

QUARTERLY PERFORMANCE REPORT

SAN BERNARDINO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

September 30, 2020

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San Bernardino County Employees'
Retirement Association



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

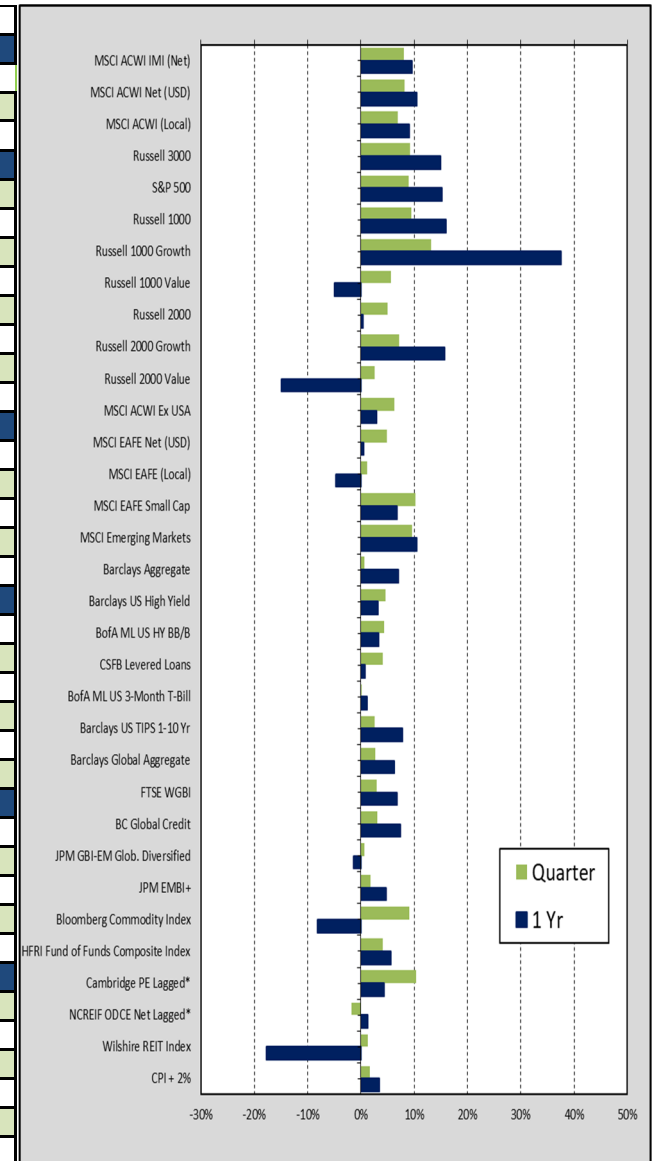
ECONOMIC ENVIRONMENT

- **Q2 Real GDP (3rd estimate) plunged at an annual rate of -31.4%.**
 - Retail sales ended August at +6.2% on a YoY basis. In the same period last year the YoY growth rate was 4.3%.
 - Corporate profits (ended April) as a percent of GDP decreased to 7.98% from 8.07% (in January) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended August 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.
 - The U.S. trade deficit widened (ended July) and is the largest it has been in 12 years.
- **The unemployment rate was down to 7.9% ended in Q3 from 11.1%; U-6, a broader measure of unemployment, decreased to 12.8% in Q3 from 18.0%.**
 - The labor force participation rate ended Q3 at 61.4% 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 August) increased to 223.97 from 219.87 (in June) and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw an up-tick to 1.41% in Q3 from 0.71% ended Q2; Capacity Utilization increased to 71.5% in Q3 from 68.6% in Q2.**
- **Fed Funds rate remains at a targeted range of 0.00%-to-0.25%. The 10-year Treasury Yield (constant maturity) finished Q3 unchanged at 0.7%.**
- **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 Q3 to 30.8x, and is higher than the 10-year average of 26.2x.**
 - Cyclically adjusted Shiller PE ratio remains above the long-term average of 16.74x



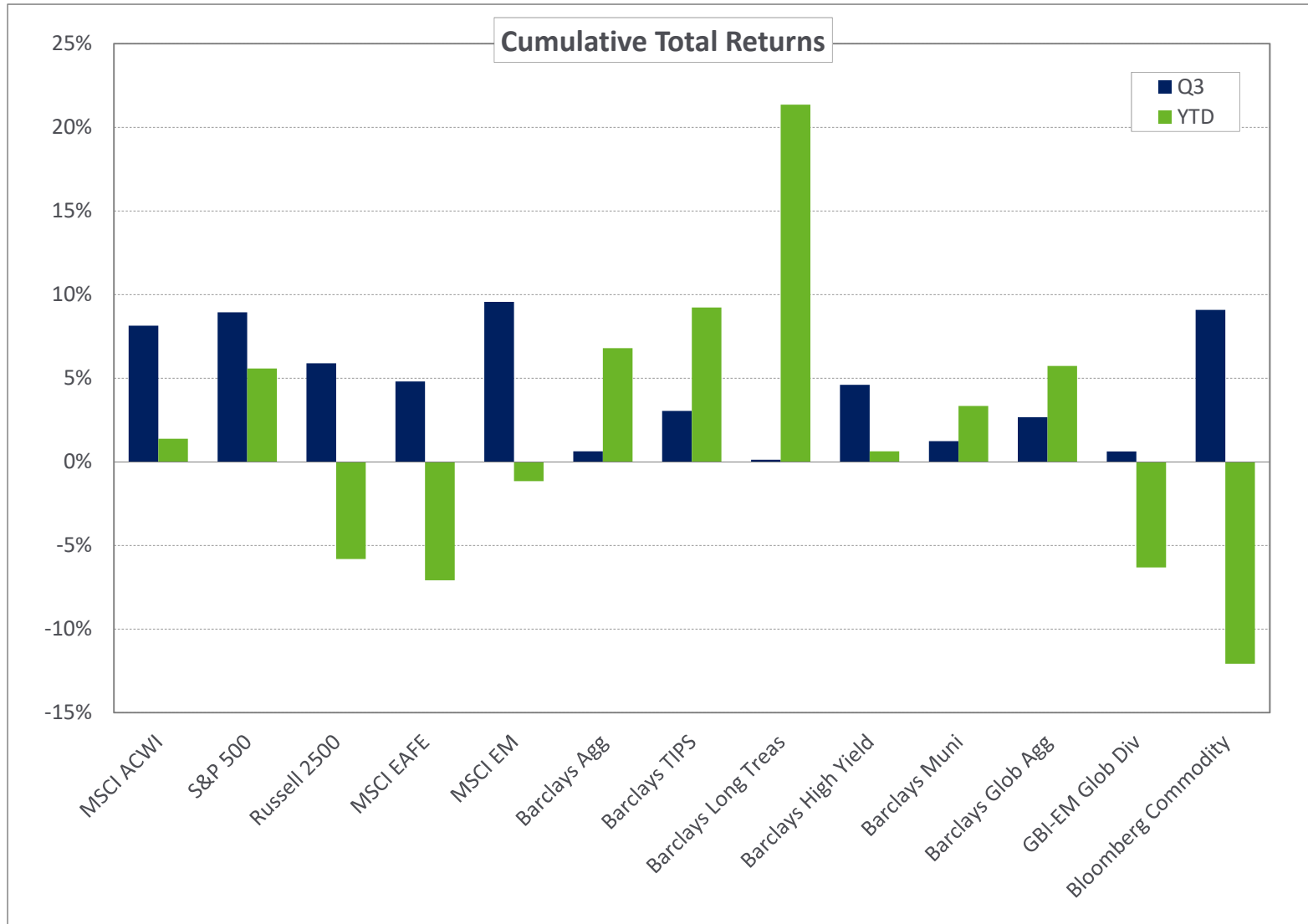
MARKET ENVIRONMENT – Q3 2020 OVERVIEW

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI IMI (Net)	World with Small Cap	8.11%	9.57%	6.47%	9.97%	8.47%
MSCI ACWI Net (USD)	World W/O Small Cap	8.13%	10.44%	7.12%	10.30%	8.55%
MSCI ACWI (Local)	World (Local Currency)	6.94%	9.05%	7.32%	10.09%	9.54%
Domestic Equity Benchmarks						
Russell 3000	Domestic All Cap	9.21%	15.00%	11.65%	13.69%	13.48%
S&P 500	Large Core	8.93%	15.15%	12.28%	14.15%	13.74%
Russell 1000	Large Core	9.47%	16.01%	12.38%	14.09%	13.76%
Russell 1000 Growth	Large Growth	13.22%	37.53%	21.67%	20.10%	17.25%
Russell 1000 Value	Large Value	5.59%	-5.03%	2.63%	7.66%	9.95%
Russell 2000	Small Core	4.93%	0.39%	1.77%	8.00%	9.85%
Russell 2000 Growth	Small Growth	7.16%	15.71%	8.18%	11.42%	12.34%
Russell 2000 Value	Small Value	2.56%	-14.88%	-5.13%	4.11%	7.09%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	6.25%	3.00%	1.16%	6.23%	4.00%
MSCI EAFE Net (USD)	Int'l Developed	4.80%	0.49%	0.62%	5.26%	4.62%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	1.22%	-4.74%	0.55%	4.83%	6.26%
MSCI EAFE Small Cap	Small Cap Int'l	10.25%	6.84%	1.40%	7.37%	7.33%
MSCI Emerging Markets	Emerging Equity	9.56%	10.54%	2.42%	8.97%	2.51%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	0.62%	6.98%	5.24%	4.18%	3.64%
Barclays US High Yield	High Yield	4.60%	3.25%	4.21%	6.79%	6.47%
BofAML US HY BB/B	High Yield	4.33%	3.28%	4.47%	6.63%	6.32%
CSFB Levered Loans	Bank Loans	4.13%	0.84%	3.16%	4.03%	4.44%
BofAML US 3-Month T-Bill	Cash	0.04%	1.10%	1.69%	1.20%	0.64%
Barclays US TIPS 1-10 Yr	Inflation	2.51%	7.75%	4.56%	3.66%	2.72%
Global Fixed Income Benchmarks						
Barclays Global Aggregate	Global Core Bonds	2.66%	6.24%	4.09%	3.92%	2.36%
FTSE WGBI	World Gov. Bonds	2.94%	6.76%	4.37%	3.95%	1.86%
BC Global Credit	Global Bonds	3.06%	7.47%	4.75%	4.90%	3.76%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	0.61%	-1.45%	0.17%	4.78%	0.52%
JPM EMBI+	Em. Mkt. Bonds	1.75%	4.76%	2.50%	5.47%	4.82%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	9.07%	-8.20%	-4.18%	-3.09%	-6.03%
HFRI Fund of Funds Composite Index	Fund of Hedge Funds	4.13%	5.59%	2.84%	3.06%	2.87%
Cambridge PE Lagged*	Private Equity	10.34%	4.29%	10.93%	10.50%	13.04%
NCREIF ODCE Net Lagged*	Real Estate	-1.75%	1.33%	4.72%	6.35%	9.78%
Wilshire REIT Index	REIT	1.26%	-17.69%	0.44%	3.65%	8.00%
CPI + 2%	Inflation/Real Assets	1.66%	3.44%	3.88%	3.89%	3.81%



