





PERIOD ENDING: MARCH 31, 2021

Investment Performance Review for

**Imperial County Employees' Retirement System** 

### 6.



### **VERUSINVESTMENTS.COM**

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### Recent Verus research

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### **Topics of interest**

### IS THERE ALPHA AVAILABLE FROM EMERGING & DIVERSE MANAGERS?

While discussion on the alpha-generating ability of emerging and diverse managers has been part of institutional conversation for decades, the use of emerging and diverse managers has become a mainstay of industry conferences and in many Board meetings more recently. This paper explores the alpha-generating ability of emerging and diverse firms across asset classes and structures.

### **LEVERAGE IN PORTFOLIOS**

Our latest Topics of Interest paper hopes to shed light on one segment of today's investment challenge, the benefits and risks associated with using leverage. This paper finds that for investors with sufficient capital to leverage market opportunities and allocate to a wide range of asset classes, and with an appropriate Enterprise Risk Tolerance to accept the range of outcomes involved, modest leverage may be responsibly employed to provide greater diversification of risk while maintaining a similar return target.

### **HOW TO MAKE MANAGER DECISIONS**

Manager research decisions are made harder if you use the wrong tools and approaches. In this new paper, we outline the reasons why many investors may be finding these decisions harder than they need to and discuss a different way of thinking that may make the task of manager assessment clearer and more effective.

### DEVELOPING AN END-GAME STRATEGY FOR CORPORATE PENSIONS

As a plan sponsor's de-risking strategy ultimately bears fruit and the plan approaches full funding, a new phase of the pension management lifecycle brings with it new challenges. Navigating the later stages of the asset-liability journey requires that plan sponsors establish a clear and well-defined view of the end-state. Doing so requires careful consideration of costs (some knowable, some not), risks, and less tangible company-specific considerations. Once this end-state is defined, investment and contribution strategy can be cohesively aligned to maximize the probability of success. With greater flexibility, the probability of a successful outcome increases.

### Annual research

#### **ACTIVE MANAGEMENT ENVIRONMENT**

We are pleased to release the Verus 2021 Active Management Environment. The past year has been one of extreme volatility and divergence in many respects, creating interesting opportunities for active managers to show differentiated performance and deliver alpha to clients. We hope the insights from this research will allow for a deeper understanding of active manager behavior and inform selection in the future.

### IMPLICATIONS OF RISK TOLERANCE ON ESTABLISHING AN EFFECTIVE INVESTMENT STRATEGY FOR PUBLIC PENSION PLANS

The future health of public pension plans is dependent on many factors and faces many risks, including low prospective returns, unfavorable plan demographics, and stressed plan sponsor financial conditions. This paper will explore these risks and provide a framework for discussion and evaluation designed to ensure a plan's investment program is appropriately aligned with its risk tolerance.

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### 1st quarter summary

### THE ECONOMIC CLIMATE

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued at a brisk pace. p. 11
- The speed of vaccinations in the U.S. has exceeded expectations, reaching more than 3 million doses per day during the first week of April. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose. p. 7
- The Europe Union has been slower to roll out vaccinations, suggesting member countries may be grappling with the virus for longer periods of time. p. 19

#### **PORTFOLIO IMPACTS**

- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly come back to life over the next year, this optimism may already be baked into equity prices. p. 29
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure. p. 13

#### THE INVESTMENT CLIMATE

- President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the plan did not have bipartisan support, reportedly due to the lower proportion of the plan that related to traditional infrastructure spending, the size of the plan, and the proposed methods to fund it. Negotiations will commence in late-April, though it remains possible that the bill is modified in order to pass it via the "reconciliation" process, to avoid the need for Republican support. p. 11
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020. p. 28

### **ASSET ALLOCATION ISSUES**

- U.S. equities were a top performer in Q1, returning +6.2%.
   International equities returned +3.5% (MSCI EAFE Index)
   and emerging markets returned +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis. p. 28
- Size and value factors both delivered strong relative performance. U.S. value stocks beat growth stocks (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth stocks entered a correction in February. Small capitalization stocks continued their rally (Russell 2000 +12.7%, Russell 1000 +5.9%). p. 31

Prospects for a strong economic rebound are compelling, though this good news may already be reflected in asset prices

We believe a neutral risk stance is warranted in the current environment

### What drove the market in Q1?

"Biden signs \$1.9 trillion Covid relief bill, clearing way for stimulus checks, vaccine aid"

### **U.S. PERSONAL INCOME GROWTH (YEAR-OVER-YEAR)**

Sep	Oct	Nov	Dec	Jan	Feb
6.0%	5.0%	3.2%	3.7%	13.1%	4.3%

Article Source: CNBC, as of March 11th, 2021

### "U.S. vaccination campaign gains steam as White House speeds shipments"

### **AVERAGE DAILY VACCINE DOSE ADMINISTRATIONS (TRAILING SEVEN DAYS)**

1/15	1/31	2/14	2/28	3/15	3/31
843,447	1,348,021	1,681,951	1,735,053	2,427,429	2,828,491

Article Source: Reuters, March 31st, 2021

### "Bond Traders Gird for More Pain After Biggest Loss Since 1980"

### **BLOOMBERG BARCLAYS US LONG TREASURY INDEX TOTAL RETURN**

Oct	Nov	Dec	Jan	Feb	Mar
-3.01%	+1.20%	-1.18%	-3.61%	-5.57%	-4.99%

Article Source: Bloomberg, March 31st, 2021

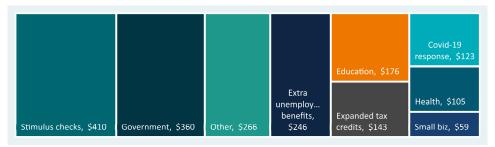
#### "OECD More Than Doubles US Economic Growth Forecast"

### U.S. 2021 GDP GROWTH FORECAST (BLOOMBERG MEDIAN ESTIMATE)

Oct	Nov	Dec	Jan	Feb	Mar
3.8%	3.8%	3.9%	4.1%	4.9%	5.7%

Article Source: Chief Investment Officer, March 17th, 2021

### AMERICAN RESCUE PLAN ACT ALLOCATIONS



Source: Wall Street Journal, as of 3/11/21

#### U.S. COVID-19 VACCINATION CAMPAIGN



Source: Bloomberg, as of 3/31/21

#### INTEREST RATES AND INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/21



# Economic environment

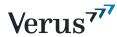


### U.S. economics summary

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued. The Atlanta Fed's GDPNow forecast for 2021 Q1 growth was 6.0% on a quarter-over-quarter annualized basis as of April 9th, suggesting an even more robust pace than the prior quarter.
- The speed of vaccinations in the U.S. has exceeded expectations, reaching 3 million doses per day. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose.
- President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the bill would spend \$400b on expanded care for the elderly and disabled, spend \$500b on electric vehicle subsidies and incentives, and spend \$100B on national high-speed broadband internet access, with a smaller portion of the spending going towards traditional infrastructure

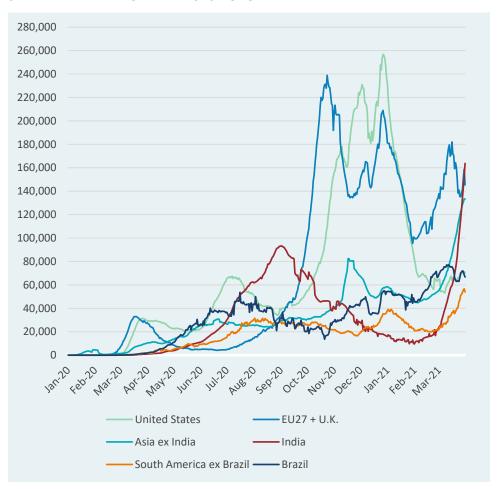
- such as power grid, railway, and public transit.
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure.
- While the U.S. unemployment rate continues to improve, falling from 6.7% to 6.0% during the quarter, the overall labor participation rate has stagnated. A disconnect seems to exist between the strong economy and weaker labor market.
- Consumer sentiment improved during Q1, along with the economic recovery. Sentiment is now at an average level relative to history.

Most Recent	12 Months Prior
(2.4%)	2.3%
12/31/20	12/31/19
1.6%	2.1%
3/31/21	3/31/20
2.20%	1.25%
3/31/21	3/31/20
0% – 0.25%	0% – 0.25%
3/31/21	3/31/20
1.74%	0.67%
3/31/21	3/31/20
6.0%	<b>4.4%</b>
3/31/21	3/31/20
10.7%	8.8%
3/31/21	3/31/20
	(2.4%) 12/31/20  1.6% 3/31/21  2.20% 3/31/21  0% - 0.25% 3/31/21  1.74% 3/31/21  6.0% 3/31/21  10.7%



# COVID-19 case growth

#### SEVEN-DAY AVERAGE DAILY CASE GROWTH



### SEVEN-DAY AVERAGE DAILY CASE GROWTH - PER 100,000 RESIDENTS

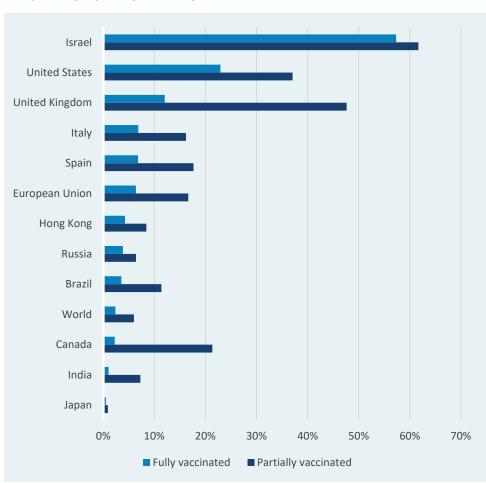


Source: Bloomberg, as of 4/15/21

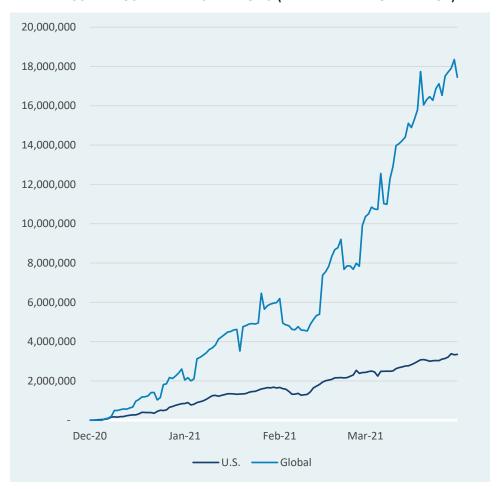


### Global vaccination campaign

#### PERCENTAGE OF PEOPLE WHO ARE...



### DAILY VACCINE DOSE ADMINISTRATIONS (7-DAY TRAILING AVERAGE)



Source: Our World in Data, as of 4/14/21, or most recent release.

Source: Bloomberg, as of 4/15/21



### Vaccine hesitancy

Toward quarter-end, concerns over the development of blood clots in a very small percentage of recipients of the AstraZeneca/Oxford and Johnson & Johnson vaccines led policymakers in many countries to suspend administrations pending further investigation.

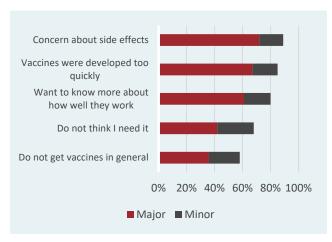
Though today these side effects appear quite rare, these developments will likely result in further delays in the push toward herd immunity over the short-term. If suspensions are lifted in the intermediate term, the vaccines in question are likely to face public relations issues which could

further hamper vaccination efforts. This dynamic is currently playing out in Europe with regard to the AstraZeneca vaccine—most of the Western part of the continent is taking a more cautious approach, while the Eastern segment has largely dismissed any clot-related concerns. Over the longer term, we believe that expanded vaccine production capacity, sufficiently diversified vaccine portfolios, and the coming online of new vaccines will reduce significantly the risk that idiosyncratic vaccine concerns create problems for the global vaccination campaign.

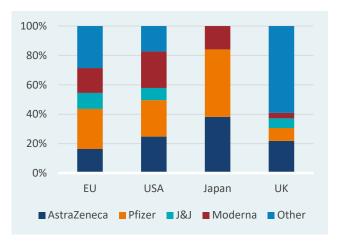
#### **VACCINE WILLINGNESS**



AMONG U.S. ADULTS ELECTING NOT TO BE VACCINATED, THE PERCENTAGE WHO SAY EACH OF THE FOLLOWING IS A MAJOR/MINOR REASON



### VACCINE PORTFOLIO COMPOSITION ESTIMATE



Source: Our World in Data, Pew Research, Duke Global Health Innovation Centre, as of 3/31/21, or most recent release. The bars in the "Vaccine Willingness" chart indicate the percentage of people who agree with the following statement: "If a COVID-19 vaccine were made available to me this week, I would definitely get it."



# GDP growth

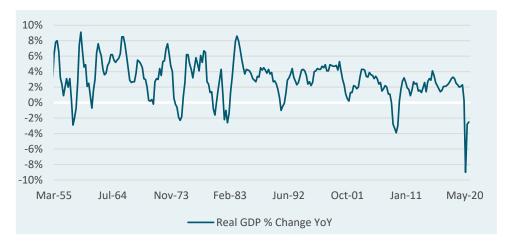
Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued. The Atlanta Fed's GDPNow forecast for 2021 Q1 growth was 6.0% on a quarter-over-quarter annualized basis as of April 9th, suggesting an even quicker pace than the prior quarter.

President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the bill would spend \$400b on care for the elderly and disabled, \$500b on electric vehicle subsidies and incentives, and \$100b on national high-speed broadband internet access, with a smaller portion of spending going towards traditional infrastructure such as power grid, railway, and transit.

The plan as originally proposed did not have bipartisan support, reportedly due to the lower proportion of the plan dedicated to traditional infrastructure spending, its size, and its funding methods. Negotiations will commence in late-April, though it remains possible that the bill is modified in order to pass it via the "reconciliation" process, to avoid the need for Republican support.

Large government stimulus programs are typically implemented during earlier stages of a recession, with the intent to fill a gap in demand and offset initial weakness. The current stimulus plans are very large and are being implemented at a time when the economy is well on the way to recovery. This creates risks of economic overheating, excesses, and inflation.

### U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 12/31/20

### U.S. GDP GROWTH ATTRIBUTION

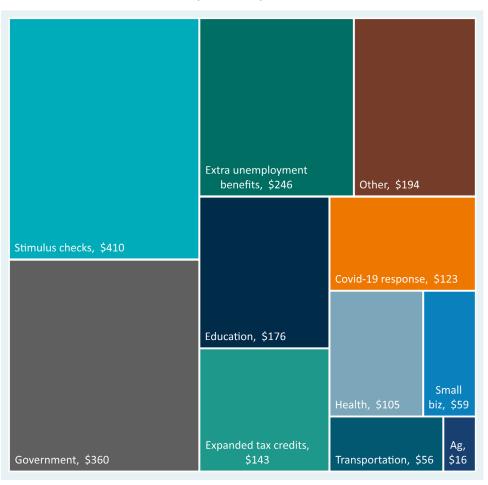


Source: BEA, annualized quarterly rate, as of 12/31/20

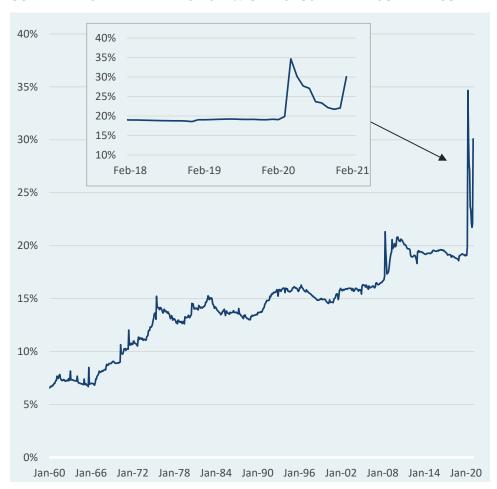


### American Rescue Plan Act of 2021

### STIMULUS BILL ALLOCATIONS (BILLIONS)



#### GOVT. TRANSFER PAYMENTS AS A % OF DISPOSABLE PERSONAL INCOME



Source: Wall Street Journal, as of 3/13/21 Source: BEA, as of 2/28/21



### Inflation

U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation may jump temporarily in the coming months due to the lower prices of spring 2020, which will flow through to inflation, since inflation is a year-over-year measure.

The 10-year TIPS breakeven inflation rate continued higher during the quarter to nearly 2.4% from 2.0%. Most inflation indicators have risen, though we believe that government purchases of TIPS may be artificially pushing up the breakeven rate.

Investor fears persist around potential inflation. Following the response of central banks to the Global Financial Crisis, and very little inflationary effects resulting from that monetary experiment, it is reasonable to have doubts around whether ultra low interest rates and easy money are highly inflationary. Some have argued that most money "printed" after 2008-2009 ended up on bank balance sheets, rather than in the real economy, which resulted in muted inflationary effects. In the current environment, much easy money is arriving in the form of checks delivered straight to households. This new form of stimulus, along with broader government spending, may suggest possible rising inflation, though we believe the probability of this remains low.

### U.S. CPI (YOY)



### MARKET INFLATION EXPECTATIONS



### Source: FRED, as of 3/31/21

#### **BREAKEVEN INFLATION RATES**



Source: Bloomberg, as of 3/31/21



Source: Bloomberg, as of 3/31/21

### Labor market

Unemployment fell from 6.7% in December to 6.0% in March. However, the overall labor force participation rate paints a less optimistic picture. At 61.5% participation in March, this metric has not budged since June of 2020.

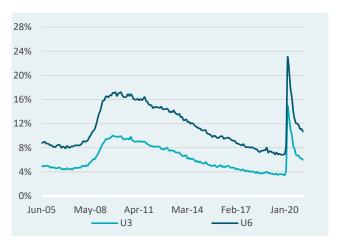
The U.S. labor force showed a strong rebound during the fall of 2020, but more recently appears to have stalled. Approximately 2% of the total U.S. workforce remains out of a job and is not seeking work, relative to pre-COVID levels. This effect is illustrated in the labor participation rate, which is a broad measure of employment—defined as the percentage of the country's population that is currently employed, among all

eligible workers. The participation rate fell from 63.3% immediately before the pandemic, to 60.2% in April, then back to 61.7% in August. The labor market remains weak despite an impressive economic comeback.

The most recent NFIB Small Business Optimism report explained "Main Street is doing better as state and local restrictions are eased, but finding qualified labor is a critical issue for small businesses nationwide... Small business owners are competing with the pandemic and increased unemployment benefits that are keeping some workers out of the labor force."

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

#### U.S. UNEMPLOYMENT



### LABOR PARTICIPATION RATE



### NFIB SMALL BUSINESS HIRING PLANS INDEX



Source: FRED, as of 3/31/21 Source: NFIB, as of 3/31/21



Source: FRED, as of 3/31/21

### Employment conditions

Hiring activity picked up considerably in the first quarter of 2021, supported by strong progress on the vaccination campaign and the concurrent relaxation of social distancing controls. While the broad unemployment rate dipped from 6.7% to 6.0%, that number probably overstates the magnitude of the labor market recovery thus far. Labor force participation dropped from 63.4% in January of 2020 to 60.2% in April, and as of the end of the first quarter, that number had recovered to just 61.5%. As a result, while unemployment has improved, there remain roughly nine million U.S. citizens who have yet to regain employment.

The primary concern of the Federal Reserve remains limiting the potential scarring of the labor market as a result of the shutdowns over the last year, and the Fed's accommodation, paired with continued progress on the vaccination campaign should lay the foundation for a continued recovery in the labor market over the next several quarters. There remains much wood to chop.

