## INVESTMENT PERFORMANCE ANALYSIS FOR PERIOD ENDING DECEMBER 31, 2020



# NEW MEXICO EDUCATIONAL RETIREMENT BOARD

**February 19, 2021** 

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# MARKET ENVIRONMENT UPDATE & OUTLOOK

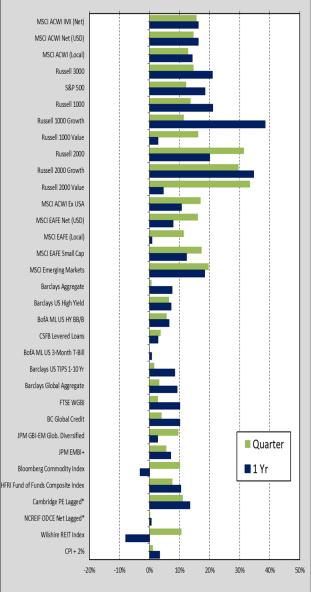
### **ECONOMIC ENVIRONMENT**

- Q4 Real GDP (advanced estimate) grew at a rate of +4.0%. In the third quarter, real GDP grew at an annual rate of +33.4%.
  - Retail sales ended December at +5.5% on a YoY basis. In the same period last year the YoY growth rate was 3.9%.
  - Corporate profits as a percent of GDP increased to 10.0% in Q2, up from 7.98% in Q1 and remain elevated relative to historical levels.
  - The inventory-to-sales ratio ended November down to 1.3 from 1.4 in June. Levels have remained relatively constant since early 2010 with a spike to 1.7 in April 2020.
  - The U.S. trade deficit widened 1.7% (ended October).
- The unemployment rate was 6.7% in Q4, down from 7.8% in Q3 %; U-6, a broader measure of unemployment, decreased to 11.7% in Q4 from 12.8% in Q3.
  - The labor force participation rate ended Q4 at 61.5%, up from 61.4% in Q3 after declining to 60.2% in April and is at levels below the 10 year pre-pandemic average of 63.2%.
- The Case-Shiller Home Price Index (ended November) increased to 232.4 from 226.8 (in September) and remains at levels higher than that of pre-financial crisis levels of 150.9.
- Rolling 12-month seasonally-adjusted CPI saw a down-tick to 1.29% in Q4 from 1.41% in Q3; Capacity Utilization increased to 74.5% in Q4 from 72.3% in Q3.
- Fed Funds rate remains at a targeted range of 0.00%-to-0.25%. The 10-year Treasury Yield (constant maturity) finished Q4 at 0.9%, up from 0.7% in Q3.
- The Fed remains committed to continuing stimulative action as needed to support the US economy. The Fed's balance sheet continues to grow in the wake of the pandemic.
- S&P valuations increased in Q4 to 34.04 from 31.21 in Q3 and is higher than the 10-year average of 26.55x.
  - Cyclically adjusted Shiller PE ratio remains above the long-term average of 16.77x



## MARKET ENVIRONMENT - Q4 2020 OVERVIEW

		Qtr.	<u>1 Yr.</u>	<u>3 Yr.</u>	<u>5 Yr.</u>	<u> 10 Yr.</u>		
World Equity Benchmarks							MSCI ACWI IMI (Net)	
MSCI ACWI IMI (Net)	World with Small Cap	15.70%	16.25%	9.72%	12.15%	9.09%	MSCI ACWI Net (USD)	
MSCI ACWI Net (USD)	World W/O Small Cap	14.68%	16.25%	10.06%	12.26%	9.13%		
MSCI ACWI (Local)	World (Local Currency)	12.83%	14.21%	9.81%	11.52%	10.02%	MSCI ACWI (Local)	
Domestic Equity Benchmarks							Russell 3000	
Russell 3000	Domestic All Cap	14.68%	20.89%	14.49%	15.43%	13.79%	S&P 500	
S&P 500	Large Core	12.15%	18.40%	14.18%	15.22%	13.88%	Russell 1000	
Russell 1000	Large Core	13.69%	20.96%	14.82%	15.60%	14.01%	Russell 1000 Growth	
Russell 1000 Growth	Large Growth	11.39%	38.49%	22.99%	21.00%	17.21%	Russell 1000 Value	
Russell 1000 Value	Large Value	16.25%	2.79%	6.07%	9.74%	10.50%	Russell 2000	
Russell 2000	Small Core	31.37%	19.96%	10.25%	13.26%	11.20%	Russell 2000 Growth	
Russell 2000 Growth	Small Growth	29.61%	34.63%	16.19%	16.36%	13.48%	Russell 2000 Value	
Russell 2000 Value	Small Value	33.36%	4.63%	3.72%	9.65%	8.66%	MSCI ACWI Ex USA	
International Equity Benchmarks								
MSCI ACWI Ex USA	World ex-US	17.01%	10.65%	4.88%	8.93%	4.92%	MSCI EAFE Net (USD)	
MSCI EAFE Net (USD)	Int'i Developed	16.05%	7.82%	4.28%	7.45%	5.51%	MSCI EAFE (Local)	
MSCI EAFE (Local)	Int'l Developed (Local Currency)	11.35%	0.84%	2.98%	5.80%	6.82%	MSCI EAFE Small Cap	
MSCI EAFE Small Cap	Small Cap Int'l	17.27%	12.34%	4.85%	9.40%	7.85%	MSCI Emerging Markets	
MSCI Emerging Markets	Emerging Equity	19.70%	18.31%	6.17%	12.81%	3.63%	Barclays Aggregate	
Domestic Fixed Income Benchmarks							Barclays US High Yield	
Barclays Aggregate	Core Bonds	0.67%	7.51%	5.34%	4.44%	3.84%	BofA ML US HY BB/B	
Barclays US High Yield	High Yield	6.45%	7.11%	6.24%	8.59%	6.80%	CSFB Levered Loans	
BofAML US HY BB/B	High Yield	5.73%	6.45%	6.30%	8.08%	6.65%	BofA ML US 3-Month T-Bill	
CSFB Levered Loans	Bank Loans	3.64%	2.78%	3.99%	5.19%	4.47%	Barclays US TIPS 1-10 Yr	
BofAML US 3-Month T-Bill	Cash	0.03%	0.67%	1.60%	1.20%	0.64%		
Barclays US TIPS 1-10 Yr	Inflation	1.60%	8.39%	4.93%	4.13%	2.88%	Barclays Global Aggregate	
Global Fixed Income Benchmarks							FTSE WGBI	
Barclays Global Aggregate	Global Core Bonds	3.28%	9.20%	4.85%	4.79%	2.83%	BC Global Credit	
FTSE WGBI	World Gov. Bonds	2.77%	10.11%	4.96%	4.78%	2.32%	JPM GBI-EM Glob. Diversified	
BC Global Credit	Global Bonds	4.03%	10.03%	5.67%	5.91%	4.35%	JPM EMBI+	
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	9.62%	2.69%	3.01%	6.72%	1.49%	Bloomberg Commodity Index	
JPM EMBI+	Em. Mkt. Bonds	5.64%	7.05%	4.50%	6.26%	5.64%	HFRI Fund of Funds Composite Index	•
Alternative Benchmarks							Cambridge PE Lagged*	
Bloomberg Commodity Index	Commodities	10.19%	-3.12%	-2.53%	1.03%	-6.50%	NCREIF ODCE Net Lagged*	
HFRI Fund of Funds Composite Index	Fund of Hedge Funds	7.59%	10.34%	4.71%	4.46%	3.27%	Wilshire REIT Index	
Cambridge PE Lagged*	Private Equity	11.04%	13.37%	13.07%	12.96%	13.56%		
NCREIF ODCE Net Lagged*	Real Estate	0.27%	0.51%	4.25%	5.69%	9.26%	CPI + 2%	
Wilshire REIT Index	REIT	10.63%	-7.89%	3.30%	4.25%	8.27%	-209	96 -10%
CPI + 2%	Inflation/Real Assets	1.10%	3.31%	3.87%	3.98%	3.77%		





\* As of 9/30/2020

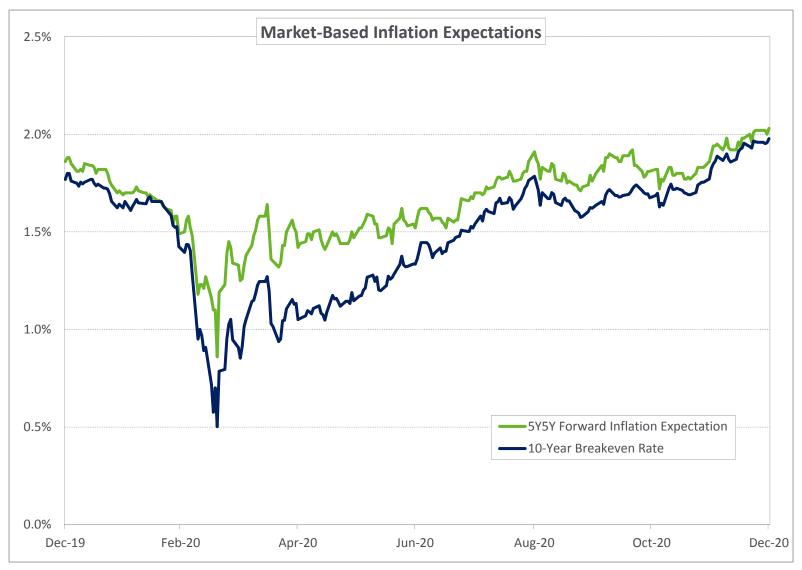
## **THE WORLD ECONOMY SHRANK IN 2020**





Q4 2020 real GDP figure represents IMF forecast for 2020 GDP figures are seasonally adjusted and chained to 2005 dollars Source: IMF, FactSet

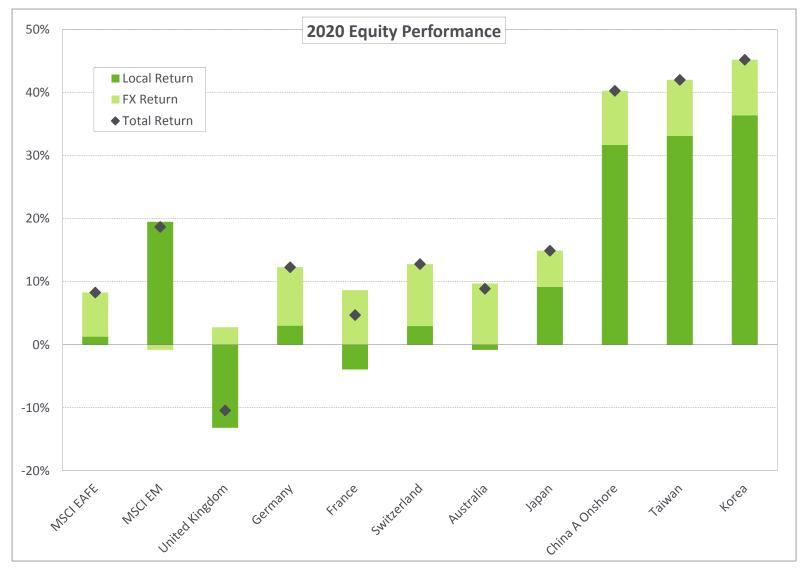
### **INFLATION EXPECTATIONS RECOVERED**







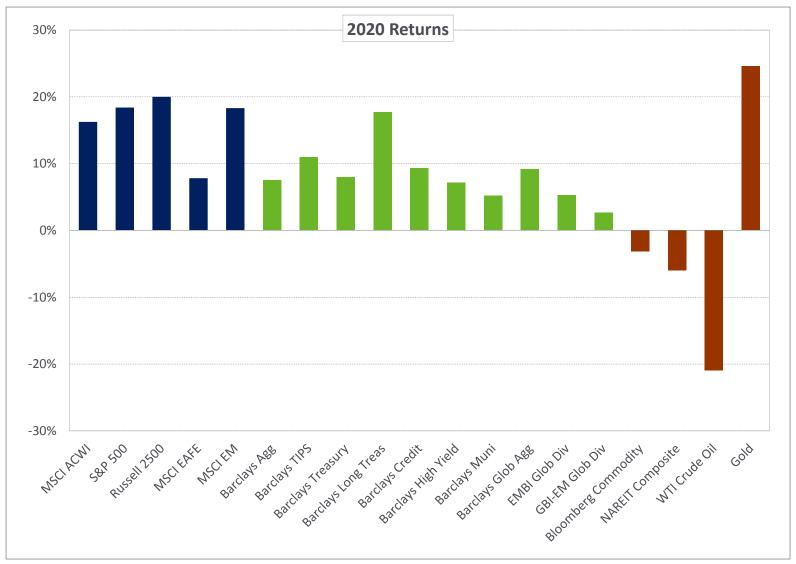
## **DOLLAR WEAKNESS SUPPORTED NON-US EQUITY**







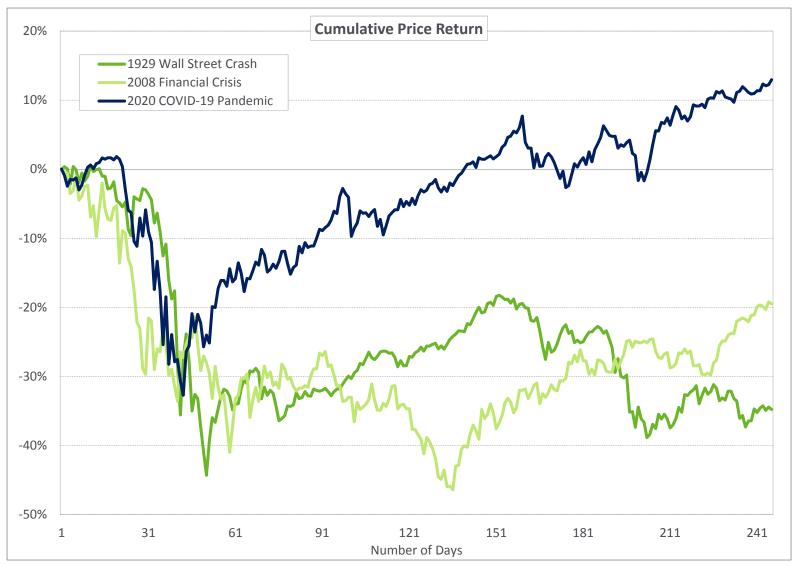
## **US AND EMERGING EQUITIES OUTPERFORMED**







### THE SHORTEST BEAR MARKET IN HISTORY

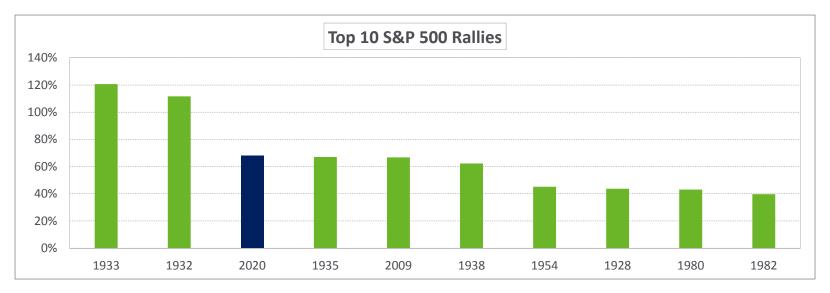


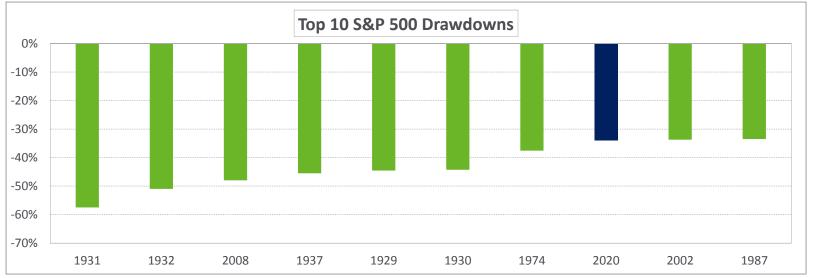


Financial Crisis represents S&P returns from 9/1/2008 – 8/10/2009; Wall Street Crash represents Dow Jones returns from 8/30/1929 – 8/25/1930; COVID-19 represents S&P returns from 1/23/2020 (representing the start of the Wuhan, China lockdown) – 12/31/2020



## THE LARGEST EQUITY SWINGS SINCE 1932



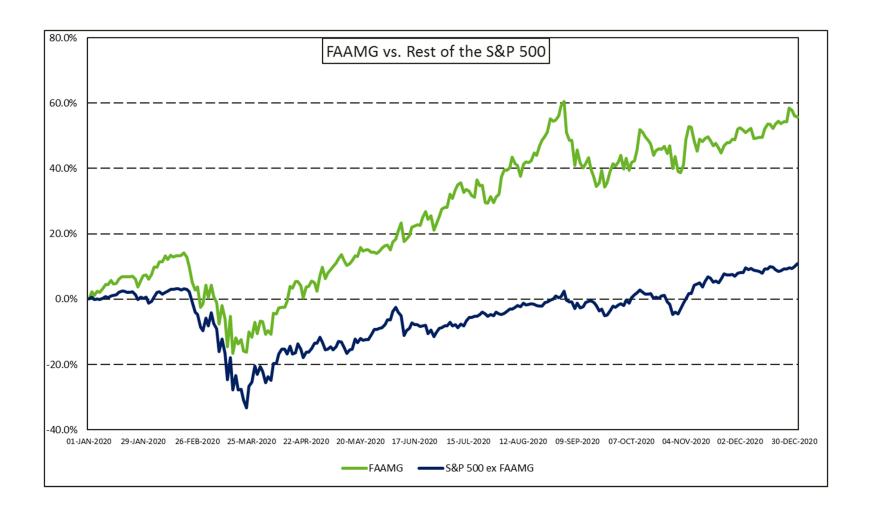


Source: S&P, FactSet

Rallies and drawdowns represent the largest trough-to-peak and peak-to-trough within a calendar year



## FAAMG DROVE US EQUITY RETURNS HIGHER





## **QE PUSHED YIELDS INTO NEGATIVE TERRITORY**

Government Bond Yields	6M	<b>1</b> Y	2Y	3Y	5Y	<b>7</b> Y	10Y	15Y	30Y
Germany	-0.7%	-0.7%	-0.7%	-0.8%	-0.7%	-0.7%	-0.6%	-0.4%	-
Netherlands	-	-0.7%	-0.7%	-0.7%	-0.7%	-0.6%	-0.5%	-0.4%	-0.1%
France	-0.7%	-0.7%	-0.7%	-0.7%	-0.7%	-0.6%	-0.3%	-0.2%	0.4%
Austria	-0.6%	-0.7%	-0.7%	-0.7%	-0.7%	-0.6%	-0.4%	-	0.1%
Switzerland	-	-0.8%	-0.8%	-0.8%	-0.7%	-0.6%	-0.5%	-	-0.3%
Belgium	-	-0.7%	-0.7%	-0.7%	-0.7%	-0.6%	-0.4%	-0.2%	0.3%
Japan	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.2%	0.6%
Finland	-0.7%	-0.7%	-0.7%	-0.7%	-	-0.6%	-	-	
Portugal	-0.9%	-0.8%	-0.7%	-0.5%	-0.4%	-0.2%	0.0%	-	-
Italy	-0.6%	-0.6%	-0.4%	-0.3%	-0.0%	0.2%	0.5%	0.9%	1.4%
United Kingdom	-0.0%	-0.2%	-0.2%	-0.1%	-0.1%	0.0%	0.2%	0.4%	0.7%
Sweden	-0.2%	-	-0.4%	-	-0.2%	-0.2%	0.0%	-	-
Denmark	-	-	-0.6%	-0.6%	-0.6%	-	-0.5%	-	-
Spain	-	~	-0.6%	-0.6%	-0.4%	-0.3%	0.0%	~	0.9%
Australia	-	0.0%	0.1%	0.1%	0.3%	0.6%	1.0%	1.3%	2.0%
Canada	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.7%	-	1.2%
Hong Kong	0.0%	0.1%	0.1%	0.2%	0.3%	0.5%	0.8%	-	-
New Zealand	0.3%	-	0.3%	0.3%	0.4%	0.7%	1.0%	-	-
Norway	0.0%	-	0.3%	-	0.7%	0.7%	0.9%	-	-
Singapore	0.3%	0.4%	0.3%	0.3%	0.5%	0.8%	0.8%	-	1.1%
United States	0.1%	0.1%	0.1%	0.2%	0.4%	0.6%	0.9%	-	1.6%

Source: FactSet



### THIRD PARTY PLACEMENT AGENT DISCLOSURE

The New Mexico Educational Retirement Board Policy Regarding Placement Agent Disclosures requires that quarterly performance reports to the Board include information regarding any third-party marketers that were used by recipients of investments including any fee, commission or retainer paid by the hired fund to the third-party marketer for services rendered. These fees are not paid by NMERB but are paid by the hired funds for marketing services to the third-party.

