

### **Board of Retirement Regular Meeting**

### Sacramento County Employees' Retirement System

Agenda Item 17

**MEETING DATE:** February 17, 2021

SUBJECT: Total Fund Investment Performance Report –

Fourth Quarter 2020

		Deliberation		Receive
SUBMITTED FOR: _	_ Consent	and Action	X	_and File

### **RECOMMENDATION**

Staff and Verus recommend the Board receive and file the SCERS Total Fund Investment Performance Review report, prepared by Verus, for the guarter ending December 31, 2020.

### **PURPOSE**

This agenda item complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

### **SCERS TOTAL FUND RETURNS**

This item summarizes SCERS' Total Fund investment returns as presented in Verus' Investment Performance Review for the period ending December 31, 2020. Please note that returns for SCERS' private equity, private credit, non-core real estate, and real assets portfolios are lagged one quarter.

Verus' report has been formatted to reflect SCERS' strategic asset allocation, including the Growth, Diversifying, and Real Return asset categories. Please note that asset category composites were added to align with SCERS' strategic asset allocation, so the performance of these segments includes the current quarter, YTD, 1-Year, 3-Year, and since inception March 2017 performance for this report, without a 5-Year historical track record.

## SCERS TOTAL FUND PERFORMANCE SUMMARY Quarter Reporting Periods Ending December 31, 2020

SCERS ASSET CLASS	Quarter	Fiscal Year-to- Date	1-Year	3-Year	5-Year	Since Inception	Since Inception Date
SCERS TOTAL FUND Return w/Overlay	9.9%	15.9%	12.5%	9.4%	10.6%	8.6%	Jun-86
Policy Index	8.7%	14.3%	10.7%	7.8%	9.2%	8.6%	
InvestorForce Public DB > \$1B	10.3%	15.6%	11.1%	7.8%	9.4%	8.2%	
SCERS TOTAL FUND Return w/o Overlay	9.6%	15.7%	11.5%	9.0%	10.2%	8.4%	Jun-86
Policy Index	8.7%	14.3%	10.7%	7.8%	9.2%	8.6%	
GROWTH ASSET CATEGORY	14.7%	24.3%	16.8%	11.8%	-	13.7%	Mar-17
Custom Benchmark	13.5%	22.5%	15.1%	10.2%	-	11.8%	
DIVERSIFYING ASSET CATEGORY	3.3%	5.1%	8.2%	4.9%	-	4.9%	Mar-17
Custom Benchmark	2.2%	3.6%	7.6%	4.9%	-	4.8%	
REAL RETURN ASSET CATEGORY	3.2%	5.2%	-0.7%	5.0%	-	6.4%	Mar-17
Custom Benchmark	2.3%	4.0%	-0.9%	3.0%	-	3.8%	
OPPORTUNITIES PORTFOLIO	3.5%	2.2%	0.1%	3.2%	4.9%	13.8%	Oct-07
Custom Benchmark	8.7%	14.3%	10.7%	7.8%	9.2%	8.1%	
DEDICATED CASH	0.0%	0.0%	0.8%	-	-	0.9%	Jun-19
Overnight LIBOR	0.0%	0.4%	0.4%	-	-	0.9%	

The financial markets delivered strong returns during the final guarter of 2020, resulting in double digit returns for the full year, which seemed unlikely following the sharp declines in the first quarter. Despite rising cases and fatalities from COVID-19 in the U.S. and Europe, which resulted in additional restrictions on activity, the equity markets looked forward to 2021 and rallied sharply following positive vaccine announcements in early November. Public equity markets led returns in the fourth quarter, supported by positive vaccine announcements and hopes for additional stimulus measures following the November election. Small cap stocks were particularly strong in the quarter, with the Russell 2000 index up 31.4%, the best quarterly return ever for the index. that on hopes that vaccine for Growth assets, led by public equity markets and small cap stocks in particular, moved higher in the fourth quarter following the positive vaccine announcements in early November. Following unprecedented swings in the second and third quarter, U.S. GDP grew at a 4% annualized rate in the fourth quarter. Despite the strong rebound in the third and fourth quarters, for the full year the U.S. economy contracted by 3.5% in 2020, marking the largest decline since just after World War II and the first annual decline since 2009. Unemployment levels in the U.S. started the year at historically low levels of 3.5%, but spiked up to 14.8% in April as economic activity was shut-down in response to COVID-19. Economic activity improved throughout the year as restrictions eased and stimulus measured were passed, with unemployment steadily declining throughout the year, ending at 6.7% at yearend. For the quarter, SCERS' portfolio returned +9.9%, outperforming the policy index benchmark return of +8.7% and slightly underperforming the median public fund return of +10.3%. For the year-ending 2020, the SCERS portfolio returned +12.5%, outperforming the policy index and median public fund benchmarks.

### **Growth Asset Category**

Growth assets posted exceptionally strong returns in the fourth quarter, continuing the recovery from the second and third quarters. Both U.S. and International equity markets moved higher, rallying strongly in November and December following vaccine announcements. Small cap stocks posted the best quarterly return since inception of the Russell 2000 index in 1984,

advancing +31.4%, and significantly outperforming large cap U.S. stocks, with the Russell 1000 index up +13.7% in the quarter. Emerging markets were the top performing segment across international equity markets, up +19.8% in the quarter, outperforming developed market returns of +15.9%. It was a strong quarter for active management, with increased dispersion helping SCERS' active managers outperform benchmark indices. Value stocks had a strong fourth quarter, significantly outperforming growth stocks, which is a reversal compared to the persistent trend of growth outperforming value. For the full year, growth significantly outperformed value, with the Russell 1000 Growth index up +38.5% versus the Russell 1000 Value index up +2.8%. SCERS' Private Equity portfolio, which is lagged one quarter, has had a strong quarter and year, returning +11.8% and 18.2% for each period and outperforming the benchmark. SCERS' Growth Absolute Return portfolio had a strong quarter, benefiting from performance of equity markets, returning +11.3%, which resulted in a full year return of +10.9%. Public and Private Credit portfolios both outperformed their benchmarks during the quarter, returning +8.2% and +5.1%, respectively.

SCERS GROWTH Performance Summary for the periods ending 12/31/20	Quarter	Fiscal Year-to- Date	1-Year	Since Inception	Since Inception Date
SCERS GROWTH ASSET CATEGORY	14.7%	24.3%	16.8%	13.7%	Mar-17
Custom Benchmark	13.5%	22.5%	15.1%	11.8%	
Public Equity	16.4%	26.3%	18.3%	10.5%	Jun-11
MSCI ACWI	14.7%	24.0%	16.3%	9.1%	
Private Equity (lagged 1 quarter)	11.8%	21.8%	18.2%	4.9%	Feb-08
Cambridge All PE	9.7%	19.5%	13.9%	10.5%	
Public Credit	8.2%	14.9%	4.9%	4.4%	Nov-13
Custom Benchmark	5.1%	9.7%	4.5%	4.8%	
Private Credit (lagged 1 quarter)	5.5%	11.5%	7.6%	7.1%	Mar-17
Credit Suisse Leveraged Loan + 2%	4.6%	15.0%	2.8%	6.2%	
Growth Absolute Return	11.3%	18.5%	10.9%	5.2%	Aug-04
HFRI FoF Composite +1%	8.2%	13.1%	11.8%	6.3%	

### **Diversifying Asset Category**

SCERS' Diversifying Asset Category posted positive returns during the quarter, but were much more muted compared to the Growth Asset Category. In total, the Diversifying Asset Category returned +3.3% and outperformed the benchmark return of 2.2%. Fixed income markets posted mixed returns during the fourth quarter, as interest rates moved higher, with the 10-year U.S. Treasury yield ending the year at 0.91% compared to 0.68% at the beginning of the fourth quarter. With interest rates increasing, SCERS' Treasury portfolio declined slightly during the quarter, returning -0.8%. Despite rising rates, SCERS' Core/Core Plus fixed income had a positive quarter, returning +2.0% and outperforming the Barclays US Aggregate benchmark return of +0.7%. SCERS' Global Fixed Income portfolio was the strongest performer during the fourth quarter, up +10.6%. With strong returns during the third and fourth quarters, the Global Fixed income portfolio posted the best returns for year within the category, up +12.2%, despite experiencing the greatest drawdown during the first quarter (-11.2%). The Diversifying Absolute

Return portfolio was up +5.5% in the quarter, resulting in positive returns for the year at +4.9%, but stilled trailed the benchmark returns.

SCERS DIVERSIFYING Performance Summary for the periods ending 12/31/20	Quarter	Fiscal Year-to- Date	1-Year	Since Inception	Since Inception Date
SCERS DIVERSIFYING ASSET CATEGORY	3.3%	5.1%	8.2%	4.9%	Mar-17
Custom Benchmark	2.2%	3.6%	7.6%	4.8%	
Core/Core Plus Fixed Income	2.0%	3.6%	9.5%	4.3%	Jun-11
Barclays US Aggregate TR	0.7%	1.3%	7.5%	3.8%	
U.S. Treasury	-0.8%	-0.6%	7.9%	6.3%	Feb-18
Barclays US Treasury TR	-0.8%	-0.7%	8.0%	6.3%	
Global Fixed Income	10.6%	14.6%	12.2%	4.0%	May-13
Custom Benchmark	4.1%	6.7%	8.8%	2.4%	
Diversifying Absolute Return	5.5%	7.8%	4.9%	2.4%	Nov-11
HFRI FoF Conservative Index	5.8%	8.6%	6.4%	4.7%	

### Real Return Asset Category

SCERS' Real Return portfolio posted positive results during the fourth quarter, following positive results in the third quarter, and continuing to recover from declines experienced earlier in the year. The portfolio was up +3.2% during the fourth quarter, slightly outperforming SCERS' custom benchmark return of +2.2%. For the year, the portfolio was slightly negative, returning -0.7% and slightly outperforming the benchmark return of -0.9%. SCERS' Real Estate portfolio, which is a mix of Core Real Estate liquid commingled funds valued as of 12/31/20 and Non-Core Real Estate investments in closed end funds valued as of 9/30/20, was up +2.5% in the quarter, outperforming the benchmark return of +0.3%. Year-to-date the Real Estate portfolio was up +3.9% versus the benchmark return of +1.3%. SCERS' Real Assets portfolio, which is lagged one quarter, was up +1.5% during the quarter, but remains down -7.7% year-to-date, impacted by the significant decline in energy prices earlier in the year. SCERS' Liquid Real Return portfolio was up +8.9% in the fourth quarter, as energy prices increased during the quarter, which should be reflected across SCERS' Real Assets portfolio in the following quarter.

SCERS REAL RETURN Performance Summary	Quarter	Fiscal Year-to- Date	1-Year	Since Inception	Since Inception Date
SCERS REAL RETURN ASSET CATEGORY					
SCERS Real Return w/ SSgA Proxy SCERS Real Return w/o SSgA Proxy Custom Benchmark	3.2% 3.2% 2.3%	5.2% 5.2% 4.0%	-0.7% -0.7% -0.9%	6.4% 7.1% 3.8%	Mar-17 Mar-17 Mar-17
SCERS Real Estate Custom Benchmark	<b>2.5%</b> 0.3%	<b>4.0%</b> 0.2%	<b>3.9%</b> 1.3%	<b>10.5%</b> 8.7%	Jun-11
Core Real Estate (as of 12/31/20)  Commingled Funds  NFI-ODCE	2.5% 1.3%	4.1% 1.8%	3.7% 1.2%	5.2% 5.2%	Sep-08 Sep-08
Non-Core Real Estate (as of 9/30/20)					
Opportunistic Value Add NFI-ODCE net +1%	3.8% -0.1% -1.7%	4.3% 2.1% -2.8%	2.7% 13.6% 1.5%	17.5% 0.0% 8.5% 7.1%	Feb-14 Sep-08 Feb-14 Sep-08
SCERS Real Assets (as of 9/30/20) Custom Benchmark	<b>1.5%</b> 2.4%	<b>4.2%</b> 5.5%	<b>-7.7%</b> -4.3%	<b>3.6%</b> 4.7%	Jan-13
SCERS Liquid Real Return (as of 12/31/20) SSgA Real Assets	<b>8.9%</b> 9.2%	<b>11.9%</b> 12.1%	<b>2.5%</b> 1.0%	<b>3.8%</b> 2.9%	Jun-19

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SCERS' policy index benchmark includes a blended weighted average of the individual asset class benchmarks, as defined within SCERS' Master IPS, and as shown below.

SCERS BENCHMARK SUMMARY As of December 31, 2020					
Asset Class	Policy Index Benchmark				
Growth Asset Category	Blended Weighted Average of Asset Class Benchmarks				
US Equities	Russell 3000				
International Equities	MSCI ACWI exU.S. IMI				
Private Equity	Cambridge All PE				
Public Credit	50% (BofA High Yield) + 50% (CS High Yield)				
Private Credit	CS Leveraged Loan + 2%				
Growth Absolute Return	HFRI FoF Composite Index +1%				
Diversifying Asset Category	Blended Weighted Average of Asset Class Benchmarks				
Core/Core Plus Fixed Income	Barclays U.S. Aggregate				
U.S. Treasury	Barclays U.S. Treasury				
Global Fixed Income	80% Citi WGBI + 20% JPMorgan GBI EM				
Diversifying Absolute Return	HFRI FoF Conservtive Index				
Real Return Asset Category	Blended Weighted Average of Asset Class Benchmarks				
Real Estate	65% (NFI-ODCE) + 35% (NFI-ODCE +1%)				
Real Assets	45% (Cambridge Infrastructure) + 35% (Cambridge Energy) + 10% (NCREIF Agriculture) + 10% (NCREIF Timber)				
Liquid Real Return	30% (Barclays U.S. TIPS) + 25% (S&P Global Infrastructure Index) + 15% (Global REITs) + 10% (S&P Global Natural Resources Index) + 10% (Bloomberg Commodity Index) + 10% (U.S. Dollar Floating Rate Notes)				
Opportunities Portfolio	SCERS Total Fund				
Dedicated Cash	Overnight LIBOR				

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ATTACHMENT	
Verus' Investment Performance Review for SCER	S for the period ending December 31, 2020.
Prepared by:	
Brian Miller Investment Officer	
Reviewed by:	
	ic Stern nief Executive Officer







PERIOD ENDING: DECEMBER 31, 2020

Investment Performance Review for

**Sacramento County Employees' Retirement System** 

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### **VERUSINVESTMENTS.COM**

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Investment Landscape	ТАВ І
Total Fund	TAB II
Policy Index and Benchmark History	TAB III



# Recent Verus research

Visit: <a href="https://www.verusinvestments.com/insights/">https://www.verusinvestments.com/insights/</a>

### **Topics of interest**

### IS PAINLESS DIVERSIFICATION DEAD?

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

### INTEGRATING ESG INTO ACTIVE PORTFOLIOS

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

### QUANTIFYING ESG IN PORTFOLIO CONSTRUCTION

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

### AGREEING ON ESG

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

### Annual research

### 2021 CAPITAL MARKET ASSUMPTIONS

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

### Sound thinking

### FINDING COMFORT IN AN UNCOMFORTABLE WORLD

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

### Up and coming event

### EMERGING & DIVERSE MANAGERS DILIGENCE DAYS

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

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

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# 4<sup>th</sup> quarter summary

### THE ECONOMIC CLIMATE

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

### PORTFOLIO IMPACTS

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

### THE INVESTMENT CLIMATE

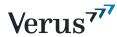
- Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period.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

### ASSET ALLOCATION ISSUES

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

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

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



# What drove the market in Q4?

"The Mass Distribution of Covid-19 Vaccines Is Under Way. 'Everything Has to Come Together.'"

### **COVID-19 U.S. HOSPITALIZATION RATE**

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

Article Source: Wall Street Journal, December 13<sup>th</sup>, 2020

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

### **U.S. TOTAL PUBLIC DEBT OUTSTANDING (TRILLIONS)**

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

Article Source: CNBC, December 20th, 2020

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

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

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

Article Source: CNBC, December 16th, 2020

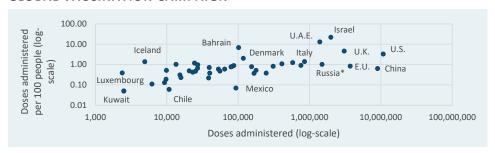
### "Dollar's Slump Propels Global Peers Toward Multi-Year Peaks"

### **BLOOMBERG DOLLAR SPOT INDEX**

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

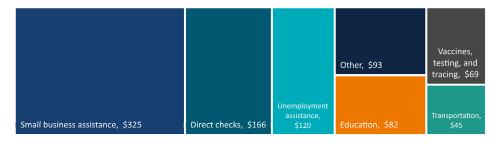
Article Source: Bloomberg, November 29th, 2020

### **GLOBAL VACCINATION CAMPAIGN**



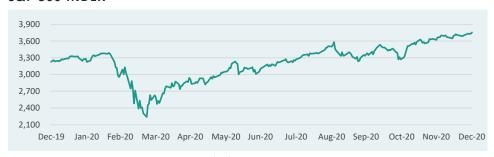
Source: Bloomberg, as of 1/13/21, or most recent release

### MOST RECENT FISCAL STIMULUS PACKAGE ALLOCATIONS (BILLIONS)



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

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



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



# Economic environment



# U.S. economics summary

- Real GDP grew at a -2.8% rate yearover-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter.
- The Atlanta Fed's forecast for fourth quarter growth was 7.4% quarter-over-quarter, as of January 15<sup>th</sup>, suggesting further economy expansion.
- Joe Biden was elected President of the United States in November. Jon Ossoff and Raphael Warnock both won in the Georgia Senate runoff elections in January, which ensured democratic control of both the White House and the Senate with V.P.-elect Kamala Harris as the swing vote. The wins completed the democratic "Blue Wave" many have associated with extensive fiscal support. Slim democratic majorities in both chambers of Congress, however, may constrain Biden's policy scope.

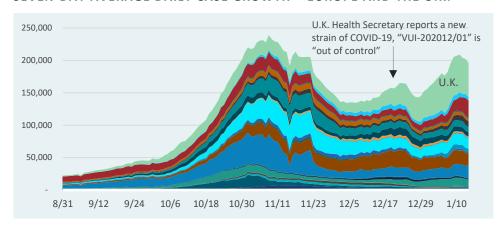
- After impressive employment gains in Q3, the recovery appeared to be stalling in recent months.
   Unemployment fell from 7.8% in September to 6.7% in December.
- Consumer sentiment remained stubbornly low, despite broad recoveries in consumer spending, auto sales, and the housing market.
- Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-fromhome environment fueled demand. Existing home sales were 25.8% higher than one-year prior.
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. The global vaccination campaign began in December, and 44 million doses have been distributed so far.