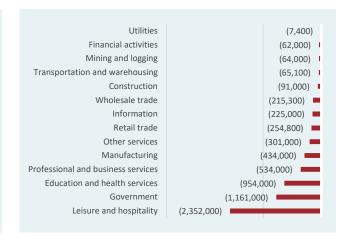
#### NON-FARM PAYROLLS - ONE-MONTH CHANGE



### NON-FARM PAYROLLS – THREE-MONTH CHANGE



#### NON-FARM PAYROLLS - ONE-YEAR CHANGE



Source: BLS, as of 3/31/21



### The consumer

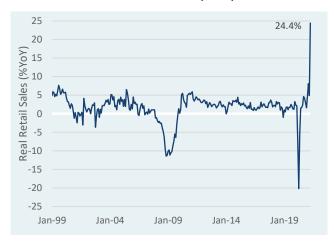
U.S. retail sales rocketed higher in the first quarter, accelerating to a 9.8% month-over-month pace in March (this rate was an astounding 24.4% on a year-over-year basis, though this metric is more difficult to interpret since it calculates growth from a starting point of March 2020—the depths of the recession). As expected, vast government stimulus is translating to red hot consumer spending.

According to anonymized cellular phone data collected by Google for COVID-19 public health research, Americans began returning to their daily routines through late spring and summer, as activity began moving back towards normalcy. Then, as COVID-19 cases

began to surge, many types of activities dipped once again. It now appears that activity such as retail, recreation, and grocery shopping are moving back to normal levels. At the same time, public transit usage and travel to workplaces remains depressed.

In last quarter's landscape we discussed concerns around the difficulty in determining what portion of the economic bounceback may have been due to unprecedented government stimulus, rather than a "natural" recovery of jobs and the financial health of Americans. We remain cautious, as certain aspects of the economy remain very weak, such as the labor market trends outlined earlier in this document.

### REAL RETAIL SALES GROWTH (YOY)

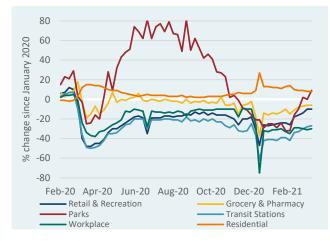


### **AUTO SALES**



#### Source: Federal Reserve, as of 2/28/21

#### **GOOGLE U.S. ACTIVITY TRACKER**



Source: Google anonymized U.S. citizen mobility, as of 3/31/21



Source: FRED, as of 3/31/21

### Sentiment

Consumer sentiment has seen only mild improvement, despite the stronger-than-expected pace of economic recovery.

The Bloomberg Consumer Comfort Index attempts to gauge Americans' views on the economy, their personal financial situation, and buying conditions. The index rose from 44.6 to 50.0 during the quarter. The University of Michigan Consumer Sentiment Survey attempts to gauge attitudes about the business climate, personal finances, and spending conditions. The index jumped from 80.7 to 84.9 in Q1,

directionally in line with the continued economic recovery.

The NFIB Small Business Optimism Index returned to an average reading in Q4 and remains materially weaker than pre-pandemic levels. Participants in the survey expressed uncertainty around business conditions, and extreme difficulties in finding qualified workers due to attractive unemployment benefits. A surprising 42% of small business owners reported job openings that could not be filled, which was a record-high figure.

#### CONSUMER COMFORT



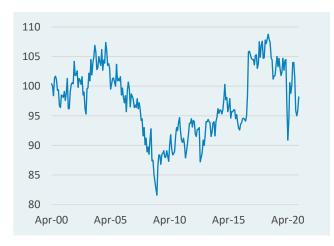
#### Source: Bloomberg, Langer, as of 3/28/21

### **CONSUMER SENTIMENT**



Source: University of Michigan, as of 3/31/21

#### **SMALL BUSINESS OPTIMISM**



Source: NFIB, as of 3/31/21



# Housing

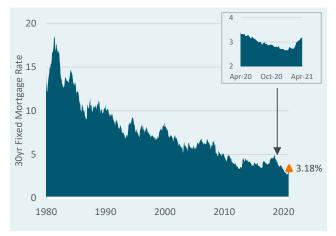
Sales of existing homes continued at a near-record pace through fall of 2020 and the beginning of 2021, before decelerating to 9.1% year-over-year in February. Sales of new homes followed a similar directional trend, though new homes have shown an even stronger growth rate consistently over the past decade. The impressive number of sales were achieved despite there being an extremely slim inventory of homes available on the market.

It has been surprising to witness a housing boom coincide with a sharp and deep global recession, although the dynamics that led to this environment are fairly simple to understand with hindsight. Record-low interest rates, record-low inventory of homes, and a desire of Americans for more space during the work-from-home environment, have lifted the cost of homes significantly. Some of these influences appear to be easing. Rising interest rates since the beginning of the year have contributed to higher mortgage rates, as the 30-year fixed average mortgage rate has risen from 2.65% to 3.18%. And the nationwide inventory of homes has improved to 4.8 months worth of supply. A further easing of conditions may help to cool down an extremely hot market.

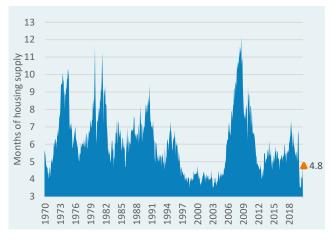
### U.S. HOME SALES (YOY)



### **30-YEAR FIXED MORTGAGE RATE (AVERAGE)**



### HOUSING INVENTORY



Source: FRED, as of 3/31/21 Source: FRED, as of 2/28/21

Source: FRED, as of 2/28/21

# International economics summary

- Economic growth continued to recover during the fourth quarter, though was still negative on a yearover-year basis in many countries.
   Growth expectations have risen as successful vaccine rollouts suggest that the world may get back to normal more quickly than originally assumed.
- Europe may unfortunately be excluded from this optimism, as a renewed wave of COVID-19 has once again led to lockdowns and restrictions. The Europe Union has been slower to rollout vaccinations, suggesting member countries may be grappling with the virus for longer periods of time.
- Unemployment was stable in the Eurozone and Japan, and fell modestly in the United States. As we described in prior quarters, governments have taken very different approaches to supporting workers, which makes labor market comparisons difficult.

- Despite heightened discussions about inflation risk, inflation remains muted and stable around the world, though the rebound in energy prices from record-low levels last year is having a lifting impact. This influence, driven by base effects, will most likely persist for the next few months.
- The gap between the manufacturing and services sectors of the economy narrowed toward the end of the quarter, as the beaten-down services sector showed signs of life across Europe. Extended periods of service sector activity expansion will likely depend on manageable levels of case growth and relaxed social distancing controls.
- Vaccine campaigns across mainland Europe as well as Japan have materially lagged those of the U.S. and the U.K., and the indefinite suspension of the AstraZeneca vaccine in many countries is likely to widen the gap in the short-term.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.4%)	2.6%	6.0%
	12/31/20	3/31/21	3/31/21
Eurozone	(4.9%)	1.3%	8.3%
	12/31/20	3/31/21	2/28/21
Japan	(1.4%)	(0.2%)	2.8%
	12/31/20	3/31/21	2/28/21
BRICS	1.6%	1.4%	5.7%
Nations	12/31/20	3/31/21	12/31/20
Brazil	(4.1%)	6.1%	14.2%
	12/31/20	3/31/21	1/31/21
Russia	(3.0%) 12/31/20	5.8% 3/31/21	<b>5.4%</b> 3/31/21
India	0.4%	5.5%	6.5%
	12/31/20	3/31/21	3/31/21
China	18.3% 3/31/21	0.4% 3/31/21	<b>4.2</b> % 12/31/20

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



### International economics

Economic growth continued to recover during the fourth quarter, though still negative on a year-over-year basis in many countries. Growth expectations have risen as successful vaccine rollouts suggest that the world may move back to normal more quickly than originally expected, although the speed of vaccine distribution has differed wildly. As of quarter-end, the U.S. and United Kingdom lead in vaccine rollouts, while the European Union and Japan lag behind. Europe is seeing a renewed wave of COVID-19, which has once again led to lockdowns and restrictions.

Despite heightened discussions about inflation risk, inflation around the world remains muted and stable, though the rebound in energy prices from record-low levels last year is having a lifting impact. This influence, driven by base effects, will most likely persist for the next few months.

Unemployment was stable in the Eurozone and Japan, and fell modestly in the United States. As we have described in prior quarters, governments have taken very different approaches to supporting workers, which has made global labor market comparisons difficult.

### **REAL GDP GROWTH (YOY)**

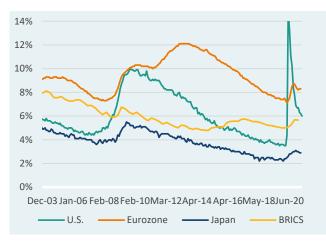


### INFLATION (CPI YOY)



### Source: Bloomberg, as of 3/31/21 – or most recent release

### UNEMPLOYMENT



Source: Bloomberg, as of 3/31/21 – or most recent release



Source: Bloomberg, as of 12/31/20

# Fixed income rates & credit



### Interest rate environment

- Ten-year U.S. Treasury yields moved sharply higher, rising from 0.91% to 1.74%. Higher interest rates and tighter financial conditions create concerns for currently aboveaverage risk asset prices, and for the economic recovery more broadly.
- Bond yields around the world rose in tandem with the United States, though the yield of shorter-dated bonds and cash remained anchored near zero. Rising bond yields at longer tenors and relatively steady movement in short tenor yields resulted in yield curve steepening in many countries.
- The spike in global interest rates tested the standing policies at a number of major central banks. The Reserve Bank of Australia was forced to step in to defend its 3-year bond yield target, the Bank of Japan widened the target band for its 10-year bond yield, and the ECB tweaked its asset purchase program to allow for more flexible purchases.

- The Federal Reserve maintained an accommodative tone and signaled it will continue to provide support until substantial progress has been made in the labor market and the pandemic is clearly in the rear-view mirror. On balance, the Fed remains of the view that any pickup in inflation over the next few months is likely to be transitory.
- Breakeven inflation rates surged as reflation bets continued to mount.
   The five-year breakeven inflation rate closed the quarter at 2.6%, its highest level since 2008.
- Credit spreads compressed to near decade-tights as demand for higheryielding bonds remained high, and concerns over a wave of pandemicdriven defaults abated.
- Long-duration Treasuries posted their worst quarter since Q1 of 1980. The Bloomberg Barclays U.S. Long Treasury Index delivered a total return of -13.5%.

Area	Short Term (3M)	10-Year
United States	0.02%	1.74%
Germany	(0.67%)	(0.29%)
France	(0.62%)	(0.05%)
Spain	(0.56%)	0.34%
Italy	(0.54%)	0.67%
Greece	(0.24%)	0.86%
U.K.	(0.01%)	0.85%
Japan	(0.11%)	0.09%
Australia	0.00%	1.79%
China	2.28%	3.19%
Brazil	3.32%	9.28%
Russia	4.70%	7.00%

Source: Bloomberg, as of 3/31/21

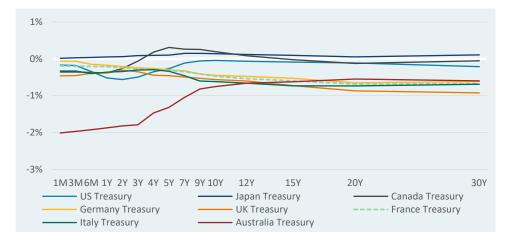


### Yield environment

#### **U.S. YIELD CURVE**

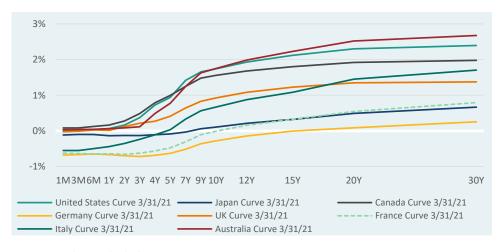


### YIELD CURVE CHANGES OVER LAST FIVE YEARS



### Source: Bloomberg, as of 3/31/21

### **GLOBAL GOVERNMENT YIELD CURVES**



#### **IMPLIED CHANGES OVER NEXT YEAR**





### Yield increases have tested central banks

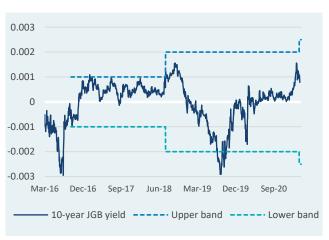
**Bank of Japan:** Clarified that 10-year yields can move within 25 basis points of the 0.00% target; tweaked guidance around buying ¥6 trillion in equity ETFs to make its purchases more "flexible and nimble".

**Reserve Bank of Australia:** Purchased A\$7 billion of bonds in a matter of days, A\$5 billion more than the scheduled amount, in order to defend its 0.10% target for its three-year bond yield.

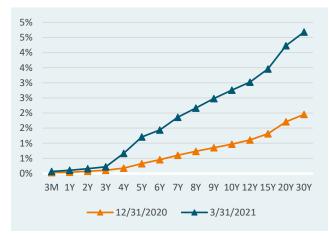
**European Central Bank:** Elected not to expand the size of its Pandemic Emergency Purchase Programme (PEPP), but elected to frontload bond purchases to increase short-term accommodation.

**Federal Reserve:** Fed officials have largely avoided comment and have been sticking to the script that financial conditions remain loose, and that higher long rates are indicative of an improving economic outlook. As a result, some have surmised that the ambiguity around the Fed's reaction function may result in elevated levels of bond market volatility in the near-term.

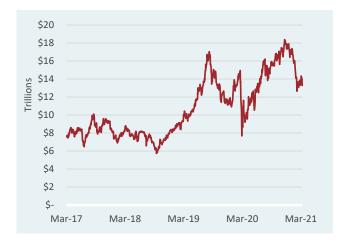
#### BANK OF JAPAN 10-YEAR YIELD TARGET BAND



### **AUD AUSTRALIAN YIELD CURVE**



### VALUE OF GLOBAL NEGATIVE YIELDING DEBT



Source: Bloomberg, as of 3/31/21



### Credit environment

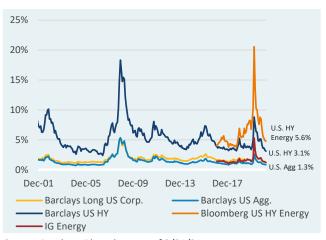
During the first quarter, credit market performance largely reflected the movements of the US Treasury curve, which steepened significantly as 10-year yields rose 82 basis points while 2-year yields remained anchored near zero. Investment grade credit, with an effective duration of 8.5, returned -4.65% over the quarter while high yield, with an effective duration of 3.9, return +0.85%. Bank Loans outperformed, returning +2.0% over the quarter.

Credit spreads continued to tighten during the quarter, as the vaccine rollout, which accelerated faster than expected, led to higher growth expectations for 2021. High yield spreads

tightened 51 basis points, to 308 basis points, while investment grade tightened a more modest 6 basis points to end the quarter at 90 basis points.

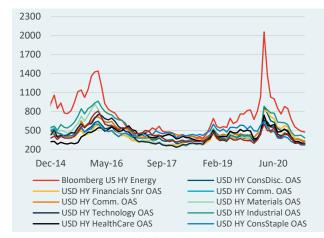
Spreads in higher quality investment grade assets have continued to compress over the past year. Notably, the BBB/A spread is now at an all-time low of 40 basis points, down from a high of 163 basis points experienced in Q1 2020. Similarly, the BB/BBB spread is now 155 basis points, down from recent high of 512 basis points established in March of 2020 and below the ten-year average of 215 basis points.

### **SPREADS**



Source: Barclays, Bloomberg, as of 3/31/21

### HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/21

	Credit Spread (OAS)			
Market	3/31/21	3/31/20		
Long U.S. Corp	1.3%	2.8%		
U.S. Inv Grade Corp	0.9%	2.7%		
U.S. High Yield	3.1%	8.8%		
U.S. Bank Loans*	4.3%	8.3%		

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/21

\*Discount margin (4-year life)



### Default & issuance

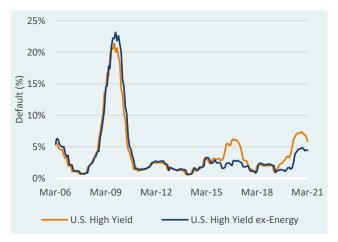
Default activity was modest over the quarter, with 5 companies totaling \$3.2 billion defaulting on bonds and loans. The par-weighted U.S. high yield default rate retreated 139 basis points from recent highs to end the quarter at 5.4%. Similarly, the loan par-weighted default rate ended the quarter at an eleven-month low of 3.3%, down 61 basis points year-to-date.

Given the market perception of upside rate risk throughout the remainder of 2021, high yield bond issuers continued to come to market at a blistering pace. Gross issuance for the quarter set a new quarterly record of \$158.6 billion, outpacing the previous record set in Q2 2020 of \$145.5

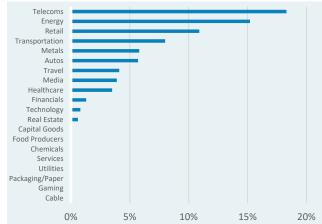
billion. Quarterly issuance remains significantly elevated relative to the ten-year average of \$79.9 billion. Notably, \$44.8 billion was issued to take-out leverage loans in Q1, which was roughly 60% of the previous annual record of \$78.5 billion set in 2012. \$154.6 billion in leverage loans were issued during the quarter, an amount eclipsing the previous record of \$139.5 in Q1 2017.

Investment grade issuance for the quarter totaled \$423 billion, which remains elevated from the 4-year average first quarter issuance of \$375, but lower than \$480 billion issued in Q1 2020 when supply surged due to COVID funding.

### **HY DEFAULT RATE (ROLLING 1-YEAR)**

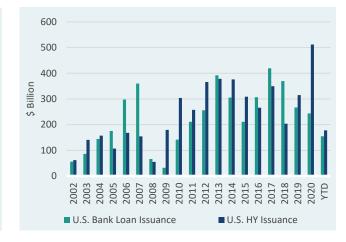


### U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 3/31/21 - par weighted

### U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 3/31/21



Source: BofA Merrill Lynch, as of 3/31/21





# Equity environment

- U.S. equities were a top performer in Q1, delivering +6.2%.
   International equities delivered +3.5% (MSCI EAFE Index) and emerging markets delivered +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis.
   Trailing one-year returns hit extremely high levels, reflecting low base effects (markets bottomed out during March of 2020), and a recovery from those depressed levels year-over-year.
- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly recover over the next year, this optimism may already be baked into equity prices. It is reasonable to be enthusiastic about U.S. economic prospects while also being cautions about lofty equity valuations.
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the

- quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.
- The Cboe VIX Index has slowly been falling back towards the longer-term average of 19. The index fluctuated in the low 20s during Q1, falling below 19 briefly in late March.
- The U.S. dollar stabilized in the first quarter, paring some of the losses accrued in the final three quarters of last year. Rising relative yields helped the dollar to appreciate materially relative to the euro, yen, and a broad basket of emerging market currencies.
- A rotation towards value stocks persisted during the quarter, as beaten-down sectors delivered outsized performance. Energy, financials, industrials, and materials were the strongest performers.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
US Large Cap (S&P 500)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Small Cap (Russell 2000)	12.7%		94.8%	
US Large Value (Russell 1000 Value)	11.	3%	56.1%	
US Large Growth (Russell 1000 Growth)	0.9%		62.7%	
International Large (MSCI EAFE)	3.5%	7.6%	44.6%	37.7%
Eurozone (Euro Stoxx 50)	6.3%	10.6%	53.7%	45.3%
U.K. (FTSE 100)	5.9%	5.0%	35.6%	22.5%
Japan (NIKKEI 225)	(0.2%)	7.0%	52.6%	57.4%
Emerging Markets (MSCI Emerging Markets)	2.3%	3.7%	58.4%	52.2%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/21



### Domestic equity

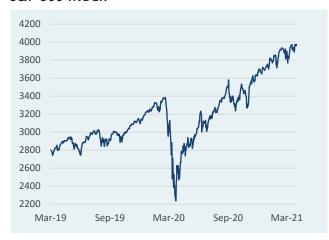
U.S. equities moved higher in Q1, returning +6.2%. According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

Equities continued upward and valuations have followed. The U.S. market has been a top performer but has also remained one of the most expensive markets. On the other hand, successful COVID-19 vaccinate rollouts, rosy earnings expectations, and the potential for an impressive economic

reopening may be supportive of high prices. This reopening appears to be fueling a rotation towards traditional cyclical sectors, such as energy, financials, and industrials.

