

PERIOD ENDING: DECEMBER 31, 2021

Investment Performance Review for

Imperial County Employees' Retirement System

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Recent Verus research

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Topics of interest

THE ROLE OF INCOME IN PORTFOLIOS

Many aspects of investing are fundamentally rooted in the idea that total investment return includes both investment income and investment price appreciation (growth). Nearly every asset class can be decomposed into these two characteristics—some assets being composed mostly of income and some assets being composed mostly of price appreciation. As interest rates have fallen around the world, the importance of income, and the role it plays in portfolios, has seen a dramatic increase. In this Topic of Interest, we revisit these two fundamental characteristics to provide investors with a lens with which to view decision-making in the current market environment.

INTEGRATING ACTIVE RETURN INTO ASSET ALLOCATION MODELING

Long-term asset class forecasts, or capital market assumptions, typically focus on the future performance of broad markets. However, most investors employ some combination of passive and active management in their portfolios. And active management is most often pursued with the expectation that returns will be different than that of the broad market (specifically, that "active return" will be achieved above and beyond the market return). If capital market assumptions are typically comprised of market forecasts, but investors tend to build portfolios with the expectation of market return plus active return, how might investors estimate the expected behavior of active management (active return) in their asset allocation work? In this Topic of Interest we look at this question from multiple angles.

Annual research

2022 CAPITAL MARKET ASSUMPTIONS

Some important developments occurred in the last year. During our 2022 Capital Market Assumptions webinar, we discussed:

- Market movements of 2021 and how these shifts have improved our long-term outlook,
- The impact of rising inflation and interest rates on asset class expectations,
- And our newly released forecasts for specific hedge fund styles, and forecasts for various strategies/approaches with the private credit universe.

Verus business update

2021

- We celebrated our 35th anniversary. Wurts Johnson & Company (founding name) was established in January 1986.
- Eight employees passed their CFA exams, including two who passed Level III, earning their charters.
 Verus now has a total of 32 CFA charterholders.
- Jeff MacLean, CEO, was awarded the 2021 Knowledge Broker Award by CIO Magazine in September.
- Verus expanded the ownership group to 30 employees. 95% of senior consultants are shareholders.
- We continued to grow our Pittsburgh footprint by adding three professionals for a total of five and moved to a new space on Liberty Avenue. Verus established our "east coast" office in Pittsburgh, PA in May 2020.
- Our national client footprint expanded to 23 states, with our recent additions of clients in Massachusetts, Illinois, and Texas.
- Our assets under advisement has reached over \$664 billion, as a result of strong markets and success in retaining several new clients. Our OCIO business saw continued growth as well, surpassing \$5 billion in assets.
- We completed a third-party verification process that supports our claim of GIPS* compliance and have implemented the verified GIPS and policies and procedure for our OCIO performance composites. We have 17 unique composites. Our E&F and Taft-Hartley composites now have >5-year track records.
- The IIDC grew to 24 consulting firms with over \$32 trillion in assets under advisement. Verus
 founded the Institutional Investing Diversity Cooperative in December 2020, leading a call to action
 in the consulting industry for disclosure of asset manager diversity data at the investment team
 level.

2022

Managing Director | Senior Consultant,
 Margaret Jadallah plans to retire
 towards the end of the year.



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4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower rate of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses across the country, and general fear of virus spread which has led to less spending on services. p. 9
- The U.S. labor market improved further, as unemployment fell from 4.8% to 3.9%. The labor force participation rate has also improved, though very gradually, rising from 61.6% to 61.9%. *p. 14*

PORTFOLIO IMPACTS

- Credit spreads have reached extremely tight levels. High yield bonds traded at a credit spread of 283 bps at yearend. However, these spread levels may be justified by record-low bond default activity. Just 0.4% of U.S. high yield bonds defaulted in 2021, on a par-weighted basis. p. 24
- U.S. core CPI increased 5.5% year-over-year in December.
 Headline inflation, which includes all goods, reached 7.0%.
 Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles.
 p. 13

THE INVESTMENT CLIMATE

- In December it was announced that Senator Joe Manchin had communicated a hard "No" regarding his support for the Build Back Better bill. For months, Democrats have sought a solution to the disparate needs and spending interests of their party. p. 12
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain economies, much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are believed to be milder in nature. p. 10

ASSET ALLOCATION ISSUES

- Equity markets delivered strong returns in Q4, up +6.7% and ending the year up 18.5% (MSCI ACWI). U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis. p. 27
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks and Growth beat Value. Tighter monetary conditions and a pullback in some growth stocks has renewed talks of a possible Value rotation. p. 29

Risk assets continue to perform strongly, despite rapid global spread of the Omicron variant

What drove the market in Q4?

"World is put on high alert over the Omicron coronavirus variant"

NUMBER OF NEW DETECTED COVID-19 INFECTIONS WORLDWIDE (MILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
15.6	19.9	16.0	13.0	15.7	25.4

Article Source: CNN, as of November 28th, 2021

"'Transitory' is out for describing inflation at the Fed... what will take its place?"

HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

Jul	Aug	Sep	Oct	Nov	Dec
5.4%	5.3%	5.4%	6.2%	6.8%	7.0%

Article Source: MarketWatch, December 15th, 2021

"Unphased by Omicron, Fed policymakers show greater consensus for faster taper"

FEDERAL RESERVE BALANCE SHEET SIZE (TRILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
\$8.2T	\$8.3T	\$8.4T	\$8.6T	\$8.7T	\$8.8T

Article Source: Reuters, December 2nd, 2021

"Dow, S&P 500 end at all-time records as U.S. stocks extend winning streak amid strong company earnings"

S&P 500 INDEX – NUMBER OF CUMULATIVE YEAR-TO-DATE RECORD CLOSES

Jul	Aug	Sep	Oct	Nov	Dec
41	53	54	59	66	70

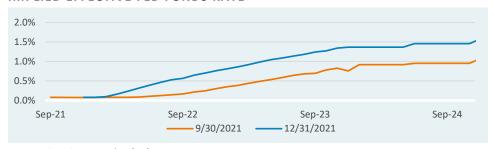
Article Source: October 26th, 2021

GLOBAL CASE GROWTH VS. LAGGED DEATHS (7-DAY TRAILING AVERAGE)



Source: Bloomberg, as of 12/31/21

IMPLIED EFFECTIVE FED FUNDS RATE



Source: Bloomberg, as of 12/31/21

S&P 500 INDEX - CUMULATIVE NUMBER OF RECORD CLOSES IN 2021



Source: Standard & Poor's, Bloomberg, as of 12/31/21



Economic environment



U.S. economics summary

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower pace of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses, and general fear of virus spread which has led to less spending on services. As GDP growth is stated in inflation-adjusted terms, higher inflation has also contributed to slower economic growth.
- U.S. core CPI, which excludes food and energy prices, increased 5.5% year-over-year in December.
 Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles.
- The U.S. unemployment fell

- further, from 4.8% to 3.9% during Q4. The labor force participation rate has improved, though very gradually, rising from 61.6% to 61.9%.
- After months of political brinksmanship, it appears the Build Back Better plan has stalled, as Senator Joe Manchin had communicated a hard "No" on his support for the Build Back Better bill. Democrats continue to seek a solution to the disparate needs and spending interests of their party.
- U.S. home prices increased +19.1% over the past year ending October.
 However, price growth may be cooling off, as the inventory of homes has expanded materially and mortgage interest rates have begun to rise.
- Consumer sentiment was mixed during the quarter. Depressed survey levels suggest we are no longer in the euphoric spending environment of mid to late 2021.

	Most Recent	12 Months Prior
Real GDP (YoY)	4.9% 9/30/21	(2.9%) 9/30/20
Inflation (CPI YoY, Core)	5.5% 12/31/21	1.6% 12/31/20
Expected Inflation (5yr-5yr forward)	2.3% 12/31/21	2.0% 12/31/20
Fed Funds Target Range	0% – 0.25% 12/31/21	0% – 0.25% 12/31/20
10-Year Rate	1.51% 12/31/21	0.91% 12/31/20
U-3 Unemployment	3.9% 12/31/21	6.7% 12/31/20
U-6 Unemployment	7.3% 12/31/21	11.7% 12/31/20



GDP growth

Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). During the quarter, a slowdown in consumer spending resulted in a lower pace of growth. This was partly a factor of new COVID-19 restrictions and a delay in the reopening of businesses across the country. Fear of contracting the virus likely led to less spending on services. Government assistance to businesses and households also continued to fall, creating a drag on growth. On the other hand, a strong rebuilding of inventories by businesses had a large positive impact on economic growth.

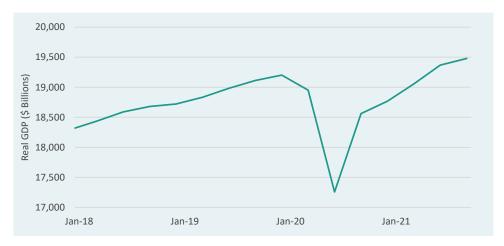
Although Q3 showed a weaker rate of growth, expectations more broadly are for further strong economic expansion—

materially above pre-pandemic rates. The Atlanta Fed GDPNow estimate, as of January 14th, suggests a GDP growth rate of 6.8% in the fourth quarter (seasonally-adjusted quarterly annualized rate).

U.S. GDP growth is traditionally quoted in *inflation-adjusted* terms. This means that higher inflation has contributed to slower GDP growth, as shown below. It will be important to watch the rate of inflation and the impact of higher inflation on GDP figures. Multiple past U.S. recessions were caused at least partially by rising inflation rather than solely by slowing growth (see 1970s, 1980s).

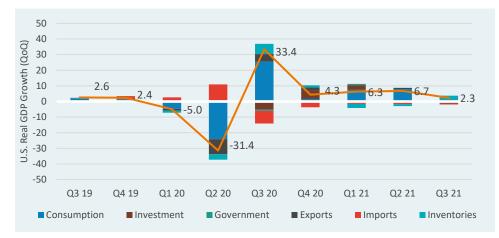
Although Q3 was relatively weak, economists expect continued above-average GDP growth

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 9/30/21

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 9/30/21



Omicron variant

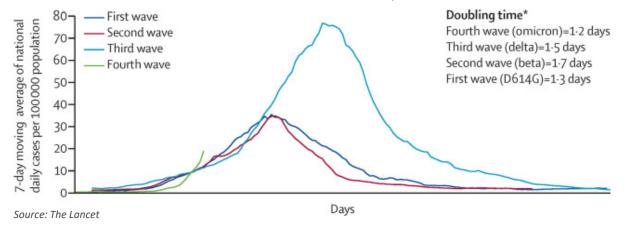
COVID-19 variant B.1.1.529 (Omicron) was discovered in Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain.

Based on available studies and data, the Omicron variant is much more infectious than prior variants, but its symptoms are less severe. In the Gauteng province within South Africa, the doubling time of cases proved to be faster than each of the previous three waves at 1.2 days

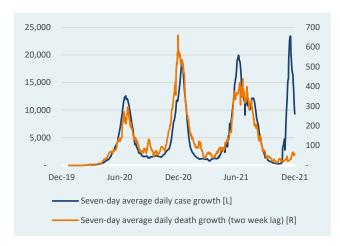
While case growth has accelerated more quickly than in previous waves in South Africa, hospitalizations and deaths have not paced the increase in cases, leaving some to predict that symptoms may be less severe.

Some have argued that it is a good thing that a highly infectious but not severe strain is spreading around the world, because it will provide some level of neutralizing antibodies to the people it infects, shortening the path to herd immunity. A more pessimistic view would be that "letting it rip" would allow more time for the virus to mutate to a more deadly strain.

COVID WAVE CASE DOUBLING TIME - GAUTENG PROVINCE, SOUTH AFRICA

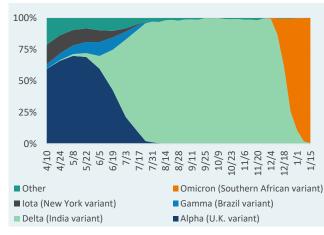


SOUTH AFRICAN CASES AND DEATHS



Source: Bloomberg, as of 12/31/21

STRAIN DOMINANCE IN THE UNITED STATES

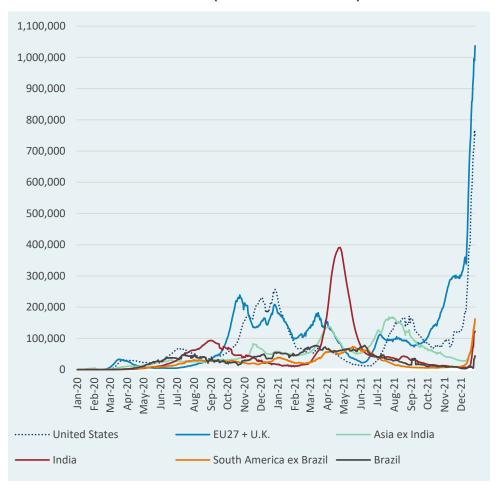


Source: CDC, as of 1/15/22

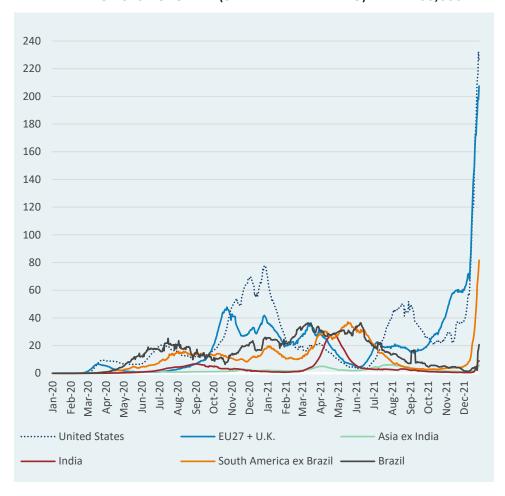


COVID-19 case growth monitors

DAILY AVERAGE CASE GROWTH (SEVEN-DAY TRAILING)



DAILY AVERAGE CASE GROWTH (SEVEN-DAY TRAILING) - PER 100,000



Source: Bloomberg, as of 1/11/22



"Build Back Better" update

After months of political brinksmanship, it appears the BBB plan has stalled

- For months, Democrats have sought a solution to the disparate needs and spending interests of their party. This ranged from the more aggressive spending demands of Bernie Sanders, who hoped for a total of nearly \$6 trillion in new spending, to Senator Joe Manchin who had expressed throughout the year a willingness to support a maximum of \$1.5 trillion in new spending. In December it was announced that Senator Joe Manchin communicated a hard "No" regarding his support for the bill.
- The party appears to have taken a calculated risk in continuing to push for spending in excess of the \$1.5 trillion limit that Joe Manchin had indicated, as well as refusing to negotiate on other items where disagreement existed, such as tax credits and climate change legislation. Despite DNC claims that the Build Back Better would not raise the national deficit, Manchin also expressed skepticism around sunset clauses and other assumptions within the bill that he believed hid the true magnitude of spending and its likely impact on the U.S. deficit.
- Some remain hopeful for a revival of negotiations and perhaps an agreement on many or most of the items
 within the bill. However, in January Senator Manchin indicated that he will not support the bill altogether—a
 reversal from the sentiments expressed during earlier negotiations.

Inflation

U.S. core CPI, which excludes food & energy prices, increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles. Inflation has proven more "sticky", which suggests that higher prices may be less transitory than previously believed.

The price of shelter continue to be a notable driver of U.S. inflation, as shelter costs have risen 4.1% over the past year. Although the rate of price growth in this area has been fairly modest, the cost of shelter makes up nearly one third of the overall CPI basket (32.4% as of November). As we have mentioned

previously, the way in which housing costs are captured in official statistics is nuanced, and increases in home prices do not necessarily flow through directly to official inflation numbers. Instead, today's higher shelter costs may take quarters or even years to show up in government statistics.

We maintain our view that inflation will most likely begin falling towards previous levels later in 2022, though this could be a slower process. The variables that will likely impact this outcome include: whether energy and automobile prices plateau, the speed at which supply chain problems are resolved, and the willingness of businesses to raise wages in line with rates of inflation (quickly rising wages could further pressure prices upward).

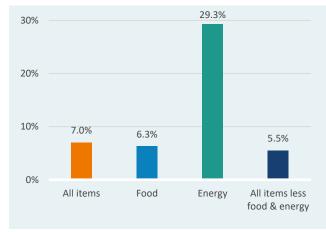
Inflation has proven more "sticky"

Higher prices may be less transitory than previously believed

U.S. CPI (YOY)



U.S. CPI (YOY)



MONTHLY PRICE MOVEMENT



Source: BLS, as of 12/31/21 Source: BLS, as of 12/31/21



Labor market

The U.S. unemployment rate fell further, from 4.8% to 3.9% during Q4. The labor force participation rate has improved, though very gradually, rising from 61.6% to 61.9%. The U.S. labor shortage has reached historic proportions. Job openings far exceed the supply of workers. As of November, 10.5 million job openings were posted, while only 6.8 million Americans were seeking work.

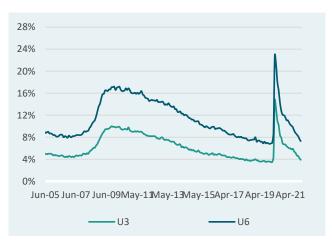
In 2021, using U.S. government employment and retirement data, we reached a conclusion that the sudden and historically large quantity of workers leaving the labor force was mostly caused by early retirements. At the time, multiple theories had

been proposed, such as COVID-19 fear (workers were not seeking employment due to a fear of human interaction) or that this was due to government aid and stimulus (workers flush with cash were finding it temporarily unnecessary to hold a job). Over recent quarters it does appear that our thesis has held. The U.S. labor force participation rate remains stuck, as two million abnormally early retirements imply that the available workforce is now permanently smaller. This reduction in workforce likely reduces the productive capacity of the U.S. economy and aggregate household income, though it may have an incremental lifting effect on the wages of existing workers.

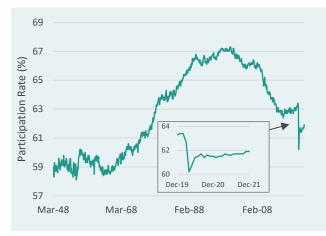
A portion of the U.S. labor force remains neither employed nor seeking work

Much of this loss appears to be due to early retirements

U.S. UNEMPLOYMENT



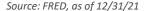
LABOR PARTICIPATION RATE



UNEMPLOYED VS # JOBS AVAILABLE



Source: FRED, as of 12/31/21 Source: FRED, as of 11/30/21





Labor costs & shortages

"We could see mid-single-digit inflation in retails, as **rising raw material pricing**, **labor and transportation costs are all impacting us and our suppliers**. We have no way to say how long this will last, but our industry has been disciplined about pricing for decades, and we expect that to continue." -AutoZone (Dec. 7)



"Moving on to inflation, again, it's pretty much the same story that we told during each of the last two quarters. There have been and are a variety of inflationary pressures that we and others are seeing from labor cost to freight cost, to higher demand, to container shortages and port delays, to increased demand on certain product categories, much of what you see and read out there. Various shortages on everything from chips to oils and chemicals supplied by facilities hit by the Gulf storms a while back. Higher commodities prices." -Costco (Dec. 9)



"To further impact our second-quarter results, I will highlight several key drivers. The difficult labor market once again had the largest effect on our bottom line, representing an estimated \$470 million in additional year-over-year costs. As I did last quarter, I'll separate the effect of the labor market into two components: higher rates and network inefficiencies resulting from labor shortages." -FedEx (Dec. 16)



"To add to the challenge, industry-wide shortages in the labor market are impacting every part of the supply chain, adding significant costs that are above and beyond inflation. We're seeing record levels of disruptions across our raw material suppliers, internal and external production facilities, our own distribution centers, our customers' warehouses and the logistics networks required to connect each of these elements of the supply chain. These disruptions are resulting in service challenges and elevated costs across the industry." -General Mills (Dec. 21)



"Lost production days and unplanned downtimes were primarily due to labor shortages across our manufacturing network, including COVID-related absenteeism." -Lamb Weston (Jan. 6)



Source: FactSet, as of 1/13/22



The consumer

U.S. real retail sales remain strong, up 10.6% year-over-year. It is worth noting that this was the growth rate *after* adjusting for inflation. American households continue to spend at a rapid pace, though this could be set to slow down as government spending and other easy money policies are likely in the rearview mirror.

Auto sales volumes fell dramatically in the second half of 2021. Multiple variables are having an impact, as microchip shortages crimp new car production, many households already purchased a vehicle recently (assisted by stimulus checks), and very high auto prices have disincentivized purchases more generally.