The following investments were approved by the NMERB Investment Committee during the quarter, with disclosures made under the policy:

#### **Bain Capital Fund XIII**

The investment was approved for a \$50 million commitment on October 15, 2020 as part of the Fund's allocation to Private Equity.

Bain has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, Bain has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### **Edison VII AF**

The investment was approved for a \$20 million commitment on October 15, 2020 as part of the Fund's allocation to Private Equity.

Edison has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, Edison has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### **ILS 1609**

The investment was approved for an additional \$25 million commitment on October 15, 2020 as part of the Fund's allocation to Diversifying Assets.

ILS has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, ILS has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### **Parametric Portfolio Associates**

The portfolio implementation manager was approved on November 19, 2020 to provide the Fund with Overlay services.

Parametric has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, Parametric has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.



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The following investments were approved by the NMERB Investment Committee during the quarter, with disclosures made under the policy:

#### **B Capital Opp Fund I**

The investment was approved for a \$30 million commitment on November 19, 2020 as part of the Fund's allocation to Private Equity.

B Capital has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, B Capital has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### NMERB/Top Tier Venture, SMA II

The investment was approved for a \$100 million commitment on November 19, 2020 as part of the Fund's allocation to Private Equity.

Top Tier has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, Top Tier has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### **Tiverton Agri Finance II**

The investment was approved for a \$50 million commitment on December 7, 2020 as part of the Fund's allocation to Real Assets.

Tiverton has provided documentation confirming First Point was used in connection with NMERB's investment receiving a fee of \$750,000.

Additionally, Tiverton has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.

#### **Edgewood II**

The investment was approved for a \$100 million commitment on December 7, 2020 as part of the Fund's allocation to Real Assets.

Edgewood has provided documentation confirming no placement agent was used in connection with NMERB's investment.

Additionally, Edgewood has completed the ERB Campaign Contribution Disclosure and reports no applicable campaign contributions.



## **TOTAL FUND PERFORMANCE SUMMARY (NET)**

	Market Value	3 Mo F	Rank	Fiscal YTD	Rank	1 Yr F	Rank	3 Yrs	Rank	5 Yrs I	Rank	10 Yrs F	Rank	15 Yrs F	Rank	20 Yrs	Rank	30 Yrs I	Rank	Inception	Inception Date
Total Fund	\$14,179,163,090	8.39%	89	13.41%	92	6.76%	95	7.02%	73	8.64%	73	7.71%	60	6.75%	43	6.03%	60	8.61%	20	9.00%	Jul-83
Policy Index		8.03%	96	13.59%	89	9.98%	66	8.09%	35	9.47%	35	7.74%	58	6.53%	49	6.14%	55	7.67%	85		Jul-83
60% MSCI ACWI (Net) / 40% FTSE WGBI		9.91%	55	16.61%	30	14.53%	11	8.41%	28	9.51%	34	6.61%	93	6.19%	70	5.86%	72	7.29%	93		Jul-83
S&P 500		12.15%	9	22.16%	1	18.40%	1	14.18%	1	15.22%	1	13.88%	1	9.88%	1	7.47%	1	10.70%	1	11.28%	Jul-83
BBgBarc US Aggregate TR		0.67%	99	1.29%	99	7.51%	93	5.34%	97	4.44%	99	3.84%	99	4.49%	99	4.83%	94	5.86%	97	7.03%	Jul-83
InvMetrics Public DB > \$1B Net Median		10.10%		15.49%		10.76%		7.44%		9.00%		7.87%		6.52%		6.22%		8.21%		8.50%	Jul-83

Over the past five years, the Fund returned 8.6% per annum, underperforming the policy index by 83 basis points and ranking in the  $73^{\rm rd}$  percentile of the Investment Metrics Public Funds > \$1 Billion universe and outperforming the actuarial assumed rate of 7.00%. The Fund's volatility was 6.0%, which ranks in the  $5^{\rm th}$  percentile of its peers over this period. The Fund's risk-adjusted performance, as measured by the Sharpe Ratio, ranks in the  $3^{\rm rd}$  percentile of its peers.

Over the past three years, the Fund returned 7.0% per annum, underperforming the policy index by 107 basis points and ranking in the  $73^{\rm rd}$  percentile of its peer group. Over the same period, the Fund's volatility ranks in the  $5^{\rm th}$  percentile of its peers, resulting in a three-year Sharpe Ratio of 0.8, which ranks in the  $11^{\rm th}$  percentile.

For the year ending December 31, 2020, the Fund experienced a net investment gain of \$900.0 million, which includes a net investment gain of \$1.1 billion during the quarter. Assets increased from \$13.8 billion twelve months ago, to \$14.2 billion on December 31, 2020, with \$484.5 million in net distributions during the year. The Fund returned 6.8%, underperforming the policy index by 322 basis points and ranking in the 95th percentile of its peers.

The InvMetrics Public Funds >\$1 Billion Net Universe contains 80 observations for the period ending December 31, 2020, with total assets of \$624 billion.

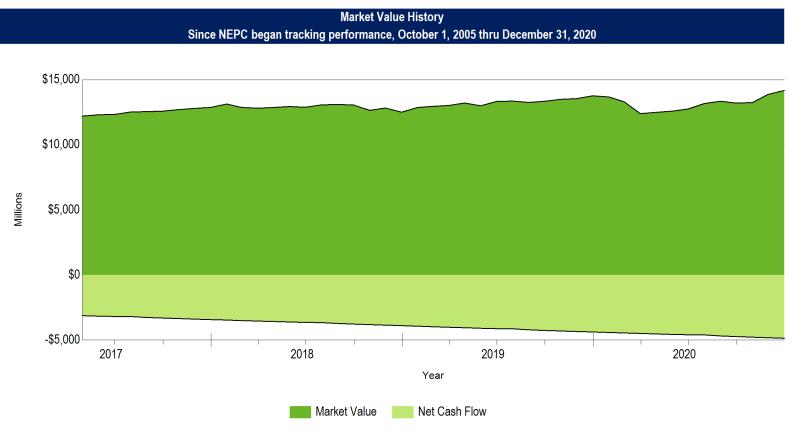


		5 Years	Ending Dece	mber 31, 2	2020			
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Total Fund	8.6%	73	6.0%	5	1.2	3	1.4	9
Policy Index	9.5%	35	6.6%	7	1.3	2	1.5	8
InvMetrics Public DB > \$1B Net Median	9.0%		8.8%		0.9		1.1	

		3 Years	<b>Ending Dece</b>	mber 31, 2	2020			
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Total Fund	7.0%	73	7.2%	5	0.8	11	1.1	17
Policy Index	8.1%	35	7.8%	6	0.8	7	1.2	10
InvMetrics Public DB > \$1B Net Median	7.4%		10.7%		0.6		0.8	



### **TOTAL FUND ASSET GROWTH SUMMARY**



	Last Three Months	Fiscal Year-To-Date	One Year	Three Years	Five Years	Since 10/1/05
Beginning Market Value	\$13,205,854,253	\$12,752,951,878	\$13,763,653,160	\$12,873,637,262	\$11,110,165,969	\$7,694,652,364
Net Cash Flow	-\$132,053,635	-\$271,357,420	-\$484,458,528	-\$1,435,273,532	-\$2,228,347,390	-\$4,852,773,280
Net Investment Change	\$1,105,362,472	\$1,697,568,631	\$899,968,457	\$2,740,799,359	\$5,297,344,510	\$11,337,284,005
Ending Market Value	\$14,179,163,090	\$14,179,163,090	\$14,179,163,090	\$14,179,163,090	\$14,179,163,090	\$14,179,163,090

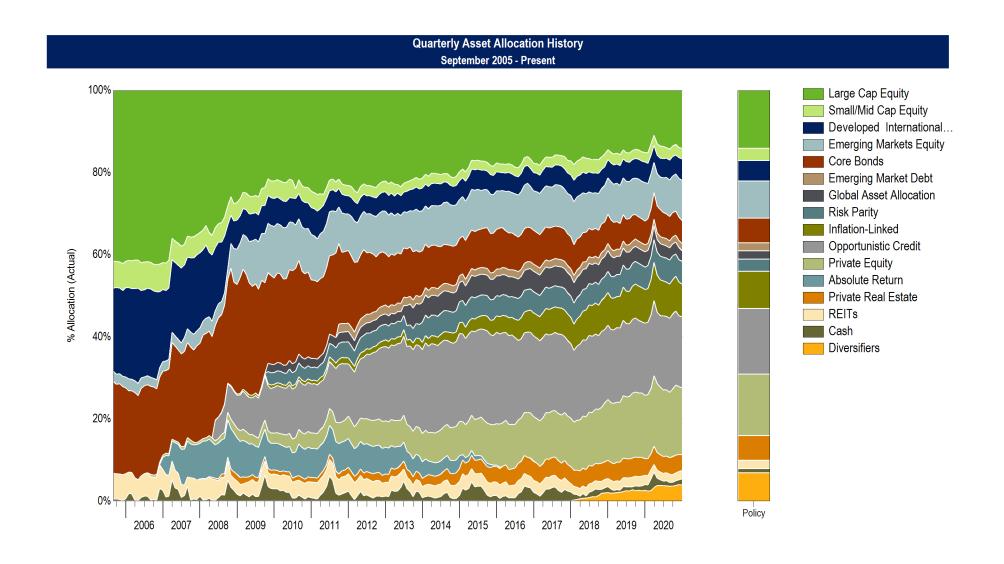


### TOTAL FUND ASSET ALLOCATION VS. POLICY

<u>Current</u> <u>Allocation</u>	<u>Policy</u> <u>Target</u>		Current Mkt Value	Current Allocation	Policy Target <sup>1</sup>	<u>Difference</u>	Policy Range	Within Range
		Equity	\$4,495,033,597	31.7%	31.0%	0.7%	15% - 55%	Yes
		U.S. Equity	\$2,364,325,165	16.7%	17.0%	-0.3%	8% - 30%	Yes
		U.S. Large Cap Equity	\$2,004,380,379	14.1%	14.0%	0.1%	7% - 25%	Yes
		U.S. Small/Mid Cap Equity	\$359,944,786	2.5%	3.0%	-0.5%	0% - 5%	Yes
14.1%	14.0%	Non-U.S. Equity	\$2,130,708,432	15.0%	14.0%	1.0%	5% - 25%	Yes
		Non-U.S. Developed Mkts	\$737,926,140	5.2%	5.0%	0.2%	0% - 10%	Yes
		Non-U.S. Emerging Mkts	\$1,392,782,292	9.8%	9.0%	0.8%	2% - 15%	Yes
2.5%	3.0%	Fixed Income	\$3,499,535,275	24.7%	24.0%	0.7%	10% - 58%	Yes
5.2%	5.0%	Core Fixed Income	\$789,557,366	5.6%	6.0%	-0.4%	0% - 20%	Yes
		Opportunistic Credit	\$2,459,552,134	17.3%	16.0%	1.3%	0% - 30%	Yes
		Emerging Mkts Debt	\$250,425,775	1.8%	2.0%	-0.2%	0% - 8%	Yes
9.8%	9.0%	Alternatives	\$5,971,712,761	42.1%	44.0%	-1.9%	10% - 65%	Yes
		Absolute Return	\$338,175	0.0%	0.0%	0.0%	0% - 10%	Yes
5.6%	6.0%	<del></del>	. ,					
3.0%		Diversifying Assets	\$1,709,323,612	12.1%	12.0%	0.1%		
		Global Asset Allocation	\$367,504,208	2.6%	2.0%	0.6%	0% - 6%	Yes
		Risk Parity	\$783,749,363	5.5%	3.0%	2.5%	0% - 6%	Yes
47.00	16.0%	Other Diversifying Assets	\$558,070,040	3.9%	7.0%	-3.1%	0% - 12%	Yes
17.3%		Real Estate	\$832,830,577	5.9%	8.0%	-2.1%	0% - 15%	Yes
		Real Estate REITs	\$282,792,170	2.0%	2.0%	0.0%	0/0 - 15/0	162
		Private Real Estate	\$550,038,408	3.9%	6.0%	-2.1%		
<del>1</del> :8%	8:8%	Filvale Real Estate	\$550,058, <del>4</del> 08	3.970	0.0%	-2.176		
		Private Equity	\$2,304,829,597	16.3%	15.0%	1.3%	0% - 24%	Yes
12.1%	12.0%	Inflation-Linked Assets	\$1,124,390,800	7.9%	9.0%	-1.1%	0% - 16%	Yes
		Cash	\$212,881,456	1.5%	1.0%	0.5%	-20% - 15%	Yes
5.9%	8.0%	Total	\$14,179,225,790	100.0%	100.0%	0.0%		
16.3%	15.0%	<sup>1</sup> Long-Term Policy Target approved by th Note: Allocations shown here include cash Totals may not add to 100% due to round	n held in separatel	y managed <sub>i</sub>		olio totaling \$6.	2,700.	

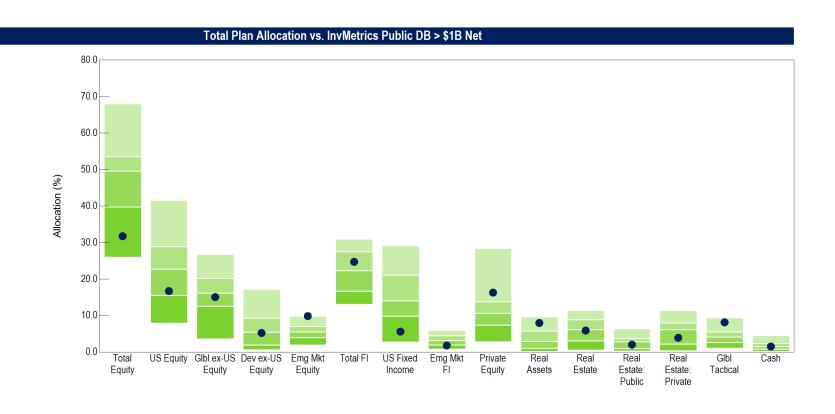


### **TOTAL FUND ASSET ALLOCATION HISTORY**





### TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE



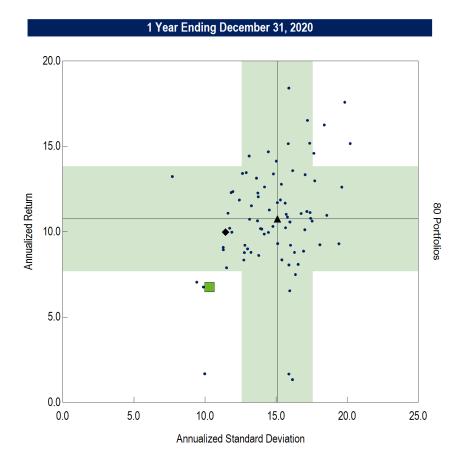
5th Percentile 25th Percentile Median 75th Percentile 95th Percentile # of Portfolios

Total Fund

Alloca	tion (Rank)														
68.0	41.6	26.7	17.1	9.8	31.0	29.1	5.9	28.4	9.6	11.3	6.4	11.4	9.3	4.5	
53.6	28.9	20.2	9.3	7.1	27.5	21.1	4.5	13.8	5.9	8.9	3.8	8.0	5.6	2.4	
49.6	22.8	16.2	5.5	5.6	22.4	14.1	3.2	10.7	3.0	6.2	2.9	6.2	4.2	1.5	
39.8	15.6	12.6	2.0	4.0	16.7	9.9	2.0	7.4	1.1	3.1	1.0	2.2	2.7	8.0	
26.0	7.9	3.6	0.7	2.0	13.1	2.7	8.0	2.8	0.2	0.6	0.3	0.4	1.1	0.2	
58	42	54	29	42	58	41	28	51	31	53	18	47	10	58	
31.7	(85) 16.7	(74) 15.0 (65)	5.2 (51)	9.8	(5) 24.7 (39)	5.6 (90)	1.8 (79)	16.3 (15)	7.9 (11)	5.9 (55)	2.0 (64)	3.9 (67)	8.1 (15)	1.5 (51)	

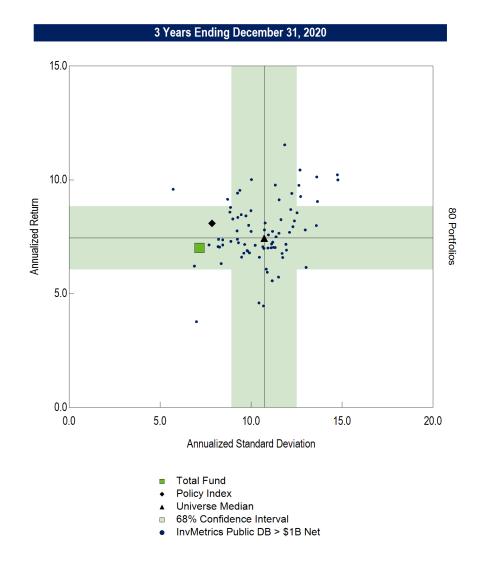


## TOTAL FUND RISK/RETURN





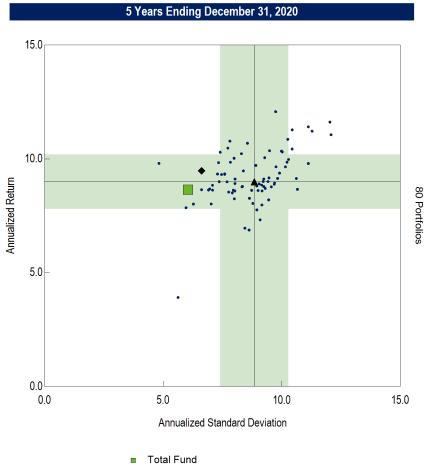
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Net



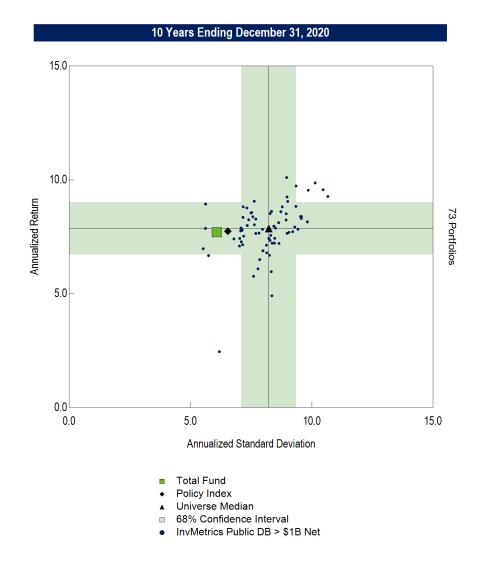
Note: Ranks are based on net returns.