As markets move higher, it appears to us that the economy may be playing catch-up to the markets. While it seems increasingly likely that the economy will rapidly recover during the next year, this optimism may already be reflected in equity prices. In other words, it is reasonable to be enthusiastic about U.S. economic prospects while also being cautions about higher equity valuations.

#### **S&P 500 INDEX**

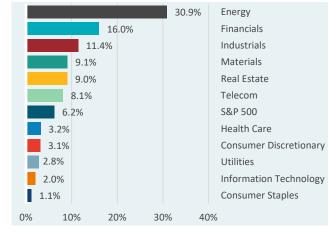


#### **DIVIDEND YIELD VS BOND YIELD**



### Source: Standard & Poor's, as of 3/31/21

#### **Q1 SECTOR PERFORMANCE**



Source: Standard & Poor's, as of 3/31/21



Source: Standard & Poor's, as of 3/31/21

### Retail market speculation

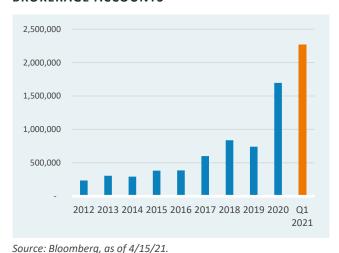
In recent years, trading has become free on certain platforms, making day trading a more attractive proposition. Retail's portion of total market trading has increased from 10% in 2010 to 23% in 2020, according to Bloomberg Intelligence.

Some trading platforms have attracted users by designing the trading process to be entertaining, similar to a video game. Discussion sites such as Reddit have also become popular places to talk about trades in a social setting.

Lockdowns due to COVID-19 have prevented many Americans from pursuing their usual hobbies, leading to boredom. Stock trading may have become an entertaining outlet for otherwise non-traders. And government stimulus checks may have provided idle cash to fuel this new hobby.

This environment appears to have contributed to intense speculation in stocks such as GME and AMC. In these instances, retail traders aimed to force a "short squeeze" on these heavily-shorted stocks.

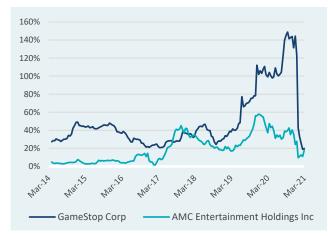
### SCHWAB - ORGANIC CHANGE IN ACTIVE BROKERAGE ACCOUNTS\*



### **GAMESTOP & AMC THEATERS STOCK PRICES**



#### SHORT INTEREST AS A PERCENTAGE OF FLOAT



Source: Bloomberg, as of 3/31/21 Source: Bloomberg, as of 3/31/21

<sup>\*</sup>Excludes 15.6 million brokerage accounts which Schwab added in 2020 as a result of its acquisition of TD Ameritrade and its acquisition of the assets of USAA's Investment Management Company.



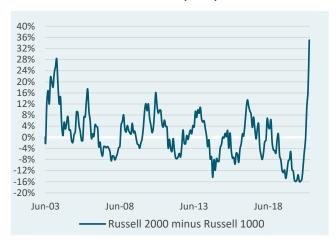
# Domestic equity size & style

Factor performance surged during the quarter, as small capitalization and value stocks delivered strong relative returns. U.S. value stocks beat growth stocks by a wide margin (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth entered a correction in February and value marched higher. Small cap stocks continued their surprisingly strong rally, outperforming growth (Russell 2000 +12.7%, Russell 1000 +5.9%).

A rotation towards value occurred as beaten-down sectors such as energy, financials, and materials delivered outsized performance—sectors which tend to possess a heavier concentration of value stocks. Companies which benefited from the pandemic due to a shift in household habits may see a further reversal of that windfall as households begin to go back to normal life. Additionally, value stocks typically exhibit strength during economic recoveries. These dynamics of growth and value may suggest further value factor strength, though factor trends are noisy and extremely difficult to predict.

Small cap and value stocks delivered strong relative performance during Q1

### SMALL CAP VS LARGE CAP (YOY)

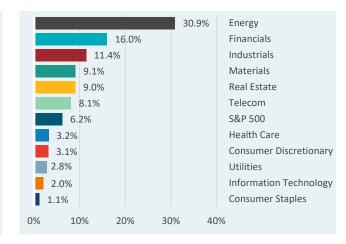


### VALUE VS GROWTH (YOY)



#### Source: FTSE, as of 3/31/21

### O1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/21

Source: FTSE, as of 3/31/21

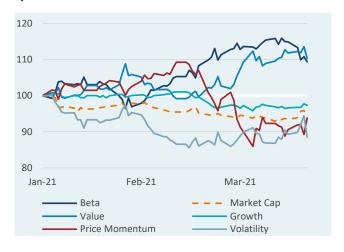
### Factor portfolios in 2021

Factor performance trends that started with positive COVID vaccine news in late 2020 continued into 2021 Q1. Investors kept favoring the value factor; they also bought stocks with higher betas and higher volatility (long/short, sector neutral, S&P 500 Index quintiles). This was a significant change from pre-vaccine pandemic behavior when investors had bid up the low volatility, growth, and price momentum factors.

From a longer-term perspective, the latest rotation did not come close to reversing the trend of positive results accruing to the momentum and low volatility factors.

Value stocks, which were largely beaten down during the pandemic, remain an ongoing beneficiary of the economic recovery rooted in both positive medical news and ongoing government stimulus programs. Higher interest rates and a steepening yield curve, which are related to the recovery trade, also help certain cheap financial stocks. In contrast, certain growth stocks are hurt by higher rates as future profits are further discounted. The recent market activity is reflected within the momentum factor itself as investors sold growth and low volatility stocks to keep buying stocks with higher exposure to value and other factors.

### Q1 2021 PERFORMANCE



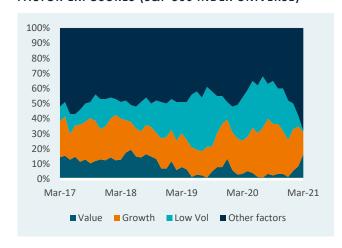
#### Source: J.P. Morgan, as of 3/27/21

### VALUE PERFORMANCE AND RATE MOVEMENT



Source: J.P. Morgan, as of 3/31/21

### J.P. MORGAN MOMENTUM BUCKET: LONG-SIDE FACTOR EXPOSURES (S&P 500 INDEX UNIVERSE)



Source: J.P. Morgan, as of 3/31/21



### International developed equity

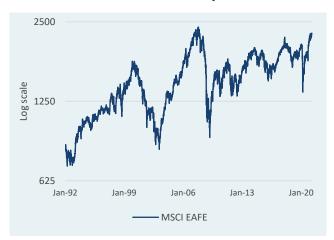
International equities delivered +3.5% (MSCI EAFE Index) during the first quarter on an unhedged currency basis. International developed underperformed the S&P 500 Index (+6.2%) while outperforming the MSCI Emerging Markets Index (+2.3%). The trend towards U.S. dollar weakness has boosted the performance of unhedged international equities, adding +6.8% over the past year, though this trend may have begun to reverse in the first quarter.

International developed equity weakness may be partly attributed to snags in the European COVID-19 vaccination

campaign, which has materially lagged the rest of the world. However, European equities (+4.1%) managed to outperform Japanese equities (+1.6%) in U.S. dollar terms, primarily due to currency movements, as the yen (-6.7%) depreciated more sharply relative to the U.S. dollar than the euro (-4.0%) or swiss franc (-6.2%).

Bets against the Japanese yen rose to multi-year highs amid a backdrop of increasing relative interest rates available in the U.S., and a wave of risk-on sentiment pouring cold water on the appeal of traditional safe-haven assets.

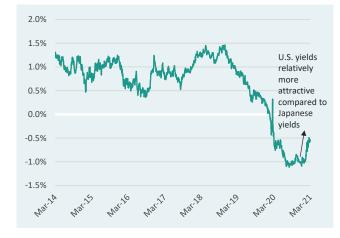
#### INTERNATIONAL DEVELOPED EQUITIES



### **EFFECT OF CURRENCY (1-YEAR ROLLING)**



### 10-YEAR REAL YIELD SPREAD (US MINUS JAPAN)



Source: MSCI, as of 3/31/21 Source: Bloomberg, as of 3/31/21

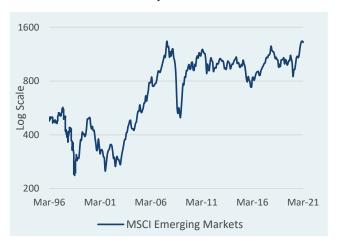
# Emerging market equity

Emerging market equities (MSCI EM +2.3%) underperformed U.S. (S&P 500 +6.2%) and international developed equities (MSCI EAFE +3.5%) during the quarter. Latin American equities pulled back from strong performance in Q4, underperforming the broader index (MSCI Latin America -5.3%).

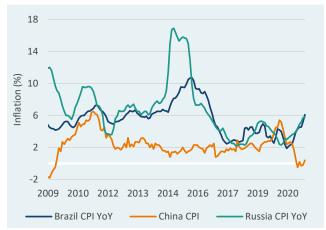
Chinese mainland equities, which account for roughly 36% of the MSCI EM Index, slumped -0.4%, dampening overall index returns. Many analysts attributed the relative weakness in China to tightening liquidity conditions, as the People's Bank of China shifted focus away from promoting economic recovery and toward clamping down on real estate speculation and leverage broadly, in the interest of preventing the buildup of financial excesses.

Central banks from Turkey to Russia to Brazil delivered surprise rate hikes in part to respond to a resurgence in inflation, which weighed on markets. Idiosyncratic political developments further pressured returns in Turkey (-20.4%) and Brazil (-10.0%), while Russian equities held up better (+2.4%) despite a weaker ruble (-2.1%).

#### **EMERGING MARKET EQUITY**



### INFLATION (YOY)



### Source: Bloomberg, as of 3/31/21 or most recent data

### SURPRISE CENTRAL BANK RATE HIKES



Source: Bloomberg, as of 3/31/21



Source: MSCI, as of 3/31/21

# Equity valuations

Valuations remain at very high levels relative to history. However, prices may be somewhat justified, considering the historically low (though slightly higher over the quarter) level of interest rates, and the fact that earnings are expected to rebound sharply later this year. Additionally, some have projected that aggressive cost-cutting measures and pandemic-driven innovation could result in higher operating leverage within U.S. companies, which would allow them to generate more earnings per dollar of revenue than before the pandemic began, and perhaps more earnings overall if revenues were to return to near pre-pandemic levels.

Equity prices proved quite resilient to the significant increase in global interest rates, leaving investors pondering the level at which rising interest rates would materially impact the present value of equities. While this is difficult to gauge, the answer is likely dependent on the sector and duration characteristics of the various global equity benchmarks. Additionally, central bank accommodation remains a crucial support for equity prices. Looking ahead, if central bankers were to adopt a more hawkish tone as the developed world approaches herd immunity, valuations may be challenged.

#### FORWARD P/E RATIOS



### Source: MSCI, 12m forward P/E, as of 3/31/21 Source: Blooml

#### **S&P 500 PRICE & EARNINGS EXPECTATIONS**



#### Source: Bloomberg, as of 3/31/21

### **VALUATION METRICS (3-MONTH AVERAGE)**



Source: Bloomberg, MSCI as of 3/31/21 - trailing P/E



# Equity volatility

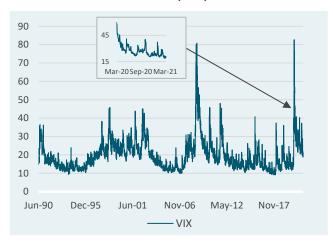
The Cboe VIX Index has slowly been falling back towards the longer-term average of 19. The index fluctuated in the low 20s during Q1, falling below 19 briefly in late March.

One-year trailing realized volatility began to fade alongside implied volatility in the first quarter of the year, as the tumultuous markets of Q1 2020 fell out of the lookback period. Central bank accommodation has translated to easy global financial conditions, though policy normalization and liquidity tightening in China has likely contributed to recent

weakness in Chinese equity markets.

Since seeing recoveries during Q3 and Q4 of last year, respectively, U.S. and international equities have headed higher with relatively low volatility. Idiosyncratic political developments across the emerging markets universe, surprise central bank rate hikes, and the high concentration of tech in Asian EM countries in a period of rising rates, all contributed to a more volatile quarter for the emerging markets complex.

### U.S. IMPLIED VOLATILITY (VIX)



### REALIZED VOLATILITY



#### Source: Standard & Poor's, MSCI, as of 3/31/21

### MAX DRAWDOWNS FROM PRIOR PEAKS

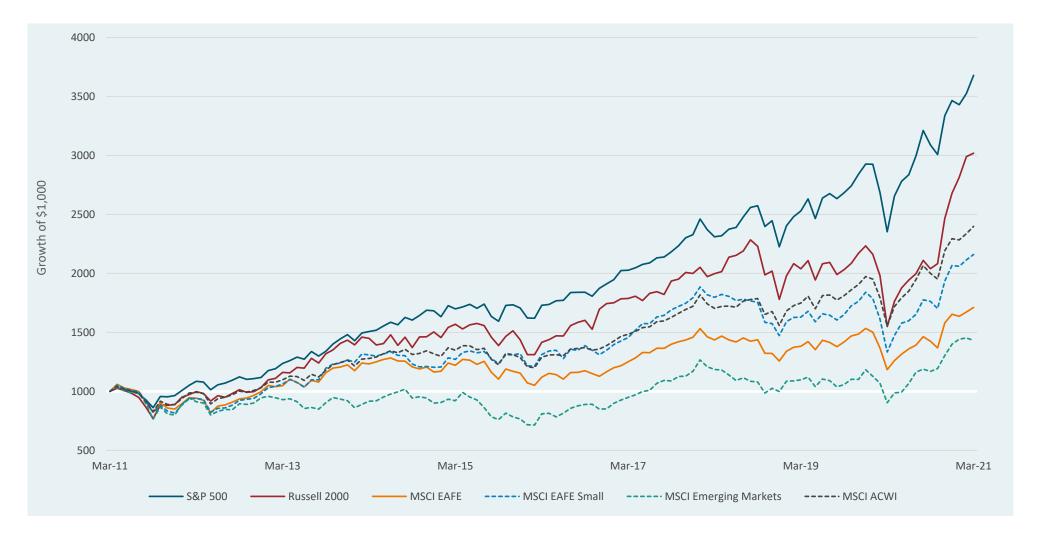


Source: Standard & Poor's, MSCI, Bloomberg, as of 3/31/21



Source: Choe, as of 3/31/21

# Long-term equity performance



Source: Morningstar, as of 3/31/21







# Currency

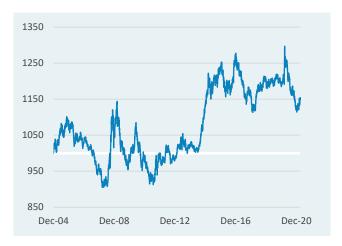
U.S. dollar weakness had prevailed for most of 2020, but turned around in the first quarter of 2021. The Bloomberg Dollar Spot Index increased 2.8% over the quarter, after slipping -5.4% in 2020. Strength in the dollar was attributed to rising relative yields in the U.S., the relatively effective vaccination campaign, and speculation that a series of fiscal support packages might fuel supernormal growth over the next few years.

Currency beta returns, or the returns of a long-short portfolio of G10 currencies constructed by investing in three equally-weighted factors (carry, value, momentum), remained negative over the trailing year. Rotations back into the U.S. dollar and

out of the euro and yen supported performance for the carry factor while detracting from the performance of the currency momentum factor.

International developed currencies fared poorly, pressured by risk-on sentiment, a lackluster European vaccination effort, and concerns expressed by the European Central Bank about rising global interest rates. The embedded currency portfolio of the MSCI EAFE Index returned -4.1%, as the yen (-6.7%) and euro (-4.0%) weakened relative to the U.S. dollar. Emerging market currencies (-3.1%) softened, driven by declines in the Brazilian real (-7.8%) and Turkish lira (-9.9%).

#### **BLOOMBERG DOLLAR SPOT INDEX**

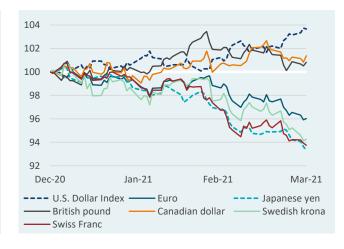


### **CURRENCY BETA (ONE-YEAR RETURNS)**



#### Source: MSCI, Bloomberg, as of 3/31/21

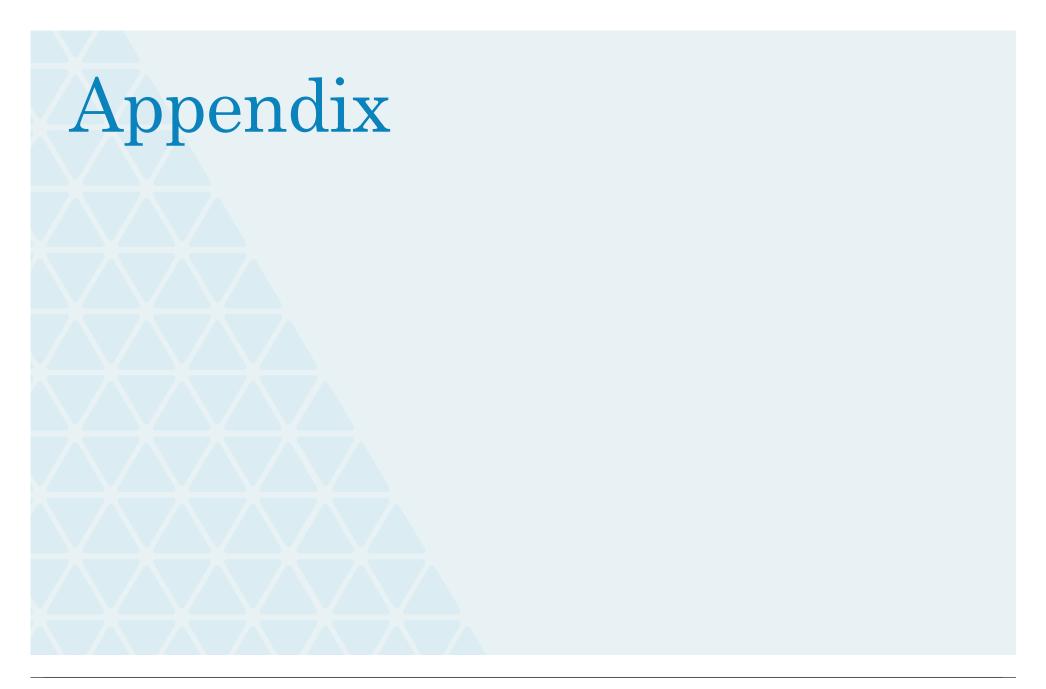
#### U.S. DOLLAR INDEX CONSTITUENTS



Source: Bloomberg, as of 3/31/21



Source: Bloomberg, as of 3/31/21





# Periodic table of returns

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	5-Year	10-Year
Small Cap Value	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	21.2	21.0	16.6
Small Cap Equity	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	12.7	18.6	14.0
Large Cap Value	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	11.3	16.7	13.0
Commodities	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	6.9	16.4	11.7
Large Cap Equity	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	5.9	13.6	11.0
Small Cap Growth	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	4.9	12.1	10.1
International Equity	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	3.5	11.7	8.6
Emerging Markets Equity	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	2.3	9.2	6.6
Hedge Funds of Funds	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	2.0	8.8	5.5
60/40 Global Portfolio	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	1.0	5.6	3.7
Large Cap Growth	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	0.9	5.4	3.4
Cash	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	3.1	3.4
Real Estate	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	0.0	2.3	0.6
US Bonds	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-3.4	1.1	-6.3

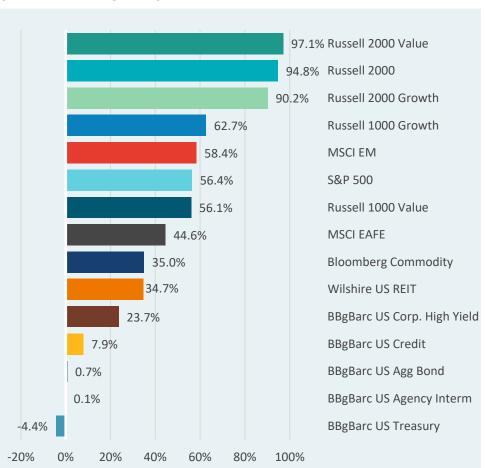


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/20.

