Developmental Asset Mezzanine & Preferred Equity
Capital Stack	0 - 60% LTV	0 - 75% LTV	50-65% LTV	65-85% LTC	65 - 85% LTC
Duration	2-5 Years	2-5 Years	2-7 Years	2-4 Years	2-4 Years
Typical Lending Spreads	SOFR + 1.5-2.0%	SOFR + 2.85 – 4.50%	SOFR + 4.0-6.0%	SOFR + 6.0 - 8.0%	SOFR + 12-15%

Source: PGIM, as of 3/31/23

CMBS SPREADS



Source: Bloomberg, as of 3/22/2023

REITs

— REITs were earlier than private real estate in experiencing valuation adjustments in 2022, when interest rates began to rise. U.S. REITs were down 24% for the full year in 2022 but have seen a slight recovery in 1Q 2023 of +3%.

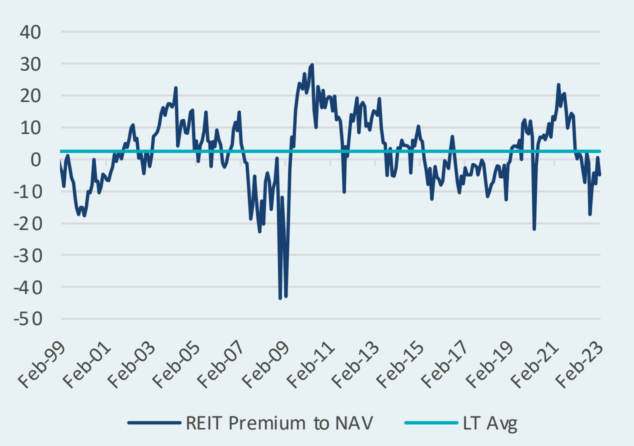
— REITs traded at a steep discount to NAV for much of the 2nd half of 2022, however a slight recovery in early 2023 has them now trading at less of a discount to NAV.

— Sector dispersion continues to be high, although most major sectors were off significantly in 2023 (office, industrial, apartments, healthcare and self-storage were all down over 22%.) Some segments of retail (shopping centers and free standing) were down less, only 7% and 13%. Office continues to be the biggest laggard, down 38% in 2022 and down another 16% in 1Q 2023.

— REITs do offer differentiated exposures vs private core real estate. Outside of the four main property types, core real estate exposure to niche property types is 8%, while REIT exposure to those same niche sectors is almost 60%.

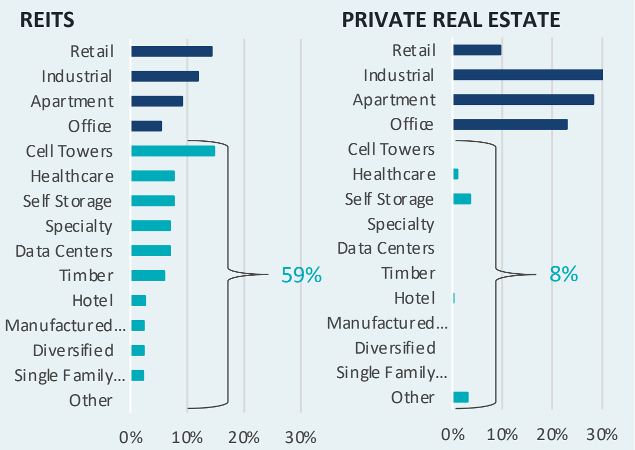
— We are neutral on REITs given only modest discounts to NAV (which is likely overvalued) but given volatility in the asset class, that could change to positive if we see a deep drawdown later this year.