* As of 6/30/2020







RISK ASSETS RALLIED



Source: S&P, Russell, MSCI, JPM, Bloomberg, FactSet



ECONOMIC DATA HAS SLOWLY IMPROVED

Metric	12/31/19	06/30/20	09/30/20	Trend
S&P 500 NTM Earnings Estimate	\$177.8	\$145.0	\$157.6	
US Real GDP (QoQ%)	2.4%	-31.4%	25.4% ¹	
US 10 Year Breakeven Inflation	1.8%	1.3%	1.6%	
US Unemployment Rate	3.5%	11.1%	7.9%	
Continued Claims for Unemployment	1.7M	19.0M	11.8M ²	
Federal Reserve Balance Sheet as % of Nominal GDP	19.2%	36.3%	32.9%	

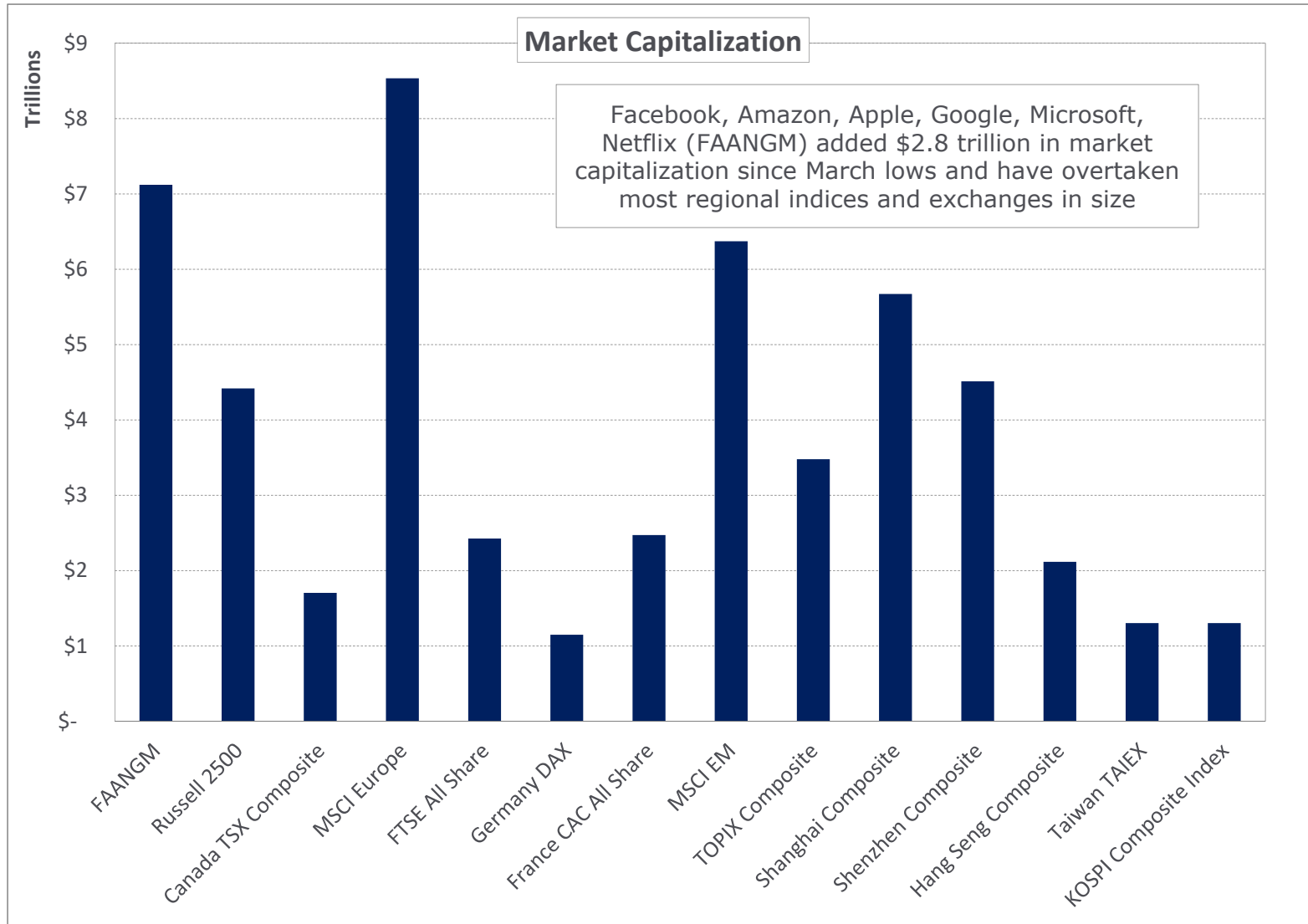
Source: US Bureau of Labor Statistics, Federal Reserve, FactSet, NEPC
 NTM represents next 12 months

¹The 09/30/20 real GDP figure represents the consensus estimate from FactSet

²The 09/30/20 Continued Claims represents data as of 9/18/2020



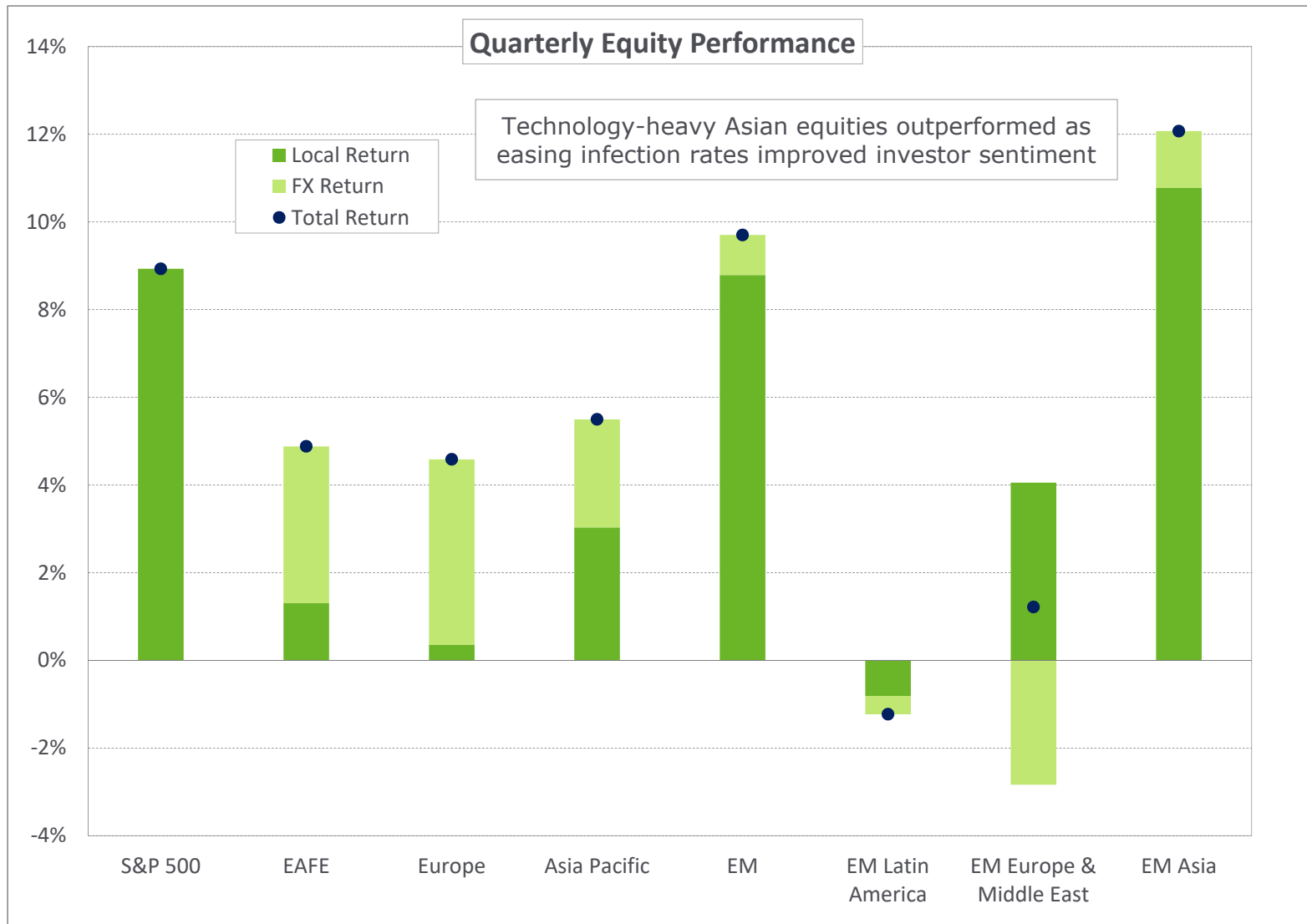
FAANGM NOW LARGER THAN MOST INDICES



Source: MSCI, S&P, Russell, FTSE, DAX, CAC, TOPIX, SSE, SZSE, Hang Seng, TAIEX, KOSPI, FactSet



