



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2020

Investment Performance Review for

Imperial County Employees' Retirement System

Table of Contents



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Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
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**1ST QUARTER 2021
Investment Landscape**

Recent Verus research

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

Topics of interest

IS PAINLESS DIVERSIFICATION DEAD?

Interest rates have collapsed in developed economies in past years, and more recently at home in the United States, which has greatly dampened investors' performance outlook for diversified portfolios. These events have led many investors to question the traditional role of fixed income. In this Topic of Interest white paper, we outline some issues that investors must come to terms with, and we begin to unpick ways of thinking about diversification and preservation of capital in the new market environment.

INTEGRATING ESG INTO ACTIVE PORTFOLIOS

In this paper, we address how environmental, social, and governance (ESG) considerations are integrated into our manager research process. We address Verus' approach to ESG issues when advising clients and link that to what ESG due diligence looks like in researching investment managers. Next, we consider the spectrum of ESG integration as defined by the primary objective of the product. Finally, we address the challenges that ESG considerations pose for hedge fund managers and private equity general partners.

QUANTIFYING ESG IN PORTFOLIO CONSTRUCTION

Environmental, social, and governance (ESG) investing is a wide-ranging field that encompasses many different approaches. Investors are integrating ESG into the creation of their policies, investment beliefs, strategic asset allocations, manager selection decisions, and much more. ESG ratings and scores allow investors to understand and compare the ESG profile of companies and managers. ESG screens can serve as an effective tool for investors to identify exposures that may conflict with their institutional values.

AGREEING ON ESG

This paper sheds light on the difficulty institutional investors face as they embark on their journey toward implementing a thoughtful ESG policy that fits their specific organization and is designed to help them cut through the clutter by providing a detailed, practical "soup-to-nuts" methodology to determine the best policy for their organization.

Annual research

2021 CAPITAL MARKET ASSUMPTIONS

Learn about the 2020 market movements and how these shifts have affected our long-term outlook.

Sound thinking

FINDING COMFORT IN AN UNCOMFORTABLE WORLD

An outline of various topics that an investor might want to add to their agenda for the coming year.

Up and coming event

EMERGING & DIVERSE MANAGERS DILIGENCE DAYS

For the third consecutive year, Verus is inviting qualified managers to participate in one-on-one meetings with its senior staff during its 3rd Emerging and Diverse Manager Diligence Days.

- March 16-18
- March 22
- March 24
- March 26

Table of contents



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Economic environment 6

Fixed income rates & credit 21

Equity 26

Other assets 36

Appendix 38

4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter. **p. 11**
- Joe Biden was elected President of the United States. The market seemed to interpret a Biden win as a mild positive for risk assets, on the expectation of larger economic stimulus. Democrats also took both seats in the Georgia run-off election, completing the party's "Blue Wave". **p. 7**
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. **p. 7**

PORTFOLIO IMPACTS

- Emerging market equities (+19.7%) outperformed U.S. (+12.1%) and international developed equities (+16.0%) once again in Q4. Latin American equities showed significant outperformance (+34.8%), after years of lagging behind other emerging markets. **p. 32**
- The U.S. 10-year TIPS breakeven inflation rate headed notably higher over the quarter, from 1.6% in September to 2.0% in December. Although U.S. inflation is lower than pre-pandemic levels, market pricing for inflation is the highest since 2018. **p. 12**

THE INVESTMENT CLIMATE

- Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period. **p. 11**
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved from the -12.7% drop expected on September 30th. For full year 2020, analysts are expecting a -13.3% earnings decline. **p. 26**

ASSET ALLOCATION ISSUES

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable uncertainty. **p. 28**
- Weakness in the U.S. dollar remained a theme in Q4, and the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the US dollar to lower relative real yields in the U.S. **p. 37**
- Within the U.S. market, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials. **p. 28**

A more neutral risk positioning may be warranted in the current environment

There seems to be a high degree of uncertainty regarding the future market path

What drove the market in Q4?

“The Mass Distribution of Covid-19 Vaccines Is Under Way. ‘Everything Has to Come Together.’”

COVID-19 U.S. HOSPITALIZATION RATE

7/25	8/29	9/26	10/31	11/28	12/26
7.6%	4.4%	4.1%	8.7%	16.6%	10.4%

Article Source: Wall Street Journal, December 13th, 2020

“Congress agrees to \$900 billion Covid stimulus deal after months of failed negotiations”

U.S. TOTAL PUBLIC DEBT OUTSTANDING (TRILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
\$26.5	\$26.7	\$26.9	\$27.1	\$27.4	\$27.7

Article Source: CNBC, December 20th, 2020

“Powell says stock prices are not necessarily high considering the low level of interest rates”

TEN-YEAR U.S. REAL YIELD (NOMINAL YIELD MINUS BREAKEVEN INFLATION)

Jul	Aug	Sep	Oct	Nov	Dec
-1.03%	-1.10%	-0.95%	-0.83%	-0.95%	-1.07%

Article Source: CNBC, December 16th, 2020

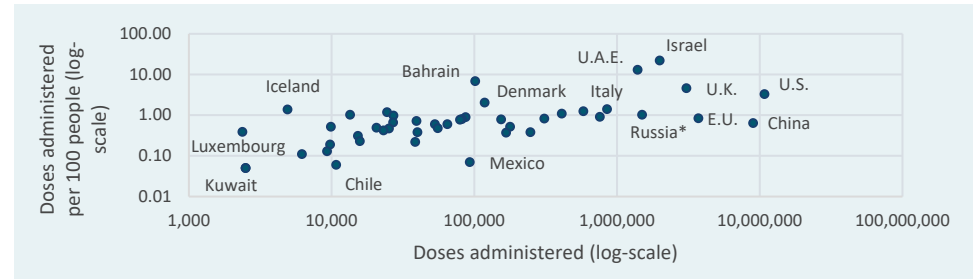
“Dollar’s Slump Propels Global Peers Toward Multi-Year Peaks”

BLOOMBERG DOLLAR SPOT INDEX

Jul	Aug	Sep	Oct	Nov	Dec
1179	1161	1177	1172	1145	1120

Article Source: Bloomberg, November 29th, 2020

GLOBAL VACCINATION CAMPAIGN



Source: Bloomberg, as of 1/13/21, or most recent release

MOST RECENT FISCAL STIMULUS PACKAGE ALLOCATIONS (BILLIONS)



Source: U.S. House of Representatives, as of 12/21/20

S&P 500 INDEX



Source: Standard & Poor’s, Bloomberg, as of 12/31/20

Economic environment

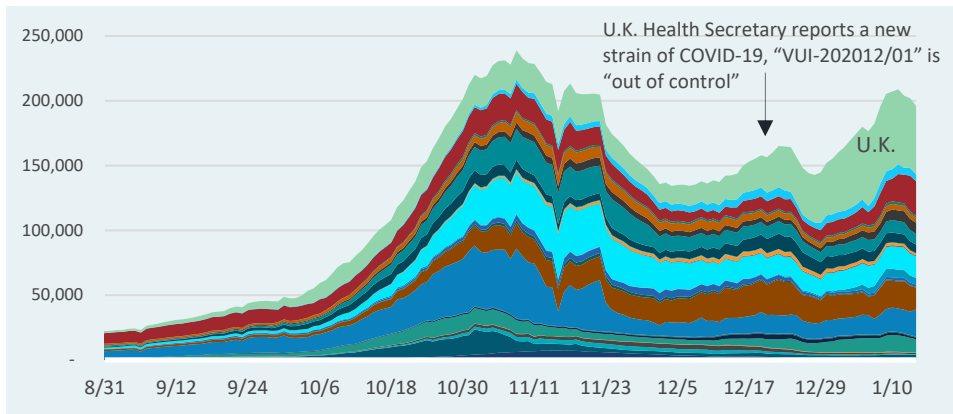
U.S. economics summary

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter.
- The Atlanta Fed’s forecast for fourth quarter growth was 7.4% quarter-over-quarter, as of January 15th, suggesting further economy expansion.
- Joe Biden was elected President of the United States in November. Jon Ossoff and Raphael Warnock both won in the Georgia Senate runoff elections in January, which ensured democratic control of both the White House and the Senate with V.P.-elect Kamala Harris as the swing vote. The wins completed the democratic “Blue Wave” many have associated with extensive fiscal support. Slim democratic majorities in both chambers of Congress, however, may constrain Biden’s policy scope.
- After impressive employment gains in Q3, the recovery appeared to be stalling in recent months. Unemployment fell from 7.8% in September to 6.7% in December.
- Consumer sentiment remained stubbornly low, despite broad recoveries in consumer spending, auto sales, and the housing market.
- Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-from-home environment fueled demand. Existing home sales were 25.8% higher than one-year prior.
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. The global vaccination campaign began in December, and 44 million doses have been distributed so far.

	Most Recent	12 Months Prior
GDP (YoY)	(2.8%) 9/30/20	2.1% 9/30/19
Inflation (CPI YoY, Core)	1.6% 12/31/20	2.3% 12/31/19
Expected Inflation (5yr-5yr forward)	2.0% 12/31/20	1.8% 12/31/19
Fed Funds Target Range	0% – 0.25% 12/31/20	1.50% – 1.75% 12/31/19
10-Year Rate	0.9% 12/31/20	1.9% 12/31/19
U-3 Unemployment	6.7% 12/31/20	3.5% 12/31/19
U-6 Unemployment	11.7% 12/31/20	6.7% 12/31/19

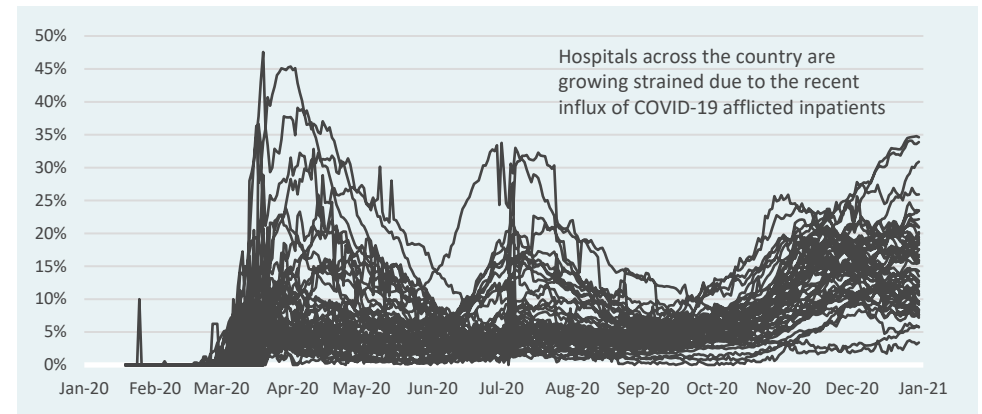
COVID-19 update

SEVEN-DAY AVERAGE DAILY CASE GROWTH – EUROPE AND THE U.K.



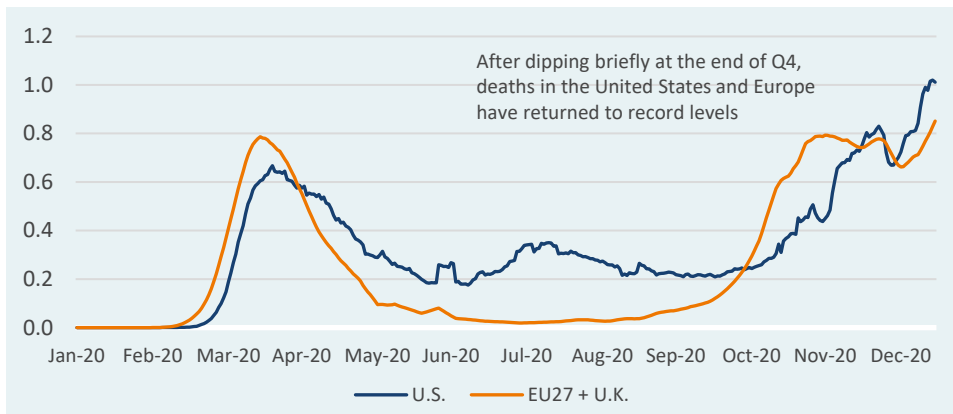
Source: Bloomberg, as of 1/14/21

COVID-19 INPATIENTS BY U.S. STATE (%)



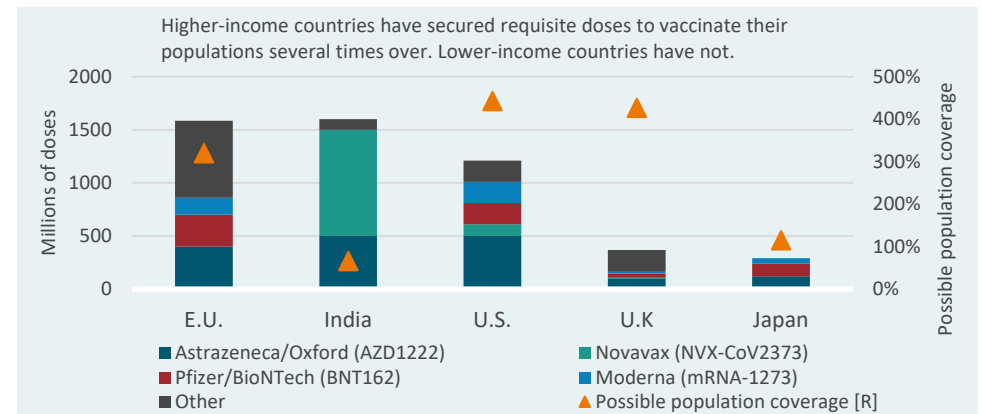
Source: Bloomberg, as of 1/9/21

SEVEN-DAY AVERAGE DAILY DEATHS PER 100,000 IN POPULATION



Source: Bloomberg, as of 1/14/21

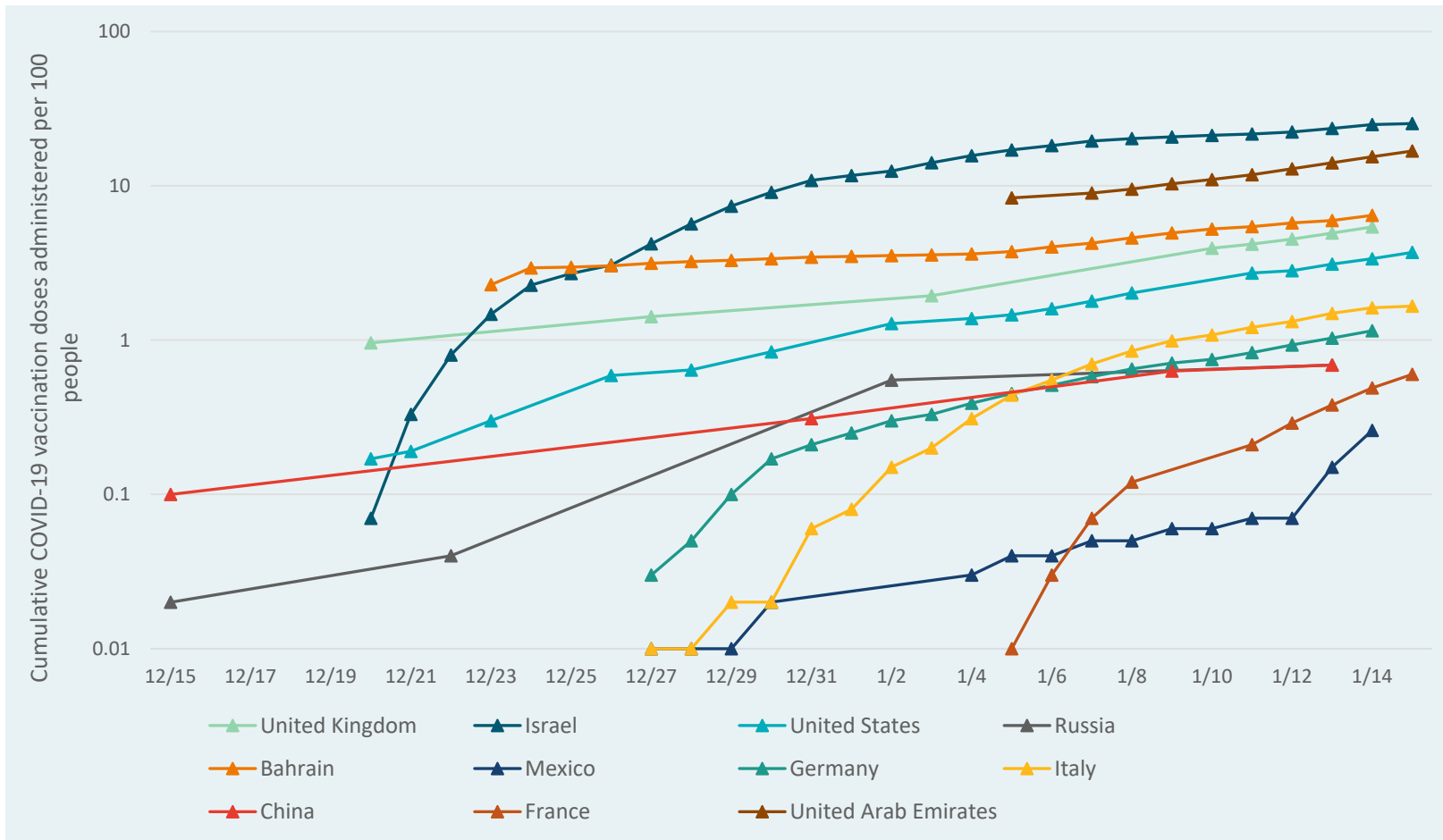
VACCINE COVERAGE BY COUNTRY



Source: Duke Global Health Innovation Center, as of 1/8/21; possible population coverage includes confirmed and potential doses committed to – it is possible not all vaccines will be approved.

Global vaccination campaign

CUMULATIVE COVID-19 VACCINE DOSES ADMINISTERED PER 100 PEOPLE

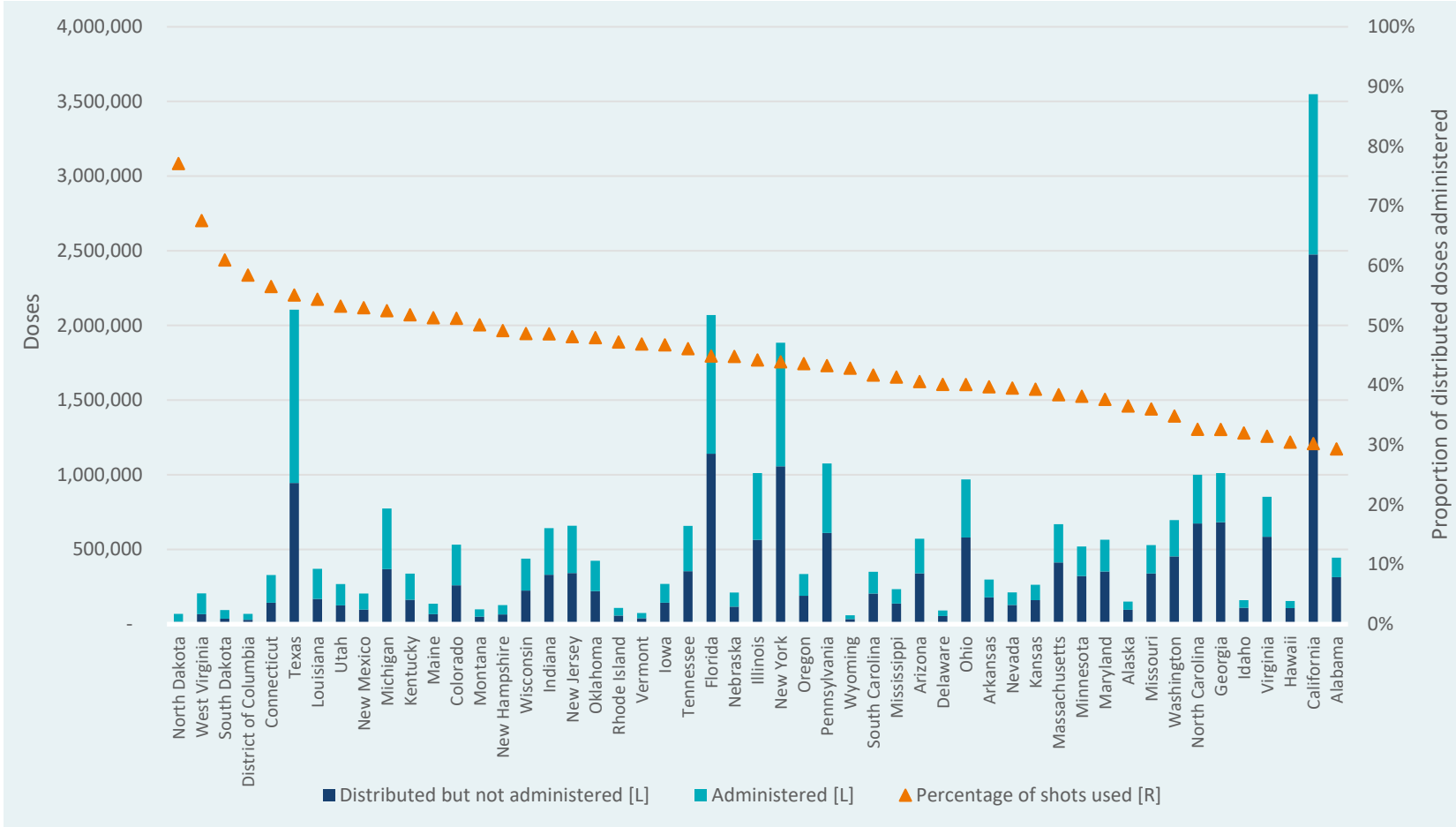


Israel has led the way so far, but it is a country with a size and population comparable to New Jersey

Source: Our World in Data, as of 1/15/21

Administration issues in the U.S.

THE GAP BETWEEN DISTRIBUTED AND ADMINISTERED VACCINE DOSES



As of January 15th, roughly 13 million doses had been administered nationwide, accounting for roughly 42% of all doses distributed

President Biden is aiming to achieve 100 million vaccine dose administrations in his first 100 days in office

Source: Bloomberg, as of 1/15/21

GDP growth

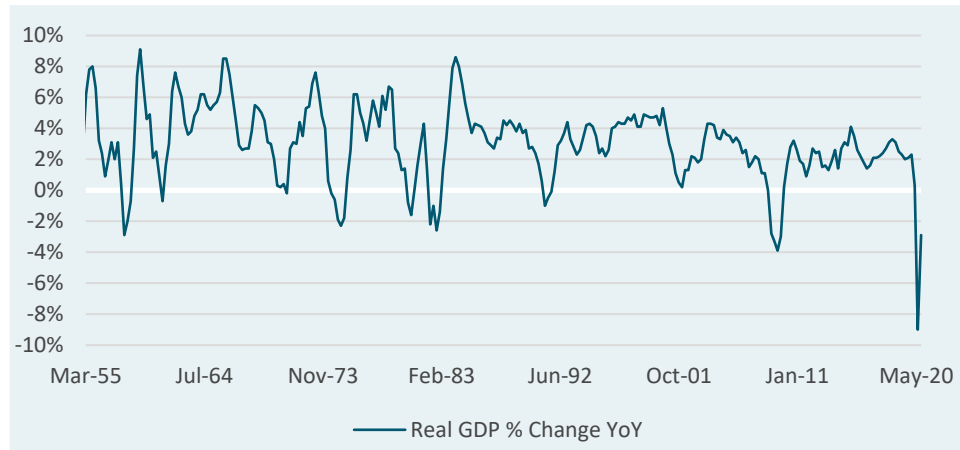
Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost during the depths of the pandemic. Personal consumption expenditures expanded at a quarterly annualized pace of -25.4%. Growth was broad-based, and included strong private investment, exports, and inventory builds.

Not only was this bounce-back a product of pent-up demand released by the economic reopening, it was also the result of a coordinated and historic stimulus effort by the U.S.

government. After the Federal Reserve took interest rates to zero and flooded the markets with liquidity, Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period.

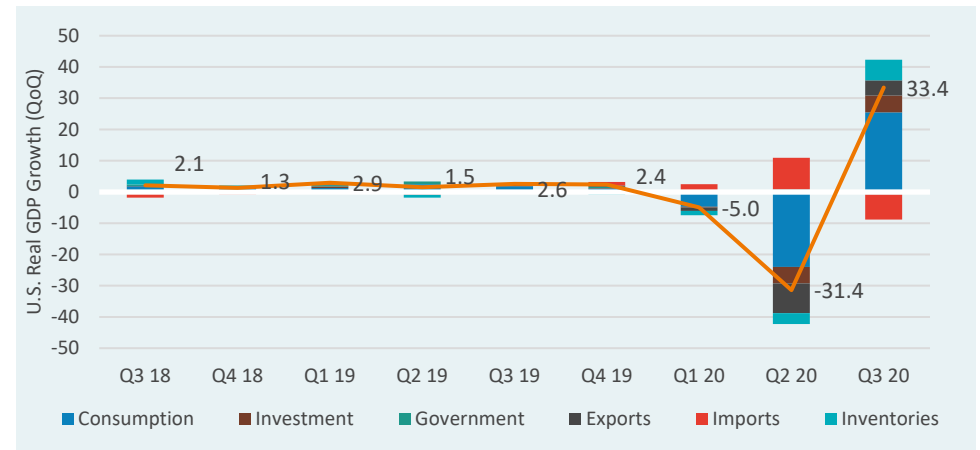
The Atlanta Fed's forecast for Q4 growth was 7.4% on a quarter-over-quarter annualized basis (-1.7% year-over-year) as of January 15th, suggesting further economic recovery.

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/20

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 9/30/20

Inflation

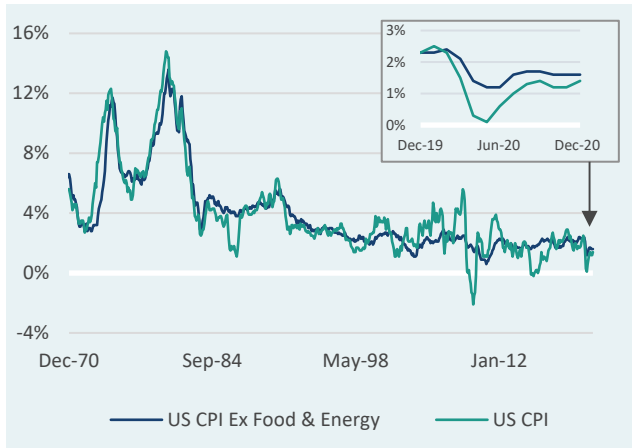
Headline inflation stayed relatively stable during Q4, at 1.4% year-over-year in December. Energy prices have acted as a drag on inflation, with gasoline (-15.2%) and fuel oil (-20.0%) showing the largest moves. Food (+3.9%), as well as used cars & trucks (+10.0%), had a lifting effect on inflation during the year. Inflation excluding volatile food and energy prices increased 1.6%.

The U.S. 10-year TIPS breakeven inflation rate headed notably higher over the quarter, from 1.6% in September to

2.0% in December. Although U.S. inflation is lower than pre-pandemic levels, market pricing for inflation is the highest since 2018.

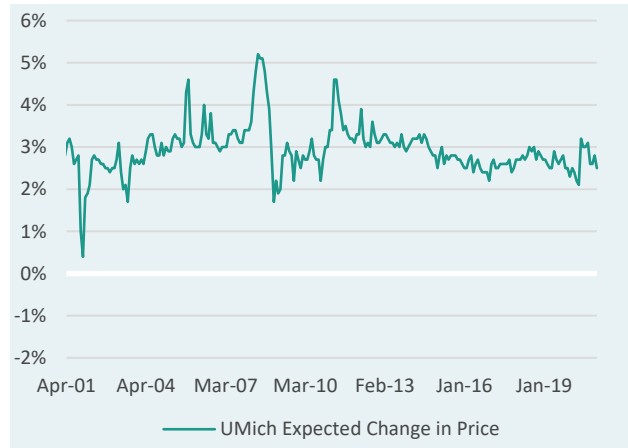
Consumer inflation expectations, as indicated by the University of Michigan survey, proved volatile throughout the year. After starting 2020 at an expected 2.3% rate of inflation, expectations fell to 2.1% in April before spiking to 3.2% in May. Expectations fell in the fourth quarter and settled at 2.5% in December.

U.S. CPI (YOY)



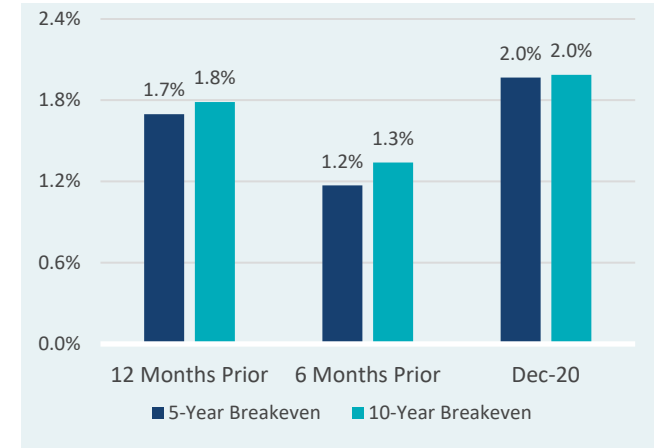
Source: Bloomberg, as of 12/31/20

CONSUMER INFLATION EXPECTATIONS



Source: University of Michigan, as of 12/31/20

BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 12/31/20

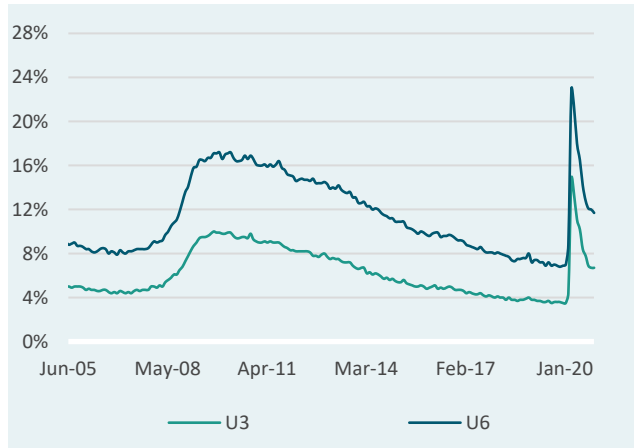
Labor market

After impressive employment gains in Q3, the recovery appeared to be stalling in recent months. Unemployment fell from 7.8% in September to 6.7% in December—a small improvement compared to previous months. Additionally, while the current unemployment rate does not seem exceptionally weak from a historical perspective, this metric masks the fact that the U.S. labor force participation rate also fell during COVID-19. In simpler terms, since the pandemic, roughly 3% of workers are now unemployed and seeking work, and an additional 2% of workers are now unemployed and *not* seeking work.

During an economic recession, it is important to understand the portion of newly unemployed workers who seek to quickly rejoin the workforce (cyclical unemployment), relative to the portion of workers who lose their jobs and end up more permanently out of work due to lack of opportunities or discouragement (structural unemployment). As shown in the chart below, a growing share of unemployed workers have remained out of work since the onset of the economic recession.

