

PERIOD ENDING: MARCH 31, 2020
Investment Performance Review for

Imperial County Employees' Retirement System

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VERUSINVESTMENTS.COM

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Review



Recent Verus research

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

Annual outlooks

ACTIVE MANAGEMENT ENVIRONMENT

Our work on active management addresses some shortfalls of the traditional analysis, which uses the median product to describe the active management universe as a whole. These improvements and insights have allowed us to better understand product behavior and may allow for more informed selection in the future.

Sound thinking

TEN THOUGHTS FOR 2020

A new year begins, and with it comes an opportunity to assess whether the correct areas were focused on in the previous year, and to create new suggested topics of interest for the year ahead. In this piece, our CIO, Ian Toner, will try to help investors prioritize shorter-term actions they might take, while addressing longer-term issues to improve their success.

THE JUDGMENTAL WAITER

In this piece our CIO, Ian Toner, lays out how Verus is approaching the challenge of building customized ESG advice and service to each of our clients, and outlines the significant resource commitment Verus is making during 2020 and beyond to provide that tailored support.

COVID-19

MARKET UPDATE 3/17/20

The first few weeks of March have been almost unprecedented in terms of market volatility and behavior. The combination of health concerns and oil market disruption has led to market moves of a type that we rarely see. Underlying this, there is also a real human concern about our families, and the human effect on people we love as the coronavirus spreads. So what are long term investors to do?

MARKET UPDATE 4/9/20

The COVID-19 crisis has had a sudden impact on the capital markets, which has been made worse by the recent disruption in the oil market. Now is a good time for investors to take stock of the possible intermediate and long-term implications of these disruptions, as well as to try to assess the possible short-term factors which might cause further market disruption.

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1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate). Companies drew down inventories, which detracted 1% from growth. Investors appear to be bracing for an unprecedented slowdown of the economy during the first half of 2020, due to the coronavirus outbreak. Forecasts of Q2 GDP growth have varied between -15% to -35%. p. 9
- The U.S. government quickly crafted and implemented historic stimulus measures to combat the economic impact of the virus. Support of this magnitude has not been seen since the Great Depression of the 1930s. p. 10

PORTFOLIO IMPACTS

- U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19. During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%. p. 25
- U.S. core inflation increased 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have persistent effects in future months. Downward pressure could be compounded as households slow spending due to loss of income and a greater propensity to save rather than spend. p. 11

THE INVESTMENT CLIMATE

- In mid-March, the Federal Open Market Committee cut interest rates by a full 1.00% to a new range of 0 0.25%.
 This surprise action was taken on a Sunday with the intent to get out ahead of economic impacts of COVID-19. p. 19
- Implied volatility spiked in March to a record daily close of 82.7%, surpassing the high of 80.9% reached in November 2008 during the depths of the global financial crisis. p. 32
- Central banks are facing an economic slowdown and need for monetary policy support, but very little room to cut interest rates. This is a risk that has been discussed for years. We believe fiscal policies will play a much larger role in addressing the inevitable economic slowdown. p. 19

ASSET ALLOCATION ISSUES

- Risk markets experienced one of the most sudden corrections on record, amidst extreme volatility. The S&P 500 showed its largest one-day drop since 1987 (March 16 -11.98%) and its largest one-day gain since 2008 (March 24 +9.38%). Implied volatility reached global financial crisis levels, and high yield credit spreads temporarily expanded above 11%. Some of these losses were recovered toward the end of March as the market rebounded. p. 27
- The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in losses for investors with unhedged currency exposure. p. 36

An underweight risk stance appears appropriate in today's environment

We remain watchful for investment opportunities

What drove the market in Q1?

"World Health Organization declares the coronavirus outbreak a global pandemic"

GLOBAL CONFIRMED COVID-19 CASES

1/31	2/15	2/29	3/15	3/31	4/15
11,374	69,267	86,351	164,403	857,778	2,077,469

Article Source: CNBC, March 11th, 2020

"Vix Hits Highest Level Since the Financial Crisis as Volatility Soars"

CBOE VIX INDEX

Oct	Nov	Dec	Jan	Feb	Mar
13.22	12.62	13.78	18.84	40.11	53.54
Article Source	· Barron's Marc	h 9 th 2020			

"Fed announces unlimited QE and sets up several new lending programs"

FEDERAL RESERVE BALANCE SHEET (USD TRILLIONS)

3/4	3/11	3/18	3/25	4/1	4/8
4.3	4.4	4.7	5.3	5.9	6.1

Article Source: MarketWatch, March 23rd, 2020

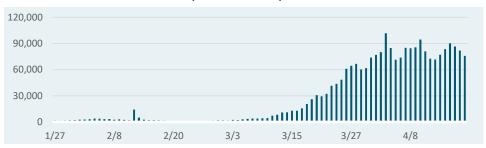
"Coronavirus job losses could total 47 million, unemployment rate may hit 32 percent, Fed estimates"

INITIAL WEEKLY JOBLESS CLAIMS

3/6	3/13	3/20	3/27	4/3	4/10
211,000	282,000	3,307,000	6,867,000	6,615,000	5,245,000

Article Source: NBC News, March 30th, 2020

DAILY NEW COVID-19 CASES (WORLDWIDE)



Source: Worldometer, as of 4/19/20

S&P 500 INDEX 1-DAY PERCENTAGE PRICE MOVE



Source: Standard & Poor's, Bloomberg, as of 3/31/20

FEDERAL RESERVE BALANCE SHEET (USD TRILLIONS)



Source: Federal Reserve, as of 4/8/20



Economic environment



U.S. economics summary

- Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate).
 Companies drew down inventories, which detracted -1% from growth. Investors appear to be bracing for an unprecedented slowdown of the economy during the first half of 2020, due to COVID-19. Forecasts of Q2 GDP growth have varied between -15% to -35%.
- The U.S. government quickly crafted and implemented historic stimulus measures to combat the economic impacts of the virus.
 Support of this magnitude has not been seen since the Great Depression of the 1930s.
- U.S. core inflation rose 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have persistent effects in the coming months. This downward pressure could be compounded as households slow spending due to loss of income and show a greater

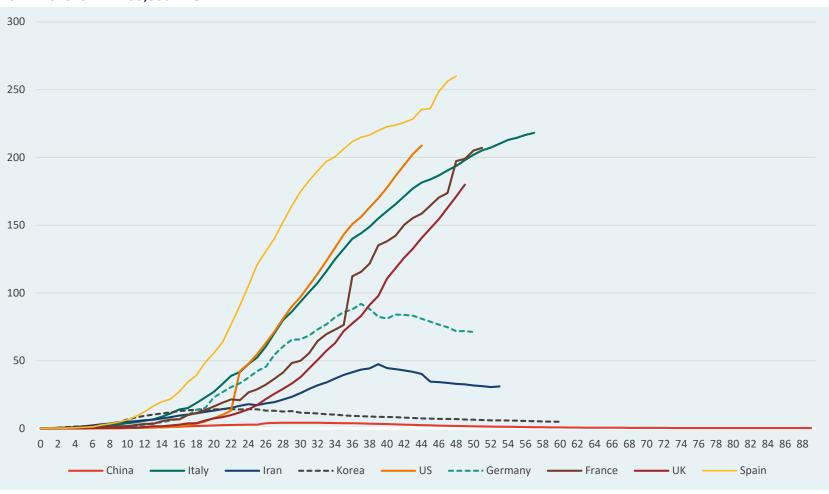
- propensity to save.
- The U.S. labor market exhibited a sharp weakening in March, as unemployment jumped to 4.4%.
 Some have estimated the true unemployment rate in April to be above 10%.
- March economic data should not be expected to fully reflect the extent of COVID-19. We are watching daily data releases to gain a better understanding of how conditions are evolving.
- The Bloomberg Consumer Comfort Index exhibited its sharpest two week drop since 1985, from 63.0 to 56.3, dipping from a 20-year high of 67.3 that was achieved in January.
- Existing homes sales increased +7.2% in February YoY, and new homes sales were up +14.3%. The 30-year fixed mortgage interest rate has continued to fall, finishing Q1 at 3.33%.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% 12/31/19	2.5% 12/31/18
Inflation (CPI YoY, Core)	2.1% 3/31/20	2.0% 3/31/19
Expected Inflation (5yr-5yr forward)	1.3% 3/31/20	2.4% 3/31/19
Fed Funds Target Range	0% – 0.25% 3/31/20	2.25% – 2.50% 3/31/19
10 Year Rate	0.7% 3/31/20	2.4% 3/31/19
U-3 Unemployment	4.4% 3/31/20	3.8% 3/31/19
U-6 Unemployment	8.7% 3/31/20	7.4 % <i>3/31/19</i>



COVID-19 update

ACTIVE CASES PER 100,000 PEOPLE



The COVID-19 crisis has quickly become a global pandemic

Source: Bloomberg, aggregated official country statistics, x-axis indexed to when the country first reached 100 cases, as of 4/17/20



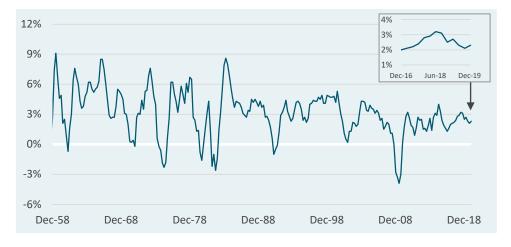
GDP growth

Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate). Companies drew down inventories, which detracted -1% from growth. Investors are bracing for an unprecedented slowdown of the economy during the first half of 2020 due to the coronavirus. Forecasts of Q2 GDP growth have varied between -15% to -35%.

The United States fiscal and monetary response to COVID-19 is unparalleled. The first response was from the Federal Reserve, swiftly cutting interest rates to zero, though 0% was not far away from levels at the time. The administration then rolled out the Families First

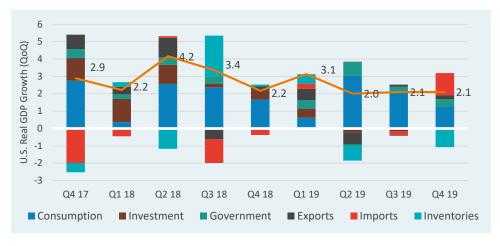
Coronavirus Response Act, which guaranteed sick days to full-time workers, prorated for part-time workers. Next was an expansion of the Family and Medical Leave Act, which provided paid leave for employees of businesses with fewer than 500 staff. For workers requiring more than two weeks of leave, the act covered those employees for up to 14 weeks. The most recent CARES Act was the largest in modern history, at \$2.2 Trillion in size. It included up to \$1,200 payments to every American, a \$600 increase in weekly unemployment benefits, expansion of unemployment to many of those not previously eligible, \$350 Billion in loans to small businesses, \$500 Billion in aid to corporations, and additional funding to individual states and government programs.

U.S. REAL GDP GROWTH (YOY)



Source: BEA, annualized quarterly rate, as of 12/31/19

U.S. GDP GROWTH ATTRIBUTION





Source: Bloomberg, as of 12/31/19

U.S. fiscal response

Families First Coronavirus Response Act:

- 10 sick days to full-time workers, prorated for part-time workers. This legislation applies to most U.S. workers, though some restrictions exist.
- Food support for low-income families increased through programs such as: increased SNAP coverage for jobless and lower-income Americans, emergency food allotments, and guaranteed school lunches.

Family and Medical Leave Act:

- This existing act has been amended to provide paid leave for employees of businesses with fewer than 500 staff in size.
- For workers who still require time off after the first two weeks, this act covers these employees for up to 14 weeks.

\$2.2 Trillion Coronavirus Relief Package

- \$1,200 checks to every American, which begin to be phased out for Americans with more than \$75,000 of income and fully phased out for Americans with more than \$99,000 in income. It was communicated that these non-taxable checks would be issued within weeks.
- Weekly unemployment benefits were increased by \$600 per week for up to 4 months and were made available to many who
 previously did not qualify, such as freelance workers and furloughed employees.
- \$350 Billion in loans to small businesses.
- Companies with fewer than 500 employees could be eligible for up to \$10 Million in forgivable loans to meet payroll needs.
- \$500 Billion in aid to corporations, \$100 Billion in aid to hospitals, \$150 Billion for state and local governments.
- 60-day delays in home foreclosures. Optional 6-month student loan deferrals.



Inflation

U.S. core inflation increased 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have continued effects over the coming months. This downward pressure could be compounded as households slow spending due to loss of income and show a greater propensity to save rather than spend.

During the sudden market sell-off in March, the U.S. TIPS inflation breakeven rate fell drastically from 1.7% to a low of 0.5%, ending the month at 0.9%. U.S. TIPS breakevens have historically tended to plummet in times of market turmoil.

We believe these moves may partially reflect the illiquidity of TIPS in volatile environments, rather than falling inflation expectations. This draws into question the usefulness of TIPS breakeven rates as a pure indication of investors' inflation forecasts. Inflation swaps, such as the 5-year Inflation Swap Forward Rate, may offer a cleaner reflection of true inflation expectations.

Consumer inflation surveys indicate that expectations were relatively flat, moving from 2.3% in December to 2.2% in March.

U.S. CPI (YOY)



U.S. INFLATION INDICATORS



Source: FRED, Bloomberg, as of 3/31/20

INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/20



Source: Bloomberg, as of 3/31/20

Labor market

The U.S. labor market exhibited a sharp weakening in March, as unemployment jumped to 4.4%. Some have estimated the true unemployment rate in April to be above 10%.

The total number of Americans applying for unemployment skyrocketed to 6.65 Million at the end of March – a number historically unthinkable. This figure may stay elevated due to shelter-in-place mandates and widespread business closures across the country.

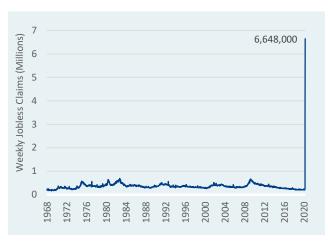
The NFIB Small Business Optimism Index decreased by 8.1 in March to 96.4, which was the largest drop of the series' history. Survey respondents indicated greater uncertainty on the horizon, contracting business conditions, falling sales in the coming six months, and fewer job openings. NFIB stated that "Small business orders are bracing themselves for a significant reduction in consumer spending and future orders." The organization also reported that around half of small businesses indicated that they cannot survive a shutdown of more than two months under current conditions.

U.S. labor market is experiencing the largest negative shock in modern history

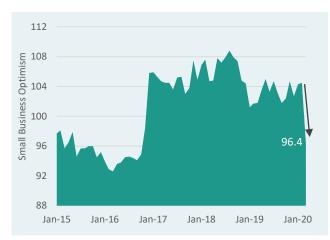
U.S. UNEMPLOYMENT



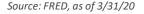
WEEKLY JOBLESS CLAIMS



SMALL BUSINESS OPTIMISM



Source: FRED, as 3/31/20 Source: NFIB, as of 3/31/20





The consumer

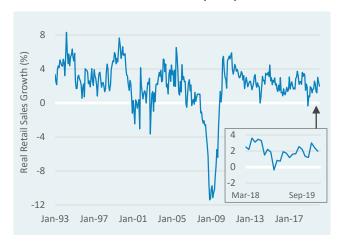
The U.S. consumer has been the greatest support to moderate domestic economic growth of recent years. At the same time, spending and use of credit has been conservative, and household balance sheets have remained robust. The relatively strong position of households at the onset of the crisis may help mitigate some pain of the COVID-19 economic slowdown.

U.S. retail sales declined -8.7% in March from the prior month, the largest ever decline since the series' inception in 1992. Big ticket discretionary purchases are likely to see severe slowdowns due to coronavirus.

Consumers appear to be paring back more elective purchases and allocating more of their income toward staple goods. In March, sales at clothing and home furnishing stores fell -51% and -27% respectively, while food and beverage purchases (+27%) posted a record advance.

Data from Google suggests that consumers have been travelling far less as of late, and whether that trend continues will be interesting to observe as we move into spring in the United States. Filling station receipts fell around 17% in March, and those revenues are less likely to be "made up" later in the year.

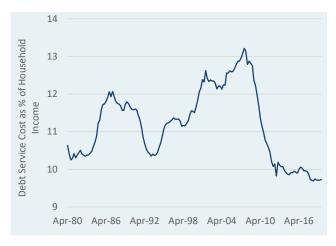
REAL RETAIL SALES GROWTH (YOY)



U.S. AUTO SALES



HOUSEHOLD DEBT BURDEN



Source: Bloomberg, as of 3/31/20

Source: FRED, as of 12/31/19



Source: FRED, as of 2/29/20

Sentiment

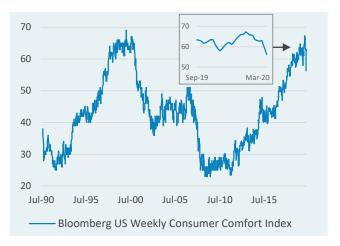
The Bloomberg Consumer Comfort Index exhibited its sharpest two week drop since 1985, falling from 63.0 to 56.3, down from a 20-year high of 67.3 that was achieved in January. Slowing business activity, rising unemployment, and greater uncertainty has led to a broad deterioration in consumer confidence.

Small business owners have been among the hardest hit by the COVID-19 economic disruptions. The NFIB Small Business Optimism Index registered its largest ever single month drop

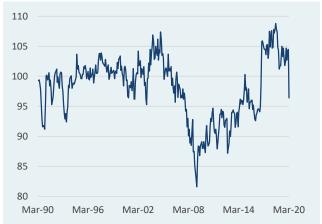
in March, falling -8.1 points to 96.4. Plummeting expectations for real sales over the next six months drove the decline in the overall index, and it appears Main Street business owners are anticipating and bracing themselves for continued economic disruptions moving forward.

While hiring activity remained relatively healthy in early March, hiring plans showed a significant drop-off in February, a signal of a strong downturn in the coming months.

CONSUMER COMFORT



SMALL BUSINESS OPTIMISM



SMALL BUSINESS HIRING PLANS INDEX



Source: NFIB, as of 3/31/20

Source: NFIB, as of 3/31/20



Source: Bloomberg, as of 3/31/20

Housing

The housing market exhibited strength to start the year, with February existing homes sales rising 7.2% YoY, and new home sales up 14.3%. The 30-year fixed mortgage interest rate has continued to fall, finishing Q1 at 3.33%. Near record-low interest rates will likely continue to support housing prices and demand, as home affordability improves for Americans.

It is difficult to forecast the effect that COVID-19 will have on the housing market, as there are perhaps two opposing forces at work. The first effect is falling mortgage rates, which should be supportive of home values and purchase activity, assuming U.S. interest rates remain lower as they typically do during market strain. The second effect – a slowing U.S. economy – is of course negative on housing values and demand. Millions of job losses have occurred in the first few weeks of the COVID-19 nationwide shutdown, and many Americans will soon struggle to meet mortgage payments. Under the new CARES Act, homeowners with Federally-backed mortgages who have been affected by COVID-19 can request forbearance on mortgage payments for up 180 days, with an option to extend for an additional 180 days. This intervention will hopefully ease some of the strains and mitigate some downside risk during a time of historically unprecedented spikes in unemployment.

