



AGENDA

RETIREMENT BOARD MEETING

REGULAR MEETING
March 23, 2022, 9:00 a.m.

The Board of Retirement will hold its meeting via teleconferencing as permitted by Government Code Section 54953(e). The meeting is accessible telephonically at 669-900-6833, Webinar ID: 857 2696 8214, Passcode: 298325, or via the web at: <https://us06web.zoom.us/j/85726968214?pwd=STNJMHVPc1dGbXhzNnNpbFBrbTlsZz09>
Passcode: 298325

Persons who wish to address the Board of Retirement during public comment may call in during the meeting by dialing the phone number and passcode above. Access via Zoom is also available at the weblink above. To indicate you wish to speak during public comment, please select *9 on your phone or “raise your hand” in the Zoom app.

Public comments are limited to any item that is within the subject matter jurisdiction of the Board of Retirement. Comments will be received in real time via telephone or Zoom, subject to a three-minute time limit per speaker.

THE RETIREMENT BOARD MAY DISCUSS AND TAKE ACTION ON THE FOLLOWING:

1. Pledge of Allegiance.
2. Roll Call.
3. Accept comments from the public.
4. Approve minutes from the February 23, 2022 meeting.
5. Review of total portfolio performance for period ending December 31, 2021.
 - a. Presentation from Verus
 - b. Presentation from staff
6. Update on private equity and real estate allocations.
7. Information session from CCCERA’s actuary, Segal—Considerations when approaching Full Funding.

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.

8. Miscellaneous
 - a. Staff Report
 - b. Outside Professionals' Report
 - c. Trustees' comments

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.



Meeting Date
03/23/2022
Agenda Item
#4

RETIREMENT BOARD MEETING MINUTES

REGULAR MEETING
February 23, 2022
9:00 a.m.

The Board of Retirement meeting was accessible telephonically at (669) 900-6833, Webinar ID 817 3480 6212 Passcode 574719, as permitted by Government Code Section 54953(e).

1. Pledge of Allegiance

The Board and staff joined in the *Pledge of Allegiance*.

2. Roll Call

Present: Candace Andersen, Dennis Chebotarev, Donald Finley, Scott Gordon, Jerry Holcombe, Louie Kroll, Jay Kwon, David MacDonald, John Phillips, Reggie Powell, Mike Sloan and Russell Watts.

Absent: None

Staff: Gail Strohl, Chief Executive Officer; Christina Dunn, Deputy Chief Executive Officer; Timothy Price, Chief Investment Officer, Karen Levy, General Counsel, and Tim Hoppe, Retirement Services Manager.

Outside Professional Support: Representing:
None

3. Accept comments from the public

No member of the public offered comment.

4. Approve of Minutes

It was **M/S/C** to approve the minutes from the January 26, 2022 meeting. (Yes: Andersen, Chebotarev, Finley, Gordon, Holcombe, Kroll, MacDonald, Phillips and Watts).

CLOSED SESSION

The Board moved into Closed Session pursuant to Govt. Code Section 54956.9 (d) (1) to confer with legal counsel regarding pending litigation.

The Board moved into open session.

5. There was no reportable action related to the following pending litigation:

- a. Nowicki v. CCCERA, et al., Contra Costa County Superior Court, Case No. C1701266

6. Annual statement of compliance with Board resolutions

Price presented the annual statement of compliance with Board resolutions.

It was **M/S/C** to adopt the annual statement of compliance with Board resolutions. (Yes: Andersen, Chebotarev, Finley, Gordon, Holcombe, Kroll, MacDonald, Phillips and Watts).

7. Consider and take possible action to adopt Board of Retirement Resolution 2022-1 to increase the salary ranges by 3% for all unrepresented classifications effective April 1, 2022, with the exception of the Chief Executive Officer

It was **M/S/C** to adopt Board of Retirement Resolution 2022-1 to increase the salary ranges by 3% for all unrepresented classifications effective April 1, 2022, with the exception of the Chief Executive Officer. (Yes: Andersen, Chebotarev, Finley, Gordon, Holcombe, Kroll, MacDonald, Phillips and Watts).

8. Consider authorizing the attendance of Board:

- a. No action taken on this item.

9. Miscellaneous

- a. Staff Report- Strohl reported CCCERA continues to receive a higher than usual number of retirement applications. The lobby doors continue to be closed although staff are accepting in-person member appointments and continue to conduct virtual and telephone appointments.
- b. Outside Professionals - None
- c. Trustees' comments – Finley reported he attended the Sit Client Conference in Scottsdale, Arizona. He was very impressed with the content of the conference and was very pleased to hear from other attendees the praise they had for Tim and the Investment team for the functionally focused portfolio and wanted to recognize Tim and his team for that praise.

Phillips commented Sit was rated by Barron's in this weekend's edition as the number one Fund family.

It was **M/S/C** to adjourn the meeting. (Yes: Andersen, Chebotarev, Finley, Gordon, Holcombe, Kroll, MacDonald, Phillips and Watts)

Scott Gordon, Chairman

Jerry R. Holcombe, Secretary

Meeting Date
03/23/2022
Agenda Item
#5a.

Verus 



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2021

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

1ST QUARTER 2022
Investment Landscape

Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

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 year-end. 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

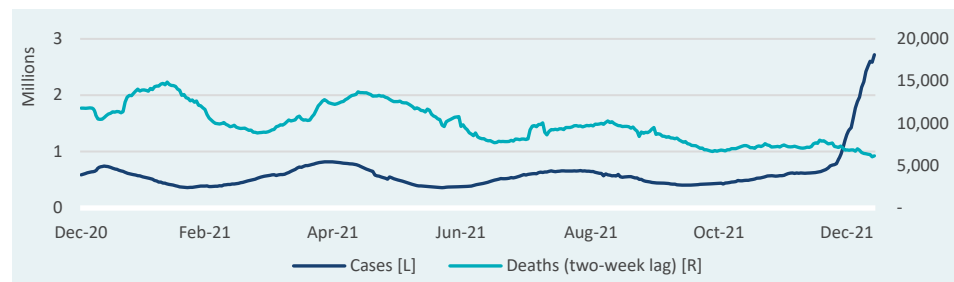
“Dow, S&P 500 end at all-time records as U.S. stocks extend winning streak amid strong company earnings”

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

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

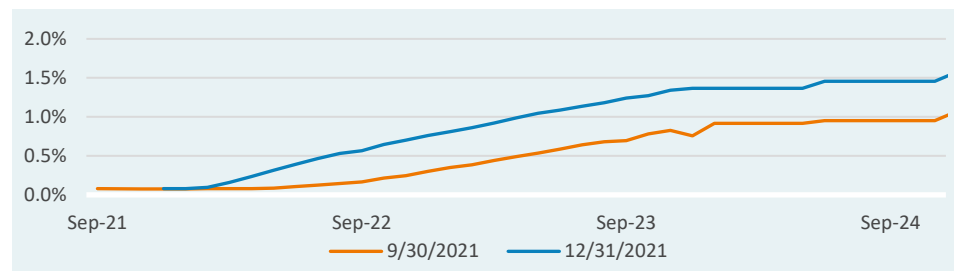
Article Source: October 26th, 2021

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



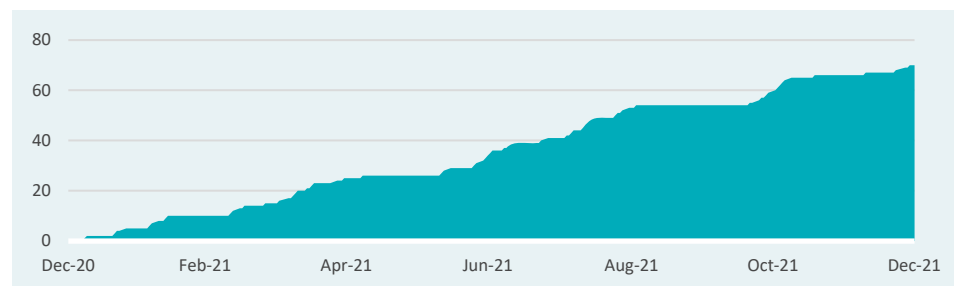
Source: Bloomberg, as of 12/31/21

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.

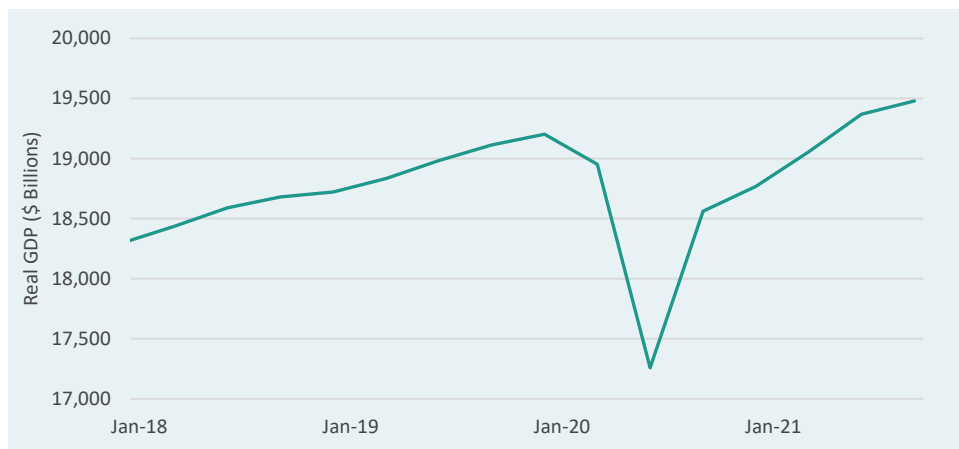
Although Q3 showed a weaker rate of growth, expectations more broadly are for further strong economic expansion—

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).

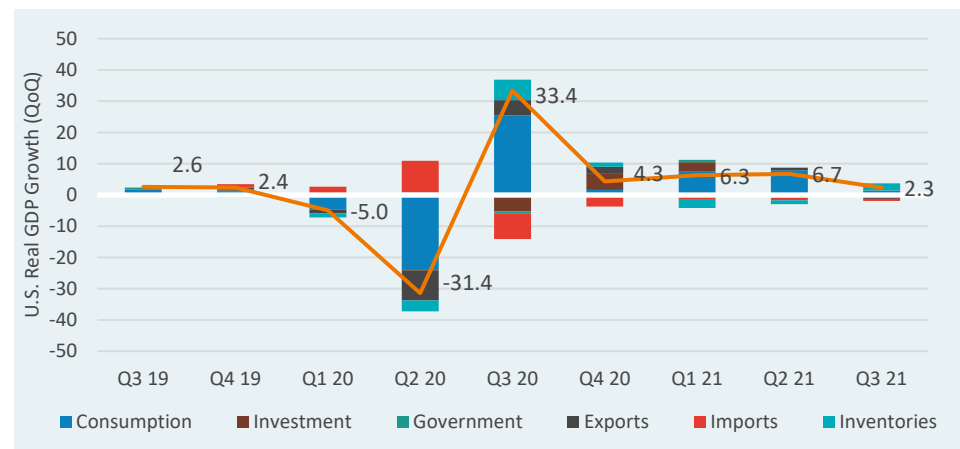
Although Q3 was relatively weak, economists expect continued above-average GDP growth

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

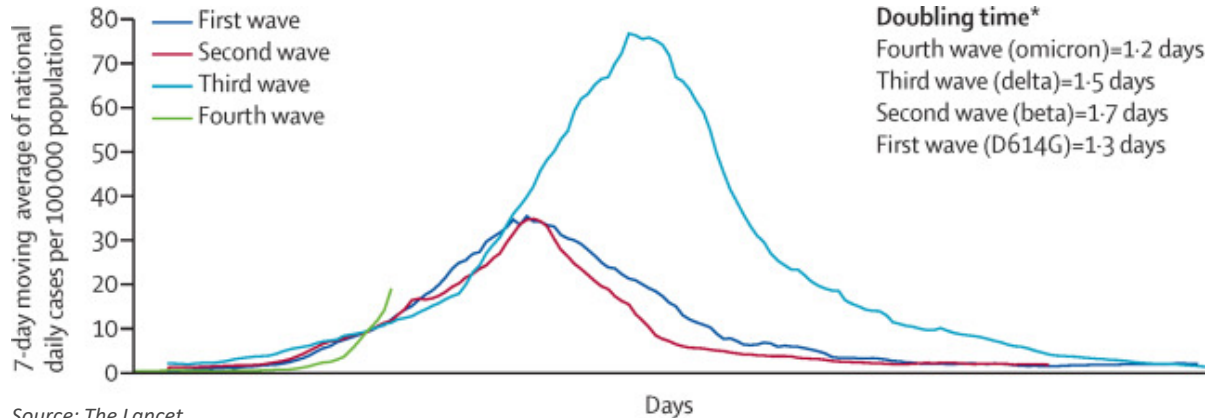
COVID-19 variant B.1.1.529 (Omicron) was discovered in Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain.

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.

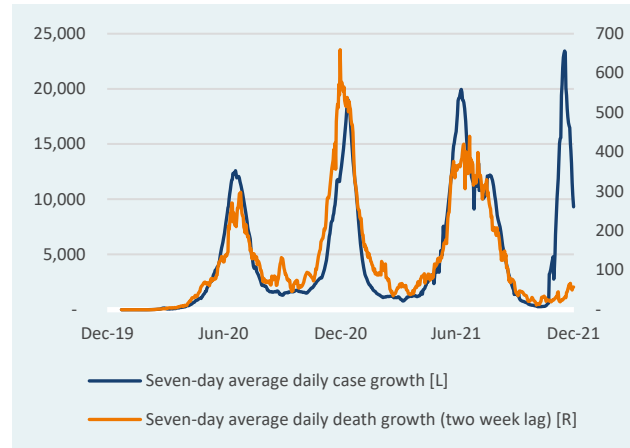
Some have argued that it is a good thing that a highly infectious but not severe strain is spreading around the world, because it will provide some level of neutralizing antibodies to the people it infects, shortening the path to herd immunity. A more pessimistic view would be that “letting it rip” would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

COVID WAVE CASE DOUBLING TIME – GAUTENG PROVINCE, SOUTH AFRICA



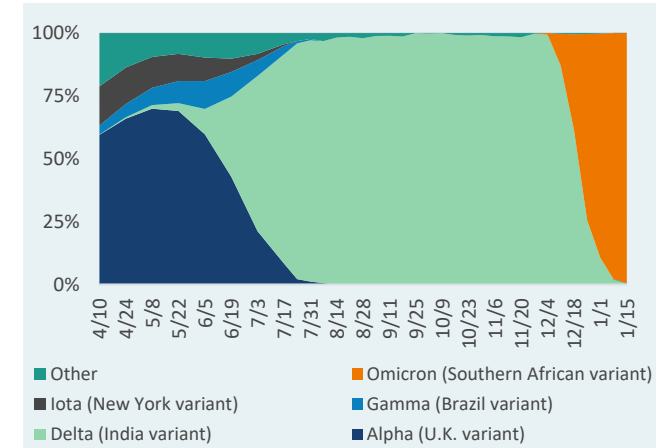
Source: The Lancet

SOUTH AFRICAN CASES AND DEATHS



Source: Bloomberg, as of 12/31/21

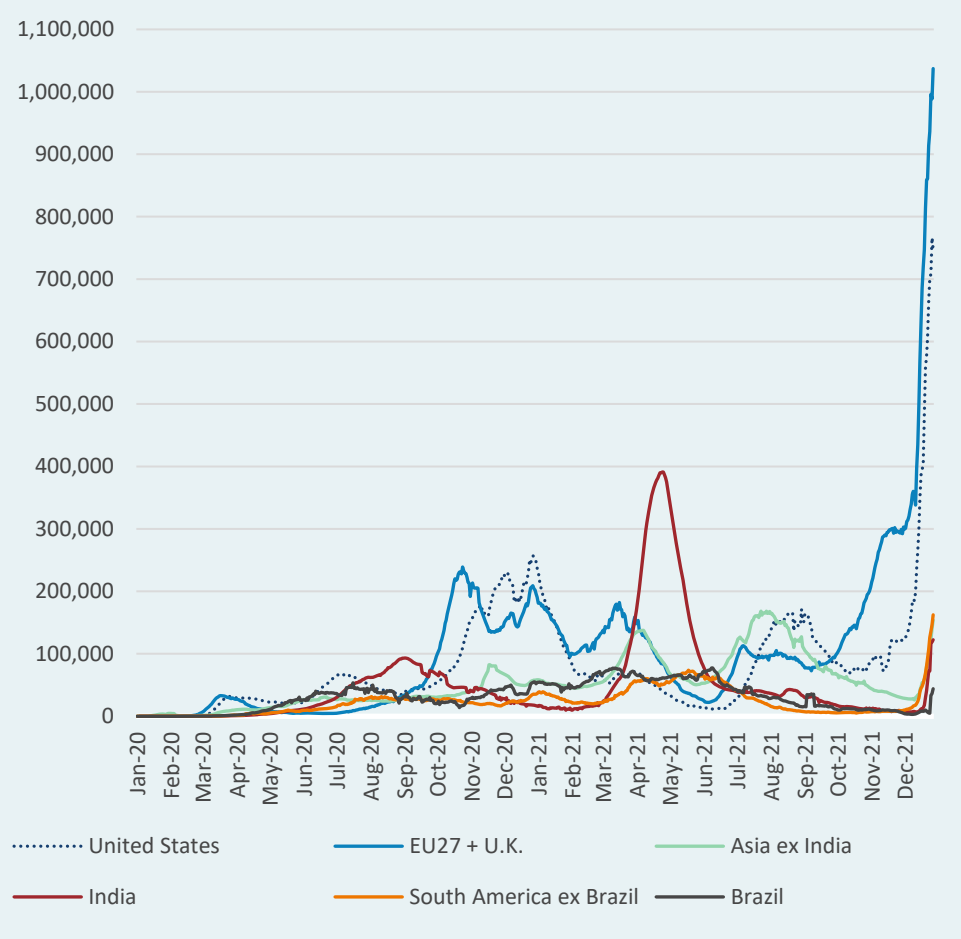
STRAIN DOMINANCE IN THE UNITED STATES



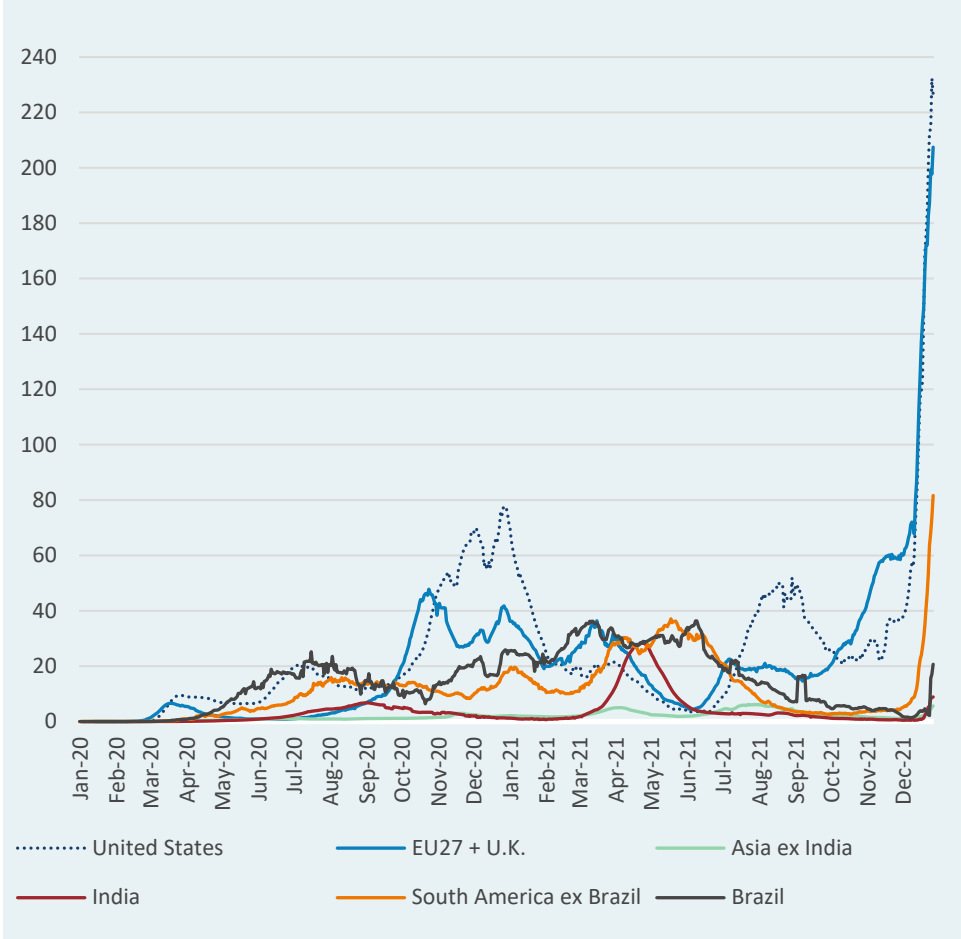
Source: CDC, as of 1/15/22

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

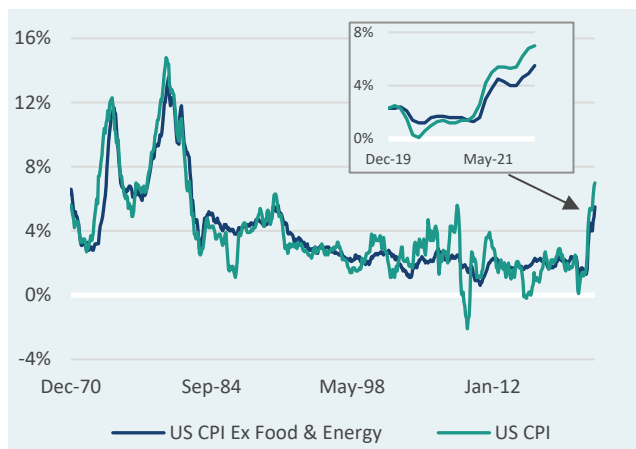
previously, the way in which housing costs are captured in official statistics is nuanced, and increases in home prices do not necessarily flow through directly to official inflation numbers. Instead, today’s higher shelter costs may take quarters or even years to show up in government statistics.

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”

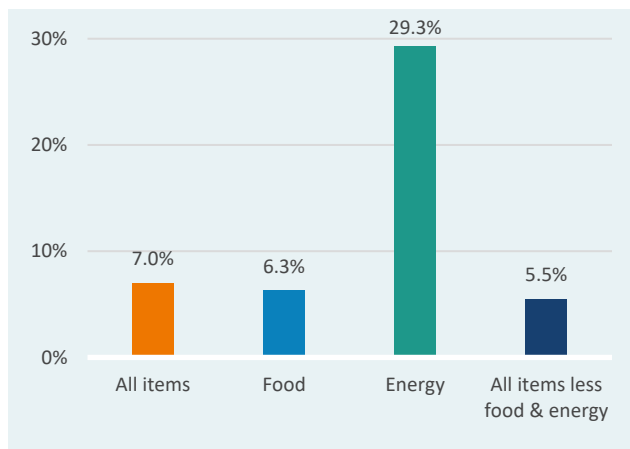
Higher prices may be less transitory than previously believed

U.S. CPI (YOY)



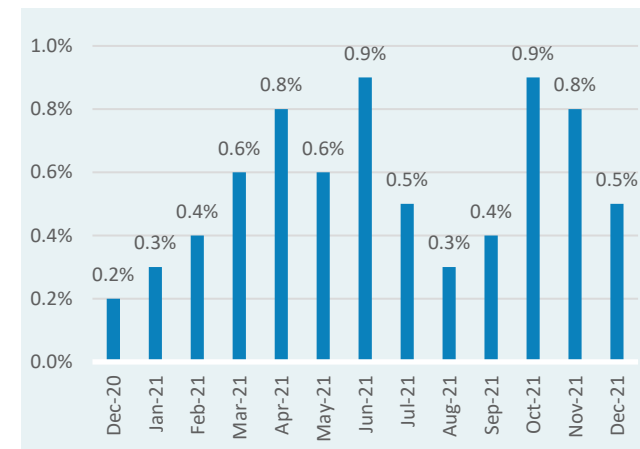
Source: BLS, as of 12/31/21

U.S. CPI (YOY)



Source: BLS, as of 12/31/21

MONTHLY PRICE MOVEMENT



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.

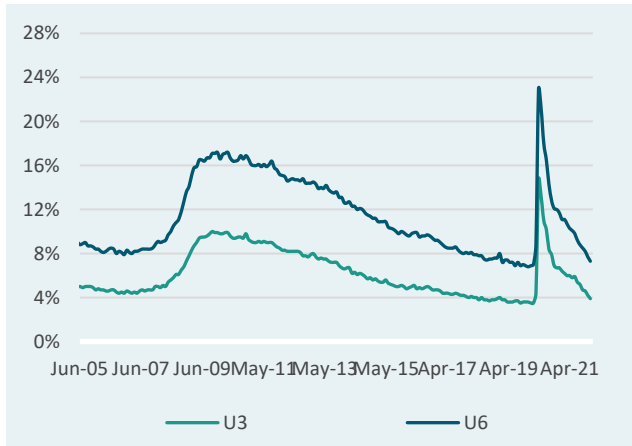
In 2021, using U.S. government employment and retirement data, we reached a conclusion that the sudden and historically large quantity of workers leaving the labor force was mostly caused by early retirements. At the time, multiple theories had

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

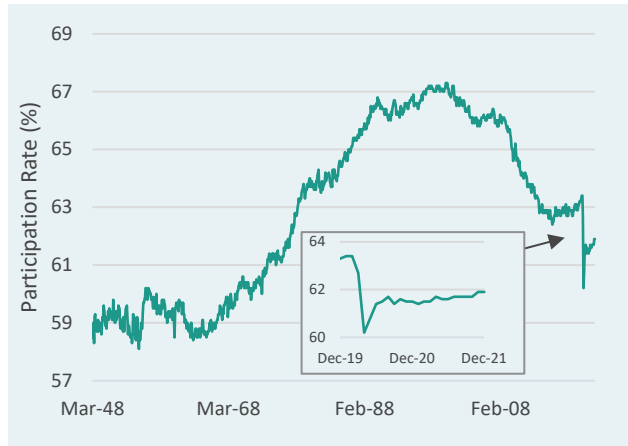
Much of this loss appears to be due to early retirements

U.S. UNEMPLOYMENT



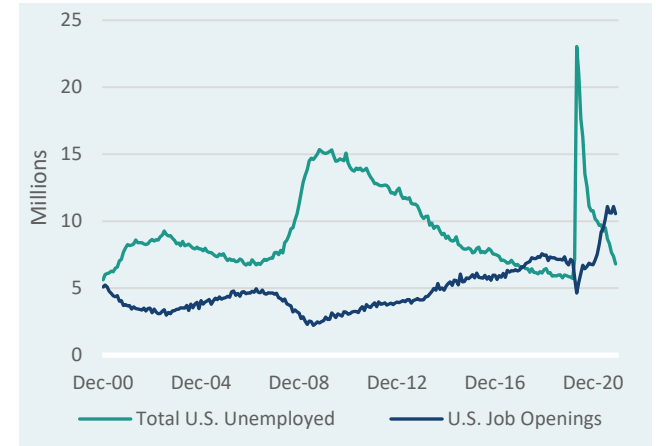
Source: FRED, as of 12/31/21

LABOR PARTICIPATION RATE



Source: FRED, as of 12/31/21

UNEMPLOYED VS # JOBS AVAILABLE



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

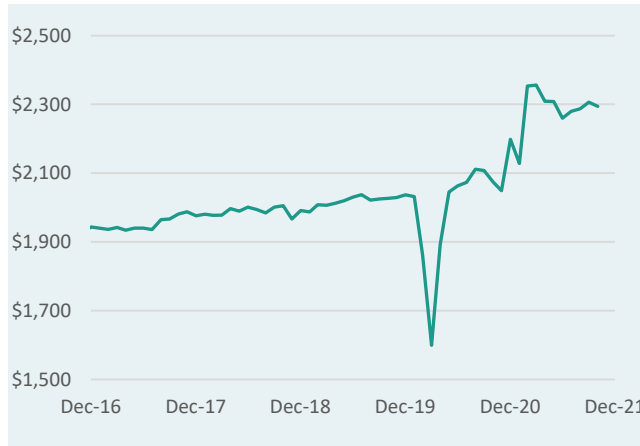
The consumer

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.

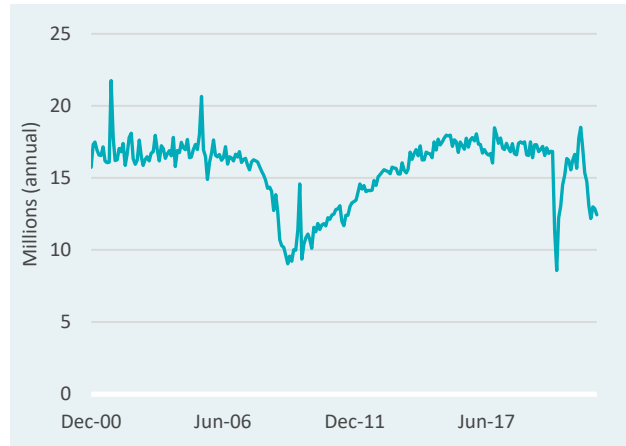
A rather surprising economic result of the pandemic has been the jump in household savings rates, paying down of debt, and broadly improved financial situation of domestic households. As we have discussed in recent quarters, the inability of Americans to take vacations during much of the past two years, 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

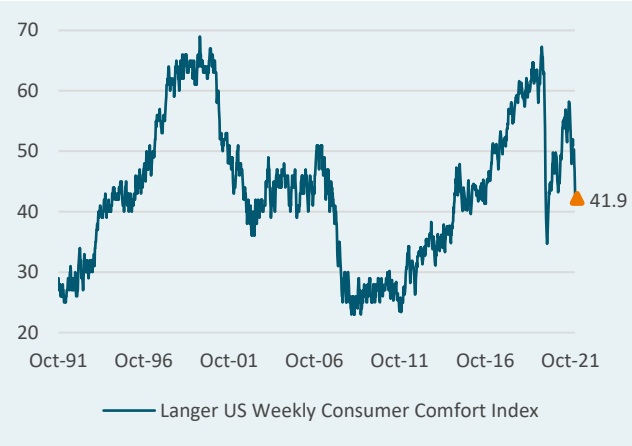
Sentiment

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.

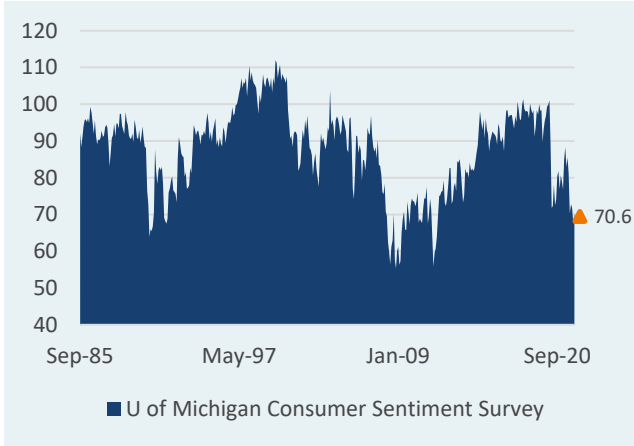
Sentiment remains depressed, as concerns exist around inflation, Omicron, and economic restrictions

CONSUMER COMFORT



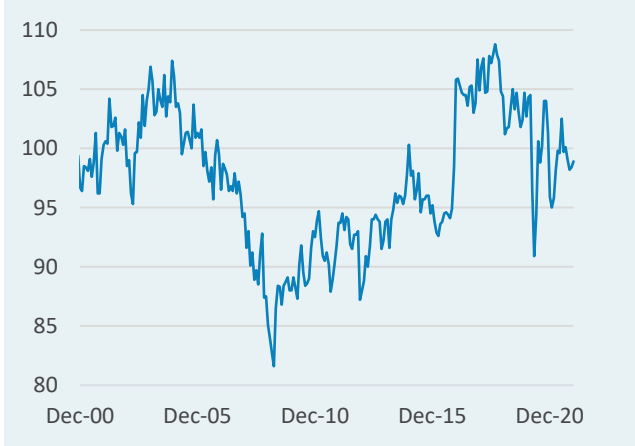
Source: Bloomberg, as of 1/9/22

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.

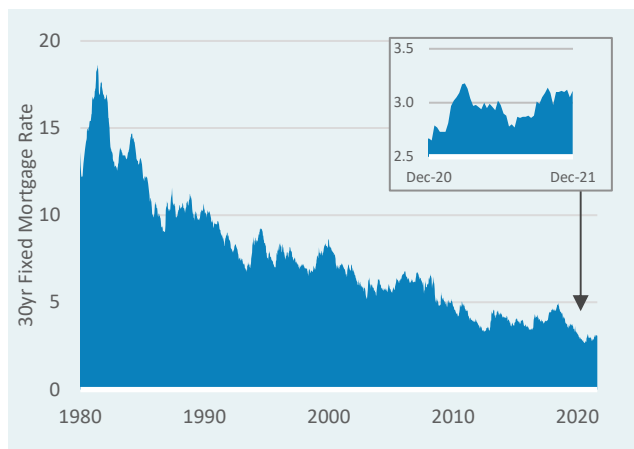
Much higher living costs may lead to further social unrest and political discussions on topics such as the relaxation of

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 reinstated 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% year-over-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% 9/30/21	0.8% 12/31/21	2.7% 11/30/21
BRICS Nations	5.2% 9/30/21	3.3% 12/31/21	5.4% 6/30/21
Brazil	4.0% 9/30/21	10.1% 12/31/21	12.1% 10/31/21
Russia	4.3% 9/30/21	8.4% 12/31/21	4.3% 11/30/21
India	8.4% 9/30/21	5.6% 12/31/21	7.9% 12/31/21
China	4.0% 12/31/21	1.5% 12/31/21	5.1% 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

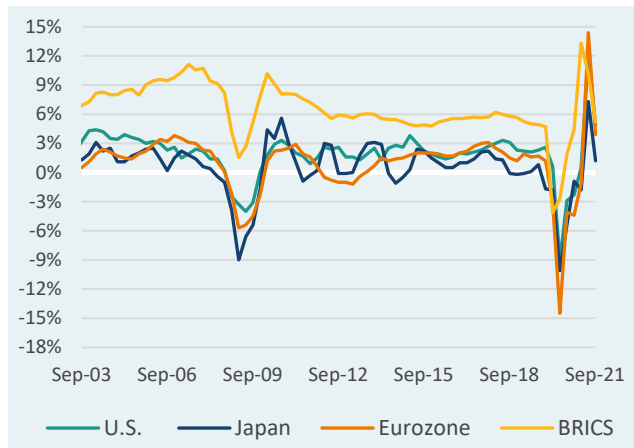
The rate of economic growth across most economies has moved back towards average levels, as the global recession and recovery fades from the rearview mirror. In October, the International Monetary Fund cut their 2021 advanced economy growth projections (from 5.6% to 5.2%), citing supply chain disruptions 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.

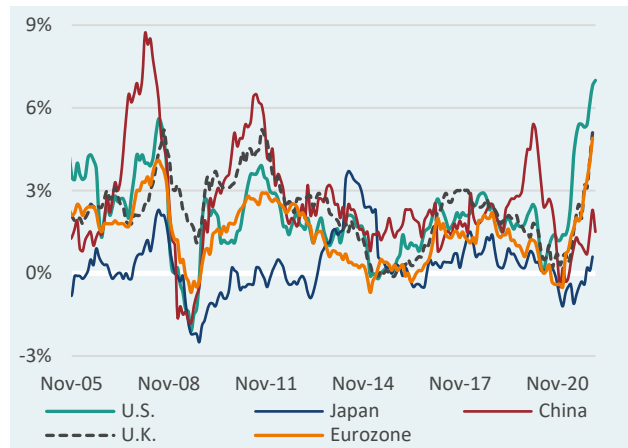
Unemployment has generally improved to pre-pandemic levels, as government restrictions are relaxed, people regain comfort in moving out and about, and economies trend back towards normalcy.

REAL GDP GROWTH (YOY)



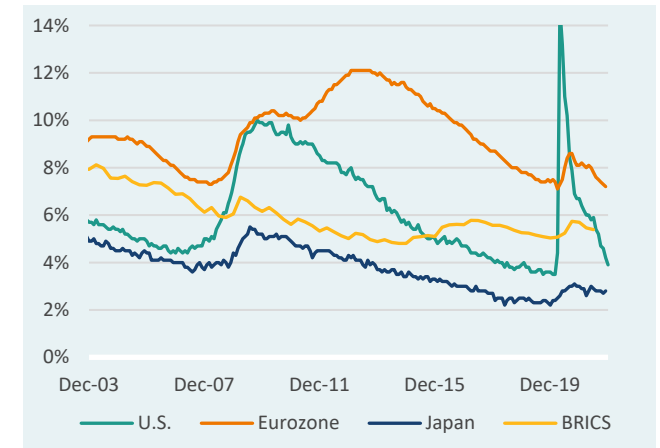
Source: Bloomberg, as of 9/30/21

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

Fixed income rates & credit

Fixed income environment

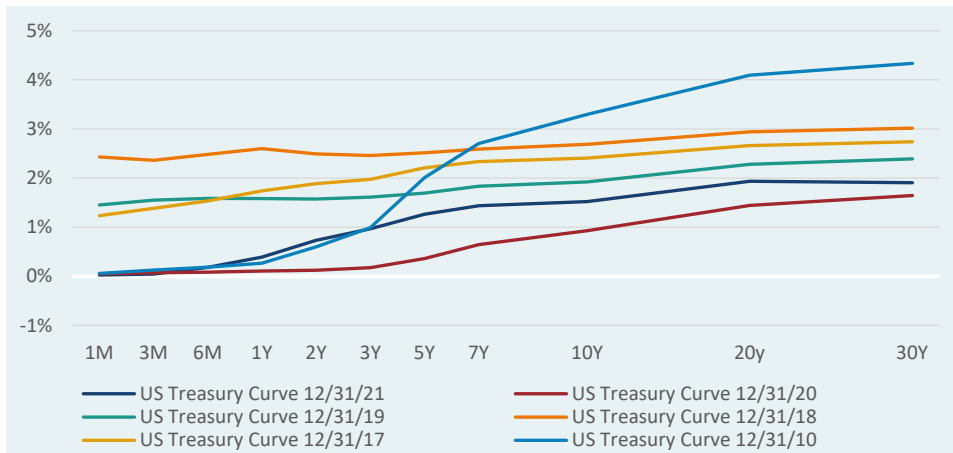
- The 10-year U.S. Treasury yield was relatively rangebound during the quarter, remaining at a yield of 1.5%. Thus far, U.S. interest rates have not noticeably reacted to an inflation rate of 7.0%. Market pricing seems to indicate that investors generally expect inflation to be transitory—perhaps falling 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
Core Fixed Income (Bloomberg U.S. Aggregate)	0.0%	(1.5%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	0.0%	(1.1%)
U.S. Treasuries (Bloomberg U.S. Treasury)	0.2%	(2.3%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	0.7%	5.3%
Bank Loans (S&P/LSTA Leveraged Loan)	0.7%	5.2%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(2.5%)	(8.7%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(0.4%)	(1.8%)
Mortgage-Backed Securities (Bloomberg MBS)	(0.4%)	(1.0%)

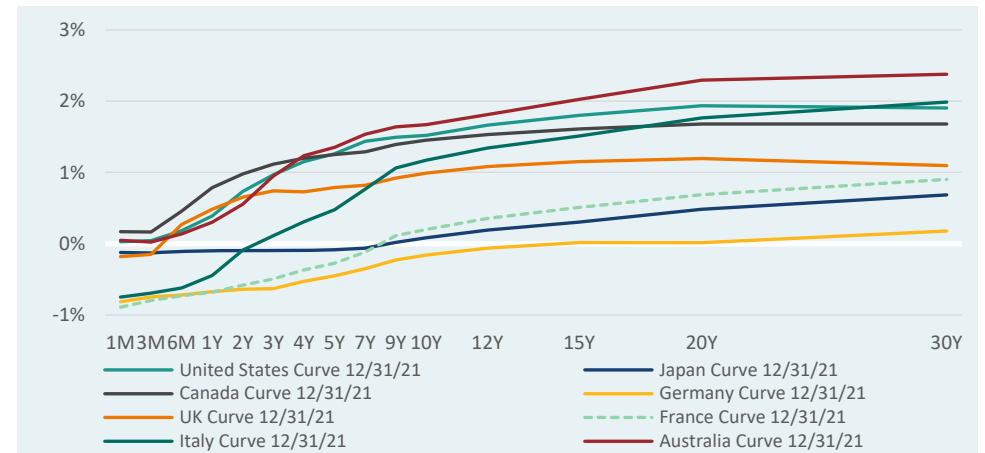
Source: Bloomberg, as of 12/31/21

Yield environment

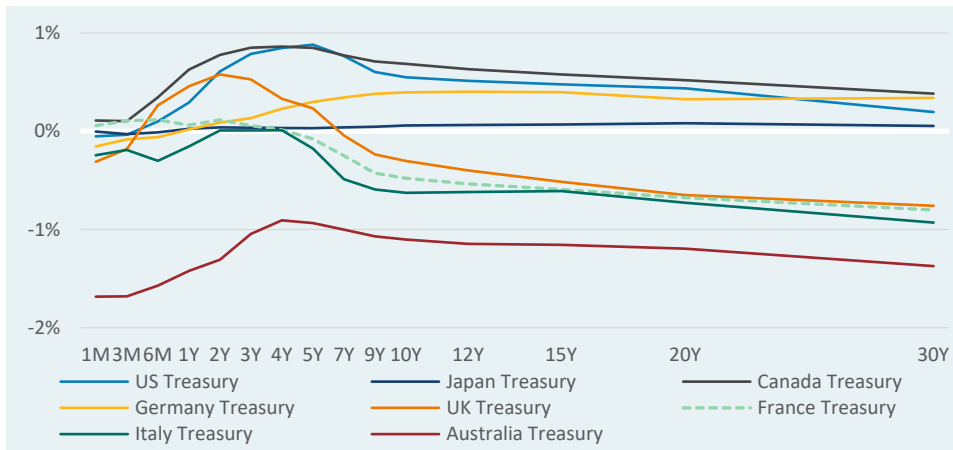
U.S. YIELD CURVE



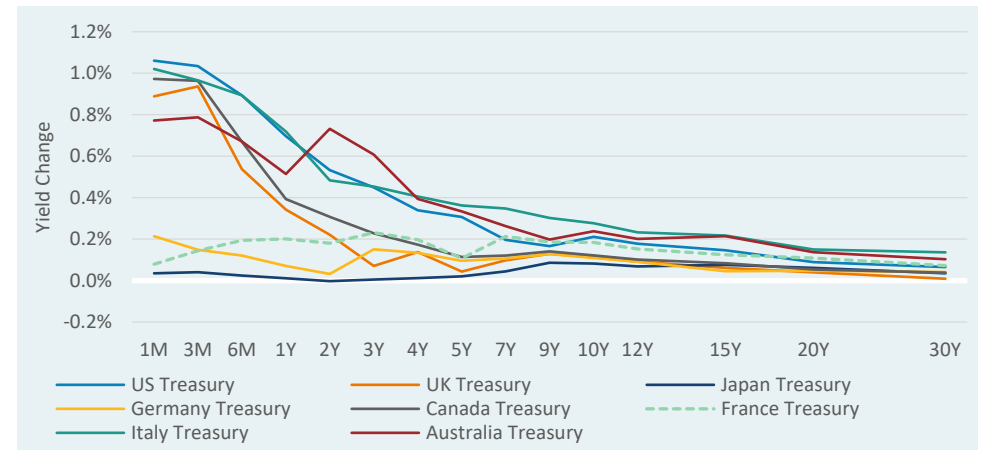
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/21

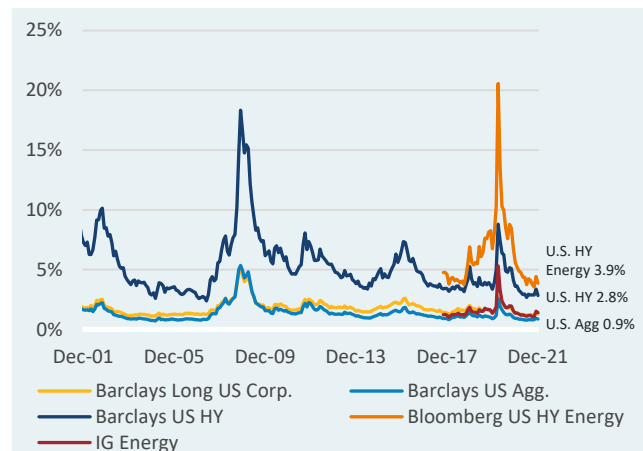
Credit environment

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

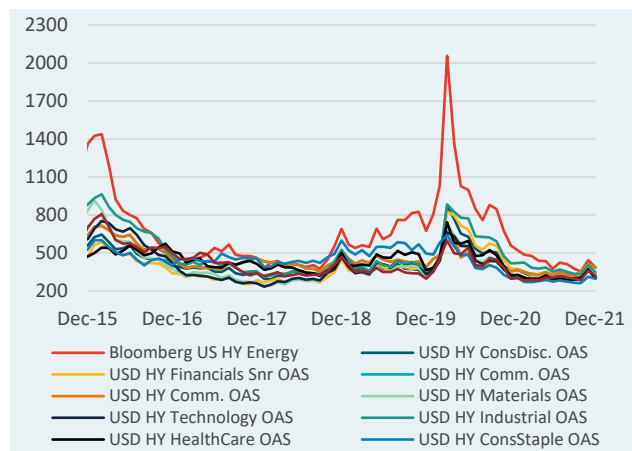
spreads continue to be at or near historic lows and short-term interest rates remain near zero. We have observed that numerous managers are positioning portfolios relatively more defensively with an eye toward capitalizing on potential future volatility, as well as placing greater focus on more niche 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

Market	Credit Spread (OAS)	
	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

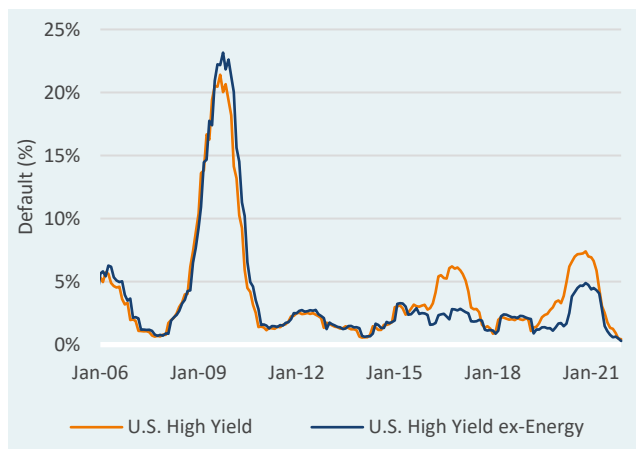
Contrasting the pandemic-driven surge of credit defaults in 2020, which resulted in the second highest annual dollar volume of defaulted bonds and loans on record, default activity in 2021 was very modest. Overall, 14 companies defaulted on loans and bonds during the year on debt totaling \$9.8 billion. 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.

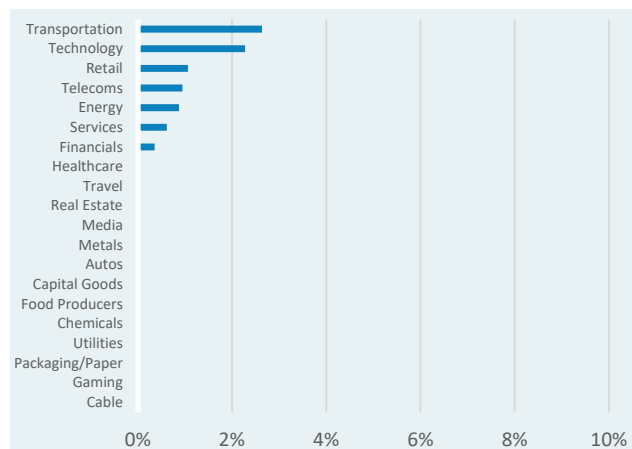
While new issue activity across credit markets fell broadly during the second half of the year, total credit issuance in 2021 was historically high. In the fourth quarter, \$285 billion of investment grade credit was issued. Over the full year, gross issuance totaled \$1.4 trillion, which was second 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)



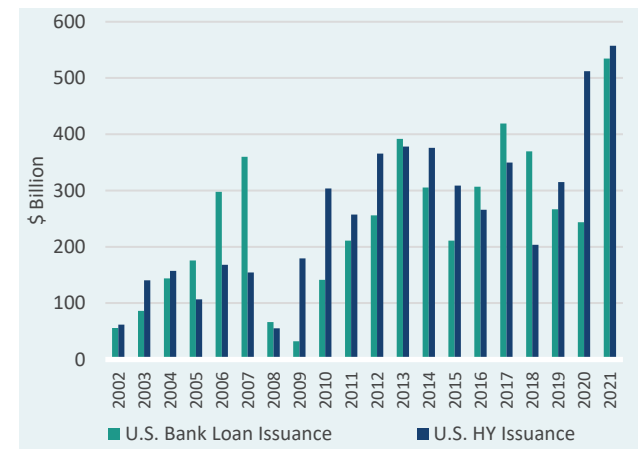
Source: BofA Merrill Lynch, as of 12/31/21

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

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		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	11.0%		28.7%	
U.S. Small Cap (Russell 2000)	2.1%		14.8%	
U.S. Equity (Russell 3000)	9.3%		25.7%	
U.S. Large Value (Russell 1000 Value)	7.8%		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.

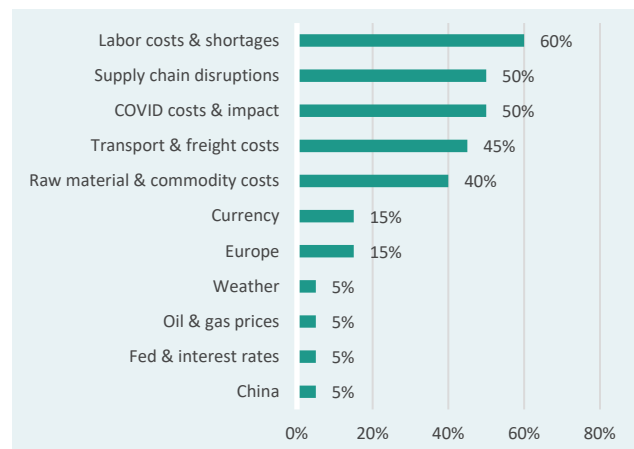
Net profit margins have fallen a percentage point from the record level of 13% achieved in Q2 2021, but remain historically high. If earnings growth in Q4 2021 meets expectations (21.4%), it will mark the fourth consecutive quarter of 20% YoY earnings growth.

S&P 500 INDEX



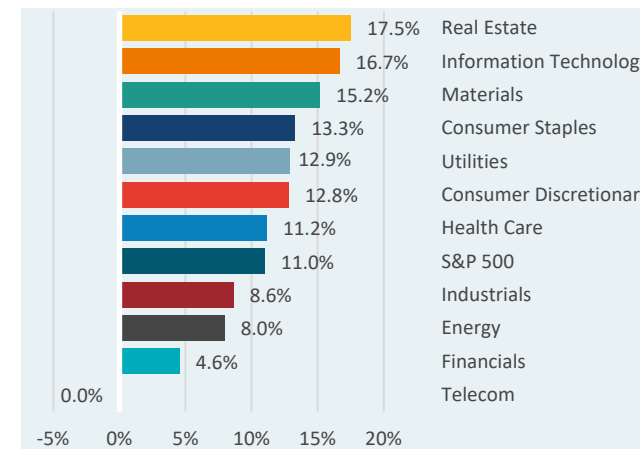
Source: Standard & Poor's, as of 12/31/21

S&P 500 COS. CITING NEGATIVE IMPACT – 4Q21



Source: FactSet, as of 1/13/22

Q4 SECTOR PERFORMANCE



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

Domestic equity size & style

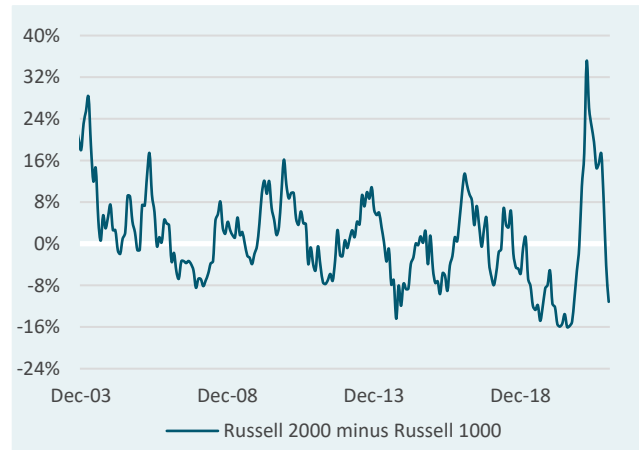
Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year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

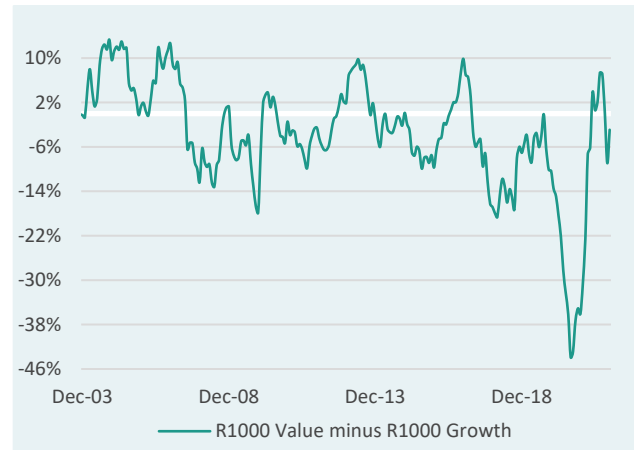
Size and Value underperformed during Q4 2021

SMALL CAP VS LARGE CAP (YOY)



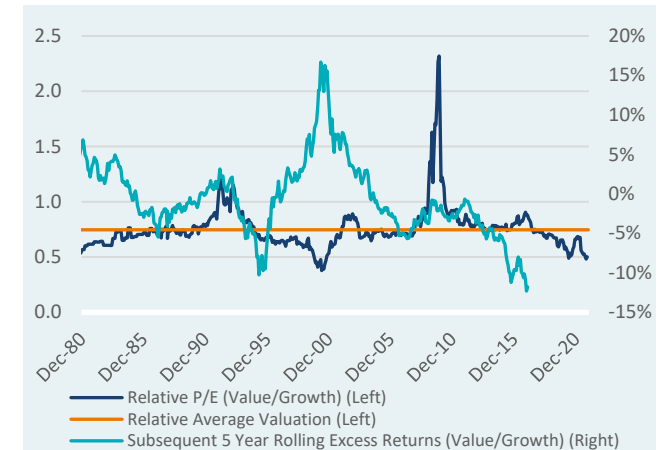
Source: FTSE, as of 12/31/21

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

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.

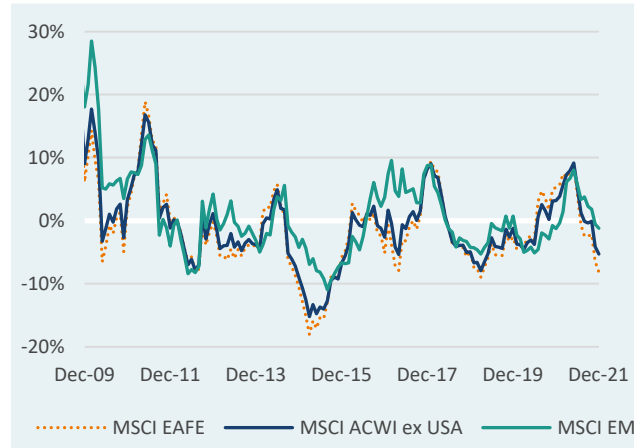
Swiss equities (MSCI Switzerland +12.8%) were the top performer in developed European markets, and unhedged U.S. investors benefitted from a 2.1% appreciation in the Swiss Franc relative to the U.S. dollar.

EFFECT OF CURRENCY (1-YEAR ROLLING)



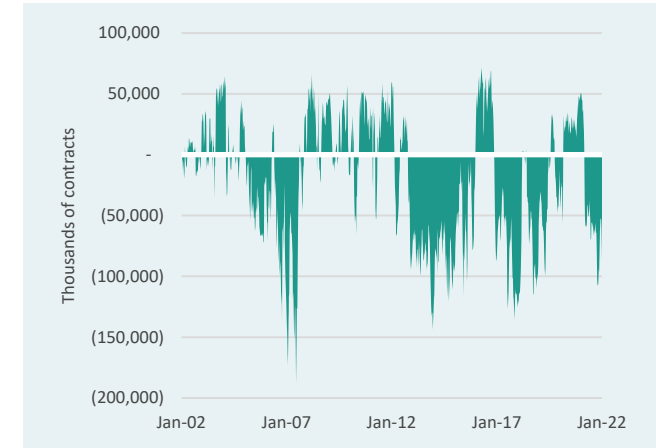
Source: MSCI, as of 12/31/21

INTERNATIONAL DEVELOPED EQUITIES



Source: MSCI, as of 12/31/21

YEN NET FUTURES POSITIONING



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

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).

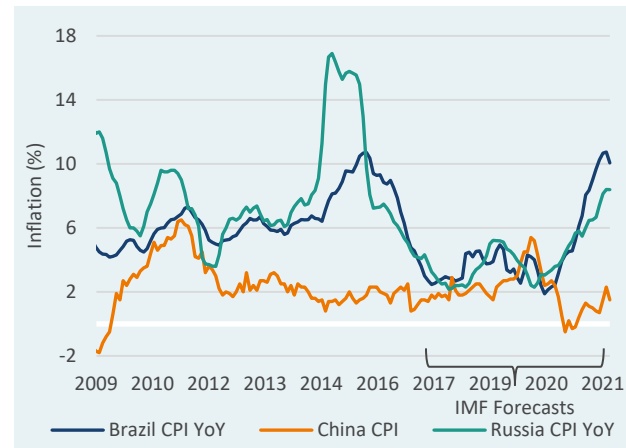
Inflation in Brazil has reached 10.7%, while Russia saw an 8.4% rise in prices and China sits near the longer-term average at 1.5%. Emerging market central banks have continued to raise interest rates. Brazil hiked their rate during the quarter from 6.25% to 9.25% in order to fight rising prices, while 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



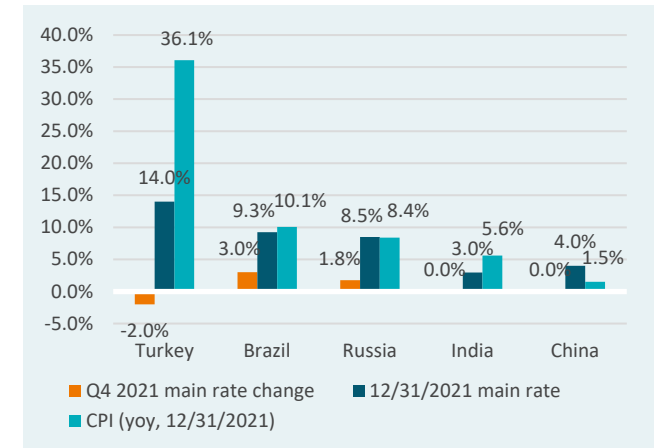
Source: MSCI, as of 12/31/21

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

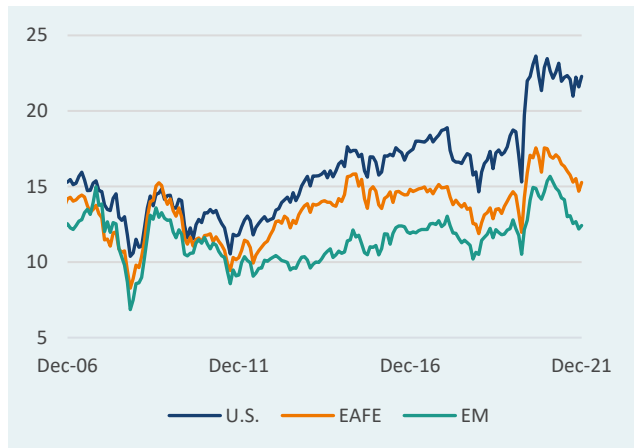
Equity valuations

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.