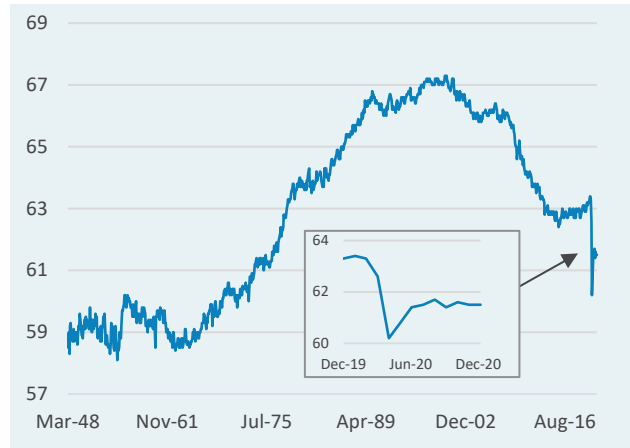
The U.S. employment recovery appears to be stalling

U.S. UNEMPLOYMENT



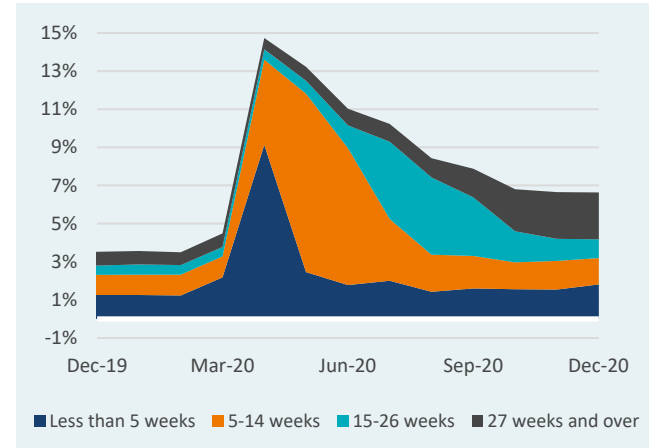
Source: FRED, as of 12/31/20

LABOR PARTICIPATION RATE



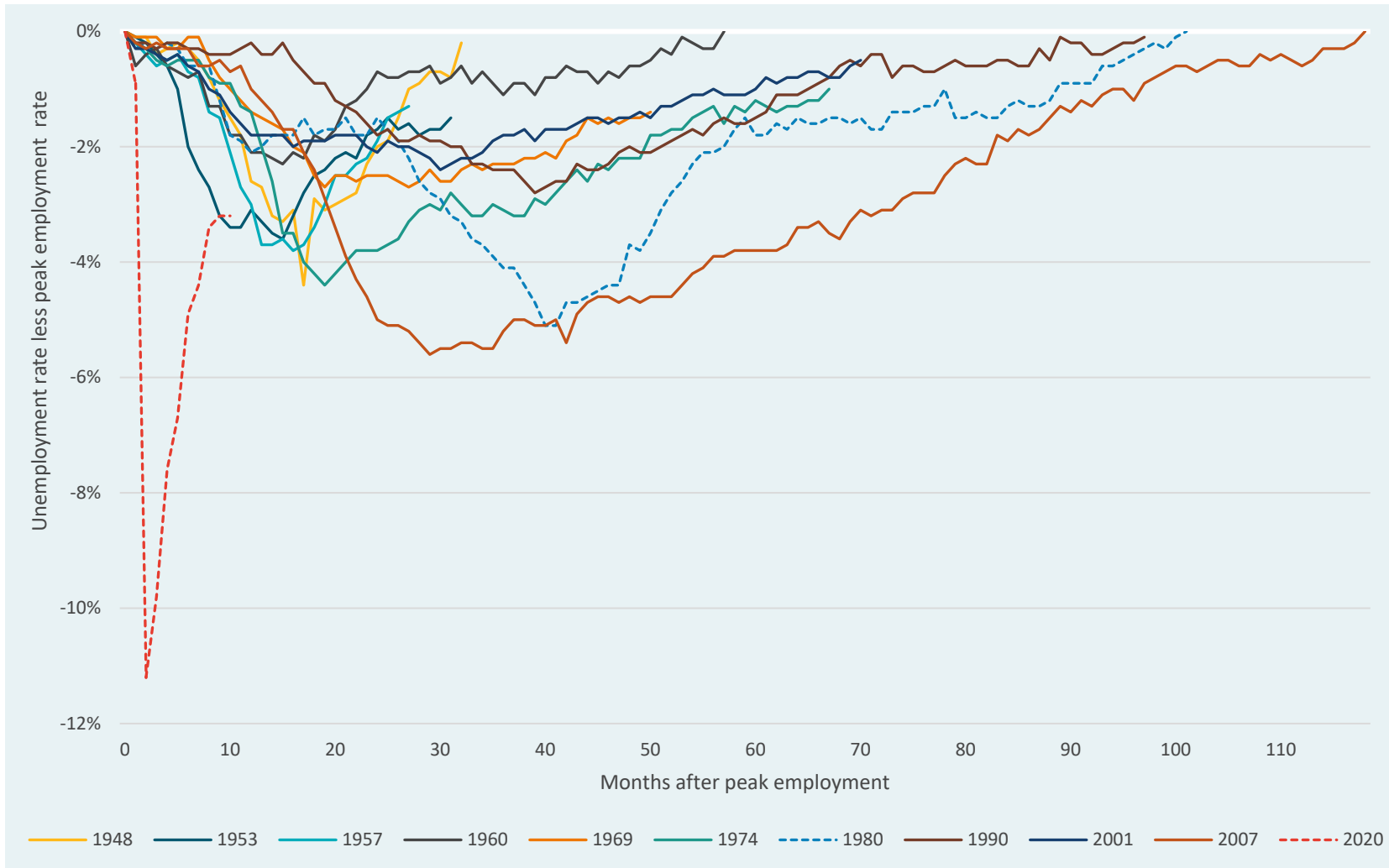
Source: FRED, as of 12/31/20

UNEMPLOYMENT DECOMPOSITION BY DURATION



Source: BLS, as of 12/31/20

U-3 unemployment rates relative to peaks

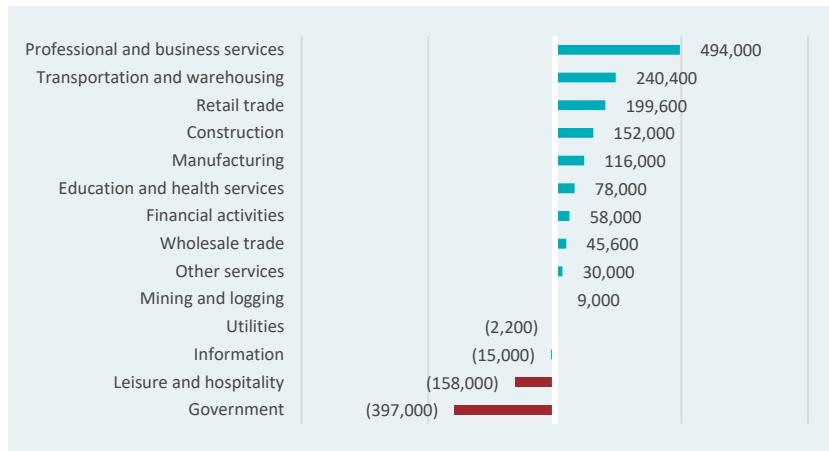


The Covid-19 recession features a historically-abrupt loss and subsequent rebound in broad unemployment

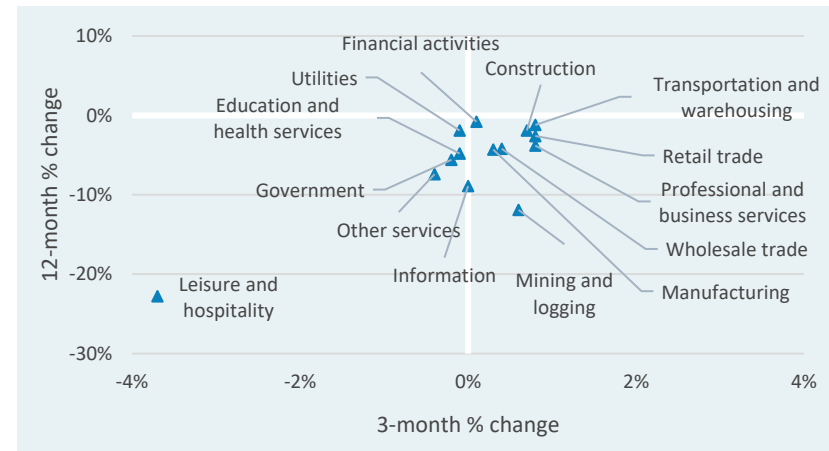
Source: Bloomberg, BLS, as of 12/31/20

Employment conditions

Q4 2020 NONFARM PAYROLLS CHANGES

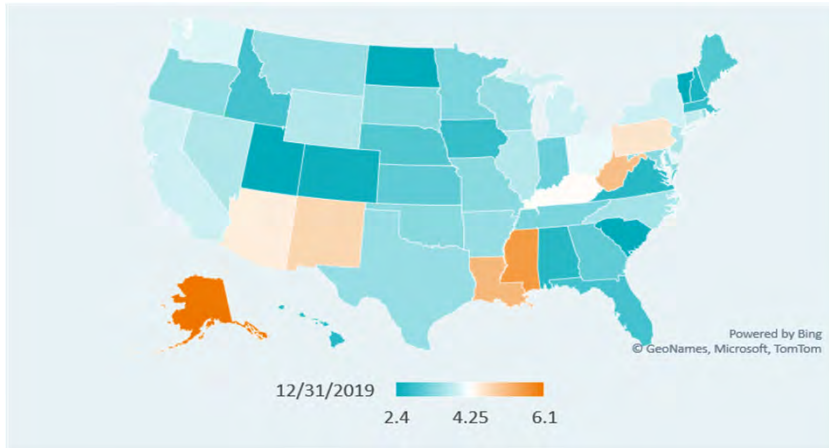


NONFARM PAYROLL GROWTH BY SECTOR

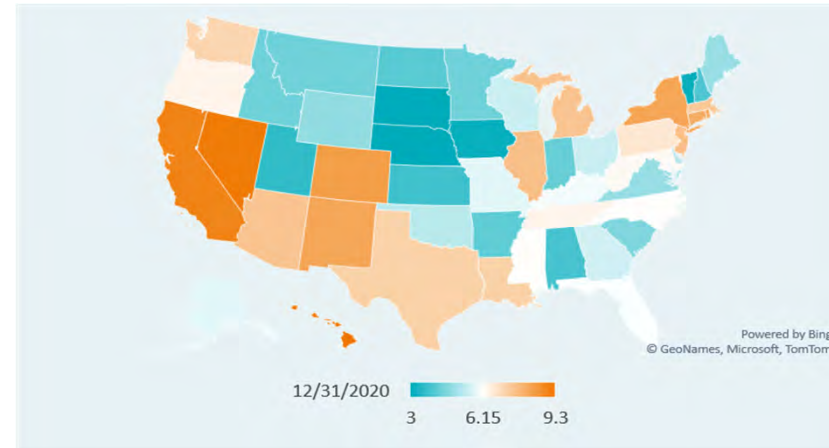


While employment in many sectors bounced back in Q4, jobs in the leisure and hospitality sector dipped as the impact of state lockdowns began to show up in the payrolls data

U-3 UNEMPLOYMENT (12/31/2019)



U-3 UNEMPLOYMENT (12/31/2020)



Despite the broad gains in the 4th quarter, nonfarm payrolls shrunk in every sector over the full calendar year

Source: BLS, as of 12/31/20 – or most recent release

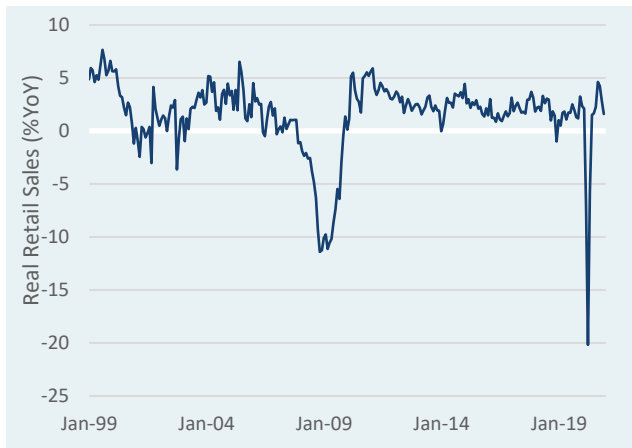
The consumer

U.S. retail sales have shown a surprising recovery after falling -20% year-over-year in April. Retail sales, after adjusting for inflation, increased 1.6% in December. Spending patterns have shown resiliency despite the economic slowdown. Automobile and home sale activity, for example, has recovered to previous levels.

However, recent spending patterns have been vastly affected by unprecedented government stimulus. Because this expansion was far from a “natural” recovery, it will be worth watching how consumption trends change as the various economic stimulus programs end. This effect may already be apparent as retail sales growth slowed from 4.6% in September to 1.6% in December.

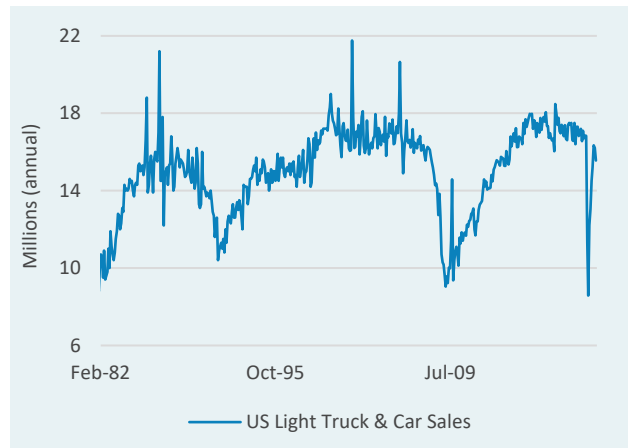
According to anonymized cellular phone data collected by Google for COVID-19 public health research, Americans began returning to their daily routines through late spring and summer, as activity began moving back to normalcy. However, these improvements plateaued across certain types of activities such as workplace travel, retail & recreation, and transit station usage, and this activity has slowed down once again. Continued weak activity, or even a further slowdown due to renewed government restrictions, could cast doubt on the U.S. economic recovery.

REAL RETAIL SALES GROWTH (YOY)



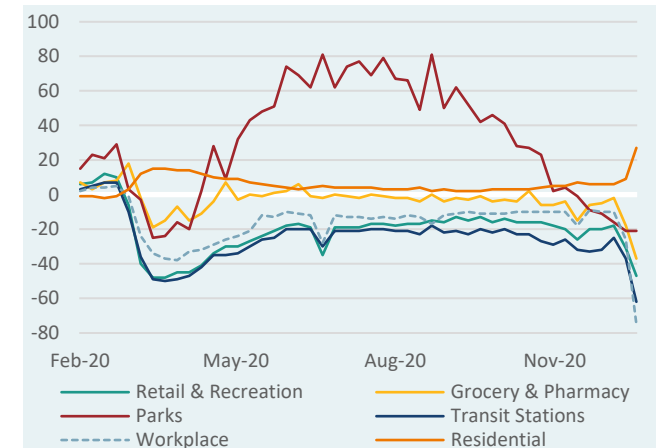
Source: FRED, as of 12/31/20

AUTO SALES



Source: Federal Reserve, as of 11/30/20

GOOGLE U.S. ACTIVITY TRACKER



Source: Google anonymized U.S. citizen mobility, as of 12/31/20

Sentiment

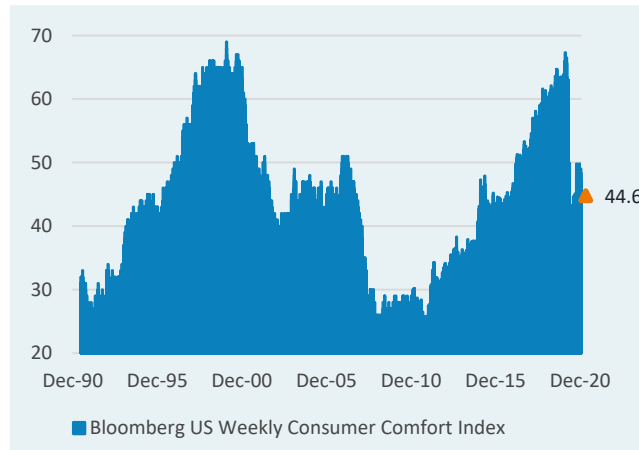
Consumer sentiment remained stubbornly low during the fourth quarter, despite broad recoveries in consumer spending, auto sales, and the housing market.

The Bloomberg Consumer Comfort Index attempts to gauge Americans' views on the economy, their personal financial situation, and buying conditions. The index fell from 49.3 to 44.6 during the quarter. The University of Michigan Consumer Sentiment Survey attempts to gauge attitudes about the business climate, personal finances, and spending conditions. The index was flat at 80.7 in Q4—down from a

cycle high of 101.0 in February.

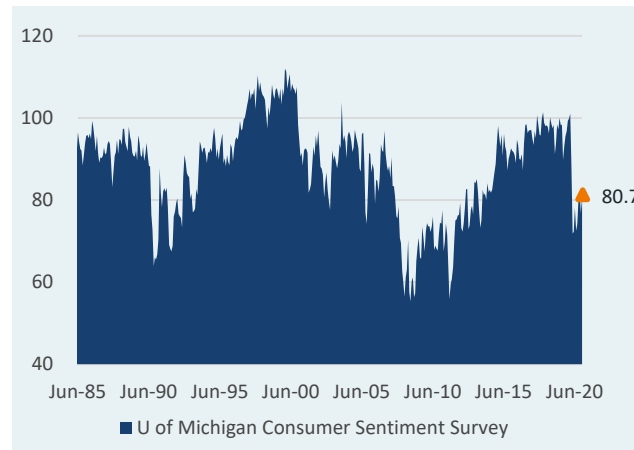
The NFIB Small Business Optimism Index exhibited a sharp decline to 95.9 in Q4, bringing the index back towards pandemic lows. The survey suggested that most business owners expect deteriorating conditions over the next six months. The survey also showed that concerns exist regarding government-mandated business closures due to COVID-19, and that the new U.S. administration may be less friendly toward the business community.

CONSUMER COMFORT



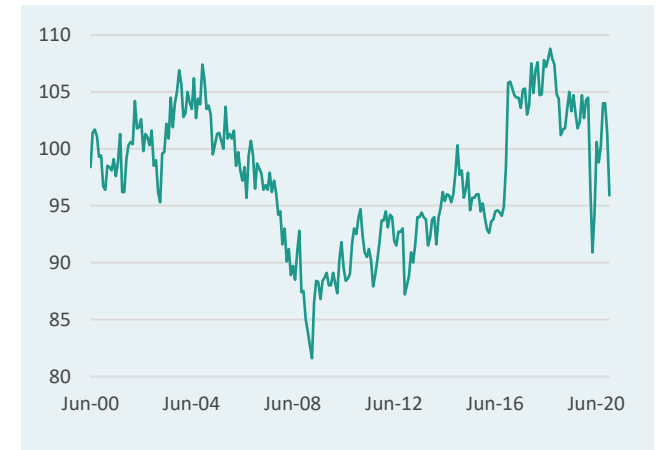
Source: Bloomberg, as of 12/31/20

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/20

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 12/31/20

Housing

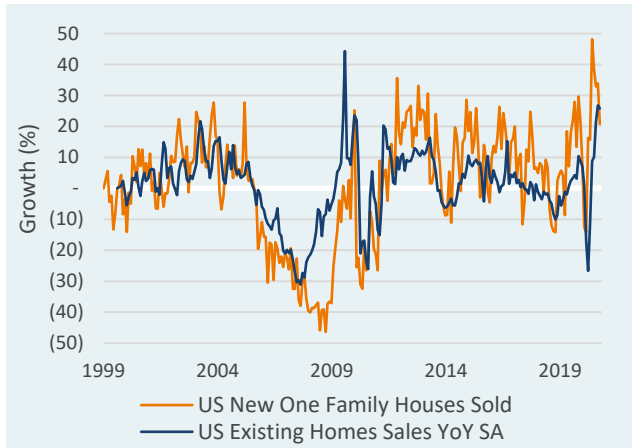
Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-from-home environment fueled demand. It remains to be seen the degree to which business work-from-home policies become permanent, post-pandemic. The direction of these trends may have a far-reaching impact on home sales as workers seek more space for home offices, and perhaps also feel greater freedom to move outside of major urban areas. Existing home sales were 25.8% higher than one-year prior, an overall rate of growth not experienced in over a decade.

Despite a gradual bounce-back of U.S. Treasury interest rates,

the 30-year U.S. Fixed Mortgage Rate has continued to move lower. The direction of mortgage rates from here will likely have a material impact on home prices.

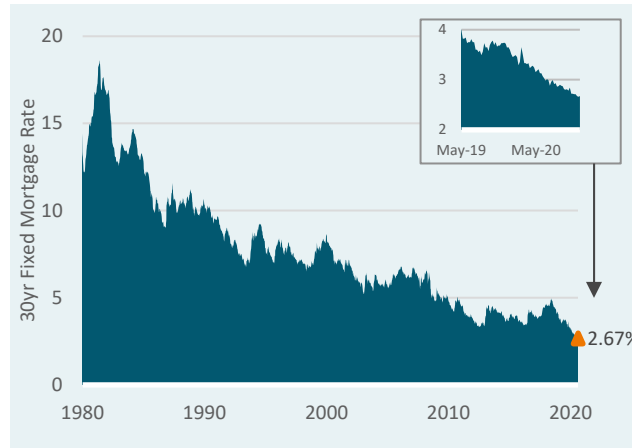
It is important to note that the overall cost of owning a home is a combination of home prices and borrowing rates (among many other variables, of course). While the price of a new home in the U.S. is, on average, higher than ever before, record-low interest rates have compensated for higher prices. As suggested by the Housing Affordability Index, the overall cost of owning a home today is below-average, historically speaking.

U.S. HOME SALES (YOY)



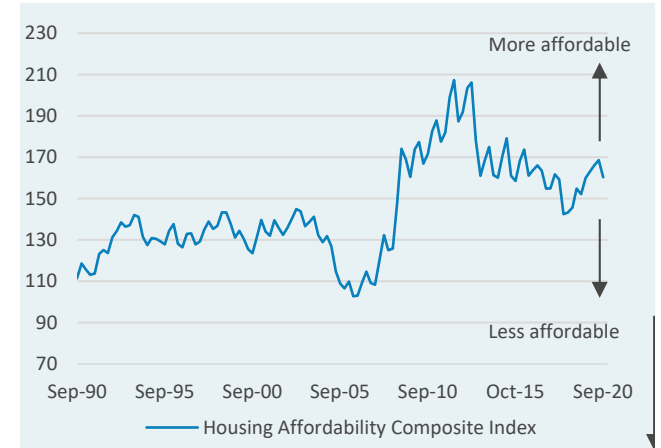
Source: FRED, as of 11/30/20

30-YEAR FIXED MORTGAGE RATE (AVERAGE)



Source: FRED, as of 12/31/20

HOUSING AFFORDABILITY INDEX



Source: National Association of Realtors, as of 9/30/20

International economics summary

- Economic growth in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity experienced during the prior quarter.
- European Union leaders agreed on a historic €1.8 trillion budget-and-recovery plan for 2021-2027, paving the way for a €750-billion pandemic relief package which will be financed by joint debt issuance.
- U.K. and E.U. officials reached an official trade deal at the 11th hour before the December 31st, 2020 conclusion of the transition period following Britain's official cutting of ties with the E.U. last January. The

agreement marked the beginning of a new chapter in the history of British relations with Europe.

- Governments have taken different approaches to supporting workers, and while many approaches have had similar economic effects, they have often had drastically different impacts on official unemployment figures. We believe official unemployment figures are of limited value in this environment—more in-depth analysis is likely required.
- The pandemic placed downward pressure on inflation. Since then, inflation levels have generally remained muted in developed markets while recovering moderately in emerging economies. China appears to be an outlier, as inflation has recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher in recent years and pushing up inflation.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.8%) 9/30/20	1.4% 12/31/20	6.7% 12/31/20
Eurozone	(4.3%) 9/30/20	(0.3%) 12/31/20	8.3% 11/30/20
Japan	(5.7%) 9/30/20	(1.3%) 12/31/20	2.8% 11/30/20
BRICS Nations	1.9% 9/30/20	1.5% 12/31/20	5.1% 12/31/20
Brazil	(3.9%) 9/30/20	4.5% 12/31/20	14.3% 10/31/20
Russia	(3.4%) 9/30/20	4.9% 12/31/20	6.1% 11/30/20
India	(7.5%) 9/30/20	4.6% 12/31/20	9.1% 12/31/20
China	2.3% 12/31/20	0.2% 12/31/20	4.2% 12/31/20

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy

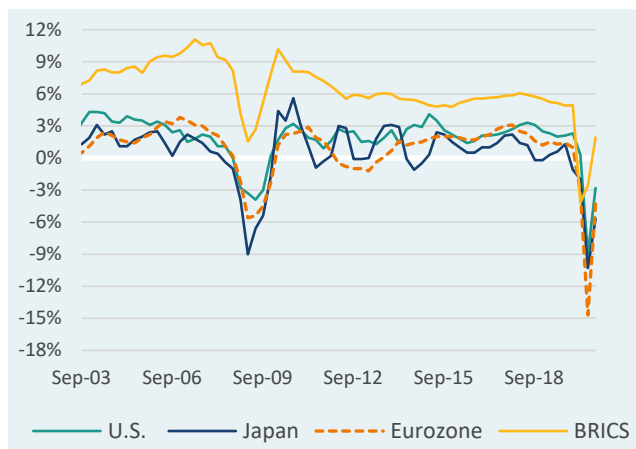
International economics

Economic growth in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity seen during the prior quarter. The direction of recovery was similar across the emerging markets, and these economies have maintained their growth “premium” over developed markets throughout the crisis.

Unemployment in the Eurozone has fallen slightly to 8.3%

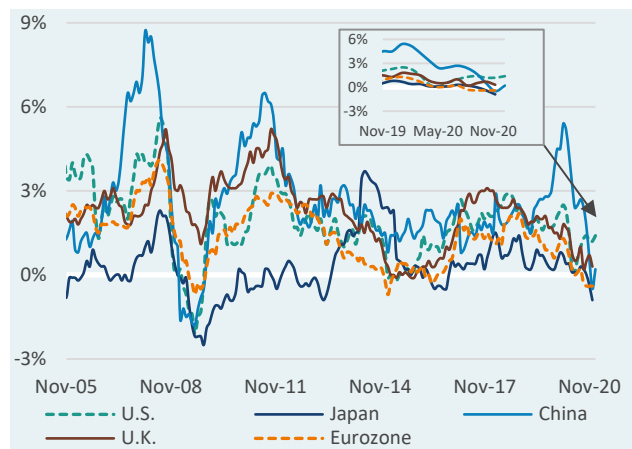
from a high of 8.7% in July. Governments around the world have taken different approaches to supporting workers. One approach, as taken by the U.S., was to provide greater financial support to workers who had lost their jobs. Another approach, such as that taken by the UK, was for government to effectively pay workers’ wages to keep them on payroll. These approaches, which may be very similar in overall economic effect, can appear drastically different in the official rate of unemployment statistics (shown below). In short, official unemployment figures may be of limited value in this environment—more in-depth analysis is required.

REAL GDP GROWTH (YOY)



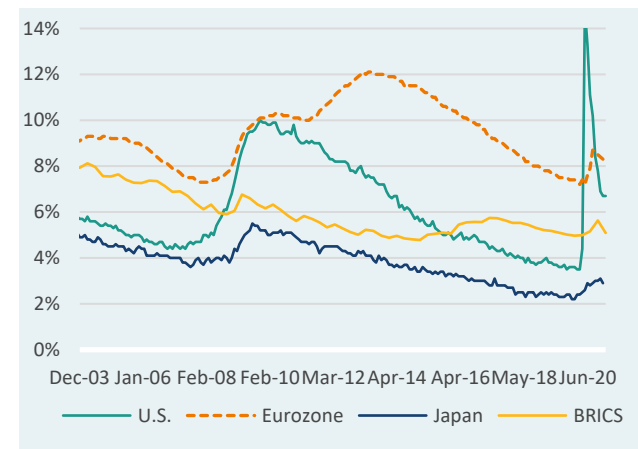
Source: Bloomberg, as of 9/30/20

INFLATION (CPI YOY)



Source: Bloomberg, as of 12/31/20 – or most recent release

UNEMPLOYMENT



Source: Bloomberg, as of 12/31/20 – or most recent release

Fixed income rates & credit

Interest rate environment

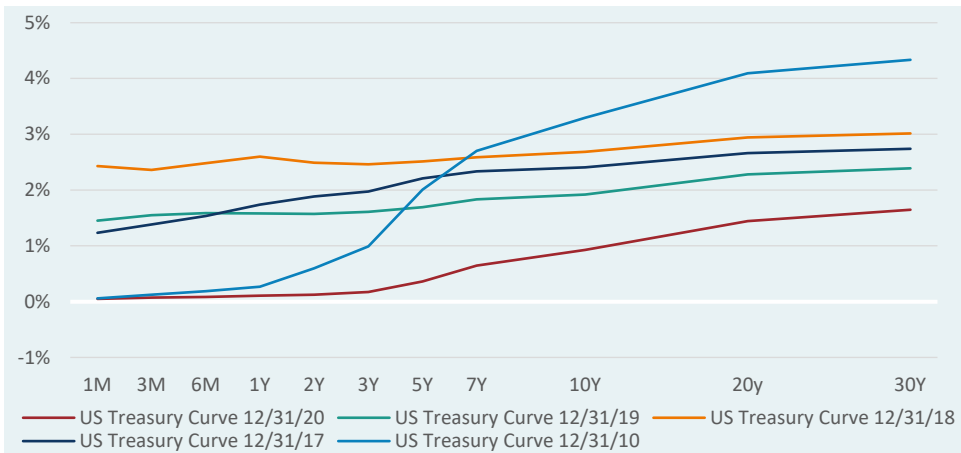
- Longer-dated U.S. Treasury yields moved upward in the fourth quarter, with the U.S. 10-year rising above 1.0% to begin 2021. Higher interest rates may place pressure on equity valuations if this trend continues. The yield of shorter-dated bonds and cash has not moved and is expected to stay near zero.
- Ten-year breakeven inflation rates rallied from 1.6% to 2.0% in Q4, likely propelled higher by expectations that Biden’s fiscal approach paired with vaccine rollouts will result in higher longer-term growth and inflation. The rise in priced inflation outpaced the rise in nominal Treasury yields, leading the 10-year U.S. real yield to decline from -0.95% to -1.07%, near record lows.
- Officials at the Federal Reserve remained committed to a \$120 billion monthly pace of bond purchases until there is “substantial progress” toward employment and inflation objectives. Fed Chair Powell left the door open to adjusting the pace of those purchases as necessary, and stated that the Fed would “let the world know...well in advance of active consideration of beginning a gradual taper of asset purchases.”
- The European Central Bank expanded the size of its Pandemic Emergency Purchase Program (PEPP) by €500 billion, bringing the new total to €1.85 trillion. The ECB also extended the horizon for purchases under PEPP to March 2022, and the timeline for reinvestment of maturing PEPP assets to the end of 2023.
- Joe Biden nominated Janet Yellen, Jerome Powell’s predecessor, as U.S. Treasury Secretary. Throughout the pandemic, central bankers have been calling for further coordination of fiscal and monetary action, and Yellen’s nomination could represent the next step down that path.

Area	Short Term (3M)	10-Year
United States	0.06%	0.91%
Germany	(0.83%)	(0.57%)
France	(0.77%)	(0.34%)
Spain	(0.83%)	0.04%
Italy	(0.65%)	0.54%
Greece	(0.38%)	0.62%
U.K.	(0.06%)	0.20%
Japan	(0.12%)	0.02%
Australia	0.02%	0.97%
China	2.28%	3.14%
Brazil	2.00%	6.91%
Russia	3.54%	6.01%

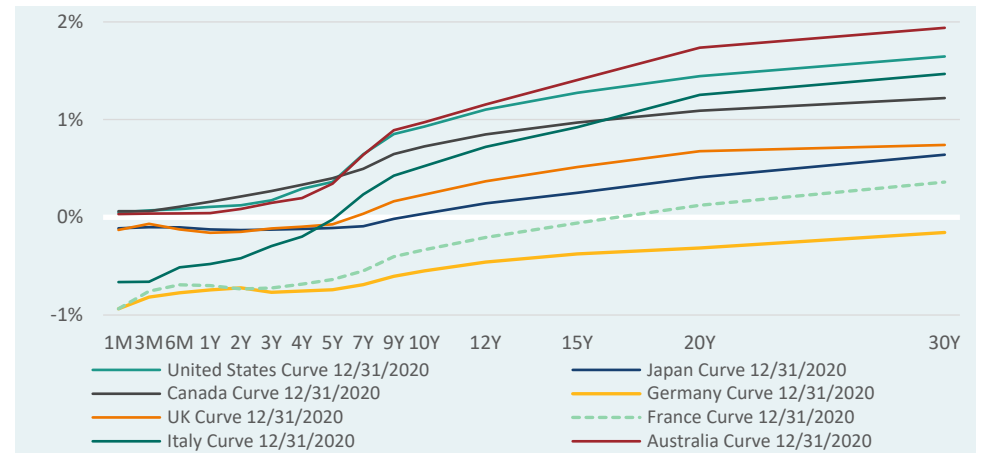
Source: Bloomberg, as of 12/31/20

Yield environment

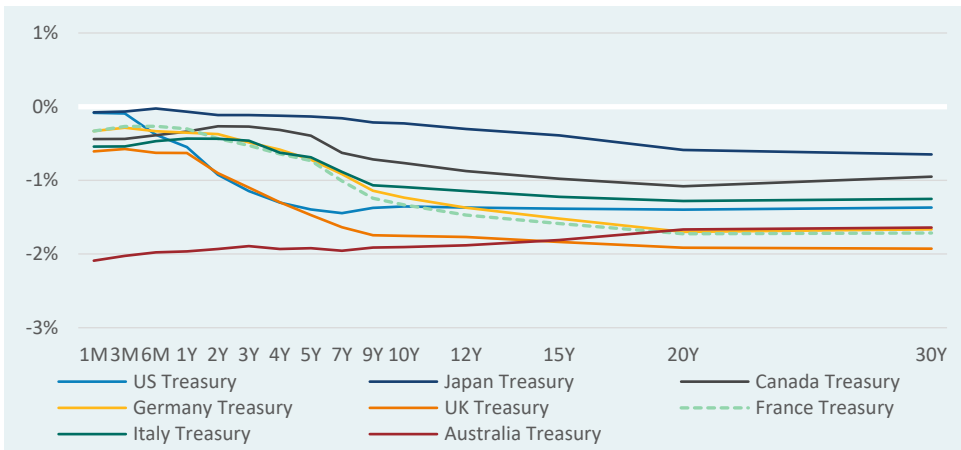
U.S. YIELD CURVE



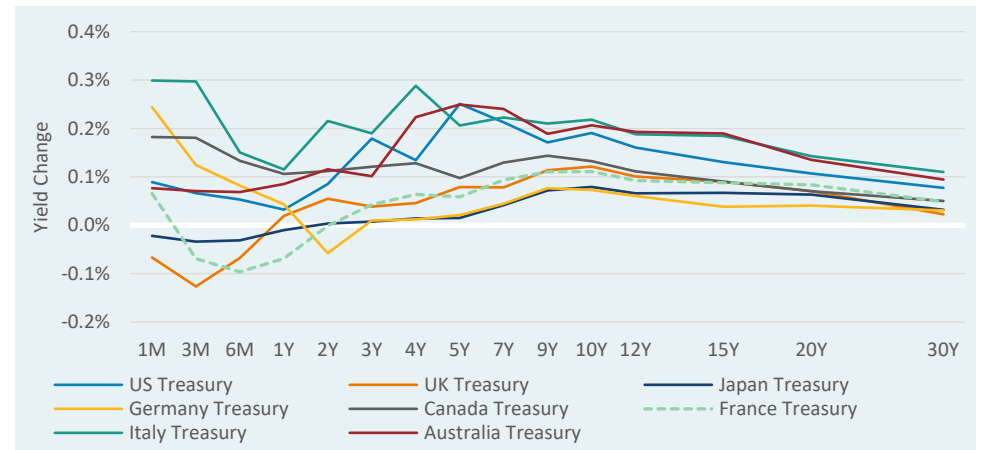
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



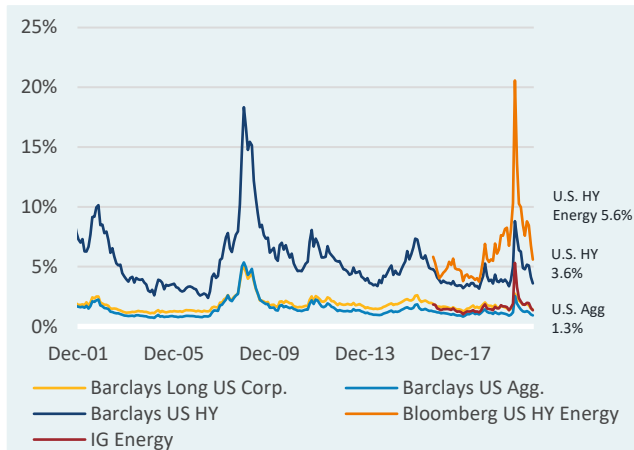
Source: Bloomberg, as of 12/31/20

Credit environment

After four quarters of exceptional volatility, credit market spreads ended 2020 roughly in line with where they started. Both investment grade and below investment grade assets experienced positive performance, driven in part by increased investor demand for yield but mainly by the unprecedented Fed action in March which led rates to all-time lows. For the calendar year, investment grade credit returned 9.4%, outperforming high yield (+7.1%), and banks loans (+2.8%). The effects of COVID market disruptions created wide dispersion among sectors as metals/mining, freight, and food/drug retail outperformed while energy and domestic telecom underperformed.

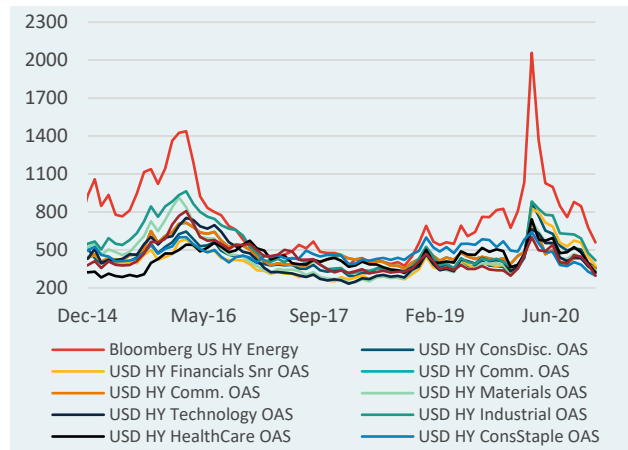
In the fourth quarter, high yield bonds returned 6.5%, outperforming bank loans (+3.6%) and investment grade credit (+2.8%). Positive vaccine news and conclusion of the presidential election led to strong risk-on sentiment during the quarter, driving longer duration and lower quality bonds to outperform within U.S. credit. In addition, credit spreads continued to tighten, with high yield spreads tightening 157 bps to 360 bps and investment grade spreads falling 40 bps to finish the year at 92 bps.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/20

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/20

Market	Credit Spread (OAS)	
	12/31/20	12/31/19
Long U.S. Corp	1.4%	1.4%
U.S. Inv Grade Corp	1.0%	0.9%
U.S. High Yield	3.6%	3.7%
U.S. Bank Loans*	4.6%	4.4%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/20

*Discount margin (4-year life)

Default & issuance

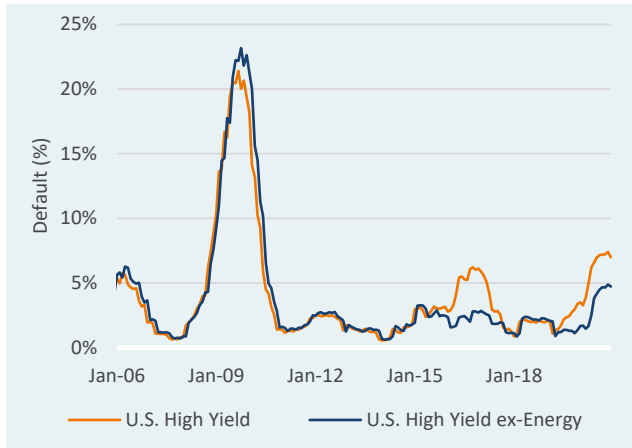
A total of 88 companies defaulted in 2020, representing \$130 billion. This activity was led by the energy, telecom, and retail sectors. The \$130 billion in defaults in 2020 ranked second only to the \$185 billion experienced in 2009.

The par weighted U.S. high yield default rate increased 0.4% during the quarter to 6.2%—well above the long-term average of 3.0-3.5%. If the energy sector is excluded (which showed an annual default rate of 20.5%), the high yield default rate came in at a more modest 4.5%. During the fourth quarter, the leveraged loan default rate came in at 4.0%—moderately above the long-term average of 3.0%.

High yield bond issuance fell from the record levels posted in Q2 and Q3 but remained elevated in Q4. Total issuance for 2020 was the highest on record at \$511 billion, outpacing 2013's historical peak of \$378 billion.