REIT PREMIUM TO NAV



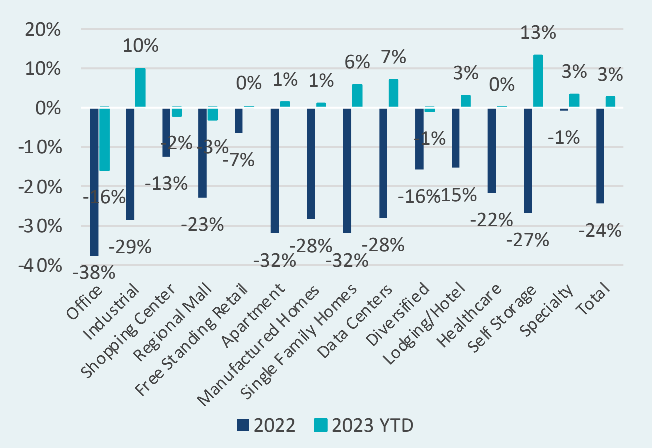
Source: JPMorgan, as of 2/28/23

NICHE SECTOR WEIGHTS IN REITS VS PRIVATE RE



Source: NCREIF, FTSE, as of 12/31/22

REIT PERFORMANCE BY SUB SECTOR



Source: Duff & Phelps, Bloomberg, as of 3/31/2023

Commodities

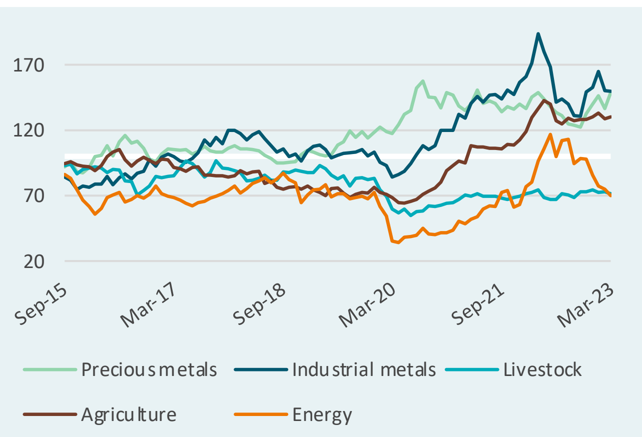
- Commodities were one of the few bright spots in 2022, up 16% for the year, led by energy commodities. During the first quarter of 2023, prices reversed themselves as inflation slowed and demand fell.
- The roll return component of the index remains positive though that has seen a sharp versal in 2023 and could turn negative if supply stocks build up across petroleum commodities.
- Commodities have been a rewarding asset class to own over the last 2 years, but we don't see those returns being sustained. We moved towards a negative outlook this year in commodities, as we see better opportunities to allocate investor capital.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(0.2)	(5.4)	(5.4)	(12.5)	20.8	5.4	(1.7)
Bloomberg Agriculture	1.0	0.0	0.0	(3.6)	23.7	8.4	(0.5)
Bloomberg Energy	(6.9)	(18.7)	(18.7)	(25.1)	25.4	(1.5)	(9.2)
Bloomberg Grains	3.3	(2.4)	(2.4)	(7.8)	21.5	7.7	(2.0)
Bloomberg Industrial Metals	(0.3)	(2.1)	(2.1)	(22.1)	21.1	5.9	2.1
Bloomberg Livestock	(2.3)	(4.3)	(4.3)	(2.8)	6.0	(2.6)	(3.0)
Bloomberg Petroleum	(2.5)	(5.9)	(5.9)	(4.8)	49.4	6.6	(4.3)
Bloomberg Precious Metals	9.2	6.3	6.3	(0.4)	8.3	7.1	0.3
Bloomberg Softs	0.2	9.3	9.3	(2.3)	23.4	7.1	(1.6)

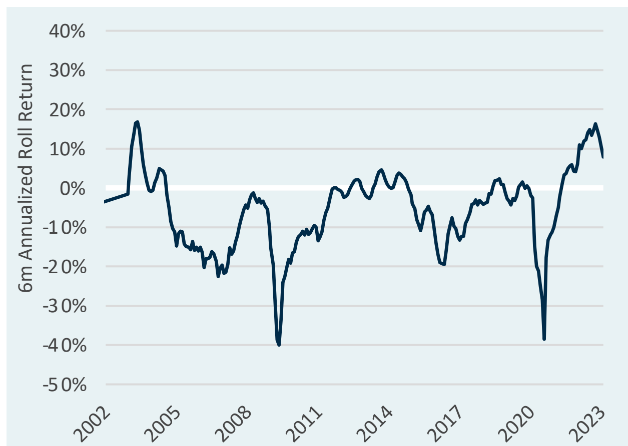
Source: Morningstar, as of 3/31/23

SECTOR PERFORMANCE



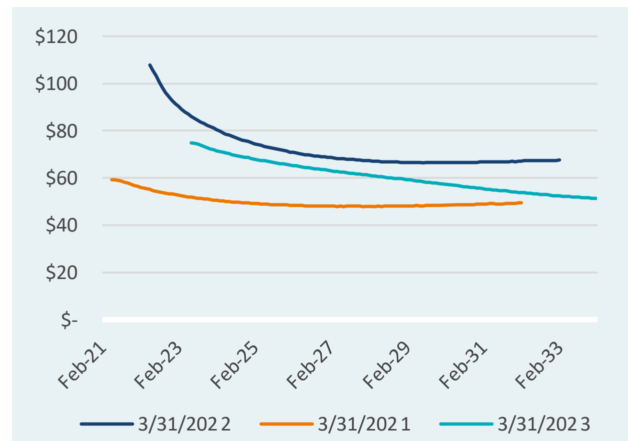
Source: Bloomberg, as of 3/31/2023

ROLL RETURN



Source: Bloomberg, as of 3/31/2023

CURVE SHAPE (WTI)



Source: Bloomberg, as of 3/31/23

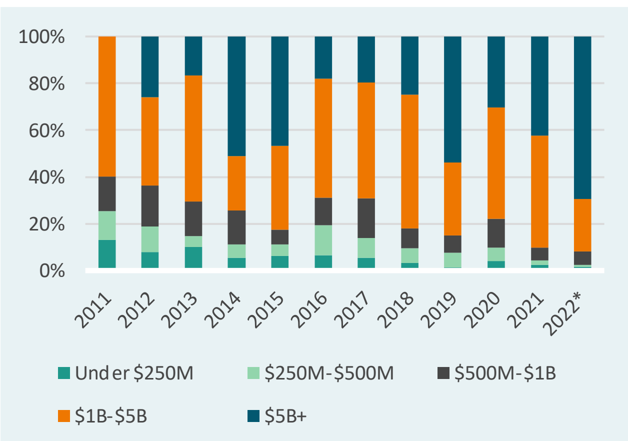
Private infrastructure

— Infrastructure fundraising slowed in 2022, much like we saw across other private market asset classes. Despite falling short of the all-time high-water mark for fundraising set in 2021, infrastructure continues to absorb much of the capital allocated to real assets. Several fundraising trends have come center stage: Mega-funds are the new normal with eight managers reaching a final close above $5B in the year. Moreover, the top 10 managers by size make up 80% of the capital raised; Digitization and decarbonization focused funds made up nearly 50% of funds raised; Geographically, North America is in favor accounting for ~70% of fundraising.

— Dry powder is down relative to the last two years in part due to a slower fundraising and managers ability to take down larger deals. After a strong start, deal volumes declined 27% at the tail end of 2022 as financing became more expensive and economic uncertainty weighed on the market.

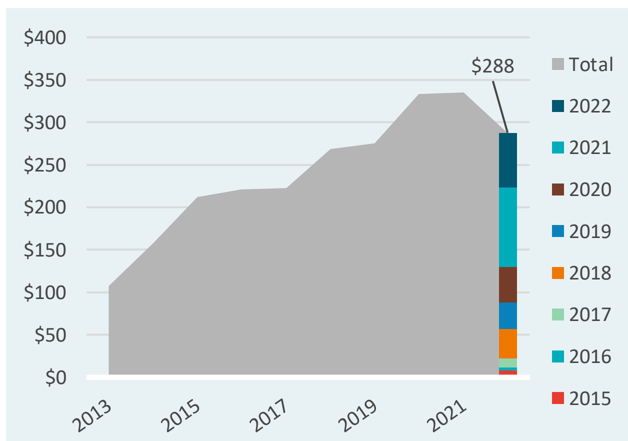
— Returns over the last year in infrastructure outperformed nearly all other private asset classes. In this regard, Infrastructure delivered on one of its key goals, to provide inflation protected returns. Going forward, we see headwinds for the asset class as higher financing costs, slowing inflation and slowing GDP growth become priced into what are fairly rich valuations.