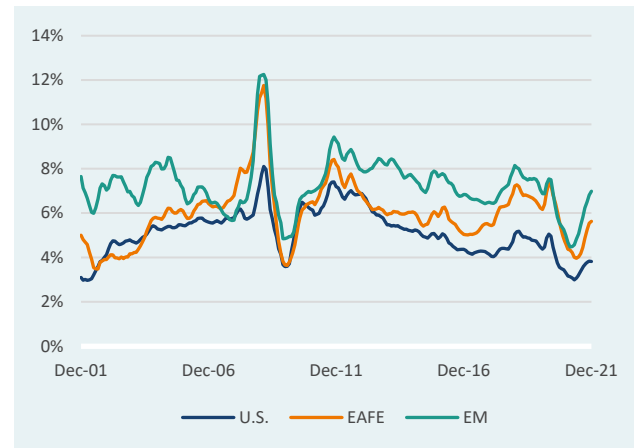
Most equity valuations have moved back towards normal levels, though U.S. prices remain exceptionally rich

FORWARD P/E RATIOS



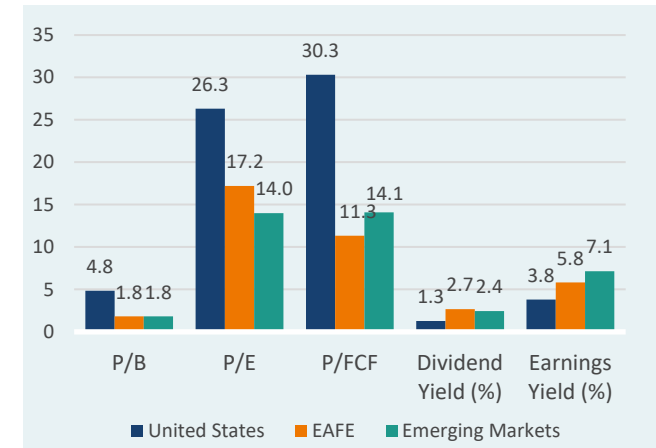
Source: MSCI, 12m forward P/E, as of 12/31/21

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

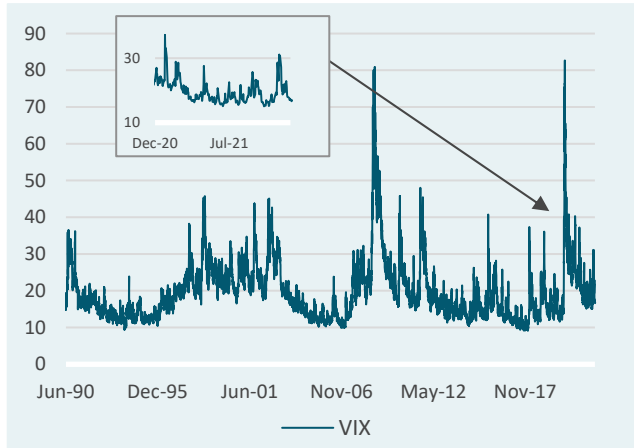
Equity volatility

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

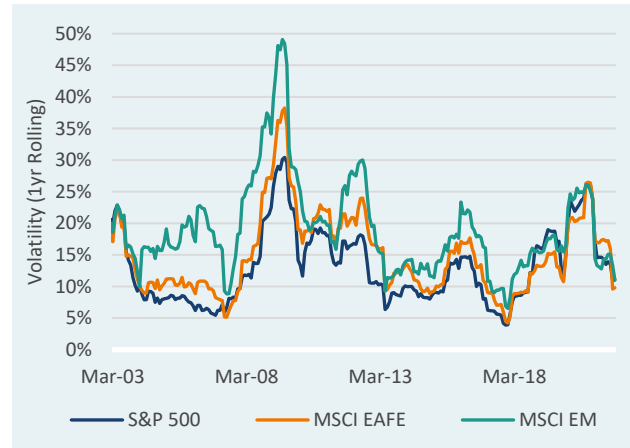
believe that investors have largely moved beyond COVID-19, and that markets have adjusted to the transition away from fiscal stimulus and many of the recent unique government spending programs. As we enter 2022, investors seem to be focused on Federal Reserve plans for tapering and interest rate hikes. 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)



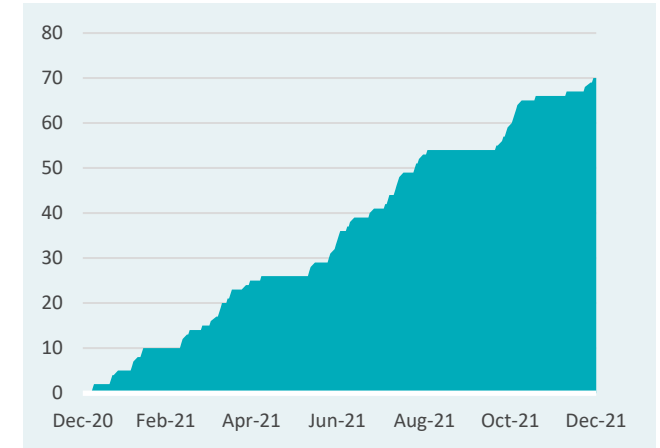
Source: Cboe, as of 12/31/21

REALIZED VOLATILITY



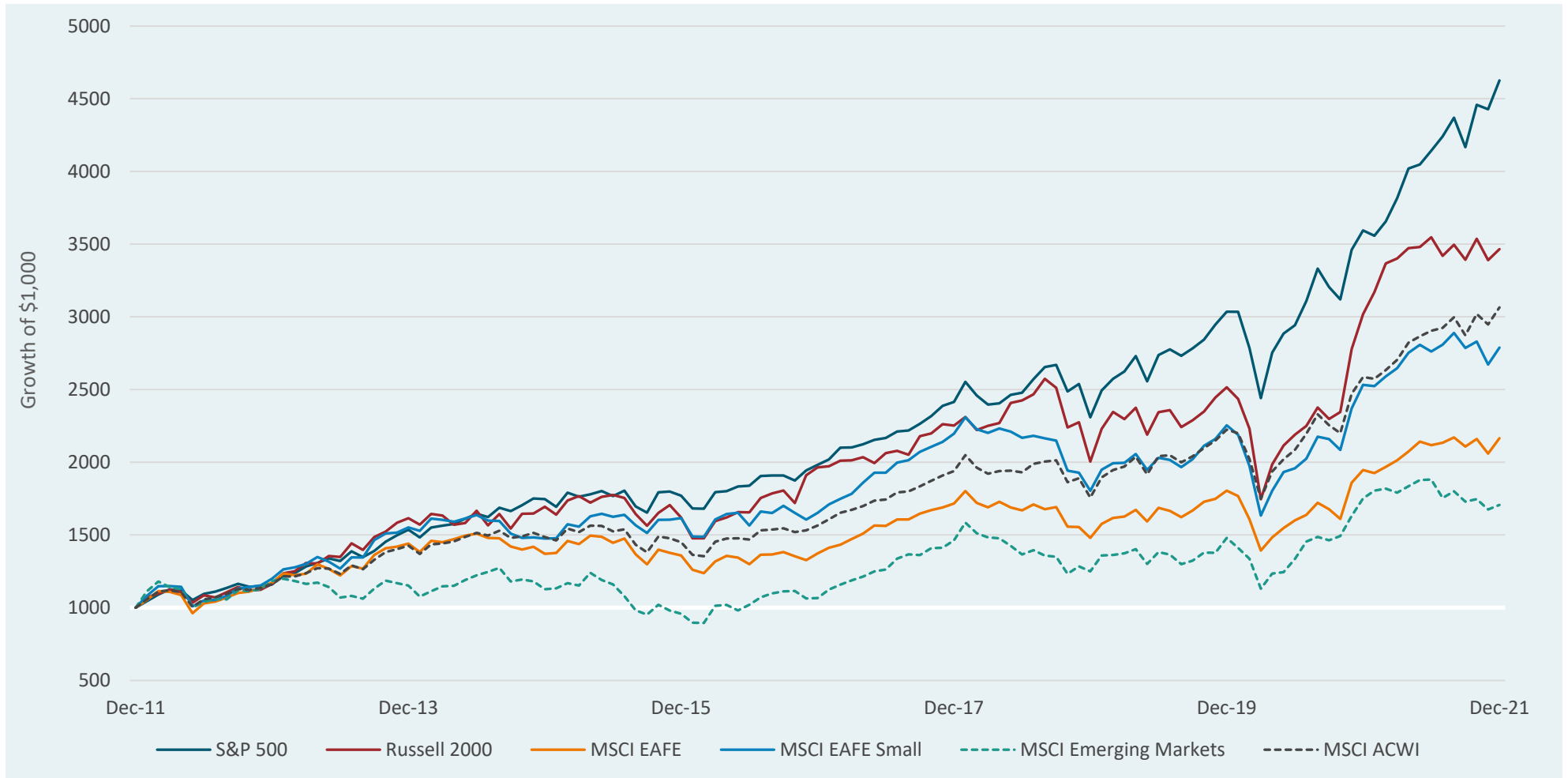
Source: Standard & Poor's, MSCI, as of 12/31/21

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



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

Long-term equity performance



Source: Morningstar, as of 12/31/21

Other assets

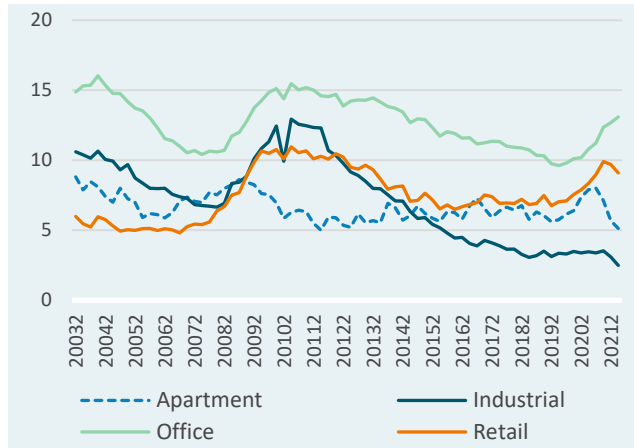
Private real estate fundamentals

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

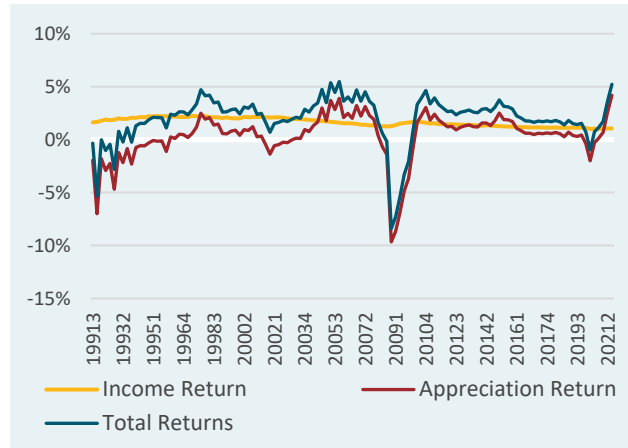
Performance has also been very strong. In Q3 2021, the NCREIF ODCE posted a 6.4% net return, the highest single quarter return in the history of the index, beating the previous high of 6.2% (Q4 1978). Early indications are Q4 2021 will be another strong quarter.

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

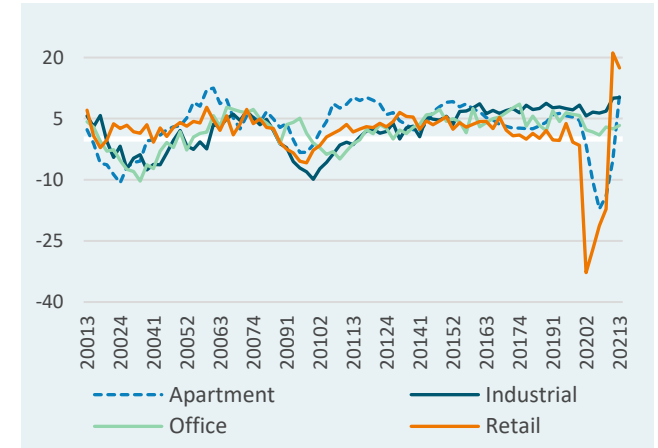
VACANCY BY PROPERTY TYPE



NCREIF PROPERTY INDEX QUARTERLY RETURNS



NOI GROWTH BY PROPERTY TYPE (4-QTR ROLLING)



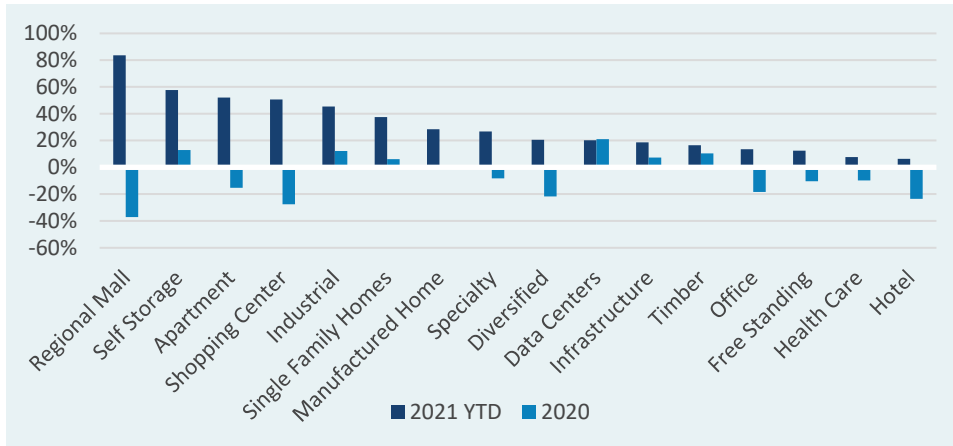
Source: NCREIF, as of 9/30/21

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.

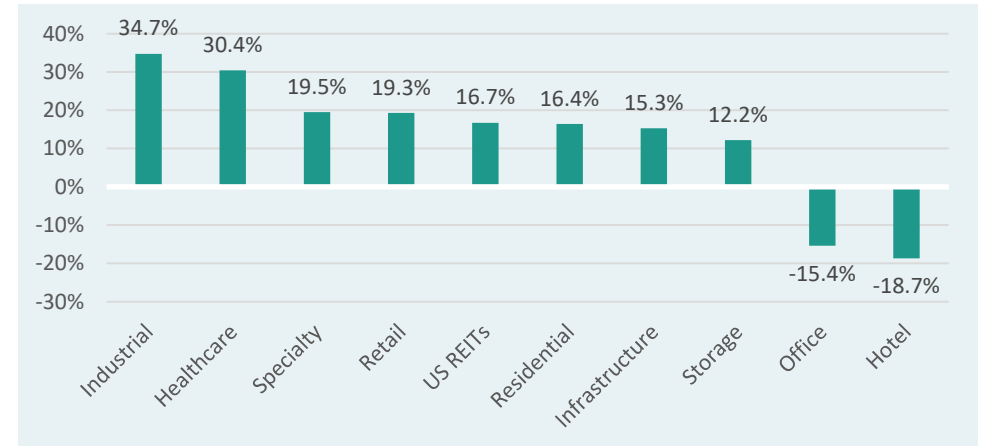
Valuations have become rich across a number of sectors, trading at substantial premiums to their net asset values (NAVs). The U.S. REIT market overall is currently trading at a 16% premium to NAV.

REIT PERFORMANCE BY SUB SECTOR (2021 VS 2020)



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

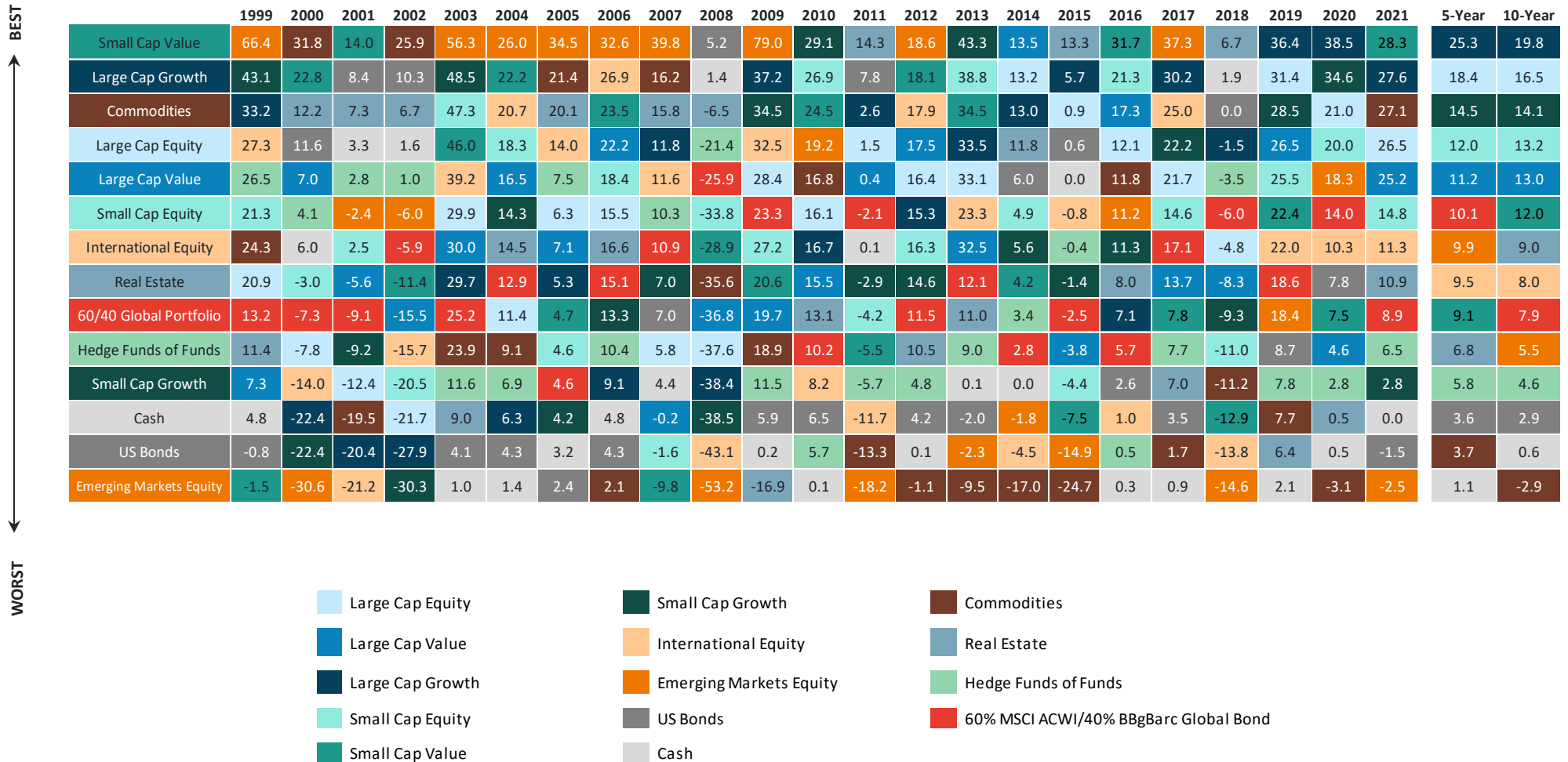
REIT PREMIUM/DISCOUNT TO NAV BY SUB SECTOR



Source: Heitman, as of 12/31/21

Appendix

Periodic table of returns



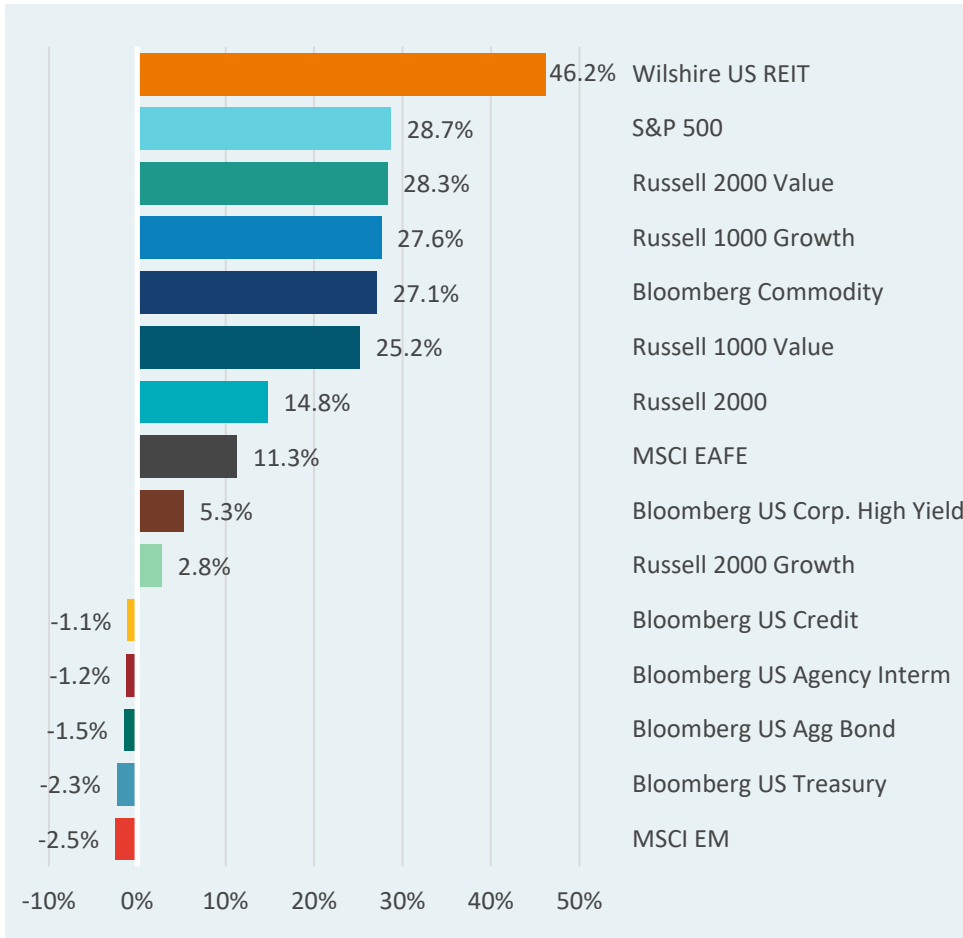
BEST
↑
↓
WORST



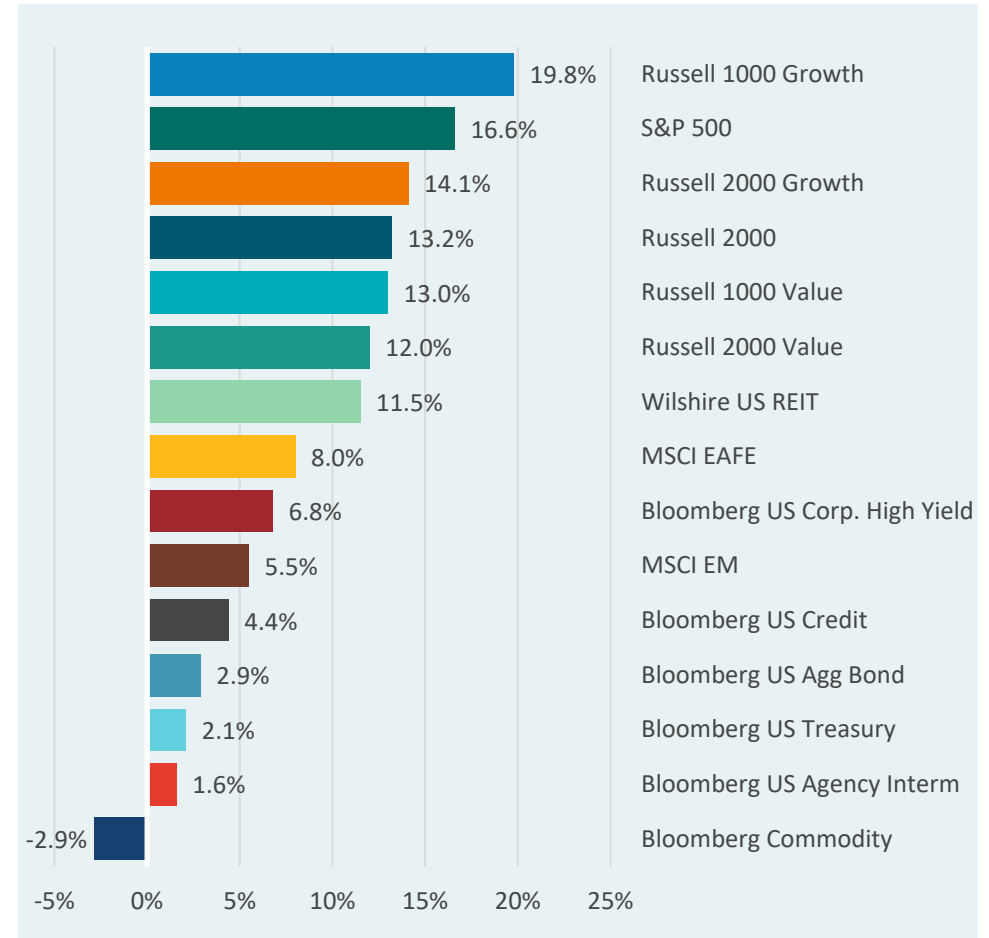
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 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



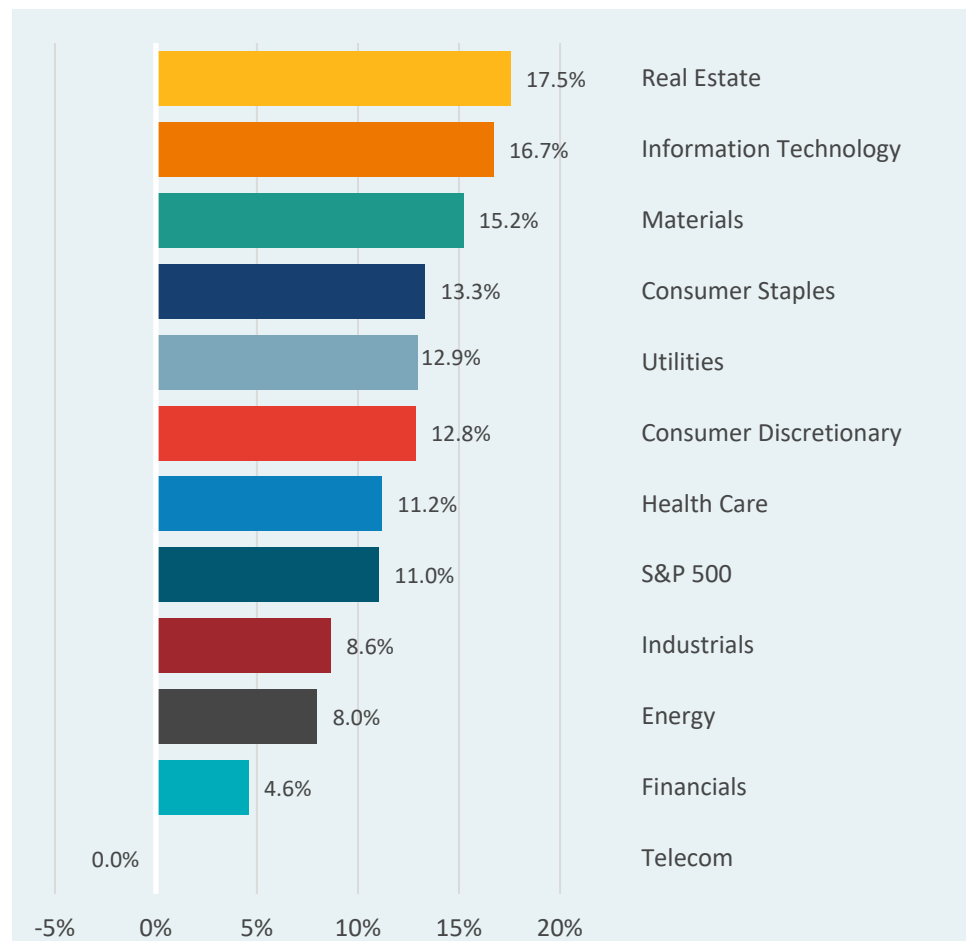
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/21

Source: Morningstar, as of 12/31/21

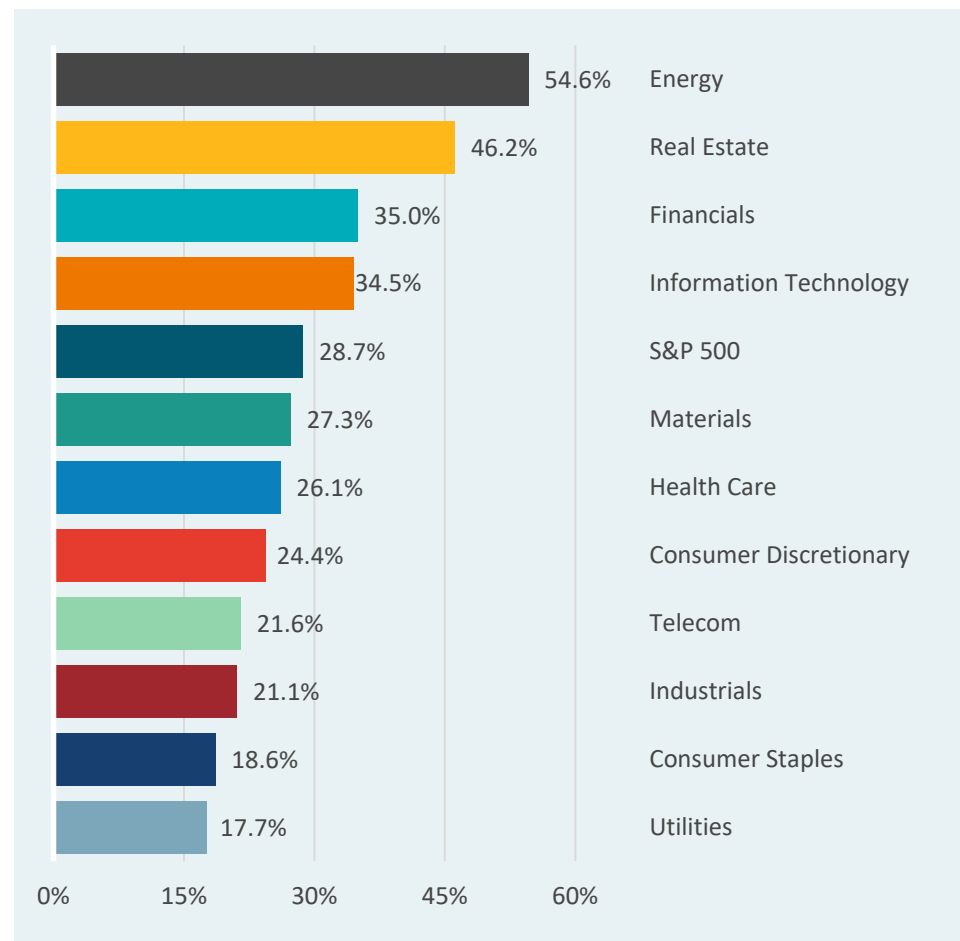
S&P 500 sector returns

Q4 2021



Source: Morningstar, as of 12/31/21

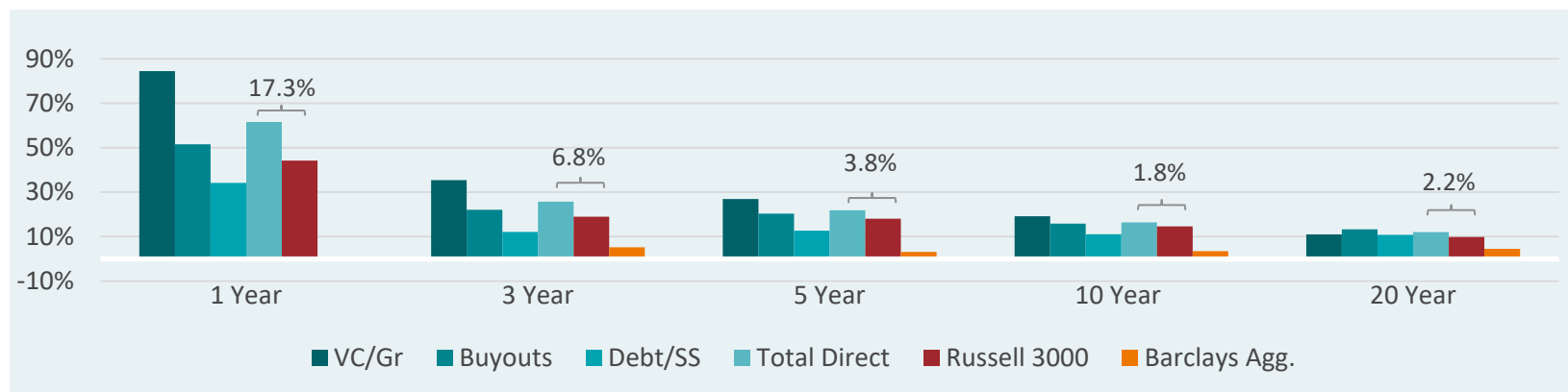
ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/21

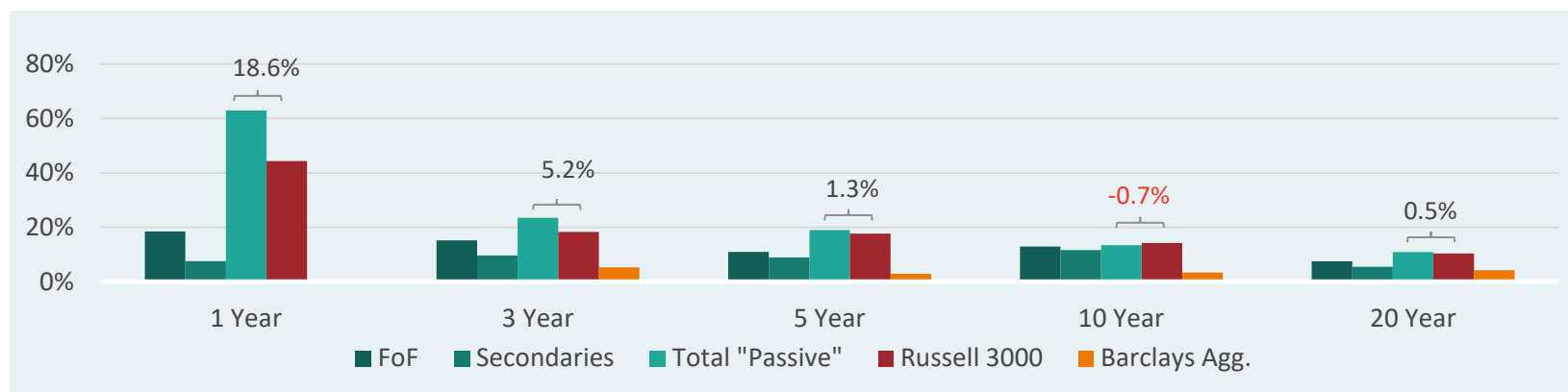
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



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

“PASSIVE” STRATEGIES

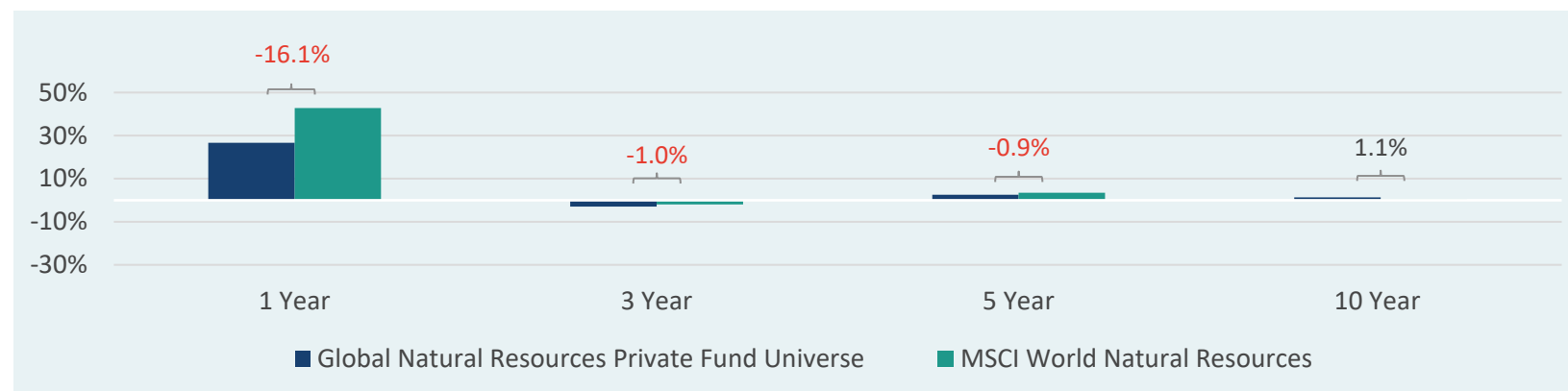


“Passive” strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

Sources: Refinitiv CJA 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.

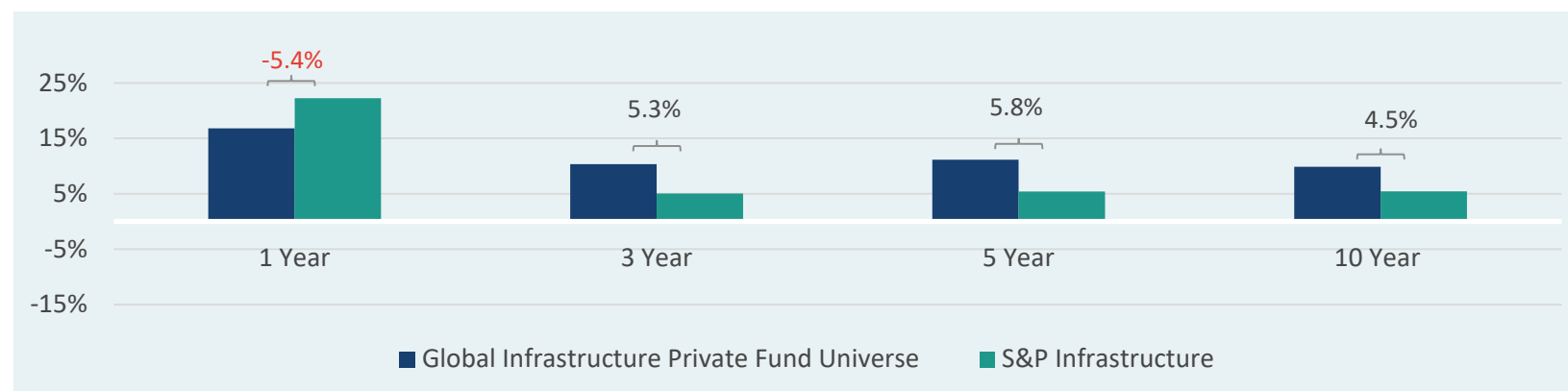
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



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

GLOBAL INFRASTRUCTURE FUNDS

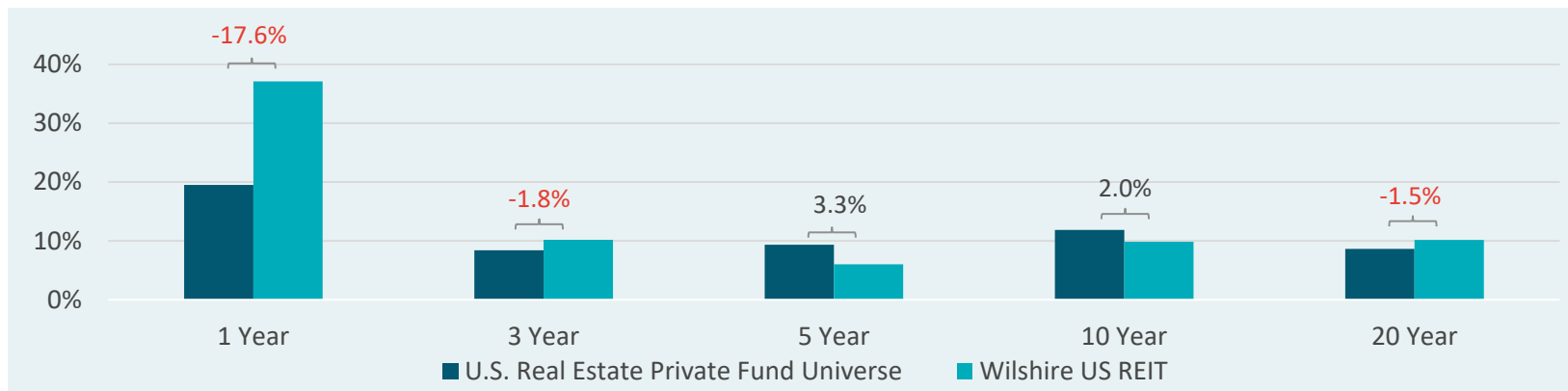


Infra. funds outperformed the S&P Infra. across all periods, aside from the 1-year basis.

Sources: Refinitiv CJA 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.

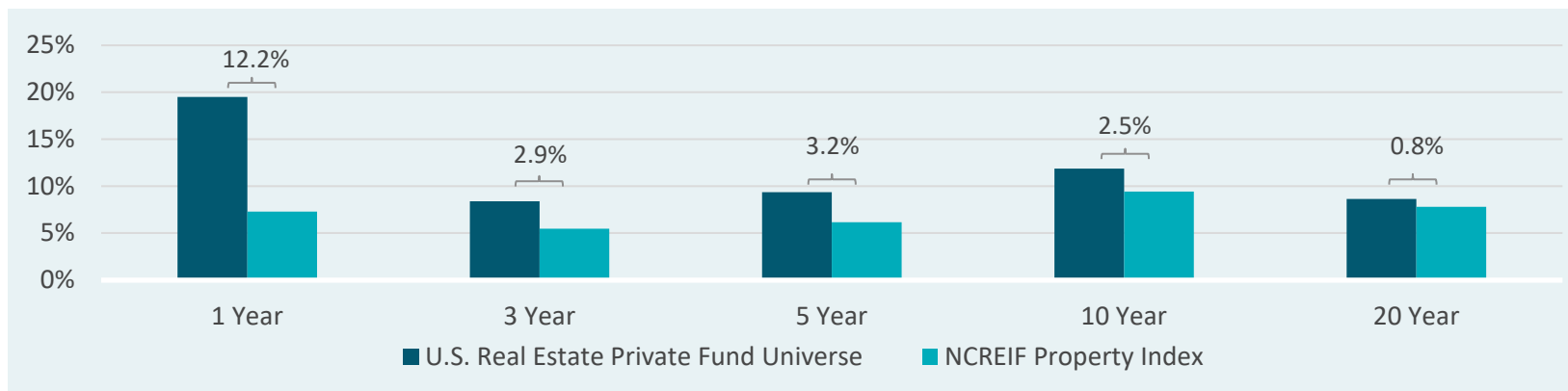
Private vs. liquid and core real estate performance

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 10-year 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 CJA 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
Russell 1000 Value	6.3	7.8	25.2	25.2	17.6	11.2	13.0
Russell 2000 Growth	0.4	0.0	2.8	2.8	21.2	14.5	14.1
Russell 2000 Value	4.1	4.4	28.3	28.3	18.0	9.1	12.0

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
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

	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							
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

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.lanqerresearch.com)

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions 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. (<http://www.nfib-sbet.org/about/>)

NAHB Housing Market Index - the housing market index is a weighted average of separate diffusion indices 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 $(\text{Good-Poor} + 100)/2$ to the present and future sales series and $(\text{High/Very High-Low/Very Low} + 100)/2$ 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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Contra Costa County Employees' Retirement Association

Investment Performance Review
Period Ending: December 31, 2021



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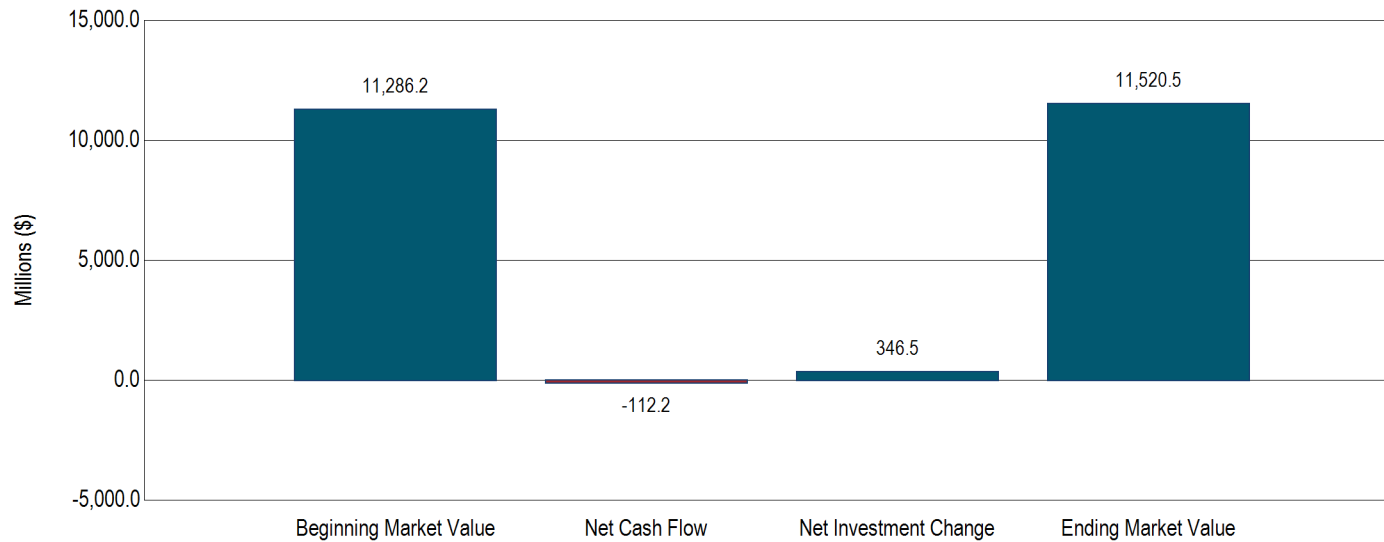
SAN FRANCISCO 415-362-3484

PITTSBURGH 412-784-6678

Portfolio Reconciliation

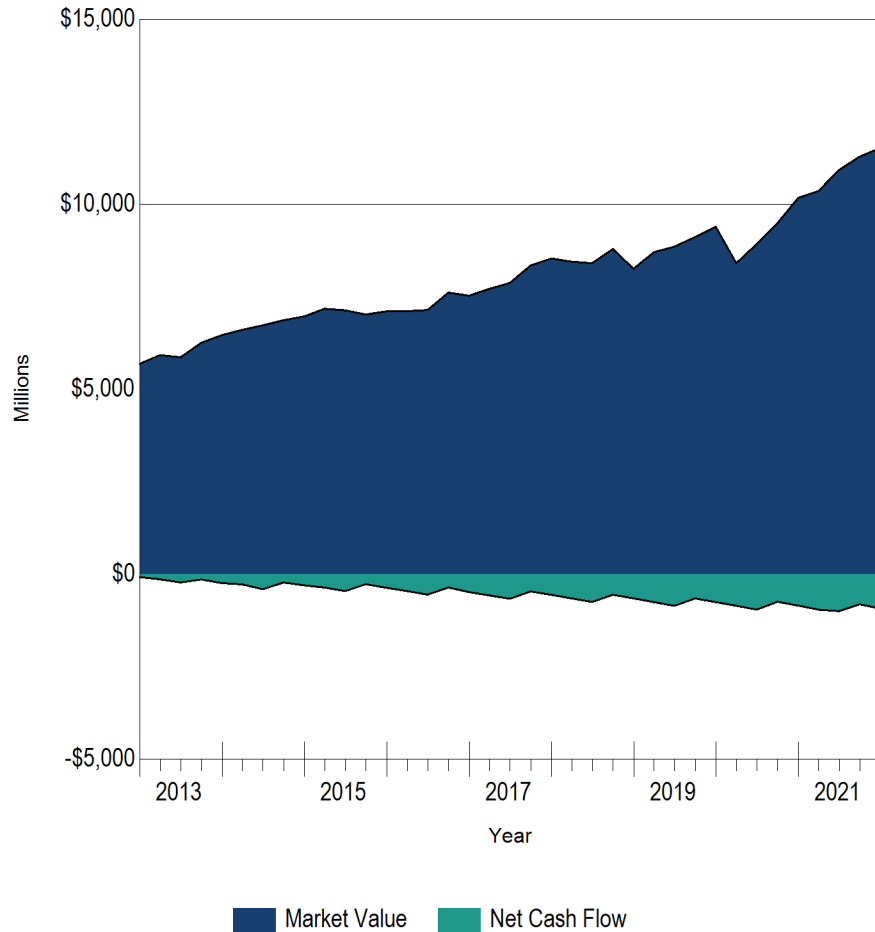
	Last Three Months	Year-To-Date
Beginning Market Value	\$11,286,225,766	\$10,169,399,370
Net Cash Flow	-\$112,219,233	-\$54,014,130
Net Investment Change	\$346,458,737	\$1,405,080,030
Ending Market Value	\$11,520,465,270	\$11,520,465,270

**Change in Market Value
Last Three Months**

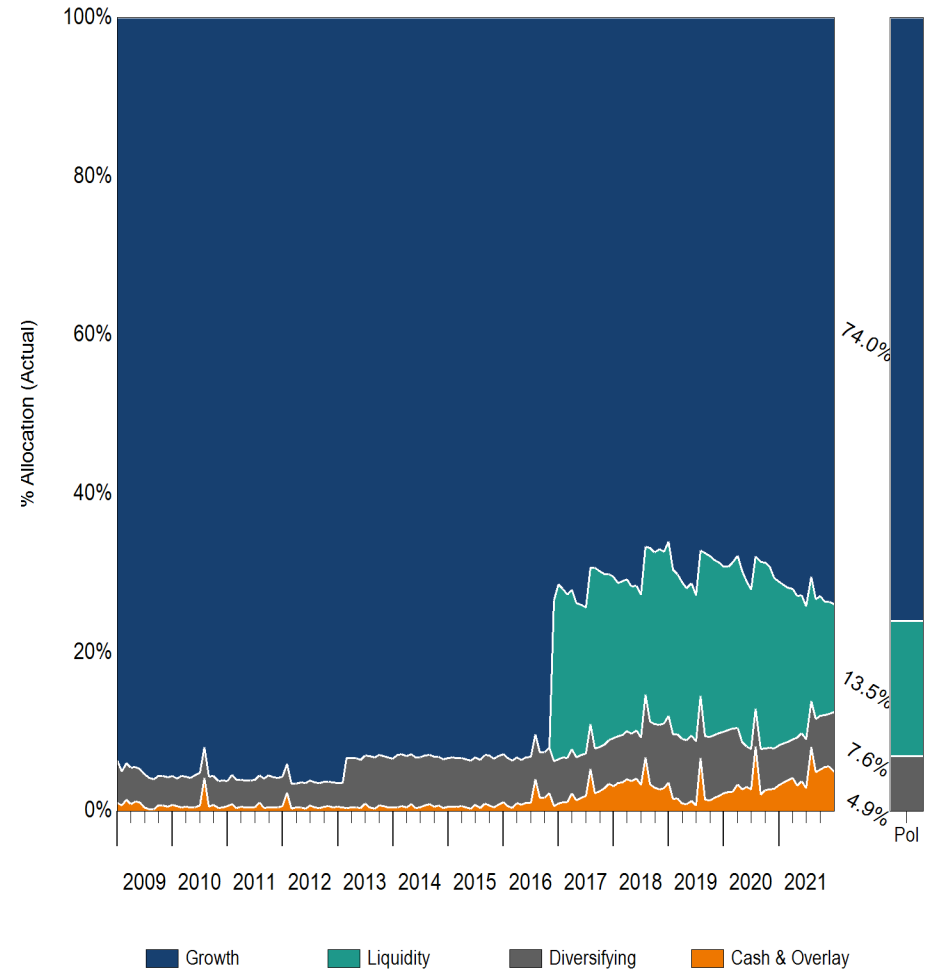


Contributions and withdrawals may include intra-account transfers between managers/funds.

Market Value History
Cumulative Cash Flows



Asset Allocation History

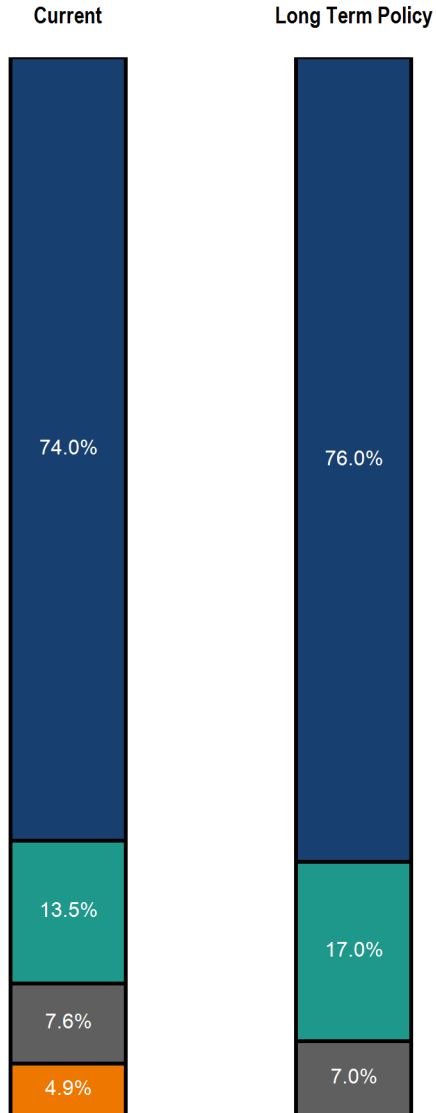


Policy reflects FFP 4-Yr allocations approved in June 2021.

Total Fund

Asset Allocation vs. Long Term Target Policy

Period Ending: December 31, 2021



Allocation vs. Long Term Target

	Current Balance	Current Allocation	Long Term Target	Difference
Growth	\$8,523,485,668	74.0%	76.0%	-\$232,067,937
Liquidity	\$1,558,096,048	13.5%	17.0%	-\$400,383,048
Diversifying	\$872,160,852	7.6%	7.0%	\$65,728,283
Cash & Overlay	\$566,722,702	4.9%	--	\$566,722,702
Total	\$11,520,465,270	100.0%	100.0%	

Allocation vs. Current Targets

	Current Balance	Current Allocation	Current Target	Difference
Growth	\$8,523,485,668	74.0%	75.0%	-\$116,863,285
Liquidity	\$1,558,096,048	13.5%	18.0%	-\$515,587,701
Diversifying	\$872,160,852	7.6%	7.0%	\$65,728,283
Cash & Overlay	\$566,722,702	4.9%	--	\$566,722,702
Total	\$11,520,465,270	100.0%	100.0%	

Long Term Targets reflect FFP 4-Yr allocations approved in June 2021.
Current Targets reflect targets approved in June 2021.

Total Fund
Executive Summary (Net of Fees)

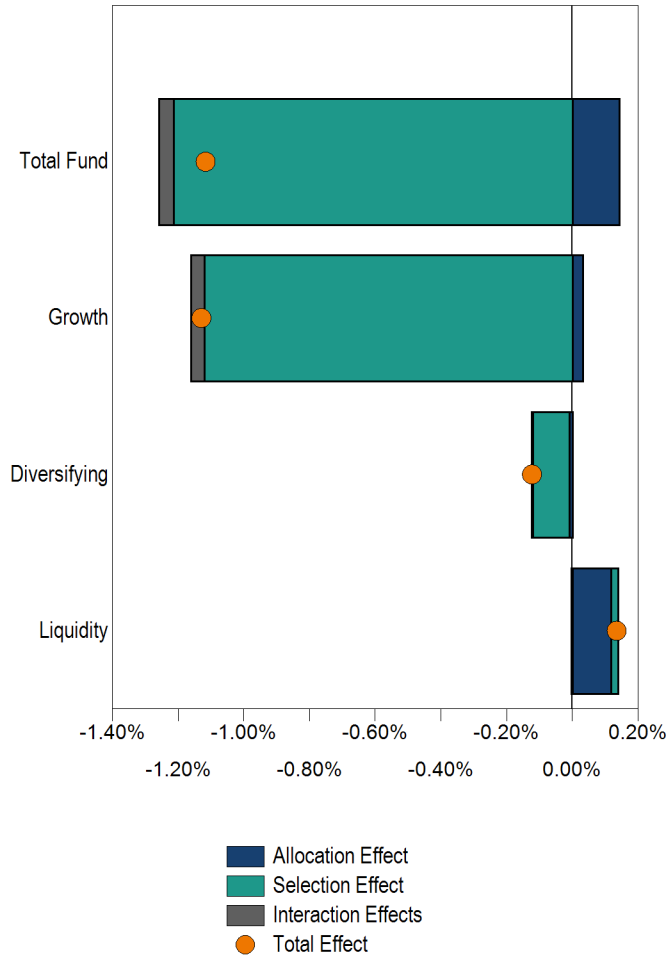
Period Ending: December 31, 2021

	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017
Total Fund	100.0	3.1	13.9	12.6	9.6	9.3	13.9	9.2	14.6	-2.7	13.9
<i>Policy Index</i>		4.2	15.3	13.5	10.5	10.1	15.3	10.8	14.6	-0.9	13.7
Growth	74.0	4.2	19.2	16.5	12.5	--	19.2	12.0	18.3	-3.9	18.7
<i>Custom Growth Benchmark</i>		5.7	21.6	18.2	14.0	--	21.6	13.8	19.3	-2.1	19.3
Diversifying	7.6	-0.3	1.7	2.2	1.4	1.0	1.7	-1.7	6.8	-2.3	2.6
<i>Custom Diversifying Benchmark</i>		0.5	1.6	4.1	3.7	3.3	1.6	4.7	6.1	1.4	4.7
Liquidity	13.5	-0.5	-0.3	2.6	2.2	--	-0.3	3.4	4.8	1.7	1.4
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>		-0.6	-0.5	2.3	1.9	--	-0.5	3.3	4.0	1.6	0.8

*Correlation between the Growth and Diversifying composites is .30, .63 and .55 over the previous 1, 3 and 5 year periods respectively.

Policy Index (1/1/2021-Present): 9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 7% Private Credit composite returns, 1.5% ICE BofAML High Yield Master II, 1% Wilshire REIT, 8% Private Real Estate composite returns, 1.5% CPI +4%, 11% Private Equity composite returns, 2% HFRI EH Equity Market Neutral. Policy Index (7/1/2020-12/31/2020): 9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 7% ICE BofAML High Yield Master II +2%, 1.5% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 1.5% CPI +4%, 11% S&P 500 +4%(Lagged), 2% HFRI EH Equity Market Neutral.