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



# COVID-19 update

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



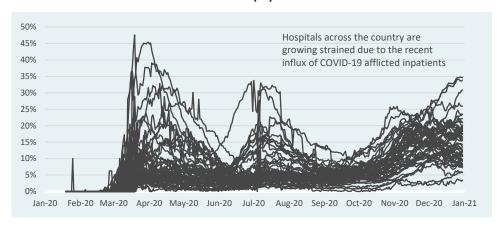
Source: Bloomberg, as of 1/14/21

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



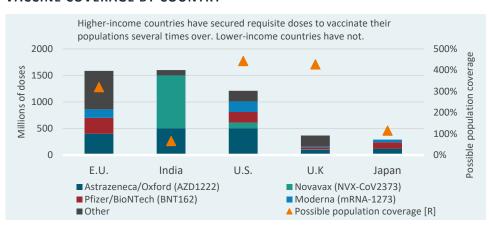
Source: Bloomberg, as of 1/14/21

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



Source: Bloomberg, as of 1/9/21

### **VACCINE COVERAGE BY COUNTRY**

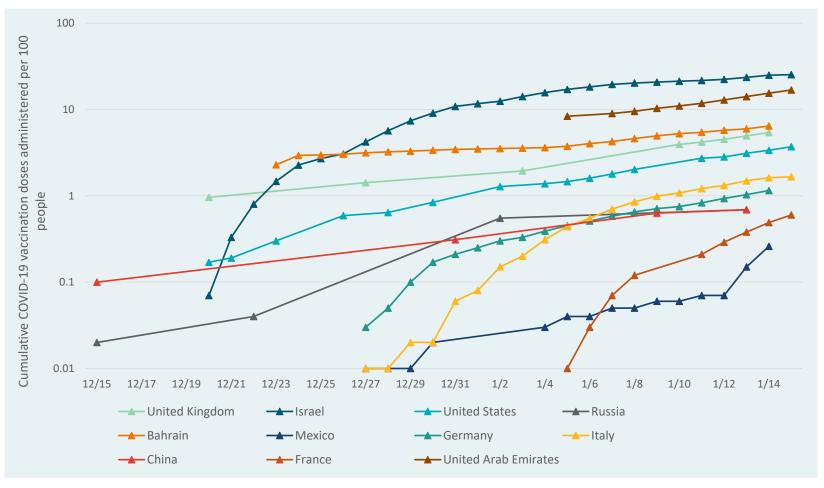


Source: Duke Global Health Innovation Center, as of 1/8/21; possible population coverage includes confirmed and potential doses committed to – it is possible not all vaccines will be approved.



# Global vaccination campaign

### **CUMULATIVE COVID-19 VACCINE DOSES ADMINISTERED PER 100 PEOPLE**



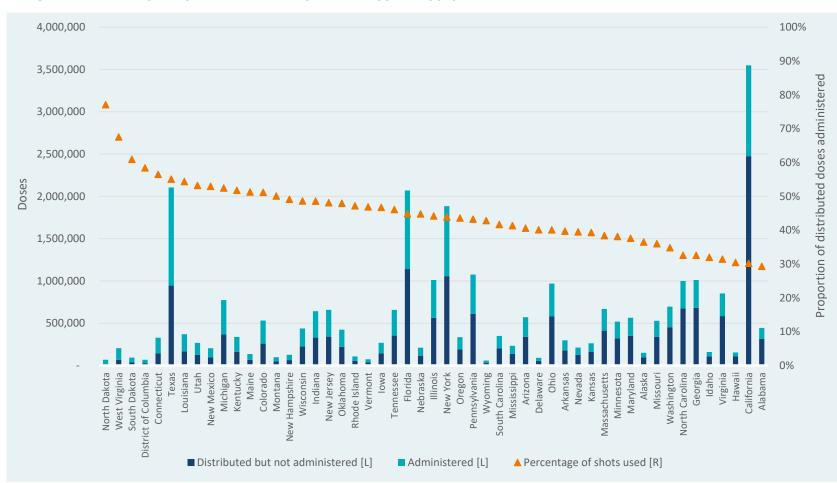
Israel has led the way so far, but it is a country with a size and population comparable to New Jersey

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



# Administration issues in the U.S.

### THE GAP BETWEEN DISTRIBUTED AND ADMINISTERED VACCINE DOSES



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

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

Source: Bloomberg, as of 1/15/21



# GDP growth

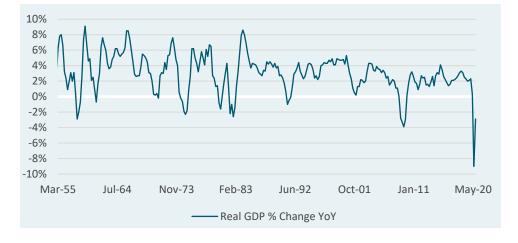
Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost during the depths of the pandemic. Personal consumption expenditures expanded at a quarterly annualized pace of -25.4%. Growth was broad-based,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

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

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

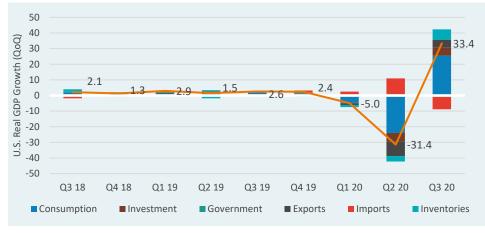
The Atlanta Fed's forecast for Q4 growth was 7.4% on a quarter-over-quarter annualized basis (-1.7% year-over-year) as of January 15<sup>th</sup>, suggesting further economic recovery.

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



Source: Bloomberg, as of 9/30/20

### U.S. GDP GROWTH ATTRIBUTION



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



# Inflation

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

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

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

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

### U.S. CPI (YOY)



Source: Bloomberg, as of 12/31/20

### **CONSUMER INFLATION EXPECTATIONS**



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

### **BREAKEVEN INFLATION RATES**



Source: Bloomberg, as of 12/31/20



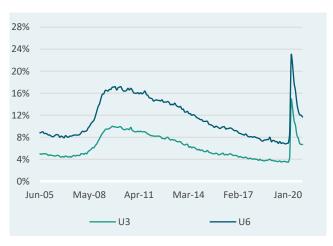
# Labor market

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

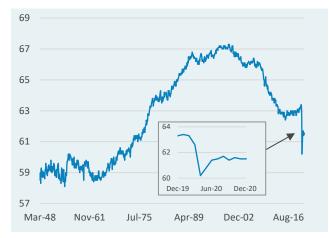
During an economic recession, it is important to understand the portion of newly unemployed workers who seek to quickly rejoin the workforce (cyclical unemployment), relative to the portion of workers who lose their jobs and end up more permanently out of work due to lack of opportunities or discouragement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

The U.S. employment recovery appears to be stalling

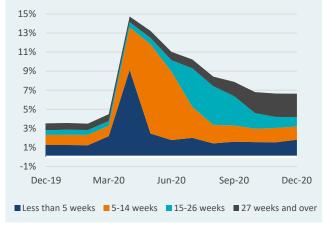
### U.S. UNEMPLOYMENT



### LABOR PARTICIPATION RATE



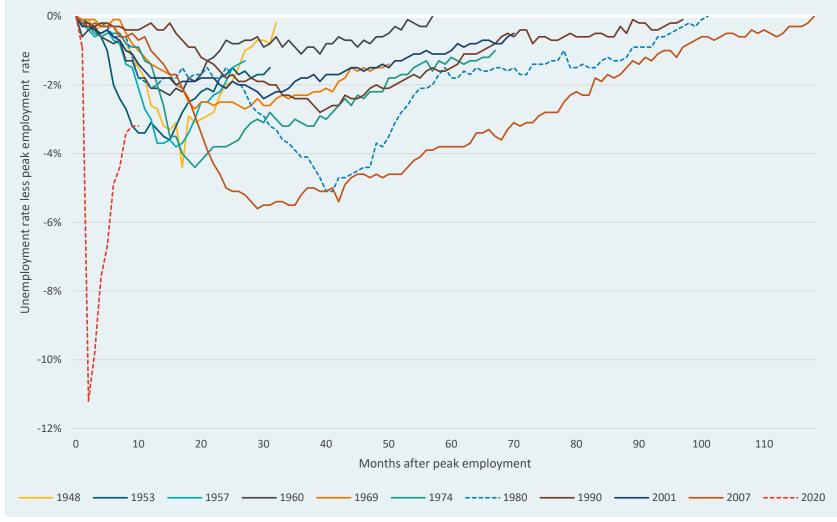
### UNEMPLOYMENT DECOMPOSITION BY DURATION



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



# U-3 unemployment rates relative to peaks



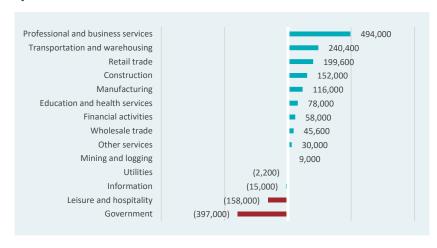
The Covid-19 recession features a historically-abrupt loss and subsequent rebound in broad unemployment

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

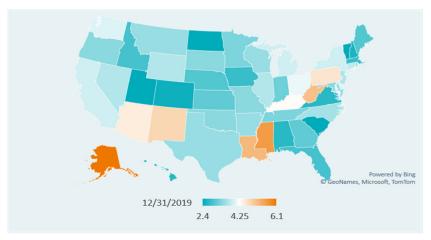


# Employment conditions

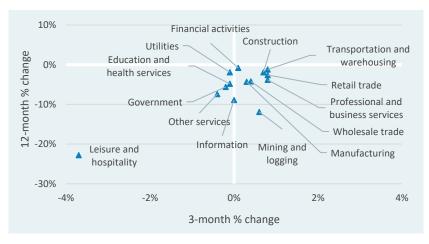
### **Q4 2020 NONFARM PAYROLLS CHANGES**



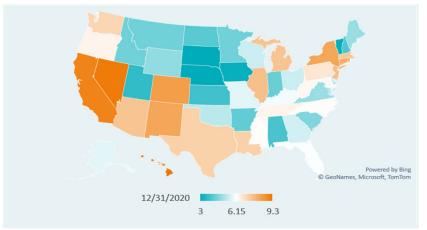
### U-3 UNEMPLOYMENT (12/31/2019)



### NONFARM PAYROLL GROWTH BY SECTOR



### U-3 UNEMPLOYMENT (12/31/2020)



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

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

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



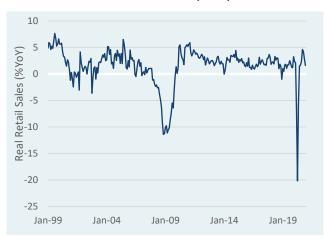
# The consumer

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

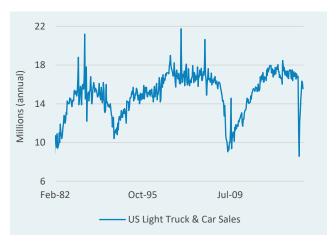
However, recent spending patterns have been vastly affected by unprecedented government stimulus. Because this expansion was far from a "natural" recovery, it will be worth watching how consumption trends change as the various economic stimulus programs end. This effect may already be apparent as retail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

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

### REAL RETAIL SALES GROWTH (YOY)



### **AUTO SALES**



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

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



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



Source: FRED, as of 12/31/20

# Sentiment

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

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

cycle high of 101.0 in February.

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

### CONSUMER COMFORT



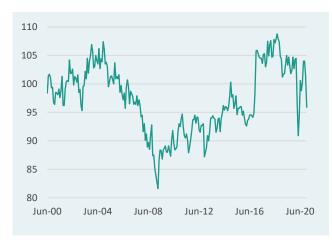
Source: Bloomberg, as of 12/31/20

### **CONSUMER SENTIMENT**



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

### **SMALL BUSINESS OPTIMISM**



Source: NFIB, as of 12/31/20



# Housing

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

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

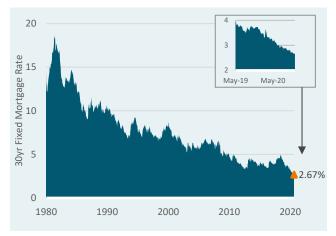
the 30-year U.S. Fixed Mortgage Rate has continued to move lower. The direction of mortgage rates from here will likely have a material impact on home prices.

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

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



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



### Source: FRED, as of 12/31/20

### HOUSING AFFORDABILITY INDEX



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



Source: FRED, as of 11/30/20

# International economics summary

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

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

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.8%)	1.4%	6.7%
	9/30/20	12/31/20	12/31/20
Eurozone	(4.3%)	(0.3%)	8.3%
	9/30/20	12/31/20	11/30/20
Japan	(5.7%)	(1.3%)	2.8%
	9/30/20	12/31/20	11/30/20
BRICS	1.9%	1.5%	5.1%
Nations	9/30/20	12/31/20	12/31/20
Brazil	(3.9%)	4.5%	14.3%
	9/30/20	12/31/20	10/31/20
Russia	(3.4%)	4.9%	6.1%
	9/30/20	12/31/20	11/30/20
India	(7.5%)	4.6%	9.1%
	9/30/20	12/31/20	12/31/20
China	2.3% 12/31/20	0.2% 12/31/20	<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 in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity seen during the prior quarter. The direction of recovery was similar across the emerging markets, and these economies have maintained their growth "premium" over developed markets throughout the crisis.

Unemployment in the Eurozone has fallen slightly to 8.3%

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

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

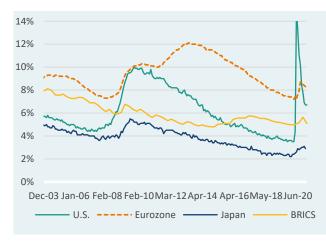


### INFLATION (CPI YOY)



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

### UNEMPLOYMENT



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



Source: Bloomberg, as of 9/30/20

# Fixed income rates & credit



# Interest rate environment

- Longer-dated U.S. Treasury yields moved upward in the fourth quarter, with the U.S. 10-year rising above 1.0% to begin 2021. Higher interest rates may place pressure on equity valuations if this trend continues. The yield of shorter-dated bonds and cash has not moved and is expected to stay near zero.
- Ten-year breakeven inflation rates rallied from 1.6% to 2.0% in Q4, likely propelled higher by expectations that Biden's fiscal approach paired with vaccine rollouts will result in higher longer-term growth and inflation. The rise in priced inflation outpaced the rise in nominal Treasury yields, leading the 10-year U.S. real yield to decline from -0.95% to -1.07%, near record lows.
- Officials at the Federal Reserve remained committed to a \$120 billion monthly pace of bond purchases until there is "substantial progress" toward employment and

- inflation objectives. Fed Chair
  Powell left the door open to
  adjusting the pace of those
  purchases as necessary, and stated
  that the Fed would "let the world
  know...well in advance of active
  consideration of beginning a gradual
  taper of asset purchases."
- The European Central Bank expanded the size of its Pandemic Emergency Purchase Program (PEPP) by €500 billion, bringing the new total to €1.85 trillion. The ECB also extended the horizon for purchases under PEPP to March 2022, and the timeline for reinvestment of maturing PEPP assets to the end of 2023.
- Joe Biden nominated Janet Yellen,
  Jerome Powell's predecessor, as U.S.
  Treasury Secretary. Throughout the
  pandemic, central bankers have
  been calling for further coordination
  of fiscal and monetary action, and
  Yellen's nomination could represent
  the next step down that path.

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

Source: Bloomberg, as of 12/31/20

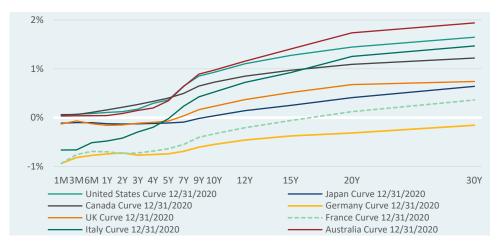


# Yield environment

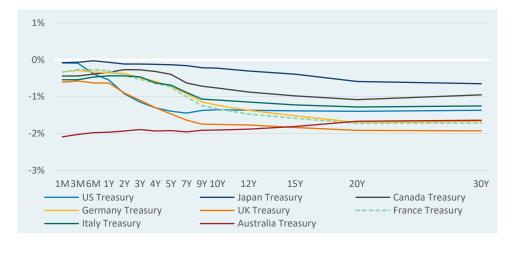
### **U.S. YIELD CURVE**



### **GLOBAL GOVERNMENT YIELD CURVES**



### YIELD CURVE CHANGES OVER LAST FIVE YEARS



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



Source: Bloomberg, as of 12/31/20

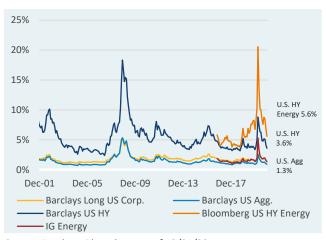


# Credit environment

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

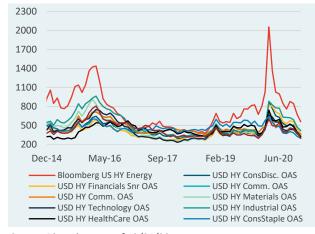
In the fourth quarter, high yield bonds returned 6.5%, outperforming bank loans (+3.6%) and investment grade credit (+2.8%). Positive vaccine news and conclusion of the presidential election led to strong risk-on sentiment during the quarter, driving longer duration and lower quality bonds to outperform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

### **SPREADS**



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

### HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/20

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

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

\*Discount margin (4-year life)



# Default & issuance

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

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

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

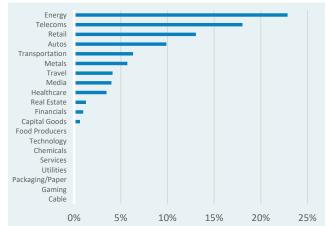
Investment grade issuance for 2020 totaled \$1.8 trillion, which was 40% higher than the prior record achieved in 2017. The fourth quarter was the slowest of the year with \$215 billion in new issues—a level that was in line with the four-year average

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



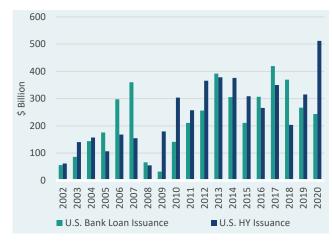
Source: BofA Merrill Lynch, as of 12/31/20

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



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

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



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



# Equity



# Equity environment

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.
- Emerging market equities (MSCI EM +19.7%) once again outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved materially from the -12.7% drop expected on September 30<sup>th</sup>.
   Analysts are expecting a -13.3% earnings decline for full-year 2020.

- The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.
- Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme during the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the greenback to lower relative real yields in the United States, as nominal Treasury yields picked up.
- Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates on the longer end of the yield curve improved the outlook for Financials.

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

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

# Domestic equity

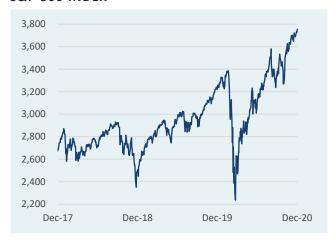
U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.

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

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

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

#### S&P 500 INDEX

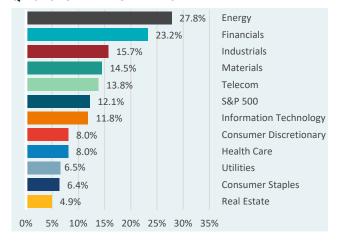


#### **DIVIDEND YIELD VS BOND YIELD**



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

#### **Q4 SECTOR PERFORMANCE**



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



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

# Domestic equity size & style

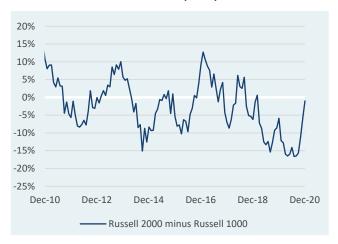
U.S. value stocks beat growth stocks during the fourth quarter (Russell 1000 Value +16.3%, Russell 1000 Growth +11.4%), reversing an extended run of value underperformance. The moderate bounce in value stock performance appeared to be partly driven by sector movements. Energy, Financials, and Materials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

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

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

Sector
performance has
fueled dramatic
negative
performance of
the value
premium

#### SMALL CAP VS LARGE CAP (YOY)

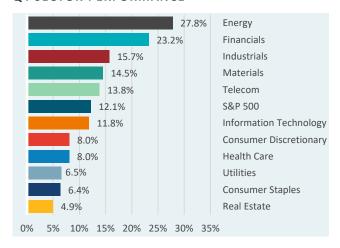


#### VALUE VS GROWTH (YOY)



#### Source: FTSE, as of 12/31/20

#### **Q4 SECTOR PERFORMANCE**



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

Source: FTSE, as of 12/31/20

# Factor portfolios in 2020

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

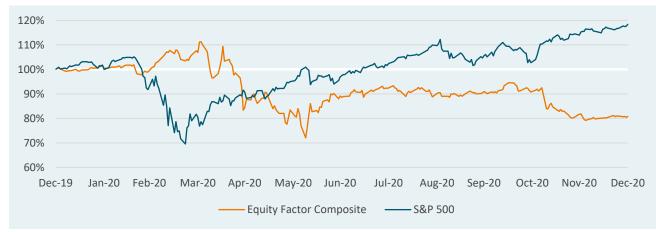
Equity factors had a very difficult year in 2020 and subsequently trailed the equity market by a very wide margin. Quality factors provided some protection during the periods of market turmoil. However other market neutral risk premia strategies did not enjoy consistent recoveries, particularly as market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

#### **Q4 2020 PERFORMANCE**



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

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



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



# International developed equity

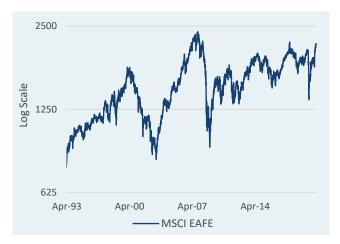
International equities delivered exceptional performance in the fourth quarter, as most global markets have now fully recovered from the March drawdown. The MSCI EAFE Index (+16.0%) outperformed the S&P 500 Index (+12.1%) while lagging the MSCI Emerging Markets Index (+19.7). Continuing U.S. dollar weakness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

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

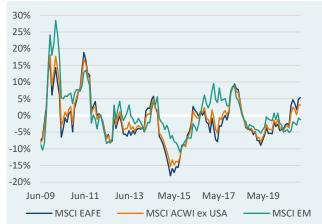
to 11.9% if currency had been hedged. The three largest currency exposures embedded in the MSCI EAFE Index—the euro (32%), the yen (26%), and the pound sterling (13%)—appreciated +4.3%, +2.2%, and +5.7% relative to the U.S. dollar during the quarter, respectively.

