Verus

PERIOD ENDING: DECEMBER 31, 2021

Real Assets Review

San Mateo County Employees' Retirement Association

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Key themes for 2022

Observations driving our outlook

Inflation Risk

For the first time in decades, high inflation has emerged and is creating challenges for consumers and investors. We believe inflation will likely begin falling later in 2022, though notable inflationary and deflationary forces are in play, and it is difficult to gauge which of these forces will have greater impacts. On the inflationary side, Russia's invasion of Ukraine has led to disruptions to energy and agricultural markets and flowed through to price spikes in many markets. On the deflationary side, large single-month inflation numbers will be falling out of the CPI calculation window, which will help bring figures down. Furthermore, many pandemic-specific issues are beginning to be resolved, such as clogged supply chains, unusually high demand for physical goods, and a slowing of abnormally strong spending. Tightening monetary policy could of course also slow economic growth and put downward pressure on inflation.

Push Towards Sustainability

The global effort to reduce carbon emissions will perhaps affect real assets more than any other asset class. Power generation, transportation, food production, and the supply of various commodities will need to undergo significant evolution in order to reach targets set by governments across the world. This will require massive funding over the next several decades, to the tune of at least $92 trillion, according to the Bloomberg 2021 New Energy Outlook, creating opportunities for new investment as well as challenges for existing assets that will be made obsolete. In this outlook we will consider how the push towards sustainability will affect the underlying asset classes and how investors can effectively gain exposure to this transition while mitigating risks.

On investing in the Oil/Gas Industry…

Following years of investor unease investing new capital into the oil/gas industry, it has become evident that most institutional investors will largely cease investing in funds that deploy capital into the oil/gas industry. Verus believes this trend is not likely to reverse, despite $100+/bbl oil price and record profits from many of the integrated oil majors. The outlook within the oil/gas industry has too many unknowns and the risk of stranded assets and/or capital loss outweighs the potential for short-term profits. For investors that wish to capitalize on high commodity prices and near-record profits for upstream oil/gas producers, we would recommend gaining exposure through public equity securities where there is greater certainty of an exit.

Navigating a strong recovery in real estate

Private real estate experienced its strongest year of performance since the inception of modern indices. The NFI-ODCE returned over 22% in 2021, including the two highest single quarter returns in 3rd and 4th quarters (6.6% and 8.0%). Fundamentals have continued to recover broadly, seeing record low vacancy levels, strong NOI growth and transaction volumes returned to near peak levels. Property type dispersion has been incredibly high as "beds and sheds" (a.k.a. industrial and multifamily) assets have driven recent index performance. We believe that the trends accelerated through the pandemic of e-commerce adoption rates and flexible office usage will continue to create challenges in the retail and office sectors. We continue to support portfolio diversification through increased exposures to alternative property types and remain favorable on the long-term fundamentals for the industrial sector.

U.S. economics – Inflation

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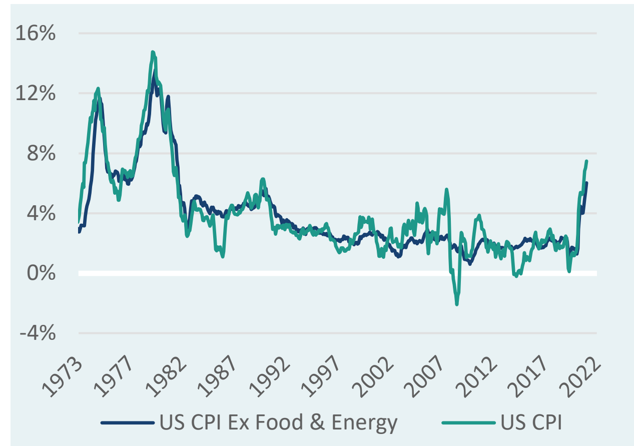
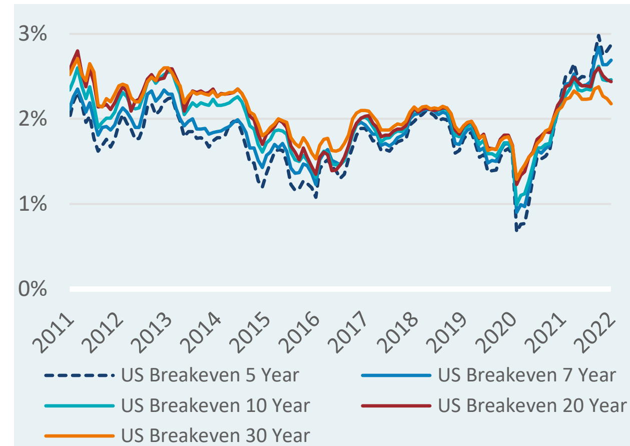
- For the first time in decades, high inflation has emerged and is creating challenges for consumers and investors. We believe inflation will likely begin falling later in 2022, though notable inflationary and deflationary forces are in play, and it is difficult to gauge which of these forces will have greater impacts. On the inflationary side, Russia's invasion of Ukraine has led to disruptions to energy and agricultural markets and flowed through to price spikes in many markets. On the deflationary side, large single-month inflation numbers will be falling out of the CPI calculation window, which will help bring figures down. Furthermore, many pandemic-specific issues are beginning to be resolved, such as clogged supply chains, unusually high demand for physical goods, and a slowing of abnormally strong spending. Tightening monetary policy could of course also slow economic growth and put downward pressure on inflation.
- While inflation remains the topic most discussed in the media, and among many investors, how the Fed responds and whether the tightening path overcorrects is an issue we are discussing more today. Learning from history and the actions of the Volker Fed, we would not rule out the possibility that this inflation cycle quickly turns into deflation as recessionary forces take hold.

U.S. CPI (YOY)