INFRASTRUCTURE FUNDRAISE BY FUND SIZE (%)



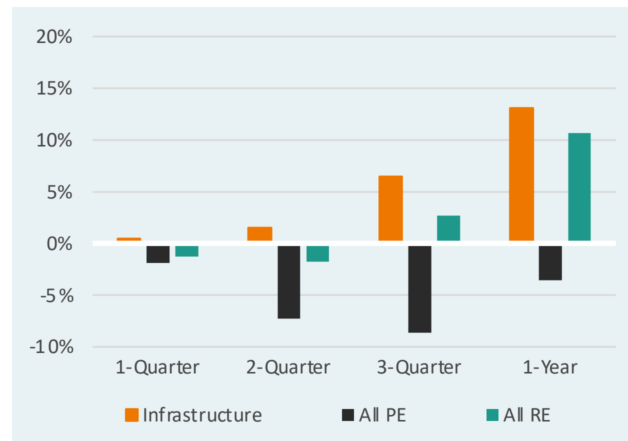
Source: Pitchbook, as of 9/30/2022

INFRASTRUCTURE MANAGER BY FUND SIZE



Source: Pitchbook , as of 9/30/2022

Q3 '22 TRAILING POOLED IRR

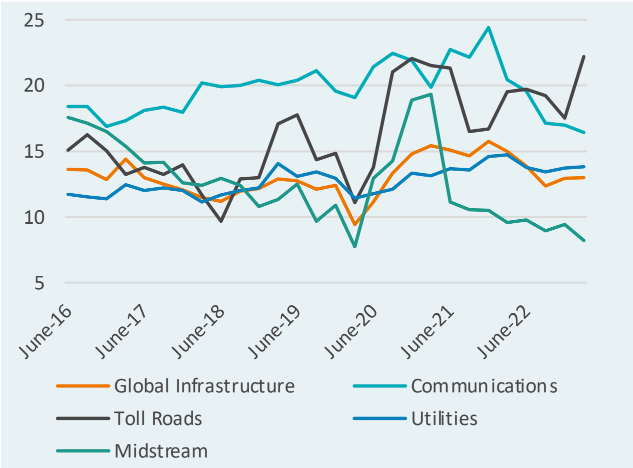


Source: Refinitiv C|A, as of 9/30/2022

Private infrastructure (continued)

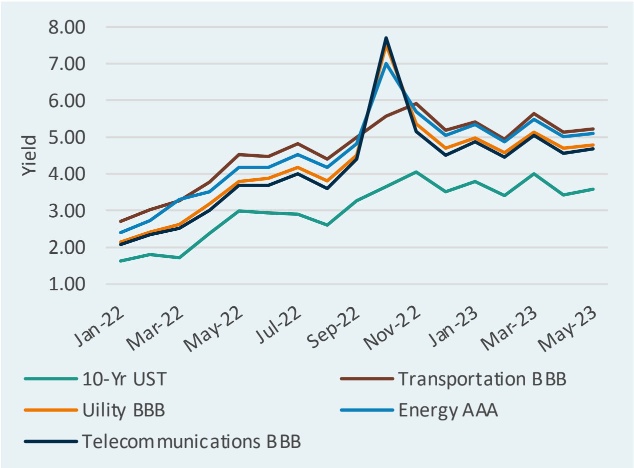
- Inflation brought forth a regime change in the cost of capital, a stark difference from the previous period of low interest rates, the impact of which has yet to be reflected in equity values. If rates stay elevated, discount rate increases should flow through to valuations. We expect that assets priced on ultra low interest rates and have bond-like fixed cash flows will be particularly susceptible to changing discount rates (ex. PPA contracts).
- Non-core infrastructure is arguably more sensitive to the rising cost of capital because of exposure to floating rate, non-investment grade debt. This can be somewhat offset by higher growth in cash flows and value-add potential by management teams. One trend we have noticed is the blurring of lines between infrastructure and traditional private equity buyouts as new industries around growing themes are added to the mix: Energy Transition, Healthcare, Waste and Digital Infrastructure have all been added into the fold. While many assets have infrastructure characteristics, many managers are accepting a period of significant investment and negative cash flow, along with development, technology, and commercial risks.
- Sector divergence is likely to be meaningful as we anticipate a decline in GDP over the coming quarters. Some areas of transportation that only recently recovered from pandemic impacts, are likely to feel the weight of recession forces as global trade slows. Telecommunications has data growth tailwinds, though valuations could come under pressure. Utilities and Social infrastructure should remain resilient.

INFRASTRUCTURE VALUATIONS – EV/EBITDA



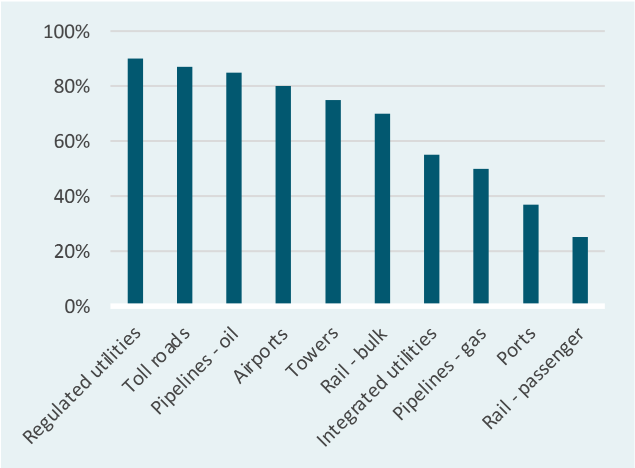
Source: Bloomberg; Dow Jones Brookfield; S&P Indices, as of 3/31/2023