DOLLAR WEAKNESS BOLSTERED NON-US ASSETS

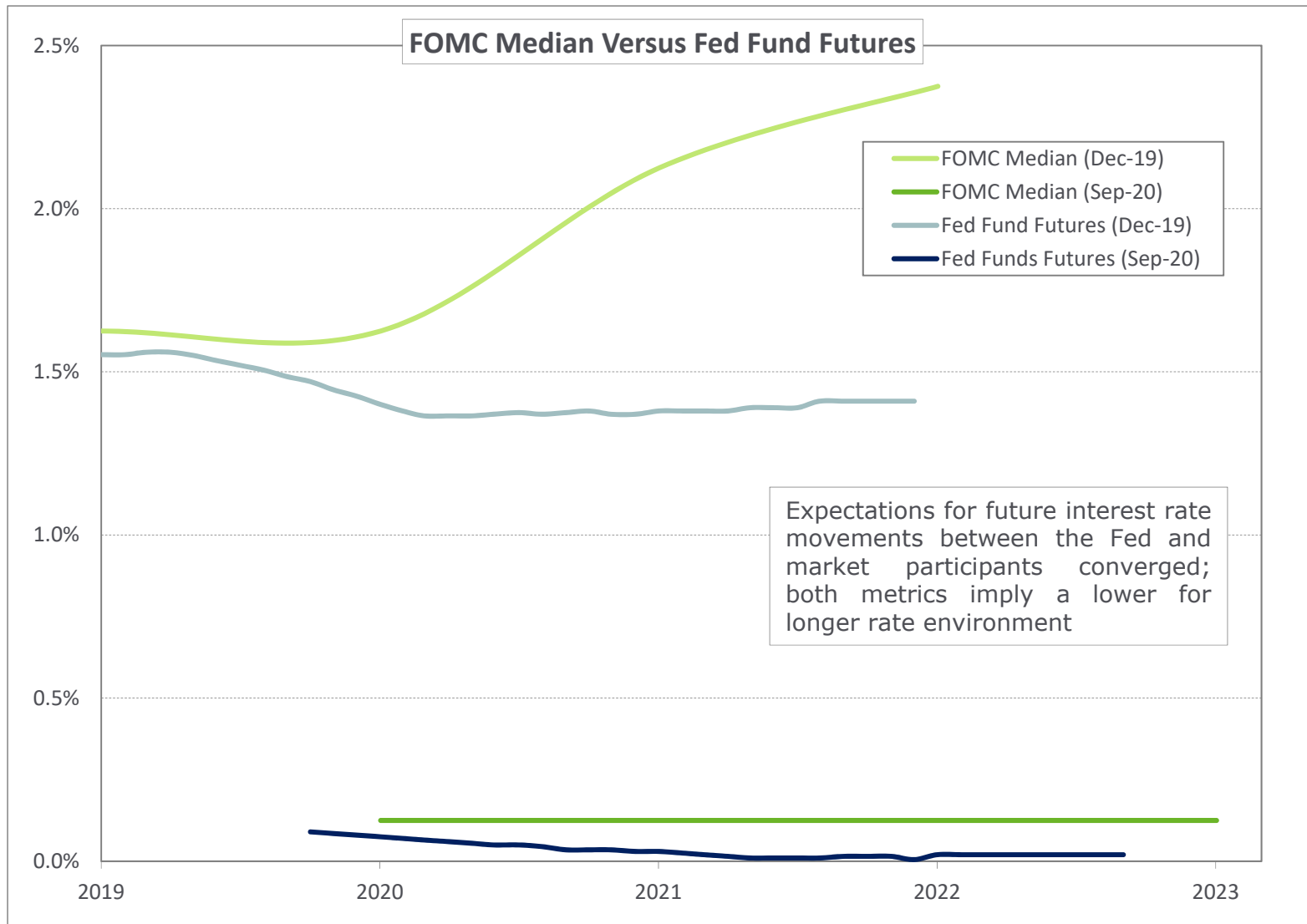


Source: S&P, MSCI, FactSet

Asia Pacific represents (from highest to lowest) Japan, China, Australia, Taiwan, South Korea, and Other
 EM Europe & Middle East represents (from highest to lowest) Russia, Saudi Arabia, Qatar, Poland, United Arab Emirates, and Other



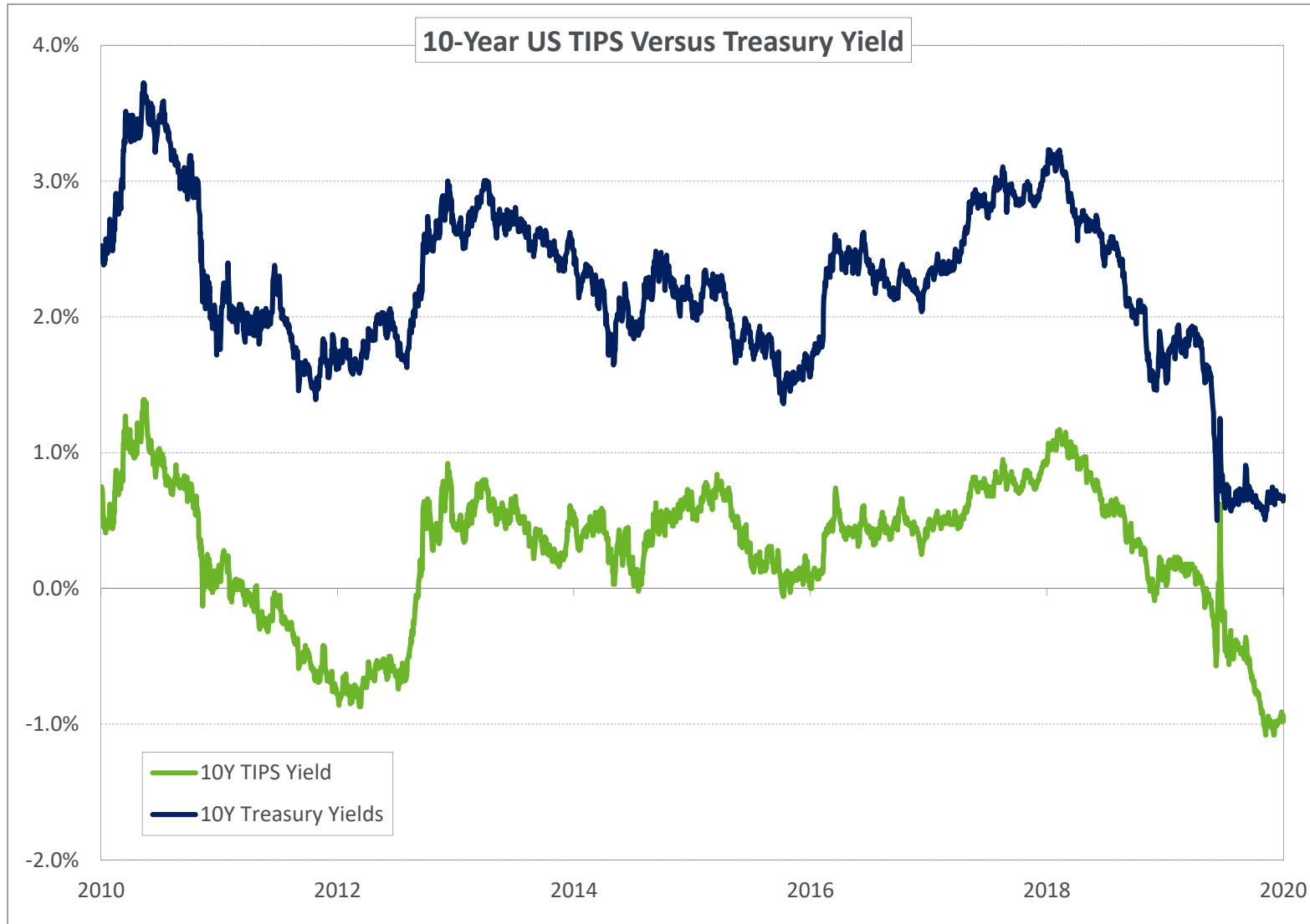
FED FUNDS RATE EXPECTED TO REMAIN LOW



Source: Federal Reserve, FactSet



TREASURY YIELDS FELL TO HISTORICAL LOWS



Source: FactSet



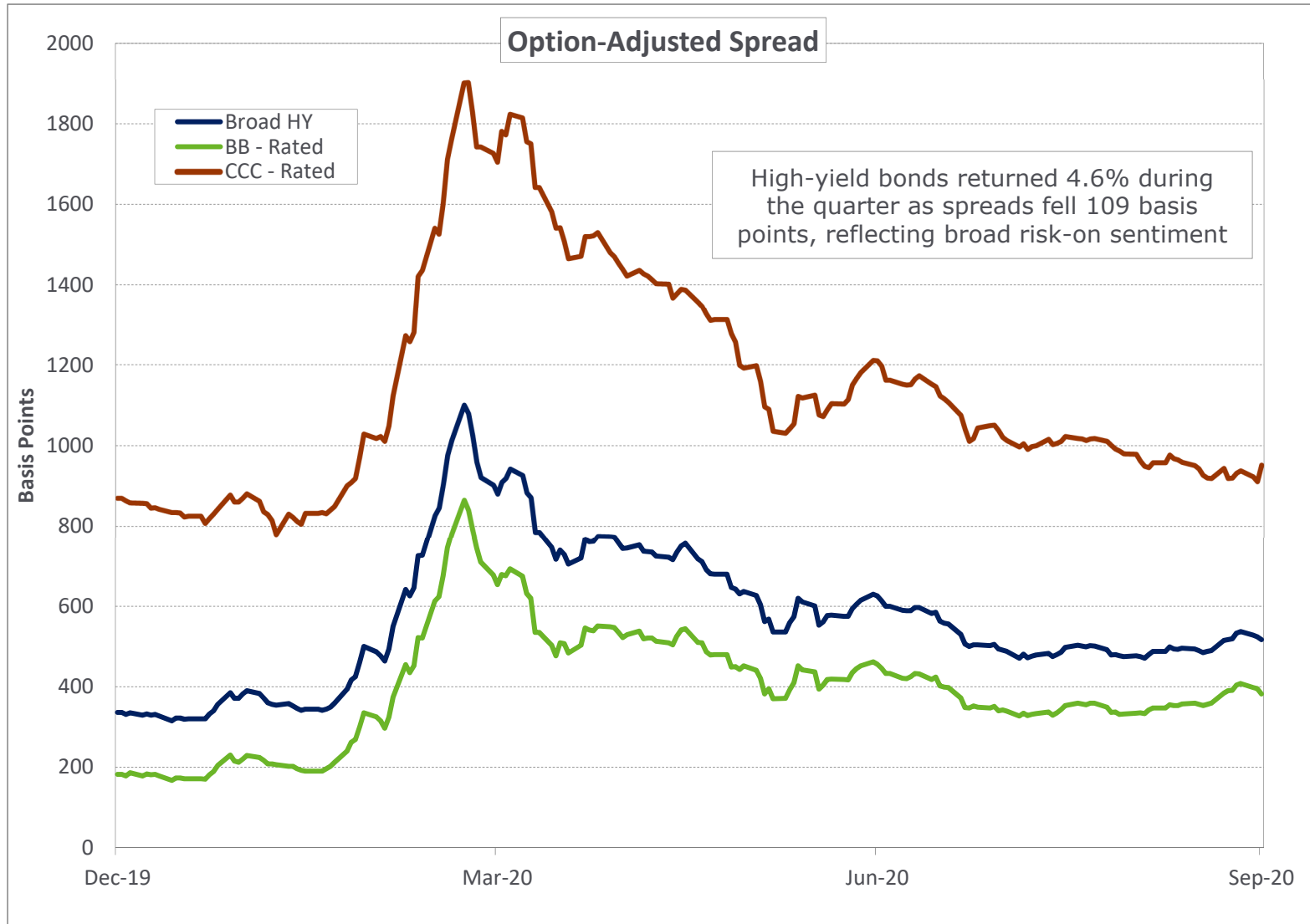
DEBT ISSUANCE LIKELY TO HIT RECORD LEVELS