## TOTAL FUND RISK/RETURN



- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Net



Note: Ranks are based on net returns.



Total Fund vs. InvMetrics Public DB > \$1B Net (USD) (peer)
1 Year





Total Fund vs. InvMetrics Public DB > \$1B Net (USD) (peer) 3 Year





Total Fund vs. InvMetrics Public DB > \$1B Net (USD) (peer) 5 Year



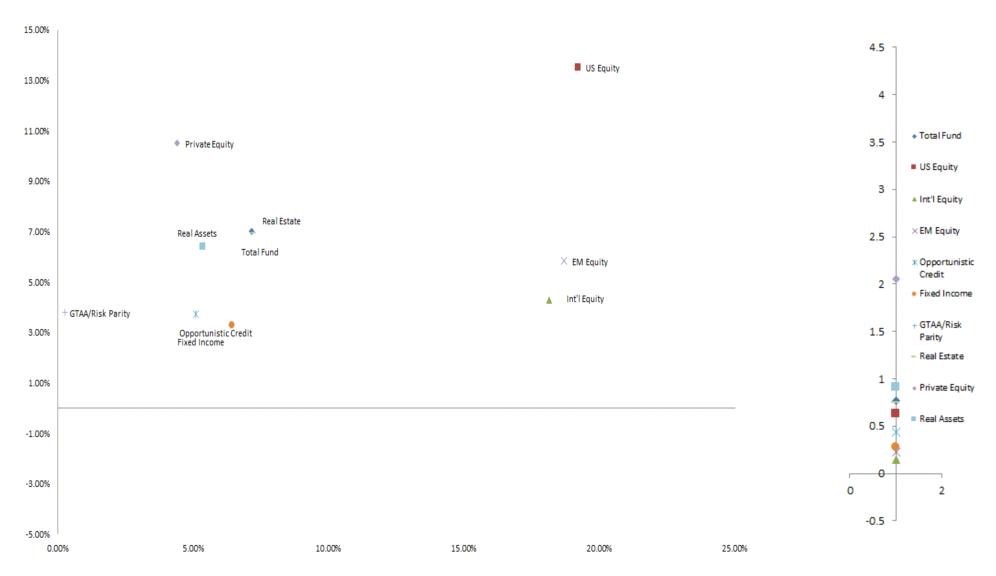


Total Fund vs. InvMetrics Public DB > \$1B Net (USD) (peer) 10 Year





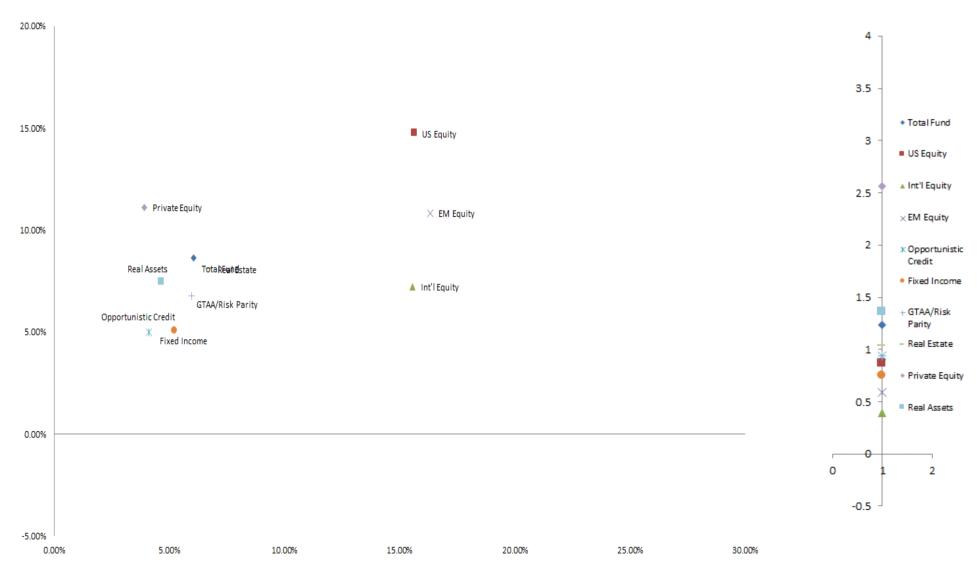
## 3 YEAR RISK/RETURN PROFILE



Note: Returns are net of fees. The graph on the right side shows composite level sharpe ratios.



## **5 YEAR RISK/RETURN PROFILE**

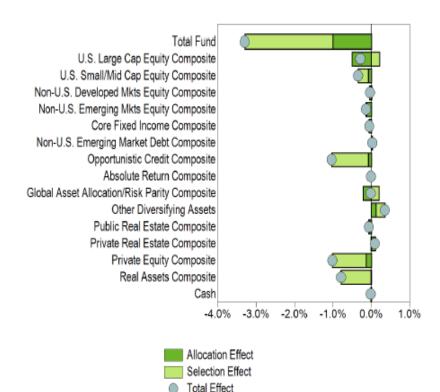


Note: Returns are net of fees. The graph on the right side shows composite level sharpe ratios.



### TOTAL FUND ATTRIBUTION ANALYSIS

## Attribution Effects 1 Year Ending December 31, 2020



#### 1 Year Excess Return: -3.20%

- Allocation Effect: -0.86%
  - Other Diversifying Assets underweight (+0.15%)
  - Private Real Estate underweight (+0.10%)
  - Private Equity underweight (-0.15%)
  - Global Asset Allocation/Risk Parity overweight (-0.20%)
  - U.S. Large Cap Equity underweight (-0.40%)
- Manager Selection Effect: -2.34%
  - U.S. Large Cap Equity outperformed (+0.21%)
  - Other Diversifying Assets outperformed (+0.23%)
  - Global Asset Allocation/Risk Parity outperformed (+0.19%)
  - U.S. Small/Mid Cap Equity underperformed (-0.26%)
  - Real Assets underperformed (-0.78%)
  - Private Equity underperformed (-0.89%)
  - Opportunistic Credit underperformed (-0.98%)
- Residual: 0.00%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

**Allocation Effect:** Measures the impact of the decision to over/under weight asset classes relative to Interim SAAP benchmark weights. (Return Asset Class Index – Total Interim Policy Index Return) × (Weight Asset Class Portfolio – Weight Asset Class Interim Policy Index).

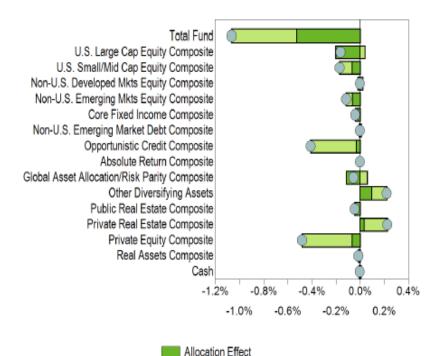
**Manager Selection Effect:** Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. [Weight Asset Class Benchmark × (Return Portfolio Asset Class – Return Asset Class in Interim Policy Index)] + **Interaction Effect:** Measures the impact of over/under weighting decisions and over/under performance. (Return Asset Class Portfolio (Weight Asset Class Portfolio – Weight Asset Class Policy Index)) – (Return Asset Class Index (Weight Asset Class Portfolio – Weight Asset Class Portfolio – Weight Asset Class Portfolio – Weight Asset Class Index)).

Residual: Contribution to excess return not captured in Allocation Effect and Manager Selection Effect.



### **TOTAL FUND ATTRIBUTION ANALYSIS**

## Attribution Effects 3 Years Ending December 31, 2020



Selection Effect Total Effect

#### 3 Year Excess Return: -1.07%

- Allocation Effect: -0.53%
  - Other Diversifying Assets underweight (+0.10%)
  - Non U.S. Emerging Markets Equity overweight (-0.07%)
  - U.S. Small/Mid Cap Equity underweight (-0.07%)
  - Private Equity underweight (-0.07%)
  - Global Asset Allocation/Risk Parity overweight (-0.11%)
  - U.S. Large Cap Equity underweight (-0.20%)
- Manager Selection Effect: -0.54%
  - Private Real Estate outperformed (+0.19%)
  - Other Diversifying Assets outperformed (+0.12%)
  - U.S. Small/Mid Cap Equity underperformed (-0.10%)
  - Opportunistic Credit underperformed (-0.38%)
  - Private Equity underperformed (-0.41%)
- Residual: 0.00%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

**Allocation Effect:** Measures the impact of the decision to over/under weight asset classes relative to Interim SAAP benchmark weights. (Return Asset Class Index – Total Interim Policy Index Return) × (Weight Asset Class Portfolio – Weight Asset Class Interim Policy Index).

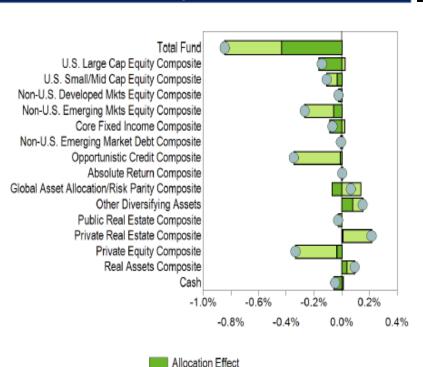
**Manager Selection Effect:** Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. [Weight Asset Class Benchmark × (Return Portfolio Asset Class – Return Asset Class in Interim Policy Index)] + **Interaction Effect:** Measures the impact of over/under weighting decisions and over/under performance. (Return Asset Class Portfolio (Weight Asset Class Portfolio – Weight Asset Class Policy Index)) – (Return Asset Class Index (Weight Asset Class Portfolio – Weight Asset Class Portfolio – Weight Asset Class Portfolio – Weight Asset Class Index)).

Residual: Contribution to excess return not captured in Allocation Effect and Manager Selection Effect.



### **TOTAL FUND ATTRIBUTION ANALYSIS**

## Attribution Effects 5 Years Ending December 31, 2020



Selection Effect

Total Effect

#### 5 Year Excess Return: -0.83%

- Allocation Effect: -0.42%
  - Other Diversifying Assets underweight (+0.08%)
  - Cash overweight (-0.06%)
  - Non-U.S. Emerging Mkts Equity underweight (-0.06%)
  - Global Asset Allocation/Risk Parity overweight (-0.07%)
  - Core Fixed Income overweight (-0.09%)
  - U.S. Large Cap Equity underweight (-0.14%)
- Manager Selection Effect: -0.41%
  - Private Real Estate outperformed (+0.20%)
  - Global Asset Allocation/Risk Parity outperformed (+0.14%)
  - Non U.S. Emerging Mkts Equity underperformed (-0.20%)
  - Private Equity underperformed (-0.30%)
  - Opportunistic Credit underperformed (-0.34%)
- Residual: 0.00%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

**Allocation Effect:** Measures the impact of the decision to over/under weight asset classes relative to Interim SAAP benchmark weights. (Return Asset Class Index – Total Interim Policy Index Return) × (Weight Asset Class Portfolio – Weight Asset Class Interim Policy Index).

**Manager Selection Effect:** Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. [Weight Asset Class Benchmark × (Return Portfolio Asset Class – Return Asset Class in Interim Policy Index)] + **Interaction Effect:** Measures the impact of over/under weighting decisions and over/under performance. (Return Asset Class Portfolio (Weight Asset Class Portfolio – Weight Asset Class Policy Index))–(Return Asset Class Index (Weight Asset Class Portfolio – Weight Asse

Residual: Contribution to excess return not captured in Allocation Effect and Manager Selection Effect.



### **TOTAL FUND RISK STATISTICS**

				3 Years	Ending Dec	ember 31, 2020						
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
U.S. Large Cap Equity Composite	14.1%	14.6%	14	18.5%	2	0.6%	11	0.6%	4	0.7	8	1.0
S&P 500	-	14.2%	19	18.8%	5	0.0%	17	0.0%	1	-		1.0
U.S. Small/Mid Cap Equity Composite	2.5%	7.7%	99	24.0%	98	-3.3%	79	3.2%	76	-1.2	-	1.0
NMERB Small/Mid Cap Equity Blended Index		11.3%	87	24.6%	99	0.0%	17	0.0%	1	-	-	1.0
Non-U.S. Developed Mkts Equity Composite	5.2%	4.6%	75	18.5%	58	0.3%	74	1.0%	7	0.3	74	1.0
MSCI EAFE	-	4.3%	80	18.1%	36	0.0%	82	0.0%	1			1.0
Non-U.S. Emerging Mkts Equity Composite	9.8%	5.8%	32	18.7%	8	0.0%	16	3.1%	27	-0.1		0.9
MSCI Emerging Markets	-	6.2%	17	19.9%	60	0.0%	16	0.0%	1			1.0
Core Fixed Income Composite	5.6%	5.0%	70	4.2%	53	-0.8%	99	1.7%	44	-0.2	-	1.1
BBgBarc US Aggregate TR	-	5.3%	62	3.4%	11	0.0%	79	0.0%	1	-		1.0
Non-U.S. Emerging Market Debt Composite	1.8%	3.5%	45	11.6%	38	-0.6%	24	2.6%	36	-0.2		1.0
Non-U.S. EMD Custom Benchmark	-	4.1%	39	11.1%	33	0.0%	10	0.0%	1	-		1.0
Opportunistic Credit Composite	17.3%	3.3%		6.5%		0.7%		8.4%		-0.2		0.3
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index		5.1%		8.6%	-	0.0%		0.0%	-		-	1.0
Global Asset Allocation/Risk Parity Composite	8.1%	4.6%		9.0%		19.9%		9.1%		0.1		-7.2
GAA/Risk Parity Custom Index		3.8%		0.3%		0.0%	-	0.0%			-	1.0

		3 Years End	ing December 31, 202	20			
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank
Real Estate Composite	5.9%	6.9%	1	7.2%	99	5.6%	1
NCREIF Property Index	-	4.9%	57	2.5%	28	0.0%	67
Private Equity Composite	16.3%	10.5%	62	4.4%	1	8.6%	38
ILPA Private Markets Benchmark (1 Qtr Lag)	-	12.4%	51	10.9%	85	0.0%	80
Real Assets Composite	7.9%	6.4%	17	5.4%	34	-1.3%	77
CPI + 4% (Seasonally Adjusted)	-	5.9%	21	0.8%	1	0.0%	67

<sup>1 -</sup> Performance for Equity, Fixed Income, and Emerging Mkt Debt, Opportunistic Credit and GAA/Risk Parity composites are net of fees.

Note: Percent of Total equals 94.5% because Absolute Return Composite, Diversifying Assets Composite, and Cash Composite are not included.



### **TOTAL FUND RISK STATISTICS**

				5 Years	Ending Dec	ember 31, 2020						
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
U.S. Large Cap Equity Composite	14.1%	15.4%	19	15.0%	2	0.4%	7	0.5%	3	0.5	6	1.0
S&P 500	-	15.2%	22	15.3%	3	0.0%	16	0.0%	1			1.0
U.S. Small/Mid Cap Equity Composite	2.5%	10.8%	98	19.8%	98	-2.4%	73	3.4%	84	-0.8		1.0
NMERB Small/Mid Cap Equity Blended Index	-	13.6%	73	20.3%	98	0.0%	16	0.0%	1			1.0
Non-U.S. Developed Mkts Equity Composite	5.2%	7.2%	87	15.6%	42	-0.3%	81	1.1%	7	-0.2		1.0
MSCI EAFE	-	7.4%	85	15.4%	30	0.0%	71	0.0%	1	-		1.0
Non-U.S. Emerging Mkts Equity Composite	9.8%	10.8%	42	16.3%	3	-1.0%	30	3.0%	24	-0.7	-	0.9
MSCI Emerging Markets	-	12.8%	14	17.6%	52	0.0%	13	0.0%	1			1.0
Core Fixed Income Composite	5.6%	4.6%	78	3.7%	54	-0.1%	96	1.4%	41	0.1	82	1.1
BBgBarc US Aggregate TR	-	4.4%	92	3.2%	13	0.0%	94	0.0%	1			1.0
Non-U.S. Emerging Market Debt Composite	1.8%	6.6%	42	9.6%	42	-0.1%	20	2.7%	60	-0.2		0.9
Non-U.S. EMD Custom Benchmark	-	7.0%	33	9.9%	44	0.0%	20	0.0%	1	-		1.0
Opportunistic Credit Composite	17.3%	5.1%		5.2%		2.2%		6.7%		-0.2		0.3
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index	-	6.6%		6.9%		0.0%	-	0.0%				1.0
Global Asset Allocation/Risk Parity Composite	8.1%	6.6%		7.4%		3.2%		7.5%		0.0		0.4
GAA/Risk Parity Custom Index		6.5%	-	3.7%		0.0%		0.0%				1.0

5 Years Ending December 31, 2020														
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank							
Real Estate Composite	5.9%	8.1%	6	6.7%	99	5.3%	6							
NCREIF Property Index	-	5.9%	56	2.7%	41	0.0%	71							
Private Equity Composite	16.3%	11.1%	54	3.9%	1	10.0%	40							
ILPA Private Markets Benchmark (1 Qtr Lag)	-	12.2%	43	9.1%	80	0.0%	76							
Real Assets Composite	7.9%	7.5%	5	4.6%	15	0.6%	74							
CPI + 4% (Seasonally Adjusted)	-	6.0%	21	0.8%	1	0.0%	88							

<sup>1 -</sup> Performance for Equity, Fixed Income, and Emerging Mkt Debt, Opportunistic Credit and GAA/Risk Parity composites are net of fees.

Note: Percent of Total equals 94.5% because Absolute Return Composite, Diversifying Assets Composite, and Cash Composite are not included.