U.S. HOME SALES (YOY)



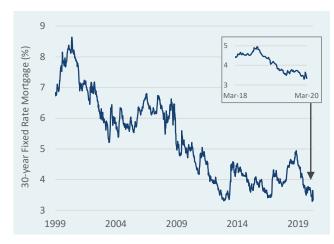
Source: FRED, as of 2/29/20

HOUSING AFFORDABILITY INDEX



Source: Bloomberg, NAHB, as of 12/31/19 (see appendix)

30YR FIXED RATE MORTGAGE



Source: FRED, as of 3/31/20



International economics summary

- Most international developed economies grew at a rate of 0.5% to 2.5% in Q4. The low and stable expansion of recent years has changed suddenly with the onset of COVID-19. Many global economies will enter recession in 2020. On April 14th the IMF revised their 2020 global growth forecast from +3.3% to -3.0%.
- Governments are using monetary and fiscal policies to fill the large hole in spending and lending that the slowdown may cause. These policies vary in their characteristics and aggressiveness.
- Governments with limited ability to implement stimulus policies may face tougher economic fallout.
 Specifically, European Union member nations that cannot exercise independent actions may see greater difficulties ahead as income gaps cannot be supplemented with fiscal spending.

- The World Trade Organization (WTO) forecast a 13%-32% fall in global trade in 2020 – a larger decrease than witnessed during the global financial crisis. This forecast was paired with the expectation of a 21%-24% rebound in trade throughout 2021.
- While not yet reflected in the most recent economic data, unemployment rates around the world are certain to rise considerably.
- The COVID-19 virus breakout originated in China, and many investors have pointed to China as a testcase for how the virus might play out economically. Although the data released by China suggests the outbreak has been defeated, there is increasing evidence that the severity of virus has been underreported – perhaps severely.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% 12/31/19	1.5% 3/31/20	4.4% <i>3/31/20</i>
Eurozone	1.0%	0.7%	7.3%
	12/31/19	3/31/20	2/29/20
Japan	(0.7%) 12/31/19	0.4% 3/31/20	2.3% 2/29/20
BRICS	5.0%	4.9 % <i>3/31/20</i>	5.0%
Nations	12/31/19		12/31/19
Brazil	1.7%	3.3%	11.6%
	12/31/19	3/31/20	2/29/20
Russia	2.1%	2.6%	4.6%
	12/31/19	3/31/20	2/29/20
India	4.7 %	5.9%	8.5%
	12/31/19	3/31/20	12/31/17
China	6.0%	4.3%	3.6%
	12/31/19	3/31/20	12/31/19



International economics

Most international developed economies grew at a rate of 0.5% to 2.5% in Q4. The low and stable expansion of recent years has changed suddenly with the onset of COVID-19. Many global economies will enter recession in 2020. On April 14th the IMF revised their 2020 global growth forecast from +3.3% to -3.0%.

Governments are using monetary and fiscal policies to fill the potentially large hole in spending and lending that the slowdown may cause. These policies vary in their characteristics. For example, the UK government has taken a more aggressive stance, committing to subsidize 80% of the salaries of workers who become unemployed, up to £2,500 per month for a three-month period.

The World Trade Organization (WTO) forecast a 13%-32% fall in global trade in 2020 – a larger decrease than witnessed during the global financial crisis due to broader restrictions on labor and travel that are not involved with a typical recession. This forecast was paired with the expectation of a 21%-24% rebound in trade throughout 2021, though forecasts of the shape and nature of the recovery may be more speculative in nature.

Due to the extremely quick onset of COVID-19 and its economic impacts, many traditional economic metrics do not yet reflect the effects of the virus since these metrics are released with a onemonth or greater lag.

REAL GDP GROWTH (YOY)



INFLATION (CPI YOY)



Source: Bloomberg, inflation range of past 5 years, as of 2/29/20

UNEMPLOYMENT RATE



Source: Bloomberg, as of 3/31/20 or most recent release



Source: Bloomberg, as of 12/31/19

Fixed income rates & credit



Interest rate environment

- In mid-March, the Federal Open
 Market Committee cut interest rates
 by a full 1.00% to a new range of 0 –
 0.25%. This surprise action was
 taken on a Sunday with the intent to
 get out ahead of the economic
 impacts of COVID-19.
- On April 9th, the Federal Reserve announced an additional \$2.3
 Trillion program aimed towards providing financing to small businesses and municipalities. The program included \$1M-\$25M sized loans at an interest rate of 2.5%-4.0% with a four-year maturity. This move involved Fed purchases of certain types of low-grade speculative debt, a reversal from comments just weeks earlier that the Federal Reserve would stick to investment-grade debt purchases.
- The European Central Bank (ECB) announced a €750B asset purchase program in March to address effects of the virus. ECB President Christine Lagarde claimed that there are "no limits to our commitment to the

- euro". Bond yields of Euro member countries fell on the news.
- Central banks are now facing a unique problem – an immediate economic slowdown and need for monetary policy support, but very little room to cut interest rates to provide that support. This is a risk that has been discussed by investors for years, only now becoming reality. We believe fiscal policies will play a much larger role in addressing the inevitable economic slowdown.
- The Federal Reserve rolled out several liquidity programs which were components of its Global Financial Crisis playbook and are aimed at ensuring the flow of credit to U.S. households and businesses, as well as financial market stability. The New York Fed began offering up to \$500B in overnight liquidity through repurchase agreements and has expanded dollar swap lines to alleviate any possible strains in global U.S. dollar funding markets.

Area	Short Term (3M)	10-Year
United States	0.09%	0.67%
Germany	(0.71%)	(0.47%)
France	(0.50%)	(0.02%)
Spain	(0.23%)	0.67%
Italy	(0.05%)	1.52%
Greece	0.16%	1.63%
U.K.	0.03%	0.36%
Japan	(0.30%)	0.01%
Australia	0.37%	0.76%
China	1.34%	2.58%
Brazil	3.37%	7.77%
Russia	5.47%	6.70%

Source: Bloomberg, as of 3/31/20

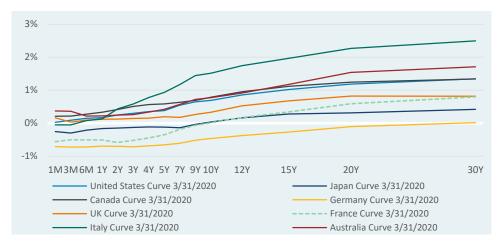


Yield environment

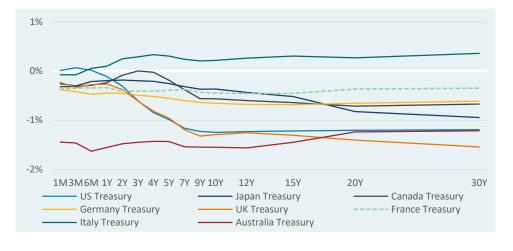
U.S. YIELD CURVE



GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/20



Credit environment

After a positive start to the year following the completion of phase one of the US-China trade deal, the impacts of the COVID-19 pandemic struck fear into credit markets, causing a broad-based sell-off and liquidity crisis in early March. This volatility prompted decisive Fed action, including but not limited to announcing unlimited QE and the reopening of several financial crisis-era liquidity facilities, which collectively incited a partial recovery in the last week of the quarter and restored a reasonable level of liquidity to credit markets.

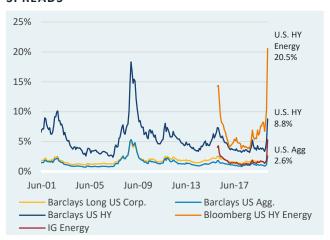
U.S. investment grade credit spreads widened from 93 bps at the end of 2019 to 272 bps at the end of the quarter after reaching highs of 373 bps in March. Similarly, high yield credit spreads spiked from 336 bps to 880 bps over the quarter, after March highs of 1100 bps. High yield ex-

Energy spreads increased from 295 bps to 749 bps over the same period.

The US Aggregate finished the quarter up 3.15%, while investment grade credit fell -3.63% followed by high yield -12.68% and leveraged loans - 13.05%. In general, higher quality bonds meaningfully outperformed lower quality.

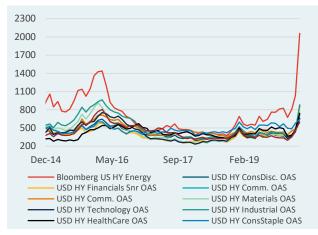
While the energy sector within high yield was the top performer in Q4 2019, the sector was faced with both a supply and demand shock with the Saudi Arabia-Russia production conflict and COVID-19 outbreak, causing it to decline by -38.94% in Q1 2020. The utility and technology sectors held up relatively well, declining -5.1% and -5.3%, respectively.

SPREADS



Source: Barclays, Bloomberg, as of 3/31/20

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/20

CREDIT SPREADS MOVING WITH VOLATILITY



Source: CBOE, BofA, as of 3/31/20



Default & issuance

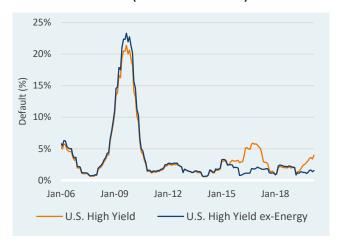
The first quarter saw 13 defaults affecting \$23.5 Billion in bonds and loans. However, one company, Frontier Communications, accounted for \$16.7 Billion of the total. For context, this quarterly amount compares with 43 defaults affecting \$51.5 Billion in bonds and loans for the full year of 2019. While this quarter ranks as the seventh highest in default volume on record, fixed income investors are expecting the worst is yet to come as companies grapple with the COVID-19-induced economic shutdown.

In March, the par-weighted U.S. high-yield default rate rose to a three-year high of 3.4%, up from 2.6% at the end of last year. Loan default rates rose less dramatically, to 1.9% over the trailing 12 months, up from 1.6% at year end.

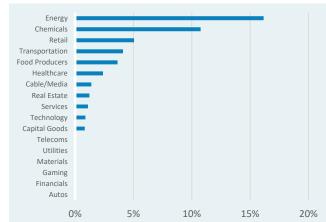
Energy has driven around 45% of total defaults over the last 12 months, and in Q1 the full year 2020 outlook for the sector worsened dramatically. The trailing 12-month energy default rate in high yield ended the quarter at 9.8% (high yield ex-energy was 2.2%) while the trailing 12-month energy default rate in loans ended at 13.0% (loan ex-energy was 1.8%). In addition to energy, travel and tourism, gaming, leisure, retail, and restaurants appear particularly vulnerable in the current economic environment.

Investment grade bond issuance boomed in Q1 as companies tried to shore up liquidity for the coming recession. This was particularly pronounced in March, which saw a record \$262 Billion in investment grade issuance. Q1 also saw \$73 Billion in high yield volume and loan issuance spike to \$199 Billion.

HY DEFAULT RATE (ROLLING 1-YEAR)

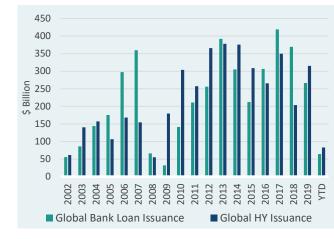


U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 3/31/20 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/20



Source: BofA Merrill Lynch, as of 3/31/20

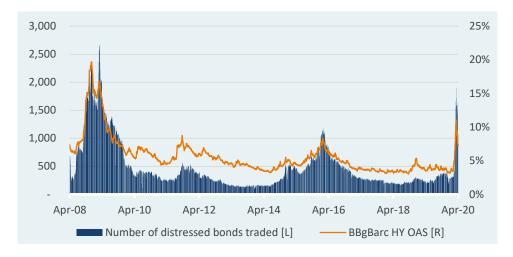
High yield – what happened?

The considerable economic fallout from the COVID-19 pandemic and collapsing oil prices broadly impacted credit markets. Credit spreads topped 1,000 basis points for the first time since the global financial crisis and the number of distressed bonds soared from 218 at the beginning of the year to a peak of 1,896. Higher defaults typically follow slowing growth and credit spread widening. J.P. Morgan's estimates of credit defaults increased from a 3% rate to an 8% rate for the near-term.

Approximately half of the investment grade bond market now sits within the BBB rated segment, which is the lowest

rung on the investment grade scale. Some market participants now expect more than \$200 Billion to fall from the investment grade to the high yield space. Because the BBB sector alone totals more the twice the size of the entire high yield market, downgrades and subsequent forced selling are likely to add pressure to that already stressed market segment throughout the rest of the year. These dislocations have already impacted strategies across the space as investors redeem capital, resulting in suspensions and even closures.

VOLUME AND SPREADS



FALLEN ANGELS



Source: J.P. Morgan, Bloomberg, as of 4/16/20



Equity

Equity environment

- U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19 spread.
 During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%.
- The greatest influence on equity performance in 2020 will perhaps be the path of corporate earnings.
 The degree to which corporate earnings will fall is largely unknown with few reliable estimates.
- Implied volatility spiked in March to a record daily close of 82.7%, surpassing the high of 80.9% in November 2008 during the depths of the global financial crisis.
- In March, a squabble between
 OPEC+ members led to a historic
 drop in energy prices. The energy
 sector faces sharply falling demand

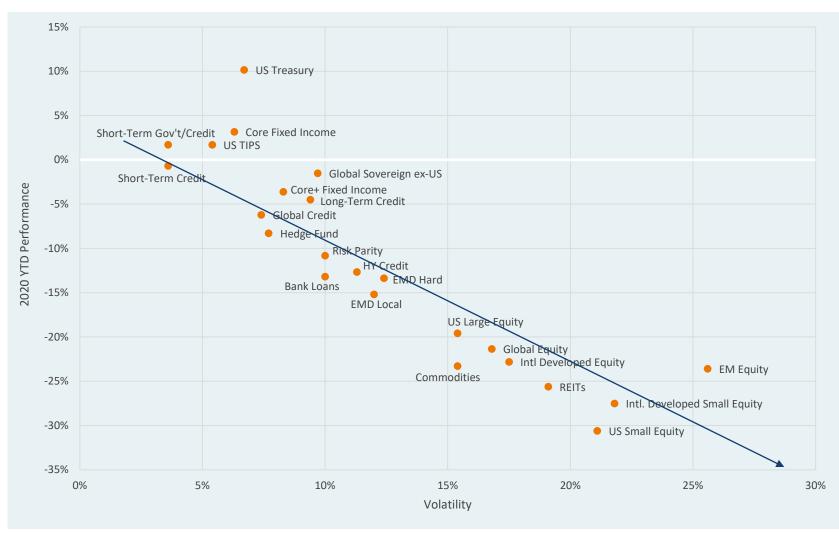
- and potentially significant oversupply due to oil producers' decision to ramp up production in an oil war. The energy sector experienced a loss of -50.5% in Q1.
- The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in large losses for investors with unhedged currency exposure. As is often the case during higher risk market environments, demand for safehaven currencies positively impacted the dollar.
- Value stocks severely underperformed growth stocks during the first quarter (Russell 1000 Value -26.7%, Russell 1000 Growth -14.1%). Small cap stocks underperformed large cap stocks by a similar magnitude (Russell 2000 -30.6%, Russell 1000 -20.2%). Value and size factors continue to experience an extended period of relative underperformance.

	QTD TOTA	L RETURN	1 YEAR TOT	AL RETURN
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	(19.6%)		(7.0%)	
US Small Cap (Russell 2000)	(30.6%)		(24.0%)	
US Large Value (Russell 1000 Value)	(26.7%)		(17.2%)	
US Large Growth (Russell 1000 Growth)	(14.1%)		(0.9%)	
International Large (MSCI EAFE)	(22.8%)	(19.9%)	(14.4%)	(10.3%)
Eurozone (Euro Stoxx 50)	(27.0%)	(24.8%)	(16.6%)	(12.0%)
U.K. (FTSE 100)	(28.8%)	(23.0%)	(22.0%)	(16.4%)
Japan (NIKKEI 225)	(18.6%)	(18.8%)	(6.7%)	(6.8%)
Emerging Markets (MSCI Emerging Markets)	(23.6%)	(18.5%)	(17.7%)	(12.7%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/20



Q1 performance



Riskier assets performed the worst in Q1...

...and this relationship was fairly consistent across most asset classes

Source: Verus, as of 3/31/20 - Volatility is based on our forward looking 10-year Capital Market Assumptions



Domestic equity

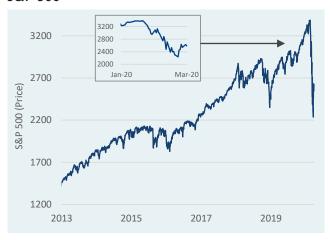
U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19 spread. During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%.

At the same time that COVID-19 was spreading throughout the U.S., a squabble between OPEC+ members led to a historic drop in energy prices. The energy sector faces a perfect storm — sharply falling demand due to a global economic slowdown, and potentially significant oversupply due to oil producers' decision to ramp up production in an oil war. The energy sector experienced a loss of -50.5% in Q1.

The greatest influence on equity performance in 2020 will perhaps be the path of corporate earnings. The degree to which corporate earnings will fall throughout the year is largely unknown with few reliable estimates.

We continue to believe an underweight to international developed equities is appropriate. The economic pain that European Union member countries face may be significant, and membership to the EU inherently limits the ability of these countries to enact certain changes to address weakening economies. The U.S. market may continue to perform relatively well throughout the economic recovery.

S&P 500

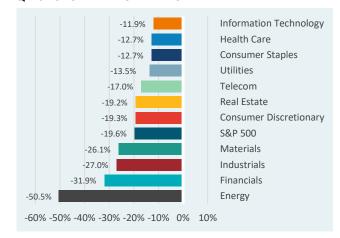


WORST S&P 500 MAX MONTHLY DRAWDOWNS



Source: Standard & Poor's, as of 3/31/20

Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/20



Source: Standard & Poor's, as of 3/31/20

Domestic equity size & style

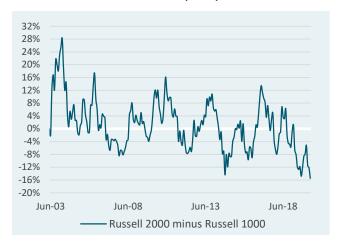
Value stocks severely underperformed growth stocks during the first quarter (Russell 1000 Value -26.7%, Russell 1000 Growth -14.1%). Small cap stocks underperformed large cap stocks by a similar magnitude (Russell 2000 -30.6%, Russell 1000 -20.2%). Value and size factors continue to experience a surprisingly long period of relative underperformance.

Once again, the impact of sector performance on the value premium in Q1 was notable – specifically energy and financial sectors (-50.5% and -31.9%, respectively) which tend to be value-tilted. Energy prices saw a historic drop fueled by OPEC+ infighting and likely the intent of the cartel to push out U.S. energy producers. Financial stocks delivered losses as

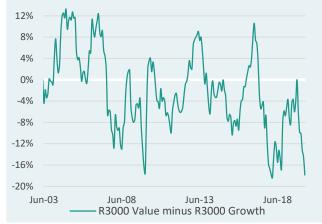
falling interest rates hurt profitability. Information Technology (-11.9%), a sector that tends to contain more growth stocks, was the best performer.

We believe that it is extremely difficult to successfully make short-term bets on style factors. Factor performance can be incredibly noisy and vulnerable to sector randomness. Market events of the past month seem to support this belief. While value in particular continues to be historically cheap, price itself does not translate to short-term outperformance — a catalyst for a turnaround should also be clearly identified and understood. We remain watchful and believe that consistent long-term exposure to these style factors is an ideal implementation approach for most investors, most of the time.