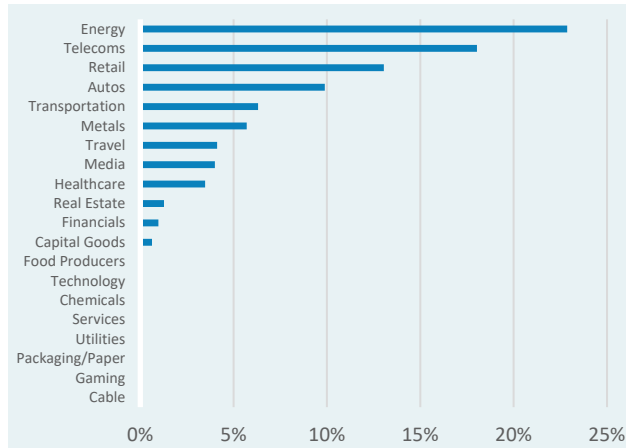
Investment grade issuance for 2020 totaled \$1.8 trillion, which was 40% higher than the prior record achieved in 2017. The fourth quarter was the slowest of the year with \$215 billion in new issues—a level that was in line with the four-year average

HY DEFAULT RATE (ROLLING 1-YEAR)



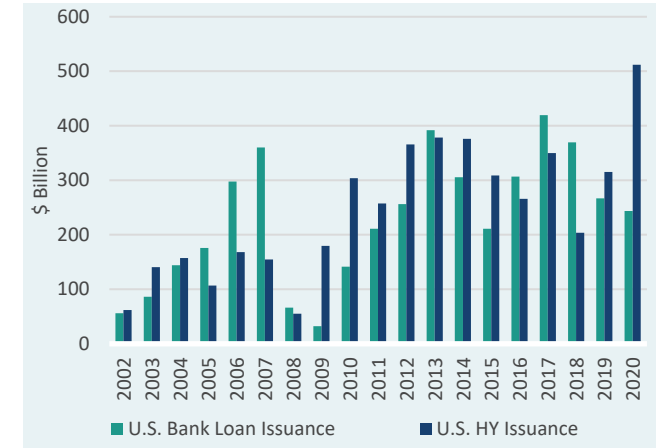
Source: BofA Merrill Lynch, as of 12/31/20

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



Source: BofA Merrill Lynch, as of 12/31/20 – par weighted

U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 12/31/20

Equity

Equity environment

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.
- Emerging market equities (MSCI EM +19.7%) once again outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved materially from the -12.7% drop expected on September 30th. Analysts are expecting a -13.3% earnings decline for full-year 2020.
- The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.
- Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme during the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the greenback to lower relative real yields in the United States, as nominal Treasury yields picked up.
- Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates on the longer end of the yield curve improved the outlook for Financials.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	12.1%		18.4%	
US Small Cap (Russell 2000)	31.4%		20.0%	
US Large Value (Russell 1000 Value)	16.3%		2.8%	
US Large Growth (Russell 1000 Growth)	11.4%		38.5%	
International Large (MSCI EAFE)	16.0%	11.9%	7.8%	2.5%
Eurozone (Euro Stoxx 50)	16.2%	12.2%	5.5%	(1.2%)
U.K. (FTSE 100)	17.2%	11.4%	(8.9%)	(10.2%)
Japan (NIKKEI 225)	21.1%	18.8%	24.2%	19.4%
Emerging Markets (MSCI Emerging Markets)	19.7%	16.0%	18.3%	19.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/20

Domestic equity

U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.

Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials. It remains to be seen whether certain consumer habits displayed during the pandemic (online shopping and heightened social media usage, for example) begin reverting to previous levels as the world moves back to normalcy or if

instead, these new habits become more permanent in nature. The answer to this question has important implications for future intra-sector performance.

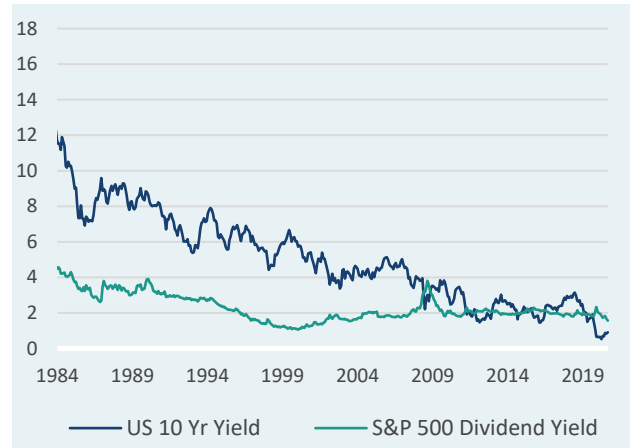
As equities move higher, it is difficult not to notice a disconnect between the US. market and the economy. We believe this rally is the result of a confluence of forces. Ultra-low interest rates, extremely accommodative monetary and fiscal policy, plus the implicit guarantee that further economic weakness will be met with more support and stimulus, seems to be creating a new type of “Goldilocks market” that harkens back to the post-Global Financial Crisis market expansion.

S&P 500 INDEX



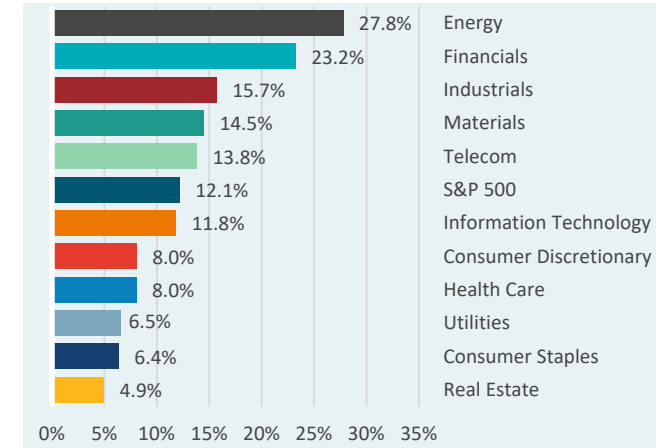
Source: Standard & Poor's, as of 12/31/20

DIVIDEND YIELD VS BOND YIELD



Source: Standard & Poor's, as of 12/31/20

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/20

Domestic equity size & style

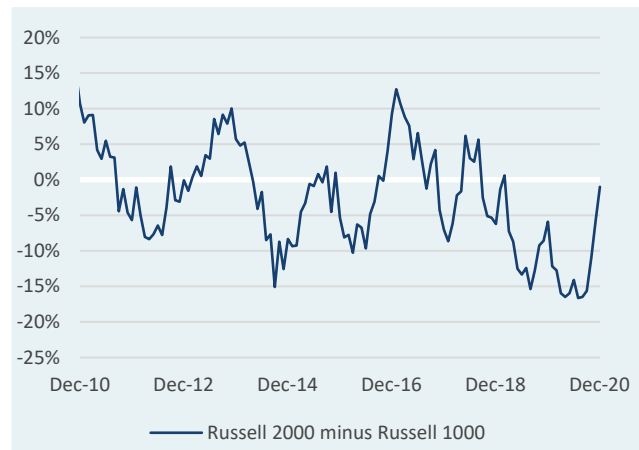
U.S. value stocks beat growth stocks during the fourth quarter (Russell 1000 Value +16.3%, Russell 1000 Growth +11.4%), reversing an extended run of value underperformance. The moderate bounce in value stock performance appeared to be partly driven by sector movements. Energy, Financials, and Materials sectors tend to contain an outsized number of value stocks. These sectors were among the top performers in Q4. Small cap stocks delivered sizable outperformance over large cap stocks (Russell 2000 +31.4%, Russell 1000 +13.7%).

A variety of risks seem to be boiling up around large U.S. technology companies. Given the significant market role that

these businesses play, along with their *growth* rather than *value* characteristics, this regulatory risk could have implications for 2021. First, it is easy to argue that firms such as Google, Amazon, and Facebook have exercised some degree of monopoly power (the FTC recently sued Facebook for alleged illegal monopolistic conduct, and numerous other investigations abound). Further anti-trust actions are likely to come. Second, in recent years there has been a degree of bipartisan consensus that social media companies are doing a poor job of moderating content (though each political party has very different ideas as to the appropriate solution). These risks, which rest perhaps solely on the shoulders of “growth stocks”, will be worth watching in 2021.

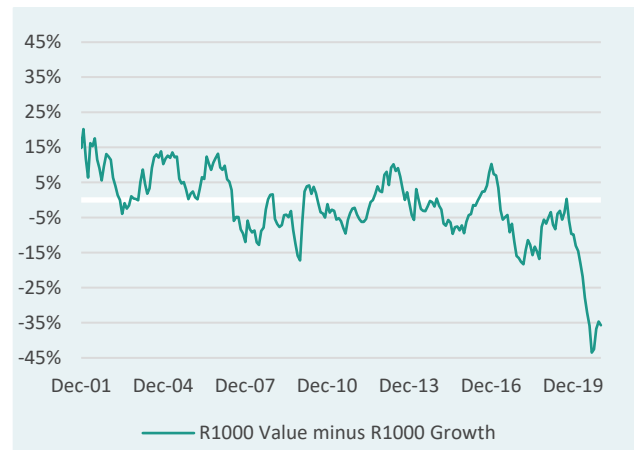
Sector performance has fueled dramatic negative performance of the value premium

SMALL CAP VS LARGE CAP (YOY)



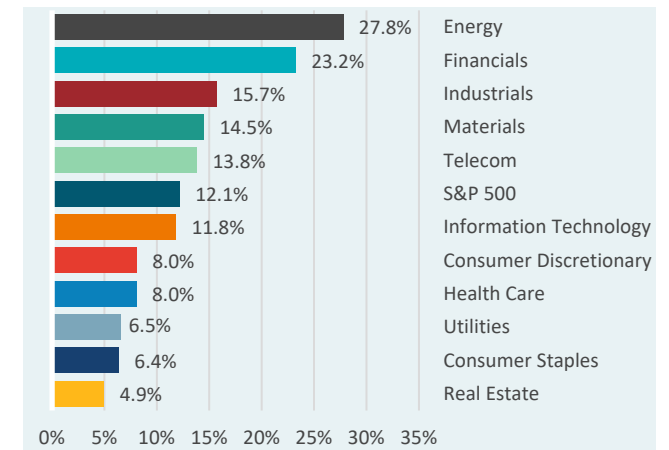
Source: FTSE, as of 12/31/20

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/20

Q4 SECTOR PERFORMANCE



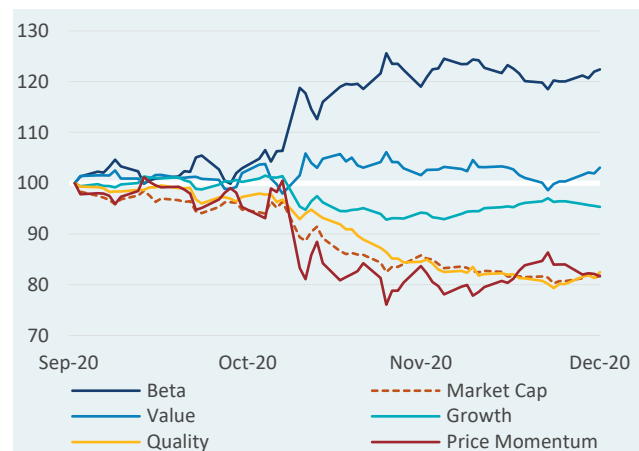
Source: Standard & Poor's, as of 12/31/20

Factor portfolios in 2020

After a quiet October, factor results significantly diverged in November as investors strongly reacted to positive COVID-19 vaccine news. Anticipating a path toward post-pandemic normalcy, investors rotated into stocks with higher betas and higher volatility (long/short, sector-neutral, S&P 500 Index quintiles). Small-cap stocks also performed well while the value factor modestly gained ground, mostly due to strong results from stocks with attractive price-to-book ratios. Investors funded this rotation by selling large-cap and high-quality positions. Poor price momentum results were further evidence of the strength of the move.

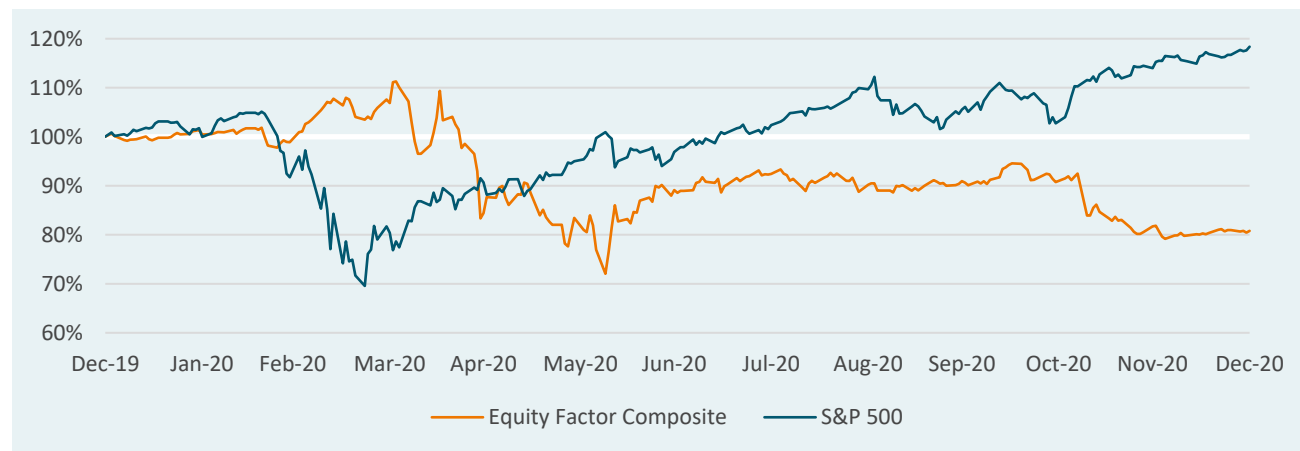
Equity factors had a very difficult year in 2020 and subsequently trailed the equity market by a very wide margin. Quality factors provided some protection during the periods of market turmoil. However other market neutral risk premia strategies did not enjoy consistent recoveries, particularly as market preferences quickly reversed back and forth during the pandemic.

Q4 2020 PERFORMANCE



Source: J.P. Morgan, as of 12/31/20

CUMULATIVE RETURN (INDEXED 12/31/19=100%)



Source: J.P. Morgan, as of 12/31/20; Equity Factor Composite represents the performance of a 10-factor model designed as a simple proxy for quant performance. The factors are combined so that the long and short portfolios contain the most- and least-attractive quant stocks.

International developed equity

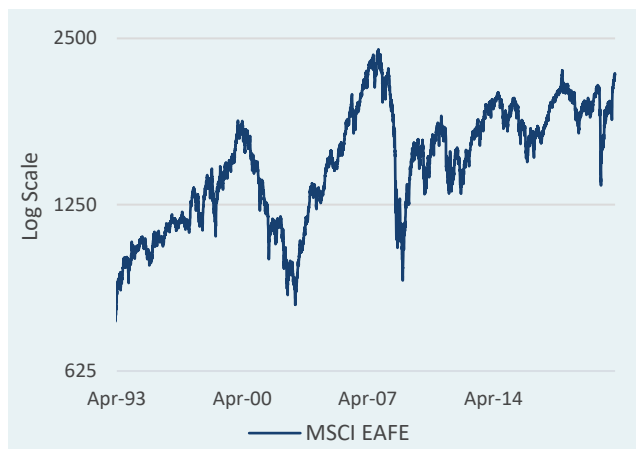
International equities delivered exceptional performance in the fourth quarter, as most global markets have now fully recovered from the March drawdown. The MSCI EAFE Index (+16.0%) outperformed the S&P 500 Index (+12.1%) while lagging the MSCI Emerging Markets Index (+19.7). Continuing U.S. dollar weakness was a notable theme, boosting international equity performance by 5% over the past year.

The recent depreciation of the U.S. dollar has acted as a tailwind to many unhedged international investments. The MSCI EAFE Index unhedged returned 16.0% in Q4, compared

to 11.9% if currency had been hedged. The three largest currency exposures embedded in the MSCI EAFE Index—the euro (32%), the yen (26%), and the pound sterling (13%)—appreciated +4.3%, +2.2%, and +5.7% relative to the U.S. dollar during the quarter, respectively.

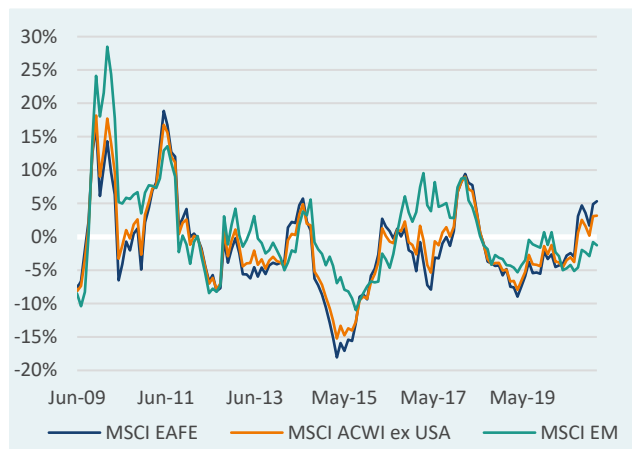
European equities (+17.2%) outperformed Hong Kong (+15.5%) and Japanese (+15.3%) equities in Q4, supported by strong performance in Austria (+47.3%) and Spain (+27.7%). In Oceania, Australia posted solid returns (+22.9%), which were bolstered by a firmer Australian dollar.

INTERNATIONAL DEVELOPED EQUITIES



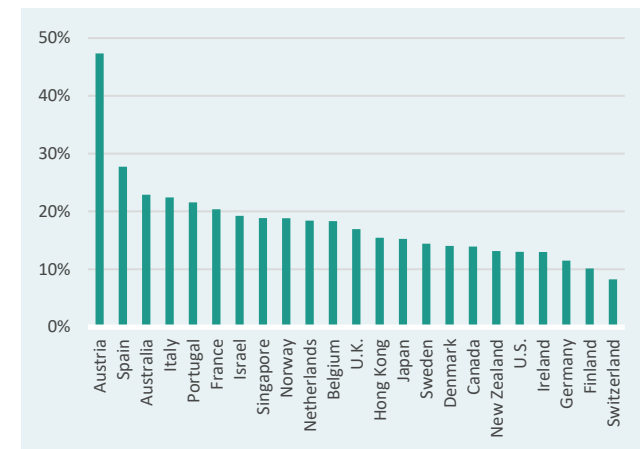
Source: MSCI, as of 12/31/20

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/20

Q4 2020 PERFORMANCE (ALL IN USD)



Source: MSCI, Bloomberg, as of 12/31/20

Emerging market equity

Emerging market equities (MSCI EM +19.7%) outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) once again in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.

The pandemic placed downward pressure on inflation earlier in 2020. Since then, the rate of price movement has recovered in many markets. China appears to be an outlier, as inflation recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher

in recent years and causing above-average levels of inflation.

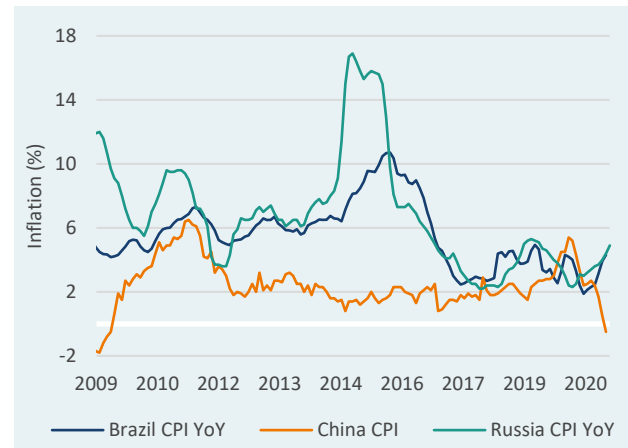
Emerging market currencies sold off significantly during the beginning of the year as investors bid up safe-haven currencies, including the U.S. dollar, amid unprecedented economic and market uncertainty. Since March, however, the embedded currency portfolio of the MSCI Emerging Markets Index began to recover significantly and ended the year nearly on par with where it had started. Continued appreciation of emerging market currencies could provide tailwinds for unhedged U.S. investors in the asset class.

EMERGING MARKET EQUITY



Source: MSCI, as of 12/31/20

INFLATION (YOY)



Source: Bloomberg, as of 12/31/20 or most recent data

MSCI EM INDEX EMBEDDED CURRENCY



Source: Bloomberg, as of 12/31/20

Equity valuations

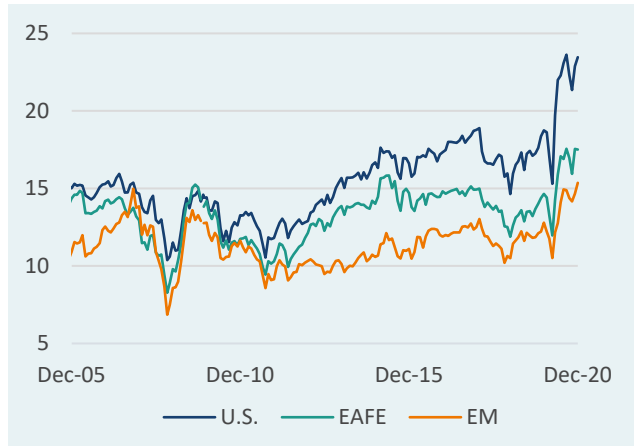
Particularly during the last two months of the year, valuations shot higher alongside equity prices as markets digested news that several COVID-19 vaccine candidates proved more effective than anticipated. Today, price-to-earnings multiples appear stretched relative to long-term averages.

Markets have shown a remarkable ability to look past the pandemic-related disruptions and focus on the light at the end of the tunnel. Some in the industry have viewed the exceptional performance of U.S. equities in 2020 as the “check” that fundamentals will need to “cash” next year, and that if sales and earnings do not recover at the strong pace

they are expected (+8.2%/+22.6%), there could be room for a correction.

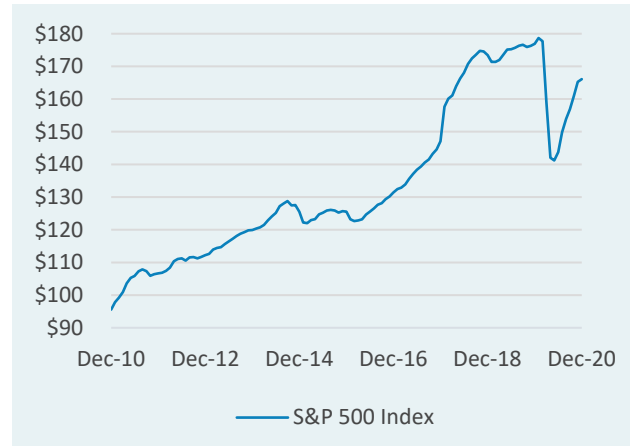
On a trailing-earnings basis, international developed equities appear most expensive as the second series of lockdowns which swept over the continent toward the end of the year have severely impacted earnings. The question in Europe, however, is largely the same one we are grappling with in the U.S.: are earnings temporarily depressed and ripe for a quick rebound next year, or are the earnings streams impaired and equity prices less justified?

FORWARD P/E RATIOS



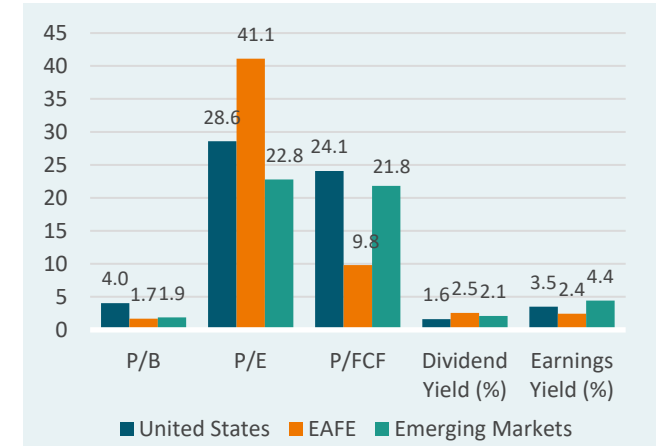
Source: MSCI, 12m forward P/E, as of 12/31/20

BLENDED 12-MONTH EARNINGS EXPECTATIONS



Source: Bloomberg, as of 12/31/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/20 - trailing P/E

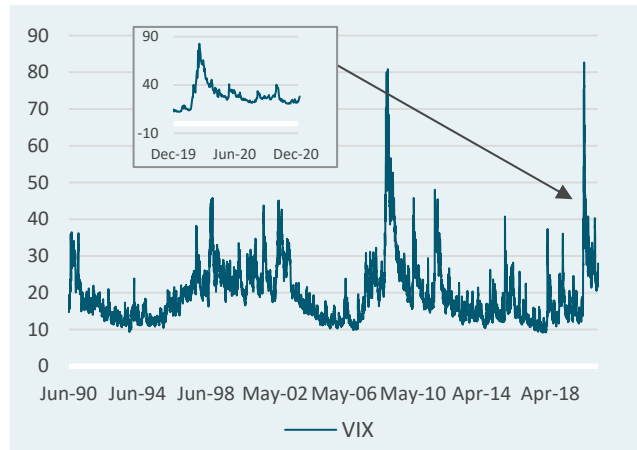
Equity volatility

The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.

The U.S. equity market exhibited surprisingly high volatility in 2020 relative to other global markets. The domestic market has typically been a lowest risk market. In recent years, this relationship has flipped, with U.S. stocks showing higher volatility than developed market stocks, and nearly on par with emerging market equities.

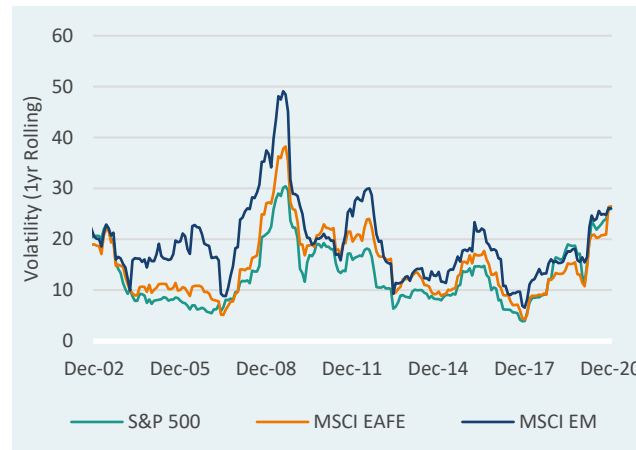
Since implied and realized volatility spiked in the first quarter, options-implied volatility has receded significantly, back toward more normal levels. As equity markets climbed to new highs in the final few months of the year, the U.S. implied volatility curve began to steepen. During the fourth quarter, the implied volatility of deeply out-of-the-money puts was little changed, while the implied volatility of deeply out-of-the-money call options declined to more-average levels. The steepening of the implied volatility curve likely demonstrates the market's marginal preference for downside protection over upside participation at current price levels.

U.S. IMPLIED VOLATILITY (VIX)



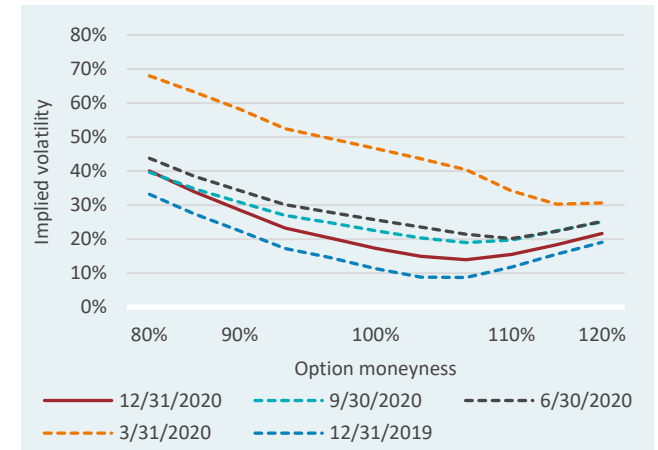
Source: Cboe, as of 12/31/20

REALIZED VOLATILITY



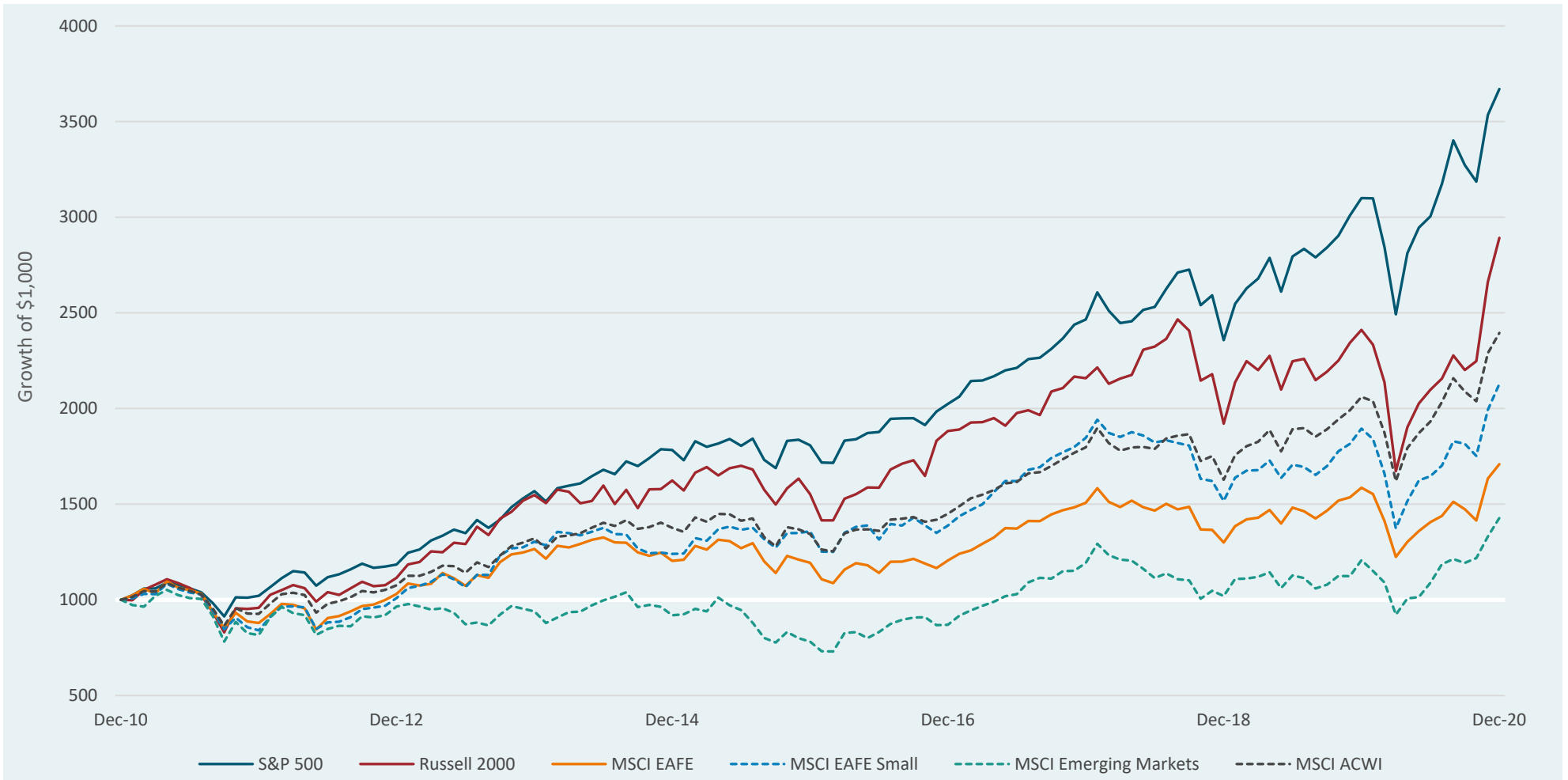
Source: Standard & Poor's, MSCI, as of 12/31/20

1-MONTH U.S. IMPLIED VOLATILITY CURVE



Source: Bloomberg, as of 12/31/20

Long-term equity performance



Source: Morningstar, as of 12/31/20

Other assets

Currency

Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme in the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness of the greenback to lower relative real yields in the United States, as nominal Treasury yields rose less than inflation expectations. Many in the industry have made calls for a continuation of dollar weakness into 2021. If that weakness were to materialize, it would supply significant tailwinds for unhedged U.S. investors in non-U.S. equities. We continue to believe that unhedged currency exposure results in uncompensated risk, which is a suboptimal approach for many investors.

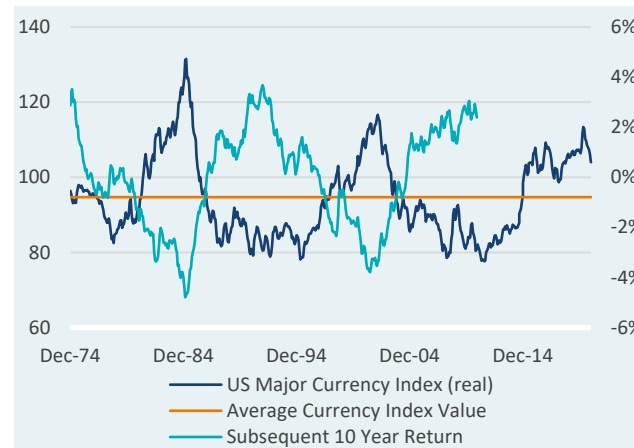
The onshore Chinese renminbi rallied significantly over the fourth quarter. The strength has been primarily credited to the apparently-blistering pace of China's recovery from pandemic-related disruptions, which has fueled capital inflows from offshore investors. Looking ahead, the election of Joe Biden has been viewed largely as constructive for the yuan, as the expectation remains that Biden's stance on China will be less confrontational than his predecessor's, reducing trade tensions. On the other hand, the rising value of the yuan may make China's exports less-affordable for Europeans still recovering from the pandemic. This dynamic has stoked speculation that the People's Bank of China might soon step in to cool the rally.