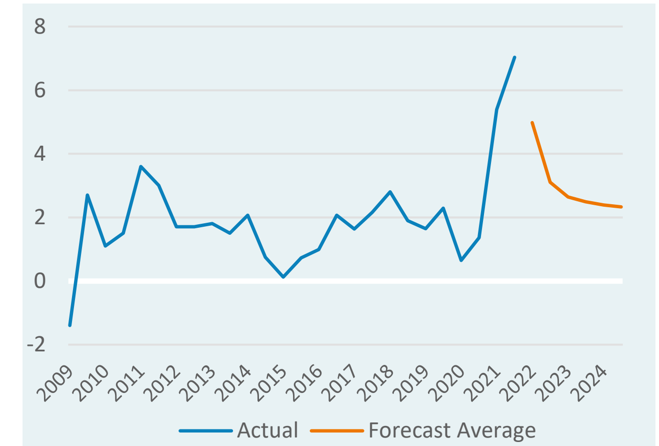
Source: FRED, as of 1/31/22

U.S. TIPS BREAKEVEN RATES



Source: FRED, as of 2/28/22

INFLATION EXPECTATIONS



Source: Wall Street Journal, 1/31/2022

Outlook summary

Outlook summary

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Private Real Estate	Over the last year there has been a sharp recovery in many segments of the real estate market. Transaction volumes are exceeding pre-Covid levels with record performance experienced broadly for the year 2021. Sector dispersion has been very high, led by industrial and multifamily. Fundamentals have been improving with declines in vacancy, increasing NOI growth and cap rate compression. Office has been the exception and has continued to experience uncertainty.	— Core real estate returns tend to have high correlation to overall GDP growth. Any hiccup to the recovery or reversal in Covid-19 progress will have a negative impact. — A sharp rise in interest rates could create upward pressure on cap rates, negatively impacting asset values. — Elevated inflation may have mixed impact on real estate. Higher replacement costs may boost relative value for existing assets, however too much inflation leading into recession would reduce growth and demand.	Our outlook remains neutral overall. We expect strength to continue over the near term, however concerns remain with higher entry prices and pressure for rising cap rates as interest rates rise. We recommend diversification into alternative property types, increased industrial exposures and deploying fresh capital with select GPs in non-core closed end funds with targeted value add or opportunistic strategies.	**Neutral**
REITs	REITs rebounded in 2021 to be one of the top performing asset classes, returning over 46%. Sector dispersion has been high as some areas beaten up in 2020 recovered sharply in 2021. Regional Malls and shopping centers were each up over 75%, There was continued strength in self storage, industrial and apartments, each up over 50%, while office continued to be a laggard, although positive.	— REITs have higher leverage than core real estate and have higher exposures to non-core sectors such as hotels, self-storage, for-rent residential homes and senior/student housing. — 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 slightly favorable and may provide a reasonable entry point for those clients looking for new exposure.	**Neutral**
Commodities	Commodities futures have roared back to life in 2021, following a decade of lackluster returns. Roll yield is now positive as excess supply has been taken out of the market. With commodity prices already at multi-year highs and central banks tightening monetary policy in response to high inflation, further prices increases appear less probable though we do not expect a strong price reversal, absent a major global economic slowdown.	— Central banks are attempting a soft-landing following years of easy monetary policy. The risk of overtightening causing a recession or, at the very least, an economic slowdown would be bearish for energy and industrial commodities. — Commodity futures have exhibited a negative roll yield throughout most of their history but with years of underinvestment in oil exploration, and in some metals, we expect undersupply to continue and thus a positive roll. Should demand faulter that situation could reverse quickly.	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. Given the rise in inflation and the appreciation of this asset class, we believe there are more attractive investments to buy for long-term investors. Entering an exposure at today's price levels when Central Banks are fighting to lower inflation is risky.	**Neutral**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
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**
Core Infrastructure	Performance within core infrastructure was strong in 2021, driven by a recovery in transportation and energy related assets and continued growth in demand for communication and logistics assets. Along with performance, the high inflationary environment has increased LP interest in the asset class given its relatively high correlation to CPI. Existing funds raised additional capital and several new open-end core funds were launched with multi-billion-dollar initial closes.	— Strong fundraising trends in infrastructure has elevated valuations, reducing the yield investors can earn which is a major role of the asset class. — Infrastructure assets provide varying degrees of inflation protection. While some assets have contracted annual revenue increases tied to CPI, others have pre-determined increases at 2-3% which do not keep up with current levels.	The asset class offers a compelling return profile that aligns well with long duration pools of capital. We favor private infrastructure funds that have in-house capability to improve operations and manage complex deal structures. Valuations are a concern given the likely rising interest rate environment and the volume of capital chasing deals in core infrastructure.	**Neutral**
Value-add Infrastructure	Closed-end funds have increasingly had to take more risk in order to achieve their typical mid-teens return targets given the reduction in cost of capital that has come with the growth of the asset class. Funds are starting to blur the lines of what is considered infrastructure and are emphasizing development as opposed to optimizing assets. On the other hand, there is a significant need for a new generation of modern infrastructure to keep up with the digital economy and electrification of the grid.	— Many GPs that have been successful in the space have become very large, raising $15+ billion-dollar funds. Deploying this amount of capital while still delivering alpha becomes a challenge for most private market managers. — Strategy creep, especially for larger fund managers, is a trend worth watching. Some infrastructure GPs are competing with traditional buyout funds on deals that carry greater risk than we believe is appropriate for value-add infrastructure investments.	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.	**Positive**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
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 generation for over two-thirds of the global population. However, there is continued downward pressure on the cost of capital in the sector to mid-single digits. Outside of traditional solar & wind, there are potentially higher returning opportunities for newer technologies such as battery storage.	— Several approaches to a carbon-neutral energy system such as green hydrogen and carbon capture technology are nascent and not yet economically viable. Investments in this space will take venture-like risk and rely on significant cost reductions as well as favorable policy regimes to be successful.	While the opportunity to achieve an attractive return in solar & wind has passed, we do think there will be attractive opportunities in sectors that still require innovation. However, it is difficult to find areas where investors will be appropriately compensated for risk given the amount of capital in the space.	**Neutral**
Oil & Gas	Following years of underinvestment in the oil/gas sector, it should not be unexpected that commodities prices would move higher as excess supply was taken out of the market. The War in Ukraine has exacerbated the oil/gas supply shortage but absent that event, we would still expect oil prices to move higher in order to incentivize producers to raise production levels. With inflation running above 7% in the U.S., and capital markets still weary about funding oil/gas exploration and production, we could see elevated commodity prices for some time. 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 are making a lot of money today and could continue to do so for quite some time. 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. We know that many oil/gas private funds are struggling to find an exit today 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 are breathing life into a still unloved sector and producers are making record profits in 2022. That said, there is still too much uncertainty around oil/gas demand, access to capital, and geopolitics for us to gain comfort in the long-term outlook for the oil/gas industry. For investors that can look past the ESG issues associated with the industry, we would consider public market investment opportunities in E&P over an illiquid private fund investment.	**Negative**
Midstream Energy / MLPs	In our Outlook last year, we said the following about midstream energy "We wouldn't be surprised to see midstream energy perform quite well in 2021 but we remain cautious on the long-term outlook for the industry". We could say the same thing in 2022 about midstream as higher oil/gas prices should push volumes higher and thus revenue for midstream companies. The shift within the listed midstream market towards a traditional corporate structure and away from MLPs, has lowered the cost of capital and in turn lowered the returns for new development projects. As in the upstream oil/gas market, we would be cautious about private midstream funds.	— 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, especially as Russian sanctions push global oil/gas prices higher, but we see this as a tactical trade that is incredibly hard to time. — Oil/Gas, more so than any other sector, is particularly susceptible to geopolitics, regulations, changes in economic growth and within midstream, interest rates.	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	Unlike their cousins in the oil/gas industry, mining is set to benefit from the expansion of clean energy in our economy. With that demand, global superpowers are competing to capture a greater share of necessary commodities that are in short supply. That competition is bullish for the prices of certain industrial commodities, but investors should be cautious about jurisdictions that have questionable rule of law. Many of the best mines for industrial metals and gold are found in relatively poor countries with unstable democracies or no democracy at all. That is a challenge when trying to invest directly in the mining sector.	— 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. — Geopolitics plays a much less important role in metals/minerals though global superpowers are battling for supply of certain commodities needed for electronics. Investors could get caught up in shifting political preferences. — 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 and gold. 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	Timber markets in North America appeared healthier in 2021, following several years of anemic transactions and low returns. Transaction activity hit its highest level since 2013, though most deals involved large Canadian pensions or corporate buyers/sellers. Lumber prices were extraordinarily volatile in 2021, framing lumber prices were up 95% in Q4 after falling 65% in Q3. Stumpage prices for southern pine were up more modestly in 2021 after several years of flat prices. Our outlook on timber has been negative for several years due to the headwinds the asset class has faced. Though the NCREIF Timberland Index returned a respectable 9.2% in 2021, we believe there are more attractive opportunities elsewhere in real assets.	— Coming off trade war headwinds, the timber market hit another bump when Covid-19 stalled exports to Asia and home building activity declined. Exports resumed in the Pacific Northwest and prices have recovered for Douglas Fir. Southern pine stumpage, on the other hand, saw little appreciation. — Timber markets outside the U.S. face varying degrees of currency and political risk which in many cases has resulted in disappointing returns for investors. With few exceptions, returns do not justify the additional risk.	For most investors, mid-high single-digit expected returns for timberland in the U.S. is too low for the illiquidity and risk assumed within the asset class. Fundraising has been slow to non-existent for closed-end timber funds for several years which has resulted in a slow transaction market. Putting aside our negative view of the asset class, evergreen vehicles from a few timber managers are about the only viable way to invest in timberland unless you are a very large institution that can fund a separate account.	Negative