Attribution Effects
3 Months Ending December 31, 2021



Performance Attribution

	Quarter
Wtd. Actual Return	3.12%
Wtd. Index Return *	4.24%
Excess Return	-1.12%
Selection Effect	-1.22%
Allocation Effect	0.14%
Interaction Effect	-0.04%

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Growth	4.2%	5.7%	-1.5%	-1.1%	0.0%	0.0%	-1.1%
Diversifying	-0.3%	1.3%	-1.6%	-0.1%	0.0%	0.0%	-0.1%
Liquidity	-0.5%	-0.6%	0.1%	0.0%	0.1%	0.0%	0.1%
Total	3.1%	4.2%	-1.1%	-1.2%	0.1%	0.0%	-1.1%

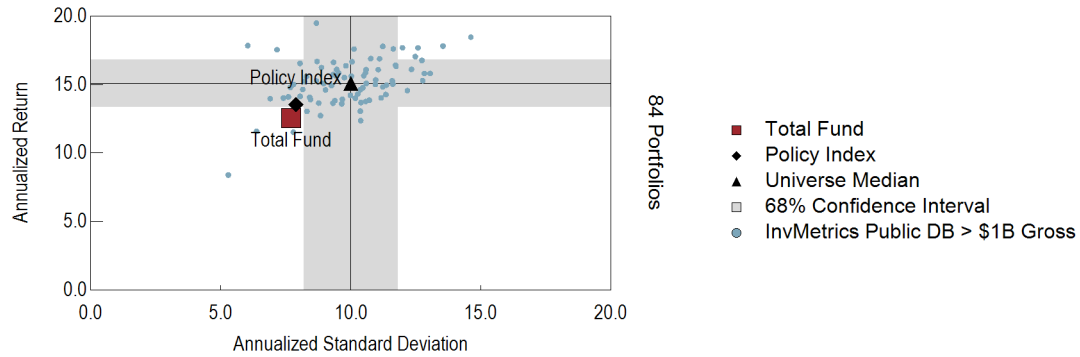
Total Fund Executive Summary (Net of Fees)

Period Ending: December 31, 2021

3 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	12.56%	-0.98%	7.71%	-0.10%	0.93	2.34%	0.91	1.52	-0.42	95.87%	104.90%

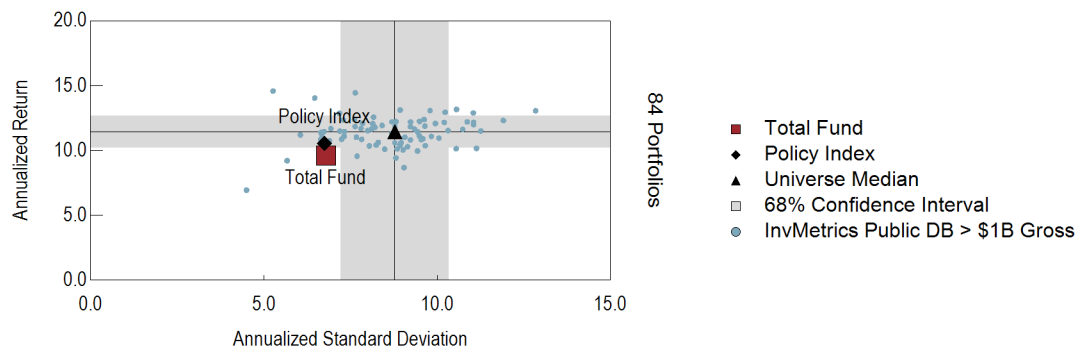
Risk vs. Return



5 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	9.58%	-0.94%	6.79%	-0.56%	0.96	1.97%	0.92	1.25	-0.48	95.97%	107.81%

Risk vs. Return



Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	11,520,465,270	100.0	3.1	14.2	12.9	9.9	9.8	14.2	9.5	14.9	-2.5	14.2	9.7	Oct-85
Policy Index			4.2	15.3	13.5	10.5	10.1	15.3	10.8	14.6	-0.9	13.7	--	Oct-85
InvMetrics Public DB > \$1B Gross Rank			84	62	94	93	63	62	78	83	25	83	6	Oct-85
Total Fund ex Overlay & Cash	10,953,742,568	95.1	3.2	14.6	13.0	10.0	9.9	14.6	9.7	14.7	-2.1	14.1	9.7	Oct-85
Policy Index			4.2	15.3	13.5	10.5	10.1	15.3	10.8	14.6	-0.9	13.7	--	Oct-85
InvMetrics Public DB > \$1B Gross Rank			82	55	94	91	59	55	72	85	20	84	5	Oct-85
Growth	8,523,485,668	74.0	4.2	19.6	16.9	12.9	--	19.6	12.4	18.7	-3.6	19.1	--	Jan-03
Custom Growth Benchmark			5.7	21.6	18.2	14.0	--	21.6	13.8	19.3	-2.1	19.3	--	Jan-03
Total Domestic Equity	1,865,706,823	16.2	6.3	20.6	23.1	16.5	15.8	20.6	22.2	26.7	-7.2	23.9	12.2	Sep-82
Russell 3000			9.3	25.7	25.8	18.0	16.3	25.7	20.9	31.0	-5.2	21.1	12.4	Sep-82
InvMetrics Public DB US Eq Gross Rank			97	97	88	70	52	97	10	87	78	6	--	Sep-82
BlackRock Russell 1000 Index	645,716,030	5.6	9.8	26.5	26.2	--	--	26.5	21.0	31.4	-4.8	--	18.1	Apr-17
Russell 1000			9.8	26.5	26.2	--	--	26.5	21.0	31.4	-4.8	--	18.1	Apr-17
eV US Large Cap Equity Gross Rank			43	55	40	--	--	55	36	39	47	--	43	Apr-17
Jackson Square Partners	337,864,271	2.9	0.6	8.8	26.3	20.6	16.6	8.8	44.8	27.9	-2.0	29.3	12.3	May-05
Russell 1000 Growth			11.6	27.6	34.1	25.3	19.8	27.6	38.5	36.4	-1.5	30.2	13.6	May-05
eV US Large Cap Growth Equity Gross Rank			95	97	91	86	90	97	20	93	59	47	78	May-05
Boston Partners	414,844,737	3.6	9.5	31.3	18.9	13.0	14.3	31.3	3.0	24.3	-8.7	20.1	11.2	Jun-95
Russell 1000 Value			7.8	25.2	17.6	11.2	13.0	25.2	2.8	26.5	-8.3	13.7	9.8	Jun-95
eV US Large Cap Value Equity Gross Rank			28	17	55	49	31	17	61	77	55	23	30	Jun-95
Emerald Advisers	256,431,564	2.2	0.4	5.5	24.1	17.2	17.1	5.5	39.0	30.3	-10.1	28.8	14.4	Apr-03
Russell 2000 Growth			0.0	2.8	21.2	14.5	14.1	2.8	34.6	28.5	-9.3	22.2	12.2	Apr-03
eV US Small Cap Growth Equity Gross Rank			66	76	75	77	57	76	57	45	85	26	27	Apr-03
Ceredex	210,850,221	1.8	7.3	28.4	15.8	9.0	12.3	28.4	2.3	18.4	-11.3	11.4	12.0	Nov-11
Russell 2000 Value			4.4	28.3	18.0	9.1	12.0	28.3	4.6	22.4	-12.9	7.8	12.0	Nov-11
eV US Small Cap Value Equity Gross Rank			40	60	91	75	78	60	69	87	25	48	84	Nov-11

Individual closed end funds are not shown in performance summary table.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total International Equity	1,876,462,769	16.3	0.5	8.3	15.8	10.8	8.9	8.3	15.8	23.7	-14.3	25.5	7.9	Sep-88
MSCI ACWI ex USA Gross			1.9	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8	6.1	Sep-88
MSCI EAFE Gross			2.7	11.8	14.1	10.1	8.5	11.8	8.3	22.7	-13.4	25.6	5.8	Sep-88
InvMetrics Public DB ex-US Eq Gross Rank			76	45	29	40	34	45	23	28	44	90	1	Sep-88
International Equity	1,059,638,773	9.2	1.9	9.0	18.1	12.3	9.6	9.0	19.0	27.0	-13.6	25.3	--	--
MSCI ACWI ex USA Gross			1.9	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8	--	--
InvMetrics Public DB ex-US Eq Gross Rank			28	32	4	14	8	32	13	7	21	93	--	--
Pyrford	496,421,455	4.3	2.4	7.6	11.2	8.1	--	7.6	4.7	22.1	-10.1	19.8	4.9	May-14
MSCI ACWI ex USA Value			1.2	10.5	8.2	6.0	--	10.5	-0.8	15.7	-14.0	22.7	2.5	May-14
eV ACWI ex-US Value Equity Gross Rank			22	84	53	44	--	84	33	35	5	84	31	May-14
William Blair	563,217,318	4.9	1.4	10.5	24.8	16.2	12.0	10.5	33.3	32.0	-16.8	30.9	9.6	Oct-10
MSCI ACWI ex USA Growth			2.4	5.1	17.8	13.1	9.1	5.1	22.2	27.3	-14.4	32.0	7.1	Oct-10
eV ACWI ex-US Growth Equity Gross Rank			53	44	26	50	45	44	30	39	69	81	49	Oct-10
Emerging Markets Equity	816,823,996	7.1	-1.3	7.6	12.7	--	--	7.6	11.4	19.4	-15.3	--	--	--
MSCI Emerging Markets			-1.3	-2.5	10.9	--	--	-2.5	18.3	18.4	-14.6	--	--	--
InvMetrics Public DB Emg Mkt Eq Gross Rank			77	2	32	--	--	2	81	31	51	--	--	--
PIMCO RAE Emerging Markets	387,447,248	3.4	0.5	17.1	11.1	--	--	17.1	2.1	14.6	-12.3	--	7.3	Feb-17
MSCI Emerging Markets Value NR			-0.4	4.0	7.1	--	--	4.0	5.5	12.0	-10.7	--	5.5	Feb-17
eV Emg Mkts All Cap Value Equity Gross Rank			35	6	41	--	--	6	85	72	44	--	51	Feb-17
TT Emerging Markets	429,376,749	3.7	-2.9	-0.2	14.6	--	--	-0.2	20.8	24.8	-18.4	--	7.5	Jul-17
MSCI Emerging Markets			-1.3	-2.5	10.9	--	--	-2.5	18.3	18.4	-14.6	--	5.7	Jul-17
eV Emg Mkts Equity Gross Rank			82	58	39	--	--	58	39	24	83	--	37	Jul-17
Total Global Equity	1,154,263,511	10.0	4.4	14.1	22.6	16.0	12.8	14.1	25.3	28.9	-7.8	23.7	6.6	Jun-07
MSCI ACWI			6.7	18.5	20.4	14.4	11.9	18.5	16.3	26.6	-9.4	24.0	6.6	Jun-07
InvMetrics Public DB Glbl Eq Gross Rank			74	88	6	8	43	88	2	3	60	79	1	Jun-07
Artisan Partners	631,779,059	5.5	4.8	15.0	30.7	22.2	--	15.0	41.7	37.0	-7.9	32.9	16.7	Oct-12
MSCI ACWI Growth NR USD			6.9	17.1	27.6	19.9	--	17.1	33.6	32.7	-8.1	30.0	14.3	Oct-12
eV All Global Equity Gross Rank			72	80	8	8	--	80	9	7	40	11	9	Oct-12
First Eagle	522,356,650	4.5	3.9	13.0	14.0	9.5	9.5	13.0	8.5	21.0	-7.6	15.1	8.8	Jan-11
MSCI ACWI Value NR USD			6.3	19.6	12.9	8.7	8.8	19.6	-0.3	20.6	-10.8	18.3	7.2	Jan-11
eV All Global Equity Gross Rank			79	85	88	89	89	85	70	82	38	89	80	Jan-11

Individual closed end funds are not shown in performance summary table.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Private Credit	834,448,591	7.2	2.7	10.0	7.2	8.0	11.2	10.0	4.0	7.7	8.3	10.4	--	
Total High Yield	183,970,749	1.6	0.9	5.3	8.5	5.7	6.2	5.3	5.2	15.3	-3.2	6.5	--	
<i>ICE BofAML High Yield Master II</i>			0.7	5.4	8.6	6.1	6.7	5.4	6.2	14.4	-2.3	7.5	--	
<i>eV US High Yield Fixed Inc Gross Rank</i>			31	51	58	79	80	51	74	31	88	74	--	
Allianz Global Investors	183,970,749	1.6	0.9	5.3	8.5	5.7	6.2	5.3	5.2	15.3	-3.2	6.5	6.9	Apr-00
<i>ICE BofAML High Yield Master II</i>			0.7	5.4	8.6	6.1	6.7	5.4	6.2	14.4	-2.3	7.5	7.1	Apr-00
<i>eV US High Yield Fixed Inc Gross Rank</i>			31	51	58	79	80	51	74	31	88	74	86	Apr-00
Total Real Estate	701,861,334	6.1	6.4	19.2	6.6	7.7	10.4	19.2	-5.9	8.1	7.4	11.1	10.0	Sep-92
<i>Real Estate Benchmark</i>			7.1	19.3	8.9	8.1	9.4	19.3	0.6	7.5	6.8	7.1	9.6	Sep-92
<i>NCREIF-ODCE</i>			8.0	22.2	9.2	8.7	10.4	22.2	1.2	5.3	8.3	7.6	--	Sep-92
<i>NCREIF Property Index</i>			6.2	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0	--	Sep-92
Adelante	113,469,719	1.0	16.8	48.3	22.0	13.2	12.7	48.3	-4.6	28.2	-5.0	7.8	11.5	Sep-01
<i>Wilshire REIT</i>			17.1	46.2	19.2	10.9	11.5	46.2	-7.9	25.8	-4.8	4.2	10.9	Sep-01
Total Private Real Estate	588,391,615	5.1	4.6	15.3	4.8	6.9	--	15.3	-6.1	6.2	8.8	11.4	--	Sep-92
Private Equity	1,406,261,523	12.2	7.4	60.4	23.7	18.8	15.8	60.4	8.7	8.4	12.1	11.9	--	
Risk Parity	500,510,368	4.3	2.9	9.7	--	--	--	9.7	10.0	--	--	--	12.5	Jan-19
<i>60% MSCI ACWI Net/40% Bloomberg Global Aggregate</i>			3.7	8.8	--	--	--	8.8	14.0	--	--	--	13.7	Jan-19
AQR Global Risk Premium-EL	225,958,106	2.0	3.2	10.7	--	--	--	10.7	6.2	--	--	--	11.8	Jan-19
<i>HFR Risk Parity Vol 10 Index</i>			2.7	6.8	--	--	--	6.8	3.6	--	--	--	9.4	Jan-19
PanAgora Risk Parity Multi Asset	274,552,262	2.4	2.7	8.7	--	--	--	8.7	14.0	--	--	--	12.8	Feb-19
<i>HFR Risk Parity Vol 10 Index</i>			2.7	6.8	--	--	--	6.8	3.6	--	--	--	7.7	Feb-19

Individual closed end funds are not shown in performance summary table.

Total Fund

Performance Summary (Gross of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Diversifying	872,160,852	7.6	-0.2	2.0	2.6	1.7	1.4	2.0	-1.3	7.1	-2.0	2.8	3.3	Dec-03
<i>Custom Diversifying Benchmark</i>			0.5	1.6	4.1	3.7	3.3	1.6	4.7	6.1	1.4	4.7	4.2	Dec-03
Diversifying Fixed Income	260,794,430	2.3	-0.1	-0.7	3.1	2.1	2.4	-0.7	1.6	8.6	-1.7	2.8	3.9	Dec-03
<i>eV US Core Fixed Inc Gross Rank</i>			63	30	99	99	99	30	99	80	99	96	97	Dec-03
AFL-CIO	260,690,658	2.3	-0.1	-0.7	4.6	3.6	3.1	-0.7	6.6	8.2	0.6	3.6	6.0	Jun-91
<i>Bloomberg US Aggregate TR</i>			0.0	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5	5.6	Jun-91
<i>eV US Core Fixed Inc Gross Rank</i>			63	30	91	88	86	30	95	88	16	76	56	Jun-91
Diversifying Equity	116,343,595	1.0	1.0	7.4	0.4	--	--	7.4	-8.9	3.3	--	--	0.0	Jul-18
Parametric Defensive Equity	116,343,595	1.0	1.0	7.4	0.4	--	--	7.4	-8.9	3.3	--	--	-0.4	Jul-18
<i>91 Day T-Bill +4%</i>			1.0	4.0	4.8	--	--	4.0	4.5	6.1	--	--	5.0	Jul-18
Diversifying Multi-Asset	495,022,826	4.3	-0.7	2.8	--	--	--	2.8	--	--	--	--	3.2	Aug-20
<i>Custom Diversifying Multi-Asset Benchmark</i>			0.7	4.1	--	--	--	4.1	--	--	--	--	4.4	Aug-20
Acadian Multi-Asset Absolute Return Fund	254,392,161	2.2	-1.1	1.7	--	--	--	1.7	--	--	--	--	2.4	Aug-20
<i>FTSE 3-Month T-bill +5%</i>			1.2	5.0	--	--	--	5.0	--	--	--	--	5.1	Aug-20
Sit LLCAR	240,630,665	2.1	-0.4	--	--	--	--	--	--	--	--	--	4.5	Apr-21
<i>Bloomberg US Aggregate Index + 100 bps</i>			0.3	--	--	--	--	--	--	--	--	--	2.7	Apr-21
Liquidity	1,558,096,048	13.5	-0.4	-0.2	2.7	2.3	--	-0.2	3.5	4.9	1.8	1.5	2.3	Nov-16
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-0.6	-0.5	2.3	1.9	--	-0.5	3.3	4.0	1.6	0.8	1.8	Nov-16
<i>eV US Short Duration Fixed Inc Gross Rank</i>			36	40	57	53	--	40	77	34	24	50	56	Nov-16
DFA Short Credit	304,205,620	2.6	-0.6	-0.4	2.6	2.2	--	-0.4	2.9	5.2	1.2	1.9	2.1	Nov-16
<i>ICE BofA 1-5 Yrs US Corp & Govt TR</i>			-0.7	-0.9	2.9	2.3	--	-0.9	4.6	5.1	1.4	1.3	2.3	Nov-16
<i>eV US Short Duration Fixed Inc Gross Rank</i>			89	64	68	66	--	64	90	21	93	26	68	Nov-16
Insight Short Duration	690,511,896	6.0	-0.3	0.1	2.6	2.2	--	0.1	3.2	4.7	1.7	1.5	2.2	Nov-16
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-0.6	-0.5	2.3	1.9	--	-0.5	3.3	4.0	1.6	0.8	1.8	Nov-16
<i>eV US Short Duration Fixed Inc Gross Rank</i>			15	25	62	59	--	25	86	45	38	50	62	Nov-16
Sit Short Duration	563,378,532	4.9	-0.6	-0.3	3.0	2.5	--	-0.3	4.6	4.9	2.5	1.3	2.5	Nov-16
<i>Bloomberg US Govt 1-3 Yr TR</i>			-0.6	-0.6	2.0	1.6	--	-0.6	3.1	3.6	1.6	0.4	1.6	Nov-16
<i>eV US Short Duration Fixed Inc Gross Rank</i>			73	55	39	33	--	55	26	35	1	68	36	Nov-16
Total Cash	418,352,400	3.6	0.0	0.4	1.6	1.5	2.8	0.4	1.3	3.3	1.7	0.9	--	
<i>91 Day T-Bills</i>			0.0	0.0	0.8	1.1	0.6	0.0	0.5	2.1	1.9	0.9	--	
Cash	418,332,620	3.6	0.0	0.4	1.7	1.5	2.9	0.4	1.3	3.4	1.7	0.9	--	
Northern Trust Transition	19,780	0.0	-0.6	-6.1	--	--	--	-6.1	104.1	--	--	--	28.1	Mar-19

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. \$126,992.88 in residual value is reflected in the Diversifying Fixed Income composite. State Street Cash/Tax Reclaims balance of \$-28,918 in cash and \$223,127 in potential tax reclaims at State Street after assets were transferred to Northern Trust.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Fund	11,520,465,270	100.0	3.1	13.9	12.6	9.6	9.3	13.9	9.2	14.6	-2.7	13.9	--	Oct-85
<i>Policy Index</i>			4.2	15.3	13.5	10.5	10.1	15.3	10.8	14.6	-0.9	13.7	--	Oct-85
Total Fund ex Overlay & Cash	10,953,742,568	95.1	3.1	14.3	12.7	9.7	9.4	14.3	9.4	14.3	-2.4	13.8	--	Oct-85
<i>Policy Index</i>			4.2	15.3	13.5	10.5	10.1	15.3	10.8	14.6	-0.9	13.7	--	Oct-85
Growth	8,523,485,668	74.0	4.2	19.2	16.5	12.5	--	19.2	12.0	18.3	-3.9	18.7	--	Jan-03
<i>Custom Growth Benchmark</i>			5.7	21.6	18.2	14.0	--	21.6	13.8	19.3	-2.1	19.3	--	Jan-03
Total Domestic Equity	1,865,706,823	16.2	6.3	20.3	22.7	16.1	15.4	20.3	21.8	26.1	-7.6	23.5	--	Sep-82
<i>Russell 3000</i>			9.3	25.7	25.8	18.0	16.3	25.7	20.9	31.0	-5.2	21.1	--	Sep-82
BlackRock Russell 1000 Index	645,716,030	5.6	9.8	26.5	26.2	--	--	26.5	20.9	31.4	-4.8	--	18.1	Apr-17
<i>Russell 1000</i>			9.8	26.5	26.2	--	--	26.5	21.0	31.4	-4.8	--	18.1	Apr-17
Jackson Square Partners	337,864,271	2.9	0.5	8.3	25.7	20.1	16.2	8.3	44.1	27.3	-2.4	28.7	11.8	May-05
<i>Russell 1000 Growth</i>			11.6	27.6	34.1	25.3	19.8	27.6	38.5	36.4	-1.5	30.2	13.6	May-05
Boston Partners	414,844,737	3.6	9.4	31.0	18.5	12.7	14.0	31.0	2.6	23.8	-8.9	19.7	10.8	Jun-95
<i>Russell 1000 Value</i>			7.8	25.2	17.6	11.2	13.0	25.2	2.8	26.5	-8.3	13.7	9.8	Jun-95
Emerald Advisers	256,431,564	2.2	0.3	4.9	23.3	16.5	16.4	4.9	38.2	29.4	-10.7	28.0	13.7	Apr-03
<i>Russell 2000 Growth</i>			0.0	2.8	21.2	14.5	14.1	2.8	34.6	28.5	-9.3	22.2	12.2	Apr-03
Ceredex	210,850,221	1.8	7.1	27.7	15.2	8.3	11.7	27.7	1.7	17.7	-11.8	10.7	11.4	Nov-11
<i>Russell 2000 Value</i>			4.4	28.3	18.0	9.1	12.0	28.3	4.6	22.4	-12.9	7.8	12.0	Nov-11
Total International Equity	1,876,462,769	16.3	0.4	7.8	15.2	10.3	8.4	7.8	15.2	23.2	-14.7	25.0	--	Sep-88
<i>MSCI ACWI ex USA Gross</i>			1.9	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8	--	Sep-88
<i>MSCI EAFE Gross</i>			2.7	11.8	14.1	10.1	8.5	11.8	8.3	22.7	-13.4	25.6	--	Sep-88
International Equity	1,059,638,773	9.2	1.9	8.7	17.7	11.9	9.2	8.7	18.5	26.5	-13.9	24.8	--	
<i>MSCI ACWI ex USA Gross</i>			1.9	8.3	13.7	10.1	7.8	8.3	11.1	22.1	-13.8	27.8	--	
Pyrford	496,421,455	4.3	2.4	7.3	10.8	7.7	--	7.3	4.2	21.6	-10.5	19.3	4.5	May-14
<i>MSCI ACWI ex USA Value</i>			1.2	10.5	8.2	6.0	--	10.5	-0.8	15.7	-14.0	22.7	2.5	May-14
William Blair	563,217,318	4.9	1.4	10.2	24.4	15.8	11.6	10.2	32.8	31.5	-17.1	30.4	9.2	Oct-10
<i>MSCI ACWI ex USA Growth</i>			2.4	5.1	17.8	13.1	9.1	5.1	22.2	27.3	-14.4	32.0	7.1	Oct-10
Emerging Markets Equity	816,823,996	7.1	-1.4	7.0	12.0	--	--	7.0	10.7	18.7	-15.7	--	--	
<i>MSCI Emerging Markets</i>			-1.3	-2.5	10.9	--	--	-2.5	18.3	18.4	-14.6	--	--	
PIMCO RAE Emerging Markets	387,447,248	3.4	0.4	16.5	10.5	--	--	16.5	1.6	14.0	-12.6	--	6.7	Feb-17
<i>MSCI Emerging Markets Value NR</i>			-0.4	4.0	7.1	--	--	4.0	5.5	12.0	-10.7	--	5.5	Feb-17
TT Emerging Markets	429,376,749	3.7	-3.0	-0.9	13.8	--	--	-0.9	20.0	24.0	-18.9	--	6.8	Jul-17
<i>MSCI Emerging Markets</i>			-1.3	-2.5	10.9	--	--	-2.5	18.3	18.4	-14.6	--	5.7	Jul-17

Individual closed end funds are not shown in performance summary table.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Total Global Equity	1,154,263,511	10.0	4.2	13.2	21.7	15.1	12.1	13.2	24.4	27.9	-8.5	22.8	6.0	Jun-07
<i>MSCI ACWI</i>			6.7	18.5	20.4	14.4	11.9	18.5	16.3	26.6	-9.4	24.0	6.6	Jun-07
Artisan Partners	631,779,059	5.5	4.6	14.1	29.7	21.3	--	14.1	40.6	36.0	-8.6	31.9	15.8	Oct-12
<i>MSCI ACWI Growth NR USD</i>			6.9	17.1	27.6	19.9	--	17.1	33.6	32.7	-8.1	30.0	14.3	Oct-12
First Eagle	522,356,650	4.5	3.7	12.1	13.2	8.7	8.7	12.1	7.7	20.1	-8.3	14.3	8.0	Jan-11
<i>MSCI ACWI Value NR USD</i>			6.3	19.6	12.9	8.7	8.8	19.6	-0.3	20.6	-10.8	18.3	7.2	Jan-11
Private Credit	834,448,591	7.2	2.7	10.0	7.2	8.0	10.4	10.0	4.0	7.7	8.3	10.4	--	--
Total High Yield	183,970,749	1.6	0.8	4.9	8.0	5.2	5.8	4.9	4.7	14.7	-3.6	6.1	--	--
<i>ICE BofAML High Yield Master II</i>			0.7	5.4	8.6	6.1	6.7	5.4	6.2	14.4	-2.3	7.5	--	--
Allianz Global Investors	183,970,749	1.6	0.8	4.9	8.0	5.2	5.8	4.9	4.7	14.7	-3.6	6.1	6.5	Apr-00
<i>ICE BofAML High Yield Master II</i>			0.7	5.4	8.6	6.1	6.7	5.4	6.2	14.4	-2.3	7.5	7.1	Apr-00
Total Real Estate	701,861,334	6.1	6.3	19.2	6.6	7.6	9.8	19.2	-6.0	8.1	7.4	11.0	--	Sep-92
<i>Real Estate Benchmark</i>			7.1	19.3	8.9	8.1	9.4	19.3	0.6	7.5	6.8	7.1	--	Sep-92
<i>NCREIF-ODCE</i>			8.0	22.2	9.2	8.7	10.4	22.2	1.2	5.3	8.3	7.6	--	Sep-92
<i>NCREIF Property Index</i>			6.2	17.7	8.4	7.8	9.3	17.7	1.6	6.4	6.7	7.0	--	Sep-92
Adelante	113,469,719	1.0	16.7	47.5	21.3	12.6	12.1	47.5	-5.2	27.5	-5.5	7.2	11.0	Sep-01
<i>Wilshire REIT</i>			17.1	46.2	19.2	10.9	11.5	46.2	-7.9	25.8	-4.8	4.2	10.9	Sep-01
Total Private Real Estate	588,391,615	5.1	4.6	15.3	4.8	6.9	--	15.3	-6.1	6.2	8.8	11.4	--	Sep-92
Private Equity	1,406,261,523	12.2	7.4	60.4	23.7	18.8	14.9	60.4	8.7	8.4	12.1	11.9	--	--
Risk Parity	500,510,368	4.3	2.8	9.3	--	--	--	9.3	9.6	--	--	--	12.1	Jan-19
<i>60% MSCI ACWI Net/40% Bloomberg Global Aggregate</i>			3.7	8.8	--	--	--	8.8	14.0	--	--	--	13.7	Jan-19
AQR Global Risk Premium-EL	225,958,106	2.0	3.1	10.3	--	--	--	10.3	5.8	--	--	--	11.3	Jan-19
<i>HFR Risk Parity Vol 10 Index</i>			2.7	6.8	--	--	--	6.8	3.6	--	--	--	9.4	Jan-19
PanAgora Risk Parity Multi Asset	274,552,262	2.4	2.6	8.3	--	--	--	8.3	13.6	--	--	--	12.4	Feb-19
<i>HFR Risk Parity Vol 10 Index</i>			2.7	6.8	--	--	--	6.8	3.6	--	--	--	7.7	Feb-19

Individual closed end funds are not shown in performance summary table.

Total Fund

Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2021	2020	2019	2018	2017	Inception	Inception Date
Diversifying	872,160,852	7.6	-0.3	1.7	2.2	1.4	1.0	1.7	-1.7	6.8	-2.3	2.6	2.9	Dec-03
<i>Custom Diversifying Benchmark</i>			0.5	1.6	4.1	3.7	3.3	1.6	4.7	6.1	1.4	4.7	4.2	Dec-03
Diversifying Fixed Income	260,794,430	2.3	-0.2	-1.0	2.8	1.8	2.0	-1.0	1.2	8.3	-2.0	2.6	3.5	Dec-03
AFL-CIO	260,690,658	2.3	-0.2	-1.0	4.2	3.2	2.7	-1.0	6.2	7.8	0.2	3.2	5.6	Jun-91
<i>Bloomberg US Aggregate TR</i>			0.0	-1.5	4.8	3.6	2.9	-1.5	7.5	8.7	0.0	3.5	5.6	Jun-91
Diversifying Equity	116,343,595	1.0	0.7	7.0	0.0	--	--	7.0	-9.4	3.0	--	--	-0.4	Jul-18
Parametric Defensive Equity	116,343,595	1.0	0.7	7.0	0.0	--	--	7.0	-9.4	3.0	--	--	-0.7	Jul-18
<i>91 Day T-Bill +4%</i>			1.0	4.0	4.8	--	--	4.0	4.5	6.1	--	--	5.0	Jul-18
Diversifying Multi-Asset	495,022,826	4.3	-0.8	2.4	--	--	--	2.4	--	--	--	--	2.8	Aug-20
<i>Custom Diversifying Multi-Asset Benchmark</i>			0.7	4.1	--	--	--	4.1	--	--	--	--	4.4	Aug-20
Acadian Multi-Asset Absolute Return Fund	254,392,161	2.2	-1.2	1.1	--	--	--	1.1	--	--	--	--	1.9	Aug-20
<i>FTSE 3-Month T-bill +5%</i>			1.2	5.0	--	--	--	5.0	--	--	--	--	5.1	Aug-20
Sit LLCAR	240,630,665	2.1	-0.4	--	--	--	--	--	--	--	--	--	4.3	Apr-21
<i>Bloomberg US Aggregate Index + 100 bps</i>			0.3	--	--	--	--	--	--	--	--	--	2.7	Apr-21
Liquidity	1,558,096,048	13.5	-0.5	-0.3	2.6	2.2	--	-0.3	3.4	4.8	1.7	1.4	2.2	Nov-16
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-0.6	-0.5	2.3	1.9	--	-0.5	3.3	4.0	1.6	0.8	1.8	Nov-16
DFA Short Credit	304,205,620	2.6	-0.7	-0.5	2.5	2.0	--	-0.5	2.8	5.2	1.1	1.8	2.0	Nov-16
<i>ICE BofA 1-5 Yrs US Corp & Govt TR</i>			-0.7	-0.9	2.9	2.3	--	-0.9	4.6	5.1	1.4	1.3	2.3	Nov-16
Insight Short Duration	690,511,896	6.0	-0.3	0.0	2.6	2.2	--	0.0	3.1	4.6	1.7	1.5	2.1	Nov-16
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			-0.6	-0.5	2.3	1.9	--	-0.5	3.3	4.0	1.6	0.8	1.8	Nov-16
Sit Short Duration	563,378,532	4.9	-0.6	-0.5	2.8	2.4	--	-0.5	4.4	4.7	2.3	1.1	2.4	Nov-16
<i>Bloomberg US Govt 1-3 Yr TR</i>			-0.6	-0.6	2.0	1.6	--	-0.6	3.1	3.6	1.6	0.4	1.6	Nov-16
Total Cash	418,352,400	3.6	0.0	0.4	1.6	1.5	2.8	0.4	1.3	3.3	1.7	0.9	--	
<i>91 Day T-Bills</i>			0.0	0.0	0.8	1.1	0.6	0.0	0.5	2.1	1.9	0.9	--	
Cash	418,332,620	3.6	0.0	0.4	1.7	1.5	2.8	0.4	1.3	3.4	1.7	0.9	--	
Northern Trust Transition	19,780	0.0	-0.6	-6.1	--	--	--	-6.1	104.1	--	--	--	28.1	Mar-19

Individual closed end funds are not shown in performance summary table. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. Wellington Real Total Return was liquidated 4/30/2020. \$126,992.88 in residual value is reflected in the Diversifying Fixed Income composite.

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2021

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2021 ¹	Total Commitment	% Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./ Paid-In (DPI) ²	Tot. Value/ Paid-In (TVPI) ³	Latest Valuation
Private Credit												
8/31/2015	Angelo Gordon Energy Credit Opp. ⁴	\$3,546,515	\$16,500,000	0%	\$18,750,000	\$0	\$0	\$18,829,566	\$2,319,783	1.00	1.19	12/31/2021
12/18/2017	Stepstone CC Opportunities Fund	\$808,022,050	\$1,020,000,000	65%	\$766,356,197	\$98,638,005	\$48,286,236	\$89,848,226	\$465,343,259	0.12	1.17	6/30/2021
7/1/2006	Torchlight II	\$0	\$128,000,000	0%	\$218,263,562	\$0	\$0	\$208,623,727	\$0	0.96	0.96	12/31/2020
12/12/2008	Torchlight III	\$0	\$75,000,000	0%	\$83,825,058	\$0	\$0	\$124,848,870	\$0	1.49	1.49	12/23/2020
8/1/2012	Torchlight IV	\$9,064,530	\$60,000,000	0%	\$84,866,971	\$0	\$299,176	\$106,146,627	\$0	1.25	1.36	12/31/2021
3/12/2015	Torchlight V	\$13,815,496	\$75,000,000	0%	\$60,000,000	\$0	\$1,637,997	\$64,410,469	\$15,000,000	1.07	1.30	9/30/2021
Total Private Credit		\$834,448,591										
% of Portfolio (Market Value)		7.2%										

*All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2021

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2021 ¹	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁸	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Real Estate												
1/23/2012	Angelo Gordon Realty Fund VIII ⁴	\$15,953,219	\$80,000,000	94%	\$75,401,855	\$0	\$3,278,376	\$101,711,550	\$12,334,302	1.35	1.56	9/30/2021
12/8/2014	Angelo Gordon Realty Fund IX	\$44,116,557	\$65,000,000	93%	\$60,125,000	\$0	\$13,487,500	\$40,137,501	\$7,572,500	0.67	1.40	9/30/2021
6/23/2005	DLJ RECP III	\$14,991,850	\$75,000,000	134%	\$100,709,313 ⁴	\$0	\$0	\$69,364,915	\$4,031,338	0.69	0.84	9/30/2021
2/11/2008	DLJ RECP IV	\$47,925,187	\$100,000,000	130%	\$129,892,605 ⁵	\$0	\$5,879,967	\$97,530,461	\$3,162,610	0.75	1.12	9/30/2021
7/1/2014	DLJ RECP V	\$47,797,281	\$75,000,000	132%	\$98,684,517 ⁶	\$59,550	\$20,319,231	\$79,233,113	\$20,497,203	0.80	1.29	9/30/2021
3/19/2019	DLJ RECP VI	\$34,594,717	\$50,000,000	60%	\$30,103,770	\$0	\$0	\$220,742	\$25,050,462	0.01	1.16	9/30/2021
6/17/1998	Hearthstone II ⁴	\$0	\$25,000,000	80%	\$19,938,463	\$0	\$1,383	\$27,477,268	\$0	1.38	1.38	9/30/2021
6/30/2013	Invesco Real Estate III ⁴	\$161,682	\$35,000,000	93%	\$32,386,423	\$0	\$0	\$47,423,062	\$2,613,577	1.46	1.47	9/30/2021
6/30/2014	Invesco Real Estate IV ⁴	\$5,435,360	\$35,000,000	87%	\$30,546,401	\$0	\$5,485,318	\$36,124,620	\$4,453,599	1.18	1.36	12/31/2021
2/20/2019	Invesco Real Estate V	\$67,285,398	\$75,000,000	77%	\$57,485,048	\$0	\$1,536,086	\$9,085,146	\$22,214,852 ⁹	0.16	1.33	12/31/2021
7/16/2013	LaSalle Income & Growth VI ⁴	\$19,891,527	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$84,523,353	\$3,571,429	1.18	1.46	9/30/2021
2/28/2017	LaSalle Income & Growth VII	\$62,585,768	\$75,000,000	103%	\$77,293,582	\$0	\$7,598,761	\$44,297,686	-\$2,293,582	0.57	1.38	9/30/2021
7/3/2013	Long Wharf Fund IV ⁴	\$1,544,485	\$25,000,000	100%	\$25,000,000	\$0	\$0	\$34,824,789	\$0	1.39	1.45	12/31/2021
9/30/2016	Long Wharf Fund V ⁴	\$30,750,262	\$50,000,000	100%	\$50,000,000	\$0	\$5,255,341	\$35,416,428	\$0	0.71	1.32	12/31/2021
6/27/2019	Long Wharf Fund VI	\$0	\$50,000,000	52%	\$26,243,805	\$0	\$0	\$11,199,206	\$23,756,195	0.43	0.43	12/31/2021
12/31/2011	Oaktree REOF V ⁴	\$1,487,147	\$50,000,000	101%	\$50,315,673	\$0	\$289,906	\$77,222,639	-\$315,673 ⁹	1.53	1.56	12/31/2021
9/30/2013	Oaktree REOF VI ⁴	\$26,271,187	\$80,000,000	100%	\$80,000,000	\$0	\$0	\$84,010,175	\$18,400,000 ⁹	1.05	1.38	12/31/2021
4/1/2015	Oaktree REOF VII	\$48,997,153	\$65,000,000	100%	\$65,000,000	\$0	\$0	\$42,829,688	\$18,915,000 ⁹	0.66	1.41	12/31/2021
11/10/2013	Paulson Real Estate Fund II ⁴	\$16,609,884	\$20,000,000	97%	\$19,345,623	\$0	\$2,810,348	\$20,821,871	\$654,377	1.08	1.93	9/30/2021
1/25/2012	Siguler Guff DREOF	\$22,396,259	\$75,000,000	93%	\$69,375,000	\$0	\$762,124	\$96,380,022	\$5,625,000	1.39	1.71	9/30/2021
8/31/2013	Siguler Guff DREOF II	\$41,890,216	\$70,000,000	89%	\$61,985,000	\$0	\$2,732,632	\$46,710,571	\$8,015,000	0.75	1.43	9/30/2021
1/27/2016	Siguler Guff DREOF II Co-Inv	\$12,976,874	\$25,000,000	82%	\$20,537,862	\$0	\$3,010,820	\$13,584,170	\$4,462,138	0.66	1.29	9/30/2021
Total Closed End Real Estate		\$563,662,013	\$1,275,000,000	98%	\$1,251,798,512	\$59,550	\$72,447,794	\$1,100,128,979	\$182,720,326	0.88	1.33	
% of Portfolio (Market Value)		4.9%										

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

⁵Total distributions may include recallable distributions

⁶Remaining commitment includes recallable distributions

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2021

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2021 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./ Paid-In (DPI) ²	Tot. Value/ Paid-In (TVPI) ³	Latest Valuation
Private Equity & Venture Capital												
2/11/2004	Adams Street Partners	\$180,008,277	\$210,000,000	0%	\$191,780,625	\$0	\$18,672,275	\$236,776,107	\$18,219,375	1.23	2.17	9/30/2021
1/15/2009	Adams Street Partners II	\$4,785,935	\$30,000,000	0%	\$28,365,000	\$0	\$0	\$44,224,512	\$1,635,000	1.56	1.73	9/30/2021
9/21/2012	Adams Street Partners - Fund 5	\$15,971,153	\$40,000,000	0%	\$30,845,875	\$0	\$2,953,733	\$26,391,591	\$9,154,125	0.86	1.37	9/30/2021
1/18/1996	Adams Street Partners - BPF	\$1,652,197	\$59,565,614	0%	\$57,517,409	\$0	\$0	\$102,731,103	\$2,048,205	1.79	1.81	9/30/2021
3/31/2016	Adams Street Venture Innovation	\$196,752,258	\$75,000,000	0%	\$66,037,500	\$0	\$4,750,631	\$27,268,304	\$8,962,500	0.41	3.39	9/30/2021
5/18/2018	AE Industrial Partners Fund II, LP	\$36,546,228	\$35,000,000	9%	\$23,956,319	\$3,299,757	\$1,477,479	\$3,559,451	\$14,603,133	0.15	1.67	9/30/2021
11/27/2013	Aether Real Assets III	\$19,095,755	\$25,000,000	0%	\$25,022,835	\$0	\$0	\$5,064,961	\$2,207,024	0.20	0.97	9/30/2021
11/30/2013	Aether Real Assets III Surplus	\$41,805,523	\$50,000,000	0%	\$51,969,307	\$0	\$0	\$11,714,003	\$1,645,158	0.23	1.03	9/30/2021
1/30/2016	Aether Real Assets IV	\$54,773,094	\$50,000,000	4%	\$47,862,005	\$2,091,253	\$48,071	\$3,584,928	\$4,882,338	0.07	1.22	9/30/2021
4/30/2004	Bay Area Equity Fund I ⁴	\$1,376,215	\$10,000,000	0%	\$10,000,000	\$0	\$0	\$37,018,019	\$0	3.70	3.84	9/30/2021
6/29/2009	Bay Area Equity Fund II ⁴	\$17,134,334	\$10,000,000	0%	\$10,000,000	\$0	\$0	\$3,684,910	\$0	0.37	2.08	9/30/2021
6/30/2013	Commonfund	\$39,485,088	\$50,000,000	1%	\$46,524,993	\$624,999	\$985,667	\$16,339,150	\$3,475,007	0.35	1.20	9/30/2021
7/15/2005	EIF US Power Fund II ⁴	\$4,836,740	\$50,000,000	0%	\$65,029,556	\$0	\$0	\$74,001,371	\$0	1.14	1.21	9/30/2021
5/31/2007	EIF US Power Fund III ⁴	\$10,358,370	\$65,000,000	0%	\$71,409,097	\$0	\$3,080,211	\$85,938,521	\$0	1.20	1.35	9/30/2021
11/28/2011	EIF US Power Fund IV	\$27,276,860	\$50,000,000	0%	\$64,917,547	\$0	\$1,976,169	\$41,055,366	\$4	0.63	1.05	9/30/2021
11/28/2016	EIF US Power Fund V	\$26,025,268	\$50,000,000	21%	\$63,083,621	\$10,303,948	\$4,067,048	\$52,513,377	\$12,751,187	0.83	1.24	9/30/2021
2/21/2019	Genstar Capital Partners IX, L.P.	\$61,699,410	\$50,000,000	6%	\$48,183,753	\$3,244,225	\$492,972	\$6,258,126	\$4,767,092	0.13	1.41	9/30/2021
4/1/2021	Genstar Capital Partners X, L.P.	\$4,365,018	\$42,500,000	11%	\$4,732,864	\$4,732,864	\$0	\$0	\$37,767,136	-	-	9/30/2021
10/27/2020	GTCR Fund XIII, L.P.	\$5,618,591	\$50,000,000	4%	\$5,375,000	\$1,845,000	\$1,809,154	\$1,809,154	\$44,625,000	-	-	9/30/2021
5/10/2021	Hellman & Friedman Capital Partners X, L.P.	\$8,153,248	\$75,000,000	12%	\$9,135,072	\$9,135,072	\$0	\$0	\$65,864,928	-	-	9/30/2021
11/18/2009	Oaktree PIF 2009	\$477,280	\$40,000,000	0%	\$34,812,560	\$0	\$0	\$47,032,470	\$6,308,961	1.35	1.36	9/30/2021
5/2/2013	Ocean Avenue Fund II	\$31,357,343	\$30,000,000	0%	\$27,000,000	\$0	\$2,393,250	\$36,732,345	\$3,000,000	1.36	2.52	9/30/2021
4/15/2016	Ocean Avenue Fund III	\$47,737,032	\$50,000,000	0%	\$44,000,000	\$0	\$10,000,000	\$48,000,000	\$6,000,000	1.09	2.18	9/30/2021
11/30/2007	Paladin III	\$21,396,189	\$25,000,000	1%	\$34,736,206	\$143,445	\$346,427	\$67,416,571	\$419,157	1.94	2.56	9/30/2021
8/22/2011	Pathway 6	\$49,281,347	\$40,000,000	0%	\$39,171,460	\$63,000	\$3,538,325	\$42,776,351	\$3,753,651	1.09	2.35	9/30/2021
7/10/2013	Pathway 7	\$95,479,922	\$70,000,000	0%	\$68,767,111	\$141,750	\$7,732,960	\$66,608,575	\$5,497,420	0.97	2.36	9/30/2021
11/23/2015	Pathway 8	\$83,221,622	\$50,000,000	0%	\$46,129,178	\$106,091	\$3,178,806	\$23,309,896	\$5,658,020	0.51	2.31	9/30/2021
1/19/1999	Pathway	\$6,128,513	\$125,000,000	0%	\$125,847,854	\$145,650	\$1,720,364	\$186,031,281	\$10,557,887	1.48	1.53	9/30/2021
7/31/2009	Pathway 2008	\$22,268,405	\$30,000,000	1%	\$29,883,719	\$167,106	\$2,686,307	\$47,098,961	\$2,857,078	1.58	2.32	9/30/2021
6/3/2014	Siguler Guff CCCERA Opportunities	\$173,391,720	\$200,000,000	0%	\$174,083,208	\$0	\$17,935,372	\$165,271,691	\$29,597,500	0.95	1.95	9/30/2021
5/18/2018	Siris Partners IV, L.P.	\$27,970,104	\$35,000,000	0%	\$22,527,930	\$0	\$0	\$4,030,441	\$14,895,014	0.18	1.42	9/30/2021
5/27/2021	TA XIV-A, L.P.	\$13,500,000	\$50,000,000	27%	\$13,500,000	\$13,500,000	\$0	\$0	\$36,500,000	0.00	1.00	9/30/2021
6/28/2019	TPG Healthcare Partners, L.P.	\$15,695,211	\$24,000,000	4%	\$10,866,175	\$1,073,978	\$0	\$1,956,092	\$14,753,555	0.18	1.62	9/30/2021
9/17/2021	Trident IX, L.P.	\$0	\$50,000,000	0%	\$0	\$0	\$0	\$0	\$50,000,000	-	-	-
5/24/2019	Trident VIII, L.P.	\$44,448,618	\$40,000,000	17%	\$37,182,999	\$6,769,213	\$352,295	\$974,669	\$3,785,168	0.03	1.22	9/30/2021
12/8/2015	Wastewater Opportunity Fund	\$16,188,655	\$25,000,000	0%	\$29,242,585	\$115,308	\$295,338	\$12,893,182	\$1,204,775	0.44	0.99	9/30/2021
Total Private Equity and Venture Capital		\$1,406,261,523	\$1,961,065,614	85%	\$1,659,499,361	\$57,502,658	\$90,492,855	\$1,530,065,480	\$427,395,399	0.92	1.77	
% of Portfolio (Market Value)		12.2%										

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund

Closed End Funds - IRR Summary

Period Ending: December 31, 2021

Private Credit	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon Energy Cred Opp. ⁴	09/24/2015	-	-	-	7.4%	12/31/2021
Stepstone CC Opportunities Fund	02/02/2018	-	10.1%	-	9.3%	06/30/2021
Torchlight IV	08/01/2012	12.0%	12.5%	9.7%	10.4%	12/31/2021
Torchlight V	03/12/2015	15.4%	15.5%	10.8%	10.5%	06/30/2021

Real Estate	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon VIII ⁴	01/23/2012	-	-	-	13.4%	09/30/2021
Angelo Gordon IX	12/08/2014	-	-	-	9.2%	09/30/2021
DLJ RECP III	06/23/2005	-1.0%	-1.0%	-4.0%	-3.0%	09/30/2021
DLJ RECP IV	02/11/2008	4.0%	4.0%	1.0%	1.0%	09/30/2021
DLJ RECP V	07/01/2014	18.0%	18.0%	10.0%	10.0%	09/30/2021
DLJ RECP VI ¹	03/19/2019	13.0%	13.0%	6.0%	7.0%	09/30/2021
Hearthstone II ⁴	06/17/1998	-	30.3%	-	30.3%	03/31/2020
Invesco Fund III ⁴	06/30/2013	16.6%	-	13.6%	-	12/31/2020
Invesco Fund IV ⁴	06/30/2014	15.6%	-	12.0%	-	12/31/2021
Invesco Fund V	02/20/2019	27.9%	-	19.8%	-	12/31/2021
LaSalle Income & Growth VI ⁴	07/16/2013	12.8%	12.8%	10.6%	10.6%	12/31/2021
LaSalle Income & Growth VII	02/28/2017	14.5%	14.7%	12.1%	12.2%	12/31/2021
Long Wharf IV ⁴	07/03/2013	16.5%	15.9%	11.9%	11.9%	12/31/2021
Long Wharf V ⁴	09/30/2016	11.8%	12.4%	9.0%	9.4%	12/31/2021
Long Wharf VI	06/27/2019	52.3%	65.3%	30.9%	37.4%	12/31/2021
Oaktree REOF V ⁴	12/31/2011	16.7%	-	12.3%	-	12/31/2021
Oaktree REOF VI ⁴	09/30/2013	11.6%	-	7.9%	-	12/31/2021
Oaktree REOF VII	04/01/2015	27.1%	-	18.0%	-	12/31/2021
Paulson ⁴	11/10/2013	-	-	13.8%	-	12/31/2020
Siguler Guff I	01/25/2012	12.9%	15.7%	11.4%	12.6%	09/30/2021
Siguler Guff II	08/31/2013	10.8%	10.9%	9.5%	8.7%	09/30/2021
Siguler Guff DREOF II Co-Inv	01/27/2016	7.7%	8.0%	6.8%	6.5%	09/30/2021

¹ Manager has yet to report IRR figure.

² Fund level data includes CCCERA and all other fund investors.

³ Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴ Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - IRR Summary

Period Ending: December 31, 2021

Private Equity & Venture Capital	Closing Date	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Adams Street Partners	2/11/2004	-	15.2%	-	13.2%	9/30/2021
Adams Street Partners II	12/31/2008	-	17.8%	-	14.1%	9/30/2021
Adams Street Partners - Fund 5	12/31/2008	-	10.5%	-	7.4%	9/30/2021
Adams Street Partners Venture	1/18/1996	-	65.6%	-	62.3%	9/30/2021
Adams Street Partners - BPF	3/31/2016	-	14.2%	-	11.6%	9/30/2021
AE Industrial Partners Fund II, LP	5/18/2018	52.0%	-	49.9%	-	9/30/2021
Aether Real Assets III	11/27/2013	2.1%	2.1%	-0.8%	-0.8%	9/30/2021
Aether Real Assets III Surplus	11/30/2013	2.4%	2.4%	0.7%	0.7%	9/30/2021
Aether Real Assets IV	1/30/2016	10.8%	10.8%	7.2%	7.2%	9/30/2021
Bay Area Equity Fund I ⁹	11/26/2003	31.3%	31.3%	23.0%	23.0%	9/30/2021
Bay Area Equity Fund II ⁹	11/26/2003	14.0%	14.0%	9.2%	9.2%	9/30/2021
CommonFund	6/30/2013	-	-	-	5.6%	9/30/2021
Energy Investor Fund II ⁹	7/15/2005	6.1%	5.7%	3.4%	3.1%	9/30/2021
Energy Investor Fund III ⁹	5/31/2007	7.0%	7.0%	4.6%	4.6%	9/30/2021
Energy Investor Fund IV	8/31/2010	4.6%	4.7%	1.4%	1.2%	9/30/2021
Energy Investor Fund V	11/28/2016	17.6%	14.9%	13.8%	11.2%	9/30/2021
Genstar Capital Partners IX, L.P. ¹	2/21/2019	42.5%	-	-	-	6/30/2021
Oaktree PIF 2009	2/28/2010	6.8%	-	6.6%	-	9/30/2021
Ocean Avenue II	8/15/2013	-	-	19.3%	-	6/30/2021
Ocean Avenue III	4/15/2016	-	-	22.6%	-	12/31/2020
Paladin III	11/30/2007	21.7%	-	-	-	9/30/2021
Pathway 6	8/22/2011	20.5%	20.5%	18.3%	18.3%	9/30/2021
Benchmark ⁴		16.6%	-	-	-	9/30/2021
Pathway 7	7/10/2013	23.3%	23.3%	21.2%	21.2%	9/30/2021
Benchmark ⁵		18.1%	-	-	-	9/30/2021
Pathway 8	11/23/2015	28.9%	29.0%	27.5%	27.7%	9/30/2021
Benchmark ⁶		23.7%	-	-	-	9/30/2021
Pathway Private Equity Fund	1/19/1999	10.3%	10.3%	8.4%	8.4%	9/30/2021
Benchmark ⁷		10.6%	-	-	-	9/30/2021
Pathway Private Equity Fund 2008	7/31/2009	18.4%	18.4%	16.2%	16.2%	9/30/2021
Benchmark ⁸		14.5%	-	-	-	9/30/2021
Siguler Guff CCCERA Opportunities	6/3/2014	21.5%	22.2%	21.0%	19.5%	9/30/2021
Siguler Guff Secondary Opportunities ⁹	8/31/2013	55.3%	118.4%	49.5%	69.0%	9/30/2020
Siris Partners IV, L.P.	5/18/2018	25.7%	25.7%	20.2%	20.2%	6/30/2021
TPG Healthcare Partners, L.P.	6/28/2019	69.0%	138.0%	45.0%	84.0%	9/30/2021
Trident VIII, L.P. ¹	5/24/2019	-	-	-	-	-
Wastewater Opportunity Fund	12/8/2015	4.2%	-	0.3%	-	9/30/2021

¹ Manager has yet to report IRR figure.

² Fund level data includes CCCERA and all other fund investors.

³ Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴ Private iQ global all private equity median pooled return for vintage years 2011-2014, as of September 30, 2021.

⁵ Private iQ global all private equity median pooled return for vintage years 2012-2016, as of September 30, 2021.

⁶ Private iQ global all private equity median pooled return for vintage years 2015-2018, as of September 30, 2021.

⁷ Private iQ global all private equity median pooled return for vintage years 1999-2011, as of September 30, 2021.

⁸ Private iQ global all private equity median pooled return for vintage years 2008-2014, as of September 30, 2021.

⁹ Capital has been fully called and fund is in redemption.

Total Fund
Performance Analysis - 3 Years (Net of Fees)

Period Ending: December 31, 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 1000 Index	26.19%	-0.02%	17.96%	-0.01%	1.00	0.01%	1.00	1.41	-1.39	99.92%	100.00%	
Jackson Square Partners	25.75%	-8.33%	19.14%	-6.91%	0.96	7.42%	0.85	1.30	-1.12	71.29%	91.78%	
Boston Partners	18.52%	0.88%	20.47%	-0.01%	1.05	2.84%	0.98	0.86	0.31	104.87%	101.19%	
Emerald Advisers	23.31%	2.15%	22.77%	3.38%	0.94	5.89%	0.94	0.99	0.36	102.51%	96.09%	
Ceredex	15.19%	-2.80%	23.40%	-0.79%	0.89	6.96%	0.93	0.61	-0.40	79.14%	91.75%	
Pyrford	10.76%	2.52%	14.82%	4.95%	0.71	7.61%	0.89	0.67	0.33	79.43%	76.04%	
William Blair	24.36%	6.54%	16.58%	5.48%	1.06	3.89%	0.95	1.42	1.68	125.73%	95.85%	
PIMCO RAE Emerging Markets	10.48%	3.39%	22.05%	2.57%	1.12	5.14%	0.96	0.44	0.66	121.13%	102.23%	
TT Emerging Markets	13.83%	2.89%	22.93%	0.66%	1.20	6.26%	0.95	0.57	0.46	136.17%	113.77%	
Artisan Partners	29.71%	2.13%	15.63%	5.08%	0.89	4.79%	0.92	1.85	0.45	96.50%	83.45%	
First Eagle	13.18%	0.32%	13.99%	3.89%	0.72	6.27%	0.94	0.88	0.05	75.27%	75.61%	
JP Morgan Global Opportunities	1.20%	-19.18%	6.91%	-1.34%	0.12	16.33%	0.10	0.05	-1.17	7.40%	22.50%	
Allianz Global Investors	8.02%	-0.55%	8.17%	0.60%	0.87	1.97%	0.97	0.88	-0.28	89.51%	88.66%	
Adelante	21.28%	2.09%	18.10%	3.17%	0.94	1.65%	1.00	1.13	1.26	102.39%	93.20%	
AFL-CIO	4.24%	-0.55%	2.99%	0.21%	0.84	1.02%	0.92	1.13	-0.54	82.82%	76.47%	
DFA Short Credit	2.46%	-0.46%	1.79%	-0.03%	0.85	1.32%	0.47	0.90	-0.35	78.06%	55.47%	
Insight Short Duration	2.58%	0.30%	2.02%	0.47%	0.93	1.79%	0.21	0.86	0.17	99.50%	6.54%	
Sit Short Duration	2.85%	0.82%	1.82%	0.25%	1.28	1.05%	0.70	1.10	0.78	154.79%	208.28%	

Performance Analysis excludes closed end funds and those funds without 3 years of performance.

Total Fund
Performance Analysis - 5 Years (Net of Fees)

Period Ending: December 31, 2021

	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
Jackson Square Partners	20.10%	-5.22%	16.89%	-3.89%	0.95	6.30%	0.86	1.13	-0.83	71.76%	93.87%
Boston Partners	12.65%	1.49%	17.58%	0.89%	1.05	2.71%	0.98	0.66	0.55	110.05%	100.38%
Emerald Advisers	16.48%	1.94%	20.39%	2.61%	0.95	5.37%	0.93	0.76	0.36	100.81%	95.09%
Ceredex	8.34%	-0.73%	20.19%	0.27%	0.89	6.23%	0.92	0.36	-0.12	80.31%	93.13%
Pyrford	7.73%	1.72%	12.74%	3.46%	0.71	6.57%	0.88	0.52	0.26	73.06%	78.05%
William Blair	15.76%	2.70%	15.17%	1.76%	1.07	3.64%	0.95	0.97	0.74	116.31%	99.21%
Total Global Equity	15.14%	0.74%	12.78%	3.11%	0.84	3.95%	0.94	1.10	0.19	86.62%	84.83%
Artisan Partners	21.34%	1.42%	14.63%	2.77%	0.93	4.21%	0.92	1.38	0.34	97.13%	89.94%
First Eagle	8.71%	0.02%	11.73%	2.49%	0.72	5.45%	0.93	0.65	0.00	67.50%	75.97%
JP Morgan Global Opportunities	4.19%	-10.21%	6.72%	2.57%	0.11	14.69%	0.06	0.46	-0.69	11.32%	14.59%
Allianz Global Investors	5.22%	-0.87%	6.68%	-0.12%	0.88	1.55%	0.97	0.62	-0.56	87.21%	95.08%
Adelante	12.56%	1.65%	15.86%	2.28%	0.94	1.70%	0.99	0.72	0.97	97.95%	91.94%
AFL-CIO	3.20%	-0.37%	2.71%	0.16%	0.85	0.89%	0.92	0.78	-0.42	83.16%	79.78%
DFA Short Credit	2.05%	-0.24%	1.57%	0.01%	0.89	1.03%	0.58	0.62	-0.23	85.70%	77.85%
Insight Short Duration	2.17%	0.32%	1.60%	0.60%	0.85	1.40%	0.24	0.68	0.23	97.46%	5.49%
Sit Short Duration	2.39%	0.77%	1.69%	0.17%	1.37	0.95%	0.74	0.78	0.81	163.11%	192.58%

Performance Analysis excludes closed end funds and those funds without 5 years of performance.

Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2021

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
BlackRock Russell 1000 Index	Growth	0.03% of Assets	\$645,716,030	\$193,715	0.03%
Jackson Square Partners	Growth	0.40% of First 400.0 Mil, 0.35% Thereafter	\$337,864,271	\$1,351,457	0.40%
Boston Partners	Growth	0.50% of First 25.0 Mil, 0.30% Thereafter	\$414,844,737	\$1,294,534	0.31%
Emerald Advisers	Growth	0.75% of First 10.0 Mil, 0.60% Thereafter	\$256,431,564	\$1,553,589	0.61%
Ceredex	Growth	0.85% of First 10.0 Mil, 0.68% of Next 40.0 Mil, 0.51% Thereafter	\$210,850,221	\$1,177,336	0.56%
Pyrford	Growth	0.70% of First 50.0 Mil, 0.50% of Next 50.0 Mil, 0.35% Thereafter	\$496,421,455	\$1,987,475	0.40%
William Blair	Growth	0.80% of First 20.0 Mil, 0.60% of Next 30.0 Mil, 0.50% of Next 50.0 Mil, 0.45% of Next 50.0 Mil, 0.40% of Next 50.0 Mil, 0.30% Thereafter	\$563,217,318	\$2,104,652	0.37%
PIMCO RAE Emerging Markets	Growth	0.75% of First 50.0 Mil, 0.68% of Next 50.0 Mil, 0.50% of Next 100.0 Mil, 0.45% Thereafter	\$387,447,248	\$2,056,013	0.53%
TT Emerging Markets	Growth	0.70% of First 100.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$429,376,749	\$2,726,260	0.63%
Artisan Partners	Growth	0.75% of Assets	\$631,779,059	\$4,738,343	0.75%
First Eagle	Growth	0.75% of Assets	\$522,356,650	\$3,917,675	0.75%
Allianz Global Investors	Growth	0.50% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	\$183,970,749	\$743,898	0.40%
AQR Global Risk Premium-EL	Growth	0.38% of Assets	\$225,958,106	\$858,641	0.38%
PanAgora Risk Parity Multi Asset	Growth	0.35% of Assets	\$274,552,262	\$960,933	0.35%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund
Investment Fund Fee Analysis

Period Ending: December 31, 2021

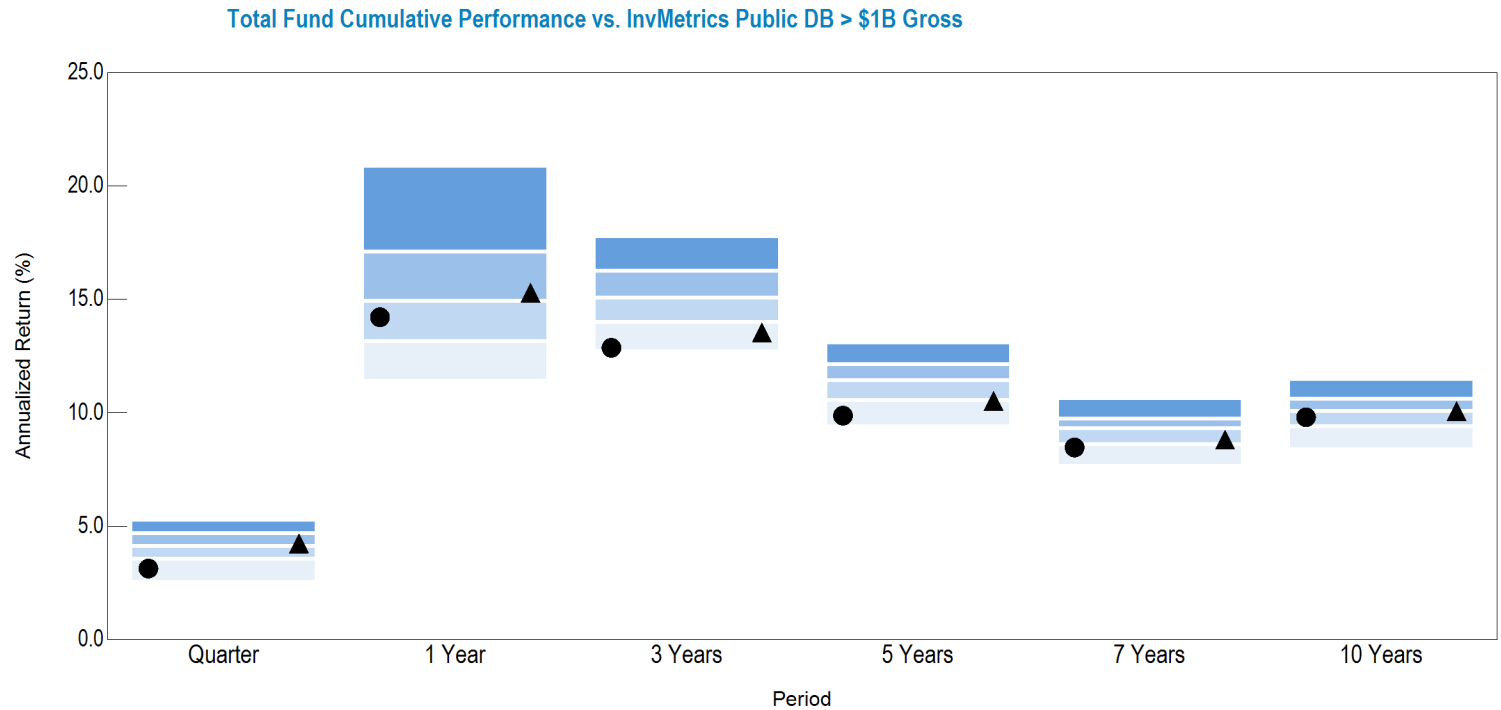
Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
AFL-CIO	Diversifying	0.32% of Assets	\$260,690,658	\$834,210	0.32%
Parametric Defensive Equity	Diversifying	0.42% of First 200.0 Mil, 0.39% Thereafter	\$116,343,595	\$488,643	0.42%
Acadian Multi-Asset Absolute Return Fund	Diversifying	0.50% of Assets	\$254,392,161	\$1,271,961	0.50%
Sit LLCAR	Diversifying	0.39% of First 200.0 Mil, 0.35% Thereafter	\$240,630,665	\$922,207	0.38%
DFA Short Credit	Liquidity	0.20% of First 25.0 Mil, 0.10% Thereafter	\$304,205,620	\$329,206	0.11%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: December 31, 2021



	Return (Rank)					
	Quarter	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	5.3	20.9	17.8	13.1	10.6	11.5
25th Percentile	4.7	17.1	16.3	12.1	9.8	10.6
Median	4.1	14.9	15.1	11.4	9.3	10.1
75th Percentile	3.6	13.2	14.0	10.6	8.6	9.4
95th Percentile	2.6	11.4	12.7	9.4	7.7	8.4
# of Portfolios	85	84	84	84	83	80
● Total Fund	3.1 (84)	14.2 (62)	12.9 (94)	9.9 (93)	8.5 (79)	9.8 (63)
▲ Policy Index	4.2 (49)	15.3 (47)	13.5 (90)	10.5 (77)	8.8 (65)	10.1 (53)

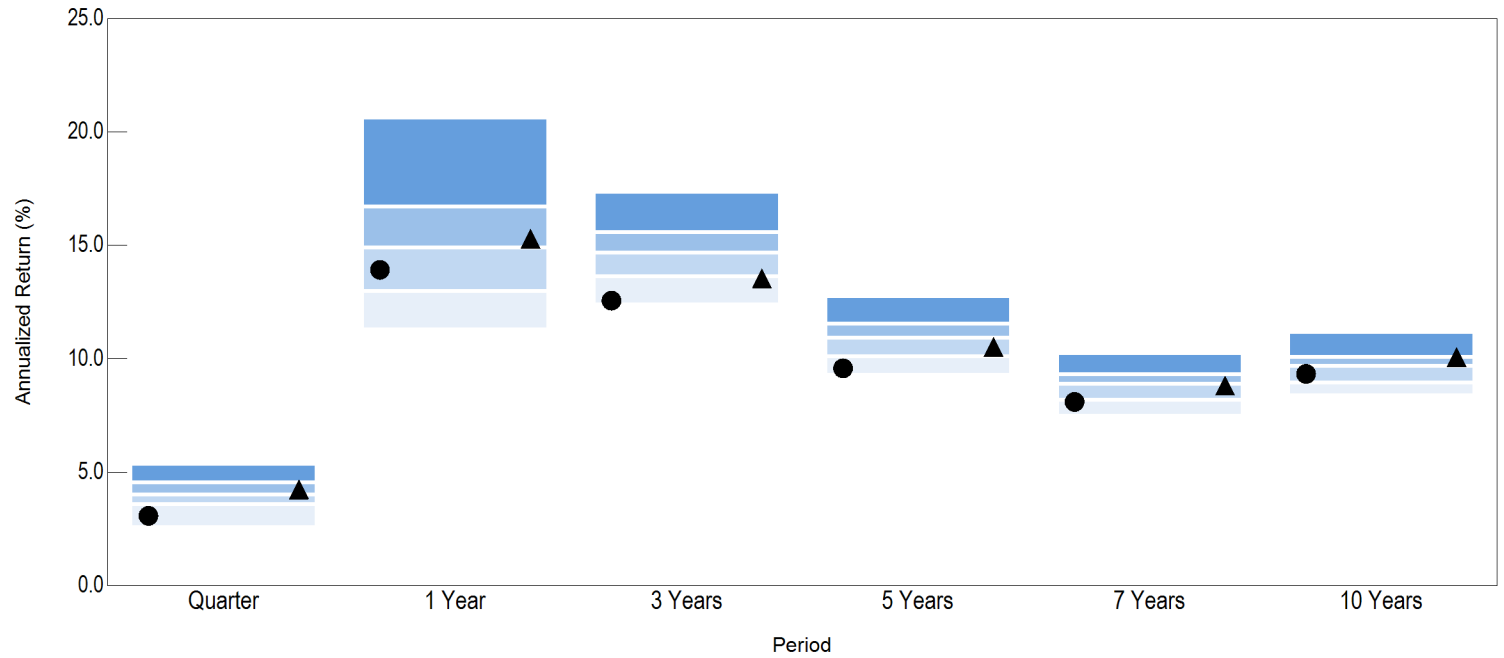
Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: December 31, 2021

Total Fund Cumulative Performance vs. InvMetrics Public DB > \$1B Net

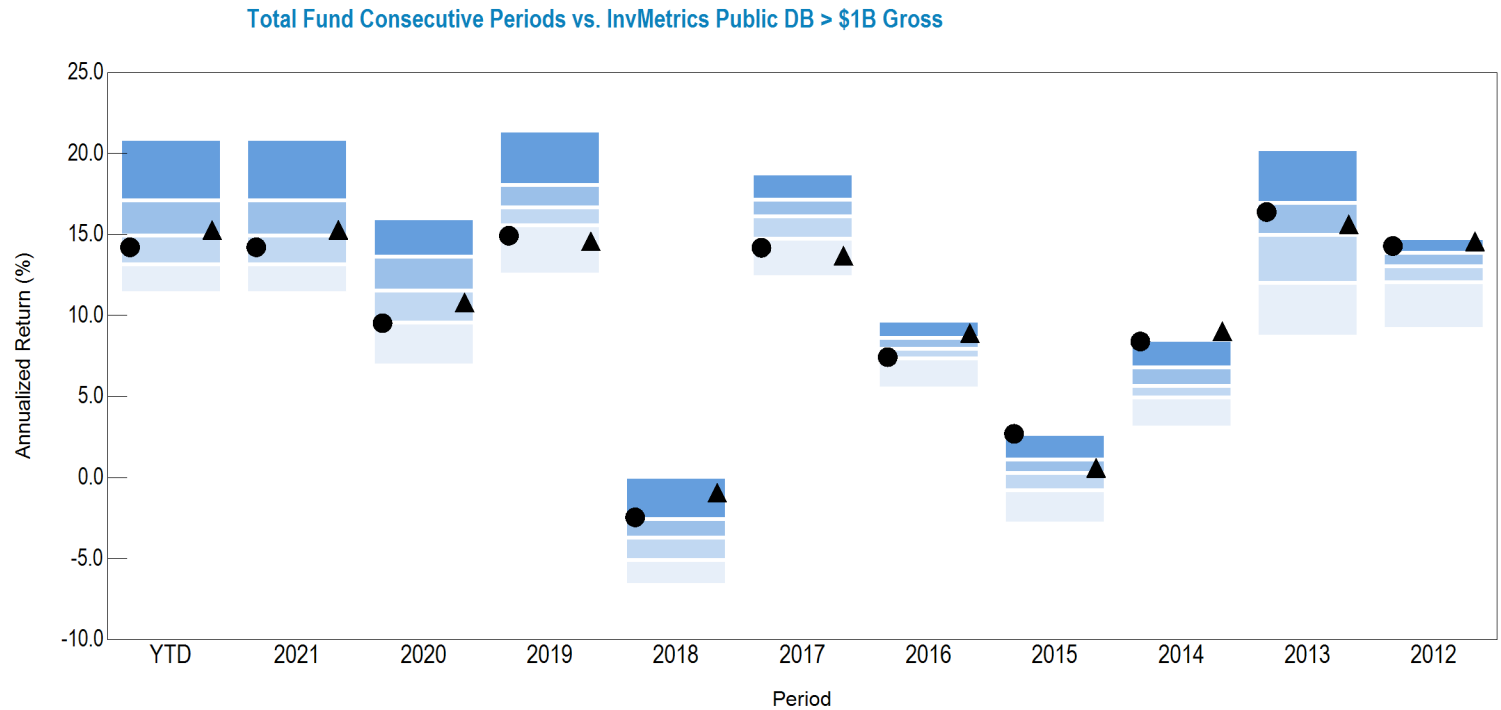


	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	5.4		20.6		17.3		12.8		10.2		11.2	
25th Percentile	4.6		16.7		15.6		11.6		9.3		10.1	
Median	4.0		14.9		14.7		10.9		8.9		9.7	
75th Percentile	3.6		13.0		13.6		10.1		8.2		9.0	
95th Percentile	2.6		11.3		12.4		9.3		7.5		8.4	
# of Portfolios	75		74		74		74		72		68	
● Total Fund	3.1	(85)	13.9	(61)	12.6	(93)	9.6	(92)	8.1	(81)	9.3	(61)
▲ Policy Index	4.2	(40)	15.3	(45)	13.5	(80)	10.5	(64)	8.8	(54)	10.1	(27)

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: December 31, 2021



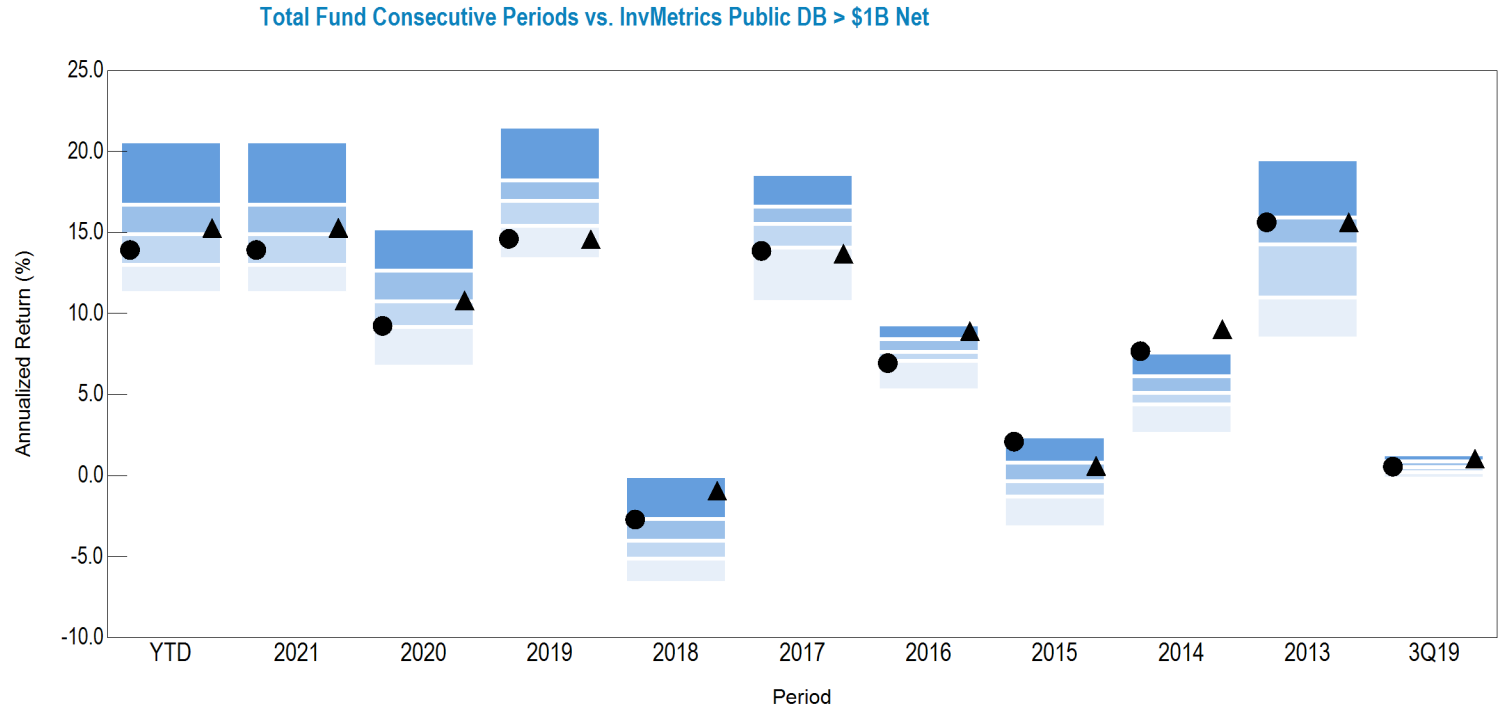
	YTD	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Return (Rank)											
5th Percentile	20.9	20.9	16.0	21.4	0.0	18.8	9.7	2.7	8.5	20.2	14.7
25th Percentile	17.1	17.1	13.6	18.1	-2.6	17.2	8.6	1.1	6.8	17.0	13.9
Median	14.9	14.9	11.5	16.7	-3.7	16.2	8.0	0.3	5.7	15.0	13.0
75th Percentile	13.2	13.2	9.6	15.6	-5.1	14.8	7.4	-0.7	4.9	12.0	12.1
95th Percentile	11.4	11.4	6.9	12.5	-6.6	12.4	5.5	-2.8	3.1	8.7	9.2
# of Portfolios	84	84	94	81	71	98	92	98	79	67	74
● Total Fund	14.2 (62)	14.2 (62)	9.5 (78)	14.9 (83)	-2.5 (25)	14.2 (83)	7.4 (74)	2.7 (5)	8.4 (6)	16.4 (33)	14.3 (13)
▲ Policy Index	15.3 (47)	15.3 (47)	10.8 (60)	14.6 (87)	-0.9 (8)	13.7 (89)	8.9 (15)	0.6 (40)	9.0 (2)	15.6 (43)	14.6 (8)

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.

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: December 31, 2021

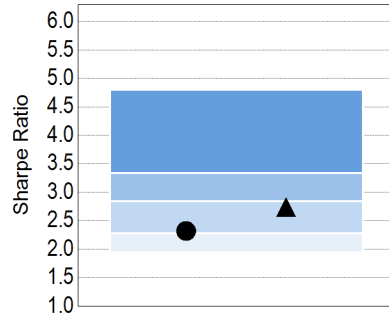


	YTD	2021	2020	2019	2018	2017	2016	2015	2014	2013	3Q19
5th Percentile	20.6	20.6	15.2	21.5	-0.1	18.6	9.3	2.4	7.6	19.5	1.3
25th Percentile	16.7	16.7	12.7	18.2	-2.7	16.6	8.4	0.8	6.1	16.0	0.9
Median	14.9	14.9	10.8	17.0	-4.0	15.6	7.7	-0.4	5.1	14.3	0.5
75th Percentile	13.0	13.0	9.2	15.4	-5.1	14.1	7.1	-1.3	4.4	11.0	0.2
95th Percentile	11.3	11.3	6.8	13.4	-6.6	10.7	5.3	-3.2	2.6	8.5	-0.2
# of Portfolios	74	74	80	69	63	61	62	57	55	48	71
● Total Fund	13.9 (61)	13.9 (61)	9.2 (73)	14.6 (92)	-2.7 (27)	13.9 (81)	6.9 (78)	2.1 (12)	7.7 (5)	15.6 (33)	0.5 (48)
▲ Policy Index	15.3 (45)	15.3 (45)	10.8 (49)	14.6 (92)	-0.9 (8)	13.7 (85)	8.9 (13)	0.6 (29)	9.0 (2)	15.6 (33)	1.0 (15)

Total Fund
Sharpe Ratio Ranking (Gross of Fees)

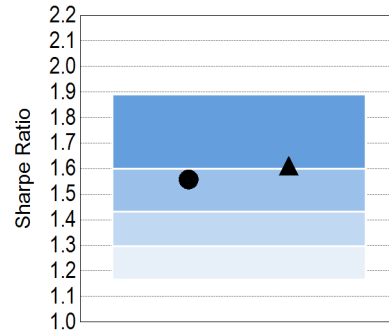
Period Ending: December 31, 2021

Sharpe Ratio
1 Year



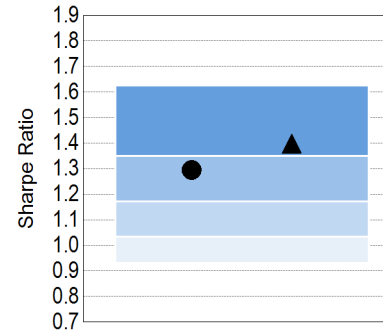
● Total Fund Value	2.3
Rank	75
▲ Policy Index Value	2.7
Rank	56
Universe	
5th %tile	4.8
25th %tile	3.3
Median	2.9
75th %tile	2.3
95th %tile	2.0

Sharpe Ratio
3 Year



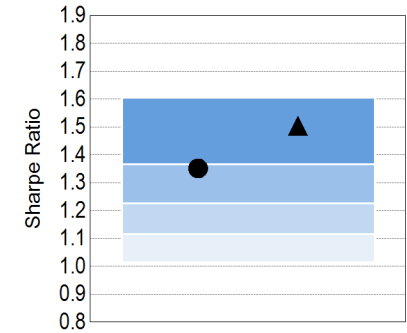
● Total Fund Value	1.6
Rank	35
▲ Policy Index Value	1.6
Rank	25
Universe	
5th %tile	1.9
25th %tile	1.6
Median	1.4
75th %tile	1.3
95th %tile	1.2

Sharpe Ratio
5 Year



● Total Fund Value	1.3
Rank	36
▲ Policy Index Value	1.4
Rank	22
Universe	
5th %tile	1.6
25th %tile	1.4
Median	1.2
75th %tile	1.0
95th %tile	0.9

Sharpe Ratio
10 Year



● Total Fund Value	1.4
Rank	29
▲ Policy Index Value	1.5
Rank	9
Universe	
5th %tile	1.6
25th %tile	1.4
Median	1.2
75th %tile	1.1
95th %tile	1.0

Domestic Equity Managers

Jackson Square Partners Manager Portfolio Overview

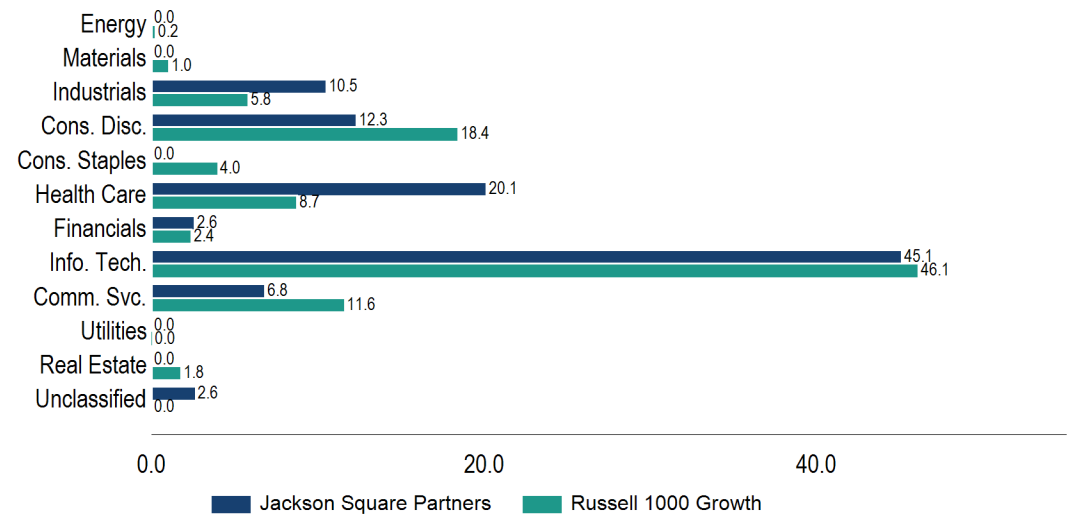
Period Ending: December 31, 2021

Domestic equity large cap growth portfolio concentrated in companies with sustainable long-term growth characteristics. Primary personnel include Jeffrey Van Harte, Christopher Ericksen, Billy Montana, and Daniel Prislun. Daniel Prislun will be retiring at the end of 2021.

Characteristics

	Portfolio	Russell 1000 Growth
Number of Holdings	26	503
Weighted Avg. Market Cap. (\$B)	533.63	992.27
Median Market Cap. (\$B)	80.88	20.33
Price To Earnings	38.70	36.05
Price To Book	10.40	13.39
Price To Sales	9.39	6.57
Return on Equity (%)	19.30	42.34
Yield (%)	0.27	0.69
Beta	0.96	1.00

Sector Allocation (%) vs Russell 1000 Growth



Largest Holdings

	End Weight	Return
MICROSOFT CORP	9.67	19.51
AMAZON.COM INC	8.55	1.50
MASTERCARD INC	5.65	3.48
VISA INC	5.19	-2.54
UBER TECHNOLOGIES INC	5.03	-6.41
EDWARDS LIFESCIENCES CORP	4.58	14.43
SERVICENOW INC	4.47	4.31
CHARTER COMMUNICATIONS INC	4.06	-10.39
CATALENT INC	3.92	-3.79
NIKE INC	3.76	14.97

Top Contributors

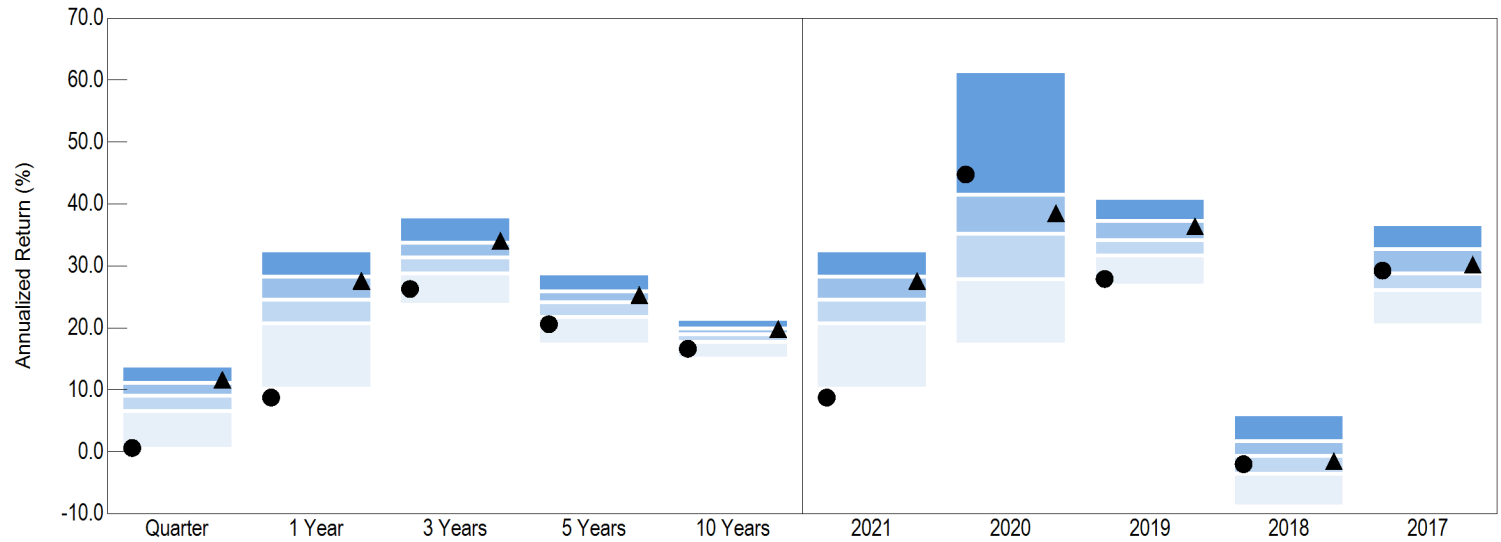
	Avg Wgt	Return	Contribution
MICROSOFT CORP	3.21	19.51	0.63
DATADOG INC	1.35	26.01	0.35
KKR & CO INC	1.07	22.60	0.24
EDWARDS LIFESCIENCES CORP	1.38	14.43	0.20
NIKE INC	1.12	14.97	0.17
WASTE MANAGEMENT INC.	0.88	12.14	0.11
INTUITIVE SURGICAL INC	1.06	8.43	0.09
SERVICENOW INC	1.52	4.31	0.07
MASTERCARD INC	1.60	3.48	0.06
AMAZON.COM INC	1.90	1.50	0.03

Bottom Contributors

	Avg Wgt	Return	Contribution
PAYPAL HOLDINGS INC	1.54	-27.53	-0.42
TWILIO INC	1.46	-17.46	-0.26
COUPA SOFTWARE INC	0.79	-27.89	-0.22
PAYCOM SOFTWARE INC	1.15	-16.25	-0.19
ZOOM VIDEO COMMUNICATIONS INC	0.59	-29.67	-0.18
CHARTER COMMUNICATIONS INC	1.56	-10.39	-0.16
WIX.COM LTD	0.67	-19.48	-0.13
UBER TECHNOLOGIES INC	1.85	-6.41	-0.12
VEEVA SYSTEMS INC	0.93	-11.34	-0.11
VISA INC	1.84	-2.54	-0.05

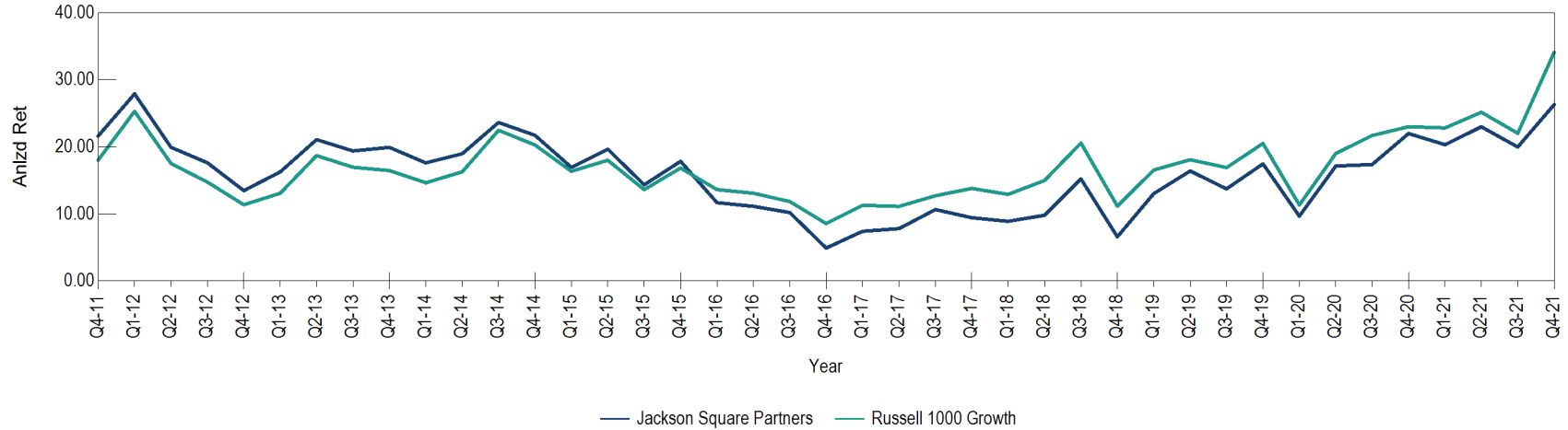
Unclassified sector allocation includes cash allocations.

Jackson Square Partners vs. eV US Large Cap Growth Equity Gross Universe

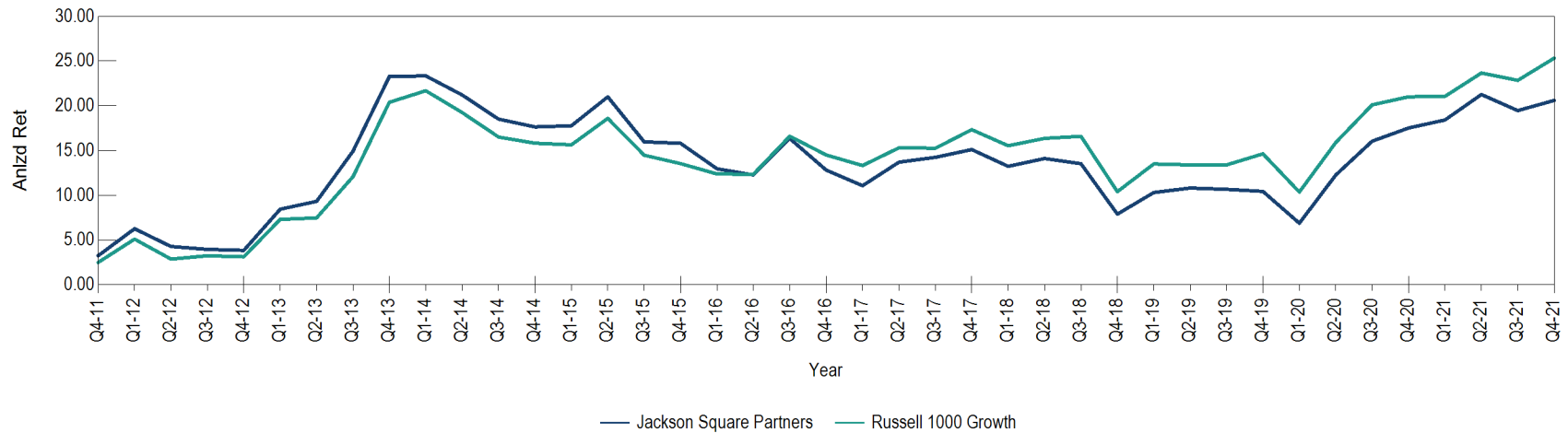


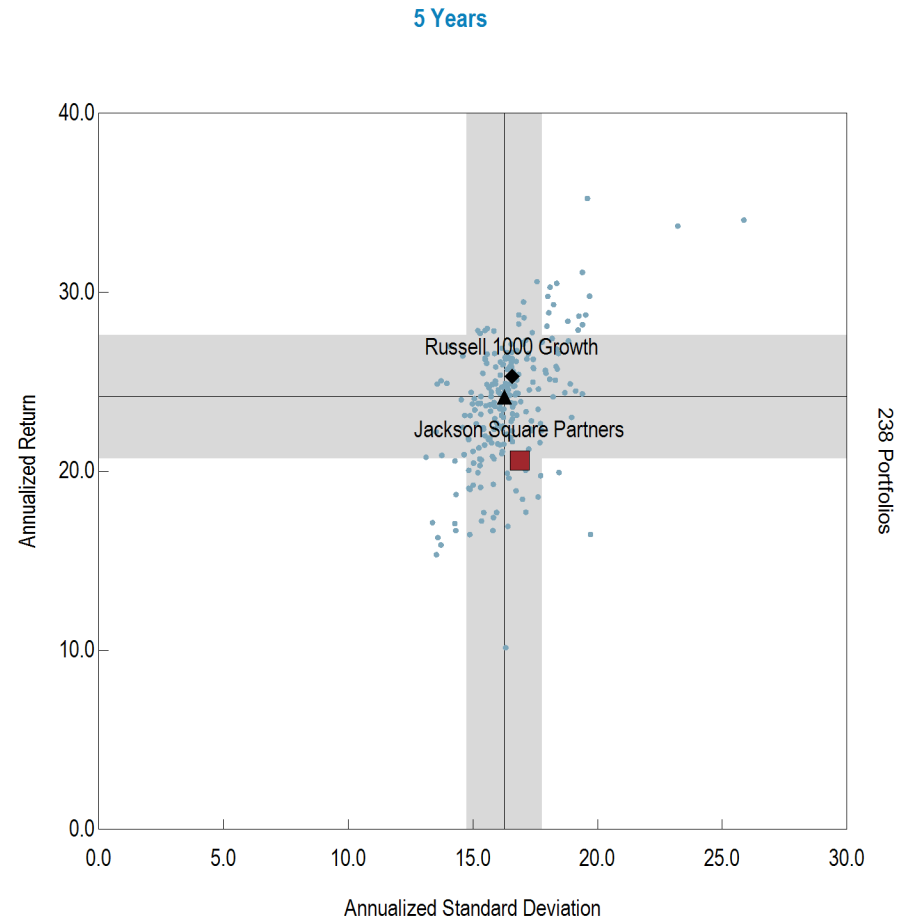
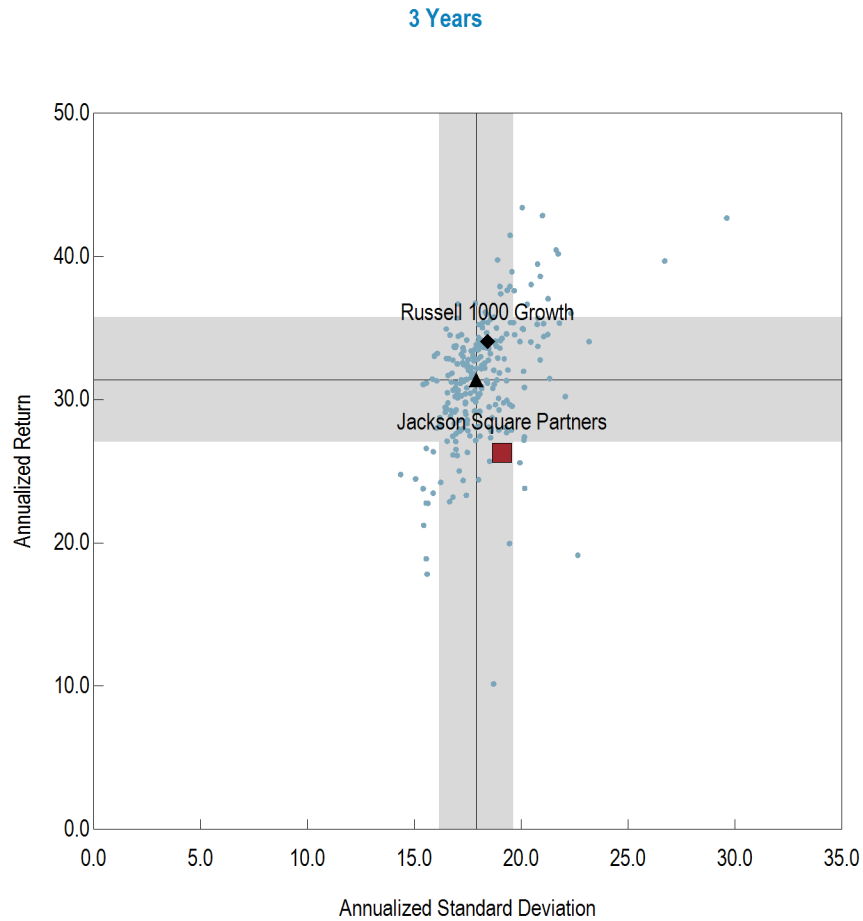
	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	13.8	32.5	37.9	28.8	21.4	32.5	61.4	41.0	6.1	36.7
25th Percentile	11.2	28.3	33.8	26.0	19.9	28.3	41.6	37.3	1.7	32.7
Median	9.2	24.6	31.4	24.2	19.0	24.6	35.2	34.2	-0.6	28.8
75th Percentile	6.6	20.8	28.9	21.8	17.8	20.8	27.9	31.7	-3.5	26.2
95th Percentile	0.6	10.2	23.8	17.4	15.1	10.2	17.4	26.9	-8.8	20.5
# of Portfolios	258	258	254	238	209	258	263	253	255	265
● Jackson Square Partners	0.6 (95)	8.8 (97)	26.3 (91)	20.6 (86)	16.6 (90)	8.8 (97)	44.8 (20)	27.9 (93)	-2.0 (59)	29.3 (47)
▲ Russell 1000 Growth	11.6 (21)	27.6 (29)	34.1 (22)	25.3 (32)	19.8 (30)	27.6 (29)	38.5 (34)	36.4 (32)	-1.5 (57)	30.2 (42)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	26.3%	19.1%	1.3
Russell 1000 Growth	34.1%	18.4%	1.8
eV US Large Cap Growth Equity Gross Median	31.4%	17.9%	1.7

	5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	20.6%	16.9%	1.2
Russell 1000 Growth	25.3%	16.6%	1.5
eV US Large Cap Growth Equity Gross Median	24.2%	16.3%	1.4

Boston Partners Manager Portfolio Overview

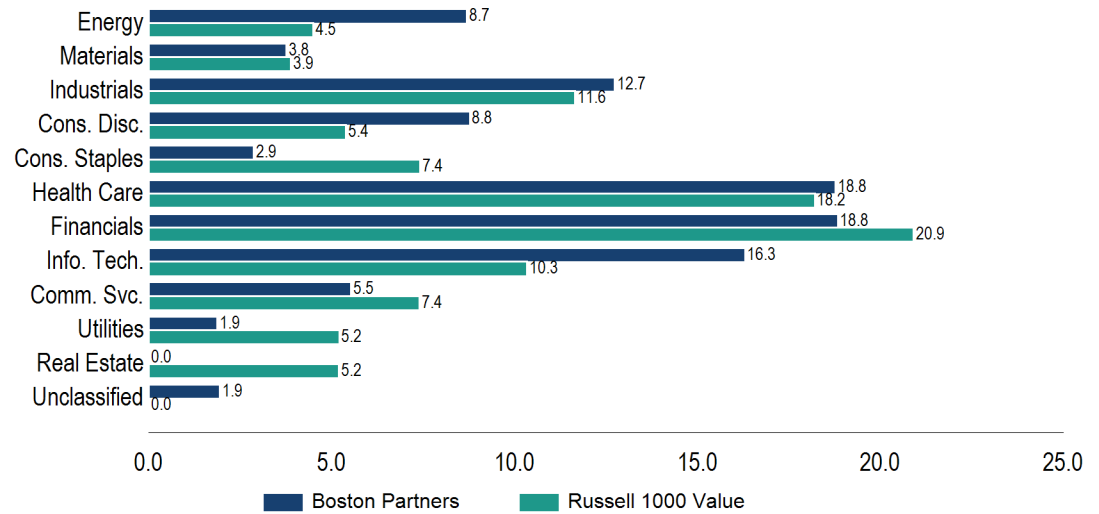
Period Ending: December 31, 2021

Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	90	852
Weighted Avg. Market Cap. (\$B)	184.70	167.34
Median Market Cap. (\$B)	49.46	14.97
Price To Earnings	18.27	19.03
Price To Book	2.62	2.79
Price To Sales	1.95	2.47
Return on Equity (%)	19.52	16.02
Yield (%)	1.55	1.93
Beta	1.10	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
JOHNSON & JOHNSON	3.24	6.63
JPMORGAN CHASE & CO	2.87	-2.69
BERKSHIRE HATHAWAY INC	2.86	9.55
AUTOZONE INC	2.48	23.46
CISCO SYSTEMS INC	2.45	17.22
CONOCOPHILLIPS	2.38	7.46
ALPHABET INC	2.27	8.36
UNITEDHEALTH GROUP INC	2.13	28.92
WELLS FARGO & CO	1.99	3.79
CIGNA CORP	1.95	15.28

Top Contributors

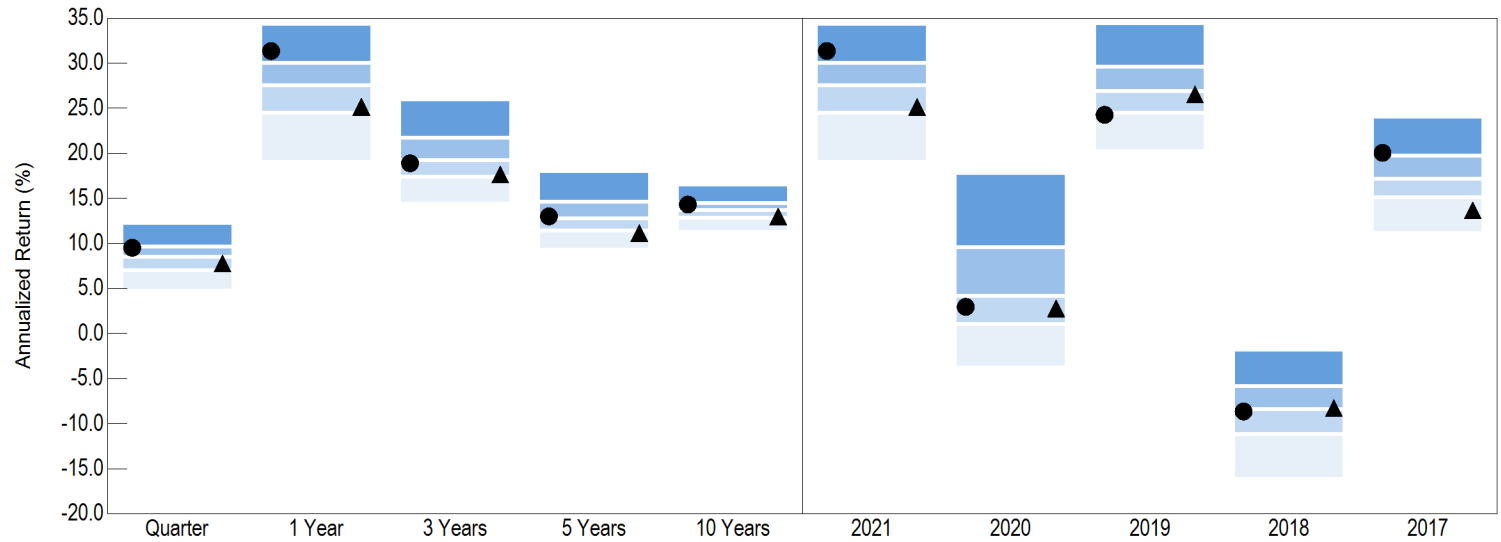
	Avg Wgt	Return	Contribution
QUALCOMM INC.	0.47	42.33	0.20
UNITEDHEALTH GROUP INC	0.61	28.92	0.18
AUTOZONE INC	0.74	23.46	0.17
PFIZER INC	0.43	38.51	0.16
MICRON TECHNOLOGY INC.	0.51	31.37	0.16
CISCO SYSTEMS INC	0.85	17.22	0.15
CENTENE CORP	0.34	32.24	0.11
APPLIED MATERIALS INC	0.49	22.44	0.11
DUPONT DE NEMOURS INC	0.52	19.27	0.10
CIGNA CORP	0.63	15.28	0.10

Bottom Contributors

	Avg Wgt	Return	Contribution
CITIGROUP INC	0.53	-13.32	-0.07
CAPITAL ONE FINANCIAL CORP.	0.47	-10.08	-0.05
FIDELITY NATIONAL INFORMATION SERVICES INC	0.43	-9.96	-0.04
GLOBAL PAYMENTS INC	0.26	-14.05	-0.04
FLEETCOR TECHNOLOGIES INC	0.23	-14.33	-0.03
JPMORGAN CHASE & CO	1.10	-2.69	-0.03
CHARTER COMMUNICATIONS INC	0.27	-10.39	-0.03
ACTIVISION BLIZZARD INC	0.20	-14.03	-0.03

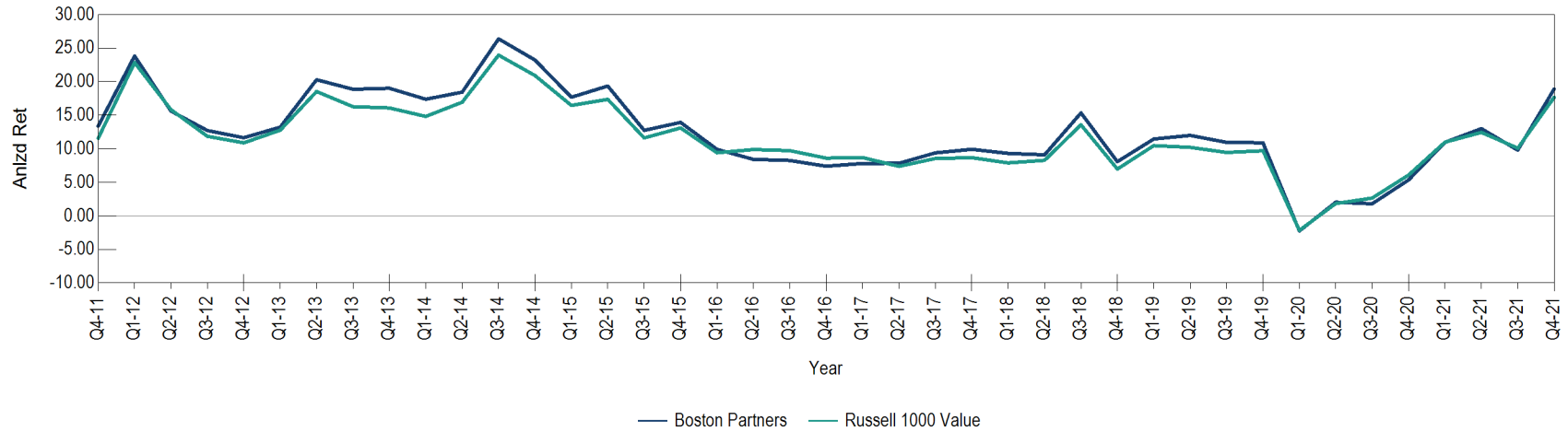
Unclassified sector allocation includes cash allocations.

Boston Partners vs. eV US Large Cap Value Equity Gross Universe

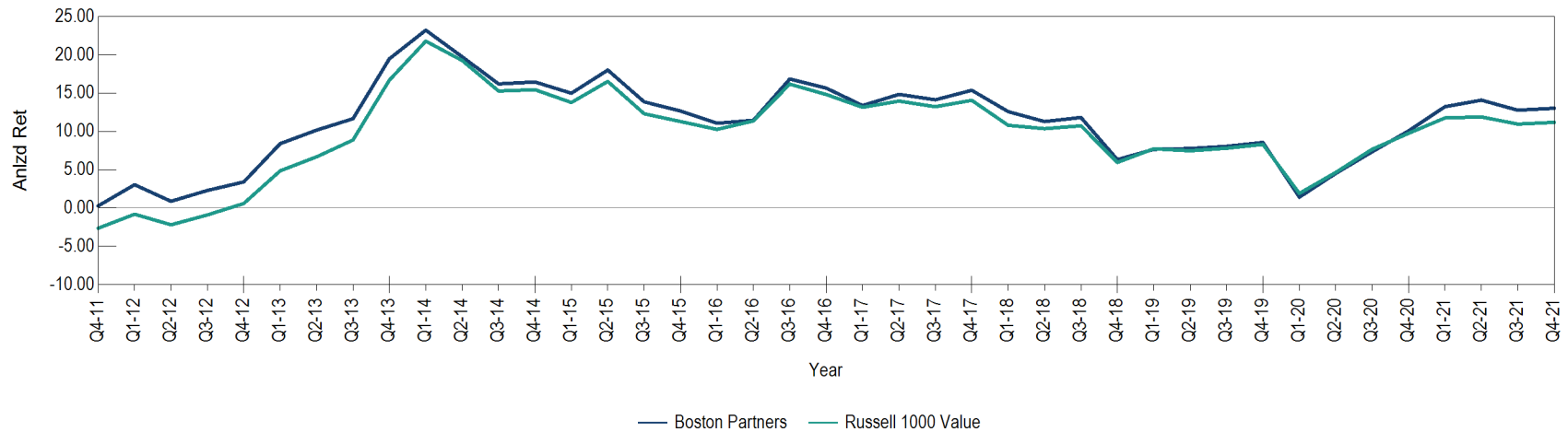


	Return (Rank)									
5th Percentile	12.3	34.4	25.9	18.0	16.5	34.4	17.8	34.4	-1.8	24.0
25th Percentile	9.7	30.0	21.7	14.7	14.5	30.0	9.6	29.6	-5.8	19.8
Median	8.5	27.6	19.2	12.8	13.8	27.6	4.2	26.9	-8.3	17.2
75th Percentile	7.0	24.5	17.4	11.5	12.9	24.5	1.1	24.5	-11.1	15.1
95th Percentile	4.8	19.1	14.5	9.3	11.3	19.1	-3.8	20.3	-16.1	11.2
# of Portfolios	337	337	327	315	275	337	326	331	336	342
● Boston Partners	9.5 (28)	31.3 (17)	18.9 (55)	13.0 (49)	14.3 (31)	31.3 (17)	3.0 (61)	24.3 (77)	-8.7 (55)	20.1 (23)
▲ Russell 1000 Value	7.8 (64)	25.2 (72)	17.6 (73)	11.2 (80)	13.0 (73)	25.2 (72)	2.8 (62)	26.5 (54)	-8.3 (50)	13.7 (87)

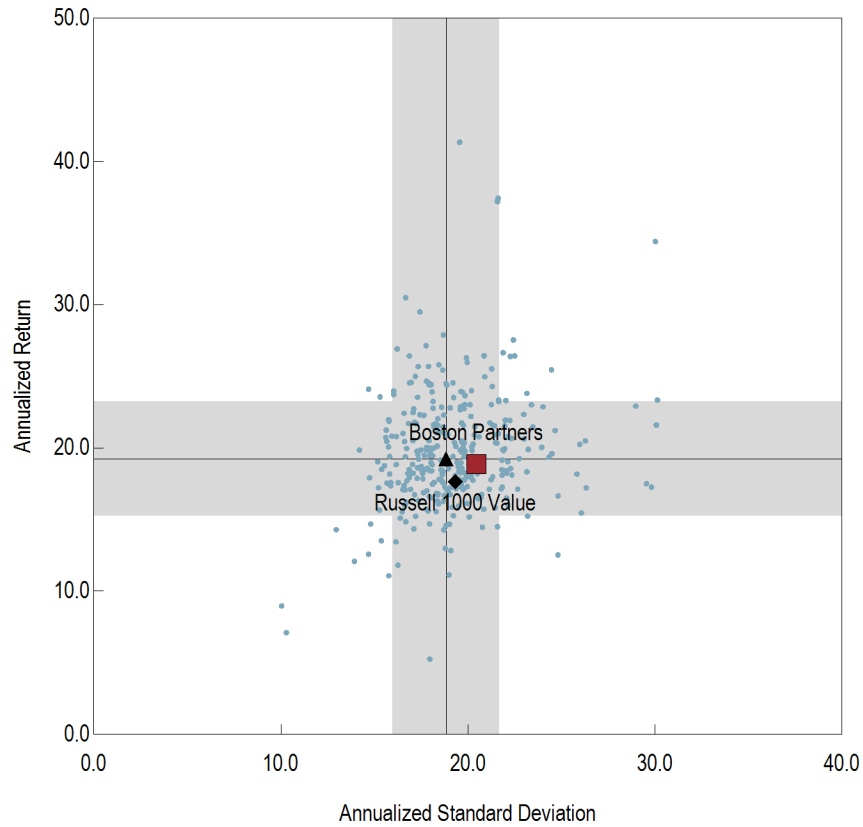
Rolling 3 Year Annualized Return (%)



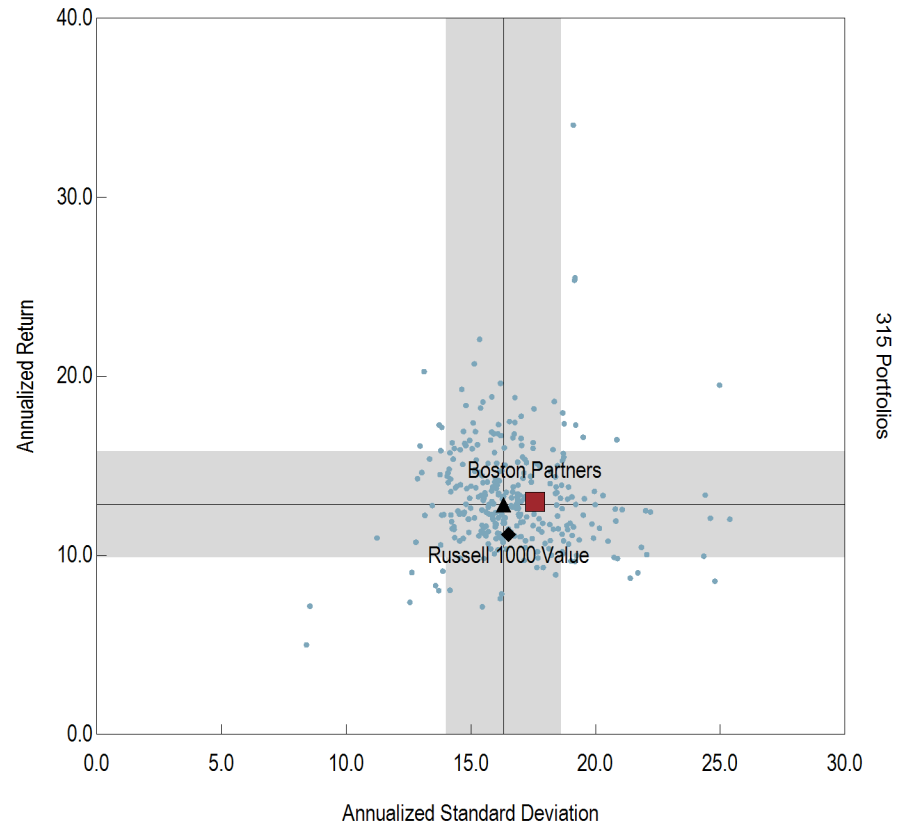
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Boston Partners	18.9%	20.5%	0.9
Russell 1000 Value	17.6%	19.3%	0.9
eV US Large Cap Value Equity Gross Median	19.2%	18.8%	1.0

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Boston Partners	13.0%	17.6%	0.7
Russell 1000 Value	11.2%	16.5%	0.6
eV US Large Cap Value Equity Gross Median	12.8%	16.3%	0.7

Emerald Advisers Manager Portfolio Overview

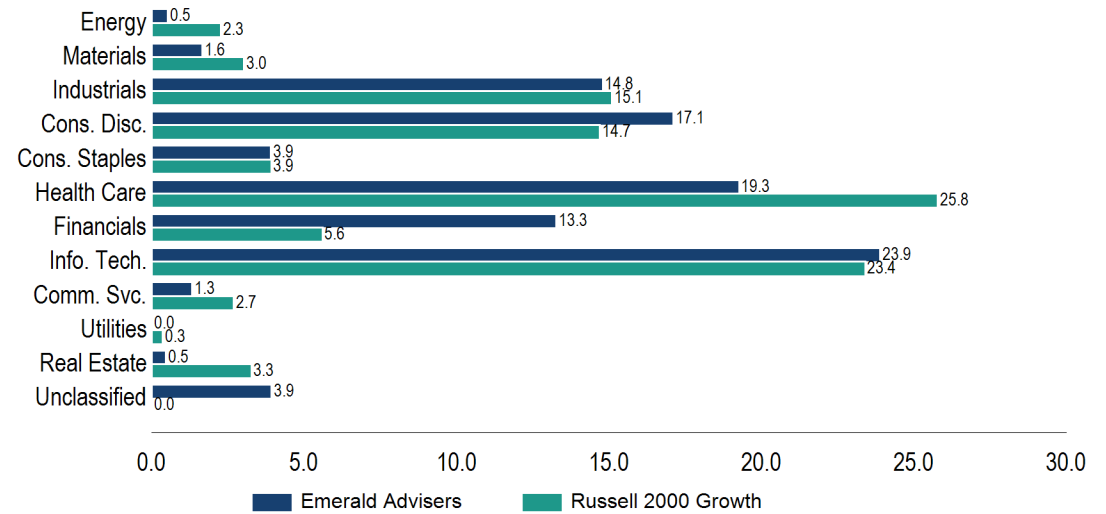
Period Ending: December 31, 2021

Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

Characteristics

	Portfolio	Russell 2000 Growth
Number of Holdings	118	1,244
Weighted Avg. Market Cap. (\$B)	4.30	4.05
Median Market Cap. (\$B)	3.35	1.42
Price To Earnings	26.48	25.30
Price To Book	4.29	4.90
Price To Sales	3.84	2.73
Return on Equity (%)	7.54	1.36
Yield (%)	0.41	0.44
Beta	0.98	1.00

Sector Allocation (%) vs Russell 2000 Growth



Largest Holdings

	End Weight	Return
MACOM TECHNOLOGY SOLUTIONS HOLDINGS INC	2.62	20.70
RAPID7 INC	2.37	4.13
CHART INDUSTRIES INC	1.98	-16.55
SIMPLY GOOD FOODS CO (THE)	1.92	20.53
PERFICIENT INC	1.91	11.75
CHURCHILL DOWNS INC	1.85	0.63
MOELIS & CO	1.82	5.22
AVIENT CORP	1.64	21.25
BRP GROUP INC	1.58	8.47
ONTO INNOVATION INC	1.57	40.11

Top Contributors

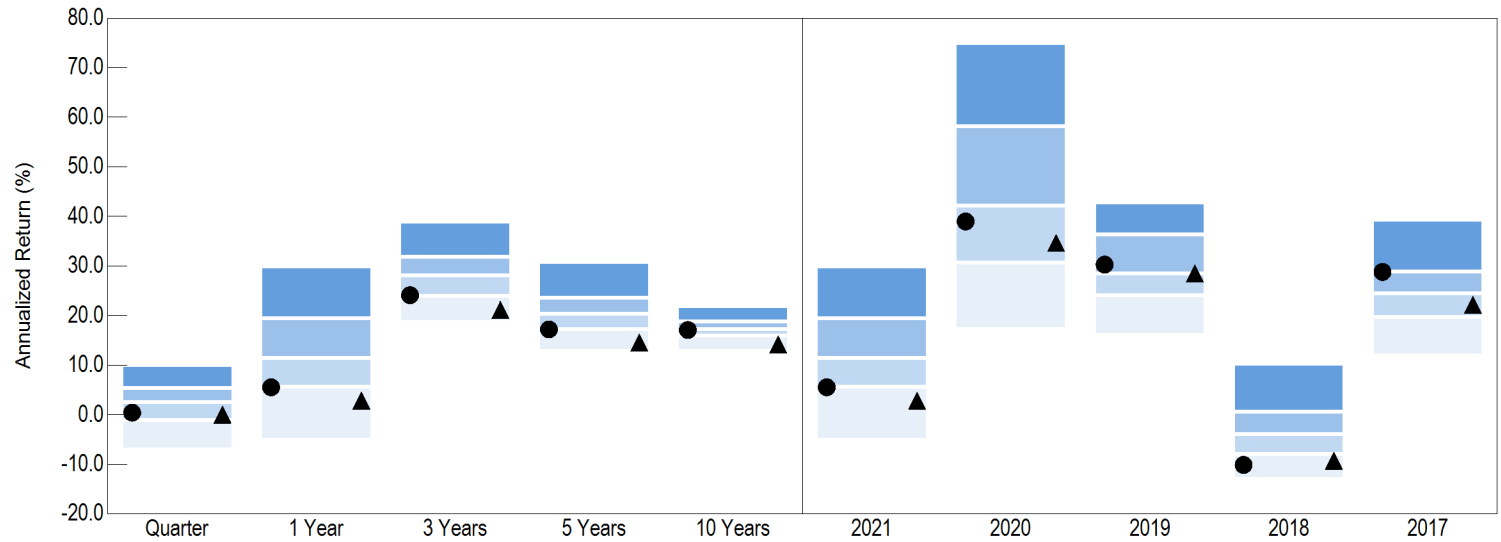
	Avg Wgt	Return	Contribution
ARENA PHARMACEUTICALS INC	0.29	56.07	0.16
ONTO INNOVATION INC	0.38	40.11	0.15
MACOM TECHNOLOGY SOLUTIONS HOLDINGS INC	0.74	20.70	0.15
NV5 GLOBAL INC	0.34	40.12	0.14
LIVE OAK BANCSHARES INC	0.35	37.23	0.13
TREX CO INC	0.38	32.47	0.12
SIMPLY GOOD FOODS CO (THE)	0.55	20.53	0.11
FORWARD AIR CORP	0.24	46.15	0.11
AVIENT CORP	0.47	21.25	0.10

Bottom Contributors

	Avg Wgt	Return	Contribution
REATA PHARMACEUTICALS INC	0.35	-73.79	-0.26
CHEGG INC	0.45	-54.87	-0.25
FRESHPET INC	0.55	-33.23	-0.18
NEOGENOMICS INC	0.60	-29.27	-0.18
CHART INDUSTRIES INC	0.88	-16.55	-0.15
VARONIS SYSTEMS INC	0.65	-19.84	-0.13
PALOMAR HOLDINGS INC	0.45	-19.87	-0.09
SKYWATER TECHNOLOGY INC	0.21	-40.37	-0.08
CURIS INC	0.20	-39.21	-0.08
NATIONAL VISION HOLDINGS INC	0.47	-15.47	-0.07

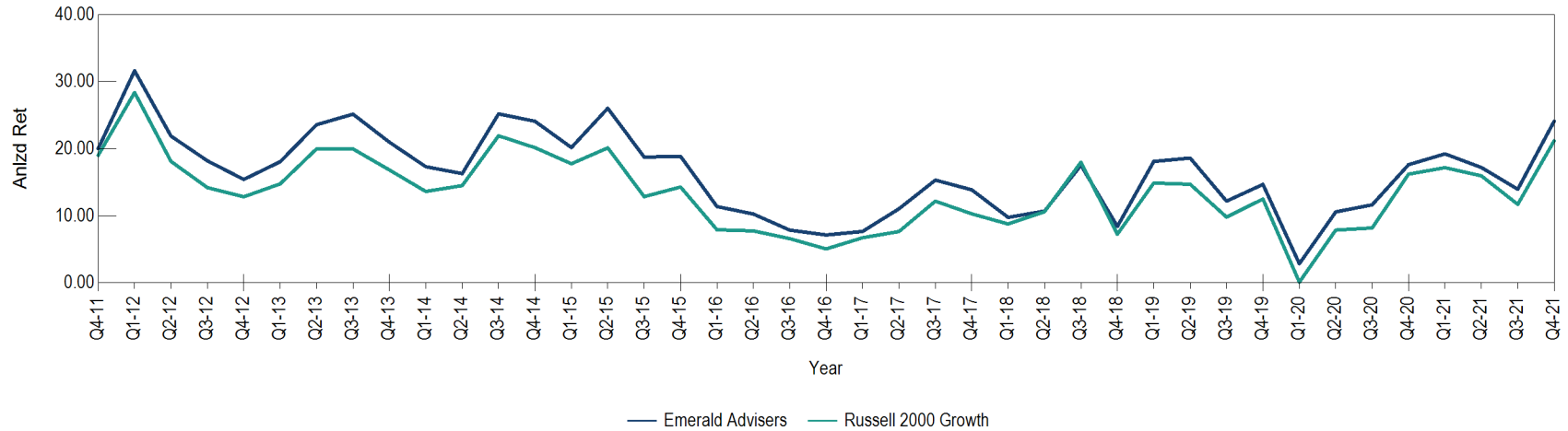
Unclassified sector allocation includes cash allocations.