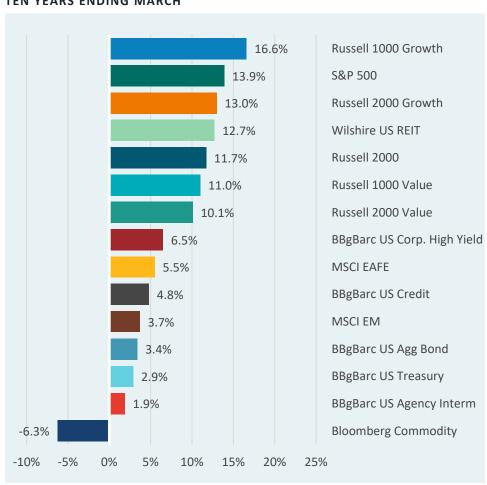


# Major asset class returns

#### ONE YEAR ENDING MARCH



#### TEN YEARS ENDING MARCH



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

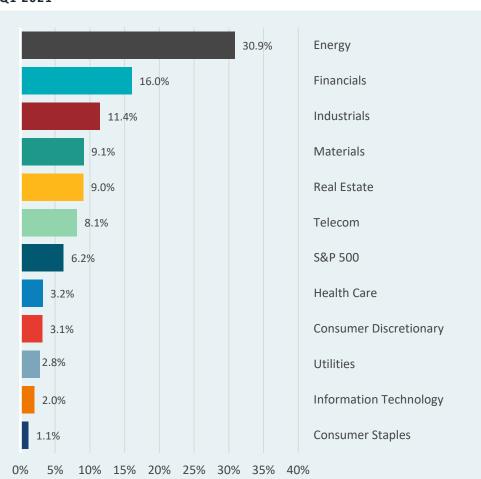
Source: Morningstar, as of 3/31/21

Source: Morningstar, as of 3/31/21

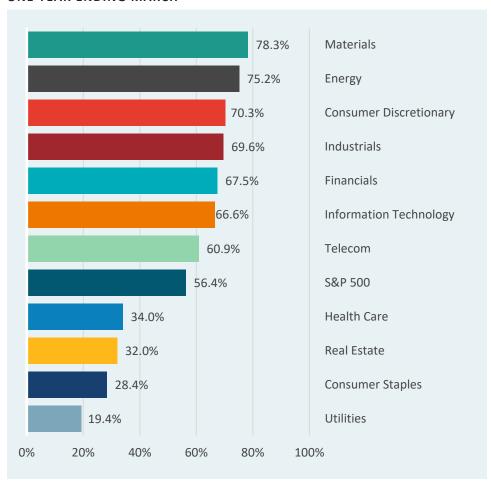


# S&P 500 sector returns

### Q1 2021



#### ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/21 Source: Morningstar, as of 3/31/21



# Private equity vs. traditional assets performance

### **DIRECT PRIVATE EQUITY FUND INVESTMENTS**



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

### "PASSIVE" STRATEGIES



"Passive" strategies underperformed comparable public equities across all time periods, aside from the 3-year basis.

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



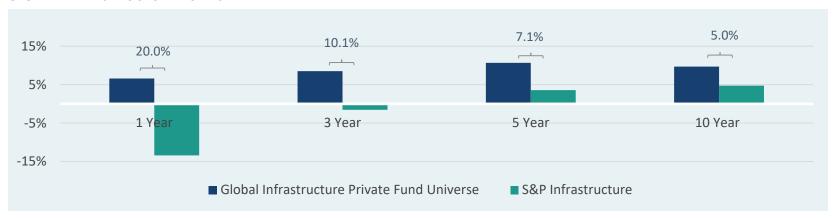
# Private vs. liquid real assets performance

#### **GLOBAL NATURAL RESOURCES FUNDS**



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

#### GLOBAL INFRASTRUCTURE FUNDS



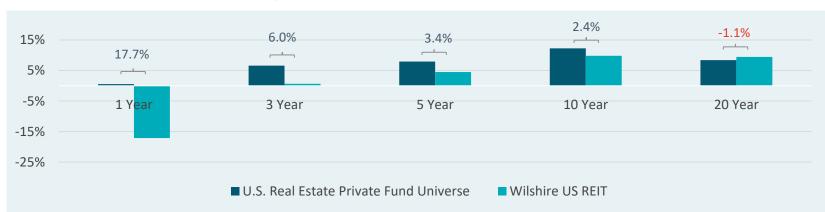
Infra. funds outperformed the S&P Infra. across all periods.

Sources: Refinitiv C|A PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2020. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.



# Private vs. liquid and core real estate performance

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



U.S. Private
R.E. funds
outperformed
the Wilshire
U.S. REIT Index
across all time
periods, aside on
a 20-year basis.

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



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods, aside on a 1-year basis.

Sources: Refinitiv C|A PME: Global and U.S. Real Estate universes as of September 30, 2020. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.



# Detailed index returns

DOMESTIC EQUITY								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	4.4	6.2	6.2	56.4	16.8	16.3	13.9	BBgBarc US TIPS	(0.2)	(1.5)	(1.5)	7.5	5.7	3.9	3.4
S&P 500 Equal Weighted	6.0	11.5	11.5	71.6	14.9	14.7	13.1	BBgBarc US Treasury Bills	0.0	0.0	0.0	0.1	1.5	1.2	0.7
DJ Industrial Average	6.8	8.3	8.3	53.8	13.6	16.0	13.1	BBgBarc US Agg Bond	(1.2)	(3.4)	(3.4)	0.7	4.7	3.1	3.4
Russell Top 200	4.2	5.1	5.1	56.3	18.3	17.4	14.6	BBgBarc US Universal	(1.2)	(3.1)	(3.1)	3.0	4.9	3.6	3.8
Russell 1000	3.8	5.9	5.9	60.6	17.3	16.7	14.0	Duration							
Russell 2000	1.0	12.7	12.7	94.8	14.8	16.4	11.7	BBgBarc US Treasury 1-3 Yr	(0.0)	(0.1)	(0.1)	0.3	2.8	1.7	1.3
Russell 3000	3.6	6.3	6.3	62.5	17.1	16.6	13.8	BBgBarc US Treasury Long	(5.0)	(13.5)	(13.5)	(15.8)	5.9	3.1	6.3
Russell Mid Cap	2.7	8.1	8.1	73.6	14.7	14.7	12.5	BBgBarc US Treasury	(1.5)	(4.3)	(4.3)	(4.4)	4.1	2.2	2.9
Style Index								Issuer							
Russell 1000 Growth	1.7	0.9	0.9	62.7	22.8	21.0	16.6	BBgBarc US MBS	(0.5)	(1.1)	(1.1)	(0.1)	3.7	2.4	2.8
Russell 1000 Value	5.9	11.3	11.3	56.1	11.0	11.7	11.0	BBgBarc US Corp. High Yield	0.1	0.9	0.9	23.7	6.8	8.1	6.5
Russell 2000 Growth	(3.1)	4.9	4.9	90.2	17.2	18.6	13.0	BBgBarc US Agency Interm	(0.4)	(1.0)	(1.0)	0.1	3.2	2.0	1.9
Russell 2000 Value	5.2	21.2	21.2	97.1	11.6	13.6	10.1	BBgBarc US Credit	(1.6)	(4.5)	(4.5)	7.9	5.9	4.7	4.8
INTERNATIONAL EQUITY								OTHER							
Broad Index								Index							
MSCI ACWI	2.7	4.6	4.6	54.6	12.1	13.2	9.1	Bloomberg Commodity	(2.1)	6.9	6.9	35.0	(0.2)	2.3	(6.3)
MSCI ACWI ex US	1.3	3.5	3.5	49.4	6.5	9.8	4.9	Wilshire US REIT	4.8	8.8	8.8	34.7	9.0	5.7	12.7
MSCI EAFE	2.3	3.5	3.5	44.6	6.0	8.8	5.5	CS Leveraged Loans	0.1	2.0	2.0	20.8	4.1	4.6	5.0
MSCI EM	(1.5)	2.3	2.3	58.4	6.5	12.1	3.7	Alerian MLP	6.9	22.0	22.0	99.1	(4.0)	(2.1)	(0.7)
MSCI EAFE Small Cap	2.2	4.5	4.5	62.0	6.3	10.5	8.0	Regional Index							
Style Index								JPM EMBI Global Div	(1.0)	(4.5)	(4.5)	16.0	4.0	5.1	5.6
MSCI EAFE Growth	1.2	(0.6)	(0.6)	42.6	9.8	10.8	7.2	JPM GBI-EM Global Div	(3.1)	(6.7)	(6.7)	13.0	(8.0)	3.1	0.5
MSCI EAFE Value	3.4	7.4	7.4	45.7	1.8	6.6	3.7	Hedge Funds							
Regional Index								HFRI Composite	1.0	6.1	6.1	34.0	7.7	7.5	4.6
MSCIUK	2.8	6.2	6.2	33.5	0.9	4.3	3.3	HFRI FOF Composite	0.4	2.0	2.0	23.9	5.4	5.6	3.4
MSCI Japan	1.1	1.6	1.6	39.7	6.3	10.5	7.2	Currency (Spot)							
MSCI Europe	3.1	4.1	4.1	44.9	5.6	8.2	5.1	Euro	(3.2)	(3.9)	(3.9)	7.1	(1.5)	0.6	(1.9)
MSCI EM Asia	(3.0)	2.2	2.2	60.1	9.5	14.5	6.6	Pound Sterling	(1.3)	0.9	0.9	11.3	(0.6)	(8.0)	(1.5)
MSCI EM Latin American	4.6	(5.3)	(5.3)	50.1	(6.1)	4.0	(4.1)	Yen	(3.6)	(6.6)	(6.6)	(2.3)	(1.3)	0.3	(2.8)

Source: Morningstar, HFRI, as of 3/31/21



# **Definitions**

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

**University of Michigan Consumer Sentiment Index** - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloombera.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. (<a href="https://www.nfib-sbet.org/about/">https://www.nfib-sbet.org/about/</a>)

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, 2021** 



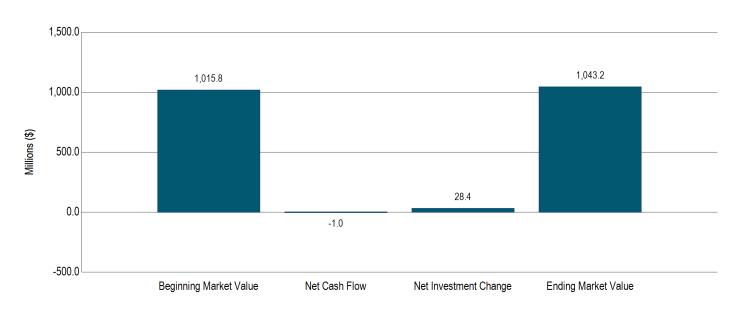
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# **Portfolio Reconciliation**

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$1,015,770,219	\$881,387,962	\$804,461,919
Net Cash Flow	-\$999,804	-\$5,314,134	-\$10,448,159
Net Investment Change	\$28,428,868	\$167,125,454	\$249,185,522
Ending Market Value	\$1,043,199,282	\$1,043,199,282	\$1,043,199,282

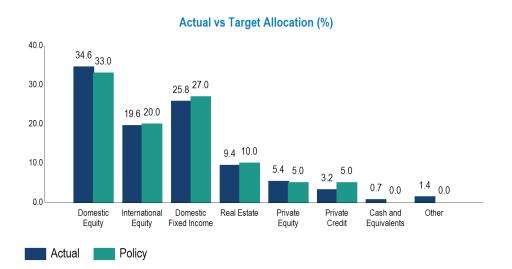
# Change in Market Value Last Three Months



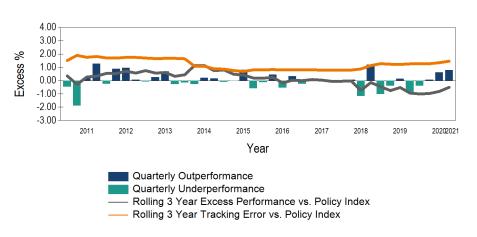
Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	2.8	19.1	31.2	9.4	10.0	7.6
Policy Index	2.0	17.4	29.9	9.9	10.3	7.7
InvMetrics Public DB Net Rank	65	61	79	67	57	69
Total Domestic Equity	6.4	33.2	62.6	17.2	16.7	13.5
Russell 3000	6.3	33.2	62.5	17.1	16.6	13.8
eV US All Cap Core Equity Net Rank	50	40	42	36	29	27
Total International Equity	4.4	29.8	50.4	5.4	9.5	4.5
MSCI ACWI ex USA Gross	3.6	29.0	50.0	7.0	10.3	5.4
InvMetrics Public DB ex-US Eq Net Rank	18	62	82	86	79	94
Total Fixed Income	-2.8	0.9	5.9	5.5	4.2	4.1
BBgBarc US Aggregate TR	-3.4	-2.1	0.7	4.7	3.1	3.4
InvMetrics Public DB Total Fix Inc Net Rank	71	55	58	10	52	47
Total Real Estate	2.2	3.8	2.9	5.1	5.5	8.7
NCREIF ODCE Net	1.9	3.3	1.5	4.0	5.3	8.7
Total Private Equity	0.0	30.0	18.7	16.6	16.6	10.5
Private Equity Benchmark	0.0	30.0	18.7	16.6	16.6	
Total Private Credit	0.8	7.0	3.8	6.8		
Private Credit Benchmark	0.8	7.0	3.8	6.8		
Total Opportunistic	13.6	17.0	14.4	9.4	8.8	11.2
Assumption Rate + 1%	2.0	6.1	8.3	8.3	8.3	8.6



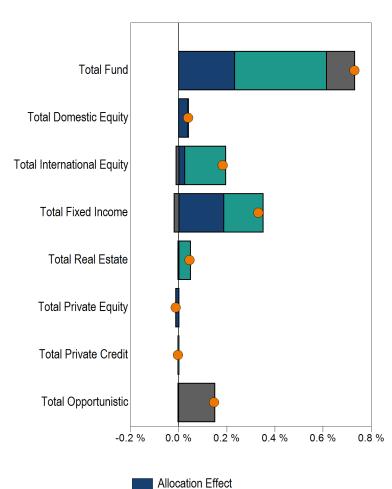
# Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



New Policy Index (as of 8/1/2020): 33% Russell 3000, 20% MSCI ACWI ex USA Gross, 27% BBgBarc Aggregate, 10% NCREIF Property, 2%BBgBarc Aggregate, 5% Private Equity Benchmark, 3% Private Credit Benchmark. Policy Index (11/1/2020-7/31/2020): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc Aggregate, 10% NCREIF Property, 1% Russell 3000, 2%BBgBarc Aggregate, 4% Private Equity Benchmark, 3% Private Credit Benchmark. Prior Policy Index (10/1/2016 to 9/30/2018): 29% Russell 3000, 24% MSCI ACWI Ex USA Gross, 27% BBgBarc Aggregate, 5% NCREIF Property Index, 5% NCREIF Property Index +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior quarter Private Equity returns, and index data are used. All returns are Net of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. As of 10/1/20 the SAA Target for equity changed to 33% Russell 3000 + 20% ACWI ex-US (see Exhibit B attached).



### **Attribution Effects**



Selection Effect
Interaction Effects
Total Effect

### **Performance Attribution**

	Quarter	YTD
Wtd. Actual Return	2.81%	2.81%
Wtd. Index Return *	2.01%	2.01%
Excess Return	0.80%	0.80%
Selection Effect	0.36%	0.36%
Allocation Effect	0.24%	0.24%
Interaction Effect	0.16%	0.16%

<sup>\*</sup>Calculated from benchmark returns and weightings of each component.

# Attribution Summary Last Three Months

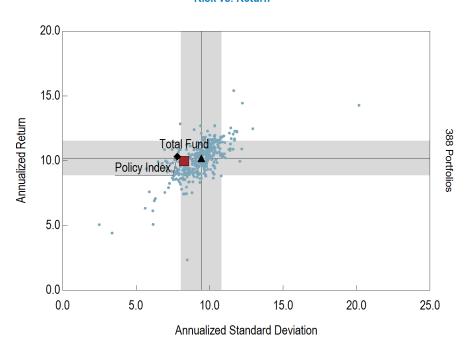
	Wtd. Actual	Wtd. Index	Excess	Selection	Allocation	Interaction	Total
	Return	Return	Return	Effect	Effect	Effects	Effects
Total Domestic Equity	6.4%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	4.4%	3.6%	0.8%	0.2%	0.0%	0.0%	0.2%
Total Fixed Income	-2.8%	-3.4%	0.5%	0.2%	0.3%	0.0%	0.4%
Total Real Estate	2.2%	1.7%	0.5%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Private Credit	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic	13.6%	2.0%	11.6%	0.0%	0.0%	0.2%	0.2%
Total	2.8%	2.0%	0.8%	0.4%	0.2%	0.2%	0.8%

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



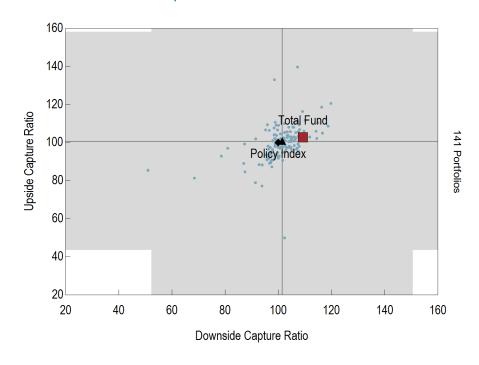
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	9.96%	-0.36%	8.28%	-0.93%	1.06	0.98%	0.99	1.06	-0.36	102.80%	109.20%

### Risk vs. Return



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

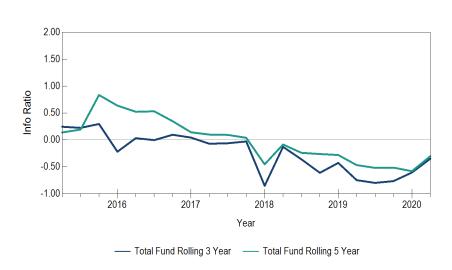
# **Up Markets vs. Down Markets**



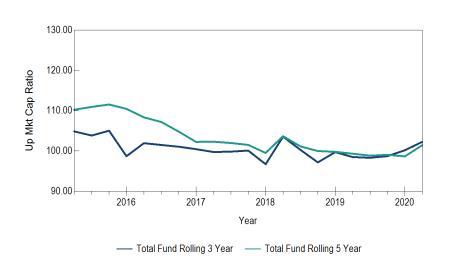
- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net