Source: Federal Reserve System, FactSet
2020* represents issuance data for the first eight months



US SPREADS CONTINUED TO TIGHTEN



Source: Bloomberg, FactSet



TOTAL FUND PERFORMANCE

NEPC, LLC

TOTAL FUND PERFORMANCE SUMMARY (NET OF FEES)

	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
Total Fund	\$10,787,124,612	5.9%	7	-2.0%	82	1.6%	93	4.2%	81	6.3%	86	7.3%	71
<i>Policy Index</i>		4.9%	36	3.6%	3	8.1%	19	6.2%	24	7.4%	43	6.9%	80
<i>S&P 500</i>		8.9%	1	5.6%	1	15.1%	1	12.3%	1	14.1%	1	13.7%	1
<i>BBgBarc US Aggregate TR</i>		0.6%	99	6.8%	1	7.0%	33	5.2%	47	4.2%	99	3.6%	99
<i>60% MSCI ACWI (Net) / 40% FTSE WGBI</i>		6.1%	3	4.2%	1	9.6%	4	6.4%	23	8.0%	25	6.1%	93
<i>InvMetrics Public DB > \$1B Net Median</i>		4.7%		0.2%		5.2%		5.1%		7.4%		7.4%	

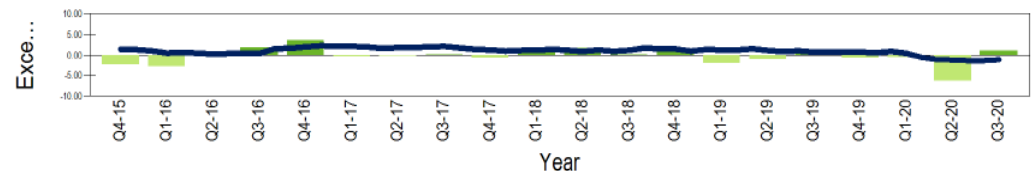
In the year ended September 30, 2020 the Fund return of 1.6% ranked in the 93rd percentile of Public Funds > \$1 Billion. The Fund's assets totaled \$10.79 billion, up from \$10.75 billion in the past year.

The Fund experienced a net investment gain of \$232.4 million in the past year including an investment gain of \$612.2 million in the third calendar quarter.

In the three-year period ended September 30, 2020 the Fund return of 4.2% ranked in the 81st percentile among its peers. The Sharpe Ratio over this period of 0.4 ranks in the 44th percentile.

In the five-year period ended September 30, 2020 the Fund return of 6.3% ranked in the 86th percentile among its peers. On a risk adjusted basis the Fund's Sharpe Ratio ranked in the top decile in its peer group while the Sortino Ratio ranked in the 44th percentile.

Rolling 5 Year Annualized Excess Return



- Quarterly Outperformance
- Quarterly Underperformance
- Rolling 5 Year Excess Performance vs. Policy Index

3 Years Ending September 30, 2020						
	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	7.0%	1	0.4	44	0.5	57
InvMetrics Public DB > \$1B Net Median	10.1%	--	0.3	--	0.6	--

5 Years Ending September 30, 2020						
	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	5.8%	1	0.9	10	0.9	44
InvMetrics Public DB > \$1B Net Median	8.6%	--	0.7	--	0.9	--

Note: InvestMetrics Public Funds >\$1B Net of Fee universe contains 29 portfolios.



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TOTAL FUND PERFORMANCE SUMMARY

Statistics Summary								
1 Year Ending September 30, 2020								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	1.6%	93	11.0%	6	0.1	89	0.1	88
InvMetrics Public DB > \$1B Net Median	5.2%	--	14.1%	--	0.3	--	0.4	--

Statistics Summary								
3 Years Ending September 30, 2020								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	4.2%	81	7.0%	1	0.4	44	0.5	57
InvMetrics Public DB > \$1B Net Median	5.1%	--	10.1%	--	0.3	--	0.6	--

Statistics Summary								
5 Years Ending September 30, 2020								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	6.3%	86	5.8%	1	0.9	10	0.9	44
InvMetrics Public DB > \$1B Net Median	7.4%	--	8.6%	--	0.7	--	0.9	--

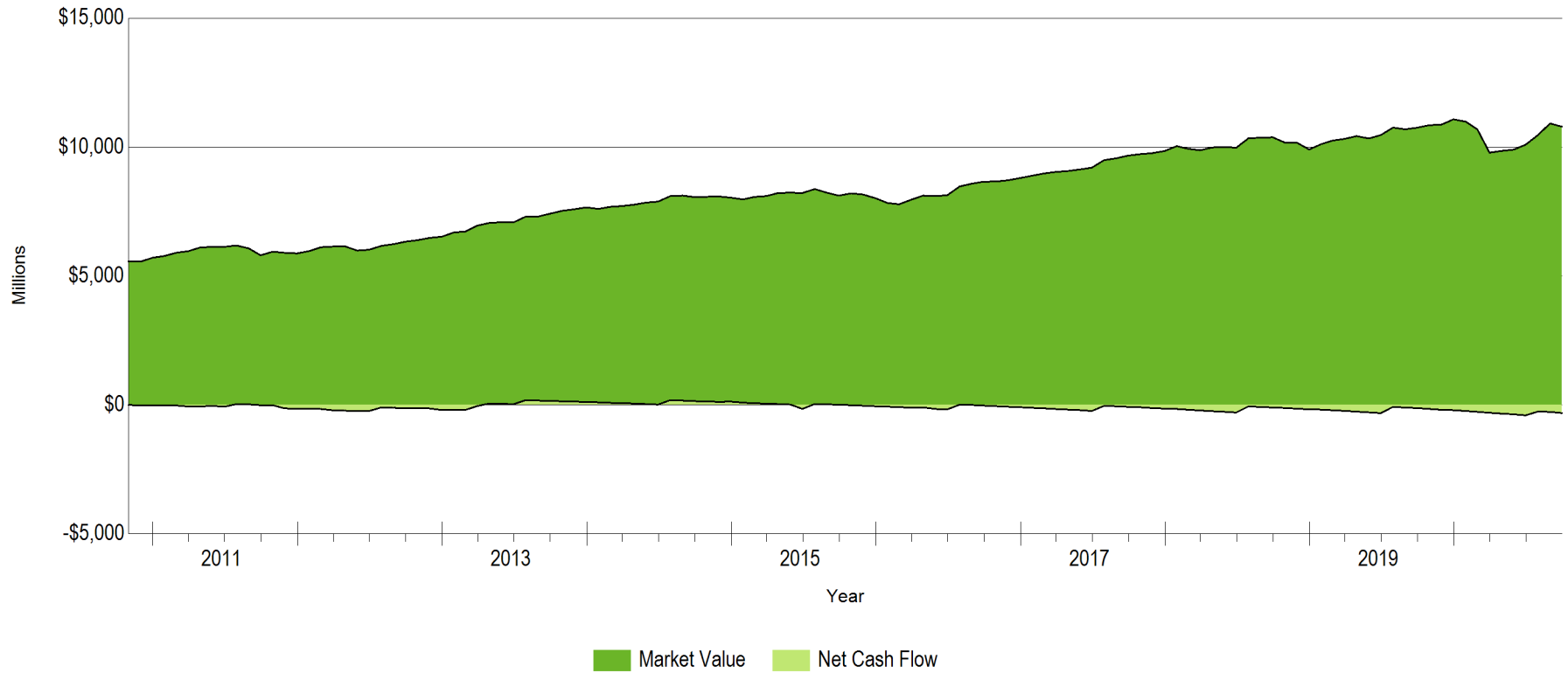
Sortino Ratio requires at least two negative points during the time period in order to calculate



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TOTAL FUND ASSET GROWTH SUMMARY

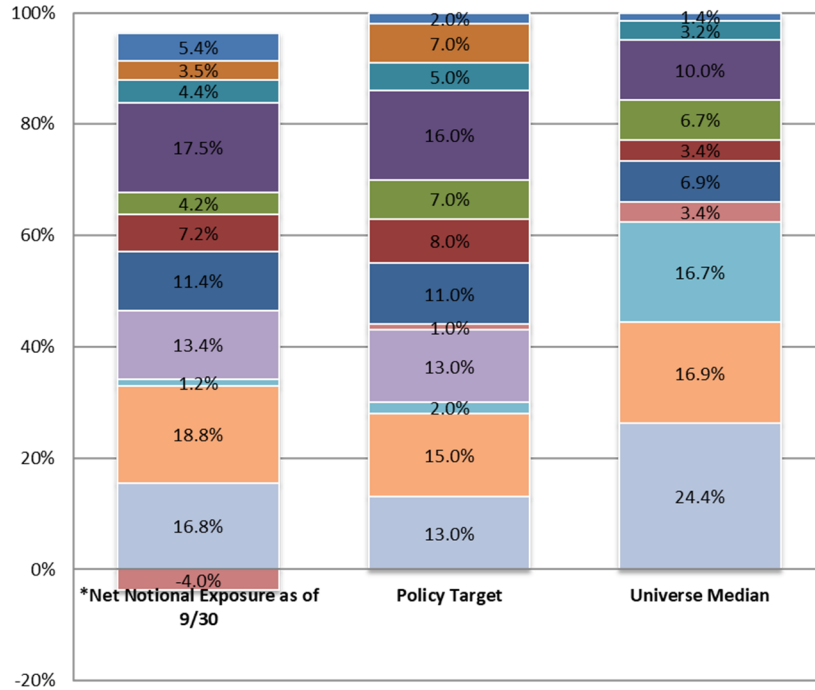
10 Years Ending September 30, 2020



	Last Three Months	Year-To-Date	One Year	Five Years	Ten Years
Beginning Market Value	\$10,087,404,958	\$11,074,080,814	\$10,748,847,525	\$8,112,094,828	\$5,431,562,245
Net Cash Flow	\$87,494,246	-\$113,708,857	-\$194,162,831	-\$322,904,672	-\$316,006,045
Net Investment Change	\$612,225,408	-\$173,247,345	\$232,439,917	\$2,997,934,456	\$5,671,568,412
Ending Market Value	\$10,787,124,612	\$10,787,124,612	\$10,787,124,612	\$10,787,124,612	\$10,787,124,612