Emerald Advisers vs. eV US Small Cap Growth Equity Gross Universe

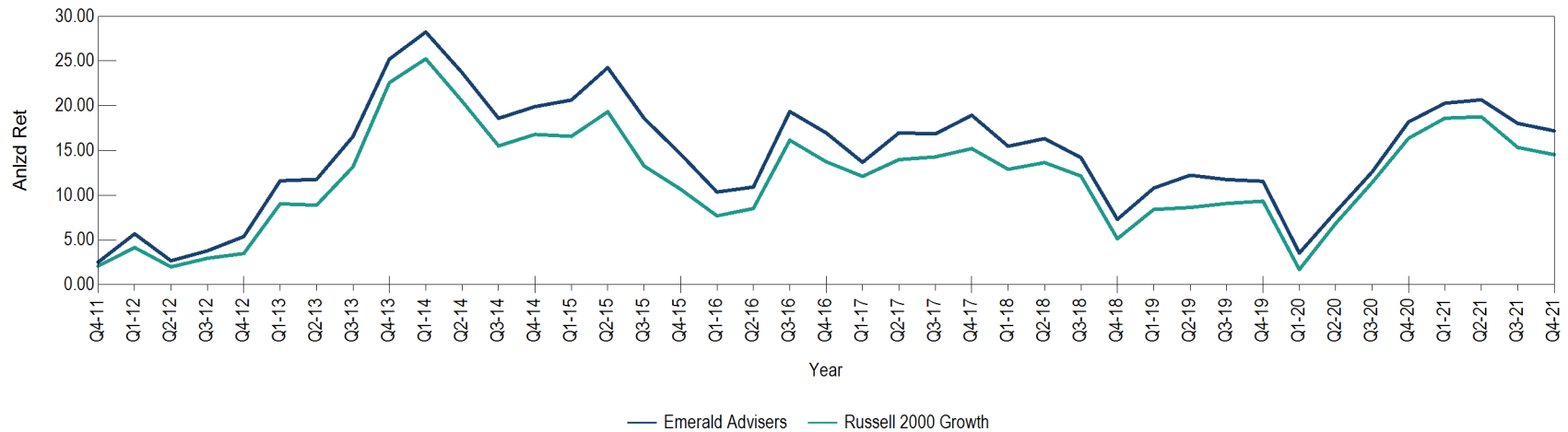


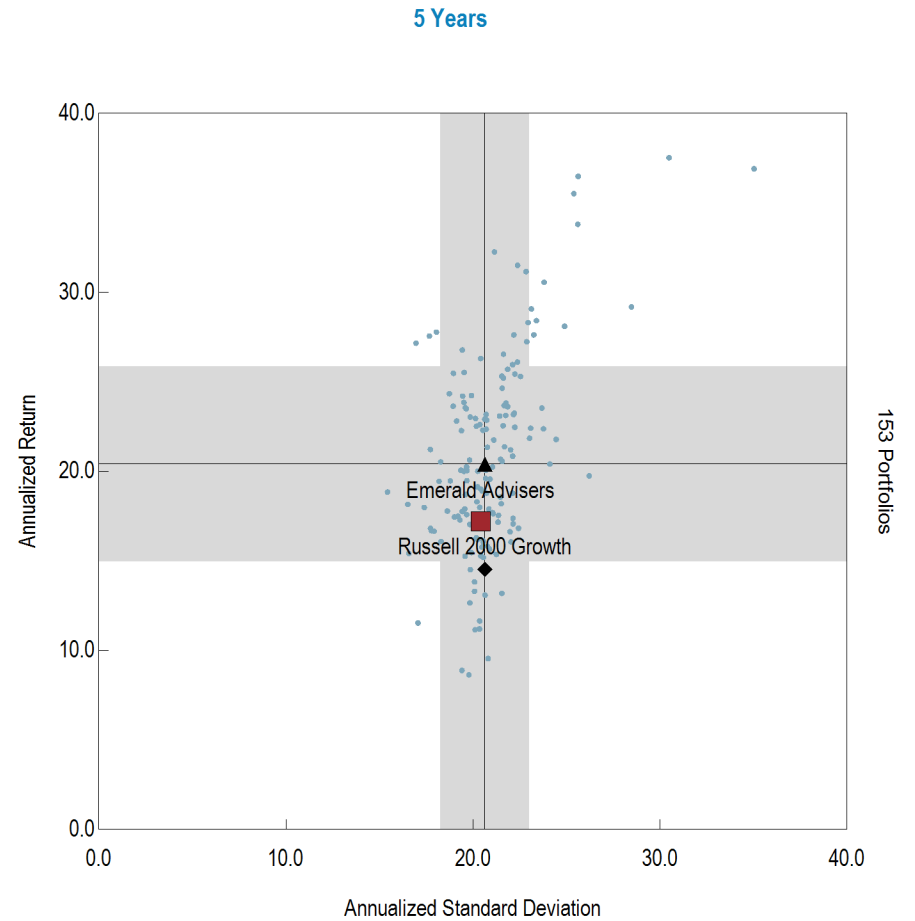
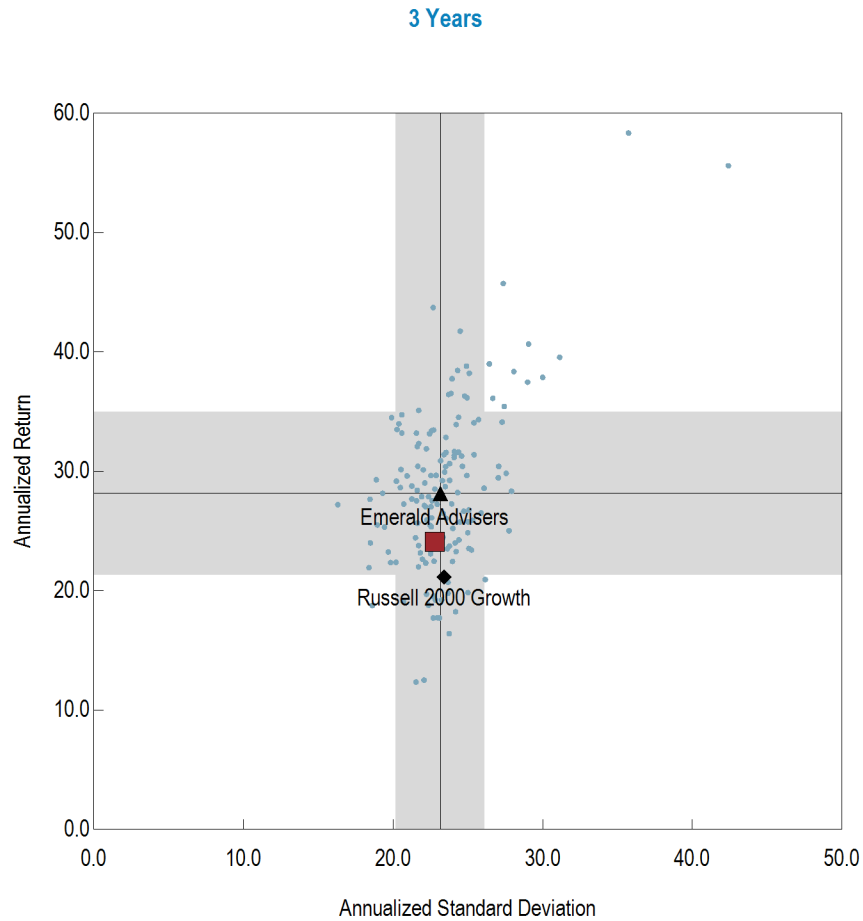
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	10.0	29.8	38.9	30.8	21.8	29.8	75.0	42.8	10.2	39.2
25th Percentile	5.4	19.5	31.9	23.7	18.8	19.5	58.3	36.4	0.7	28.9
Median	2.6	11.5	28.2	20.4	17.3	11.5	42.2	28.5	-3.9	24.6
75th Percentile	-1.0	5.7	24.0	17.4	16.0	5.7	30.8	24.2	-7.9	19.8
95th Percentile	-7.0	-5.1	18.8	12.9	13.0	-5.1	17.4	16.2	-12.8	12.1
# of Portfolios	158	158	157	153	133	158	161	157	164	174
● Emerald Advisers	0.4 (66)	5.5 (76)	24.1 (75)	17.2 (77)	17.1 (57)	5.5 (76)	39.0 (57)	30.3 (45)	-10.1 (85)	28.8 (26)
▲ Russell 2000 Growth	0.0 (69)	2.8 (84)	21.2 (89)	14.5 (93)	14.1 (90)	2.8 (84)	34.6 (66)	28.5 (51)	-9.3 (80)	22.2 (62)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years			5 Years			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	
Emerald Advisers	24.1%	22.8%	1.0	Emerald Advisers	17.2%	20.4%	0.8
Russell 2000 Growth	21.2%	23.4%	0.9	Russell 2000 Growth	14.5%	20.6%	0.7
eV US Small Cap Growth Equity Gross Median	28.2%	23.2%	1.2	eV US Small Cap Growth Equity Gross Median	20.4%	20.6%	0.9

Ceredex Manager Portfolio Overview

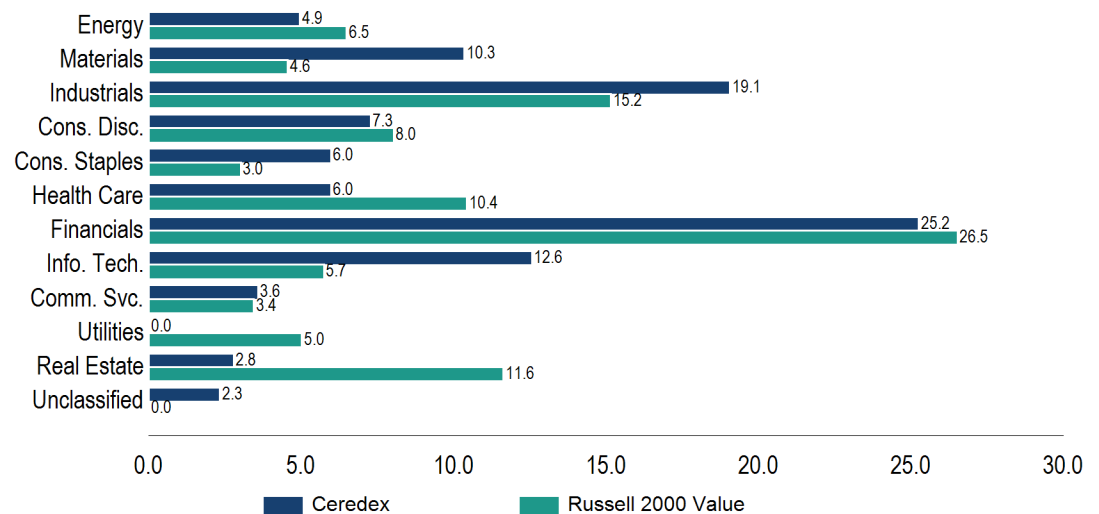
Period Ending: December 31, 2021

Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	67	1,449
Weighted Avg. Market Cap. (\$B)	6.00	3.04
Median Market Cap. (\$B)	5.54	1.14
Price To Earnings	18.24	14.21
Price To Book	2.82	1.83
Price To Sales	1.52	1.49
Return on Equity (%)	15.49	5.27
Yield (%)	1.77	1.71
Beta	0.85	1.00

Sector Allocation (%) vs Russell 2000 Value



Largest Holdings

	End Weight	Return
OVINTIV INC	3.70	2.62
POWER INTEGRATIONS INC	3.67	-6.03
FIRST CITIZENS BANCSHARES INC	3.54	-1.53
APTARGROUP INC.	3.31	2.93
SLM CORP	3.26	12.43
OWENS & MINOR INC.	3.24	39.03
STANTEC INC	3.17	19.62
RPM INTERNATIONAL INC	2.96	30.69
AZENTA INC	2.93	0.83
KEMPER CORP	2.84	-11.53

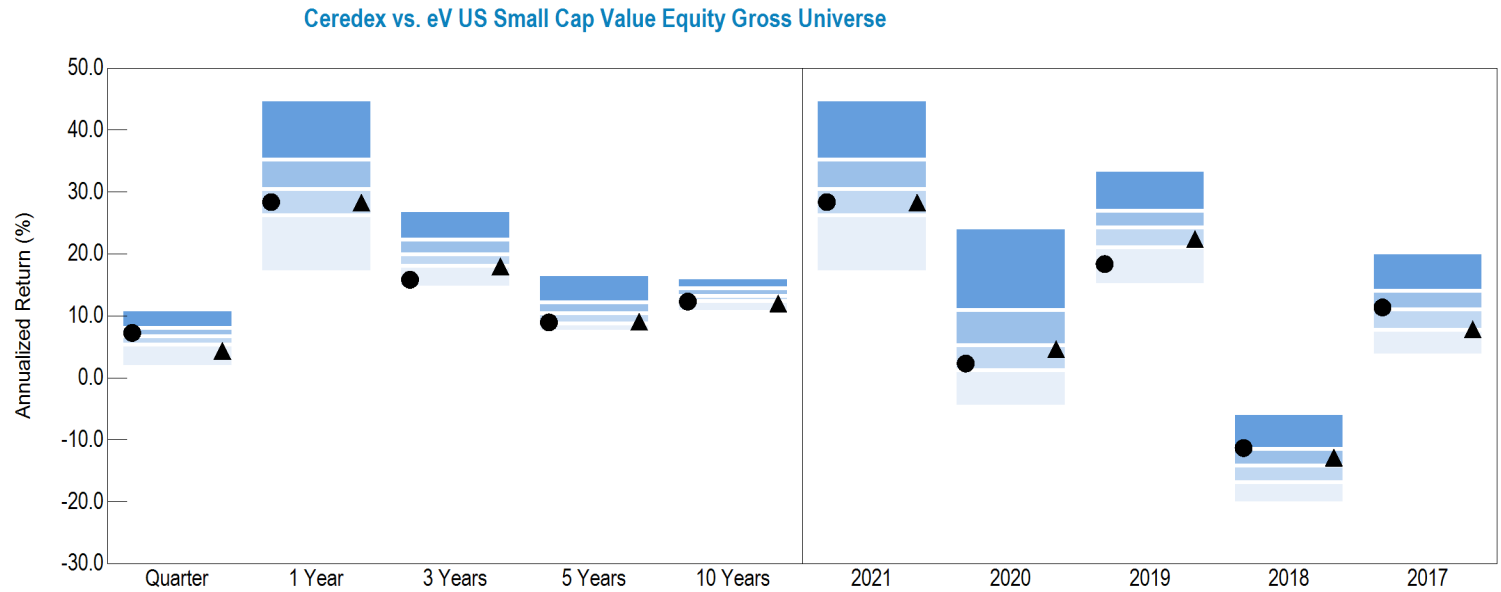
Top Contributors

	Avg Wgt	Return	Contribution
OWENS & MINOR INC.	0.82	39.03	0.32
RPM INTERNATIONAL INC	0.84	30.69	0.26
STANTEC INC	1.00	19.62	0.20
ASHLAND GLOBAL HOLDINGS INC	0.80	21.15	0.17
NVENT ELECTRIC PLC	0.75	18.17	0.14
SLM CORP	1.00	12.43	0.12
EDGEWELL PERSONAL CARE CO	0.42	26.38	0.11
MKS INSTRUMENTS INC	0.66	15.58	0.10
EMCOR GROUP INC.	0.86	10.53	0.09
KBR INC	0.43	21.16	0.09

Bottom Contributors

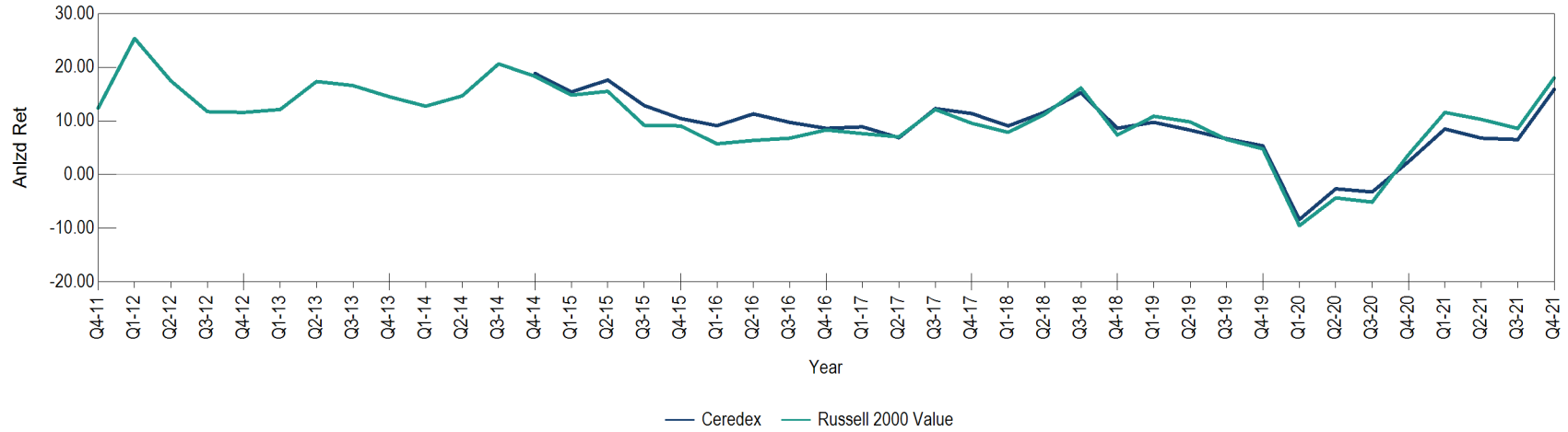
	Avg Wgt	Return	Contribution
KEMPER CORP	1.06	-11.53	-0.12
WORLD FUEL SERVICES CORP	0.46	-20.89	-0.10
POWER INTEGRATIONS INC	1.41	-6.03	-0.09
FIRST HAWAIIAN INC	0.53	-6.00	-0.03
MANPOWERGROUP INC	0.34	-8.90	-0.03
FIRST CITIZENS BANCSHARES INC	1.30	-1.53	-0.02
LAZARD LTD	0.51	-3.80	-0.02
PATTERSON COS INC	0.75	-1.83	-0.01
AMERIS BANCORP	0.34	-3.95	-0.01
HORACE MANN EDUCATORS CORP	0.34	-1.93	-0.01

Unclassified sector allocation includes cash allocations.

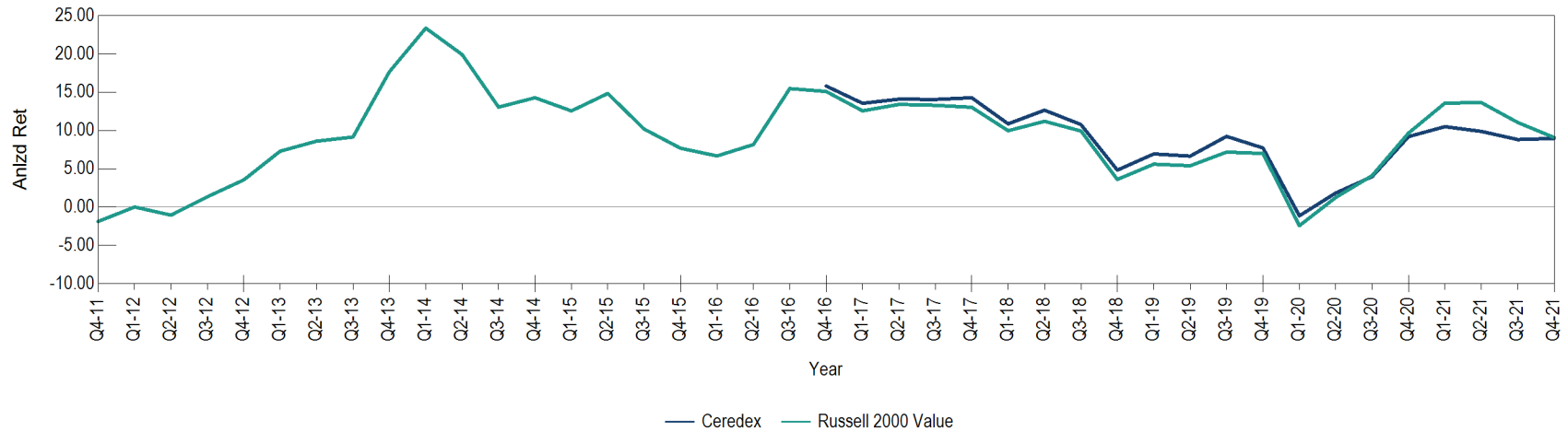


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	11.1	44.9	27.0	16.7	16.2	44.9	24.2	33.6	-5.7	20.2
25th Percentile	8.1	35.3	22.4	12.3	14.5	35.3	11.1	27.0	-11.4	14.1
Median	6.8	30.5	20.0	10.5	13.3	30.5	5.3	24.4	-14.0	11.1
75th Percentile	5.4	26.3	18.2	8.9	12.4	26.3	1.3	21.2	-16.7	7.8
95th Percentile	1.9	17.1	14.6	7.5	10.7	17.1	-4.6	15.0	-20.2	3.7
# of Portfolios	210	210	204	195	172	210	219	217	220	224
● Ceredex	7.3 (40)	28.4 (60)	15.8 (91)	9.0 (75)	12.3 (78)	28.4 (60)	2.3 (69)	18.4 (87)	-11.3 (25)	11.4 (48)
▲ Russell 2000 Value	4.4 (84)	28.3 (60)	18.0 (76)	9.1 (73)	12.0 (82)	28.3 (60)	4.6 (53)	22.4 (69)	-12.9 (39)	7.8 (75)

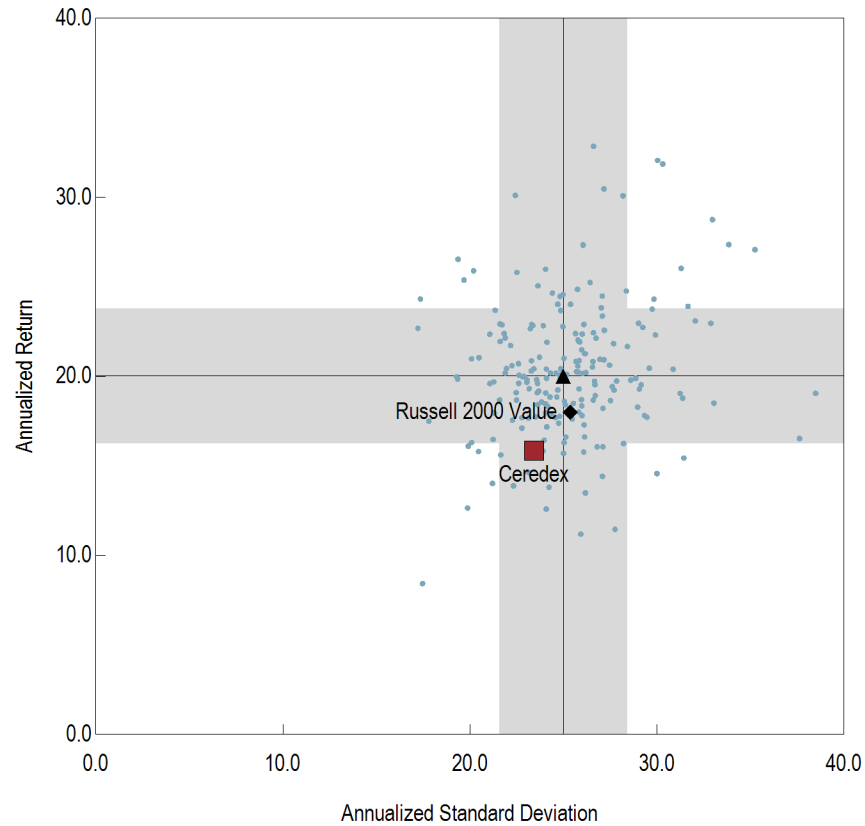
Rolling 3 Year Annualized Return (%)



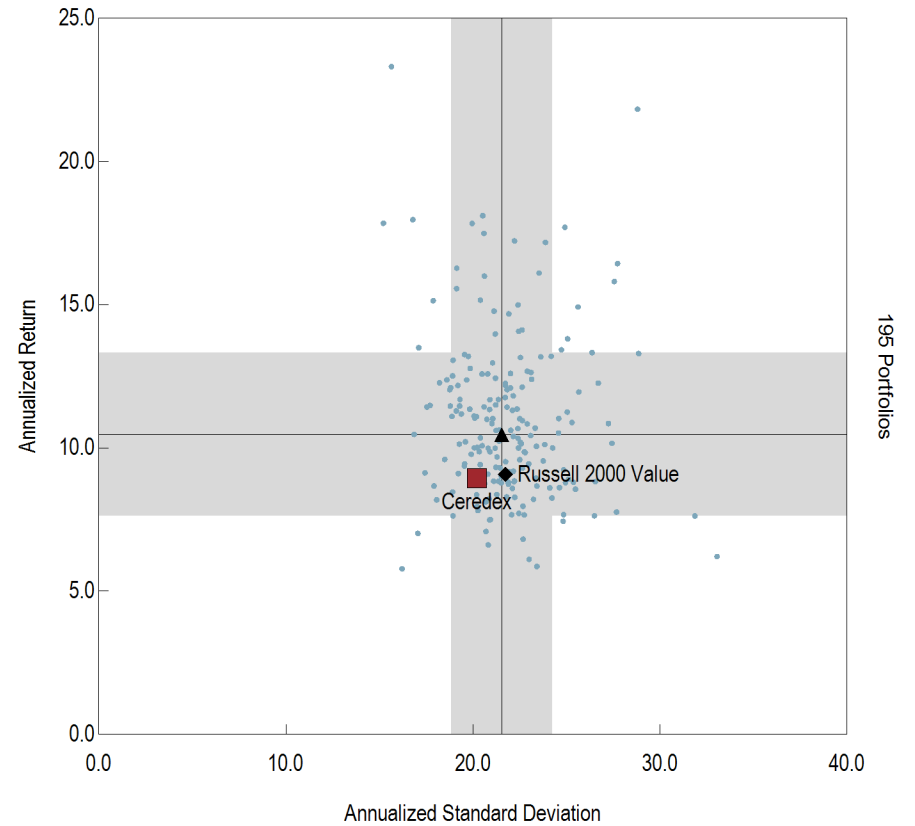
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	15.8%	23.4%	0.6
Russell 2000 Value	18.0%	25.4%	0.7
eV US Small Cap Value Equity Gross Median	20.0%	25.0%	0.8

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	9.0%	20.2%	0.4
Russell 2000 Value	9.1%	21.7%	0.4
eV US Small Cap Value Equity Gross Median	10.5%	21.5%	0.4

International Equity Managers

Pyrford Manager Portfolio Overview

Period Ending: December 31, 2021

International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

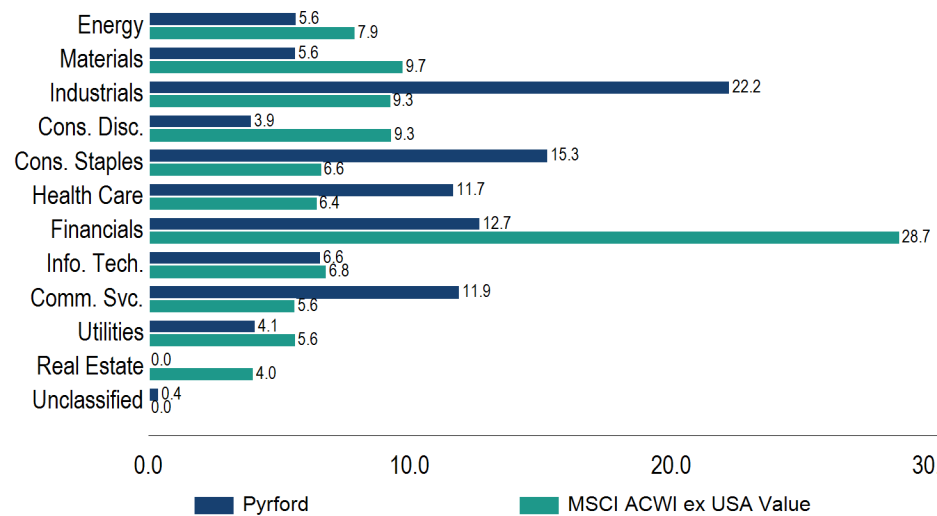
Characteristics

	MSCI ACWI Portfolio	ex USA Value
Number of Holdings	75	1,454
Weighted Avg. Market Cap. (\$B)	73.32	67.23
Median Market Cap. (\$B)	28.26	9.52
Price To Earnings	16.17	11.19
Price To Book	2.35	1.85
Price To Sales	1.86	1.03
Return on Equity (%)	15.99	11.42
Yield (%)	3.70	3.95
Beta	0.68	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	91.3%	71.5%
Emerging*	8.6%	28.5%
Top 10 Largest Countries		
United Kingdom	20.4%	12.0%
Japan	13.1%	14.2%
Switzerland	12.2%	5.3%
Germany	9.7%	7.5%
Australia	9.0%	4.4%
France	7.5%	6.7%
Singapore	5.9%	0.8%
Hong Kong	4.3%	1.7%
Malaysia*	3.2%	0.4%
Taiwan*	3.2%	4.0%
Total-Top 10 Largest Countries	88.5%	57.1%

Sector Allocation (%) vs MSCI ACWI ex USA Value



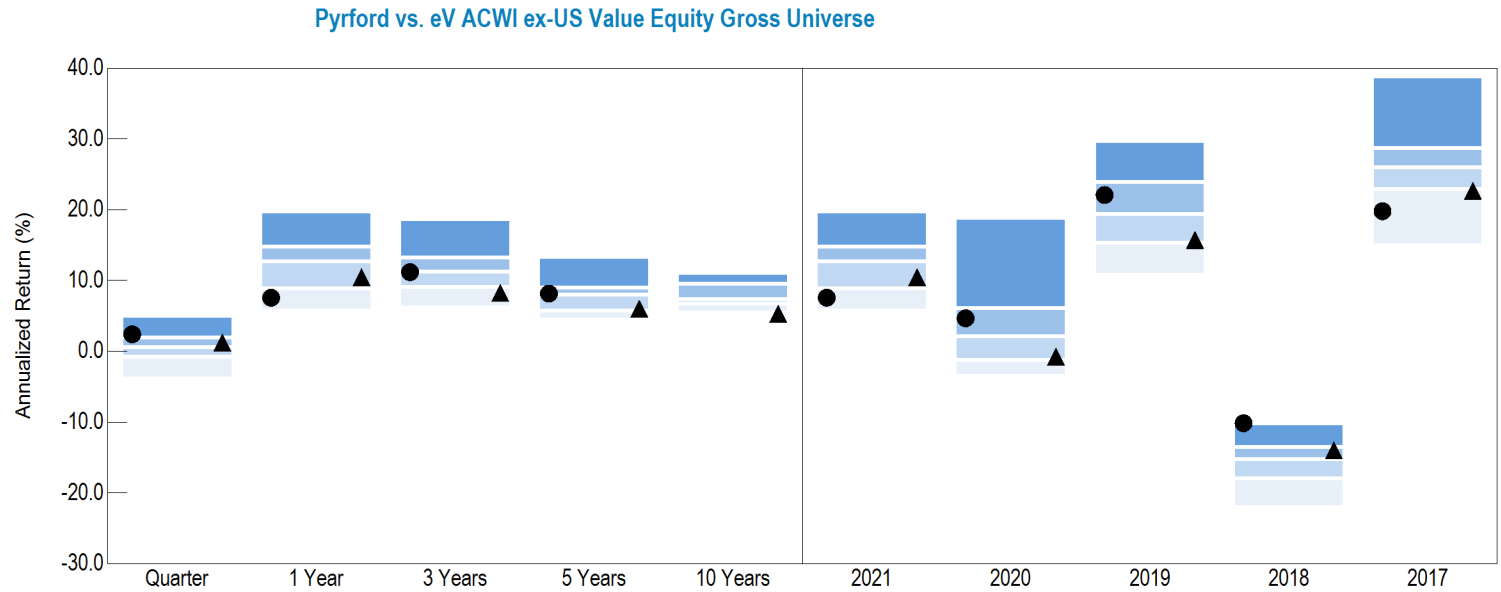
Top Contributors

	Avg Wgt	Return	Contribution
NESTLE SA, CHAM UND VEVEY	2.87	15.75	0.45
NATIONAL GRID PLC	1.91	22.25	0.43
ROCHE HOLDING AG	2.67	13.48	0.36
GLAXOSMITHKLINE PLC	2.11	16.24	0.34
COMPUTERSHARE LTD CPU	2.06	10.19	0.21
JAPAN TOBACCO INC	3.33	6.07	0.20
BUNZL PLC	1.08	18.54	0.20
L'AIR LIQUIDE SA	1.88	8.56	0.16
NOVARTIS AG	2.24	6.96	0.16
BRITISH AMERICAN TOBACCO PLC	1.84	7.34	0.14

Bottom Contributors

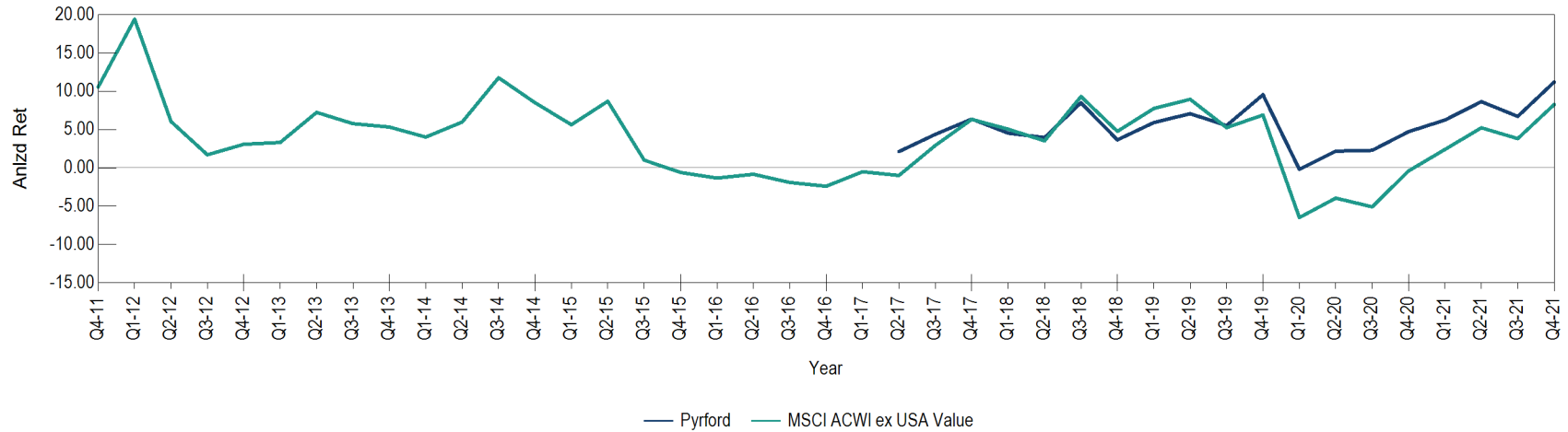
	Avg Wgt	Return	Contribution
NIHON KOHDEN CORP	2.14	-19.57	-0.42
ABC-MART INC	1.60	-24.55	-0.39
KDDI CORP	2.44	-11.76	-0.29
SUMITOMO RUBBER INDUSTRIES LTD	1.35	-18.20	-0.25
MITSUBISHI ELECTRIC CORP	2.37	-9.25	-0.22
NABTESCO	0.85	-21.50	-0.18
WOODSIDE PETROLEUM LTD	2.11	-7.81	-0.17
AIA GROUP LTD	1.10	-12.76	-0.14
KONINKLIJKE PHILIPS NV	0.87	-16.14	-0.14
KONINKLIJKE VOPAK NV	1.23	-11.11	-0.14

Unclassified sector allocation includes cash allocations.

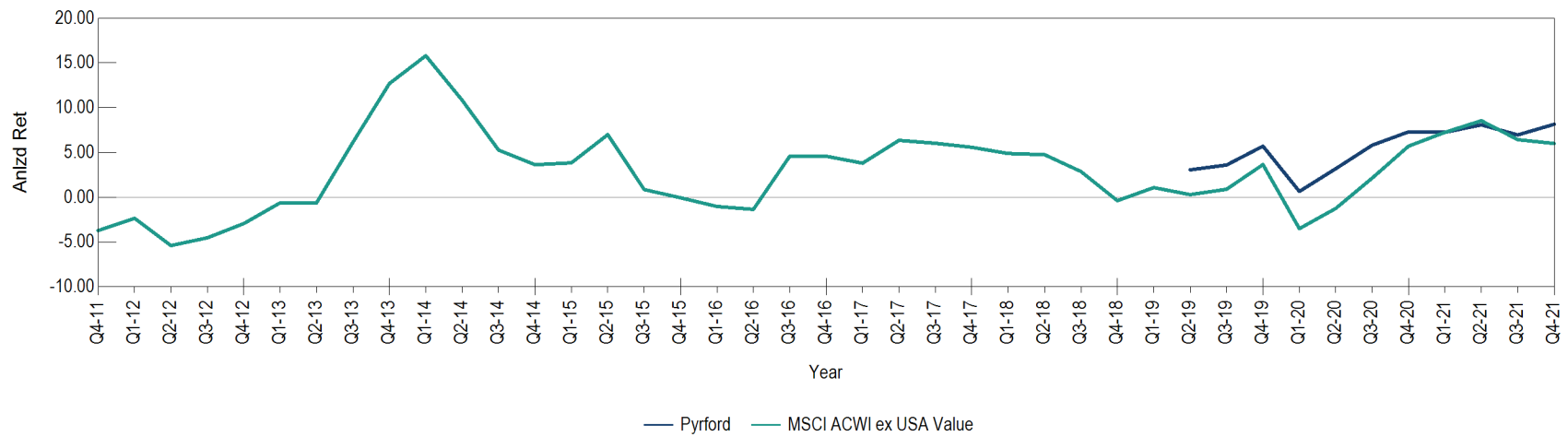


	Return (Rank)									
5th Percentile	5.0	19.7	18.7	13.3	11.0	19.7	18.8	29.6	-10.2	38.8
25th Percentile	2.0	14.8	13.3	9.1	9.6	14.8	6.2	24.0	-13.4	28.8
Median	0.6	12.8	11.3	8.0	7.4	12.8	2.1	19.5	-15.2	26.0
75th Percentile	-0.7	8.9	9.1	5.8	6.8	8.9	-1.2	15.4	-17.9	23.0
95th Percentile	-3.8	5.8	6.3	4.5	5.5	5.8	-3.5	10.8	-21.9	15.0
# of Portfolios	46	46	45	43	29	46	49	52	54	56
● Pyrford	2.4 (22)	7.6 (84)	11.2 (53)	8.1 (44)	-- (--)	7.6 (84)	4.7 (33)	22.1 (35)	-10.1 (5)	19.8 (84)
▲ MSCI ACWI ex USA Value	1.2 (37)	10.5 (69)	8.2 (83)	6.0 (73)	5.3 (98)	10.5 (69)	-0.8 (73)	15.7 (74)	-14.0 (32)	22.7 (77)

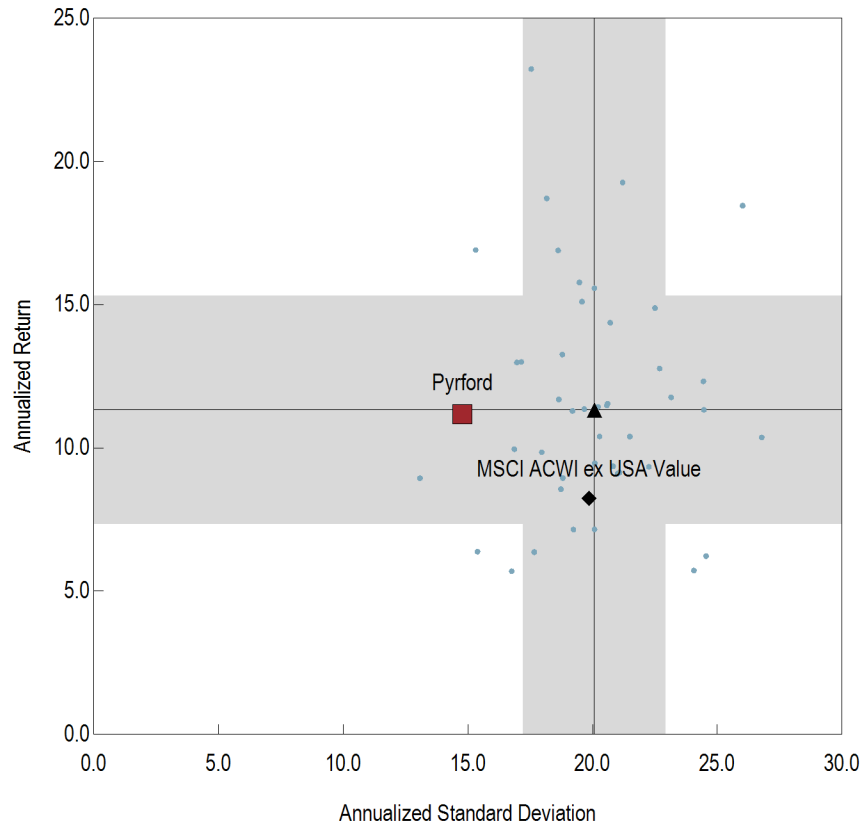
Rolling 3 Year Annualized Return (%)



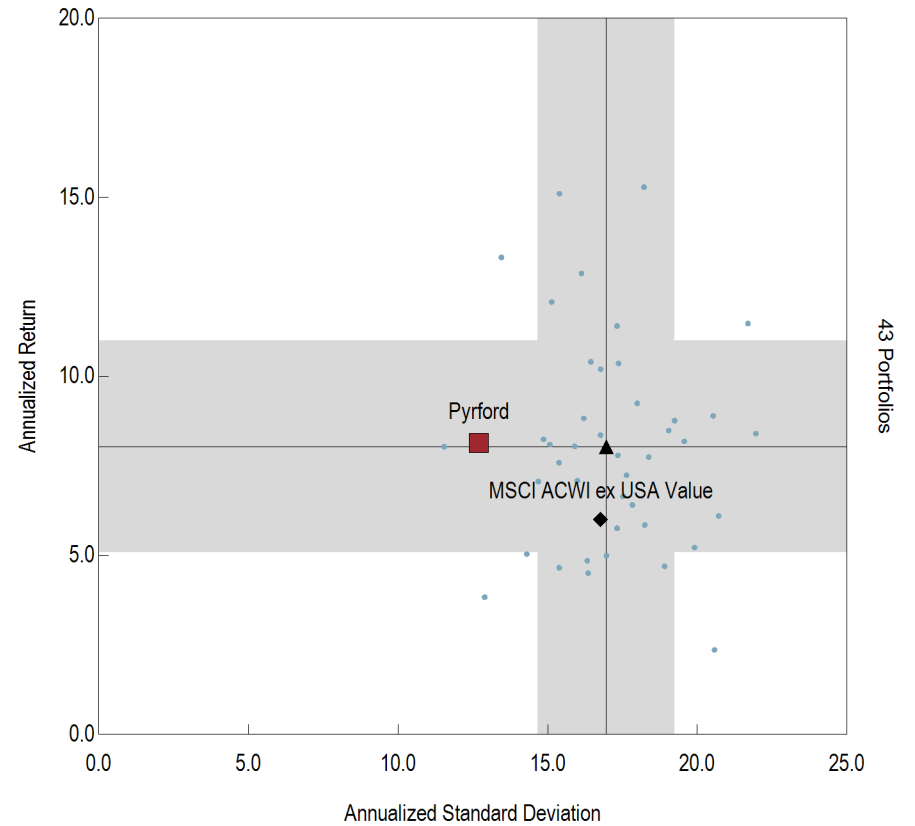
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	11.2%	14.8%	0.7
MSCI ACWI ex USA Value	8.2%	19.9%	0.4
eV ACWI ex-US Value Equity Gross Median	11.3%	20.1%	0.5

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	8.1%	12.7%	0.6
MSCI ACWI ex USA Value	6.0%	16.8%	0.3
eV ACWI ex-US Value Equity Gross Median	8.0%	17.0%	0.4

William Blair Manager Portfolio Overview

Period Ending: December 31, 2021

International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Kenneth McAtamney.

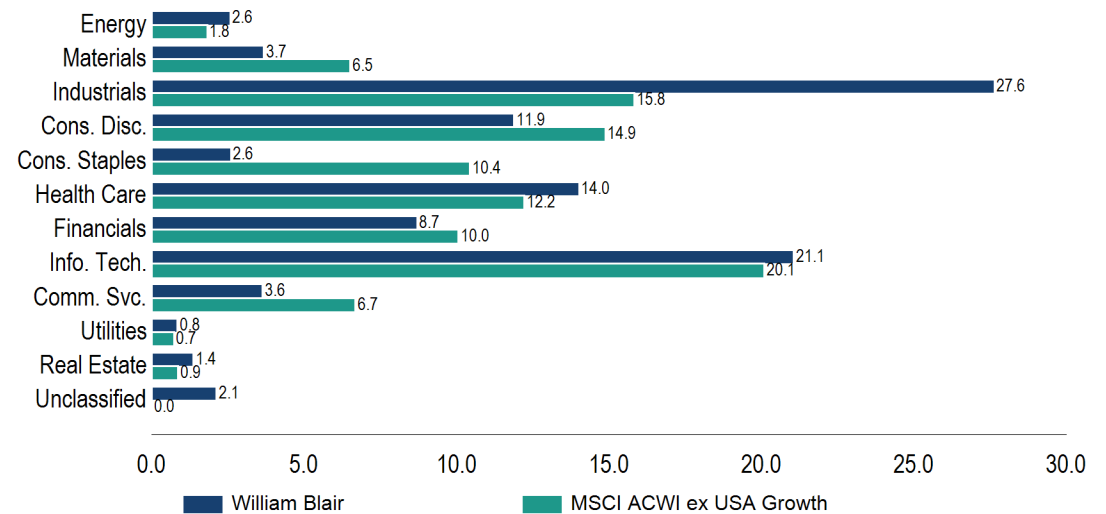
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Growth
Number of Holdings	186	1,199
Weighted Avg. Market Cap. (\$B)	78.19	129.50
Median Market Cap. (\$B)	13.63	11.05
Price To Earnings	36.76	24.44
Price To Book	6.22	4.14
Price To Sales	6.12	3.35
Return on Equity (%)	18.69	18.40
Yield (%)	0.77	1.35
Beta	1.13	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	80.4%	70.7%
Emerging*	17.6%	29.3%
Top 10 Largest Countries		
United Kingdom	11.1%	6.7%
Japan	10.1%	14.4%
France	9.8%	8.1%
Sweden	7.9%	3.5%
Switzerland	7.9%	7.9%
Netherlands	6.4%	4.9%
China*	5.7%	9.5%
Germany	5.3%	3.9%
India*	4.4%	3.6%
Denmark	3.9%	2.9%
Total-Top 10 Largest Countries	73.0%	65.4%

Sector Allocation (%) vs MSCI ACWI ex USA Growth



Top Contributors

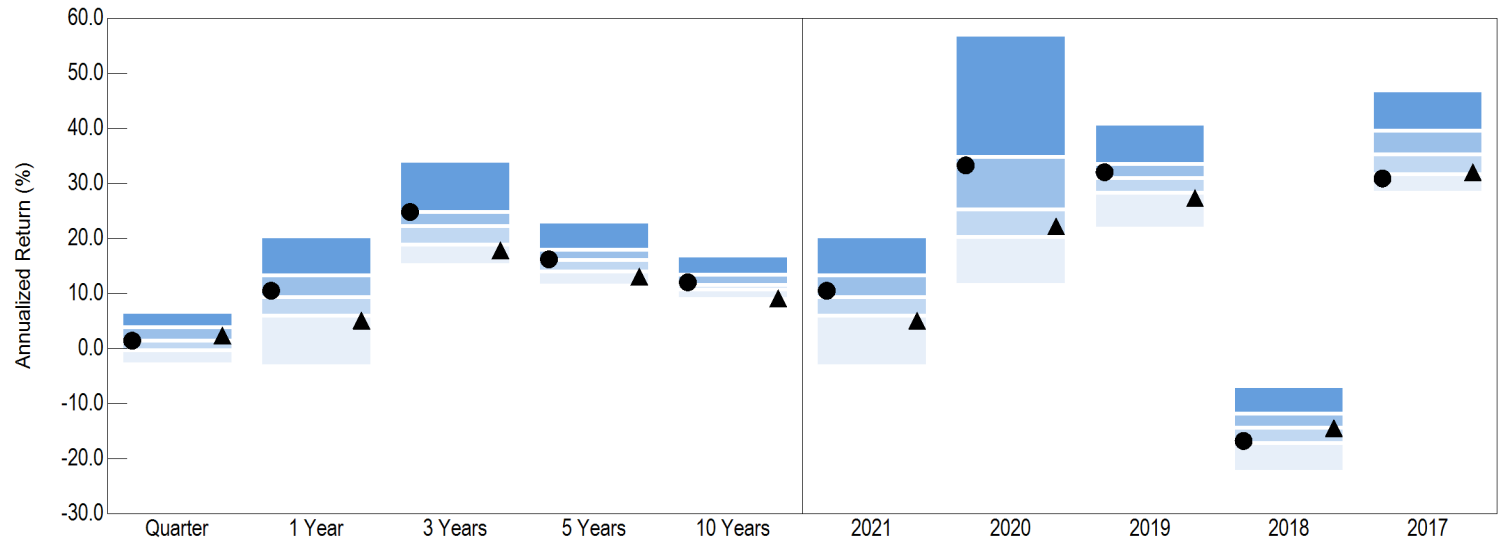
	Avg Wgt	Return	Contribution
SIKA AG, BAAR	1.47	31.12	0.46
MEDIATEK INCORPORATION	1.04	32.08	0.33
ATLAS COPCO AB	1.70	14.51	0.25
LVMH MOET HENNESSY LOUIS VUITTON SE	1.56	15.54	0.24
STRAUMANN HOLDING AG, WALDENBURG	1.00	17.77	0.18
CRODA INTERNATIONAL PLC	0.90	18.79	0.17
ASML HOLDING NV	2.19	7.63	0.17
ICON PLC	0.92	18.20	0.17
TELEPERFORMANCE	1.24	13.10	0.16
KINGSPAN GROUP PLC	0.77	19.80	0.15

Bottom Contributors

	Avg Wgt	Return	Contribution
SEA LTD	1.02	-29.81	-0.31
WUXI BIOLOGICS (CAYMAN) INC	1.05	-26.96	-0.28
NUVEI CORP COM	0.59	-43.54	-0.26
AIA GROUP LTD	1.65	-12.76	-0.21
M3 INC	0.57	-29.78	-0.17
YANDEX NV	0.57	-24.08	-0.14
ALIBABA GROUP HOLDING LTD	0.81	-16.52	-0.13
WORLDLINE	0.48	-27.15	-0.13
MERCADOLIBRE INC	0.66	-19.71	-0.13
MTU AERO ENGINES AG	1.22	-9.91	-0.12

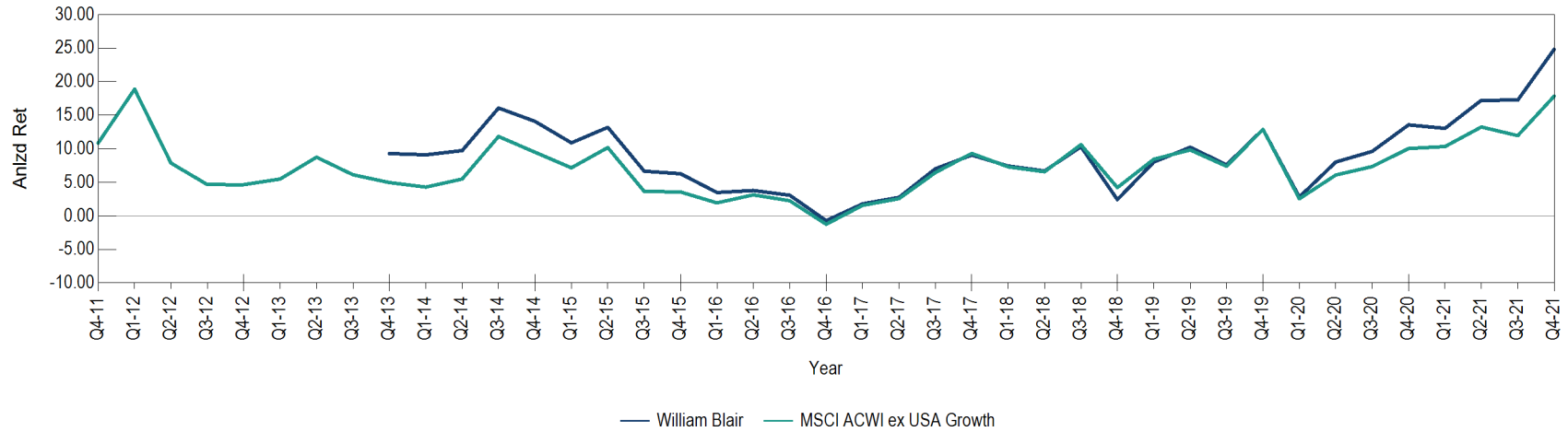
Unclassified sector allocation includes cash allocations.