BLOOMBERG DOLLAR SPOT INDEX



Source: Bloomberg, as of 12/31/20

USD CURRENCY LEVEL & SUBSEQUENT RETURN



Source: Federal Reserve, as of 12/31/20

USD/CNY CROSS RATE



Source: Bloomberg, as of 12/31/20

Appendix

Periodic table of returns

BEST
↑

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	21.0	17.2
Small Cap Growth	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	16.4	14.0
Large Cap Equity	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	15.6	13.5
Small Cap Equity	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	13.3	11.2
Emerging Markets Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	12.8	10.5
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	9.7	8.9
Hedge Funds of Funds	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	9.7	8.7
International Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	9.5	6.8
US Bonds	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	7.4	5.5
Small Cap Value	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	5.7	3.8
Large Cap Value	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	4.4	3.6
Real Estate	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	4.4	3.3
Cash	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	1.1	0.6
Commodities	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	1.0	-6.5

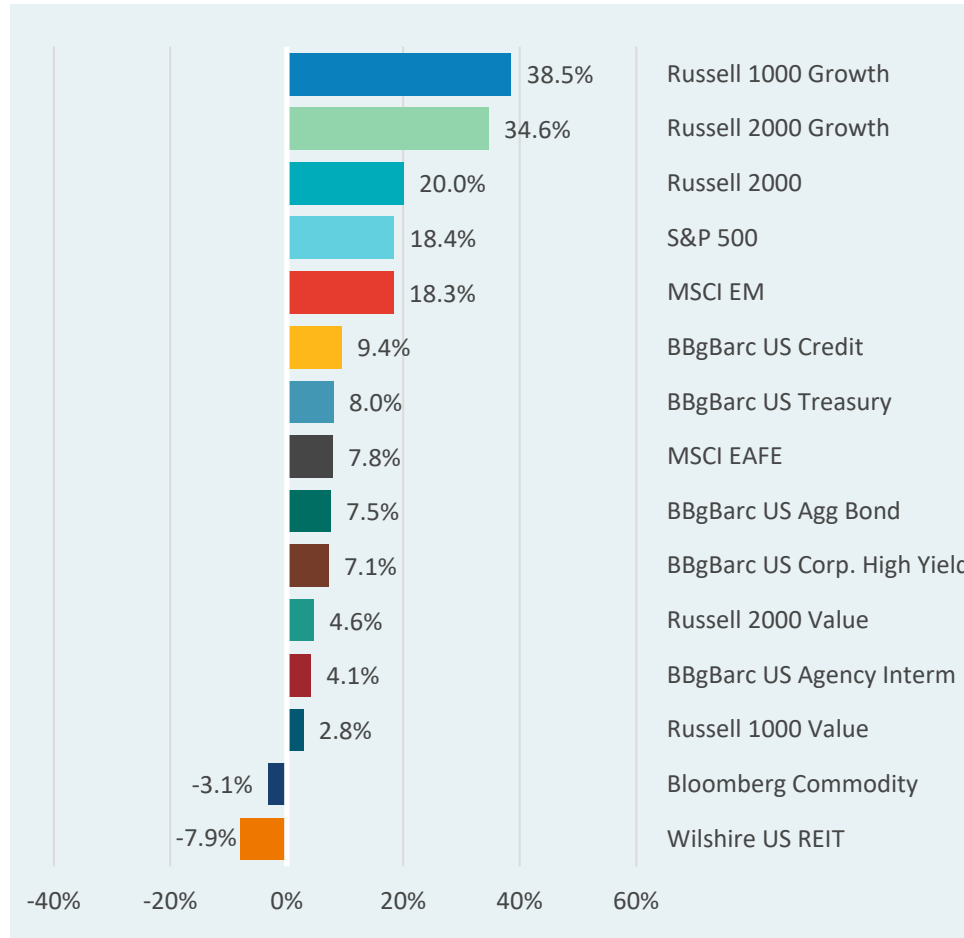
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WORST



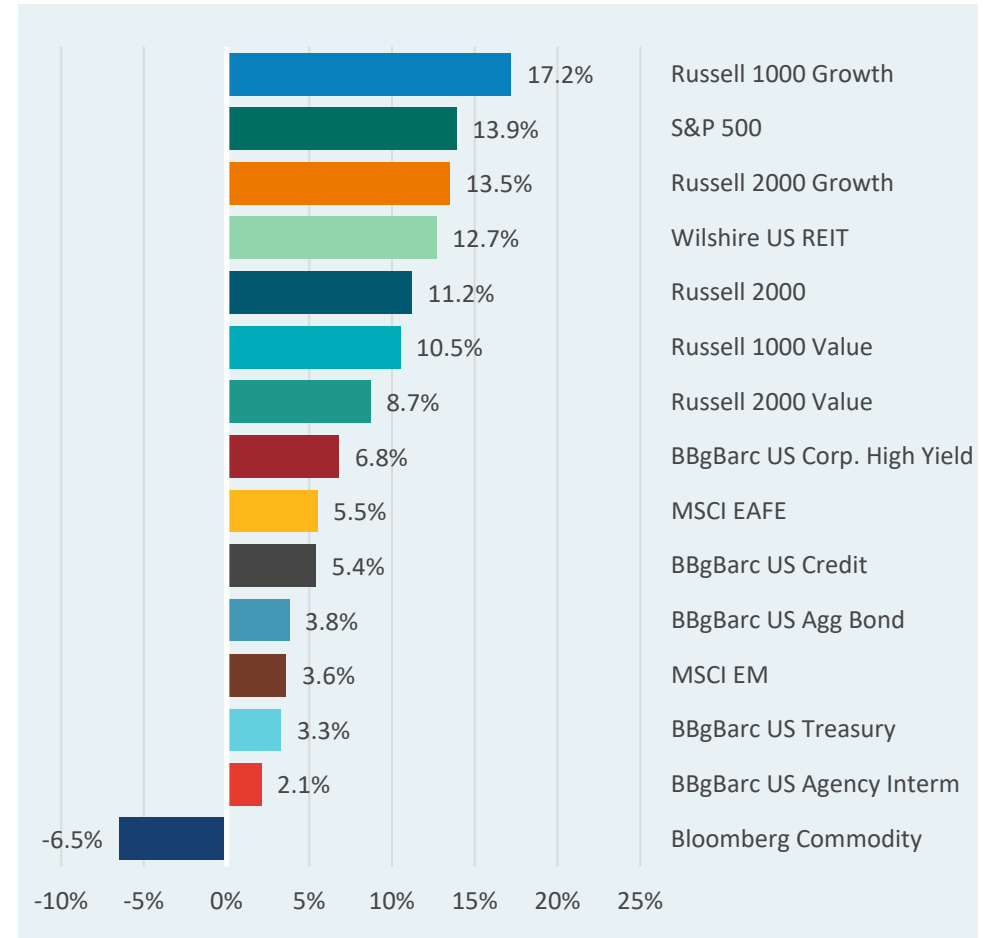
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/20.

Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



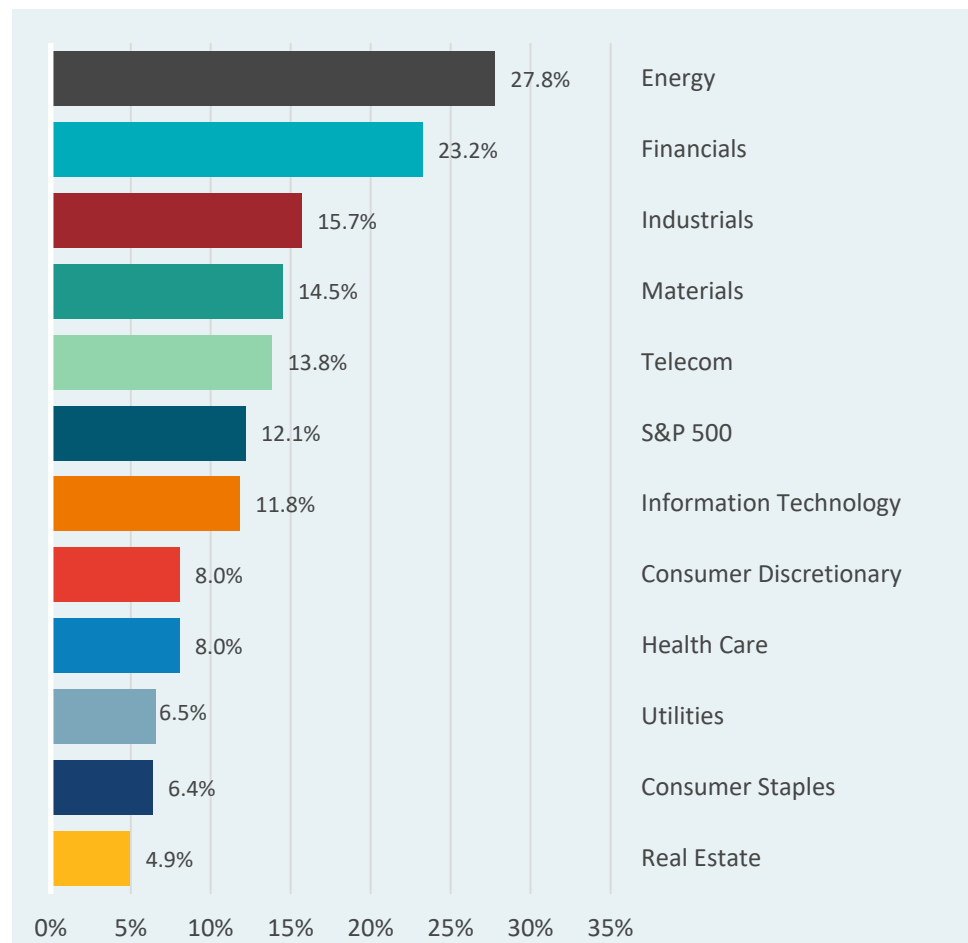
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/20

Source: Morningstar, as of 12/31/20

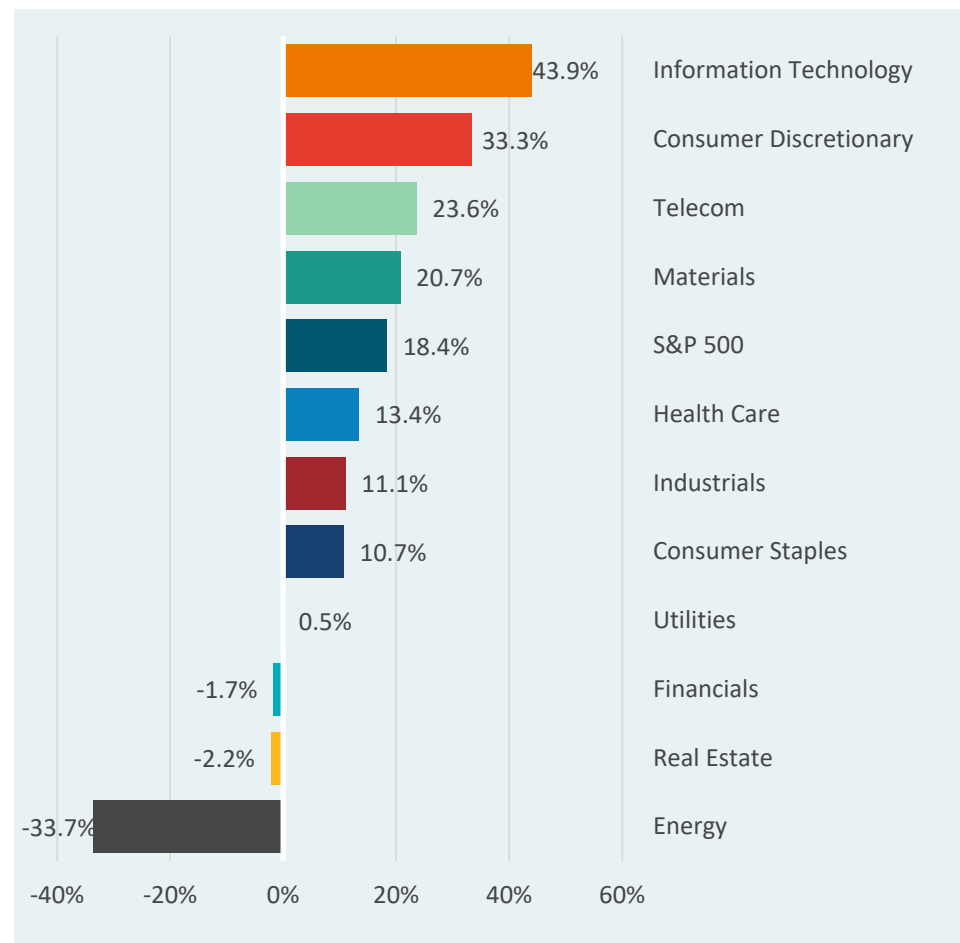
S&P 500 sector returns

Q4 2020



Source: Morningstar, as of 12/31/20

ONE YEAR ENDING DECEMBER

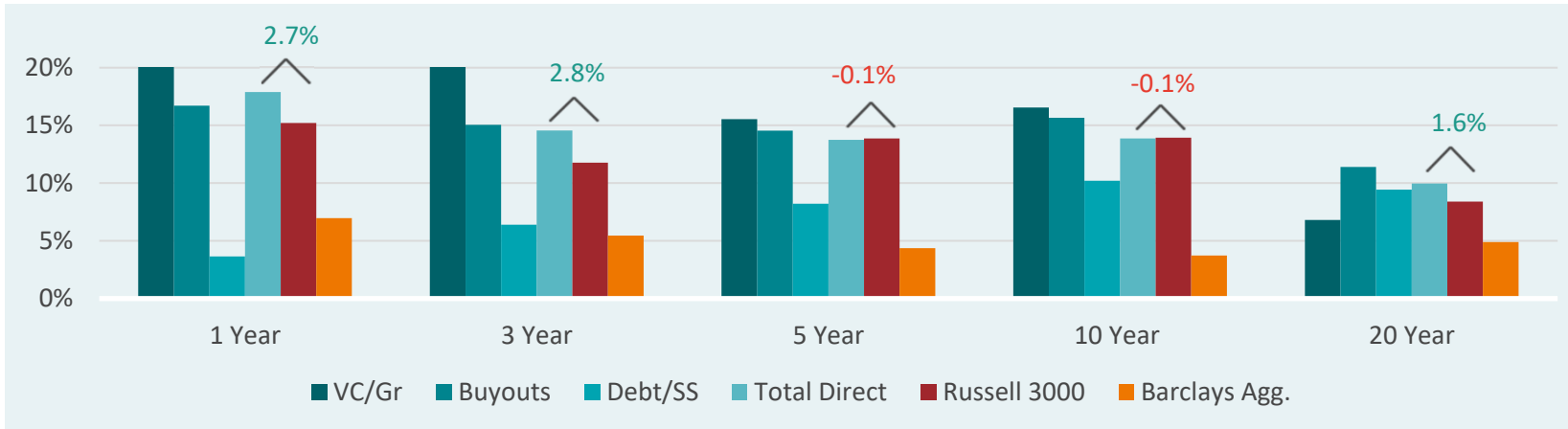


Source: Morningstar, as of 12/31/20

Private equity vs. public performance

As of 9/30/2020

DIRECT PRIVATE EQUITY FUND INVESTMENTS



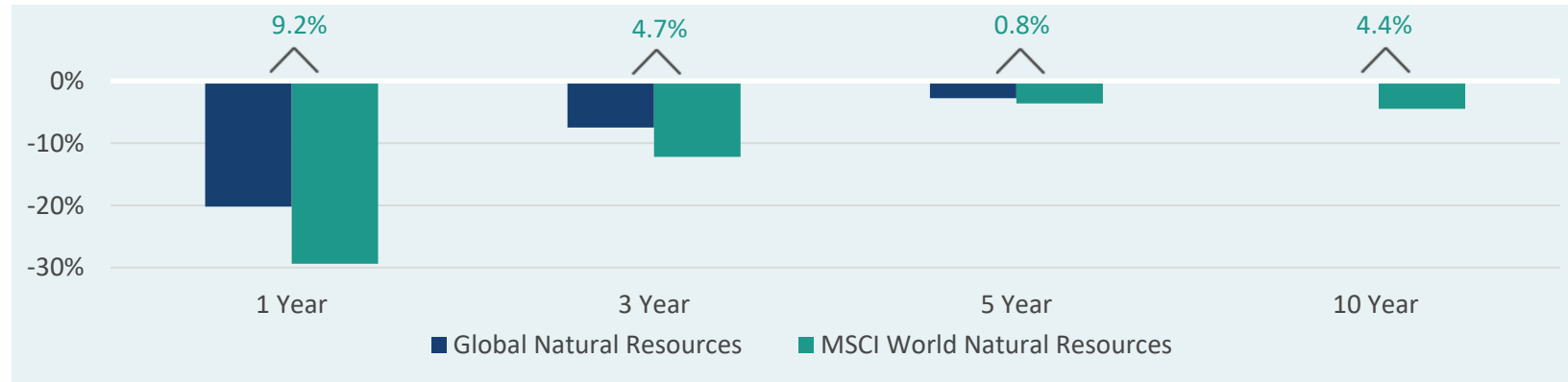
Direct private equity fund investments outperformed comparable public equities across most time periods

Sources: Thomson Reuters Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2020. Public Market Equivalent returns resulted from "Total Direct's" identical cash flows invested into and distributed from respective traditional asset comparable.

Private equity vs. liquid real assets performance

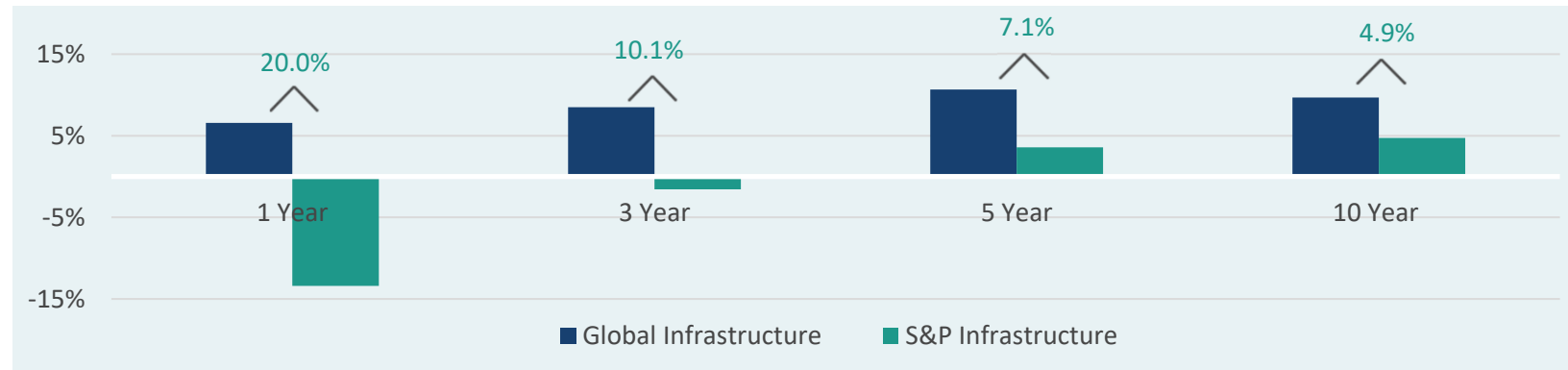
As of 9/30/2020

GLOBAL NATURAL RESOURCES FUNDS



Natural resource funds outperformed the MSCI World Natural Resources benchmark across all time periods

GLOBAL INFRASTRUCTURE FUNDS



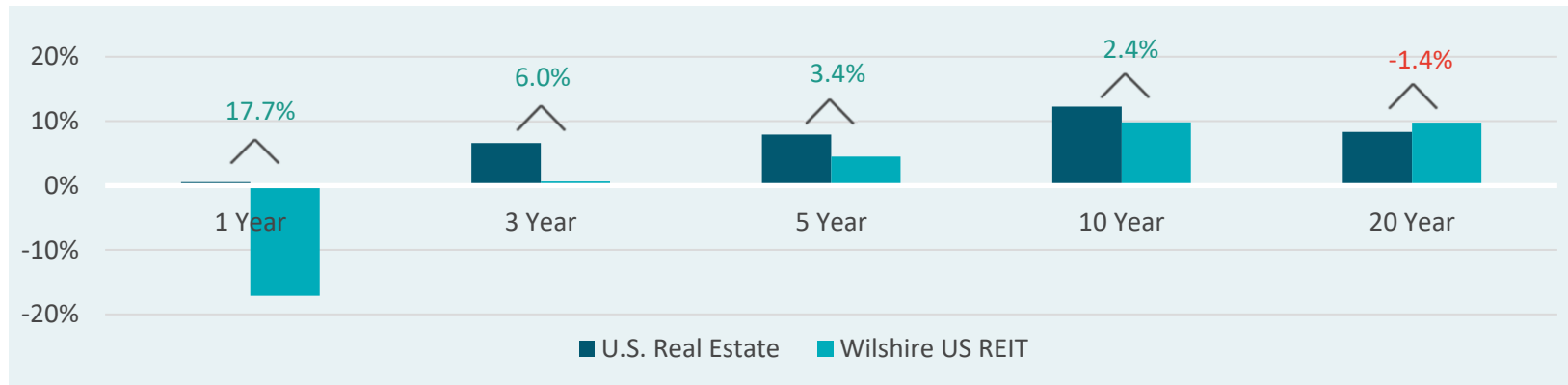
Infrastructure funds outperformed the S&P Infra. Index across all periods

Sources: Thomson Reuters 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 September 30, 2020. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

Private vs. liquid & core real estate performance

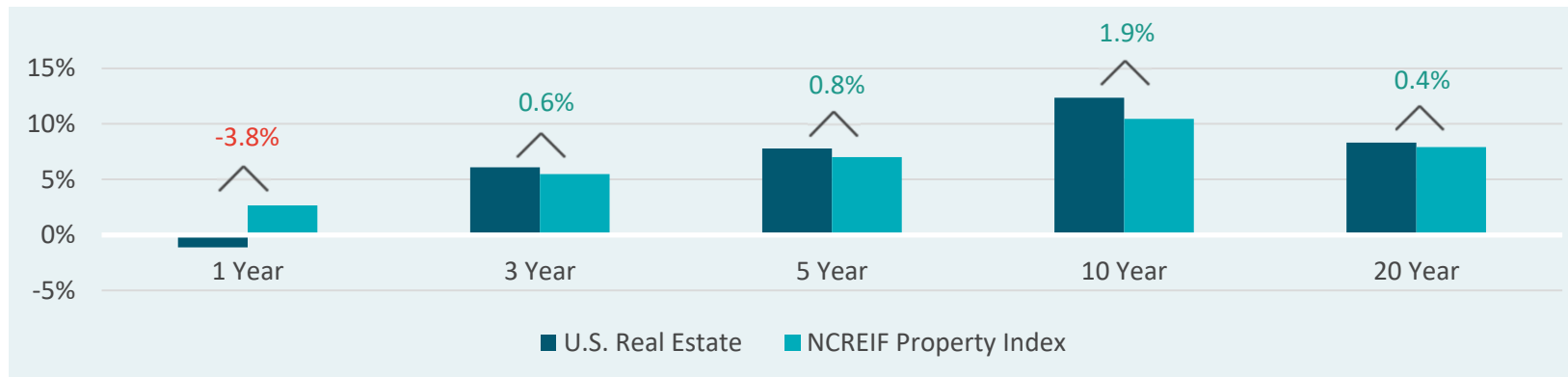
As of 9/30/2020

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



U.S. private real estate funds outperformed the Wilshire U.S. REIT Index across most time periods

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



U.S. private real estate funds outperformed the NCREIF Property Index over all time periods, aside from the past year

Sources: Thomson Reuters CJA PME: U.S. Real Estate universes as of September 30, 2020. 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	3.8	12.1	18.4	18.4	14.2	15.2	13.9
S&P 500 Equal Weighted	4.3	18.5	12.8	12.8	10.4	13.0	12.7
DJ Industrial Average	3.4	10.7	9.7	9.7	9.9	14.7	13.0
Russell Top 200	4.1	11.6	22.4	22.4	16.0	16.4	14.6
Russell 1000	4.2	13.7	21.0	21.0	14.8	15.6	14.0
Russell 2000	8.7	31.4	20.0	20.0	10.2	13.3	11.2
Russell 3000	4.5	14.7	20.9	20.9	14.5	15.4	13.8
Russell Mid Cap	4.7	19.9	17.1	17.1	11.6	13.4	12.4
Style Index							
Russell 1000 Growth	4.6	11.4	38.5	38.5	23.0	21.0	17.2
Russell 1000 Value	3.8	16.3	2.8	2.8	6.1	9.7	10.5
Russell 2000 Growth	9.3	29.6	34.6	34.6	16.2	16.4	13.5
Russell 2000 Value	7.9	33.4	4.6	4.6	3.7	9.7	8.7

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	4.6	14.7	16.3	16.3	10.1	12.3	9.1
MSCI ACWI ex US	5.4	17.0	10.7	10.7	4.9	8.9	4.9
MSCI EAFE	4.6	16.0	7.8	7.8	4.3	7.4	5.5
MSCI EM	7.4	19.7	18.3	18.3	6.2	12.8	3.6
MSCI EAFE Small Cap	6.8	17.3	12.3	12.3	4.9	9.4	7.8
Style Index							
MSCI EAFE Growth	4.9	13.1	18.3	18.3	9.7	10.5	7.5
MSCI EAFE Value	4.4	19.2	(2.6)	(2.6)	(1.2)	4.2	3.4
Regional Index							
MSCI UK	5.5	16.9	(10.5)	(10.5)	(2.4)	2.6	3.0
MSCI Japan	4.1	15.3	14.5	14.5	6.1	8.7	6.5
MSCI Euro	4.0	17.2	6.6	6.6	3.1	7.0	5.0
MSCI EM Asia	7.1	18.9	28.4	28.4	9.0	14.4	6.6
MSCI EM Latin American	11.9	34.8	(13.8)	(13.8)	(1.8)	8.9	(3.4)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.1	1.6	11.0	11.0	5.9	5.1	3.8
BBgBarc US Treasury Bills	0.0	0.0	0.7	0.7	1.6	1.2	0.7
BBgBarc US Agg Bond	0.1	0.7	7.5	7.5	5.3	4.4	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	0.1	0.0	3.2	3.2	2.8	1.9	1.3
BBgBarc US Treasury Long	(1.2)	(3.0)	17.7	17.7	9.9	7.8	7.8
BBgBarc US Treasury	(0.2)	(0.8)	8.0	8.0	5.2	3.8	3.3
Issuer							
BBgBarc US MBS	0.2	0.2	3.9	3.9	3.7	3.1	3.0
BBgBarc US Corp. High Yield	1.9	6.5	7.1	7.1	6.2	8.6	6.8
BBgBarc US Agency Interm	0.1	0.1	4.1	4.1	3.4	2.5	2.1
BBgBarc US Credit	0.5	2.8	9.4	9.4	6.8	6.4	5.4

OTHER

Index							
Bloomberg Commodity	5.0	10.2	(3.1)	(3.1)	(2.5)	1.0	(6.5)
Wilshire US REIT	2.8	10.6	(7.9)	(7.9)	3.3	4.3	8.3
CS Leveraged Loans	1.3	3.6	2.8	2.8	4.0	5.2	4.5
Alerian MLP	2.5	32.4	(31.6)	(31.6)	(13.7)	(7.0)	(2.1)
Regional Index							
JPM EMBI Global Div	1.9	5.8	5.3	5.3	5.0	7.1	6.2
JPM GBI-EM Global Div	3.5	9.6	2.7	2.7	3.0	6.7	1.5
Hedge Funds							
HFRI Composite	4.5	10.7	11.6	11.6	5.5	6.1	4.2
HFRI FOF Composite	3.1	7.5	10.3	10.3	4.7	4.4	3.3
Currency (Spot)							
Euro	2.3	4.3	9.0	9.0	0.6	2.4	(0.9)
Pound Sterling	2.4	5.7	3.2	3.2	0.3	(1.5)	(1.3)
Yen	1.0	2.2	5.3	5.3	2.9	3.1	(2.4)

Source: Morningstar, HFRI, as of 12/31/20

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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Imperial County Employees' Retirement System

Investment Performance Review
Period Ending: December 31, 2020



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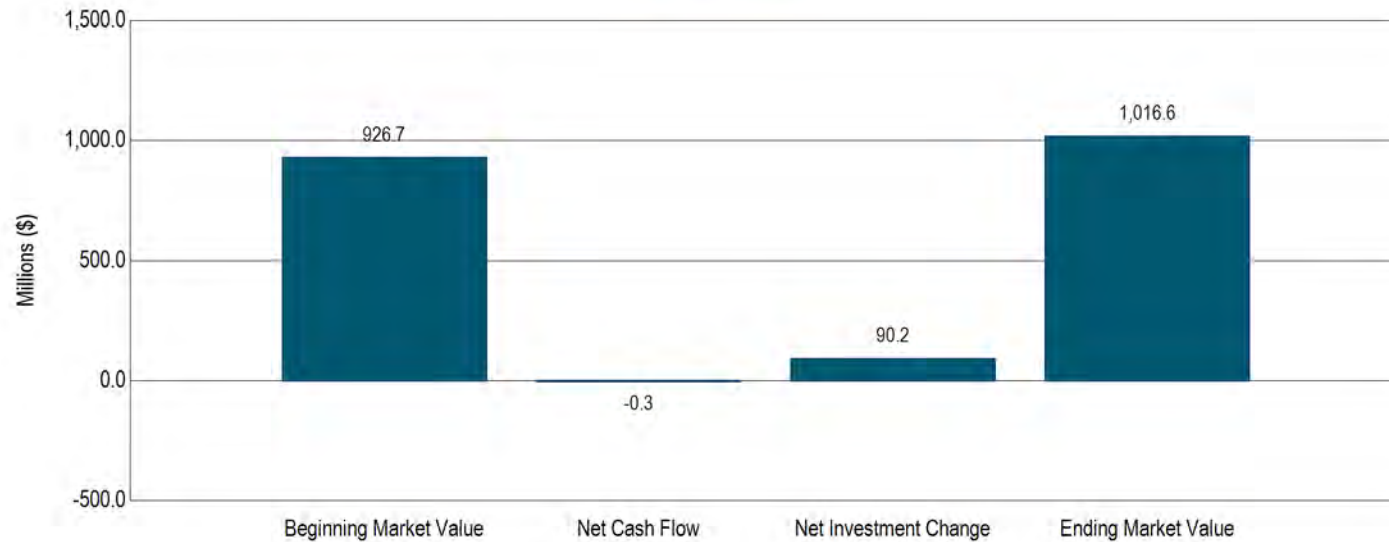
Total Fund
Portfolio Reconciliation

Period Ending: December 31, 2020

Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$926,694,107	\$881,153,817	\$913,624,696
Net Cash Flow	-\$341,018	-\$1,591,587	-\$6,590,559
Net Investment Change	\$90,209,904	\$137,000,764	\$109,528,856
Ending Market Value	\$1,016,562,993	\$1,016,562,993	\$1,016,562,993

Change in Market Value
Last Three Months

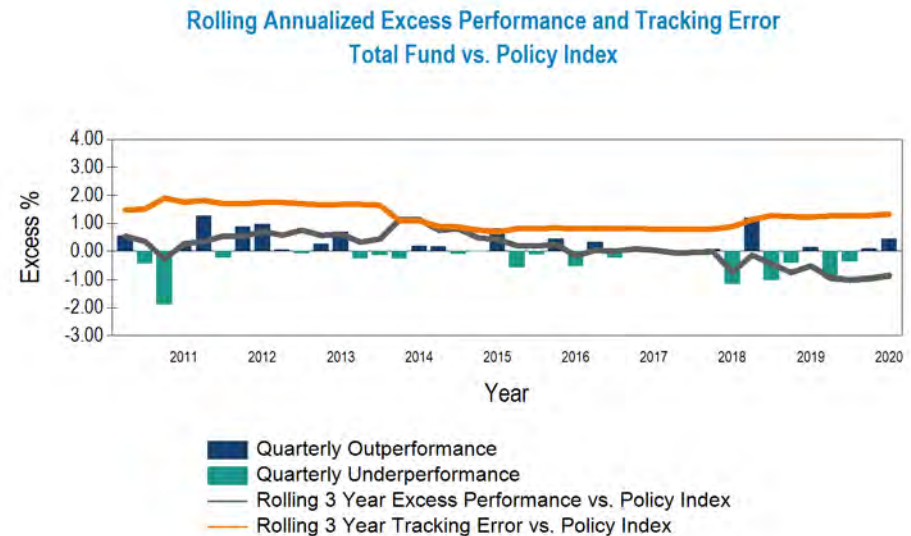
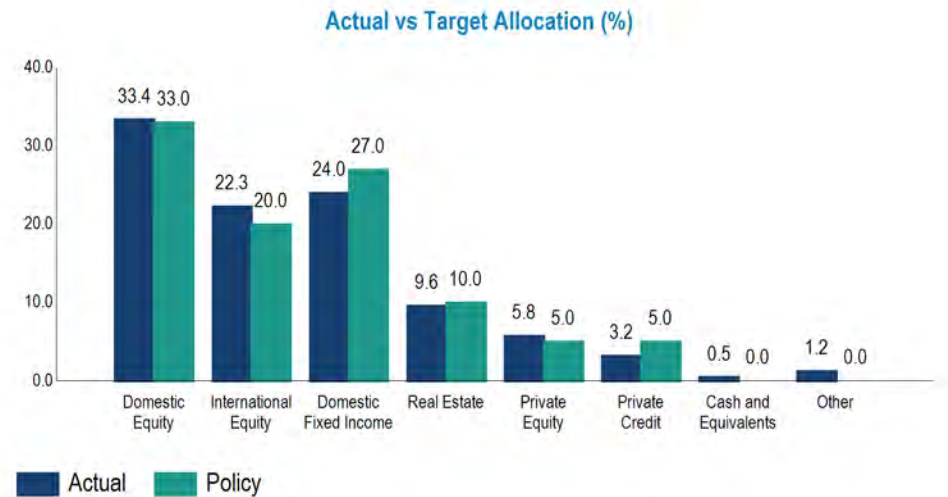


Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.