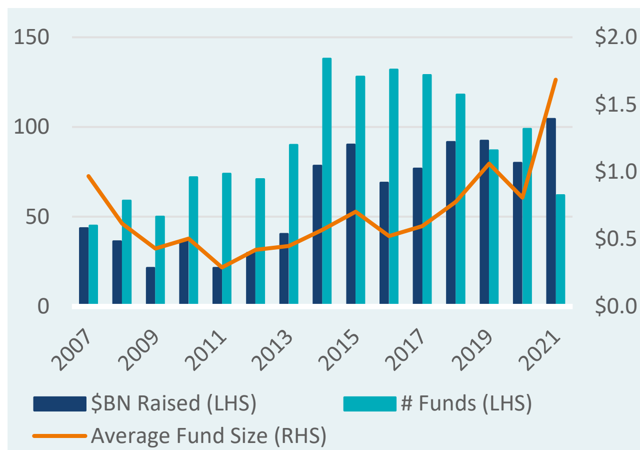
Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Agriculture	After several years of flat cropland prices, 2021 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, are sending grain prices to multi-decade highs, though we would expect those temporary price spikes to revert to more normal levels in the next 12-18 months. Relative to last year when we were broadly negative on Agriculture, we have shifted to a neutral position as the U.S. is well positioned to take market share and be a stable supplier of agriculture commodities going forward. Income returns remain unattractive though the outlook for appreciation and some inflation protection has improved.	— 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 potential. For investors seeking pure-play cropland investments, we would recommend diversifying across row and permanent crops focused on the U.S. market. However, we prefer agriculture investments where crop and land are a component of a broader value-add investment strategy.	**Neutral**

Private infrastructure

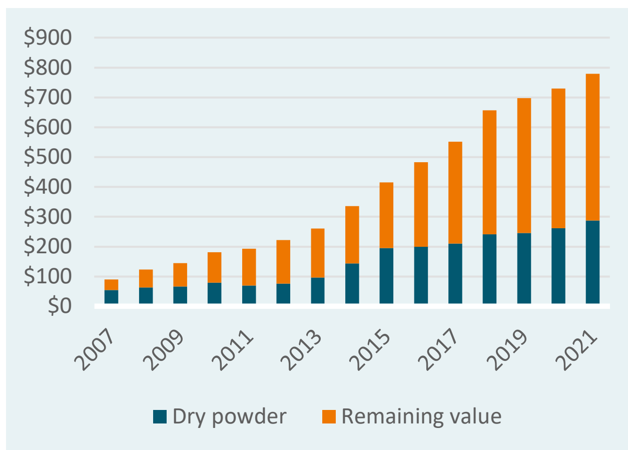
- Fundraising within Infrastructure increased in 2021, driven by several mega-funds that were closed during the year. With the oil/gas sector out of favor with institutional investors, infrastructure has been a recipient for some of the commitments which used to go into natural resources. It is possible this trend could reverse in 2022 as the recovery in energy markets has the potential to reignite investor interest in the sector.
- Despite a robust transaction market in 2021, dry powder ticked up slightly due to the large amount of capital that was raised. Along with a reduction in the cost of capital for the asset class broadly, this has caused managers to expand their definition of infrastructure and invest in companies that would more traditionally be considered private equity such as industrial services and healthcare companies.
- As institutions look for asset classes that can deliver returns above their required rates, private infrastructure should be a consideration for many investors. Historical returns range from 8-12% (net) on average, with income of 4-6% for core infrastructure funds.

FUNDRAISING IN INFRASTRUCTURE



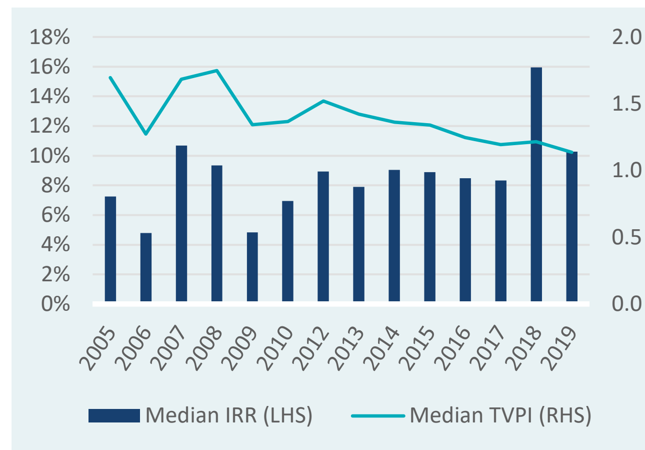
Source: Pitchbook, as of 12/31/2021

INFRASTRUCTURE DRY POWDER ($B)



Source: Pitchbook , as of 12/31/2021

VINTAGE YEAR MEDIAN RETURN (%) NON-CORE INFRASTRUCTURE



Source: Thomason Reuters, as of 9/30/21

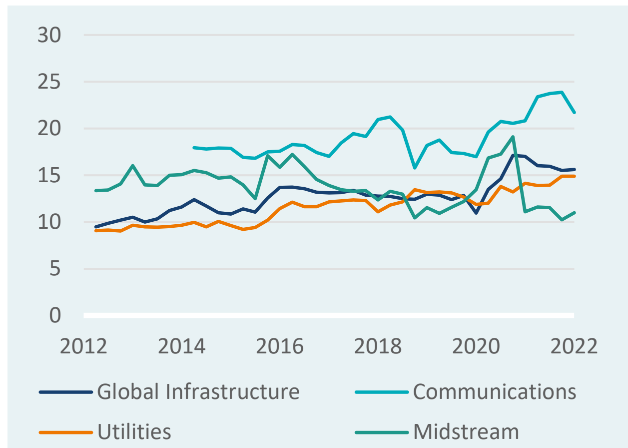
Private infrastructure (continued)

— Communication infrastructure trades at a considerable premium, 22x vs. 16x for infrastructure broadly, which reflects the stability of their earnings and future growth potential. The macro tailwinds within mobile data usage and video streaming are compelling, though valuations, at least within public markets, appear to be pricing in much of the future growth opportunity. Transactions in private markets for digital infrastructure are growing rapidly as more capital is raised to take advantage of the buildout in data storage and transmission. There are still attractive opportunities globally for digital infrastructure, but returns are coming down and finding managers that can identify underserved markets and successfully develop infrastructure will be an area of focus for our team.

— Volumes for transportation infrastructure have largely bounced back to pre-pandemic levels. However, we remain cautious of this sector given the high correlation to GDP and the lack of discount available despite poor recent operating performance. Transportation assets under availability-based contracts are more appealing, but there is limited opportunity for new construction of these assets and returns for operating assets are in the mid single digits which only align with core infrastructure targets.

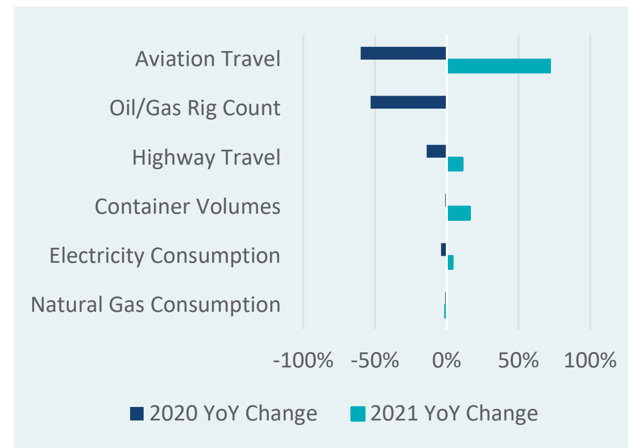
— The current inflationary environment has caused many investors to look to infrastructure to provide a hedge. While the asset class does exhibit some sensitivity to inflation, not all sectors offer equal protection. On one hand, regulated utilities earn a set return on an asset base that is often directly linked to an inflation index and have shown a strong correlation. Other sectors such as ports and rail have no direct inflation linkage in their revenues and rely on their position in the market for pricing power. Communication assets such as cell towers often have annual revenue increases built into their contracts, but these increases are typically pre-determined at 2-3% as opposed to linked to an index.