William Blair vs. eV ACWI ex-US Growth Equity Gross Universe

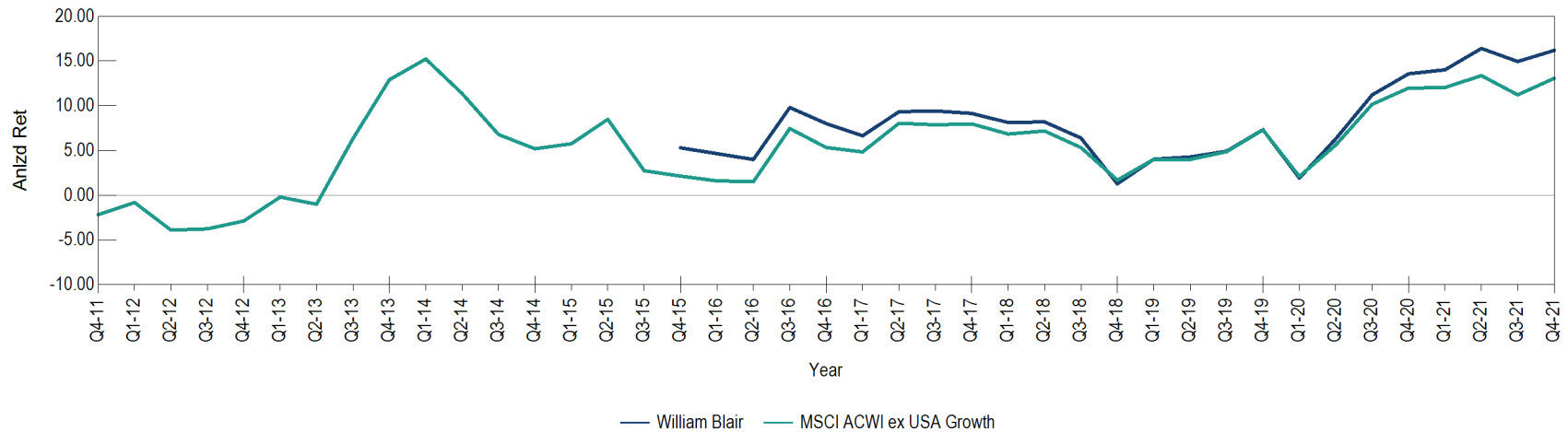


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	6.6	20.3	34.0	23.0	16.8	20.3	57.0	40.8	-6.8	46.8
25th Percentile	4.0	13.4	24.9	18.0	13.5	13.4	34.8	33.6	-11.7	39.6
Median	1.5	9.3	22.3	16.1	11.6	9.3	25.4	31.0	-14.3	35.3
75th Percentile	-0.2	6.1	18.9	14.1	10.8	6.1	20.3	28.3	-17.2	31.8
95th Percentile	-2.8	-3.1	15.2	11.5	9.1	-3.1	11.6	21.8	-22.3	28.3
# of Portfolios	102	102	93	86	59	102	95	93	82	94
● William Blair	1.4 (53)	10.5 (44)	24.8 (26)	16.2 (50)	12.0 (45)	10.5 (44)	33.3 (30)	32.0 (39)	-16.8 (69)	30.9 (81)
▲ MSCI ACWI ex USA Growth	2.4 (41)	5.1 (78)	17.8 (84)	13.1 (87)	9.1 (95)	5.1 (78)	22.2 (64)	27.3 (80)	-14.4 (51)	32.0 (75)

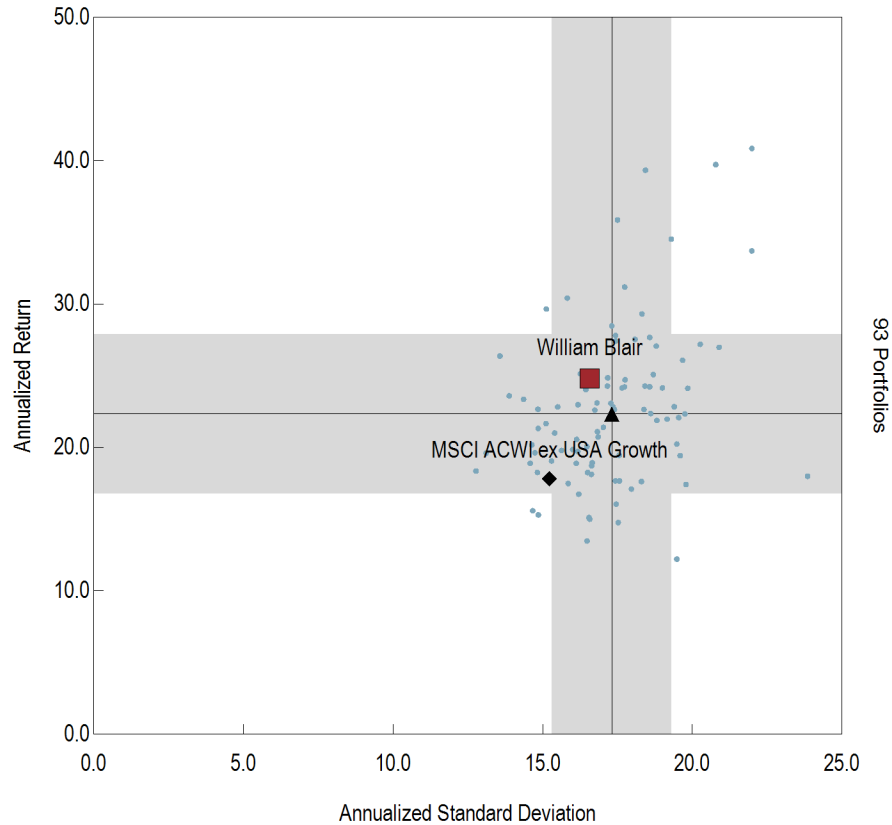
Rolling 3 Year Annualized Return (%)



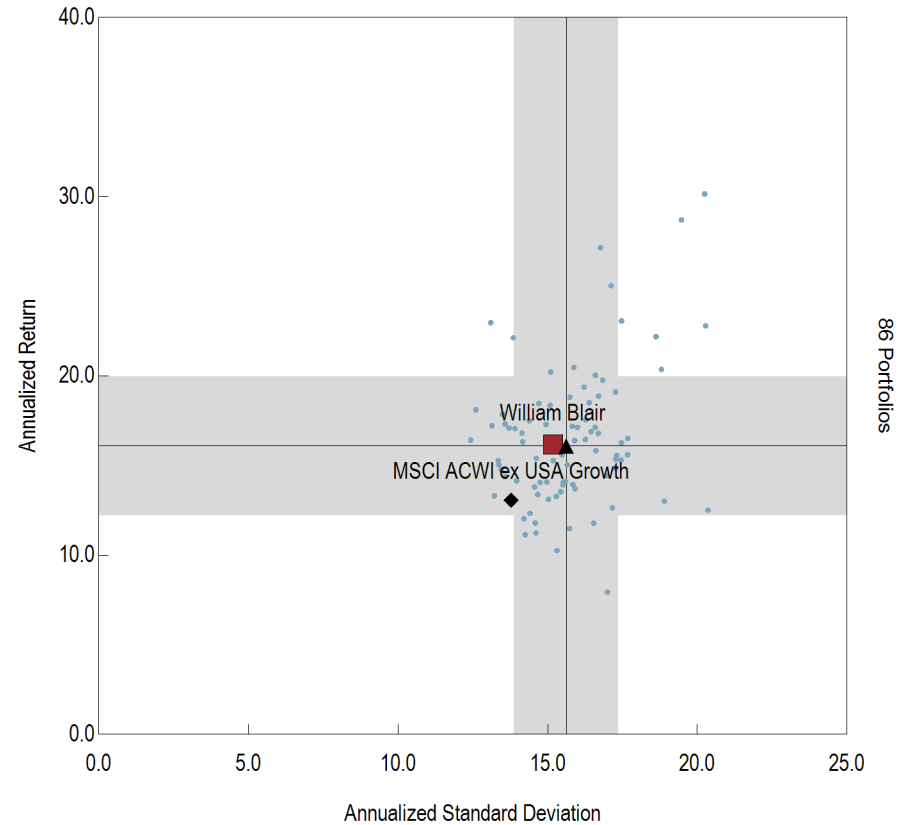
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	24.8%	16.6%	1.4
MSCI ACWI ex USA Growth	17.8%	15.2%	1.1
eV ACWI ex-US Growth Equity Gross Median	22.3%	17.3%	1.3

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	16.2%	15.2%	1.0
MSCI ACWI ex USA Growth	13.1%	13.8%	0.9
eV ACWI ex-US Growth Equity Gross Median	16.1%	15.6%	1.0

PIMCO RAE Emerging Markets Manager Portfolio Overview

Period Ending: December 31, 2021

The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

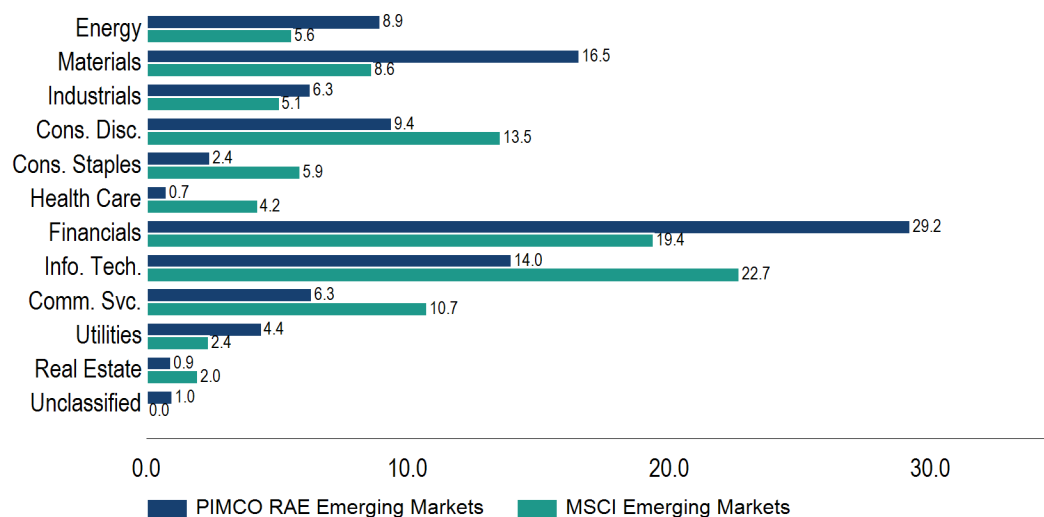
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	386	1,413
Weighted Avg. Market Cap. (\$B)	23.18	139.67
Median Market Cap. (\$B)	4.51	7.24
Price To Earnings	6.50	12.25
Price To Book	1.74	2.78
Price To Sales	0.48	1.44
Return on Equity (%)	12.62	14.60
Yield (%)	4.74	2.44
Beta	1.14	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	5.7%	0.0%
Emerging*	94.0%	100.0%
Top 10 Largest Countries		
India*	14.1%	12.5%
Brazil*	13.4%	4.0%
Korea*	10.8%	12.8%
Taiwan*	10.7%	16.1%
China*	9.9%	32.4%
Russia*	8.6%	3.6%
Thailand*	6.8%	1.7%
South Africa*	6.5%	3.2%
Mexico*	6.3%	2.0%
Hong Kong	5.2%	0.0%
Total-Top 10 Largest Countries	92.4%	88.2%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

	End Weight	Return	Contribution
TATA MOTORS	2.45	44.06	1.08
VEDANTA LTD	2.39	22.88	0.55
AMERICA MOVIL SA DE CV, MEXICO	1.99	19.13	0.38
LG DISPLAY CO LTD	0.82	28.82	0.24
ASUSTEK COMPUTER	1.47	16.04	0.24
INNOLUX CORP	1.33	15.81	0.21
CHINA RESOURCES POWER HOLDINGS CO LTD	1.26	16.07	0.20
KASIKORNBANK PUBLIC CO LTD	2.14	7.73	0.17
LENOVO GROUP LTD	1.90	7.99	0.15
MTN GROUP LTD	1.12	13.51	0.15

Bottom Contributors

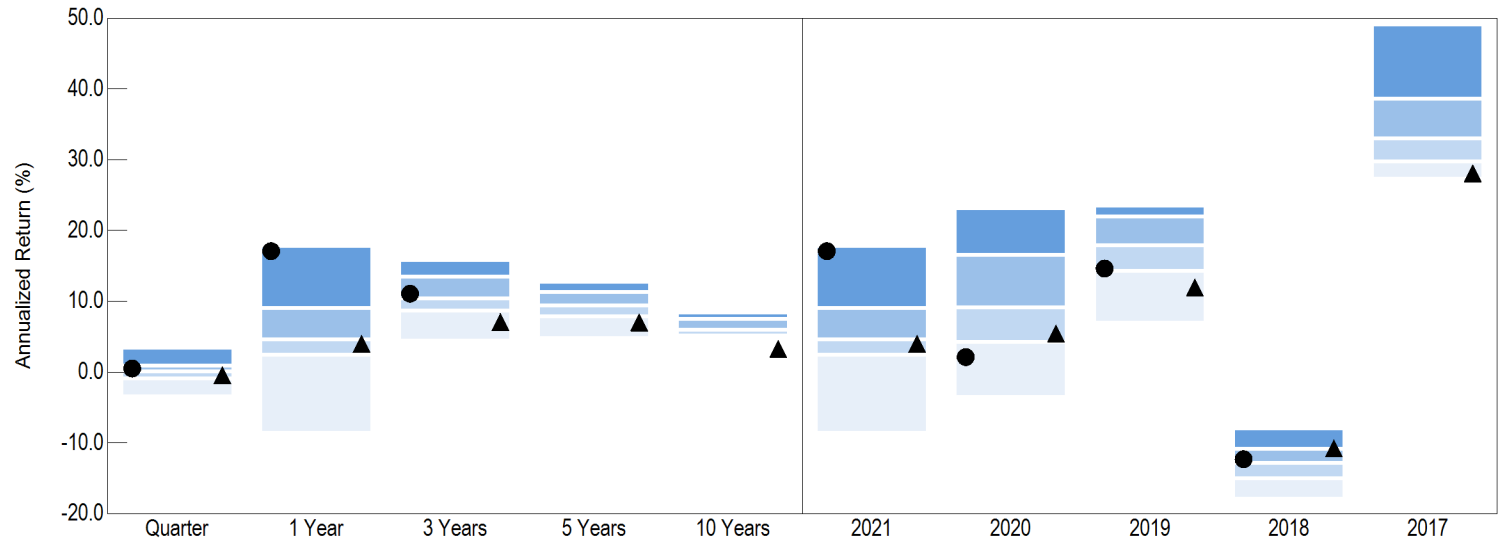
	End Weight	Return	Contribution
ITAU UNIBANCO HOLDING PN	1.91	-26.81	-0.51
SBERBANK OF RUSSIA	1.33	-16.62	-0.22
SASOL LTD	1.07	-14.71	-0.16
POSCO	0.72	-17.46	-0.13
VTB BANK PJSC	1.22	-9.77	-0.12
BANCO BRADESCO SA BRAD	1.79	-6.17	-0.11
TATA STEEL LTD	0.77	-14.16	-0.11
GAZPROM	1.17	-8.11	-0.10
CHINA CONSTRUCTION BANK CORP	2.45	-3.38	-0.08
TKI.GARANTI BKSI.	0.42	-17.94	-0.07

Unclassified sector allocation includes cash allocations.

PIMCO RAE Emerging Markets
 Manager Performance Comparisons (Gross of Fees)

Period Ending: December 31, 2021

PIMCO RAE Emerging Markets vs. eV Emg Mkts All Cap Value Equity Gross Universe



	Return (Rank)									
5th Percentile	3.4	17.8	15.8	12.7	8.4	17.8	23.1	23.5	-7.9	49.0
25th Percentile	0.9	9.1	13.6	11.4	7.6	9.1	16.6	22.1	-10.8	38.6
Median	0.1	4.6	10.4	9.5	6.0	4.6	9.2	18.0	-12.7	33.0
75th Percentile	-0.8	2.5	8.7	8.0	5.2	2.5	4.3	14.4	-14.9	29.8
95th Percentile	-3.4	-8.5	4.5	4.9	4.8	-8.5	-3.4	7.0	-17.8	27.4
# of Portfolios	35	35	33	27	16	35	37	33	36	37
● PIMCO RAE Emerging Markets	0.5 (35)	17.1 (6)	11.1 (41)	-- (--)	-- (--)	17.1 (6)	2.1 (85)	14.6 (72)	-12.3 (44)	-- (--)
▲ MSCI Emerging Markets Value NR	-0.4 (68)	4.0 (61)	7.1 (88)	7.0 (80)	3.3 (99)	4.0 (61)	5.5 (73)	12.0 (86)	-10.7 (25)	28.1 (90)

TT Emerging Markets Manager Portfolio Overview

Period Ending: December 31, 2021

The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded in the Emerging Markets.

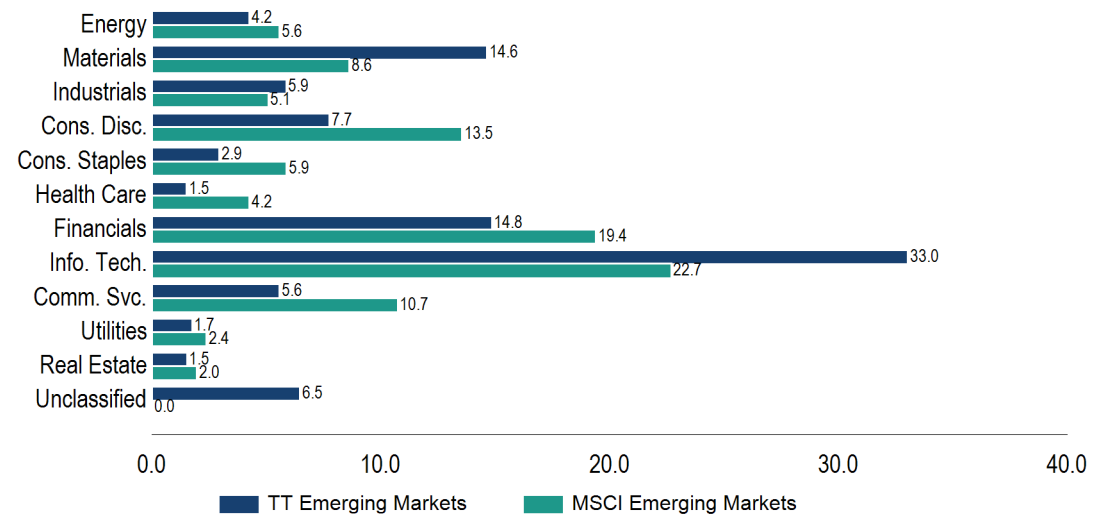
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	71	1,413
Weighted Avg. Market Cap. (\$B)	166.28	139.67
Median Market Cap. (\$B)	18.18	7.24
Price To Earnings	12.97	12.25
Price To Book	2.81	2.78
Price To Sales	1.63	1.44
Return on Equity (%)	16.86	14.60
Yield (%)	1.67	2.44
Beta	1.19	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	22.3%	0.0%
Emerging*	74.8%	100.0%
Frontier**	0.9%	0.0%
Top 10 Largest Countries		
China*	19.3%	32.4%
Taiwan*	18.0%	16.1%
Korea*	14.8%	12.8%
India*	9.6%	12.5%
Hong Kong	6.9%	0.0%
Netherlands	6.5%	0.0%
Brazil*	4.3%	4.0%
United States	4.0%	0.0%
Mexico*	2.5%	2.0%
Russia*	2.3%	3.6%
Total-Top 10 Largest Countries	88.3%	83.4%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

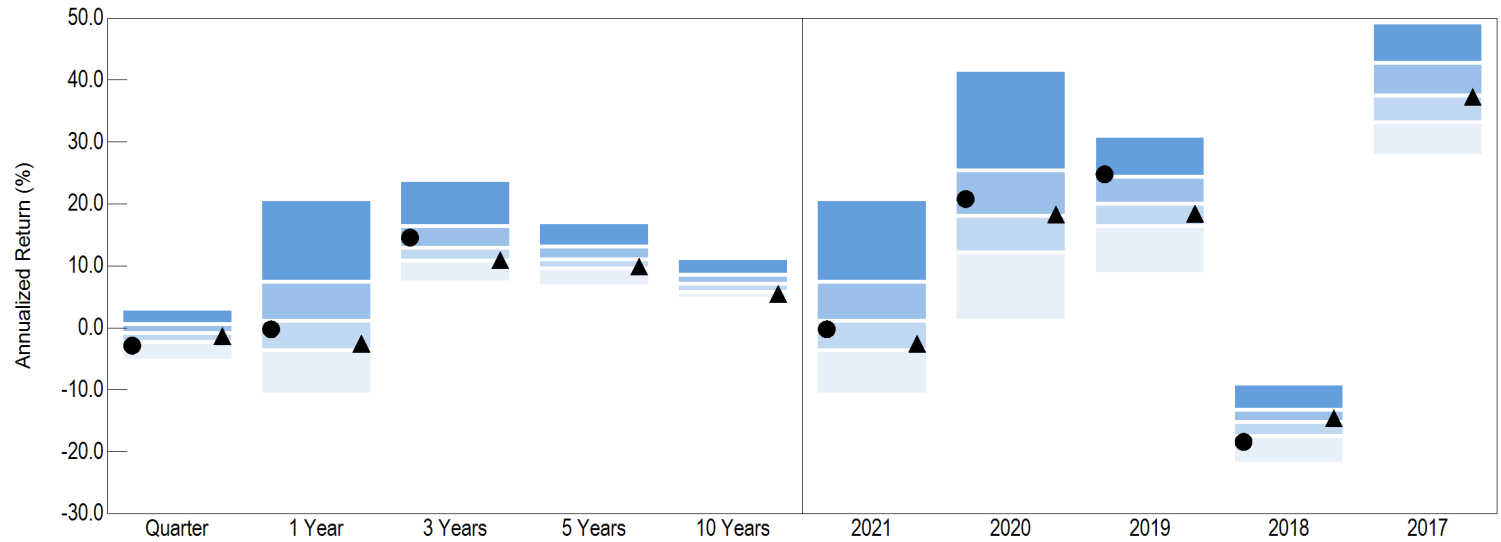
	End Weight	Return	Contribution
UNIMICRON TECHNOLOGY CORP	1.66	75.79	1.25
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	9.48	7.00	0.66
SK HYNIX INC	2.53	26.20	0.66
IMPALA PLATINUM HOLDINGS LTD	1.53	23.20	0.35
EVE ENERGY CO LTD	1.23	21.06	0.26
360 DIGITECH INC	1.77	14.36	0.25
DELTA ELECTRONICS INC	2.59	9.62	0.25
GLOBANT SA	1.86	11.77	0.22
SAMSUNG ELECTRONICS CO LTD	3.72	4.85	0.18

Bottom Contributors

	End Weight	Return	Contribution
ALIBABA GROUP HOLDING LTD	3.43	-16.52	-0.57
VNET GROUP INC	1.18	-47.83	-0.56
A-LIVING ORD H	0.79	-52.06	-0.41
RENEW ENERGY GLOBAL PLC	1.74	-23.73	-0.41
XP INC	0.95	-28.45	-0.27
YANDEX NV	1.11	-24.08	-0.27
KINGSOFT CLOUD HOLDINGS LTD	0.58	-44.38	-0.26
PHARMARON BEIJING CO LTD	0.66	-33.47	-0.22
H D F C BANK LTD	2.75	-7.66	-0.21
VEON LTD	1.05	-17.79	-0.19

Unclassified sector allocation includes cash allocations.

TT Emerging Markets vs. eV Emg Mkts Equity Gross Universe



	Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)	
5th Percentile	3.1	20.7	23.8	17.0	11.2	20.7	41.6	30.9	-9.0	49.2						
25th Percentile	0.7	7.5	16.5	13.2	8.6	7.5	25.5	24.4	-13.2	42.8						
Median	-0.7	1.2	13.0	11.1	7.2	1.2	18.2	20.1	-15.2	37.6						
75th Percentile	-2.2	-3.5	10.9	9.7	5.9	-3.5	12.2	16.5	-17.4	33.2						
95th Percentile	-5.2	-10.7	7.3	6.7	4.8	-10.7	1.2	8.8	-21.8	27.8						
# of Portfolios	392	391	367	325	208	391	391	386	355	343						
● TT Emerging Markets	-2.9 (82)	-0.2 (58)	14.6 (39)	-- (--)	-- (--)	-0.2 (58)	20.8 (39)	24.8 (24)	-18.4 (83)	-- (--)						
▲ MSCI Emerging Markets	-1.3 (63)	-2.5 (71)	10.9 (73)	9.9 (71)	5.5 (84)	-2.5 (71)	18.3 (49)	18.4 (63)	-14.6 (43)	37.3 (53)						

Global Equity Managers

Artisan Partners Manager Portfolio Overview

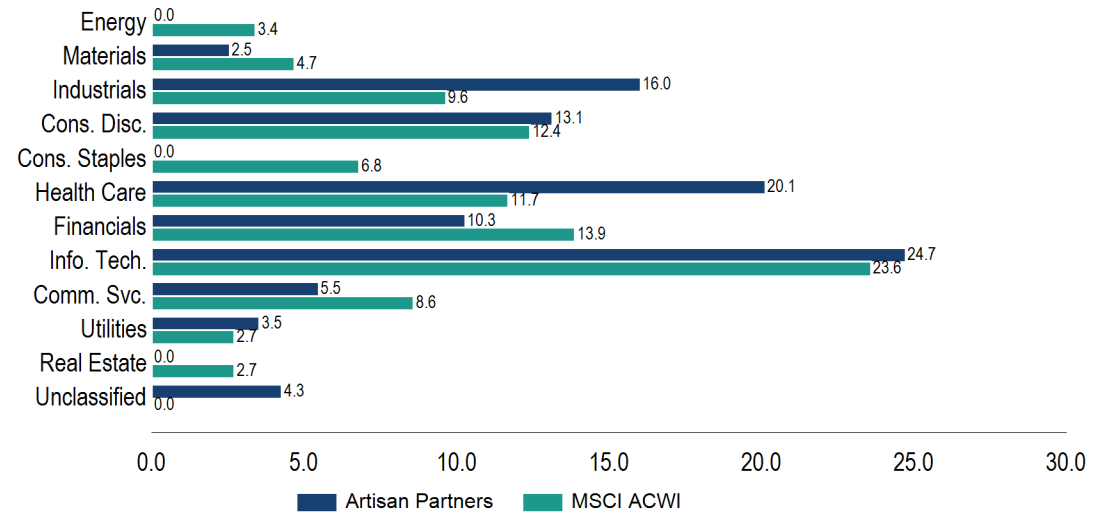
Period Ending: December 31, 2021

Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craig Cepukenas, and Matthew Kamm.

Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	47	2,957
Weighted Avg. Market Cap. (\$B)	202.01	431.01
Median Market Cap. (\$B)	53.28	14.32
Price To Earnings	32.46	20.62
Price To Book	5.24	3.85
Price To Sales	5.42	2.53
Return on Equity (%)	17.36	21.41
Yield (%)	0.67	1.79
Beta	0.90	1.00

Sector Allocation (%) vs MSCI ACWI



Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	95.9%	88.8%
Emerging*	0.5%	11.2%
Top 10 Largest Countries		
United States	47.8%	61.3%
United Kingdom	10.5%	3.6%
Switzerland	8.2%	2.6%
Hong Kong	6.7%	0.7%
Sweden	4.4%	1.0%
Canada	3.8%	2.9%
Cash	3.6%	0.0%
Japan	3.3%	5.5%
Australia	2.8%	1.7%
Netherlands	2.5%	1.2%
Total-Top 10 Largest Countries	93.6%	80.5%

Top Contributors

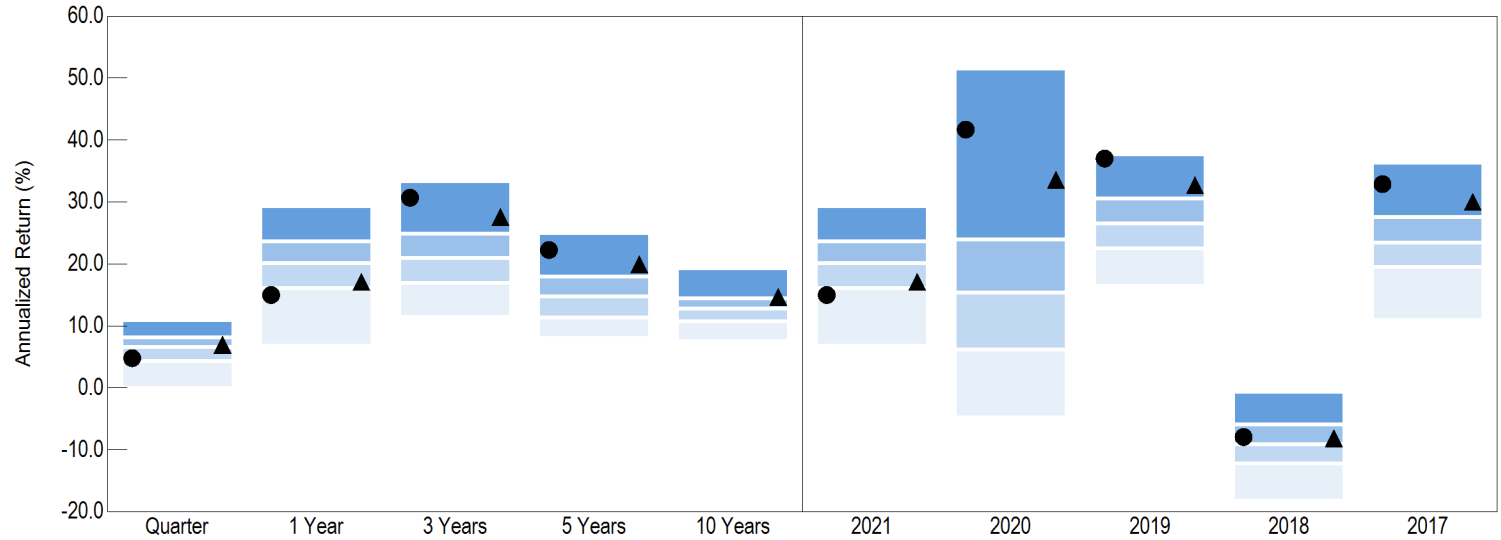
	Avg Wgt	Return	Contribution
ADVANCED MICRO DEVICES INC	4.51	39.85	1.80
ARISTA NETWORKS INC	1.32	67.33	0.89
NEXTERA ENERGY INC	3.19	19.42	0.62
LOWE'S COS INC	2.23	27.87	0.62
MICROSOFT CORP	2.37	19.51	0.46
LONZA GROUP AG	3.88	11.11	0.43
INGERSOLL RAND INC	1.82	22.78	0.41
IHS MARKIT LTD	2.65	14.15	0.38
UBS GROUP AG	2.88	12.05	0.35
SCHWAB (CHARLES) CORP	2.04	15.72	0.32

Bottom Contributors

	Avg Wgt	Return	Contribution
VEEVA SYSTEMS INC	4.06	-11.34	-0.46
MAGAZINE LUIZA S/A	0.86	-49.46	-0.43
ACTIVISION BLIZZARD INC	2.89	-14.03	-0.41
VESTAS WIND SYSTEMS A/S	1.14	-23.76	-0.27
AIA GROUP LTD	1.68	-12.76	-0.21
FIDELITY NATIONAL INFORMATION SERVICES INC	2.09	-9.96	-0.21
BANCO BILBAO VIZCAYA ARGENTARIA SA (BBVA)	1.99	-8.68	-0.17
GENMAB A/S	1.96	-8.09	-0.16
VOLKSWAGEN AG	1.41	-10.06	-0.14

Unclassified sector allocation includes cash allocations.

Artisan Partners vs. eV All Global Equity Gross Universe

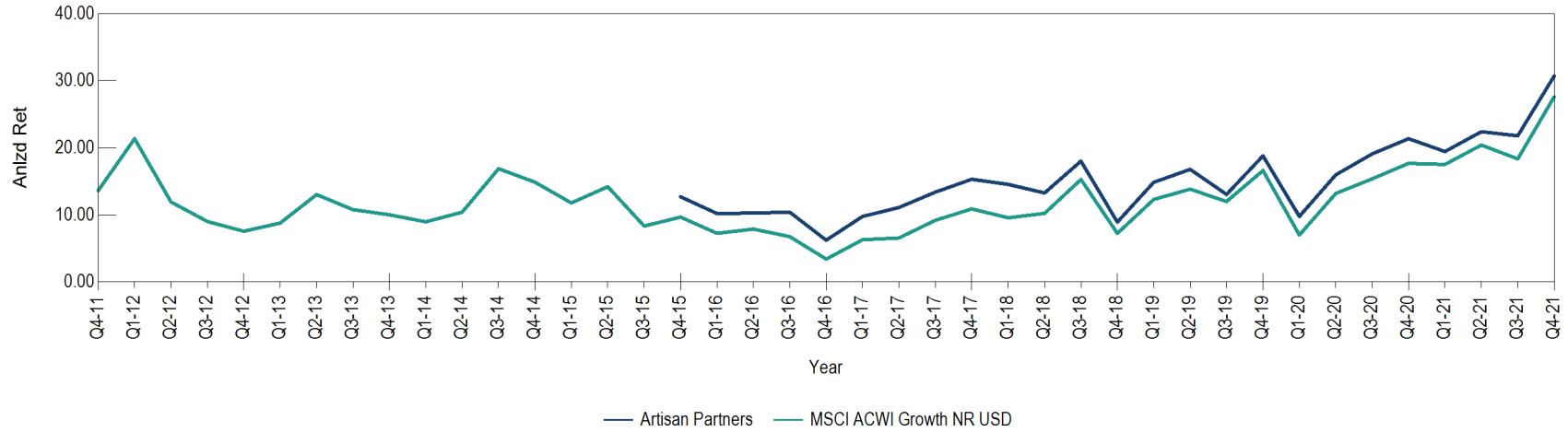


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	10.9	29.2	33.3	25.0	19.3	29.2	51.5	37.6	-0.7	36.3
25th Percentile	8.2	23.7	24.9	18.1	14.5	23.7	24.0	30.7	-5.8	27.6
Median	6.7	20.2	21.0	14.8	12.9	20.2	15.4	26.6	-9.1	23.5
75th Percentile	4.4	16.2	17.0	11.4	10.8	16.2	6.3	22.6	-12.2	19.6
95th Percentile	0.0	6.9	11.6	8.1	7.6	6.9	-4.7	16.5	-18.1	11.0
# of Portfolios	1,141	1,141	1,042	930	611	1,141	1,093	989	920	880
● Artisan Partners	4.8 (72)	15.0 (80)	30.7 (8)	22.2 (8)	-- (--)	15.0 (80)	41.7 (9)	37.0 (7)	-7.9 (40)	32.9 (11)
▲ MSCI ACWI Growth NR USD	6.9 (47)	17.1 (71)	27.6 (15)	19.9 (18)	14.7 (24)	17.1 (71)	33.6 (14)	32.7 (17)	-8.1 (42)	30.0 (17)

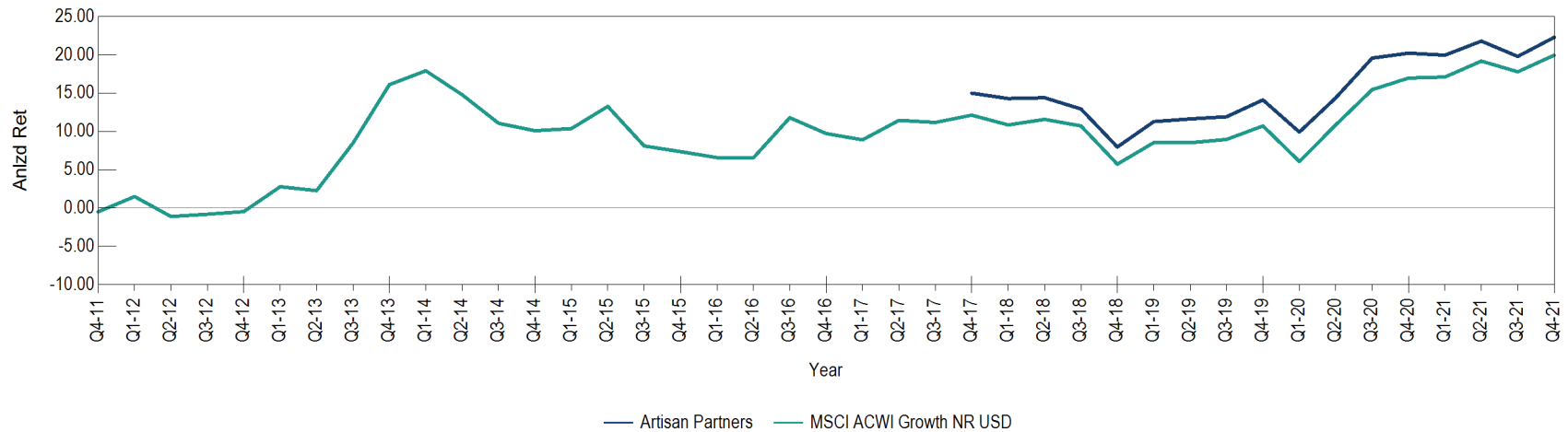
Artisan Partners
 Manager Performance - Rolling 3 & 5 Year (Gross of Fees)

Period Ending: December 31, 2021

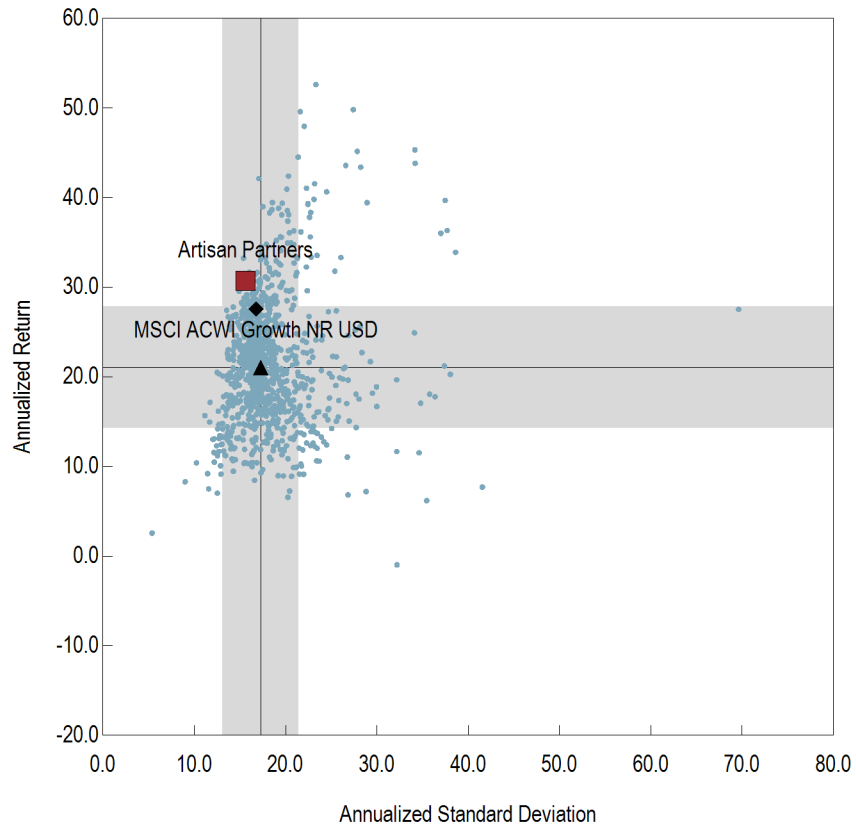
Rolling 3 Year Annualized Return (%)



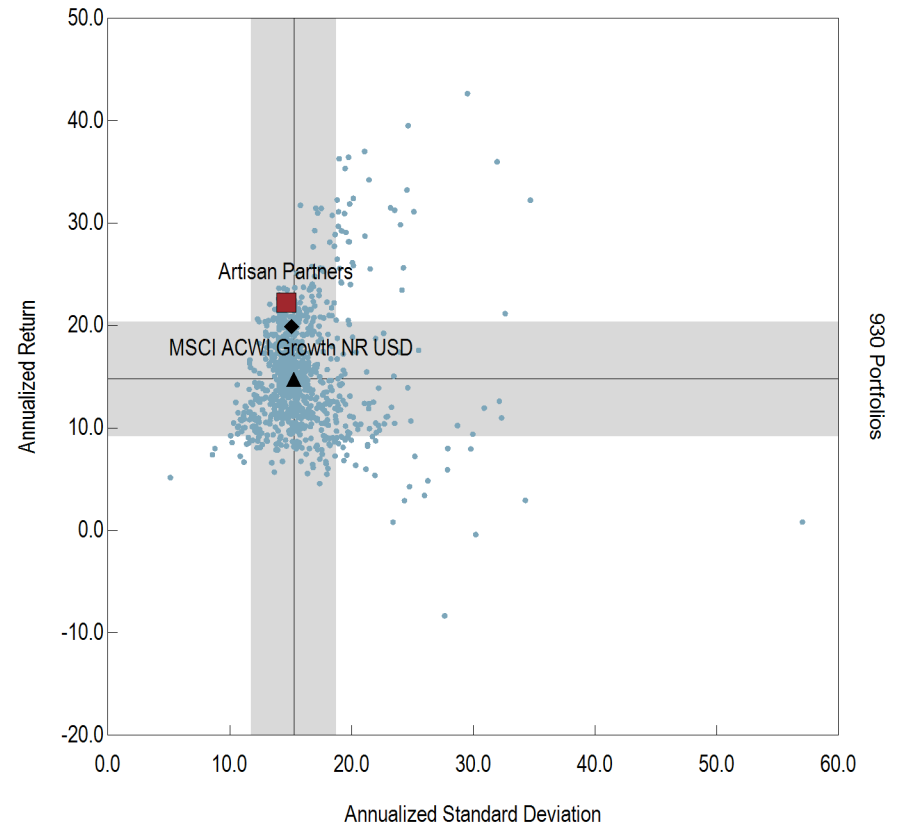
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	30.7%	15.6%	1.9
MSCI ACWI Growth NR USD	27.6%	16.8%	1.6
eV All Global Equity Gross Median	21.0%	17.3%	1.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	22.2%	14.6%	1.4
MSCI ACWI Growth NR USD	19.9%	15.1%	1.2
eV All Global Equity Gross Median	14.8%	15.3%	0.9

First Eagle Manager Portfolio Overview

Period Ending: December 31, 2021

Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

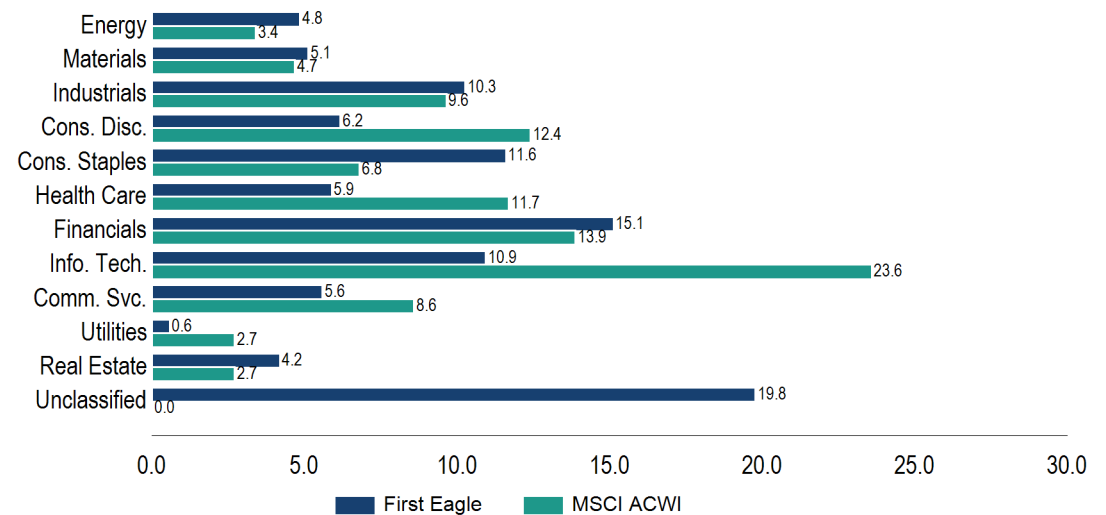
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	136	2,957
Weighted Avg. Market Cap. (\$B)	175.34	431.01
Median Market Cap. (\$B)	31.25	14.32
Price To Earnings	17.79	20.62
Price To Book	2.55	3.85
Price To Sales	2.02	2.53
Return on Equity (%)	15.57	21.41
Yield (%)	1.97	1.79
Beta	0.79	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	93.7%	88.8%
Emerging*	6.3%	11.2%
Top 10 Largest Countries		
United States	61.6%	61.3%
Japan	8.1%	5.5%
United Kingdom	7.0%	3.6%
Canada	4.0%	2.9%
France	3.9%	2.9%
Switzerland	2.7%	2.6%
Korea*	1.6%	1.4%
Belgium	1.5%	0.2%
Taiwan*	1.2%	1.8%
Sweden	1.1%	1.0%
Total-Top 10 Largest Countries	93.5%	83.2%

Sector Allocation (%) vs MSCI ACWI



Top Contributors

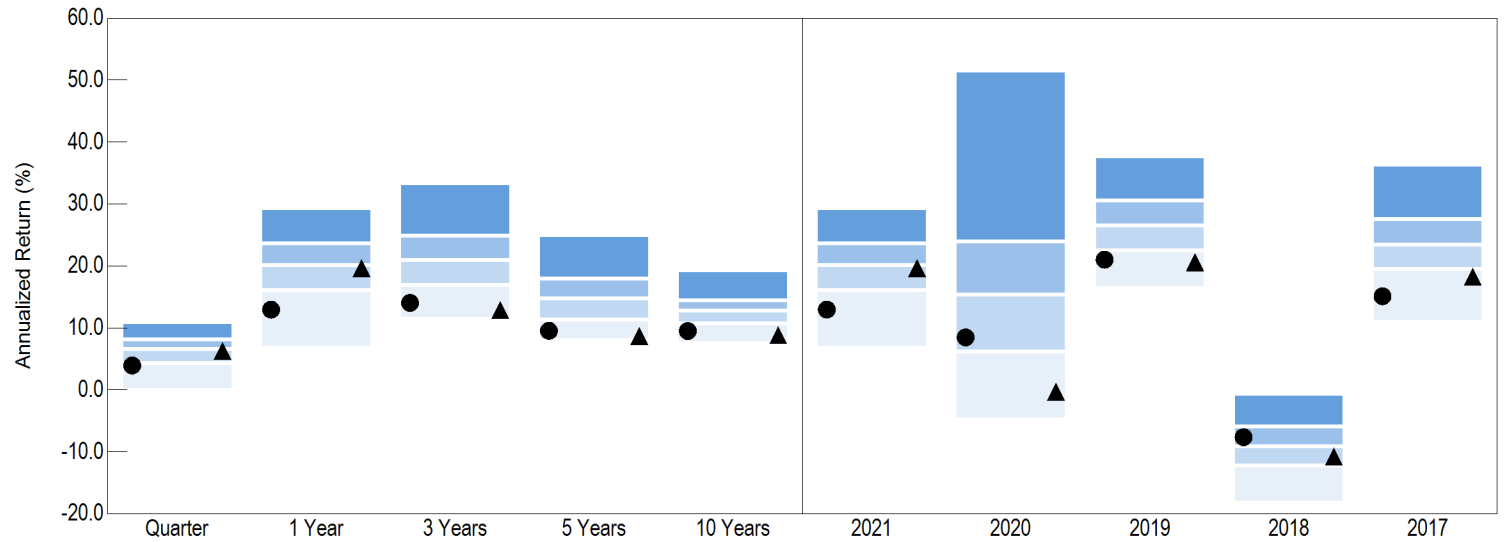
	End Weight	Return	Contribution
CIE FINANCIERE RICHMONT AG, ZUG	1.64	43.90	0.72
C.H. ROBINSON WORLDWIDE INC.	1.60	24.37	0.39
SPDR GOLD TRUST	9.04	4.10	0.37
ANTHEM INC	1.30	24.69	0.32
MICROSOFT CORP	1.30	19.51	0.25
WEYERHAEUSER CO	1.22	17.91	0.22
BROWN & BROWN INC	0.75	26.95	0.20
UNION PACIFIC CORP	0.68	29.15	0.20
COLGATE-PALMOLIVE CO	1.26	13.59	0.17
BANK OF NEW YORK MELLON CORP (THE)	1.34	12.68	0.17

Bottom Contributors

	End Weight	Return	Contribution
COMCAST CORP	2.08	-9.62	-0.20
TERADATA CORPORATION	0.66	-25.95	-0.17
DANONE	1.28	-9.29	-0.12
ALIBABA GROUP HOLDING LTD	0.52	-19.76	-0.10
MITSUBISHI ESTATE CO LTD	0.68	-13.24	-0.09
HENKEL AG & CO KGAA	0.58	-12.94	-0.07
SHIMANO INC	0.70	-9.37	-0.07
FOMENTO ECONOMICO MEXICAN SAB DE CV	0.55	-9.76	-0.05
FLOWSERVE CORP.	0.46	-11.17	-0.05
HOSHIZAKI ELECTRIC	0.30	-16.65	-0.05

Unclassified sector allocation includes cash allocations and Gold allocations (8.55% as of 6/30/2021).

First Eagle vs. eV All Global Equity Gross Universe

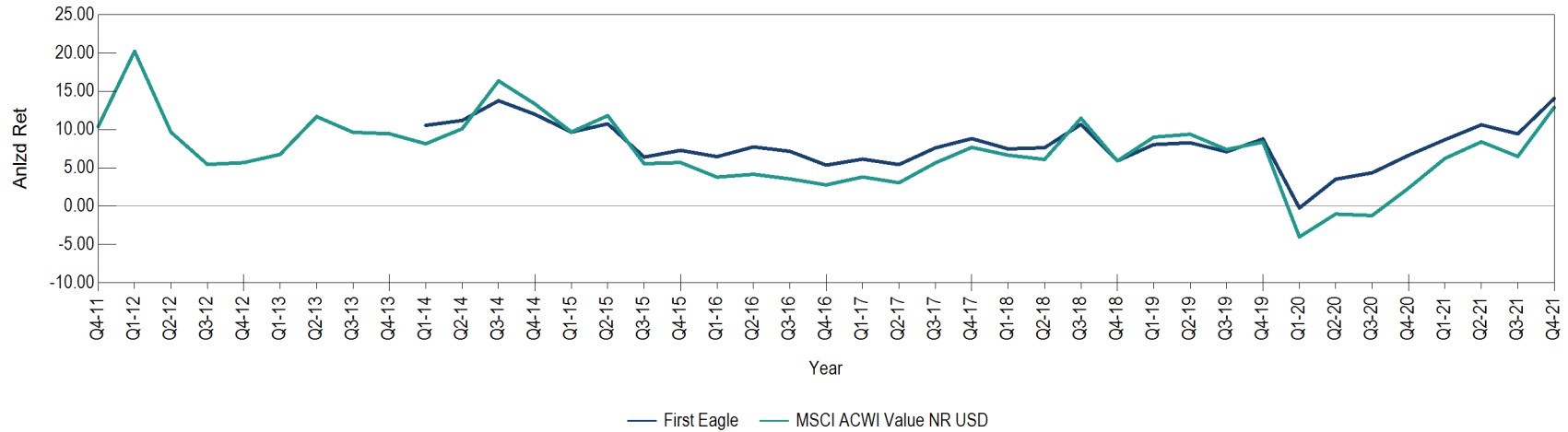


	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017
5th Percentile	10.9	29.2	33.3	25.0	19.3	29.2	51.5	37.6	-0.7	36.3
25th Percentile	8.2	23.7	24.9	18.1	14.5	23.7	24.0	30.7	-5.8	27.6
Median	6.7	20.2	21.0	14.8	12.9	20.2	15.4	26.6	-9.1	23.5
75th Percentile	4.4	16.2	17.0	11.4	10.8	16.2	6.3	22.6	-12.2	19.6
95th Percentile	0.0	6.9	11.6	8.1	7.6	6.9	-4.7	16.5	-18.1	11.0
# of Portfolios	1,141	1,141	1,042	930	611	1,141	1,093	989	920	880
● First Eagle	3.9 (79)	13.0 (85)	14.0 (88)	9.5 (89)	9.5 (89)	13.0 (85)	8.5 (70)	21.0 (82)	-7.6 (38)	15.1 (89)
▲ MSCI ACWI Value NR USD	6.3 (57)	19.6 (55)	12.9 (92)	8.7 (93)	8.8 (93)	19.6 (55)	-0.3 (89)	20.6 (83)	-10.8 (65)	18.3 (81)

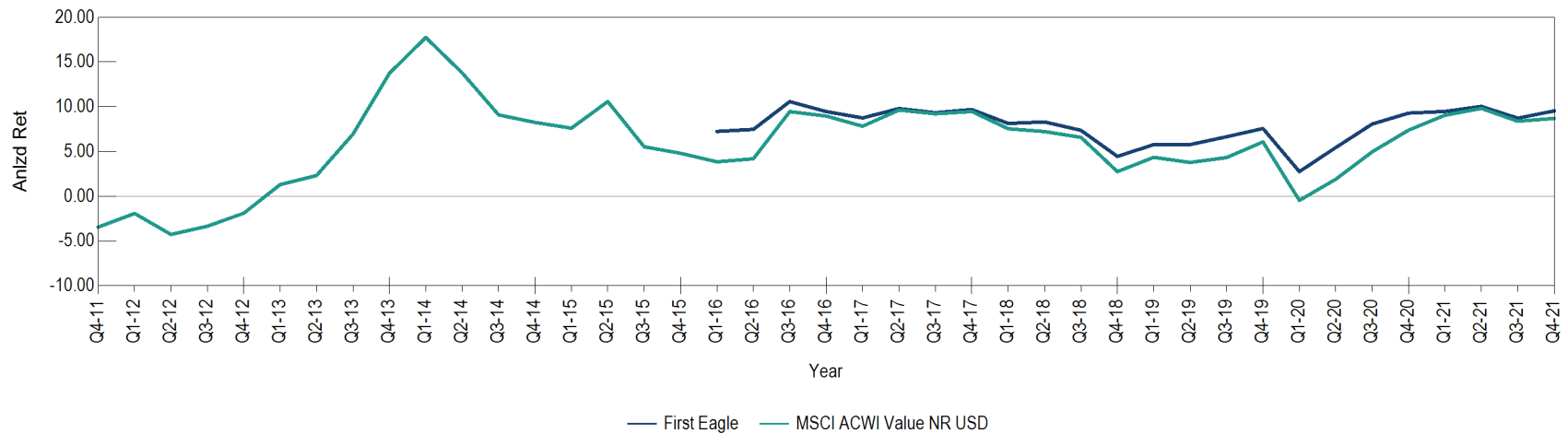
First Eagle
 Manager Performance - Rolling 3 & 5 Year (Gross of Fees)

Period Ending: December 31, 2021

Rolling 3 Year Annualized Return (%)



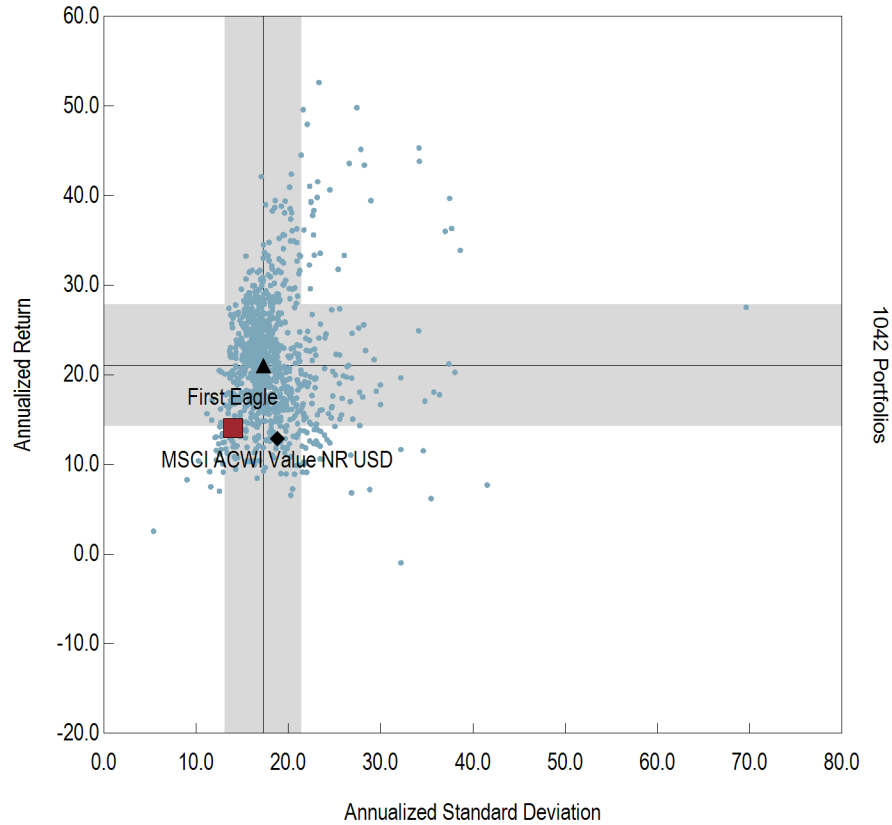
Rolling 5 Year Annualized Return (%)



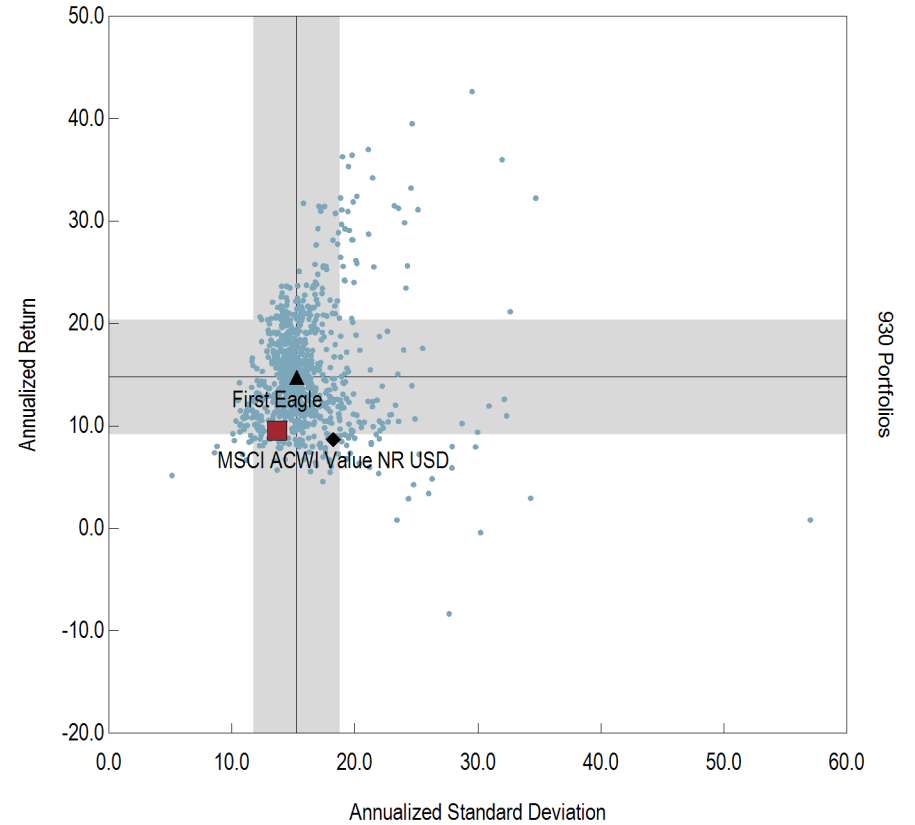
First Eagle
Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: December 31, 2021

3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	14.0%	14.0%	0.9
MSCI ACWI Value NR USD	12.9%	18.8%	0.6
eV All Global Equity Gross Median	21.0%	17.3%	1.2

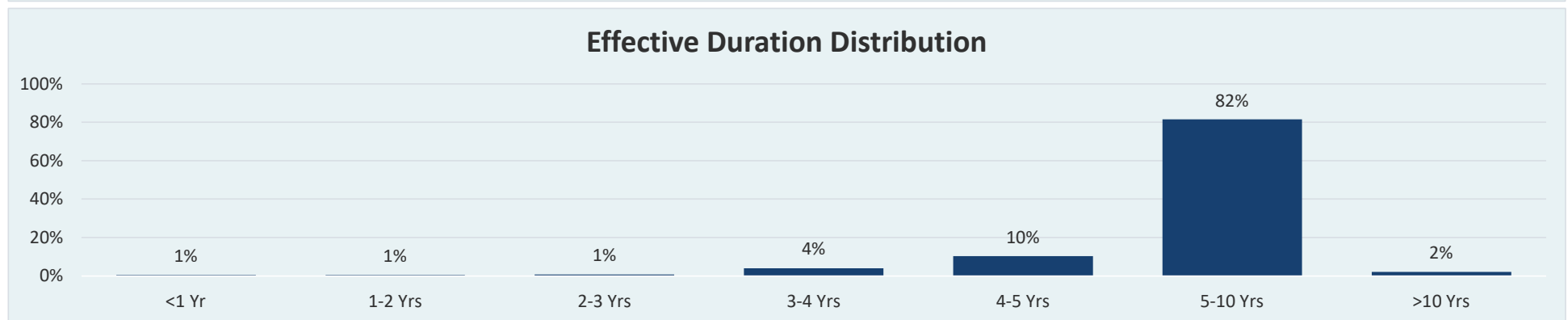
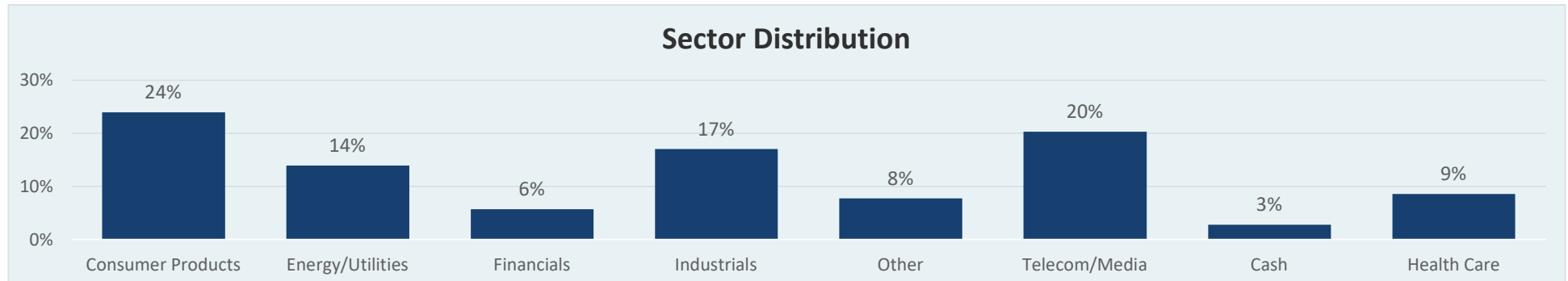
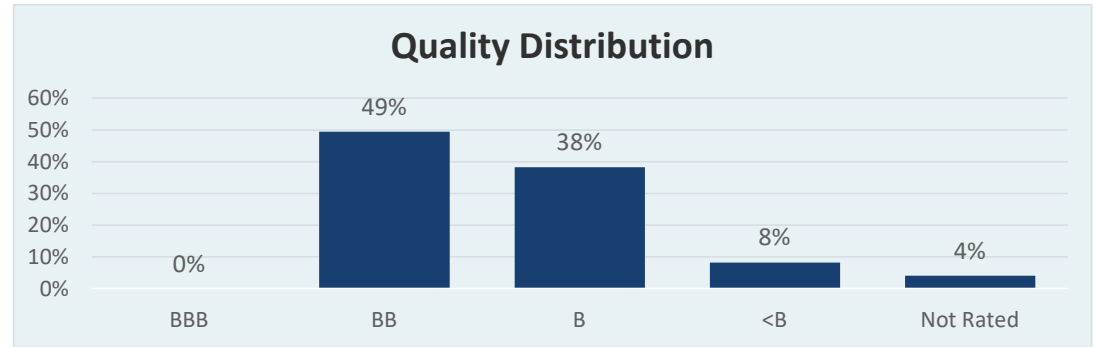
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	9.5%	11.7%	0.7
MSCI ACWI Value NR USD	8.7%	15.8%	0.5
eV All Global Equity Gross Median	14.8%	15.3%	0.9

High Yield Managers

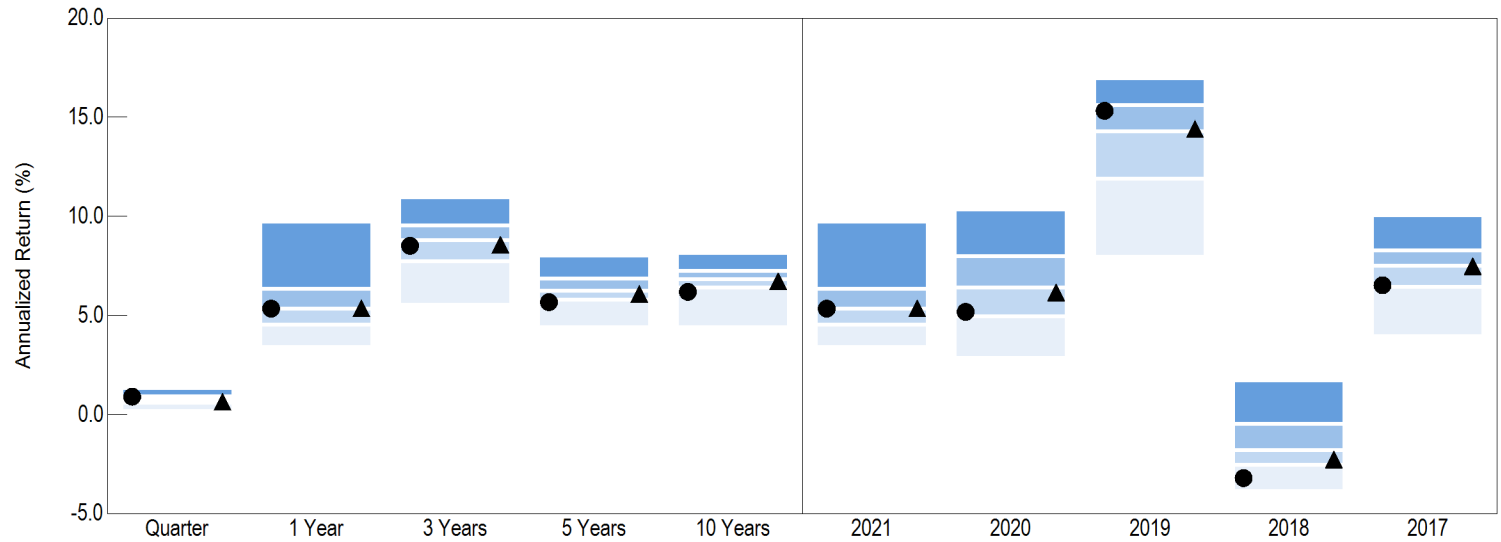
Domestic high yield fixed income portfolio with a focus on security selection. Primary personnel include Douglas Forsyth, Justin Kass, William Stickney, and Michael Yee.

	Allianz	ICE BofAML HY Master II
Effective Duration	4.10	4.00
Yield to Maturity	4.80	4.90
Average Quality	B1	B1
Average Coupon	5.9%	5.7%



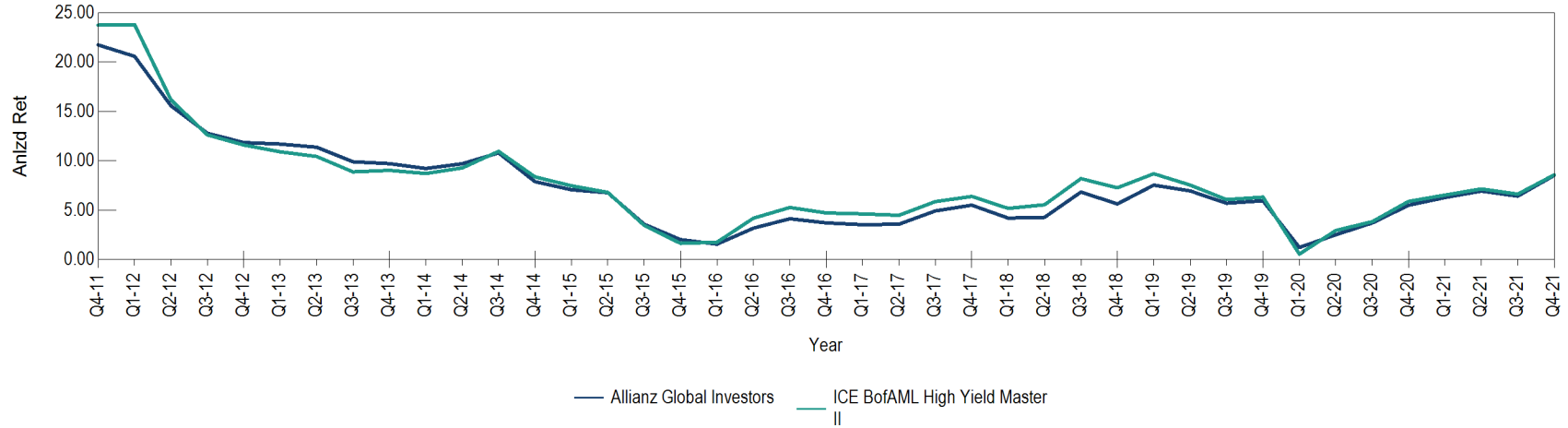
Quality distribution excludes cash.