SMALL CAP VS LARGE CAP (YOY)



VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/20

VALUE HISTORICALLY CHEAP



Source: Russell, Bloomberg, as of 3/31/20



Source: FTSE, as of 3/31/20

International developed equity

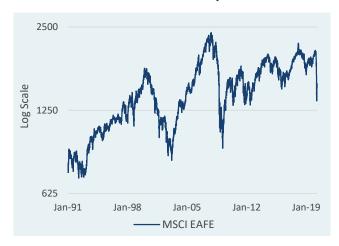
Equity markets around the world sold off broadly in the first quarter, down between -16% to -29%. Japanese equities were among the best performing (MSCI Japan -17%) while the U.K. was one of the worst performing (MSCI U.K. -29%).

As the global transactional currency, demand for U.S. dollars tends to ramp up when markets become stressed and companies abroad require dollars to pay down dollar-denominated liabilities. In the first quarter, the U.S. dollar gained +2.3% against the Euro and +6.4% against the British pound, resulting in losses for U.S. investors in European

equities with unhedged currency exposure. In mid-March, the Federal Reserve expanded its dollar swap liquidity lines and opened a FIMA repo facility which will allow foreign monetary authorities to enter repurchase agreements with the Fed. Both measures worked to help improve U.S. dollar liquidity abroad, and as a result, slow the pace of appreciation of the U.S. dollar relative to international pairs.

Cross-currency basis, which measure the additional premia investors must pay to swap one currency for another over a term, narrowed in March, signaling that the Fed's efforts to ease dollar funding strains have proved effective thus far.

INTERNATIONAL DEVELOPED EQUITIES



EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 3/31/20

3M/3M CROSS CURRENCY BASIS SWAPS



Source: Bloomberg, as of 3/31/20



Source: MSCI, as of 3/31/20

Emerging market equity

Emerging market equities (MSCI EM -23.6%) underperformed both U.S. (S&P 500 -19.6%) and international developed equities (MSCI EAFE -22.8%) over the quarter. Within the complex, Latin American equities (MSCI EM Latin American -45.6%) dramatically underperformed Asian equities (MSCI EM Asia -18.1%), which were propped up by remarkably resilient Chinese equity markets. Currency exposure also played a big role in the outperformance of EM Latin America over EM Asia, as the U.S. dollar strengthened significantly against the Brazilian real, and the Mexican peso, and was little changed against the Chinese renminbi.

Inflation remains low in emerging economies and may face downward pressure in the coming months as energy prices have fallen. Central banks may have more room to maneuver relative to developed economies with regard to monetary policy, as interest rates are closer to average levels.

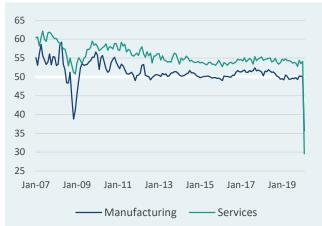
Countries viewed as having poor health infrastructure as well as economic dependence on oil prices fared the worst.

Mexico's sovereign debt rating was downgraded by several rating agencies, and Moody's downgraded South Africa's sovereign debt rating below investment-grade.

EMERGING MARKET EQUITY



CHINA PURCHASING MANAGERS' INDICES



Source: China Federation of Logistics and Purchasing, as of 2/29/20

INFLATION (CPI YOY)



Source: Bloomberg, as of 2/29/20



Source: MSCI, as of 3/31/20

Equity valuations

Throughout the significant Q1 market sell-off, losses across global markets have been fairly similar. This has resulted in U.S. equities retaining their status as the most expensive market, though we believe this may be justified as governments with limited ability to implement stimulus policies could face tougher economic fallout. Specifically, European Union member nations that cannot exercise independent actions may see greater difficulties ahead as income gaps cannot be supplemented with government spending.

In 2005, Thomas Friedman put forth the notion that "The World is Flat", and that the 21st century will be characterized by globalization, with historical and geographical divisions becoming less relevant. In Friedman's world, companies produce their goods where it is cheapest to do so, often in emerging and developing economies with fewer labor protections. Supply chains are built within profit maximization frameworks often with little regard for the risks associated with having a supply chain concentrated in one or a few countries. Looking ahead, it will be interesting to follow whether Friedman's world becomes slightly bumpier.

FORWARD P/E RATIOS



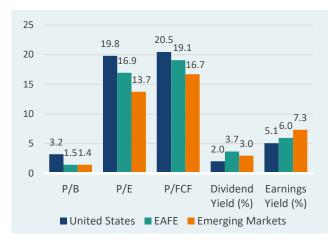
Source: MSCI, 12m forward P/E, as of 3/31/20

FORWARD P/E RATIOS (RELATIVE TO THE U.S.)



Source: MSCI, 12m forward P/E, as of 3/31/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 3/31/20 - trailing P/E



Equity volatility

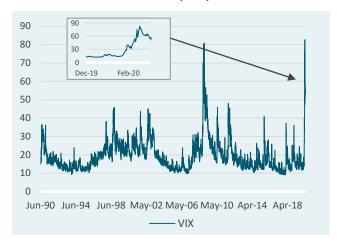
Risk markets experienced one of the most sudden corrections on record, amidst extreme volatility. The S&P 500 showed its largest one-day drop since 1987 (March 16 -11.9%) and its largest one-day gain since 2008 (March 24 +9.4%). The transition from a very low- to a very high-volatility environment likely caught many investors off guard.

Implied volatility (CBOE VIX Index) spiked in March to a record daily close of 82.7, surpassing the high of 80.9 on November 20th, 2008 during the depths of the global financial crisis. Such extreme levels of market volatility can

create difficulties for investors in managing portfolios. Processes such as portfolio rebalancing that are often systematic can become complex and subjective when equities are exhibiting nearly double-digit daily moves.

The S&P 500 Price Index closed at 2237 on March 23rd, -33.9% below February 19th peaks. Since then, U.S. equities have staged a remarkable rebound in the foreground of a historically bleak economic background. Debate over whether the rebound is justified has continued as economic uncertainty remains at unprecedented levels.

U.S. IMPLIED VOLATILITY (VIX)



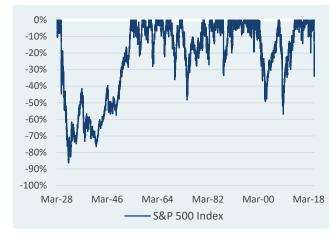
Source: CBOE, as of 3/31/20

ROLLING 1-YEAR REALIZED VOLATILITY



Source: Standard & Poor's, MSCI, Bloomberg, as of 3/31/20

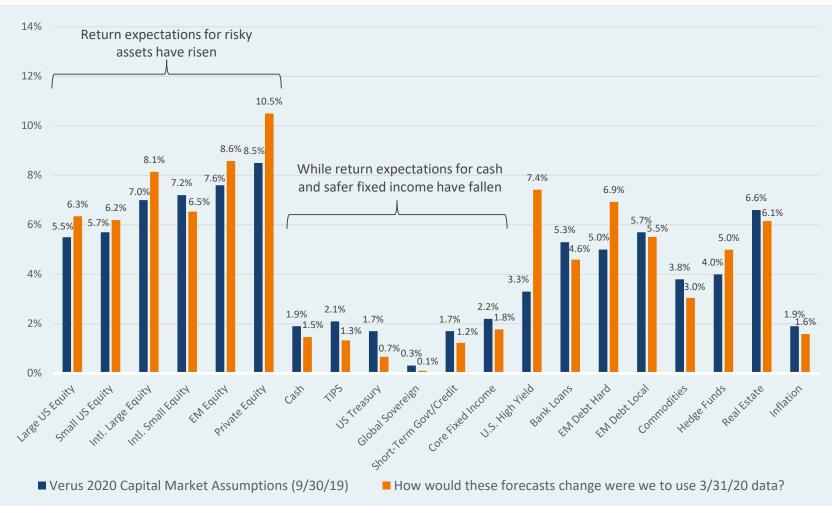
MAX DRAWDOWN FROM PRIOR PEAKS



Source: Standard & Poor's, Bloomberg, as of 3/31/20



How have return expectations changed?

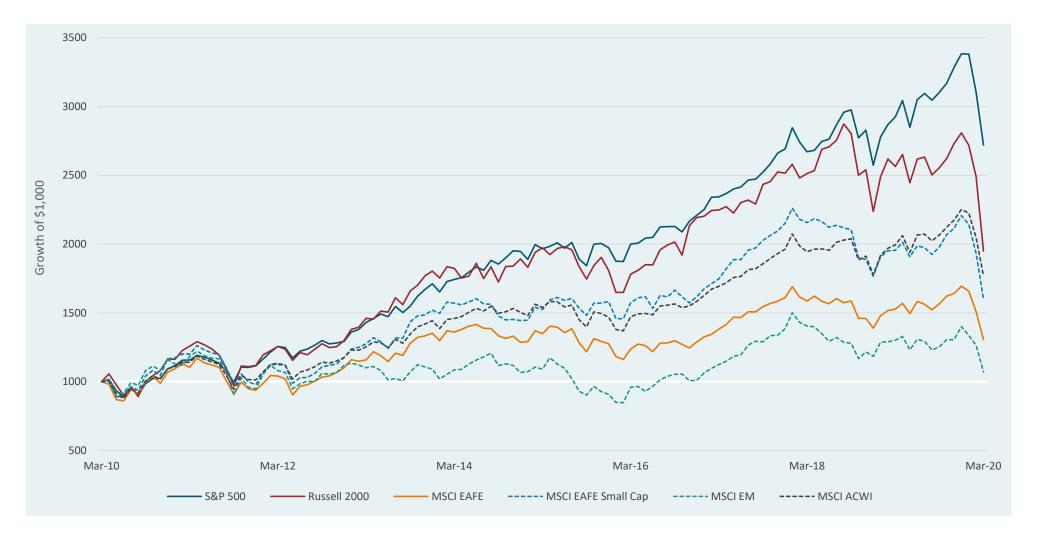


The overall portfolio's expected return may have risen or fallen during Q1, depending on the asset allocation & risk level

Source: Verus



Long-term equity performance



Source: Morningstar, as of 3/31/20



Other assets



Currency

The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in losses for investors with unhedged currency exposure. As is often the case during higher risk market environments, demand for safe-haven currencies contributed to the rising dollar.

Historically speaking, environments where the U.S. dollar was much more expensive than average tended to be followed by an eventual mean-reversion. However, this mean-reversion effect is not a sure bet, and it can take years (or perhaps decades) to occur. As recent years have shown,

leaving currency exposure unhedged tends to result in uncompensated volatility, and occasional (or frequent) large and sharp losses or gains.

The MSCI Currency Factor Mix Index, constructed as a combination of individual Currency Factor indices (carry, value, momentum) advanced 1.2% in Q1. The momentum factor (+8.7%) posted strong gains as appreciating currencies continued to strengthen while the carry factor (-7.2%) lagged as the exchange rate adjustments implied by local interest rate differentials occurred faster than expected.

BLOOMBERG DOLLAR SPOT INDEX



Source: Bloomberg, as of 3/31/20

USD CURRENCY LEVEL & SUBSEQUENT RETURN



Source: Federal Reserve, Verus, as of 3/31/20

EMBEDDED CURRENCY VS CURRENCY BETA



Source: MSCI, Bloomberg, as of 3/31/20



Oil crisis

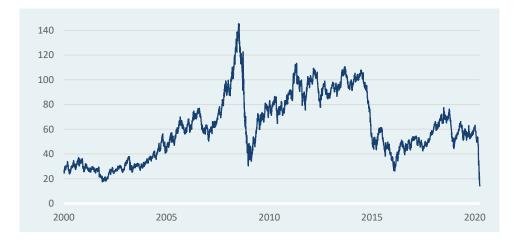
In mid-March, the price of oil experienced a sudden drop as Russia refused to join the OPEC recommended production cuts. In retribution, Saudi Arabia signaled that they would increase production drastically in April upon expiration of the OPEC pact. These events led to a 30% one-day drop in price, and historically volatile trading.

Russia's actions are likely linked to increased U.S. sanctions on its energy producers, which have negatively impacted the economy. Sanctions have prevented Russia from completing the Nord Stream 2 gas pipeline in the Baltic Sea, a project that \$11 Billion had previously been invested in, which would

carry Russian Gas directly to Germany and would circumvent the Ukraine. Sanctions were also levied against Russia's Rosneft for allegedly supporting the Nicolas Maduro regime in Venezuela. It is estimated that 70% of oil production in Venezuela was going through Rosneft.

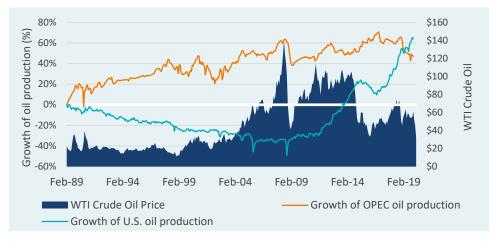
A similar dynamic occurred during the oil crash of 2014 as OPEC let oil plummet, arguably with the intent to put U.S. oil producers out of business. American oil production has been ramped up drastically over the last decade, at a time when OPEC producers were working to minimize their own production in order to balance global supply.

WTI OIL PRICE



Source: FRED, as of 3/31/20

GLOBAL OIL PRODUCER CONFLICT



Source: Bloomberg, U.S. Energy Information Administration, as of 3/31/20



Private markets

Deals plateaued in buyouts and venture; multiples are steady; buyout fundraising has slowed

- Before the impending market dislocation, venture capital fundraising was on pace to eclipse 2019, while total deal volume and number of deals had plateaued. \$21 Billion of venture capital was raised in the U.S. in Q1 2020, constituting 40% of capital raised in 2019. Deal value and number of deals in the quarter represented 25% and 19% of 2019's totals, respectively.
- Buyout activity continued to decrease in Q1 2020 from 2019. Through the first quarter, buyouts dollar value and number of transactions amounted to 18% and 19% of 2019 levels, respectively. The size of the average buyout, \$135.6M, has decreased from 2019, \$145.2M. Similarly, fundraising has also slowed. Only 46 buyout funds representing \$45 Billion closed in Q1 2020, down from 249 funds representing \$315 Billion in 2019.
- Pricing multiples on completed buyout deals remained in line with 2019's. Median EV/EBITDA is 12.9x (up slightly from 12.7x in 2019) with debt multiples unchanged at 5.9x. Debt as a percentage of transaction value hovers around 45%.

VENTURE DEAL VOLUME & FUNDRAISING



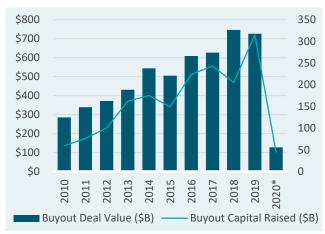
*2020 figures through 3/31/20 Source: PitchBook

TRANSACTION MULTIPLES



*2020 figures through 3/31/20 Source: PitchBook

BUYOUTS DEAL VOLUME & CAPITAL RAISED



*2020 figures through 3/31/20

Source: PitchBook

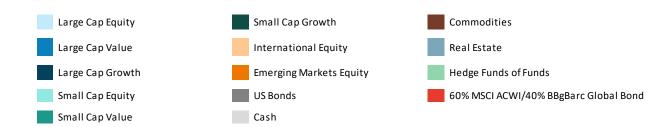


Appendix



Periodic table of returns

2		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD	5-Year	10-Year
5	US Bonds	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	3.1	10.4	13.0
•	Cash	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	0.4	7.5	10.4
	Real Estate	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	0.0	6.2	10.1
	Hedge Funds of Funds	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	-6.0	3.4	8.9
	60/40 Global Portfolio	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	-13.3	3.0	7.7
	Large Cap Growth	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	-14.1	1.9	6.9
	Large Cap Equity	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	-20.2	1.7	4.8
	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	-22.8	1.1	4.7
	Commodities	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	-23.3	0.6	3.9
	Emerging Markets Equity	-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	-23.6	-0.2	2.7
	Small Cap Growth	-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	-25.8	-0.4	2.1
	Large Cap Value	-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	-26.7	-0.6	0.7
	Small Cap Equity	-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	-30.6	-2.4	0.6
	Small Cap Value	-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	-35.7	-7.8	-6.7

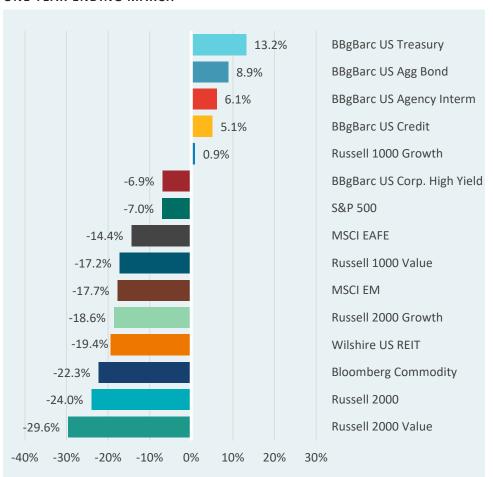


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/19.

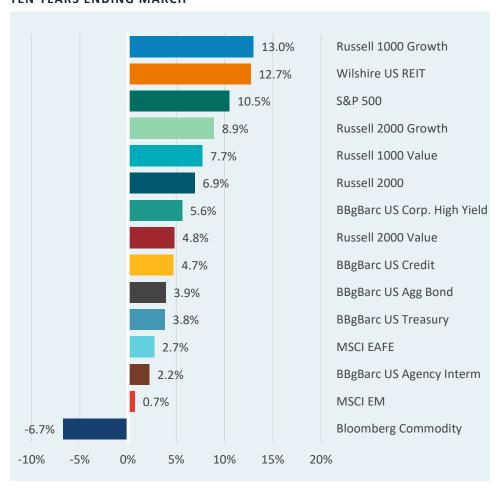


Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH



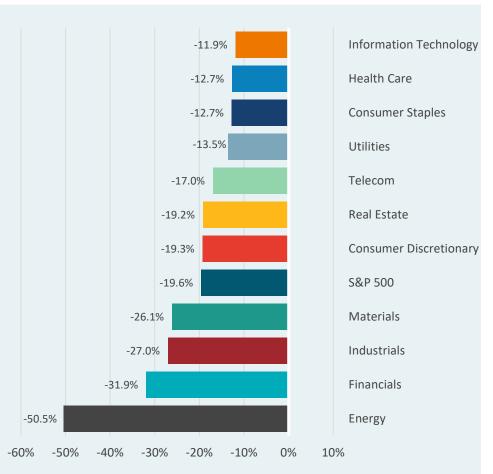
Source: Morningstar, as of 3/31/20

Source: Morningstar, as of 3/31/20

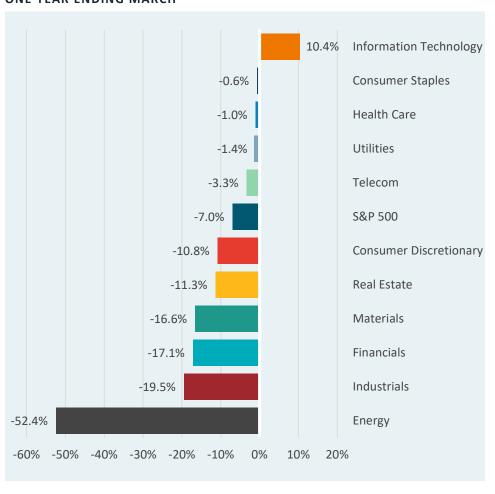


S&P 500 sector returns

Q1 2020



ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/20 Source: Morningstar, as of 3/31/20



Private equity vs. public performance

As of 9/30/2019

DIRECT PRIVATE EQUITY FUND INVESTMENTS



"PASSIVE" STRATEGIES



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

"Passive" strategies outperformed comparable public equities on a 1-, 5-, and 20-year basis, and underperformed on a 3- and 10-year basis

Sources: Thomson Reuters Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2019. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.