## PERFORMANCE DETAIL - TOTAL FUND & U.S. EQUITY

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fund	14,179,163,090	100.0	8.4	89	13.4	92	6.8	95	7.0	73	8.6	73	7.7	60	9.0	Jul-83
Policy Index			<u>8.0</u>	96	<u>13.6</u>	89	<u>10.0</u>	66	<u>8.1</u>	35	<u>9.5</u>	35	<u>7.7</u>	58		Jul-83
Over/Under			0.4		-0.2		-3.2		-1.1		-0.9		0.0			
60% MSCI ACWI (Net) / 40% FTSE WGBI			9.9	55	16.6	30	14.5	11	8.4	28	9.5	34	6.6	93		Jul-83
S&P 500			12.1	9	22.2	1	18.4	1	14.2	1	15.2	1	13.9	1	11.3	Jul-83
BBgBarc US Aggregate TR			0.7	99	1.3	99	7.5	93	5.3	97	4.4	99	3.8	99	7.0	Jul-83
InvMetrics Public DB > \$1B Net Median			10.1		15.5		10.8		7.4		9.0		7.9		8.5	Jul-83
U.S. Equity Composite	2,364,325,165	16.7	14.0	93	23.3	91	18.5	60	13.5	46	14.7	52	13.5	29	11.6	Jan-85
Russell 3000			<u>14.7</u>	81	<u>25.2</u>	53	<u>20.9</u>	19	<u>14.5</u>	16	<u>15.4</u>	19	<u>13.8</u>	12	<u>11.5</u>	Jan-85
Over/Under			-0.7		-1.9		-2.4		-1.0		-0.7		-0.3		0.1	
InvMetrics Public DB > \$1 Billion US Equity Net Median			16.1		25.5		18.9		13.3		14.8		13.1			Jan-85
U.S. Large Cap Equity Composite	2,004,380,379	14.1	12.3	99	22.2	96	20.3	29	14.6	14	15.4	19	14.0	8	7.6	Aug-99
S&P 500			<u>12.1</u>	99	<u>22.2</u>	96	<u>18.4</u>	62	<u>14.2</u>	19	<u>15.2</u>	22	<u>13.9</u>	11	<u>7.0</u>	Aug-99
Over/Under			0.2		0.0		1.9		0.4		0.2		0.1		0.6	
InvMetrics Public DB > \$1 Billion US Equity Net Median			16.1		25.5		18.9		13.3		14.8		13.1		7.3	Aug-99
S&P 500 Index Fund	2,004,380,379	14.1	12.3	38	22.2	35	20.3	22	14.6	16	15.4	12	14.0	13	6.6	Jan-00
S&P 500			<u>12.1</u>	41	<u>22.2</u>	36	<u>18.4</u>	29	<u>14.2</u>	19	<u>15.2</u>	13	<u>13.9</u>	14	<u>6.6</u>	Jan-00
Over/Under			0.2		0.0		1.9		0.4		0.2		0.1		0.0	
eV US Large Cap Core Equity Net Median			11.6		20.6		14.1		11.5		13.2		12.7		7.6	Jan-00
U.S. Small/Mid Cap Equity Composite	359,944,786	2.5	23.8	2	29.5	4	9.4	98	7.7	99	10.8	98	10.3	98	7.7	Aug-99
NMERB Small/Mid Cap Equity Blended Index			<u>27.4</u>	1	<u>34.9</u>	2	<u>20.0</u>	30	<u>11.3</u>	87	<u>13.6</u>	73	<u>11.7</u>	84	<u>8.9</u>	Aug-99
Over/Under			-3.6		-5.4		-10.6		-3.6		-2.8		-1.4		-1.2	
InvMetrics Public DB > \$1 Billion US Equity Net Median			16.1		25.5		18.9		13.3		14.8		13.1		7.3	Aug-99

Note: Performance shown is net of fees. Fiscal year ends June 30.

<sup>1 -</sup> U.S. Small/Mid Cap Equity Composite includes the performance history of the U.S. Small Cap Equity Composite through November 2011.

<sup>2 -</sup> NMERB Small/Mid Cap Equity Blended Benchmark is the Russell 2000 Index through November 2011 and the Russell 2500 Index from December 2011 - forward.

<sup>3 -</sup> Total Fund market value includes \$62,700 from Legacy Assets.

## **PERFORMANCE DETAIL - NON-U.S. EQUITY**

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
S&P 400 Mid-Cap	359,944,786	2.5	23.8	16	29.5	43	9.4	61	7.7	62					8.7	Nov-17
Russell 2500 Over/Under			<u>27.4</u> -3.6	6	<u>34.9</u> -5.4	13	<u>20.0</u> -10.6	46	<u>11.3</u> -3.6	50	<u>13.6</u>	47	<u>12.0</u>	51	<u>12.0</u> -3.3	Nov-17
eV US Mid Cap Equity Net Median			19.7		28.8		16.7		11.2		12.8		12.0		12.0	Nov-17
Non-U.S. Equity Composite	2,130,645,731	15.0	18.1	34	27.1	31	14.5	28	5.4	55	9.6	52	3.3	99	6.7	Jul-95
MSCI ACWI ex USA Over/Under			<u>17.0</u> 1.1	56	<u>24.3</u> 2.8	80	<u>10.7</u> 3.8	67	<u>4.9</u> 0.5	71	<u>8.9</u> 0.7	75	<u>4.9</u> -1.6	94	<u>5.7</u> 1.0	Jul-95
InvMetrics Public DB > \$1 Billion Global ex-US Equity Net Median			17.3		26.0		13.3		5.5		9.7		5.7		6.3	Jul-95
Non-U.S. Developed Mkts Equity Composite	737,863,439	5.2	16.4	44	22.9	82	7.9	88	4.6	75	7.2	87	5.2	85	6.2	Sep-95
MSCI EAFE Over/Under			<u>16.0</u> 0.4	72	<u>21.6</u> 1.3	93	<u>7.8</u> 0.1	88	<u>4.3</u> 0.3	80	<u>7.4</u> -0.2	85	<u>5.5</u> -0.3	75	<u>5.2</u> 1.0	Sep-95
InvMetrics Public DB > \$1 Billion Dev Mkt ex-US Eq Net Median			16.4		24.3		12.0		6.0		9.2		7.2		6.2	Sep-95
BlackRock MSCI EAFE	595,873,904	4.2	16.2	35	21.8	61	8.2	48	4.6	46	7.8	47			6.1	Aug-13
MSCI EAFE Over/Under			<u>16.0</u> 0.2	37	<u>21.6</u> 0.2	64	<u>7.8</u> 0.4	53	<u>4.3</u> 0.3	52	<u>7.4</u> 0.4	54	<u>5.5</u>	73	<u>5.7</u> 0.4	Aug-13
eV All EAFE Equity Net Median			15.0		23.4		8.0		4.4		7.6		6.4		6.4	Aug-13

Note: Performance shown is net of fees. Fiscal year ends June 30.



## PERFORMANCE DETAIL - EMERGING MARKET EQUITY

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Global Alpha International Small Cap	141,989,535	1.0	17.4	25	27.9	21	6.8	59			-				10.6	Dec-19
MSCI EAFE			<u>16.0</u>	37	<u>21.6</u>	64	<u>7.8</u>	53	<u>4.3</u>	52	<u>7.4</u>	54	<u>5.5</u>	73	<u>10.4</u>	Dec-19
Over/Under			1.4		6.3		-1.0								0.2	
MSCI EAFE Small Cap			17.3	26	29.3	15	12.3	31	4.9	42	9.4	27	7.8	26	15.8	Dec-19
eV All EAFE Equity Net Median			15.0		23.4		8.0		4.4		7.6		6.4		10.8	Dec-19
Non-U.S. Emerging Mkts Equity Composite	1,392,782,292	9.8	19.0	58	29.4	58	18.2	22	5.8	32	10.8	42	2.3	67	7.1	Sep-00
MSCI Emerging Markets			<u>19.7</u>	37	<u>31.1</u>	37	<u>18.3</u>	21	<u>6.2</u>	17	<u>12.8</u>	14	<u>3.6</u>	11	<u>8.2</u>	Sep-00
Over/Under			-0.7		-1.7		-0.1		-0.4		-2.0		-1.3		-1.1	
InvMetrics Public DB > \$1 Billion Emg Mkt Eq Net Median			19.4		29.6		15.9		4.9		10.6		2.6		7.1	Sep-00
Neuberger Berman Emerging Markets	471,727,667	3.3	16.6	85	25.8	87	13.5	70	3.7	71	11.7	57			6.6	Aug-13
MSCI Emerging Markets			<u>19.7</u>	53	<u>31.1</u>	52	<u>18.3</u>	49	<u>6.2</u>	46	<u>12.8</u>	44	<u>3.6</u>	58	<u>6.7</u>	Aug-13
Over/Under			-3.1		-5.3		-4.8		-2.5		-1.1				-0.1	
eV Emg Mkts Equity Net Median			19.9		31.2		18.0		5.8		12.4		4.1		6.9	Aug-13
RBC GAM EME Fund	423,623,799	3.0	18.3	68	29.5	67	16.9	57							15.9	Aug-19
MSCI Emerging Markets			<u>19.7</u>	53	<u>31.1</u>	52	<u>18.3</u>	49	<u>6.2</u>	46	<u>12.8</u>	44	<u>3.6</u>	58	<u>19.2</u>	Aug-19
Over/Under			-1.4		-1.6		-1.4								-3.3	
eV Emg Mkts Equity Net Median			19.9		31.2		18.0		5.8		12.4		4.1		19.3	Aug-19

Note: Performance shown is net of fees. Fiscal year ends June 30.



<sup>1 -</sup> State Street Bank + Trust Co was funded with \$1.5M in June 2019.

<sup>2 -</sup> RBC GAM EME fund was funded with \$285M in July 2019.

<sup>3 -</sup> UBS Emerging Markets EQ OPP funded with \$95M in July 2019.

### PERFORMANCE DETAIL - TOTAL FI AND CORE FI

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
UBS Emerging Markets EQ OPP	497,426,135	3.5	22.0	30	33.1	39	23.6	30							29.4	Aug-19
MSCI Emerging Markets Over/Under			<u>19.7</u> 2.3	53	<u>31.1</u> 2.0	52	<u>18.3</u> 5.3	49	<u>6.2</u>	46	<u>12.8</u>	44	<u>3.6</u>	58	<u>19.2</u> 10.2	Aug-19
eV Emg Mkts Equity Net Median			19.9		31.2		18.0		5.8		12.4		4.1		19.3	Aug-19
Fixed Income Composite	3,499,535,275	24.7	4.0	22	8.2	13	1.9	97	3.7	91	5.0	79	5.5	7	3.1	Jan-85
BBgBarc US Aggregate TR Over/Under			<u>0.7</u> 3.3	99	<u>1.3</u> 6.9	99	<u>7.5</u> -5.6	64	<u>5.3</u> -1.6	55	<u>4.4</u> 0.6	95	<u>3.8</u> 1.7	93	<u>6.8</u> -3.7	Jan-85
InvMetrics Public DB > \$1 Billion Fixed Income Net Median			2.9		4.8		8.1		5.5		5.8		4.6			Jan-85
Core Fixed Income Composite	789,557,366	5.6	1.1	71	2.4	71	6.6	75	5.0	70	4.6	78	4.2	62	5.3	Dec-99
BBgBarc US Aggregate TR Over/Under			<u>0.7</u> 0.4	89	<u>1.3</u> 1.1	93	<u>7.5</u> -0.9	68	<u>5.3</u> -0.3	62	<u>4.4</u> 0.2	92	3.8 0.4	81	<u>5.1</u> 0.2	Dec-99
InvMetrics Public DB > \$1 Billion US Fixed Income Net Median			1.9		3.6		8.2		5.5		5.1		4.4		5.2	Dec-99



#### PERFORMANCE DETAIL - EMERGING MARKET DEBT

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Core Fixed Income	789,557,366	5.6	1.1	40	2.4	38	6.6	92	5.0	89	4.6	63			3.7	Apr-15
BBgBarc US Aggregate TR Over/Under			<u>0.7</u> 0.4	81	<u>1.3</u> 1.1	86	<u>7.5</u> -0.9	75	<u>5.3</u> -0.3	70	<u>4.4</u> 0.2	75	<u>3.8</u>	74	<u>3.7</u> 0.0	Apr-15
eV US Core Fixed Inc Net Median			1.0		2.1		8.2		5.6		4.7		4.1		3.9	Apr-15
Non-U.S. Emerging Market Debt Composite	250,425,775	1.8	9.1	53	10.3	66	4.8	35	3.5	45	6.6	42			2.6	Sep-11
Non-U.S. EMD Custom Benchmark Over/Under			<u>7.7</u> 1.4	68	<u>9.3</u> 1.0	85	<u>4.0</u> 0.8	54	<u>4.1</u> -0.6	39	<u>7.0</u> -0.4	33			<u>0.9</u> 1.7	Sep-11
InvMetrics All DB Emg Mkt Fix Inc Net Median			9.2		11.1		4.3		2.9		6.2		3.2		2.2	Sep-11
EMSO	112,815,762	0.8	7.3	59	7.5	92	5.3	58	2.6	83	5.2	92			4.5	Sep-11
JP Morgan GBI - EM Global Diversified Index Over/Under			<u>9.6</u> -2.3	20	<u>10.3</u> -2.8	57	<u>2.7</u> 2.6	83	<u>3.0</u> -0.4	78	<u>6.7</u> -1.5	67	<u>1.5</u>	79	<u>0.7</u> 3.8	Sep-11
eV All Emg Mkts Fixed Inc Net Median			7.8		10.5		6.2		4.4		7.2		5.0		4.8	Sep-11



<sup>1 -</sup> Non-U.S. Emerging Market Debt Composite market value includes \$17,639 in terminated manager account.

<sup>2 -</sup> InvMetrics Public DB > \$1B Emerging Mkt Fixed Income unavailable, universe includes all DB plans.

<sup>3 -</sup> Non-U.S. EMD Custom Benchmark Composition from 9/1/2011-1/31/2016: JP Morgan GBI-EM Diversified. 2/1/2016 - Current: 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified. Note: Performance shown is net of fees. Fiscal year ends June 30.

### PERFORMANCE DETAIL - OPPORTUNISTIC FI

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Prudential	137,591,547	1.0	10.7	12	12.7	10	4.5	67	4.3	54					8.0	Feb-16
50% JPM EMBI Global Diversified/ 50% JPM GBI-EM Global Diversified			<u>7.7</u>	53	<u>9.3</u>	77	<u>4.0</u>	74	<u>4.1</u>	58	<u>7.0</u>	63	<u>3.9</u>	64	<u>7.1</u>	Feb-16
Over/Under			3.0		3.4		0.5		0.2						0.9	
eV All Emg Mkts Fixed Inc Net Median			7.8		10.5		6.2		4.4		7.2		5.0		7.4	Feb-16
Opportunistic Credit Composite	2,459,552,134	17.3	4.5		9.9		-0.1		3.3		5.1		6.4		7.4	May-08
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.0</u>	<i>May-08</i>
Over/Under			-0.2		8.0		-4.6		-1.8		-1.5		8.0		1.4	
ICE BofA BB-B US High Yield Constrained TR			5.7		10.3		6.3		6.2		8.0		6.6		7.2	May-08
Beachpoint Combined	473,021,413	3.3	8.2		15.9	-	6.8		6.3		7.3		6.9		6.9	Mar-04
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.7</u>	Mar-04
Over/Under			3.5		6.8		2.3		1.2		0.7		1.3		1.2	
Beachpoint Total Return	473,021,413	3.3	8.2		15.9		6.8		6.3		7.3		6.9		7.2	Jun-08
50% CS Leveraged Loan / 50% ICE BofA US HY BB- B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.0</u>	Jun-08
Over/Under			3.5		6.8		2.3		1.2		0.7		1.3		1.2	
Pimco Disco Combined	126,247,832	0.9	1.8		4.9	-	4.4		6.0		8.5		9.2		10.8	Jul-08
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.1</u>	Jul-08
Over/Under			-2.9		-4.2		-0.1		0.9		1.9		3.6		4.7	
Pimco Disco II	126,247,832	0.9	1.8		4.9		4.4		6.0		8.5				11.6	Oct-11
50% CS Leveraged Loan / 50% ICE BofA US HY BB- B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.1</u>	Oct-11
Over/Under			-2.9		-4.2		-0.1		0.9		1.9				5.5	
GoldenTree Combined	206,789,637	1.5	4.6		8.0		5.4		4.8		5.4		6.7		8.0	Oct-09
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.4</u>	Oct-09
Over/Under			-0.1		-1.1		0.9		-0.3		-1.2		1.1		1.6	



### PERFORMANCE DETAIL - OPPORTUNISTIC FI

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Goldentree II	206,789,637	1.5	4.6		8.0		5.4		4.8		5.4				7.5	Sep-11
50% CS Leveraged Loan / 50% ICE BofA US HY BB- B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.9</u>	Sep-11
Over/Under			-0.1		-1.1		0.9		-0.3		-1.2				1.6	
Medley Capital	31,651,067	0.2	-10.9		-13.4		-21.3		-16.4		-9.1				-1.3	Aug-11
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.4</u>	Aug-11
Over/Under			-15.6		-22.5		-25.8		-21.5		-15.7				-6.7	
Waterfall - Eden	300,878,152	2.1	3.9		10.6		-4.7		2.7		4.8				7.7	Aug-11
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.4</u>	Aug-11
Over/Under			-0.8		1.5		-9.2		-2.4		-1.8				2.3	
Waterfall - Victoria	92,941,019	0.7	2.6		6.0		-2.7		6.1		8.5				9.0	Aug-11
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.4</u>	Aug-11
Over/Under			-2.1		-3.1		-7.2		1.0		1.9				3.6	
Gramercy Distressed Opp II	64,359,739	0.5	-3.7		-5.6		-14.7		-12.4		-7.5				-2.1	Jul-12
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.5</u>	Jul-12
Over/Under			-8.4		-14.7		-19.2		-17.5		-14.1				-7.6	
ICE Canyon	615,725	0.0	-4.4		-37.0		-36.3		-14.6		-4.9				-3.1	Jun-12
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.6</u>	Jun-12
Over/Under			-9.1		-46.1		-40.8		-19.7		-11.5				-8.7	
Lone Star VIII	18,386,689	0.1	5.2		9.6		-15.1		-5.9		-6.9				3.5	Oct-13
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.1</u>	Oct-13
Over/Under			0.5		0.5		-19.6		-11.0		-13.5				-1.6	
Marathon European Credit Opportunity II	30,540,492	0.2	0.3		-4.6		-2.3		5.7		7.4				6.7	Mar-14
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>4.7</u>	Mar-14
Over/Under			-4.4		-13.7		-6.8		0.6		0.8				2.0	



### PERFORMANCE DETAIL - OPPORTUNISTIC FI

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Lone Star IX	27,386,206	0.2	16.7		45.0		3.2		3.7		6.9				-10.3	Apr-15
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.0</u>	Apr-15
Over/Under			12.0		35.9		-1.3		-1.4		0.3				-15.3	
Kildare European Partners I LP	6,869,103	0.0	-12.0		2.2		-35.5	-	-4.0		3.3				3.7	May-14
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>4.7</u>	May-14
Over/Under	40 000 477	0.0	-16.7		-6.9 0.7		-40.0		-9.1 1.9		-3.3				-1.0	A 4.4
Black Forest	43,262,477	0.3	0.5		0.7		-9.3		1.9		5.0				5.0	Aug-14
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>4.8</u>	Aug-14
Over/Under	00 440 =04	0.5	-4.2		-8.4		-13.8		-3.2		-1.6				0.2	
Gramercy Distressed Opp III	69,443,704	0.5	-3.3		-0.5		-8.2		-7.5		-4.8				-4.8	Jan-16
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.6</u>	Jan-16
Over/Under			-8.0		-9.6		-12.7		-12.6		-11.4				-11.4	
GSO Capital Opp III	78,049,321	0.6	2.7		10.1		3.0		8.4						7.5	Oct-16
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.4</u>	Oct-16
Over/Under			-2.0		1.0		-1.5		3.3						2.1	
Cross Ocean ESS II	42,737,251	0.3	2.0		5.6		1.6		4.5						8.2	May-17
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.0</u>	May-17
Over/Under			-2.7		-3.5		-2.9		-0.6						3.2	
OWS CREDIT OPPORTUNITY FD	119,630,500	0.8	5.4		9.0		-1.5		4.5						5.3	Jul-17
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.1</u>	Jul-17
Over/Under			0.7		-0.1		-6.0		-0.6						0.2	
TAIGA SPECIAL OPP DAC LP	179,835,436	1.3	0.1		3.9	-	-4.4		4.1						6.0	Aug-17
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>4.9</u>	Aug-17
Over/Under			-4.6		-5.2		-8.9		-1.0						1.1	
Sutherland Asset Management	53,390,259	0.4	14.4		52.3		-10.8		3.6						0.3	Jul-17
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.1</u>	Jul-17
Over/Under			9.7		43.2		-15.3		-1.5						-4.8	



### PERFORMANCE DETAIL - OPPORTUNISTIC FI

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
OHA Strategic Credit II	65,966,040	0.5	7.3		17.6		0.7		15.3						13.5	Dec-17
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>	-	<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.1</u>	Dec-17
Over/Under			2.6		8.5		-3.8		10.2						8.4	
Lone Star X	80,331,783	0.6	14.5		29.0		5.0	-	-12.9		-				-12.9	Jan-18
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.1</u>	Jan-18
Over/Under			9.8		19.9		0.5		-18.0						-18.0	
Kildare European Partners II LP	46,185,420	0.3	4.9		4.9		11.8				-				7.7	Nov-18
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.0</u>	Nov-18
Over/Under			0.2		-4.2		7.3								1.7	
Riverstone Credit Partners II	49,978,053	0.4	-0.3		0.6		-10.6				-				-4.9	Dec-18
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.6</u>	Dec-18
Over/Under			-5.0		-8.5		-15.1								-11.5	
RCP II N Strategic Credit	15,073,445	0.1	3.3		7.4		8.1								10.1	Jan-19
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>8.0</u>	Jan-19
Over/Under			-1.4		-1.7		3.6								2.1	
OLEA SPECIAL OPPS OFFSHORE I	62,943,150	0.4	6.9		8.5		15.4								20.4	Jun-19
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>6.0</u>	Jun-19
Over/Under			2.2		-0.6		10.9								14.4	
Cross Ocean USD ESS III	84,599,769	0.6	9.3		12.7		15.0								11.8	Nov-19
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>5.8</u>	Nov-19
Over/Under			4.6		3.6		10.5								6.0	
The Varde Fund XIII, L.P.	56,780,500	0.4	6.0		15.1		15.4		-		-				15.4	Jan-20
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>4.5</u>	Jan-20
Over/Under			1.3		6.0		10.9								10.9	

Note: Performance shown is net of fees. Fiscal year ends June 30. Cross Ocean US ESS III funded 10/17/2019. The Varde Fund XIII, L.P. funded 12/31/2019. PIMCO Corp Opps Fund III funded 4/9/2020. BPC Tactical Fund LP funded 6/16/2020.