Total Fund Executive Summary (Net of Fees)

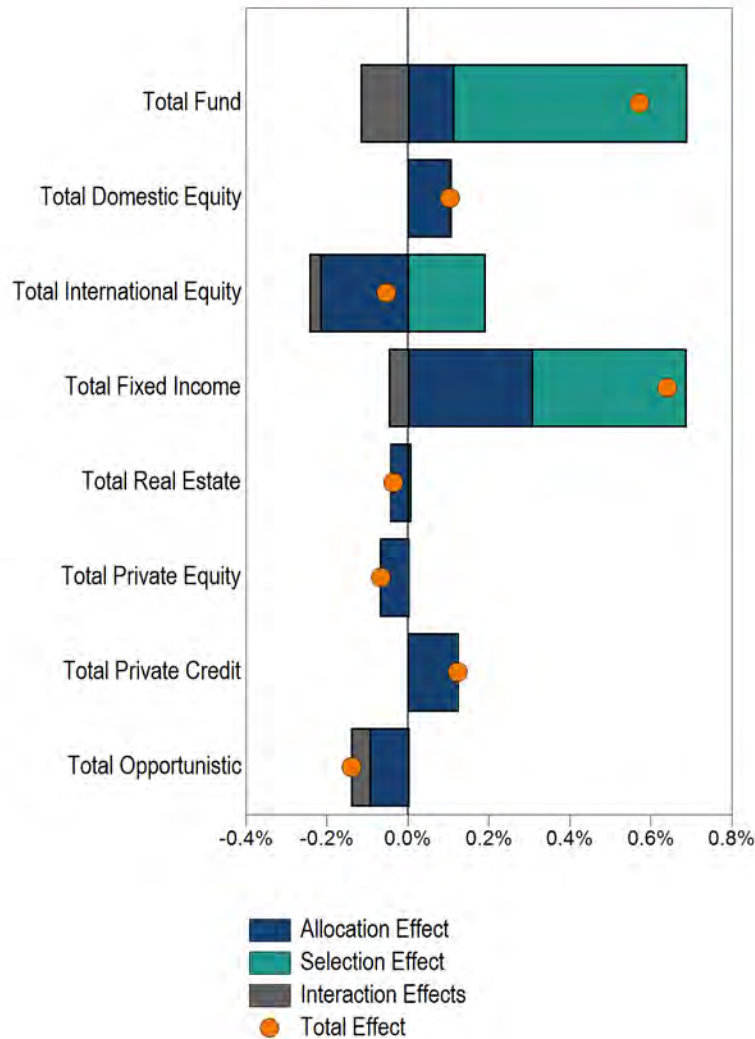
Period Ending: December 31, 2020

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	9.9	15.7	12.1	8.2	9.6	7.8
Policy Index	9.4	15.1	13.1	9.1	10.3	7.9
InvMetrics Public DB Net Rank	60	57	58	64	57	67
Total Domestic Equity	14.7	25.2	21.0	14.5	15.5	13.5
Russell 3000	14.7	25.2	20.9	14.5	15.4	13.8
eV US All Cap Core Equity Net Rank	38	26	42	35	24	26
Total International Equity	17.8	24.3	8.1	3.8	8.3	4.4
MSCI ACWI ex USA Gross	17.1	24.5	11.1	5.4	9.4	5.4
InvMetrics Public DB ex-US Eq Net Rank	34	78	91	86	83	94
Total Fixed Income	1.9	3.8	9.8	6.1	5.4	4.5
BBgBarc US Aggregate TR	0.7	1.3	7.5	5.3	4.4	3.8
InvMetrics Public DB Total Fix Inc Net Rank	49	47	7	10	35	38
Total Real Estate	1.2	1.6	2.1	5.1	5.5	9.0
NCREIF ODCE Net	1.1	1.4	0.3	4.0	5.3	8.9
Total Private Equity	13.8	29.4	22.3	18.6	17.0	9.3
Private Equity Benchmark	13.8	29.4	22.3	18.6	17.0	--
Total Private Credit	1.7	3.7	2.3	6.1	--	--
Private Credit Benchmark	1.7	3.7	2.3	6.1	--	--
Total Opportunistic	-1.5	-3.0	-4.9	3.9	4.4	9.6
Assumption Rate + 1%	2.0	4.0	8.3	8.3	8.3	8.6



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

Attribution Effects



Performance Attribution

	Quarter	YTD
Wtd. Actual Return	9.95%	12.21%
Wtd. Index Return *	9.61%	14.69%
Excess Return	0.34%	-2.48%
Selection Effect	0.53%	0.18%
Allocation Effect	-0.11%	-2.47%
Interaction Effect	-0.09%	-0.20%

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Last Three Months

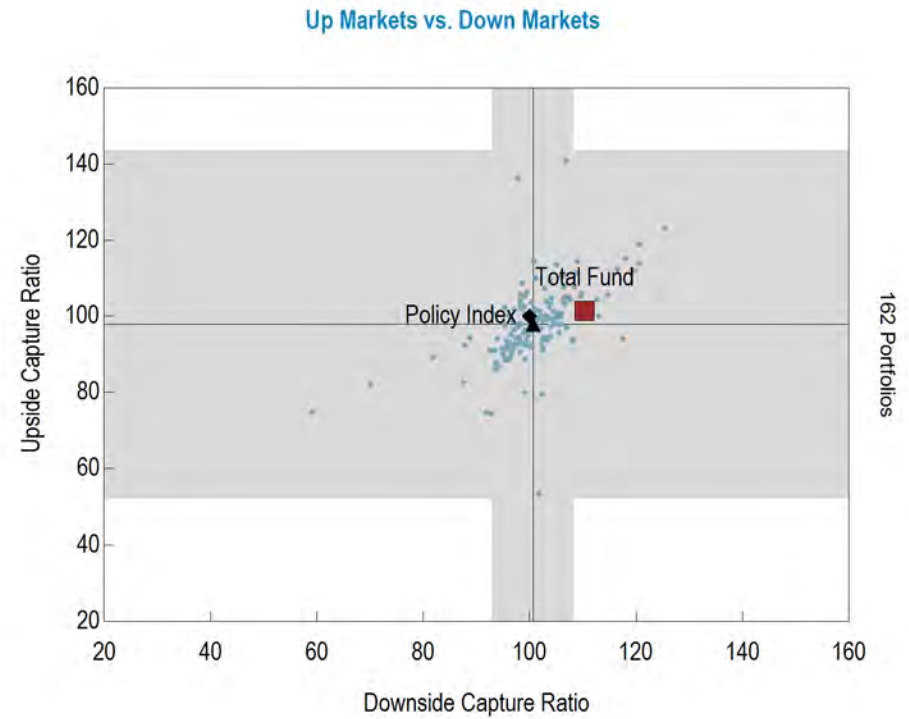
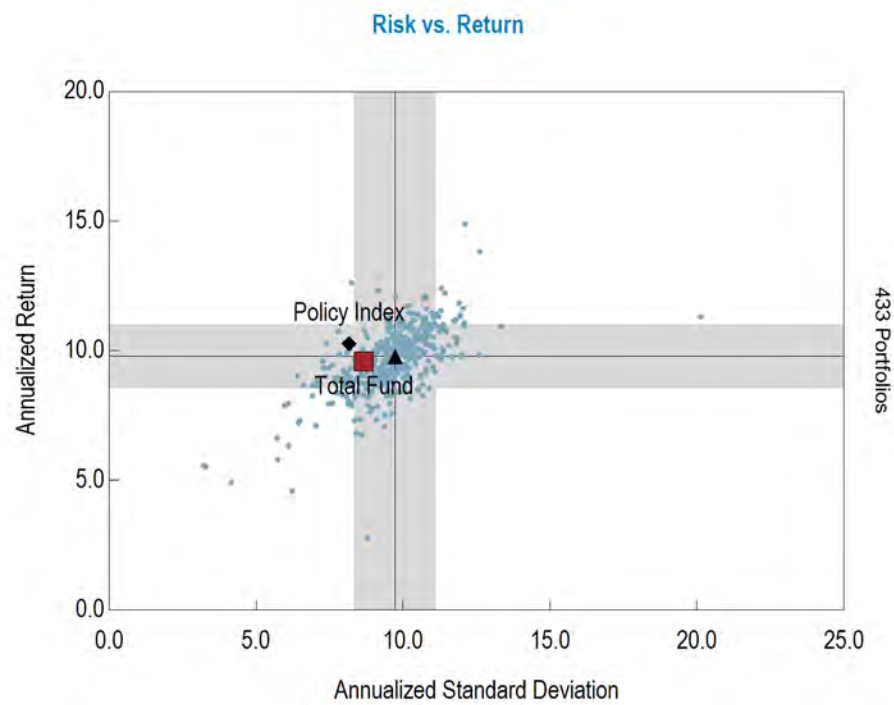
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	14.7%	14.7%	0.0%	0.0%	-0.1%	0.0%	-0.1%
Total International Equity	17.8%	17.1%	0.7%	0.2%	0.0%	0.0%	0.2%
Total Fixed Income	1.9%	0.7%	1.3%	0.4%	0.4%	-0.1%	0.7%
Total Real Estate	1.2%	1.2%	0.1%	0.0%	-0.5%	0.0%	-0.5%
Total Private Equity	13.8%	13.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Private Credit	1.7%	1.7%	0.0%	0.0%	0.1%	0.0%	0.1%
Total Opportunistic	-1.5%	2.0%	-3.5%	0.0%	-0.1%	0.0%	-0.1%
Total	9.9%	9.6%	0.3%	0.5%	-0.1%	-0.1%	0.3%

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

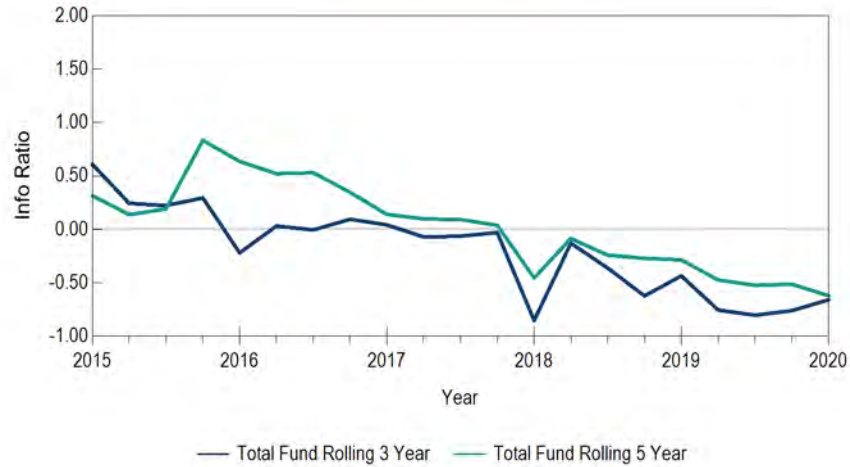
Total Fund
Risk Analysis - 5 Years (Net of Fees)

Period Ending: December 31, 2020

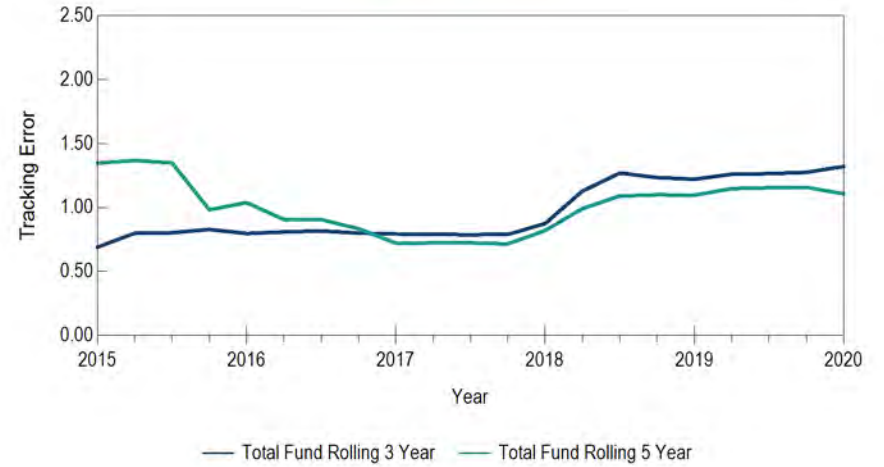
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	9.57%	-0.69%	8.66%	-1.26%	1.06	0.98%	0.99	0.97	-0.70	101.40%	110.31%



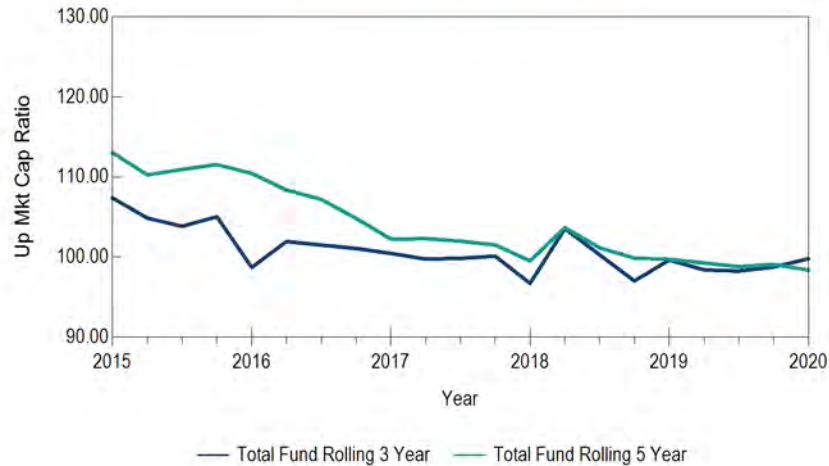
Rolling Information Ratio



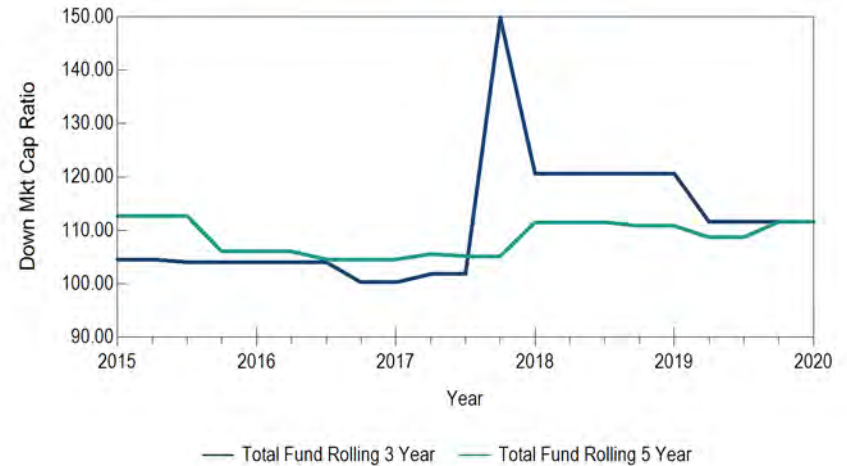
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016	Inception	Inception Date
Total Fund	1,016,562,993	100.0	9.9	15.7	12.1	8.2	9.6	7.8	12.1	17.8	-4.1	16.0	7.4	9.0	Mar-89
<i>Policy Index</i>			9.4	15.1	13.1	9.1	10.3	7.9	13.1	18.0	-2.8	15.9	8.3	--	Mar-89
<i>InvMetrics Public DB Net Rank</i>			60	57	58	64	57	67	58	73	43	22	49	16	Mar-89
Total Domestic Equity	339,538,300	33.4	14.7	25.2	21.0	14.5	15.5	13.5	21.0	31.1	-5.2	21.2	12.8	--	
<i>Russell 3000</i>			14.7	25.2	20.9	14.5	15.4	13.8	20.9	31.0	-5.2	21.1	12.7	--	
<i>eV US All Cap Core Equity Net Rank</i>			38	26	42	35	24	26	42	42	40	42	20	--	
BlackRock Russell 3000	339,538,300	33.4	14.7	25.2	21.0	14.5	15.5	--	21.0	31.1	-5.2	21.2	12.8	14.9	Dec-15
<i>Russell 3000</i>			14.7	25.2	20.9	14.5	15.4	--	20.9	31.0	-5.2	21.1	12.7	14.7	Dec-15
<i>eV US All Cap Core Equity Net Rank</i>			38	26	42	35	24	--	42	42	40	42	20	36	Dec-15
Total International Equity	226,429,931	22.3	17.8	24.3	8.1	3.8	8.3	4.4	8.1	20.7	-14.3	27.9	4.4	--	
<i>MSCI ACWI ex USA Gross</i>			17.1	24.5	11.1	5.4	9.4	5.4	11.1	22.1	-13.8	27.8	5.0	--	
<i>InvMetrics Public DB ex-US Eq Net Rank</i>			34	78	91	86	83	94	91	84	29	55	48	--	
BlackRock International Equity	154,791,776	15.2	16.1	21.7	8.1	4.6	7.8	5.8	8.1	22.4	-13.5	25.4	1.3	7.4	Jul-03
<i>MSCI EAFE</i>			16.0	21.6	7.8	4.3	7.4	5.5	7.8	22.0	-13.8	25.0	1.0	7.1	Jul-03
<i>eV All EAFE Equity Net Rank</i>			35	61	48	46	47	64	48	47	33	60	37	59	Jul-03
DFA Emerging Markets Value	34,003,531	3.3	21.0	26.7	2.8	-0.2	9.7	0.5	2.8	9.6	-11.9	33.8	19.8	3.8	Jan-07
<i>MSCI Emerging Markets Value NR</i>			23.0	28.7	5.5	1.8	9.2	0.9	5.5	12.0	-10.7	28.1	14.9	4.0	Jan-07
<i>eV Emg Mkts All Cap Value Equity Net Rank</i>			72	74	81	88	73	99	81	98	20	49	22	77	Jan-07
Harding Loevner Emerging Markets	37,634,625	3.7	22.2	33.3	12.4	3.9	--	--	12.4	24.0	-19.5	33.6	--	9.2	Jul-16
<i>MSCI Emerging Markets Growth GR</i>			16.9	33.5	31.6	10.6	--	--	31.6	25.4	-18.0	47.1	--	16.2	Jul-16
<i>eV Emg Mkts All Cap Growth Equity Net Rank</i>			27	69	99	99	--	--	99	61	73	89	--	96	Jul-16
Total Fixed Income	244,170,142	24.0	1.9	3.8	9.8	6.1	5.4	4.5	9.8	9.5	-0.8	4.3	4.8	--	
<i>BBgBarc US Aggregate TR</i>			0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6	--	
<i>InvMetrics Public DB Total Fix Inc Net Rank</i>			49	47	7	10	35	38	7	32	59	62	43	--	
Ducenta Squared	101,144,166	9.9	1.7	3.1	9.1	6.2	5.5	5.0	9.1	9.9	-0.1	4.3	4.8	6.3	Dec-92
<i>BBgBarc US Aggregate TR</i>			0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6	5.5	Dec-92
<i>eV US Core Plus Fixed Inc Net Rank</i>			65	73	35	33	34	32	35	45	23	74	41	36	Dec-92
MackKay Shields Core Plus Opportunities	99,153,241	9.8	2.2	4.2	9.9	6.1	5.5	--	9.9	9.7	-1.0	4.5	4.7	4.1	Mar-15
<i>BBgBarc US Aggregate TR</i>			0.7	1.3	7.5	5.3	4.4	--	7.5	8.7	0.0	3.5	2.6	3.7	Mar-15
<i>eV US Core Plus Fixed Inc Net Rank</i>			40	32	23	38	39	--	23	54	75	62	47	70	Mar-15
BlackRock US TIPS	43,872,734	4.3	1.6	4.8	11.2	6.0	5.2	3.9	11.2	8.5	-1.2	3.2	4.8	4.6	Apr-07
<i>BBgBarc US TIPS TR</i>			1.6	4.7	11.0	5.9	5.1	3.8	11.0	8.4	-1.3	3.0	4.7	4.5	Apr-07
<i>eV US TIPS / Inflation Fixed Inc Net Rank</i>			66	65	33	40	48	20	33	53	36	47	43	54	Apr-07

ARA American Strategic Value Realty funded 1/4/2018. Tortoise is now Ducenta Square.

Total Fund

Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016	Inception	Inception Date
Total Real Estate	97,772,409	9.6	1.2	1.6	2.1	5.1	5.5	9.0	2.1	5.7	7.5	5.8	6.5	--	
NCREIF Property Index			1.2	1.9	1.6	4.9	5.9	9.0	1.6	6.4	6.7	7.0	8.0	--	
NCREIF ODCE Net			1.1	1.4	0.3	4.0	5.3	8.9	0.3	4.4	7.4	6.7	7.8	--	
ASB Real Estate	28,373,770	2.8	0.9	0.8	1.5	3.7	3.9	--	1.5	3.0	6.6	4.0	4.6	7.5	Dec-12
NCREIF Property Index			1.2	1.9	1.6	4.9	5.9	--	1.6	6.4	6.7	7.0	8.0	8.2	Dec-12
NCREIF ODCE Net			1.1	1.4	0.3	4.0	5.3	--	0.3	4.4	7.4	6.7	7.8	8.0	Dec-12
Clarion Lion	29,172,266	2.9	2.0	2.7	2.3	5.8	6.7	9.9	2.3	6.8	8.6	7.9	8.0	4.5	Dec-06
NCREIF Property Index			1.2	1.9	1.6	4.9	5.9	9.0	1.6	6.4	6.7	7.0	8.0	6.5	Dec-06
NCREIF ODCE Net			1.1	1.4	0.3	4.0	5.3	8.9	0.3	4.4	7.4	6.7	7.8	4.8	Dec-06
ARA American Strategic Value Realty	38,284,262	3.8	0.9	1.4	2.4	--	--	--	2.4	7.8	--	--	--	6.2	Jan-18
NCREIF Property Index +2%			1.7	2.9	3.6	--	--	--	3.6	8.5	--	--	--	7.0	Jan-18
NCREIF ODCE +2%			1.8	2.8	3.2	--	--	--	3.2	7.4	--	--	--	6.5	Jan-18
1221 State St. Corp	1,942,112	0.2	0.0	0.0	0.0	2.6	4.9	1.4	0.0	7.9	0.0	0.0	17.5	1.6	Sep-08
Total Private Equity															
Harbourvest Buyout IX	7,466,797	0.7	12.1	25.6	21.3	20.8	19.8	--	21.3	17.6	23.6	23.2	13.7	--	Sep-11
Harbourvest Credit Ops IX	1,202,266	0.1	2.4	14.1	0.3	7.4	9.6	--	0.3	8.0	14.4	17.5	8.5	--	Sep-11
Harbourvest International PE VI	2,238,425	0.2	3.0	12.0	5.1	5.4	9.5	6.2	5.1	-2.9	14.8	19.4	12.2	--	Jun-10
Harbourvest Venture IX	5,684,470	0.6	28.1	46.9	52.4	33.7	22.4	--	52.4	24.6	25.9	9.4	5.3	--	Sep-11
Harbourvest 2017 Global Fund	21,288,510	2.1	15.3	27.9	18.8	16.0	--	--	18.8	8.8	20.9	--	--	17.3	Sep-17
Harbourvest 2018 Global Fund	12,423,798	1.2	7.2	23.8	16.0	--	--	--	16.0	14.3	--	--	--	14.5	Dec-18
Harbourvest 2019 Global Fund	8,419,416	0.8	20.5	68.2	34.6	--	--	--	34.6	--	--	--	--	31.5	Dec-19
Russell 3000 + 3%			15.5	27.0	24.5	--	--	--	24.5	--	--	--	--	25.9	Dec-19
Total Private Credit															
Portfolio Advisors	32,752,969	3.2	1.7	3.7	2.3	6.1	--	--	2.3	9.4	6.7	--	--	5.7	Oct-17
BBgBarc High Yield +2% (Lagged)			5.1	16.4	5.3	6.3	--	--	5.3	8.5	5.1	--	--	6.3	Oct-17
Total Opportunistic															
KKR Mezzanine Partners	2,387,789	0.2	4.8	-14.8	-15.2	0.6	2.8	--	-15.2	-4.2	25.3	8.7	4.0	7.4	Apr-11
PIMCO BRAVO	69,502	0.0	-8.7	10.0	-48.2	-22.3	-14.5	0.8	-48.2	-49.1	77.8	-12.4	11.2	0.8	May-11
TSSP Adjacent Opportunities Partners	9,937,993	1.0	-2.7	2.3	--	--	--	--	--	--	--	--	--	2.3	Apr-20
Total Cash															
Cash Account	4,780,277	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	--	
91 Day T-Bills			0.0	0.0	0.5	1.5	1.1	0.6	0.5	2.1	1.9	0.9	0.3	--	

TSSP Adjacent funded 4/16/2020.

Investment Manager
Performance Analysis - 3 & 5 Years (Net of Fees)

Period Ending: December 31, 2020

3 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 3000	14.53%	0.03%	19.68%	0.04%	1.00	0.03%	1.00	0.66	0.95	100.09%	99.97%
BlackRock International Equity	4.59%	0.30%	18.18%	0.29%	1.00	0.22%	1.00	0.17	1.37	101.43%	99.90%
DFA Emerging Markets Value	-0.24%	-2.01%	22.27%	-2.12%	1.06	3.89%	0.97	-0.08	-0.52	98.81%	104.22%
Harding Loevner Emerging Markets	3.92%	-6.68%	22.22%	-7.22%	1.05	6.47%	0.92	0.11	-1.03	89.68%	111.30%
Ducenta Squared	6.20%	0.86%	3.69%	0.88%	1.00	1.45%	0.84	1.26	0.59	112.25%	100.18%
Mackay Shields Core Plus Opportunities	6.06%	0.72%	4.29%	0.24%	1.09	2.18%	0.75	1.07	0.33	118.99%	123.65%
BlackRock US TIPS	6.00%	0.09%	3.91%	0.03%	1.01	0.09%	1.00	1.13	0.93	101.18%	100.31%
ASB Real Estate	3.70%	-1.19%	2.41%	-0.11%	0.78	1.50%	0.66	0.89	-0.79	74.84%	77.87%
Clarion Lion	5.83%	0.95%	3.24%	-0.28%	1.25	1.02%	0.94	1.32	0.93	125.47%	185.14%

5 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock International Equity	7.78%	0.33%	15.42%	0.31%	1.00	0.19%	1.00	0.43	1.75	101.81%	99.80%
DFA Emerging Markets Value	9.74%	0.56%	19.78%	0.03%	1.06	3.44%	0.97	0.43	0.16	109.63%	102.62%
Ducenta Squared	5.54%	1.10%	3.34%	1.17%	0.98	1.24%	0.86	1.31	0.89	115.79%	92.17%
Mackay Shields Core Plus Opportunities	5.48%	1.04%	3.74%	0.93%	1.03	1.87%	0.75	1.16	0.56	120.30%	104.76%
BlackRock US TIPS	5.18%	0.10%	3.62%	0.06%	1.01	0.08%	1.00	1.11	1.19	101.39%	99.80%
ASB Real Estate	3.93%	-1.98%	2.31%	-0.25%	0.71	1.49%	0.70	1.20	-1.33	66.38%	77.87%
Clarion Lion	6.67%	0.76%	3.37%	-0.37%	1.19	1.00%	0.94	1.64	0.76	120.46%	185.14%

Private Equity
Non Marketable Securities Overview

Period Ending: December 31, 2020

Vintage	Manager & Fund Name	Estimated 12/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date		
2011	HarbourVest IX-Buyout	\$7,466,797	\$10,000,000	\$8,525,000	85%	\$1,475,000	\$8,123,119	\$7,475,422	95.3%	182.9%	18.1%	9/30/20		
2011	HarbourVest IX-Credit	\$1,202,266	\$2,000,000	\$1,600,000	80%	\$400,000	\$1,133,463	\$1,280,968	70.8%	146.0%	11.9%	9/30/20		
2008	HarbourVest Int'l VI ⁵	\$2,238,425	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$2,497,438	\$2,408,018	95.0%	180.1%	14.1%	9/30/20		
2011	HarbourVest IX-Venture	\$5,684,470	\$4,000,000	\$3,800,000	95%	\$200,000	\$3,760,820	\$4,781,643	99.0%	248.6%	21.3%	9/30/20		
2017	HarbourVest 2017 Global	\$21,288,510	\$30,000,000	\$16,950,000	57%	\$13,050,000	\$2,260,137	\$17,684,711	13.3%	138.9%	18.0%	9/30/20		
2018	HarbourVest 2018 Global	\$12,423,798	\$20,000,000	\$10,538,043	53%	\$9,461,957	\$0	\$9,160,153	0.0%	117.9%	24.2%	9/30/20		
2019	HarbourVest 2019 Global	\$8,419,416	\$20,000,000	\$6,956,762	35%	\$13,043,238	\$0	N/A	N/A	N/A	N/A	N/A		
Total Illiquid Private Equity		\$58,723,682	\$89,712,930	\$50,999,883	57%	\$38,713,047	\$17,774,977	\$42,790,915	83.9%	118.8%				
% of Portfolio (Market Value)		5.8%												
									Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense⁶	
									HarbourVest IX-Buyout	\$24,910	\$0	\$7	\$3,612	\$28,529
									HarbourVest IX-Credit	\$4,976	\$0	\$1	\$1,939	\$6,916
									HarbourVest Int'l VI	\$6,056	\$0	\$44	\$37	\$6,137
									HarbourVest IX-Venture	\$9,983	\$0	\$7	\$657	\$10,647
									HarbourVest 2017 Global	\$66,000	\$0	\$0	\$38,195	\$104,195
									HarbourVest 2018 Global	\$44,056	\$0	\$18	\$18,187	\$62,261
									HarbourVest 2019 Global	\$29,755	\$0	\$1,508	\$19,694	\$50,957
									\$185,736	\$0	\$1,585	\$82,321	\$269,642	

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

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

³Last known market value + capital calls - distributions (preliminary MV's as of 9/30/20)

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

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

⁶All fees and expenses are for 3Q 2020

HarbourVest 2017 Global Fund first capital call issued 9/21/2017. Portfolio Advisors first capital call issued 10/5/2017. HarbourVest 2018 Global Fund first capital call issued 12/13/2018.

Private Credit
Non Marketable Securities Overview

Period Ending: December 31, 2020

Vintage	Manager & Fund Name	Estimated 12/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date		
2013	Portfolio Advisors Credit Strategies Fund	\$12,138,197	\$11,250,000	\$11,250,000	100%	\$0	\$236,207	\$12,239,860	2.1%	110.0%	6.7%	9/30/20		
2017	Crescent Direct Lending Levered Fund II	\$5,568,830	\$7,000,000	\$5,707,507	82%	\$1,292,493	\$657,321	\$5,957,941	11.5%	109.1%	8.0%	9/30/20		
2017	Audax Direct Lending Fund A	\$2,980,968	\$7,000,000	\$2,997,641	43%	\$4,002,359	\$395,873	NA	13.2%	112.6%	NM ⁶	NM ⁶		
2018	Ares Capital Europe IV	\$5,974,734	\$8,000,000	\$4,391,652	55%	\$3,608,348	\$277,595	NA	6.3%	142.4%	NM ⁷	NM ⁷		
2019	Lone Star Fund XI	\$160,063	\$5,750,000	\$510,054	9%	\$5,239,946	\$103,177	NA	20.2%	51.6%	NA	NA		
2019	Ascribe Opportunities IV	\$0	\$6,000,000	\$0	0%	\$6,000,000	\$0	NA	NA	NA	NA	NA		
2020	Sixth Street Diversified Credit	\$5,930,177	\$20,000,000	\$5,842,480	29%	\$14,157,520	\$0	NA	0.0%	101.5%	NA	NA		
Total Illiquid Private Credit		\$32,752,969	\$65,000,000	\$30,699,335	47%	\$34,300,665	\$1,670,172	\$18,197,801	59.3%	64.7%				
% of Portfolio (Market Value)		3.2%												
								Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense⁵	
								Portfolio Advisors CSF	\$0	\$0	\$0	\$0	\$0	\$0
								Crescent Direct Lending II	\$0	\$76,607	\$0	\$0	\$0	\$76,607
								Audax Direct Lending A	\$20,393	\$0	\$0	\$0	\$42,813	\$63,206
								Ares Capital Europe IV	\$21,779	\$26,922	\$7,527	\$28,378	\$0	\$84,606
								Ascribe Opportunities IV	\$0	\$0	\$0	\$0	\$0	\$0
								Lone Star Fund XI	\$0	\$0	\$0	\$0	\$0	\$0
								Sixth Street Diversified Credit	\$0	\$0	\$0	\$0	\$0	\$0
									\$42,172	\$103,529	\$7,527	\$28,378	\$42,813	\$224,419

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

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

³Last known market value + capital calls - distributions (preliminary MV's as of 9/30/20)

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

⁵All fees and expenses are for 3Q 2020

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

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

Portfolio Advisors first capital call issued 10/5/2017. Crescent Direct Lending first called 3/13/2018. Ares IV first called 8/13/2018. Audax Direct Lending first called 10/26/2018.

Opportunistic
Non Marketable Securities Overview

Period Ending: December 31, 2020

Vintage	Manager & Fund Name	Estimated 12/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date		
2010	KKR Mezzanine ⁶	\$2,387,789	\$10,000,000	\$10,000,000	100%	\$0	\$13,460,765	\$2,112,794	134.6%	158.5%	6.7%	9/30/20		
2011	PIMCO BRAVO ⁴	\$69,502	\$10,000,000	\$10,000,000	100%	\$0	\$18,078,146	\$84,409	180.8%	181.5%	22.0%	9/30/20		
2020	TSSP Adjacent Opportunities Partners	\$9,937,993	\$40,000,000	\$8,705,117	22%	\$31,294,883	\$0	NA	0.0%	114.2%	NA	NA		
Total Illiquid Opportunistic		\$12,395,284	\$60,000,000	\$28,705,117	48%	\$31,294,883	\$31,538,911	\$2,197,203	7.7%	117.5%				
% of Portfolio (Market Value)		1.2%												
								Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense⁷	
								KKR Mezzanine	\$0	\$0	\$0	\$0	\$0	\$0
								PIMCO BRAVO	\$0	\$0	\$0	\$0	\$0	\$0
								TSSP Adjacent Opportunitie	\$0	\$0	\$0	\$0	\$0	\$0
									\$0	\$0	\$0	\$0	\$0	\$0

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

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

³Last known market value + capital calls - distributions (preliminary MV's as of 9/30/2020)

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

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

⁶KKR: Total capital called is \$11,574,098, which includes recycled distributions. Unused capital commitment is \$839,888 after including distribution proceeds available for reinvestment

⁷All fees and expenses are for 3Q 2020

Total Fund
Financial Reconciliation (Last Three Months)

Period Ending: December 31, 2020

Manager					Investment Income	Capital Gain/ Loss			
Blackrock Russell 3000 Index	\$296,039,002	\$0	\$0	\$0	\$0	\$0	\$43,499,298	\$43,499,298	\$339,538,300
DFA Emerging Markets	\$28,109,228	\$0	\$0	\$0	\$0	\$0	\$5,894,303	\$5,894,303	\$34,003,531
Harding Loevner Emerging Markets	\$34,441,419	\$0	(\$3,868,025)	\$0	(\$3,868,025)	\$0	\$7,061,230	\$7,061,230	\$37,634,625
Blackrock International Equity	\$141,391,829	\$0	(\$7,459,745)	\$0	(\$7,459,745)	\$0	\$20,859,692	\$20,859,692	\$154,791,776
Ducenta Squared	\$99,351,603	\$0	\$0	\$0	\$0	\$0	\$1,792,564	\$1,792,564	\$101,144,166
MacKay Shields Core Plus Opp.	\$96,974,048	\$0	\$0	\$0	\$0	\$0	\$2,179,192	\$2,179,192	\$99,153,241
Blackrock US TIPS	\$43,162,257	\$0	\$0	\$0	\$0	\$0	\$710,477	\$710,477	\$43,872,734
Clarion Lion Properties	\$29,288,033	\$0	(\$637,500)	(\$277,455)	(\$914,955)	\$0	\$799,188	\$799,188	\$29,172,266
ICERS State Street Real Estate	\$1,961,601	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,942,112
ASB Allegiance Real Estate	\$28,507,758	\$65,701	(\$451,803)	(\$65,952)	(\$452,054)	\$0	\$318,066	\$318,066	\$28,373,770
ARA American Strategic Value Realty	\$37,959,143	\$0	\$0	\$0	\$0	\$0	\$325,118	\$325,118	\$38,284,262
Portfolio Advisors Credit Strategies Fund ¹	\$12,239,860	\$0	\$0	\$0	\$0	\$0	(\$101,663)	(\$101,663)	\$12,138,197
Crescent Direct Lending II ¹	\$5,957,941	\$0	(\$608,549)	(\$76,607)	(\$685,156)	\$0	\$296,045	\$296,045	\$5,568,830
Audax Direct Lending A	\$2,588,285	\$265,081	(\$62,823)	(\$63,206)	\$139,052	\$0	\$253,631	\$253,631	\$2,980,968
Ares Capital Europe IV	\$5,677,065	\$245,492	(\$98,400)	(\$84,606)	\$62,486	\$0	\$235,183	\$235,183	\$5,974,734
Lone Star Fund XI ¹	\$181,206	\$4,171	\$0	\$0	\$4,171	\$0	(\$25,314)	(\$25,314)	\$160,063
PIMCO BRAVO ¹	\$101,651	\$0	(\$23,412)	\$0	(\$23,412)	\$0	(\$8,737)	(\$8,737)	\$69,502
KKR Mezzanine I ¹	\$1,623,580	\$679,315	\$0	\$0	\$679,315	\$0	\$84,894	\$84,894	\$2,387,789
HarbourVest International VI ¹	\$17,684,711	\$0	(\$242,457)	\$6,056	(\$236,401)	\$0	(\$15,209,885)	(\$15,209,885)	\$2,238,425
HarbourVest Buyout IX ¹	\$7,475,422	\$0	(\$906,334)	\$24,910	(\$881,424)	\$0	\$872,799	\$872,799	\$7,466,797
HarbourVest Credit Opportunities IX ¹	\$1,280,968	\$0	(\$109,768)	\$4,976	(\$104,792)	\$0	\$26,090	\$26,090	\$1,202,266
HarbourVest Venture IX ¹	\$4,781,643	\$0	(\$435,078)	\$9,983	(\$425,095)	\$0	\$1,327,922	\$1,327,922	\$5,684,470
HarbourVest 2017 Global ¹	\$17,684,711	\$900,000	\$0	\$66,000	\$966,000	\$0	\$2,637,799	\$2,637,799	\$21,288,510
HarbourVest 2018 Global ¹	\$9,160,153	\$2,700,000	(\$184,357)	\$44,056	\$2,559,699	\$0	\$703,946	\$703,946	\$12,423,798
HarbourVest 2019 Global ¹	\$2,668,021	\$3,700,000	(\$43,238)	\$29,755	\$3,686,517	\$0	\$2,064,878	\$2,064,878	\$8,419,416
Sixth Street Diversified Credit ¹	\$2,429,454	\$3,543,471	(\$207,390)	\$0	\$3,336,081	\$0	\$164,642	\$164,642	\$5,930,177
TSSP Adjacent Opportunities Partners ¹	\$8,842,237	\$1,894,180	(\$560,382)	\$0	\$1,333,798	\$0	(\$238,042)	(\$238,042)	\$9,937,993
Cash	\$2,529,656	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,780,277
Totals	\$940,092,486	\$13,997,411	(\$15,899,261)	(\$382,090)	(\$2,283,940)	\$0	\$76,523,317	\$76,523,316	\$1,016,562,993