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

#### INTERNATIONAL DEVELOPED EQUITIES

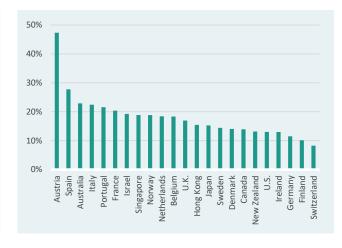


#### EFFECT OF CURRENCY (1-YEAR ROLLING)



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

#### Q4 2020 PERFORMANCE (ALL IN USD)



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



Source: MSCI, as of 12/31/20

# Emerging market equity

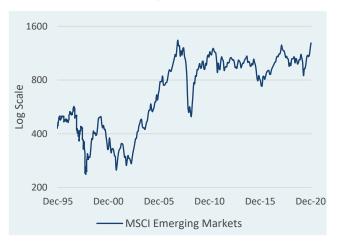
Emerging market equities (MSCI EM +19.7%) outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) once again in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging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

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

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

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

#### **EMERGING MARKET EQUITY**

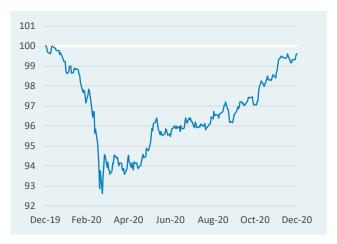


#### **INFLATION (YOY)**



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

#### MSCI EM INDEX EMBEDDED CURRENCY



Source: Bloomberg, as of 12/31/20



Source: MSCI, as of 12/31/20

# Equity valuations

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

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

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

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

#### **FORWARD P/E RATIOS**



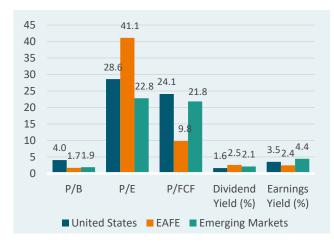
#### Source: MSCI, 12m forward P/E, as of 12/31/20

#### **BLENDED 12-MONTH EARNINGS EXPECTATIONS**



Source: Bloomberg, as of 12/31/20

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



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



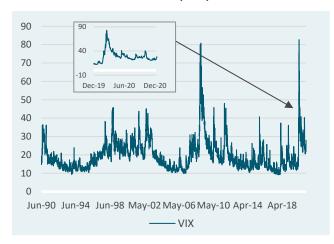
# Equity volatility

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

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

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

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



#### REALIZED VOLATILITY



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

#### 1-MONTH U.S. IMPLIED VOLATILITY CURVE

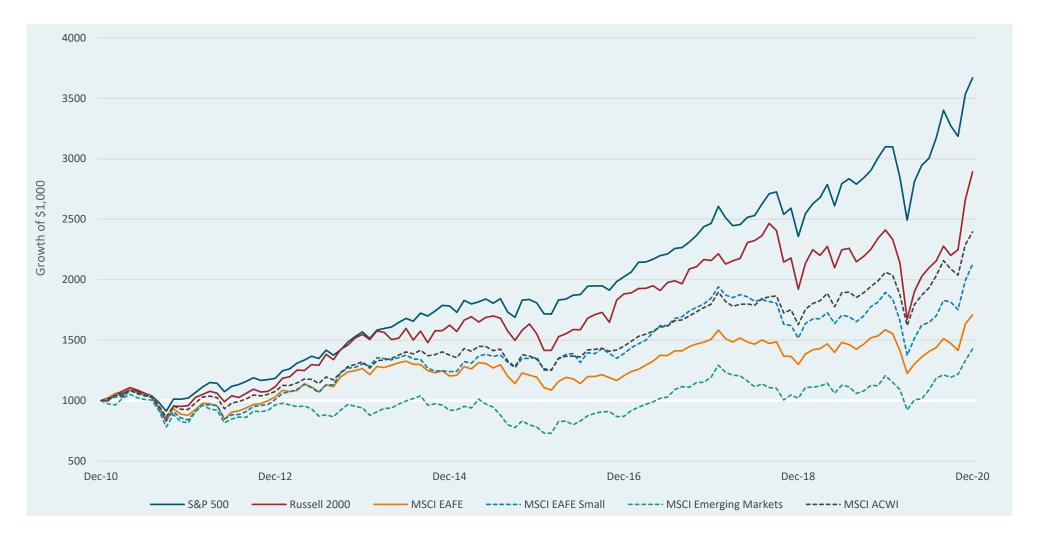


Source: Bloomberg, as of 12/31/20



Source: Choe, as of 12/31/20

# Long-term equity performance



Source: Morningstar, as of 12/31/20



# Other assets

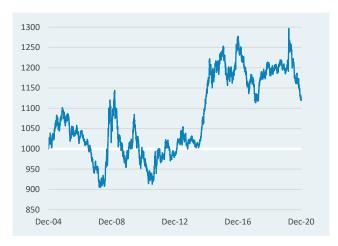


# Currency

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

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

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



#### **USD CURRENCY LEVEL & SUBSEQUENT RETURN**



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

#### **USD/CNY CROSS RATE**



Source: Bloomberg, as of 12/31/20



Source: Bloomberg, as of 12/31/20

# Appendix



# Periodic table of returns

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

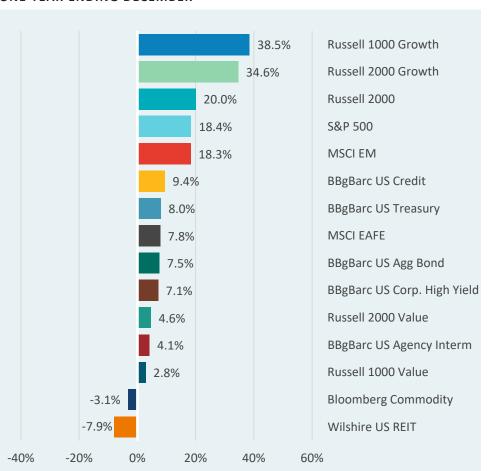


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF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

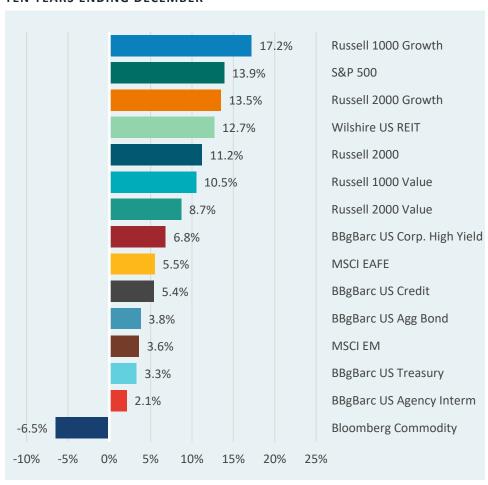


# Major asset class returns

#### ONE YEAR ENDING DECEMBER



#### TEN YEARS ENDING DECEMBER



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

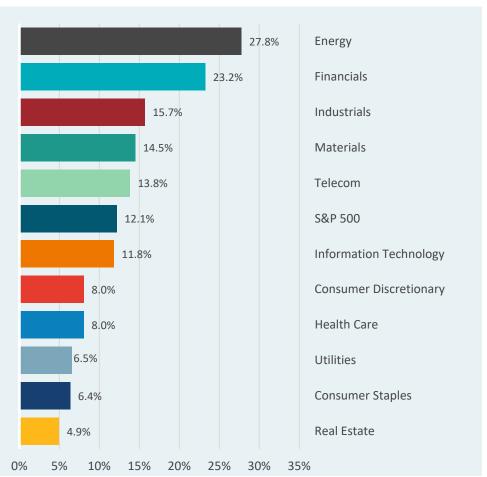
Source: Morningstar, as of 12/31/20

Source: Morningstar, as of 12/31/20

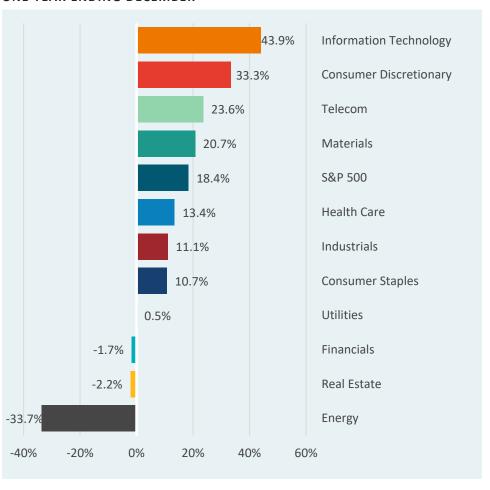


# S&P 500 sector returns

#### Q4 2020



#### ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/20

Source: Morningstar, as of 12/31/20



# Private equity vs. public performance

#### As of 9/30/2020

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



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

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



# Private equity vs. liquid real assets performance

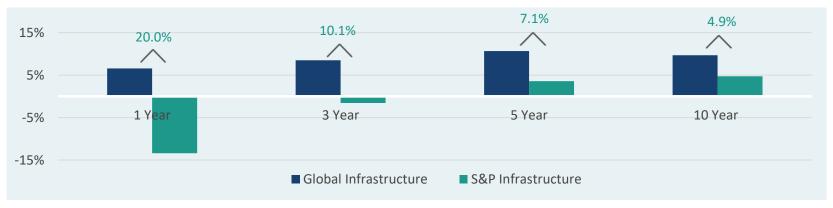
As of 9/30/2020

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



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

#### **GLOBAL INFRASTRUCTURE FUNDS**



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

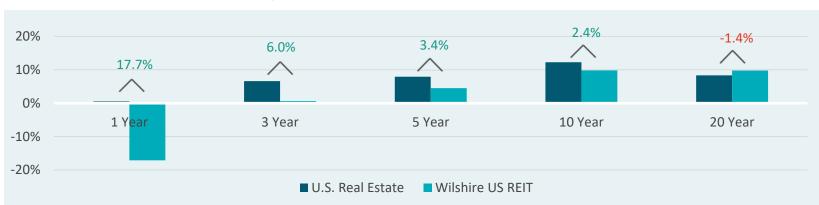
Sources: Thomson Reuters C|A PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2020. Public Market Equivalent returns resulted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



# Private vs. liquid & core real estate performance

#### As of 9/30/2020

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



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

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



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

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



# Detailed index returns

DOMESTIC EQUITY								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	3.8	12.1	18.4	18.4	14.2	15.2	13.9	BBgBarc US TIPS	1.1	1.6	11.0	11.0	5.9	5.1	3.8
S&P 500 Equal Weighted	4.3	18.5	12.8	12.8	10.4	13.0	12.7	BBgBarc US Treasury Bills	0.0	0.0	0.7	0.7	1.6	1.2	0.7
DJ Industrial Average	3.4	10.7	9.7	9.7	9.9	14.7	13.0	BBgBarc US Agg Bond	0.1	0.7	7.5	7.5	5.3	4.4	3.8
Russell Top 200	4.1	11.6	22.4	22.4	16.0	16.4	14.6	Duration							
Russell 1000	4.2	13.7	21.0	21.0	14.8	15.6	14.0	BBgBarc US Treasury 1-3 Yr	0.1	0.0	3.2	3.2	2.8	1.9	1.3
Russell 2000	8.7	31.4	20.0	20.0	10.2	13.3	11.2	BBgBarc US Treasury Long	(1.2)	(3.0)	17.7	17.7	9.9	7.8	7.8
Russell 3000	4.5	14.7	20.9	20.9	14.5	15.4	13.8	BBgBarc US Treasury	(0.2)	(8.0)	8.0	8.0	5.2	3.8	3.3
Russell Mid Cap	4.7	19.9	17.1	17.1	11.6	13.4	12.4	Issuer							
Style Index								BBgBarc US MBS	0.2	0.2	3.9	3.9	3.7	3.1	3.0
Russell 1000 Growth	4.6	11.4	38.5	38.5	23.0	21.0	17.2	BBgBarc US Corp. High Yield	1.9	6.5	7.1	7.1	6.2	8.6	6.8
Russell 1000 Value	3.8	16.3	2.8	2.8	6.1	9.7	10.5	BBgBarc US Agency Interm	0.1	0.1	4.1	4.1	3.4	2.5	2.1
Russell 2000 Growth	9.3	29.6	34.6	34.6	16.2	16.4	13.5	BBgBarc US Credit	0.5	2.8	9.4	9.4	6.8	6.4	5.4
Russell 2000 Value	7.9	33.4	4.6	4.6	3.7	9.7	8.7								
INTERNATIONAL EQUITY								OTHER							
Broad Index								Index							
MSCI ACWI	4.6	14.7	16.3	16.3	10.1	12.3	9.1	Bloomberg Commodity	5.0	10.2	(3.1)	(3.1)	(2.5)	1.0	(6.5)
MSCI ACWI ex US	5.4	17.0	10.7	10.7	4.9	8.9	4.9	Wilshire US REIT	2.8	10.6	(7.9)	(7.9)	3.3	4.3	8.3
MSCI EAFE	4.6	16.0	7.8	7.8	4.3	7.4	5.5	CS Leveraged Loans	1.3	3.6	2.8	2.8	4.0	5.2	4.5
MSCI EM	7.4	19.7	18.3	18.3	6.2	12.8	3.6	Alerian MLP	2.5	32.4	(31.6)	(31.6)	(13.7)	(7.0)	(2.1)
MSCI EAFE Small Cap	6.8	17.3	12.3	12.3	4.9	9.4	7.8	Regional Index							
Style Index								JPM EMBI Global Div	1.9	5.8	5.3	5.3	5.0	7.1	6.2
MSCI EAFE Growth	4.9	13.1	18.3	18.3	9.7	10.5	7.5	JPM GBI-EM Global Div	3.5	9.6	2.7	2.7	3.0	6.7	1.5
MSCI EAFE Value	4.4	19.2	(2.6)	(2.6)	(1.2)	4.2	3.4	Hedge Funds							
Regional Index								HFRI Composite	4.5	10.7	11.6	11.6	5.5	6.1	4.2
MSCIUK	5.5	16.9	(10.5)	(10.5)	(2.4)	2.6	3.0	HFRI FOF Composite	3.1	7.5	10.3	10.3	4.7	4.4	3.3
MSCI Japan	4.1	15.3	14.5	14.5	6.1	8.7	6.5	Currency (Spot)							
MSCI Euro	4.0	17.2	6.6	6.6	3.1	7.0	5.0	Euro	2.3	4.3	9.0	9.0	0.6	2.4	(0.9)
MSCI EM Asia	7.1	18.9	28.4	28.4	9.0	14.4	6.6	Pound Sterling	2.4	5.7	3.2	3.2	0.3	(1.5)	(1.3)
MSCI EM Latin American	11.9	34.8	(13.8)	(13.8)	(1.8)	8.9	(3.4)	Yen	1.0	2.2	5.3	5.3	2.9	3.1	(2.4)

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



## **Definitions**

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

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

(www.Bloomberg.com)

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

# Notices & disclosures

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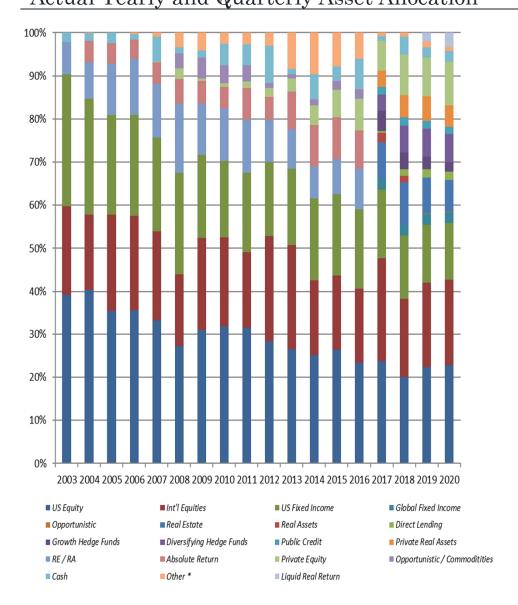
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#### Total Fund Actual Yearly and Quarterly Asset Allocation

#### Period Ending: December 31, 2020



	2003	2004	2005	2006	2007	2008
	2003	2004	2003	2000	2007	2006
US Equity	39.2	40.4	35.4	35.5	33.1	27.2
International Equity	20.6	17.5	22.3	22.0	20.9	16.8
US Fixed Income	30.6	26.9	23.1	23.3	21.7	23.5
Real Estate / Real Assets	7.5	8.5	11.9	13.1	12.4	16.1
Absolute Return	7.0	4.9	4.8	4.4	5.1	5.6
Private Equity		4.5	4.0	4.4	0.1	2.5
0		-	-	-	0.1	3.5
Cash Commodities	2.1	1.8	2.4	1.2	5.8	1.4
Other *	2.1	0.1	2.4	0.4	0.9	3.4
Otriei			-			
	2009	2010	2011	2012	2013	2014
US Equity	30.9	31.7	31.4	28.4	26.5	25.2
International Equity	21.5	20.7	17.6	24.5	24.3	17.5
US Fixed Income	19.3	17.8	18.4	17.1	17.7	18.9
Real Estate / Real Assets	11.9	12.2	12.4	9.9	9.0	7.6
Absolute Return	5.3	4.9	7.3	5.2	8.8	9.4
Private Equity	0.5	0.9	1.6	2.2	3.0	4.6
Opportunistic / Commodities	4.8	4.1	3.7	1.1	1.0	1.4
Cash	1.7	5.0	4.9	8.8	1.2	5.9
Other *	4.1	2.6	2.7	2.9	8.4	9.6
	2015	2016	2017	2018	2019	2020
US Equity	26.4	23.4	23.8	20.0	22.4	22.8
International Equity	17.3	17.2	23.9	18.3	19.6	19.9
US Fixed Income	18.7	18.5	16.0	14.6	13.6	13.2
Global Fixed Income	-	-	2.4	2.6	2.5	2.5
Public Credit	_	_	1.8	1.9	1.8	1.7
Real Estate / Real Assets	8.3	9.3	-	_	-	_
Real Estate	-	_	8.4	9.7	8.3	7.3
Real Assets	-	_	2.1	1.4	_	_
Private Real Assets	-	_	3.7	5.2	5.7	4.9
Liquid Real Return	-	_	-	-	2.0	3.3
Absolute Return	9.7	8.8	_	_	_	_
Growth Hedge Funds	-	_	4.6	3.9	3.0	2.3
Diversifying Hedge Funds	•	_	3.8	6.2	6.4	6.4
Diversitying neade runds	-				-	-
		7.4	6.9	9.3	9.0	10.1
Private Equity	6.3	7.4 -	6.9 0.5	9.3 1.5	9.0 2.0	10.1
Private Equity Direct Lending	6.3	7.4 - 2.2				-
Private Equity	6.3	-				-
Private Equity Direct Lending Opportunistic / Commodities	6.3	-	0.5 -	1.5 -	2.0	1.9
Private Equity Direct Lending Opportunistic / Commodities Opportunistic	6.3 - 2.1 -	- 2.2 -	0.5 - 0.1	1.5 - 0.1	2.0 - 0.1	1.9 - 0.0

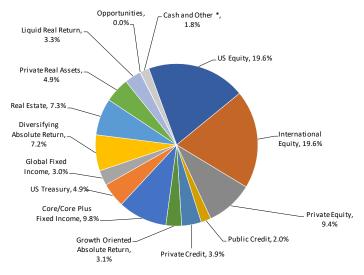
<sup>\*</sup> Allocations without overlay.