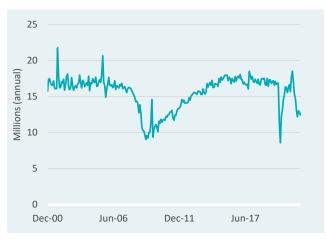
A rather surprising economic result of the pandemic has been the jump in household savings rates, paying down of debt, and broadly improved financial situation of domestic households. As we have discussed in recent quarters, the inability of Americans to take vacations during much of the past two years, as well as reduced spending on services such as dining out, meant greater saving and less spending. However, it is incredibly important to point out that economic metrics such as the ones discussed here inherently involve an *averaging* of all household situations. The recent recession has had particularly destructive effects on specific sectors of the economy, and many have yet to recover.

REAL RETAIL SALES GROWTH (MONTHLY)



Source: FRED, as of 11/30/21

AUTO SALES



Source: Federal Reserve, as of 12/31/21

U.S. HOUSEHOLD DEBT BURDEN



Source: FRED, as of 9/30/21 – household debt service payments as a percent of disposable personal income

Sentiment

Consumer sentiment was mixed during the quarter. The University of Michigan survey indicated relatively depressed but stable sentiment. Announced increases to Social Security payments (+5.9% YoY) due to inflation and a rise in wages among younger workers lifted sentiment slightly. On the other hand, the Langer U.S. Weekly Consumer Comfort Index suggested a sharp falloff in sentiment. Rising inflation, the spreading Omicron variant, and the steepest one week drop in "buying conditions" in 36 years translated to much poorer sentiment to start 2022. Both surveys seem to communicate an end to the euphoric spending spree that occurred in mid to late 2021.

The NFIB Small Business Optimism index was rangebound during the quarter but remained near the long-term average level. As outlined by the survey, 59% of small businesses have increased prices, which was the highest reading since 1979. The December survey suggests that business conditions are not encouraging to small business owners, as new government mandates and tax increases have been discussed in the legislature. Furthermore, high inflation and supply chain issues continue to create challenges.

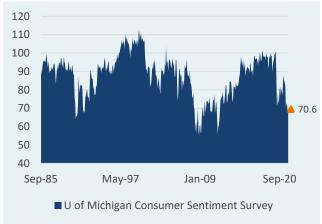
Sentiment remains depressed, as concerns exist around inflation, Omicron, and economic restrictions

CONSUMER COMFORT



Source: Bloomberg, as of 1/9/22

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/21

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 12/31/21

Housing

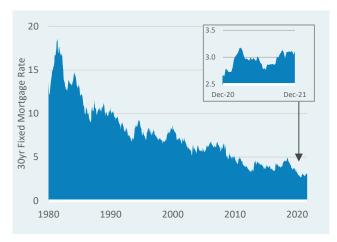
U.S. home prices increased +19.1% over the past year, ending October. However, price growth may be cooling off, as the inventory of homes has expanded materially and mortgage interest rates have begun to rise. The dramatic surge in real estate values throughout the pandemic resulted in considerable wealth gains for those who owned homes, but has also created real financial issues for many who rent as housing costs have risen faster than incomes.

Much higher living costs may lead to further social unrest and political discussions on topics such as the relaxation of zoning restrictions and rent control. The growing homeless crisis in many U.S. areas further compounds the need, both real and perceived, for bringing the costs of housing under control.

U.S. mortgage rates have risen off the all-time-low (2.65%) achieved earlier in 2021. During the first week of January, the 30-year average fixed rate mortgage reached 3.22%. Given high home prices, small increases in interest rates will have a larger impact on affordability. Higher borrowing costs would act as a headwind to further home price appreciation.

A dramatic jump in shelter costs may be adding pressure to household budgets

30YR FIXED MORTGAGE RATE (AVERAGE)



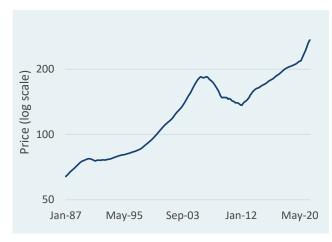
Source: U.S. Census Bureau, as of 12/31/21

SUPPLY OF HOMES



Source: FRED, as of 11/30/21

CASE-SHILLER HOME PRICE INDEX



Source: FRED, as of 10/31/21



International economics summary

- COVID-19 variant B.1.1.529

 (Omicron) was discovered in
 Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain. Based on available studies and data, the Omicron variant is much more infectious than prior variants, but its symptoms are less severe. Many countries have taken a cautious approach and have reinstituted social distancing controls.
- Several countries including China and New Zealand have implemented zero-COVID approaches with the goal of completely eradicating the virus within their borders. These policies may present upside risks for inflation looking ahead, as they are likely to result in more uncertainty and therefore potentially sustain or even worsen current supply chain problems.
- Prices paid by global producers of

- goods and services have surged over the last year. Chinese producer price growth (+10.3% in December) hit its highest level in 26 years, and German producer prices (+19.2% in November) grew very quickly as supply chain disruptions squeezed prices for timber and raw metal materials.
- Eurozone GDP grew +3.7% yearover-year in Q3, lagging U.S. growth over the same period (+4.9%). Economic growth was more robust in Italy (+3.8%) and a bit weaker in Germany (+2.5%).
- China's real estate crisis seems to be spreading. In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. An increasing number of Chinese property developers have been strained. Given that real estate development makes up nearly one third of China's economy, a crisis in this sector could have serious ramifications.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	4.9 % 9/30/21	7.0% 12/31/21	3.9% 12/31/21
Eurozone	3.9% 9/30/21	5.0% 12/31/21	7.2 % 11/30/21
Japan	1.2%	0.8%	2.7%
	9/30/21	12/31/21	11/30/21
BRICS	5.2 % 9/30/21	3.3%	5.4%
Nations		12/31/21	6/30/21
Brazil	4.0%	10.1%	12.1%
	9/30/21	12/31/21	10/31/21
Russia	4.3 % 9/30/21	8.4% 12/31/21	4.3% 11/30/21
India	8.4%	5.6%	7.9%
	9/30/21	12/31/21	12/31/21
China	4.0%	1.5%	5.1%
	12/31/21	12/31/21	12/31/21

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.



International economics

The rate of economic growth across most economies has moved back towards average levels, as the global recession and recovery fades from the rearview mirror. In October, the International Monetary Fund cut their 2021 advanced economy growth projections (from 5.6% to 5.2%), citing supply chain disruptions which have dampened the outlook for these economies. Worsening pandemic dynamics were flagged as a greater risk for emerging and developing economies, though 2021 growth expectations were revised up 0.1% to 6.4%.

Inflation moved higher in many areas, and the United States continues to cope with one of the highest rates of inflation among other major developed economies. Several countries

including China and New Zealand have implemented zero-COVID approaches with the goal of completely eradicating the virus within their borders. These policies may present upside risks for inflation looking ahead, as they are likely to result in more uncertainty and therefore potentially sustain or even worsen current supply chain problems. Inflation trends and the reaction of central banks to these trends will have important implications for markets.

Unemployment has generally improved to pre-pandemic levels, as government restrictions are relaxed, people regain comfort in moving out and about, and economies trend back towards normalcy.

REAL GDP GROWTH (YOY)



INFLATION (CPI YOY)



Source: Bloomberg, as of 12/31/21 – or most recent release

UNEMPLOYMENT



Source: Bloomberg, as of 12/31/21 – or most recent release



Source: Bloomberg, as of 9/30/21

Fixed income rates & credit



Fixed income environment

- The 10-year U.S. Treasury yield was relatively rangebound during the quarter, remaining at a yield of 1.5%. Thus far, U.S. interest rates have not noticeably reacted to an inflation rate of 7.0%. Market pricing seems to indicate that investors generally expect inflation to be transitory—perhaps falling towards normal levels by the end of this year.
- One of the largest stories over the quarter was the Fed's pivot on inflation, the retirement of the word "transitory" to describe inflation, and a more aggressive policy path expected by investors. The conversation around the balance sheet shifted from concluding the taper in June to concluding in March, and perhaps selling assets as soon as June. The conversation around interest rates shifted from potentially hiking around June to the market fully pricing in a hike by March and maybe two by May. The Fed is now clearly more concerned with inflation relative to

unemployment.

- Although credit spreads are tight, bond defaults have dropped to incredibly low levels. The one-year high-yield bond default rate reached 0.4% in December, one of the lowest rates on record.
- New issue activity across credit markets has been historically high.
 In the fourth quarter, \$285 billion of investment grade credit was issued.
 Over the full year, gross issuance totaled \$1.4 trillion, which was second only to the \$1.8 trillion issued in 2020.
- In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. At the start of 2022, property developer Shimao also defaulted on its debt. These bonds had been classified as investment grade until recently. Credit spreads of Chinese debt have expanding enormously, from near 750 bps in June to 2,175 bps in November.

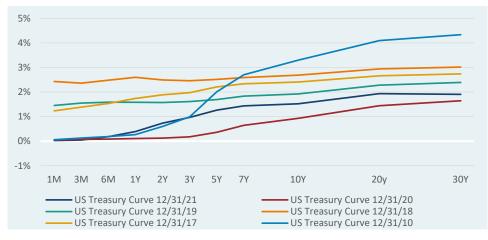
QTD Total Return	1 Year Total Return
0.0%	(1.5%)
0.0%	(1.1%)
0.2%	(2.3%)
0.7%	5.3%
0.7%	5.2%
(2.5%)	(8.7%)
(0.4%)	(1.8%)
(0.4%)	(1.0%)
	Total Return 0.0% 0.0% 0.2% 0.7% (2.5%) (0.4%)

Source: Bloomberg, as of 12/31/21



Yield environment

U.S. YIELD CURVE

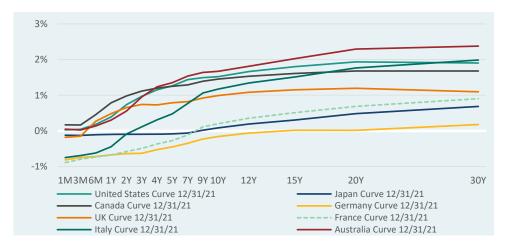


YIELD CURVE CHANGES OVER LAST FIVE YEARS



Source: Bloomberg, as of 12/31/21

GLOBAL GOVERNMENT YIELD CURVES



IMPLIED CHANGES OVER NEXT YEAR





Credit environment

During the fourth quarter, high yield bonds returned 0.7%, matching the performance of loans and outperforming investment grade credit (+0.2%). Over the full year, leveraged loans returned 5.4%, exceeding high yield performance (+5.3%) as well as investment grade credit (-1.2%). Credit spreads tightened modestly over the course of the year with pockets of volatility. This was also the case during Q4 as the Omicron variant circulated across the globe, reducing the appetite for risk. Investment grade spreads widened 8 basis points to 92 bps, which was 4 bps tighter relative to the beginning of the year. High yield corporate spreads finished 2021 at 283 bps, 6 bps tighter for the quarter and 77 bps tighter to end the year.

The search for yield continues within credit markets as option-adjusted

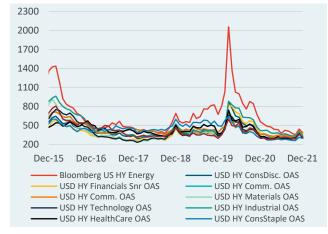
spreads continue to be at or near historic lows and short-term interest rates remain near zero. We have observed that numerous managers are positioning portfolios relatively more defensively with an eye toward capitalizing on potential future volatility, as well as placing greater focus on more niche segments within credit markets. Despite tight spreads, increased rate volatility, and surging inflation, a record amount of funds (\$583 billion) flowed into fixed income funds and ETFs in 2021, exceeding the previous record set in 2019 (\$459 billion). Demand was broad-based, driven by demographics, an abundance of cash on corporate balance sheets, and strong equity market returns which led to increased rebalancing activity. Furthermore, given continued low rates across developed markets, U.S. fixed income remains an attractive market for foreign investors to pick up yield.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/21

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/21

	Credit Spread (OAS)		
Market	12/31/21	12/31/20	
Long U.S. Corp	1.3%	1.4%	
U.S. Inv Grade Corp	0.9%	1.0%	
U.S. High Yield	2.8%	3.6%	
U.S. Bank Loans*	4.3%	4.6%	

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/21

*Discount margin (4-year life)



Default & issuance

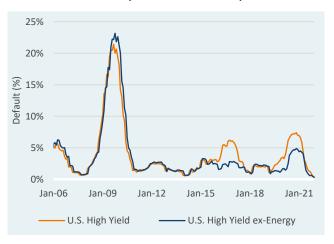
Contrasting the pandemic-driven surge of credit defaults in 2020, which resulted in the second highest annual dollar volume of defaulted bonds and loans on record, default activity in 2021 was very modest. Overall, 14 companies defaulted on loans and bonds during the year on debt totaling \$9.8 billion. The year-over-year improvement was largely fueled by robust economic growth, improving credit fundamentals, and greater access to capital markets, as record bond and loan refinancing activity totaling roughly \$1 trillion since 2020 has improved corporate liquidity.

The par-weighted U.S. high yield default rate ended the year at a historic low of 0.4%, down 82 bps for the quarter and down 656 bps for the year. The par-weighted loan default rate ended the year at 0.5%, down 23 bps for the quarter and 348 bps for the year. For context, the 25-year average annual

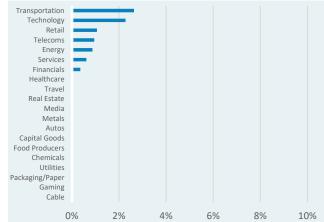
default rate of high yield was 3.1%, while the default rate for loans has averaged 3.0% since 1998.

While new issue activity across credit markets fell broadly during the second half of the year, total credit issuance in 2021 was historically high. In the fourth quarter, \$285 billion of investment grade credit was issued. Over the full year, gross issuance totaled \$1.4 trillion, which was second only to the \$1.8 trillion issued in 2020. Similarly, the fourth quarter was the lightest quarter for new issue activity for both high yield bonds and loans with \$87.3 billion and \$114.4 billion, respectively. However, each asset class experienced record issuance over the year with \$557.1 billion in high yield bonds and \$534.4 billion in loans.

HY DEFAULT RATE (ROLLING 1-YEAR)

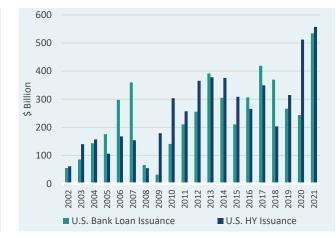


U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 12/31/21 – par weighted

U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 12/31/21



Source: BofA Merrill Lynch, as of 12/31/21

Equity



Equity environment

- Equity markets delivered strong returns in Q4, up 6.7% and ending the year up 18.5% (MSCI ACWI).
 U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis.
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain countries,

- much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are milder in nature.
- Labor costs and labor supply issues are front-of-mind in corporate boardrooms, and 60% of S&P 500 companies have reported negative impacts to Q4 earnings during quarterly calls so far, as reported by FactSet.
- Weakness in Chinese equities (MSCI China -6.1%) continued to drive the broader underperformance of emerging market equities. Chinese policymakers have signaled a shift in focus from containing excessive leverage in the property sector to promoting growth and stability ahead of next year's parliamentary meeting. Still, the risk of further crackdowns on targeted sectors of the economy remains in place.

	QTD TOTAL RETURN (unhedged) (hedged)		1 YEAR TOT	AL RETURN
U.S. Large Cap (S&P 500)	11.			7%
U.S. Small Cap (Russell 2000)	2.1	1%	14.	8%
U.S. Equity (Russell 3000)	9.3	3%	25.	7%
U.S. Large Value (Russell 1000 Value)	7.8	3%	25.2%	
US Large Growth (Russell 1000 Growth)	11.6%		27.6%	
Global Equity (MSCI ACWI)	6.7%	7.1%	18.5%	20.9%
International Large (MSCI EAFE)	2.7%	4.2%	11.3%	19.4%
Eurozone (Euro Stoxx 50)	4.4%	6.9%	14.6%	24.4%
U.K. (FTSE 100)	5.2%	5.1%	17.3%	18.9%
Japan (NIKKEI 225)	(5.3%)	(2.0%)	(4.7%)	6.7%
Emerging Markets (MSCI Emerging Markets)	(1.3%)	(1.3%)	(2.5%)	(1.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/21

Domestic equity

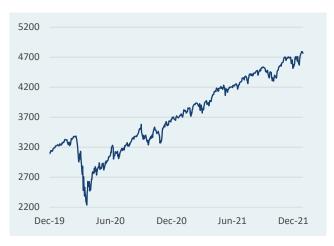
U.S. equities were a top performer in Q4, delivering 11.0% (S&P 500). The S&P 500 Index achieved all-time closing highs on 70 days over the course of the year, which was nearly a record number in and of itself. Performance across sectors was broadly positive during Q4, though those with a greater "value" bias lagged the index (ex: Financials, Energy, Industrials). Per FactSet, the bottom-up price target for the S&P 500 Index by 2022 year-end is around 5300, which implies a price return of roughly 11% for the year.

While supply chain disruptions remain a key concern for chief financial officers in the United States and around the globe, the number one headwind for earnings in Q4 shifted to labor costs and shortages, based on earnings calls transcribed by FactSet. Workers have been quitting their jobs in great numbers

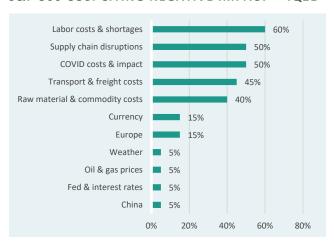
for a wide variety of reasons, pushing many employers to raise wages in order to retain employees, which could erode margins. Of companies that had reported Q4 earnings, 60% reported that rising labor costs had negatively impacted earnings. On a more optimistic note, those companies reported aggregate year-over-year earnings growth of around 28%, suggesting somewhat defensible margins and modest pricing power. Of companies mentioning labor issues, 85% discussed increasing prices or improving price realization on their earnings calls.

Net profit margins have fallen a percentage point from the record level of 13% achieved in Q2 2021, but remain historically high. If earnings growth in Q4 2021 meets expectations (21.4%), it will mark the fourth consecutive quarter of 20% YoY earnings growth.

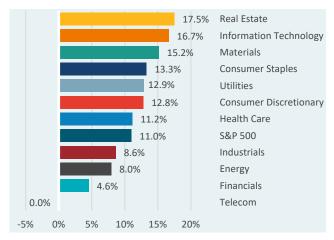
S&P 500 INDEX



S&P 500 COS. CITING NEGATIVE IMPACT – 4021



Q4 SECTOR PERFORMANCE



Source: FactSet, as of 1/13/22

Source: Standard & Poor's, as of 12/31/21



Source: Standard & Poor's, as of 12/31/21

Domestic equity size & style

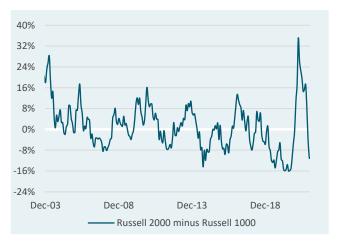
Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.

Within MSCI's suite of long-only factor indices, Quality (+11.0%) was the top performer in Q4 which generally implies investor appetite for more defensive positioning. The strong performance of the Quality factor was skewed by Nvidia (+42.0%), Apple (+25.7%) and Microsoft (+19.5%).

Towards the end of the year, investor expectations for tighter Fed policy and interest rate hikes increased markedly. If the market is in fact undergoing a transition to tighter monetary conditions, this could have a notable impact on Value and Growth stock performance. The general cheapness of certain Value stocks and richness of certain Growth stocks may accentuate a value rotation, if and when this occurs. As always, we like to keep in mind that factor performance tends to be noisy and difficult to predict, which suggests that style investing should in most cases involve a longer-term focus.

Size and Value underperformed during Q4 2021

SMALL CAP VS LARGE CAP (YOY)



VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/21

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 12/31/21

Source: FTSE, as of 12/31/21

International developed equity

International developed equities delivered 2.7% during the quarter. U.S. equities were the top performer (S&P 500 +11.0%) while emerging market equities saw a slight loss (MSCI Emerging Markets -1.3%), on an unhedged currency basis. Currency movement during the quarter resulted in a loss of -1.5% (MSCI EAFE) relative to those investors with a currency hedging program.

Japanese equities (MSCI Japan -4.0%) underperformed most developed markets, reversing strong third quarter returns, though this was mostly caused by currency market movement (Yen -3.1%). The yen fell to its weakest level relative to the dollar since early 2017 in the fourth quarter as

the Bank of Japan's dovish policy increasingly diverged from peers, many of which have signaled the beginning of a normalization process from pandemic stimulus. Rising interest rate differentials, as well as speculation that the new strain of COVID-19 might not be as disruptive as had been feared, has likely contributed to investor flows out of yen positions.

Swiss equities (MSCI Switzerland +12.8%) were the top performer in developed European markets, and unhedged U.S. investors benefitted from a 2.1% appreciation in the Swiss Franc relative to the U.S. dollar.