INFRASTRUCTURE VALUATIONS – EV/EBITDA



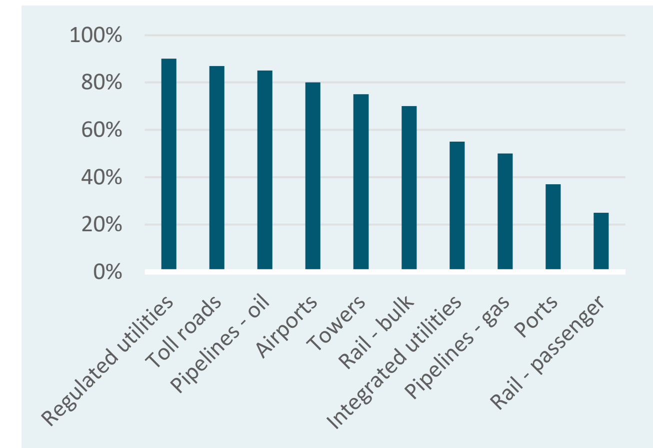
Source: Bloomberg; Dow Jones Brookfield; S&P Indices

COVID IMPACT AND RECOVERY



Source: JP Morgan Asset Management

DEGREE OF INFLATION PROTECTION BY SECTOR

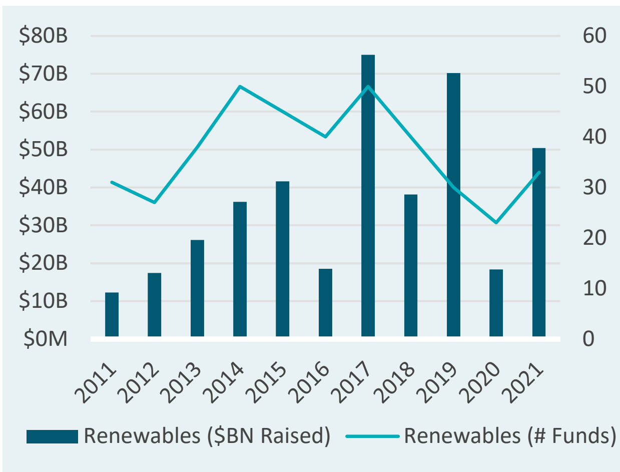


Source: First Sentier Investors

Infrastructure – Energy transition

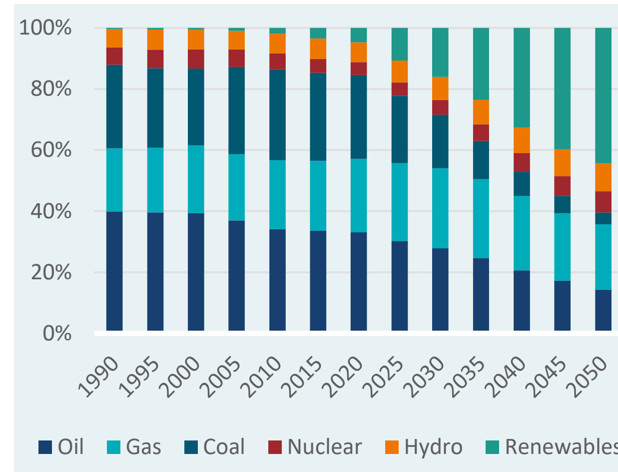
- Fundraising in dedicated renewables increased in 2021 to over $50 billion. Investment in the sector is expected to grow for policy reasons, as countries pursue decarbonization, as well as economic reasons, as onshore renewables have become the cheapest form of electricity generation in many geographies and costs continue to decline.
- Recent geopolitical conflicts have highlighted the importance of energy independence. Countries such as Germany that have ceased domestic investment in energy systems, retired nuclear plants, and outsourced their power generation supply chain have had to re-evaluate this strategy to prioritize national security, potentially further increasing demand for modern decentralized energy infrastructure.
- Despite a strong outlook on demand for renewables, there are challenges to deploying capital in the space. Returns for owning operating wind and solar assets have compressed to the mid-single digits, and the additional returns for taking development risk are only marginal due to the level of competition and the relatively straight forward operational requirements.
- Given the intermittence of solar and wind generation, the jury is still out on the most economically viable path to carbon neutrality. Several technologies that are still in early stages could play an important role such as battery storage, carbon capture and storage, and hydrogen fuels. Successful investments in these spaces could pay-off well but carry significant venture and policy risk.

FUNDRAISING IN ENERGY TRANSITION ($B)



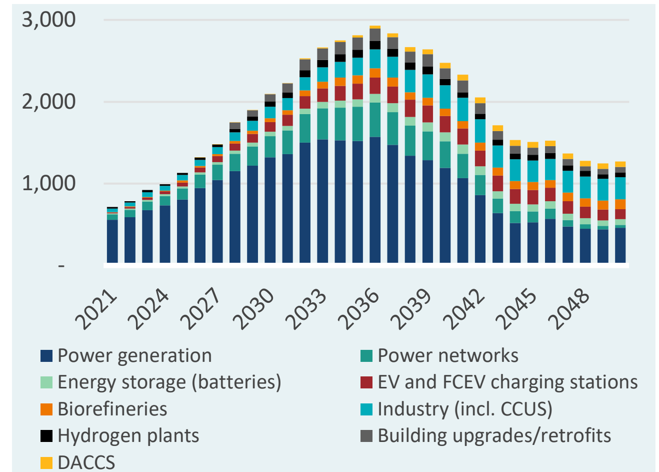
Source: Pitchbook, as of 12/31/2021

GLOBAL ENERGY SOURCES



Source: BP

ANNUAL INVESTMENTS FOR NET ZERO BY 2050 ($B)