Private equity vs. liquid real assets performance

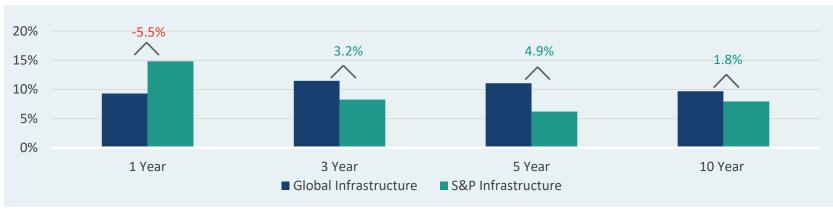
As of 9/30/2019

GLOBAL NATURAL RESOURCES FUNDS



N.R. funds outperformed the MSCI World Natural Resources benchmark across all time periods

GLOBAL INFRASTRUCTURE FUNDS



Infra. funds outperformed the S&P Infra. across all periods, except on a 1-year basis

Sources: Thomson Reuters C/A PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2019. 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 9/30/2019

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



U.S. Private
R.E. funds
underperformed
the Wilshire
U.S. REIT Index
on a 1-, 10-, and
20-year basis,
but not over 3and 5-years

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



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

Sources: Thomson Reuters C|A PME: Global and U.S. Real Estate universes as of September 30, 2019. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.



Detailed index returns

DOMESTIC EQUITY								FIXED INCOME							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year		Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index								Broad Index							
S&P 500	(12.4)	(19.6)	(19.6)	(7.0)	5.1	6.7	10.5	BBgBarc US TIPS	(1.8)	1.7	1.7	6.8	3.5	2.7	3.5
S&P 500 Equal Weighted	(18.0)	(26.7)	(26.7)	(17.6)	(0.4)	2.8	9.2	BBgBarc US Treasury Bills	0.3	0.6	0.6	2.4	1.8	1.2	0.7
DJ Industrial Average	(13.6)	(22.7)	(22.7)	(13.4)	4.4	6.9	10.0	BBgBarc US Agg Bond	(0.6)	3.1	3.1	8.9	4.8	3.4	3.9
Russell Top 200	(11.0)	(17.7)	(17.7)	(4.1)	6.7	7.9	11.0	Duration							
Russell 1000	(13.2)	(20.2)	(20.2)	(8.0)	4.6	6.2	10.4	BBgBarc US Treasury 1-3 Yr	1.3	2.8	2.8	5.4	2.7	1.8	1.4
Russell 2000	(21.7)	(30.6)	(30.6)	(24.0)	(4.6)	(0.2)	6.9	BBgBarc US Treasury Long	6.1	20.9	20.9	32.6	13.4	7.3	9.0
Russell 3000	(13.8)	(20.9)	(20.9)	(9.1)	4.0	5.8	10.1	BBgBarc US Treasury	2.9	8.2	8.2	13.2	5.8	3.6	3.8
Russell Mid Cap	(19.5)	(27.1)	(27.1)	(18.3)	(8.0)	1.8	8.8	Issuer							
Style Index								BBgBarc US MBS	1.1	2.8	2.8	7.0	4.0	2.9	3.3
Russell 1000 Growth	(9.8)	(14.1)	(14.1)	0.9	11.3	10.4	13.0	BBgBarc US Corp. High Yield	(11.5)	(12.7)	(12.7)	(6.9)	0.8	2.8	5.6
Russell 1000 Value	(17.1)	(26.7)	(26.7)	(17.2)	(2.2)	1.9	7.7	BBgBarc US Agency Interm	0.9	2.9	2.9	6.1	3.2	2.3	2.2
Russell 2000 Growth	(19.1)	(25.8)	(25.8)	(18.6)	0.1	1.7	8.9	BBgBarc US Credit	(6.6)	(3.1)	(3.1)	5.1	4.2	3.3	4.7
Russell 2000 Value	(24.7)	(35.7)	(35.7)	(29.6)	(9.5)	(2.4)	4.8								
INTERNATIONAL EQUITY	,							OTHER							
Broad Index								Index							
MSCI ACWI	(13.5)	(21.4)	(21.4)	(11.3)	1.5	2.8	5.9	Bloomberg Commodity	(12.8)	(23.3)	(23.3)	(22.3)	(8.6)	(7.8)	(6.7)
MSCI ACWI ex US	(14.5)	(23.4)	(23.4)	(15.6)	(2.0)	(0.6)	2.1	Wilshire US REIT	(20.0)	(25.6)	(25.6)	(19.4)	(2.5)	5.7	12.7
MSCI EAFE	(13.3)	(22.8)	(22.8)	(14.4)	(1.8)	(0.6)	2.7	CS Leveraged Loans	(12.5)	(13.2)	(13.2)	(9.5)	(0.7)	4.6	5.0
MSCI EM	(15.4)	(23.6)	(23.6)	(17.7)	(1.6)	(0.4)	0.7	Alerian MLP	(48.1)	(58.1)	(58.1)	(61.9)	(29.9)	(21.1)	(4.7)
MSCI EAFE Small Cap	(17.2)	(27.5)	(27.5)	(18.1)	(2.9)	1.0	4.8	Regional Index							
Style Index								JPM EMBI Global Div	(13.8)	(13.4)	(13.4)	(6.8)	0.4	2.8	4.9
MSCI EAFE Growth	(9.2)	(17.5)	(17.5)	(5.8)	3.0	2.5	4.7	JPM GBI-EM Global Div	(11.1)	(15.2)	(15.2)	(6.5)	(8.0)	0.3	0.5
MSCI EAFE Value	(17.7)	(28.2)	(28.2)	(22.8)	(6.7)	(3.8)	0.6	Hedge Funds							
Regional Index								HFRI Composite	(5.9)	(8.3)	(8.3)	(4.0)	0.7	1.3	2.9
MSCI UK	(16.0)	(28.8)	(28.8)	(23.0)	(4.9)	(3.3)	1.6	HFRI FOF Composite	(4.9)	(6.0)	(6.0)	(2.6)	1.0	0.6	2.1
MSCI Japan	(7.1)	(16.8)	(16.8)	(6.7)	1.0	1.8	3.8	Currency (Spot)							
MSCI Euro	(17.2)	(27.0)	(27.0)	(18.3)	(4.4)	(2.3)	1.1	Euro	(0.1)	(2.3)	(2.3)	(2.3)	0.9	0.4	(2.1)
MSCI EM Asia	(11.7)	(18.1)	(18.1)	(12.1)	1.3	1.4	3.5	Pound	(2.9)	(6.4)	(6.4)	(4.8)	(0.3)	(3.5)	(2.0)
MSCI EM Latin American	(34.5)	(45.6)	(45.6)	(40.8)	(13.0)	(5.9)	(6.7)	Yen	(0.1)	0.7	0.7	2.5	1.1	2.1	(1.4)

FIXED INCOME

Source: Morningstar, HFR, as of 3/31/20



DOMESTIC FOUITY

Definitions

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

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic 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 induces for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula "(Good-Poor + 100)/2" to the present and future sales series and "(High/Very High-Low/Very Low + 100)/2" to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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Imperial County Employees' Retirement System

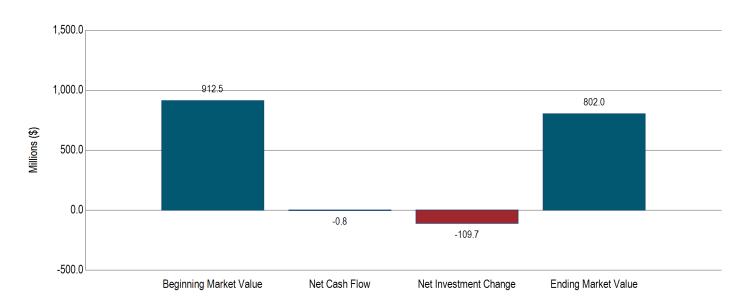
Investment Performance Review Period Ending: March 31, 2020



Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$912,509,178	\$866,437,865	\$839,513,891
Net Cash Flow	-\$792,637	-\$5,779,459	-\$5,760,885
Net Investment Change	-\$109,690,026	-\$58,631,891	-\$31,726,491
Ending Market Value	\$802,026,515	\$802,026,515	\$802,026,515

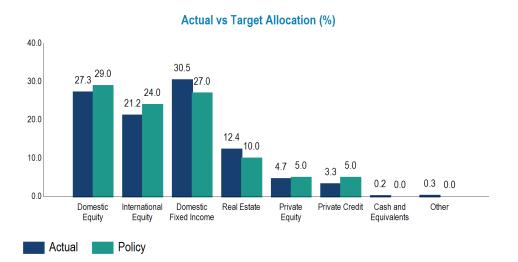
Change in Market Value Last Three Months



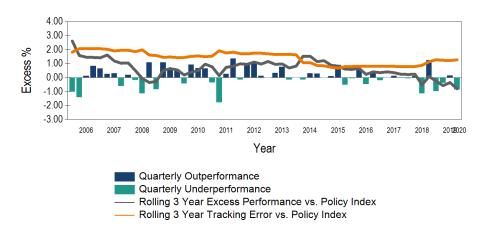
Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	-12.0	-6.7	-3.7	3.4	4.0	6.6
Policy Index	-11.1	-5.5	-1.6	4.2	4.4	6.3
InvMetrics Public DB Gross Rank	25	21	24	26	25	41
Total Domestic Equity	-20.9	-12.6	-9.0	4.1	5.7	10.1
Russell 3000	-20.9	-12.7	-9.1	4.0	5.8	10.1
InvMetrics Public DB US Eq Gross Rank	12	8	8	12	16	24
Total International Equity	-24.9	-19.9	-17.5	-2.8	-0.6	2.1
MSCI ACWI ex USA Gross	-23.3	-17.8	-15.1	-1.5	-0.2	2.5
InvMetrics Public DB ex-US Eq Gross Rank	65	79	75	64	57	86
Total Fixed Income	0.8	3.7	7.0	4.4	3.5	4.7
BBgBarc US Aggregate TR	3.1	5.7	8.9	4.8	3.4	3.9
InvMetrics Public DB Total Fix Inc Gross Rank	49	30	21	12	20	19
Total Real Estate	1.3	3.8	5.0	6.1	8.0	11.1
NCREIF-ODCE	1.0	3.8	4.9	6.8	8.5	11.4
Total Private Equity	3.3	11.1	17.4	18.1	15.7	
Private Equity Benchmark	3.3	11.1	17.4	18.1	15.0	
Total Private Credit	2.0	6.2	8.6			
Private Credit Benchmark	2.0	6.2	8.6			
Total Opportunistic	0.2	1.2	-3.3	6.8	6.5	14.6
Assumption Rate + 1%	2.0	6.1	8.3	8.3	8.4	8.7



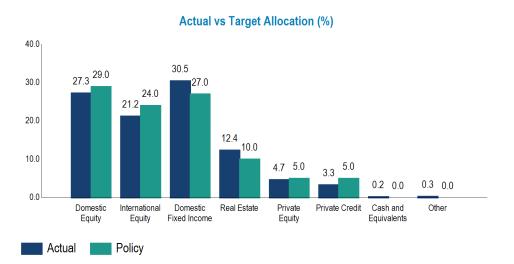
Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



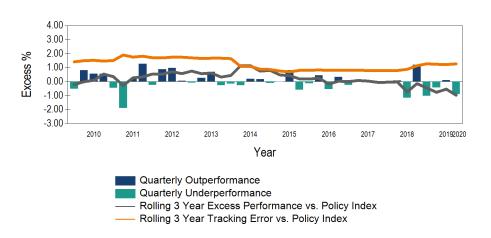
New Policy Index (as of 10/1/2018): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc US Aggregate, 10% NCREIF Property Index, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (10/1/2016 to 9/30/2018): 29% Russell 3000, 24% MSCI ACWI Ex USA Gross, 27% BBgBarc 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 (G) gross 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.



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	-12.1	-6.8	-3.9	3.3	3.8	6.2
Policy Index	-11.1	-5.5	-1.6	4.2	4.4	6.3
Total Domestic Equity	-20.9	-12.6	-9.1	4.0	5.7	10.0
Russell 3000	-20.9	-12.7	-9.1	4.0	5.8	10.1
Total International Equity	-25.0	-20.1	-17.8	-3.1	-0.9	1.7
MSCI ACWI ex USA Gross	-23.3	-17.8	-15.1	-1.5	-0.2	2.5
Total Fixed Income	0.8	3.5	6.7	4.1	3.2	4.4
BBgBarc US Aggregate TR	3.1	5.7	8.9	4.8	3.4	3.9
Total Real Estate	1.3	3.8	5.0	6.1	7.7	10.5
NCREIF-ODCE	1.0	3.8	4.9	6.8	8.5	11.4
Total Private Equity	3.3	11.1	17.4	18.1	15.0	-12.2
Private Equity Benchmark	3.3	11.1	17.4	18.1	15.0	
Total Private Credit	2.0	6.2	8.6			
Private Credit Benchmark	2.0	6.2	8.6			
Total Opportunistic	0.2	1.2	-3.3	6.8	5.9	13.4
Assumption Rate + 1%	2.0	6.1	8.3	8.3	8.4	8.7



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

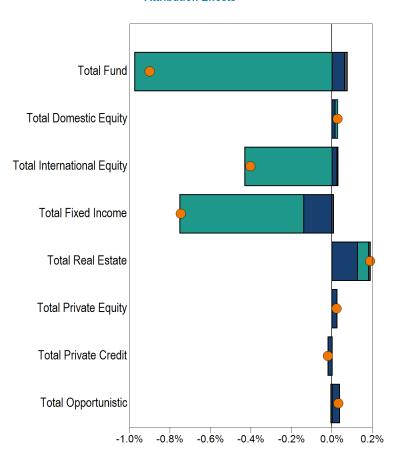


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<u>Attribution Analysis - Asset Class Level (Gross of Fees)</u>

Attribution Effects



Performance Attribution

	Quarter	YTD
Wtd. Actual Return	-12.05%	-12.05%
Wtd. Index Return *	-11.15%	-11.15%
Excess Return	-0.90%	-0.90%
Selection Effect	-0.97%	-0.97%
Allocation Effect	0.06%	0.06%
Interaction Effect	0.01%	0.01%

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

Attribution Summary Last Three Months

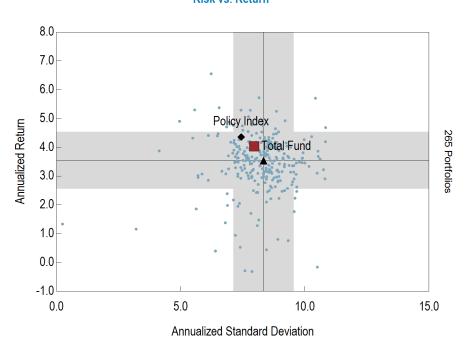
	Wtd. Actual	Wtd. Index	Excess	Selection	Allocation	Interaction	Total
	Return	Return	Return	Effect	Effect	Effects	Effects
Total Domestic Equity	-20.9%	-20.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	-24.9%	-23.3%	-1.6%	-0.4%	0.0%	0.0%	-0.4%
Total Fixed Income	0.8%	3.1%	-2.3%	-0.6%	-0.1%	0.0%	-0.7%
Total Real Estate	1.3%	0.7%	0.6%	0.1%	0.1%	0.0%	0.2%
Total Private Equity	3.3%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Private Credit	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic	0.2%	2.0%	-1.8%	0.0%	0.0%	0.0%	0.0%
Total	-12.0%	-11.1%	-0.9%	-1.0%	0.1%	0.0%	-0.9%

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



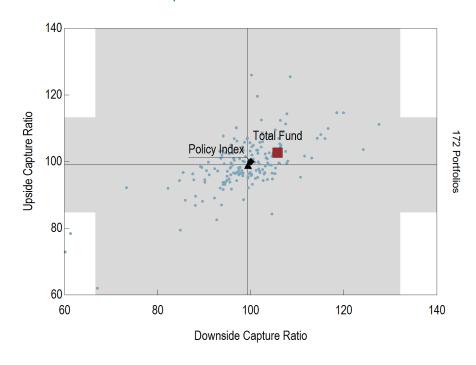
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	4.03%	-0.32%	7.95%	-0.59%	1.06	1.01%	0.99	0.37	-0.32	102.67%	105.75%

Risk vs. Return



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

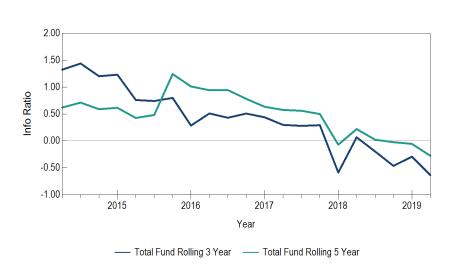
Up Markets vs. Down Markets



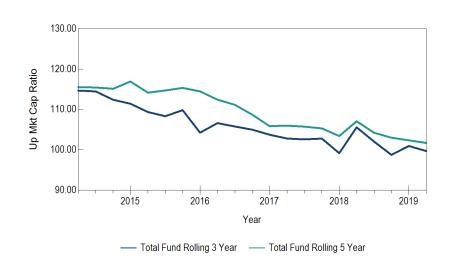
- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross



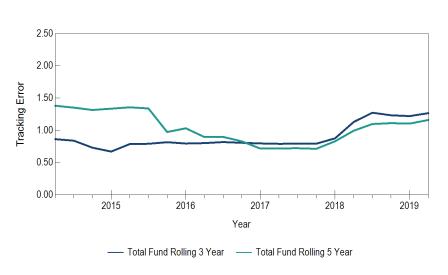
Rolling Information Ratio



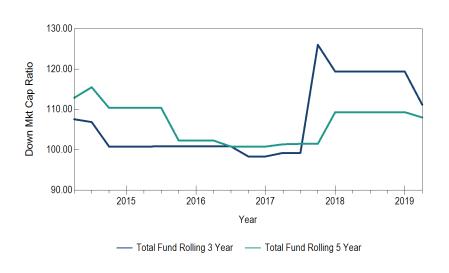
Rolling Up Market Capture Ratio (%)



Rolling Tracking Error



Rolling Down Market Capture Ratio (%)





Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception I	nception Date
Total Fund	802,026,515	100.0	-12.0	-6.7	-3.7	3.4	4.0	6.6	18.0	-4.0	16.2	7.8	0.0	8.7	Mar-89
Policy Index			-11.1	-5.5	-1.6	4.2	4.4	6.3	18.0	-2.8	15.9	8.3	-1.2		Mar-89
InvMetrics Public DB Gross Rank	_		25	21	24	26	25	41	58	50	30	49	53	5	Mar-89
Total Domestic Equity	218,891,541	27.3	-20.9	-12.6	-9.0	4.1	5.7	10.1	31.1	-5.2	21.2	12.9	0.3		
Russell 3000			-20.9	-12.7	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5		
InvMetrics Public DB US Eq Gross Rank			12	8	8	12	16	24	17	35	35	51	44		
BlackRock Russell 3000	218,891,541	27.3	-20.9	-12.6	-9.0	4.1			31.1	-5.2	21.2	12.9		6.8	Dec-15
Russell 3000			-20.9	-12.7	-9.1	4.0			31.0	-5.2	21.1	12.7		6.5	Dec-15
eV US All Cap Core Equity Gross Rank			56	49	49	45			42	49	49	35		50	Dec-15
Total International Equity	170,387,389	21.2	-24.9	-19.9	-17.5	-2.8	-0.6	2.1	21.0	-14.0	28.3	4.7	-3.5		
MSCI ACWI ex USA Gross			-23.3	-17.8	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3		
InvMetrics Public DB ex-US Eq Gross Rank			65	79	75	64	57	86	78	35	59	40	57		
BlackRock International Equity	121,159,103	15.1	-22.8	-17.3	-14.1	-1.4	-0.2	3.1	22.5	-13.4	25.5	1.5	-0.5	5.7	Jul-03
MSCI EAFE Gross			-22.7	-17.2	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4	5.8	Jul-03
eV All EAFE Equity Gross Rank			39	43	39	45	56	72	56	35	65	47	67	67	Jul-03
DFA Emerging Markets Value	22,060,886	2.8	-31.8	-30.2	-29.9	-7.8	-2.5	-1.3	10.3	-11.4	34.5	20.5	-18.3	1.4	Jan-07
MSCI Emerging Markets Value GR			-28.0	-25.7	-24.9	-5.3	-2.5	-1.0	12.5	-10.3	28.7	15.5	-18.2	1.7	Jan-07
eV Emg Mkts All Cap Value Equity Gross Rank			82	92	95	85	92	99	88	29	47	22	81	92	Jan-07
Harding Loevner Emerging Markets	27,167,399	3.4	-27.8	-21.7	-20.4	-3.8			25.4	-18.6	35.0			-0.5	Jul-16
MSCI Emerging Markets Growth GR			-19.3	-10.0	-9.7	2.7			25.4	-18.0	47.1			4.9	Jul-16
eV Emg Mkts All Cap Growth Equity Gross Rank			98	98	98	96			54	71	91			86	Jul-16
Total Fixed Income	244,671,591	30.5	0.8	3.7	7.0	4.4	3.5	4.7	9.8	-0.5	4.6	5.1	-0.3		
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6		
InvMetrics Public DB Total Fix Inc Gross Rank			49	30	21	12	20	19	30	58	59	41	55		
Tortoise Capital	101,967,948	12.7	1.3	4.3	7.7	4.9	4.0	5.1	10.2	0.2	4.5	5.1	1.2	6.5	Dec-92
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6	5.5	Dec-92
eV US Core Plus Fixed Inc Gross Rank			23	17	16	16	9	20	46	24	70	45	15	26	Dec-92
MacKay Shields Core Plus Opportunities	98,631,261	12.3	0.0	3.0	6.3	4.3	3.2		10.1	-0.7	4.9	5.1		3.1	Mar-15
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4		8.7	0.0	3.5	2.6		3.4	Mar-15
eV US Core Plus Fixed Inc Gross Rank			44	39	43	50	77		53	69	54	46		79	Mar-15
BlackRock US TIPS	44,072,382	5.5	1.6	3.8	6.8	3.6	2.8	3.6	8.5	-1.1	3.2	4.8	-1.2	4.2	Apr-07
BBgBarc US TIPS TR			1.7	3.9	6.9	3.5	2.7	3.5	8.4	-1.3	3.0	4.7	-1.4	4.1	Apr-07
eV US TIPS / Inflation Fixed Inc Gross Rank			33	36	31	25	31	38	48	47	46	37	43	59	Apr-07

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.



Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Real Estate	99,482,586	12.4	1.3	3.8	5.0	6.1	8.0	11.1	5.6	7.5	5.8	7.5	16.1		
NCREIF ODCE			1.0	3.8	4.9	6.3	7.6	10.1	5.3	7.1	7.0	8.0	13.3		
ASB Real Estate	29,142,030	3.6	1.5	1.5	2.7	4.7	6.9		3.0	6.6	4.0	5.6	17.3	8.9	Dec-12
NCREIF-ODCE			1.0	3.8	4.9	6.8	8.5		5.3	8.3	7.6	8.8	15.0	9.9	Dec-12
NCREIF Property Index			0.7	3.7	5.3	6.4	7.6		6.4	6.7	7.0	8.0	13.3	8.9	Dec-12
Clarion Lion	30,551,730	3.8	1.1	4.4	5.6	7.2	9.0	12.1	6.3	8.6	7.9	9.1	15.7	5.4	Dec-06
NCREIF-ODCE			1.0	3.8	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0	6.1	Dec-06
NCREIF Property Index			0.7	3.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3	6.8	Dec-06
ARA American Strategic Value Realty	37,868,254	4.7	1.3	5.2	6.8				7.8					7.9	Jan-18
NCREIF ODCE +2%			1.5	5.4	7.0				7.4					7.9	Jan-18
1221 State St. Corp	1,920,572	0.2	0.0	7.9	7.9	2.6	4.9	1.8	7.9	0.0	0.0	17.5	0.0	1.7	Sep-08
Total Private Equity															
Harbourvest Buyout IX	7,447,813	0.9	4.1	13.4	21.6	22.1	18.8		17.6	23.6	23.2	15.8	21.1		Sep-11
Harbourvest Credit Ops IX	1,230,675	0.2	2.7	7.2	11.7	11.5	12.0		8.0	14.4	17.5	10.9	16.1		Sep-11
Harbourvest International PE VI	2,476,083	0.3	1.6	-3.7	-0.1	11.2	10.6	7.6	-2.9	14.8	19.4	13.6	9.8		Jun-10
Harbourvest Venture IX	4,533,580	0.6	3.9	16.9	23.5	20.8	16.8		24.6	25.9	9.4	6.5	24.2		Sep-11
Harbourvest 2017 Global Fund	16,096,841	2.0	4.6	12.2	17.8				8.8	20.9				17.0	Sep-17
Harbourvest 2018 Global Fund	5,825,793	0.7	-0.6	11.1	21.0				14.3					10.0	Dec-18
Russell 3000 + 3%			-20.3	-10.7	-6.4				34.9					-1.7	Dec-18
Total Private Credit															
Portfolio Advisors	26,559,508	3.3	2.0	6.2	8.6				8.9	6.7				7.3	Oct-17
BBgBarc High Yield +2% (Lagged)			3.1	8.2	16.6				8.5	5.1				7.5	Oct-17
Total Opportunistic															
KKR Mezzanine Partners	2,383,327	0.3	1.6	5.0	1.5	9.0	8.0		-4.2	25.3	8.7	5.6	5.9	11.2	Apr-11
PIMCO BRAVO	147,331	0.0	-17.7	-35.1	-44.5	-13.3	-6.0		-49.1	77.8	-12.4	12.5	2.2	7.1	May-11
Total Cash															
Cash Account	1,892,457	0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills			0.4	1.3	1.9	1.7	1.1		2.1	1.9	0.9	0.3	0.0		

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.



Total Fund Performance Summary (Net of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception I	nception Date
Total Fund	802,026,515	100.0	-12.1	-6.8	-3.9	3.3	3.8	6.2	17.8	-4.1	16.0	7.4	-0.4	8.3	Mar-89
Policy Index			-11.1	-5.5	-1.6	4.2	4.4	6.3	18.0	-2.8	15.9	8.3	-1.2		Mar-89
Total Domestic Equity	218,891,541	27.3	-20.9	-12.6	-9.1	4.0	5.7	10.0	31.1	-5.2	21.2	12.8	0.1		
Russell 3000			-20.9	-12.7	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5		
BlackRock Russell 3000	218,891,541	27.3	-20.9	-12.6	-9.1	4.0	-		31.1	-5.2	21.2	12.8		6.7	Dec-15
Russell 3000			-20.9	-12.7	-9.1	4.0			31.0	-5.2	21.1	12.7		6.5	Dec-15
Total International Equity	170,387,389	21.2	-25.0	-20.1	-17.8	-3.1	-0.9	1.7	20.7	-14.3	27.9	4.4	-4.0	-	
MSCI ACWI ex USA Gross			-23.3	-17.8	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3		
BlackRock International Equity	121,159,103	15.1	-22.8	-17.4	-14.1	-1.5	-0.3	3.0	22.4	-13.5	25.4	1.3	-0.6	5.6	Jul-03
MSCI EAFE Gross			-22.7	-17.2	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4	5.8	Jul-03
DFA Emerging Markets Value	22,060,886	2.8	-31.9	-30.5	-30.3	-8.3	-3.0	-1.9	9.6	-11.9	33.8	19.8	-18.8	0.8	Jan-07
MSCI Emerging Markets Value GR			-28.0	-25.7	-24.9	-5.3	-2.5	-1.0	12.5	-10.3	28.7	15.5	-18.2	1.7	Jan-07
Harding Loevner Emerging Markets	27,167,399	3.4	-28.0	-22.3	-21.3	-4.8			24.0	-19.5	33.6			-1.5	Jul-16
MSCI Emerging Markets Growth GR			-19.3	-10.0	-9.7	2.7			25.4	-18.0	47.1			4.9	Jul-16
Total Fixed Income	244,671,591	30.5	0.8	3.5	6.7	4.1	3.2	4.4	9.5	-0.8	4.3	4.8	-0.6		
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6		
Tortoise Capital	101,967,948	12.7	1.2	4.1	7.4	4.6	3.7	4.8	9.9	-0.1	4.3	4.8	0.9	6.2	Dec-92
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6	5.5	Dec-92
MacKay Shields Core Plus Opportunities	98,631,261	12.3	-0.1	2.8	6.0	3.9	2.8		9.7	-1.0	4.5	4.7		2.7	Mar-15
BBgBarc US Aggregate TR			3.1	5.7	8.9	4.8	3.4		8.7	0.0	3.5	2.6		3.4	Mar-15
BlackRock US TIPS	44,072,382	5.5	1.6	3.8	6.8	3.5	2.7	3.5	8.5	-1.2	3.2	4.8	-1.3	4.1	Apr-07
BBgBarc US TIPS TR			1.7	3.9	6.9	3.5	2.7	3.5	8.4	-1.3	3.0	4.7	-1.4	4.1	Apr-07



Total Fund Performance Summary (Net of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Real Estate	99,482,586	12.4	1.3	3.8	5.0	6.1	7.7	10.5	5.6	7.5	5.8	6.5	15.0		
NCREIF ODCE			1.0	3.8	4.9	6.3	7.6	10.1	5.3	7.1	7.0	8.0	13.3		
ASB Real Estate	29,142,030	3.6	1.5	1.5	2.7	4.7	6.6		3.0	6.6	4.0	4.6	16.2	8.3	Dec-12
NCREIF-ODCE			1.0	3.8	4.9	6.8	8.5		5.3	8.3	7.6	8.8	15.0	9.9	Dec-12
NCREIF Property Index			0.7	3.7	5.3	6.4	7.6		6.4	6.7	7.0	8.0	13.3	8.9	Dec-12
Clarion Lion	30,551,730	3.8	1.1	4.4	5.6	7.2	8.6	11.4	6.3	8.6	7.9	8.0	14.6	4.6	Dec-06
NCREIF-ODCE			1.0	3.8	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0	6.1	Dec-06
NCREIF Property Index			0.7	3.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3	6.8	Dec-06
ARA American Strategic Value Realty	37,868,254	4.7	1.3	5.2	6.8				7.8					7.9	Jan-18
NCREIF ODCE +2%			1.5	5.4	7.0				7.4					7.9	Jan-18
1221 State St. Corp	1,920,572	0.2	0.0	7.9	7.9	2.6	4.9	1.8	7.9	0.0	0.0	17.5	0.0	1.7	Sep-08
Total Private Equity															
Harbourvest Buyout IX	7,447,813	0.9	4.1	13.4	21.6	22.1	17.9		17.6	23.6	23.2	13.7	18.0		Sep-11
Harbourvest Credit Ops IX	1,230,675	0.2	2.7	7.2	11.7	11.5	11.0		8.0	14.4	17.5	8.5	12.8		Sep-11
Harbourvest International PE VI	2,476,083	0.3	1.6	-3.7	-0.1	11.2	10.1	-13.6	-2.9	14.8	19.4	12.2	8.3		Jun-10
Harbourvest Venture IX	4,533,580	0.6	3.9	16.9	23.5	20.8	16.3		24.6	25.9	9.4	5.3	22.4		Sep-11
Harbourvest 2017 Global Fund	16,096,841	2.0	4.6	12.2	17.8				8.8	20.9				17.0	Sep-17
Harbourvest 2018 Global Fund	5,825,793	0.7	-0.6	11.1	21.0				14.3					10.0	Dec-18
Russell 3000 + 3%			-20.3	-10.7	-6.4				34.9					-1.7	Dec-18
Total Private Credit															
Portfolio Advisors	26,559,508	3.3	2.0	6.2	8.6				8.9	6.7				7.3	Oct-17
BBgBarc High Yield +2% (Lagged)			3.1	8.2	16.6				8.5	5.1				7.5	Oct-17
Total Opportunistic															
KKR Mezzanine Partners	2,383,327	0.3	1.6	5.0	1.5	9.0	7.5		-4.2	25.3	8.7	4.0	4.1	10.2	Apr-11
PIMCO BRAVO	147,331	0.0	-17.7	-35.1	-44.5	-13.3	-6.4		-49.1	77.8	-12.4	11.2	1.0	6.3	May-11
Total Cash															
Cash Account	1,892,457	0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills	,,		0.4	1.3	1.9	1.7	1.1		2.1	1.9	0.9	0.3	0.0		



				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	4.05%	0.04%	15.83%	0.05%	1.00	0.05%	1.00	0.15	0.94	100.21%	99.97%
BlackRock International Equity	-1.53%	-0.20%	14.60%	-0.20%	1.00	0.16%	1.00	-0.22	-1.28	99.86%	100.69%
DFA Emerging Markets Value	-8.33%	-3.02%	19.28%	-2.69%	1.06	3.08%	0.98	-0.52	-0.98	93.06%	105.14%
Harding Loevner Emerging Markets	-4.81%	-7.46%	19.60%	-7.66%	1.07	5.00%	0.94	-0.33	-1.49	80.35%	111.18%
Tortoise Capital	4.62%	-0.21%	3.28%	0.04%	0.95	1.26%	0.85	0.88	-0.16	98.25%	104.06%
MacKay Shields Core Plus Opportunities	3.89%	-0.93%	3.69%	-0.99%	1.01	1.77%	0.77	0.59	-0.53	95.21%	126.61%
BlackRock US TIPS	3.50%	0.04%	3.46%	0.02%	1.01	0.06%	1.00	0.51	0.58	100.77%	100.30%
ASB Real Estate	4.67%	-2.14%	2.44%	-0.02%	0.69	1.69%	0.66	1.20	-1.27	67.16%	
Clarion Lion	7.15%	0.34%	2.98%	0.16%	1.03	0.41%	0.98	1.82	0.83	105.30%	

				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	-0.33%	-0.20%	14.13%	-0.20%	1.00	0.12%	1.00	-0.10	-1.64	99.61%	100.48%
DFA Emerging Markets Value	-3.02%	-0.51%	19.67%	-0.39%	1.05	3.04%	0.98	-0.21	-0.17	105.65%	102.30%
Tortoise Capital	3.69%	0.33%	3.17%	0.47%	0.96	1.14%	0.87	0.81	0.29	105.30%	97.95%
MacKay Shields Core Plus Opportunities	2.80%	-0.56%	3.49%	-0.47%	0.97	1.77%	0.74	0.48	-0.32	98.39%	117.65%
BlackRock US TIPS	2.72%	0.05%	3.38%	0.04%	1.00	0.10%	1.00	0.47	0.49	100.78%	99.76%
ASB Real Estate	6.57%	-1.89%	3.97%	-1.29%	0.93	2.00%	0.75	1.37	-0.94	77.78%	
Clarion Lion	8.57%	0.11%	3.96%	-0.27%	1.05	0.83%	0.96	1.88	0.14	105.35%	



Vintage	Manager & Fund Name	Estimated 3/31 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	\$7,447,813	\$10,000,000	\$8,275,000	83%	\$1,725,000	\$6,708,192	\$7,871,859	81.1%	171.1%	17.9%	9/30/19
2011	HarbourVest IX-Credit	\$1,230,675	\$2,000,000	\$1,500,000	75%	\$500,000	\$1,023,695	\$1,316,167	68.2%	150.3%	13.6%	9/30/19
2008	HarbourVest Int'l VI ⁵	\$2,476,083	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$2,176,140	\$2,667,015	82.7%	176.9%	14.8%	9/30/19
2011	HarbourVest IX-Venture	\$4,533,580	\$4,000,000	\$3,800,000	95%	\$200,000	\$2,942,872	\$4,895,136	77.4%	196.7%	18.1%	9/30/19
2017	HarbourVest 2017 Global	\$16,096,841	\$30,000,000	\$14,250,000	48%	\$15,750,000	\$2,260,137	\$14,391,861	15.9%	128.8%	16.7%	9/30/19
2018	HarbourVest 2018 Global	\$5,825,793	\$20,000,000	\$5,500,000	28%	\$14,500,000	\$0	\$3,958,794	0.0%	105.9%	N/A	N/A
2019	HarbourVest 2019 Global	N/A	\$20,000,000	\$0	0%	\$20,000,000	\$0	N/A	N/A	N/A	N/A	N/A
	Total Illiquid Private Equity	\$37,610,785	\$89,712,930	\$35,955,078	40%	\$53,757,852	\$15,111,036	\$35,100,832	97.6%	139.7%		
	% of Portfolio (Market Value)	4.3%						Management	Admin	Interest	Other	Total
								Fee	Fee	Expense	Expense	Expense ⁶
						HarbourVest IX	K-Buyout	\$24,913	\$0	\$0	\$0	\$24,913
						HarbourVest IX	K-Credit	\$4,977	\$0	\$344	\$0	\$5,321
						HarbourVest Ir	nt'l VI	\$6,056	\$0	\$0	\$0	\$6,056
						HarbourVest IX	HarbourVest IX-Venture		\$0	\$0	\$0	\$9,982
						HarbourVest 2	017 Global	\$66,000	\$0	\$10,979	\$0	\$76,979
						HarbourVest 2	018 Global	\$0	\$0	\$0	\$0	\$0
					_	HarbourVest 2019 Global		\$0	\$0	\$0	\$0	\$0



\$0

\$11,323

\$111,928

\$0 **\$123,251**

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

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

³Last known market value + capital calls - distributions (preliminary MV's as of 12/31/19)

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 4Q 2019

Vintage	Manager & Fund Name	Estimated 3/31 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	\$13,272,288	\$11,250,000	\$11,250,000	100%	\$0	\$0	\$12,436,215	0.0%	118.0%	8.7%	12/31/19
2017	Crescent Direct Lending Levered Fund II	\$5,264,066	\$7,000,000	\$5,081,501	73%	\$1,918,499	\$48,772	\$3,470,456	1.0%	104.6%	11.4%	9/30/19
2017	Audax Direct Lending Fund A	\$2,804,910	\$7,000,000	\$1,873,721	27%	\$5,126,279	\$72,094	NA	3.8%	153.5%	NM^6	NM^6
2018	Ares Capital Europe IV	\$5,064,945	\$8,000,000	\$3,569,037	45%	\$4,430,963	\$81,940	NA	2.3%	144.2%	NM^7	NM^7
2019	Lone Star Fund XI	\$153,299	\$5,750,000	\$263,253	5%	\$5,486,747	\$0	NA	0.0%	58.2%	20.4%	9/30/19
2019	Ascribe Opportunities IV	\$0	\$6,000,000	\$0	0%	\$6,000,000	\$0	NA	NA	NA	NA	NA
	Total Illiquid Private Credit	\$26,559,508	\$45,000,000	\$22,037,512	49%	\$22,962,488	\$202,806	\$15,906,671	72.2%	73.1%	Other	Tatal
	% of Portfolio (Market Value)	3.1%					Management	Accrued	Admin	Interest	Other	Total
							Fee	Carried Interest	Fee	Expense	Expense	Expense ⁵
					Portfolio Ad	visors CSF	\$0	\$32,725	\$0	\$0	\$0	\$32,725
					Crescent D	irect Lending II	\$0	\$0	\$0	\$0	\$0	\$0
					Audax Dire	ct Lending A	\$15,739	\$0	\$0	\$0	\$50,819	\$66,558
					Ares Capita	I Europe IV	\$16,106	\$21,614	\$5,335	\$23,563	\$0	\$66,618
					Ascribe Op	portunities IV	\$0	\$0	\$0	\$0	\$0	\$0
					Lone Star F	und XI	\$0	\$0	\$0	\$0	\$0	\$0