EFFECT OF CURRENCY (1-YEAR ROLLING)



INTERNATIONAL DEVELOPED EQUITIES



Source: MSCI, as of 12/31/21

YEN NET FUTURES POSITIONING



Source: CFTC, non-commercial positioning, as of 1/11/22



Source: MSCI, as of 12/31/21

Emerging market equity

Emerging market equities saw a mild loss (MSCI EM -1.5%) on an unhedged currency basis, underperforming global markets again in the fourth quarter. Latin American and Asian emerging markets performed generally on par during the quarter (MSCI EM Latin America -2.7%, MSCI EM Asia -1.0%).

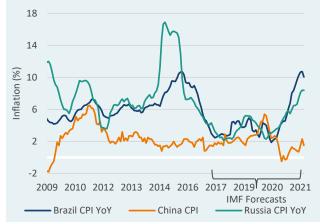
Weakness in Chinese equities (MSCI China -6.1%) continues to drive broader emerging market underperformance, as China delivered -21.7% return in 2021, while the broader complex was down -2.5% (MSCI China, MSCI Emerging Markets).

Inflation in Brazil has reached 10.7%, while Russia saw an 8.4% rise in prices and China sits near the longer-term average at 1.5%. Emerging market central banks have continued to raise interest rates. Brazil hiked their rate during the quarter from 6.25% to 9.25% in order to fight rising prices, while Russia hiked its rate from 6.75% to 8.50%. It is worth noting that many of these central banks have very recently implemented a domestic interest rate tightening cycle in order to battle price fluctuations and/or unwanted domestic currency movements. In other words, many emerging central banks deal with these types of issues more often than developed central bankers.

EMERGING MARKET EQUITY



INFLATION (YOY)



Source: Bloomberg, as of 12/31/21 or most recent data

CENTRAL BANK RATE CHANGES AND INFLATION



Source: Bloomberg, various, as of 12/31/21



Source: MSCI, as of 12/31/21

Equity valuations

Forward price/earnings equity multiples have been falling around the world, as earnings expectations rise faster than equity prices. U.S. equities remain the exception in this regard, as U.S. valuations have stayed elevated. The domestic equity market offers one half of the dividend yield of international developed equities (MSCI EAFE), with a forward P/E multiple that is 50% higher. The valuation difference between U.S. and the rest of the world is wider than ever before. This effect is partly due to the rising share of domestic technology stocks, as the technology sector tends to demand loftier valuations than most other sectors, but only partly so. The high prices of U.S. equities may imply more muted returns over the longer-term.

U.S. equity trailing P/E ratio was unmoved during the quarter, while international developed equity valuations fell (19.3 to 17.2) along with emerging market equity valuations (15.8 to 14.0). Relative valuation differences across global markets are apparent in the yield (carry) offered by each market. U.S. equities offer a 3.8% earnings yield, while international developed offer 5.8% and emerging market equities offer 7.1%. In simple terms, for the U.S. market to deliver future performance equivalent to other markets, domestic stocks will either need to deliver outsized profit growth or higher valuations.

Most equity valuations have moved back towards normal levels, though U.S. prices remain exceptionally rich

FORWARD P/E RATIOS



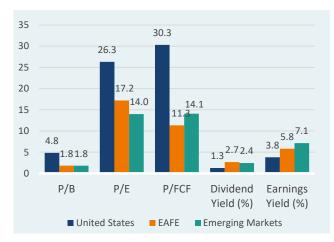
Source: MSCI, 12m forward P/E, as of 12/31/21

CURRENT EARNINGS YIELD (3-MONTH AVERAGE)



Source: Bloomberg, MSCI, as of 12/31/21

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/21 - trailing P/E

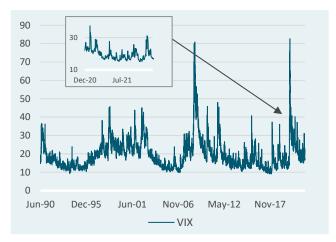


Equity volatility

The Cboe VIX Index stayed near average levels throughout the fourth quarter, with the exception of market choppiness at the end of November which briefly sent the VIX Index above 30. Realized volatility over the past year was muted. U.S. and emerging market equities exhibited 11% volatility during the calendar year, while international developed showed 9.8%. Historically, it has been uncommon for global markets to show similar levels of volatility, as developed markets tend to deliver lower volatility, and emerging markets higher volatility.

Market response to the Omicron variant was minimal, with a few larger market drops followed by quick recoveries. We believe that investors have largely moved beyond COVID-19, and that markets have adjusted to the transition away from fiscal stimulus and many of the recent unique government spending programs. As we enter 2022, investors seem to be focused on Federal Reserve plans for tapering and interest rate hikes. It is very possible that this rate hike cycle will look similar to those of the past decade—bouts of volatility as markets either accept or push back against tightening financial conditions, "good news is bad news" as positive economic developments are seen as potentially encouraging tighter Fed policy, and "bad news is good news" as economic weakness is interpreted as an excuse for Federal Reserve easiness and accommodation.

U.S. IMPLIED VOLATILITY (VIX)



REALIZED VOLATILITY



Source: Standard & Poor's, MSCI, as of 12/31/21

S&P 500 INDEX – CUMULATIVE NUMBER OF RECORD CLOSES IN 2021

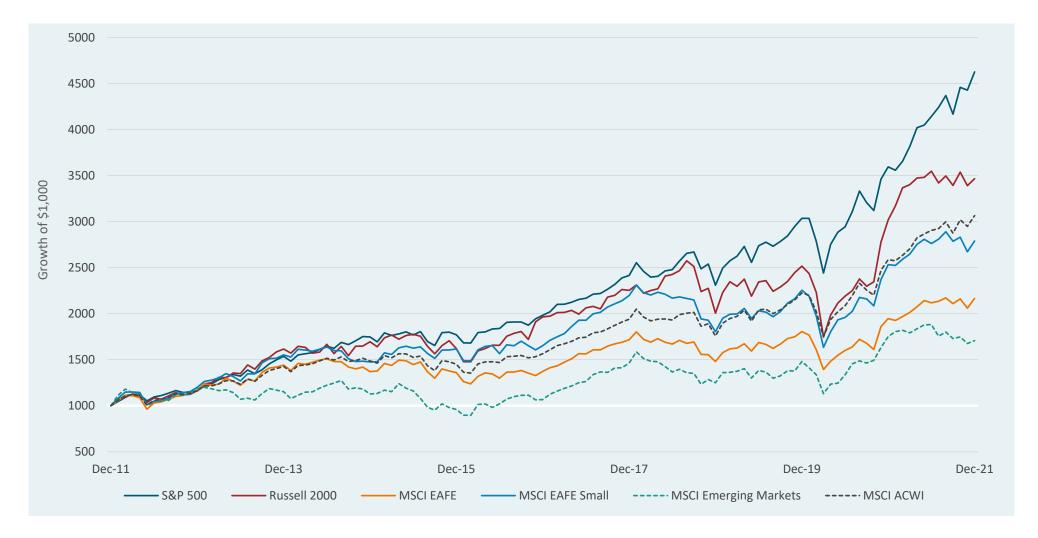


Source: Standard & Poor's, Bloomberg, as of 12/31/21



Source: Choe, as of 12/31/21

Long-term equity performance



Source: Morningstar, as of 12/31/21



Other assets



Private real estate fundamentals

Private real estate fundamentals have seen steady improvement in vacancy rates and net operating income (NOI) growth during 2021.

Performance has also been very strong. In Q3 2021, the NCREIF ODCE posted a 6.4% net return, the highest single quarter return in the history of the index, beating the previous high of 6.2% (Q4 1978). Early indications are Q4 2021 will be another strong quarter.

The office sector has been one exception where vacancy rates have continued to climb and NOI growth has been modest (although still positive).

VACANCY BY PROPERTY TYPE



NCREIF PROPERTY INDEX QUARTERLY RETURNS



NOI GROWTH BY PROPERTY TYPE (4-QTR ROLLING)



Source: NCREIF, as of 9/30/21

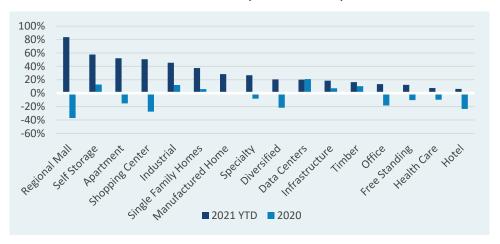


Strong rebound in REITs

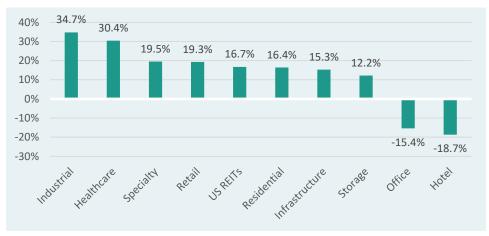
REITs rebounded strongly in 2021 posting an overall return of +42.3% for the FTSE NAREIT Equity Index. Several of the strongest sectors of 2021 were those that struggled the most in 2020, such as Regional Malls, Shopping Centers, and Apartments. Sectors with pandemic-driven tailwinds such as Industrial and Data Centers continued to perform well in 2021.

Valuations have become rich across a number of sectors, trading at substantial premiums to their net asset values (NAVs). The U.S. REIT market overall is currently trading at a 16% premium to NAV.

REIT PERFORMANCE BY SUB SECTOR (2021 VS 2020)



REIT PREMIUM/DISCOUNT TO NAV BY SUB SECTOR



Source: Cohen & Steers, as of 11/30/21

Source: Heitman, as of 12/31/21



Appendix



Periodic table of returns

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	5-Year	10-Year
Small Cap Value	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	25.3	19.8
Large Cap Growth	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	27.6	18.4	16.5
Commodities	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	27.1	14.5	14.1
Large Cap Equity	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	26.5	12.0	13.2
Large Cap Value	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	25.2	11.2	13.0
Small Cap Equity	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	14.8	10.1	12.0
International Equity	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	11.3	9.9	9.0
Real Estate	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	10.9	9.5	8.0
60/40 Global Portfoli	0 13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	9.1	7.9
Hedge Funds of Fund	s 11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	6.5	6.8	5.5
Small Cap Growth	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	5.8	4.6
Cash	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	3.6	2.9
US Bonds	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	-1.5	3.7	0.6
Emerging Markets Equi	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-2.5	1.1	-2.9



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 9/30/21.

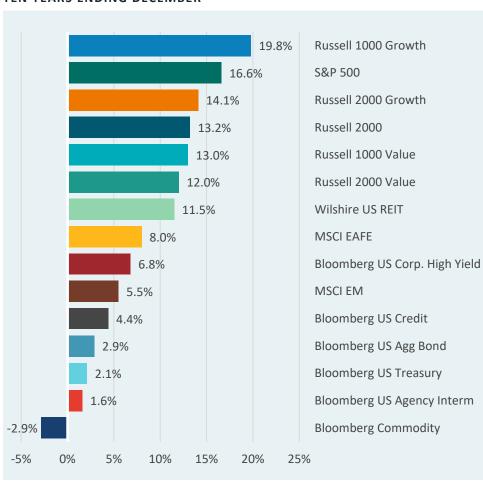


Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

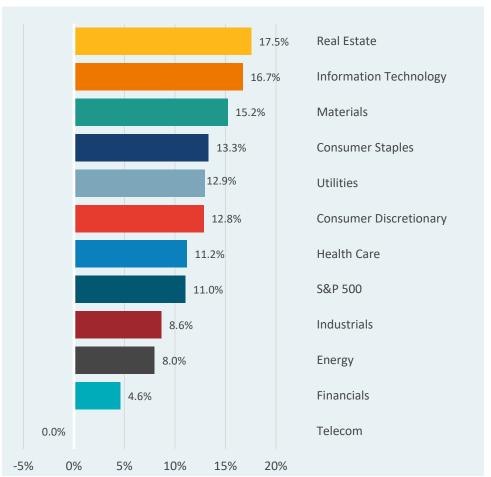
Source: Morningstar, as of 12/31/21

Source: Morningstar, as of 12/31/21

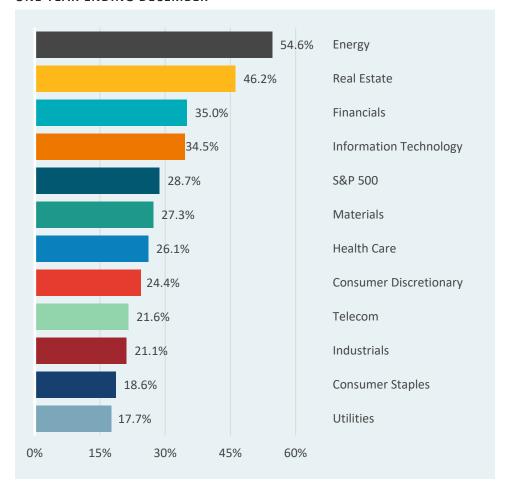


S&P 500 sector returns

Q4 2021



ONE YEAR ENDING DECEMBER



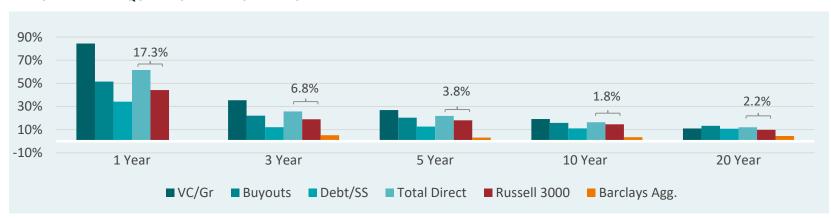
Source: Morningstar, as of 12/31/21

Source: Morningstar, as of 12/31/21



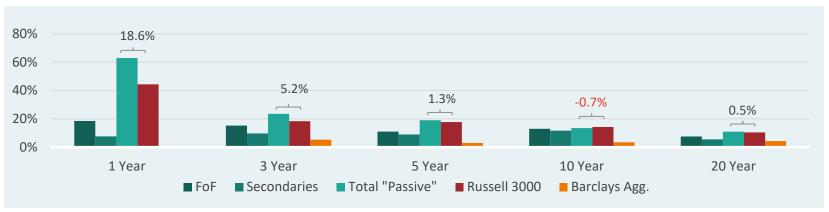
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equites across all time periods.

"PASSIVE" STRATEGIES



"Passive" strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

Sources: Refinitiv C|A PME: U.S. Private Equity Funds sub asset classes as of June 30, 2021. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

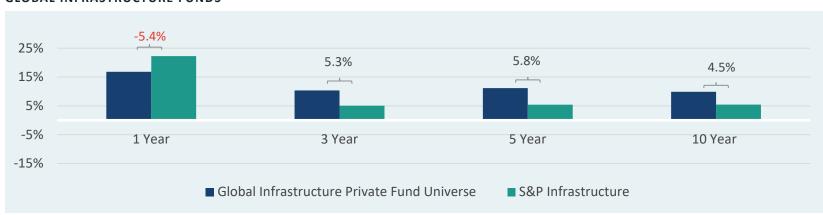


Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



GLOBAL INFRASTRUCTURE FUNDS



N.R. funds underperformed the MSCI World Natural Resources benchmark across all time periods, aside from the 10-year basis.

Infra. funds outperformed the S&P Infra. across all periods, aside from the 1-year basis.

Sources: Refinitiv C/A PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of June 30, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.



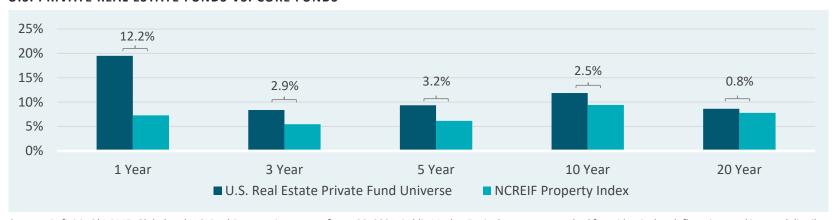
Private vs. liquid and core real estate performance

U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index across all time periods, aside on a 5-year and 10year basis.

U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private
R.E. Funds
outperformed
the NCREIF
Property Index
across all time
periods.

Sources: Refinitiv C|A PME: Global and U.S. Real Estate universes as of June 30, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.



Detailed index returns

DOMESTIC EQUITY							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	4.5	11.0	28.7	28.7	26.1	18.5	16.6
S&P 500 Equal Weighted	6.2	9.0	29.6	29.6	23.6	15.7	15.6
DJ Industrial Average	5.5	7.9	20.9	20.9	18.5	15.5	14.2
Russell Top 200	4.0	11.0	27.9	27.9	27.3	19.7	17.2
Russell 1000	4.1	9.8	26.5	26.5	26.2	18.4	16.5
Russell 2000	2.2	2.1	14.8	14.8	20.0	12.0	13.2
Russell 3000	3.9	9.3	25.7	25.7	25.8	18.0	16.3
Russell Mid Cap	4.1	6.4	22.6	22.6	23.3	15.1	14.9
Style Index							
Russell 1000 Growth	2.1	11.6	27.6	27.6	34.1	25.3	19.8

7.8

0.0

25.2

2.8

25.2

2.8

6.3

Russell 2000 Value	4.1	4.4	28.3	28.3	18.0	9.1	12.0
INTERNATIONAL EQUITY							
Broad Index							
MSCI ACWI	4.0	6.7	18.5	18.5	20.4	14.4	11.9
MSCI ACWI ex US	4.1	1.8	7.8	7.8	13.2	9.6	7.3
MSCI EAFE	5.1	2.7	11.3	11.3	13.5	9.5	8.0
MSCI EM	1.9	(1.3)	(2.5)	(2.5)	10.9	9.9	5.5
MSCI EAFE Small Cap	4.4	0.1	10.1	10.1	15.6	11.0	10.8
Style Index							
MSCI EAFE Growth	4.3	4.1	11.3	11.3	19.0	13.6	10.1
MSCI EAFE Value	6.0	1.2	10.9	10.9	7.8	5.3	5.8
Regional Index							
MSCI UK	7.3	5.6	18.5	18.5	8.7	6.2	5.1
MSCI Japan	1.9	(4.0)	1.7	1.7	11.7	8.5	8.3
MSCI Euro	6.3	3.9	14.9	14.9	14.6	9.7	8.4
MSCI EM Asia	1.5	(1.0)	(5.1)	(5.1)	13.3	11.9	8.1
MSCI EM Latin American	5.9	(2.7)	(8.1)	(8.1)	(2.4)	1.5	(2.2)

FIXED INCOME

11.2

14.5

17.6

21.2

13.0

14.1

TIMED INCOME							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	0.3	2.4	6.0	6.0	8.4	5.3	3.1
Bloomberg US Treasury Bills	0.0	0.0	0.0	0.0	1.0	1.2	0.7
Bloomberg US Agg Bond	(0.3)	0.0	(1.5)	(1.5)	4.8	3.6	2.9
Bloomberg US Universal	(0.1)	(0.0)	(1.1)	(1.1)	5.2	3.8	3.3
Duration							
Bloomberg US Treasury 1-3 Yr	(0.2)	(0.6)	(0.6)	(0.6)	2.0	1.6	1.1
Bloomberg US Treasury Long	(1.4)	3.1	(4.6)	(4.6)	8.8	6.5	4.5
Bloomberg US Treasury	(0.5)	0.2	(2.3)	(2.3)	4.1	3.1	2.1
Issuer							
Bloomberg US MBS	(0.1)	(0.4)	(1.0)	(1.0)	3.0	2.5	2.3
Bloomberg US Corp. High Yield	1.9	0.7	5.3	5.3	8.8	6.3	6.8
Bloomberg US Agency Interm	(0.2)	(0.7)	(1.2)	(1.2)	2.4	2.0	1.6
Bloomberg US Credit	(0.1)	0.2	(1.1)	(1.1)	7.2	5.1	4.4
OTHER							
Index							

OTHER							
Index							
Bloomberg Commodity	3.5	(1.6)	27.1	27.1	9.9	3.7	(2.9)
Wilshire US REIT	8.8	17.1	46.2	46.2	19.2	10.9	11.5
CS Leveraged Loans	0.6	0.7	5.4	5.4	5.4	4.3	4.8
S&P Global Infrastructure	6.6	4.6	11.9	11.9	10.2	7.8	7.7
Alerian MLP	3.7	0.9	40.9	40.9	1.0	(3.7)	(0.3)
Regional Index							
JPM EMBI Global Div	1.4	(0.4)	(1.8)	(1.8)	5.9	4.7	5.3
JPM GBI-EM Global Div	1.6	(2.5)	(8.7)	(8.7)	2.1	2.8	0.7
Hedge Funds							
HFRI Composite	1.3	0.6	10.3	10.3	10.9	7.1	5.8
HFRI FOF Composite	0.8	0.7	6.5	6.5	8.6	5.8	4.6
Currency (Spot)							
Euro	1.0	(1.9)	(7.1)	(7.1)	(0.2)	1.5	(1.3)
Pound Sterling	2.4	0.5	(0.9)	(0.9)	2.1	1.9	(1.4)
Yen	(1.4)	(3.1)	(10.3)	(10.3)	(1.6)	0.3	(4.0)