<sup>\*</sup> Other includes SSgA Overlay and closing accounts. Prior to Q2 2017 SSgA Real Assets is also included

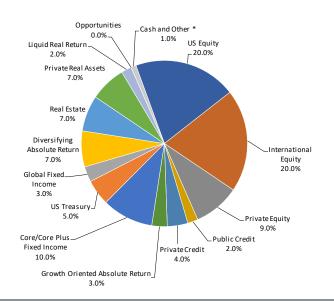
### Asset Allocation Analysis

#### **Current w/Overlay**



ASSET ALLOCATION	MARKET VALUE W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	2,626,645,279	19.6%	22.8%
International Equity	2,291,706,615	19.6%	19.9%
Private Equity	1,162,421,389	9.4%	10.1%
Public Credit	196,649,479	2.0%	1.7%
Private Credit	222,201,208	3.9%	1.9%
Growth Oriented Absolute Return	261,940,773	3.1%	2.3%
Core/Core Plus Fixed Income	1,018,717,947	9.8%	8.9%
US Treasury	497,592,352	4.9%	4.3%
Global Fixed Income	289,470,056	3.0%	2.5%
Diversifying Absolute Return	741,586,983	7.2%	6.4%
Real Estate	843,865,688	7.3%	7.3%
Private Real Assets	568,973,256	4.9%	4.9%
Liquid Real Return	379,128,488	3.3%	3.3%
Opportunities	5,366,068	0.0%	0.0%
Cash and Other *	401,171,782	1.8%	3.5%
TOTAL	11,507,437,362	100.0%	100.0%

#### Target



ASSET ALLOCATION	ACTUAL	TARGET	DIFF
US Equity	19.6%	20.0%	-0.4%
International Equity	19.6%	20.0%	-0.4%
Private Equity	9.4%	9.0%	0.4%
Public Credit	2.0%	2.0%	0.0%
Private Credit	3.9%	4.0%	-0.1%
Growth Oriented Absolute Return	3.1%	3.0%	0.1%
Core/Core Plus Fixed Income	9.8%	10.0%	-0.2%
US Treasury	4.9%	5.0%	-0.1%
Global Fixed Income	3.0%	3.0%	0.0%
Diversifying Absolute Return	7.2%	7.0%	0.2%
Real Estate	7.3%	7.0%	0.3%
Private Real Assets	4.9%	7.0%	-2.1%
Liquid Real Return	3.3%	2.0%	1.3%
Opportunities	0.0%	0.0%	0.0%
Cash and Other *	1.8%	1.0%	0.8%



<sup>\*</sup> Other includes closing accounts (Heitman), Transition Account and SSgA Overlay of \$113.7 million.

- The Total Plan returned 9.8% net in the fourth quarter of 2020 and ranked in the third quartile among other public funds greater than \$1 billion (10.3% median). The Fund beat its policy index (8.7%) during this time period. The Total Plan w/o Overlay returned 9.6% for the quarter, net of fees. Longer term, the three-year return of 9.1% beat the median large public plan peer group (7.8%) and ranked in the top quartile. The five-year returns of 10.3% ranked in the first quartile of the large public plan peer group.
- Fourth quarter results (net) were enhanced by the following factors:
  - Eagle Capital gained 20.4% beating the Russell 1000 which rose 13.7%. Eagle benefited from investors pivoting towards companies that will likely benefit from a recovery of the pandemic.
  - DE Shaw Broad Market Core Alpha gained 17.6% beating the Russell 1000 (13.7%). This brought the 1-year return to 20.2% slightly underperforming the index but ranking in the top quartile of its peers.
  - Baillie Gifford Emerging All Cap beat the MSCI EM Index for a second quarter in a row bringing the 1-year excess return to 11% over the MSCI EM Index. Several portfolio companies with improving competitive positions led the outperformance in Q4, as did their investment in cyclical companies.
  - Brandywine beat its benchmark (10.6% vs 4.1%). Brandywine's overweight position in U.S. corporate bonds and underweighting the U.S. dollar both contributed to the quarter's outperformance.
  - Brigade rose 8.2% beating its index (5.1%). Bank Loans and High Yield positions contributed to outperformance gaining 3.1% and
     4.2% respectively.
- Fourth quarter results (net) were hindered by the following factors:
  - Walter Scott trailed the MSCI World ex US Growth index (10.2% vs 12.7%). The underperformance came from the Utilities, Materials, and Communication Services sectors, primarily in the UK, Canada, and the Pacific ex Japan.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date <sup>+</sup>
Total Fund - Gross*	11,507,437,362	100.0	9.9	63	15.9	48	12.5	29	9.4	16	10.6	16	8.6	Jun-86
Total Fund - Net			9.8	64	15.8	49	12.3	35	9.1	20	10.3	23	8.4	
Policy Index <sup>1</sup>			8.7	83	14.3	81	10.7	57	7.8	51	9.2	61	8.6	Jun-86
InvMetrics Public DB > \$1B Gross Median			10.3		15.6		11.1		7.8		9.4		8.2	Jun-86
Total Fund ex Overlay - Gross <sup>™</sup>	11,393,772,401	99.0	9.6	70	15.7	50	11.5	46	9.0	22	10.2	26	8.4	Jun-86
Total Fund ex Overlay - Net			9.6	70	15.6	50	11.2	47	8.8	29	9.9	37	8.2	
Policy Index			8.7	83	14.3	81	10.7	57	7.8	51	9.2	61	8.6	Jun-86
Allocation ex Overlay Index			8.6	84	14.2	83	10.3	66	7.6	57		-		Jun-86
Growth Asset Category - Gross	6,756,014,847	58.7	14.7		24.3		16.8		11.8				13.7	Mar-17
Growth Asset Category - Net			14.7	-	24.2	-	16.5		11.5				13.4	
Growth Custom <sup>1</sup>			13.5		22.5		15.1		10.2				11.8	Mar-17
Equities - Gross Public	4,918,351,894	42.7	16.4		26.3		18.3		11.4		13.6		10.5	Jun-11
Equities - Net			16.3		26.2		17.8		10.9		13.1		10.1	
MSCI ACWI			14.7		24.0		16.3		10.1		12.3		9.1	Jun-11
US Equity - Gross	2,626,645,279	22.8	16.2	38	26.3	30	21.8	15	14.7	16	15.4	25	10.6	Jun-86
US Equity - Net			16.1	39	26.1	32	21.5	17	14.4	26	15.1	36	10.4	
Russell 3000 <sup>1</sup>			14.7	77	25.2	48	20.9	25	14.5	23	15.4	23	10.7	Jun-86
InvMetrics All DB US Eq Gross Median			15.5		25.2		18.4		13.2		14.5		10.6	Jun-86
Large Cap - Gross	2,351,458,171	20.4	14.8		25.1	-	20.6		14.5		15.3		7.3	Mar-98
Large Cap - Net			14.7		25.0		20.3		14.2		15.1	-1	7.1	
Russell 1000			13.7		24.5		21.0		14.8		15.6		7.8	Mar-98

<sup>1.</sup> See Policy Index and Benchmark History



<sup>\*</sup>Total Fund and asset class composites are ranked against InvestorForce universes. Managers are ranked against eVest manager universes. Net Returns are ranked against gross universe. Ranking of 1 is a top ranking and ranking of 100 is a bottom rating.

<sup>\*\*</sup>Total Fund ex Overlay returns from 2/1/2006-12/31/2010 were calculated using the overlay impact provided by SSgA.

<sup>+</sup> Since inception date denotes last day of the month.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap - Index - Gross	1,347,716,086	11.7	13.6		24.4		20.9		14.8		15.6		12.6	Sep-08
Large Cap - Index - Net			13.6	-	24.4		20.9		14.8		15.5		12.6	
Russell 1000			13.7		24.5		21.0		14.8		15.6		12.6	Sep-08
AB - Gross	1,347,716,086	11.7	13.6	40	24.4	29	20.9	23	14.8	24	15.6	29	10.6	Apr-89
AB - Net			13.6	42	24.4	30	20.9	25	14.8	26	15.5	31	10.6	
Russell 1000 <sup>1</sup>			13.7	35	24.5	27	21.0	21	14.8	20	15.6	26		Apr-89
eV US Passive Large Cap Equity Gross Median			12.9		22.8		18.4		14.2		15.2		10.6	Apr-89
Large Cap - Enhanced - Gross	317,203,023	2.8	14.0		23.9		19.2						13.0	Jul-18
Large Cap - Enhanced - Net			14.0	-	23.7		18.9	-					12.8	
Russell 1000			13.7		24.5		21.0		14.8		15.6		15.7	Jul-18
AQR US Enhanced Equity - Gross	317,203,023	2.8	14.0	40	23.9	44	19.2	39					13.0	Jul-18
AQR US Enhanced Equity - Net			14.0	40	23.7	45	18.9	42					12.8	
Russell 1000			13.7	42	24.5	37	21.0	18	14.8	20	15.6	27	15.7	Jul-18
eV US Enh Equity Gross Median			13.1		22.9		17.9		12.8	_	14.6		13.1	Jul-18
Large Cap (130/30) - Gross	355,876,157	3.1	14.9		26.0		24.2		14.7		15.5		13.3	Sep-08
Large Cap (130/30) - Net			14.7	-	25.7		23.6		14.1		14.8		12.6	
Russell 1000			13.7		24.5		21.0		14.8		15.6		12.6	Sep-08
JP Morgan 130/30 - Gross	187,040,620	1.6	12.5	39	24.8	16	27.6	3	16.2	16	16.5	9	13.4	Jul-08
JP Morgan 130/30 - Net			12.2	43	24.5	20	26.9	5	15.5	19	15.7	31	12.6	
Russell 1000			13.7	26	24.5	21	21.0	16	14.8	26	15.6	31	11.7	Jul-08
eV Extended US Equity Gross Median			11.5		20.1		9.1		7.0		11.2		11.5	Jul-08
DE Shaw Broad Mkt Core Alpha Ext - Gross	168,835,537	1.5	17.7	8	27.4	4	20.7	18					20.9	Jan-19
DE Shaw Broad Mkt Core Alpha Ext - Net			17.6	8	27.1	4	20.2	23					20.4	
Russell 1000			13.7	26	24.5	21	21.0	16	14.8	26	15.6	31	22.1	Jan-19
eV Extended US Equity Gross Median			11.5		20.1		9.1		7.0		11.2		13.1	Jan-19

<sup>1.</sup> See Policy Index and Benchmark History.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap Active - Gross	330,662,905	2.9	20.6		28.3		16.3		12.6		14.5		11.9	Sep-08
Large Cap Active - Net			20.4		27.9		15.4		11.8		13.6		11.2	
Russell 1000 <sup>1</sup>			13.7		24.5		21.0		13.2		14.1		10.9	Sep-08
Eagle Capital - Gross	330,642,640	2.9	20.6	2	28.3	6	16.3	48	13.7	43	15.3	30	15.2	Feb-12
Eagle Capital - Net			20.4	2	27.9	7	15.4	55	12.9	52	14.4	48	14.4	
Russell 1000			13.7	26	24.5	21	21.0	26	13.2	50	14.1	54	13.4	Feb-12
eV US Large Cap Core Equity Gross Median			11.9		21.4		16.0		13.2		14.3		13.9	Feb-12
Small Cap - Gross	275,187,108	2.4	29.5		36.2		32.9		17.2		17.9		12.7	Dec-90
Small Cap - Net			29.4	-	36.0		32.1		16.5		17.2		12.0	
Russell 2000			31.4		37.9		20.0		10.2		13.3		11.0	Dec-90
Small Cap - Growth - Gross	175,110,501	1.5	27.4		37.2		60.6		30.2		26.4		16.2	Sep-08
Small Cap - Growth - Net			27.3		37.0		59.5		29.4		25.8		15.5	
Russell 2000 Growth			29.6		38.9		34.6		16.2		16.4		13.0	Sep-08
Weatherbie - Gross	175,110,501	1.5	27.4	50	37.2	57	60.6	22	30.2	18	28.5	10	15.8	Dec-02
Weatherbie - Net			27.3	50	37.0	58	59.5	23	29.3	20	27.8	11	14.9	
Russell 2000 Growth			29.6	28	38.9	47	34.6	66	16.2	77	16.4	77	12.3	Dec-02
eV US Small Cap Growth Equity Gross Median			27.3		38.3		42.2		22.1		19.7		14.3	Dec-02
Small Cap - Value - Gross	100,076,607	0.9	33.3		34.4		2.3		2.6		8.2		8.9	Sep-08
Small Cap - Value - Net			33.3		34.3		1.9		2.1		7.5		8.0	
Russell 2000 Value			33.4		36.8		4.6		3.7		9.7		8.1	Sep-08
iShares Russell 2000 Value ETF - Gross	100,076,607	0.9	33.3	33									27.0	Aug-20
iShares Russell 2000 Value ETF - Net			33.3	33									27.0	
Russell 2000 Value			33.4	32	36.8	43	4.6	45	3.7	30	9.7	24	27.2	Aug-20
Small Value MStar MF Median			31.3		35.0		3.9		2.5		8.1		25.3	Aug-20

<sup>1.</sup> See Policy Index and Benchmark History.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
International Equity - Gross	2,291,706,615	19.9	16.7	70	26.3	47	14.1	40	7.6	21	11.1	24	6.8	Dec-87
International Equity - Net			16.6	71	26.1	48	13.4	46	7.0	27	10.5	29	6.5	
MSCI ACWI ex US <sup>1</sup>			17.1	57	24.5	71	11.1	68	5.4	54	9.4	56	6.5	Dec-87
InvMetrics All DB ex-US Eq Gross Median			17.3		25.9		12.7		5.6		9.6		7.2	Dec-87
International - Developed - Gross	1,801,298,235	15.7	15.0	81	23.2	63	11.8	47	7.2	44	10.5	37	5.2	Mar-98
International - Developed - Net			14.9	82	23.0	70	11.1	51	6.5	46	9.8	46	4.8	
MSCI World ex US Gross			15.9	73	21.7	83	8.1	71	4.8	67	8.2	69	5.1	Mar-98
InvMetrics All DB Dev Mkt ex-US Eq Gross Median			17.1		23.9		11.2		6.0		9.3		5.6	Mar-98
Lazard - Gross	448,226,800	3.9	18.3	31	25.6	61	10.6	66	6.4	56	9.4	62	9.7	Jun-12
Lazard - Net			18.2	31	25.5	64	10.2	68	6.1	57	9.0	66	9.4	
MSCI ACWI ex USA Gross			17.1	45	24.5	69	11.1	62	5.4	60	9.4	61	7.8	Jun-12
eV All ACWI ex-US Equity Gross Median			16.5		26.9		15.9		7.2		10.8		9.9	Jun-12
Walter Scott & Partners Limited - Gross	677,478,682	5.9	10.2	99	19.1	95	19.0	73	12.5	46			15.4	Mar-17
Walter Scott & Partners Limited - Net			10.2	99	18.9	97	17.8	80	11.4	53			14.4	
MSCI World ex USA Growth GR USD			12.7	78	22.3	71	18.8	73	10.1	68	11.0	73	13.0	Mar-17
eV EAFE Large Cap Growth Gross Median			13.9		26.3		25.3		11.9		12.2		15.4	Mar-17
LSV - Gross	435,334,803	3.8	17.9	59	23.2	40	0.7	73	1.1	54	6.9	44	4.7	Dec-04
LSV - Net			17.8	60	23.0	44	0.3	74	0.6	65	6.4	53	4.2	
MSCI World ex US Value Gross			19.4	44	21.2	65	-2.6	90	-0.6	82	5.2	75	4.1	Dec-04
eV EAFE Large Cap Value Gross Median			18.9		22.5		2.3		1.7		6.4		4.7	Dec-04
Mondrian Dev Small Cap - Gross	115,856,063	1.0	19.4	33	30.1	55	11.0	65	6.4	56	10.1	70	9.8	Aug-10
Mondrian Dev Small Cap - Net			19.2	34	29.7	59	10.3	73	5.6	60	9.3	74	9.1	
MSCI World ex US Small Cap GD			17.6	45	29.6	62	13.2	63	5.5	60	10.1	70	9.5	Aug-10
eV ACWI ex-US Small Cap Equity Gross Median			17.2		30.6		17.3		7.2		11.8		11.7	Aug-10

<sup>1.</sup> See Policy Index and Benchmark History.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
William Blair Dev Small Cap - Gross	124,401,887	1.1	16.3	59	32.8	33	27.3	34	10.1	39	11.9	50	11.3	Sep-08
William Blair Dev Small Cap - Net			16.0	62	32.3	35	26.2	38	8.9	42	10.9	63	10.3	
MSCI World ex US Small Cap GD			17.6	45	29.6	62	13.2	63	5.5	60	10.1	70	9.2	Sep-08
eV ACWI ex-US Small Cap Equity Gross Median			17.2		30.6		17.3		7.2		11.8		11.2	Sep-08
International - Emerging - Gross	490,402,926	4.3	23.4	12	39.1	1	23.4	23	9.4	16	14.1	22	7.4	Jan-00
International - Emerging - Net			23.3	12	38.9	1	23.1	24	9.1	18	13.7	23	7.0	
MSCI Emerging Markets Gross			19.8	48	31.4	42	18.7	45	6.6	37	13.2	28	7.6	Jan-00
InvMetrics All DB Emg Mkt Eq Gross Median			19.7		30.4		18.1		5.8		12.4		8.5	Jan-00
Baillie Gifford Emg All Cap - Gross	277,851,770	2.4	25.2	12	41.7	5	29.7	17	12.2	12			18.8	Mar-16
Baillie Gifford Emg All Cap - Net			25.2	12	41.7	5	29.7	17	12.2	12			18.8	
MSCI Emerging Markets Gross			19.8	55	31.4	56	18.7	47	6.6	48	13.2	47	12.6	Mar-16
eV Emg Mkts Equity Gross Median			20.2		32.1		18.2		6.3		13.0		12.9	Mar-16
Mondrian Emg All Cap - Gross	212,551,156	1.8	21.0	42	35.7	25	16.1	62	6.3	52			10.0	Mar-16
Mondrian Emg All Cap - Net			20.8	44	35.4	28	15.4	65	5.6	62			9.3	
MSCI Emerging Markets Gross			19.8	55	31.4	56	18.7	47	6.6	48	13.2	47	12.6	Mar-16
eV Emg Mkts Equity Gross Median			20.2		32.1		18.2		6.3		13.0		12.9	Mar-16



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Private Equity - Gross*****	1,156,871,493	10.1	11.8	10	21.8	18	18.2	23	20.6	8	17.7	9	4.9	Feb-08
Private Equity - Net			11.8	10	21.8	18	18.2	23	20.6	8	17.7	9	5.1	
Thomson Reuters C A All PE 1 Qtr Lag <sup>1</sup>			9.7	18	19.5	23	13.9	37	12.8	35	14.3	20	10.5	Feb-08
Russell 3000 +3% 1Q Lag			10.2	16	33.9	2	18.0	23	14.7	24	16.7	10	11.9	Feb-08
InvMetrics All DB Private Eq Net Median			6.0		12.2		9.1		9.6		10.0		7.6	Feb-08
Abbott VI - Gross	37,559,664	0.3	8.5		24.2		13.8		15.4		15.7		5.8	Jul-08
Abbott VI - Net			8.5		24.2		13.8		15.4		15.7			
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.3	Jul-08
Accel-KKR IV - Gross	14,078,068	0.1	13.4		13.9		15.8		52.1		41.6		13.5	Jun-13
Accel-KKR IV - Net			13.4		13.9		15.8		52.1		41.6		13.5	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.0	Jun-13
Accel-KKR V - Gross	18,231,233	0.2	1.0		1.2		5.0		18.6				16.7	Jan-17
Accel-KKR V - Net			1.0		1.2		5.0		18.6				16.7	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.2	Jan-17
Accel-KKR Growth Partners II - Gross	10,252,643	0.1	2.0		2.7		5.7		23.6		13.8		5.4	Feb-15
Accel-KKR Growth Partners II - Net			2.0		2.7		5.7		23.6		13.8		5.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.6	Feb-15
Accel-KKR Growth Partners III - Gross	10,236,825	0.1	3.6		4.8		4.1						-16.6	Jul-19
Accel-KKR Growth Partners III - Net			3.6		4.8		4.1						-16.6	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.9	Jul-19
Atalaya Special Opp VI - Gross	12,129,523	0.1	8.8		18.3		22.6		16.1				11.8	Apr-16
Atalaya Special Opp VI - Net			8.8		18.3		22.6		16.1				11.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.0	Apr-16

<sup>+</sup> Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.