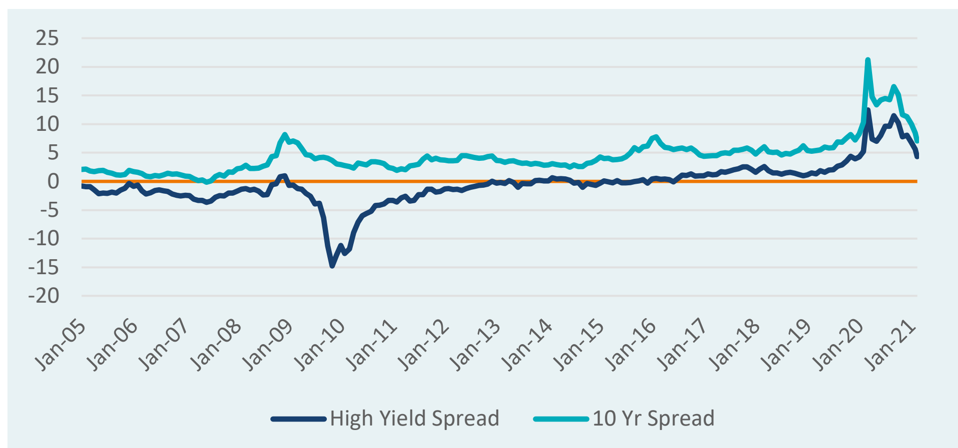


Source: Goldman Sachs Global Investment Research

Midstream energy/MLPs

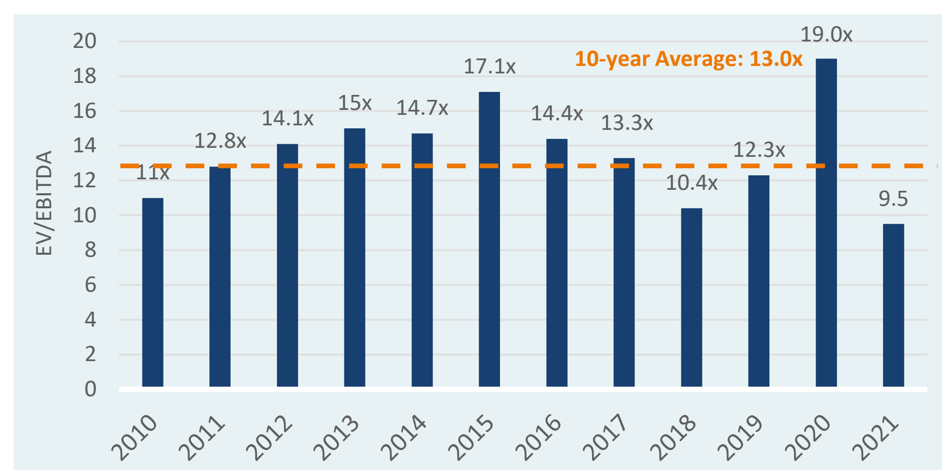
- Midstream energy stocks were up 41% in 2021. Energy stocks, both upstream and midstream, had some of the strongest returns in 2021 across all sectors as commodity prices soared on supply challenges and growing demand.
- Yields for listed midstream companies continue to trade at a premium relative to high yield and government bonds but as we cautioned last year, that spread comes with an enormous amount of volatility and uncertainty. While higher oil and gas prices having improved the outlook for the upstream and midstream sectors, we remain concerned about the long-term viability of the industry. Like most investors, we've been humbled by the unpredictable nature of the global oil/gas industry. Having informed views on geopolitics, government regulations and social attitudes towards fossil fuels all have an impact on the industry and we do not claim to have special insight into those areas. So, while we recognize that higher commodity prices is a positive development, we think the risks are too great for a tactical investment opportunity in midstream energy.
- Midstream companies on average are trading around 9.5x EV/EBITDA (vs. 13-14.0x long-term average) which would seem to indicate that they are undervalued but as we've indicated above, cheapness is not enough for us to recommend an allocation.
- On the private side of midstream energy, the conversion of MLPs to C-corps has greatly reduced the cost of capital for listed midstream companies which has pushed returns lower for development projects. Private capital is broadly unable to compete at these lower returns which has made the case for private midstream funds unattractive.

MLP SPREADS VS HIGH YIELD & TREASURIES



Source: Bloomberg

MIDSTREAM VALUATIONS (EV/EBITDA)



Source: Bloomberg; Alerian MLP Index

Verus

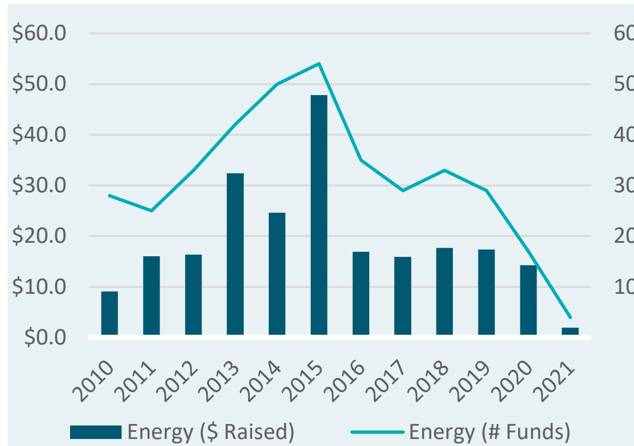
Energy – Oil/gas

— According to Pitchbook figures, fundraising within Oil/Gas private equity has collapsed and that mirrors our own experience within the asset class. Historical performance has been poor, more institutions are adopting standards in ESG, and the long-term outlook for the industry appears unfavorable. The recent bull market in commodities has lifted valuations and improved performance for funds that deployed capital in the last 5 years but even with an improvement in returns, we believe most institutions will refrain from future investments in hydrocarbon production. That said, in recent weeks we have seen an influx of oil/gas funds coming to market which are likely to test investor appetite for the volatile asset class.

— The divergence between oil production and consumption gapped following the recovery in 2020 as producers were unable to meet swiftly rising demand. In our 2021 Outlook, we said the following "at some point, if the industry does not reinvest in drilling activity, production will fall further but capital spending discipline has not been a strength of the industry." Oil production in 2022 is around 99 million bbls/day, off its peak in 2018 of 102 million bbls/day. The lack of reinvestment globally is a key reason we are seeing the spike in prices today.

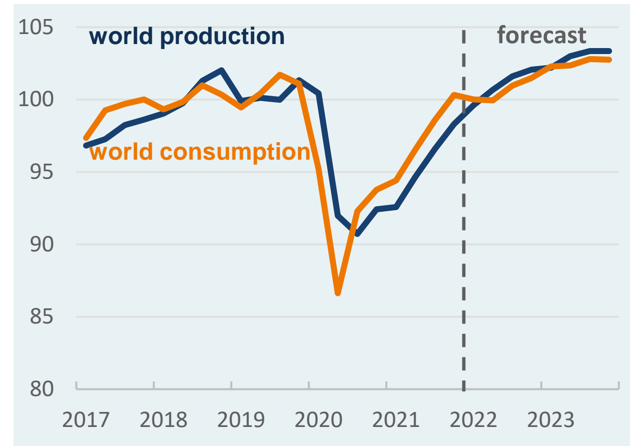
— For now, we would recommend investors avoid putting new capital into the private sector. We recognize that if commodity prices continue to hover around the $100/bbl price that energy stocks could continue to outperform the broader market, but the long-term trends are not in the sectors favor as renewable energy continues to take market share. Investors interested in exposure to Oil/Gas would be better off in public market securities than illiquid private funds.

FUNDRAISING IN OIL/GAS



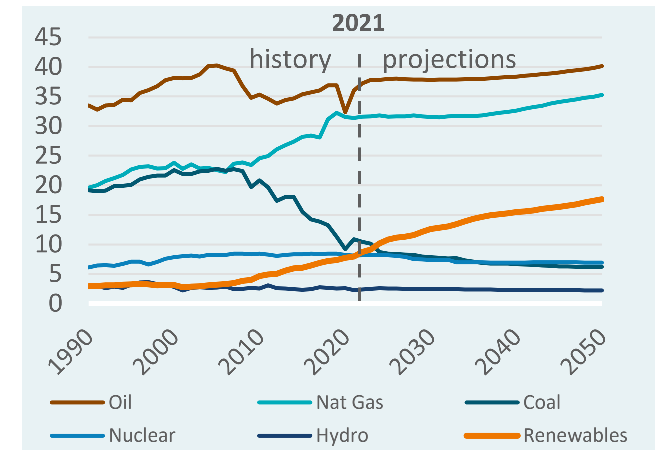
Source: Pitchbook

WORLD OIL PRODUCTION & CONSUMPTION*



*Source: EIA; *includes all liquid fuels*

ENERGY CONSUMPTION BY FUEL (QUADRILLION BTU)



Source: EIA

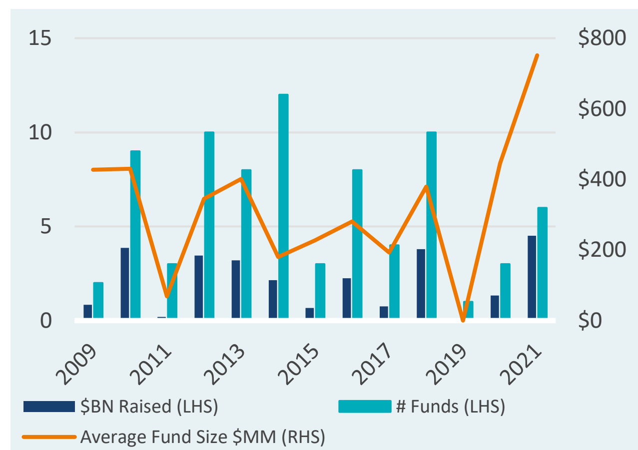
Metals and mining

— Fundraising in the private equity mining segment has been lumpy and quite modest since the GFC, with little-to-no private capital raised in the space in 2019 and 2020. Mining, more so than any other sector, suffers from a poor reputation in governance, following the rule of law and labor exploitation. ESG issues in the sector have been a barrier for LPs, but it is possible for fundraising to improve if investors see the benefit of funding the extraction of materials that contribute to our shift away from fossil fuels, such as copper and lithium.

— After a modest recovery from a cyclical low in 2016, mining exploration budgets have been on the upswing in 2021 and are forecasted to move even higher in 2022. Prices for industrial metal and gold have rallied on strong demand which should incentivize additional spending by both the junior and major mining companies. That said, years of underinvestment has resulted in a deficit in supply meeting demand, so we expect prices to remain strong as long as the global economy stays healthy.