¹Market value as of 9/30/2020 +/- 4Q20 calls and distributions

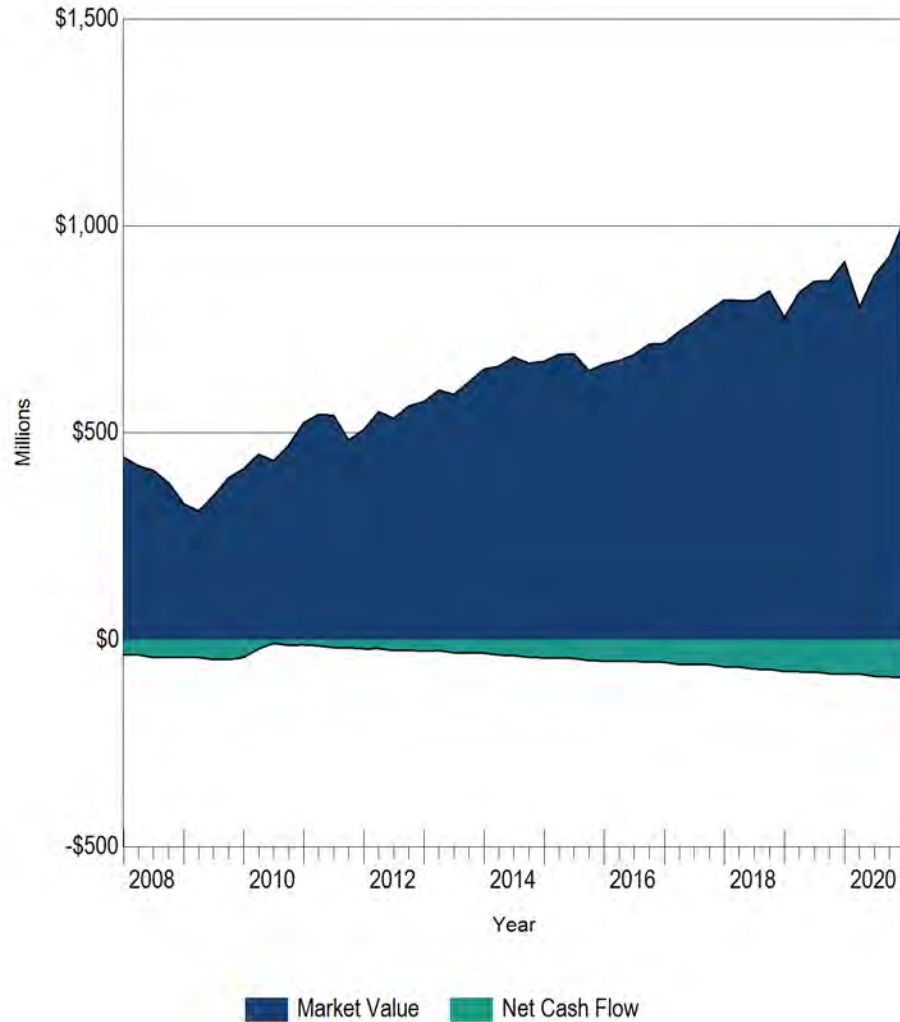
²Fee transactions not included in the Portfolio Reconciliation page at beginning of report

Cash Account Plugged zero for cap gain/loss

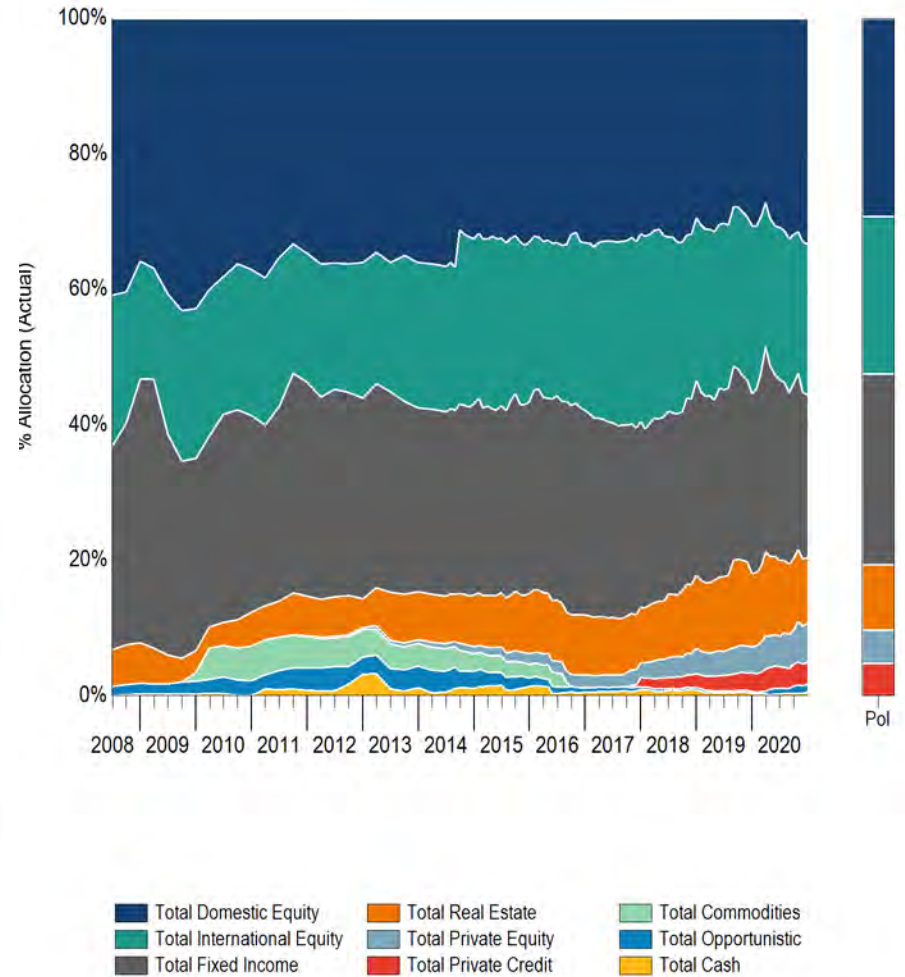
Total Fund
Asset Allocation History

Period Ending: December 31, 2020

Market Value History

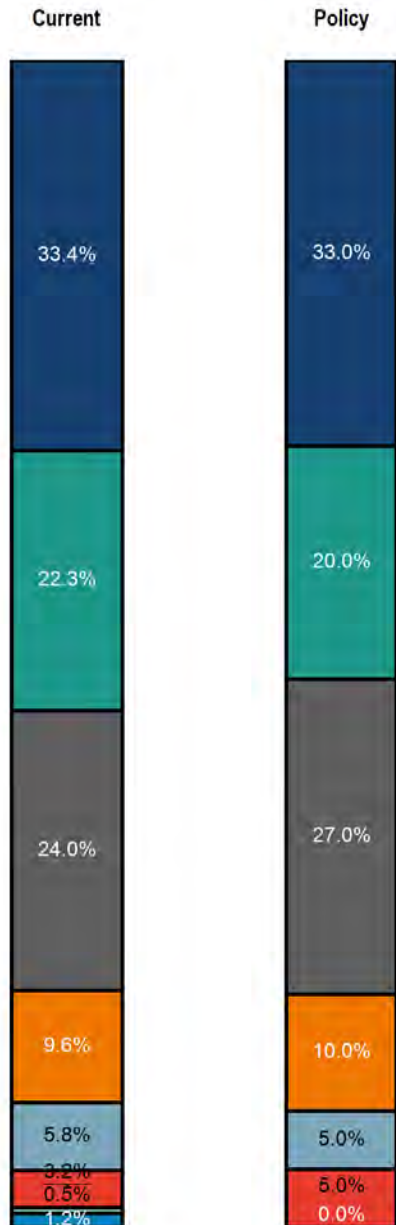


Asset Allocation History



Total Fund
Asset Allocation vs. Policy

Period Ending: December 31, 2020



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$339,538,300	33.4%	33.0%	\$4,072,512	23.0% - 43.0%	Yes
International Equity	\$226,429,931	22.3%	20.0%	\$23,117,332	10.0% - 30.0%	Yes
Domestic Fixed Income	\$244,170,142	24.0%	27.0%	-\$30,301,867	17.0% - 40.0%	Yes
Real Estate	\$97,772,409	9.6%	10.0%	-\$3,883,890	5.0% - 15.0%	Yes
Private Equity	\$58,723,682	5.8%	5.0%	\$7,895,532	0.0% - 10.0%	Yes
Private Credit	\$32,752,969	3.2%	5.0%	-\$18,075,180	0.0% - 10.0%	Yes
Cash and Equivalents	\$4,780,277	0.5%	0.0%	\$4,780,277	0.0% - 0.0%	No
Other	\$12,395,284	1.2%	0.0%	\$12,395,284	0.0% - 10.0%	Yes
Total	\$1,016,562,993	100.0%	100.0%			

Total Fund Investment Fee Analysis

Period Ending: December 31, 2020

Account	Fee Schedule	Market Value As of 12/31/2020	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,942,112	0.2%	--	--
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	\$38,284,262	3.8%	\$451,127	1.18%
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$28,373,770	2.8%	\$262,803	0.93%
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$154,791,776	15.5%	\$125,000	0.08%
BlackRock Russell 3000	0.03% of Assets	\$339,538,300	33.9%	\$101,861	0.03%
BlackRock US TIPS	0.07% of Assets	\$43,872,734	4.4%	\$30,711	0.07%
Cash Account	No Fee	\$4,780,277	0.5%	--	--
Clarion Lion	No Fee	\$29,172,266	2.9%	--	--
DFA Emerging Markets Value	0.54% of Assets	\$34,003,531	3.4%	\$183,619	0.54%
Ducenta Squared	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$101,144,166	10.1%	\$287,860	0.28%
Harbourvest 2017 Global Fund	262,500 Annually	\$21,288,510	2.1%	\$262,500	1.23%
Harbourvest 2018 Global Fund	138,000 Annually	\$12,423,798	1.2%	\$138,000	1.11%
Harbourvest 2019 Global Fund	0.45% of Assets	\$8,419,416	0.8%	\$37,887	0.45%
Harbourvest Buyout IX	100,000 Annually	\$7,466,797	0.7%	\$100,000	1.34%
Harbourvest Credit Ops IX	20,000 Annually	\$1,202,266	0.1%	\$20,000	1.66%
Harbourvest International PE VI	35,000 Annually	\$2,238,425	0.2%	\$35,000	1.56%
Harbourvest Venture IX	40,000 Annually	\$5,684,470	0.6%	\$40,000	0.70%
Harding Loevner Emerging Markets	1.05% of Assets	\$37,634,625	3.8%	\$395,164	1.05%
KKR Mezzanine Partners	150,000 Annually	\$2,387,789	0.2%	\$150,000	6.28%
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$99,153,241	9.9%	\$347,036	0.35%
PIMCO BRAVO	1.90% of Assets	\$69,502	0.0%	\$1,321	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$12,138,197	1.2%	\$180,000	1.48%
Sixth Street Diversified Credit	No Fee	\$5,930,177	0.6%	--	--
TSSP Adjacent Opportunities Partners	No Fee	\$9,937,993	1.0%	--	--
Investment Management Fee		\$1,001,878,398	100.0%	\$3,149,890	0.31%

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

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

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

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

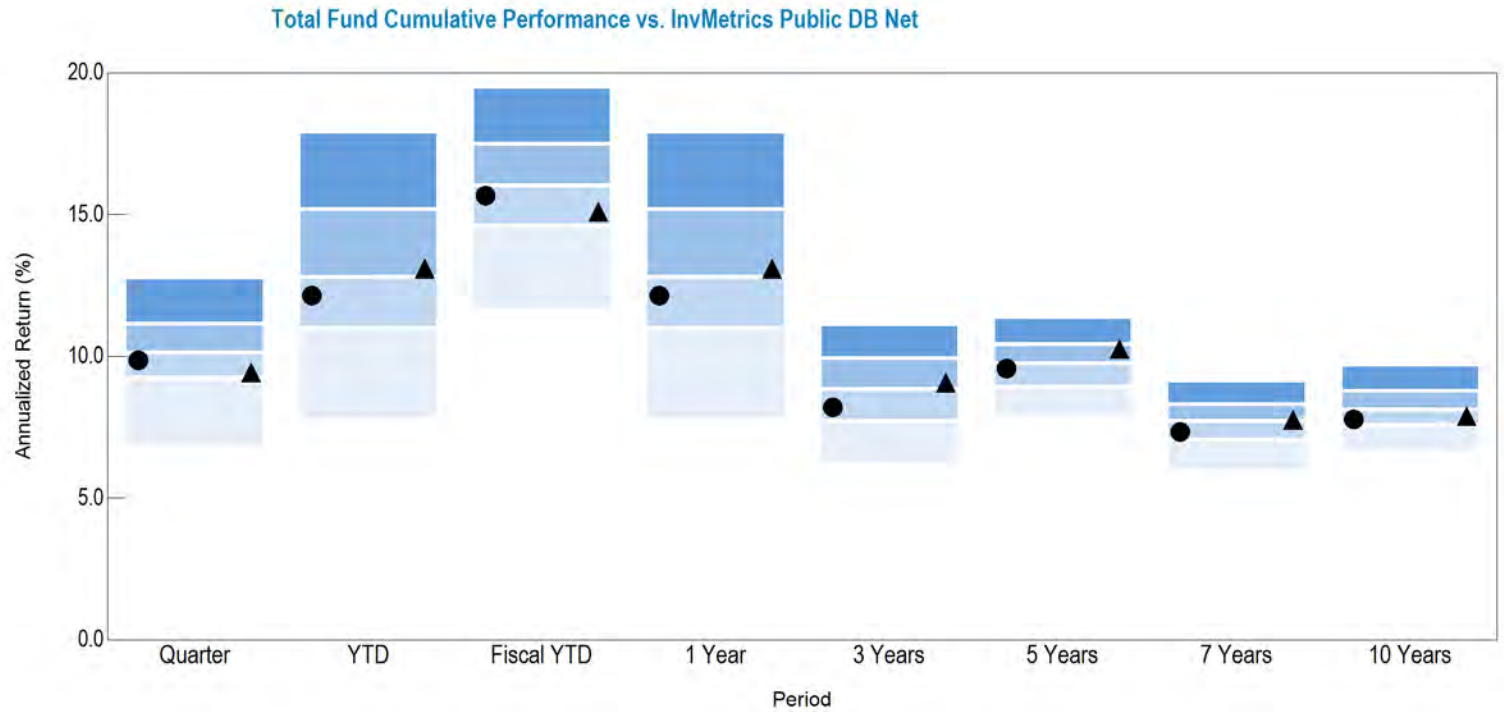
*Total fund market value excludes other investments managed by Portfolio Advisors.

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

Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: December 31, 2020

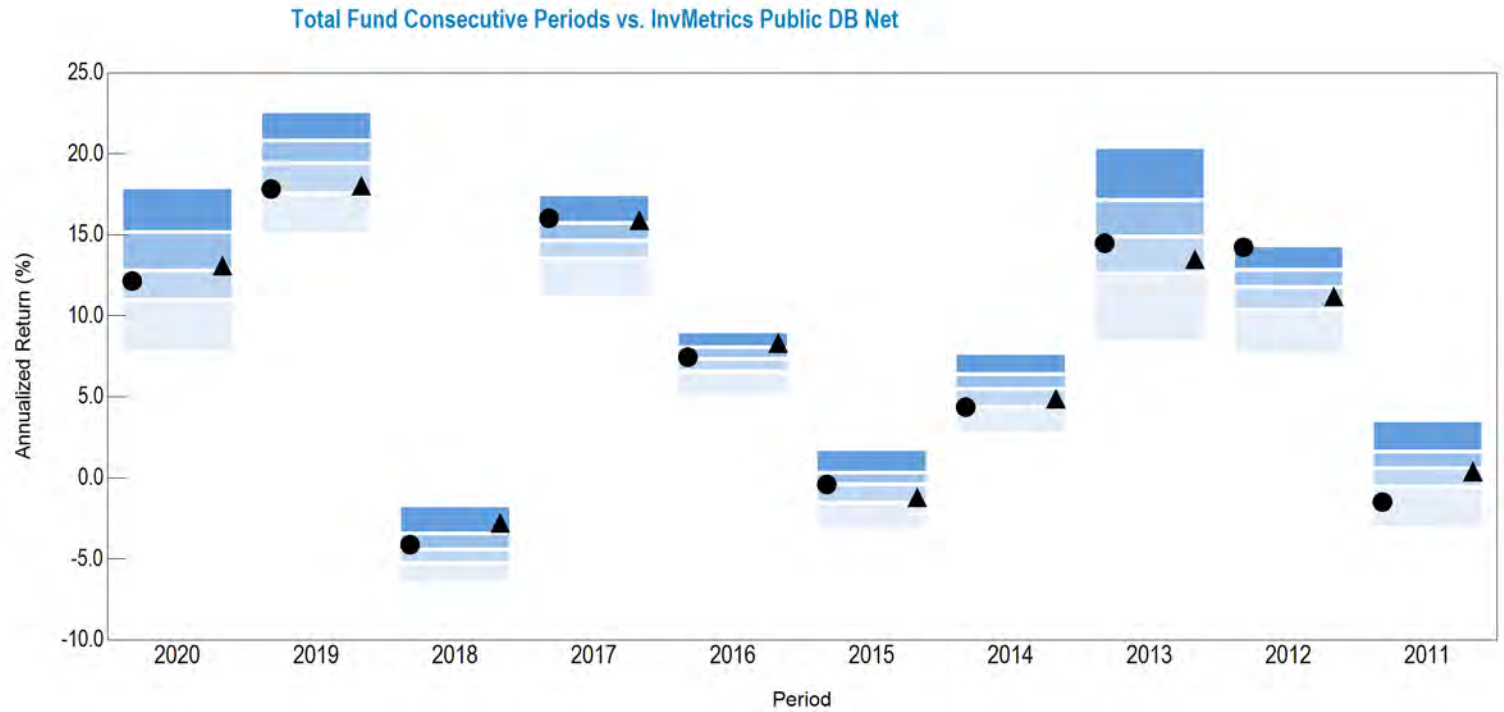


	Return (Rank)							
	Quarter	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	12.8	17.9	19.5	17.9	11.1	11.4	9.1	9.7
25th Percentile	11.2	15.2	17.5	15.2	10.0	10.4	8.3	8.8
Median	10.2	12.8	16.0	12.8	8.9	9.8	7.7	8.2
75th Percentile	9.3	11.0	14.6	11.0	7.7	8.9	7.1	7.6
95th Percentile	6.8	7.7	11.7	7.7	6.2	7.8	5.9	6.6
# of Portfolios	467	464	465	464	450	433	396	349
● Total Fund	9.9 (60)	12.1 (58)	15.7 (57)	12.1 (58)	8.2 (64)	9.6 (57)	7.3 (66)	7.8 (67)
▲ Policy Index	9.4 (72)	13.1 (47)	15.1 (68)	13.1 (47)	9.1 (46)	10.3 (32)	7.8 (50)	7.9 (61)

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: December 31, 2020

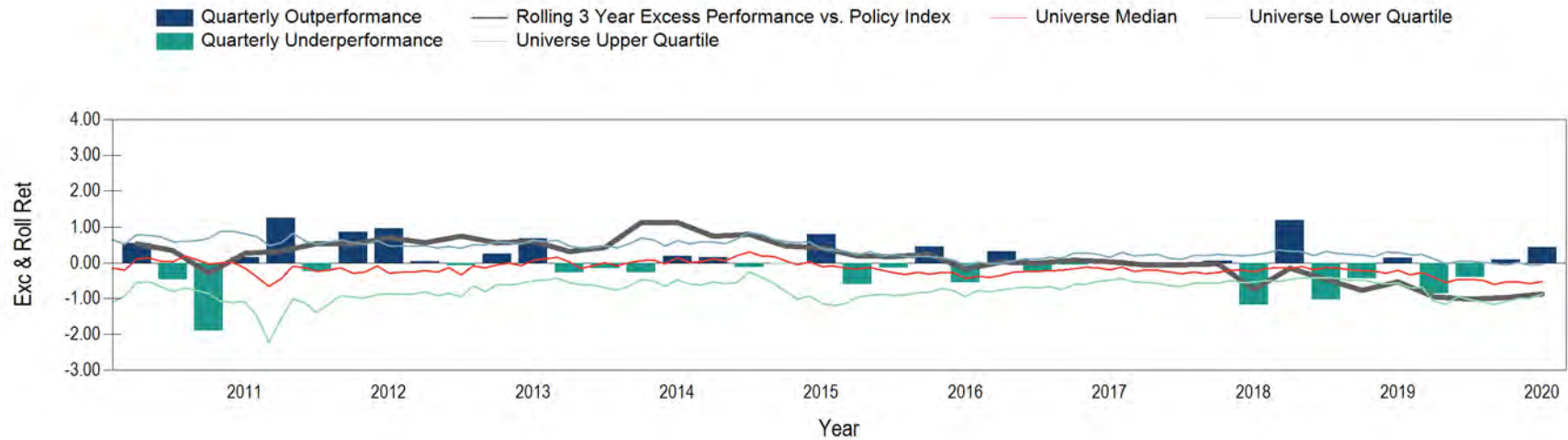


	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
5th Percentile	17.9	22.6	-1.7	17.5	9.0	1.7	7.7	20.4	14.3	3.6
25th Percentile	15.2	20.8	-3.4	15.8	8.1	0.4	6.4	17.2	12.9	1.6
Median	12.8	19.5	-4.4	14.7	7.4	-0.4	5.5	14.9	11.8	0.6
75th Percentile	11.0	17.6	-5.2	13.6	6.6	-1.5	4.4	12.7	10.4	-0.5
95th Percentile	7.7	15.1	-6.5	11.1	5.0	-3.2	2.7	8.4	7.6	-3.1
# of Portfolios	464	550	496	269	269	262	210	191	159	137
● Total Fund	12.1 (58)	17.8 (73)	-4.1 (43)	16.0 (22)	7.4 (49)	-0.4 (51)	4.4 (77)	14.5 (55)	14.2 (6)	-1.5 (86)
▲ Policy Index	13.1 (47)	18.0 (70)	-2.8 (14)	15.9 (24)	8.3 (22)	-1.2 (72)	4.9 (64)	13.5 (69)	11.2 (63)	0.4 (57)

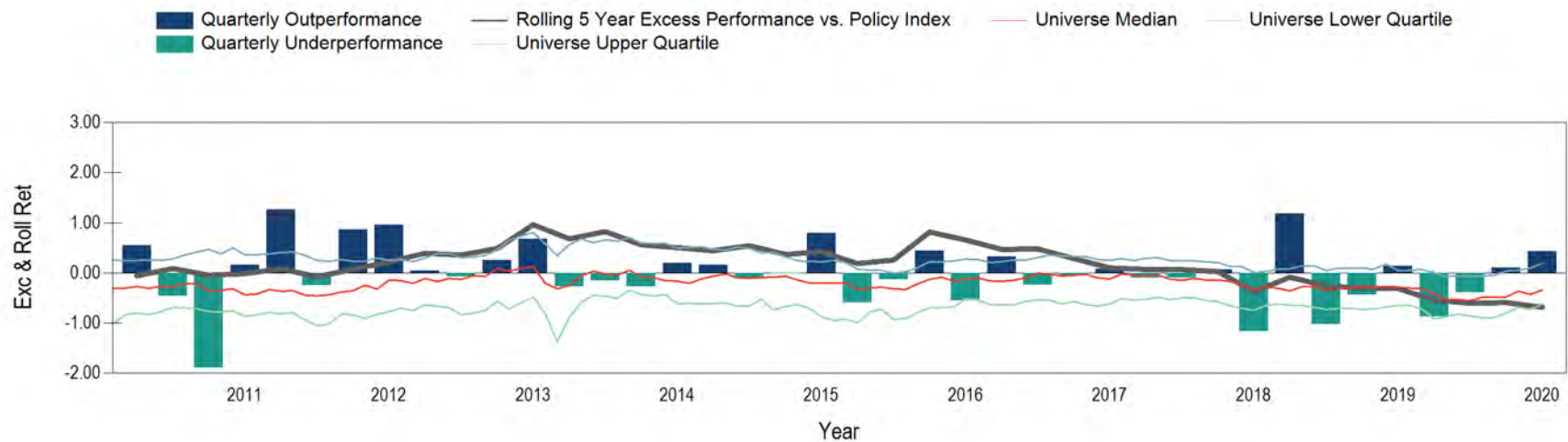
Total Fund
Rolling Return Analysis (Net of Fees)

Period Ending: December 31, 2020

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

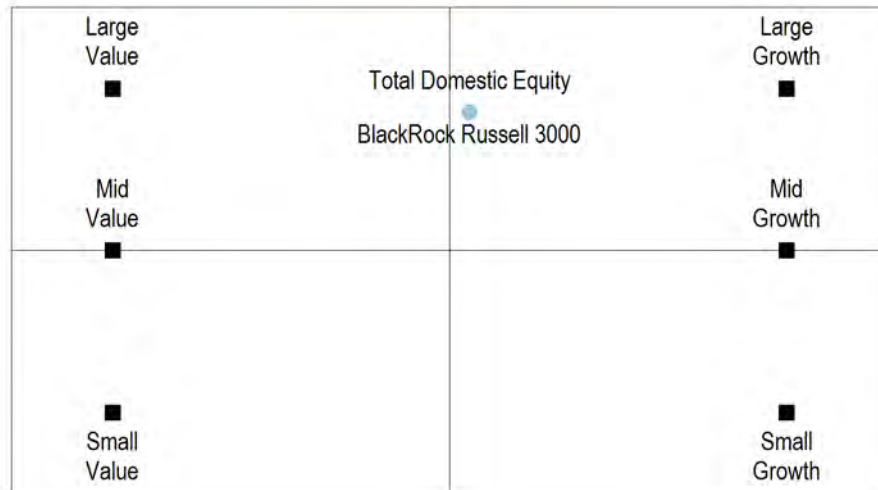


Total Domestic Equity
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Domestic Equity	339,538,300	14.7	25.2	21.0	14.5	15.5	13.5	21.0	31.1	-5.2	21.2	12.8
<i>Russell 3000</i>		14.7	25.2	20.9	14.5	15.4	13.8	20.9	31.0	-5.2	21.1	12.7
<i>eV US All Cap Core Equity Net Rank</i>		38	26	42	35	24	26	42	42	40	42	20
BlackRock Russell 3000	339,538,300	14.7	25.2	21.0	14.5	15.5	--	21.0	31.1	-5.2	21.2	12.8
<i>Russell 3000</i>		14.7	25.2	20.9	14.5	15.4	--	20.9	31.0	-5.2	21.1	12.7
<i>eV US All Cap Core Equity Net Rank</i>		38	26	42	35	24	--	42	42	40	42	20

U.S. Effective Style Map
3 Years Ending December 31, 2020



U.S. Effective Style Map
5 Years Ending December 31, 2020



Total International Equity
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total International Equity	226,429,931	17.8	24.3	8.1	3.8	8.3	4.4	8.1	20.7	-14.3	27.9	4.4
MSCI ACWI ex USA Gross		17.1	24.5	11.1	5.4	9.4	5.4	11.1	22.1	-13.8	27.8	5.0
InvMetrics Public DB ex-US Eq Net Rank		34	78	91	86	83	94	91	84	29	55	48
BlackRock International Equity	154,791,776	16.1	21.7	8.1	4.6	7.8	5.8	8.1	22.4	-13.5	25.4	1.3
MSCI EAFE		16.0	21.6	7.8	4.3	7.4	5.5	7.8	22.0	-13.8	25.0	1.0
eV All EAFE Equity Net Rank		35	61	48	46	47	64	48	47	33	60	37
DFA Emerging Markets Value	34,003,531	21.0	26.7	2.8	-0.2	9.7	0.5	2.8	9.6	-11.9	33.8	19.8
MSCI Emerging Markets Value NR		23.0	28.7	5.5	1.8	9.2	0.9	5.5	12.0	-10.7	28.1	14.9
eV Emg Mkts All Cap Value Equity Net Rank		72	74	81	88	73	99	81	98	20	49	22
Harding Loevner Emerging Markets	37,634,625	22.2	33.3	12.4	3.9	--	--	12.4	24.0	-19.5	33.6	--
MSCI Emerging Markets Growth GR		16.9	33.5	31.6	10.6	--	--	31.6	25.4	-18.0	47.1	--
eV Emg Mkts All Cap Growth Equity Net Rank		27	69	99	99	--	--	99	61	73	89	--

MSCI Effective Style Map
3 Years Ending Dec 31, 2020



MSCI Effective Style Map
5 Years Ending Dec 31, 2020



Total International Equity
Asset Class Overview (Net of Fees)

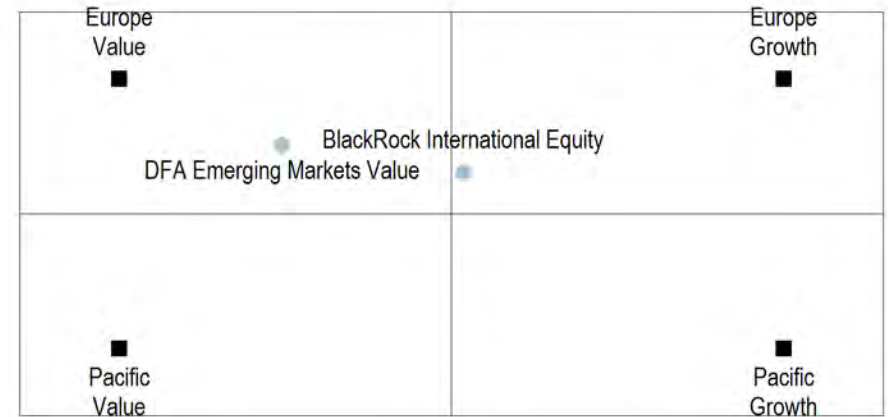
Period Ending: December 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total International Equity	226,429,931	17.8	24.3	8.1	3.8	8.3	4.4	8.1	20.7	-14.3	27.9	4.4
<i>MSCI ACWI ex USA Gross</i>		17.1	24.5	11.1	5.4	9.4	5.4	11.1	22.1	-13.8	27.8	5.0
BlackRock International Equity	154,791,776	16.1	21.7	8.1	4.6	7.8	5.8	8.1	22.4	-13.5	25.4	1.3
<i>MSCI EAFE</i>		16.0	21.6	7.8	4.3	7.4	5.5	7.8	22.0	-13.8	25.0	1.0
DFA Emerging Markets Value	34,003,531	21.0	26.7	2.8	-0.2	9.7	0.5	2.8	9.6	-11.9	33.8	19.8
<i>MSCI Emerging Markets Value NR</i>		23.0	28.7	5.5	1.8	9.2	0.9	5.5	12.0	-10.7	28.1	14.9
Harding Loevner Emerging Markets	37,634,625	22.2	33.3	12.4	3.9	--	--	12.4	24.0	-19.5	33.6	--
<i>MSCI Emerging Markets Growth GR</i>		16.9	33.5	31.6	10.6	--	--	31.6	25.4	-18.0	47.1	--

MSCI Effective Style Map
3 Years Ending Dec 31, 2020

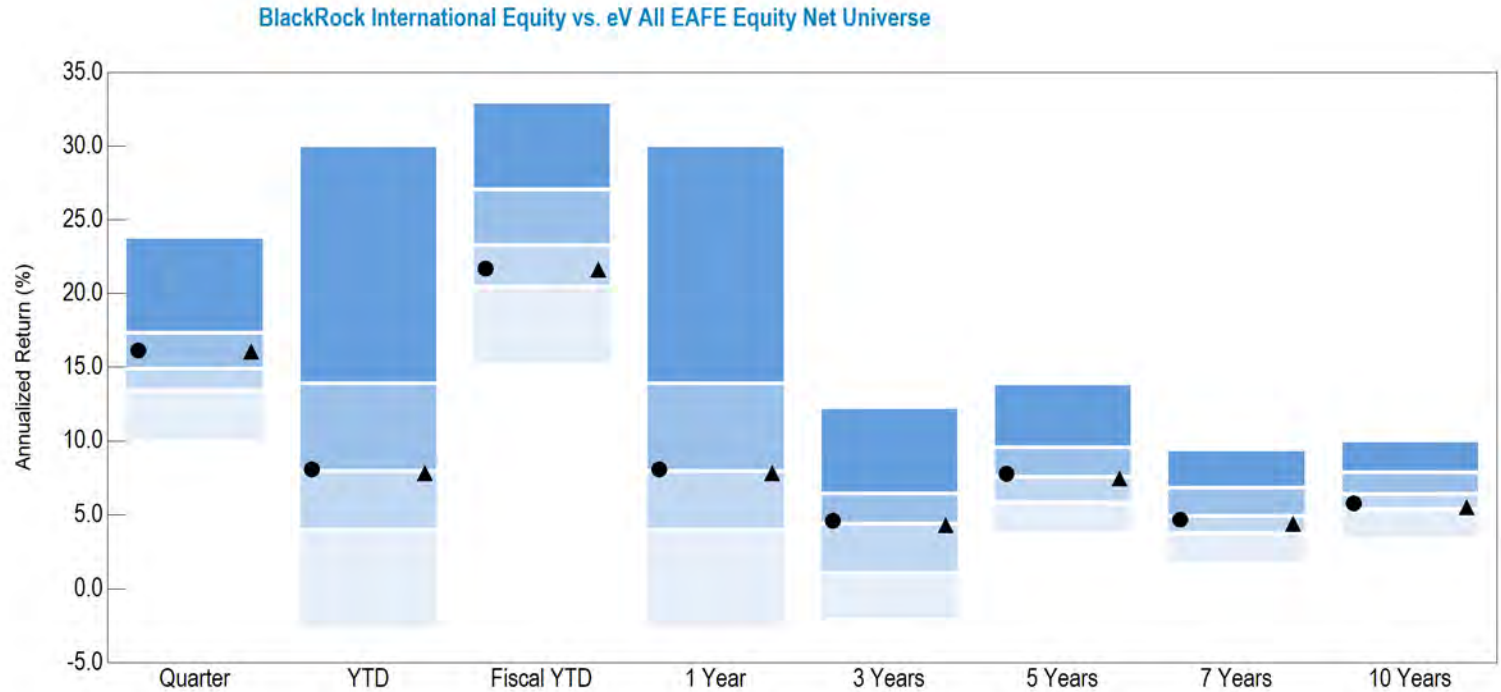


MSCI Effective Style Map
5 Years Ending Dec 31, 2020



BlackRock International Equity
Cumulative Performance Comparison (Net of Fees)

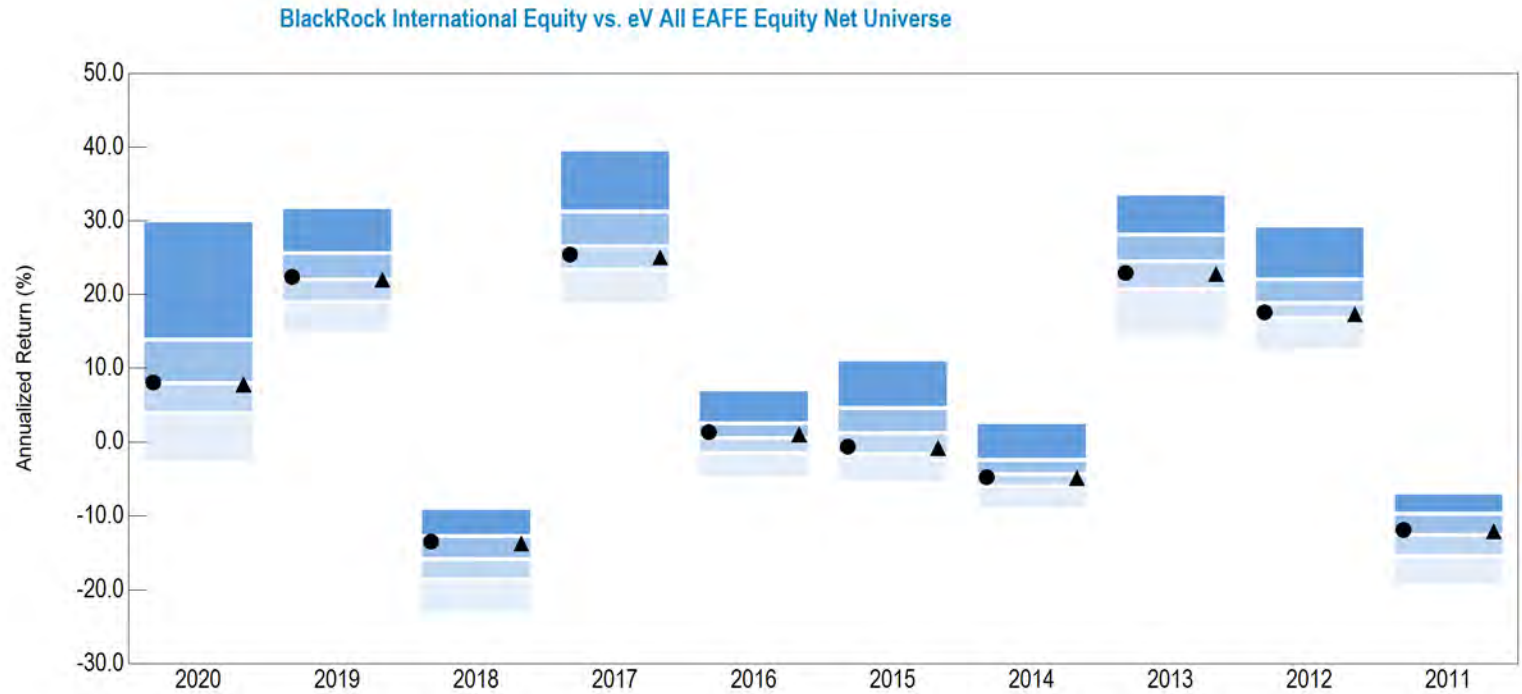
Period Ending: December 31, 2020



	Return (Rank)							
	Quarter	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	23.8	30.0	33.0	30.0	12.3	13.9	9.4	10.0
25th Percentile	17.4	13.9	27.1	13.9	6.5	9.6	6.8	7.9
Median	15.0	8.0	23.3	8.0	4.4	7.6	5.0	6.4
75th Percentile	13.5	4.0	20.5	4.0	1.1	5.9	3.8	5.4
95th Percentile	10.0	-2.7	15.2	-2.7	-2.0	3.7	1.7	3.3
# of Portfolios	245	245	245	245	233	210	183	148
● BlackRock International Equity	16.1 (35)	8.1 (48)	21.7 (61)	8.1 (48)	4.6 (46)	7.8 (47)	4.7 (57)	5.8 (64)
▲ MSCI EAFE	16.0 (37)	7.8 (53)	21.6 (64)	7.8 (53)	4.3 (53)	7.4 (54)	4.4 (62)	5.5 (73)