RISING COST OF CAPITAL



Source: Bloomberg; ICE BofA Indices, as of 3/31/2023

DEGREE OF INFLATION PROTECTION BY SECTOR

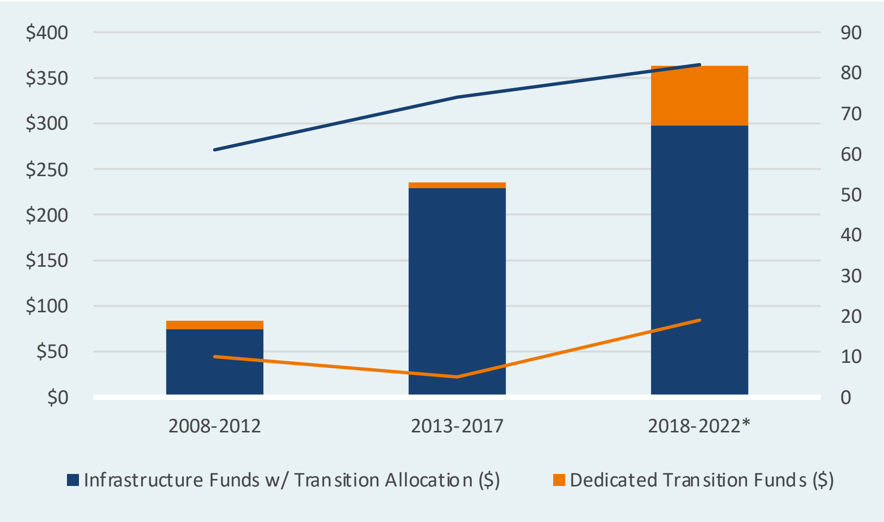


Source: First Sentier Investors

Infrastructure – Energy transition

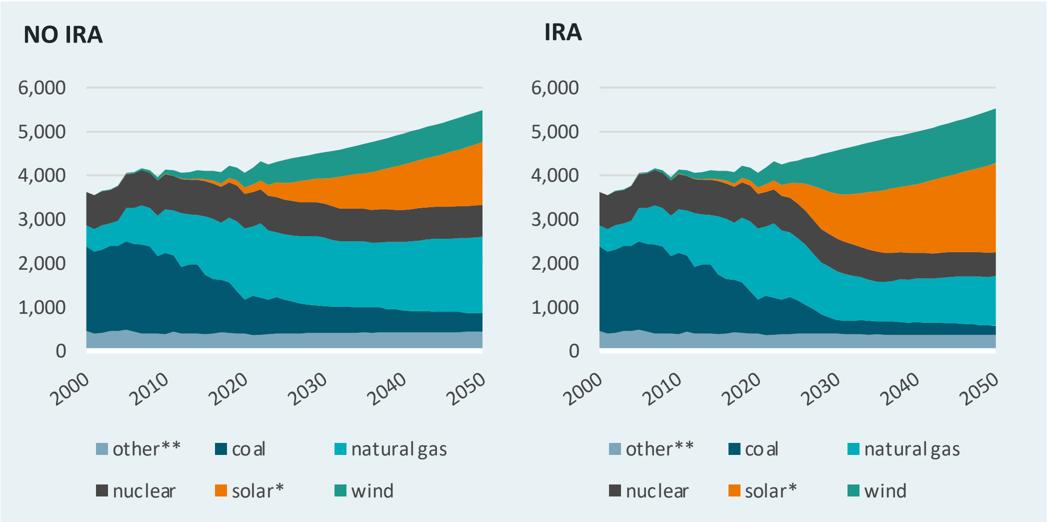
- Fundraising within energy transition infrastructure has ballooned over the past four years. Capital is coming from both infrastructure managers starting new sector focused strategies, while other are allocating a portion of their general infrastructure strategies to invest in clean energy themes. From 2018 to 2022, $65B was raised for sustainable infrastructure as compared to the prior eight-year period ('08-'17) that raised $6.5 billion. This doesn't account for the 82 general infrastructure funds which broadly plan to invest some portion of their capital in sustainable infrastructure. While the scale of capital needed to meet clean energy goals is vast, we see risk being underpriced and likely disappointing returns in the future for less experienced managers.
- Policy initiatives like the Bipartisan Infrastructure Bill (BIL) (2021) and the Inflation Reduction Act (IRA) (2022) have created an estimated $400 billion in energy and climate funding, most of which is in the form of tax credits aimed at catalyzing private investment in clean energy, transportation and manufacturing. The IRA bill is widely considered to be the most consequential legislation ever passed for the clean energy industry.
- For the first time in 30 years electricity demand growth is estimated to increase to 2-4% a year, driven by the plug-in of the transportation sector (EV's). Growing energy demand, pared with net zero emissions targets will create large opportunities for renewables and the infrastructure required to deliver those electrons.

FUNDRAISING IN ENERGY TRANSITION ($B)



Source: Pitchbook, as of 12/31/2022

U.S.NET ELECTRICITY GENERATION BY FUEL (BILLION KW-HOURS)