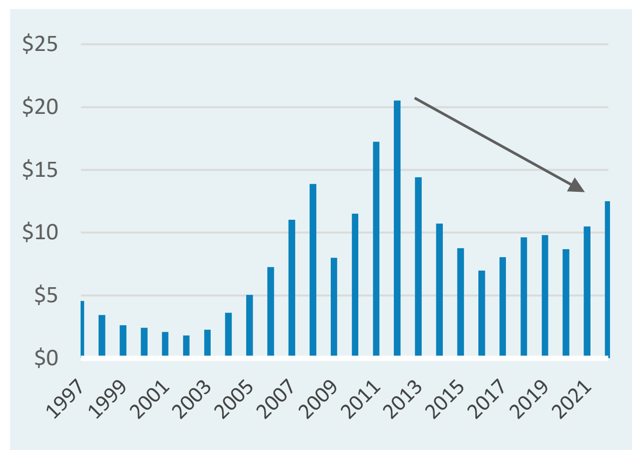
— On the investment side, we have participated in the mining sector by backing teams with expertise in financing mining projects which delivers a high income return with some upside associated with a structured equity security. We are more bullish on base/industrial metals which longer-term will benefit 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



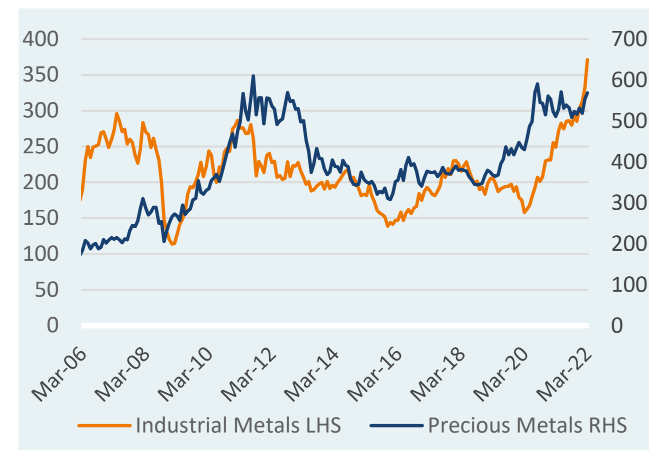
Source: Pitchbook, as of 12/31/2021

CAPITAL EXPENDITURE IN MINING ($B)



Source: S&P Global Market Intelligence

METAL PRICES

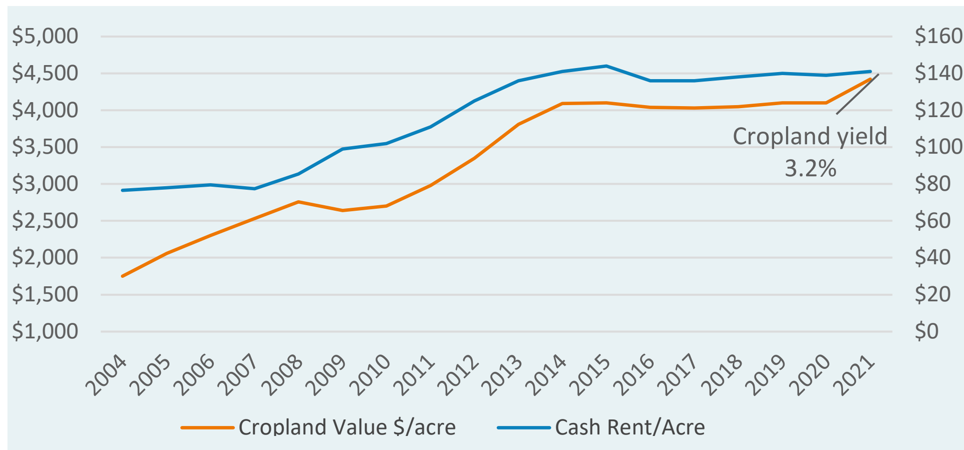


Source: Bloomberg, as of 3/31/2022

Agriculture

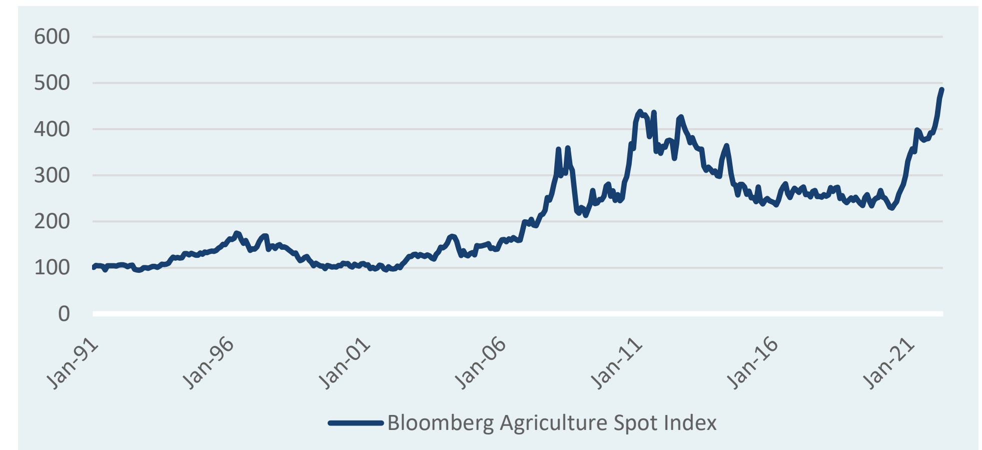
- Cropland values nationally rose in 2021 to $4,420/acre, an increase of almost 8.0% over the prior year, after several years of flat values. The increase in land values for cropland is coinciding with a major rebound in crop prices which were up 24.0% in 2021, according to the S&P GSCI Agriculture Index. That is welcome news for investors that have been sitting on mostly flat-to slightly positive returns within Farmland for many years. Verus has been bearish on Farmland investments as income yields were insufficient (~3.0%) and a catalyst for appreciation was lacking. The bad news is that income yields remain low, on average. On the brighter side, inflation and forecasted crop prices remaining elevated could drive land values higher.
- In the row crop segment, rental yields hover around 3% (gross of fees) which is insufficient, in our opinion, for most institutional investors. Permanent crops offer the potential of higher income yields but also carry greater risk and operational expertise. There are additional ways to add value through crop selection, improving crop yields and selling land for higher-and-better-use cases. In addition, managers can control a greater share of the food production value-chain which carries higher returns but also higher operational risk.
- We tend to favor agriculture strategies that both own land for crop production and control the operating verticals that bring food to the consumer. Strategies that can capture more value through processing, storage and marketing, offer the potential of higher returns.

U.S. NATIONAL CROPLAND VALUES VS CASH RENTS



Source: USDA

BLOOMBERG AGRICULTURE PRICES



Source: Bloomberg, as of 3/31/20

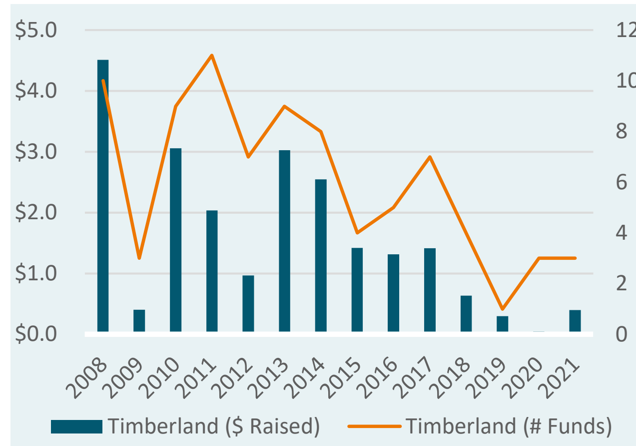
Timberland

— Fundraising has continued to be a challenge within the timber industry. According to Pitchbook, six timber funds were cumulatively raised in 2020 and 2021 for a total of $445 million in new capital (Note: this data does not include any separate accounts that may have been raised). Despite a lack of capital being raised by TIMOs, the investment opportunity within timber has not materially improved.