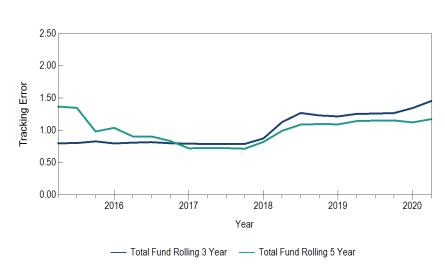
### **Rolling Information Ratio**



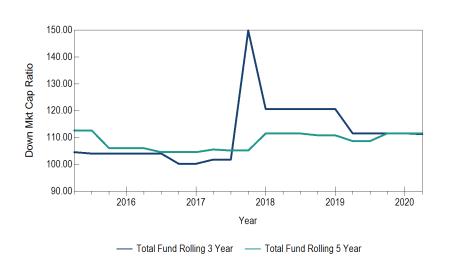
### Rolling Up Market Capture Ratio (%)



# **Rolling Tracking Error**



### Rolling Down Market Capture Ratio (%)





Total Fund
Performance Summary (Net of Fees)

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016	Inception I	Inception Date
Total Fund	1,043,199,282	100.0	2.8	19.1	31.2	9.4	10.0	7.6	12.3	17.9	-4.1	16.0	7.4	9.0	Mar-89
Policy Index			2.0	17.4	29.9	9.9	10.3	7.7	13.2	18.0	-2.8	15.9	8.3		Mar-89
InvMetrics Public DB Net Rank			65	61	79	67	57	69	59	73	43	22	49	17	Mar-89
Total Domestic Equity	361,126,776	34.6	6.4	33.2	62.6	17.2	16.7	13.5	21.0	31.1	-5.2	21.2	12.8		
Russell 3000			6.3	33.2	62.5	17.1	16.6	13.8	20.9	31.0	-5.2	21.1	12.7		
eV US All Cap Core Equity Net Rank			50	40	42	36	29	27	43	42	40	42	20		
BlackRock Russell 3000	361,126,776	34.6	6.4	33.2	62.6	17.2	16.7		21.0	31.1	-5.2	21.2	12.8	15.5	Dec-15
Russell 3000			6.3	33.2	62.5	17.1	16.6		20.9	31.0	-5.2	21.1	12.7	15.3	Dec-15
eV US All Cap Core Equity Net Rank			50	40	42	36	29		43	42	40	42	20	36	Dec-15
Total International Equity	204,305,941	19.6	4.4	29.8	50.4	5.4	9.5	4.5	8.1	20.7	-14.3	27.9	4.4		
MSCI ACWI ex USA Gross			3.6	29.0	50.0	7.0	10.3	5.4	11.1	22.1	-13.8	27.8	5.0		
InvMetrics Public DB ex-US Eq Net Rank			18	62	82	86	79	94	93	84	29	55	48		
BlackRock International Equity	151,430,882	14.5	3.6	26.1	45.0	6.4	9.2	5.8	8.1	22.4	-13.5	25.4	1.3	7.5	Jul-03
MSCI EAFE			3.5	25.8	44.6	6.0	8.8	5.5	7.8	22.0	-13.8	25.0	1.0	7.2	Jul-03
eV All EAFE Equity Net Rank			58	69	73	43	50	73	49	47	33	60	37	60	Jul-03
DFA Emerging Markets Value	25,853,639	2.5	8.4	37.3	63.6	1.7	9.6	1.3	2.8	9.6	-11.9	33.8	19.8	4.3	Jan-07
MSCI Emerging Markets Value NR			4.1	34.0	52.5	2.6	8.4	1.0	5.5	12.0	-10.7	28.1	14.9	4.2	Jan-07
eV Emg Mkts All Cap Value Equity Net Rank			15	62	43	89	73	99	81	98	20	49	22	70	Jan-07
Harding Loevner Emerging Markets	27,021,419	2.6	1.5	35.2	58.3	3.4			12.4	24.0	-19.5	33.6		9.0	Jul-16
MSCI Emerging Markets Growth GR			0.6	34.4	64.1	10.4			31.6	25.4	-18.0	47.1		15.4	Jul-16
eV Emg Mkts All Cap Growth Equity Net Rank			21	62	80	99			99	61	73	89		97	Jul-16
Total Fixed Income	268,902,103	25.8	-2.8	0.9	5.9	5.5	4.2	4.1	9.8	9.5	-0.8	4.3	4.8		
BBgBarc US Aggregate TR			-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6		
InvMetrics Public DB Total Fix Inc Net Rank			71	55	58	10	52	47	8	32	59	62	43		
Ducenta Squared	109,768,947	10.5	-3.2	-0.2	4.4	5.4	4.3	4.4	9.1	9.9	-0.1	4.3	4.8	6.1	Dec-92
BBgBarc US Aggregate TR			-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6	5.3	Dec-92
eV US Core Plus Fixed Inc Net Rank			81	75	80	48	44	37	34	45	23	74	41	36	Dec-92
MacKay Shields Core Plus Opportunities	108,931,186	10.4	-3.1	1.0	6.6	5.5	4.2		9.9	9.7	-1.0	4.5	4.7	3.4	Mar-15
BBgBarc US Aggregate TR			-3.4	-2.1	0.7	4.7	3.1		7.5	8.7	0.0	3.5	2.6	2.9	Mar-15
eV US Core Plus Fixed Inc Net Rank			77	46	55	38	44		23	54	75	62	47	70	Mar-15
BlackRock US TIPS	50,201,970	4.8	-1.5	3.2	7.8	5.7	4.0	3.5	11.2	8.5	-1.2	3.2	4.8	4.4	Apr-07
BBgBarc US TIPS TR			-1.5	3.2	7.5	5.7	3.9	3.4	11.0	8.4	-1.3	3.0	4.7	4.3	Apr-07
eV US TIPS / Inflation Fixed Inc Net Rank			67	73	67	45	54	31	31	53	36	47	43	53	Apr-07

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



Total Fund
Performance Summary (Net of Fees)

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016	Inception I	nception Date
Total Real Estate	98,469,389	9.4	2.2	3.8	2.9	5.1	5.5	8.7	2.1	5.7	7.5	5.8	6.5		
NCREIF Property Index			1.7	3.7	2.6	4.9	5.8	8.8	1.6	6.4	6.7	7.0	8.0		
NCREIF ODCE Net			1.9	3.3	1.5	4.0	5.3	8.7	0.3	4.4	7.4	6.7	7.8		
ASB Real Estate	28,675,365	2.7	2.2	3.0	2.2	3.8	4.1		1.5	3.0	6.6	4.0	4.6	7.5	Dec-12
NCREIF Property Index			1.7	3.7	2.6	4.9	5.8		1.6	6.4	6.7	7.0	8.0	8.1	Dec-12
NCREIF ODCE Net			1.9	3.3	1.5	4.0	5.3		0.3	4.4	7.4	6.7	7.8	8.0	Dec-12
Clarion Lion	28,672,097	2.7	2.2	5.0	3.1	5.8	6.5	9.5	2.3	6.8	8.6	7.9	8.0	4.6	Dec-06
NCREIF Property Index			1.7	3.7	2.6	4.9	5.8	8.8	1.6	6.4	6.7	7.0	8.0	6.5	Dec-06
NCREIF ODCE Net			1.9	3.3	1.5	4.0	5.3	8.7	0.3	4.4	7.4	6.7	7.8	4.8	Dec-06
ARA American Strategic Value Realty	39,156,575	3.8	2.3	3.7	3.4	6.3			2.4	7.8				6.5	Jan-18
NCREIF Property Index +2%			2.2	5.2	4.7	7.0			3.6	8.5				7.1	Jan-18
NCREIF ODCE +2%			2.6	5.5	4.3	6.6			3.2	7.4				6.8	Jan-18
1221 State St. Corp	1,965,351	0.2	0.0	0.0	0.0	2.6	4.9	1.3	0.0	7.9	0.0	0.0	17.5	1.6	Sep-08
Total Private Equity															
Harbourvest Buyout IX	7,025,647	0.7	0.0	25.6	16.5	18.1	18.9		21.3	17.6	23.6	23.2	13.7		Sep-11
Harbourvest Credit Ops IX	1,038,833	0.1	0.0	14.1	-2.3	5.6	9.5		0.3	8.0	14.4	17.5	8.5		Sep-11
Harbourvest International PE VI	2,482,870	0.2	0.0	23.2	9.2	10.8	13.0	9.2	17.2	6.0	14.8	19.4	12.2		Jun-10
Harbourvest Venture IX	5,022,454	0.5	0.0	46.9	46.6	31.1	21.9		52.4	24.6	25.9	9.4	5.3		Sep-11
Harbourvest 2017 Global Fund	19,568,846	1.9	0.0	27.9	13.6	13.0			18.8	8.8	20.9			16.0	Sep-17
Harbourvest 2018 Global Fund	12,255,524	1.2	0.0	23.8	16.7				16.0	14.3				12.8	Dec-18
Harbourvest 2019 Global Fund	8,419,416	0.8	0.0	68.2	34.6				34.6					24.9	Dec-19
Russell 3000 + 3%			7.1	36.1	67.2				24.5					27.0	Dec-19
Total Private Credit															
Portfolio Advisors	33,349,080	3.2	0.8	7.0	3.8	6.8			4.8	9.4	6.7			6.3	Oct-17
BBgBarc High Yield +2% (Lagged)			7.0	24.5	9.2	8.4			5.3	8.5	5.1			8.0	Oct-17
Ascribe Opportunities Fund IV	-8,649	0.0	0.0	-12.5										-12.5	Jul-20
BBgBarc High Yield +2% (Lagged)			7.0	24.5										24.5	Jul-20
Total Opportunistic															
KKR Mezzanine Partners	2,389,220	0.2	0.6	-14.4	-16.1	-0.5	2.9	7.3	-15.2	-4.2	25.3	8.7	4.0	7.3	Apr-11
PIMCO BRAVO	18,500	0.0	5.8	16.4	-33.3	-20.8	-12.4	1.4	-48.2	-49.1	77.8	-12.4	11.2	1.4	May-11
TSSP Adjacent Opportunities Partners	11,828,068	1.1	16.6	28.2	28.2				-					28.2	Apr-20
Total Cash															
Cash Account	6,996,616	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills			0.0	0.1	0.1	1.4	1.1	0.6	0.5	2.1	1.9	0.9	0.3		

TSSP Adjacent funded 4/16/2020.



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

Period Ending: March 31, 2021

				3	Years						
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 3000	17.16%	0.04%	19.32%	0.05%	1.00	0.04%	1.00	0.82	1.16	100.12%	99.96%
BlackRock International Equity	6.40%	0.38%	17.77%	0.36%	1.00	0.21%	1.00	0.28	1.75	101.68%	99.82%
DFA Emerging Markets Value	1.71%	-0.89%	21.81%	-1.08%	1.07	4.60%	0.96	0.01	-0.19	105.97%	105.29%
Harding Loevner Emerging Markets	3.41%	-6.96%	21.75%	-7.33%	1.04	7.08%	0.90	0.09	-0.98	84.76%	109.54%
Ducenta Squared	5.40%	0.75%	3.89%	0.67%	1.02	1.42%	0.87	1.02	0.53	113.25%	105.03%
MacKay Shields Core Plus Opportunities	5.50%	0.85%	4.42%	0.46%	1.08	2.17%	0.76	0.94	0.39	121.08%	118.78%
BlackRock US TIPS	5.74%	0.06%	3.95%	-0.01%	1.01	0.10%	1.00	1.09	0.67	101.21%	100.95%
ASB Real Estate	3.84%	-1.06%	2.50%	-0.12%	0.81	1.54%	0.66	0.95	-0.69	77.46%	77.87%
Clarion Lion	5.81%	0.92%	3.23%	-0.28%	1.25	1.01%	0.94	1.35	0.91	124.89%	185.14%
ARA American Strategic Value Realty	6.28%	-0.70%	3.07%	-1.89%	1.17	0.98%	0.92	1.61	-0.72	87.11%	39.64%
Portfolio Advisors Credit Strategies Fund	5.84%	-2.51%	6.51%	2.80%	0.36	8.14%	0.27	0.69	-0.31	34.97%	4.65%

				5	Years						
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock International Equity	9.19%	0.34%	14.77%	0.32%	1.00	0.19%	1.00	0.54	1.79	101.91%	99.80%
DFA Emerging Markets Value	9.63%	1.20%	18.71%	0.57%	1.08	3.89%	0.96	0.45	0.31	115.73%	103.49%
Ducenta Squared	4.26%	1.15%	3.50%	1.18%	0.99	1.19%	0.88	0.89	0.97	117.55%	92.71%
MacKay Shields Core Plus Opportunities	4.24%	1.13%	3.86%	1.02%	1.04	1.76%	0.79	0.81	0.65	122.85%	101.68%
BlackRock US TIPS	3.95%	0.09%	3.64%	0.05%	1.01	0.08%	1.00	0.77	1.14	101.56%	100.08%
ASB Real Estate	4.10%	-1.71%	2.39%	-0.21%	0.74	1.49%	0.69	1.23	-1.14	70.07%	77.87%
Clarion Lion	6.51%	0.70%	3.24%	-0.27%	1.17	0.93%	0.94	1.66	0.75	118.94%	185.14%



Vintage	Manager & Fund Name	Estimated 3/31 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>4</sup>	IRR Date
2011	HarbourVest IX-Buyout	\$7,025,647	\$10,000,000	\$8,525,000	85%	\$1,475,000	\$8,629,317	\$7,475,422	101.2%	183.6%	18.1%	9/30/20
2011	HarbourVest IX-Credit	\$1,038,833	\$2,000,000	\$1,600,000	80%	\$400,000	\$1,231,848	\$1,280,968	77.0%	141.9%	11.9%	9/30/20
2008	HarbourVest Int'l VI <sup>5</sup>	\$2,482,870	\$3,712,930	\$2,630,078	71%	\$1,082,852	\$2,628,850	\$2,408,018	100.0%	194.4%	14.1%	9/30/20
2011	HarbourVest IX-Venture	\$5,022,454	\$4,000,000	\$3,800,000	95%	\$200,000	\$4,422,836	\$4,781,643	116.4%	248.6%	21.3%	9/30/20
2017	HarbourVest 2017 Global	\$19,568,846	\$30,000,000	\$17,700,000	59%	\$12,300,000	\$3,829,801	\$17,684,711	21.6%	132.2%	18.0%	9/30/20
2018	HarbourVest 2018 Global	\$12,255,524	\$20,000,000	\$10,538,043	53%	\$9,461,957	\$168,274	\$9,160,153	1.6%	117.9%	24.2%	9/30/20
2019	HarbourVest 2019 Global	\$8,419,416	\$20,000,000	\$6,956,762	35%	\$13,043,238	\$0	N/A	N/A	N/A	N/A	N/A
	Total Illiquid Private Equity	\$55,813,590	\$89,712,930	\$51,749,883	58%	\$37,963,047	\$20,910,926	\$42,790,915	82.7%	123.1%		
	% of Portfolio (Market Value)	5.5%						Management	Admin	Interest	Other	Total
	,				_			Fee	Fee	Expense	Expense	Expense 6
						HarbourVest IX-Buyout		\$24,910	\$0	\$7	\$3,612	\$28,529
						HarbourVest IX-Credit		\$4,976	\$0	\$1	\$1,939	\$6,916
						HarbourVest Int'l VI		\$6,056	\$0	\$44	\$37	\$6,137
						HarbourVest IX-Venture	)	\$9,983	\$0	\$7	\$657	\$10,647
						HarbourVest 2017 Glob	al	\$66,000	\$0	\$0	\$38,195	\$104,195
						HarbourVest 2018 Glob	al	\$44,056	\$0	\$18	\$18,187	\$62,261
					_	HarbourVest 2019 Glob	al	\$29,755	\$0	\$1,508	\$19,694	\$50,957



\$0

\$1,585

\$185,736

\$269,642

\$82,321

<sup>&</sup>lt;sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>&</sup>lt;sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>&</sup>lt;sup>3</sup>Last known market value + capital calls - distributions (preliminary MV's as of 9/30/20)

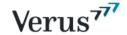
<sup>&</sup>lt;sup>4</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

<sup>&</sup>lt;sup>5</sup>HarbourVest International Private Equity Partners VI-Partnership Fund L.P. values are originally presented in euros and are calculated to dollars using XE™.

<sup>&</sup>lt;sup>6</sup>All fees and expenses are for 3Q 2020

Vintage	Manager & Fund Name	Estimated 3/31 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception⁴	IRR Date
2013	Portfolio Advisors Credit Strategies Fund	\$12,561,483	\$11,250,000	\$11,250,000	100%	\$0	\$897,720	\$12,774,477	8.0%	119.6%	7.4%	12/31/20
2017	Crescent Direct Lending Levered Fund II	\$4,517,919	\$7,000,000	\$5,707,507	82%	\$1,292,493	\$1,896,099	\$5,756,697	33.2%	112.4%	8.7%	12/31/20
2017	Audax Direct Lending Fund A	\$3,233,816	\$7,000,000	\$2,997,641	43%	\$4,002,359	\$482,780	NA	16.1%	124.0%	NM <sup>6</sup>	NM <sup>6</sup>
2018	Ares Capital Europe IV	\$6,812,119	\$8,000,000	\$5,170,327	65%	\$2,829,673	\$396,595	NA	7.7%	139.4%	NM <sup>7</sup>	NM <sup>7</sup>
2019	Lone Star Fund XI	\$153,158	\$5,750,000	\$520,537	9%	\$5,229,463	\$103,177	NA	19.8%	49.2%	NA	NA
2019	Ascribe Opportunities IV	-\$8,649	\$6,000,000	\$0	0%	\$6,000,000	\$0	NA	NA	NA	NA	NA
2020	Sixth Street Diversified Credit	\$6,079,235	\$20,000,000	\$7,209,649	36%	\$12,790,351	\$1,172,709	NA	16.3%	100.6%	NA	NA
	Total Illiquid Private Credit	\$33,349,080	\$65,000,000	\$32,855,662	51%	\$32,144,338	\$4,949,079	\$18,531,174	56.4%	71.5%		
	% of Portfolio (Market Value)	3.2%					Management	Accrued	Admin	Interest	Other	Total
	% of Portfolio (Market Value)	3.2%		_			Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense⁵
	% of Portfolio (Market Value)	3.2%					Fee	Carried Interest	Fee	Expense	Expense	Expense <sup>5</sup>
	% of Portfolio (Market Value)	3.2%		ok	Portfolio Adv		Fee \$0	Carried Interest	Fee \$0	Expense \$0	Expense \$0	Expense <sup>5</sup> \$0
	% of Portfolio (Market Value)	3.2%		ok	Crescent Dir	ect Lending II	\$0 \$47,308	\$0 \$20,874	\$0 \$3,840	\$0 \$0	\$0 \$0	\$0 \$72,022
	% of Portfolio (Market Value)	3.2%		ok ok	Crescent Dir Audax Direc	rect Lending II t Lending A	\$0 \$47,308 \$24,011	\$0 \$20,874 \$0	\$0 \$3,840 \$0	\$0 \$0 \$0	\$0 \$0 \$44,297	\$0 \$72,022 \$68,308
	% of Portfolio (Market Value)	3.2%		ok	Crescent Dir	rect Lending II t Lending A	\$0 \$47,308	\$0 \$20,874	\$0 \$3,840	\$0 \$0	\$0 \$0	\$0 \$72,022
	% of Portfolio (Market Value)	3.2%		ok ok	Crescent Dir Audax Direc	rect Lending II t Lending A Europe IV*	\$0 \$47,308 \$24,011	\$0 \$20,874 \$0	\$0 \$3,840 \$0	\$0 \$0 \$0	\$0 \$0 \$44,297	\$0 \$72,022 \$68,308
	% of Portfolio (Market Value)	3.2%		ok ok ok	Crescent Dir Audax Direct Ares Capital	rect Lending II t Lending A Europe IV* ortunities IV	\$0 \$47,308 \$24,011 \$21,779	\$0 \$20,874 \$0 \$26,922	\$0 \$3,840 \$0 \$7,527	\$0 \$0 \$0 \$0 \$28,378	\$0 \$0 \$0 \$44,297 \$0	\$0 \$72,022 \$68,308 \$84,606
	% of Portfolio (Market Value)	3.2%		ok ok ok ok	Crescent Dir Audax Direc Ares Capital Ascribe Opp Lone Star Fu	rect Lending II t Lending A Europe IV* ortunities IV	\$0 \$47,308 \$24,011 \$21,779 \$0	\$0 \$20,874 \$0 \$26,922 \$0	\$0 \$3,840 \$0 \$7,527 \$0	\$0 \$0 \$0 \$28,378 \$0	\$0 \$0 \$0 \$44,297 \$0 \$0	\$0 \$72,022 \$68,308 \$84,606 \$0

<sup>&</sup>lt;sup>1</sup>(DPI) is equal to (capital returned / capital called)



<sup>&</sup>lt;sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>&</sup>lt;sup>3</sup>Last known market value + capital calls - distributions (preliminary MV's as of 12/31/2020)

<sup>&</sup>lt;sup>4</sup>Net 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.