### PERFORMANCE DETAIL - GAA/RISK PARITY

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
PIMCO Corp Opps Fund III	14,931,574	0.1	8.9		15.5										15.9	May-20
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>14.7</u>	<i>May-20</i>
Over/Under			4.2		6.4										1.2	
BPC Tactical Fund LP	16,726,375	0.1	2.4		4.4										4.4	Jul-20
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index			<u>4.7</u>		<u>9.1</u>		<u>4.5</u>		<u>5.1</u>		<u>6.6</u>		<u>5.6</u>		<u>9.1</u>	Jul-20
Over/Under			-2.3		-4.7										-4.7	
Absolute Return Composite	338,175	0.0														
GAA, Risk Parity, and Other Diversifying Assets	1,709,323,612	12.1	7.5		9.9		5.2		4.8		6.8		5.7		7.0	Oct-09
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>2.9</u>	Oct-09
Over/Under			6.9		8.8		2.6		1.0		3.3		2.8		4.1	
Global Asset Allocation/Risk Parity Composite	1,151,253,571	8.1	8.8		12.1		5.0		4.6		6.6		5.7		6.9	Oct-09
GAA/Risk Parity Custom Index			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		3.8		<u>6.5</u>		<u>5.8</u>		<u>6.1</u>	Oct-09
Over/Under			8.2		11.0		2.4		0.8		0.1		-0.1		0.8	
InvMetrics Public DB > \$1 Billion Global Tactical Net Median																Oct-09
Global Asset Allocation Composite	367,504,208	2.6	8.8	-	9.3	-	-4.4		0.4		3.2				1.7	Nov-12
Credit Suisse Hedge Global Macro			<u>6.0</u>		<u>10.8</u>		<u>6.5</u>		<u>5.5</u>		<u>4.4</u>		<u>4.1</u>		<u>3.9</u>	Nov-12
Over/Under			2.8		-1.5		-10.9		-5.1		-1.2				-2.2	
Bridgewater Pure Alpha	295,509,111	2.1	7.2	65	7.3	85	-7.0	99	1.2	88	1.6	96	3.3	87	5.1	Oct-09
Credit Suisse Hedge Global Macro			<u>6.0</u>	79	<u>10.8</u>	71	<u>6.5</u>	60	<u>5.5</u>	45	<u>4.4</u>	75	<u>4.1</u>	78	<u>5.0</u>	Oct-09
Over/Under			1.2		-3.5		-13.5		-4.3		-2.8		-0.8		0.1	
eV Global TAA Net Median			8.7		13.9		8.9		5.0		6.6		5.7		6.5	Oct-09
PIMCO All Asset All Authority	71,995,097	0.5	13.1	14	14.7	45	3.8	73	1.6	84	6.0	58			2.0	Jul-13
Credit Suisse Hedge Global Macro			<u>6.0</u>	79	<u>10.8</u>	71	<u>6.5</u>	60	<u>5.5</u>	45	<u>4.4</u>	75	<u>4.1</u>	78	<u>3.8</u>	Jul-13
Over/Under			7.1		3.9		-2.7		-3.9		1.6				-1.8	
eV Global TAA Net Median	700 740 666		8.7		13.9		8.9		5.0		6.6		5.7		5.6	Jul-13
Risk Parity	783,749,363	5.5	8.7	-	13.5	-	11.0		7.4		9.1				5.7	Nov-12
GAA/Risk Parity Custom Index			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>6.5</u>		<u>5.8</u>		<u>6.1</u>	Nov-12
Over/Under			8.1		12.4		8.4		3.6		2.6				-0.4	

<sup>1 -</sup> Absolute Return Composite includes \$338,345 in liquidating assets.

<sup>2 -</sup> GAA/Risk Parity Custom Index: 60% MSCI World Half Hedged 40% CITI WGBI Half Hedged Inception - 6/30/2014; 60% MSCI World/ 40% CITI WGBI from 7/1/2014 - present. Note: Performance shown is net of fees. Fiscal year ends June 30.

### PERFORMANCE DETAIL - GAA/RISK PARITY

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Bridgewater All Weather	497,700,685	3.5	8.2	59	12.7	61	9.7	41	6.7	29	8.4	26	7.1	19	8.0	Oct-09
60% MSCI World (Gross) / 40% FTSE WGBI			<u>9.6</u>	39	<u>16.2</u>	30	<u>14.7</u>	16	<u>9.1</u>	10	<u>9.8</u>	10	<u>7.4</u>	16	<u>7.6</u>	Oct-09
Over/Under			-1.4		-3.5		-5.0		-2.4		-1.4		-0.3		0.4	
eV Global TAA Net Median			8.7		13.9		8.9		5.0		6.6		5.7		6.5	Oct-09
PanAgora	286,048,678	2.0	9.6	38	15.0	40	13.6	22	8.6	10	10.6	8			9.1	Dec-13
GAA/Risk Parity Custom Index			<u>0.6</u>	99	<u>1.1</u>	99	<u>2.6</u>	77	<u>3.8</u>	62	<u>6.5</u>	53	<u>5.8</u>	48	<u>4.8</u>	Dec-13
Over/Under			9.0		13.9		11.0		4.8		4.1				4.3	
eV Global TAA Net Median			8.7		13.9		8.9		5.0		6.6		5.7	_	4.9	Dec-13
Other Diversifying Assets	558,070,040	3.9	4.7		5.2	-	8.2								9.3	Feb-18
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>3.8</u>	Feb-18
Over/Under			4.1		4.1		5.6								5.5	
EIG Energy Fund XVII	40,885,657	0.3	2.6		4.5		-4.9		-		-				4.8	Apr-18
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>3.8</u>	Apr-18
Over/Under			2.0		3.4		-7.5								1.0	
The 1609 Fund LTD.	132,520,067	0.9	3.8		3.9		4.0		-		-				3.1	Feb-18
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>3.8</u>	Feb-18
Over/Under			3.2		2.8		1.4								-0.7	
OLEA SPECIAL OPPS OFFSHORE I	179,149,319	1.3	7.0		8.6		15.5		-		-				19.0	Oct-18
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>3.7</u>	Oct-18
Over/Under			6.4		7.5		12.9								15.3	
Orchard Liquid Credit Fund	108,411,800	0.8	-0.7		-1.0		11.4								8.4	Oct-18
3-Month LIBOR + 2%			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>3.7</u>	Oct-18
Over/Under			-1.3		-2.1		8.8								4.7	



### **PERFORMANCE DETAIL - REAL ESTATE**

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Orbimed Royalty Credit Opp III	30,772,129	0.2	28.7		32.7		29.6	-			-				37.1	Oct-19
3-Month LIBOR + 2% Over/Under			<u>0.6</u> 28.1		<u>1.1</u> 31.6	-	<u>2.6</u> 27.0		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>	-	<u>2.9</u> 34.2	Oct-19
AE Industrial Partners Aerospace	47,488,086	0.3	8.5		2.5						-				2.5	Apr-20
3-Month LIBOR + 2% Over/Under			<u>0.6</u> 7.9		<u>1.1</u> 1.4		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>		<u>1.7</u> 0.8	Apr-20
Cloverlay Solutions (Bravo)	18,842,983	0.1													0.0	Dec-20
3-Month LIBOR + 2% Over/Under			<u>0.6</u>		<u>1.1</u>		<u>2.6</u>		<u>3.8</u>		<u>3.5</u>		<u>2.9</u>	-	<u>0.2</u> -0.2	Dec-20
Real Estate Composite	832,830,577	5.9	6.8	1	9.7	1	-2.5	90	6.9	1	8.1	6	10.6	6	9.5	Dec-03
NCREIF Property Index Over/Under			<u>1.2</u> 5.6	54	<u>1.9</u> 7.8	41	<u>1.6</u> -4.1	28	<u>4.9</u> 2.0	57	<u>5.9</u> 2.2	56	<u>9.0</u> 1.6	58	<u>8.4</u> 1.1	Dec-03
Wilshire REIT			10.6	1	12.0	1	-7.9	99	3.3	85	4.3	91	8.3	78	8.3	Dec-03
InvMetrics Public DB > \$1 Billion Real Estate Net Median			1.6		1.4		0.3		5.2		6.4		9.2		6.7	Dec-03
Public Real Estate Composite	282,792,170	2.0	12.8	1	14.4	1	-8.9	99	2.8	92	4.0	92	7.8	81	8.0	Dec-03
Wilshire REIT			<u>10.6</u>	1	<u>12.0</u>	1	<u>-7.9</u>	99	<u>3.3</u>	85	<u>4.3</u>	91	<u>8.3</u>	78	<u>8.3</u>	Dec-03
Over/Under			2.2		2.4		-1.0		-0.5		-0.3		-0.5		-0.3	
InvMetrics Public DB > \$1 Billion Real Estate Net Median			1.6		1.4		0.3		5.2		6.4		9.2		6.7	Dec-03
Brookfield	282,792,170	2.0	12.8	22	14.4	21	-8.9	87	2.8	86	4.0	83			7.4	Jul-11
MSCI US REIT Over/Under			<u>11.2</u> 1.6	46	<u>12.6</u> 1.8	55	<u>-8.7</u> -0.2	87	<u>2.2</u> 0.6	88	<u>3.5</u> 0.5	87	<u>7.0</u>	93	<u>6.3</u> 1.1	Jul-11
eV US REIT Net Median			10.7		12.9		-3.6		5.2		5.9		9.0		8.3	Jul-11

<sup>1</sup> - InvMetrics Public DB > \$1B Real Estate Private is unavailable, universe includes all public funds. Note: Performance is shown net of fees. Fiscal year ends June 30.



#### **PERFORMANCE DETAIL - PE & RA**

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Private Real Estate Composite	550,038,408	3.9	4.1	4	7.6	2	1.4	5	9.2	1	10.6	1	12.7	1	8.3	Jan-08
NCREIF Property Index Over/Under			<u>1.2</u> 2.9	65	<u>1.9</u> 5.7	29	<u>1.6</u> -0.2	5	<u>4.9</u> 4.3	26	<u>5.9</u> 4.7	62	<u>9.0</u> 3.7	45	<u>5.8</u> 2.5	Jan-08
InvMetrics Public DB Real Estate Priv Net Median			1.6		3.7 1.6		0.5		4.3 4.7		6.2		3. <i>1</i> 8.8		2.5 4.4	Jan-08
U.S. Private Real Estate	550.038.408	3.9	4.1		7.6		1.4		9.2		10.6		12.8		8.8	Jan-08
NCREIF Property Index	,,		<u>1.2</u>		<u>1.9</u>		<u>1.6</u>		<u>4.9</u>		<u>5.9</u>		<u>9.0</u>		<u>5.8</u>	Jan-08
Over/Under	0.004.000.507	40.0	2.9	00	5.7	0.4	-0.2	7.	4.3	00	4.7		3.8	00	3.0	1 . 00
Private Equity Composite	2,304,829,597	16.3	<b>6.7</b> 10.1	<b>62</b> 28	10.7	<b>81</b> 24	7.9	<b>75</b> 43	10.5	<b>62</b> 51	11.1 12.2	<b>54</b> 43	13.0	<b>33</b> 43	<b>7.4</b> 11.7	<b>Jun-06</b> <i>Jun-06</i>
ILPA Private Markets Benchmark (1 Qtr Lag) Over/Under			-3.4	20	<u>20.1</u> -9.4	24	<u>14.1</u> -6.2	43	<u>12.4</u> -1.9	31	<u>12.2</u> -1.1	43	<u>12.6</u> 0.4	43	-4.3	Juli-06
InvMetrics Public DB > \$1 Billion Private Equity Net Median			8.1		15.3		12.9		12.5		11.3		11.6		9.7	Jun-06
Real Assets Composite	1,124,390,800	7.9	2.9	53	5.4	56	-3.0	61	6.4	17	7.5	5	5.5	43	2.9	Jul-08
CPI + 4% (Seasonally Adjusted)			<u>1.6</u>	67	<u>3.8</u>	66	<u>5.3</u>	22	<u>5.9</u>	21	<u>6.0</u>	21	<u>5.8</u>	38	<u>5.6</u>	Jul-08
Over/Under			1.3		1.6		-8.3		0.5		1.5		-0.3		-2.7	
InvMetrics Public DB > \$1 Billion Real Assets/Commodities Net Median			3.0		6.2		-0.9		2.7		4.6		4.7		1.9	Jul-08
Infrastructure Composite	477,210,904	3.4	5.0		7.6	-	5.5		7.8		9.1		6.2		3.9	Jul-08
Infrastructure	471,014,685	3.3	5.1		8.2		5.9		8.2		8.2		5.9		3.7	Jul-08
CPI + 4% (Seasonally Adjusted)			<u>1.6</u>		<u>3.8</u>		<u>5.3</u>		<u>5.9</u>		<u>6.0</u>		<u>5.8</u>		<u>5.6</u>	Jul-08
Over/Under			3.5		4.4		0.6		2.3		2.2		0.1		-1.9	
International Infrastructure	6,196,220	0.0	-1.8		-14.6		-12.1		-1.7		21.7				-1.8	Jan-13
CPI + 4% (Seasonally Adjusted)			<u>1.6</u>		<u>3.8</u>		<u>5.3</u>		<u>5.9</u>		<u>6.0</u>		<u>5.8</u>		<u>5.6</u>	Jan-13
Over/Under			-3.4		-18.4		-17.4		-7.6		15.7				-7.4	
Natural Resources	647,179,895	4.6	1.5		3.8		-8.4		5.5		6.2		5.1		3.7	Mar-09
Harvest Fund	36,967,937	0.3	22.7		10.9		-24.7		-9.7		-				-6.9	Aug-16
Alerian MLP Index			<u>32.4</u>		<u>10.9</u>		<u>-28.7</u>		<u>-12.7</u>		<u>-5.9</u>		<u>-2.3</u>		<u>-9.7</u>	Aug-16
Over/Under			-9.7		0.0		4.0		3.0						2.8	

Energy composite includes Five Point Cap, Lime Rock, Enervest, BP Natural Gas, and Bluescape Energy.
 Agriculture Composite contains Halderman Farm Mgmt Services, Hancock Agriculture, and Blue Road Capital L.P.

<sup>3 -</sup> Timber Composite contains Brookfield Brazil Timber, Conservation Forestry II, Conservation Forestry IV, and ETO II Operating Partnership. Note: Performance shown is net of fees. Fiscal year ends June 30.