<sup>1.</sup> See Policy Index and Benchmark History.

<sup>\*</sup> Private Equity Composite includes the historical returns of Summit Credit and Athyrium Opportunities up to 4/1/17.

<sup>++</sup> Returns are one-quarter lag.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Canvas Ventures III - Gross* Canvas Ventures III - Net	949,398	0.0			 		 				 		0.0	Nov-20
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		9.7	Nov-20
Cortec Group Fund VII - Gross	9,253,760	0.1	-2.5		19.4		14.0						14.0	Dec-19
Cortec Group Fund VII - Net			-2.5		19.4		14.0						14.0	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.9	Dec-19
Davidson Kempner LT Dist Opp IV - Gross	32,595,619	0.3	4.9		14.2		5.2						8.7	Mar-18
Davidson Kempner LT Dist Opp IV - Net			4.9		14.2		5.2						8.7	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.3	Mar-18
Davidson Kempner LT Dist Opp V - Gross	5,309,675	0.0	16.4		15.8								15.8	May-20
Davidson Kempner LT Dist Opp V - Net			16.4		15.8								15.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		9.2	May-20
Dyal Capital Partners II - Gross	21,747,698	0.2	3.7		8.9		9.7		-4.9		-6.1		-5.9	Dec-14
Dyal Capital Partners II - Net			3.7		8.9		9.7		-4.9		-6.1		-5.9	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.2	Dec-14
Dyal Capital Partners III - Gross	19,596,033	0.2	17.1		26.6		34.3		23.0				21.8	Dec-16
Dyal Capital Partners III - Net			17.1		26.6		34.3		23.0				21.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.4	Dec-16
Garrison Investment Group - Gross	10,213,627	0.1	-0.2		-3.8		-16.6		-2.4		-5.3		-1.2	May-12
Garrison Investment Group - Net			-0.2		-3.8		-16.6		-2.4		-5.3		-1.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.7	May-12
Gridiron Capital Fund IV - Gross	15,904,788	0.1	13.8		13.6								13.6	May-20
Gridiron Capital Fund IV - Net			13.8		13.6								13.6	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		9.2	May-20
Harbourvest VIII - Gross	9,994,140	0.1	10.1		25.2		11.7		11.6		12.4		9.9	Dec-07
Harbourvest VIII - Net			10.1		25.2		11.7		11.6		12.4			
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		10.2	Dec-07

<sup>\*</sup> Funded November 2020.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Harbourvest Intl VI - Gross	31,196,811	0.3	11.0		23.0		17.2		14.5		14.3		-4.5	Mar-09
Harbourvest Intl VI - Net			11.0		23.0		17.2		14.5		14.3		-	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.8	Mar-09
H.I.G. Bayside Loan III - Gross	6,590,337	0.1	1.7		-2.1		-18.5		-1.0	-	2.7		3.1	Jan-13
H.I.G. Bayside Loan III - Net			1.7		-2.1		-18.5		-1.0		2.7		3.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.1	Jan-13
H.I.G. Capital V - Gross	15,699,895	0.1	8.9		11.0		5.4		21.1		21.5		10.2	Jul-13
H.I.G. Capital V - Net			8.9		11.0		5.4		21.1		21.5		10.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.9	Jul-13
H.I.G. Europe Capital II - Gross*	12,121,532	0.1	6.6		23.1		7.4		11.8				-	Jan-14
H.I.G. Europe Capital II - Net			6.6		23.1		7.4		11.8				-	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.0	Jan-14
Khosla IV - Gross	14,364,611	0.1	4.1		7.3		14.3		22.4		19.6		17.4	Jul-11
Khosla IV - Net			4.1		7.3		14.3		22.4	-	19.6		17.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.8	Jul-11
Khosla V - Gross	25,994,013	0.2	0.7		-0.2		4.6		7.0	-	10.2		8.2	Nov-14
Khosla V - Net			0.7		-0.2		4.6		7.0	-	10.2		8.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.7	Nov-14
Khosla VI - Gross	21,895,243	0.2	-7.2		-6.7		-9.3			-			-5.9	Aug-18
Khosla VI - Net			-7.2		-6.7		-9.3			-			-5.9	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.3	Aug-18
Linden Capital - Gross	35,855,750	0.3	26.4		38.9		22.6		32.2				22.5	Jun-16
Linden Capital - Net			26.4		38.9		22.6		32.2				22.5	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.8	Jun-16
Linden Capital Partners IV - Gross	23,607,249	0.2	11.1		20.8		2.3						6.3	Sep-18
Linden Capital Partners IV - Net			11.1	-	20.8		2.3	-		-			6.3	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.3	Sep-18

<sup>\*</sup> Unable to calculate a since inception return due to system limitations when HIG Europe Capital II experienced 2 quarters of negative fund values in 2016.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Marlin Equity IV - Gross	15,355,874	0.1	2.0		3.9		8.0		11.1		9.8		5.2	Nov-13
Marlin Equity IV - Net			2.0		3.9		8.0		11.1		9.8		5.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.9	Nov-13
Marlin Equity V - Gross	14,926,649	0.1	7.5		14.2		18.8						15.5	Feb-18
Marlin Equity V - Net			7.5		14.2		18.8						15.5	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.6	Feb-18
Marlin Heritage - Gross	8,279,945	0.1	4.7		9.4		23.4		27.7		39.6		24.8	Jul-14
Marlin Heritage - Net			4.7		9.4	-	23.4		27.7		39.6		24.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.4	Jul-14
Marlin Heritage II - Gross	9,316,592	0.1	2.0		10.5		13.4		-0.1				-0.1	Oct-17
Marlin Heritage II - Net			2.0		10.5		13.4		-0.1				-0.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.3	Oct-17
Marlin Heritage Europe - Gross	19,300,183	0.2	8.1		17.4		32.3		21.4				19.0	Aug-17
Marlin Heritage Europe - Net			8.1		17.4		32.3		21.4				19.0	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.7	Aug-17
New Enterprise 14 - Gross	28,864,276	0.3	4.1		11.0		9.2		14.8		14.6		13.2	May-12
New Enterprise 14 - Net			4.1		11.0		9.2		14.8		14.6		13.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.7	May-12
New Enterprise 15 - Gross	54,214,581	0.5	16.8		18.7	-	12.0		18.9		18.5		16.0	Apr-15
New Enterprise 15 - Net			16.8		18.7	-	12.0		18.9	-	18.5		16.0	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.4	Apr-15
New Enterprise 16 - Gross	35,102,220	0.3	10.9		27.3		24.2		14.6				9.1	May-17
New Enterprise 16 - Net			10.9		27.3		24.2		14.6				9.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.7	May-17
New Enterprise 17 - Gross	9,642,352	0.1	11.2		18.2		15.8						8.4	Jul-19
New Enterprise 17 - Net			11.2		18.2		15.8						8.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.9	Jul-19



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
OrbiMed Private Investments VIII, LP - Gross* OrbiMed Private Investments VIII, LP - Net	750,000	0.0	 			 							-	Dec-20
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3			Dec-20
Private Equity X - Gross	21,546,799	0.2	0.4		8.5	-	-4.6	-	5.2	-	9.3		-1.4	Jun-08
Private Equity X - Net			0.4		8.5	-	-4.6	-	5.2		9.3			
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.7	Jun-08
RCP Multi-Fund Feeder - Gross	31,438,295	0.3	9.5	-	12.5		5.5						-2.4	Nov-18
RCP Multi-Fund Feeder - Net			9.5		12.5		5.5	-					-2.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.3	Nov-18
RRJ Capital Master Fund II - Gross	11,723,551	0.1	21.5		47.1	-	-4.2		6.0		4.3		9.8	May-13
RRJ Capital Master Fund II - Net			21.5		47.1	-	-4.2		6.0		4.3		9.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.5	May-13
RRJ Capital Master Fund III - Gross	10,476,641	0.1	-1.3		-15.1		-20.4		2.4		-10.2		-10.2	Dec-15
RRJ Capital Master Fund III - Net			-1.3	-	-15.1		-20.4		2.4		-10.2		-10.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.3	Dec-15
Shamrock Capital II - Gross	1,558,864	0.0	-98.8			-							-98.8	Jul-20
Shamrock Capital II - Net			-98.8			-							-98.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		19.5	Jul-20
Spectrum Equity VII - Gross	67,506,943	0.6	102.6		113.5	-	111.3		87.0		58.4		33.2	Dec-14
Spectrum Equity VII - Net			102.6		113.5	-	111.3		87.0		58.4		33.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.2	Dec-14
Spectrum Equity Fund VIII - Gross	21,432,842	0.2	2.7	-	2.0		-1.3						-51.0	Jun-18
Spectrum Equity Fund VIII - Net			2.7		2.0	-	-1.3	-		-			-51.0	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.4	Jun-18

<sup>\*</sup> Funded December 2020.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Spectrum Equity Fund IX - Gross Spectrum Equity Fund IX - Net	1,449,357	0.0	-3.4 -3.4	 	 		 	 					-3.4 -3.4	Sep-20
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		9.7	Sep-20
Summit EUR Growth Equity II - Gross	23,414,960	0.2	21.9		25.8	_	41.2						92.2	Jan-18
Summit EUR Growth Equity II - Net	, ,		21.9		25.8		41.2						92.2	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.2	Jan-18
Summit Ventures III - Gross	3,386,338	0.0	3.8		22.0		28.8		17.6		22.3		13.8	Jun-12
Summit Ventures III - Net	-,,		3.8		22.0		28.8		17.6		22.3		13.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.4	Jun-12
Summit Ventures IV - Gross	28,680,250	0.2	2.9		19.2		21.7		29.1				32.6	May-16
Summit Ventures IV - Net	, ,		2.9	-	19.2	-	21.7		29.1				32.6	,
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.2	May-16
Thoma Bravo XI - Gross	47,399,946	0.4	5.3		46.6		81.5		62.7		41.8		30.1	Jun-14
Thoma Bravo XI - Net			5.3		46.6		81.5		62.7		41.8		30.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.4	Jun-14
Thoma Bravo XII - Gross	40,799,519	0.4	9.5		18.5		22.4		20.0				9.4	May-16
Thoma Bravo XII - Net			9.5		18.5		22.4		20.0				9.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.2	May-16
Thoma Bravo XIII - Gross	40,438,095	0.4	37.1		96.4		118.0						51.1	Feb-19
Thoma Bravo XIII - Net			37.1	-	96.4	-	118.0						51.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.7	Feb-19
Threshold Ventures III - Gross	6,227,339	0.1	-2.5	-	-5.3	-	-17.0						-14.7	Oct-19
Threshold Ventures III - Net			-2.5		-5.3		-17.0						-14.7	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.3	Oct-19
TPG Opp Partners III - Gross	14,958,867	0.1	1.4		6.2		5.6		7.5		9.0		-11.7	Mar-14
TPG Opp Partners III - Net			1.4		6.2		5.6		7.5		9.0		-11.7	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.3	Mar-14



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Trinity Ventures XI - Gross	35,450,186	0.3	5.3		5.5		-8.0		14.5		9.8		5.7	Apr-13
Trinity Ventures XI - Net			5.3		5.5		-8.0		14.5		9.8		5.7	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.5	Apr-13
Trinity Ventures XII - Gross	44,876,816	0.4	3.7		16.3		6.9		29.4			-	18.5	Apr-16
Trinity Ventures XII - Net			3.7		16.3		6.9		29.4	-			18.5	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.0	Apr-16
TSG7 A LP - Gross+	16,821,879	0.1	13.9		16.7		16.7		15.7					Mar-16
TSG7 A LP - Net			13.9		16.7		16.7		15.7					
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.5	Mar-16
TSG7 B LP - Gross	3,025,336	0.0	7.8		20.2		16.8		-0.6				-13.4	Jan-16
TSG7 B LP - Net			7.8		20.2		16.8		-0.6				-13.4	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		12.8	Jan-16
TSG8 LP - Gross**	6,307,628	0.1	5.6		0.1									Jan-19
TSG8 LP - Net			5.6		0.1									
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.2	Jan-19
TSSP Opportunities Partners IV - Gross	13,114,517	0.1	6.0		11.1		6.1						7.9	Jan-19
TSSP Opportunities Partners IV - Net			6.0		11.1		6.1						7.9	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.2	Jan-19
Waterland V - Gross	13,573,549	0.1	20.1		23.1		23.1		24.4		30.6		23.3	Aug-11
Waterland V - Net			20.1		23.1		23.1		24.4		30.6		23.3	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		14.1	Aug-11
Waterland VI - Gross	32,691,510	0.3	26.5		41.1		42.9		26.6		16.1		3.6	Jul-15
Waterland VI - Net			26.5		41.1		42.9		26.6	-	16.1		3.6	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		11.8	Jul-15
Wayzata Opportunities III - Gross	5,181,833	0.0	1.0		14.7		4.5		-4.1		-0.4		-4.8	Feb-13
Wayzata Opportunities III - Net			1.0		14.7		4.5		-4.1		-0.4		-4.8	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		15.2	Feb-13

<sup>+</sup> Unable to calculate a since inception return due to system limitations when account experienced 1 quarter of negative fund value in 2016.

<sup>++</sup> Unable to calculate a year to date, 1-year and since inception return due to system limitations when account experienced serveral months of negative fund value in 2019 and 2020.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Wynnchurch Capital Partners V - Gross	2,258,826	0.0	-44.8		-54.1					-			-54.1	Apr-20
Wynnchurch Capital Partners V - Net			-44.8		-54.1								-54.1	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		9.2	Apr-20
Public Credit - Gross	196,649,479	1.7	8.2		14.9		4.9		4.3		8.3		4.4	Nov-13
Public Credit - Net			8.2		14.9		4.9	-	4.3		8.3		4.4	
Brigade Custom <sup>1</sup>			5.1		9.7		4.5		5.0		6.8		4.8	Nov-13
Brigade Capital - Gross	196,649,479	1.7	8.2	4	14.9	5	4.9	78	4.3	96	8.3	42	4.4	Nov-13
Brigade Capital - Net			8.2	4	14.9	5	4.9	78	4.3	96	8.3	42	4.4	
Brigade Custom			5.1	79	9.7	76	4.5	85	5.0	87	6.8	81	4.8	Nov-13
eV US High Yield Fixed Inc Gross Median			5.8		10.8		6.5		6.1		8.1		5.7	Nov-13
Private Credit - Gross***	222,201,208	1.9	5.5		11.5		7.6		6.8		8.8		7.1	Oct-11
Private Credit - Net			5.5		11.5		7.6		6.8		8.8		7.1	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		6.2	Oct-11
Athyrium Opp II - Gross	16,430,381	0.1	5.8		14.8		16.9		11.9		12.4		8.4	Jun-15
Athyrium Opp II - Net			5.8		14.8		16.9		11.9		12.4		8.4	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		5.6	Jun-15
Athyrium Opp III - Gross	19,949,008	0.2	6.8		11.3		14.4		6.8				2.5	May-17
Athyrium Opp III - Net			6.8		11.3		14.4		6.8				2.5	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		5.2	May-17
Benefit St Pr Sr Secure Opp - Gross	43,041,471	0.4	4.9		9.2		0.4						3.5	Jan-18
Benefit St Pr Sr Secure Opp - Net			4.9		9.2		0.4						3.5	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		5.0	Jan-18
Benefit St Pr Sr Secure Opp II - Gross	9,124,475	0.1	6.6		22.3		18.6						18.6	Dec-19
Benefit St Pr Sr Secure Opp II - Net			6.6		22.3		18.6						18.6	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		2.8	Dec-19

<sup>+</sup> Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.



<sup>1.</sup> See Policy Index and Benchmark History.

<sup>++</sup> Returns are one-quarter lag.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
MCP Private Capital IV - Gross	1,887,494	0.0	-5.7		-13.7								-13.7	Apr-20
MCP Private Capital IV - Net			-5.7		-13.7								-13.7	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		-0.1	Apr-20
OrbiMed Royalty & Credit Opp III - Gross	10,770,241	0.1	33.1		37.3		31.5						19.4	Sep-19
OrbiMed Royalty & Credit Opp III - Net			33.1		37.3		31.5						19.4	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		3.5	Sep-19
Silver Point Specialty Credit Fund II - Gross	11,075,853	0.1	16.8										16.8	Jul-20
Silver Point Specialty Credit Fund II - Net			16.8										16.8	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		10.3	Jul-20
Summit Credit - Gross	510,776	0.0	2.0		4.0		-5.0		0.2		4.4		5.4	Oct-11
Summit Credit - Net			2.0		4.0		-5.0		0.2		4.4		5.4	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		6.2	Oct-11
Summit Credit II - Gross	23,398,656	0.2	-1.2		-0.4		-5.1		2.8		6.3		4.6	Nov-14
Summit Credit II - Net			-1.2	-	-0.4		-5.1		2.8		6.3		4.6	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		5.4	Nov-14
Summit Credit III - Gross	17,852,638	0.2	3.7	-	8.4		12.4						11.1	Oct-18
Summit Credit III - Net			3.7	-	8.4		12.4						11.1	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		4.3	Oct-18
TCP Direct Lending VIII - Gross	68,160,215	0.6	5.7		15.4		7.7						5.8	Feb-18
TCP Direct Lending VIII - Net			5.7		15.4		7.7						5.8	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag			4.6		15.0		2.8		5.2		6.1		5.1	Feb-18
Growth Oriented Absolute Return - Gross***	261,940,773	2.3	11.3		18.5		10.9		5.6		6.5		5.2	Aug-04
Growth Oriented Absolute Return - Net			11.3		18.5		10.9		5.6		6.5		5.2	
HFRI FoF Composite Index + 1%			8.2		13.1		11.8		5.9		6.2		6.3	Aug-04

<sup>\*\*</sup> Composite reflects net returns from Cliffwater up to March 2017.