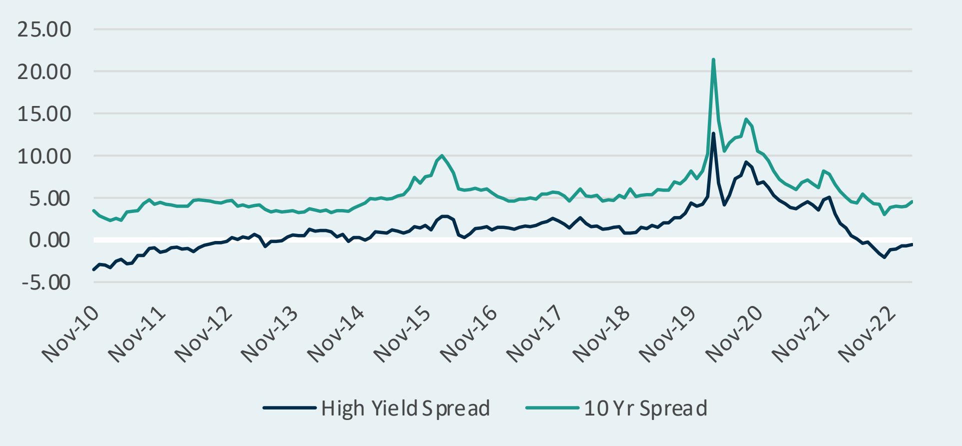


Source: Annual Energy Outlook 2023

Midstream energy/MLPs

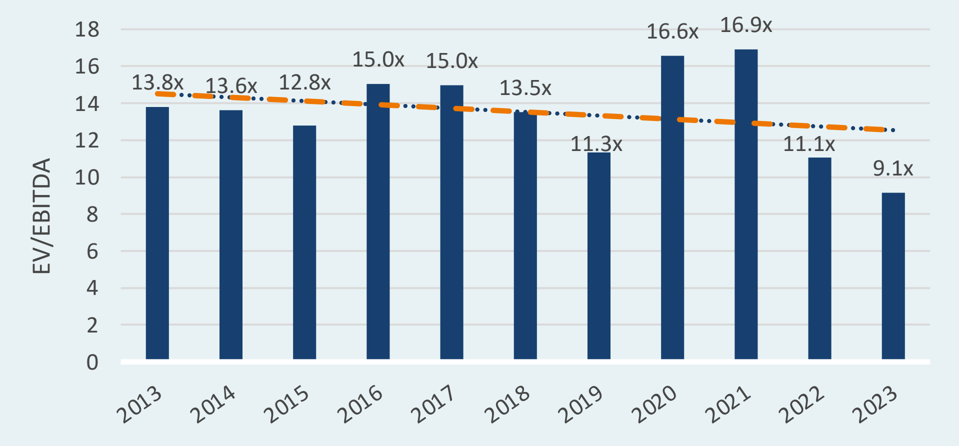
- Midstream energy stocks were up 31.0% in 2022. For the second year in a row, energy midstream stocks, had strong returns on both a relative and absolute return basis. Strong commodity prices led to growing volumes in both gas and oil, leading to higher earnings and at the same time, investor interest in companies that could deliver more near-term cash flows.
- Yields for listed midstream companies now trade slightly below high yield bonds but at a premium to Treasuries. The recent shift lower in relative yields is a function of the dramatic increase in interest rates but does reduce the relative attractiveness of the sectors yield income. We remain concerned about the long-term viability of the asset class and future growth opportunities.
- EV cars are not a fad or strictly the domain of green conscious consumers. They simply are more practical and efficient than ICE vehicles. With roughly 50% of oil demand coming from motor vehicle use, that is a powerful headwind for the suppliers of oil. Even if oil will be with us for decades to come, we struggle to justify a dedicated allocation to a commodity with growth headwinds when there are many other investment opportunities available.
- Natural gas does not face the same obvious demand challenges and, in fact, has strong tailwinds around export in the U.S. While some greener fuels like hydrogen could displace natural gas, that outcome is far from certain. That fact does not change our view though, that the midstream asset class fails to offer a compelling long-term investment thesis.

MLP SPREADS VS HIGH YIELD & TREASURIES



Source: Bloomberg, as of 3/31/2023

MIDSTREAM VALUATIONS (EV/EBITDA)



Source: Bloomberg; Alerian MLP Index, as of 3/31/2023

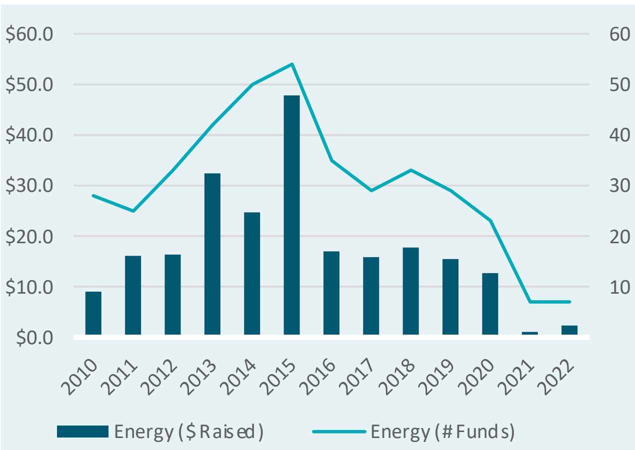
Energy – Oil/gas

— According to Pitchbook figures, fundraising within oil/gas funds remains challenging though we have seen a notable uptick in traditional oil/gas GPs coming back to market for the first time in 5+ years. The spike in commodity prices and subsequent move higher in portfolio valuations has given confidence to the industry that some LPs will revisit allocating to oil and gas upstream funds. We expect that the top 3 or 4 GPs in the sector will find investors though fundraising is slow and could be challenged further if oil prices move lower from here.

— Some good news on the exit front, we have seen a few deals completed in 2023, mostly in the Permian basin. Strategics appear to be testing the M&A market by going after the most attractive assets in the Permian basin. With natural gas prices collapsing back down to $2/MMBtu, liquidity for gas heavy assets is likely to remain elusive. If the oil/gas funds are able to raise new capital, we would not be surprised to see them buying some of these legacy sponsor-backed companies which would create an exit for older funds, though new capital has to wonder who will buy from them down the road.