<sup>&</sup>lt;sup>5</sup>All fees and expenses are for 4Q 2020

<sup>&</sup>lt;sup>6</sup>The Fund issued its first capital call on October 26, 2018. As such it does not consider the IRR to be meaningful.

<sup>&</sup>lt;sup>7</sup>Given 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.

<sup>\*</sup> Fees and expenses are for 3Q 2020

Vintage	Manager & Fund Name	Estimated 3/31 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>5</sup>	IRR Date
2010	KKR Mezzanine <sup>6</sup>	\$2,389,220	\$10,000,000	\$10,000,000	100%	\$0	\$13,472,856	\$2,387,789	134.7%	158.6%	6.7%	12/31/20
2011	PIMCO BRAVO <sup>4</sup>	\$18,500	\$10,000,000	\$10,000,000	100%	\$0	\$18,133,166	\$69,502	181.3%	181.5%	22.2%	12/31/20
2020	TSSP Adjacent Opportunities Partners	\$11,828,068	\$40,000,000	\$9,536,182	24%	\$30,463,818	\$1,338,266	NA	14.0%	138.1%	NA	NA
	Total Illiquid Opportunistic	\$14,235,788	\$60,000,000	\$29,536,182	49% \$30,463,818		\$32,944,288	\$2,457,291	8.3%	119.9%		
	% of Portfolio (Market Value)	1.4%					Management	Accrued	Admin	Interest	Other	Total
	% of Portfolio (Market Value)	1.4%					Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense <sup>7</sup>
	% of Portfolio (Market Value)	1.4%		ı	KKR Mezz	anine	-					
	% of Portfolio (Market Value)	1.4%		ı	KKR Mezz		Fee	Carried Interest	Fee	Expense	Expense	Expense <sup>7</sup>
	% of Portfolio (Market Value)	1.4%		l	PIMCO BR		<b>Fee</b> \$3,391	Carried Interest	Fee \$0	Expense \$0	<b>Expense</b> \$4,921	<b>Expense</b> <sup>7</sup> \$8,312



<sup>&</sup>lt;sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>&</sup>lt;sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>&</sup>lt;sup>3</sup>Last known market value + capital calls - distributions (preliminary MV's as of 12/13/2020)

<sup>&</sup>lt;sup>4</sup>Investment period ended, no further capital to be called.

<sup>&</sup>lt;sup>5</sup>Net 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.

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

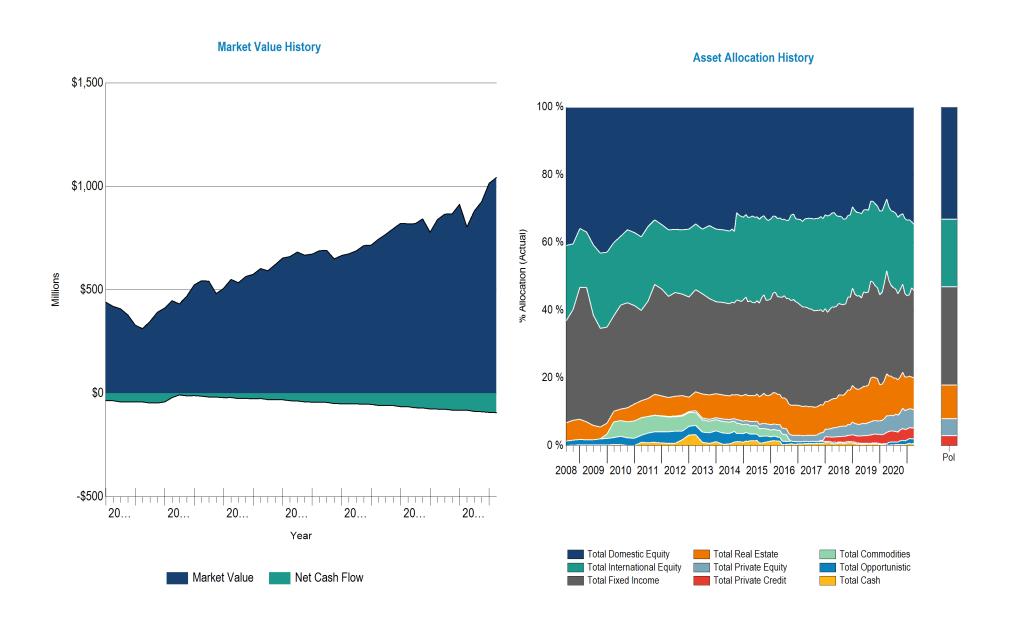
<sup>&</sup>lt;sup>7</sup>All fees and expenses are for 4Q 2020

Total Fund Cash Flow by Manager (Last Three Months)

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Capital Appreciation	Income	Ending Market Value
BlackRock Russell 3000	\$339,538,300	\$0	\$0	\$0	\$21,588,476	\$0	\$361,126,776
BlackRock International Equity	\$154,791,776	\$0	-\$9,000,000	-\$9,000,000	\$5,639,107	\$0	\$151,430,882
DFA Emerging Markets Value	\$34,003,531	\$0	-\$11,000,000	-\$11,000,000	\$2,850,108	\$0	\$25,853,639
Harding Loevner Emerging Markets	\$37,634,625	\$0	-\$12,000,000	-\$12,000,000	\$1,386,795	\$0	\$27,021,419
Ducenta Squared	\$101,144,166	\$11,924,769	\$0	\$11,924,769	-\$3,299,988	\$0	\$109,768,947
MacKay Shields Core Plus Opportunities	\$99,153,241	\$0	\$13,000,000	\$13,000,000	-\$3,222,055	\$0	\$108,931,186
BlackRock US TIPS	\$43,872,734	\$7,000,000	\$0	\$7,000,000	-\$670,764	\$0	\$50,201,970
ASB Real Estate	\$28,373,770	\$66,266	-\$373,610	-\$307,344	\$608,940	\$0	\$28,675,365
Clarion Lion	\$29,172,266	\$202,415	-\$1,355,527	-\$1,153,112	\$652,943	\$0	\$28,672,097
ARA American Strategic Value Realty	\$38,284,262	\$0	\$0	\$0	\$872,313	\$0	\$39,156,575
1221 State St. Corp	\$1,942,112	\$28,726	-\$5,498	\$23,229	\$0	\$11	\$1,965,351
Harbourvest Buyout IX	\$7,531,845	\$0	-\$506,198	-\$506,198	\$0	\$0	\$7,025,647
Harbourvest Credit Ops IX	\$1,137,218	\$0	-\$98,385	-\$98,385	\$0	\$0	\$1,038,833
Harbourvest International PE VI	\$2,614,283	\$0	-\$131,412	-\$131,412	\$0	\$0	\$2,482,870
Harbourvest Venture IX	\$5,684,470	\$0	-\$662,016	-\$662,016	\$0	\$0	\$5,022,454
Harbourvest 2017 Global Fund	\$20,388,510	\$750,000	-\$1,569,664	-\$819,664	\$0	\$0	\$19,568,846
Harbourvest 2018 Global Fund	\$12,423,798	\$0	-\$168,274	-\$168,274	\$0	\$0	\$12,255,524
Harbourvest 2019 Global Fund	\$8,419,416	\$0	\$0	\$0	\$0	\$0	\$8,419,416
Portfolio Advisors Credit Strategies Fund	\$12,774,477	\$0	-\$212,994	-\$212,994	\$0	\$0	\$12,561,483
Crescent Direct Lending Levered Fund II	\$5,756,697	\$0	-\$1,238,778	-\$1,238,778	\$0	\$0	\$4,517,919
Audax Direct Lending Fund A	\$3,233,623	\$0	-\$86,907	-\$86,907	\$87,100	\$0	\$3,233,816
Ares Capital Europe IV	\$5,974,734	\$778,675	-\$119,000	\$659,675	\$177,710	\$0	\$6,812,119
Lone Star XI	\$142,674	\$10,483	\$0	\$10,483	\$0	\$0	\$153,158
Sixth Street Diversified Credit	\$3,973,598	\$2,125,098	\$0	\$2,125,098	-\$19,461	\$0	\$6,079,235
Ascribe Opportunities Fund IV	-\$8,649	\$0	\$0	\$0	\$0	\$0	-\$8,649
KKR Mezzanine Partners	\$2,387,789	\$0	-\$12,091	-\$12,091	\$13,522	\$0	\$2,389,220
PIMCO BRAVO	\$69,502	\$0	-\$55,020	-\$55,020	\$4,018	\$0	\$18,500
TSSP Adjacent Opportunities Partners	\$10,575,175	\$831,065	-\$1,338,266	-\$507,201	\$1,760,094	\$0	\$11,828,068
Cash Account	\$4,780,277	\$4,227,626	-\$2,011,287	\$2,216,339	\$0	\$0	\$6,996,616
Total	\$1,015,770,219	\$27,945,123	-\$28,944,927	-\$999,804	\$28,428,857	\$11	\$1,043,199,282

Harbourvest market values as of 9/30/2020 +/- 4Q20 and 1Q21 calls/distributions. Portfolio Advisors, Ares, Audax, Crescent, Lone Star, PIMCO Bravo, KKR Mezzanine, Sixth Street, and TSSP Adjacent Opportunities market values as of 12/31/2020 +/- 1Q21 calls/distributions.







Current	Policy
34.6%	33.0%
19.6%	20.0%
25.8%	27.0%
9.4%	10.0%
5.4%	5.0%
3.2% 0.7% 1.4%	5.0% 0.0%

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$361,126,776	34.6%	33.0%	\$16,871,013	23.0% - 43.0%	Yes
International Equity	\$204,305,941	19.6%	20.0%	-\$4,333,916	10.0% - 30.0%	Yes
Domestic Fixed Income	\$268,902,103	25.8%	27.0%	-\$12,761,704	17.0% - 40.0%	Yes
Real Estate	\$98,469,389	9.4%	10.0%	-\$5,850,540	5.0% - 15.0%	Yes
Private Equity	\$55,813,590	5.4%	5.0%	\$3,653,626	0.0% - 10.0%	Yes
Private Credit	\$33,349,080	3.2%	5.0%	-\$18,810,884	0.0% - 10.0%	Yes
Cash and Equivalents	\$6,996,616	0.7%	0.0%	\$6,996,616	0.0% - 0.0%	No
Other	\$14,235,788	1.4%	0.0%	\$14,235,788	0.0% - 10.0%	Yes
Total	\$1.043.199.282	100.0%	100.0%			



# Total Fund Investment Fee Analysis

Period Ending: March 31, 2021

Account	Fee Schedule	Market Value As of 3/31/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,965,351	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	\$39,156,575	3.8%	\$460,722	1.18%
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$28,675,365	2.8%	\$265,065	0.92%
Ascribe Opportunities Fund IV	No Fee	-\$8,649	0.0%	-	
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$151,430,882	14.7%	\$125,000	0.08%
BlackRock Russell 3000	0.03% of Assets	\$361,126,776	35.1%	\$108,338	0.03%
BlackRock US TIPS	0.07% of Assets	\$50,201,970	4.9%	\$35,141	0.07%
Cash Account	No Fee	\$6,996,616	0.7%		
Clarion Lion	No Fee	\$28,672,097	2.8%	-	-
DFA Emerging Markets Value	0.41% of Assets	\$25,853,639	2.5%	\$106,000	0.41%
Ducenta Squared	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$109,768,947	10.7%	\$309,422	0.28%
Harbourvest 2017 Global Fund	262,500 Annually	\$19,568,846	1.9%	\$262,500	1.34%
Harbourvest 2018 Global Fund	138,000 Annually	\$12,255,524	1.2%	\$138,000	1.13%
Harbourvest 2019 Global Fund	0.45% of Assets	\$8,419,416	0.8%	\$37,887	0.45%
Harbourvest Buyout IX	100,000 Annually	\$7,025,647	0.7%	\$100,000	1.42%
Harbourvest Credit Ops IX	20,000 Annually	\$1,038,833	0.1%	\$20,000	1.93%
Harbourvest International PE VI	35,000 Annually	\$2,482,870	0.2%	\$35,000	1.41%
Harbourvest Venture IX	40,000 Annually	\$5,022,454	0.5%	\$40,000	0.80%
Harding Loevner Emerging Markets	1.05% of Assets	\$27,021,419	2.6%	\$283,725	1.05%
KKR Mezzanine Partners	150,000 Annually	\$2,389,220	0.2%	\$150,000	6.28%
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$108,931,186	10.6%	\$381,259	0.35%
PIMCO BRAVO	1.90% of Assets	\$18,500	0.0%	\$352	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$12,561,483	1.2%	\$180,000	1.43%
Sixth Street Diversified Credit	No Fee	\$6,079,235	0.6%	-	-
TSSP Adjacent Opportunities Partners	No Fee	\$11,828,068	1.2%	-	<u></u>
Investment Management Fee		\$1,028,482,271	100.0%	\$3,038,412	0.30%

<sup>\*</sup>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.



<sup>\*</sup>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.

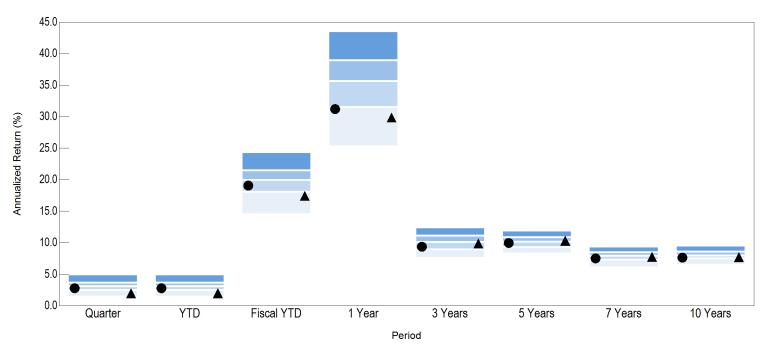
<sup>\*</sup>HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

<sup>\*</sup>Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations.

<sup>\*</sup>Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

<sup>\*</sup>Total fund market value excludes other investments managed by Portfolio Advisors.

Total Fund Cumulative Performance vs. InvMetrics Public DB Net



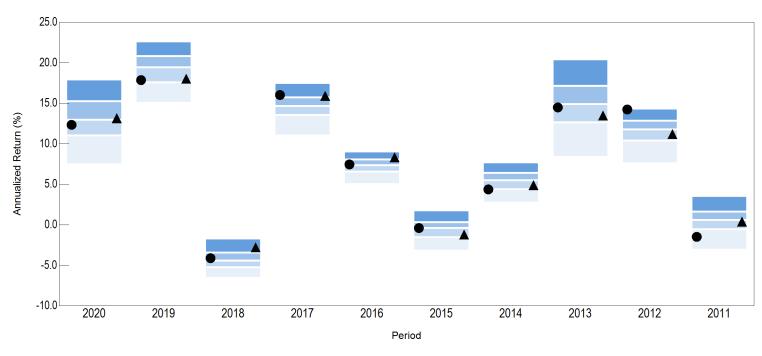
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Total FundPolicy Index

Return (R	ank)														
5.0		5.0		24.4		43.5		12.4		11.9		9.4		9.5	
3.7		3.7		21.5		39.0		11.2		10.9		8.5		8.6	
3.1		3.1		20.0		35.7		10.1		10.2		8.0		8.0	
2.5		2.5		18.1		31.6		9.0		9.3		7.3		7.5	
1.5		1.5		14.5		25.4		7.6		8.3		6.1		6.5	
427		427		426		425		406		388		360		320	
2.8	(65)	2.8	(65)	19.1	(61)	31.2	(79)	9.4	(67)	10.0	(57)	7.5	(68)	7.6	(69)
2.0	(89)	2.0	(89)	17.4	(83)	29.9	(86)	9.9	(55)	10.3	(47)	7.8	(58)	7.7	(65)



### Total Fund Consecutive Periods vs. InvMetrics Public DB Net



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

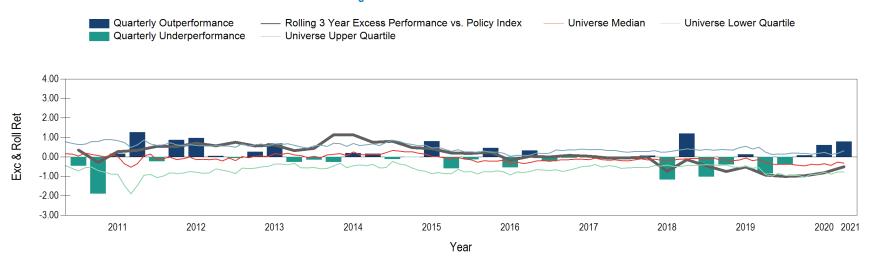
Total FundPolicy Index

Return (R	ank)								
17.9	22.6	-1.7	17.5	9.0	1.7	7.7	20.4	14.3	3.6
15.3	20.8	-3.4	15.8	8.1	0.4	6.4	17.2	12.9	1.6
13.0	19.5	-4.4	14.7	7.4	-0.4	5.5	14.9	11.8	0.6
11.0	17.6	-5.2	13.6	6.6	-1.5	4.4	12.7	10.4	-0.5
7.5	15.1	-6.5	11.1	5.0	-3.2	2.7	8.4	7.6	-3.1
596	550	496	269	269	262	210	191	159	137
	,	(3) -4.1 (43) (0) -2.8 (14)	` ,	7.4 (49) 8.3 (22)	-0.4 (51) -1.2 (72)	4.4 (77) 4.9 (64)	14.5 (55) 13.5 (69)	14.2 (6) 11.2 (63)	-1.5 (86) 0.4 (57)



Quarterly Outperformance

### **Rolling 3 Year Annualized Excess Performance**



### **Rolling 5 Year Annualized Excess Performance**

Universe Median

Rolling 5 Year Excess Performance vs. Policy Index





Universe Lower Quartile

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Domestic Equity	361,126,776	6.4	33.2	62.6	17.2	16.7	13.5	21.0	31.1	-5.2	21.2	12.8
Russell 3000		6.3	33.2	62.5	17.1	16.6	13.8	20.9	31.0	-5.2	21.1	12.7
eV US All Cap Core Equity Net Rank		50	40	42	36	29	27	43	42	40	42	20
BlackRock Russell 3000	361,126,776	6.4	33.2	62.6	17.2	16.7		21.0	31.1	-5.2	21.2	12.8
Russell 3000		6.3	33.2	62.5	17.1	16.6		20.9	31.0	-5.2	21.1	12.7
eV US All Cap Core Equity Net Rank		50	40	42	36	29		43	42	40	42	20