<sup>++</sup> Absolute Return managers are ranked in the eVest net of fee universe.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Grosvenor SCARF Growth - Gross	91,066,911	0.8	8.9	39	14.7	39	9.3	68	4.9	65	6.1	46	6.1	Nov-11
Grosvenor SCARF Growth - Net			8.9	39	14.7	39	9.3	68	4.9	65	6.1	46	6.1	
HFRI FoF Composite Index + 1%			8.2	43	13.1	47	11.8	57	5.9	54	6.2	45	5.7	Nov-11
eV Alt Fund of Funds - Multi-Strategy Median			7.4		12.4		13.0		6.4		5.8		6.1	Nov-11
Lakewood - Gross	44,787,025	0.4	17.5	34	19.8	48	-8.7	93	-0.5	85	3.5	81	4.4	Jun-13
Lakewood - Net			17.5	34	19.8	48	-8.7	93	-0.5	85	3.5	81	4.4	
HFRI FoF Composite Index + 1%			8.2	68	13.1	64	11.8	57	5.9	55	6.2	63	5.8	Jun-13
eV Alt Fundamental - Long/Short Equity Median			12.7		18.6		14.8		6.6		8.1		7.1	Jun-13
Sculptor Domestic II - Gross	62,861,633	0.5	6.1	53	12.3	42	18.9	17	10.4	12	9.3	26	8.6	Dec-11
Sculptor Domestic II - Net			6.1	53	12.3	42	18.9	17	10.4	12	9.3	26	8.6	
HFRI FoF Composite Index + 1%			8.2	40	13.1	39	11.8	31	5.9	37	6.2	44	5.7	Dec-11
eV Alt All Multi-Strategy Median			6.3		10.1		6.4		3.6		5.3		5.1	Dec-11
Third Point Offshore Fund - Gross	63,225,204	0.5	16.4	14	30.8	6	22.4	12	8.6	22	9.9	20	10.5	Apr-12
Third Point Offshore Fund - Net			16.4	14	30.8	6	22.4	12	8.6	22	9.9	20	10.5	
HFRI FoF Composite Index + 1%			8.2	44	13.1	44	11.8	29	5.9	39	6.2	41	5.7	Apr-12
eV Alt All Event Driven Median			7.3		11.6		6.6		5.0		5.4		5.4	Apr-12
Diversifying Asset Category - Gross	2,547,367,337	22.1	3.3		5.1		8.2		4.9				4.9	Mar-17
Diversifying Asset Category - Net			3.3		5.0		8.0		4.8				4.8	
Diversifying Custom <sup>1</sup>			2.2		3.6		7.6		4.9				4.8	Mar-17
Core/Core Plus Fixed Income - Gross	1,018,717,947	8.9	2.0		3.6		9.5		6.5		5.7		4.3	Jun-11
Core/Core Plus Fixed Income - Net			2.0		3.5		9.3		6.3		5.5		4.2	
BBgBarc US Aggregate TR			0.7		1.3		7.5		5.3		4.4		3.8	Jun-11
Prudential - Gross	528,964,273	4.6	2.6	3	4.6	4	9.2	29	6.6	10	6.4	4	5.5	Jul-14
Prudential - Net			2.6	4	4.5	4	9.1	35	6.4	16	6.2	4	5.3	
BBgBarc US Aggregate TR			0.7	81	1.3	87	7.5	86	5.3	90	4.4	91	3.9	Jul-14
eV US Core Fixed Inc Gross Median			1.1		2.2		8.6		5.9		5.0		4.4	Jul-14

<sup>1.</sup> See Policy Index and Benchmark History.



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
TCW MetWest Fixed - Gross	489,753,674	4.3	1.4	28	2.6	34	9.7	16	6.5	14	5.3	23	6.1	Dec-01
TCW MetWest Fixed - Net			1.4	31	2.5	38	9.5	21	6.3	21	5.1	41	5.9	
BBgBarc US Aggregate TR			0.7	81	1.3	87	7.5	86	5.3	90	4.4	91	4.6	Dec-01
eV US Core Fixed Inc Gross Median			1.1		2.2		8.6		5.9		5.0		5.2	Dec-01
U.S. Treasury - Gross	497,592,352	4.3	-0.8		-0.6		7.9						6.3	Feb-18
U.S. Treasury - Net			-0.8		-0.6		7.9						6.2	
BBgBarc US Treasury TR			-0.8		-0.7		8.0		5.2		3.8		6.3	Feb-18
Neuberger Berman - Gross⁺	497,592,352	4.3	-0.8	97	-0.6	99	7.9	29	5.2	30	4.4	1	6.5	Jun-88
Neuberger Berman - Net			-0.8	98	-0.6	99	7.9	30	5.1	31	4.4	1	6.4	
BBgBarc US Govt TR			-0.8	99	-0.6	99	7.9	29	5.2	30	3.8	55	5.9	Jun-88
eV US Government Fixed Inc Gross Median			0.0		0.5		6.4		4.8		3.9			Jun-88
Global Fixed Income - Gross	289,470,056	2.5	10.6		14.6		12.2		5.4	-	7.0		4.0	May-13
Global Fixed Income - Net			10.6		14.4		11.7		5.0		6.6		3.6	
Brandywine Custom <sup>1</sup>			4.1		6.7		8.8		4.7		5.2		2.4	May-13
Brandywine Global - Gross	289,470,056	2.5	10.6	6	14.6	10	12.2	21	5.4	55	7.0	30	4.0	May-13
Brandywine Global - Net			10.6	7	14.4	11	11.7	24	5.0	65	6.6	37	3.6	
Brandywine Custom			4.1	58	6.7	65	8.8	50	4.7	74	5.2	69	2.4	May-13
eV All Global Fixed Inc Gross Median			4.6		8.1		8.7		5.6		6.1		4.0	May-13
Diversifying Absolute Return - Gross****	741,586,983	6.4	5.5	-	7.8		4.9		2.0	-	1.9		2.4	Nov-11
Diversifying Absolute Return - Net			5.4		7.7		4.9		1.9		1.9		2.4	
HFRI FoF Conservative Index			5.8		8.6		6.4		3.9		4.5		4.7	Nov-11
AQR DELTA II - Gross	1,721,895	0.0	0.0	88	0.0	88	-20.3	96	-15.2	99	-8.2	98	-2.9	May-13
AQR DELTA II - Net			0.0	88	0.0	88	-20.3	96	-15.2	99	-8.2	98	-2.9	
HFRI FoF Conservative Index			5.8	57	8.6	57	6.4	51	3.9	48	4.5	58	4.7	May-13
eV Alt All Multi-Strategy Median			6.3		10.1		6.4		3.6		5.3		4.3	May-13

<sup>1.</sup> See Policy Index and Benchmark History.

<sup>\*\*</sup> Composite reflects net returns from Cliffwater up to March 2017.



<sup>+</sup> Account converted to U.S. Treasury from Core Fixed Income in February 2018. Reflects linked historical returns up to February 2018.

<sup>++</sup> Absolute Return managers are ranked in the eVest net of fee universe.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Aristeia Partners LP - Gross*	45,000,000	0.4												Dec-20
Aristeia Partners LP - Net				<b></b>										
HFRI FoF Conservative Index			5.8	19	8.6	33	6.4	67	3.9	57	4.5	54	-	Dec-20
eV Alt Relative Value - Multi-Market Arbitrage Median			1.9		3.0		9.1		6.5		6.1			Dec-20
BlackRock Event Driven Equity Fund - Gross	47,837,156	0.4	4.1	71	6.7	69							7.6	Feb-20
BlackRock Event Driven Equity Fund - Net			3.7	72	5.9	70							6.3	
HFRI FoF Conservative Index			5.8	60	8.6	59	6.4	51	3.9	64	4.5	69	6.9	Feb-20
eV Alt All Event Driven Median			7.3		11.6		6.6		5.0		5.4		7.1	Feb-20
Davidson Kempner Instl Partners LP - Gross	50,172,209	0.4	5.0	63	9.6	53	7.2	48					6.2	Apr-19
Davidson Kempner Instl Partners LP - Net			5.0	63	9.6	53	7.2	48					6.2	
HFRI FoF Conservative Index			5.8	57	8.6	57	6.4	51	3.9	48	4.5	58	5.1	Apr-19
eV Alt All Multi-Strategy Median			6.3		10.1		6.4		3.6		5.3		5.8	Apr-19
Elliot Associates - Gross+	65,035,539	0.6	3.3	73	6.4	69	12.6	28	7.1	33	8.4	27	7.8	Apr-12
Elliot Associates - Net			3.3	73	6.4	69	12.6	28	7.1	33	8.4	27	7.8	
HFRI FoF Conservative Index			5.8	60	8.6	59	6.4	51	3.9	64	4.5	69	4.7	Apr-12
eV Alt All Event Driven Median			7.3		11.6		6.6		5.0		5.4		5.4	Apr-12
Graham Global Inv II - Gross	36,381,010	0.3	8.4	30	11.8	28	1.7	65	1.0	65			1.3	Feb-17
Graham Global Inv II - Net			8.4	30	11.8	28	1.7	65	1.0	65			1.3	
HFRI FoF Conservative Index			5.8	48	8.6	43	6.4	49	3.9	49	4.5	39	4.2	Feb-17
eV Alt All Managed Futures Median			5.1		6.9		5.8		3.7		3.5		3.1	Feb-17
Grosvenor SCARF Diversifying - Gross	213,434,912	1.9	5.7	71	9.6	71	10.1	61	4.4	74	2.2	93	2.6	Nov-11
Grosvenor SCARF Diversifying - Net			5.7	71	9.6	71	10.1	61	4.4	74	2.2	93	2.6	
HFRI FoF Conservative Index			5.8	70	8.6	77	6.4	80	3.9	78	4.5	64	4.7	Nov-11
eV Alt Fund of Funds - Multi-Strategy Median			7.4		12.4		13.0		6.4		5.8		6.1	Nov-11

<sup>+</sup> Preliminary quarterly returns as of 12/31/2020 (Market Values estimated based on preliminary performance numbers provided by the manager.)



<sup>\*</sup> Funded December 2020.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Grosvenor SCARF B Diversifying - Gross	2,078,984	0.0	2.4	98	5.2	93	6.7	79	3.0	84	0.4	98	1.6	Jan-13
Grosvenor SCARF B Diversifying - Net			2.4	98	5.2	93	6.7	79	3.0	84	0.4	98	1.6	
HFRI FoF Conservative Index			5.8	70	8.6	77	6.4	80	3.9	78	4.5	64	4.7	Jan-13
eV Alt Fund of Funds - Multi-Strategy Median			7.4		12.4		13.0		6.4		5.8		5.6	Jan-13
KLS Diversified Fund - Gross	37,162,028	0.3	4.4	27	8.5	33	-7.6	95					-3.6	Dec-18
KLS Diversified Fund - Net			4.4	27	8.5	33	-7.6	95					-3.6	
HFRI FoF Conservative Index			5.8	19	8.6	33	6.4	67	3.9	57	4.5	54	6.4	Dec-18
eV Alt Relative Value - Multi-Market Arbitrage Median			1.9		3.0		9.1		6.5		6.1		7.4	Dec-18
Laurion Capital - Gross	62,902,458	0.5	9.8	28	6.8	66	31.8	1	13.5	2	8.9	14	9.0	Mar-14
Laurion Capital - Net			9.8	28	6.8	66	31.8	1	13.5	2	8.9	14	9.0	
HFRI FoF Conservative Index			5.8	48	8.6	61	6.4	71	3.9	68	4.5	79	4.6	Mar-14
eV Alt Relative Value - Equity Relative Value Median			4.2		8.9		8.0		7.2		5.8		6.3	Mar-14
LMR Fund LTD - Gross	43,238,606	0.4	5.8	56	11.5	45	-5.8	85					-3.4	Oct-19
LMR Fund LTD - Net			5.8	56	11.5	45	-5.8	85					-3.4	
HFRI FoF Conservative Index			5.8	57	8.6	57	6.4	51	3.9	48	4.5	58	6.8	Oct-19
eV Alt All Multi-Strategy Median			6.3		10.1		6.4		3.6		5.3		7.4	Oct-19
MW Global Opportunities Fund - Gross	50,573,610	0.4	9.2	63	14.1	62	18.7	42					12.4	Dec-18
MW Global Opportunities Fund - Net			9.2	63	14.1	62	18.7	42					12.4	
HFRI FoF Conservative Index			5.8	75	8.6	81	6.4	69	3.9	65	4.5	76	6.4	Dec-18
eV Alt Fundamental - Long/Short Equity Median			12.7		18.6		14.8		6.6		8.1		14.4	Dec-18
PSquared Event Driven Opp Fund - Gross	45,914,296	0.4	2.1	82									2.0	Jul-20
PSquared Event Driven Opp Fund - Net			2.1	82									2.0	
HFRI FoF Conservative Index			5.8	60	8.6	59	6.4	51	3.9	64	4.5	69	7.0	Jul-20
eV Alt All Event Driven Median			7.3		11.6		6.6		5.0		5.4		8.7	Jul-20
Two Sigma Risk Premia Enhanced - Gross	40,134,279	0.3	5.5	58	3.1	77	-11.2	90					-8.7	Sep-19
Two Sigma Risk Premia Enhanced - Net			5.5	58	3.1	77	-11.2	90					-8.7	
HFRI FoF Conservative Index			5.8	57	8.6	57	6.4	51	3.9	48	4.5	58	6.5	Sep-19
eV Alt All Multi-Strategy Median			6.3		10.1		6.4		3.6		5.3		7.3	Sep-19



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Real Return (with SSgA RA Overlay Proxy) - Gross	1,797,517,328	15.6	3.2	-	5.2	-	-0.7		5.0	-			6.4	Mar-17
Real Return (with SSgA RA Overlay Proxy) - Net			3.1	-	5.1	-	-0.8	-	4.8	-			6.2	
Real Return Custom <sup>1</sup>			2.3		4.0		-0.9		3.0				3.8	Mar-17
Real Return Asset Category - Gross	1,797,517,328	15.6	3.2		5.2		-0.7		5.7			-	7.1	Mar-17
Real Return Asset Category - Net			3.1	-	5.1	-	-0.8	-	5.5	-	-		6.9	
Real Return Custom			2.3		4.0		-0.9		3.0				3.8	Mar-17
Real Estate - Gross	843,865,688	7.3	2.5	5	4.0	4	3.9	4	6.2	5	8.4	2	10.5	Jun-11
Real Estate - Net			2.5	5	3.8	4	3.7	4	5.8	8	8.0	4	9.7	
Real Estate Custom <sup>1</sup>			0.3	75	0.2	76	1.3	14	5.0	21	5.9	40	8.7	Jun-11
InvMetrics All DB Real Estate Priv Net Median			0.8		1.0		0.5		4.4		5.6		8.3	Jun-11
Core RE -Limited Partnership - Gross	634,903,570	5.5	2.5		4.1		3.7		7.3		8.7	-	5.2	Sep-08
Core RE -Limited Partnership - Net			2.4		3.9		3.4		7.0		8.4		4.6	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		5.2	Sep-08
Brookfield Premier RE Partners - Gross⁺	104,013,122	0.9	2.3		1.6		2.1						5.5	Sep-18
Brookfield Premier RE Partners - Net			2.3		1.6		2.1						5.5	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		3.7	Sep-18
Clarion Lion Properties - Gross	116,777,244	1.0	2.0		2.7		2.2						5.1	Sep-18
Clarion Lion Properties - Net			1.8		2.3		1.4						4.3	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		3.7	Sep-18
Metlife Core Property - Gross	64,169,755	0.6	1.4		1.1		1.0		5.7		6.9		9.7	Dec-13
Metlife Core Property - Net			1.3		0.8		0.5		5.2		6.4		9.2	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		8.3	Dec-13
Prime Property - Gross	34,504,882	0.3	1.7		3.0		2.1		6.1		7.7		10.1	Sep-13
Prime Property - Net			1.5		2.6		1.3		5.1		6.6		9.0	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		8.5	Sep-13

<sup>+</sup> Preliminary quarterly returns as of 12/31/2020 (Market Values estimated based on preliminary performance numbers provided by the manager.)



<sup>1.</sup> See Policy Index and Benchmark History.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Principal US Property - Gross	48,855,912	0.4	1.7		1.7		0.6		4.9		6.3		6.7	Oct-15
Principal US Property - Net			1.7		1.7		0.6		4.9		6.3		6.7	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		6.7	Oct-15
Prologis Targeted Euro Logistics - Gross*	61,902,865	0.5	5.8		14.2		14.9		12.4		13.4		12.9	Oct-15
Prologis Targeted Euro Logistics - Net			5.8		14.2		14.9		12.4		13.4		12.9	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		6.7	Oct-15
Prologis Targeted US Logistics - Gross*	84,284,326	0.7	6.8		11.6		10.7		14.1		15.4		15.8	Jul-15
Prologis Targeted US Logistics - Net			6.8		11.6		10.7		14.1		15.4		15.8	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		7.1	Jul-15
Townsend Real Estate - Gross*	120,395,464	1.0	0.0		1.2		0.3		5.4				7.3	Mar-16
Townsend Real Estate - Net			0.0		1.2		0.3		5.4				7.3	
NFI-ODCE			1.3		1.8		1.2		4.9		6.2		6.1	Mar-16
Non-Core RE -Opportunistic - Gross***	152,236,824	1.3	3.8		4.3		2.7		0.8		7.8		17.5	Feb-14
Non-Core RE -Opportunistic - Net			3.8		4.3		2.7		0.8		7.5		16.8	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		8.5	Feb-14
Carlyle China Realty - Gross	8,188,158	0.1	5.1		4.7		5.5		3.5				-2.5	Jun-17
Carlyle China Realty - Net			5.1		4.7		5.5		3.5				-2.5	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		5.0	Jun-17
Carlyle China Rome Logistics - Gross	36,325,307	0.3	5.4		5.2		-2.3		1.1				-1.9	Jun-17
Carlyle China Rome Logistics - Net			5.4		5.2		-2.3		1.1				-1.9	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		5.0	Jun-17
CIM Opportunity VIII - Gross	33,172,434	0.3	-3.0		-10.3		-16.7		-1.8		1.8		2.1	Feb-15
CIM Opportunity VIII - Net			-3.0	-	-10.3	-	-16.7	-	-1.8		1.3		1.1	
NFI-ODCE net +1% 1Q Lag			-1.7	-	-2.8		1.5		5.3		6.3		7.9	Feb-15

<sup>+</sup> Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.



<sup>\*</sup> Preliminary quarterly returns as of 12/31/2020. (Returns are not available at reporting period.)

<sup>++</sup> Returns are one-quarter lag.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Kohlberg Kravis Roberts - Gross	2,701,990	0.0	-8.9		-19.0		-33.1		-32.9		-12.8		1.4	Feb-14
Kohlberg Kravis Roberts - Net			-8.9		-19.0		-33.1		-32.9		-12.8		1.2	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		8.5	Feb-14
NREP Nordic Strat FCP-FIS - Gross	1,395,678	0.0	10.8		19.9		49.6		16.1		21.4		21.9	Dec-14
NREP Nordic Strat FCP-FIS - Net			10.8		19.9		49.6		16.1		21.4		21.9	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		7.7	Dec-14
NREP Nordic Strat II - Gross	30,899,335	0.3	8.7		15.4		20.4		18.7				15.0	Jun-16
NREP Nordic Strat II - Net			8.7		15.4		20.4		18.7				15.0	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3	-	5.8	Jun-16
NREP Nordic Strat III - Gross	23,096,609	0.2	7.5		18.6		33.2						0.6	Jul-18
NREP Nordic Strat III - Net			7.5		18.6		33.2						0.6	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		3.9	Jul-18
NREP Nordic Strat IV - Gross**	1,773,773	0.0	0.2										0.2	Jul-20
NREP Nordic Strat IV - Net			0.2										0.2	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3	-	-2.8	Jul-20
Sculptor Real Estate Fund III - Gross	11,687,959	0.1	4.1		7.1		8.2		16.9		17.7		7.6	Sep-14
Sculptor Real Estate Fund III - Net			4.1		7.1		8.2		16.9		16.2		4.3	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3	-	7.9	Sep-14
Sculptor Real Estate Fund IV - Gross	2,995,581	0.0	-5.6		-19.8								-19.8	Jun-20
Sculptor Real Estate Fund IV - Net			-5.6		-19.8								-19.8	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.3		-2.8	Jun-20
Core RE -Value Added - Gross***	56,725,295	0.5	-0.1		2.1		13.6		9.7		10.1		0.0	Sep-08
Non-Core RE -Value Added - Net			-0.1	-	2.1	-	13.6	-	9.7	-	9.9		-1.1	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		7.1	Sep-08

<sup>+</sup> Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.