BlackRock International Equity
 Consecutive Performance Comparison (Net of Fees)

Period Ending: December 31, 2020

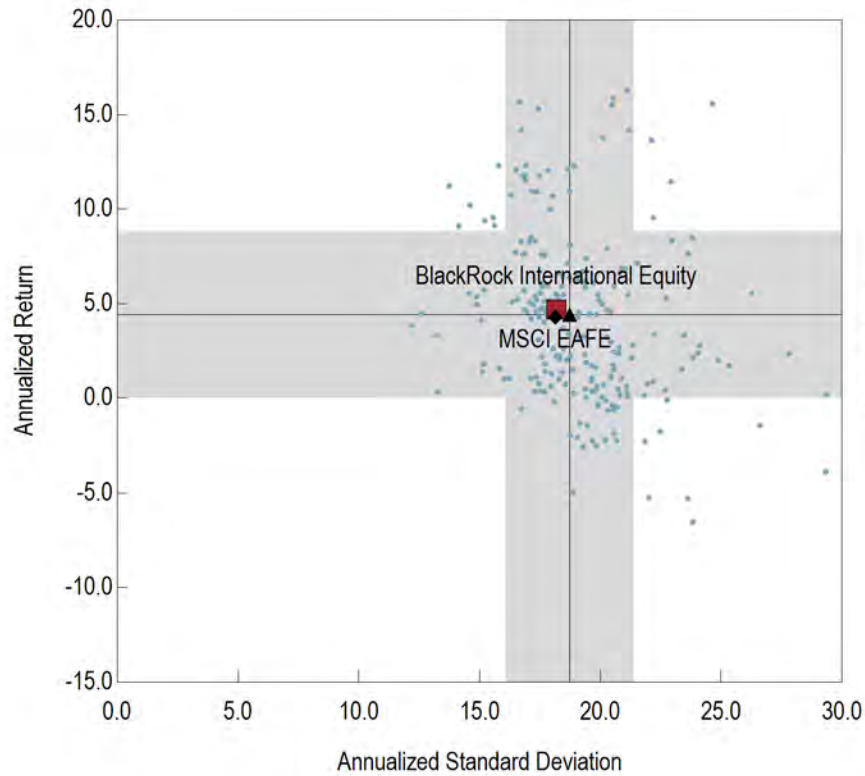


	Return (Rank)										
5th Percentile	30.0	31.9	-9.0	39.6	7.1	11.2	2.6	33.6	29.3	-6.9	
25th Percentile	13.9	25.7	-12.7	31.3	2.6	4.7	-2.4	28.2	22.1	-9.7	
Median	8.0	22.1	-15.8	26.6	0.6	1.2	-4.3	24.5	18.9	-12.6	
75th Percentile	4.0	19.1	-18.6	23.4	-1.5	-1.6	-6.0	20.8	16.9	-15.4	
95th Percentile	-2.7	14.7	-23.1	18.6	-5.0	-5.5	-9.1	14.3	12.5	-19.4	
# of Portfolios	245	255	243	232	215	188	164	151	144	129	
● BlackRock International Equity	8.1 (48)	22.4 (47)	-13.5 (33)	25.4 (60)	1.3 (37)	-0.6 (65)	-4.8 (58)	22.9 (63)	17.6 (69)	-11.9 (43)	
▲ MSCI EAFE	7.8 (53)	22.0 (52)	-13.8 (37)	25.0 (64)	1.0 (44)	-0.8 (67)	-4.9 (60)	22.8 (64)	17.3 (72)	-12.1 (45)	

BlackRock International Equity
 Risk vs Return Three & Five Year (Net of Fees)

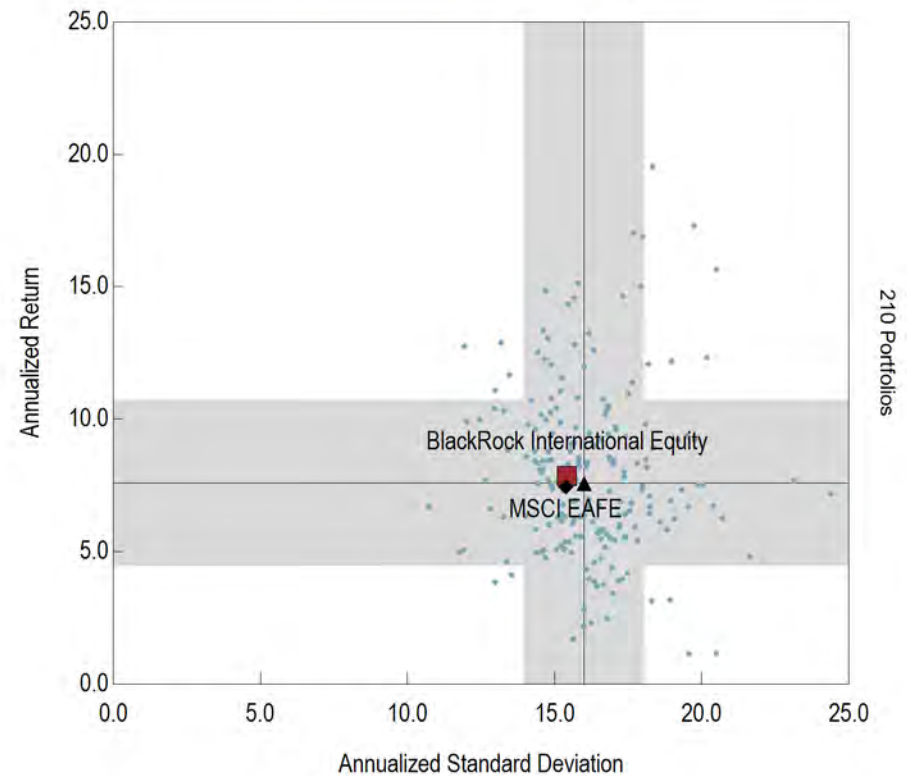
Period Ending: December 31, 2020

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2020



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

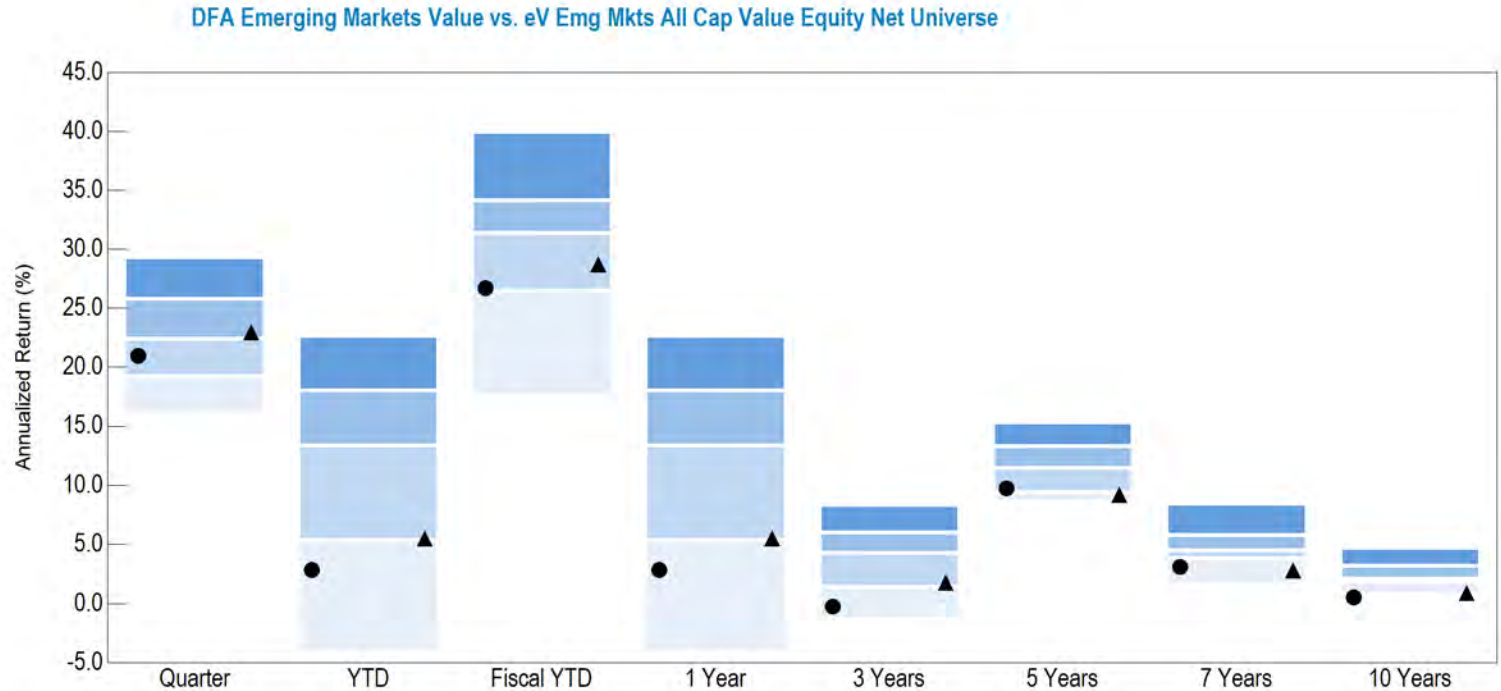
Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2020



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

DFA Emerging Markets Value
 Cumulative Performance Comparison (Net of Fees)

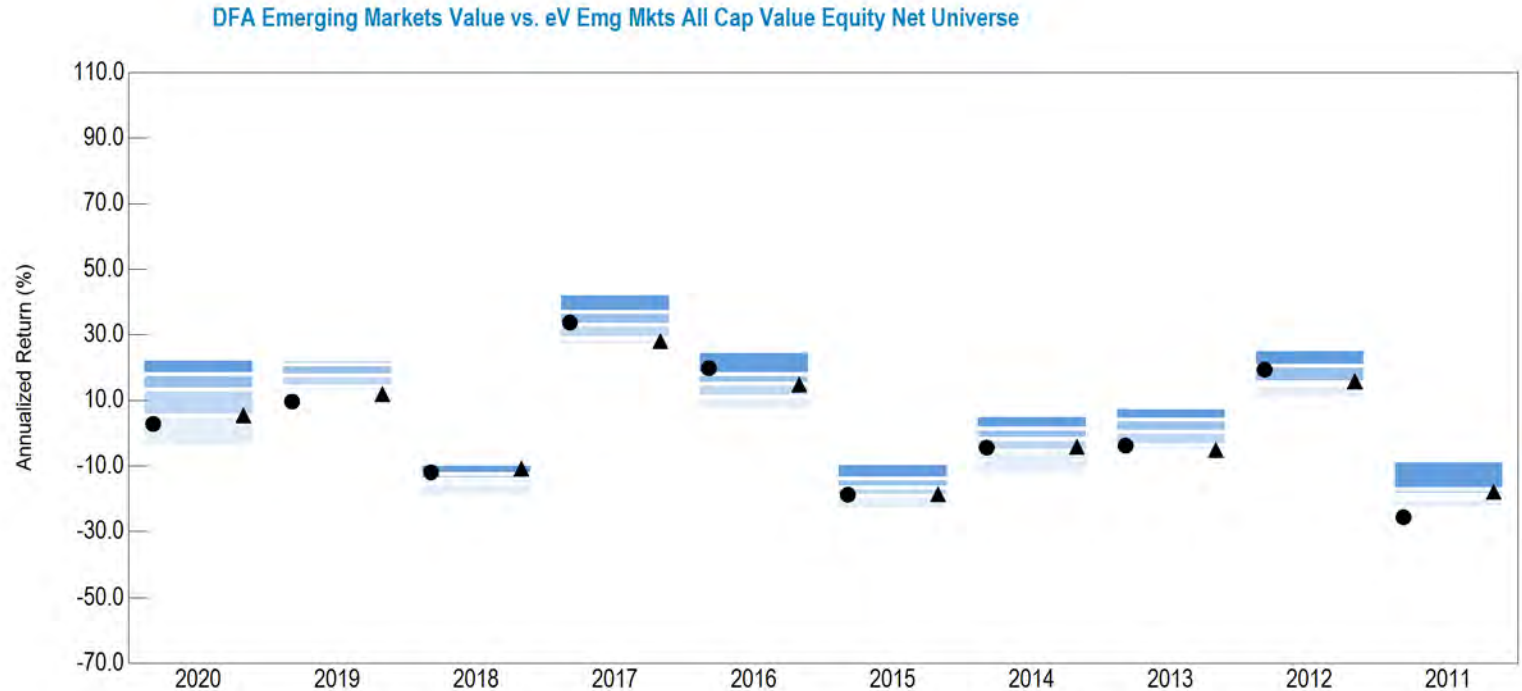
Period Ending: December 31, 2020



	Quarter		YTD		Fiscal YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	29.3		22.6		39.9		22.6		8.3		15.3		8.4		4.7	
25th Percentile	25.9		18.1		34.2		18.1		6.0		13.4		5.8		3.2	
Median	22.5		13.4		31.4		13.4		4.3		11.5		4.5		2.1	
75th Percentile	19.3		5.4		26.6		5.4		1.5		9.4		3.8		1.9	
95th Percentile	16.1		-4.0		17.6		-4.0		-1.2		8.6		1.7		0.8	
# of Portfolios	24		24		24		24		20		19		14		9	
● DFA Emerging Markets Value	21.0	(72)	2.8	(81)	26.7	(74)	2.8	(81)	-0.2	(88)	9.7	(73)	3.1	(85)	0.5	(99)
▲ MSCI Emerging Markets Value NR	23.0	(44)	5.5	(74)	28.7	(70)	5.5	(74)	1.8	(73)	9.2	(77)	2.8	(87)	0.9	(94)

DFA Emerging Markets Value
Consecutive Performance Comparison (Net of Fees)

Period Ending: December 31, 2020

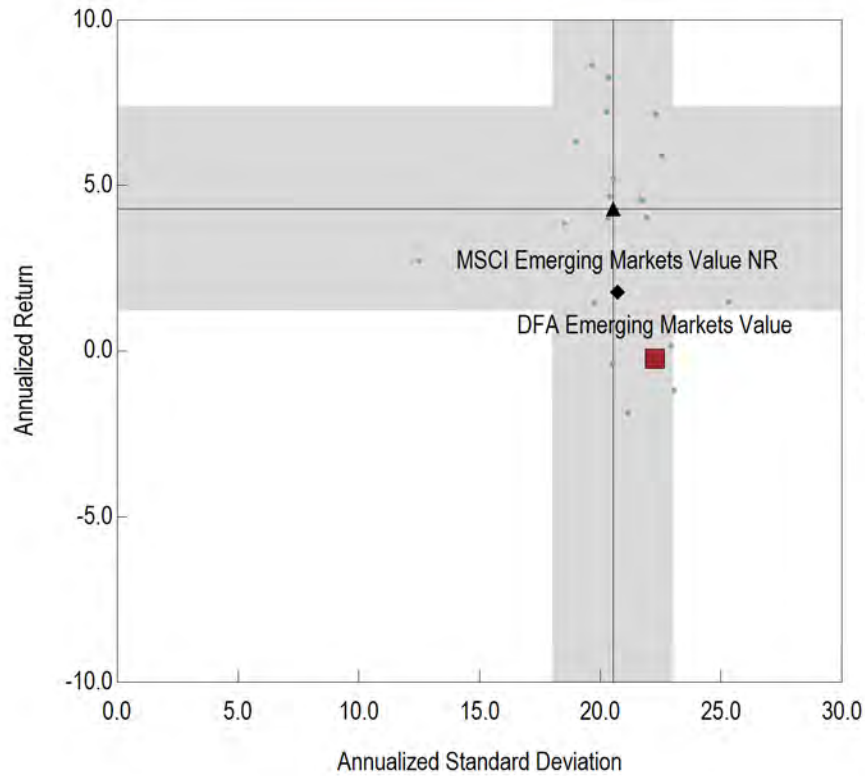


	Return (Rank)									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
5th Percentile	22.6	22.2	-9.4	42.6	25.1	-9.1	5.5	7.7	25.5	-8.5
25th Percentile	18.1	21.0	-12.3	37.2	18.2	-13.8	1.6	4.3	20.7	-17.0
Median	13.4	17.7	-14.0	33.1	15.1	-16.4	-1.6	0.6	15.6	-18.6
75th Percentile	5.4	14.4	-15.3	29.1	11.4	-19.0	-5.3	-3.6	14.8	-19.7
95th Percentile	-4.0	12.9	-19.2	26.9	7.2	-23.1	-12.1	-5.3	10.8	-22.7
# of Portfolios	24	22	25	22	22	20	18	16	11	11
● DFA Emerging Markets Value	2.8 (81)	9.6 (98)	-11.9 (20)	33.8 (49)	19.8 (22)	-18.8 (74)	-4.4 (73)	-3.8 (78)	19.4 (31)	-25.6 (99)
▲ MSCI Emerging Markets Value NR	5.5 (74)	12.0 (97)	-10.7 (15)	28.1 (87)	14.9 (52)	-18.6 (72)	-4.1 (72)	-5.1 (93)	15.9 (40)	-17.9 (38)

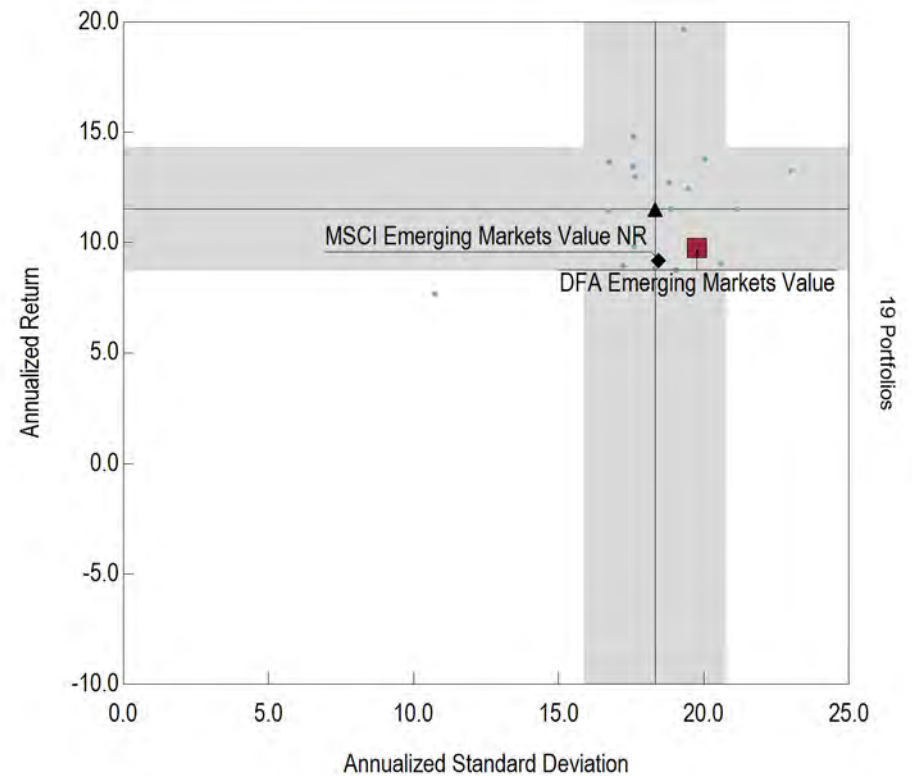
DFA Emerging Markets Value
Risk vs Return Three & Five Year (Net of Fees)

Period Ending: December 31, 2020

Annualized Return vs. Annualized Standard Deviation
3 Years Ending December 31, 2020



Annualized Return vs. Annualized Standard Deviation
5 Years Ending December 31, 2020



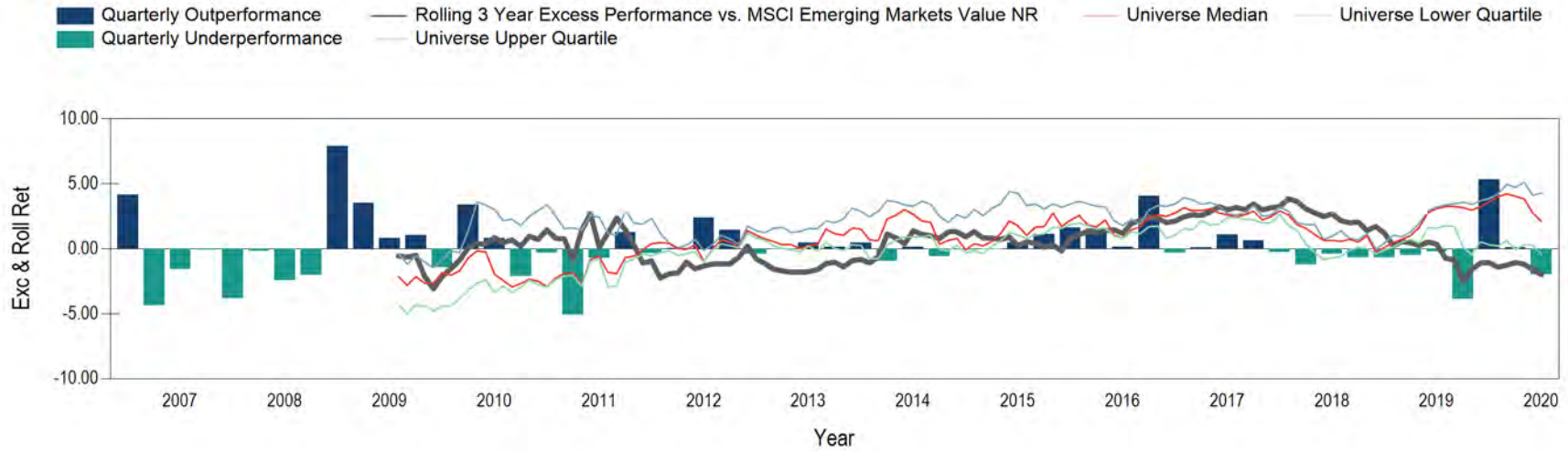
- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Value NR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Value Equity Net

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

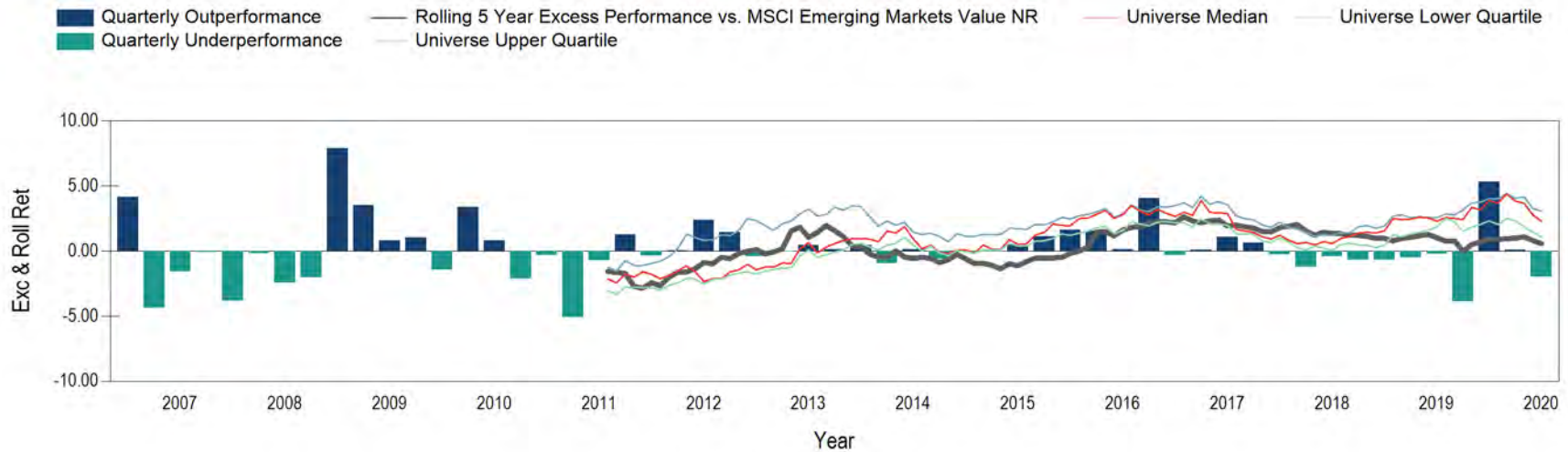
DFA Emerging Markets Value
Rolling Return Analysis (Net of Fees)

Period Ending: December 31, 2020

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

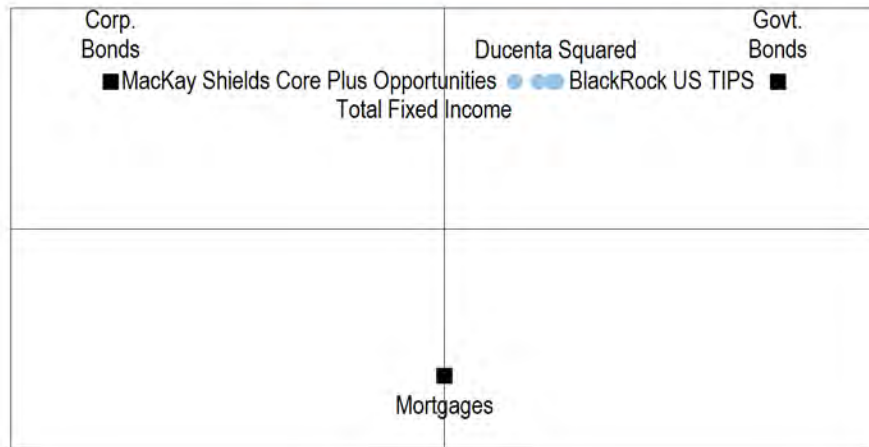


Total Fixed Income
Asset Class Overview (Net of Fees)

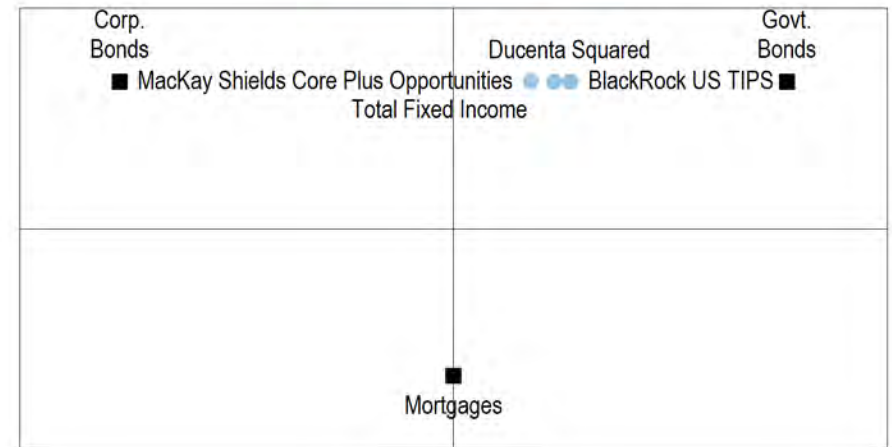
Period Ending: December 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Fixed Income	244,170,142	1.9	3.8	9.8	6.1	5.4	4.5	9.8	9.5	-0.8	4.3	4.8
BBgBarc US Aggregate TR		0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6
InvMetrics Public DB Total Fix Inc Net Rank		49	47	7	10	35	38	7	32	59	62	43
Ducenta Squared	101,144,166	1.7	3.1	9.1	6.2	5.5	5.0	9.1	9.9	-0.1	4.3	4.8
BBgBarc US Aggregate TR		0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6
eV US Core Plus Fixed Inc Net Rank		65	73	35	33	34	32	35	45	23	74	41
MacKay Shields Core Plus Opportunities	99,153,241	2.2	4.2	9.9	6.1	5.5	--	9.9	9.7	-1.0	4.5	4.7
BBgBarc US Aggregate TR		0.7	1.3	7.5	5.3	4.4	--	7.5	8.7	0.0	3.5	2.6
eV US Core Plus Fixed Inc Net Rank		40	32	23	38	39	--	23	54	75	62	47
BlackRock US TIPS	43,872,734	1.6	4.8	11.2	6.0	5.2	3.9	11.2	8.5	-1.2	3.2	4.8
BBgBarc US TIPS TR		1.6	4.7	11.0	5.9	5.1	3.8	11.0	8.4	-1.3	3.0	4.7
eV US TIPS / Inflation Fixed Inc Net Rank		66	65	33	40	48	20	33	53	36	47	43

Fixed Income Style Map
3 Years Ending December 31, 2020



Fixed Income Style Map
5 Years Ending December 31, 2020



Total Fixed Income

Asset Class Overview (Net of Fees)

Period Ending: December 31, 2020

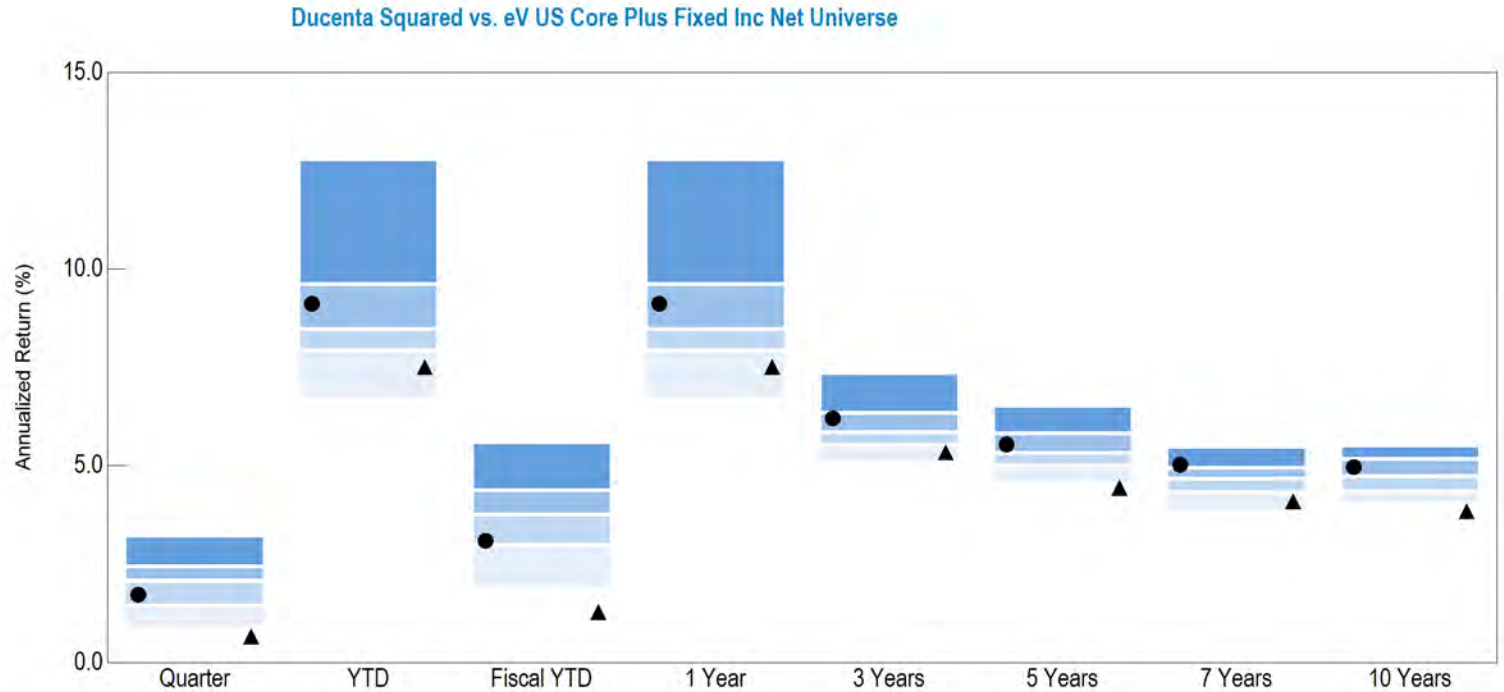
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Fixed Income	244,170,142	1.9	3.8	9.8	6.1	5.4	4.5	9.8	9.5	-0.8	4.3	4.8
<i>BBgBarc US Aggregate TR</i>		0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6
Ducenta Squared	101,144,166	1.7	3.1	9.1	6.2	5.5	5.0	9.1	9.9	-0.1	4.3	4.8
<i>BBgBarc US Aggregate TR</i>		0.7	1.3	7.5	5.3	4.4	3.8	7.5	8.7	0.0	3.5	2.6
MacKay Shields Core Plus Opportunities	99,153,241	2.2	4.2	9.9	6.1	5.5	--	9.9	9.7	-1.0	4.5	4.7
<i>BBgBarc US Aggregate TR</i>		0.7	1.3	7.5	5.3	4.4	--	7.5	8.7	0.0	3.5	2.6
BlackRock US TIPS	43,872,734	1.6	4.8	11.2	6.0	5.2	3.9	11.2	8.5	-1.2	3.2	4.8
<i>BBgBarc US TIPS TR</i>		1.6	4.7	11.0	5.9	5.1	3.8	11.0	8.4	-1.3	3.0	4.7

Correlation Matrix
Last 5 Years

	Total Fixed Income	Ducenta Squared	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR
Total Fixed Income	1.00	--	--	--	--
Ducenta Squared	0.99	1.00	--	--	--
MacKay Shields Core Plus Opportunities	0.99	0.97	1.00	--	--
BlackRock US TIPS	0.88	0.85	0.83	1.00	--
BBgBarc US Aggregate TR	0.85	0.90	0.79	0.76	1.00

Ducenta Squared
Cumulative Performance Comparison (Net of Fees)