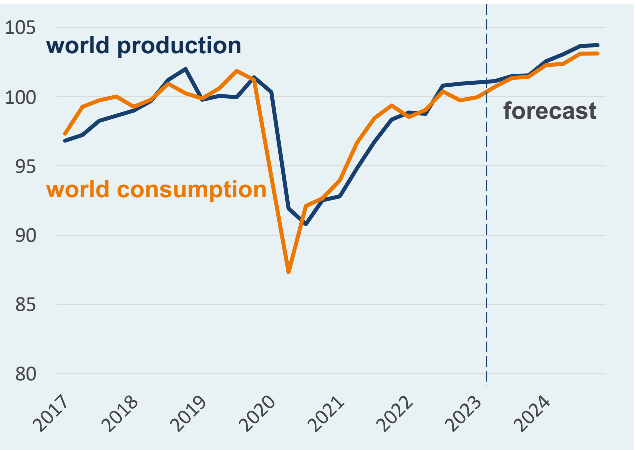
— The problem of liquidity and the transition away from hydrocarbons remain existential threats to the private oil/gas sector. We could see a role for natural gas for decades to come but oil demand appears more in doubt. Electric vehicles are more efficient, require less maintenance and if we can resolve some of the supply chain challenges, will displace combustion engines globally. Investors interested in exposure to oil/gas would be better off in public market securities than illiquid private funds.

FUNDRAISING IN OIL/GAS



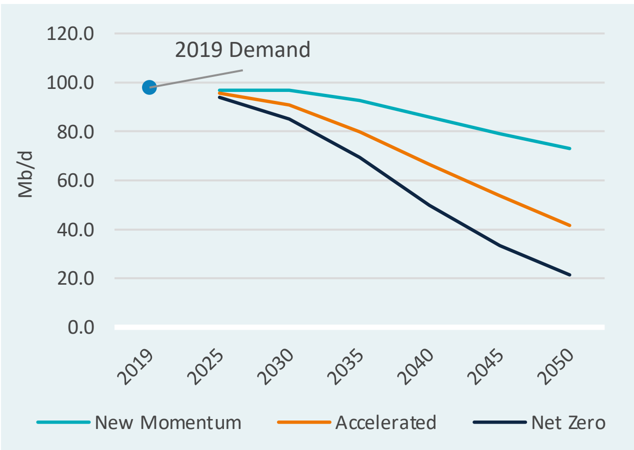
Source: Pitchbook, as of 12/31/2022

WORLD OIL PRODUCTION & CONSUMPTION*



*Source: EIA; *includes all liquid fuels*

GLOBAL OIL DEMAND FORECAST UNDER LOWER CARBON EMISSION SCENARIOS

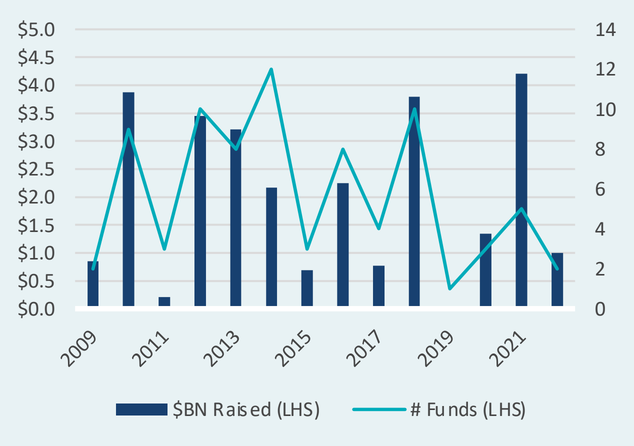


Source: BP Energy Outlook 2023

Metals and mining

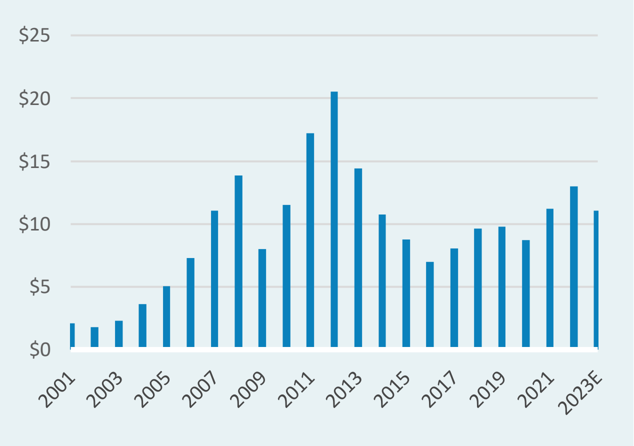
- Fundraising in the private equity mining segment picked up some in 2021 with a couple large funds in market, but subsequently declined in 2022. Raising equity capital in metals and mining has been a challenge since the global financial crisis but that has worsened in the last 5 years. We have seen some investor interest in royalty/streaming funds and in mining lending, where we have deployed client capital, but even that niche market is a small opportunity.
- After a modest recovery from a cyclical low in 2016, non-ferrous mining exploration budgets have been on the upswing, hitting a recent peak in 2022. Budgets are expected to decline in 2023, though the consensus is that more spending will be needed to meet future demand for metals/minerals important to clean energy. Prices moved lower in 2022 for industrial metals and are likely to face near-term headwinds if economic activity slows. Precious metals, on the other hand, have rallied the last several months as the banking crisis fueled the buying of safe-haven assets.
- We are more bullish on base/industrial metals which longer-term will benefit from a shift away from fossil fuels. We are less bullish on bulk and energy-related commodities. Our overall outlook within mining is positive with a notable challenge in finding enough investment opportunities that meet our underwriting criteria.