<sup>\*\*</sup> Preliminary quarterly returns as of 12/31/2020. (Returns are not available at reporting period.)

<sup>++</sup> Returns are one-quarter lag.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Asana Partners Fund II - Gross*	9,641,483	0.1	-3.6		-9.0		-44.1						-	Apr-19
Asana Partners Fund II - Net			-3.6		-9.0		-44.1						-	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		2.1	Apr-19
ECE Euro Prime Shopping II - Gross	35,437,756	0.3	-1.5		1.5	-	5.7		5.6		12.8		11.7	Jul-15
ECE Euro Prime Shopping II - Net			-1.5		1.5	-	5.7		5.6		11.8		10.9	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		7.3	Jul-15
European RE Debt II - Gross	6,791,912	0.1	5.6		7.9	-	8.5		6.5		6.0		5.3	Nov-13
European RE Debt II - Net			5.6		7.9		8.5		6.5		6.0		5.3	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		8.9	Nov-13
Hammes II - Gross <sup>™</sup>	-304,001	0.0	1.9		6.1		152.5		58.4	-	38.7		38.1	Jul-15
Hammes II - Net			1.9		6.1		152.5		58.4		36.9		35.7	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		7.3	Jul-15
Hammes III - Gross	5,158,145	0.0	3.5		4.0		4.1						-25.6	Oct-18
Hammes III - Net			3.5		4.0		4.1						-25.6	
NFI-ODCE net +1% 1Q Lag			-1.7		-2.8		1.5		5.3		6.4		3.4	Oct-18
Private Real Assets - Gross+++	574,523,152	5.0	1.5		4.2		-7.7		4.7		8.6		3.6	Jan-13
Private Real Assets - Net			1.5		4.2		-7.7		4.7		8.6		3.6	
Private Real Assets Custom <sup>1</sup>			2.4		5.5		-4.3		1.7		4.0		4.7	Jan-13
CPI-U Headline +5%			2.1		4.3		6.4		6.9		6.9		6.5	Jan-13
ACM II - Gross	17,428,329	0.2	-0.5		-4.6		-11.1		-6.6				-7.0	Sep-16
ACM II - Net			-0.5		-4.6		-11.1		-6.6				-7.0	
NCREIF Farmland 1 Qtr Lag			1.0		1.6		3.8		5.3		6.1		5.5	Sep-16

<sup>+</sup> Returns for private markets are shown on a time-weighted basis and may differ substantially from dollar-weighted returns.



<sup>1.</sup> See Policy and Benchmark History .

<sup>\*</sup> Unable to calculate a since inception and 1-Year return due to system limitations when account experienced 2 quarter of negative fund value in 2019.

<sup>\*\*</sup> Liquidating.

<sup>++</sup> Returns are one-quarter lag.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
ArcLight Energy VI - Gross	26,050,885	0.2	-1.9	-	3.6		-26.1 -26.1	-	-2.5		0.4		0.3	Aug-15
ArcLight Energy VI - Net			-1.9 4.2		3.6 7.8		-20.1 6.4		-2.5 8.2		0.4 10.5		0.3 11.2	Aug 15
Cambridge Associates Private Infrastructure 1 Qtr Lag	17 011 012	0.2	3.6		5.9		8.6		11.4		9.3		9.2	Aug-15
Atalaya SMA - Gross	17,811,913	0.2												May-15
Atalaya SMA - Net			3.6		5.9		8.6		11.4		9.3		9.2	M= 45
Cambridge Associates Private Infrastructure 1 Qtr Lag	00.045.400	0.0	4.2		7.8		6.4		8.2		10.5		10.3	May-15
Brookfield Infra III - Gross	30,615,162	0.3	3.0	-	5.4	-	4.2	-	9.5		-		10.8	May-16
Brookfield Infra III - Net			3.0		5.4	-	4.2	-	9.5				10.8	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		10.8	May-16
Brookfield Infra IV - Gross	19,071,251	0.2	8.9		13.3		5.1						3.6	Sep-19
Brookfield Infra IV - Net			8.9		13.3		5.1						3.6	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		6.0	Sep-19
Carlyle Power II - Gross	28,575,719	0.2	4.8	-	10.6	-	-2.3	-	11.8		1.1		1.1	Oct-15
Carlyle Power II - Net			4.8		10.6		-2.3		11.8		1.1		1.1	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		10.5	Oct-15
EnCap Energy IX - Gross	8,521,216	0.1	-4.5		4.9		-52.8		-24.3		-6.3		-10.8	Jan-13
EnCap Energy IX - Net			-4.5		4.9		-52.8		-24.3		-6.3		-10.8	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-2.5	Jan-13
EnCap Energy X - Gross	25,594,180	0.2	-0.4		8.7		-30.1		-7.7		-2.6		-6.4	Apr-15
EnCap Energy X - Net			-0.4		8.7		-30.1		-7.7		-2.6		-6.4	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-4.8	Apr-15
EnCap Flatrock Midstream III - Gross	15,446,966	0.1	-3.4		0.4		-15.4		1.8		16.9		4.1	Jul-14
EnCap Flatrock Midstream III - Net			-3.4		0.4		-15.4		1.8		16.9		4.1	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		9.6	Jul-14
EnCap Flatrock Midstream IV - Gross	9,277,670	0.1	-1.2		3.8		-4.7						-1.7	Feb-18
EnCap Flatrock Midstream IV - Net			-1.2		3.8		-4.7						-1.7	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		8.7	Feb-18



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
EQT Infrastructure Fund IV - Gross EQT Infrastructure Fund IV - Net	20,977,064	0.2	-1.1 -1.1		7.1 7.1		9.8 9.8		 		 		-14.2 -14.2	Jun-19
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		6.6	Jun-19
First Reserve - Gross	21,756,836	0.2	3.5		4.3		-0.7		8.4		19.8		0.2	Dec-14
First Reserve - Net			3.5		4.3		-0.7		8.4		19.8		0.2	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		9.8	Dec-14
IFM Global Infrastructure US LP - Gross	127,360,868	1.1	1.9		3.0		4.1		11.9				11.0	Apr-17
IFM Global Infrastructure US LP - Net			1.9		3.0	-	4.1		11.9				11.0	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		10.8	Apr-17
ISQ Global Infrastructure Fund II - Gross	34,103,326	0.3	5.5		6.3		10.7						11.2	Oct-18
ISQ Global Infrastructure Fund II - Net			5.5		6.3		10.7						11.2	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		7.9	Oct-18
Meridiam Infra N America III - Gross	2,506,432	0.0	-9.2		-18.1		-44.1		-81.6				-82.7	Sep-17
Meridiam Infra N America III - Net			-9.2		-18.1		-44.1		-81.6				-82.7	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		9.1	Sep-17
NGP Royalty Partners - Gross	6,462,853	0.1	-12.3										-12.3	Aug-20
NGP Royalty Partners - Net			-12.3										-12.3	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		5.2	Aug-20
Paine Schwartz Food Chain V - Gross	5,549,896	0.0	11.4		8.1								-20.8	Jan-20
Paine Schwartz Food Chain V - Net			11.4		8.1								-20.8	
NCREIF Farmland 1 Qtr Lag			1.0		1.6		3.8		5.3		6.1		3.8	Jan-20
Pantheon Ventures - Gross	64,443,354	0.6	2.9		4.6		-4.9		4.1		7.6		16.6	Jul-14
Pantheon Ventures - Net			2.9		4.6		-4.9		4.1		7.6		16.6	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		9.6	Jul-14
Quantum Energy VI - Gross	28,190,152	0.2	-0.2		11.9		-17.5		11.6	-	21.1		16.9	Nov-14
Quantum Energy VI - Net			-0.2		11.9		-17.5		11.6		21.1		16.9	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-6.7	Nov-14



	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Quantum Energy VII - Gross	19,235,218	0.2	-1.0		15.7		-19.0	-	-4.0				-7.1	Aug-17
Quantum Energy VII - Net			-1.0		15.7		-19.0		-4.0				-7.1	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-6.9	Aug-17
Tailwater Energy Fund III - Gross	21,844,097	0.2	-4.4		-0.6		-14.4						-6.5	Sep-18
Tailwater Energy Fund III - Net			-4.4		-0.6		-14.4						-6.5	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-13.7	Sep-18
Tailwater Energy IV - Gross	4,320,818	0.0	10.7	-	5.1		-35.6	-					-31.4	Oct-19
Tailwater Energy IV - Net			10.7		5.1		-35.6						-31.4	
Cambridge Associates Private Energy 1 Qtr Lag			1.2		5.2		-20.9		-8.0		-2.9		-20.9	Oct-19
Wastewater Opportunity - Gross	19,378,947	0.2	-0.6		-17.5		-13.6		-4.3		-21.0		-21.0	Dec-15
Wastewater Opportunity - Net			-0.6		-17.5		-13.6		-4.3		-21.0		-21.0	
Cambridge Associates Private Infrastructure 1 Qtr Lag			4.2		7.8		6.4		8.2		10.5		10.5	Dec-15
Liquid Real Return - Gross	379,128,488	3.3	8.9		11.9		2.5						3.8	Jun-19
Liquid Real Return - Net			8.8		11.7		2.1						3.4	
SSgA Real Asset <sup>1</sup>			9.2		12.1		1.0		2.7		5.9		2.9	Jun-19
Brookfield Liquid Real Return - Gross	103,849,105	0.9	8.3		11.1		2.7						4.4	Nov-19
Brookfield Liquid Real Return - Net			8.2		10.8		2.0						3.8	
Brookfield Real Return Custom			7.5		10.9		2.4						4.1	Nov-19
SSgA Passive Real Return Proxy - Gross	275,279,383	2.4	9.2		12.1		1.8		2.9		6.1		1.8	Jan-08
SSgA Passive Real Return Proxy - Net			9.2		12.0		1.5		2.6		5.8		1.6	
SSgA Real Asset			9.2		12.1		1.0		2.7		5.9			Jan-08
Opportunities Asset Category - Gross*++	5,366,068	0.0	3.5		2.2		0.1		3.2		4.9		13.8	Oct-07
Opportunities Asset Category - Net			3.5	-	2.2	-	0.1	-	3.2	-	4.9		13.8	
Policy Index			8.7		14.3		10.7		7.8		9.2		8.1	Oct-07

<sup>++</sup> Returns are one-quarter lag.

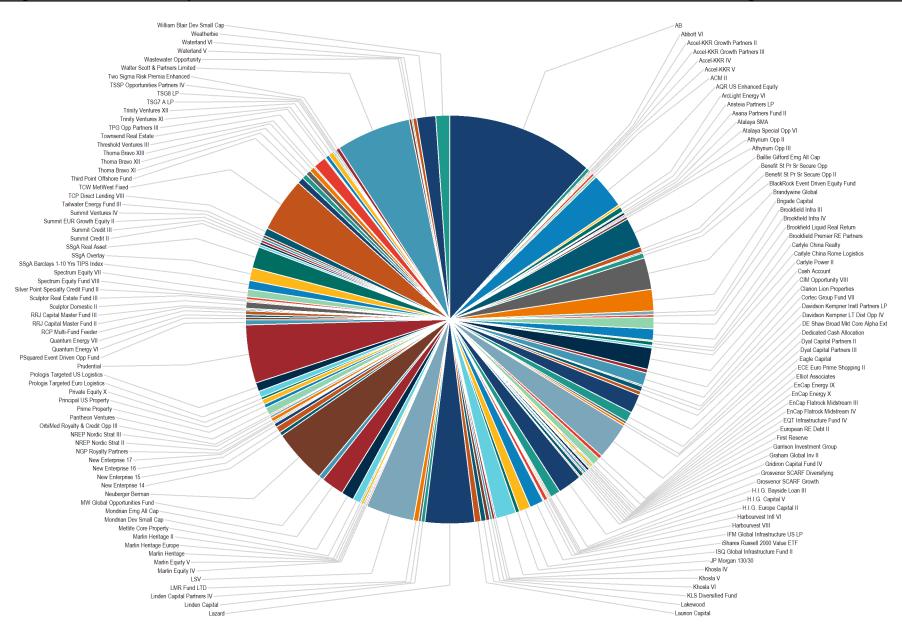


<sup>1.</sup> See Policy and Benchmark History.

<sup>\*</sup> Composite reflects net returns from Cliffwater up to March 2017.

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Atalaya Special Opportunities V - Gross	5,366,068	0.0	3.5		2.2		0.1		3.2		4.7		4.9	Jul-13
Atalaya Special Opportunities V - Net			3.5		2.2		0.1		3.2		4.7		4.9	
Thomson Reuters C A All PE 1 Qtr Lag			9.7		19.5		13.9		12.8		14.3		13.9	Jul-13
Cash - Gross	287,498,430	2.5	0.1		0.6		1.5		1.8		1.9		3.1	Jun-92
Cash - Net			0.1		0.6		1.5	-	1.8	-	1.9		-	
91 Day T-Bills			0.0		0.0		0.5		1.5		1.1		2.4	Jun-92
Cash Account - Gross	191,189,978	1.7	0.1		0.7		2.0		2.0		2.1		3.2	Jun-92
Cash Account - Net			0.1		0.7		2.0	-	2.0		2.1		-	
91 Day T-Bills			0.0		0.0		0.5		1.5		1.1		2.4	Jun-92
Dedicated Cash Allocation - Gross	96,308,452	0.8	0.0		0.0		8.0						0.9	Jun-19
Dedicated Cash Allocation - Net			0.0		0.0		0.8						0.9	
ICE LIBOR Spot/Next Overnight USD			0.0		0.0		0.4		1.5		1.2		0.9	Jun-19







	Current	%
AB	\$1,347,716,086	11.7%
AQR US Enhanced Equity	\$317,203,023	2.8%
JP Morgan 130/30	\$187,040,620	1.6%
DE Shaw Broad Mkt Core Alpha Ext	\$168,835,537	1.5%
Eagle Capital	\$330,642,640	2.9%
Huber Capital	\$20,264	0.0%
Weatherbie	\$175,110,501	1.5%
iShares Russell 2000 Value ETF	\$100,076,607	0.9%
Lazard	\$448,226,800	3.9%
Walter Scott & Partners Limited	\$677,478,682	5.9%
LSV	\$435,334,803	3.8%
Mondrian Dev Small Cap	\$115,856,063	1.0%
William Blair Dev Small Cap	\$124,401,887	1.1%
Baillie Gifford Emg All Cap	\$277,851,770	2.4%
Mondrian Emg All Cap	\$212,551,156	1.8%
CBRE Clarion	\$5,454	0.0%
Abbott VI	\$37,559,664	0.3%
Accel-KKR IV	\$14,078,068	0.1%
Accel-KKR V	\$18,231,233	0.2%
Accel-KKR Growth Partners II	\$10,252,643	0.1%
Accel-KKR Growth Partners III	\$10,236,825	0.1%
Atalaya Special Opp VI	\$12,129,523	0.1%
Canvas Ventures III	\$949,398	0.0%
Cortec Group Fund VII	\$9,253,760	0.1%
Davidson Kempner LT Dist Opp IV	\$32,595,619	0.3%
Davidson Kempner LT Dist Opp V	\$5,309,675	0.0%
Dyal Capital Partners II	\$21,747,698	0.2%
Dyal Capital Partners III	\$19,596,033	0.2%



	Current	%
Garrison Investment Group	\$10,213,627	0.1%
Gridiron Capital Fund IV	\$15,904,788	0.1%
Harbourvest VIII	\$9,994,140	0.1%
Harbourvest Intl VI	\$31,196,811	0.3%
H.I.G. Bayside Loan III	\$6,590,337	0.1%
H.I.G. Capital V	\$15,699,895	0.1%
H.I.G. Europe Capital II	\$12,121,532	0.1%
Khosla IV	\$14,364,611	0.1%
Khosla V	\$25,994,013	0.2%
Khosla VI	\$21,895,243	0.2%
Linden Capital	\$35,855,750	0.3%
Linden Capital Partners IV	\$23,607,249	0.2%
Marlin Equity IV	\$15,355,874	0.1%
Marlin Equity V	\$14,926,649	0.1%
Marlin Heritage	\$8,279,945	0.1%
Marlin Heritage II	\$9,316,592	0.1%
Marlin Heritage Europe	\$19,300,183	0.2%
New Enterprise 14	\$28,864,276	0.3%
New Enterprise 15	\$54,214,581	0.5%
New Enterprise 16	\$35,102,220	0.3%
New Enterprise 17	\$9,642,352	0.1%
OrbiMed Private Investments VIII, LP	\$750,000	0.0%
Private Equity X	\$21,546,799	0.2%
RCP Multi-Fund Feeder	\$31,438,295	0.3%
RRJ Capital Master Fund II	\$11,723,551	0.1%
RRJ Capital Master Fund III	\$10,476,641	0.1%
Shamrock Capital II	\$1,558,864	0.0%
Spectrum Equity VII	\$67,506,943	0.6%



	Current	%
Spectrum Equity Fund VIII	\$21,432,842	0.2%
Spectrum Equity Fund IX	\$1,449,357	0.0%
Summit EUR Growth Equity II	\$23,414,960	0.2%
Summit Ventures III	\$3,386,338	0.0%
Summit Ventures IV	\$28,680,250	0.2%
Thoma Bravo XI	\$47,399,946	0.4%
Thoma Bravo XII	\$40,799,519	0.4%
Thoma Bravo XIII	\$40,438,095	0.4%
Threshold Ventures III	\$6,227,339	0.1%
TPG Opp Partners III	\$14,958,867	0.1%
Trinity Ventures XI	\$35,450,186	0.3%
Trinity Ventures XII	\$44,876,816	0.4%
TSG7 A LP	\$16,821,879	0.1%
TSG7 B LP	\$3,025,336	0.0%
TSG8 LP	\$6,307,628	0.1%
TSSP Opportunities Partners IV	\$13,114,517	0.1%
Waterland V	\$13,573,549	0.1%
Waterland VI	\$32,691,510	0.3%
Wayzata Opportunities III	\$5,181,833	0.0%
Wynnchurch Capital Partners V	\$2,258,826	0.0%
Brigade Capital	\$196,649,479	1.7%
Athyrium Opp II	\$16,430,381	0.1%
Athyrium Opp III	\$19,949,008	0.2%
Benefit St Pr Sr Secure Opp	\$43,041,471	0.4%
Benefit St Pr Sr Secure Opp II	\$9,124,475	0.1%
MCP Private Capital IV	\$1,887,494	0.0%
OrbiMed Royalty & Credit Opp III	\$10,770,241	0.1%
Silver Point Specialty Credit Fund II	\$11,075,853	0.1%