### **PERFORMANCE DETAIL - CASH**

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Energy	216,557,657	1.5	1.1		7.0		-27.6		6.6		11.4				0.3	Jan-14
CPI + 4% (Seasonally Adjusted) Over/Under			<u>1.6</u> -0.5		3.8 3.2		<u>5.3</u> -32.9		<u>5.9</u> 0.7		<u>6.0</u> 5.4		<u>5.8</u>	-	<u>5.6</u> -5.3	Jan-14
Agriculture Composite	159,038,199	1.1	0.7		2.7		6.5	-	5.8		4.3				4.6	Aug-12
NCREIF Farmland Over/Under			<u>1.6</u> -0.9		<u>2.6</u> 0.1		3.1 3.4		<u>4.9</u> 0.9		<u>5.6</u> -1.3		<u>10.4</u>		<u>9.8</u> -5.2	Aug-12
Timber Composite	106,257,059	0.7	0.7		1.4		1.3		4.7		3.7		5.2		3.8	Mar-09
NCREIF Timberland Index Over/Under			<u>0.6</u> 0.1		<u>0.6</u> 0.8		<u>0.8</u> 0.5		<u>1.8</u> 2.9		<u>2.3</u> 1.4		<u>4.6</u> 0.6		<u>3.4</u> 0.4	Mar-09
Mitigation Banking	62,937,598	0.4	-1.6		1.8		1.0		5.0		8.6				2.4	Mar-11
CPI + 4% (Seasonally Adjusted) Over/Under			<u>1.6</u> -3.2		<u>3.8</u> -2.0	-	<u>5.3</u> -4.3	-	<u>5.9</u> -0.9		<u>6.0</u> 2.6		<u>5.8</u>	-	<u>5.8</u> -3.4	Mar-11
Water Property Investor, L.P.	65,421,447	0.5	-0.6		-1.0		43.5		12.2		7.2				8.1	Jan-15
CPI + 4% (Seasonally Adjusted) Over/Under			<u>1.6</u> -2.2		<u>3.8</u> -4.8	-	<u>5.3</u> 38.2	-	<u>5.9</u> 6.3		<u>6.0</u> 1.2		<u>5.8</u>	-	<u>5.8</u> 2.3	Jan-15
Cash	212,881,456	1.5														
Cash	211,642,378	1.5	0.0		0.1		0.5		1.9		1.7		1.1		1.2	Dec-99
91 Day T-Bills Over/Under			<u>0.0</u> 0.0		<u>0.0</u> 0.1		<u>0.5</u> 0.0		<u>1.5</u> 0.4		<u>1.1</u> 0.6		<u>0.6</u> 0.5		<u>1.6</u> -0.4	Dec-99
NM ERB Cash	1,132,771	0.0	0.0		0.0		-0.1		8.0		0.5		0.7		1.0	Jun-00
91 Day T-Bills Over/Under			<u>0.0</u> 0.0		<u>0.0</u> 0.0		<u>0.5</u> -0.6		<u>1.5</u> -0.7		<u>1.1</u> -0.6		<u>0.6</u> 0.1		<u>1.5</u> -0.5	Jun-00
Local Government Investment Pool (LGIP) at STO	106,308	0.0	0.0		0.1		0.7	-	1.6		1.1				1.0	Jul-15
91 Day T-Bills Over/Under			<u>0.0</u> 0.0		<u>0.0</u> 0.1	-	<u>0.5</u> 0.2		<u>1.5</u> 0.1		<u>1.1</u> 0.0		<u>0.6</u>		<u>1.0</u> 0.0	Jul-15



#### OTHER DIVERSIFYING ASSETS PERFORMANCE

Vintage Year	Investment	Commitment	Paid In Capital	Current MV	Time Weighted Returns Since Inception	Inception Date
2017	EIG Energy Fund XVII	100,000,000	37,001,497	40,885,657	4.8	Apr-18
2017	1609 Fund	150,000,000	125,000,000	132,520,067	3.1	Feb-18
2018	Olea Special Opportunities Offshore Fund	135,000,000	135,000,000	179,149,319	19.0	Oct-18
2018	Orchard Liquid Credit Fund	100,000,000	100,000,000	108,411,800	8.4	Nov-18
2019	OrbiMed Royalty & Credit Opps. III	100,000,000	24,024,367	30,772,129	37.1	Oct-19
2019	AE Industrial AA	150,000,000	47,207,409	47,488,086	2.5	Apr-20
2019	Cloverlay	150,000,000	18,842,983	18,842,983	-	Dec-20
Total	Other Diversifying Assets	885,000,000	421,025,864	558,070,041	9.3	Feb-18

<sup>\*</sup>Market Values and Performance data are through 12/31/2020

#### Correlation of Monthly Returns Since Inception

	Total Fund	U.S. Equity	Non U.S. Developed Markets Equity	Non U.S. Emerging Markets Equity	Core Fixed Income	Non U.S. Emerging Markets Debt	Opportunistic Credit	Real Estate	Private Equity	Real Assets	Other Diversifying Assets	EIG Energy Fund	1609 Fund	OLEA	Orchard	Orbimed
Other Diversifying Assets	0.15	0.13	0.17	0.11	-0.11	0.05	0.11	-0.02	0.12	-0.02	1.00					
EIG Energy Fund	-0.18	-0.38	-0.23	-0.28	-0.24	-0.14	0.34	-0.20	0.40	0.15	0.18	1.00				
1609 Fund	0.00	-0.01	-0.01	-0.07	-0.12	0.01	0.07	0.07	0.06	0.11	0.41	-0.05	1.00			
OLEA	0.43	0.49	0.50	0.42	0.17	0.29	0.11	0.23	-0.21	-0.08	0.73	-0.21	-0.11	1.00		
Orchard	-0.73	-0.53	-0.61	-0.67	-0.55	-0.78	-0.62	-0.56	-0.02	-0.21	0.03	-0.12	0.13	-0.20	1.00	
Orbimed	0.13	-0.02	-0.05	0.16	-0.21	0.08	0.18	0.17	0.46	0.17	0.45	-0.10	-0.01	0.11	-0.13	1.00



#### PRIVATE MARKETS PERFORMANCE SUMMARY

		Private Equity Dollar Weighted vs. Time Weighted Performance									
	3 Mo (%)	1 Yr (%)	3 Yr (%)	5 Yr (%)	10 Yr (%)	Inception (%)	Inception Date				
Dollar Weighted											
Total Net IRR	10.0	12.1	11.6	12.2	13.5	12.4	Jun-06				
Time Weighted											
Net Time Weighted Return	6.7	7.9	10.5	11.1	13.0	7.4	Jun-06				

		Real Estate Dollar Weighted vs. Time Weighted Performance								
	3 Mo (%)	1 Yr (%)	3 Yr (%)	5 Yr (%)	10 Yr (%)	Inception (%)	Inception Date			
Dollar Weighted										
Total Net IRR						10.3	Jan-08			
Time Weighted										
Net Time Weighted Return	4.7	13.6	14.5	13.7	14.2	9.1	Jan-08			

		Infrastruc	ture Dollar We	ighted vs. Tim	e Weighted Pe	rformance	
	3 Mo (%)	1 Yr (%)	3 Yr (%)	5 Yr (%)	10 Yr (%)	Inception (%)	Inception Date
Dollar Weighted							
Total Net IRR						6.6	Jul-08
Time Weighted							
Net Time Weighted Return	5.0	5.5	7.8	9.1	6.2	3.9	Jul-08

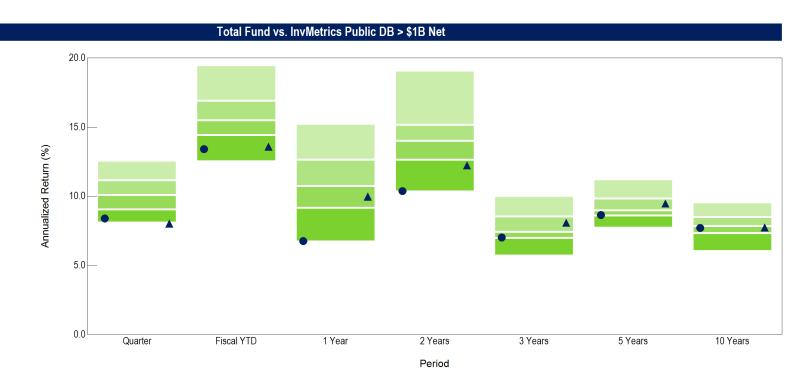
		Natural Resources Dollar Weighted vs. Time Weighted Performance							
	3 Mo (%)	1 Yr (%)	3 Yr (%)	5 Yr (%)	10 Yr (%)	Inception (%)	Inception Date		
Dollar Weighted									
Total Net IRR						5.1	Mar-09		
Time Weighted									
Net Time Weighted Return	1.5	-8.4	5.5	6.2	5.1	3.7	Mar-09		



<sup>\*</sup>Dollar weighted performance is as of 9/30/2020



#### TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

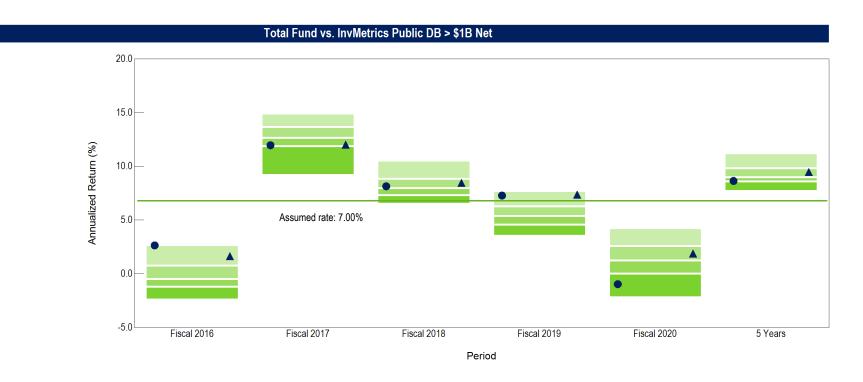


	Return (Rank)												
5th Percentile	12.6	19.5		15.2		19.1		10.0		11.2		9.6	
25th Percentile	11.2	16.9		12.7		15.2		8.6		9.9		8.5	
Median	10.1	15.5		10.8		14.0		7.4		9.0		7.9	
75th Percentile	9.1	14.4		9.2		12.6		7.0		8.6		7.3	
95th Percentile	8.1	12.5		6.8		10.4		5.7		7.7		6.0	
# of Portfolios	80	80		80		80		80		80		73	
Total Fund	8.4	(89) 13.4	(92)	6.8	(95)	10.4	(95)	7.0	(73)	8.6	(73)	7.7	(60)
▲ Policy Index	8.0	(96) 13.6	(89)	10.0	(66)	12.2	(81)	8.1	(35)	9.5	(35)	7.7	(58)

Note: Ranks are based on net returns.



#### TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE



	Return (Rank)						
5th Percentile	2.7	14.9	10.5	7.7	4.2	11.2	
25th Percentile	0.8	13.7	8.8	6.3	2.6	9.9	
Median	-0.5	12.7	8.0	5.4	1.3	9.0	
75th Percentile	-1.2	11.9	7.3	4.6	0.0	8.6	
95th Percentile	-2.4	9.2	6.5	3.5	-2.2	7.7	
# of Portfolios	55	65	51	77	71	80	
Total Fund	2.6	(6) 12.0	(71) 8.1	(46) 7.3	(9) -1.0	(90) 8.6	(73)
Policy Index	1.7	(9) 12.0	(68) 8.5	(33) 7.4	(7) 1.9	(36) 9.5	(35)

Note: Ranks are based on net returns.



### **TOTAL FUND ATTRIBUTION ANALYSIS**

		Attribution	_			
		hs Ending D			All 4'	Tatal
	Wtd. Actual Return	Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Large Cap Equity Composite	12.3%	12.1%	0.1%	0.0%	0.0%	0.0%
U.S. Small/Mid Cap Equity Composite	23.8%	27.4%	-3.6%	-0.1%	-0.1%	-0.2%
Non-U.S. Developed Mkts Equity Composite	16.4%	16.0%	0.4%	0.0%	0.0%	0.0%
Non-U.S. Emerging Mkts Equity Composite	19.0%	19.7%	-0.7%	-0.1%	0.0%	0.0%
Core Fixed Income Composite	1.1%	0.7%	0.5%	0.0%	0.0%	0.0%
Non-U.S. Emerging Market Debt Composite	9.1%	7.7%	1.4%	0.0%	0.0%	0.0%
Opportunistic Credit Composite	4.5%	4.7%	-0.2%	0.0%	-0.1%	-0.1%
Absolute Return Composite	-0.1%	0.5%	-0.6%	0.0%	0.0%	0.0%
Global Asset Allocation/Risk Parity Composite	8.8%	0.6%	8.2%	0.7%	-0.3%	0.5%
Other Diversifying Assets	4.7%	0.6%	4.2%	0.2%	0.2%	0.4%
Public Real Estate Composite	12.8%	10.6%	2.2%	0.0%	0.0%	0.0%
Private Real Estate Composite	4.1%	1.2%	3.0%	0.1%	0.1%	0.3%
Private Equity Composite	6.7%	10.1%	-3.4%	-0.6%	0.0%	-0.6%
Real Assets Composite	2.9%	1.6%	1.3%	0.1%	0.0%	0.2%
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	8.4%	8.0%	0.4%	0.5%	-0.1%	0.4%

		Attribution				
	1 Yea Wtd. Actual Return	r Ending De Wtd. Index Return	cember 31, 2 Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Large Cap Equity Composite	20.3%	18.4%	1.9%	0.2%	-0.4%	-0.2%
U.S. Small/Mid Cap Equity Composite	9.4%	20.0%	-10.6%	-0.3%	-0.1%	-0.4%
Non-U.S. Developed Mkts Equity Composite	7.9%	7.8%	0.1%	0.0%	0.0%	0.0%
Non-U.S. Emerging Mkts Equity Composite	18.2%	18.3%	-0.1%	0.0%	-0.1%	-0.1%
Core Fixed Income Composite	6.6%	7.5%	-0.9%	-0.1%	0.0%	-0.1%
Non-U.S. Emerging Market Debt Composite	4.8%	4.0%	0.8%	0.0%	0.0%	0.0%
Opportunistic Credit Composite	-0.1%	4.5%	-4.7%	-1.0%	-0.1%	-1.1%
Absolute Return Composite	-4.9%	2.6%	-7.5%	0.0%	0.0%	0.0%
Global Asset Allocation/Risk Parity Composite	5.0%	2.6%	2.4%	0.2%	-0.2%	0.0%
Other Diversifying Assets	8.2%	2.6%	5.6%	0.2%	0.1%	0.4%
Public Real Estate Composite	-8.9%	-7.9%	-1.0%	0.0%	0.0%	-0.1%
Private Real Estate Composite	1.4%	1.6%	-0.2%	0.0%	0.1%	0.1%
Private Equity Composite	7.9%	12.4%	-4.5%	-0.9%	-0.1%	-1.0%
Real Assets Composite	-3.0%	5.3%	-8.3%	-0.8%	0.0%	-0.8%
Cash	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%
Total	6.8%	10.0%	-3.2%	-2.3%	-0.9%	-3.2%



### **TOTAL FUND ATTRIBUTION ANALYSIS**

	Attribution Summary 3 Years Ending December 31, 2020								
	Wtd. Actual Return		Excess Return	Selection Effect	Allocation Effect	Total Effects			
U.S. Large Cap Equity Composite	14.6%	14.2%	0.4%	0.0%	-0.2%	-0.2%			
U.S. Small/Mid Cap Equity Composite	7.7%	11.3%	-3.7%	-0.1%	-0.1%	-0.2%			
Non-U.S. Developed Mkts Equity Composite	4.6%	4.3%	0.3%	0.0%	0.0%	0.0%			
Non-U.S. Emerging Mkts Equity Composite	5.8%	6.2%	-0.3%	-0.1%	-0.1%	-0.1%			
Core Fixed Income Composite	5.0%	5.3%	-0.3%	0.0%	0.0%	0.0%			
Non-U.S. Emerging Market Debt Composite	3.5%	4.1%	-0.6%	0.0%	0.0%	0.0%			
Opportunistic Credit Composite	3.3%	5.1%	-1.9%	-0.4%	0.0%	-0.4%			
Absolute Return Composite	-2.9%	3.5%	-6.5%	0.0%	0.0%	0.0%			
Global Asset Allocation/Risk Parity Composite	4.6%	3.8%	0.8%	0.1%	-0.1%	-0.1%			
Other Diversifying Assets	9.5%	3.8%	5.7%	0.1%	0.1%	0.2%			
Public Real Estate Composite	2.8%	3.3%	-0.5%	0.0%	0.0%	0.0%			
Private Real Estate Composite	9.2%	4.9%	4.3%	0.2%	0.0%	0.2%			
Private Equity Composite	10.5%	12.7%	-2.2%	-0.4%	-0.1%	-0.5%			
Real Assets Composite Cash	6.4% 1.8%	5.9% 1.5%	0.5% 0.3%	0.0%	0.0%	0.0% 0.0%			
Total	7.0%	8.1%	-1.1%	-0.5%	-0.5%	-1.1%			

		Attribution	_			
	<b>5 Year</b> Wtd. Actual Return	's Ending De Wtd. Index Return	ecember 31, 1 Excess Return	Selection Effect	Allocation Effect	Total Effects
U.S. Large Cap Equity Composite	15.4%	15.2%	0.2%	0.0%	-0.1%	-0.1%
U.S. Small/Mid Cap Equity Composite	10.8%	13.6%	-2.8%	-0.1%	0.0%	-0.1%
Non-U.S. Developed Mkts Equity Composite	7.2%	7.4%	-0.2%	0.0%	0.0%	0.0%
Non-U.S. Emerging Mkts Equity Composite	10.8%	12.8%	-2.0%	-0.2%	-0.1%	-0.3%
Core Fixed Income Composite	4.6%	4.4%	0.2%	0.0%	-0.1%	-0.1%
Non-U.S. Emerging Market Debt Composite	6.6%	7.0%	-0.4%	0.0%	0.0%	0.0%
Opportunistic Credit Composite	5.1%	6.6%	-1.5%	-0.3%	0.0%	-0.3%
Absolute Return Composite	-1.7%	3.2%	-4.8%	0.0%	0.0%	0.0%
Global Asset Allocation/Risk Parity Composite	6.6%	5.2%	1.5%	0.1%	-0.1%	0.1%
Other Diversifying Assets				0.1%	0.1%	0.2%
Public Real Estate Composite	4.0%	4.3%	-0.3%	0.0%	0.0%	0.0%
Private Real Estate Composite	10.6%	5.9%	4.7%	0.2%	0.0%	0.2%
Private Equity Composite	11.1%	12.8%	-1.6%	-0.3%	0.0%	-0.3%
Real Assets Composite	7.5%	6.0%	1.4%	0.1%	0.0%	0.1%
Cash	1.5%	1.1%	0.3%	0.0%	-0.1%	-0.1%
Total	8.6%	9.5%	-0.8%	-0.4%	-0.4%	-0.8%



## **APPENDIX**

NEPC, LLC —

#### **POLICY INDEX HISTORY**

- 4/1/2012 6/30/2012: 23% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 18% Barclays Aggregate, 15% Bank of America Merrill Lynch US High BB-B Constrained Index, 2% JP Morgan GBI EM Global Diversified Index, 5% (60% MSCI World HH / 40% CITI WGBI HH), 8% (90 Day T-Bill + 2%), 3% Wilshire REIT, 2% NCREIF Property Index, 5% Cambridge Associates US All PE 1 Quarter Lag, 1% (CPI + 4% Seasonally Adjusted), 1% 90 Day T-Bill.
- 7/1/2012 6/30/2013: 23% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 18% Barclays Aggregate Index, 15% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 5% (60% MSCI World HH / 40% CITI WGBI HH), 3% Wilshire REIT, 2% NCREIF Property Index, 8% (91 Day T-Bill + 2% 1 month lag), 5% Cambridge Associates All US PE 1 Quarter Lag, 1% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 7/1/2013 6/30/2014: 20% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 7% Barclays Aggregate Index, 20% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 5% (60% MSCI World HH / 40% CITI WGBI HH), 5% Credit Suisse Hedge Global Macro Index, 3% Wilshire REIT Index, 2% NCREIF Property Index, 3% (91 Day T-Bill + 2% 1 Month Lag), 8% Cambridge Associates US All PE 1 Quarter Lag, 7% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 7/1/2014 9/30/2014: 20% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 7% Barclays Aggregate Index, 20% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 5% (60% MSCI World / 40% CITI WGBI), 5% Credit Suisse Hedge Global Macro Index, 3% Wilshire REIT Index, 2% NCREIF Property Index, 3% (91 Day T-Bill + 2% 1 Month Lag), 8% Cambridge Associates US All PE 1 Quarter Lag, 7% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 10/1/2014 1/31/2016: 18% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 20% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 5% (60% MSCI World / 40% CITI WGBI), 5% Credit Suisse Hedge Global Macro Index, 4% Wilshire REIT Index, 3% NCREIF Property Index, 11% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.