Allianz Global Investors vs. eV US High Yield Fixed Inc Gross Universe

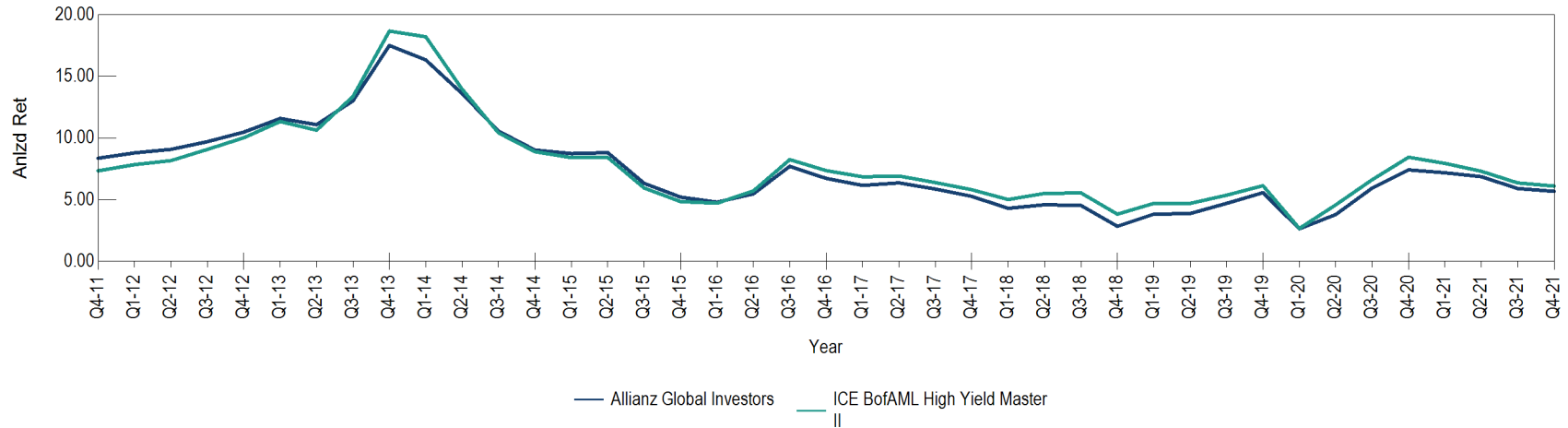


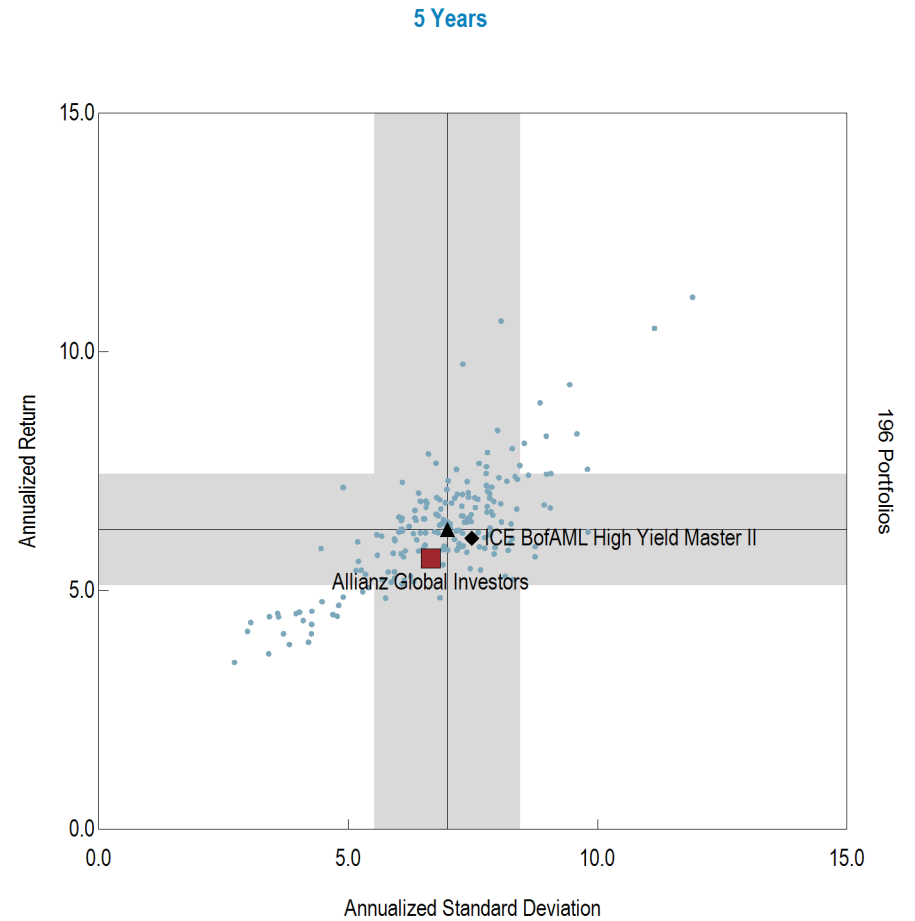
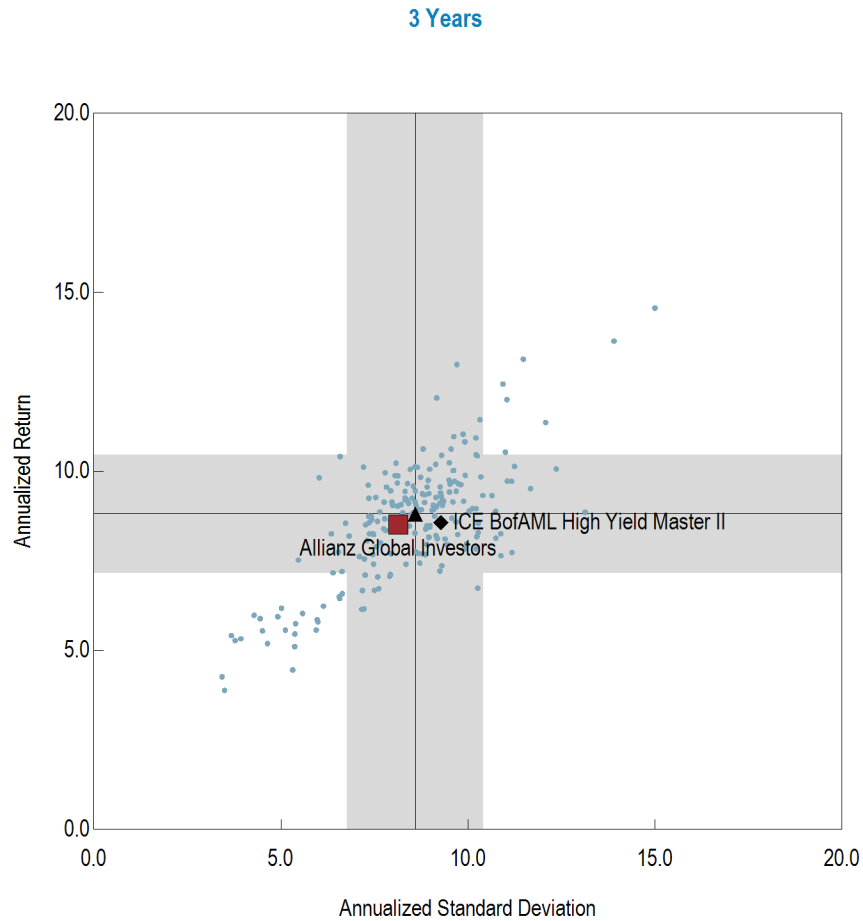
	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017	
5th Percentile	1.3	9.7	11.0	8.0	8.1	9.7	10.3	16.9	1.7	10.0	
25th Percentile	0.9	6.4	9.6	6.9	7.3	6.4	8.0	15.6	-0.5	8.3	
Median	0.8	5.4	8.8	6.3	6.9	5.4	6.4	14.3	-1.8	7.5	
75th Percentile	0.6	4.6	7.8	5.8	6.4	4.6	5.0	11.9	-2.5	6.5	
95th Percentile	0.2	3.4	5.6	4.4	4.4	3.4	2.9	8.0	-3.8	4.0	
# of Portfolios	211	211	208	196	147	211	217	226	210	198	
● Allianz Global Investors	0.9 (31)	5.3 (51)	8.5 (58)	5.7 (79)	6.2 (80)	5.3 (51)	5.2 (74)	15.3 (31)	-3.2 (88)	6.5 (74)	
▲ ICE BofAML High Yield Master II	0.7 (71)	5.4 (50)	8.6 (57)	6.1 (60)	6.7 (60)	5.4 (50)	6.2 (55)	14.4 (49)	-2.3 (69)	7.5 (53)	

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





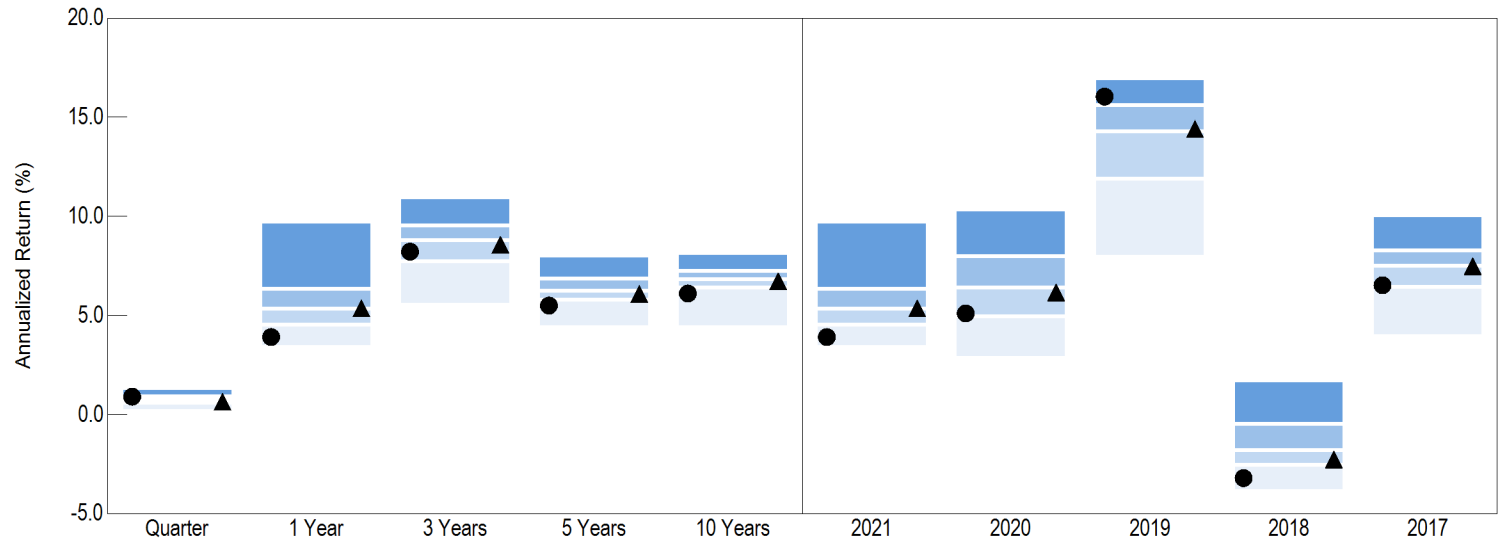
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	8.5%	8.1%	0.9
ICE BofAML High Yield Master II	8.6%	9.3%	0.8
eV US High Yield Fixed Inc Gross Median	8.8%	8.6%	0.9

5 Years

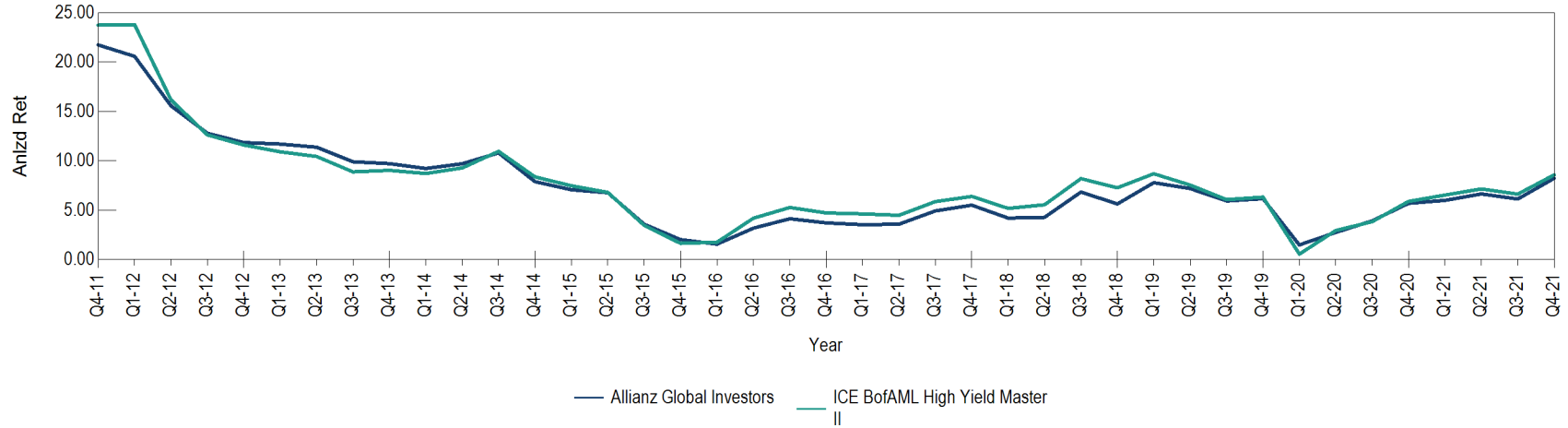
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	5.7%	6.7%	0.7
ICE BofAML High Yield Master II	6.1%	7.5%	0.7
eV US High Yield Fixed Inc Gross Median	6.3%	7.0%	0.8

Allianz Global Investors vs. eV US High Yield Fixed Inc Gross Universe

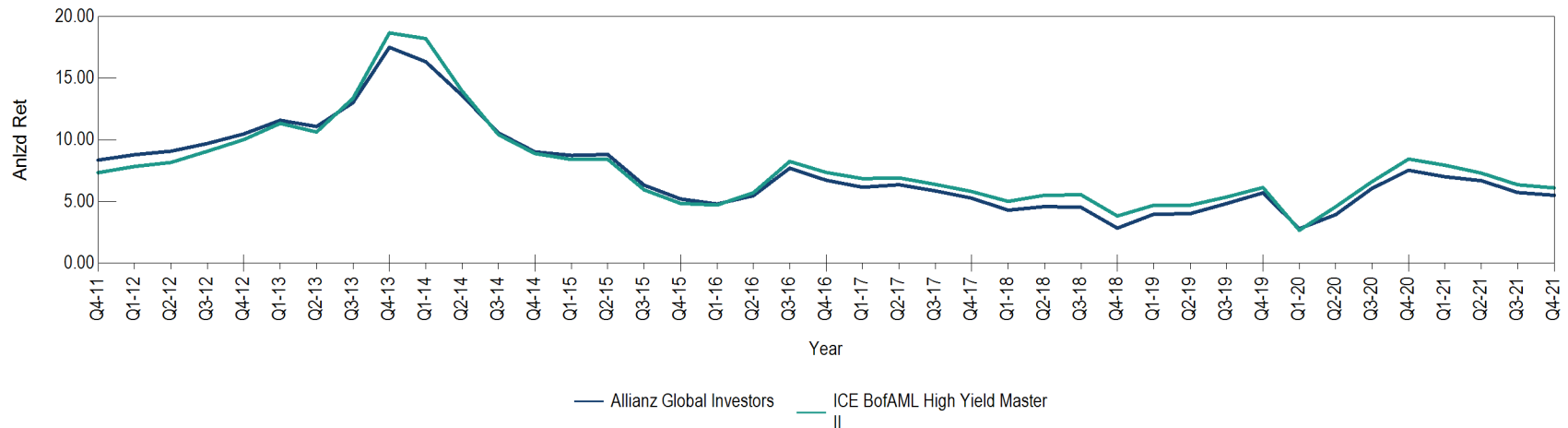


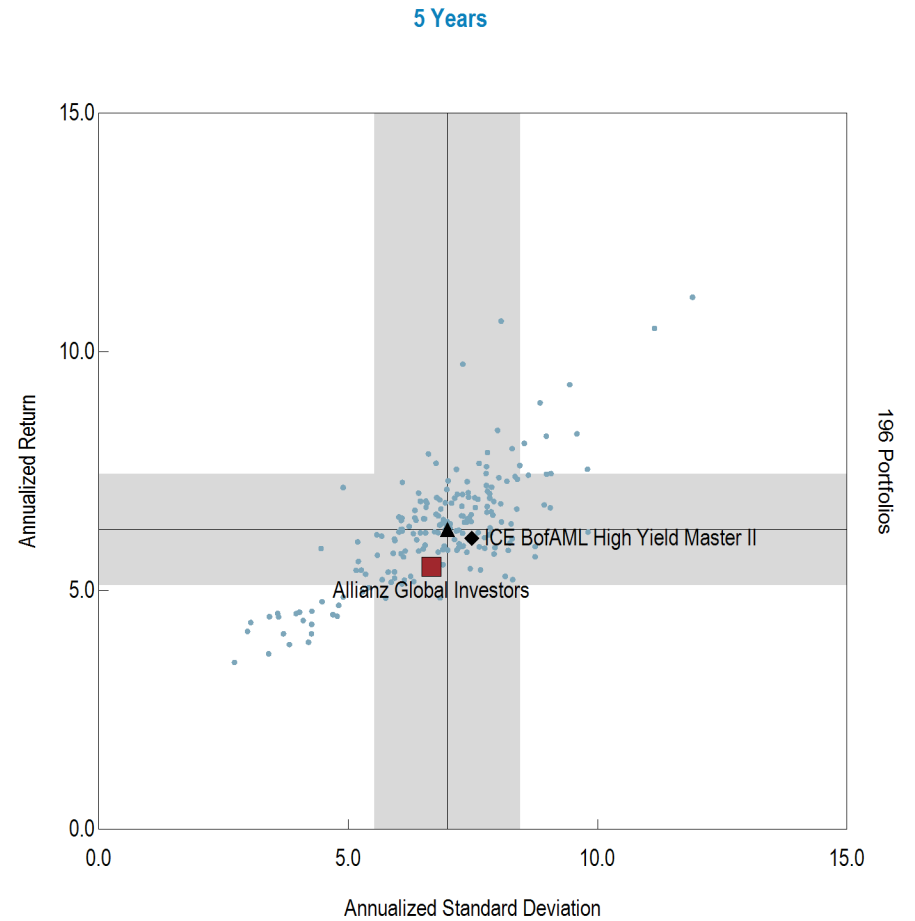
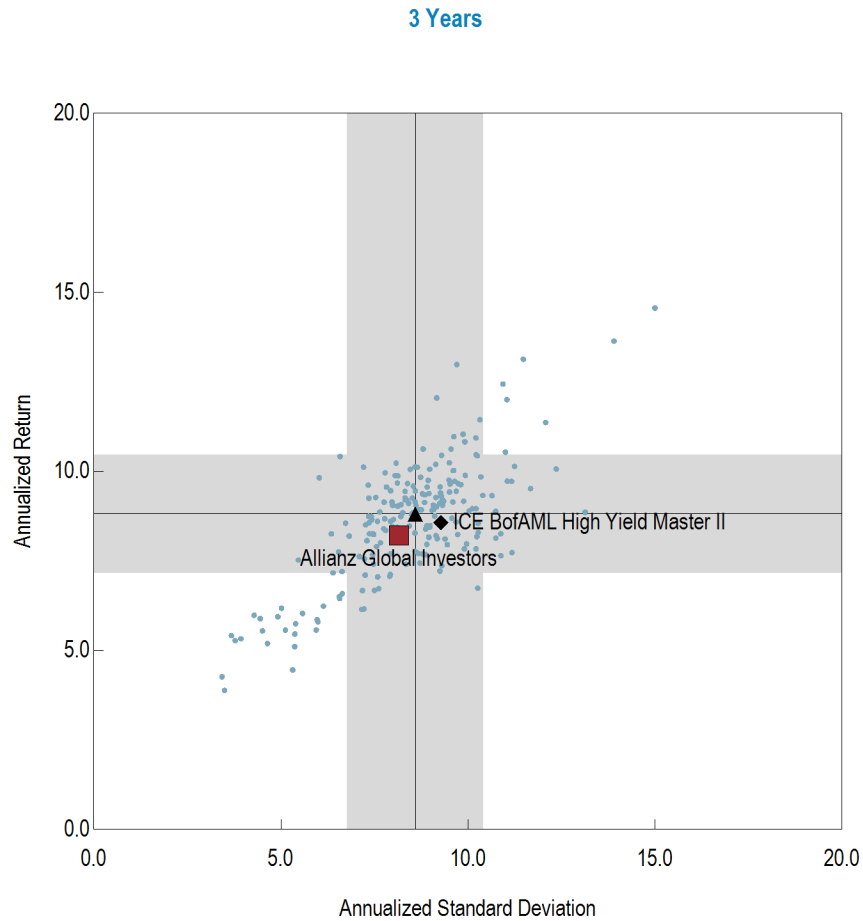
	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017	
5th Percentile	1.3	9.7	11.0	8.0	8.1	9.7	10.3	16.9	1.7	10.0	
25th Percentile	0.9	6.4	9.6	6.9	7.3	6.4	8.0	15.6	-0.5	8.3	
Median	0.8	5.4	8.8	6.3	6.9	5.4	6.4	14.3	-1.8	7.5	
75th Percentile	0.6	4.6	7.8	5.8	6.4	4.6	5.0	11.9	-2.5	6.5	
95th Percentile	0.2	3.4	5.6	4.4	4.4	3.4	2.9	8.0	-3.8	4.0	
# of Portfolios	211	211	208	196	147	211	217	226	210	198	
● Allianz Global Investors	0.9 (31)	3.9 (88)	8.2 (67)	5.5 (80)	6.1 (84)	3.9 (88)	5.1 (74)	16.0 (15)	-3.2 (88)	6.5 (74)	
▲ ICE BofAML High Yield Master II	0.7 (71)	5.4 (50)	8.6 (57)	6.1 (60)	6.7 (60)	5.4 (50)	6.2 (55)	14.4 (49)	-2.3 (69)	7.5 (53)	

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	8.2%	8.2%	0.9
ICE BofAML High Yield Master II	8.6%	9.3%	0.8
eV US High Yield Fixed Inc Gross Median	8.8%	8.6%	0.9

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	5.5%	6.7%	0.7
ICE BofAML High Yield Master II	6.1%	7.5%	0.7
eV US High Yield Fixed Inc Gross Median	6.3%	7.0%	0.8

Real Estate Managers

Adelante Manager Portfolio Overview

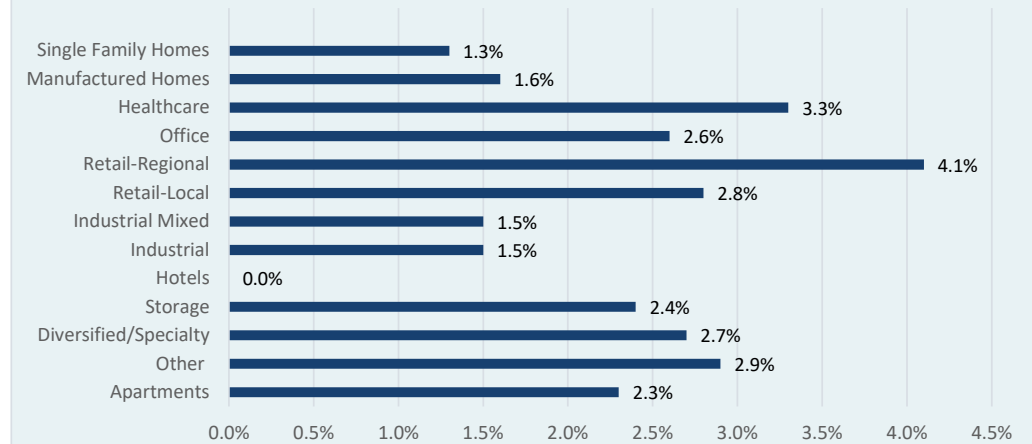
Period Ending: December 31, 2021

Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets

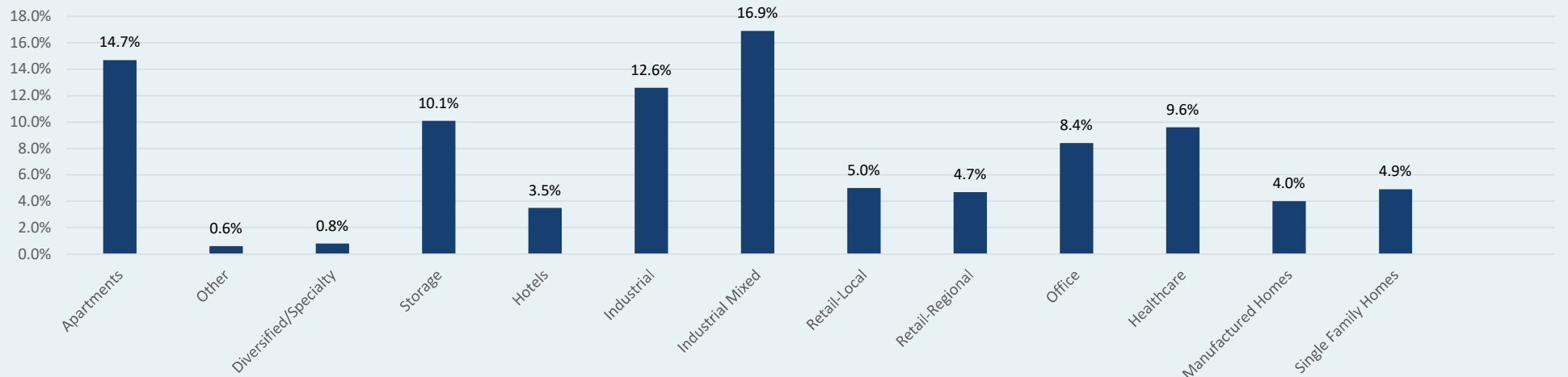
Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	11.9%
Equinix Inc	Industrial Mixed	8.5%
Duke Realty Corporation	Industrial Mixed	5.5%
Equity Residential	Apartments	5.4%
Welltower, Inc.	Healthcare	5.3%

Dividend Yield by Property Type



Property Type Allocation

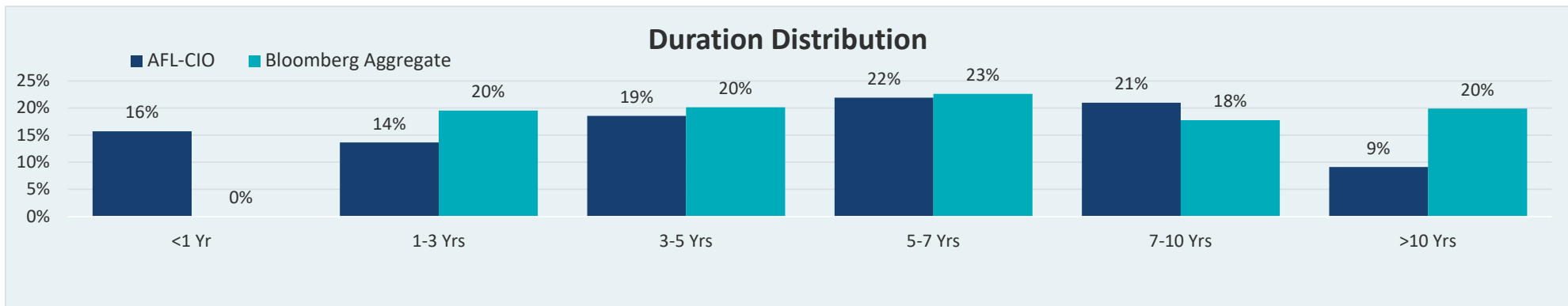
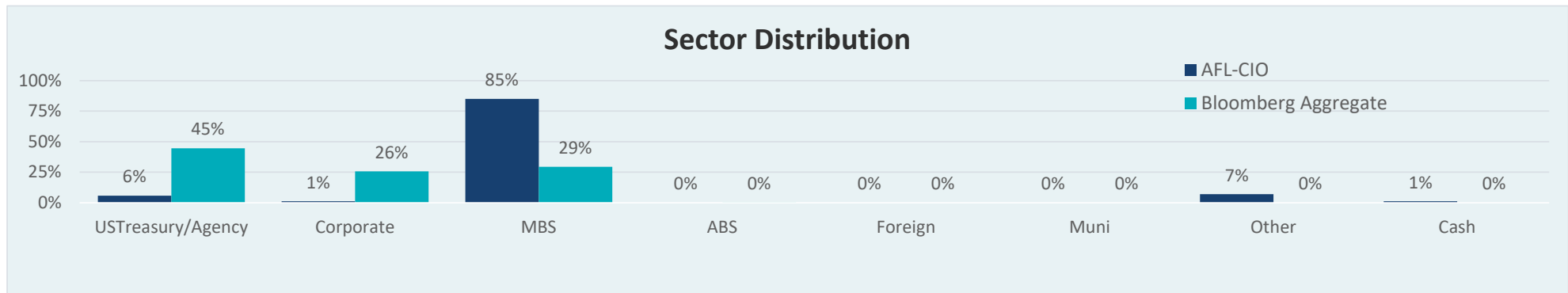
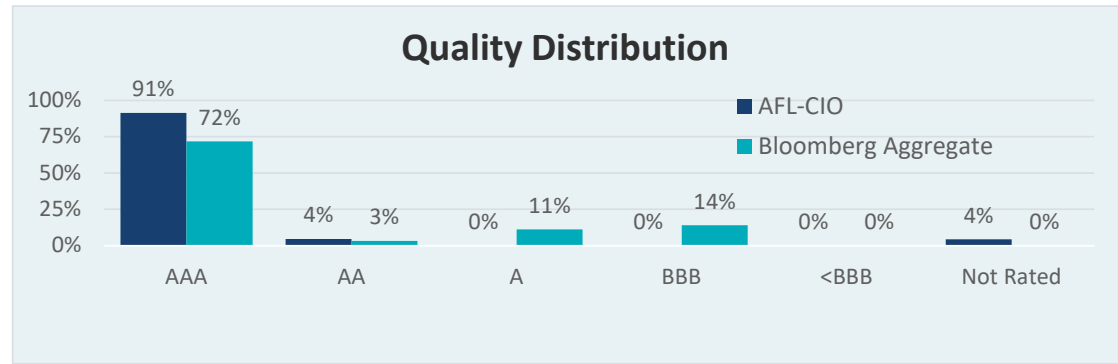


3% is allocated to Cash and Cash Equivalents.

Diversifying Fixed Income Managers

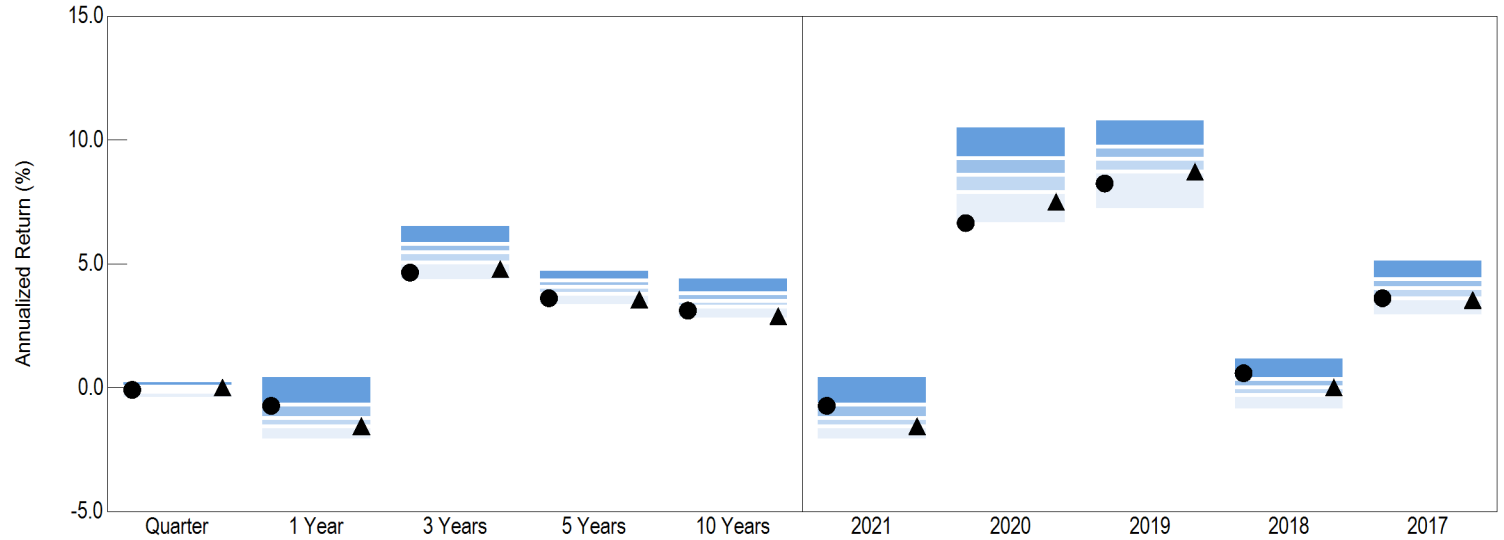
Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	Bloomberg Aggregate
Effective Duration	6.02	6.35
Yield to Maturity	2.47	1.71
Average Quality	AAA	AA/AA+
Average Coupon	2.6%	2.5%



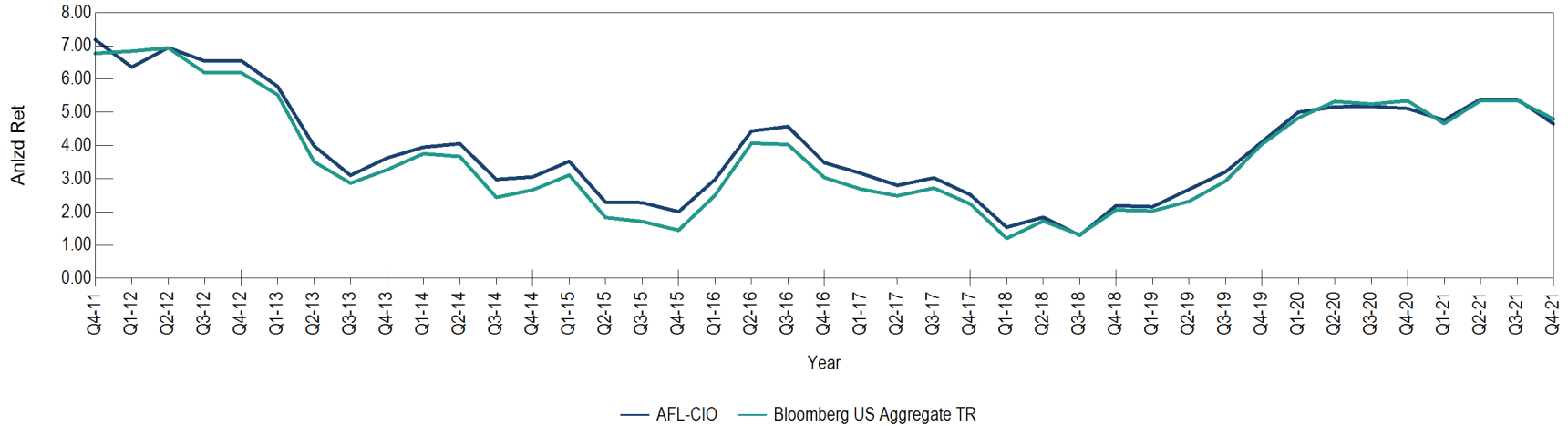
Duration and Quality distributions exclude cash.

AFL-CIO vs. eV US Core Fixed Inc Gross Universe

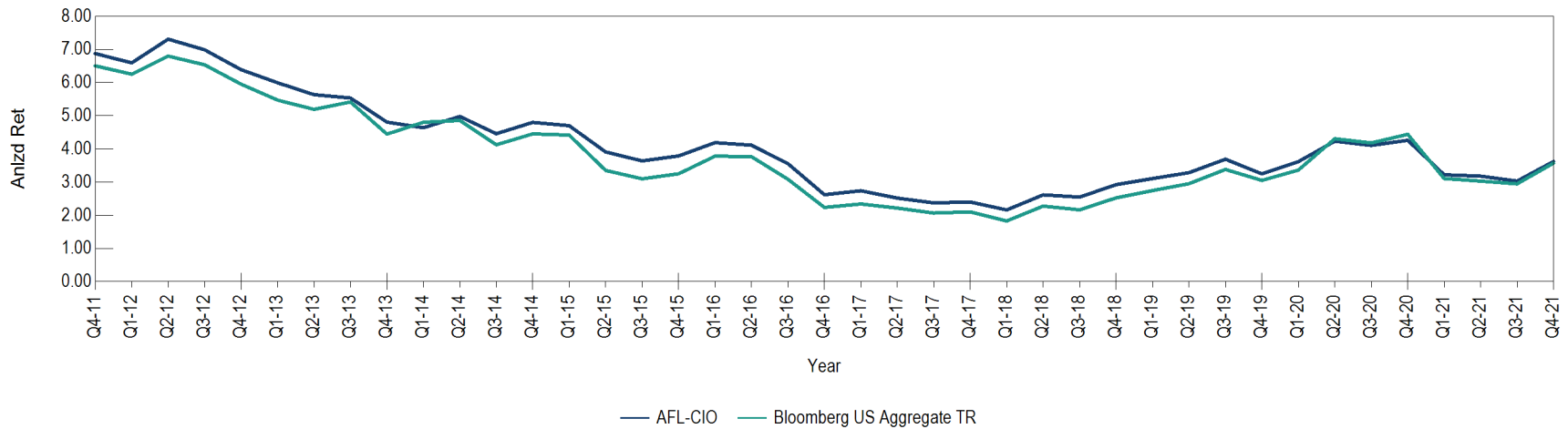


	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2021	2020	2019	2018	2017	
5th Percentile	0.3	0.5	6.6	4.8	4.5	0.5	10.6	10.9	1.2	5.2	
25th Percentile	0.1	-0.7	5.8	4.3	3.8	-0.7	9.3	9.8	0.4	4.4	
Median	0.0	-1.2	5.5	4.1	3.5	-1.2	8.6	9.3	0.0	4.0	
75th Percentile	-0.1	-1.5	5.1	3.8	3.3	-1.5	7.9	8.7	-0.3	3.6	
95th Percentile	-0.4	-2.1	4.3	3.3	2.8	-2.1	6.6	7.2	-0.9	2.9	
# of Portfolios	217	217	211	208	200	217	225	228	240	233	
● AFL-CIO	-0.1 (63)	-0.7 (30)	4.6 (91)	3.6 (88)	3.1 (86)	-0.7 (30)	6.6 (95)	8.2 (88)	0.6 (16)	3.6 (76)	
▲ Bloomberg US Aggregate TR	0.0 (38)	-1.5 (76)	4.8 (90)	3.6 (91)	2.9 (95)	-1.5 (76)	7.5 (85)	8.7 (77)	0.0 (54)	3.5 (79)	

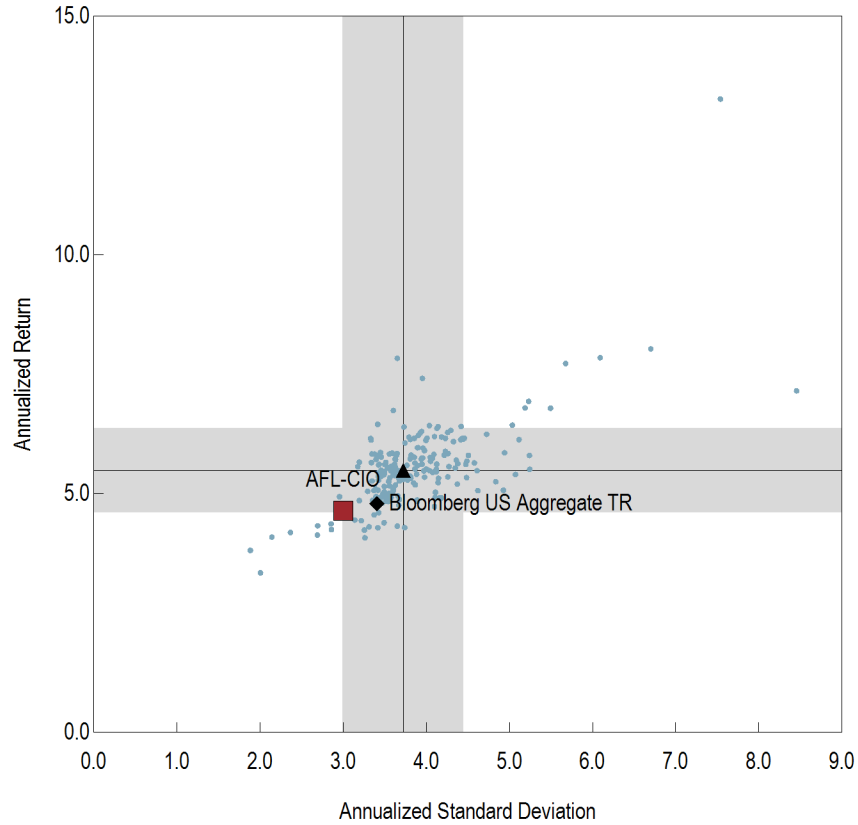
Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)

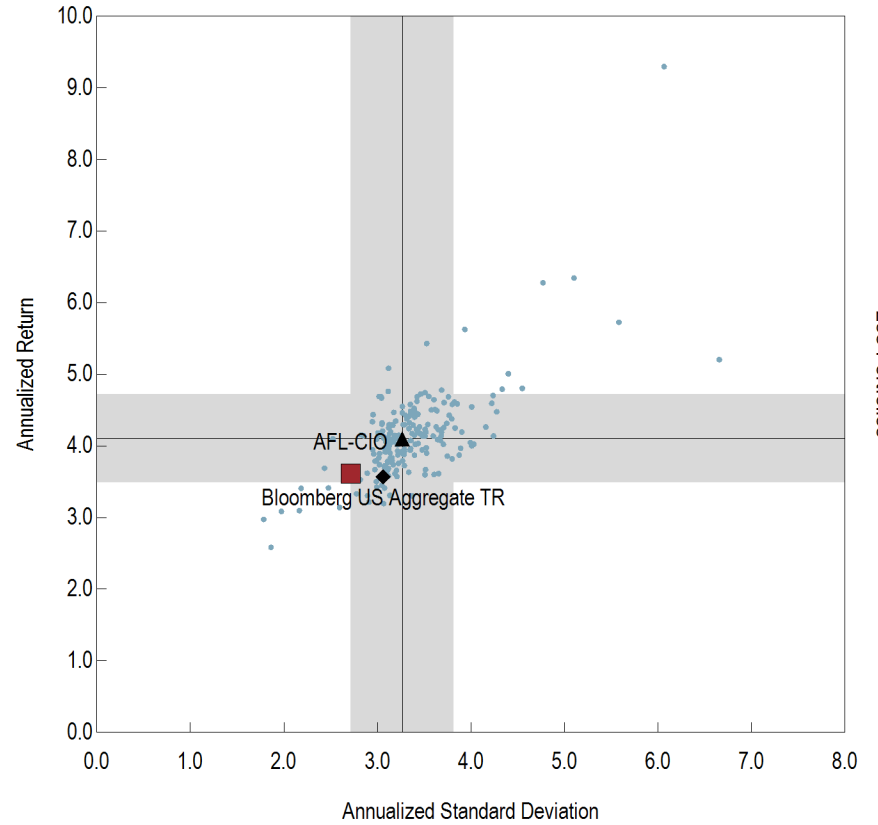


3 Years



211 Portfolios

5 Years



208 Portfolios

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	4.6%	3.0%	1.3
Bloomberg US Aggregate TR	4.8%	3.4%	1.2
eV US Core Fixed Inc Gross Median	5.5%	3.7%	1.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	3.6%	2.7%	0.9
Bloomberg US Aggregate TR	3.6%	3.1%	0.8
eV US Core Fixed Inc Gross Median	4.1%	3.3%	0.9

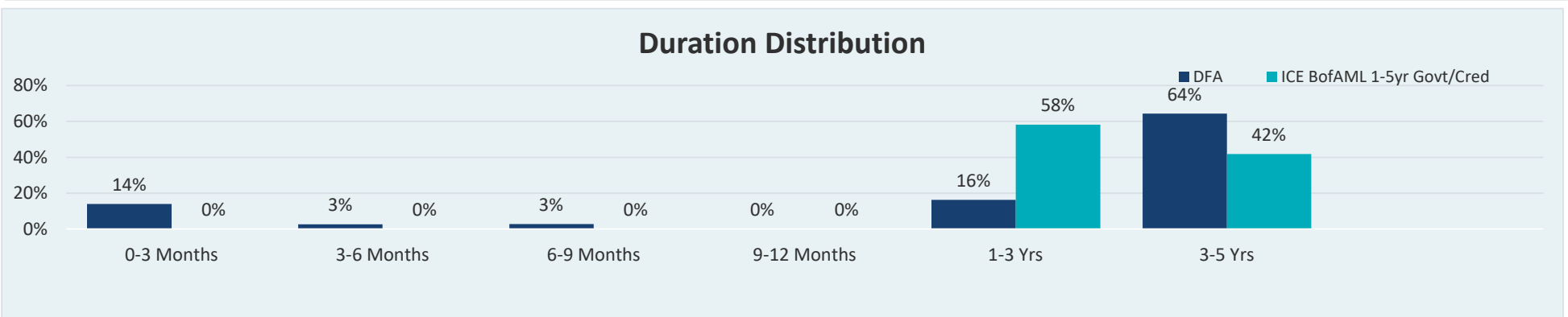
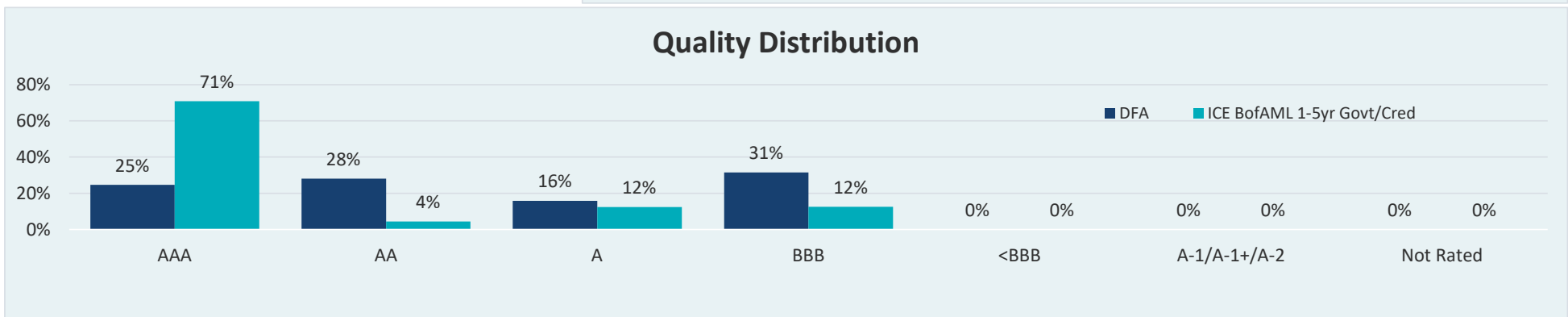
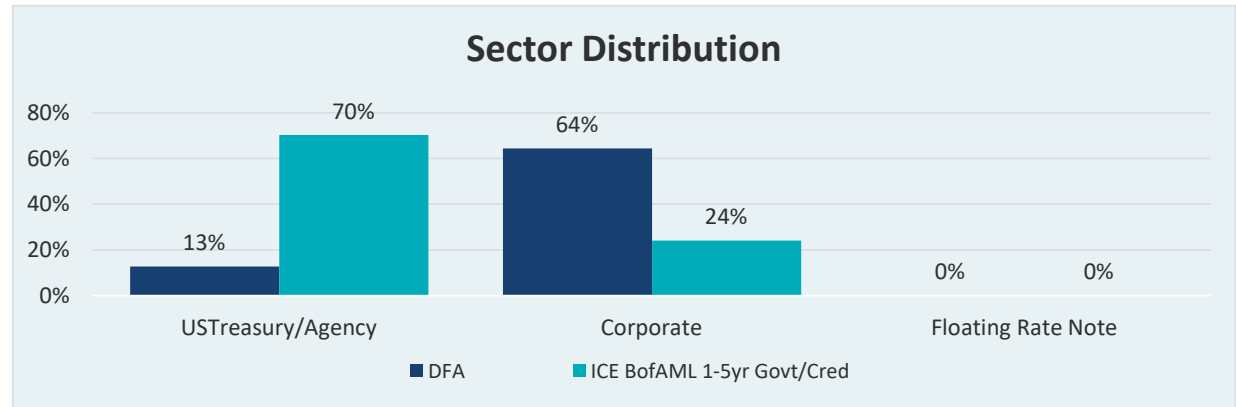
Liquidity Managers

DFA Short Credit Manager Portfolio Overview

Period Ending: December 31, 2021

Domestic short term US credit fixed income portfolio that maximizes total return through income and capital appreciation. Primary personnel include Dave Plecha and Joseph Kolerich.

	DFA	ICE BofAML 1-5yr Govt/Cred
Effective Duration	2.86	2.79
Yield to Maturity	1.35	1.07
Average Quality	A+	AA+
Average Coupon	1.86%	1.85%

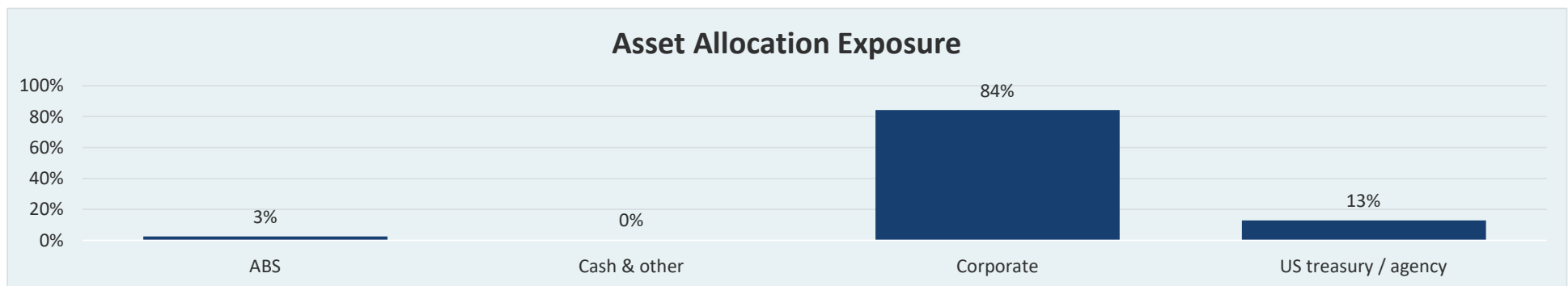
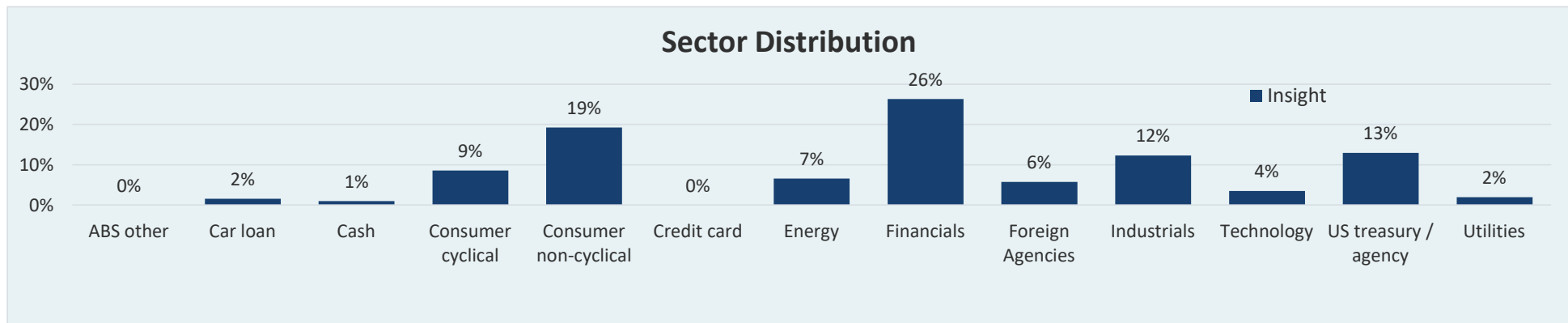
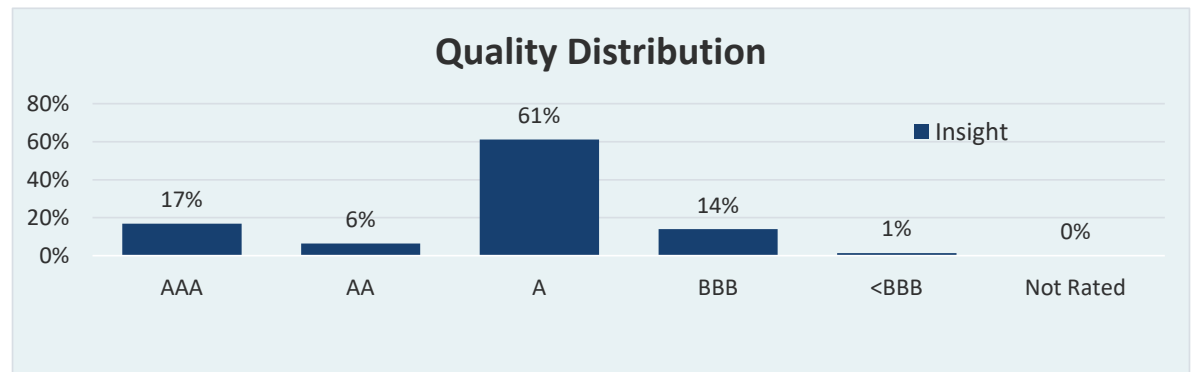


Insight Short Duration Manager Portfolio Overview

Period Ending: December 31, 2021

High quality, short duration multi-sector fixed income portfolio comprised of Treasuries, Agencies, investment grade corporates, and ABS designed specifically to meet CCCERA's liabilities. Key personnel include Gerard Berrigan and Jesse Fogarty.

	Insight	BBgBarc 1-3yr Govt
Effective Duration	1.05	1.95
Yield to Maturity	0.97	0.71
Average Quality	A	AAA
Average Coupon	2.81%	1.25%

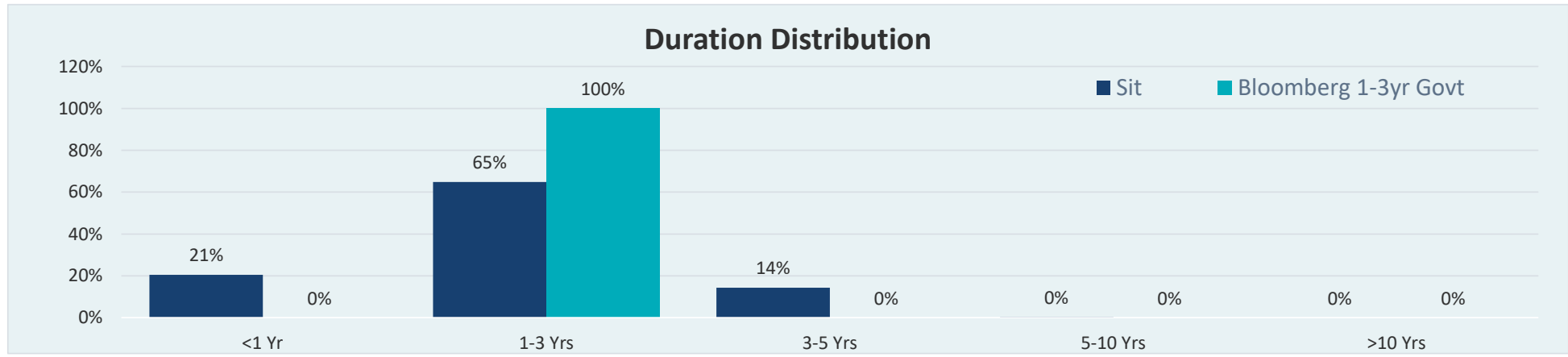
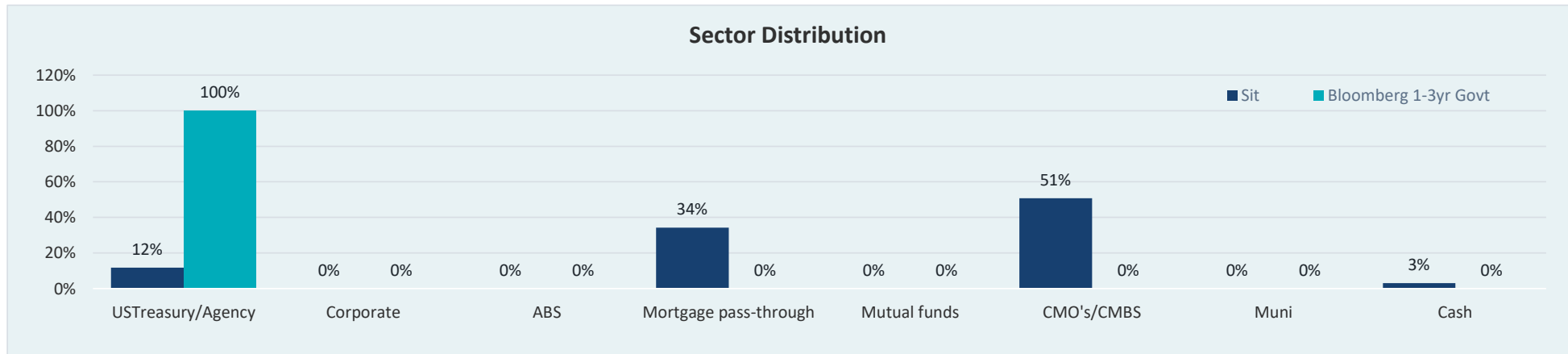
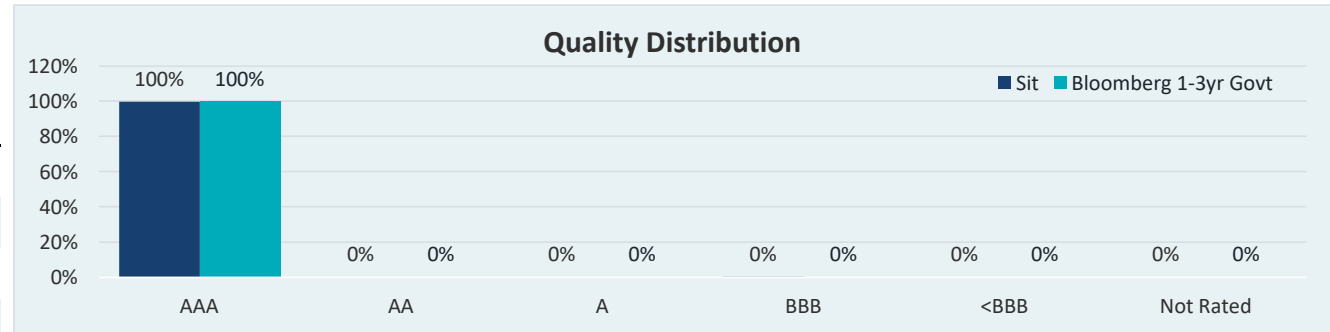


Sit Short Duration Manager Portfolio Overview

Period Ending: December 31, 2021

Short duration fixed income portfolio with a focus on earning high levels of interest income. Primary personnel include Bryce Doty, Paul Jungquist and Michael Brilley.

	Sit	BBgBarc 1-3yr Govt
Modified Duration	2.00	2.00
Yield to Maturity	1.90	0.71
Average Quality	AAA	AAA
Average Coupon	5.30%	1.20%



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.