— Housing starts are one of the leading indicators for lumber demand and the slow rebound in new housing since the GFC has been one reason that timber prices have also been slow to recover. There was a surge in housing starts in 2019 but the impact of Covid-19 caused a sharp reversal in the first quarter of 2020. As the chart below shows, housing starts roared back in 2021 and with it came enormous volatility in lumber prices. Lumber prices are now at multi-decade highs though industry experts believe some price relief is on the horizon as transportation bottle necks are alleviated and additional mill output comes online.

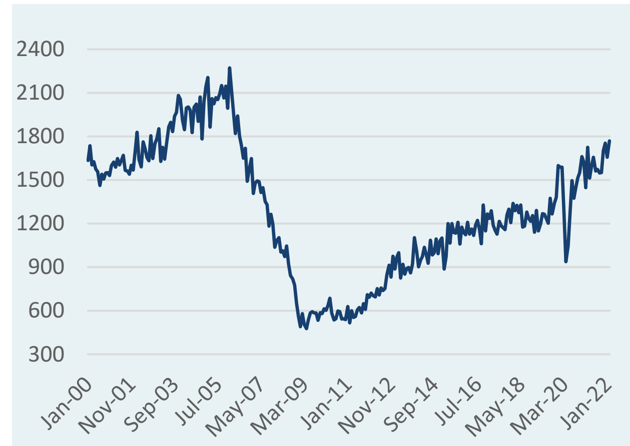
— Seeing the soaring price of lumber, investors might be tempted to get in on the action through an investment in timberland. However, as the chart on the bottom right indicates, one of the challenges that timber investors have faced is that the price they receive for their trees (southern pine stumpage) began to decline during the GFC and largely never recovered. Two critical issues have kept stumpage prices depressed, excess supply of trees in the southern region and a lack of mill density that has created bottle necks in lumber production. The mill issue is less of a problem today, but the supply of trees is still a persistent issue, and we don't expect that to change anytime soon.

FUNDRAISING IN TIMBERLAND



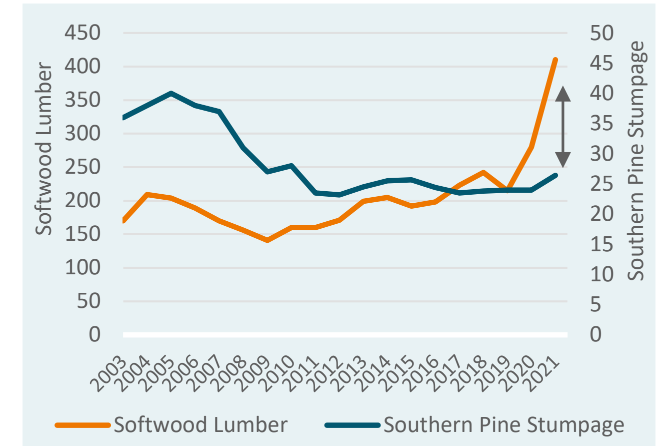
Source: Preqin/Pitchbook

US HOUSING STARTS



Source: St. Louis Fed

SOUTHERN PINE STUMPAGE VS SOFTWOOD LUMBER PRICES



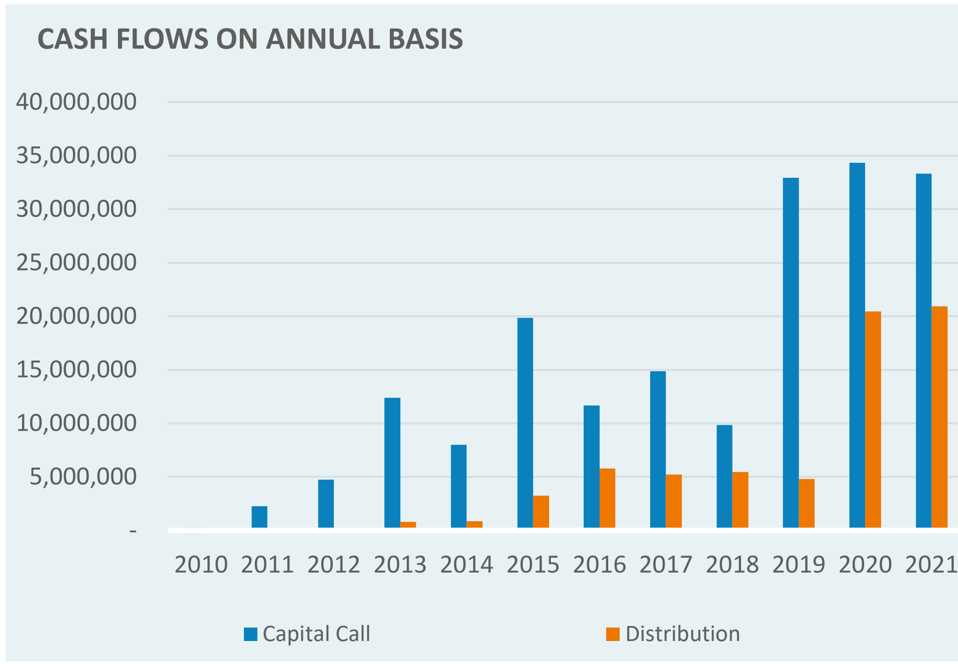
Source: St. Louis Fed

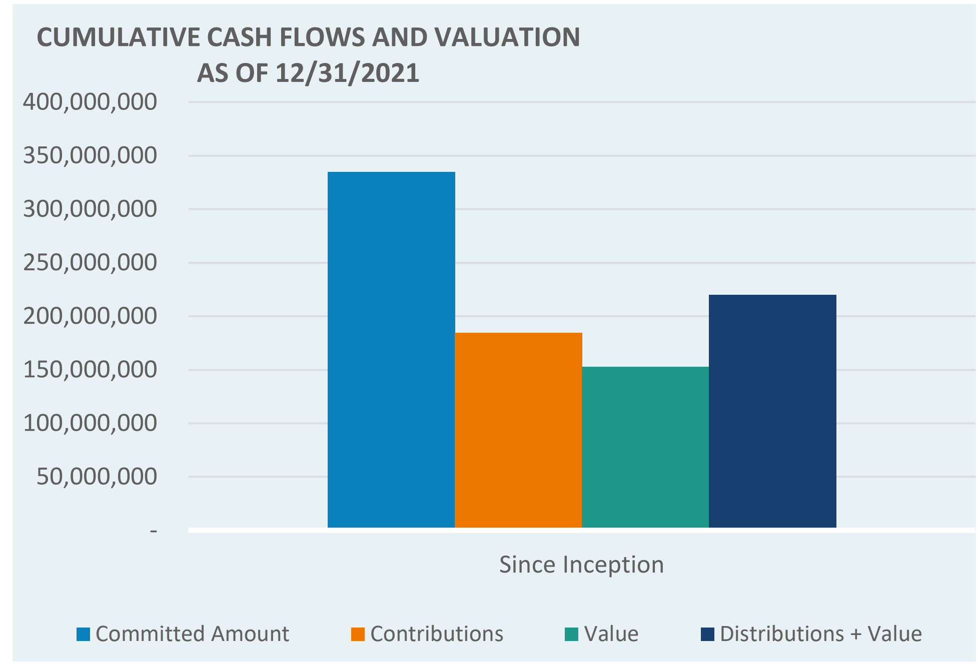
Real Asset Performance

Performance

— The portfolio is currently valued at $152.4 million. Together with $67.5 million in realized distributions, the Total Value at $219.9 million is approximately $35.4 million above $184.5 million total capital contributions, resulting in a total value multiple of 1.19x and a net IRR of 5.91%. If we exclude the investment in Sheridan, the portfolio IRR would be 13.95%. Capital weighted average investment age of the portfolio is 3.7 years.