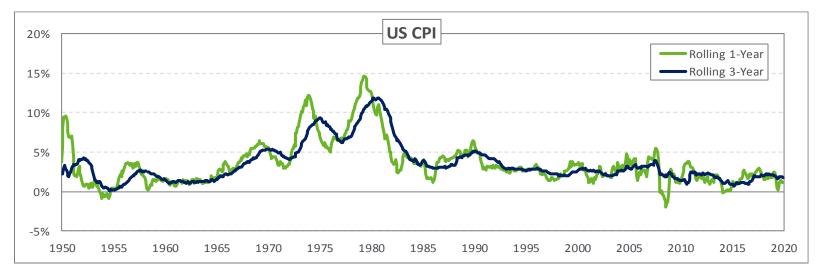
#### **POLICY INDEX HISTORY**

- 2/1/2016 12/31/2016: 18% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 20% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% (50% JP Morgan EMBI Global Diversified Index / 50% JP Morgan GBI EM Global Diversified Index), 5% (60% MSCI World / 40% CITI WGBI), 5% Credit Suisse Hedge Global Macro Index, 4% Wilshire REIT Index, 3% NCREIF Property Index, 11% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 1/1/2017 9/30/2017: 18% S&P 500 Index, 2% Russell 2500 Index, 5% MSCI EAFE Index, 10% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 20% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% (50% JP Morgan EMBI Global Diversified Index / 50% JP Morgan GBI EM Global Diversified Index), 5% (60% MSCI World / 40% CITI WGBI), 5% Credit Suisse Hedge Global Macro Index, 3% Wilshire REIT Index, 4% NCREIF Property Index, 11% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 10/1/2017 12/31/2017: 16% S&P 500 Index, 3% Russell 2500 Index, 5% MSCI EAFE Index, 9% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 18% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 7% (60% MSCI World / 40% CITI WGBI), 5% Libor + 2%, 3% Wilshire REIT Index, 4% NCREIF Property Index, 13% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 1/1/2018 6/30/2019: 16% S&P 500 Index, 3% Russell 2500 Index, 5% MSCI EAFE Index, 9% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 18% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 12% Libor + 2%, 3% Wilshire REIT Index, 4% NCREIF Property Index, 13% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- **7/1/2019 9/30/2020:** 16% S&P 500 Index, 3% Russell 2500 Index, 5% MSCI EAFE Index, 9% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 18% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 12% Libor + 2%, 2% Wilshire REIT Index, 5% NCREIF Property Index, 13% Cambridge Associates US All PE 1 Quarter Lag, 8% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.
- 10/1/2020 Present: 14% S&P 500 Index, 3% Russell 2500 Index, 5% MSCI EAFE Index, 9% MSCI Emerging Markets Index, 6% Barclays Aggregate Index, 16% (50% Credit Suisse Leveraged Loan Index / 50% Bank of America Merrill Lynch US HY BB-B Rated Constrained Index), 2% JP Morgan GBI EM Global Diversified Index, 12% Libor + 2%, 2% Wilshire REIT Index, 6% NCREIF Property Index, 15% Cambridge Associates US All PE 1 Quarter Lag, 9% (CPI + 4% Seasonally Adjusted), 1% 91 Day T-Bill.

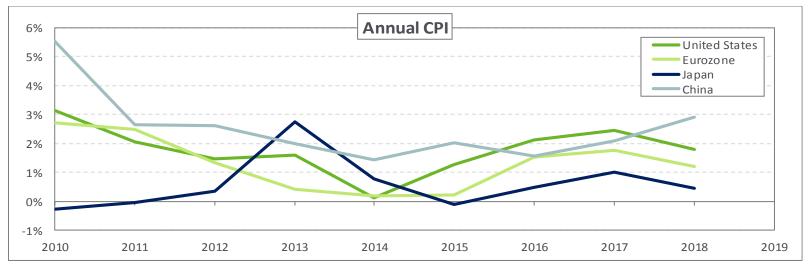


## **MACRO**

#### **INFLATION**



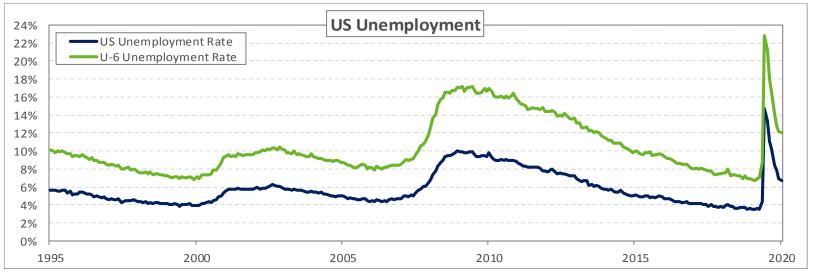
Source: Bureau of Labor Statistics, FactSet



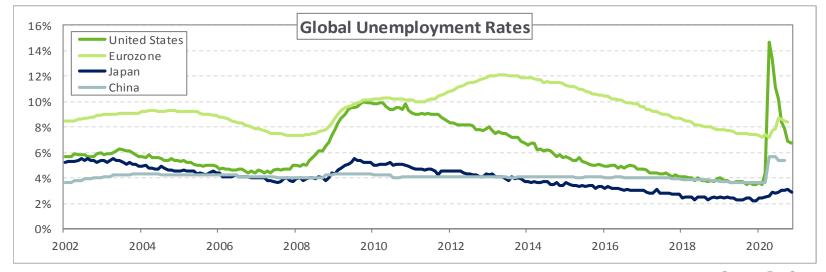
Source: FactSet



#### **UNEMPLOYMENT**



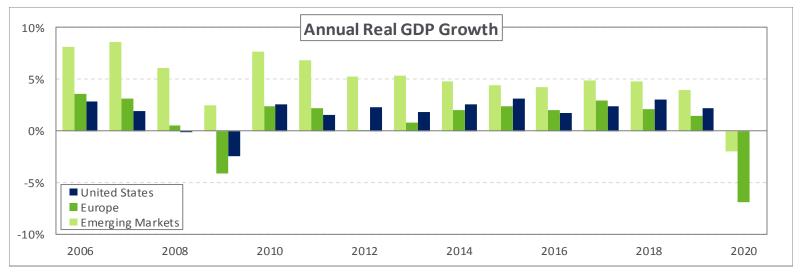
Source: FactSet



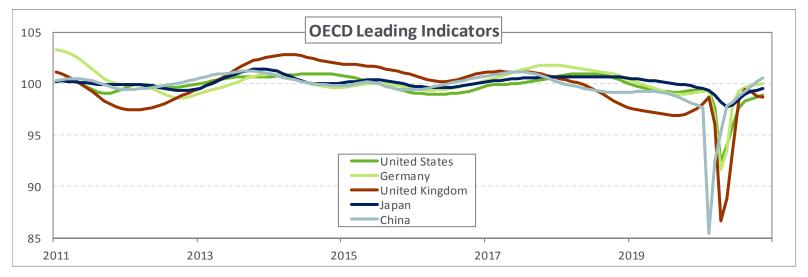
Source: FactSet



#### **ECONOMIC INDICATORS**



Source: Bureau of Economic Analysis, Oxford Economics, FactSet



Source: OECD, FactSet



#### **GROSS DOMESTIC PRODUCT**



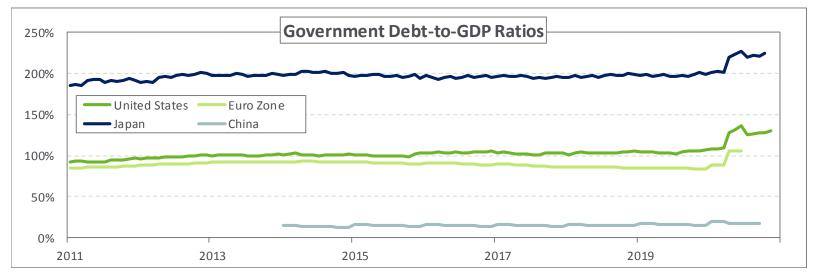
Source: Bureau of Economic Analysis, FactSet



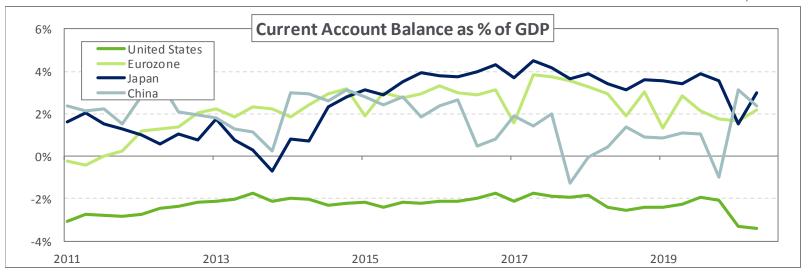
Source: IMF, FactSet



#### **GROSS DOMESTIC PRODUCT METRICS**



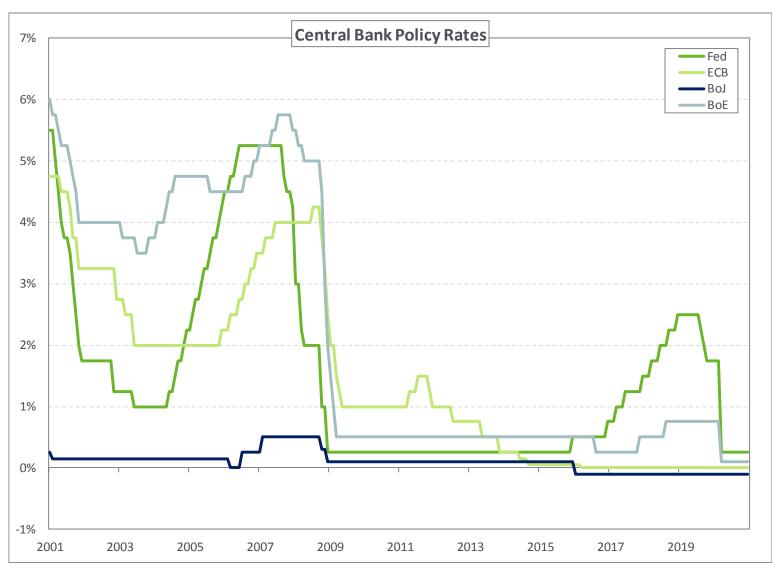
Source: IMF, FactSet



Source: FactSet



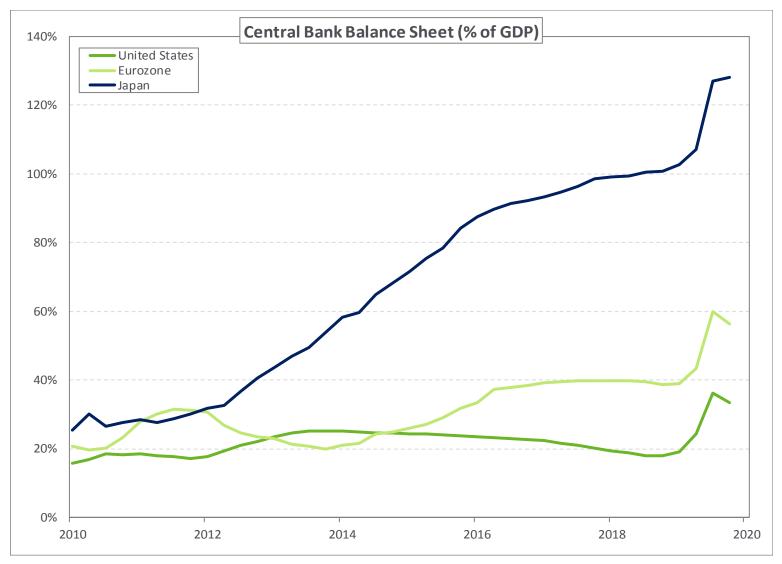
#### **CENTRAL BANK RATES**







#### **CENTRAL BANK BALANCE SHEETS**



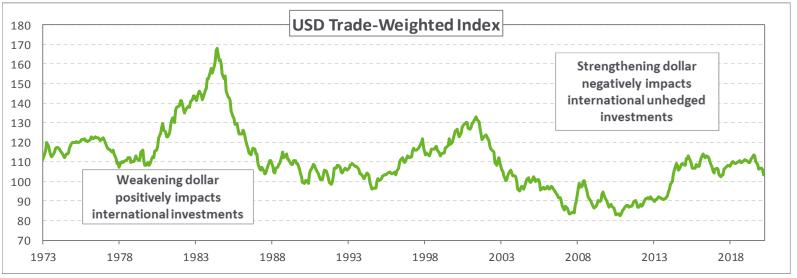




### **CURRENCIES**

		% C	hange Relative to	USD
Currencies	Spot	1 Month	YTD	1 Year
Euro	1.22	2.3%	0.0%	9.0%
British Pound	1.37	2.4%	0.0%	3.2%
Japanese Yen	103.25	1.0%	0.0%	5.3%
Swiss Franc	0.88	2.4%	0.0%	9.5%
Australian Dollar	0.77	4.7%	0.0%	9.8%
Chinese Yuan	6.54	0.6%	0.0%	6.5%
Brazilian Real	5.19	3.7%	0.0%	-22.6%
Russian Ruble	73.96	3.4%	0.0%	-16.0%
Indian Rupee	73.07	1.4%	0.0%	-2.3%
Mexican Peso	19.93	1.2%	0.0%	-5.2%
South African Rand	14.69	5.4%	0.0%	-4.8%

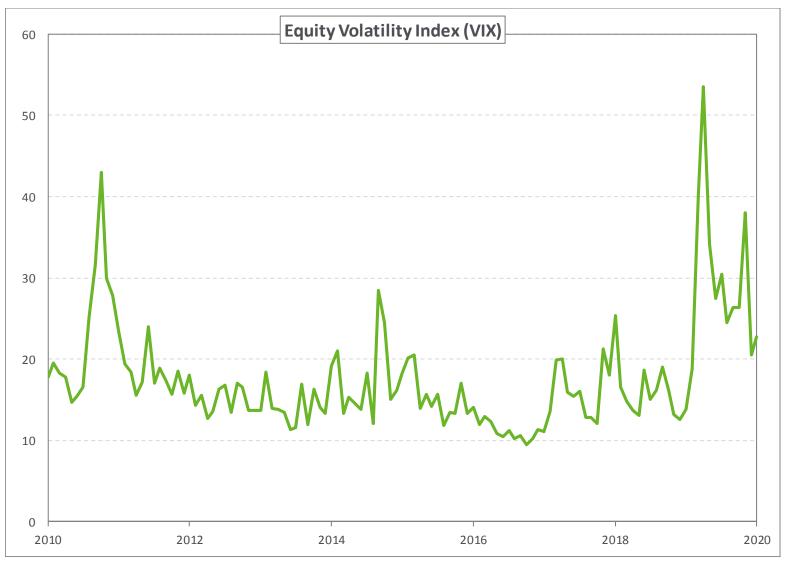
Source: FactSet



Source: FactSet



### **VOLATILITY**



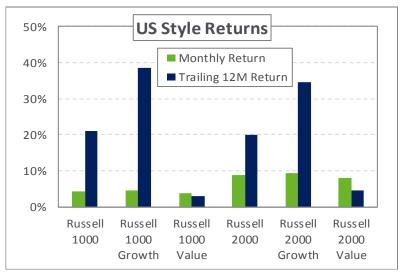
Source: CBOE, FactSet



# **EQUITY**

NEPC, LLC —

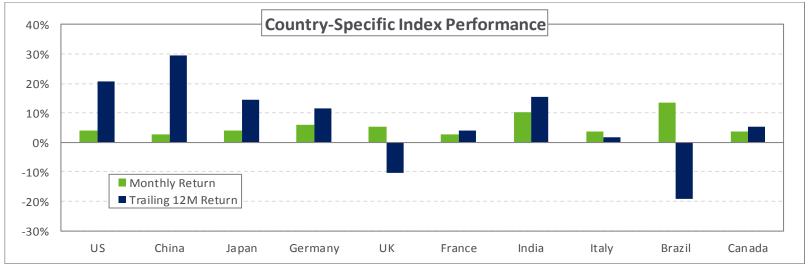
### **EQUITY INDEX PERFORMANCE**





Source: Russell, FactSet





Source: MSCI, FactSet Represents returns in USD



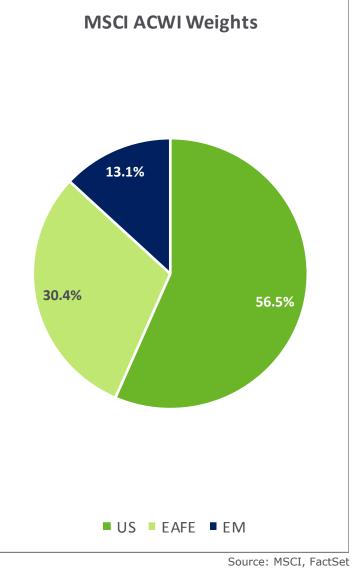
#### **INDEX COMPOSITION**

	MTD	QTD	YTD	Index Weight
S&P 500	3.8%	12.1%	18.4%	100.0%
Communication Services	0.3%	1.5%	2.7%	10.8%
Consumer Discretionary	0.3%	0.9%	4.0%	12.7%
Consumer Staples	0.1%	0.4%	0.5%	6.5%
Energy	0.1%	0.6%	-1.8%	2.3%
Financials	0.6%	2.3%	-1.5%	10.4%
Health Care	0.5%	1.1%	2.1%	13.5%
Industrials	0.1%	1.3%	0.6%	8.4%
Information Technology	1.6%	3.2%	12.1%	27.6%
Materials	0.1%	0.4%	0.6%	2.6%
Real Estate	0.0%	0.1%	-0.4%	2.4%
Utilities	0.0%	0.2%	-0.3%	2.8%

Source: S&P, FactSet

	MTD	QTD	YTD	Index Weight
MSCI ACWI	4.6%	14.7%	16.3%	100.0%
Communication Services	0.3%	1.4%	2.4%	9.3%
Consumer Discretionary	0.6%	1.9%	4.8%	13.0%
Consumer Staples	0.2%	0.6%	0.5%	7.4%
Energy	0.1%	0.7%	-1.9%	3.0%
Financials	0.7%	3.1%	-2.5%	13.5%
Health Care	0.4%	0.9%	2.3%	11.9%
Industrials	0.3%	1.6%	0.8%	9.7%
Information Technology	1.5%	3.1%	9.6%	21.9%
Materials	0.3%	0.9%	1.1%	4.9%
Real Estate	0.0%	0.2%	-0.6%	2.6%
Utilities	0.1%	0.3%	-0.1%	3.0%