TOTAL FUND PERFORMANCE SUMMARY



	*Net Notional Exposure	*Net Notional Exposure as of 9/30	Policy Target	*Difference	Policy Ranges	Within Range
US Equities	1,808,107	16.8%	13.0%	3.8%	8%-18%	Yes
Int'l Equities	2,029,017	18.8%	15.0%	3.8%	10%-20%	Yes
U.S. Core Fixed Income	134,300	1.2%	2.0%	-0.8%	-3%-7%	Yes
US Credit	1,448,354	13.4%	13.0%	0.4%	8%-18%	Yes
Non-US Core Fixed Income	(431,485)	-4.0%	1.0%	-5.0%	-4%-6%	Yes
Non-US Credit	1,232,233	11.4%	11.0%	0.4%	6%-16%	Yes
Emerging Market Debt	775,862	7.2%	8.0%	-0.8%	3%-13%	Yes
Real Estate	457,247	4.2%	7.0%	-2.8%	0%-14%	Yes
Private Equity	1,887,701	17.5%	16.0%	1.5%	6%-21%	Yes
Real Assets	478,427	4.4%	5.0%	-0.6%	0%-10%	Yes
Absolute Return	382,941	3.5%	7.0%	-3.5%	0%-12%	Yes
Cash	584,422	5.4%	2.0%	3.4%	0%-10%	Yes
	10,787,125	100.0%	100.0%			

- US Equities
- Int'l Equities
- U.S. Core
- US Credit
- Non-US Core Fixed Income
- Non-US Credit
- Emerging Market Debt
- Real Estate
- Private Equity
- Real Assets
- Absolute Return
- Cash



TOTAL FUND PERFORMANCE SUMMARY

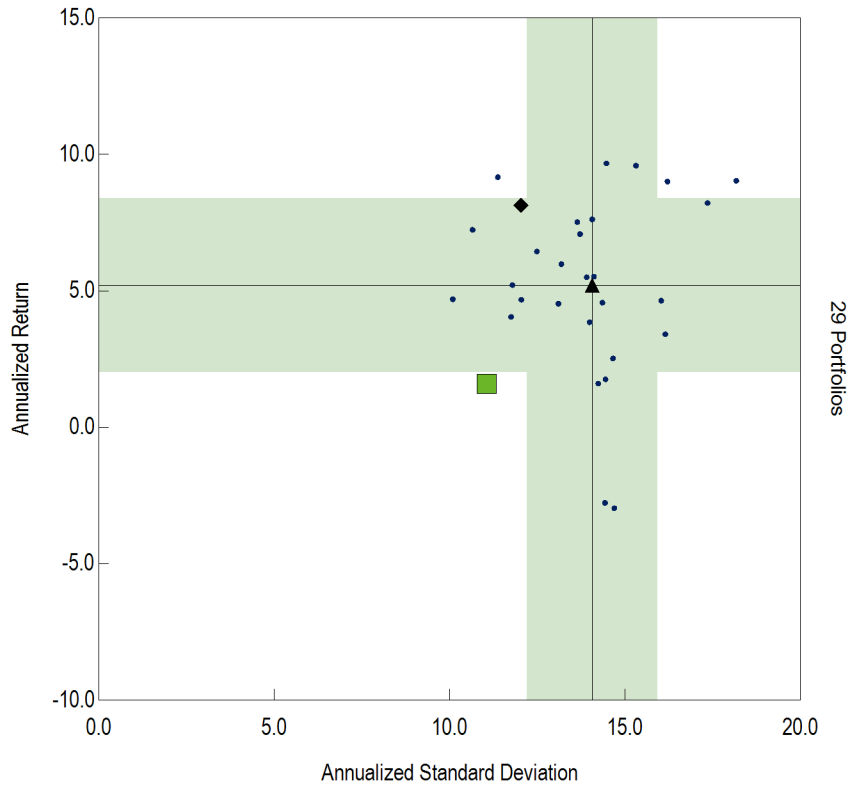
<u>Asset Class</u>	<u>Physical Exposure</u>		<u>Delta Adjusted Synthetic Exposure</u>		<u>Net Position</u>		<u>Overlay Target</u>		<u>Policy Target</u>	
Total Market Value	10,879.8	100.0%	-0.0	0.0%	10,879.8	100.0%	10,879.8	100.0%	10,879.8	100.00%
Cash	1,996.9	18.35%	-1,715.3	-15.77%	281.6	2.59%	0.0	0.0%	0.0	0.00%
Cash	1,996.9	18.35%	-1,715.3	-15.77%	281.6	2.59%	0.0	0.0%	0.0	0.00%
Equity	1,595.7	14.67%	2,235.3	20.55%	3,831.0	35.21%	4,120.8	37.88%	4,025.5	37.00%
Emerging Markets	460.8	4.24%	364.1	3.35%	824.9	7.58%	863.1	7.93%	843.2	7.75%
Equity Delta Hedge	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
International Developed	48.2	0.44%	1,159.3	10.66%	1,207.5	11.1%	1,252.9	11.52%	1,224.0	11.25%
US Large Cap	1,086.4	9.99%	344.2	3.16%	1,430.5	13.15%	1,614.9	14.84%	1,577.6	14.50%
US Small Cap	0.2	0.0%	367.8	3.38%	368.0	3.38%	389.8	3.58%	380.8	3.50%
Fixed	3,841.6	35.31%	-520.0	-4.78%	3,321.5	30.53%	3,313.3	30.45%	3,236.8	29.75%
EM High Yield CDX	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
Global ex US Fixed Income	2,316.8	21.29%	-654.4	-6.01%	1,662.4	15.28%	1,670.6	15.35%	1,632.0	15.00%
High Yield	1,188.5	10.92%	0.0	0.0%	1,188.5	10.92%	1,058.0	9.72%	1,033.6	9.50%
US Fixed Income	336.3	3.09%	134.3	1.23%	470.6	4.33%	584.7	5.37%	571.2	5.25%
Other	3,445.7	31.67%	0.0	0.0%	3,445.7	31.67%	3,445.7	31.67%	3,617.5	33.25%
Alternatives	47.7	0.44%	0.0	0.0%	47.7	0.44%	47.7	0.44%	380.8	3.50%
Commodities	274.4	2.52%	0.0	0.0%	274.4	2.52%	274.4	2.52%	97.9	0.90%
Infrastructure	144.8	1.33%	0.0	0.0%	144.8	1.33%	144.8	1.33%	43.5	0.40%
Private Equity	1,860.2	17.1%	0.0	0.0%	1,860.2	17.1%	1,860.2	17.1%	1,838.7	16.90%
Real Estate	471.2	4.33%	0.0	0.0%	471.2	4.33%	471.2	4.33%	609.3	5.60%
Tactical Cash	647.4	5.95%	0.0	0.0%	647.4	5.95%	647.4	5.95%	647.4	5.95%



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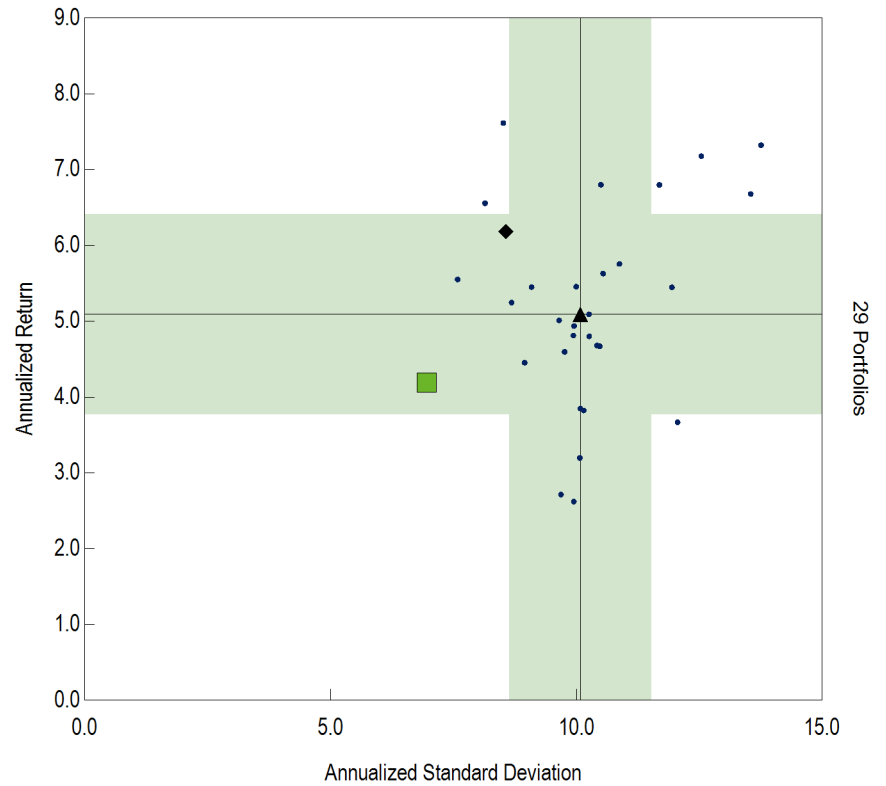
TOTAL FUND RISK/RETURN