\$31.845

\$54,339



\$5,335

\$23.563

\$50,819 **\$165,901**

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

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

³Last known market value + capital calls - distributions (preliminary MV's as of 12/31/19)

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 4Q 2019

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

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

Vintage	Manager & Fund Name	Estimated 3/31 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	\$2,383,327	\$10,000,000	\$10,000,000	100%	\$0	\$13,137,486	\$2,251,093	131.4%	155.2%	8.2%	9/30/19
2011	PIMCO BRAVO ⁴	\$147,331	\$10,000,000	\$10,000,000	100%	\$0	\$18,054,734	\$138,288	180.5%	182.0%	22.1%	9/30/19
	Total Illiquid Opportunistic % of Portfolio (Market Value)	\$2,530,658	\$20,000,000	\$20,000,000	100%	\$0	\$31,192,220 Management	\$2,389,381	11.9% Admin	167.9%	Other	Total
							Fee	Carried Interest	Fee	Expense	Expense	Expense'
					KKR Mezz	anine	\$0	\$0	\$0	\$0	\$0	\$0
				_	PIMCO BR	AVO	\$0	\$0	\$0	\$0	\$0	\$0
							\$0	\$0	\$0	\$0	soF	\$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 12/31/19)

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 \$11,796,786, which includes recycled distributions. Unused capital commitment is \$1,054,718 after including distribution proceeds available for reinvestment

⁷All fees and expenses are for 4Q 2019

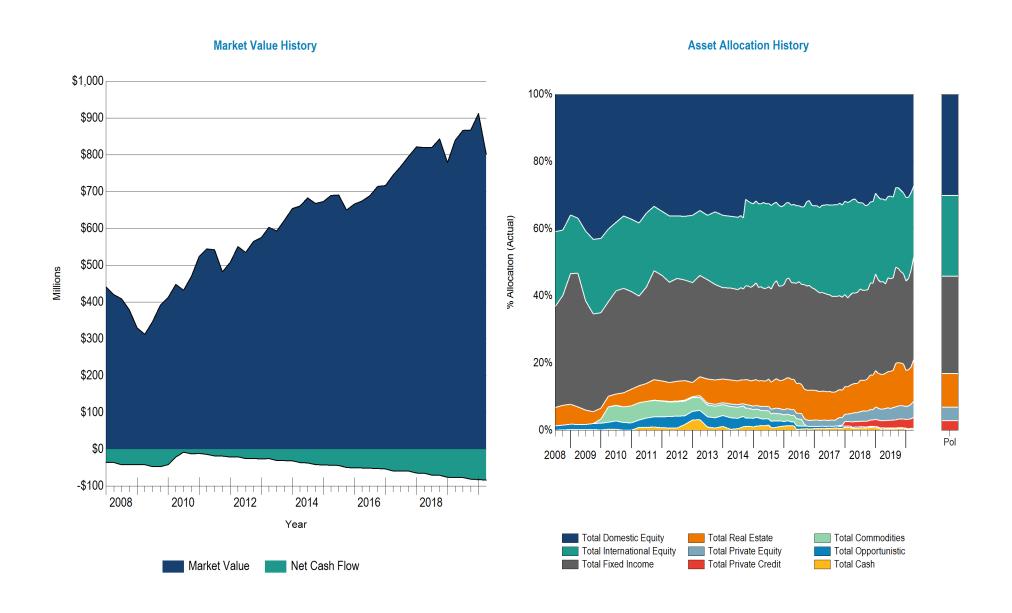
Manager	Beginning Market Value	Contributions	Disbursements	Fees ²	Net Cash Flow	Investment Income	Capital Gain/ Loss	Total Gains/Earnings/ Losses	Ending Market Value
Blackrock Russell 3000 Index	\$241,281,135	\$0	(\$2,999,897)	\$0	(\$2,999,897)	\$0	(\$19,389,698)	(\$19,389,698)	\$218,891,541
DFA Emerging Markets	\$32,391,342	\$0	\$0	\$0	\$0	\$0	(\$10,330,456)	(\$10,330,456)	\$22,060,886
Harding Loevner Emerging Markets	\$37,614,216	\$0	\$0	\$0	\$0	\$0	(\$10,446,816)	(\$10,446,816)	\$27,167,399
Blackrock International Equity	\$156,909,662	\$0	\$0	\$0	\$0	\$0	(\$35,750,559)	(\$35,750,559)	\$121,159,103
Tortoise Capital	\$100,646,238	\$0	\$0	\$0	\$0	\$0	\$1,321,710	\$1,321,710	\$101,967,948
MacKay Shields Core Plus Opp.	\$98,716,435	\$0	\$0	\$0	\$0	\$0	(\$85,174)	(\$85,174)	\$98,631,261
Blackrock US TIPS	\$43,369,987	\$0	\$0	\$0	\$0	\$0	\$702,396	\$702,396	\$44,072,382
Clarion Lion Properties	\$30,129,690	\$280,729	(\$281,139)	(\$77,227)	(\$77,637)	\$0	\$499,677	\$499,677	\$30,551,730
ICERS State Street Real Estate	\$1,943,683	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,920,572
ASB Allegiance Real Estate	\$28,644,554	\$0	\$0	(\$67,141)	(\$67,141)	\$228,266	\$336,352	\$564,617	\$29,142,030
ARA American Strategic Value Realty	\$36,533,695	\$0	\$0	\$0	\$0	\$0	\$1,334,560	\$1,334,560	\$37,868,254
Portfolio Advisors Credit Strategies Fund	\$12,978,259	\$0	\$0	(\$32,725)	(\$32,725)	\$0	\$326,754	\$326,754	\$13,272,288
Crescent Direct Lending II ³	\$4,936,038	\$9	\$0	\$0	\$9	\$0	\$328,019	\$328,019	\$5,264,066
Audax Direct Lending A	\$1,947,962	\$843,342	(\$48,335)	(\$15,739)	\$779,268	\$0	\$77,680	\$77,680	\$2,804,910
Ares Capital Europe IV	\$4,380,642	\$573,370	(\$47,644)	(\$16,106)	\$509,620	\$47,644	\$127,040	\$174,684	\$5,064,945
Lone Star Fund XI ³	\$153,299	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$153,299
PIMCO BRAVO 1	\$179,087	\$0	\$0	\$0	\$0	\$0	(\$31,756)	(\$31,756)	\$147,331
KKR Mezzanine I ¹	\$2,279,320	\$68,266	\$0	\$0	\$68,266	\$0	\$35,741	\$35,741	\$2,383,327
HarbourVest International VI ¹	\$2,553,812	\$0	(\$118,432)	(\$6,056)	(\$124,488)	\$0	\$46,759	\$46,759	\$2,476,083
HarbourVest Buyout IX ¹	\$7,394,179	\$0	(\$249,534)	(\$24,913)	(\$274,447)	\$0	\$328,081	\$328,081	\$7,447,813
HarbourVest Credit Opportunities IX ¹	\$1,222,661	\$0	(\$24,393)	(\$4,977)	(\$29,370)	\$0	\$37,384	\$37,384	\$1,230,675
HarbourVest Venture IX ¹	\$4,529,670	\$0	(\$174,031)	(\$9,982)	(\$184,013)	\$0	\$187,923	\$187,923	\$4,533,580
HarbourVest 2017 Global ¹	\$13,641,861	\$1,050,000	\$0	\$66,000	\$1,116,000	\$0	\$1,338,980	\$1,338,980	\$16,096,841
HarbourVest 2018 Global ¹	\$4,958,794	\$900,000	\$0	\$0	\$900,000	\$0	(\$33,001)	(\$33,001)	\$5,825,793
Cash	\$2,990,639	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,892,457
Totals	\$872,326,858	\$3,715,715	(\$943,508)	(\$188,866)	(\$416,556)	\$275,910	(\$69,038,404)	(\$68,762,495)	\$802,026,515

¹Market value as of 12/31/2019/ +/- 1Q20 calls and distributions

³Market value as of 9/30/2019/ +/- 1Q20 calls and distributions



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





Current	Policy
27.3%	29.0%
21.2%	24.0%
30.5%	27.0%
12.4%	10.0%
4.7%	5.0%
$\frac{3.3\%}{0.2\%}$	5.0% 0.0%

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$218,891,541	27.3%	29.0%	-\$13,696,149	19.0% - 39.0%	Yes
International Equity	\$170,387,389	21.2%	24.0%	-\$22,098,975	14.0% - 34.0%	Yes
Domestic Fixed Income	\$244,671,591	30.5%	27.0%	\$28,124,432	17.0% - 40.0%	Yes
Real Estate	\$99,482,586	12.4%	10.0%	\$19,279,935	5.0% - 15.0%	Yes
Private Equity	\$37,610,785	4.7%	5.0%	-\$2,490,541	0.0% - 10.0%	Yes
Private Credit	\$26,559,508	3.3%	5.0%	-\$13,541,818	0.0% - 10.0%	Yes
Cash and Equivalents	\$1,892,457	0.2%	0.0%	\$1,892,457	0.0% - 0.0%	No
Other	\$2,530,658	0.3%	0.0%	\$2,530,658	0.0% - 10.0%	Yes
Total	\$802,026,515	100.0%	100.0%			



Total Fund Investment Fee Analysis

Period Ending: March 31, 2020

Account	Fee Schedule	Market Value As of 3/31/2020	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,920,572	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	\$37,868,254	4.8%	\$446,551	1.18%
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$29,142,030	3.7%	\$268,565	0.92%
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$121,159,103	15.4%	\$125,000	0.10%
BlackRock Russell 3000	0.03% of Assets	\$218,891,541	27.8%	\$65,667	0.03%
BlackRock US TIPS	0.07% of Assets	\$44,072,382	5.6%	\$30,851	0.07%
Cash Account	No Fee	\$1,892,457	0.2%		
Clarion Lion	No Fee	\$30,551,730	3.9%	-	
DFA Emerging Markets Value	0.54% of Assets	\$22,060,886	2.8%	\$119,129	0.54%
Harbourvest 2017 Global Fund	262,500 Annually	\$16,096,841	2.0%	\$262,500	1.63%
Harbourvest 2018 Global Fund	138,000 Annually	\$5,825,793	0.7%	\$138,000	2.37%
Harbourvest Buyout IX	100,000 Annually	\$7,447,813	0.9%	\$100,000	1.34%
Harbourvest Credit Ops IX	20,000 Annually	\$1,230,675	0.2%	\$20,000	1.63%
Harbourvest International PE VI	35,000 Annually	\$2,476,083	0.3%	\$35,000	1.41%
Harbourvest Venture IX	40,000 Annually	\$4,533,580	0.6%	\$40,000	0.88%
Harding Loevner Emerging Markets	1.05% of Assets	\$27,167,399	3.4%	\$285,258	1.05%
KKR Mezzanine Partners	150,000 Annually	\$2,383,327	0.3%	\$150,000	6.29%
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$98,631,261	12.5%	\$345,209	0.35%
PIMCO BRAVO	1.90% of Assets	\$147,331	0.0%	\$2,799	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$13,272,288	1.7%	\$180,000	1.36%
Tortoise Capital	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$101,967,948	12.9%	\$289,920	0.28%
Investment Management Fee		\$788,739,295	100.0%	\$2,904,449	0.37%

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



^{*}HarbourVest, 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.

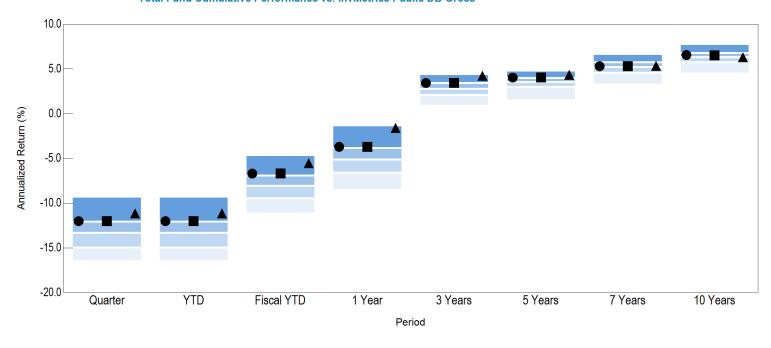
^{*}HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

^{*}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.

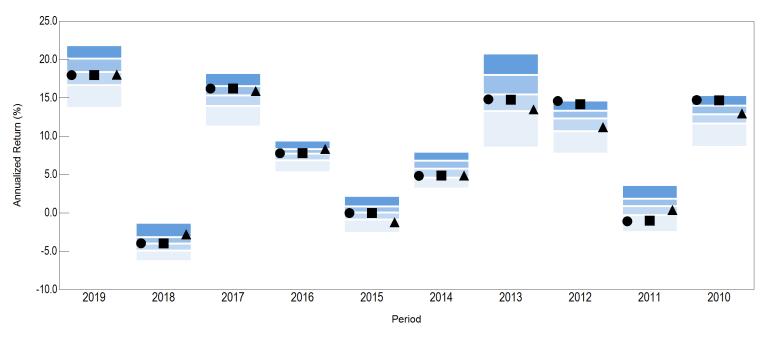
Total Fund Cumulative Performance vs. InvMetrics Public DB Gross



	Return (Ra	ank)															
5th Percentile	-9.3		-9.3		-4.6		-1.3		4.4		4.8		6.7		7.8		
25th Percentile	-12.1		-12.1		-6.9		-3.8		3.4		4.0		5.8		6.8		
Median	-13.3		-13.3		-8.0		-5.1		2.8		3.5		5.2		6.3		
75th Percentile	-15.0		-15.0		-9.4		-6.6		2.1		3.0		4.6		5.8		
95th Percentile	-16.5		-16.5		-11.1		-8.5		0.9		1.5		3.3		4.5		
# of Portfolios	284		284		283		282		273		265		248		227		
 Total Fund Total Fund ex Parametric Policy Index 	-12.0 -12.0 -11.1	(25) (25) (15)	-12.0 -12.0 -11.1	(25) (25) (15)	-6.7 -6.7 -5.5	(21) (21) (9)	-3.7 -3.7 -1.6	(24) (24) (7)	3.4 3.4 4.2	(26) (26) (10)	4.0 4.0 4.4	(25) (25) (13)	5.3 5.3 5.3	(47) (47) (46)	6.6 6.5 6.3	(41) (43) (52)	



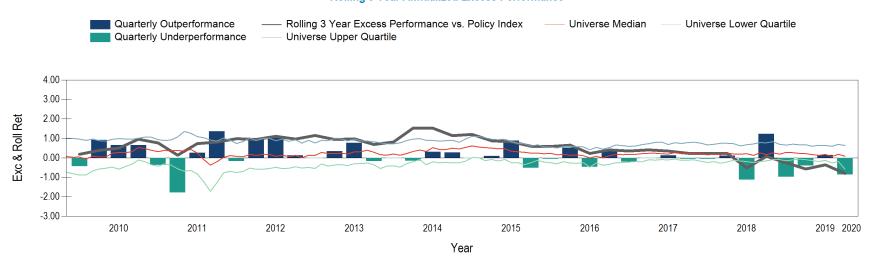
Total Fund Consecutive Periods vs. InvMetrics Public DB Gross



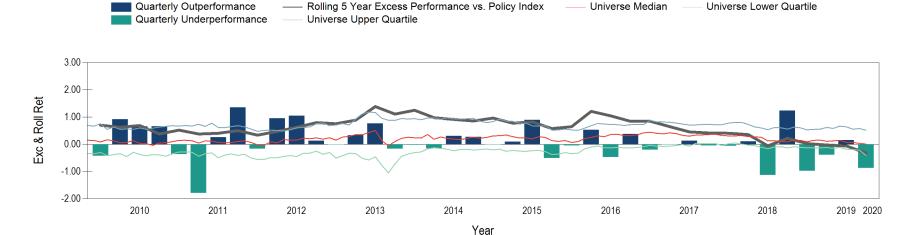
	Return (Rank)								
5th Percentile	21.9	-1.3	18.2	9.4	2.2	8.0	20.8	14.6	3.6	15.4
25th Percentile	20.1	-3.1	16.5	8.4	0.9	6.8	18.0	13.4	1.9	14.0
Median	18.4	-4.0	15.3	7.7	0.1	5.8	15.5	12.4	0.9	12.9
75th Percentile	16.7	-4.9	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	11.7
95th Percentile	13.7	-6.3	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	8.6
# of Portfolios	330	319	304	305	316	248	231	236	206	188
Total Fund	18.0 (58)	-4.0 (50)	16.2 (30)	7.8 (49)	0.0 (53)	4.8 (74)	14.8 (59)	14.6 (6)	-1.1 (89)	14.7 (13)
Total Fund ex Parametric	18.0 (58)	-4.0 (50)	16.2 (30)	7.8 (49)	0.0 (53)	4.9 (72)	14.7 (59)	14.2 (11)	-1.0 (88)	14.7 (15)
▲ Policy Index	18.0 (57)	-2.8 (18)	15.9 (40)	8.3 (26)	-1.2 (81)	4.9 (72)	13.5 (74)	11.2 (72)	0.4 (63)	13.0 (49)



Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance





	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	218,891,541	-20.9	-12.6	-9.0	4.1	5.7	10.1	31.1	-5.2	21.2	12.9	0.3
Russell 3000		-20.9	-12.7	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5
InvMetrics Public DB US Eq Gross Rank		12	8	8	12	16	24	17	35	35	51	44
BlackRock Russell 3000	218,891,541	-20.9	-12.6	-9.0	4.1			31.1	-5.2	21.2	12.9	
Russell 3000		-20.9	-12.7	-9.1	4.0			31.0	-5.2	21.1	12.7	
eV US All Cap Core Equity Gross Rank		56	49	49	45			42	49	49	35	

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

Large
Value

Total Domestic Equity

BlackRock
Russell 3000

Mid
Value

Small
Value

Small
Value

Large
Growth

Growth

Srowth

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



Period Ending: March 31, 2020

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	218,891,541	-20.9	-12.6	-9.1	4.0	5.7	10.0	31.1	-5.2	21.2	12.8	0.1
Russell 3000		-20.9	-12.7	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5
BlackRock Russell 3000	218,891,541	-20.9	-12.6	-9.1	4.0			31.1	-5.2	21.2	12.8	
Russell 3000		-20.9	-12.7	-9.1	4.0			31.0	-5.2	21.1	12.7	