FUNDRAISING IN MINING



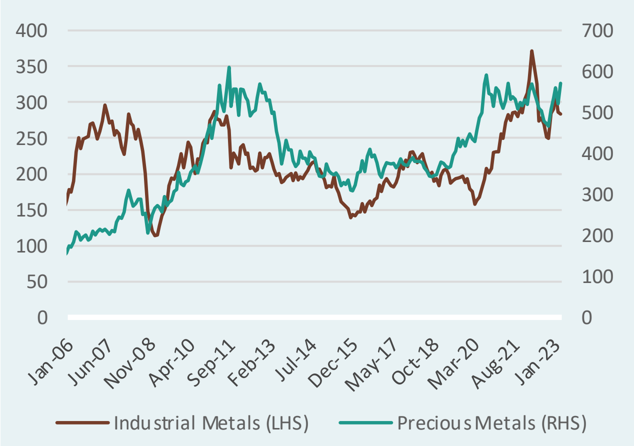
Source: Pitchbook, as of 12/31/2022

CAPITAL EXPENDITURE IN MINING ($B)



Source: S&P Global Market Intelligence; Non-Ferrous budget

METAL PRICES

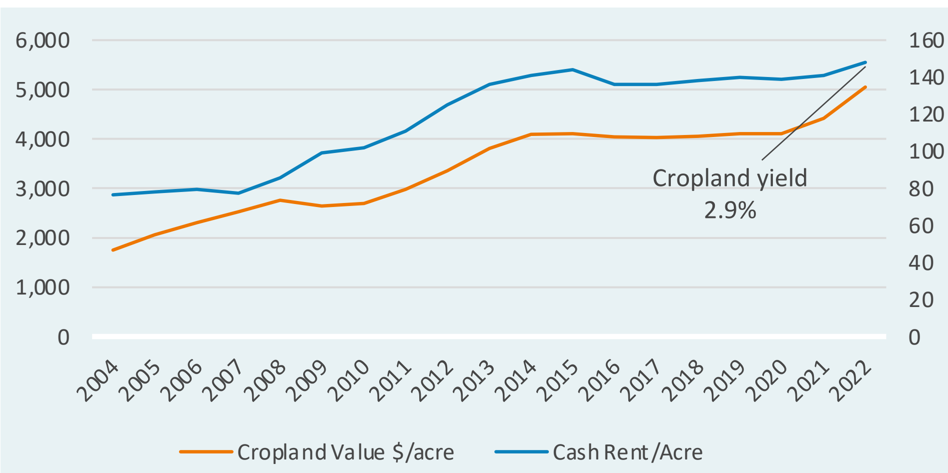


Source: Bloomberg, as of 3/31/2022

Agriculture

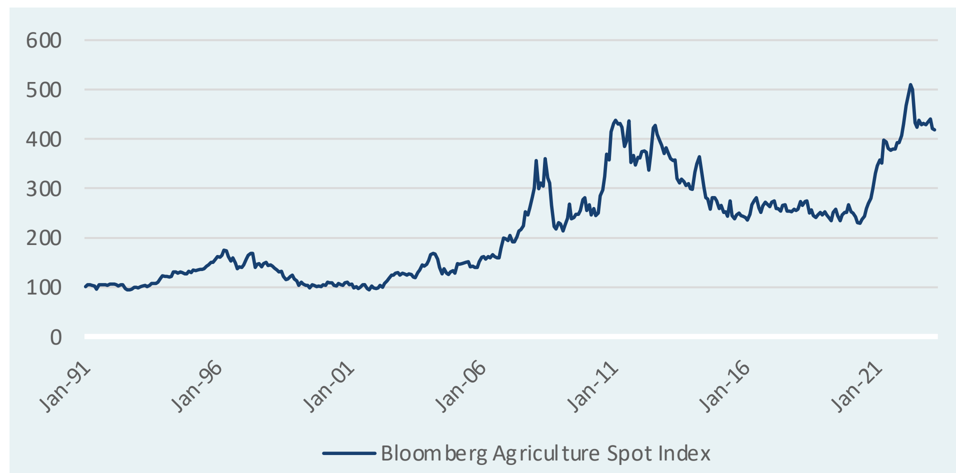
- Cropland values nationally rose in 2022 to $5,050/acre, an increase of more than 14% over the prior years 8.0% rise. This is a notable change since 2015 when farmland values leveled off in a low agriculture price market. Verus has been generally been bearish on farmland investments as income yields have trended around 3.0% and a catalyst for appreciation was lacking. The War in Ukraine and the subsequent global disruption in Ag crop supply chains has put a premium on stable countries with certainty of supply. Elevated crop prices is likely to reverse somewhat in the coming years but there is an improved outlook for Ag investing in the U.S. and certain other OECD countries.
- In the row crop segment, higher crop prices sent land values up double digits in many markets, though most expect elevated corn, wheat and soybean prices to come down. Permanent crops on the other hand, have seen land values come down or stay flat, as nut prices and citrus have declined for varying reasons. Ag investing is notoriously challenging, as the last 10 years have shown, with weather, tariffs, wars and changing consumer habits all playing a role in the asset classes returns. We believe diversifying across crop types and looking for strategies that can invest in post-farmgate assets is the best way to mitigate idiosyncratic events and capture a higher return.
- Following several years of poor returns in Agriculture, row crop assets spiked in value with higher crop prices. While we do not see the asset class as an overly compelling buying opportunity, on a relative basis, the Ag market looks more attractive today than in prior years.

U.S. NATIONAL CROPLAND VALUES VS CASH RENTS



Source: USDA, as of 12/31/2022

BLOOMBERG AGRICULTURE PRICES



Source: Bloomberg, as of 3/31/2023

Appendix

Detailed returns by asset class

Pooled Returns by asset class	1 Year	3 Year	5 Year	10 Year
NCRIEF ODCE	7.5%	9.9%	8.7%	10.1%
Refinitiv Real Estate – Value-Add	8.5%	10.9%	10.1%	11.4%
Pitchbook Real Estate - Value-Add	19.3%	13.6%	12.4%	12.8%
Refinitiv Global Infrastructure	9.4%	10.8%	10.3%	10.7%
Refinitiv Global Natural Resources	25.2%	8.7%	5.1%	3.6%
Pitchbook Oil/Gas	33.7%	11.7%	6.9%	4.9%
Pitchbook Mining	8.6%	4.1%	2.3%	2.9%
NCRIEF Timberland	12.9%	7.5%	5.4%	5.8%
NCRIEF Farmland	9.6%	6.8%	6.4%	8.8%
Public Index (as of 12/31/22)				
Russell 3000	-19.2%	7.1%	8.8%	12.1%
MSCI ACWI	-18.0%	4.5%	5.8%	8.5%
S&P Global Infrastructure	-0.2	1.7%	3.9%	6.5%
S&P Global Natural Resources	10.3%	11.6%	7.3%	4.9%
FTSE NAREIT Global	-23.6%	-5.1%	-0.1%	3.4%
FTSE NAREIT U.S.	-24.9%	-1.0%	3.0%	6.0%