1 Year Ending September 30, 2020



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

3 Years Ending September 30, 2020



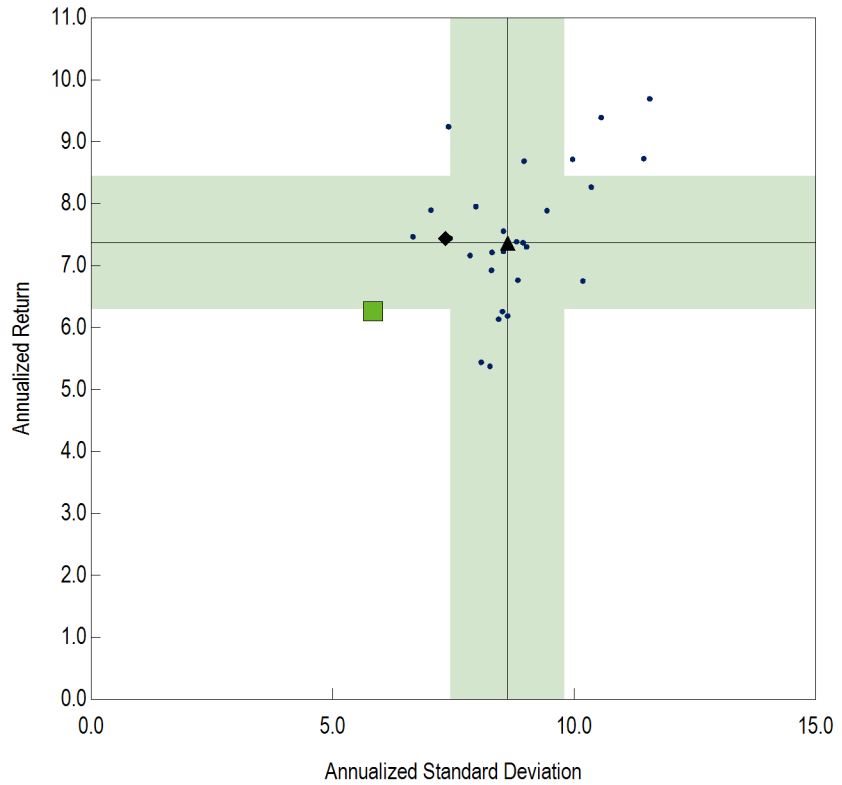
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Net



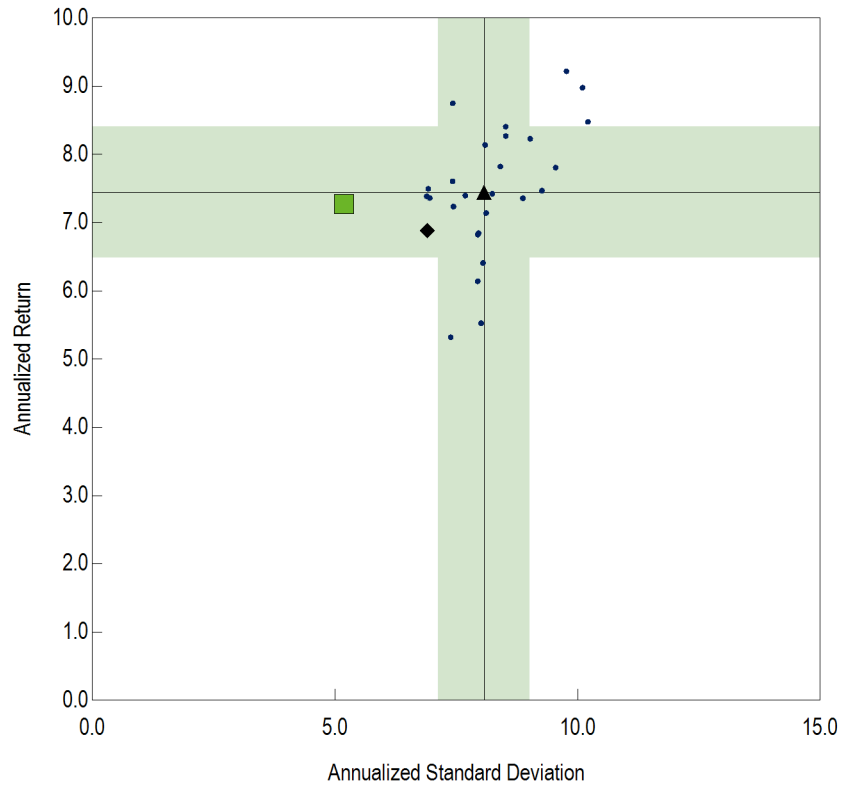
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TOTAL FUND RISK/RETURN

5 Years Ending September 30, 2020



10 Years Ending September 30, 2020



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

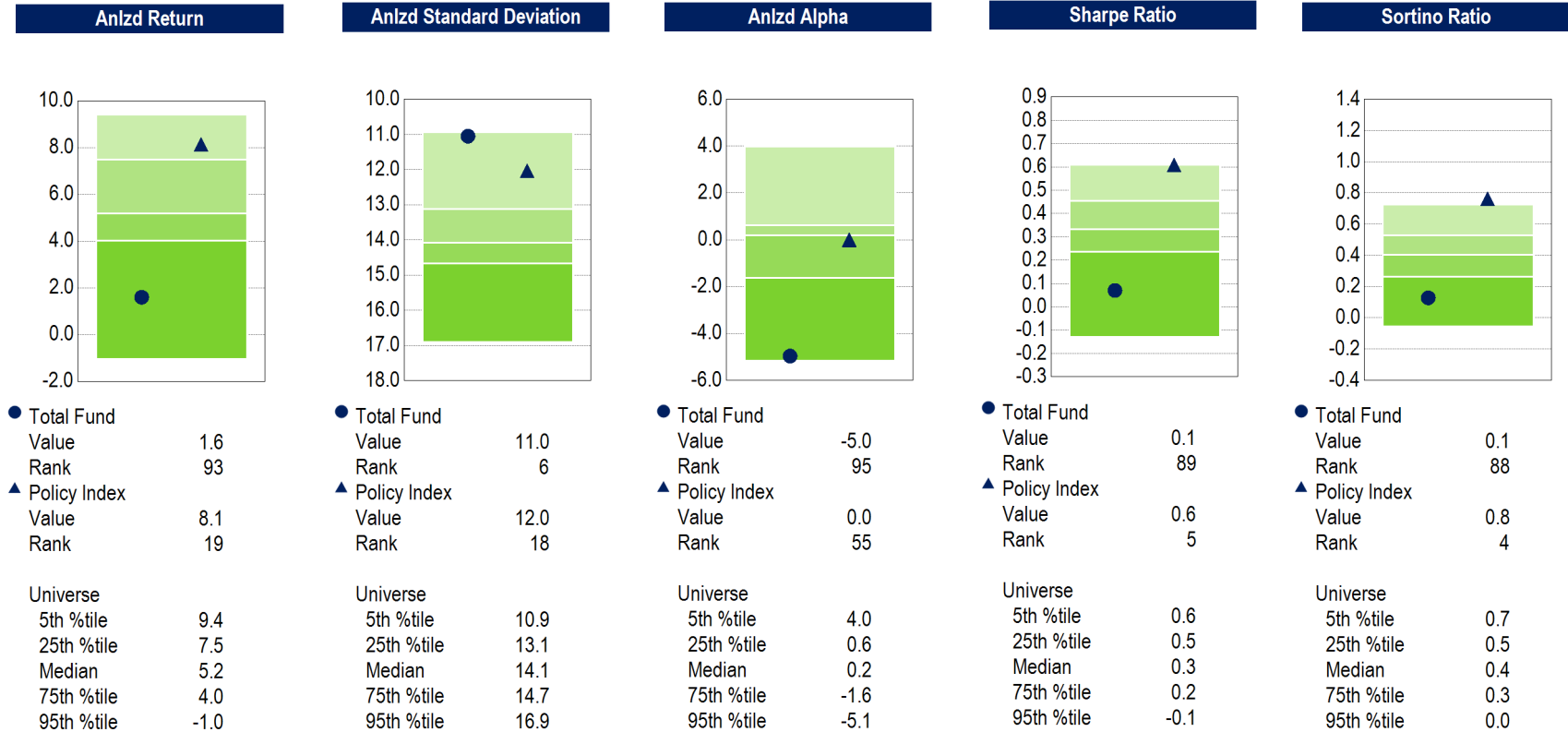
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Net



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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



Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 29 Portfolios

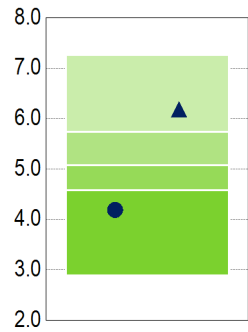


San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

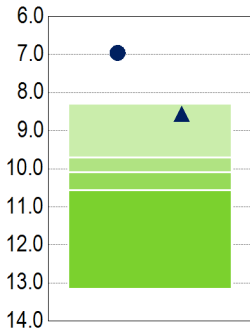
Total Fund vs. InvMetrics Public DB > \$1B Net (USD)
3 Years

Anlzd Return



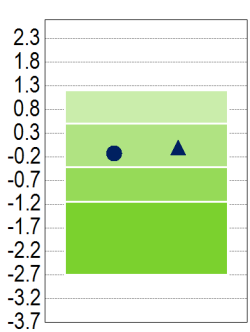
● Total Fund	
Value	4.2
Rank	81
▲ Policy Index	
Value	6.2
Rank	24
Universe	
5th %tile	7.3
25th %tile	5.8
Median	5.1
75th %tile	4.6
95th %tile	2.9

Anlzd Standard Deviation



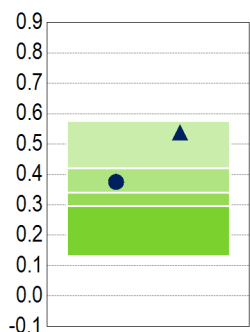
● Total Fund	
Value	7.0
Rank	1
▲ Policy Index	
Value	8.6
Rank	9
Universe	
5th %tile	8.3
25th %tile	9.7
Median	10.1
75th %tile	10.5
95th %tile	13.1

Anlzd Alpha



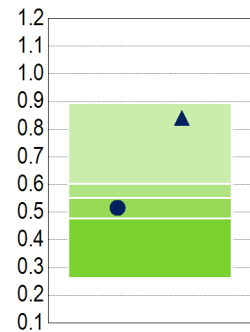
● Total Fund	
Value	-0.1
Rank	41
▲ Policy Index	
Value	0.0
Rank	35
Universe	
5th %tile	1.2
25th %tile	0.5
Median	-0.4
75th %tile	-1.1
95th %tile	-2.7