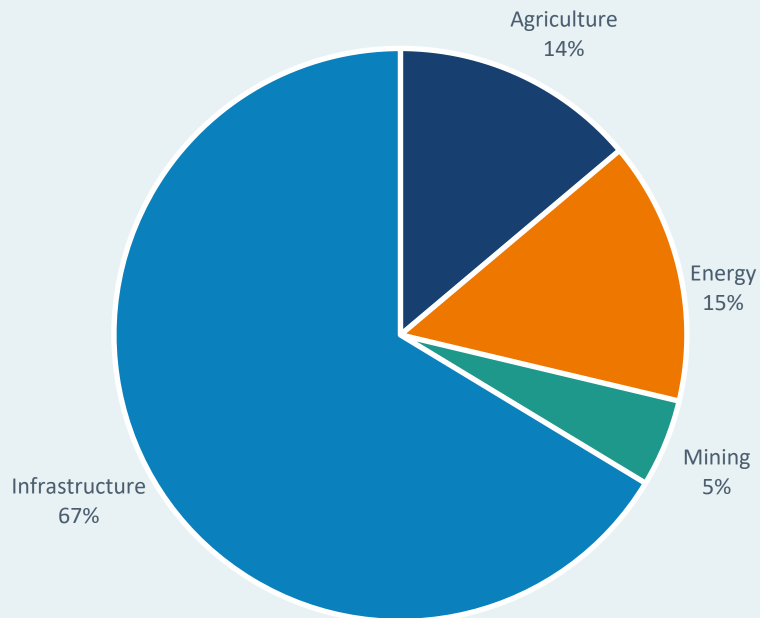
— Within Private Real Assets, the current allocation of market value exposure is 13.6% to Agriculture, 14.9% to Energy, 4.8% to Mining, and 66.6% to Infrastructure.





Investment Type	Commitment	Current Exposure	Current Exposure as % of Portfolio
Agriculture	15,000,000	20,779,356	13.6%
Energy	49,800,000	22,736,185	14.9%
Mining	55,000,000	7,384,379	4.8%
Infrastructure	215,000,000	101,515,831	66.6%
Total Portfolio	**334,800,000**	**152,415,751**	**100.0%**

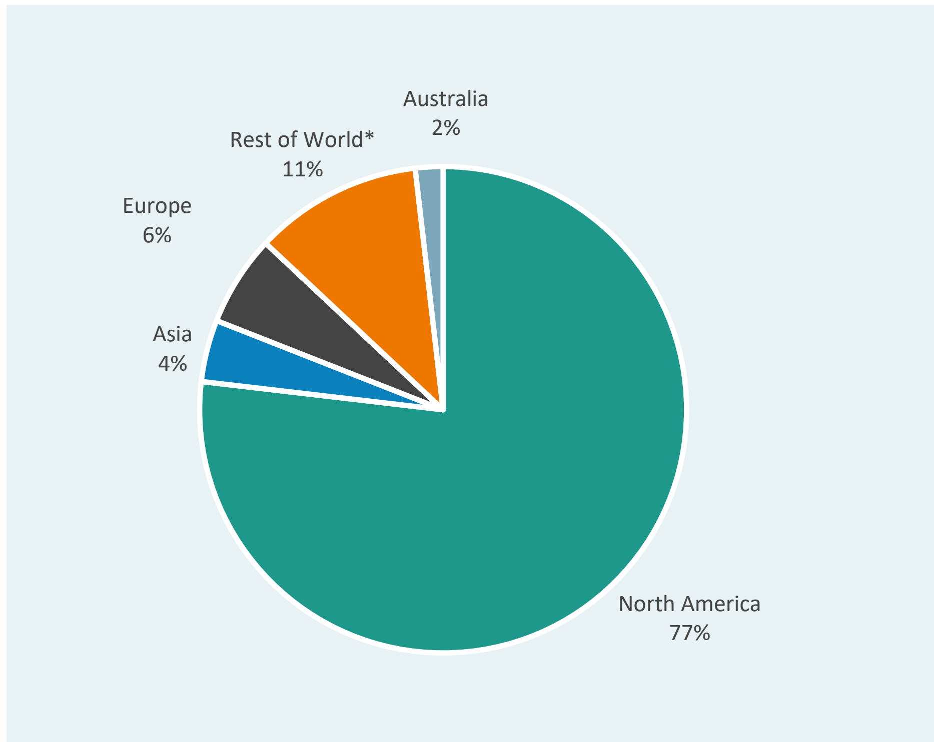
REAL ASSETS PORTFOLIO: CURRENT EXPOSURE



Portfolio Diversification

Period Ending: December 31, 2021

Geography	Reported Fair Value
North America	117,137,484
Asia	6,275,170
Europe	9,194,205
Rest of World*	17,010,268
Australia	2,798,624
Total Portfolio	**152,415,751**



Based on invested capital as of December 31, 2021, if provided by the partnerships. The portfolio is expected to be US-biased given the mandate to hedge domestic inflation.

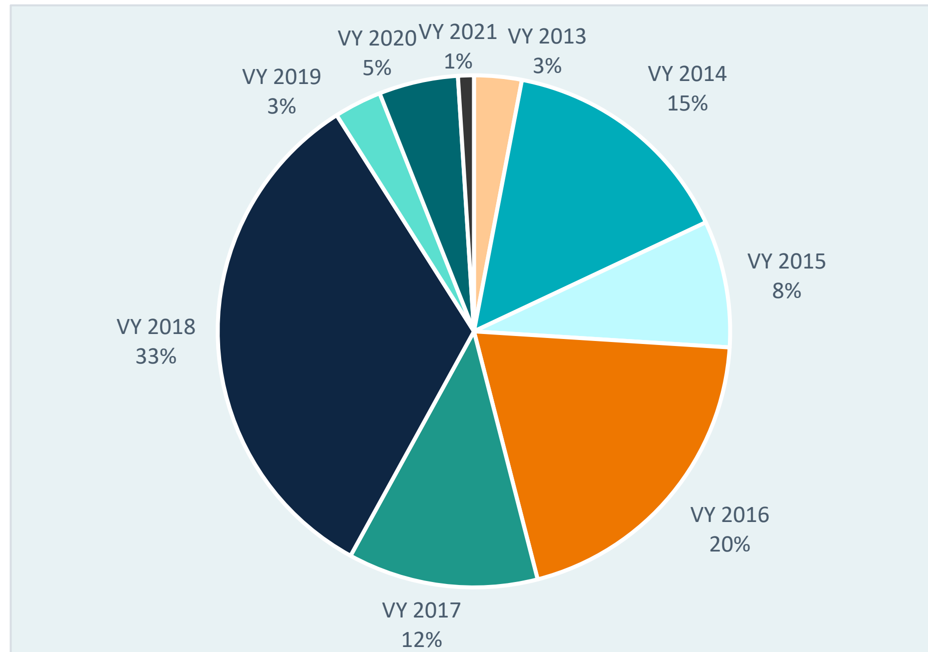
** Rest of World includes New Zealand, Chile, Senegal, DRC, and Burkina Faso.*

Vintage Year
Portfolio Diversification

Period Ending: December 31, 2021

Vintage Year	Commitment as of 12/31/2021	% of Portfolio Commitment	Reported Value as of 12/31/2021
2010	20,000,000	7.3%	0
2013	10,000,000	3.6%	4,841,658
2014	35,000,000	12.7%	22,751,883
2015	10,000,000	3.6%	12,141,328
2016	25,000,000	9.1%	30,453,040
2017	29,800,000	10.8%	18,623,033
2018	50,000,000	18.2%	50,716,931
2019	25,000,000	9.1%	4,683,346
2020	25,000,000	9.1%	6,984,189
2021	45,000,000	16.4%	1,220,343
Total Portfolio	**274,800,000**	**100%**	**152,415,751**

* Excludes Open-end funds



The portfolio is increasingly diversified by vintage year with larger capital commitments expected over the next 2-3 years.

- SamCERA committed $60.0 million to KKR Diversified Core Infrastructure Fund within the infrastructure portfolio at the May Investment Committee Meeting.
- Verus anticipates recommending a value-add infrastructure investment in the second half of 2022.
- As the shift away from commodity-oriented sectors continues, we will look opportunistically for strategies in the space, but we expect infrastructure to occupy a larger share of real asset portfolios going forward.