	Current	%
Summit Credit	\$510,776	0.0%
Summit Credit II	\$23,398,656	0.2%
Summit Credit III	\$17,852,638	0.2%
TCP Direct Lending VIII	\$68,160,215	0.6%
Grosvenor SCARF Growth	\$91,066,911	0.8%
Lakewood	\$44,787,025	0.4%
Sculptor Domestic II	\$62,861,633	0.5%
Third Point Offshore Fund	\$63,225,204	0.5%
Prudential	\$528,964,273	4.6%
TCW MetWest Fixed	\$489,753,674	4.3%
Neuberger Berman	\$497,592,352	4.3%
Brandywine Global	\$289,470,056	2.5%
AQR DELTA II	\$1,721,895	0.0%
Aristeia Partners LP	\$45,000,000	0.4%
BlackRock Event Driven Equity Fund	\$47,837,156	0.4%
Davidson Kempner Instl Partners LP	\$50,172,209	0.4%
Elliot Associates	\$65,035,539	0.6%
Graham Global Inv II	\$36,381,010	0.3%
Grosvenor SCARF Diversifying	\$213,434,912	1.9%
Grosvenor SCARF B Diversifying	\$2,078,984	0.0%
KLS Diversified Fund	\$37,162,028	0.3%
Laurion Capital	\$62,902,458	0.5%
LMR Fund LTD	\$43,238,606	0.4%
MW Global Opportunities Fund	\$50,573,610	0.4%
PSquared Event Driven Opp Fund	\$45,914,296	0.4%
Two Sigma Risk Premia Enhanced	\$40,134,279	0.3%
Brookfield Premier RE Partners	\$104,013,122	0.9%
Clarion Lion Properties	\$116,777,244	1.0%



	Current	%
Metlife Core Property	\$64,169,755	0.6%
Prime Property	\$34,504,882	0.3%
Principal US Property	\$48,855,912	0.4%
Prologis Targeted Euro Logistics	\$61,902,865	0.5%
Prologis Targeted US Logistics	\$84,284,326	0.7%
Townsend Real Estate	\$120,395,464	1.0%
Carlyle China Realty	\$8,188,158	0.1%
Carlyle China Rome Logistics	\$36,325,307	0.3%
CIM Opportunity VIII	\$33,172,434	0.3%
Kohlberg Kravis Roberts	\$2,701,990	0.0%
NREP Nordic Strat FCP-FIS	\$1,395,678	0.0%
NREP Nordic Strat II	\$30,899,335	0.3%
NREP Nordic Strat III	\$23,096,609	0.2%
NREP Nordic Strat IV	\$1,773,773	0.0%
Sculptor Real Estate Fund III	\$11,687,959	0.1%
Sculptor Real Estate Fund IV	\$2,995,581	0.0%
Asana Partners Fund II	\$9,641,483	0.1%
ECE Euro Prime Shopping II	\$35,437,756	0.3%
European RE Debt II	\$6,791,912	0.1%
Hammes II	-\$304,001	0.0%
Hammes III	\$5,158,145	0.0%
ACM II	\$17,428,329	0.2%
ArcLight Energy VI	\$26,050,885	0.2%
Atalaya SMA	\$17,811,913	0.2%
Brookfield Infra III	\$30,615,162	0.3%
Brookfield Infra IV	\$19,071,251	0.2%
Carlyle Power II	\$28,575,719	0.2%
EnCap Energy IX	\$8,521,216	0.1%



	Current	%
EnCap Energy X	\$25,594,180	0.2%
EnCap Flatrock Midstream III	\$15,446,966	0.1%
EnCap Flatrock Midstream IV	\$9,277,670	0.1%
EQT Infrastructure Fund IV	\$20,977,064	0.2%
First Reserve	\$21,756,836	0.2%
IFM Global Infrastructure US LP	\$127,360,868	1.1%
ISQ Global Infrastructure Fund II	\$34,103,326	0.3%
Meridiam Infra N America III	\$2,506,432	0.0%
NGP Royalty Partners	\$6,462,853	0.1%
Paine Schwartz Food Chain V	\$5,549,896	0.0%
Pantheon Ventures	\$64,443,354	0.6%
Quantum Energy VI	\$28,190,152	0.2%
Quantum Energy VII	\$19,235,218	0.2%
Tailwater Energy Fund III	\$21,844,097	0.2%
Tailwater Energy IV	\$4,320,818	0.0%
Wastewater Opportunity	\$19,378,947	0.2%
Brookfield Liquid Real Return	\$103,849,105	0.9%
SSgA Barclays 1-10 Yrs TIPS Index	\$82,489,221	0.7%
SSgA Real Asset	\$192,790,162	1.7%
Atalaya Special Opportunities V	\$5,366,068	0.0%
Cash Account	\$191,189,978	1.7%
Dedicated Cash Allocation	\$96,308,452	0.8%
Transition Account	\$0	0.0%
Heitman Adv JMB V	\$8,390	0.0%
SSgA Overlay	\$113,664,961	1.0%
Total	\$11,507,437,362	100.0%



# **Statistics Summary**

### 3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	9.4%	16	8.8%	13	0.9	1	0.7	13	2.4%	83
Policy Index	7.8%	51	8.3%	6	0.8	15			0.0%	1
Total Fund ex Overlay	9.0%	22	8.7%	10	0.9	6	0.5	20	2.5%	84
Policy Index	7.8%	51	8.3%	6	0.8	15			0.0%	1

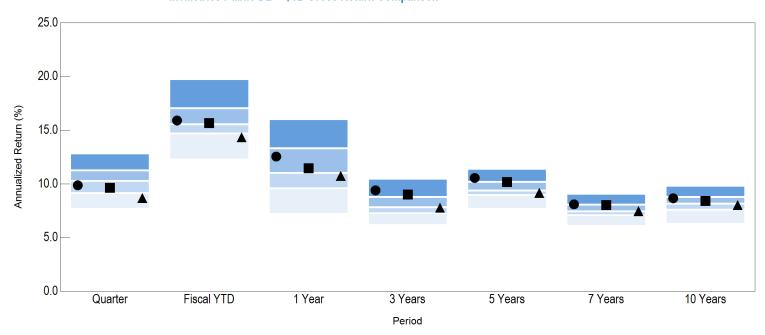
# **Statistics Summary**

## 5 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	10.6%	16	7.4%	16	1.3	3	0.6	15	2.2%	83
Policy Index	9.2%	61	6.8%	4	1.2	10			0.0%	1
Total Fund ex Overlay	10.2%	26	7.2%	9	1.3	5	0.5	20	2.2%	81
Policy Index	9.2%	61	6.8%	4	1.2	10			0.0%	1



#### InvMetrics Public DB > \$1B Gross Return Comparison



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

Total Fund

■ Total Fund ex Overlay

▲ Policy Index

Return (Rai	nk)												
12.8		19.8		16.0		10.5		11.4		9.1		9.8	
11.3		17.1		13.3		8.8		10.2		8.1		8.8	
10.3		15.6		11.1		7.8		9.4		7.5		8.2	
9.2		14.7		9.6		7.3		9.0		7.1		7.6	
7.7		12.3		7.2		6.2		7.7		6.1		6.3	
67		67		67		67		67		65		63	
9.9	(63)	15.9	(48)	12.5	(29)	9.4	(16)	10.6	(16)	8.1	(24)	8.7	(32)
9.6	(70)	15.7	(50)	11.5	(46)	9.0	(22)	10.2	(26)	8.0	(32)	8.4	(40)
8.7	(83)	14.3	(81)	10.7	(57)	7.8	(51)	9.2	(61)	7.5	(49)	8.0	(57)



#### InvMetrics Public DB > \$1B Gross Return Comparison



	Return (Rank)							
5th Percentile	16.0		21.4		0.0		18.8	
25th Percentile	13.3		18.1		-2.6		17.2	
Median	11.1		16.7		-3.7		16.2	
75th Percentile	9.6		15.6		-5.1		14.8	
95th Percentile	7.2		12.5		-6.6		12.4	
# of Portfolios	67		81		71		98	
Total Fund	12.5	(29)	17.3	(40)	-0.8	(7)	16.8	(
Total Fund ex Overlay	11.5	(46)	16.6	(52)	-0.4	(6)	16.7	(
▲ Policy Index	10.7	(57)	14.5	(88)	-1.3	(10)	14.2	(



(38) (39)

(82)

9.7 8.6 8.0 7.4 5.5 92

8.0

7.5

8.4

(46) (73) (34)

#### InvMetrics Public DB > \$1B Gross Return Comparison



	Return (Rank)									
5th Percentile	2.7		8.5		20.2		14.7		3.3	
25th Percentile	1.1		6.8		17.0		13.9		1.6	
Median	0.3		5.7		15.0		13.0		8.0	
75th Percentile	-0.7		4.9		12.0		12.1		0.1	
95th Percentile	-2.8		3.1		8.7		9.2		-0.9	
# of Portfolios	98		79		67		74		68	
Total Fund	-0.9	(83)	5.5	(61)	16.5	(31)	13.7	(36)	0.4	(60)
■ Total Fund ex Overlay	0.3	(51)	5.3	(65)	15.6	(43)	13.6	(41)	-0.3	(86)
▲ Policy Index	0.4	(46)	6.4	(34)	14.0	(64)	13.4	(42)	1.0	(38)



Total Plan Policy Index	As of:									
	7/1/19	7/1/17	4/1/17	1/1/14	1/1/12	1/1/08	2/1/06	9/1/04	1/1/00	7/1/86
91-day UST Bill +5% (AR)			10.0%	10.0%	10.0%	5.0%	5.0%	5.0%		
BBgBarc Aggregate	10.0%	10.0%	10.0%	15.0%	20.0%	20.0%	25.0%	25.0%	30.0%	
BBgBarc US Treasury	5.0%	5.0%	5.0%							
ICE BofA ML High Yield II	1.0%	1.0%	1.0%	1.0%						
Bloomberg Commodity		2.0%	2.0%			5.0%				
Cambridge Associates Private Energy 1 Qtr Lag	2.5%	2.5%								
Cambridge Associates Private Infrastructure 1 Qtr Lag	3.2%	3.2%								
FTSE BIG										23.0%
FTSE WGBI ex US Unhedged	2.4%	2.4%	2.4%	2.4%						
CPI-U +5% (PRA)			7.0%	15.0%	15.0%					
Credit Suisse Leveraged Loans	1.0%	1.0%	1.0%	1.0%						
Credit Suisse Leveraged Loans +2% 1 Qtr Lag	4.0%	4.0%	4.0%							
JPM GBI EM Diversified	0.6%	0.6%	0.6%	0.6%						
HFRI FoF Composite Index + 1%	3.0%	3.0%								
HFRI FoF Conservative Index	7.0%	7.0%								
MSCI ACWI ex US	20.0%	20.0%	20.0%	22.5%	22.5%	20.0%				
MSCI EAFE							15.0%	15.0%	15.0%	15.0%
MSCI Emerging Markets							5.0%	5.0%	5.0%	
NAREIT						3.0%	3.0%			
NFI-ODCE	4.6%	4.6%								
NFI-ODCE net +1% 1Q Lag	2.5%	2.5%								
NCREIF			7.0%			12.0%	12.0%	15.0%	10.0%	15.0%
NCREIF Farmland 1 Qtr Lag	0.7%	0.7%								
NCREIF Timberland Index Lagged	0.7%	0.7%								
Russell 1000							30.0%	30.0%	35.0%	
Russell 1000 +3% 1QL (PE)				10.0%	10.0%					
Russell 2000							5.0%	5.0%	5.0%	
Russell 3000	20.0%	21.0%	21.0%	22.5%	22.5%	30.0%				47.0%
S&P 500 +2% 1QL (PE)						5.0%				
Thomson Reuters C A All PE 1 Qtr Lag	9.0%	9.0%	9.0%							
Bloomberg Roll Select Commodity Total Return	0.2%									
Bloomberg Barclays U.S. Floating Rate Note < 5 Yr	0.2%									
S&P Global LargeMidCap Commodity and Resources	0.2%									
S&P Global Infrastructure Index - Net of Tax on Dividend	0.5%									
Bloomberg Barclays U.S. Government Inflation-Linked 1-10 Yrs	0.6%									
FTSE EPRA Nareit Developed Liquid Index	0.3%									
ICE LIBOR Spot/Next Overnight USD	1.0%									
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



Growth Benchmark	As of:			
	7/1/19	7/1/17	4/1/17	
91 Day T-Bill +5%			5.08%	
ICE BofA ML High Yield II	1.73%	1.70%	1.70%	
Credit Suisse Leveraged Loans	1.73%	1.70%	1.70%	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag	6.90%	6.78%	6.78%	
HFRI FoF Composite Index + 1%	5.17%	5.08%		
MSCI ACWI ex US	34.48%	33.90%	33.90%	
Russell 3000	34.48%	35.59%	35.59%	
Thomson Reuters C A All PE 1 Qtr Lag	15.52%	15.25%	15.25%	
	100.0%	100.0%	100.0%	
US Equity Benchmark	As of:			
	1/1/08	9/1/04	1/1/00	7/1/86
Russell 1000		85.71%	87.5%	
Russell 2000		14.29%	12.5%	
Russell 3000	100.0%			100.0%
	100.0%	100.0%	100.0%	100.0%
Large Cap Active Benchmark	As of:			
Large Cap Active Delicilliark	2/1/19	9/1/08		
Russell 1000 Value	2/1/19	100.0%		
Russell 1000 Value	100.0%	100.0%		
Russell 1000	100.0%	100.0%		
	100.0%	100.0%		
International Equity Benchmark	As of:			
	1/1/08	1/1/00	7/1/86	
MSCI ACWI ex US	100.0%			
MSCI EAFE		75.0%	100.0%	
MSCI Emerging Markets		25.0%		
	100.0%	100.0%	100.0%	
Private Equity Benchmark	As of:			
	4/1/17	1/1/12	1/1/08	
Russell 1000 +3% 1QL		100.0%		
S&P 500 +2% 1QL			100.0%	
Thomson Reuters C A All PE 1 Qtr Lag	100.0%			
	100.0%	100.0%	100.0%	
Public Credit Benchmark	As of:			
	4/1/17			
ICE BofA ML High Yield II	50.0%			
	30.070			
Credit Suisse Leveraged Loans	50.0%			

Private Credit Benchmark	As of:	
One-dit Suisses I suggested I see to 20% 4 Other see	4/1/17	
Credit Suisse Leveraged Loan + 2% 1 Qtr Lag	100.0% 100.0%	
Growth Oriented Absolute Return Benchmark	As of:	
	7/1/17	4/1/1
91-day UST Bill +5%		100.0%
HFRI FoF Composite Index + 1%	100.0%	
	100.0%	100.0%
Diversifying Benchmark	As of:	
2.1.010.1.jg 20.10.1.1.1.1.	7/1/17	4/1/1
91 Day T-Bill +5%		28.09
BBgBarc US Aggregate	40.0%	40.0%
BBgBarc US Treasury	20.0%	20.09
FTSE WGBI ex US Unhedged	9.6%	9.6%
HFRI FoF Conservative Index	28.0%	
JPM GBI EM Diversified	2.4%	2.49
	100.0%	100.0%
Global Fixed Income Benchmark	As of:	
	6/1/13	
FTSE WGBI ex US Unhedged	80.0%	
JPM GBI EM Diversified	20.0%	
	100.0%	
Disconificial About to Datum Boundary	A £	
Diversifying Absolute Return Benchmark	As of: 7/1/17	4/1/1
91-day UST Bill +5%	1/1/1/	100.09
HFRI FoF Conservative Index	100.0%	100.07
THE TOTAL CONSTITUTION	100.0%	100.0%
Real Return Benchmark	As of:	
	4/1/19	4/1/1
Real Estate Benchmark	43.75%	43.75%
Private Real Assets Benchmark	43.75%	43.75%
Bloomberg Commodity	40.500/	12.50%
Liquid Real Return Custom Benchmark	12.50% 100.0%	100.0%
	100.070	100.07
Real Estate Benchmark	As of:	
	7/1/17 71	/2011
NCREIF		100.0%
NFI-ODCE	65.0%	
NFI-ODCE net +1% 1Q Lag	35.0%	
	100.0%	100.0%



RE-Value Added Benchmark	As of:	
	7/1/16	10/1/08
NCREIF +2% 1Q Lag		100.0%
NFI-ODCE net +1% 1Q Lag	100.0%	
	100.0%	100.0%
Private Real Assets Benchmark	As of:	
	7/1/17	4/1/17
CPI-U Headline +5%		100.0%
Cambridge Associates Private Energy 1 Qtr Lag	35.0%	
Cambridge Associates Private Infrastructure 1 Qtr Lag	45.0%	
NCREIF Farmland 1 Qtr Lag	10.0%	
NCREIF Timberland Index Lagged	10.0%	
	100.0%	100.0%
Liquid Real Return Custom Benchmark	As of:	
	7/1/19	
Bloomberg Roll Select Commodity Total Return	10.0%	
Bloomberg Barclays U.S. Floating Rate Note < 5 Yr	10.0%	
S&P Global LargeMidCap Commodity and Resources	10.0%	
S&P Global Infrastructure Index - Net of Tax on Dividend	25.0%	
Bloomberg Barclays U.S. Government Inflation-Linked 1-10 Yrs	30.0%	
FTSE EPRA Nareit Developed Liquid Index	15.0%	
	100.0%	

AllianceBernstein Benchmark	As of:	4/4/00	E/4/00
Russell 1000	<b>1/1/01</b> 100.0%	1/1/98	5/1/89
Russell 3000	100.070	100.0%	
Wilshire 2500		100.070	100.0%
	100.0%	100.0%	100.0%
Eagle Capital Benchmark	As of:		
Lagie Capital Bellommark	2/1/19	9/1/08	
Russell 1000 Value	2/1/10	100.0%	
Russell 1000	100.0%		
	100.0%	100.0%	
Broadwain Broadward	4		
Brandywine Benchmark	As of: 6/1/13		
ETSE WCDL ov US Uphodgod	80.0%		
FTSE WGBI ex US Unhedged JPM GBI EM Diversified	20.0%		
of N OBI EN BIVEISHED	100.0%		
Brigade Benchmark	As of:		
	12/1/13		
ICE BofA ML High Yield II	50.0%		
Credit Suisse Leveraged Loans	50.0%		
	100.0%		
Brookfield Real Return Custom	As of:		
	12/1/2019		
FTSE Global Core Infrastructure 50/50 Index	30.0%		
FTSE EPRA Nareit Developed Index	20.0%		
ICE BofA 7% Constrained REIT Preferred Securities Index	10.0%		
ICE BofA USD Real Asset High Yield Custom Index ICE BofA USD Real Asset Corporate Custom Index	16.0% 24.0%		
ICE BOIA OSD Real Asset Corporate Custom Index	100.0%		
SSgA Real Asset Benchmark	As of:		
DD-Dave LIC Count Inflation Links of 4 40 Von	3/2/2018	10/1/15	2/1/08
BBgBarc US Govt Inflation-Linked 1-10 Yrs BBgBarc US TIPS		10.0% 10.0%	20.0%
BBgBarc 1-10 Yr US TIPS	30.0%	10.0%	20.0%
BBgBarc Roll Select Commodity TR	10.0%	20.0%	
BBgBarc USD Floating Rate Note <5yr		20.070	
	111 (1%		30.0%
DJ US Select REIT	10.0%		30.070
DJ US Select REIT FTSE EPRA/NAREIT Developed Liquid	10.0%	10.0%	30.0%
DJ US Select REIT FTSE EPRA/NAREIT Developed Liquid MSCI World Natural Resources		10.0% 20.0%	
FTSE EPRA/NAREIT Developed Liquid			
FTSE EPRA/NAREIT Developed Liquid MSCI World Natural Resources	15.0%		
FTSE EPRA/NAREIT Developed Liquid MSCI World Natural Resources S&P Global Large Mid Cap Commodity Resources	15.0% 10.0%	20.0%	25.0%
FTSE EPRA/NAREIT Developed Liquid MSCI World Natural Resources S&P Global Large Mid Cap Commodity Resources S&P Global Infrastructure	15.0% 10.0%	20.0%	25.0% 25.0% 25.0%



## 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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