Sharpe Ratio



● Total Fund	
Value	0.4
Rank	44
▲ Policy Index	
Value	0.5
Rank	7
Universe	
5th %tile	0.6
25th %tile	0.4
Median	0.3
75th %tile	0.3
95th %tile	0.1

Sortino Ratio



● Total Fund	
Value	0.5
Rank	57
▲ Policy Index	
Value	0.8
Rank	6
Universe	
5th %tile	0.9
25th %tile	0.6
Median	0.6
75th %tile	0.5
95th %tile	0.3

Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 29 Portfolios

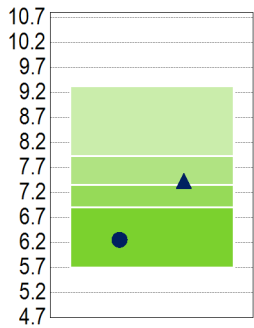


San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

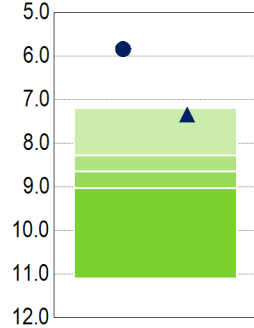
**Total Fund vs. InvMetrics Public DB > \$1B Net (USD)
5 Years**

Anlzd Return



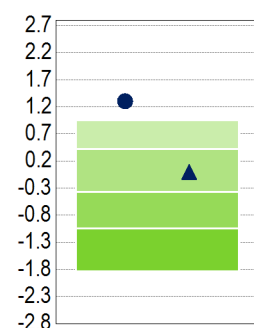
● Total Fund	
Value	6.3
Rank	86
▲ Policy Index	
Value	7.4
Rank	43
Universe	
5th %tile	9.3
25th %tile	8.0
Median	7.4
75th %tile	6.9
95th %tile	5.7

Anlzd Standard Deviation



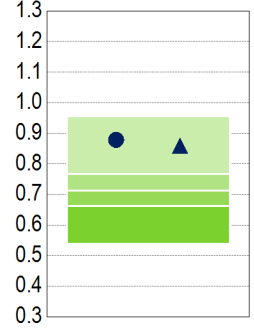
● Total Fund	
Value	5.8
Rank	1
▲ Policy Index	
Value	7.3
Rank	7
Universe	
5th %tile	7.2
25th %tile	8.3
Median	8.6
75th %tile	9.0
95th %tile	11.1

Anlzd Alpha



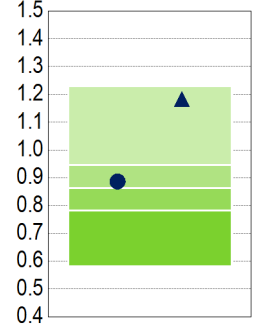
● Total Fund	
Value	1.3
Rank	5
▲ Policy Index	
Value	0.0
Rank	38
Universe	
5th %tile	1.0
25th %tile	0.4
Median	-0.4
75th %tile	-1.0
95th %tile	-1.8

Sharpe Ratio



● Total Fund	
Value	0.9
Rank	10
▲ Policy Index	
Value	0.9
Rank	11
Universe	
5th %tile	1.0
25th %tile	0.8
Median	0.7
75th %tile	0.7
95th %tile	0.5

Sortino Ratio



● Total Fund	
Value	0.9
Rank	44
▲ Policy Index	
Value	1.2
Rank	8
Universe	
5th %tile	1.2
25th %tile	0.9
Median	0.9
75th %tile	0.8
95th %tile	0.6

Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 29 Portfolios

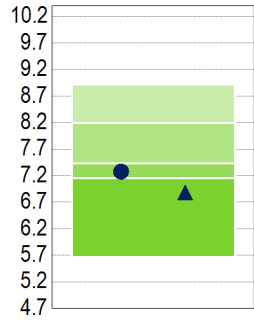


San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

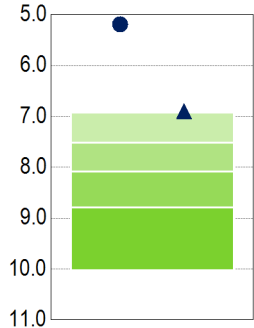
**Total Fund vs. InvMetrics Public DB > \$1B Net (USD)
10 Years**

Anlzd Return



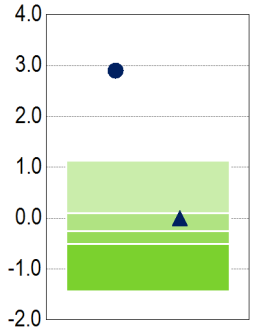
● Total Fund	
Value	7.3
Rank	71
▲ Policy Index	
Value	6.9
Rank	80
Universe	
5th %tile	8.9
25th %tile	8.2
Median	7.4
75th %tile	7.2
95th %tile	5.7

Anlzd Standard Deviation



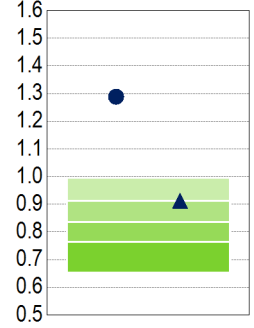
● Total Fund	
Value	5.2
Rank	1
▲ Policy Index	
Value	6.9
Rank	2
Universe	
5th %tile	6.9
25th %tile	7.5
Median	8.1
75th %tile	8.8
95th %tile	10.0

Anlzd Alpha



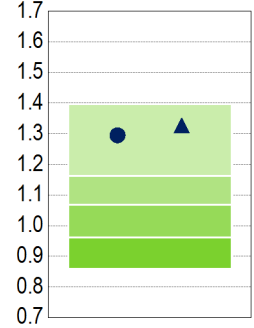
● Total Fund	
Value	2.9
Rank	4
▲ Policy Index	
Value	0.0
Rank	33
Universe	
5th %tile	1.1
25th %tile	0.1
Median	-0.2
75th %tile	-0.5
95th %tile	-1.4

Sharpe Ratio



● Total Fund	
Value	1.3
Rank	1
▲ Policy Index	
Value	0.9
Rank	26
Universe	
5th %tile	1.0
25th %tile	0.9
Median	0.8
75th %tile	0.8
95th %tile	0.7

Sortino Ratio



● Total Fund	
Value	1.3
Rank	11
▲ Policy Index	
Value	1.3
Rank	10
Universe	
5th %tile	1.4
25th %tile	1.2
Median	1.1
75th %tile	1.0
95th %tile	0.9

Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 29 Portfolios



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

1 Years Ending September 30, 2020								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	16.8%	10.7%	28	26.9%	99	3.6%	-1.2	--
Russell 3000	--	15.0%	8	24.9%	77	0.0%	--	--
International Equity With Beta Overlay	18.8%	0.3%	95	20.9%	14	2.7%	-1.2	--
MSCI ACWI ex USA Gross	--	3.4%	73	21.9%	21	0.0%	--	--
Global Fixed Income With Beta Overlay	29.2%	-1.6%	--	11.7%	--	10.4%	-0.8	--
BBgBarc Global Aggregate TR	--	6.2%	--	4.7%	--	0.0%	--	--
U.S. Credit Strategies	13.5%	0.8%	99	12.4%	78	9.4%	-0.1	--
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index	--	2.0%	99	14.3%	86	0.0%	--	--
Non-U.S. Credit Composite	11.3%	-10.6%	99	14.1%	99	12.5%	-1.4	--
ICE BofA Euro High Yield Constrained TR	--	6.9%	41	18.7%	99	0.0%	--	--
Emerging Markets Debt Composite	9.3%	-3.4%	96	10.8%	3	12.8%	-0.3	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	0.0%	65	16.0%	32	0.0%	--	--
Alpha Pool Composite	13.2%	-5.2%	79	10.2%	40	10.2%	-0.9	--
91 Day T-Bill + 3%	--	3.8%	49	0.2%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	17.5%	7.0%	--	11.6%	--
CJA Global All PE (Qtr Lag)	--	5.5%	--	14.8%	--
Real Estate Composite	4.2%	3.3%	10	3.2%	58
NCREIF Property Index 1 Qtr. Lag	--	2.7%	13	2.4%	43
Real Assets Composite	4.4%	1.3%	36	17.9%	76
Real Assets Custom Blend	--	-2.1%	58	14.4%	60

US Credit and Non-US Credit composites are based on physical assets.



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

3 Years Ending September 30, 2020								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	16.8%	8.4%	66	18.3%	49	3.1%	-1.0	--
Russell 3000	--	11.6%	11	18.4%	56	0.0%	--	--
International Equity With Beta Overlay	18.8%	0.6%	76	15.2%	9	2.6%	-0.4	--
MSCI ACWI ex USA Gross	--	1.6%	40	16.2%	20	0.0%	--	--
Global Fixed Income With Beta Overlay	29.2%	1.2%	--	7.1%	--	7.4%	-0.4	--
BBgBarc Global Aggregate TR	--	4.1%	--	4.1%	--	0.0%	--	--
U.S. Credit Strategies	13.5%	3.8%	90	7.4%	73	6.1%	0.0	90
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index	--	3.8%	90	8.5%	85	0.0%	--	--
Non-U.S. Credit Composite	11.3%	0.1%	99	8.7%	99	10.7%	-0.1	--
ICE BofA Euro High Yield Constrained TR	--	1.5%	99	12.3%	99	0.0%	--	--
Emerging Markets Debt Composite	9.3%	-2.1%	98	6.8%	2	9.1%	-0.4	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	1.9%	56	10.8%	31	0.0%	--	--
Alpha Pool Composite	13.2%	1.6%	60	6.3%	34	6.3%	-0.5	--
91 Day T-Bill + 3%	--	4.6%	16	0.2%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	17.5%	12.1%	--	7.3%	--
CJA Global All PE (Qtr Lag)	--	11.1%	--	10.0%	--
Real Estate Composite	4.2%	5.7%	19	2.4%	43
NCREIF Property Index 1 Qtr. Lag	--	5.4%	26	2.7%	48
Real Assets Composite	4.4%	1.6%	66	11.3%	69
Real Assets Custom Blend	--	-0.4%	72	8.8%	57

US Credit and Non-US Credit composites are based on physical assets.