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

Large
Value

Total Domestic Equity

BlackRock Russell 3000

Mid
Value

Small
Value

Small
Value

Large
Growth

Growth

Small
Growth

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





	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total International Equity	204,305,941	4.4	29.8	50.4	5.4	9.5	4.5	8.1	20.7	-14.3	27.9	4.4
MSCI ACWI ex USA Gross		3.6	29.0	50.0	7.0	10.3	5.4	11.1	22.1	-13.8	27.8	5.0
InvMetrics Public DB ex-US Eq Net Rank		18	62	82	86	79	94	93	84	29	55	48
BlackRock International Equity	151,430,882	3.6	26.1	45.0	6.4	9.2	5.8	8.1	22.4	-13.5	25.4	1.3
MSCI EAFE		3.5	25.8	44.6	6.0	8.8	5.5	7.8	22.0	-13.8	25.0	1.0
eV All EAFE Equity Net Rank		58	69	73	43	50	73	49	47	33	60	37
DFA Emerging Markets Value	25,853,639	8.4	37.3	63.6	1.7	9.6	1.3	2.8	9.6	-11.9	33.8	19.8
MSCI Emerging Markets Value NR		4.1	34.0	52.5	2.6	8.4	1.0	5.5	12.0	-10.7	28.1	14.9
eV Emg Mkts All Cap Value Equity Net Rank		15	62	43	89	73	99	81	98	20	49	22
Harding Loevner Emerging Markets	27,021,419	1.5	35.2	58.3	3.4			12.4	24.0	-19.5	33.6	
MSCI Emerging Markets Growth GR		0.6	34.4	64.1	10.4			31.6	25.4	-18.0	47.1	
eV Emg Mkts All Cap Growth Equity Net Rank		21	62	80	99			99	61	73	89	

# MSCI Effective Style Map 3 Years Ending Mar 31, 2021



# MSCI Effective Style Map 5 Years Ending Mar 31, 2021





# Total International Equity Asset Class Overview (Net of Fees)

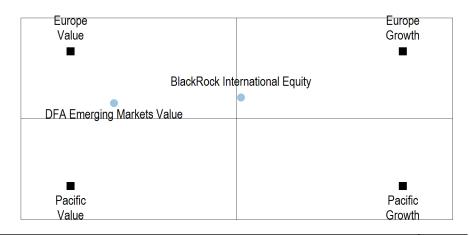
Period Ending: March 31, 2021

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total International Equity	204,305,941	4.4	29.8	50.4	5.4	9.5	4.5	8.1	20.7	-14.3	27.9	4.4
MSCI ACWI ex USA Gross		3.6	29.0	50.0	7.0	10.3	5.4	11.1	22.1	-13.8	27.8	5.0
BlackRock International Equity	151,430,882	3.6	26.1	45.0	6.4	9.2	5.8	8.1	22.4	-13.5	25.4	1.3
MSCI EAFE		3.5	25.8	44.6	6.0	8.8	5.5	7.8	22.0	-13.8	25.0	1.0
DFA Emerging Markets Value	25,853,639	8.4	37.3	63.6	1.7	9.6	1.3	2.8	9.6	-11.9	33.8	19.8
MSCI Emerging Markets Value NR		4.1	34.0	52.5	2.6	8.4	1.0	5.5	12.0	-10.7	28.1	14.9
Harding Loevner Emerging Markets	27,021,419	1.5	35.2	58.3	3.4			12.4	24.0	-19.5	33.6	
MSCI Emerging Markets Growth GR		0.6	34.4	64.1	10.4			31.6	25.4	-18.0	47.1	

# MSCI Effective Style Map 3 Years Ending Mar 31, 2021

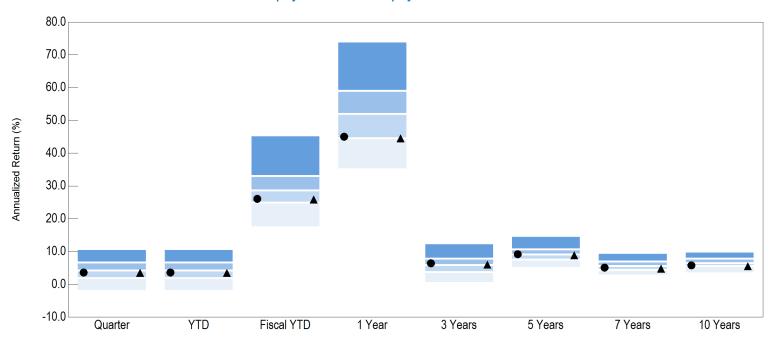


# MSCI Effective Style Map 5 Years Ending Mar 31, 2021





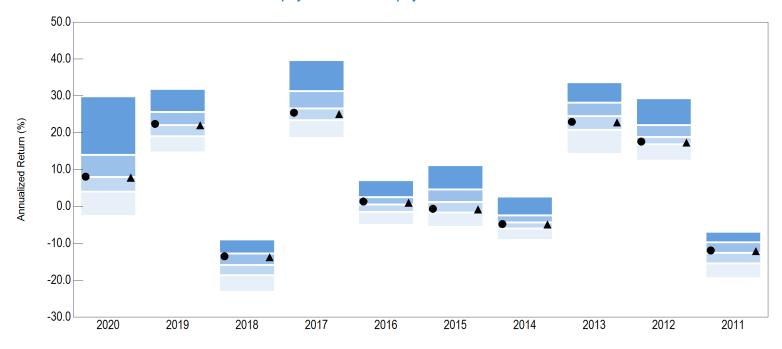
### BlackRock International Equity vs. eV All EAFE Equity Net Universe



	Return (Ran	k)							
5th Percentile	10.8	10.8	45.4	74.1	12.4	14.7	9.6	10.0	
25th Percentile	6.7	6.7	33.1	59.1	7.9	10.8	7.0	7.9	
Median	4.3	4.3	28.7	52.0	6.0	9.2	5.7	6.5	
75th Percentile	2.0	2.0	25.0	44.7	3.8	7.6	4.4	5.6	
95th Percentile	-2.0	-2.0	17.4	35.2	2 0.5	5.1	2.7	3.4	
# of Portfolios	244	244	244	244	231	213	181	146	
<ul> <li>BlackRock International Equity</li> <li>MSCI EAFE</li> </ul>		(58) 3.6 (60) 3.5	(58) 26.1 (60) 25.8	(69) 45.0 (71) 44.6	( /	(43) 9.2 (50) 8.8	(50) 5.1 (55) 4.8	(60) 5.8 (66) 5.5	(73) (78)



### BlackRock International Equity vs. eV All EAFE Equity Net Universe



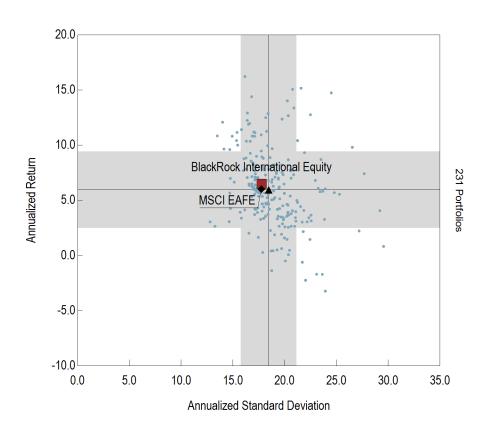
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

BlackRock International Equity MSCI EAFE

Return (Rar	ık)								
29.8	31.9	-9.0	39.6	7.1	11.2	2.6	33.6	29.3	-6.9
14.0	25.7	-12.7	31.3	2.6	4.7	-2.4	28.2	22.1	-9.7
8.0	22.1	-15.8	26.6	0.6	1.2	-4.3	24.5	18.9	-12.6
4.0	19.1	-18.6	23.4	-1.5	-1.6	-6.0	20.8	16.9	-15.4
-2.6	14.7	-23.1	18.6	-5.0	-5.5	-9.1	14.3	12.5	-19.4
255	255	243	232	215	188	164	151	144	129
8.1 (49 7.8 (53	,	.7) -13.5 (33) 52) -13.8 (37)	25.4 (60) 25.0 (64)	1.3 (37) 1.0 (44)	-0.6 (65) -0.8 (67)	-4.8 (58) -4.9 (60)	22.9 (63) 22.8 (64)	17.6 (69) 17.3 (72)	` '

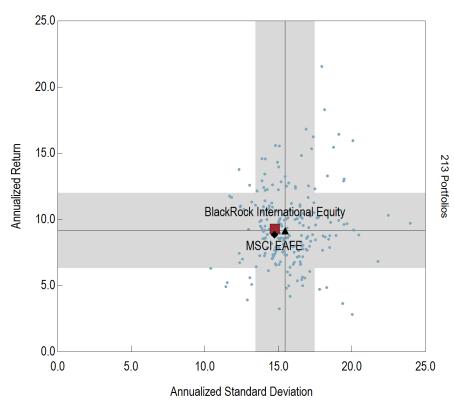


Annualized Return vs. Annualized Standard Deviation 3 Years Ending March 31, 2021



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

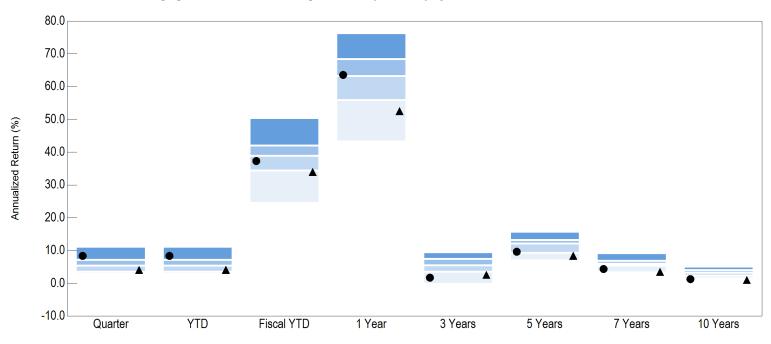
## Annualized Return vs. Annualized Standard Deviation 5 Years Ending March 31, 2021



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



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



	Return (Rank	<b>(</b> )							
5th Percentile	11.1	11.1	50.4	76.3	9.4	15.7	9.1	5.0	
25th Percentile	7.2	7.2	42.1	68.4	7.5	13.3	6.9	4.1	
Median	5.4	5.4	39.0	63.3	5.5	12.2	6.0	3.3	
75th Percentile	3.6	3.6	34.4	55.9	3.6	9.3	5.5	2.4	
95th Percentile	2.9	2.9	24.6	43.3	-0.2	7.1	3.4	1.5	
# of Portfolios	22	22	22	22	17	16	11	8	
<ul> <li>DFA Emerging Markets Value</li> <li>MSCI Emerging Markets Value NR</li> </ul>	· · · · · · · · · · · · · · · · · · ·	15) 8.4 65) 4.1	(15)     37.3       (65)     34.0	(62) 63.6 (81) 52.5	(43) 1.7 (85) 2.6	(89) 9.6 (82) 8.4	(73) 4.4 (84) 3.5	(90) 1.3 (95) 1.0	(99) (99)



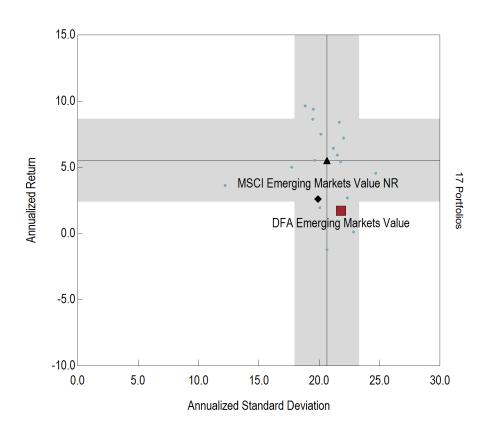
#### DFA Emerging Markets Value vs. eV Emg Mkts All Cap Value Equity Net Universe



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

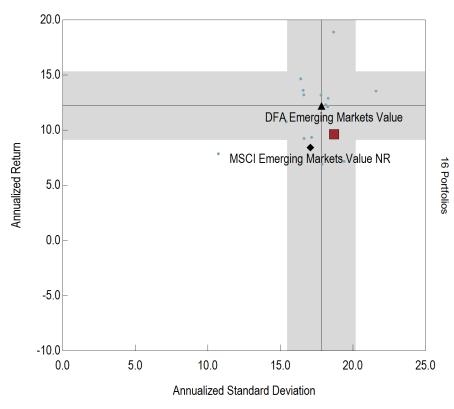


Annualized Return vs. Annualized Standard Deviation 3 Years Ending March 31, 2021



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

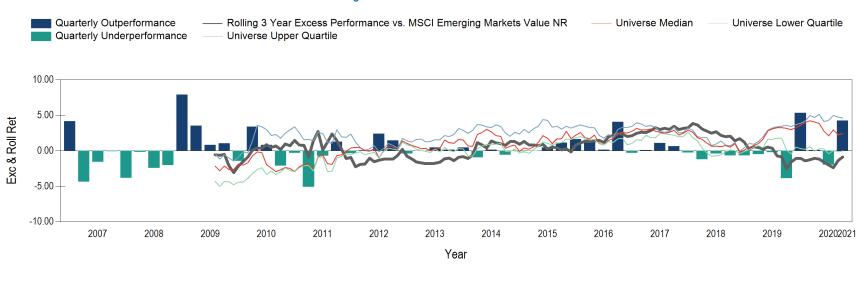
# Annualized Return vs. Annualized Standard Deviation 5 Years Ending March 31, 2021



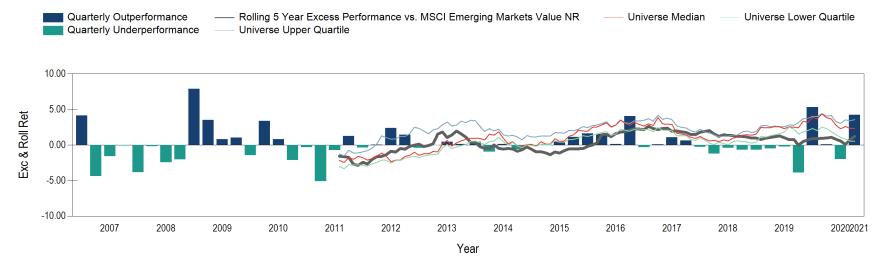
- DFA Emerging Markets Value
- MSCI Emerging Markets Value NR
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts All Cap Value Equity Net



#### **Rolling 3 Year Annualized Excess Performance**



#### **Rolling 5 Year Annualized Excess Performance**



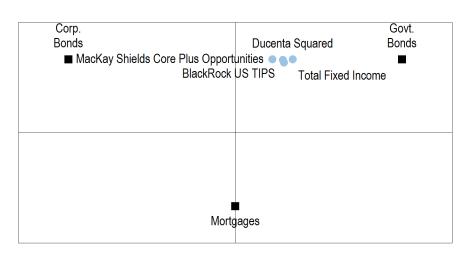


### Total Fixed Income Asset Class Overview (Net of Fees)

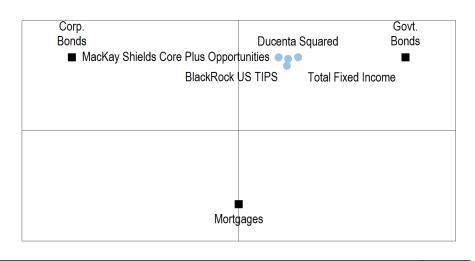
Period Ending: March 31, 2021

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Fixed Income	268,902,103	-2.8	0.9	5.9	5.5	4.2	4.1	9.8	9.5	-0.8	4.3	4.8
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6
InvMetrics Public DB Total Fix Inc Net Rank		71	55	58	10	52	47	8	32	59	62	43
Ducenta Squared	109,768,947	-3.2	-0.2	4.4	5.4	4.3	4.4	9.1	9.9	-0.1	4.3	4.8
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6
eV US Core Plus Fixed Inc Net Rank		81	75	80	48	44	37	34	45	23	74	41
MacKay Shields Core Plus Opportunities	108,931,186	-3.1	1.0	6.6	5.5	4.2		9.9	9.7	-1.0	4.5	4.7
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1		7.5	8.7	0.0	3.5	2.6
eV US Core Plus Fixed Inc Net Rank		77	46	55	38	44		23	54	75	62	47
BlackRock US TIPS	50,201,970	-1.5	3.2	7.8	5.7	4.0	3.5	11.2	8.5	-1.2	3.2	4.8
BBgBarc US TIPS TR		-1.5	3.2	7.5	5.7	3.9	3.4	11.0	8.4	-1.3	3.0	4.7
eV US TIPS / Inflation Fixed Inc Net Rank		67	73	67	45	54	31	31	53	36	47	43

Fixed Income Style Map 3 Years Ending March 31, 2021



Fixed Income Style Map 5 Years Ending March 31, 2021





Period Ending: March 31, 2021

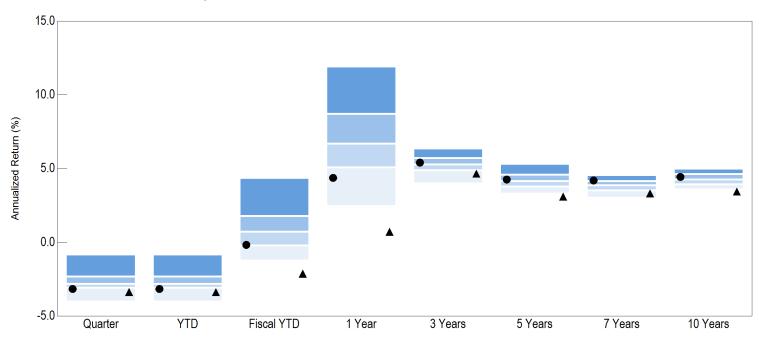
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
Total Fixed Income	268,902,103	-2.8	0.9	5.9	5.5	4.2	4.1	9.8	9.5	-0.8	4.3	4.8
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6
Ducenta Squared	109,768,947	-3.2	-0.2	4.4	5.4	4.3	4.4	9.1	9.9	-0.1	4.3	4.8
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1	3.4	7.5	8.7	0.0	3.5	2.6
MacKay Shields Core Plus Opportunities	108,931,186	-3.1	1.0	6.6	5.5	4.2		9.9	9.7	-1.0	4.5	4.7
BBgBarc US Aggregate TR		-3.4	-2.1	0.7	4.7	3.1		7.5	8.7	0.0	3.5	2.6
BlackRock US TIPS	50,201,970	-1.5	3.2	7.8	5.7	4.0	3.5	11.2	8.5	-1.2	3.2	4.8
BBgBarc US TIPS TR		-1.5	3.2	7.5	5.7	3.9	3.4	11.0	8.4	-1.3	3.0	4.7

#### Correlation Matrix Last 5 Years

	Total Fixed Income	Ducenta Squared	MacKay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR	
Total Fixed Income	1.00					
Ducenta Squared	0.99	1.00				
MacKay Shields Core Plus Opportunities	0.99	0.97	1.00			
BlackRock US TIPS	0.90	0.86	0.86	1.00		
BBgBarc US Aggregate TR	0.88	0.92	0.83	0.77	1.00	



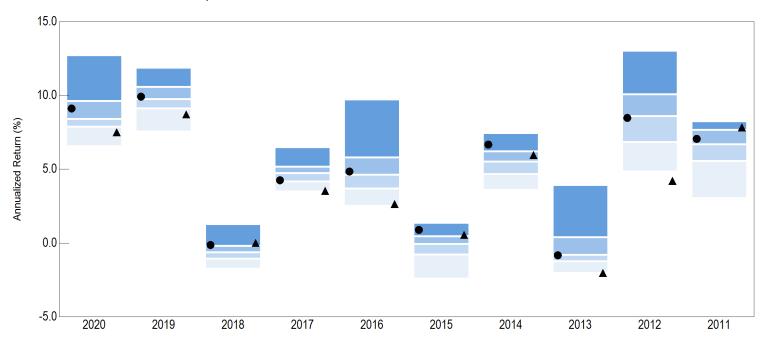
### Ducenta Squared vs. eV US Core Plus Fixed Inc Net Universe