Source: Morningstar, HFRI, as of 12/31/21



Russell 1000 Value

Russell 2000 Growth

Definitions

Bloomberg US Weekly Consumer Comfort Index - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.langerresearch.com)

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)

NFIB Small Business Outlook - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (https://www.nfib-sbet.org/about/)

NAHB Housing Market Index – the housing market index is a weighted average of separate diffusion induces for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula "(Good-Poor + 100)/2" to the present and future sales series and "(High/Very High-Low/Very Low + 100)/2" to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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Imperial County Employees' Retirement System

Investment Performance Review

Period Ending: December 31, 2021

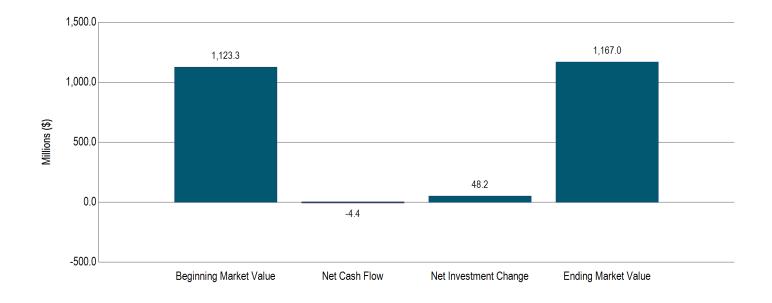


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Portfolio Reconciliation

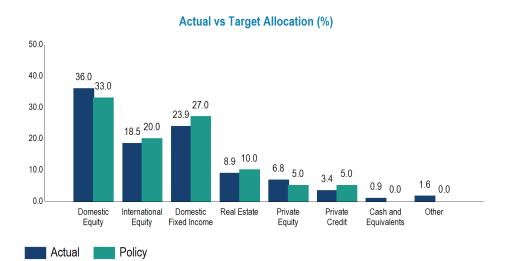
	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$1,123,273,836	\$1,108,038,199	\$1,015,770,219
Net Cash Flow	-\$4,408,391	-\$4,553,131	-\$10,549,664
Net Investment Change	\$48,167,755	\$63,548,132	\$161,812,646
Ending Market Value	\$1,167,033,200	\$1,167,033,200	\$1,167,033,200



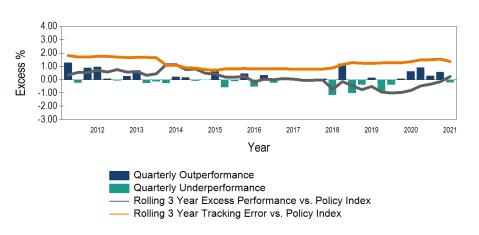
Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	4.3	5.7	15.9	15.3	11.3	9.6
Policy Index	4.5	5.3	14.2	15.1	11.4	9.3
InvMetrics Public DB Net Rank	53	11	15	51	43	52
Total Domestic Equity	9.3	9.1	25.6	25.8	18.0	16.1
Russell 3000	9.3	9.2	25.7	25.8	18.0	16.3
eV US All Cap Core Equity Net Rank	34	45	51	36	29	23
Total International Equity	1.8	0.0	10.1	12.8	9.5	7.3
MSCI ACWI ex USA Gross	1.9	-1.1	8.3	13.7	10.1	7.8
InvMetrics Public DB ex-US Eq Net Rank	30	21	16	81	70	81
Total Fixed Income	0.6	0.9	0.6	6.6	4.6	4.0
Bloomberg US Aggregate TR	0.0	0.1	-1.5	4.8	3.6	2.9
Last Mateila - Distilla DD Tatal Challes						
InvMetrics Public DB Total Fix Inc Net Rank	9	11	24	12	15	27
	0.0	11 5.5	12.3	6.6	15 6.6	27 8.8
Net Rank	•					
Net Rank Total Real Estate	0.0	5.5	12.3	6.6	6.6	8.8
Net Rank Total Real Estate NCREIF ODCE Net	0.0	5.5 14.6	12.3 21.1	6.6 8.2	6.6 7.8	8.8 9.4
Net Rank Total Real Estate NCREIF ODCE Net Total Private Equity	0.0 7.7 8.4	5.5 14.6 23.6	12.3 21.1 57.3	6.6 8.2 29.9	6.6 7.8 25.9	8.8 9.4
Net Rank Total Real Estate NCREIF ODCE Net Total Private Equity Private Equity Benchmark	0.0 7.7 8.4 8.4	5.5 14.6 23.6 23.6	12.3 21.1 57.3 57.3	6.6 8.2 29.9 29.9	6.6 7.8 25.9 25.9	8.8 9.4 18.4
Net Rank Total Real Estate NCREIF ODCE Net Total Private Equity Private Equity Benchmark Total Private Credit	0.0 7.7 8.4 8.4 0.2	5.5 14.6 23.6 23.6 5.0	12.3 21.1 57.3 57.3	6.6 8.2 29.9 29.9 9.3	6.6 7.8 25.9 25.9	8.8 9.4 18.4



Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



New Policy Index (as of 8/1/2020): 33% Russell 3000, 20% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 2% Bloomberg Aggregate, 5% Private Equity Benchmark, 3% Private Credit Benchmark. Policy Index (1/1/2020-7/31/2020): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 1% Russell 3000, 2% Bloomberg Aggregate, 4% Private Equity Benchmark, 3% Private Credit Benchmark. Prior Policy Index (10/1/2016 to 9/30/2018): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 5% NCREIF Property Index, 5% NCREIF Property Index, 5% NCREIF Property Index, 5% Russell 3000 +3% (Lagged), 5% Bloomberg High Yield +2% (Lagged). Prior quarter Private Equity returns, and index data are used. All returns are Net of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. As of 10/1/20 the SAA Target for equity changed to 33% Russell 3000 + 20% ACWI ex-US (see Exhibit B attached).



Attribution Effects



Performance Attribution

	Quarter	YTD
Wtd. Actual Return	4.30%	15.98%
Wtd. Index Return *	4.29%	13.58%
Excess Return	0.02%	2.40%
Selection Effect	-0.15%	0.84%
Allocation Effect	0.40%	1.46%
Interaction Effect	-0.32%	-0.20%

^{*}Calculated from benchmark returns and weightings of each component.

Attribution Summary Last Three Months

	Wtd. Actual	Wtd. Index	Excess	Selection	Allocation	Interaction	Total
	Return	Return	Return	Effect	Effect	Effects	Effects
Total Domestic Equity	9.3%	9.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	1.8%	1.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total Fixed Income	0.6%	0.0%	0.6%	0.2%	0.2%	0.0%	0.4%
Total Real Estate	0.0%	6.2%	-6.1%	-0.3%	0.1%	-0.3%	-0.5%
Total Private Equity	8.4%	8.4%	0.0%	0.0%	0.1%	0.0%	0.1%
Total Private Credit	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic	0.4%	2.0%	-1.6%	0.0%	0.0%	0.0%	-0.1%
Total	4.3%	4.3%	0.0%	-0.1%	0.4%	-0.3%	-0.1%

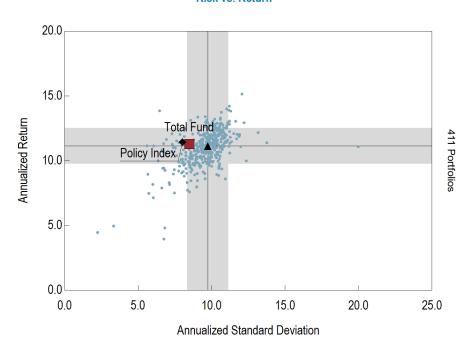
Weighted returns shown in attribution analysis may differ from actual returns.





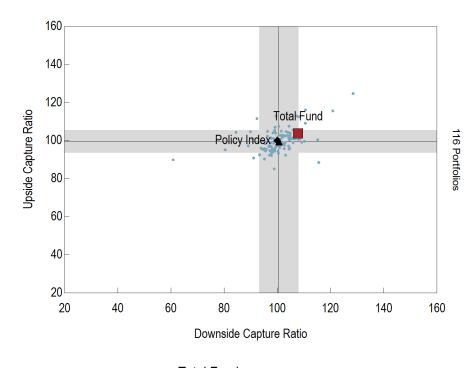
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	11.28%	-0.15%	8.48%	-0.74%	1.05	0.99%	0.99	1.20	-0.15	103.86%	107.82%

Risk vs. Return



- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

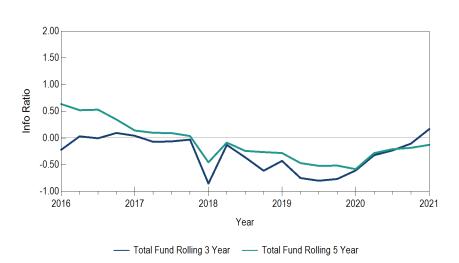
Up Markets vs. Down Markets



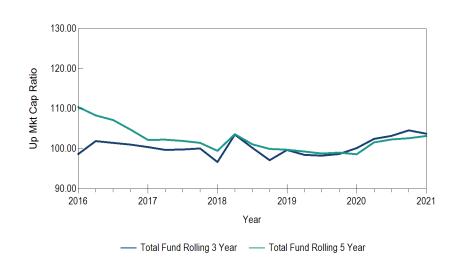
- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net



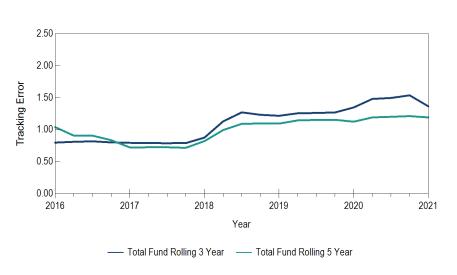
Rolling Information Ratio



Rolling Up Market Capture Ratio (%)



Rolling Tracking Error



Rolling Down Market Capture Ratio (%)





	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	1,167,033,200	100.0	4.3	5.7	15.9	15.3	11.3	9.6	15.9	12.3	17.9	-4.1	16.0	9.2	Mar-89
Policy Index			4.5	5.3	14.2	15.1	11.4	9.3	14.2	13.2	18.0	-2.8	15.9		Mar-89
InvMetrics Public DB Net Rank			53	11	15	51	43	52	15	59	73	43	22	15	Mar-89
Total Domestic Equity	419,748,039	36.0	9.3	9.1	25.6	25.8	18.0	16.1	25.6	21.0	31.1	-5.2	21.2		
Russell 3000			9.3	9.2	25.7	25.8	18.0	16.3	25.7	20.9	31.0	-5.2	21.1		
eV US All Cap Core Equity Net Rank			34	45	51	36	29	23	51	43	42	40	42		
BlackRock Russell 3000	419,748,039	36.0	9.3	9.1	25.6	25.8	18.0		25.6	21.0	31.1	-5.2	21.2	16.6	Dec-15
Russell 3000			9.3	9.2	25.7	25.8	18.0		25.7	20.9	31.0	-5.2	21.1	16.4	Dec-15
eV US All Cap Core Equity Net Rank			34	45	51	36	29		51	43	42	40	42	30	Dec-15
Total International Equity	215,745,372	18.5	1.8	0.0	10.1	12.8	9.5	7.3	10.1	8.1	20.7	-14.3	27.9	-	
MSCI ACWI ex USA Gross			1.9	-1.1	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8		
InvMetrics Public DB ex-US Eq Net Rank			30	21	16	81	70	81	16	93	84	29	55		
BlackRock International Equity	163,226,259	14.0	2.7	2.3	11.6	13.9	9.9	8.3	11.6	8.1	22.4	-13.5	25.4	7.6	Jul-03
MSCI EAFE			2.7	2.2	11.3	13.5	9.5	8.0	11.3	7.8	22.0	-13.8	25.0	7.3	Jul-03
eV All EAFE Equity Net Rank			40	33	50	54	53	62	50	49	47	33	60	55	Jul-03
DFA Emerging Markets Value	26,822,274	2.3	0.4	-2.9	12.4	8.2	8.3	4.8	12.4	2.8	9.6	-11.9	33.8	4.4	Jan-07
MSCI Emerging Markets Value NR			-0.4	-5.5	4.0	7.1	7.0	3.3	4.0	5.5	12.0	-10.7	28.1	4.0	Jan-07
eV Emg Mkts All Cap Value Equity Net Rank			26	21	16	82	66	69	16	81	98	20	49	55	Jan-07
Harding Loevner Emerging Markets	25,696,840	2.2	-2.2	-10.0	-4.2	10.1	7.5		-4.2	12.4	24.0	-19.5	33.6	6.6	Jul-16
MSCI Emerging Markets Growth GR			-2.0	-12.7	-8.2	14.8	12.8		-8.2	31.6	25.4	-18.0	47.1	11.2	Jul-16
eV Emg Mkts All Cap Growth Equity Net Rank			35	50	47	98	99		47	99	61	73	89	88	Jul-16
Total Fixed Income	278,675,655	23.9	0.6	0.9	0.6	6.6	4.6	4.0	0.6	9.8	9.5	-0.8	4.3	-	
Bloomberg US Aggregate TR			0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5		
InvMetrics Public DB Total Fix Inc Net Rank			9	11	24	12	15	27	24	8	32	59	62		
Ducenta Squared	112,860,678	9.7	0.4	0.3	-0.6	6.0	4.4	4.2	-0.6	9.1	9.9	-0.1	4.3	6.0	Dec-92
Bloomberg US Aggregate TR			0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5	5.3	Dec-92
eV US Core Plus Fixed Inc Net Rank			7	28	55	46	44	32	55	34	45	23	74	38	Dec-92
MacKay Shields Core Plus Opportunities	111,841,897	9.6	0.0	0.1	-0.5	6.2	4.4		-0.5	9.9	9.7	-1.0	4.5	3.4	Mar-15
Bloomberg US Aggregate TR			0.0	0.1	-1.5	4.8	3.6		-1.5	7.5	8.7	0.0	3.5	2.9	Mar-15
eV US Core Plus Fixed Inc Net Rank			45	61	51	39	44		51	23	54	75	62	68	Mar-15
BlackRock US TIPS	53,973,080	4.6	2.3	4.1	5.8	8.5	5.4	3.1	5.8	11.2	8.5	-1.2	3.2	4.7	Apr-07
Bloomberg US TIPS TR			2.4	4.2	6.0	8.4	5.3	3.1	6.0	11.0	8.4	-1.3	3.0	4.6	Apr-07
eV US TIPS / Inflation Fixed Inc Net Rank			31	26	36	42	43	46	36	31	53	36	47	46	Apr-07

Tortoise is now Ducenta Squared.



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception I	nception Date
Total Real Estate	104,246,873	8.9	0.0	5.5	12.3	6.6	6.6	8.8	12.3	2.1	5.7	7.5	5.8		
NCREIF Property Index			6.2	11.7	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0		
NCREIF ODCE Net			7.7	14.6	21.1	8.2	7.8	9.4	21.1	0.3	4.4	7.4	6.7		
ASB Real Estate	27,053,885	2.3	0.0	4.8	9.8	4.7	4.9		9.8	1.5	3.0	6.6	4.0	7.7	Dec-12
NCREIF Property Index			6.2	11.7	17.7	8.4	7.8		17.7	1.6	6.4	6.7	7.0	9.2	Dec-12
NCREIF ODCE Net			7.7	14.6	21.1	8.2	7.8		21.1	0.3	4.4	7.4	6.7	9.4	Dec-12
Clarion Lion	29,358,307	2.5	0.0	6.1	14.6	7.8	7.9	9.6	14.6	2.3	6.8	8.6	7.9	5.1	Dec-06
NCREIF Property Index			6.2	11.7	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0	7.2	Dec-06
NCREIF ODCE Net			7.7	14.6	21.1	8.2	7.8	9.4	21.1	0.3	4.4	7.4	6.7	5.8	Dec-06
ARA American Strategic Value Realty	45,870,042	3.9	0.0	5.9	13.0	7.6			13.0	2.4	7.8			7.9	Jan-18
NCREIF Property Index +2%			6.7	12.8	20.0	10.5			20.0	3.6	8.5			10.1	Jan-18
NCREIF ODCE +2%			8.5	16.2	24.6	11.4			24.6	3.2	7.4			10.7	Jan-18
1221 State St. Corp	1,964,639	0.2	0.0	0.0	0.0	2.6	1.5	2.4	0.0	0.0	7.9	0.0	0.0	1.5	Sep-08
Total Private Equity	79,388,345	6.8	8.4	23.6	57.3	29.9	25.9	18.4	57.3	23.0	13.3	21.3	18.8		
Harbourvest Buyout IX	8,425,938	0.7	6.5	19.3	49.6	28.8	26.6	18.0	49.6	21.3	17.6	23.6	23.2		Sep-11
Harbourvest Credit Ops IX	1,135,024	0.1	6.0	15.1	32.1	12.7	14.0	14.7	32.1	0.3	8.0	14.4	17.5		Sep-11
Harbourvest International PE VI	2,701,171	0.2	-4.2	4.2	41.2	20.6	19.2	13.9	41.2	17.2	6.0	14.8	19.4		Jun-10
Harbourvest Venture IX	7,330,471	0.6	14.2	30.9	91.1	53.7	38.0	25.5	91.1	52.4	24.6	25.9	9.4		Sep-11
Harbourvest 2017 Global Fund	28,894,588	2.5	6.5	22.5	61.6	27.8			61.6	18.8	8.8	20.9		26.5	Sep-17
Harbourvest 2018 Global Fund	17,229,751	1.5	10.4	25.6	49.7	25.7			49.7	16.0	14.3			24.9	Dec-18
Harbourvest 2019 Global Fund	13,671,402	1.2	11.1	28.7	49.6				49.6	34.6				39.9	Dec-19
Russell 3000 + 3%			10.1	10.8	29.4				29.4	24.5				27.6	Dec-19
Total Private Credit	39,983,360	3.4	0.2	5.0	13.9	9.3			13.9	4.8	9.4	6.7			
Portfolio Advisors Credit Strategies Fund	13,333,811	1.1	0.0	0.0	11.8	8.0			11.8	3.9	8.2	6.6		7.3	Oct-17
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5	9.0			13.5	5.3	8.5	5.1		8.0	Oct-17
Crescent Direct Lending Levered Fund II	3,418,510	0.3	0.0	2.9	9.5	9.3			9.5	6.0	12.4			8.8	Mar-18
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5	9.0			13.5	5.3	8.5			8.3	Mar-18
Audax Direct Lending Fund A	4,454,815	0.4	2.4	13.3	23.1	16.4			23.1	10.1	16.3			19.4	Oct-18
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5	9.0			13.5	5.3	8.5			9.3	Oct-18
Ares Capital Europe IV	7,188,435	0.6	8.4	5.9	11.8	11.0			11.8	8.2	13.1			10.7	Aug-18
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5	9.0			13.5	5.3	8.5			8.8	Aug-18
Lone Star XI	2,465,743	0.2	0.0	132.0	547.6				547.6	-62.8				23.3	May-19
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5				13.5	5.3				9.6	May-19

TSSP Adjacent funded 4/16/2020. Crescent Direct Lending, and Lone Star market value as of 9/30/2021. ARA American Strategic Value Realty preliminary.



Imperial County Employees' Retirement System

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Sixth Street Diversified Credit	8,328,969	0.7	-6.9	-3.1	-1.4				-1.4					-1.7	May-20
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5				13.5					9.1	May-20
Ascribe Opportunities Fund IV	793,077	0.1	0.0	28.3	-25.1				-25.1					-24.6	Jul-20
Bloomberg High Yield +2% (Lagged)			1.4	4.7	13.5				13.5					20.4	Jul-20
Total Opportunistic	18,654,679	1.6	0.4	6.2	18.6	2.2	8.2	12.9	18.6	0.9	-10.7	32.0	5.3		
KKR Mezzanine Partners	2,603,008	0.2	5.5	9.0	10.5	-3.5	4.1	7.4	10.5	-15.2	-4.2	25.3	8.7	7.7	Apr-11
PIMCO BRAVO	13,699	0.0	-0.3	-1.7	-21.7	-40.9	-20.3	-2.1	-21.7	-48.2	-49.1	77.8	-12.4	-1.5	May-11
TSSP Adjacent Opportunities Partners	16,037,972	1.4	-0.5	5.8	20.6				20.6					17.5	Apr-20
Total Cash															
Cash Account	10,590,876	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills			0.0	0.0	0.0	0.8	1.1	0.6	0.0	0.5	2.1	1.9	0.9		

Ascribe Opportunities Fund market value as of 9/30/2021.