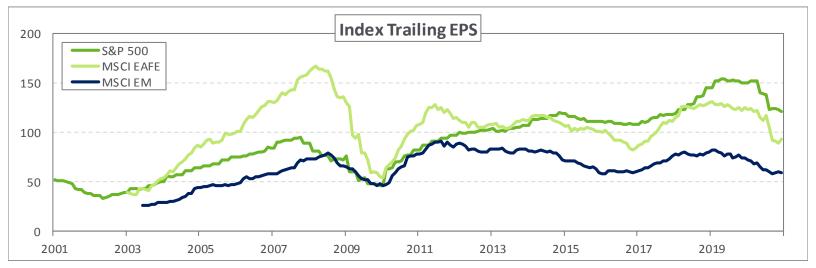
Source: MSCI, FactSet



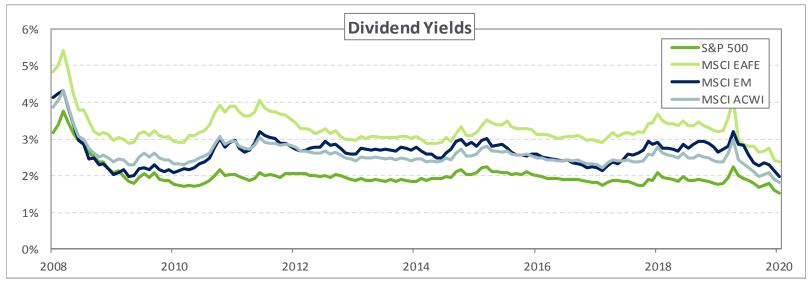




### **EARNINGS & YIELDS**



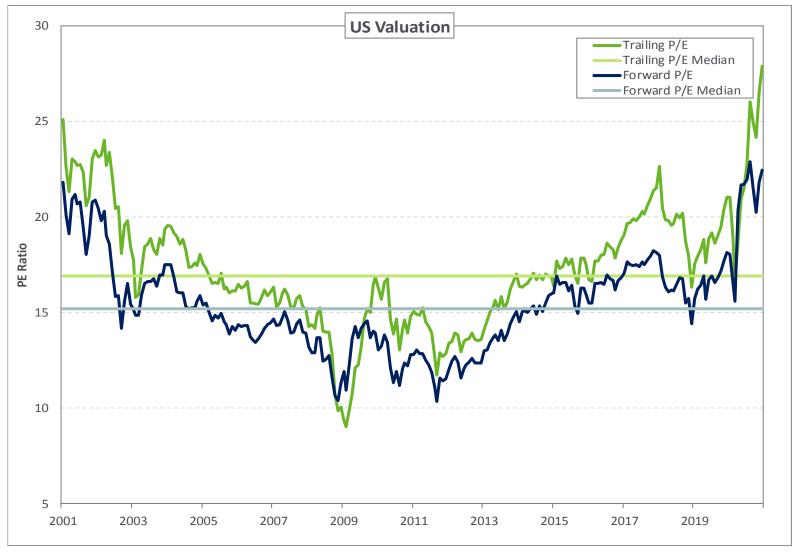
Source: FactSet



Source: FactSet



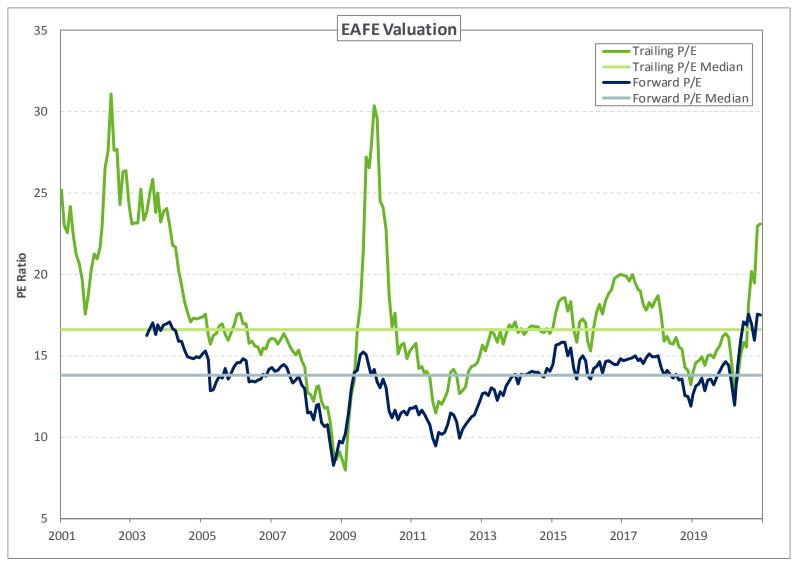
### **US EQUITY VALUATIONS**



Source: S&P, FactSet



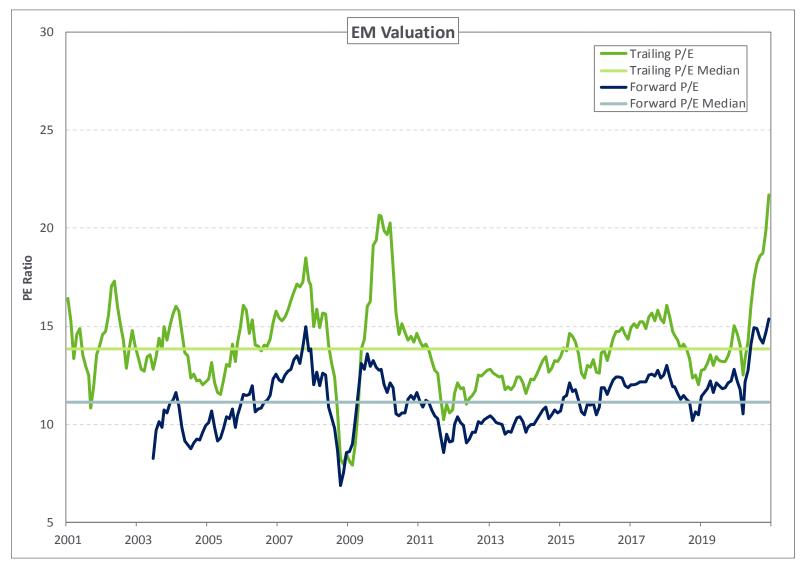
### **EAFE EQUITY VALUATIONS**



Source: MSCI, FactSet



# **EM EQUITY VALUATIONS**







# **CREDIT**

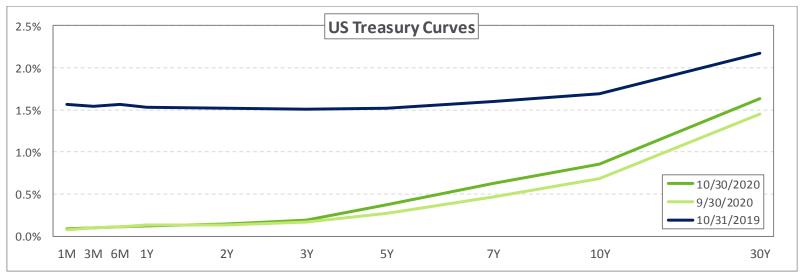
# FIXED INCOME CHARACTERISTICS

	Averages			То	tal Returns (º	%)
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	1.12%	42	6.2	0.1%	7.4%	7.4%
Barclays Treasury	0.57%	-	7.2	-0.2%	7.9%	7.9%
Barclays Agency	0.48%	10	3.7	0.1%	5.4%	5.4%
Barclays MBS	1.25%	39	2.3	0.2%	3.8%	3.8%
Barclays ABS	0.45%	33	2.1	0.2%	4.5%	4.5%
Barclays CMBS	1.02%	49	5.8	0.4%	8.9%	8.9%
Barclays Corp IG	1.74%	96	8.8	0.4%	9.8%	9.8%
Barclays Muni	1.07%	-	5.2	0.6%	5.2%	5.2%
Barclays HY Muni	3.82%	-	7.3	1.9%	4.9%	4.9%
Barclays TIPS	0.69%	-	3.4	1.1%	10.9%	10.9%
Barclays HY	4.18%	360	3.6	1.9%	7.1%	7.1%
Barclays Global Agg	0.83%	37	7.4	1.3%	9.1%	9.1%
JPM EMBI Glob Div	-	350	8.1	1.9%	5.2%	5.2%
JPM GBI - EM	4.30%	-	5.6	3.5%	2.7%	2.7%

Source: Barclays, JP Morgan, FactSet



## **TREASURIES**



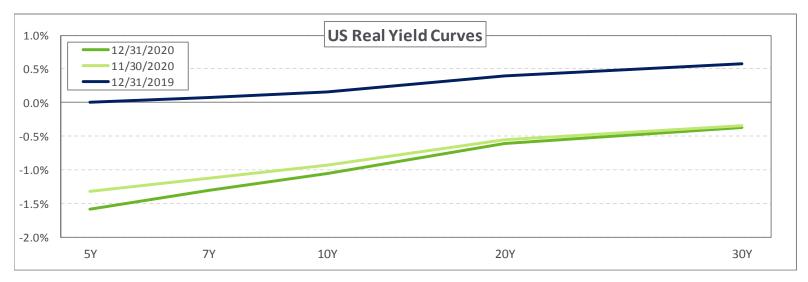
Source: FactSet

		Yield (%)	Total Return (%)		
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	0.08%	0.09%	1.55%	0.01%	0.67%
6M Treasury	0.09%	0.10%	1.59%	0.02%	1.05%
2Y Treasury	0.12%	0.14%	1.57%	0.07%	3.03%
5Y Treasury	0.36%	0.36%	1.69%	0.09%	7.20%
10Y Treasury	0.92%	0.84%	1.92%	-0.58%	10.58%
30Y Treasury	1.65%	1.58%	2.39%	-1.51%	18.65%

Source: FactSet



# **REAL YIELDS**



Source: FactSet

		Real Rates	Breakeven Rates		
	Current	1 Month Ago	12 Months Ago	Current	12 Months
5-Year	-1.59%	-1.32%	0.01%	1.95%	0.01%
7-Year	-1.31%	-1.13%	0.07%	1.96%	0.07%
10-Year	-1.06%	-0.93%	0.15%	1.98%	0.15%
30-Year	-0.37%	-0.35%	0.58%	2.02%	0.58%

Source: FactSet



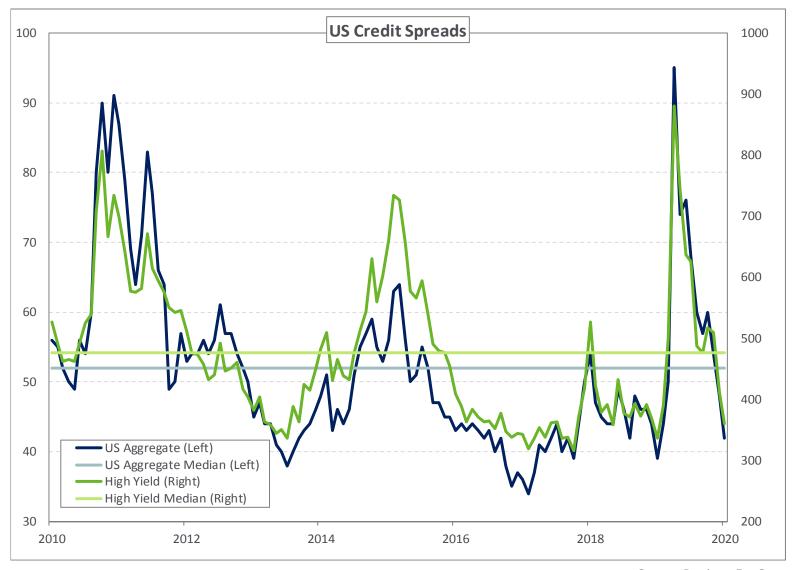
### **NOMINAL YIELDS**







### **CREDIT SPREADS**



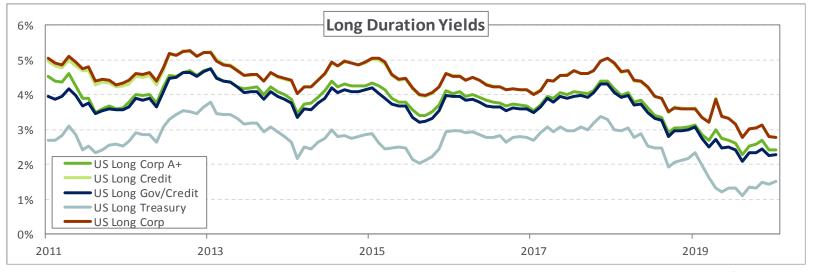




## **LONG DURATION**

Index	Current	1 Month Ago	12 Months Ago	Duration	
Barclays Long Treasury 1.5%		1.4% 2.3%		19.2	
Barclays 20+ STRIPS 1.6%		1.6%	2.4%	27.0	
Barclays Long Credit 2.8%		2.8%	3.6%	15.3	
Barclays Long Gov/Credit 2.3%		2.3%	3.1%	16.8	
Barclays Long Corp A+ 2.5%		2.5%	3.3%	16.1	

Source: Barclays, FactSet



Source: Barclays, FactSet



# **REAL ASSETS**

NEPC, LLC —

### **REAL ASSETS INDEX PERFORMANCE**

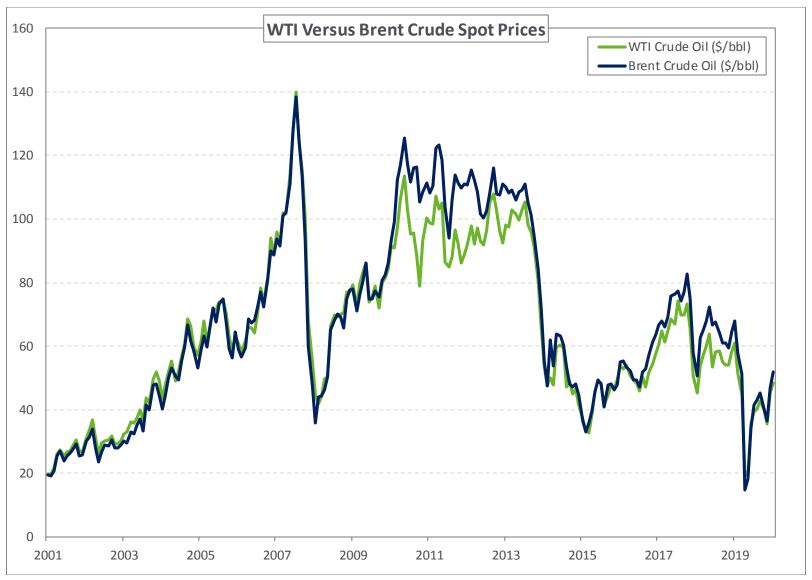
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	5.0%	10.2%	-3.1%	-3.1%	-2.5%	1.0%
Bloomberg Sub Agriculture Index	10.4%	21.4%	16.3%	16.3%	1.9%	-0.8%
Coffee	4.0%	12.8%	-9.4%	-9.4%	-9.2%	-9.1%
Corn	13.6%	25.2%	12.8%	12.8%	0.7%	-4.1%
Cotton	8.3%	15.7%	9.9%	9.9%	-1.6%	3.5%
Soybean	11.7%	27.4%	31.9%	31.9%	5.1%	4.1%
Soybean Oil	13.6%	28.4%	15.8%	15.8%	3.9%	2.3%
Sugar	6.8%	14.7%	10.5%	10.5%	-5.9%	-5.2%
Wheat	9.5%	9.4%	10.2%	10.2%	7.6%	-3.7%
Bloomberg Sub Energy	-0.7%	2.2%	-42.5%	-42.5%	-17.5%	-9.0%
Brent Crude	8.0%	19.4%	-31.3%	-31.3%	-7.5%	2.5%
Heating Oil	7.6%	25.6%	-38.0%	-38.0%	-13.4%	-0.1%
Natural Gas	-12.9%	-18.8%	-41.7%	-41.7%	-28.5%	-23.8%
Unleaded Gas	11.9%	21.0%	-30.7%	-30.7%	-10.5%	-4.7%
WTI Crude Oil	6.5%	18.2%	-50.4%	-50.4%	-19.1%	-9.9%
Bloomberg Sub Industrial Metals	0.3%	14.2%	16.2%	16.2%	0.1%	9.2%
Aluminum	-3.6%	12.0%	3.9%	3.9%	-6.0%	3.6%
Copper	2.4%	15.8%	23.1%	23.1%	1.4%	9.2%
Nickel	3.5%	14.1%	16.5%	16.5%	8.9%	12.6%
Zinc	-1.7%	13.6%	18.4%	18.4%	-2.7%	13.4%
Bloomberg Sub Precious Metals	8.8%	2.4%	25.4%	25.4%	11.9%	11.2%
Gold	6.4%	-0.4%	20.8%	20.8%	11.5%	11.0%
Silver	16.9%	11.8%	42.1%	42.1%	13.3%	11.9%
Bloomberg Sub Livestock	2.1%	2.4%	-23.3%	-23.3%	-10.8%	-6.6%
Lean Hogs	2.5%	8.7%	-31.3%	-31.3%	-20.9%	-13.2%
Live Cattle	1.9%	-0.4%	-17.8%	-17.8%	-5.2%	-2.9%

Source: Bloomberg, FactSet

Bloomberg subindex total return indices reflects the return of the underlying one month commodity futures price movements



### **OIL MARKETS**







**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen -** The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

Formula: (Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

**R-Squared** – Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

Formula: Calculation Average (X-Y)/Downside Deviation (X-Y) \* 2 Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

**Standard Deviation** - The standard deviation is a statistical term that de-scribes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

Formula: (Annualized Return of Portfolio – Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula: Tracking Error = Standard Deviation  $(X-Y) * \sqrt{(\# of periods per year)}$ Where X = periods portfolio return and <math>Y = the period's benchmark return For monthly returns, the periods per year = 12 For quarterly returns, the periods per year = 4

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula: (Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Reta

**Up/Down Capture Ratio** - A measure of what percentage of a market's re-turns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

 $\label{eq:UpsideCapture} UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) \ when \ Period \\ Benchmark \ Return \ is \ > \ = \ 0$ 

 $\label{eq:upsideCapture} UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) \ when \ Period \ Benchmark \ Return \ is > = 0$ 



# Of Portfolios/Observations<sup>1</sup> - The total number of data points that make up a specified universe

**Allocation Index**<sup>3</sup> - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect<sup>2</sup> - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

Agency Bonds (Agencies)<sup>3</sup> - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

**Asset Backed Securities (ABS)**<sup>3</sup> - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

Attribution<sup>3</sup> - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions

**Average Effective Maturity** - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

**Batting Average<sup>1</sup>** - A measurement representing an investment manager's ability to meet or beat an index.

Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.

**Brinson Fachler (BF) Attribution<sup>1</sup>** - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution<sup>1</sup> - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

Corporate Bond (Corp) <sup>4</sup> - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

**Correlation¹** - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: 'InvestorForce, 'Interaction Effect Performance Attribution, 'NEPC, LLC, 'Investopedia, 'Hedgeco.net



Coupon<sup>4</sup> – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

Currency Effect<sup>1</sup> - Is the effect that changes in currency exchange rates over time affect excess performance.

**Derivative Instrument**<sup>3</sup> - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

**Downside Deviation<sup>1</sup>** - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns

#### Formula:

Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

**Duration**<sup>3</sup> - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio<sup>1</sup> – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond<sup>3</sup> - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle<sup>5</sup> – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark<sup>4</sup> - The highest peak in value that an investment fund/ account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

**Hurdle Rate**<sup>4</sup> - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects<sup>2</sup> - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median<sup>3</sup> - The value (rate of return, market sensitivity, etc.) that exceeds onehalf of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration<sup>3</sup> - The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)<sup>3</sup> - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni) <sup>4</sup> - A debt security issued by a state, municipality or county to finance its capital expenditures.

**Net Investment Change<sup>1</sup>** – Is the change in an investment after accounting for all Net Cash Flows.

**Performance Fee<sup>4</sup>** - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: 1InvestorForce, 2Interaction Effect Performance Attribution, 3NEPC, LLC, 4Investopedia, 5Hedgeco.net



**Policy Index**<sup>3</sup> - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

**Price to Book** (P/B)<sup>4</sup> - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

Price to Earnings (P/E)<sup>3</sup> - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

Price to Sales (P/S)<sup>4</sup> - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

Return on Equity (ROE)<sup>4</sup> - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

Selection (or Manager) Effect<sup>2</sup> - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate<sup>5</sup> – is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

**Tiered Fee<sup>1</sup>** – A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

**Total Effects²** - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

**Total Return<sup>1</sup>** - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe<sup>3</sup> - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation - Standard Deviation of Positive Returns

**Weighted Avg. Market Cap.** <sup>4</sup> - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)<sup>3</sup> - The current yield of a security is the current indicated annual dividend rate divided by current price.

Yield to Maturity<sup>3</sup> -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: InvestorForce, Interaction Effect Performance Attribution, NEPC, LLC, Investopedia, Hedgeco.net



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