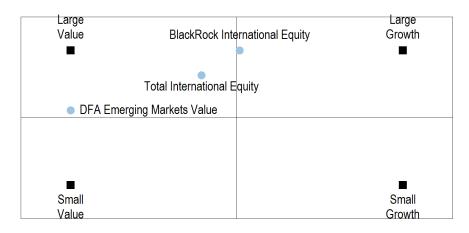


	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	170,387,389	-24.9	-19.9	-17.5	-2.8	-0.6	2.1	21.0	-14.0	28.3	4.7	-3.5
MSCI ACWI ex USA Gross		-23.3	-17.8	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3
InvMetrics Public DB ex-US Eq Gross Rank		65	79	75	64	57	86	78	35	59	40	57
BlackRock International Equity	121,159,103	-22.8	-17.3	-14.1	-1.4	-0.2	3.1	22.5	-13.4	25.5	1.5	-0.5
MSCI EAFE Gross		-22.7	-17.2	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4
eV All EAFE Equity Gross Rank		39	43	39	45	56	72	56	35	65	47	67
DFA Emerging Markets Value	22,060,886	-31.8	-30.2	-29.9	-7.8	-2.5	-1.3	10.3	-11.4	34.5	20.5	-18.3
MSCI Emerging Markets Value GR		-28.0	-25.7	-24.9	-5.3	-2.5	-1.0	12.5	-10.3	28.7	15.5	-18.2
eV Emg Mkts All Cap Value Equity Gross Rank		82	92	95	85	92	99	88	29	47	22	81
Harding Loevner Emerging Markets	27,167,399	-27.8	-21.7	-20.4	-3.8			25.4	-18.6	35.0		
MSCI Emerging Markets Growth GR		-19.3	-10.0	-9.7	2.7			25.4	-18.0	47.1		
eV Emg Mkts All Cap Growth Equity Gross Rank		98	98	98	96			54	71	91		

EAFE Effective Style Map 3 Years 3 Months Ending March 31, 2020



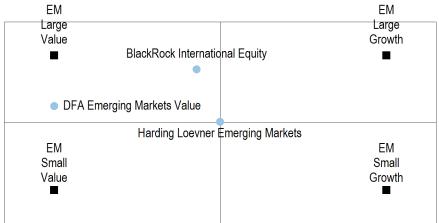
EAFE Effective Style Map 5 Years 3 Months Ending March 31, 2020





	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	170,387,389	-25.0	-20.1	-17.8	-3.1	-0.9	1.7	20.7	-14.3	27.9	4.4	-4.0
MSCI ACWI ex USA Gross		-23.3	-17.8	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3
BlackRock International Equity	121,159,103	-22.8	-17.4	-14.1	-1.5	-0.3	3.0	22.4	-13.5	25.4	1.3	-0.6
MSCI EAFE Gross		-22.7	-17.2	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4
DFA Emerging Markets Value	22,060,886	-31.9	-30.5	-30.3	-8.3	-3.0	-1.9	9.6	-11.9	33.8	19.8	-18.8
MSCI Emerging Markets Value GR		-28.0	-25.7	-24.9	-5.3	-2.5	-1.0	12.5	-10.3	28.7	15.5	-18.2
Harding Loevner Emerging Markets	27,167,399	-28.0	-22.3	-21.3	-4.8			24.0	-19.5	33.6		
MSCI Emerging Markets Growth GR		-19.3	-10.0	-9.7	2.7			25.4	-18.0	47.1		

EM Effective Style Map 3 Years 3 Months Ending March 31, 2020

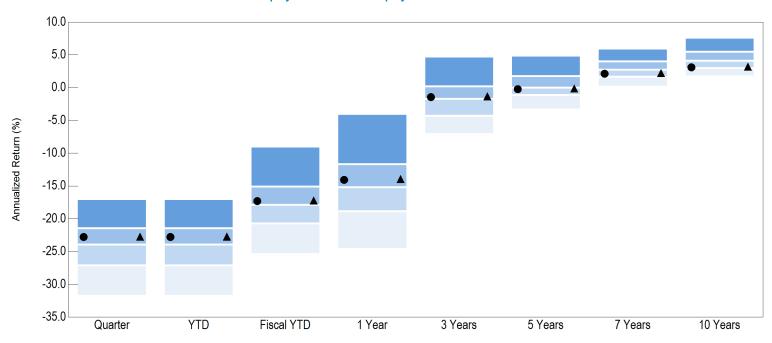


EM Effective Style Map 5 Years 3 Months Ending March 31, 2020





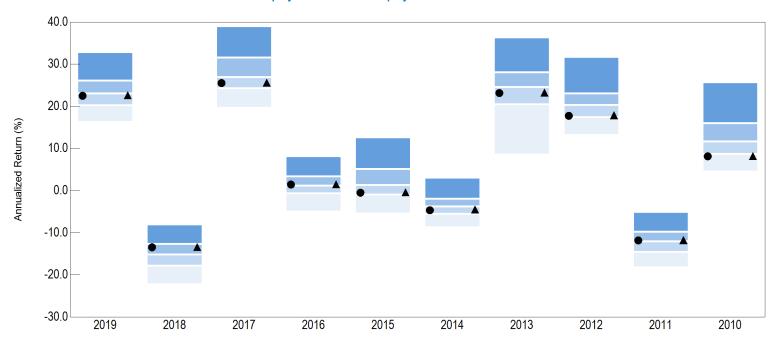
BlackRock International Equity vs. eV All EAFE Equity Gross Universe



	Return (R	ank)														
5th Percentile	-17.0		-17.0		-9.0		-4.0		4.7		4.9		6.0		7.6	
25th Percentile	-21.4		-21.4		-15.1		-11.7		0.2		1.8		4.0		5.5	
Median	-23.9		-23.9		-17.8		-15.2		-1.7		0.0		2.8		4.1	
75th Percentile	-27.1		-27.1		-20.7		-18.8		-4.3		-1.1		1.7		3.0	
95th Percentile	-31.7		-31.7		-25.4		-24.6		-7.1		-3.3		0.2		1.7	
# of Portfolios	393		393		392		392		373		331		290		257	
BlackRock International EquityMSCI EAFE Gross	-22.8 -22.7	(39) (37)	-22.8 -22.7	(39) (37)	-17.3 -17.2	(43) (40)	-14.1 -13.9	(39) (37)	-1.4 -1.3	(45) (42)	-0.2 -0.1	(56) (53)	2.1 2.2	(64) (62)	3.1 3.2	(72) (70)



BlackRock International Equity vs. eV All EAFE Equity Gross Universe



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

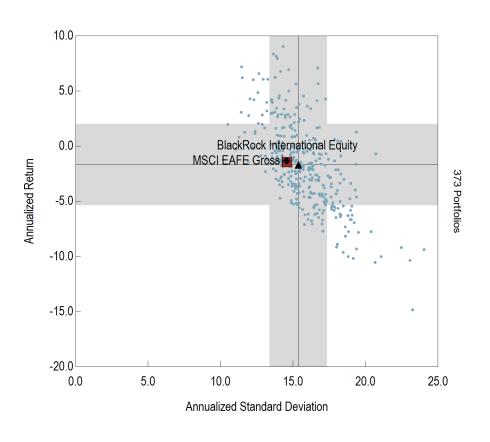
BlackRock International Equity

MSCI EAFE Gross

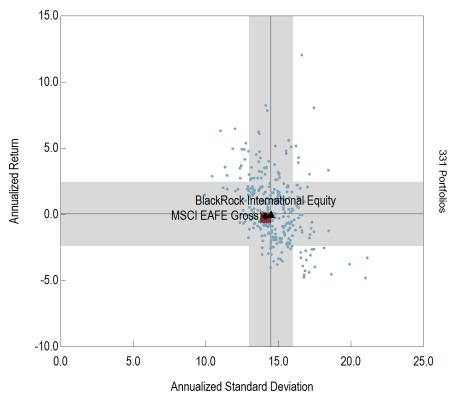
Return	(Rank))																	
32.9		-8.0		39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7	
26.1		-12.6		31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1	
23.2		-15.1		27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7	
20.3		-17.8		24.3		-0.6		-0.9		-5.4		20.5		17.5		-14.5		8.7	
16.4		-22.2		19.7		-4.9		-5.4		-8.6		8.6		13.3		-18.2		4.6	
397		391		370		350		325		314		284		263		278		352	
22.5 22.7	(56) (54)	-13.4 -13.4	(35) (35)	25.5 25.6	(65) (63)	1.5 1.5	(47) (47)	-0.5 -0.4	(67) (66)	-4.7 -4.5	(64) (60)	23.2 23.3	(61) (60)	17.8 17.9	(74) (72)	-11.8 -11.7	(48) (47)	8.1 8.2	(79) (78)



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



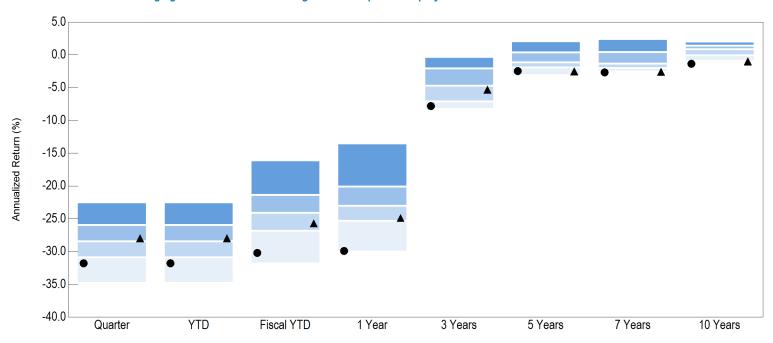
- BlackRock International Equity
- MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



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



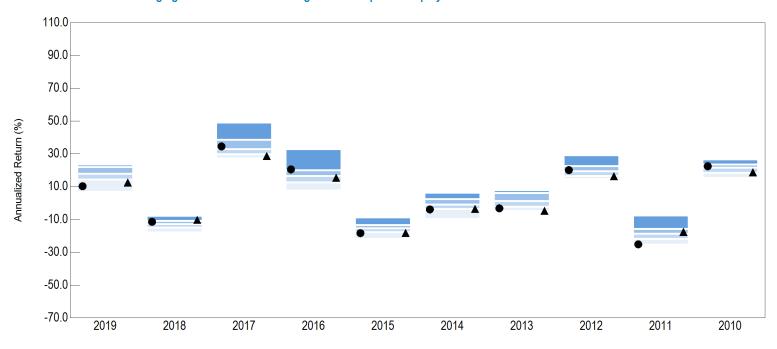
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity Gross Universe



	Return (R	ank)														
5th Percentile	-22.5		-22.5		-16.1		-13.5		-0.3		2.1		2.4		2.0	
25th Percentile	-25.9		-25.9		-21.4		-20.1		-2.0		0.4		0.4		1.4	
Median	-28.4		-28.4		-24.1		-23.0		-4.7		-1.1		-1.3		0.9	
75th Percentile	-30.9		-30.9		-26.8		-25.3		-7.1		-1.9		-2.0		0.0	
95th Percentile	-34.8		-34.8		-31.8		-30.0		-8.2		-3.1		-2.5		-0.9	
# of Portfolios	35		35		35		35		31		28		24		11	
 DFA Emerging Markets Value MSCI Emerging Markets Value GR 	-31.8 -28.0	(82) (48)	-31.8 -28.0	(82) (48)	-30.2 -25.7	(92) (70)	-29.9 -24.9	(95) (72)	-7.8 -5.3	(85) (53)	-2.5 -2.5	(92) (92)	-2.7 -2.6	(99) (97)	-1.4 -1.0	(99) (97)



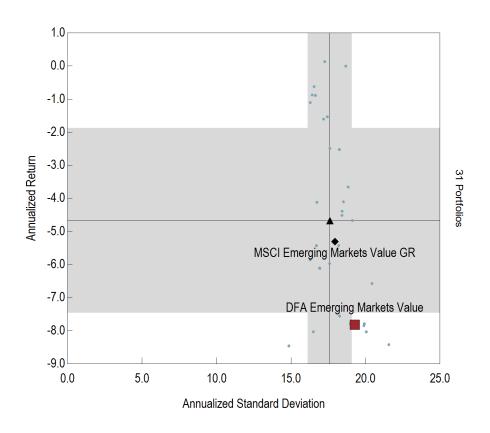
DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity Gross Universe



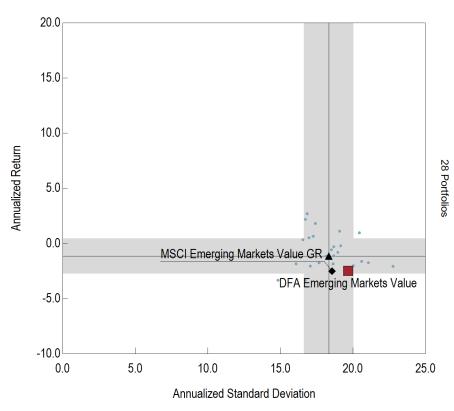
Return (Ra	nk)								
23.5	-7.9	49.0	32.8	-8.8	6.2	7.8	29.1	-7.6	26.6
22.1	-10.8	38.6	20.1	-13.4	2.5	6.3	22.7	-15.7	23.6
18.0	-12.7	33.0	16.6	-15.3	-0.8	1.3	19.4	-18.5	21.7
14.4	-14.9	29.8	12.6	-17.6	-3.5	-2.2	16.6	-21.8	18.5
7.0	-17.8	27.4	7.8	-21.7	-9.6	-4.7	14.8	-25.2	15.4
33	36	37	38	35	34	29	22	22	17
\	, , , , , , , , , , , , , , , , , , , ,	34.5 (47) 28.7 (87)	20.5 (22) 15.5 (58)	-18.3 (81) -18.2 (79)	-3.9 (76) -3.6 (76)	-3.2 (87) -4.7 (95)	20.1 (39) 16.4 (81)	-25.2 (95) -17.6 (41)	22.4 (47) 18.8 (73)
	23.5 22.1 18.0 14.4 7.0 33	22.1 -10.8 18.0 -12.7 14.4 -14.9 7.0 -17.8 33 36 10.3 (88) -11.4 (29)	23.5 -7.9 49.0 22.1 -10.8 38.6 18.0 -12.7 33.0 14.4 -14.9 29.8 7.0 -17.8 27.4 33 36 37 10.3 (88) -11.4 (29) 34.5 (47)	23.5 -7.9 49.0 32.8 22.1 -10.8 38.6 20.1 18.0 -12.7 33.0 16.6 14.4 -14.9 29.8 12.6 7.0 -17.8 27.4 7.8 33 36 37 38 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22)	23.5 -7.9 49.0 32.8 -8.8 22.1 -10.8 38.6 20.1 -13.4 18.0 -12.7 33.0 16.6 -15.3 14.4 -14.9 29.8 12.6 -17.6 7.0 -17.8 27.4 7.8 -21.7 33 36 37 38 35 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22) -18.3 (81)	23.5 -7.9 49.0 32.8 -8.8 6.2 22.1 -10.8 38.6 20.1 -13.4 2.5 18.0 -12.7 33.0 16.6 -15.3 -0.8 14.4 -14.9 29.8 12.6 -17.6 -3.5 7.0 -17.8 27.4 7.8 -21.7 -9.6 33 36 37 38 35 34 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22) -18.3 (81) -3.9 (76)	23.5 -7.9 49.0 32.8 -8.8 6.2 7.8 22.1 -10.8 38.6 20.1 -13.4 2.5 6.3 18.0 -12.7 33.0 16.6 -15.3 -0.8 1.3 14.4 -14.9 29.8 12.6 -17.6 -3.5 -2.2 7.0 -17.8 27.4 7.8 -21.7 -9.6 -4.7 33 36 37 38 35 34 29 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22) -18.3 (81) -3.9 (76) -3.2 (87)	23.5 -7.9 49.0 32.8 -8.8 6.2 7.8 29.1 22.1 -10.8 38.6 20.1 -13.4 2.5 6.3 22.7 18.0 -12.7 33.0 16.6 -15.3 -0.8 1.3 19.4 14.4 -14.9 29.8 12.6 -17.6 -3.5 -2.2 16.6 7.0 -17.8 27.4 7.8 -21.7 -9.6 -4.7 14.8 33 36 37 38 35 34 29 22 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22) -18.3 (81) -3.9 (76) -3.2 (87) 20.1 (39)	23.5 -7.9 49.0 32.8 -8.8 6.2 7.8 29.1 -7.6 22.1 -10.8 38.6 20.1 -13.4 2.5 6.3 22.7 -15.7 18.0 -12.7 33.0 16.6 -15.3 -0.8 1.3 19.4 -18.5 14.4 -14.9 29.8 12.6 -17.6 -3.5 -2.2 16.6 -21.8 7.0 -17.8 27.4 7.8 -21.7 -9.6 -4.7 14.8 -25.2 33 36 37 38 35 34 29 22 22 10.3 (88) -11.4 (29) 34.5 (47) 20.5 (22) -18.3 (81) -3.9 (76) -3.2 (87) 20.1 (39) -25.2 (95)



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



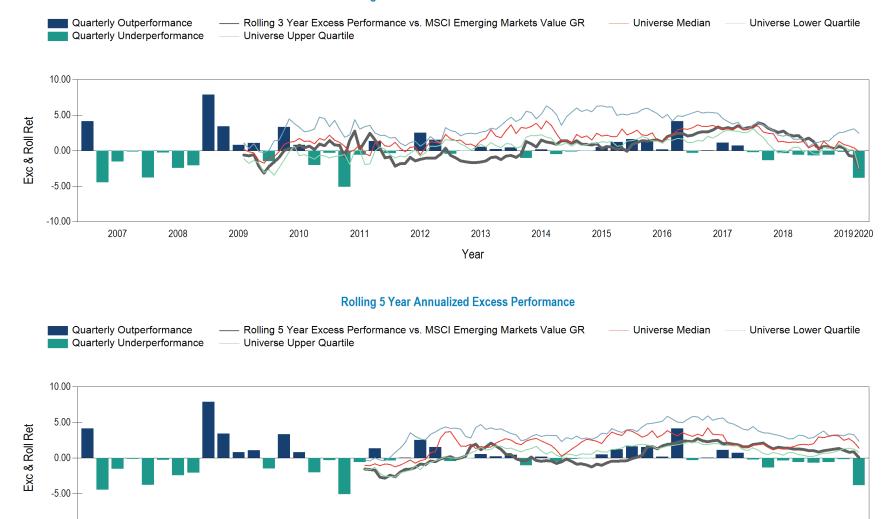
- DFA Emerging Markets Value
- MSCI Emerging Markets Value GR
- Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Value Equity Gross



- DFA Emerging Markets Value
- MSCI Emerging Markets Value GR
- Universe Median
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- eV Emg Mkts All Cap Value Equity Gross



Rolling 3 Year Annualized Excess Performance



Year



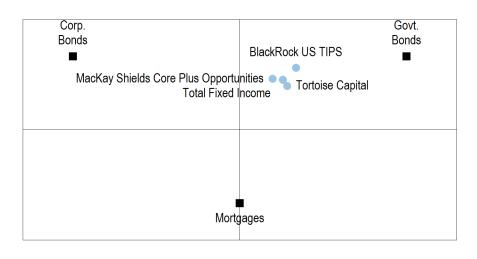
-10.00

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Fixed Income	244,671,591	0.8	3.7	7.0	4.4	3.5	4.7	9.8	-0.5	4.6	5.1	-0.3
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
InvMetrics Public DB Total Fix Inc Gross Rank		49	30	21	12	20	19	30	58	59	41	55
Tortoise Capital	101,967,948	1.3	4.3	7.7	4.9	4.0	5.1	10.2	0.2	4.5	5.1	1.2
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
eV US Core Plus Fixed Inc Gross Rank		23	17	16	16	9	20	46	24	70	45	15
MacKay Shields Core Plus Opportunities	98,631,261	0.0	3.0	6.3	4.3	3.2		10.1	-0.7	4.9	5.1	
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4		8.7	0.0	3.5	2.6	
eV US Core Plus Fixed Inc Gross Rank		44	39	43	50	77		53	69	54	46	
BlackRock US TIPS	44,072,382	1.6	3.8	6.8	3.6	2.8	3.6	8.5	-1.1	3.2	4.8	-1.2
BBgBarc US TIPS TR		1.7	3.9	6.9	3.5	2.7	3.5	8.4	-1.3	3.0	4.7	-1.4
eV US TIPS / Inflation Fixed Inc Gross Rank		33	36	31	25	31	38	48	47	46	37	43