				3	Years						
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 3000	25.82%	0.03%	18.18%	0.04%	1.00	0.03%	1.00	1.37	0.91	100.06%	99.94%
BlackRock International Equity	13.86%	0.32%	17.21%	0.28%	1.00	0.33%	1.00	0.75	0.99	101.77%	100.28%
DFA Emerging Markets Value	8.21%	1.12%	21.04%	0.67%	1.06	4.59%	0.96	0.35	0.24	109.83%	102.58%
Harding Loevner Emerging Markets	10.10%	-4.74%	20.96%	-4.93%	1.01	7.69%	0.87	0.44	-0.62	88.35%	106.10%
Ducenta Squared	6.02%	1.23%	3.82%	0.99%	1.05	1.37%	0.87	1.32	0.90	118.64%	100.57%
MacKay Shields Core Plus Opportunities	6.25%	1.46%	4.36%	0.87%	1.12	2.13%	0.77	1.24	0.68	128.85%	116.56%
BlackRock US TIPS	8.46%	0.02%	3.94%	-0.08%	1.01	0.10%	1.00	1.90	0.21	100.64%	101.60%
ASB Real Estate	4.70%	-3.67%	3.61%	0.80%	0.47	3.84%	0.44	1.04	-0.95	54.90%	77.87%
Clarion Lion	7.75%	-0.62%	5.26%	1.65%	0.73	3.94%	0.51	1.29	-0.16	96.14%	185.14%
ARA American Strategic Value Realty	7.65%	-2.88%	4.63%	0.90%	0.64	3.74%	0.51	1.47	-0.77	69.62%	39.64%
Portfolio Advisors Credit Strategies Fund	7.96%	-1.08%	7.83%	4.42%	0.39	8.96%	0.22	0.91	-0.12	47.04%	4.89%

				5	Years						
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock International Equity	9.87%	0.33%	14.89%	0.29%	1.00	0.29%	1.00	0.59	1.11	102.33%	100.13%
DFA Emerging Markets Value	8.34%	1.32%	18.48%	0.89%	1.06	3.86%	0.96	0.39	0.34	111.59%	101.20%
Ducenta Squared	4.41%	0.84%	3.25%	0.88%	0.99	1.17%	0.87	1.01	0.71	112.14%	93.06%
MacKay Shields Core Plus Opportunities	4.41%	0.84%	3.66%	0.63%	1.06	1.71%	0.78	0.91	0.49	118.41%	104.67%
BlackRock US TIPS	5.40%	0.06%	3.58%	0.01%	1.01	0.08%	1.00	1.20	0.75	101.03%	100.35%
ASB Real Estate	4.94%	-2.82%	3.16%	0.95%	0.52	3.07%	0.50	1.21	-0.92	60.45%	77.87%
Clarion Lion	7.95%	0.19%	4.57%	1.74%	0.80	3.09%	0.58	1.50	0.06	105.49%	185.14%



Vintage	Manager & Fund Name	Estimated 12/31/2021 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date
2011	HarbourVest IX-Buyout	\$8,425,938	\$10,000,000	\$8,525,000	85%	\$1,475,000	\$10,661,238	\$9,281,484	125.1%	223.9%	20.5%	9/30/21
2011	HarbourVest IX-Credit	\$1,135,024	\$2,000,000	\$1,600,000	80%	\$400,000	\$1,459,516	\$1,256,989	91.2%	162.2%	13.6%	9/30/21
2008	HarbourVest Int'l VI ⁵	\$2,701,171	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$3,473,109	\$3,004,251	132.1%	234.8%	16.0%	9/30/21
2011	HarbourVest IX-Venture	\$7,330,471	\$4,000,000	\$3,800,000	95%	\$200,000	\$7,605,478	\$8,023,812	200.1%	393.1%	26.1%	9/30/21
2017	HarbourVest 2017 Global	\$28,894,588	\$30,000,000	\$17,700,000	59%	\$12,300,000	\$5,662,329	\$29,894,527	32.0%	195.2%	30.3%	9/30/21
2018	HarbourVest 2018 Global	\$17,229,751	\$20,000,000	\$10,538,043	53%	\$9,461,957	\$376,435	\$18,629,751	3.6%	167.1%	38.2%	9/30/21
2019	HarbourVest 2019 Global	\$13,671,402	\$20,000,000	\$8,575,273	43%	\$11,424,727	\$0	\$14,077,480	0.0%	159.4%	63.0%	9/30/21
	Total Illiquid Private Equity	\$79,388,345	\$89,712,930	\$53,368,394	59%	\$36,344,536	\$29,238,105	\$84,168,294	157.7%	212.5%		
	% of Portfolio (Market Value)	6.8%						Management	Admin	Interest	Other	Total
					_			Fee	Fee	Expense	Expense	Expense ⁶
					_	HarbourVest IX-Buyout	•	\$24,910	\$0	\$0	\$3,066	\$27,976
						HarbourVest IX-Credit		\$4,976	\$0	\$10	\$2,266	\$7,252
						HarbourVest Int'l VI		\$6,241	\$0	\$128	\$34	\$6,403
						HarbourVest IX-Venture	•	\$9,981	\$0	\$0	\$678	\$10,659

HarbourVest 2017 Global

HarbourVest 2018 Global

HarbourVest 2019 Global



\$0

\$0

\$0

\$0

\$1

\$0

\$0

\$139

\$35,878

\$21,156

\$20,131

\$83,209

\$101,879

\$64,812

\$61,765

\$280,746

\$66,000

\$43,656

\$41,634

\$197,398

¹(DPI) is equal to (capital returned / capital called)

²(TVPI) is equal to (market value + capital returned) / capital called

³Last known market value + capital calls - distributions (preliminary MV's as of 12/31/2021)

⁴Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

⁵HarbourVest International Private Equity Partners VI-Partnership Fund L.P. values are originally presented in euros and are calculated to dollars using XE™.

⁶All fees and expenses are for 3Q 2021

, , , , , , , , , , , , , , , , , , ,	IRR
2013 Portfolio Advisors Credit Strategies Fund \$13,333,811 \$11,250,000 \$11,250,000 100% \$0 \$1,602,718 \$13,580,395 14.2% 132.8% 7.8% 2017 Crescent Direct Lending Levered Fund II \$3,418,510 \$7,000,000 \$5,707,507 82% \$1,292,493 \$3,393,167 \$3,418,510 59.5% 119.3% 8.6% 2017 Audax Direct Lending Fund A \$4,454,815 \$7,000,000 \$4,247,494 61% \$2,752,506 \$992,091 NA 23.4% 128.2% NM ⁶	Date
2017 Crescent Direct Lending Levered Fund II \$3,418,510 \$7,000,000 \$5,707,507 82% \$1,292,493 \$3,393,167 \$3,418,510 59.5% 119.3% 8.6% 2017 Audax Direct Lending Fund A \$4,454,815 \$7,000,000 \$4,247,494 61% \$2,752,506 \$992,091 NA 23.4% 128.2% NM ⁶	
2017 Audax Direct Lending Fund A \$4,454,815 \$7,000,000 \$4,247,494 61% \$2,752,506 \$992,091 NA 23.4% 128.2% NM	9/30/21
	9/30/21
2018 Ares Capital Europe IV \$7,188,435 \$8,000,000 \$6,750,173 84% \$1,249,827 \$1,069,109 NA 15.8% 122.3% NM ⁷	NM^6
	NM^7
2019 Lone Star Fund XI \$2,465,742 \$5,750,000 \$971,050 17% \$4,230,306 \$103,177 NA 10.6% 264.6% NA	NA
2019 Ascribe Opportunities IV \$793,077 \$6,000,000 \$830,191 14% \$5,169,809 \$26,909 NA NA NA NA NA	NA
2020 Sixth Street Diversified Credit \$8,328,969 \$20,000,000 \$9,905,478 50% \$10,094,522 \$1,371,850 NA 13.8% 97.9% NA	NA
Total Illiquid Private Credit \$39,983,359 \$65,000,000 \$39,661,892 61% \$24,789,464 \$8,559,021 \$16,998,905 42.9% 64.4%	
% of Portfolio (Market Value) 3.6% Management Accrued Admin Interest Other	Total
	xpense ⁵
	.ponec
Portfolio Advisors CSF \$0 \$0 \$0 \$0 \$0	\$0
Crescent Direct Lending II \$43,743 \$0 \$6,823 \$0 \$0	\$50,566
Audax Direct Lending A \$24,851 \$0 \$0 \$0 \$44,200	\$69,051
Ares Capital Europe IV \$25,224 \$31,322 \$0 \$20,977 \$154	400,001
Ascribe Opportunities IV \$0 \$0 \$0 \$0 \$0	\$77,677
Lone Star Fund XI \$0 \$0 \$0 \$0 \$0 \$0	

Sixth Street Diversified Credit

\$0

\$31,322

\$93.818



\$6.823

\$20.977

\$44,354

\$197,294

¹(DPI) is equal to (capital returned / capital called)

²(TVPI) is equal to (market value + capital returned) / capital called

³Last known market value + capital calls - distributions (preliminary MV's as of 12/31/2021)

⁴Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

⁵All fees and expenses except Audax Direct Lending are for 3Q 2021

⁶The Fund issued its first capital call on October 26, 2018. As such it does not consider the IRR to be meaningful.

⁷Given the nature of the ACE IV strategy, Ares will begin reporting fund-level IRR metrics beginning in Q3 2019, one year after the fund's first investment.

Vintage	Manager & Fund Name	Estimated 12/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date
2010	KKR Mezzanine ⁶	\$2,603,007	\$10,000,000	\$10,000,000	100%	\$0	\$13,493,513	\$2,467,356	134.9%	161.0%	7.3%	9/30/21
2011	PIMCO BRAVO ⁴	\$13,699	\$10,000,000	\$10,000,000	100%	\$0	\$18,133,166	\$13,736	181.3%	181.5%	-1.5%	9/30/21
2020	TSSP Adjacent Opportunities Partners	\$16,037,972	\$40,000,000	\$14,292,283	36%	\$25,707,717	\$3,090,515	NA	21.6%	133.8%	NA	NA
	Total Illiquid Opportunistic	\$18,654,678	\$60,000,000	\$34,292,283	57%	\$25,707,717	\$34,717,194	\$2,481,092	7.2%	108.5%		
	% of Portfolio (Market Value)	1.7%					Management	Accrued	Admin	Interest	Other	Total
							Fee	Carried Interest	Fee	Expense	Expense	Expense ⁷
					KKR Mezzai	nine	\$3,960	\$0	\$0	\$0	\$2,278	\$6,238
					PIMCO BRA	VO	\$0	\$0	\$0	\$0	\$79	\$79
					TSSP Adjace	ent Opportunities	\$0	\$0	\$0	\$0	\$0	\$0
							\$3,960	\$0	\$0	\$0	\$2,357	\$6,317



¹(DPI) is equal to (capital returned / capital called)

²(TVPI) is equal to (market value + capital returned) / capital called

³Last known market value + capital calls - distributions (preliminary MV's as of 12/31/2021)

⁴Investment period ended, no further capital to be called.

⁵Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

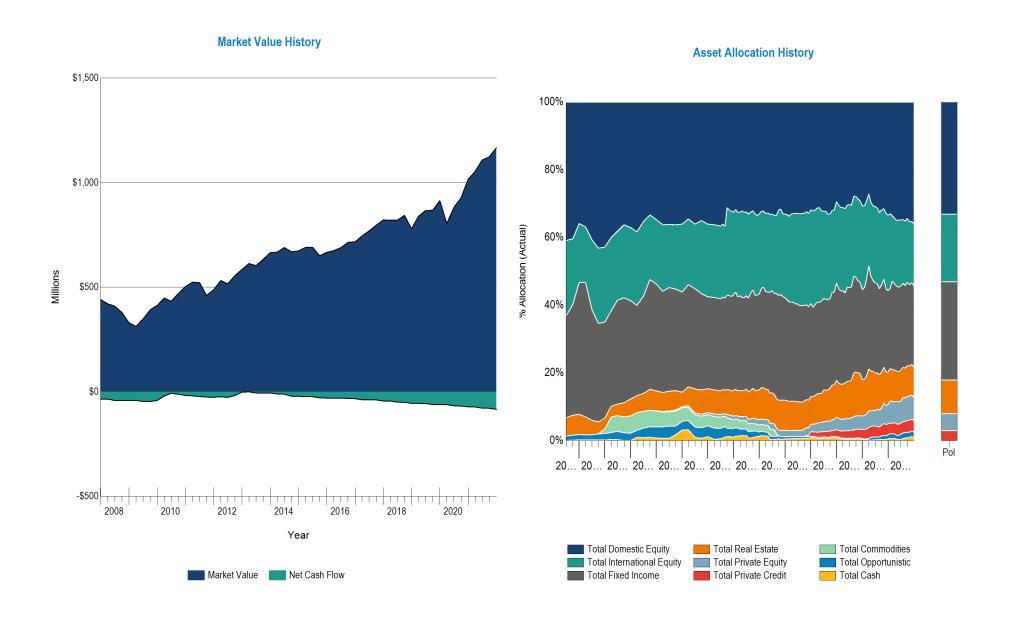
⁶KKR: Total capital called is \$12,686,373, which includes recycled distributions. Unused capital commitment is \$839,888 after including distribution proceeds available for reinvestment

⁷All fees and expenses are for 2Q 2021

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Capital Appreciation	Income	Ending Market Value
BlackRock Russell 3000	\$385,969,194	\$0	-\$2,000,000	-\$2,000,000	\$35,778,845	\$0	\$419,748,039
BlackRock International Equity	\$158,878,920	\$0	\$0	\$0	\$4,347,339	\$0	\$163,226,259
DFA Emerging Markets Value	\$26,707,664	\$0	\$0	\$0	\$114,610	\$0	\$26,822,274
Harding Loevner Emerging Markets	\$26,209,011	\$0	\$0	\$0	-\$512,171	\$0	\$25,696,840
Ducenta Squared	\$112,332,231	\$0	\$0	\$0	\$528,448	\$0	\$112,860,678
MacKay Shields Core Plus Opportunities	\$111,841,897	\$0	\$0	\$0	\$0	\$0	\$111,841,897
BlackRock US TIPS	\$52,751,179	\$0	\$0	\$0	\$1,221,901	\$0	\$53,973,080
ASB Real Estate	\$27,053,885	\$0	\$0	\$0	\$0	\$0	\$27,053,885
Clarion Lion	\$29,358,307	\$0	\$0	\$0	\$0	\$0	\$29,358,307
ARA American Strategic Value Realty	\$45,075,042	\$795,000	\$0	\$795,000	\$0	\$0	\$45,870,042
1221 State St. Corp	\$1,951,727	\$13,867	-\$958	\$12,908	\$0	\$4	\$1,964,639
Harbourvest Buyout IX	\$8,712,350	\$0	-\$855,546	-\$855,546	\$569,134	\$0	\$8,425,938
Harbourvest Credit Ops IX	\$1,185,463	\$0	-\$121,965	-\$121,965	\$71,526	\$0	\$1,135,024
Harbourvest International PE VI	\$3,171,725	\$0	-\$338,049	-\$338,049	-\$132,505	\$0	\$2,701,171
Harbourvest Venture IX	\$7,026,703	\$0	-\$693,341	-\$693,341	\$997,109	\$0	\$7,330,471
Harbourvest 2017 Global Fund	\$28,066,112	\$0	-\$999,939	-\$999,939	\$1,828,415	\$0	\$28,894,588
Harbourvest 2018 Global Fund	\$16,869,945	\$0	-\$1,400,000	-\$1,400,000	\$1,759,806	\$0	\$17,229,751
Harbourvest 2019 Global Fund	\$13,165,219	\$0	-\$928,181	-\$928,181	\$1,434,364	\$0	\$13,671,402
Portfolio Advisors Credit Strategies Fund	\$13,580,395	\$0	-\$246,584	-\$246,584	\$0	\$0	\$13,333,811
Crescent Direct Lending Levered Fund II	\$4,108,873	\$0	-\$690,363	-\$690,363	\$0	\$0	\$3,418,510
Audax Direct Lending Fund A	\$4,501,437	\$0	-\$153,789	-\$153,789	\$107,167	\$0	\$4,454,815
Ares Capital Europe IV	\$6,906,151	\$0	-\$298,256	-\$298,256	\$580,540	\$0	\$7,188,435
Lone Star XI	\$2,452,152	\$13,591	\$0	\$13,591	\$0	\$0	\$2,465,743
Sixth Street Diversified Credit	\$7,943,588	\$977,057	\$0	\$977,057	-\$591,676	\$0	\$8,328,969
Ascribe Opportunities Fund IV	-\$9,470	\$802,547	\$0	\$802,547	\$0	\$0	\$793,077
KKR Mezzanine Partners	\$2,467,356	\$0	\$0	\$0	\$135,652	\$0	\$2,603,008
PIMCO BRAVO	\$13,736	\$0	\$0	\$0	-\$37	\$0	\$13,699
TSSP Adjacent Opportunities Partners	\$15,414,687	\$694,000	\$0	\$694,000	-\$70,715	\$0	\$16,037,972
Cash Account	\$9,568,359	\$4,634,246	-\$3,611,728	\$1,022,518	\$0	\$0	\$10,590,876
Total	\$1,123,273,836	\$7,930,308	-\$12,338,699	-\$4,408,391	\$48,167,752	\$4	\$1,167,033,200

Harbourvest, Portfolio Advisors, Ares, Audax, PIMCO Bravo, KKR Mezzanine, Sixth Street, and TSSP Adjacent Opportunities market values as of 9/30/2021 +/- 3Q21 calls/distributions.







Current	Policy
36.0%	33.0%
18.5%	20.0%
23.9%	27.0%
8.9%	10.0%
6.8%	5.0%
3.4% 0.9% 1.6%	5.0% 0.0%

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$419,748,039	36.0%	33.0%	\$34,627,083	23.0% - 43.0%	Yes
International Equity	\$215,745,372	18.5%	20.0%	-\$17,661,268	10.0% - 30.0%	Yes
Domestic Fixed Income	\$278,675,655	23.9%	27.0%	-\$36,423,309	17.0% - 40.0%	Yes
Real Estate	\$104,246,873	8.9%	10.0%	-\$12,456,447	5.0% - 15.0%	Yes
Private Equity	\$79,388,345	6.8%	5.0%	\$21,036,685	0.0% - 10.0%	Yes
Private Credit	\$39,983,360	3.4%	5.0%	-\$18,368,300	0.0% - 10.0%	Yes
Cash and Equivalents	\$10,590,876	0.9%	0.0%	\$10,590,876	0.0% - 0.0%	No
Other	\$18,654,679	1.6%	0.0%	\$18,654,679	0.0% - 10.0%	Yes
Total	\$1,167,033,200	100.0%	100.0%			



Total Fund Investment Fee Analysis

Period Ending: December 31, 2021

Account	Fee Schedule	Market Value As of 12/31/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,964,639	0.2%		
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	\$45,870,042	3.9%	\$534,570	1.17%
Ares Capital Europe IV	No Fee	\$7,188,435	0.6%		
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$27,053,885	2.3%	\$252,904	0.93%
Ascribe Opportunities Fund IV	No Fee	\$793,077	0.1%		
Audax Direct Lending Fund A	No Fee	\$4,454,815	0.4%	-	-
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$163,226,259	14.0%	\$125,000	0.08%
BlackRock Russell 3000	0.03% of Assets	\$419,748,039	36.0%	\$125,924	0.03%
BlackRock US TIPS	0.07% of Assets	\$53,973,080	4.6%	\$37,781	0.07%
Cash Account	No Fee	\$10,590,876	0.9%		
Clarion Lion	No Fee	\$29,358,307	2.5%		
Crescent Direct Lending Levered Fund II	No Fee	\$3,418,510	0.3%		
DFA Emerging Markets Value	0.41% of Assets	\$26,822,274	2.3%	\$109,971	0.41%
Ducenta Squared	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$112,860,678	9.7%	\$317,152	0.28%
Harbourvest 2017 Global Fund	262,500 Annually	\$28,894,588	2.5%	\$262,500	0.91%
Harbourvest 2018 Global Fund	138,000 Annually	\$17,229,751	1.5%	\$138,000	0.80%
Harbourvest 2019 Global Fund	0.45% of Assets	\$13,671,402	1.2%	\$61,521	0.45%
Harbourvest Buyout IX	100,000 Annually	\$8,425,938	0.7%	\$100,000	1.19%
Harbourvest Credit Ops IX	20,000 Annually	\$1,135,024	0.1%	\$20,000	1.76%
Harbourvest International PE VI	35,000 Annually	\$2,701,171	0.2%	\$35,000	1.30%
Harbourvest Venture IX	40,000 Annually	\$7,330,471	0.6%	\$40,000	0.55%
Harding Loevner Emerging Markets	0.90% of Assets	\$25,696,840	2.2%	\$231,272	0.90%
KKR Mezzanine Partners	150,000 Annually	\$2,603,008	0.2%	\$150,000	5.76%
Lone Star XI	No Fee	\$2,465,743	0.2%	-	-
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$111,841,897	9.6%	\$391,447	0.35%
PIMCO BRAVO	1.90% of Assets	\$13,699	0.0%	\$260	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$13,333,811	1.1%	\$180,000	1.35%
Sixth Street Diversified Credit	No Fee	\$8,328,969	0.7%	-	-
TSSP Adjacent Opportunities Partners	No Fee	\$16,037,972	1.4%		
Investment Management Fee		\$1,167,033,200	100.0%	\$3,113,303	0.27%

^{*}HarbourVest, KKR and PIMCO BRAVO fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund.