	Return (R	ank)														
5th Percentile	-0.8		-0.8		4.4		11.9		6.4		5.3		4.6		5.0	
25th Percentile	-2.3		-2.3		1.8		8.7		5.7		4.6		4.2		4.6	
Median	-2.8		-2.8		0.7		6.7		5.3		4.2		3.9		4.3	
75th Percentile	-3.1		-3.1		-0.2		5.1		4.9		3.8		3.5		4.0	
95th Percentile	-4.0		-4.0		-1.2		2.5		4.0		3.3		3.0		3.6	
# of Portfolios	92		92		91		91		84		82		77		71	
<ul><li>Ducenta Squared</li><li>BBgBarc US Aggregate TR</li></ul>	-3.2 -3.4	(81) (89)	-3.2 -3.4	(81) (89)	-0.2 -2.1	(75) (99)	4.4 0.7	(80) (99)	5.4 4.7	(48) (85)	4.3 3.1	(44) (99)	4.2 3.3	(23) (84)	4.4 3.4	(37) (98)



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

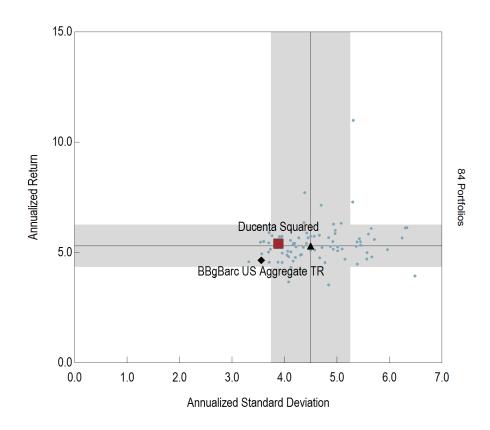


	5th Percentile 25th Percentile Median 75th Percentile 95th Percentile
	# of Portfolios
•	Ducenta Squared BBgBarc US Aggregate Ti

Return (Ra	nk)								
12.7	11.9	1.3	6.5	9.7	1.4	7.4	3.9	13.0	8.2
9.6	10.6	-0.2	5.2	5.8	0.5	6.2	0.4	10.1	7.7
8.4	9.8	-0.6	4.7	4.6	-0.1	5.5	-0.8	8.6	6.7
7.9	9.1	-1.0	4.2	3.7	-0.8	4.7	-1.2	6.9	5.6
6.6	7.6	-1.7	3.5	2.5	-2.4	3.6	-2.0	4.9	3.0
89	86	77	80	84	71	71	65	64	54
9.1 (34	4) 9.9 (4	l5) -0.1 (23)	4.3 (74)	4.8 (41)	0.9 (12)	6.7 (17)	-0.8 (53)	8.5 (54)	7.1 (40)
7.5 (84	4) 8.7 (8	35) 0.0 (21)	3.5 (95)	2.6 (93)	0.6 (22)	6.0 (35)	-2.0 (96)	4.2 (96)	7.8 (17)

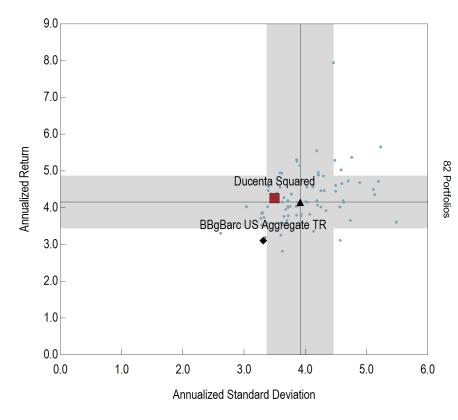


Annualized Return vs. Annualized Standard Deviation 3 Years Ending March 31, 2021



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

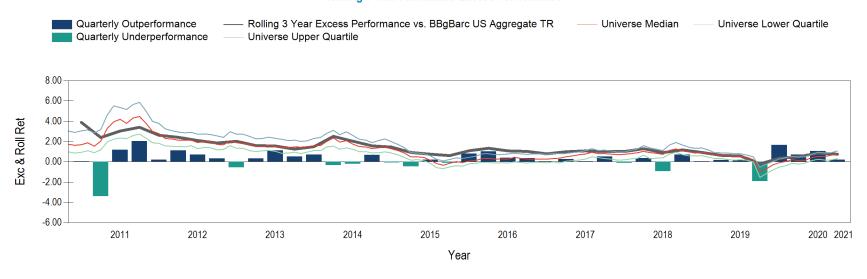
## Annualized Return vs. Annualized Standard Deviation 5 Years Ending March 31, 2021



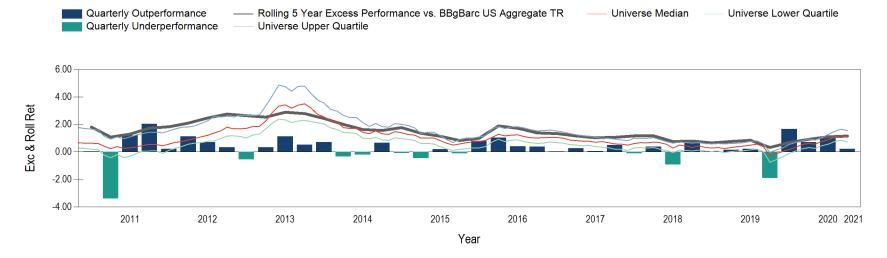
- Ducenta Squared
- BBgBarc US Aggregate TR
- Universe Median
- 68% Confidence Interval
  - eV US Core Plus Fixed Inc Net



#### **Rolling 3 Year Annualized Excess Performance**

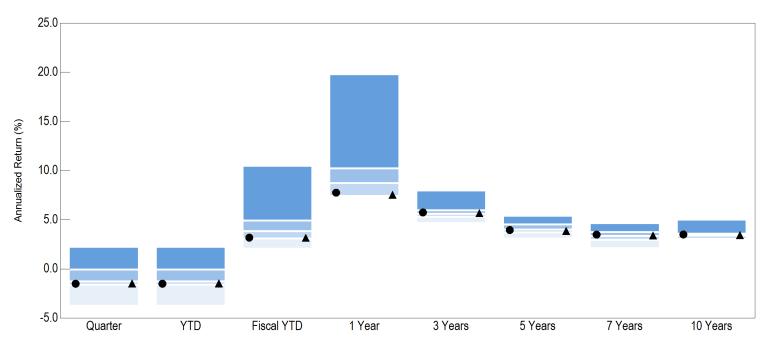


#### **Rolling 5 Year Annualized Excess Performance**





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



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

BlackRock US TIPSBBgBarc US TIPS TR

Return (Ra	ank)														
2.2		2.2		10.5		19.8		8.0		5.4		4.6		5.0	
0.0		0.0		4.9		10.3		6.0		4.6		3.8		3.6	
-1.3		-1.3		3.8		8.7		5.6		4.0		3.4		3.4	
-1.6		-1.6		3.1		7.4		5.3		3.7		3.0		3.1	
-3.7		-3.7		2.1		7.2		4.7		3.1		2.1		2.9	
16		16		16		16		15		15		14		10	
-1.5 -1.5	(67) (65)	-1.5 -1.5	(67) (65)	3.2 3.2	(73) (73)	7.8 7.5	(67) (72)	5.7 5.7	(45) (48)	4.0 3.9	(54) (57)	3.5 3.4	(30) (31)	3.5 3.4	(31) (34)



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



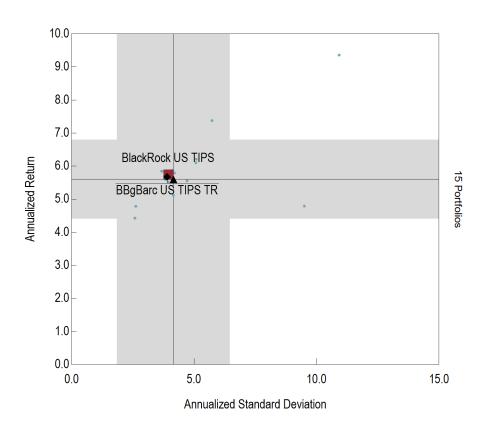
5th Percentile					
25th Percentile					
Median					
75th Percentile					
95th Percentile					
# of Portfolios					

BlackRock US TIPSBBgBarc US TIPS TR

Return (Rar	ık)									
16.6	10.7	-0.1	4.4	7.8	-0.6	4.7	-5.6	13.5	16.8	
11.6	8.7	-0.9	3.5	5.1	-1.2	3.8	-8.4	8.4	14.1	
10.6	8.5	-1.4	3.1	4.6	-1.6	3.3	-8.8	7.2	13.4	
9.7	6.6	-2.0	2.8	3.9	-2.2	1.2	-9.1	6.6	12.4	
6.3	5.4	-4.3	1.7	2.5	-5.7	0.0	-13.3	4.8	8.9	
17	19	21	20	22	22	24	19	17	16	
11.2 (31 11.0 (37	,	, ,	3.2 (47) 3.0 (57)	4.8 (43) 4.7 (49)	` ,	3.6 (39 3.6 (37	, , ,	7.0 (61 7.0 (62	, , ,	

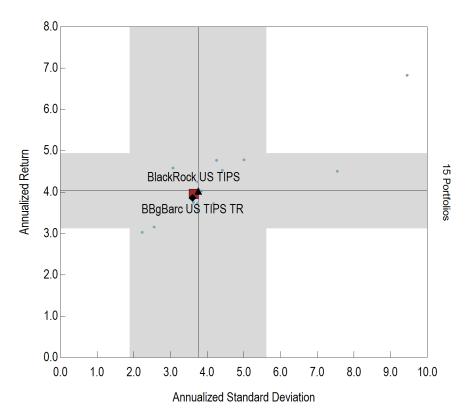


## Annualized Return vs. Annualized Standard Deviation 3 Years Ending March 31, 2021



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

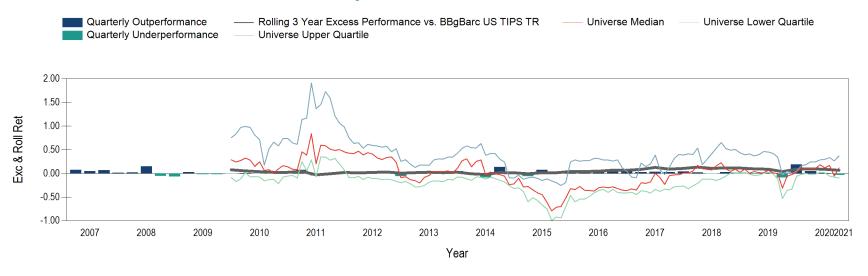
## Annualized Return vs. Annualized Standard Deviation 5 Years Ending March 31, 2021



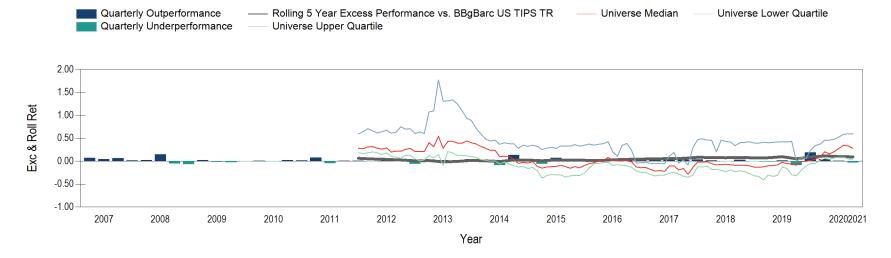
- BlackRock US TIPS
- BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Net



#### **Rolling 3 Year Annualized Excess Performance**



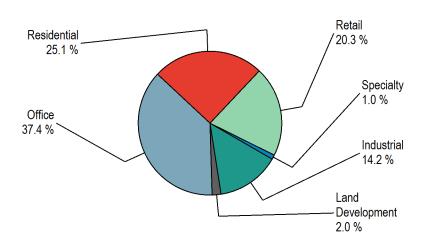
#### **Rolling 5 Year Annualized Excess Performance**



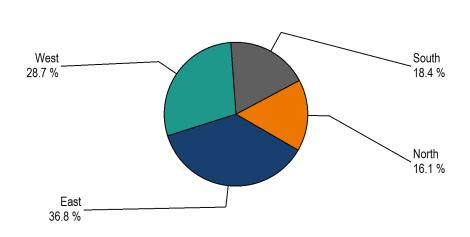


Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2020	2019	2018	2017	2016
98,469,389	2.2	3.8	2.9	5.1	5.5	8.7	2.1	5.7	7.5	5.8	6.5
	1.7	3.7	2.6	4.9	5.8	8.8	1.6	6.4	6.7	7.0	8.0
	1.9	3.3	1.5	4.0	5.3	8.7	0.3	4.4	7.4	6.7	7.8
28,675,365	2.2	3.0	2.2	3.8	4.1		1.5	3.0	6.6	4.0	4.6
	1.7	3.7	2.6	4.9	5.8		1.6	6.4	6.7	7.0	8.0
	1.9	3.3	1.5	4.0	5.3		0.3	4.4	7.4	6.7	7.8
28,672,097	2.2	5.0	3.1	5.8	6.5	9.5	2.3	6.8	8.6	7.9	8.0
	1.7	3.7	2.6	4.9	5.8	8.8	1.6	6.4	6.7	7.0	8.0
	1.9	3.3	1.5	4.0	5.3	8.7	0.3	4.4	7.4	6.7	7.8
39,156,575	2.3	3.7	3.4	6.3			2.4	7.8			
	2.2	5.2	4.7	7.0			3.6	8.5			
	2.6	5.5	4.3	6.6			3.2	7.4			
1,965,351	0.0	0.0	0.0	2.6	4.9	1.3	0.0	7.9	0.0	0.0	17.5
	98,469,389 28,675,365 28,672,097 39,156,575	98,469,389  1.7  1.9  28,675,365  2.2  1.7  1.9  28,672,097  2.2  1.7  1.9  39,156,575  2.3  2.2  2.6	98,469,389  2.2  3.8  1.7  3.7  1.9  3.3  28,675,365  2.2  3.0  1.7  3.7  1.9  3.3  28,672,097  2.2  5.0  1.7  3.7  1.9  3.3  39,156,575  2.3  37, 2.2  5.2  2.6  5.5	Market Value         3 Mo         YTD         1 Yr           98,469,389         2.2         3.8         2.9           1.7         3.7         2.6           1.9         3.3         1.5           28,675,365         2.2         3.0         2.2           1.7         3.7         2.6           1.9         3.3         1.5           28,672,097         2.2         5.0         3.1           1.7         3.7         2.6           1.9         3.3         1.5           39,156,575         2.3         3.7         3.4           2.2         5.2         4.7           2.6         5.5         4.3	Market Value         3 Mo         YTD         1 Yr         3 Yrs           98,469,389         2.2         3.8         2.9         5.1           1.7         3.7         2.6         4.9           1.9         3.3         1.5         4.0           28,675,365         2.2         3.0         2.2         3.8           1.7         3.7         2.6         4.9           1.9         3.3         1.5         4.0           28,672,097         2.2         5.0         3.1         5.8           1.7         3.7         2.6         4.9           1.9         3.3         1.5         4.0           39,156,575         2.3         3.7         3.4         6.3           2.2         5.2         4.7         7.0           2.6         5.5         4.3         6.6	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs           98,469,389         2.2         3.8         2.9         5.1         5.5           1.7         3.7         2.6         4.9         5.8           1.9         3.3         1.5         4.0         5.3           28,675,365         2.2         3.0         2.2         3.8         4.1           1.7         3.7         2.6         4.9         5.8           1.9         3.3         1.5         4.0         5.3           28,672,097         2.2         5.0         3.1         5.8         6.5           1.7         3.7         2.6         4.9         5.8           1.9         3.3         1.5         4.0         5.3           39,156,575         2.3         3.7         3.4         6.3            2.2         5.2         4.7         7.0            2.6         5.5         4.3         6.6	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7           1.7         3.7         2.6         4.9         5.8         8.8           1.9         3.3         1.5         4.0         5.3         8.7           28,675,365         2.2         3.0         2.2         3.8         4.1            1.7         3.7         2.6         4.9         5.8            1.9         3.3         1.5         4.0         5.3            28,672,097         2.2         5.0         3.1         5.8         6.5         9.5           1.7         3.7         2.6         4.9         5.8         8.8           1.9         3.3         1.5         4.0         5.3         8.7           39,156,575         2.3         3.7         3.4         6.3             2.2         5.2         4.7         7.0             2.6         5.5         4.3         6.6	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs         2020           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7         2.1           1.7         3.7         2.6         4.9         5.8         8.8         1.6           1.9         3.3         1.5         4.0         5.3         8.7         0.3           28,675,365         2.2         3.0         2.2         3.8         4.1          1.5           1.7         3.7         2.6         4.9         5.8          1.6           1.9         3.3         1.5         4.0         5.3          0.3           28,672,097         2.2         5.0         3.1         5.8         6.5         9.5         2.3           1.7         3.7         2.6         4.9         5.8         8.8         1.6           1.9         3.3         1.5         4.0         5.3         8.7         0.3           39,156,575         2.3         3.7         3.4         6.3           2.4           2.2         5.2         4.7	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs         2020         2019           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7         2.1         5.7           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4           1.9         3.3         1.5         4.0         5.3         8.7         0.3         4.4           28,675,365         2.2         3.0         2.2         3.8         4.1          1.5         3.0           1.7         3.7         2.6         4.9         5.8          1.6         6.4           1.9         3.3         1.5         4.0         5.3          0.3         4.4           28,672,097         2.2         5.0         3.1         5.8         6.5         9.5         2.3         6.8           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4           1.9         3.3         1.5         4.0         5.3         8.7         0.3         4.4           39,156,575         2.3	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs         2020         2019         2018           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7         2.1         5.7         7.5           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4         6.7           1.9         3.3         1.5         4.0         5.3         8.7         0.3         4.4         7.4           28,675,365         2.2         3.0         2.2         3.8         4.1          1.5         3.0         6.6           1.7         3.7         2.6         4.9         5.8          1.6         6.4         6.7           1.9         3.3         1.5         4.0         5.3          0.3         4.4         7.4           28,672,097         2.2         5.0         3.1         5.8         6.5         9.5         2.3         6.8         8.6           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4         6.7           1.9         3.3 <td>Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs         2020         2019         2018         2017           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7         2.1         5.7         7.5         5.8           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4         6.7         7.0           1.9         3.3         1.5         4.0         5.3         8.7         0.3         4.4         7.4         6.7           28,675,365         2.2         3.0         2.2         3.8         4.1          1.5         3.0         6.6         4.0           1.7         3.7         2.6         4.9         5.8          1.6         6.4         6.7         7.0           1.9         3.3         1.5         4.0         5.3          0.3         4.4         7.4         6.7           28,672,097         2.2         5.0         3.1         5.8         6.5         9.5         2.3         6.8         8.6         7.9           1.9         3.3         1.5         4.0&lt;</td>	Market Value         3 Mo         YTD         1 Yr         3 Yrs         5 Yrs         10 Yrs         2020         2019         2018         2017           98,469,389         2.2         3.8         2.9         5.1         5.5         8.7         2.1         5.7         7.5         5.8           1.7         3.7         2.6         4.9         5.8         8.8         1.6         6.4         6.7         7.0           1.9         3.3         1.5         4.0         5.3         8.7         0.3         4.4         7.4         6.7           28,675,365         2.2         3.0         2.2         3.8         4.1          1.5         3.0         6.6         4.0           1.7         3.7         2.6         4.9         5.8          1.6         6.4         6.7         7.0           1.9         3.3         1.5         4.0         5.3          0.3         4.4         7.4         6.7           28,672,097         2.2         5.0         3.1         5.8         6.5         9.5         2.3         6.8         8.6         7.9           1.9         3.3         1.5         4.0<

Property Type Allocation
Allocation as of March 31, 2021



Geographic Diversification
Allocation as of March 31, 2021



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



#### Performance Return Calculations

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

#### **Data Source**

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

#### Illiquid Alternatives

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

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

<sup>&</sup>lt;sup>1</sup>Represents fund vintage year.

#### Policy & Custom Index Composition

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

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



### Glossary

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

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: 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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