Source: Refinitiv C|A as of September 30,2022; Pitchbook as of September 30, 2022; NCREIF as of December 31, 2022

The role of real assets

	Strategy	GDP sensitivity	Inflation sensitivity	Income orientation	Return enhancing	Risk reducing	Liquidity
Privately-traded real assets	Private real estate core	High	Moderate	High	Moderate	Moderate	Moderate
	Private real estate value added	High	Low/None	Moderate	High	Low/None	Low/None
	Private real estate opportunistic	High	Low/None	Low/None	High	Low/None	Low/None
	Private infrastructure	Moderate	Moderate	High	Moderate	Moderate	Low/None
	Timber	Low/None	Low/None	Low/None	Moderate	High	Low/None
	Farmland / agriculture	Low/None	Moderate	Moderate	High	High	Low/None
Publicly-traded real assets	TIPS	Low/None	Moderate	Low/None	Low/None	High	High
	Commodity futures	Moderate	High	Low/None	Low/None	Moderate	High
	REITs	Moderate	Low/None	Moderate	High	Low/None	High
	MLPs	Moderate	Moderate	High	High	Moderate	High
	Listed infrastructure	Moderate	Moderate	Moderate	High	Low/None	High
	Natural resources equity	Moderate	High	Low/None	High	Low/None	High

Magnitude	Low/None	Moderate	High

Note: the summary above was determined using historical averages and correlations on a relative basis within each category. It is important to note that investments within these asset classes are often heterogeneous and may possess different qualities and sensitivities (see Appendix for further details).

Glossary of terms

Adjusted Funds From Operations (AFFO): A measurement which is helpful in analyzing real estate investment trusts (REITs). The AFFO typically equals the trust's funds from operations (FFO) but is adjusted for ongoing capital expenditures which are necessary for upkeep of the REIT's assets.

Backwardation: Also, sometimes called normal backwardation, is the market condition where the price of a commodities forward or futures contract is trading below the expected spot price at maturity.

Capitalization Rates: The rate of return of a real estate investment, which is calculated by dividing the property's net operating income by the property's purchase price.

Core Real Estate: This category of real estate will include a preponderance of stabilized properties. Core real estate should achieve relatively high income returns and exhibit relatively low volatility. Core real estate funds tend to use less leverage.

Consumer Price Index (CPI): A measure of purchasing power and inflation that takes the average prices of a basket of consumer goods and services, such as food, medical care, and transportation, and compares the same basket of goods in terms of prices to the same period in a previous year. Changes in CPI are used to assess price changes associated with the cost of living.

Contango: When the futures price of a commodity is above the expected future spot price. A futures or forward curve is upward sloping when the market is in contango.

Double Promote: A joint venture private equity structure is considered to have a "double promote" if the sponsor of a project is in fact comprised of two separate parties who each have a profit waterfall agreement or cash flow disbursements.

Dry Powder: Investment reserves raised by investment funds to cover future obligations or to purchase assets in the future.

GDP: The total value of all services and goods produced within a country's borders, for a given time period. This calculation includes both private and public consumption, government expenditures, investments, along with total exports net of total imports.

Internal Rate of Return (IRR): the IRR is the discount rate that equates the present value of cash outflows (investment) with the present value of cash inflows (return of capital). IRR is often referred to as a dollar-weighted rate of return that accounts for the timing of cash inflows and outflows.

***LIBOR*:** Is a benchmark rate that some of the world's largest banks charge each other for short-term loans. It stands for London Interbank Offered Rate and serves as the first step in calculating interest rates on various loans throughout the world.

Master Limited Partnerships (MLPs): A limited partnership structure which is publicly traded on an exchange. MLPs combine the tax benefits of a limited partnership with the liquidity of publicly traded securities. To qualify as an MLP, the entity must generate 90% of its income from the production, processing and transportation of oil, natural gas and coal.

Net Operating Income (NOI): A calculation which is used to analyze real estate investments that generate income. NOI is the property's annual income generated by operations after deducting all expenses incurred from those operations. The growth rate in NOI is a common metric used in determining the health of a property.

OPEC: The Organization of Petroleum Exporting Countries (OPEC) is a group consisting of 12 of the world's major oil-exporting nations. OPEC is a cartel that aims to manage the supply of oil in an effort to influence the price of oil on the world market.

Opportunistic Real Estate: An opportunistic fund is one that includes preponderantly non-core assets. The fund as a whole is expected to derive most of its return from property appreciation which may result in volatile returns. These funds may employ a variety of tools such as development, significant leasing risk and potentially high leverage.

Real Estate Investment Trusts (REITs): A REIT is a company that owns and operates commercial real estate properties. REITs can be publicly traded or privately held. There are two main type of REITs: Equity REITs which generate income from the operation of properties, and Mortgage REITs, which invest in mortgages or mortgage securities.

Glossary of terms (continued)

Timber Investment Management Organizations (TIMOs): A management group that invests in timberland assets for institutional investors. TIMOs will purchase, manage and sell various timberland properties on behalf of investors.

Treasury Inflation Protected Securities (TIPS): A treasury bond that is adjusted to eliminate the effects of inflation on interest and principal payments, as measured by the Consumer Price Index (CPI). TIPS are issued in terms of five, ten and twenty years and are auctioned twice per year.

Value-Added Real Estate: A value-added real estate fund often holds a combination of core assets and other assets characterized by less dependable cash flows. These strategies are likely to have moderate lease exposure and employ moderate leverage. Consequentially, these strategies seek significant returns from property appreciation and typically exhibit moderate volatility.

Vacancy Rates: The vacancy rate is calculated as the total number of unoccupied units of a property divided by the total units of the property, at a particular point in time.

Vintage Year: Represents the year the first capital call or portfolio company investment was made. .

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