^{*}HarbourVest funds annual fee amounts calculated by applying the average annual fee charged to each fund over its expected lifecycle by its respective capital commitment.



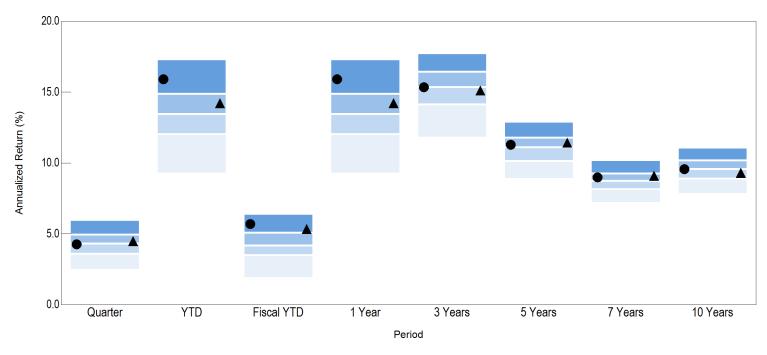
^{*}HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

^{*}Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations.

^{*}Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

^{*}Total fund market value excludes other investments managed by Portfolio Advisors.





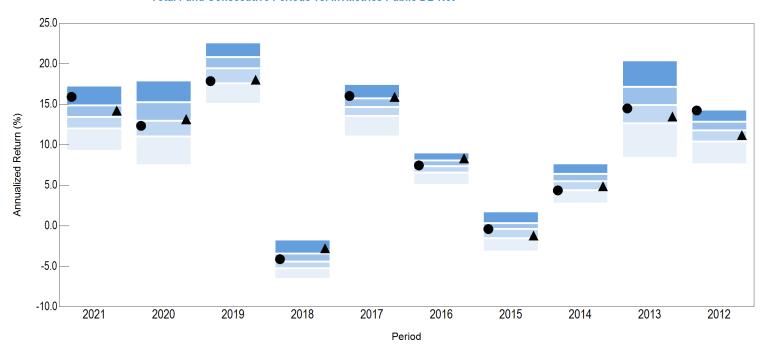
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

Total FundPolicy Index

Return (R	ank)														
6.0		17.3		6.4		17.3		17.7		12.9		10.2		11.1	
5.0		14.9		5.1		14.9		16.4		11.8		9.3		10.2	
4.3		13.5		4.2		13.5		15.4		11.1		8.7		9.6	
3.6		12.0		3.5		12.0		14.2		10.2		8.2		8.9	
2.5		9.3		1.9		9.3		11.8		8.9		7.2		7.8	
441		434		439		434		427		411		386		353	
4.3 4.5	(53) (43)	15.9 14.2	(15) (35)	5.7 5.3	(11) (16)	15.9 14.2	(15) (35)	15.3 15.1	(51) (57)	11.3 11.4	(43) (37)	9.0 9.1	(41) (34)	9.6 9.3	(52) (60)
4.5	(43)	14.2	(55)	5.5	(10)	14.2	(55)	13.1	(37)	11.4	(31)	9.1	(04)	9.5	(00)



Total Fund Consecutive Periods vs. InvMetrics Public DB Net



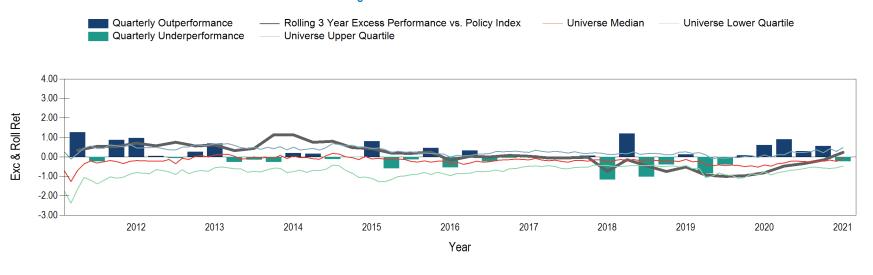
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

Total FundPolicy Index

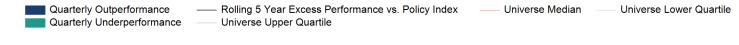
Return (Rank	()									
17.3	17.9	22.6	-1.7	17.5	9.0	1.7	7.7	20.4	14.3	
14.9	15.3	20.8	-3.4	15.8	8.1	0.4	6.4	17.2	12.9	
13.5	13.0	19.5	-4.4	14.7	7.4	-0.4	5.5	14.9	11.8	
12.0	11.0	17.6	-5.2	13.6	6.6	-1.5	4.4	12.7	10.4	
9.3	7.5	15.1	-6.5	11.1	5.0	-3.2	2.7	8.4	7.6	
434	596	550	496	269	269	262	210	191	159	
15.9 (15) 14.2 (35)	12.3 (59 13.2 (49	, ,	-4.1 (43) -2.8 (14)	16.0 (22) 15.9 (24)	7.4 (49) 8.3 (22)	-0.4 (51) -1.2 (72)	4.4 (77) 4.9 (64)	14.5 (55) 13.5 (69)	14.2 (6) 11.2 (63)	

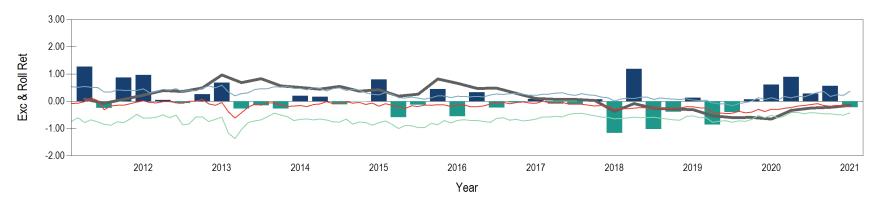


Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

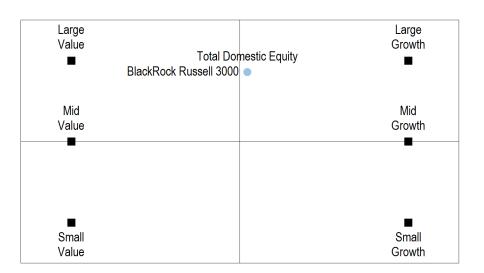






	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Domestic Equity	419,748,039	9.3	9.1	25.6	25.8	18.0	16.1	25.6	21.0	31.1	-5.2	21.2
Russell 3000		9.3	9.2	25.7	25.8	18.0	16.3	25.7	20.9	31.0	-5.2	21.1
eV US All Cap Core Equity Net Rank		34	45	51	36	29	23	51	43	42	40	42
BlackRock Russell 3000	419,748,039	9.3	9.1	25.6	25.8	18.0		25.6	21.0	31.1	-5.2	21.2
Russell 3000		9.3	9.2	25.7	25.8	18.0		25.7	20.9	31.0	-5.2	21.1
eV US All Cap Core Equity Net Rank		34	45	51	36	29		51	43	42	40	42

U.S. Effective Style Map 3 Years Ending December 31, 2021



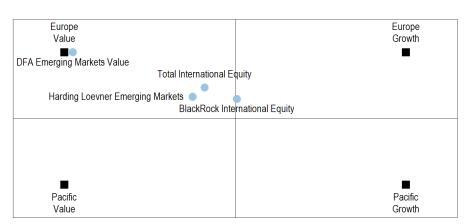
U.S. Effective Style Map 5 Years Ending December 31, 2021





	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total International Equity	215,745,372	1.8	0.0	10.1	12.8	9.5	7.3	10.1	8.1	20.7	-14.3	27.9
MSCI ACWI ex USA Gross		1.9	-1.1	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8
InvMetrics Public DB ex-US Eq Net Rank		30	21	16	81	70	81	16	93	84	29	55
BlackRock International Equity	163,226,259	2.7	2.3	11.6	13.9	9.9	8.3	11.6	8.1	22.4	-13.5	25.4
MSCI EAFE		2.7	2.2	11.3	13.5	9.5	8.0	11.3	7.8	22.0	-13.8	25.0
eV All EAFE Equity Net Rank		40	33	50	54	53	62	50	49	47	33	60
DFA Emerging Markets Value	26,822,274	0.4	-2.9	12.4	8.2	8.3	4.8	12.4	2.8	9.6	-11.9	33.8
MSCI Emerging Markets Value NR		-0.4	-5.5	4.0	7.1	7.0	3.3	4.0	5.5	12.0	-10.7	28.1
eV Emg Mkts All Cap Value Equity Net Rank		26	21	16	82	66	69	16	81	98	20	49
Harding Loevner Emerging Markets	25,696,840	-2.2	-10.0	-4.2	10.1	7.5		-4.2	12.4	24.0	-19.5	33.6
MSCI Emerging Markets Growth GR		-2.0	-12.7	-8.2	14.8	12.8		-8.2	31.6	25.4	-18.0	47.1
eV Emg Mkts All Cap Growth Equity Net Rank		35	50	47	98	99		47	99	61	73	89

MSCI Effective Style Map 3 Years Ending Dec 31, 2021

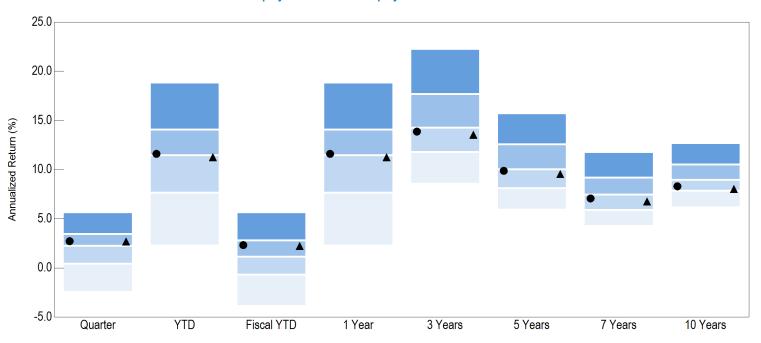


MSCI Effective Style Map 5 Years Ending Dec 31, 2021





BlackRock International Equity vs. eV All EAFE Equity Net Universe



	Return (Ra	ank)														
5th Percentile	5.6		18.8		5.6		18.8		22.2		15.7		11.8		12.7	
25th Percentile	3.5		14.1		2.8		14.1		17.7		12.6		9.2		10.5	
Median	2.3		11.5		1.1		11.5		14.3		10.1		7.5		9.0	
75th Percentile	0.5		7.7		-0.7		7.7		11.8		8.1		5.9		7.9	
95th Percentile	-2.4		2.3		-3.8		2.3		8.6		5.9		4.3		6.2	
# of Portfolios	252		252		252		252		242		229		194		160	
BlackRock International EquityMSCI EAFE	2.7 2.7	(40) (41)	11.6 11.3	(50) (53)	2.3 2.2	(33) (35)	11.6 11.3	(50) (53)	13.9 13.5	(54) (58)	9.9 9.5	(53) (59)	7.1 6.8	(54) (62)	8.3 8.0	(62) (71)



BlackRock International Equity vs. eV All EAFE Equity Net Universe



5th Percentile 25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

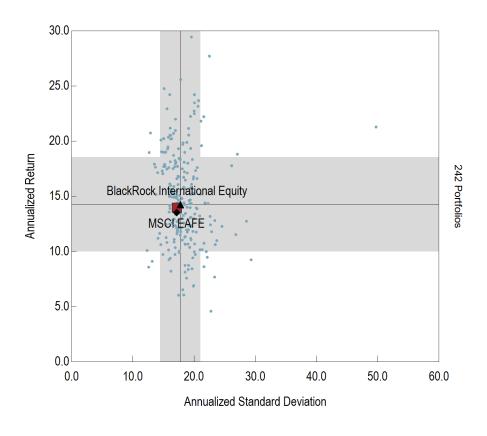
BlackRock International Equity

MSCIEAFE

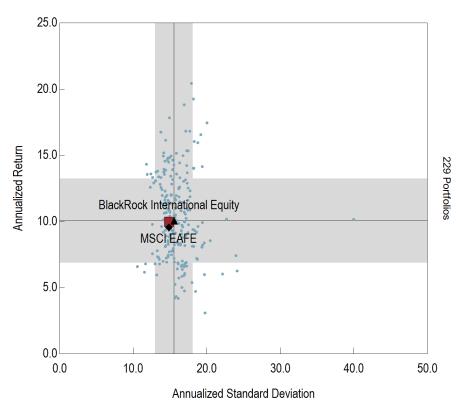
Return (Rank)																			
18.8		29.8		31.9		-9.0		39.6		7.1		11.2		2.6		33.6		29.3	
14.1		14.0		25.7		-12.7		31.3		2.6		4.7		-2.4		28.2		22.1	
11.5		8.0		22.1		-15.8		26.6		0.6		1.2		-4.3		24.5		18.9	
7.7		4.0		19.1		-18.6		23.4		-1.5		-1.6		-6.0		20.8		16.9	
2.3		-2.6		14.7		-23.1		18.6		-5.0		-5.5		-9.1		14.3		12.5	
252		255		255		243		232		215		188		164		151		144	
11.6 11.3	(50) (53)	8.1 7.8	(49) (53)	22.4 22.0	(47) (52)	-13.5 -13.8	(33) (37)	25.4 25.0	(60) (64)	1.3 1.0	(37) (44)	-0.6 -0.8	(65) (67)	-4.8 -4.9	(58) (60)	22.9 22.8	(63) (64)	17.6 17.3	(69) (72)



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



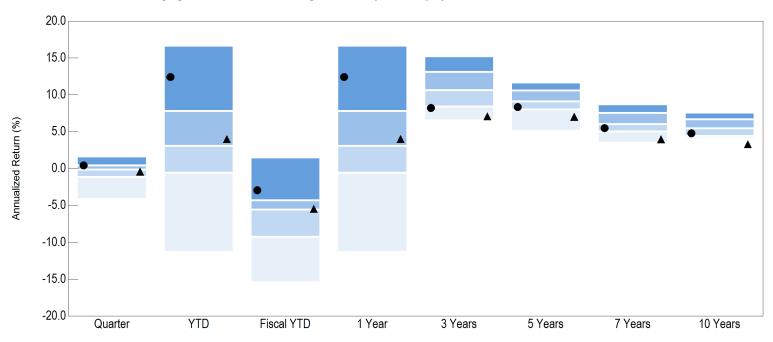
- BlackRock International Equity
- MSCI EAFE
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Net



- BlackRock International Equity
- MSCI EAFE
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Net



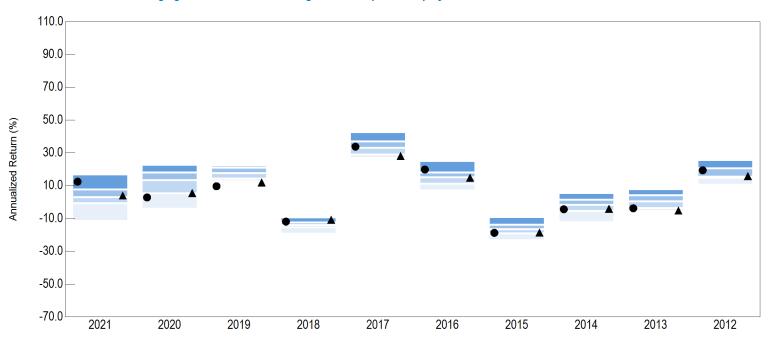
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity Net Universe



	Return (R	ank)														
5th Percentile	1.6		16.7		1.5		16.7		15.2		11.6		8.7		7.6	
25th Percentile	0.5		7.8		-4.3		7.8		13.1		10.6		7.6		6.7	
Median	-0.1		3.1		-5.5		3.1		10.6		9.2		6.0		5.5	
75th Percentile	-1.1		-0.5		-9.2		-0.5		8.4		8.1		5.0		4.4	
95th Percentile	-4.1		-11.3		-15.4		-11.3		6.6		5.1		3.5		4.1	
# of Portfolios	24		24		24		24		22		18		14		10	
 DFA Emerging Markets Value MSCI Emerging Markets Value NR 	0.4 -0.4	(26) (63)	12.4 4.0	(16) (38)	-2.9 -5.5	(21) (49)	12.4 4.0	(16) (38)	8.2 7.1	(82) (93)	8.3 7.0	(66) (85)	5.5 4.0	(60) (92)	4.8 3.3	(69) (99)



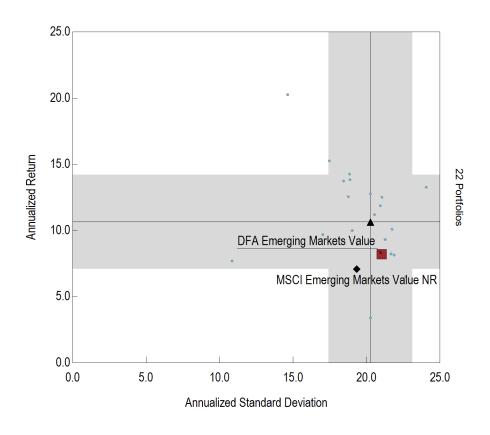
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity Net Universe



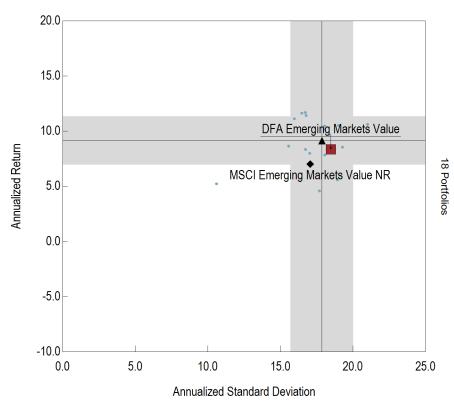
	Return (Ran	k)								
5th Percentile	16.7	22.6	22.2	-9.4	42.6	25.1	-9.1	5.5	7.7	25.5
25th Percentile	7.8	18.1	21.0	-12.3	37.2	18.2	-13.8	1.6	4.3	20.7
Median	3.1	13.4	17.7	-14.0	33.1	15.1	-16.4	-1.6	0.6	15.6
75th Percentile	-0.5	5.4	14.4	-15.3	29.1	11.4	-19.0	-5.3	-3.6	14.8
95th Percentile	-11.3	-4.0	12.9	-19.2	26.9	7.2	-23.1	-12.1	-5.3	10.8
# of Portfolios	24	24	22	25	22	22	20	18	16	11
 DFA Emerging Markets Value MSCI Emerging Markets Value NR 	12.4 (16) 4.0 (38)	2.8 (81) 5.5 (74)	9.6 (98) 12.0 (97)	-11.9 (20) -10.7 (15)	33.8 (49) 28.1 (87)	19.8 (22) 14.9 (52)	-18.8 (74) -18.6 (72)	-4.4 (73) -4.1 (72)	-3.8 (78) -5.1 (93)	19.4 (31) 15.9 (40)



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



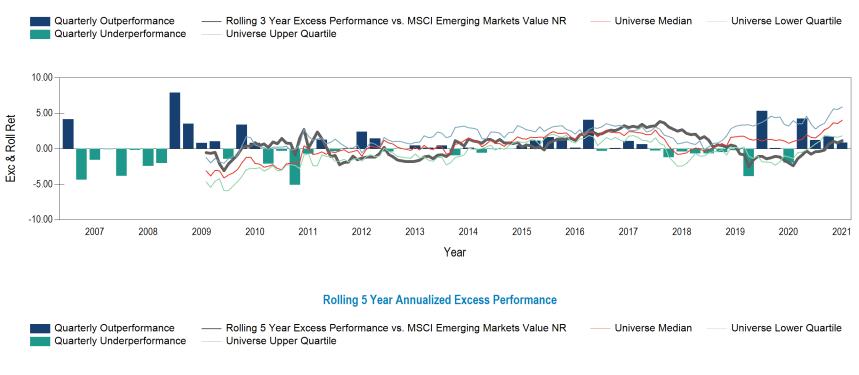
- DFA Emerging Markets Value
- MSCI Emerging Markets Value NR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Value Equity Net