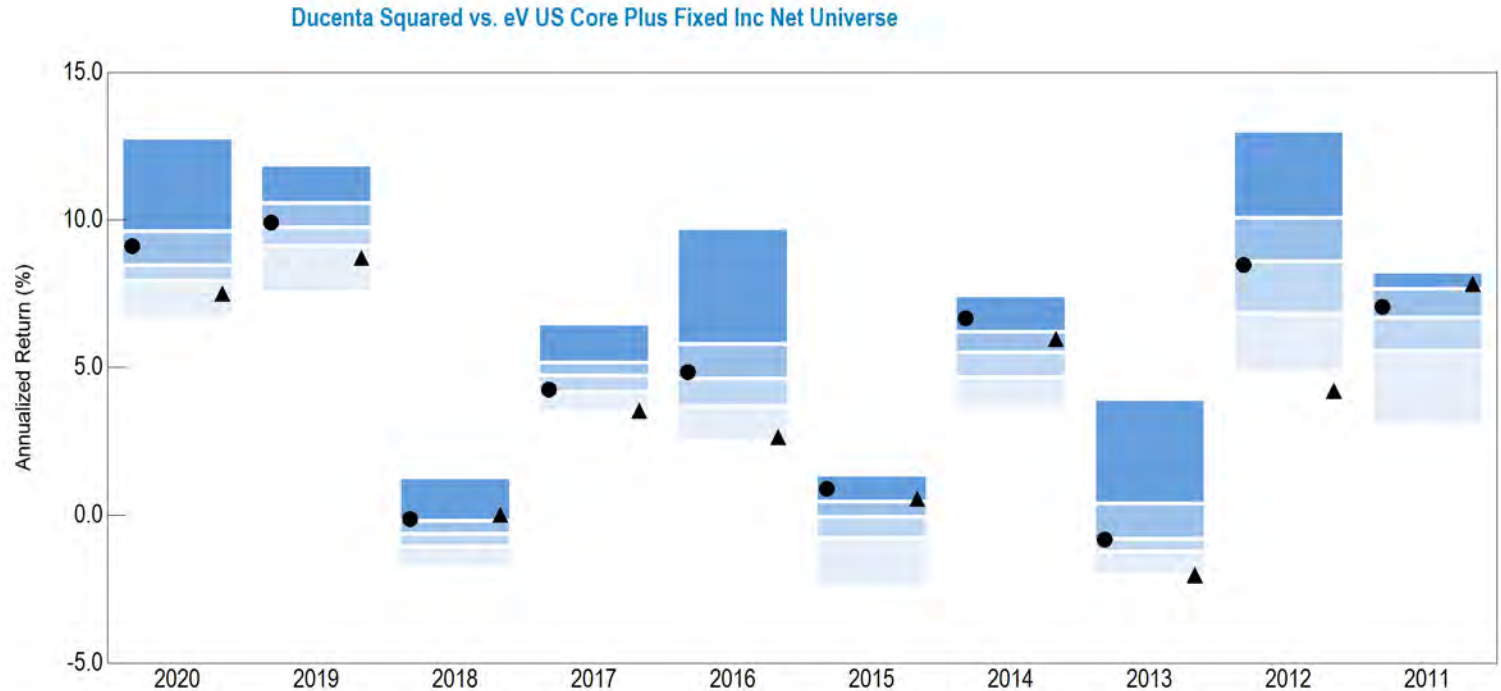
Period Ending: December 31, 2020



	Return (Rank)							
	Quarter	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	3.2	12.8	5.6	12.8	7.3	6.5	5.5	5.5
25th Percentile	2.4	9.6	4.4	9.6	6.4	5.8	5.0	5.2
Median	2.1	8.5	3.8	8.5	5.9	5.3	4.7	4.7
75th Percentile	1.5	8.0	3.0	8.0	5.5	5.0	4.3	4.4
95th Percentile	0.9	6.7	1.9	6.7	5.1	4.5	3.8	4.0
# of Portfolios	86	86	86	86	80	79	74	71
● Ducenta Squared	1.7 (65)	9.1 (35)	3.1 (73)	9.1 (35)	6.2 (33)	5.5 (34)	5.0 (21)	5.0 (32)
▲ BBgBarc US Aggregate TR	0.7 (99)	7.5 (86)	1.3 (99)	7.5 (86)	5.3 (84)	4.4 (97)	4.1 (89)	3.8 (98)

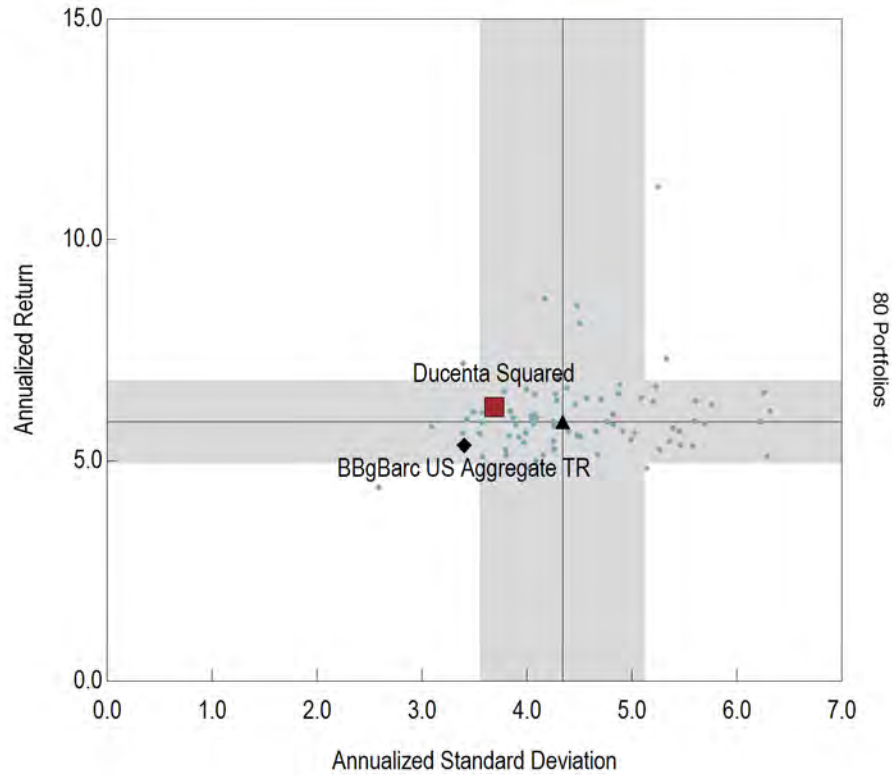
Ducenta Squared
 Consecutive Performance Comparison (Net of Fees)

Period Ending: December 31, 2020



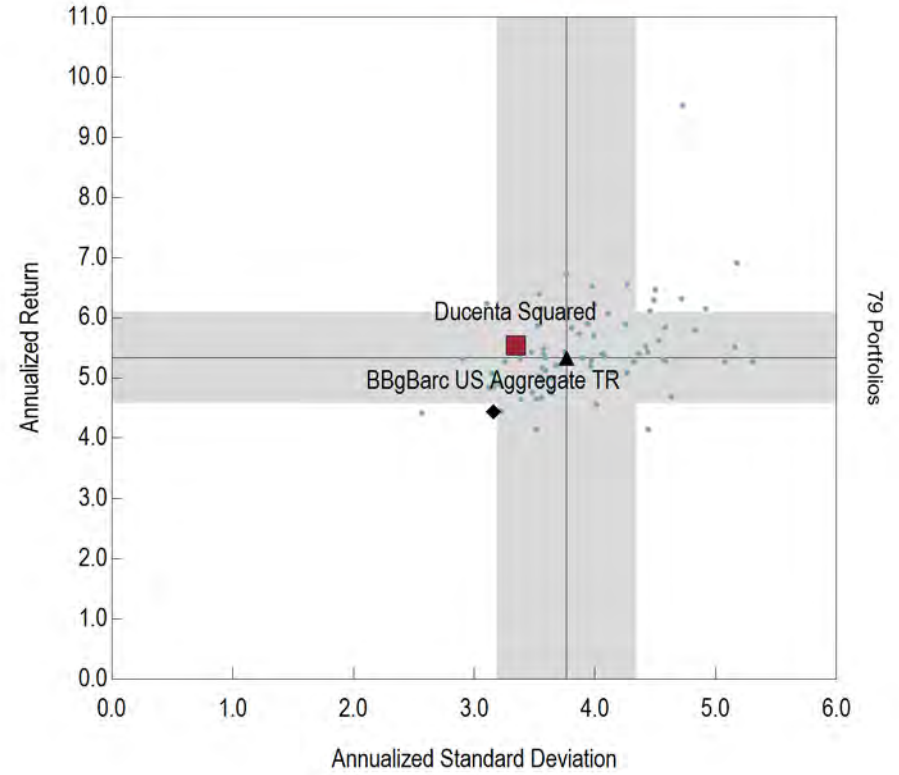
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Return (Rank)										
5th Percentile	12.8	11.9	1.3	6.5	9.7	1.4	7.4	3.9	13.0	8.2
25th Percentile	9.6	10.6	-0.2	5.2	5.8	0.5	6.2	0.4	10.1	7.7
Median	8.5	9.8	-0.6	4.7	4.6	-0.1	5.5	-0.8	8.6	6.7
75th Percentile	8.0	9.1	-1.0	4.2	3.7	-0.8	4.7	-1.2	6.9	5.6
95th Percentile	6.7	7.6	-1.7	3.5	2.5	-2.4	3.6	-2.0	4.9	3.0
# of Portfolios	86	86	77	80	84	71	71	65	64	54
● Ducenta Squared	9.1 (35)	9.9 (45)	-0.1 (23)	4.3 (74)	4.8 (41)	0.9 (12)	6.7 (17)	-0.8 (53)	8.5 (54)	7.1 (40)
▲ BBgBarc US Aggregate TR	7.5 (86)	8.7 (85)	0.0 (21)	3.5 (95)	2.6 (93)	0.6 (22)	6.0 (35)	-2.0 (96)	4.2 (96)	7.8 (17)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2020



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

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2020

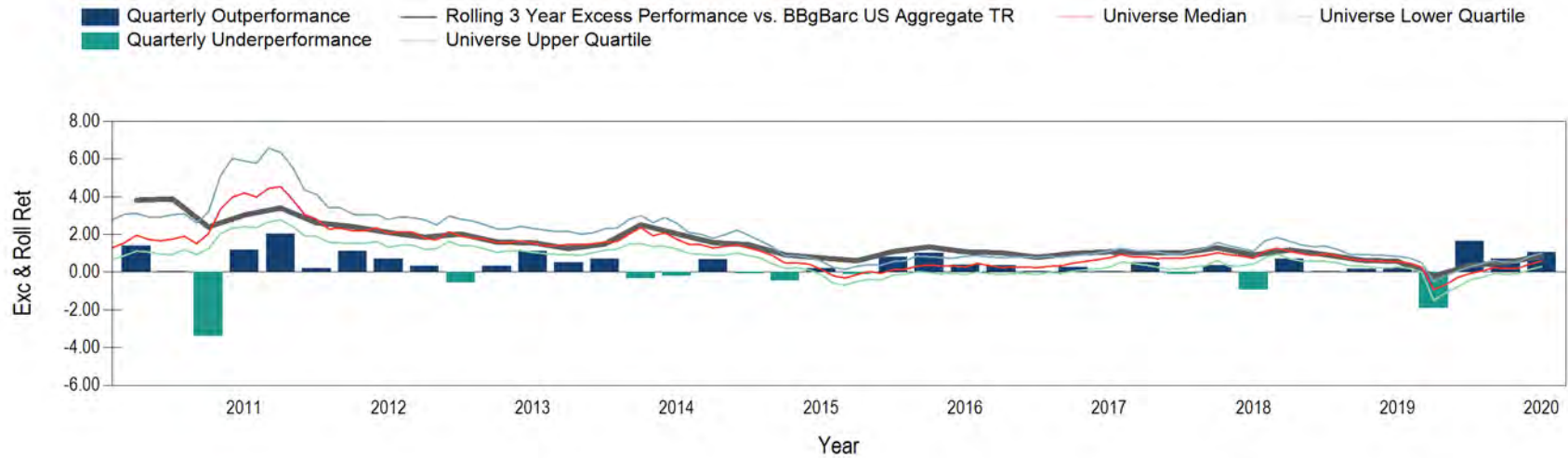


- Ducenta Squared
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Net

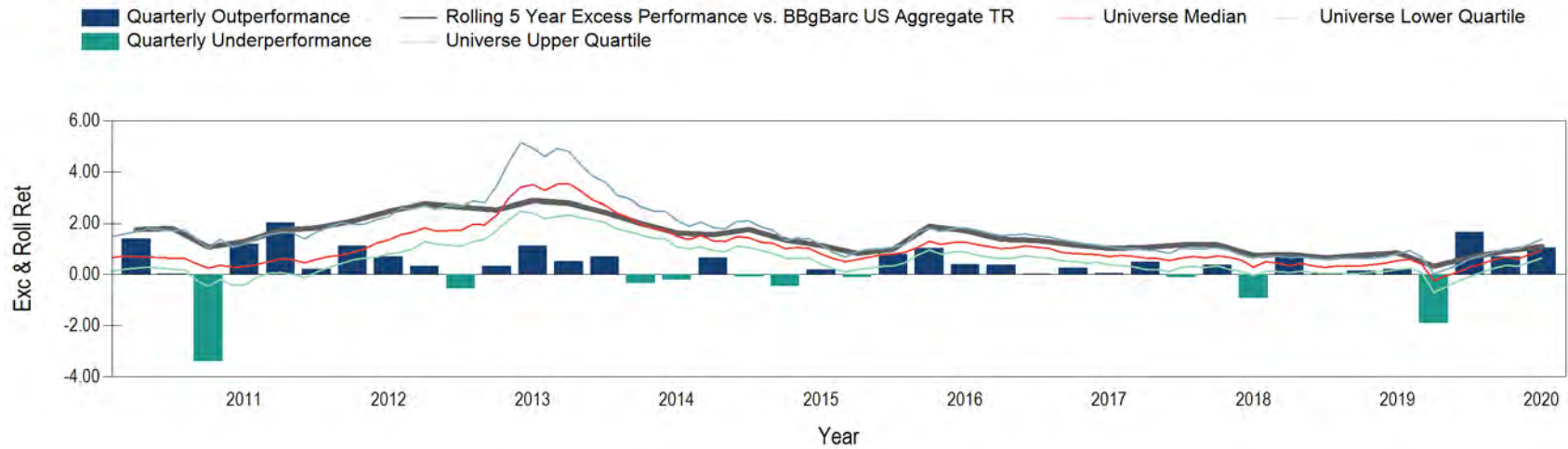
Ducenta Squared
 Rolling Return Analysis (Net of Fees)

Period Ending: December 31, 2020

Rolling 3 Year Annualized Excess Performance



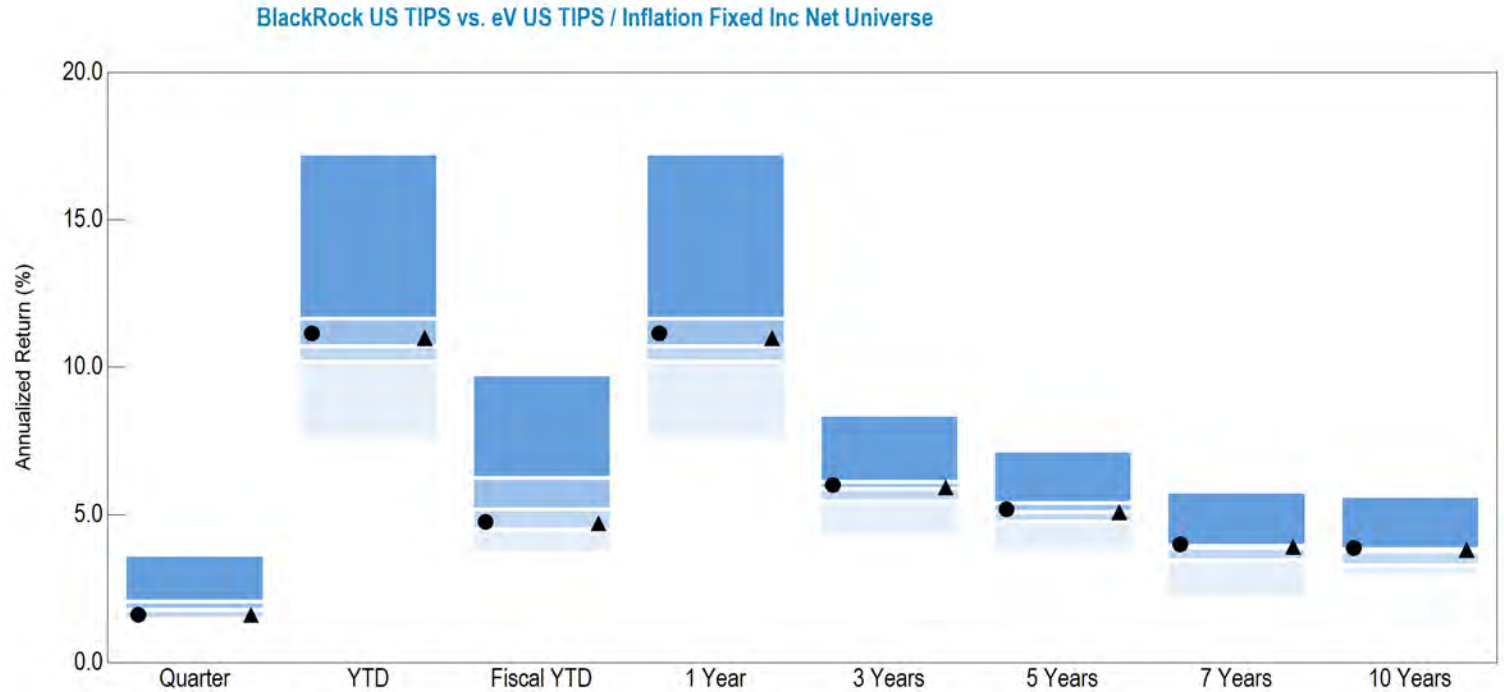
Rolling 5 Year Annualized Excess Performance



BlackRock US TIPS

Cumulative Performance Comparison (Net of Fees)

Period Ending: December 31, 2020

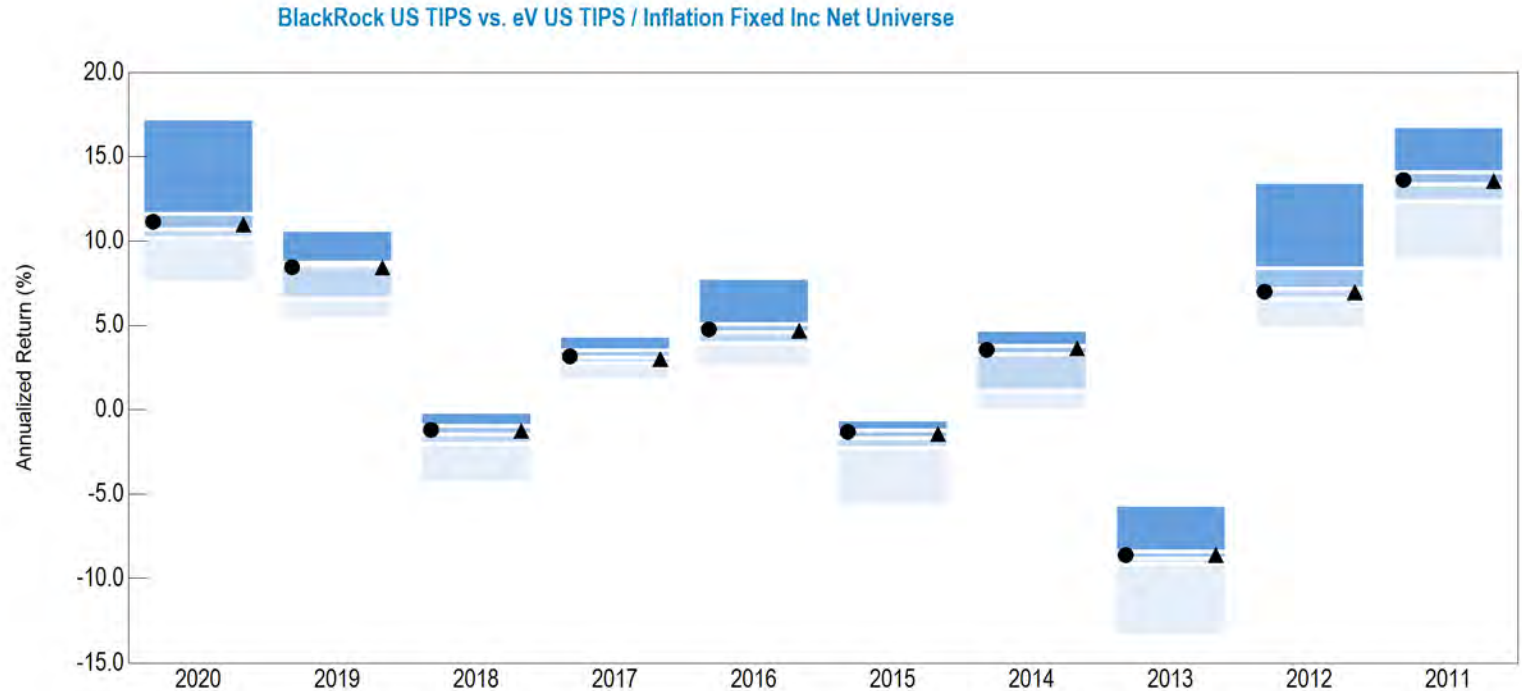


	Return (Rank)							
	Quarter	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	3.6	17.2	9.7	17.2	8.4	7.2	5.8	5.6
25th Percentile	2.1	11.7	6.2	11.7	6.1	5.4	3.9	3.8
Median	1.8	10.7	5.2	10.7	5.9	5.1	3.9	3.8
75th Percentile	1.5	10.2	4.5	10.2	5.5	4.8	3.5	3.3
95th Percentile	1.4	7.6	3.7	7.6	4.3	3.8	2.3	2.9
# of Portfolios	16	16	16	16	15	15	13	11
● BlackRock US TIPS	1.6 (66)	11.2 (33)	4.8 (65)	11.2 (33)	6.0 (40)	5.2 (48)	4.0 (17)	3.9 (20)
▲ BBgBarc US TIPS TR	1.6 (67)	11.0 (40)	4.7 (66)	11.0 (40)	5.9 (48)	5.1 (53)	3.9 (35)	3.8 (33)

BlackRock US TIPS

Consecutive Performance Comparison (Net of Fees)

Period Ending: December 31, 2020

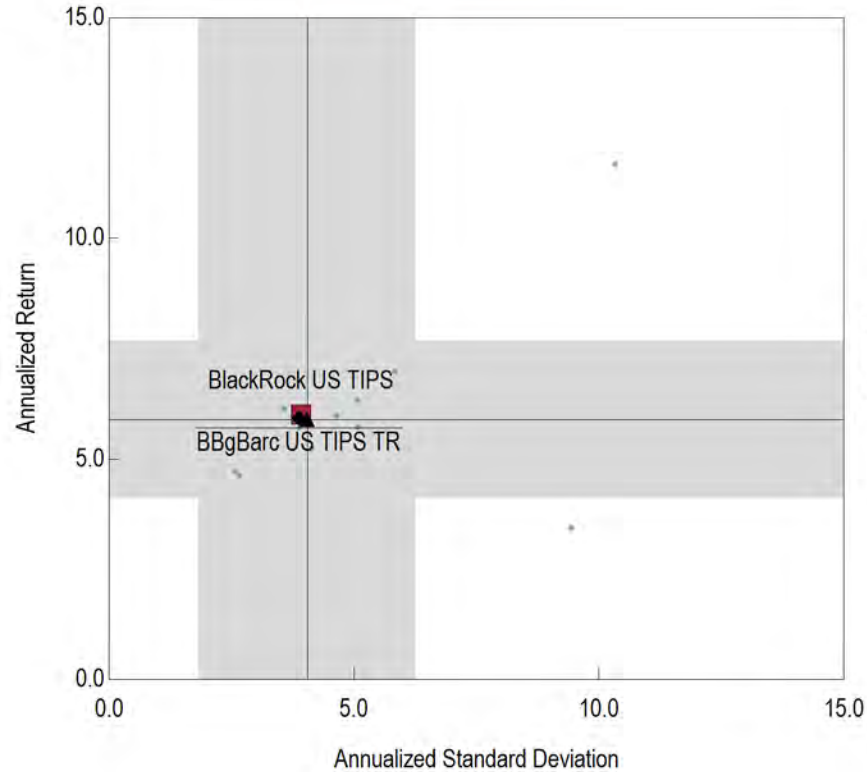


	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Return (Rank)										
5th Percentile	17.2	10.7	-0.1	4.4	7.8	-0.6	4.7	-5.6	13.5	16.8
25th Percentile	11.7	8.7	-0.9	3.5	5.1	-1.2	3.8	-8.4	8.4	14.1
Median	10.7	8.5	-1.4	3.1	4.6	-1.6	3.3	-8.8	7.2	13.4
75th Percentile	10.2	6.6	-2.0	2.8	3.9	-2.2	1.2	-9.1	6.6	12.4
95th Percentile	7.6	5.4	-4.3	1.7	2.5	-5.7	0.0	-13.3	4.8	8.9
# of Portfolios	16	19	21	20	22	22	24	19	17	16
● BlackRock US TIPS	11.2 (33)	8.5 (53)	-1.2 (36)	3.2 (47)	4.8 (43)	-1.3 (30)	3.6 (39)	-8.6 (44)	7.0 (61)	13.6 (38)
▲ BBgBarc US TIPS TR	11.0 (40)	8.4 (54)	-1.3 (39)	3.0 (57)	4.7 (49)	-1.4 (33)	3.6 (37)	-8.6 (44)	7.0 (62)	13.6 (40)

BlackRock US TIPS
 Risk vs Return Three & Five Year (Net of Fees)

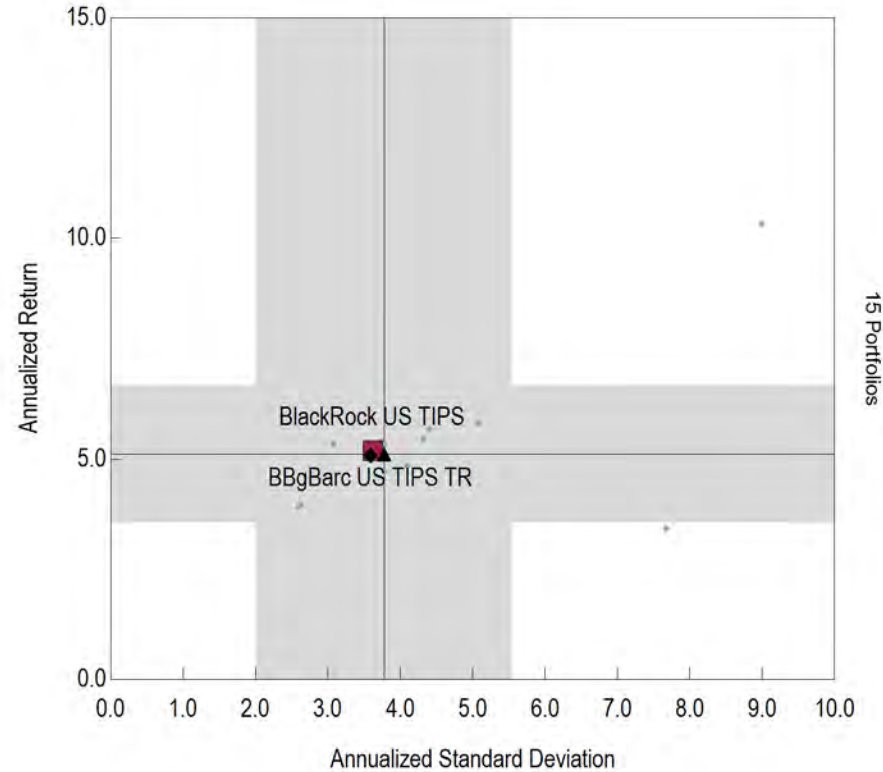
Period Ending: December 31, 2020

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2020



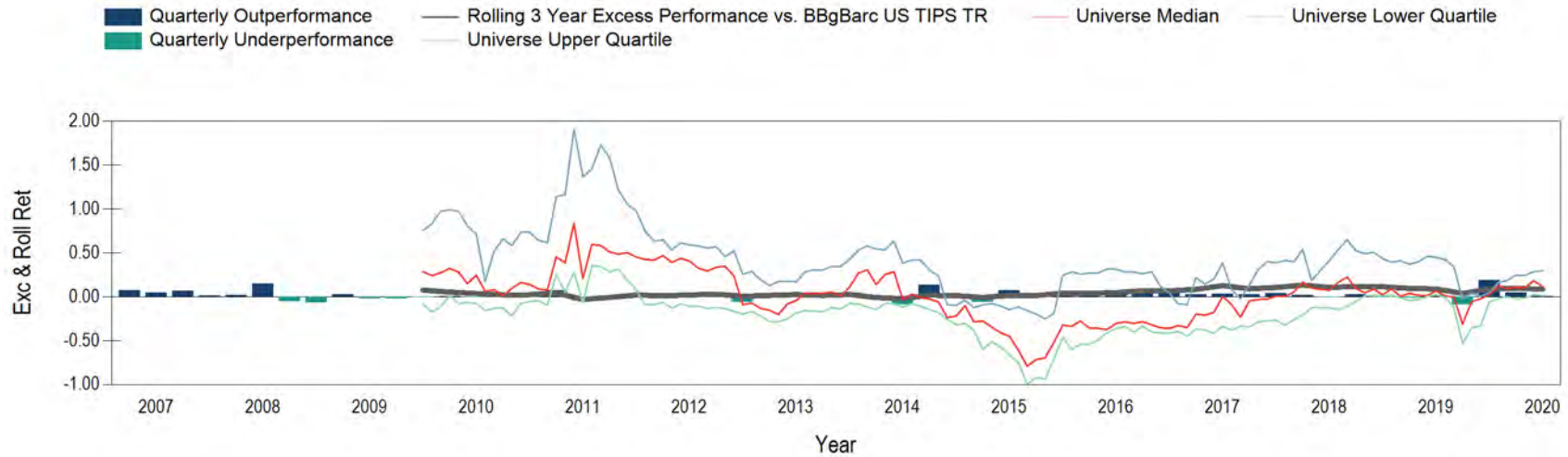
- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Net

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2020

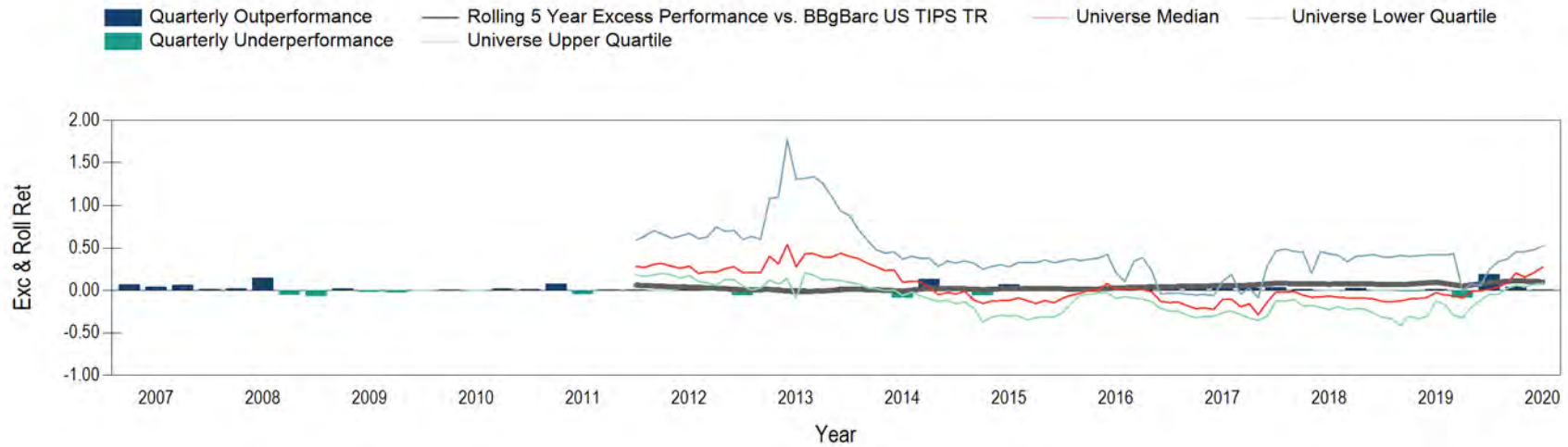


- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Net

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

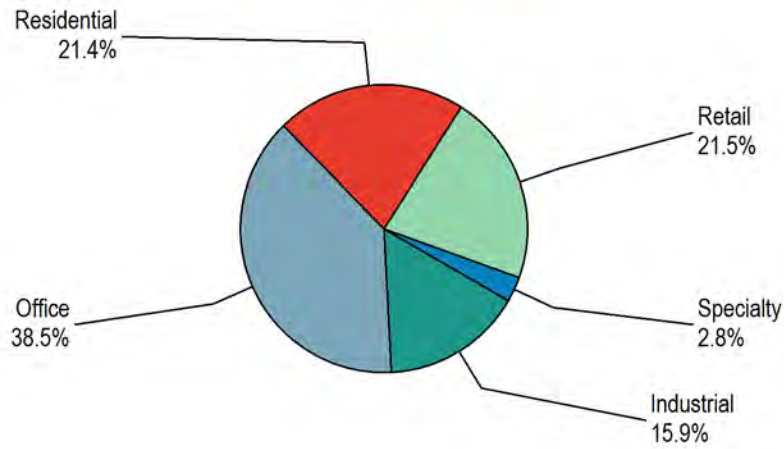


Total Real Estate
Asset Class Overview (Net of Fees)

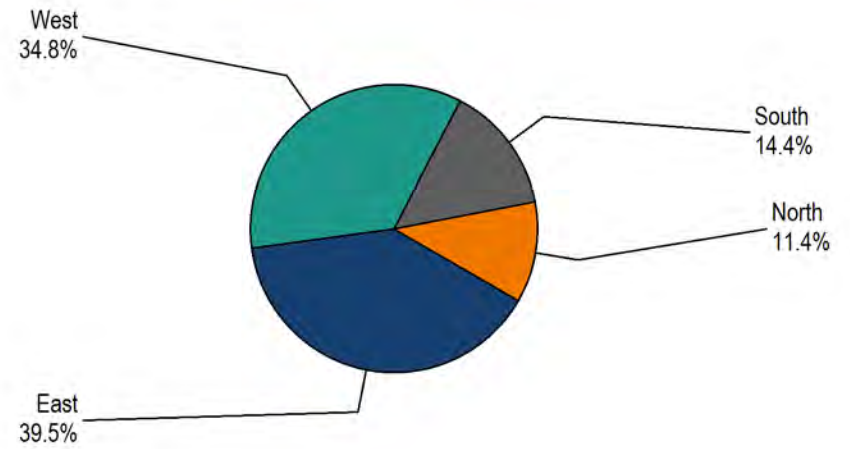
Period Ending: December 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Real Estate	97,772,409	1.2	1.6	2.1	5.1	5.5	9.0	2.1	5.7	7.5	5.8	6.5
<i>NCREIF Property Index</i>		1.2	1.9	1.6	4.9	5.9	9.0	1.6	6.4	6.7	7.0	8.0
<i>NCREIF ODCE Net</i>		1.1	1.4	0.3	4.0	5.3	8.9	0.3	4.4	7.4	6.7	7.8
ASB Real Estate	28,373,770	0.9	0.8	1.5	3.7	3.9	--	1.5	3.0	6.6	4.0	4.6
<i>NCREIF Property Index</i>		1.2	1.9	1.6	4.9	5.9	--	1.6	6.4	6.7	7.0	8.0
<i>NCREIF ODCE Net</i>		1.1	1.4	0.3	4.0	5.3	--	0.3	4.4	7.4	6.7	7.8
Clarion Lion	29,172,266	2.0	2.7	2.3	5.8	6.7	9.9	2.3	6.8	8.6	7.9	8.0
<i>NCREIF Property Index</i>		1.2	1.9	1.6	4.9	5.9	9.0	1.6	6.4	6.7	7.0	8.0
<i>NCREIF ODCE Net</i>		1.1	1.4	0.3	4.0	5.3	8.9	0.3	4.4	7.4	6.7	7.8
ARA American Strategic Value Realty	38,284,262	0.9	1.4	2.4	--	--	--	2.4	7.8	--	--	--
<i>NCREIF Property Index +2%</i>		1.7	2.9	3.6	--	--	--	3.6	8.5	--	--	--
<i>NCREIF ODCE +2%</i>		1.8	2.8	3.2	--	--	--	3.2	7.4	--	--	--
1221 State St. Corp	1,942,112	0.0	0.0	0.0	2.6	4.9	1.4	0.0	7.9	0.0	0.0	17.5

Property Type Allocation
Allocation as of December 31, 2020



Geographic Diversification
Allocation as of December 31, 2020



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

Performance Return Calculations

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

Data Source

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

Illiquid Alternatives

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

Manager Line Up

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

¹Represents fund vintage year.

Policy & Custom Index Composition

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

Private Equity Benchmark and Private Credit Benchmarks are equal to the actual private equity and private credit returns, respectively.

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: $\text{excess return} / \text{tracking error}$.

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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