Policy & Custom Index Composition

Policy Index (7/1/2021 - present)	16% Russell 3000, 16% MSCI ACWI ex-US (Gross), 9% MSCI ACWI (Net), 2% Wilshire REIT, 8% Private Real Estate composite returns, 3% CPI + 4%, 11% Private Equity composite returns, 8% Private Credit composite returns, 2% ICE BofAML High Yield Master II, 18% Bloomberg 1-3 Yr Gov/Credit, 2.5% Bloomberg US Aggregate, 3% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate, 1.5% HFRI EH Equity Market Neutral.
Policy Index (1/1/2021 - present)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 8% Private Real Estate composite returns, 1.5% CPI + 4%, 11% Private Equity composite returns, 7% Private Credit composite returns, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2020 - 12/31/2020)	9% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 1.5% CPI + 4%, 11% S&P 500 +4% (Lagged), 7% ICE BofAML High Yield Master II +2%, 1.5% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2% HFRI EH Equity Market Neutral.
Policy Index (7/1/2019 - 6/30/2020)	10% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2% CPI + 4%, 11% S&P 500 +4% (Lagged), 5% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 24% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (7/1/2018 - 6/30/2019)	11% Russell 3000, 19% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.8% NCREIF Property Index, 7.2% NCREIF ODCE Index, 2% CPI + 4%, 10% S&P 500 +4% (Lagged), 4% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 23% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate, 2% Bloomberg Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (10/1/2017 - 6/30/2018)	16.3% Russell 3000, 18.8% MSCI ACWI ex-US (Gross), 8.6% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.5% CPI + 4%, 10.1% S&P 500 +4% (Lagged), 1.9% ICE BofAML High Yield Master II +2%, 4.3% ICE BofAML High Yield Master II, 25% Bloomberg 1-3 Yr Gov/Credit, 3.5% Bloomberg US Aggregate.
Policy Index (1/1/2017 - 9/30/2017)	22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI + 4%, 8.1% S&P 500 +4% (Lagged), 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 22.4% Bloomberg 1-3 Yr Gov/Credit, 3.2% Bloomberg US Aggregate, 1.6% 91-Day T-Bills.
Policy Index (4/1/2012-12/31/2016)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Bloomberg U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

Policy & Custom Index Composition (continued)	
Policy Index (4/1/2011-3/31/2012)	31% Russell 3000, 10.4% MSCI EAFE (Gross), 9.6% MSCI ACWI (Net), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (4/1/2010-3/31/2011)	35.6% Russell 3000, 10.4% MSCI EAFE (Gross), 5% MSCI ACWI (Net), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (7/1/2009-3/31/2010)	40.6% Russell 3000, 10.4% MSCI EAFE (Gross), 25% Bloomberg U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% Bloomberg Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Custom Growth Benchmark (7/1/2021 - present)	21.33% Russell 3000, 21.33% MSCI ACWI ex-US (Gross), 12% MSCI ACWI (Net), 2.67% Wilshire REIT, 10.67% Private Real Estate composite returns, 14.67% Private Equity composite returns, 10.67% Private Credit composite returns, 2.67% ICE BofAML High Yield Master II, 4% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
Custom Growth Benchmark (1/1/2021 - 6/30/2021)	13.14% Russell 3000, 26.28% MSCI ACWI ex-US (Gross), 16.06% MSCI ACWI (Net), 1.46% Wilshire REIT, 11.68 Private Real Estate composite returns%, 16.06% Private Equity composite returns, 10.22% Private Credit composite returns, 2.19% ICE BofAML High Yield Master II, 2.92% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2020 - 12/31/2020)	13.14% Russell 3000, 26.28% MSCI ACWI ex-US (Gross), 16.06% MSCI ACWI (Net), 1.46% Wilshire REIT, 2.34% NCREIF Property Index, 9.33% NCREIF ODCE Index, 16.06% S&P 500 +4% (Lagged), 10.22% ICE BofAML High Yield Master II +2%, 2.19% ICE BofAML High Yield Master II, 2.92% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2019 - 6/30/20)	14.7% Russell 3000, 26.4% MSCI ACWI ex-US (Gross), 16.2% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.4% NCREIF Property Index, 9.4% NCREIF ODCE Index, 16.2% S&P 500 +4% (Lagged), 7.4% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% Bloomberg Global Bond
Custom Growth Benchmark (7/1/2018 - 6/30/2019)	16.0% Russell 3000, 27.5% MSCI ACWI ex-US (Gross), 15.9% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.6% NCREIF Property Index, 10.4% NCREIF ODCE Index, 14.5% S&P 500 +4% (Lagged), 5.8% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% Bloomberg Global Bond
Custom Growth Benchmark (9/30/2017- 6/30/2018)	23.6% Russell 3000, 27.2% MSCI ACWI ex-US (Gross), 12.5% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.3% NCREIF Property Index, 9.3% NCREIF ODCE Index, 14.6% S&P 500 +4% (Lagged), 2.8% ICE BofAML High Yield Master II +2%, 6.2% ICE BofAML High Yield Master II
Custom Growth Benchmark (1/1/2017-9/30/2017)	32.6% Russell 3000, 15.7% MSCI ACWI ex-US (Gross), 15.5% MSCI ACWI (Net), 1.4% Wilshire REIT, 2.4% NCREIF Property Index, 9.6% NCREIF ODCE Index, 1.6% CPI +4%, 11.5% S&P 500 +4% (Lagged), 2.4% ICE BofAML High Yield Master II +2%, 7.3% ICE BofAML High Yield Master II
Custom Growth Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Custom Diversifying Benchmark (7/1/2021-present)	35.71% Bloomberg US Aggregate, 21.43% FTSE 3-Month T-bill +4%, 21.43 FTSE 3-Month T-bill +5%, 21.43% Bloomberg Barclays US Aggregate +1%
Custom Diversifying Benchmark (8/1/2020 - 6/30/2021)	46.15% Bloomberg US Aggregate, 30.77 FTSE 3-Month T-bill +4%, 23.08 FTSE 3-Month T-bill +5%.
Custom Diversifying Benchmark (7/1/2018 - 7/31/2020)	43.75% Bloomberg US Aggregate, 25% CPI + 4%, 31.25% HFRI EH Equity Market Neutral.
Custom Diversifying Benchmark (10/1/2017 - 6/30/2018)	58.33% Bloomberg US Aggregate, 41.67% CPI + 4%.
Custom Diversifying Benchmark (1/1/2017 - 9/30/2017)	56.1% Bloomberg US Aggregate, 43.9% CPI + 4%.
Custom Diversifying Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Custom Diversifying Multi-Asset Benchmark (current)	50% FTSE 3-Month T-bill +5%, 50% Bloomberg Barclays US Aggregate +1%
Real Estate Benchmark (current)	20% Wilshire REIT, 80% Private Real Estate composite returns.
Real Estate Benchmark (4/1/2012-11/30/2016)	40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-US.

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 1000 Index	4/20/2017	BlackRock	Invesco Real Estate III	6/30/2013	Invesco
Jackson Square Partners	5/1/2005	Northern Trust	Invesco Real Estate IV	6/30/2014	Invesco
Boston Partners	6/1/1995	Northern Trust	Invesco Real Estate V	2/20/2019	Invesco
Emerald Advisors	4/7/2003	Northern Trust	Oaktree REOF V	12/31/2011	Oaktree
Ceredex	11/6/2011	Northern Trust	Oaktree REOF VI	9/30/2013	Oaktree
Pyrford	4/25/2014	State Street	Oaktree REOF VII	4/1/2015	Oaktree
William Blair	10/29/2010	William Blair	Siguler Guff DREOF	1/25/2012	Siguler Guff
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF II	8/31/2013	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
Artisan Partners	10/1/2012	SEI Trust	Paulson Real Estate Fund II	11/10/2013	Paulson
First Eagle	1/18/2011	Northern Trust	AE Industrial Partners Fund II	4/8/2019	StepStone Group
Allianz Global Investors	4/25/2000	Northern Trust	Adams Street Partners	3/18/1996	StepStone Group
Adelante	9/30/2001	Northern Trust	Adams Street Partners II	1/16/2009	StepStone Group
AQR Global Risk Premium - EL	1/18/2019	AQR	Adams Street Partners Venture	4/28/2017	StepStone Group
Panagora Risk Parity Multi Asset	3/15/2019	Panagora	Adams Street Partners - BFP	1/18/1996	StepStone Group
AFL-CIO	6/30/1991	AFL-CIO	Adams Street Partners - Fund 5	9/21/2012	StepStone Group
Wellington Real Total Return (in Liquidation)	2/26/2013	Wellington	Aether Real Assets IV	3/16/2016	StepStone Group
Acadian Multi-Asset Absolute Return Fund	8/4/2020	Northern Trust	Aether Real Assets III	11/27/2013	StepStone Group
Sit LLCAR	4/15/2021	Northern Trust	Aether Real Assets III Surplus	11/30/2013	StepStone Group
Parametric Defensive Equity	7/23/2018	Northern Trust	Bay Area Equity Fund	6/14/2004	StepStone Group
Sit Short Duration	11/2/2016	Northern Trust	Bay Area Equity Fund II	12/7/2009	StepStone Group
DFA Short Credit	11/21/2016	Northern Trust	Commonfund	6/28/2013	StepStone Group
Insight Short Duration	11/18/2016	Northern Trust	EIF US Power Fund II	8/16/2005	StepStone Group
Parametric Overlay	3/29/2017	Northern Trust	EIF US Power Fund III	5/30/2007	StepStone Group
Cash	-	Northern Trust	EIF US Power Fund IV	11/28/2011	StepStone Group
Angelo Gordon Energy Credit Opp	9/24/2015	StepStone Group	EIF US Power Fund V	11/28/2016	StepStone Group
StepStone CC Opportunities Fund	2/1/2018	StepStone Group	Genstar Capital Partners IX, L.P.	2/21/2019	StepStone Group
Torchlight II	9/30/2006	StepStone Group	Oaktree PIF 2009	2/28/2010	StepStone Group
Torchlight IV	7/1/2012	StepStone Group	Paladin III	11/30/2007	StepStone Group
Torchlight V	7/1/2012	StepStone Group	Ocean Avenue Fund II	6/11/2014	StepStone Group
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	StepStone Group
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Pathway 6	5/24/2011	StepStone Group
DLJ RECP III	6/23/2005	DLJ	Pathway 7	2/7/2013	StepStone Group
DLJ RECP IV	2/11/2008	DLJ	Pathway 8	11/23/2015	StepStone Group
DLJ RECP V	7/1/2014	DLJ	Pathway	11/9/1998	StepStone Group
DLJ RECP VI	3/19/2019	DLJ	Pathway 2008	12/26/2008	StepStone Group
LaSalle Income & Growth VI	7/16/2013	LaSalle	Siguler Guff CCCERA Opps	6/3/2014	StepStone Group
LaSalle Income & Growth VII	2/28/2017	LaSalle	Siguler Guff Secondary Opps	11/30/2016	StepStone Group
Hearthstone II	6/17/1998	Hearthstone	Siris Partners IV	3/15/2019	StepStone Group
Long Wharf Fund IV	7/3/2013	Long Wharf	TPG Healthcare Partners, L.P.	6/28/2019	StepStone Group
Long Wharf Fund V	9/30/2016	Long Wharf	Trident VIII, L.P.	5/24/2019	StepStone Group
Long Wharf Fund VI	2/5/2020	Long Wharf	Wastewater Opp. Fund	12/8/2015	StepStone Group

Other Disclosures

All data prior to 12/31/2014 was provided by previous consultant.
 As of 7/1/2018 all Private Equity and Private Credit data is provided by StepStone Group.

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: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark 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: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

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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Meeting Date
03/23/2022
Agenda Item
#5b.

Memorandum

Date: March 23, 2022
To: CCCERA Board of Retirement Trustees
From: Timothy Price, Chief Investment Officer
Subject: Investment Staff Report – Q4 2021

Overview

On a quarterly basis CCCERA’s Board receives a report which details critical elements of CCCERA’s Functionally Focused Portfolio’s sub-portfolios. The purpose of the report is to highlight elements of the sub-portfolios which are good indicators to the Board of the program’s efficient and effective operation.

Summary

CCCERA’s Total Fund is performing as expected, exhibiting returns above expectations for the amount of risk taken. This is measured by the Sharpe Ratio (risk-adjusted return), and a comparison to the Simple Target Index. The Simple Target Index is the most basic index which could replicate CCCERA’s Total Fund, and is made up of 75% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills (please see the Total Fund pages in the appendix for additional details). CCCERA’s portfolio is much more complex, especially as it relates to allocations to private equity, private credit, and real estate.

CCCERA has been rewarded for implementing a more complex portfolio and has outperformed the Simple Target Index over the trailing ten years, while experiencing less risk (volatility). While the trailing year performance has been strong, the trailing three and five-year periods show a lower return and lower risk level than the Simple Target Index, but superior Sharpe ratios. Details on performance relative to this index are included in the appendix. It is worth noting that CCCERA’s Total Fund return is an aggregate of the performance of the Liquidity, Growth, and Risk Diversifying sub-portfolios.

1) Liquidity

The purpose of the liquidity program is to match three years of benefit payments with high credit quality, low duration assets. The liquidity sub-portfolio is made up of three fixed income managers, all of whom pursue a high quality, low duration investment approach. In the fourth quarter of 2021, all managers held high quality (as measured by credit ratings), low duration portfolios. The average credit quality for the entire liquidity program is AA- (AAA is the highest rating), and the duration is 1.8 years, which is considered short.

2) Growth

The Growth portfolio is designed to take advantage of capital appreciation and income opportunities globally. To achieve this, the Growth portfolio includes a variety of assets, from stocks and growth-oriented bonds to private equity, real estate, and private credit.

For the trailing five-year period ending December 31, 2021, the Growth portfolio returned 12.5% relative to the index return of 14.4%, for a relative underperformance of 1.9%. Over this period, the Growth program produced a superior Sharpe ratio relative to the index. During the fourth quarter of 2021, the MSCI ACWI Index returned 6.7% relative to CCCERA's Growth sub-portfolio return of 4.2%.

3) Risk Diversifying

The Risk Diversifying mandate holds assets that are expected to diversify the growth portfolio's volatility while offering moderate growth. The mandate as a whole seeks to be highly liquid, have a low beta to the growth market, and produce positive real returns. In the fourth quarter, the Risk Diversifying mandate fulfilled two of these goals. The entire mandate can be liquidated within 90 days, meeting the requirement of high liquidity. The correlation of the mandate to growth markets is 0.8, similar to that of September 2021. The trailing real (net of inflation) return over the past five years is -1.6%, remaining at a similar level as the previous several quarters, and remains below expectations. We continue to actively underwrite a number of strategies to further build out this allocation.

The Liquidity and Growth sub-portfolios are largely functioning well and within expectations. We continue to underwrite additional strategies to diversify the program away from its fixed income bias.

By and large, the product teams and asset managers across all managers are stable, and we have no significant organizational concerns with our investment managers. CCCERA's Total Fund in aggregate is performing in line with expectations, having a similar or higher risk-adjusted return but a lower level of volatility compared to the Simple Target Index. Enclosed are additional details on CCCERA's Total Fund, sub-portfolios, and individual investment strategies.

CCCERA Portfolio Report Card

Below we have itemized those elements of each of CCCERA’s sub-portfolios and Total Fund which we believe the Board should pay particular attention to. Additional details on each of the sub-portfolios are available in the appendix. All CCCERA performance is stated on a net of fees basis.

Liquidity

Objective	Measurement	Current Period Data	Status
High Quality	Credit Quality	AA-	Meeting Expectations
Low Risk	Duration	1.8 years	Meeting Expectations
Appropriately Sized	Months of Benefit Payments Invested	31 Months	Meeting Expectations

Growth

Objective	Measurement	Current Period Data	Status
Growth of Plan Assets	Absolute Returns	Trailing 5 yr return: 12.5%	Meeting Expectations
	Benchmark Relative Returns	-1.9% relative to ACWI over trailing 5 years	Below Expectations
Efficient Capital Deployment	Sharpe Ratio	CCCERA: 1.1 MSCI ACWI: 0.8 (over trailing 5 years)	Meeting Expectations

Risk Diversifying

Objective	Measurement	Current Period Data	Status
Offset Volatility in Growth Portfolio	Correlation	0.8 over trailing 5 years	Below Expectations
Positive Real Returns	Returns	Trailing 5 yr real return of -1.6%	Below Expectations
High Liquidity	% of Portfolio that can be liquidated within 90 days	100%	Meeting Expectations

Total Fund

Objective	Component/Measurement	Status
Store 4 Years of Benefit Payments	Liquidity Sub-portfolio	Meeting Expectations
Participate in Growth Opportunities	Growth Sub-portfolio	Meeting Expectations
Provide an offset to Growth volatility	Risk Diversifying Sub-portfolio	Below Expectations
Produce superior risk adjusted returns	Total Fund Sharpe Ratio	Meeting Expectations

Appendix – Liquidity Sub-Portfolio

Manager Reviews

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
Insight	Good	125%	14%	N
Sit	Good	-8%	16%	N
DFA	Good	9%	13%	N

Performance

	Portfolio Average Credit Quality	Portfolio Average Duration	Portfolio Average Yield	1 Year Total Return
Insight	A	1.1	1.0	-0.7%
Sit	AAA	2.0	1.9	60.4%
DFA	A+	2.9	1.4	-0.4%

Manager Notes:

The liquidity sub-portfolio was allowed to run down to three years of benefit payments over the past several months and is now within its new target range.

Manager Theses:

The Liquidity Portfolio is a combination of three managers which work together to match three years of CCCERA's liabilities. The portfolio is refreshed every year during the annual funding plan.

Insight: Insight plays a completion role in the liquidity program, matching out liabilities with short duration government and corporate fixed income securities.

DFA: Dimensional Fund Advisors runs a strategy that focuses on obtaining fixed income exposures via the most liquid securities available. DFA contributes to the Liquidity Program by selling securities at regular intervals to pay a portion of CCCERA's monthly benefit payment.

Sit: Sit invests in high yielding government backed mortgages. The cash flow from these securities is harvested monthly to make up a portion of CCCERA's monthly benefit payment.

Appendix – Growth Sub-Portfolio

Manager Reviews

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
Boston Partners	Good	14%	25%	N
Jackson Square	Good	-68%	-48%	N
BlackRock Index Fund	Good	11%	15%	N
Emerald Advisors	Good	-8%	-5%	N
Ceredex	Good	12%	16%	N
Pyrford (BMO)	Good	0%	-2%	N
William Blair	Good	-7%	14%	N
First Eagle	Good	5%	2%	N
Artisan Global	Good	-46%	11%	N
PIMCO/RAE EM	Good	-35%	0%	N
TT EM	Good	7%	4%	N
Adelante	Good	59%	52%	N
Allianz	Good	36%	7%	N
AQR	Good	-16%	-12%	N
PanAgora	Good	37%	14%	N
Private Equity	Good	--	--	N
Private Credit	Good	--	--	N
Real Estate	Good	--	--	N

Performance

	Trailing 1-Yr Return	Trailing 5-yr Return	Trailing 10-yr Return	Performance in Line with Expectations?	Inception Date
MSCI ACWI-ND	19%	14%	12%		
Boston Partners	31%	13%	14%	Y	04/30/1995
Jackson Square	8%	20%	16%	N	01/31/2005
BlackRock Index Fund	27%	18%	17%	Y	03/31/2017
Emerald Advisors	5%	16%	16%	Y	03/31/2003
Ceredex	28%	8%	12%	Y	09/30/2011
Total Domestic Equity	20%	16%	15%	Y	
Pyrford (BMO)	7%	8%	7%	Y	03/31/2014
William Blair	10%	16%	12%	Y	09/30/2010
PIMCO/RAE EM	16%	9%	6%	Y	01/31/2017
TT EM	-1%	12%	9%	Y	06/30/2017
Total International Equity	8%	10%	8%	Y	
First Eagle	12%	9%	9%	Y	12/31/2010
Artisan Global	14%	21%	17%	Y	11/30/2012
Total Global Equity	13%	15%	12%	Y	
Adelante	47%	13%	12%	Y	07/31/2001
Allianz	5%	5%	6%	Y	04/30/2000
AQR	10%	8%	6%	Y	12/31/2018
PanAgora	8%	9%	9%	Y	02/28/2019
Private Equity	60%	19%	15%	Y	
Private Credit	10%	8%	10%	Y	
Real Estate	19%	8%	10%	Y	

For periods longer than inception date within CCCERA's Total Fund, the return is from a representative composite account.

Manager Notes:

The relative underperformance of small cap and value strategies that was prevalent during the second half of 2020 returned in the fourth quarter of 2021. The leadership in US securities returned in the fourth quarter, due both to the relative strength of the US economy, low rates and weakness in China based upon a more restrictive real estate environment.

Manager Theses:

The growth portfolio includes all managers in public and private equity, real estate, and private credit. These managers grow CCCERA's assets for future benefit payments (beyond the three years already covered by the Liquidity program).

Boston Partners: Large cap domestic equity which follows a value discipline. Boston Partners will buy out of favor companies and sell them when their intrinsic values are reflected in the market. Expected to outperform in flat to falling markets.

Jackson Square: Domestic equity large cap growth portfolio concentrated in companies with sustainable long-term growth characteristics. This portfolio should outperform in rapidly rising markets.

BlackRock Index Fund: Large cap domestic equity portfolio which should follow the Russell 1000 Index.

Emerald Advisors: Small cap growth equity seeking companies with high growth rates. Expected to produce strong returns in rising markets, and weak returns in falling markets.

Ceredex: Domestic equity small cap value portfolio of companies with dividend yields and low valuations. This portfolio should outperform flat markets.

Pyrford (BMO): International equity value portfolio of non-US companies with low valuations at the country and stock level. This portfolio should outperform in flat markets.

William Blair: International equity growth portfolio of non-US companies with high growth rates constructed from the security level. This portfolio should outperform in rapidly rising markets.

Fourth Eagle: Global equity portfolio that is benchmark agnostic comprised of companies with low valuations.

Artisan Global Opportunities: Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation.

PIMCO/RAE Emerging Markets: Quantitative equity with a value orientation. This portfolio follows the fundamental indexing approach (ranking companies by metrics other than market capitalization), resulting in a diversified, low turnover portfolio. This portfolio underperforms in momentum driven markets.

TT International Emerging Markets: Concentrated, growth oriented manager which invests in small and mid-cap emerging market companies. TT employs both a top-down and a bottom-up research approach, and seeks to outperform by identifying companies that have a catalyst to drive future growth.

Adelante: Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets. Adelante is a public market proxy of the core real estate market.

Allianz High Yield Fixed Income: Domestic high yield fixed income portfolio with a focus on security selection. Allianz will focus on the higher quality segment of the high yield universe. Allianz should provide a steady income stream, and provide downside protection in falling markets.

Private Equity: CCCERA invests in private equity to generate returns above those available in the public equity markets.

Private Credit: CCCERA invests in private credit to generate cash flow streams above those available in the public debt markets.

Real Estate: CCCERA invests in value-add, distressed, and opportunistic real estate to generate returns from the capital appreciation and cash flow associated with commercial real estate investment.

Risk Parity: Multi-asset approach that strives for balanced contributions to total portfolio risk from multiple asset classes.

Appendix – Risk Diversifying Sub-Portfolio

Organizational Stability

	Portfolio Management Assessment	1 Year Product Asset Growth	1 Year Firm Asset Growth	Regulatory Action in Last Year?
AFL-CIO	Good	5%	5%	N
Parametric	Good	7%	20%	N
Acadian	Good	31%	8%	N
Sit	Good	---	---	N

Performance

	Trailing 1 Year Correlation to Growth	Trailing 3 Year Correlation to Growth	1 Year Return	5 Year Return	% of Portfolio Liquid in 90 Days
AFL-CIO	0.3	-0.3	-2%	3%	100%
Parametric	-0.1	0.8	7%	N/A	100%
Acadian	-0.6	-0.4	2%	N/A	100%
Sit	---	---	---	---	100%

Manager Notes:

The Sit LLCAR was funded in the second quarter of 2021. As it is a custom strategy, we will not be able to show one year of data until mid 2022.

Manager Theses:

Managers in the risk diversifying allocation seek to have a low correlation with the growth portfolio, positive returns in flat and falling equity markets, and a high degree of liquidity. These managers work together to offset some of the risks in the growth portfolio.

AFL-CIO: Portfolio of domestic, high quality fixed income securities which are backed by commercial and residential mortgages.

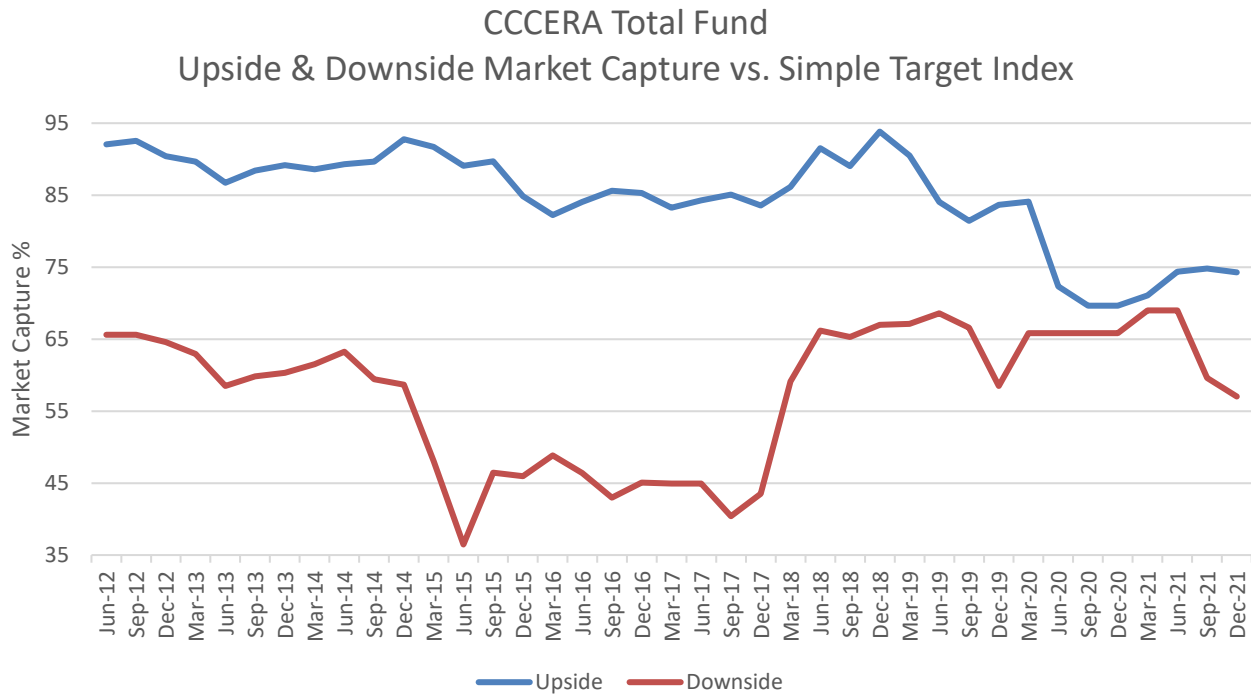
Parametric: Portfolio of paired options selling intended to collect insurance premiums by selling puts and calls on the S&P 500 with collateral invested in US Treasury portfolio.

Acadian: Quantitatively managed multi-asset absolute return strategy that uses various models to capture pricing dislocations.

Sit LLCAR: Multiple fixed income strategies (closed end funds, mortgages, Treasuries) actively managed to target a modest positive return in most market environments

Appendix Data – Total Fund

Rolling 3-Year Total Fund Upside/Downside Market Capture



*The composition of the Simple Target Index has mirrored changes in CCCERA’s asset allocation over time: from 2008 to 2012 the benchmark was 73% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 4% 3-Month Treasury Bills. From 2012 to 2016 the composition was 74% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 9% 3-Month Treasury Bills. From 2016 to 2017 the composition was 63% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from 2017 to September 2018 the composition was 61% MSCI ACWI, 27% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from July 2018 to September 2019 the composition is 69% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2019 to September 2020 the composition is 68% MSCI ACWI, 24% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2020 to the May 2021 the composition is 68.5% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 6.5% 3-Month Treasury Bills; from July 2021 to the present the composition is 75% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills.

Total Fund Quarterly Attribution

	CCCERA Total Fund			Simple Target Index			Analysis		
	Allocation	Return	Return Contribution	Allocation	Return	Return Contribution	Allocation Difference	Return Difference	Total Effect
Liquidity	20.3%	-0.5%	-0.1%	18.0%	-0.6%	-0.1%	2.3%	0.1%	0.0%
Growth	72.8%	4.2%	3.0%	75.0%	6.7%	5.0%	-2.2%	-2.5%	-2.0%
Risk Diversifying	6.8%	-0.3%	0.0%	7.0%	0.0%	0.0%	-0.2%	-0.3%	0.0%
Total Fund	100%		2.9%	100%		4.9%	-0.1%		-2.0%

CCCERA Total Fund Performance vs. Simple Target Index

	One Year		Three Years		Five Years		Ten Years	
	CCCERA	STI	CCCERA	STI	CCCERA	STI	CCCERA	STI
Return	13.9	12.4	12.6	14.9	9.6	10.3	9.3	8.6
Volatility	3.6	5.2	9.2	13.8	8.1	12.0	6.8	9.8
Sharpe	3.9	2.4	1.3	1.0	1.1	0.8	1.3	0.8

The Simple Target Index is made up of 75% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bill. The purpose of this index is to examine whether CCCERA is being rewarded for pursuing a more nuanced portfolio versus a very simple representative portfolio.

CCCERA's Total Fund has produced strong risk adjusted and absolute returns over the trailing one and ten-year periods. Additionally, the CCCERA Portfolio has exceeded the STI over the trailing ten-year period, though it has lagged over the three- and five-year periods. This would indicate that CCCERA has been rewarded over time for engaging in more complex investments which target outperformance versus investing passively in the publicly traded market even though these more complex structures have lagged the public markets sharply in the past year which is a drag on medium-term performance.

The Sharpe ratio is a measure of risk adjusted returns which shows the amount of return a portfolio earns above the risk free rate per unit of volatility. The Total Fund has exceeded the Sharpe ratio relative to the Simple Target Index over all trailing time periods, indicating that CCCERA is being favorably rewarded for the level of risk taken in the portfolio.



Memorandum

Date: March 23, 2022

To: CCCERA Board of Retirement

From: Timothy Price, Chief Investment Officer

Subject: Update on Private Equity and Real Estate Allocations

Overview

CCCERA recently made commitments to two private equity funds and one REIT strategy using the delegated authority granted in the Investment Policy Statement. All commitments noted below are for the 2022 vintage year. A brief description of each fund/strategy is included below. This memo is for informational purposes only and no action is required from the Board at this time.

Investment Policy Statement

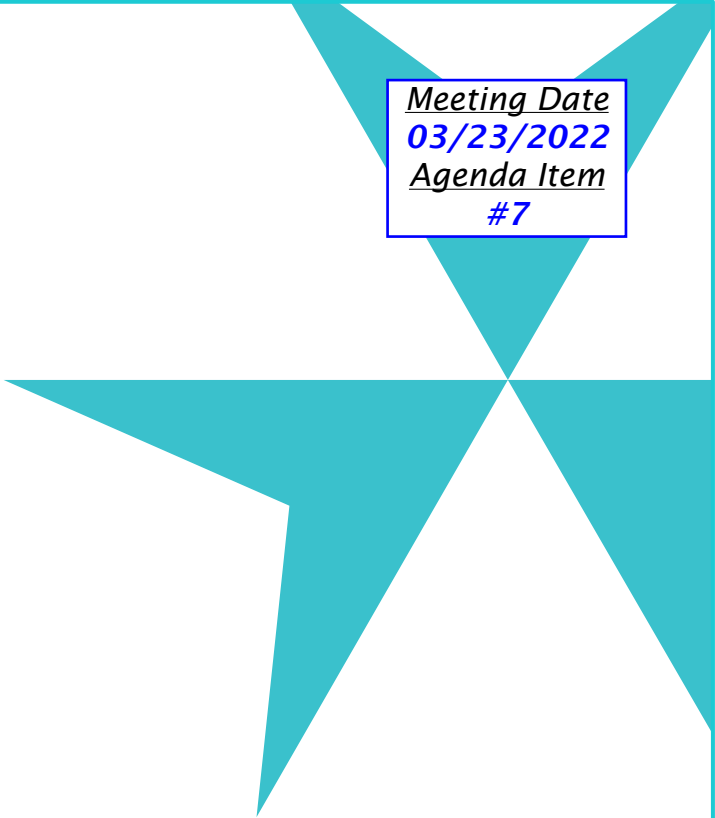
The CCCERA Investment Policy Statement adopted by the Board on September 28, 2016 (amended on April 24, 2019 and May 26, 2021) outlines the hiring process for new investment mandates. Commitments up to a \$150 million per strategy may be approved via a staff review process, while mandates above this threshold require approval by the Board.

Green Equity Investors IX and Jade Equity Investors II

Green Equity Investors IX (GEI IX) and Jade Equity Investors II (Jade II) are managed by Leonard Green & Partners (LGP), based in Los Angeles, CA. LGP targets traditional buyouts, going-private transactions, recapitalizations, growth capital investments, corporate carve-outs, PIPEs, and selective public equity and debt positions. LGP primarily focuses on investing in companies providing services, including consumer, healthcare, and business services, as well as retail, distribution, and industrials. GEI IX will target investments that are expected to require an equity commitment greater than \$250 million. Jade II will target investments that are expected to require an equity commitment of \$250 million or less. CCCERA committed \$60 mm to GEI IX and \$15 mm to Jade II. This is a new relationship for CCCERA.

INVESCO Fundamental Beta US REIT Strategy

INVESCO Fundamental Beta US REIT Strategy is managed by INVESCO Real Estate (IRE) based in Dallas, TX. This strategy is managed by IRE's listed securities group and focuses on allocating to REITs that are rated favorably according to INVESCO's fundamental ranking process. The strategy is more heavily allocated to non-traditional REIT sectors (health care, industrial, data centers, etc.) relative to the major indices and our existing REIT exposure. This strategy will serve as a complement to the existing Adelante strategy as a proxy for private real estate that has not yet been deployed. CCCERA has allocated \$100 mm to this strategy.



Meeting Date
03/23/2022
Agenda Item
#7

Contra Costa County
Employees' Retirement
Association

Informational Session: Considerations when approaching Full Funding

March 23, 2022

Paul Angelo, FSA, MAAA, FCA, EA

AGENDA – Considerations when approaching Full Funding

- **Full Funding: What and When**
- **Pension Plan Funding Policy Objectives**
- **Actuarial Considerations**

Full Funding: What does it mean?

When is CCCERA considered to be fully funded?

- When valuation (smoothed) value of assets exceeds Actuarial Accrued Liability (AAL)
- Unfunded AAL (UAAL) becomes “surplus”
- Funded ratio over 100%

What happens when a plan is fully funded?

- With a UAAL, employer contributions are Normal Cost plus amortization of UAAL
- With a surplus, employer contributions are Normal Cost minus amortization of surplus
- In the late 1990s, short amortization periods for surplus led to full or partial contribution holidays

Full Funding: When will it happen?

When is CCCERA expected to be fully funded?

- In the most recent valuation as of December 31, 2020:
 - Only Cost Group #6 Small Districts (non-enhanced Tiers 1 and 4) was fully funded
- Projections from Dec. 31, 2020 valuation assuming all assumptions are met (including 7% market return in 2021 and after):
 - Some other cost groups fully funded in 2023, 2024 or 2025
 - Other cost groups not fully funded until after 2025

Full Funding and Pension Plan Policy Objectives

Even if plan is fully funded, plan funding policy objectives remain the same:

- Future contributions plus current assets sufficient to provide for the promised benefits
- Reasonable allocation of costs over time
- Manage contribution volatility to the extent reasonably possible, consistent with other policy goals
- Support general policy goals of accountability and transparency

Funding Policy Guidance Specific to Surplus

Current practices for plans in full funding/surplus:

- California Actuarial Advisory Panel and Conference of Consulting Actuaries funding policy guidance
 - Do NOT amortize surplus the same as UAAL
 - Consider prior amortization layers fully amortized
 - Amortize surplus over “rolling” 30-year period
- PEPPRA added requirement to contribute full Normal Cost unless surplus > 20%
 - Plus other more qualitative requirements
- At a minimum, plans should review current policies for provisions specific to surplus
 - Possibly retain UAAL history in case surplus is temporary?

CCCERA Funding Policy and Surplus

CCCERA's Actuarial Funding Policy:

- Originally adopted on February 26, 2014
- Last amended on October 14, 2020

CCCERA Funding Policy specifies:

- All prior UAAL layers considered fully amortized and new UAAL layers to be set up for any subsequent UAAL
- Policy includes PEPRA requirement to contribute full Normal Cost unless surplus $> 20\%$ of AAL
- Surplus $> 20\%$ amortized over open (non-decreasing) 30-year period only if other conditions under Section 7522.52 are met
 - CCCERA Funding Policy says conditions of Section 7522.52 apply to the total plan, not separately to each UAAL cost group

Spending Surplus on Risk Reduction

Lower expected return increases AAL so reduces surplus:

- Or even turns surplus into UAAL

Two ways to reduce expected return to “use up” surplus:

- Reduce expected return with no change in asset allocation
 - Increases confidence of meeting expected return
- Change asset allocation to lower risk assets (de-risking)
 - With corresponding lower expected return
 - Various ways to de-risk, including “matching” a bond portfolio to specific retiree cashflows
 - Close coordination between actuary and investment staff

Note: lower discount rates (with or without de-risking assets) will increase member contribution rates

Contra Tracking Account and Surplus

What about balance in Contra Tracking Account?

- Account set up by the Board to track interest crediting shortfall (return on smoothed value of assets) less than the assumed rate
- \$2.392 billion in contra account as of December 31, 2020
 - Balance in contra account can only go down when Association has “excess earnings”:
 - That is, when Association earns more than assumed rate of investment return (currently 7.00% per year) on smoothed value of assets
- Contra Account and UAAL work very differently:
 - UAAL tracks all changes in assets and liabilities, including contributions, investment gains/losses, demographic gains/losses and assumption changes
 - In particular, UAAL goes down with UAAL contributions paid by employers, but Contra Account does not
 - So plan can be in surplus but still be tracking prior investment losses in the Contra Account

Discussion



CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

ACTUARIAL FUNDING POLICY

INTRODUCTION:

The purpose of this Actuarial Funding Policy is to record the funding objectives and policies set by the Board of Retirement (Board) for the Contra Costa County Employees' Retirement Association (CCCERA). The Board establishes this Actuarial Funding Policy to help ensure the systematic funding of future benefit payments for members of CCCERA. In addition, this document records certain guidelines established by the Board to assist in administering CCCERA in a consistent and efficient manner.

This Actuarial Funding Policy supersedes any previous Actuarial Funding Policies. It is a working document and may be modified as the Board deems necessary.

GOALS OF ACTUARIAL FUNDING POLICY:

1. To determine future contributions that, together with current plan assets, are expected to be sufficient to provide for all benefits provided by CCCERA;
2. To seek reasonable and equitable allocation of the cost of benefits over time including the goal that annual contributions should, to the extent reasonably possible, maintain a close relationship to both the expected cost of each year of service and to variations around that expected cost;
3. To manage and control future contribution volatility to the extent reasonably possible, consistent with other policy goals; and,
4. To support the general public policy goals of accountability and transparency by being clear as to both intent and effect, allowing for an assessment of whether, how and when the plan sponsors will meet the funding requirements of the plan.

FUNDING REQUIREMENT AND POLICY COMPONENTS:

CCCERA's annual funding requirement is comprised of a payment of the Normal Cost and a payment on the Unfunded Actuarial Accrued Liability (UAAL). The Normal Cost and the amount of payment on UAAL are determined by the following three components of this funding policy:

- I. Actuarial Cost Method: Allocates the total present value of future benefits to each year (Normal Cost), including all past years (Actuarial Accrued Liability or AAL);
- II. Asset Smoothing Method: Spreads the recognition of investment gains or losses over a period of time for the purposes of determining the Actuarial Value of Assets used in the actuarial valuation process. This reduces the effect of short-term market volatility while still tracking the overall movement of the market value of plan assets; and,

III. Amortization Policy: Determines the length of time and the structure of the increase or decrease in contributions required to systemically (1) fund any Unfunded Actuarial Accrued Liability or UAAL, or (2) recognize any surplus, i.e., any assets in excess of the AAL.

I. Actuarial Cost Method:

The Entry Age method shall be applied to the projected benefits in determining the Normal Cost and the AAL. The Normal Cost shall be determined as a level percent of payroll on an individual basis for each active member.

II. Asset Smoothing Method:

The investment gains or losses of each valuation period, as a result of comparing the actual market return to the expected market return, shall be recognized in level amounts over 5 years in calculating the Actuarial Value of Assets.

This policy anticipates that future circumstances may warrant adjustments to change the pattern of the recognition of the net deferred investment gains or losses after a period of significant market change followed by a period of market correction, upon receiving an analysis from CCCERA's actuary. Such adjustments would be appropriate when the net deferred investment gains or losses are relatively small (i.e., the actuarial and market values are very close together), but the recognition of that net deferred amount is markedly non-level. Any such adjustment would be made subject to the following conditions:

- The net deferred investment gains or losses are unchanged as of the date of the adjustment; and,
- The period over which the net deferred investment gains and losses are fully recognized is unchanged as of the date of the adjustment.

III. Amortization Policy:

- The UAAL (i.e., the difference between the AAL and the Valuation Value of Assets) as of December 31, 2012 shall continue to be amortized over separate amortization layers based on the valuations during which each separate layer was previously established.
- Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of December 31 will be amortized over a period of 18 years.
- Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 18 years.

- Unless the Board adopts an alternative amortization period after receiving an actuarial analysis¹:
 - a. with the exception noted in b., below, the increase in UAAL as a result of any plan amendments will be amortized over a period of 10 years;
 - b. the entire increase in UAAL resulting from a temporary retirement incentive will be funded in full upon adoption of the incentive. If the increase in UAAL is due to the impact of benefits resulting from additional service permitted in Section 31641.04 of the 1937 CERL (Golden Handshake), the entire increase in UAAL will be funded in full upon adoption of the Golden Handshake.
- UAAL shall be amortized over “closed” amortization periods so that the amortization period for each layer decreases by one year with each actuarial valuation.
- UAAL shall be amortized as a level percentage of payroll so that the amortization amount in each year during the amortization period shall be expected to be a level percentage of covered payroll, taking into consideration the current assumption for general payroll increase.
- If an overfunding or “surplus” exists (i.e., the Valuation Value of Assets exceeds the AAL, so that the total of all UAAL amortization layers become negative), any prior UAAL amortization layers will be considered fully amortized, and any subsequent UAAL will be amortized as the first of a new series of amortization layers, using the above amortization periods.

If the surplus exceeds 20% of the AAL per Section 7522.52 of the Government Code, then the amount of such surplus in excess of 20% of the AAL (and any subsequent surpluses in excess of that amount) will be amortized over an “open” amortization period of 30 years, but only if the other conditions of Section 7522.52 have also been met. If those conditions are not met, then the surplus will not be amortized and the full Normal Cost will be contributed.

- These amortization policy components will generally apply separately to each of CCCERA’s UAAL cost groups with the exception that the conditions of Section 7522.52 apply to the total plan.

OTHER POLICY CONSIDERATIONS:

Adjustment for 18-Month Delay in Rate Implementation

¹ In particular, the Board may incorporate into the amortization period demographic matching specific to the plan amendment. This could entail using the remaining active future service for plan changes that affect actives. For plan changes that affect retirees, this could entail using the remaining life expectancy for retirees or the period over which the increased cash flow to retirees is expected to be paid.

In order to allow employers to more accurately budget for pension contributions and other practical considerations, the contribution rates determined in each valuation (as of December 31) will apply to the 12-month period beginning 18 months after the valuation date. Any shortfall or excess contributions as a result of the implementation lag will be amortized as part of CCCERA's UAAL in the following valuation.

Implementation of Contribution Rate Change Due to Plan Amendment

Any change in contribution rate requirement that results from a plan amendment is generally implemented on the effective date of the plan amendment or as soon as administratively feasible.

Cost Sharing Arrangements

Starting with the December 31, 2009 Actuarial Valuation, the Board took action to depool CCCERA's assets, liabilities and Normal Cost by employer when determining employer contribution rates. The Board action included a review of experience back to December 31, 2002. This did not involve recalculation of any employer rates prior to December 31, 2009. However, it did involve establishing the depooled assets so as to reflect the separate experience of the employers in each individual cost group from December 31, 2002 through December 31, 2009. In addition, the Board took action to discontinue certain cost sharing adjustments for both member and employer contribution rates for General Tier 1 and Safety Tier A.

Even under the depooling structure, there are a few remaining cost sharing arrangements. Here is a summary of the ongoing cost sharing arrangements:

- Smaller employers (less than 50 active members) are pooled with the applicable County tier.

From the December 31, 2009 through the December 31, 2018 valuations, safety members from the East Contra Costa Fire Protection District were pooled with safety members of the Contra Costa County Fire Protection District. Starting with the December 31, 2019 valuation, the safety members of the East Contra Costa Fire Protection District were depooled from safety members of the Contra Costa County Fire Protection District, based on the AAL method.

- Due to a statutory requirement, the Superior Court is pooled with the County regardless of how many members the Court has.

- UAAL costs are pooled between Cost Group 1 and Cost Group 2 which represent General County and Small Districts for Tiers 1 and 3. UAAL costs are also pooled for Cost Groups 7 and 9 which are Safety County Tiers A and C.

This was done because Cost Group 1 and Cost Group 7 had active members but were generally closed to new members.² If the UAAL for these two cost groups is not pooled with another cost group that is open to new active members then the UAAL rate for these generally closed cost groups would increase substantially in future years. This is due to the fact that the UAAL for CCCERA is amortized as a level percent of payroll and the payroll growth for the generally closed cost group would be less than the payroll growth assumption. This will help stabilize the employer contribution rates for the mostly closed Cost Group 1 and Cost Group 7. Normal Cost rates for those cost groups are not pooled.

There are some substantial differences between the Safety Tier A Enhanced and Safety Tier C Enhanced benefits, such as the period over which final average salaries are determined and the COLA. However, since the County is the only employer in these two cost groups, they will be the only employer affected by this particular pooling.

Employer/Member Cost Sharing

The Cost Impact of Leave Cashouts

CCCERA's Basic and COLA member rates for members with membership dates before January 1, 2013 are increased to anticipate leave cashouts in the final year of employment using the same leave cashout assumptions adopted by the Board for the actuarial valuation for projecting benefit payments.

The Cost Impact of Service from Unused Sick Leave Conversion

Pursuant to Government Code Section 31641.01, for members with membership dates before January 1, 2013, the cost of this benefit will be charged only to employers and will not affect member contribution rates.

Employer/Member cost sharing arrangements are subject to modification under Government Code Section 31631.5, and any such modifications would be incorporated into the determination of the employer and member contribution rates.

Additional Employer UAAL Payments

Absent any specific action by the Board, any additional employer payments towards the UAAL (including those from Pension Obligation Bonds (POBs)) will be accepted by CCCERA in exchange for a corresponding reduction in the employer's UAAL contribution rate over period(s)

² That changed when the two Cost Groups became open again with the implementation of new Tiers 4 and D by the employers in Cost Groups 1 and 7, respectively, following the passage of California Public Employees' Pension Reform Act of 2013.

and in a manner consistent with that employer's outstanding UAAL amortization layers and payments.

The outstanding balance of the additional UAAL payment is tracked separately in a manner consistent with the procedure used to track the UAAL amortization layers. It will be credited with earnings at CCCERA's investment return assumption in effect at each valuation date and reduced by the dollar amount of the annual reduction in the employer's UAAL contributions due to the prepayment.

Unless otherwise directed by the Board, the dollar amount of the annual reduction in the employer's UAAL contributions due to the additional UAAL payment will be based on amortizing (as a level percentage of payroll) the outstanding balance of the additional UAAL payment amount over the same period as used for actuarial gains and losses, using CCCERA's investment return and payroll growth assumptions in effect at each valuation date.

The reduction in the UAAL contribution rate will then equal the dollar amount of reduction in the employer's UAAL contributions divided by the employer's expected payroll for the year following the valuation date. Rate reductions will apply starting on July 1 following receipt of the payment. The additional UAAL payment amount will be discounted back to the valuation date for which the contribution rates from that valuation become effective on that July 1.

The separate tracking of the outstanding balance applies only to employers that are in a cost group with more than one employer. For employers that are in their own cost group, the additional UAAL payment amount is directly added to the assets of their cost group. Separate tracking of the outstanding balance of the additional UAAL payment is not needed in this situation as the additional UAAL payment will automatically reduce the employer's UAAL contributions.

Employers with Declining Covered Payrolls

Refer to the Declining Employer Payroll Actuarial Funding Policy for more information.

POLICY REVIEW

The Board of Retirement will review this Policy at least every three (3) years to ensure that it remains relevant and appropriate.

HISTORY

Adopted: 2/26/2014

Amended: 8/13/2014, 5/22/2019, 10/14/2020

GLOSSARY OF FUNDING POLICY TERMS:

- **Present Value of Benefits (PVB) or total cost:** the “value” at a particular point in time of all projected future benefit payments for current plan members. The “future benefit payments” and the “value” of those payments are determined using actuarial assumptions as to future events. Examples of these assumptions are estimates of retirement patterns, salary increases, investment returns, etc. Another way to think of the PVB is that if the plan has assets equal to the PVB and all actuarial assumptions are met, then no future contributions would be needed to provide all future service benefits for all members, including future service and salary increases for active members.
- **Actuarial Cost Method:** allocates a portion of the total cost (PVB) to each year of service, both past service and future service.
- **Normal Cost (NC):** the cost allocated under the Actuarial Cost Method to each year of active member service.
- **Entry Age Actuarial Cost Method:** A funding method that calculates the Normal Cost as a level percentage of pay over the expected working lifetime of the plan’s members.
- **Actuarial Accrued Liability (AAL):** the value at a particular point in time of all past Normal Costs. This is the amount of assets the plan would have today if the current plan provisions, actuarial assumptions and participant data had always been in effect, contributions equal to the Normal Cost had been made and all actuarial assumptions came true. Note that for inactive members the AAL equals the entire PVB.
- **Market Value of Assets:** the fair value of assets of the plan as reported in the plan’s audited financial statements.
- **Actuarial Value of Assets (AVA) or smoothed value:** a market-related value of the plan assets for determining contribution requirements. The AVA tracks the market value of assets over time, smoothes out short term fluctuations in market values and produces a smoother pattern of UAALs and contributions than would result from using market value.
- **Valuation Value of Assets (VVA):** the value of assets used in the actuarial valuation to determine contribution rate requirements. It is equal to the Actuarial Value of Assets reduced by the value of any non-valuation reserves.
- **Unfunded Actuarial Accrued Liability (UAAL):** the positive difference, if any, between the AAL and the VVA.
- **Surplus:** the positive difference, if any, between the VVA and the AAL.
- **Actuarial Value Funded Ratio:** the ratio of the VVA to the AAL.
- **Market Value Funded Ratio:** the ratio of the MVA to the AAL.

- **Actuarial Gains and Losses:** changes in UAAL or surplus due to actual experience different from what is assumed in the actuarial valuation. For example, if during a given year the assets earn more than the investment return assumption, the amount of earnings above the assumption will cause an unexpected reduction in UAAL, or “actuarial gain” as of the next valuation. These include contribution gains and losses that result from actual contributions made being greater or less than the level determined under the policy.
- **Valuation Date:** December 31 of every year.

CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

INTEREST CREDITING AND EXCESS EARNINGS POLICY

PURPOSE OF POLICY:

The purposes of this policy are to establish a methodology for:

- (1) crediting interest to contributions and reserves in the retirement system; and
- (2) administering the Excess Earnings, as defined, of the retirement system.

GOVERNING LAW:

CCCERA is governed by provisions of the County Employees' Retirement Law of 1937 ("CERL"), as well as other federal and state laws relating to public retirement systems. Pursuant to CERL, Govt' Code Section 31591, interest is to be credited semiannually on June 30th and December 31st to all contributions in the retirement fund which have been on deposit for six months immediately prior to that date.

CERL generally governs interest crediting and Excess Earnings. Various reserves and designations are established and maintained by the Board under procedures adopted by the Board pursuant to CERL.

GENERAL PRINCIPLES AND OBJECTIVES:

1. Determine "Available Earnings" according to the Actuarial Value of Assets methodology. Available Earnings on the Actuarial Value of Assets is equal to the expected earnings on a semi-annual basis consistent with the Board-adopted Actuarially Assumed Investment Rate of Return plus 10% of the market value gain or loss (relative to the respective Board-adopted Actuarially Assumed Investment Rate of Return) for each of the current and nine prior semi-annual accounting periods plus the balance in the Contingency Reserve(s) and Unrestricted Designation.
2. Credit interest on member accounts semi-annually as of June 30th and December 31st in equal amounts which when taken together and compounded are equal to the Board-adopted Actuarially Assumed Investment Rate of Return for that fiscal year.
3. Credit Available Earnings to remaining valuation and post-retirement death benefit reserves as of June 30th and December 31st in equal amounts which when taken together and compounded are equal to the Board-adopted Actuarially Assumed Investment Rate of Return for that fiscal year.
4. Maintain a Contra Tracking Account ("CTA") to track any shortfalls of Available Earnings relative to earnings required to credit full interest to valuation and post-retirement death benefit reserves. Any such shortfalls will be funded from future Available Earnings as described in the next item.

5. Replenish shortfalls in the CTA and maintain the contingency reserves before deciding to use Available Earnings for any discretionary uses.
6. After crediting Full Interest to valuation and post-retirement death benefit reserves, use any remaining Available Earnings in the following order of priority:
 - a. Eliminate prior shortfalls of Available Earnings as tracked in the balance of the CTA by reducing the balance of the CTA to zero.
 - b. Bring the Statutory Contingency Reserve to 1% of total assets. This reserve is to be used as a reserve against deficiencies in interest, losses on investments and other contingencies.
 - c. Bring the Board Contingency Designation to the 1% level established by the Board. The Board Contingency Designation is to be used for those same purposes established for the Statutory Contingency Reserve (i.e., a deficiency in interest earnings, losses on investments and other contingencies.)
 - d. Consider granting new retiree Dollar Power Benefit to maintain retiree purchasing power at 80% level when established by Board and sufficiently funded pursuant to Government Code Section 31874.3(c).
 - e. Consider using Available Earnings to restore funding, as necessary, of benefits previously granted by the board of supervisors under Government Code section 31683 to CCCERA members who retired before January 1, 1983, and their surviving beneficiaries.
 - f. Consider the following discretionary uses of any remaining Available Earnings:
 - Payment of health and welfare benefits as authorized under Government Code Section 31592.2.
 - Transfer to employer advance reserves the amount needed to reduce or eliminate the employer and/or member cost-of-living contribution rate component for a period to be determined by the Board to the extent permitted under Govt. Code sec. 7522.52.
 - Transfers to employer advance reserves under Government Code 31592.2, which may reduce CCCERA's Unfunded Actuarial Accrued Liability.
 - Transfers to a reserve or designation to pay ancillary benefits as permitted by law, including without limitation those provided in Government Code section 31683.
 - Transfers to a reserve or designation for other uses as permitted by law.
7. Any remaining Available Earnings will be transferred to the Unrestricted Designation.

INTEREST CREDITING POLICY:

Step 1 - Determine “Available Earnings” for accounting period as the sum of:

- a. Earnings of the retirement fund for the period based on Actuarial Value of Assets methodology, expressed in dollars. This could be a negative amount.
- b. Balance in the Unrestricted Designation
- c. Balance in any Board Contingency Designation
- d. Balance in the Statutory Contingency Reserve

Step 2 - Credit interest to Member Deposit and Member Cost of Living Reserves

Deduct this interest amount from Available Earnings. If this amount of interest is more than Available Earnings, charge the shortfall to the Contra Tracking Account.

Step 3 - Credit interest on all other Valuation Reserves and the Post Retirement Death Benefit Reserves

If Available Earnings is not sufficient, charge the shortfall to the Contra Tracking Account.

EXCESS EARNINGS POLICY:

Step 1 - Reduce the balance in the Contra Tracking Account to zero

Transfer from any remaining Available Earnings an amount to be applied to the balance in the Contra Tracking Account until the balance is zero.

Step 2 - Restore the Statutory Contingency Reserve

Transfer from any remaining Available Earnings into Statutory Contingency Reserve the amount required to maintain the Statutory Contingency Reserve balance at 1% of market value.

Step 3 - Restore Board Contingency Designation to 1%

Transfer any remaining Available Earnings into the Board Contingency Designation the amount required to maintain the Board Contingency Designation at 1% of market value.

Step 4 - Maintain retiree Dollar Power Benefit

Direct CCCERA’s actuary to determine the cost of fully funding retiree Dollar Power Benefits effective on a date to be determined by CCCERA’s Board, as required by Government Code Section 31874.3(c). The Board must also obtain: (a) from CCCERA’s actuary, an analysis of the impact of such actions on current and future annual costs, contribution rates, Unfunded Actuarial Accrued Liabilities and Funding Ratios; and (b) the advice of legal counsel. If remaining Available

Earnings are sufficient to fully fund the Dollar Power Benefits as of the date determined by the Board, the Board may, with the advice of the actuary and legal counsel, transfer any remaining Available Earnings into a reserve to maintain the retiree Dollar Power Benefits at the 80% purchasing power level.

Step 5 - Maintain funding of additional benefits previously granted by Board of Supervisors under Government Code section 31683

Direct CCCERA's actuary to determine whether the balance of funds previously transferred by the Board under Government Code section 31683 to fully fund the costs of additional benefits previously granted by the Board of Supervisors to pre-January 1, 1983 CCCERA retirees and their surviving beneficiaries are sufficient to maintain full funding of such benefits, and if not, to determine the cost to maintain full funding of those benefits. If an additional transfer of Available Earnings is necessary to fully fund the benefits, the Board must also obtain: (a) from CCCERA's actuary, an analysis of the impact of such actions on current and on future annual cost, on contribution rates, Unfunded Actuarial Accrued Liabilities and Funding Ratios; and (b) the advice of legal counsel. If remaining Available Earnings are available to maintain full funding of the Section 31683 benefits the Board may, with the advice of the actuary and legal counsel, transfer any remaining Available Earnings into the reserve created to fund such benefits.

Step 6 - Consider other discretionary uses

The Board may, in its discretion, consider any and all of the following uses of any remaining Available Earnings, which are not listed in order of priority. Prior to implementing any of the following options the Board must obtain: (a) from CCCERA's actuary, an analysis of the impact of such actions on current and future annual costs, on contribution rates, Unfunded Actuarial Accrued Liabilities and Funding Ratios; and (b) the advice of legal counsel.

- Transfers for health and welfare benefits as authorized under Government Code Section 31592.2.
- Transfers to employer advance reserves the amount needed to reduce or eliminate the employer and/or member cost-of-living contribution rate component for a period to be determined by the Board to the extent permitted under Govt. Code sec. 7522.52.
- Transfers to employer advance reserves under Government Code 31592.2 so as to reduce CCCERA's Unfunded Actuarial Accrued Liability.
- Transfers to a reserve or designation to pay ancillary benefits as permitted by law, including without limitation those provided in Government Code section 31683.
- Transfers to a reserve or designation for other uses as permitted by law.

Step 7 - Transfer Remaining Available Earnings to Unrestricted Designation

Any remaining Available Earnings will be transferred to the Unrestricted Designation.

DEFINITIONS:

Actuarially Assumed Investment Rate of Return: The expected investment earnings rate of return used in the annual actuarial valuation of the Plan, recommended to the Board by the Plan's actuary in an experience study and set by the Board.

Actuarial Value of Assets: The Market Value of Assets less deferred investment gains or losses as calculated under the Plan's actuarial asset smoothing method.

Available Earnings: The actual earnings of the Plan as determined based on the smoothed Actuarial Value of Assets and funds previously set aside in the Contingency Reserve.

Board: The CCCERA Board of Retirement.

Excess Earnings: Any Available Earnings remaining after the steps outlined in the Interest Crediting Policy have been completed.

Full Interest: The Actuarially Assumed Investment Rate of Return adopted by the Board for the subject fiscal year.

Market Value of Assets: An asset value where the full value of investment earnings is recognized in a year.

Valuation Reserves: Valuation reserves are used to determine the employers' and members' statutory contribution rates. The following reserves, as defined below, are considered Valuation Reserves into which earnings are credited at certain limits:

1. Member Deposits and Cost of Living Reserves are the reserves for all member contributions.
2. Employer Advance and Cost of Living Reserves are the reserves for statutorily determined contributions from all employers.
3. Retired Member and Cost of Living Reserves are the reserves for retirees. Funds from the Member Deposits and Cost of Living Reserves and the Employer Advance and Cost of Living Reserves attributable to a specific member are transferred to the Retired Member and Cost of Living Reserves when the member retires.
4. Contra Tracking Account is the reserve that tracks the amount of interest credited to the reserve accounts that has not been paid for out of current or Excess Earnings.
5. Dollar Power Cost of Living Supplemental Reserve is the reserve containing the balance of prior Available Earnings transfers made by the Board to provide Dollar Power Benefits.

Non-Valuation Reserves: These reserves are not used to determine employers' statutory contribution rates. The following reserves, as defined below, are considered Non-Valuation Reserves into which earnings are credited at certain limits:

1. Contingency Reserve is a statutorily defined reserve against deficiencies in earnings, losses on investments or other contingencies which, pursuant to Sections 31592 and 31592.2 of the CERL, must not be less than 1% of the actuarial value of assets.
2. Post Retirement/Death Benefit Reserve is the reserve for the balance of transfers from Excess Earnings and related earnings, less lump sum death benefit payments to beneficiaries of retirees.
3. Unrestricted Designation is the amount of Available Earnings remaining after the application of the Interest Crediting Policy and the Excess Earnings Policy
4. Total Deferred Return represents the unrecognized return after smoothing of investment gains and losses.

POLICY REVIEW

The Board of Retirement will review this Policy at least every three (3) years to ensure that it remains relevant and appropriate.

HISTORY

Excess Earnings Policy Adopted: 9/11/1990

Amended: 3/11/1997, 2/12/2002

Interest Crediting Policy Adopted: 2/12/2002

Amended: 6/11/2003

Redrafted and Amended Combined Policy Adopted: 5/17/2006

Amended: 9/22/2021