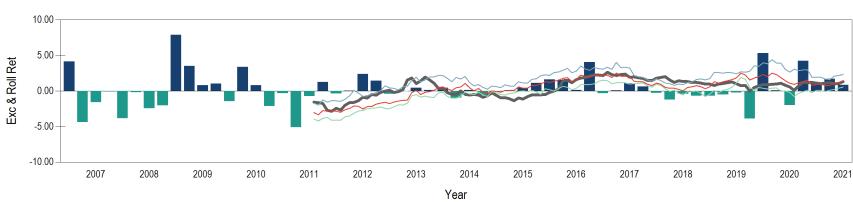


- DFA Emerging Markets Value
- MSCI Emerging Markets Value NR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Value Equity Net



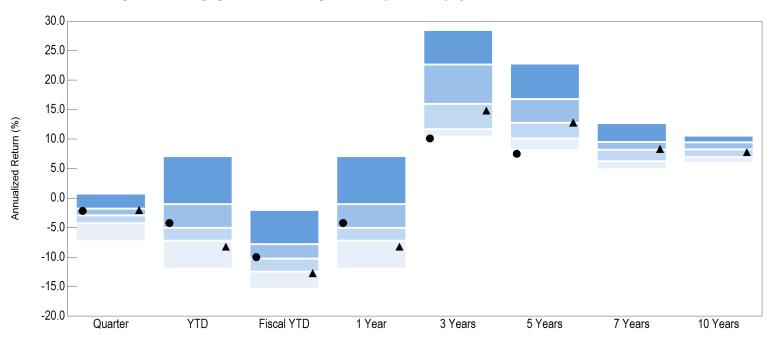
Rolling 3 Year Annualized Excess Performance







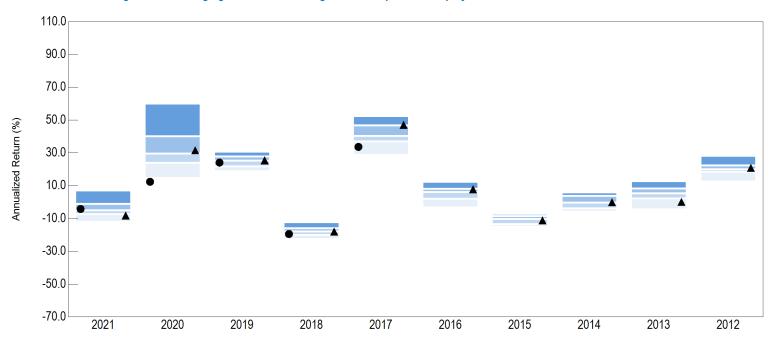
Harding Loevner Emerging Markets vs. eV Emg Mkts All Cap Growth Equity Net Universe



	Return (Ra	ank)														
5th Percentile	0.8		7.1		-2.0		7.1		28.5		22.8		12.7		10.6	
25th Percentile	-1.8		-1.0		-7.8		-1.0		22.7		16.8		9.5		9.5	
Median	-2.9		-5.0		-10.2		-5.0		16.0		12.8		8.3		8.3	
75th Percentile	-4.2		-7.2		-12.4		-7.2		11.7		10.1		6.3		7.0	
95th Percentile	-7.3		-11.9		-15.3		-11.9		10.4		8.2		4.9		6.0	
# of Portfolios	41		41		41		41		37		29		26		17	
 Harding Loevner Emerging Markets MSCI Emerging Markets Growth GR 	-2.2 -2.0	(35) (33)	-4.2 -8.2	(47) (80)	-10.0 -12.7	(50) (81)	-4.2 -8.2	(47) (80)	10.1 14.8	(98) (61)	7.5 12.8	(99) (51)	8.3	() (47)	 7.8	() (55)



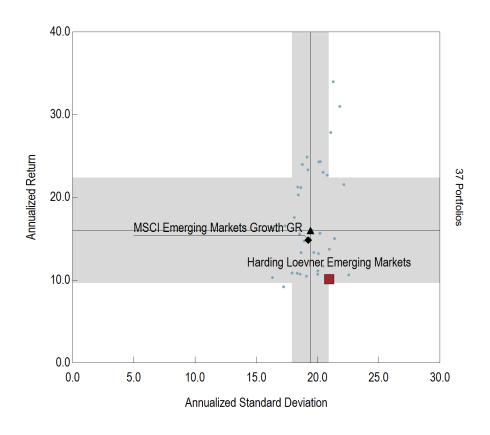
Harding Loevner Emerging Markets vs. eV Emg Mkts All Cap Growth Equity Net Universe



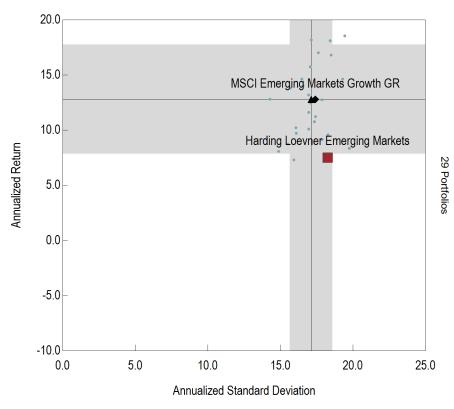
	Return (Ranl	k)								
5th Percentile	7.1	59.9	30.7	-12.4	52.3	12.2	-7.2	5.7	12.6	28.1
25th Percentile	-1.0	40.2	27.8	-15.9	46.9	8.2	-8.4	3.9	8.4	22.4
Median	-5.0	29.7	25.3	-17.9	40.4	6.1	-10.2	-0.2	5.4	20.1
75th Percentile	-7.2	24.0	21.8	-19.9	37.1	2.1	-13.3	-3.7	2.2	18.5
95th Percentile	-11.9	14.9	19.0	-22.5	28.9	-3.2	-14.9	-5.7	-4.4	12.6
# of Portfolios	41	38	32	30	29	30	29	26	24	22
Harding Loevner Emerging Markets	-4.2 (47)	12.4 (99	(-19.5 (73)	' '	(, ,	()	(, , ,
▲ MSCI Emerging Markets Growth GR	-8.2 (80)	31.6 (43) 25.4 (49) -18.0 (56)	47.1 (20)	7.9 (27) -11.1 (57)	-0.1 (46)	0.1 (80) 20.9 (39)



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



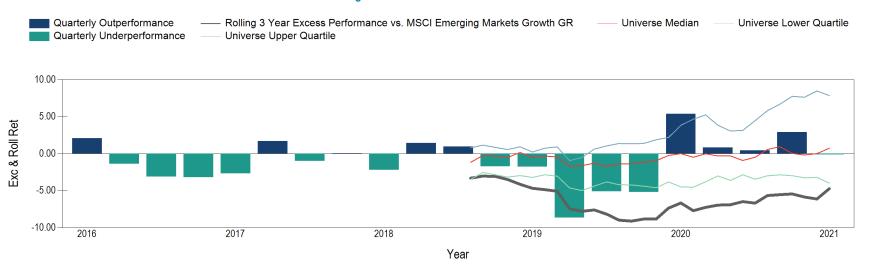
- Harding Loevner Emerging Markets
- MSCI Emerging Markets Growth GR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Growth Equity Net



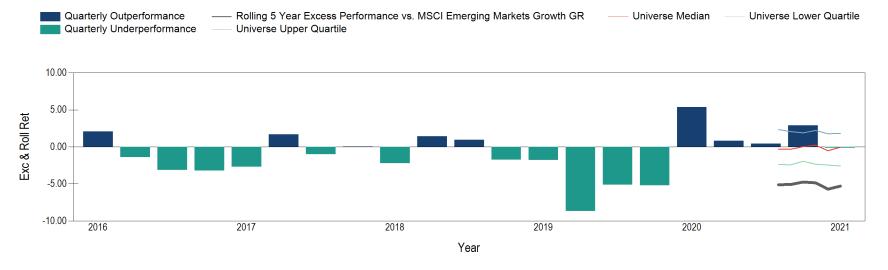
- Harding Loevner Emerging Markets
- MSCI Emerging Markets Growth GR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Growth Equity Net



Rolling 3 Year Annualized Excess Performance



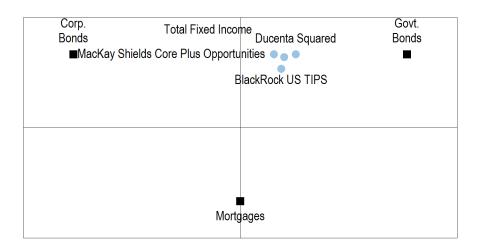
Rolling 5 Year Annualized Excess Performance



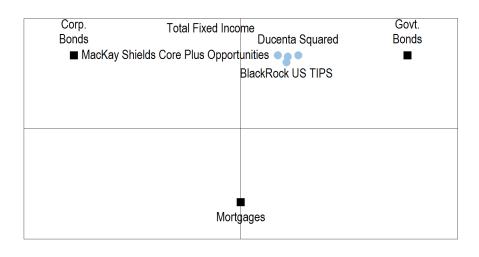


	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fixed Income	278,675,655	0.6	0.9	0.6	6.6	4.6	4.0	0.6	9.8	9.5	-0.8	4.3
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5
InvMetrics Public DB Total Fix Inc Net Rank		9	11	24	12	15	27	24	8	32	59	62
Ducenta Squared	112,860,678	0.4	0.3	-0.6	6.0	4.4	4.2	-0.6	9.1	9.9	-0.1	4.3
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5
eV US Core Plus Fixed Inc Net Rank		7	28	55	46	44	32	55	34	45	23	74
MacKay Shields Core Plus Opportunities	111,841,897	0.0	0.1	-0.5	6.2	4.4		-0.5	9.9	9.7	-1.0	4.5
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6		-1.5	7.5	8.7	0.0	3.5
eV US Core Plus Fixed Inc Net Rank		45	61	51	39	44		51	23	54	75	62
BlackRock US TIPS	53,973,080	2.3	4.1	5.8	8.5	5.4	3.1	5.8	11.2	8.5	-1.2	3.2
Bloomberg US TIPS TR		2.4	4.2	6.0	8.4	5.3	3.1	6.0	11.0	8.4	-1.3	3.0
eV US TIPS / Inflation Fixed Inc Net Rank		31	26	36	42	43	46	36	31	53	36	47

Fixed Income Style Map 3 Years Ending December 31, 2021



Fixed Income Style Map 5 Years Ending December 31, 2021



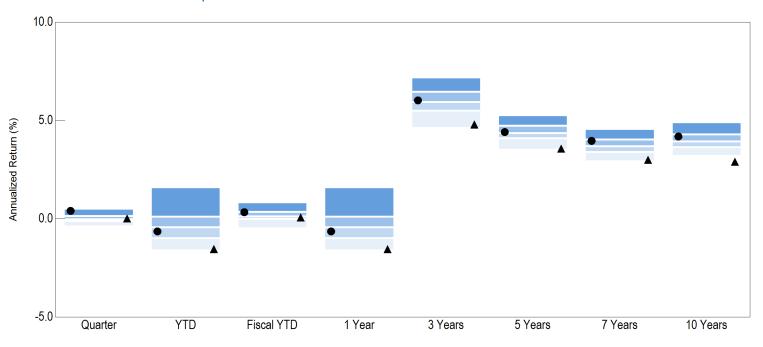
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fixed Income	278,675,655	0.6	0.9	0.6	6.6	4.6	4.0	0.6	9.8	9.5	-0.8	4.3
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5
Ducenta Squared	112,860,678	0.4	0.3	-0.6	6.0	4.4	4.2	-0.6	9.1	9.9	-0.1	4.3
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5
MacKay Shields Core Plus Opportunities	111,841,897	0.0	0.1	-0.5	6.2	4.4		-0.5	9.9	9.7	-1.0	4.5
Bloomberg US Aggregate TR		0.0	0.1	-1.5	4.8	3.6		-1.5	7.5	8.7	0.0	3.5
BlackRock US TIPS	53,973,080	2.3	4.1	5.8	8.5	5.4	3.1	5.8	11.2	8.5	-1.2	3.2
Bloomberg US TIPS TR		2.4	4.2	6.0	8.4	5.3	3.1	6.0	11.0	8.4	-1.3	3.0

Correlation Matrix Last 5 Years

	Total Fixed Income	Ducenta Squared	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	Bloomberg US Aggregate TR	
Total Fixed Income	1.00					
Ducenta Squared	0.99	1.00				
MacKay Shields Core Plus Opportunities	0.99	0.97	1.00			
BlackRock US TIPS	0.84	0.78	0.78	1.00		
Bloomberg US Aggregate TR	0.86	0.91	0.81	0.65	1.00	



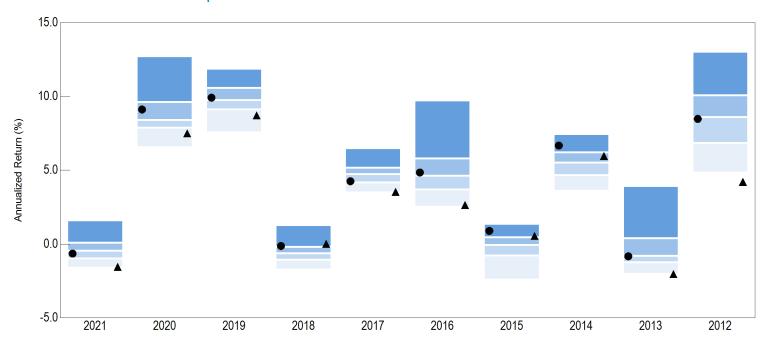
Ducenta Squared vs. eV US Core Plus Fixed Inc Net Universe



	Return (Ra	ank)														
5th Percentile	0.5		1.6		8.0		1.6		7.2		5.3		4.6		4.9	
25th Percentile	0.1		0.1		0.4		0.1		6.5		4.7		4.0		4.3	
Median	0.0		-0.4		0.1		-0.4		5.9		4.4		3.7		3.9	
75th Percentile	-0.1		-1.0		0.0		-1.0		5.5		4.1		3.4		3.6	
95th Percentile	-0.4		-1.6		-0.5		-1.6		4.6		3.5		2.9		3.2	
# of Portfolios	89		89		89		89		86		83		80		74	
Ducenta SquaredBloomberg US Aggregate TR	0.4 0.0	(7) (44)	-0.6 -1.5	(55) (93)	0.3 0.1	(28) (65)	-0.6 -1.5	(55) (93)	6.0 4.8	(46) (94)	4.4 3.6	(44) (95)	4.0 3.0	(31) (92)	4.2 2.9	(32) (99)



Ducenta Squared vs. eV US Core Plus Fixed Inc Net Universe



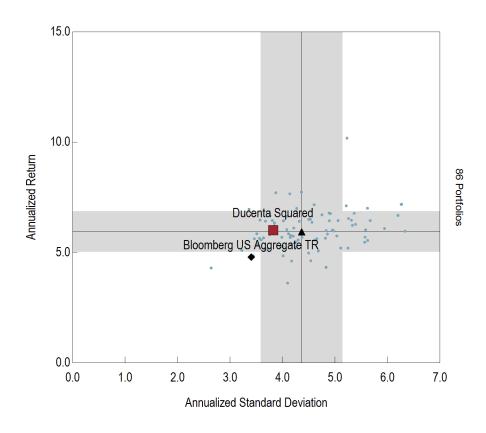
	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	Ducenta Square

Ducenta SquaredBloomberg US Aggregate TR

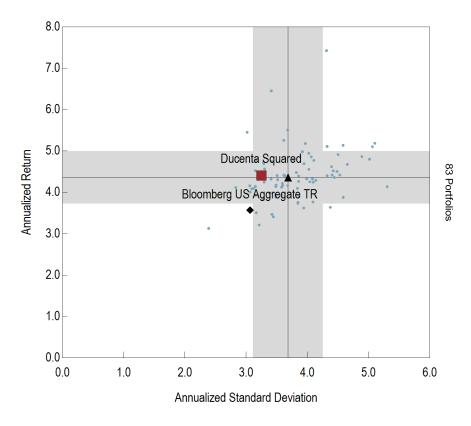
Return	(Rank)																			
1.6	· · · ·	12.7		11.9		1.3		6.5		9.7		1.4		7.4		3.9		13.0		
0.1		9.6		10.6		-0.2		5.2		5.8		0.5		6.2		0.4		10.1		
-0.4		8.4		9.8		-0.6		4.7		4.6		-0.1		5.5		-0.8		8.6		
-1.0		7.9		9.1		-1.0		4.2		3.7		-0.8		4.7		-1.2		6.9		
-1.6		6.6		7.6		-1.7		3.5		2.5		-2.4		3.6		-2.0		4.9		
89		89		86		77		80		84		71		71		65		64		
-0.6	(55)	9.1	(34)	9.9	(45)	-0.1	(23)	4.3	(74)	4.8	(41)	0.9	(12)	6.7	(17)	-0.8	(53)	8.5	(54)	
-1.5	(93)	7.5	(84)	8.7	(85)	0.0	(21)	3.5	(95)	2.6	(93)	0.6	(22)	6.0	(35)	-2.0	(96)	4.2	(96)	



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



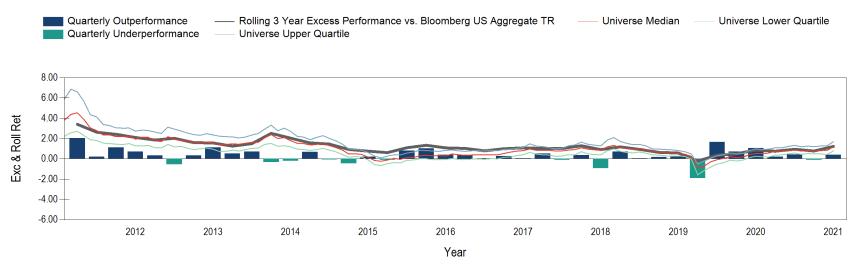
- Ducenta Squared
- Bloomberg US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Net



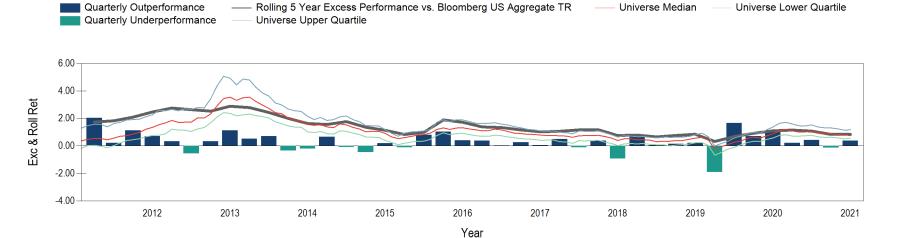
- Ducenta Squared
- Bloomberg US Aggregate TR
- Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Net



Rolling 3 Year Annualized Excess Performance

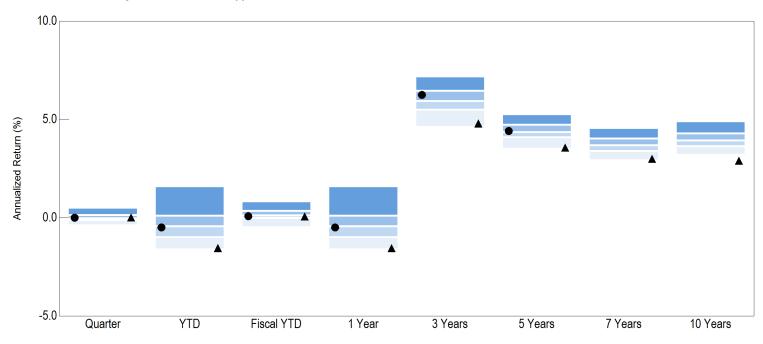


Rolling 5 Year Annualized Excess Performance





MacKay Shields Core Plus Opportunities vs. eV US Core Plus Fixed Inc Net Universe



	Return (R	ank)														
5th Percentile	0.5		1.6		8.0		1.6		7.2		5.3		4.6		4.9	
25th Percentile	0.1		0.1		0.4		0.1		6.5		4.7		4.0		4.3	
Median	0.0		-0.4		0.1		-0.4		5.9		4.4		3.7		3.9	
75th Percentile	-0.1		-1.0		0.0		-1.0		5.5		4.1		3.4		3.6	
95th Percentile	-0.4		-1.6		-0.5		-1.6		4.6		3.5		2.9		3.2	
# of Portfolios	89		89		89		89		86		83		80		74	
 MacKay Shields Core Plus Opportunities Bloomberg US Aggregate TR 	0.0 0.0	(45) (44)	-0.5 -1.5	(51) (93)	0.1 0.1	(61) (65)	-0.5 -1.5	(51) (93)	6.2 4.8	(39) (94)	4.4 3.6	(44) (95)	3.0	() (92)	2.9	() (99)