Fixed Income Style Map 3 Years Ending March 31, 2020



Fixed Income Style Map 5 Years Ending March 31, 2020





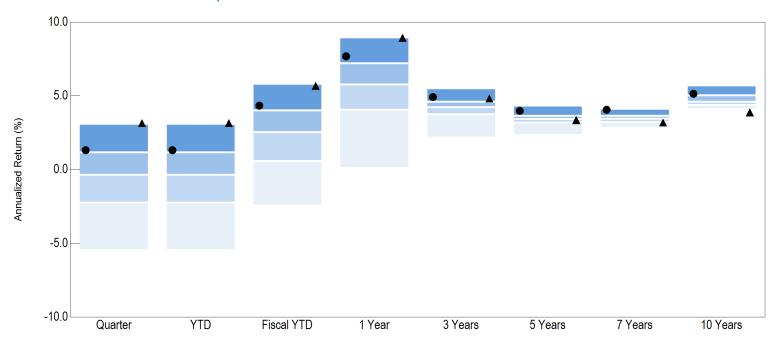
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Fixed Income	244,671,591	0.8	3.5	6.7	4.1	3.2	4.4	9.5	-0.8	4.3	4.8	-0.6
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
Tortoise Capital	101,967,948	1.2	4.1	7.4	4.6	3.7	4.8	9.9	-0.1	4.3	4.8	0.9
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
MacKay Shields Core Plus Opportunities	98,631,261	-0.1	2.8	6.0	3.9	2.8		9.7	-1.0	4.5	4.7	
BBgBarc US Aggregate TR		3.1	5.7	8.9	4.8	3.4		8.7	0.0	3.5	2.6	
BlackRock US TIPS	44,072,382	1.6	3.8	6.8	3.5	2.7	3.5	8.5	-1.2	3.2	4.8	-1.3
BBgBarc US TIPS TR		1.7	3.9	6.9	3.5	2.7	3.5	8.4	-1.3	3.0	4.7	-1.4

Correlation Matrix Last 5 Years

	Total Fixed Income	Tortoise Capital	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR	
Total Fixed Income	1.00				-	
Tortoise Capital	0.99	1.00				
MacKay Shields Core Plus Opportunities	0.98	0.96	1.00			
BlackRock US TIPS	0.87	0.83	0.83	1.00		
BBgBarc US Aggregate TR	0.89	0.93	0.83	0.79	1.00	



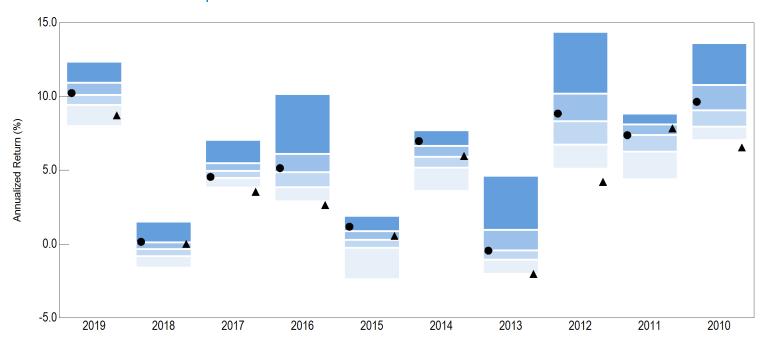
Tortoise Capital vs. eV US Core Plus Fixed Inc Gross Universe



	Return (Ra	ank)														
5th Percentile	3.1		3.1		5.8		9.0		5.5		4.3		4.1		5.7	
25th Percentile	1.2		1.2		4.0		7.2		4.6		3.7		3.7		5.0	
Median	-0.3		-0.3		2.5		5.8		4.2		3.4		3.5		4.6	
75th Percentile	-2.2		-2.2		0.6		4.1		3.8		3.2		3.2		4.4	
95th Percentile	-5.4		-5.4		-2.4		0.1		2.2		2.4		2.9		4.1	
# of Portfolios	114		114		114		114		110		108		104		99	
Tortoise CapitalBBgBarc US Aggregate TR	1.3 3.1	(23) (5)	1.3 3.1	(23) (5)	4.3 5.7	(17) (6)	7.7 8.9	(16) (6)	4.9 4.8	(16) (18)	4.0 3.4	(9) (61)	4.1 3.2	(6) (79)	5.1 3.9	(20) (99)



Tortoise Capital vs. eV US Core Plus Fixed Inc Gross Universe

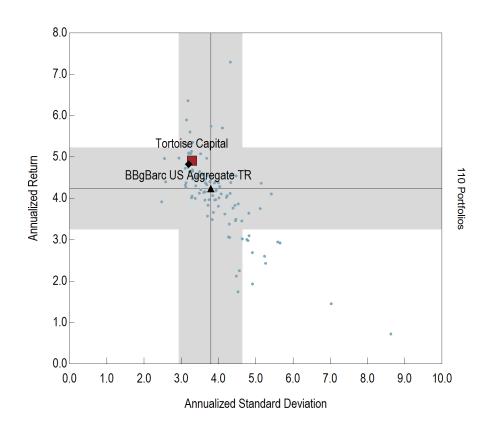


	5th Percentile 25th Percentile						
	Median 75th Percentile						
	95th Percentile						
	# of Portfolios						
•	Tortoise Capital BBgBarc US Aggregate TR						

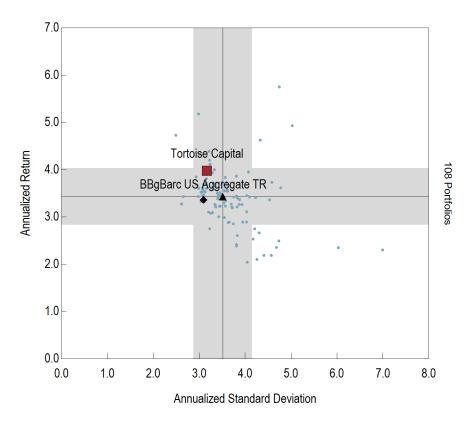
Return	(Rank)																		
12.4		1.5		7.0		10.1		1.9		7.7		4.6		14.4		8.8		13.6	
10.9		0.1		5.5		6.1		0.9		6.7		1.0		10.2		8.1		10.8	
10.1		-0.3		5.0		4.9		0.3		5.9		-0.4		8.3		7.4		9.1	
9.4		-0.8		4.5		3.9		-0.2		5.2		-1.0		6.7		6.3		8.0	
8.0		-1.6		3.8		2.9		-2.4		3.6		-2.0		5.1		4.4		7.0	
118		120		122		134		115		118		116		124		118		123	
10.2 8.7	(46) (91)	0.2 0.0	(24) (31)	4.5 3.5	(70) (99)	5.1 2.6	(45) (97)	1.2 0.6	(15) (42)	7.0 6.0	(16) (50)	-0.4 -2.0	(52) (96)	8.8 4.2	(45) (97)	7.4 7.8	(51) (37)	9.6 6.5	(40) (97)



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



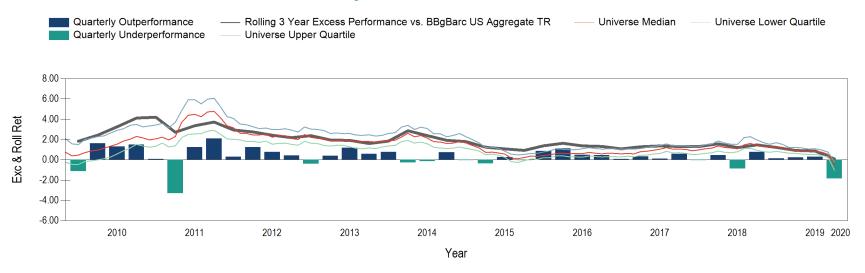
- Tortoise Capital
- BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross



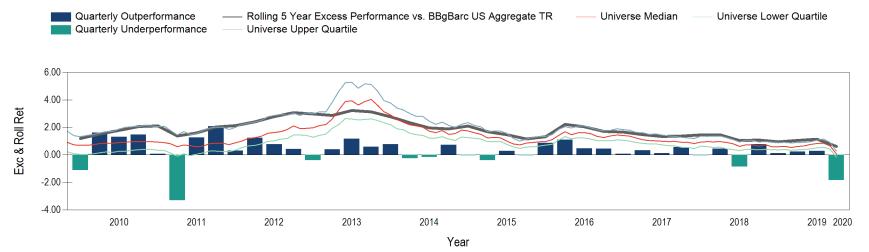
- Tortoise Capital
- BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross



Rolling 3 Year Annualized Excess Performance

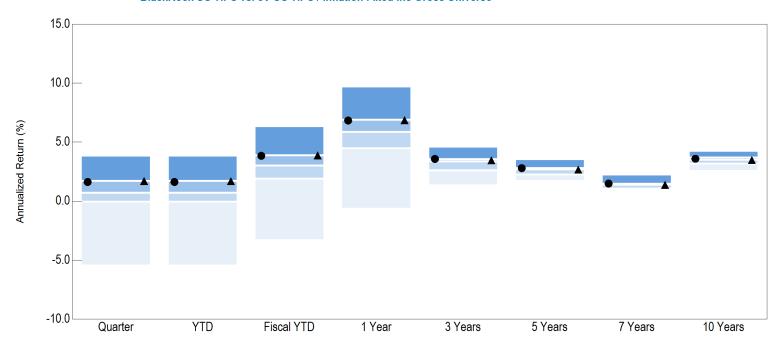


Rolling 5 Year Annualized Excess Performance





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

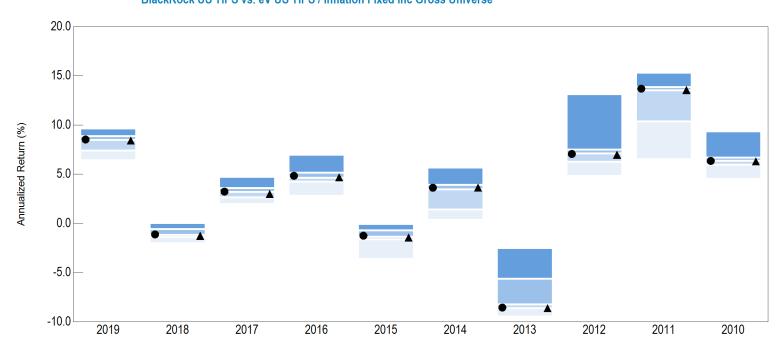


	5th Percentile 25th Percentile Median 75th Percentile 95th Percentile
	# of Portfolios
•	BlackRock US TIPS

Return (R	ank)														
3.9		3.9		6.3		9.7		4.6		3.5		2.2		4.2	
1.7		1.7		3.9		6.9		3.6		2.8		1.5		3.7	
0.7		0.7		3.0		5.9		3.4		2.7		1.4		3.5	
0.0		0.0		1.9		4.5		2.6		2.3		1.1		3.2	
-5.4		-5.4		-3.3		-0.6		1.4		1.7		0.9		2.6	
35		35		35		35		35		33		33		30	
1.6 1.7	(33) (28)	1.6 1.7	(33) (28)	3.8 3.9	(36) (32)	6.8 6.9	(31) (30)	3.6 3.5	(25) (47)	2.8 2.7	(31) (51)	1.5 1.4	(27) (51)	3.6 3.5	(38) (54)



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



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

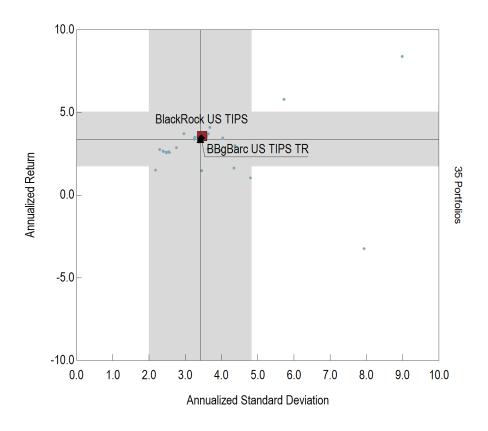
BlackRock US TIPS

▲ BBgBarc US TIPS TR

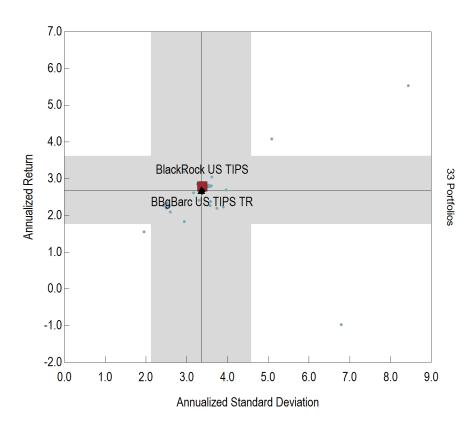
Return	(Rank)																			
9.6		0.0		4.7		7.0		-0.1		5.7		-2.5		13.1		15.3		9.4		
8.9		-0.6		3.6		5.2		-0.7		4.0		-5.6		7.5		13.9		6.7		
8.5		-1.1		3.2		4.7		-1.3		3.5		-8.2		7.1		13.5		6.4		
7.4		-1.4		2.7		4.3		-1.6		1.4		-8.6		6.3		10.4		6.0		
6.4		-2.0		2.0		2.8		-3.6		0.4		-9.4		4.9		6.6		4.6		
37		41		38		42		44		50		43		43		47		39		
8.5	(48)	-1.1	(47)	3.2	(46)	4.8	(37)	-1.2	(43)	3.6	(45)	-8.5	(62)	7.1	(59)	13.7	(37)	6.4	(52)	
8.4	(60)	-1.3	(65)	3.0	(71)	4.7	(47)	-1.4	(59)	3.6	(44)	-8.6	(76)	7.0	(66)	13.6	(49)	6.3	(57)	



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



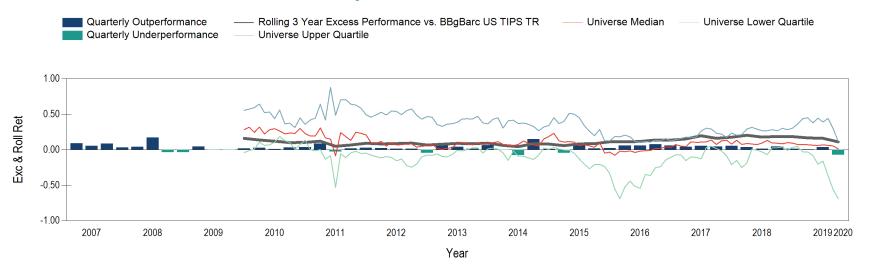
- BlackRock US TIPS
- BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross



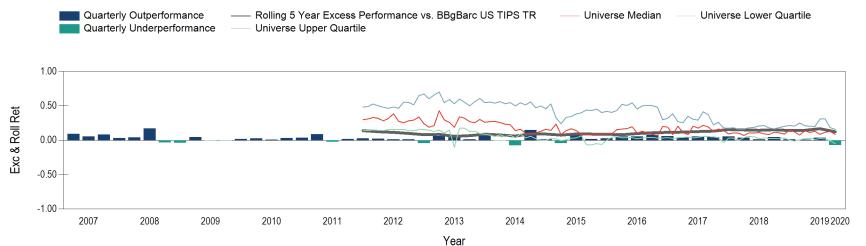
- BlackRock US TIPS
- BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross



Rolling 3 Year Annualized Excess Performance



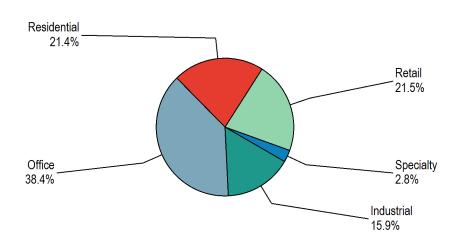
Rolling 5 Year Annualized Excess Performance



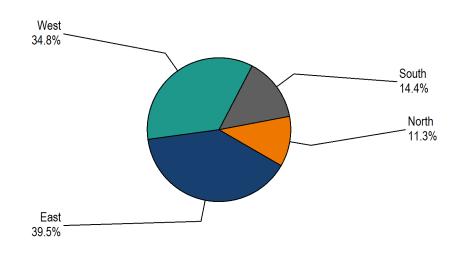


	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Real Estate	99,482,586	1.3	3.8	5.0	6.1	8.0	11.1	5.6	7.5	5.8	7.5	16.1
NCREIF ODCE		1.0	3.8	4.9	6.3	7.6	10.1	5.3	7.1	7.0	8.0	13.3
ASB Real Estate	29,142,030	1.5	1.5	2.7	4.7	6.9		3.0	6.6	4.0	5.6	17.3
NCREIF-ODCE		1.0	3.8	4.9	6.8	8.5		5.3	8.3	7.6	8.8	15.0
NCREIF Property Index		0.7	3.7	5.3	6.4	7.6		6.4	6.7	7.0	8.0	13.3
Clarion Lion	30,551,730	1.1	4.4	5.6	7.2	9.0	12.1	6.3	8.6	7.9	9.1	15.7
NCREIF-ODCE		1.0	3.8	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0
NCREIF Property Index		0.7	3.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	37,868,254	1.3	5.2	6.8				7.8				
NCREIF ODCE +2%		1.5	5.4	7.0				7.4				
1221 State St. Corp	1,920,572	0.0	7.9	7.9	2.6	4.9	1.8	7.9	0.0	0.0	17.5	0.0

Property Type Allocation Allocation as of March 31, 2020



Geographic Diversification
Allocation as of March 31, 2020

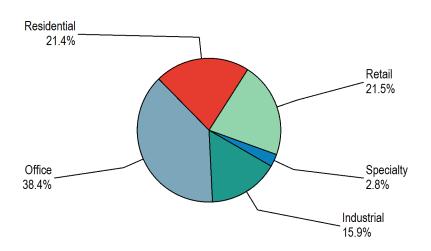


ARA American Strategic Value Realty funded 1/4/2018.

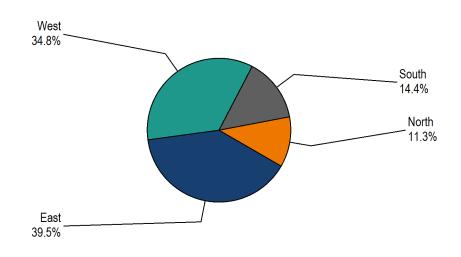


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Property Type Allocation Allocation as of March 31, 2020



Geographic Diversification
Allocation as of March 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
			PIMCO BRAVO	2011 ¹	PIMCO
			ARA American Strategic Value Realty	43104	ARA

¹Represents fund vintage year.

Policy & Custom Index Composition

Policy Index (12/31/2019-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 Benchamrks 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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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