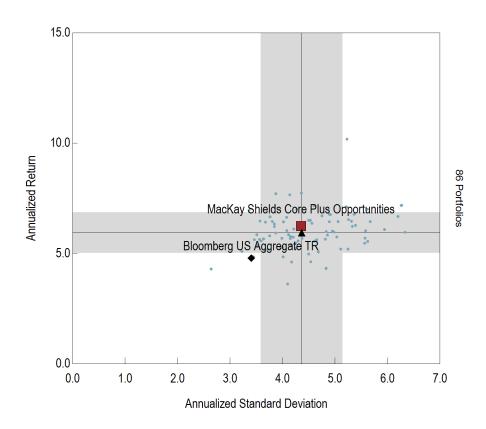
MacKay Shields Core Plus Opportunities vs. eV US Core Plus Fixed Inc Net Universe



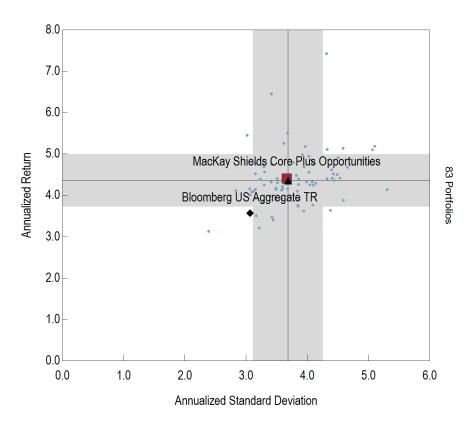
	Return (Rank))								
5th Percentile	1.6	12.7	11.9	1.3	6.5	9.7	1.4	7.4	3.9	13.0
25th Percentile	0.1	9.6	10.6	-0.2	5.2	5.8	0.5	6.2	0.4	10.1
Median	-0.4	8.4	9.8	-0.6	4.7	4.6	-0.1	5.5	-0.8	8.6
75th Percentile	-1.0	7.9	9.1	-1.0	4.2	3.7	-0.8	4.7	-1.2	6.9
95th Percentile	-1.6	6.6	7.6	-1.7	3.5	2.5	-2.4	3.6	-2.0	4.9
# of Portfolios	89	89	86	77	80	84	71	71	65	64
MacKay Shields Core Plus OpportunitiesBloomberg US Aggregate TR	-0.5 (51) -1.5 (93)	9.9 (23) 7.5 (84)	9.7 (54) 8.7 (85)	-1.0 (75) 0.0 (21)	4.5 (62) 3.5 (95)	4.7 (47) 2.6 (93)	() 0.6 (22)	() 6.0 (35)	() -2.0 (96)	() 4.2 (96)



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



- MacKay Shields Core Plus Opportunities
- Bloomberg US Aggregate TR
- Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Net



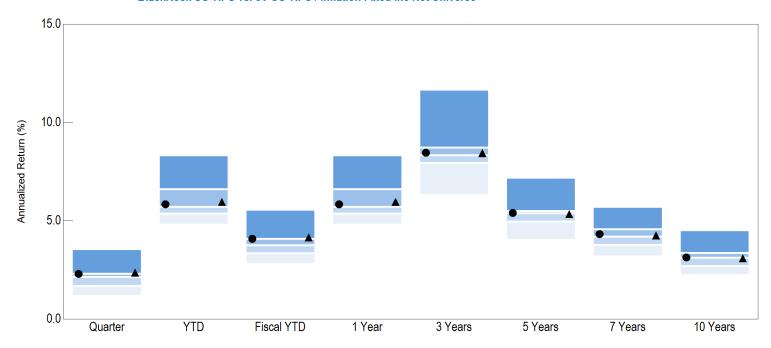
- MacKay Shields Core Plus Opportunities
- Bloomberg US Aggregate TR
- Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Net







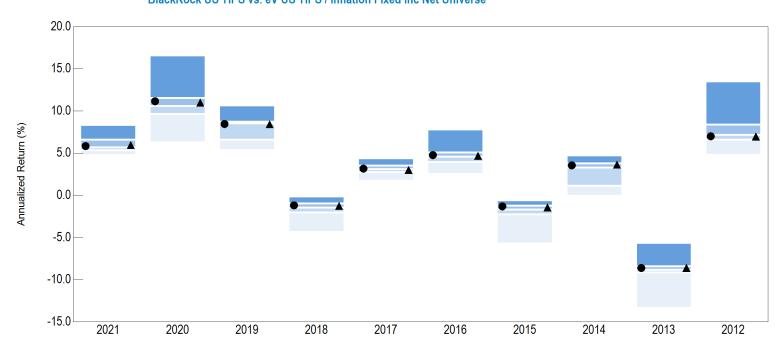
BlackRock US TIPS vs. eV US TIPS / Inflation Fixed Inc Net Universe



	Return (Ra	nk)														
5th Percentile	3.5		8.3		5.6		8.3		11.7		7.2		5.7		4.5	
25th Percentile	2.3		6.6		4.1		6.6		8.7		5.5		4.6		3.4	
Median	2.1		5.7		3.8		5.7		8.3		5.4		4.2		3.1	
75th Percentile	1.7		5.4		3.4		5.4		7.9		5.0		3.8		2.7	
95th Percentile	1.2		4.8		2.8		4.8		6.3		4.0		3.2		2.2	
# of Portfolios	15		15		15		15		15		15		14		12	
BlackRock US TIPSBloomberg US TIPS TR	2.3 2.4	(31) (14)	5.8 6.0	(36) (35)	4.1 4.2	(26) (24)	5.8 6.0	(36) (35)	8.5 8.4	(42) (43)	5.4 5.3	(43) (58)	4.3 4.2	(34) (47)	3.1 3.1	(46) (56)



BlackRock US TIPS vs. eV US TIPS / Inflation Fixed Inc Net Universe



5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

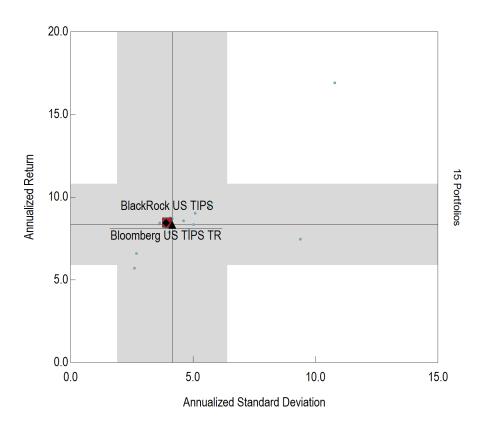
BlackRock US TIPS

▲ Bloomberg US TIPS TR

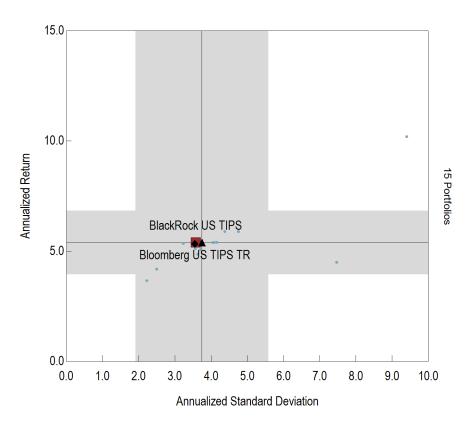
Return	(Rank)																		
8.3	` '	16.6		10.7		-0.1		4.4		7.8		-0.6		4.7		-5.6		13.5	
6.6		11.6		8.7		-0.9		3.5		5.1		-1.2		3.8		-8.4		8.4	
5.7		10.6		8.5		-1.4		3.1		4.6		-1.6		3.3		-8.8		7.2	
5.4		9.7		6.6		-2.0		2.8		3.9		-2.2		1.2		-9.1		6.6	
4.8		6.3		5.4		-4.3		1.7		2.5		-5.7		0.0		-13.3		4.8	
15		17		19		21		20		22		22		24		19		17	
5.8	(36)	11.2	(31)	8.5	(53)	-1.2	(36)	3.2	(47)	4.8	(43)	-1.3	(30)	3.6	(39)	-8.6	(44)	7.0	(61)
6.0	(35)	11.0	(37)	8.4	(54)	-1.3	(39)	3.0	(57)	4.7	(49)	-1.4	(33)	3.6	(37)	-8.6	(44)	7.0	(62)



Annualized Return vs. Annualized Standard Deviation 3 Years Ending December 31, 2021



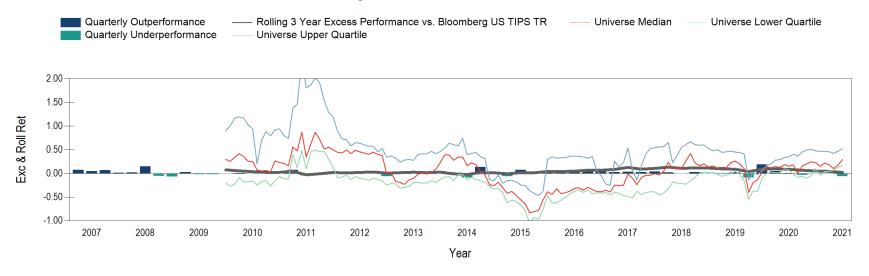
- BlackRock US TIPS
- Bloomberg US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Net



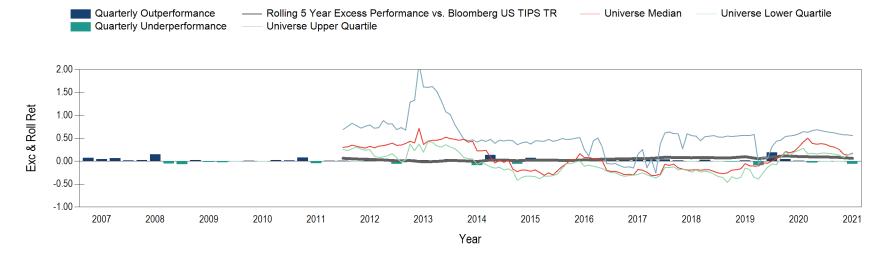
- BlackRock US TIPS
- Bloomberg US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Net



Rolling 3 Year Annualized Excess Performance



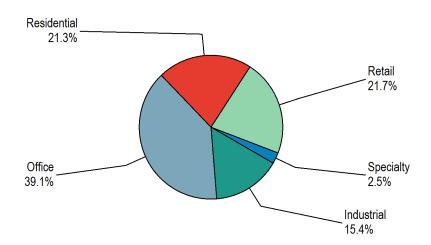
Rolling 5 Year Annualized Excess Performance



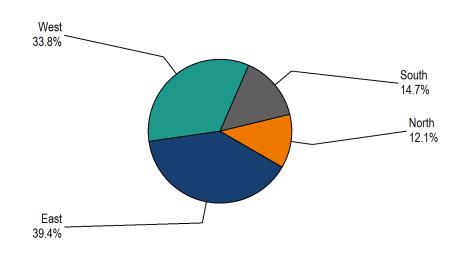


Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
104,246,873	0.0	5.5	12.3	6.6	6.6	8.8	12.3	2.1	5.7	7.5	5.8
	6.2	11.7	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0
	7.7	14.6	21.1	8.2	7.8	9.4	21.1	0.3	4.4	7.4	6.7
27,053,885	0.0	4.8	9.8	4.7	4.9		9.8	1.5	3.0	6.6	4.0
	6.2	11.7	17.7	8.4	7.8		17.7	1.6	6.4	6.7	7.0
	7.7	14.6	21.1	8.2	7.8		21.1	0.3	4.4	7.4	6.7
29,358,307	0.0	6.1	14.6	7.8	7.9	9.6	14.6	2.3	6.8	8.6	7.9
	6.2	11.7	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0
	7.7	14.6	21.1	8.2	7.8	9.4	21.1	0.3	4.4	7.4	6.7
45,870,042	0.0	5.9	13.0	7.6			13.0	2.4	7.8		
	6.7	12.8	20.0	10.5			20.0	3.6	8.5		
	8.5	16.2	24.6	11.4			24.6	3.2	7.4		
1,964,639	0.0	0.0	0.0	2.6	1.5	2.4	0.0	0.0	7.9	0.0	0.0
	104,246,873 27,053,885 29,358,307 45,870,042	104,246,873 0.0 6.2 7.7 27,053,885 0.0 6.2 7.7 29,358,307 0.0 6.2 7.7 45,870,042 0.0 6.7 8.5	Market Value 3 Mo YTD 104,246,873 6.2 11.7 7.7 14.6 27,053,885 0.0 4.8 6.2 11.7 7.7 14.6 29,358,307 0.0 6.1 6.2 11.7 7.7 14.6 45,870,042 0.0 5.9 6.7 12.8 8.5 16.2	Market Value 3 Mo YTD 1 YF 104,246,873 0.0 5.5 12.3 6.2 11.7 17.7 7.7 14.6 21.1 27,053,885 0.0 4.8 9.8 6.2 11.7 17.7 7.7 14.6 21.1 29,358,307 0.0 6.1 14.6 6.2 11.7 17.7 7.7 14.6 21.1 45,870,042 0.0 5.9 13.0 6.7 12.8 20.0 8.5 16.2 24.6	Market Value 3 Mo YTD 1 Yr 3 Yrs 104,246,873 0.0 5.5 12.3 6.6 6.2 11.7 17.7 8.4 7.7 14.6 21.1 8.2 27,053,885 0.0 4.8 9.8 4.7 6.2 11.7 17.7 8.4 7.7 14.6 21.1 8.2 29,358,307 0.0 6.1 14.6 7.8 6.2 11.7 17.7 8.4 7.7 14.6 21.1 8.2 45,870,042 0.0 5.9 13.0 7.6 6.7 12.8 20.0 10.5 8.5 16.2 24.6 11.4	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 104,246,873 0.0 5.5 12.3 6.6 6.6 6.2 11.7 17.7 8.4 7.8 7.7 14.6 21.1 8.2 7.8 27,053,885 0.0 4.8 9.8 4.7 4.9 6.2 11.7 17.7 8.4 7.8 7.7 14.6 21.1 8.2 7.8 29,358,307 0.0 6.1 14.6 7.8 7.9 6.2 11.7 17.7 8.4 7.8 7.7 14.6 21.1 8.2 7.8 45,870,042 0.0 5.9 13.0 7.6 6.7 12.8 20.0 10.5 8.5 16.2 24.6 11.4	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 10 Yrs 104,246,873 0.0 5.5 12.3 6.6 6.6 8.8 6.2 11.7 17.7 8.4 7.8 9.3 7.7 14.6 21.1 8.2 7.8 9.4 27,053,885 0.0 4.8 9.8 4.7 4.9 6.2 11.7 17.7 8.4 7.8 7.7 14.6 21.1 8.2 7.8 29,358,307 0.0 6.1 14.6 7.8 7.9 9.6 6.2 11.7 17.7 8.4 7.8 9.3 7.7 14.6 21.1 8.2 7.8 9.4 45,870,042 0.0 5.9 13.0 7.6 6.7 12.8 20.0 10.5 8.5 16.2 24.6 11.4 <	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 10 Yrs 2021 104,246,873 0.0 5.5 12.3 6.6 6.6 8.8 12.3 6.2 11.7 17.7 8.4 7.8 9.3 17.7 7.7 14.6 21.1 8.2 7.8 9.4 21.1 27,053,885 0.0 4.8 9.8 4.7 4.9 9.8 6.2 11.7 17.7 8.4 7.8 17.7 7.7 14.6 21.1 8.2 7.8 21.1 29,358,307 0.0 6.1 14.6 7.8 7.9 9.6 14.6 6.2 11.7 17.7 8.4 7.8 9.3 17.7 7.7 14.6 21.1 8.2 7.8 9.4 21.1 45,870,042 0.0 5.9 13.0 7.6 13.0 6.7 12.8	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 10 Yrs 2021 2020 104,246,873 0.0 5.5 12.3 6.6 6.6 8.8 12.3 2.1 6.2 11.7 17.7 8.4 7.8 9.3 17.7 1.6 7.7 14.6 21.1 8.2 7.8 9.4 21.1 0.3 27,053,885 0.0 4.8 9.8 4.7 4.9 9.8 1.5 6.2 11.7 17.7 8.4 7.8 17.7 1.6 7.7 14.6 21.1 8.2 7.8 21.1 0.3 29,358,307 0.0 6.1 14.6 7.8 7.9 9.6 14.6 2.3 6.2 11.7 17.7 8.4 7.8 9.3 17.7 1.6 7.7 14.6 21.1 8.2 7.8 9.4 21.1 0.3 45,870,042 0.0 5.9 13.0 7.6 13.0 2.4 6.7 12.8 20.0 10.5 20.0 3.6 8.5 16.2 24.6 11.4 24.6 3.2	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 10 Yrs 2021 2020 2019 104,246,873 0.0 5.5 12.3 6.6 6.6 8.8 12.3 2.1 5.7 6.2 11.7 17.7 8.4 7.8 9.3 17.7 1.6 6.4 7.7 14.6 21.1 8.2 7.8 9.4 21.1 0.3 4.4 27,053,885 0.0 4.8 9.8 4.7 4.9 9.8 1.5 3.0 6.2 11.7 17.7 8.4 7.8 17.7 1.6 6.4 7.7 14.6 21.1 8.2 7.8 21.1 0.3 4.4 29,358,307 0.0 6.1 14.6 7.8 7.9 9.6 14.6 2.3 6.8 6.2 11.7 17.7 8.4 7.8 9.4 21.1 0.3 4.4 45,870,0	Market Value 3 Mo YTD 1 Yr 3 Yrs 5 Yrs 10 Yrs 2021 2020 2019 2018 104,246,873 0.0 5.5 12.3 6.6 6.6 8.8 12.3 2.1 5.7 7.5 6.2 11.7 17.7 8.4 7.8 9.3 17.7 1.6 6.4 6.7 7.7 14.6 21.1 8.2 7.8 9.4 21.1 0.3 4.4 7.4 27,053,885 0.0 4.8 9.8 4.7 4.9 9.8 1.5 3.0 6.6 6.2 11.7 17.7 8.4 7.8 17.7 1.6 6.4 6.7 7.7 14.6 21.1 8.2 7.8 21.1 0.3 4.4 7.4 29,358,307 0.0 6.1 14.6 7.8 7.9 9.6 14.6 2.3 6.8 8.6 6.2 11.7 17.7

Property Type Allocation
Allocation as of December 31, 2021



Geographic Diversification
Allocation as of December 31, 2021



ARA American Strategic Value Realty funded 1/4/2018.



Performance Return Calculations

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 3000	12/10/2015	J.P. Morgan	1221 State Street Corp	9/30/2008	ICERS/Union Bank
BlackRock International Equity	7/3/2003	J.P. Morgan	Cash	-	J.P. Morgan
DFA Emerging Markets Value	1/11/2007	J.P. Morgan	HarbourVest IX-Buyout	2011 ¹	HarbourVest
Harding Loevner	7/5/2016	Harding Loevner	HarbourVest IX-Credit	2011 ¹	HarbourVest
Bradford & Marzec Fixed (Tortoise Capital)	12/1/1992	J.P. Morgan	HarbourVest International VI	2008 ¹	HarbourVest
MacKay Shields Core Plus Ops	3/2/2015	CITCO	Harbourvest IX-Venture	2011 ¹	HarbourVest
BlackRock US TIPS	4/11/2007	J.P. Morgan	Harbourvest 2017 Global	2017 ¹	HarbourVest
ASB Real Estate	12/31/2012	ASB Real Estate	Harbourvest 2018 Global	2018 ¹	HarbourVest
Clarion Lion	12/31/2006	Clarion Lion	Harbourvest 2019 Global	2019 ¹	HarbourVest
Portfolio Advisors	10/31/2017	Portfolio Advisors	KKR Mezzanine	2010 ¹	KKR
TSSP Adjacent Opportunities Partners	4/16/2020	Sixth Street	PIMCO BRAVO	2011 ¹	PIMCO
Sixth Street Diversified Credit	5/29/2020	Sixth Street	ARA American Strategic Value Realty	01/04/2018	ARA

¹Represents fund vintage year.

Policy	P Cuci	tom In	day C	composition
FUILLY	a cus		uex c	OHIDOSILIOH

Policy Index (8/1/2020- Current)	33% Russell 3000, 20% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 2% Bloomberg Aggregate, 5% Private Equity Benchmark, 3% Private Credit Benchmark.
Policy Index (1/1/2020-7/31/2020)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property,1% Russell 3000, 2% Bloomberg Aggregate, 4% Private Equity Benchmark, 3% Private Credit Benchmark.
Policy Index (10/1/2018-12/31/2019)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 10% NCREIF Property, 5% Russell 3000 +3% (Lagged), 5% Bloomberg High Yield +2% (Lagged).
Policy Index (10/1/2016-9/30/2018)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% Bloomberg Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% Bloomberg High Yield +2% (Lagged).
Policy Index (7/1/2014-9/30/2016)	29% Russell 3000, 25% MSCI ACWI ex-US (Gross), 30% Barclays U.S. Aggregate, 6% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (Lagged).



Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Beachmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager. **Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios. Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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