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

	5 Years Ending September 30, 2020							
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	10.1%	6.1%	--	13.0%	--	8.0%	-0.9	--
Russell 3000	--	13.7%	--	15.5%	--	0.0%	--	--
International Developed	0.4%	8.0%	51	17.4%	91	12.9%	0.2	63
MSCI EAFE	--	5.3%	70	14.0%	21	0.0%	--	--
International Emerging	4.2%	5.9%	--	16.3%	--	4.2%	-0.7	--
MSCI Emerging Markets	--	9.0%	--	17.4%	--	0.0%	--	--
U.S. Credit Strategies	13.5%	5.2%	73	6.2%	54	5.4%	0.0	72
50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index	--	5.3%	71	7.0%	85	0.0%	--	--
Non-U.S. Credit Composite	11.3%	3.9%	61	7.2%	99	10.8%	-0.1	--
ICE BofA Euro High Yield Constrained TR	--	5.3%	12	11.4%	99	0.0%	--	--
Emerging Markets Debt Composite	9.3%	3.5%	91	6.7%	4	8.0%	-0.2	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	5.5%	57	9.8%	39	0.0%	--	--
Alpha Pool Composite	13.2%	3.4%	23	5.6%	40	5.6%	-0.1	--
91 Day T-Bill + 3%	--	4.2%	14	0.2%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	17.5%	11.6%	--	6.1%	--
CJA Global All PE (Qtr Lag)	--	10.3%	--	8.4%	--
Real Estate Composite	4.2%	6.6%	38	2.7%	48
NCREIF Property Index 1 Qtr. Lag	--	6.8%	33	3.1%	58
Real Assets Composite	4.4%	0.8%	65	9.5%	43
Real Assets Custom Blend	--	0.2%	79	7.7%	34

Percent of Total equals 88.1% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.



TOP 10 MANAGERS BY AUM: AS OF SEPTEMBER 30, 2020

Manager	Market Value	Portfolio %
SSGA S&P500 Flagship Fund	725,775,949	6.73%
Total Tobam	719,489,009	6.67%
Total Russell	697,838,661	6.47%
Total Ares	697,743,806	6.47%
Total Pathway	638,322,154	5.92%
Gramercy Funds Management	634,987,517	5.89%
Total Apollo	531,255,717	4.92%
Total GoldenTree	477,445,401	4.43%
Total Alcentra	473,724,670	4.39%
Total Zais	464,582,988	4.31%
Total	6,061,165,872	56.19%



PUBLIC EQUITY PORTFOLIO

Public Equity Portfolio (28% Target)	US Equities (13% Target)	Large Cap (8%)	Russell Investments (Russell1000 Index) StateStreet Global Advisors S&P500 Buy/Write Call Option Strategy TOBAM Anti-Benchmark US Equity Fund
		Small Cap (2%)	Russell Investments (Russell2000 Index)
		Volatility (3%)	Russell Investments (Russell1000 Index)
	International Equities (15% Target)	Developed Markets (6%)	Russell Investments (MSCI EAFE Index) TOBAM Anti-Benchmark World ex-US Fund
		Emerging Markets (6%)	Mondrian Emerging Markets Equity Fund LP Russell Investments (MSCI EM Index) TOBAM Anti-Benchmark EM Equity Fund
		Volatility (3%)	Russell Investments (MSCI EAFE Index)



San Bernardino County Employees' Retirement Association

GLOBAL EQUITY STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Equity	1,599,256,737	14.8	8.2	20	3.4	4	12.3	4	6.9	58	7.3	99	5.3	99
MSCI ACWI			8.1	23	1.4	11	10.4	12	7.1	56	10.3	50	8.5	89
Excess Return			0.1		2.0		1.9		-0.2		-3.0		-3.2	
InvMetrics Public DB Total Eq Net Median			7.5		-0.4		8.5		7.2		10.3		9.3	
Domestic Equity With Beta Overlay	1,808,106,857	16.8	7.7	59	1.9	36	10.7	28	8.4	66	7.8	99	--	--
Russell 3000			9.2	2	5.4	8	15.0	8	11.6	11	13.7	7	13.5	5
Excess Return			-1.5		-3.5		-4.3		-3.2		-5.9			
InvMetrics Public DB US Eq Net Median			7.8		1.4		9.7		9.6		12.0		12.1	
Domestic Equity	1,094,184,416	10.1	8.2	--	5.8	--	15.0	--	8.8	--	6.1	--	5.0	--
Russell 3000			9.2	--	5.4	--	15.0	--	11.6	--	13.7	--	13.5	--
Excess Return			-1.0		0.4		0.0		-2.8		-7.6		-8.5	
Tobam AB US Equity	363,431,400	3.4	8.1	40	8.3	28	17.3	29	--	--	--	--	--	--
Russell 3000			9.2	29	5.4	34	15.0	33	11.6	32	13.7	29	13.5	28
Excess Return			-1.1		2.9		2.3							
eV All US Equity Net Median			6.8		-2.9		4.9		6.6		9.8		11.2	
Large Cap Equity	730,504,541	6.8	8.3	38	4.7	36	13.9	35	9.4	41	7.4	66	6.1	96
S&P 500			8.9	32	5.6	34	15.1	32	12.3	30	14.1	25	13.7	25
Excess Return			-0.6		-0.9		-1.2		-2.9		-6.7		-7.6	
eV All US Equity Net Median			6.8		-2.9		4.9		6.6		9.8		11.2	
SSgA S&P500	725,775,949	6.7	8.9	32	5.5	34	15.1	32	10.0	39	9.9	50	8.7	77
S&P 500			8.9	32	5.6	34	15.1	32	12.3	30	14.1	25	13.7	25
Excess Return			0.0		-0.1		0.0		-2.3		-4.2		-5.0	
eV All US Equity Net Median			6.8		-2.9		4.9		6.6		9.8		11.2	
Russell US Large Cap Volatility	4,728,592	0.0												
Small Cap Equity	248,475	0.0												
Russell US Small Cap Volatility	248,475	0.0												



San Bernardino County Employees' Retirement Association

GLOBAL EQUITY STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
International Equity With Beta Overlay	2,029,017,048	18.8	4.6	99	-6.8	87	0.3	95	0.6	76	6.1	74	--	--
MSCI ACWI ex USA Gross			<u>6.4</u>	78	<u>-5.1</u>	69	<u>3.4</u>	73	<u>1.6</u>	40	<u>6.7</u>	37	<u>4.5</u>	70
Excess Return			-1.8		-1.7		-3.1		-1.0		-0.6			
InvMetrics Public DB ex-US Eq Net Median			7.4		-4.2		5.3		1.3		6.5		5.0	
International Equity	505,072,321	4.7	8.1	--	-2.4	--	6.1	--	1.6	--	7.7	--	4.5	--
MSCI ACWI			<u>8.1</u>	--	<u>1.4</u>	--	<u>10.4</u>	--	<u>7.1</u>	--	<u>10.3</u>	--	<u>8.5</u>	--
Excess Return			0.0		-3.8		-4.3		-5.5		-2.6		-4.0	
International Developed	48,485,043	0.4	7.1	37	-0.7	41	4.3	53	0.9	65	8.0	51	8.2	28
MSCI EAFE			<u>4.8</u>	93	<u>-7.1</u>	62	<u>0.5</u>	67	<u>0.6</u>	67	<u>5.3</u>	70	<u>4.6</u>	98
Excess Return			2.3		6.4		3.8		0.3		2.7		3.6	
InvMetrics Public DB Dev Mkt ex-US Eq Net Median			6.2		-4.4		4.3		4.1		8.2		7.9	
Russell International Volatility	16,443	0.0												
Tobam AB World Ex-US Equity	48,468,600	0.4	7.1	68	-2.2	57	3.1	67	--	--	--	--	--	--
MSCI ACWI ex USA			<u>6.3</u>	75	<u>-5.4</u>	66	<u>3.0</u>	67	<u>1.2</u>	62	<u>6.2</u>	64	<u>4.0</u>	81
Excess Return			0.8		3.2		0.1							
eV All ACWI ex-US Equity Net Median			9.2		-0.6		10.5		3.6		8.0		6.1	
International Emerging	456,587,278	4.2	8.2	--	-2.6	--	6.3	--	1.6	--	5.9	--	1.1	--
MSCI Emerging Markets			<u>9.6</u>	--	<u>-1.2</u>	--	<u>10.5</u>	--	<u>2.4</u>	--	<u>9.0</u>	--	<u>2.5</u>	--
Excess Return			-1.4		-1.4		-4.2		-0.8		-3.1		-1.4	
Mondrian	148,998,269	1.4	12.0	20	-4.7	69	7.9	62	1.3	56	5.8	80	2.0	74
MSCI Emerging Markets			<u>9.6</u>	53	<u>-1.2</u>	50	<u>10.5</u>	49	<u>2.4</u>	43	<u>9.0</u>	44	<u>2.5</u>	58
Excess Return			2.4		-3.5		-2.6		-1.1		-3.2		-0.5	
eV Emg Mkts Equity Net Median			9.7		-1.3		10.3		1.9		8.4		2.8	
Tobam	307,589,009	2.9	6.5	82	-1.5	52	5.6	69	1.9	52	--	--	--	--
MSCI Emerging Markets			<u>9.6</u>	53	<u>-1.2</u>	50	<u>10.5</u>	49	<u>2.4</u>	43	<u>9.0</u>	44	<u>2.5</u>	58
Excess Return			-3.1		-0.3		-4.9		-0.5					
eV Emg Mkts Equity Net Median			9.7		-1.3		10.3		1.9		8.4		2.8	



GLOBAL DEBT STRATEGIES

Global Debt Strategies (35% Target)	US Fixed Income (15% Target)	Core Fixed Income (2%)	Russell Investments (Bloomberg Barclays US Agg. Bond TR Index) Apollo Credit Strategies Fund LP (MCA) Beach Point Select Fund LP GoldenTree Credit Opportunities - Gold Coast X GoldenTree Distressed Debt Fund 2010 GoldenTree Asset Management SMA - Gold Coast X Halcyon Direct Portfolio (MCA) Halcyon Solutions Fund LP (MCA) MacKay Shields High Yield Bond Strategy - Gold Coast III Manulife Asset Management - Gold Coast IV Waterfall - Sutherland REIT Holdings LP (MCA) Waterfall Asset Management SMA (MCA) Waterfall Victoria Fund LP (MCA)
		Credit Strategies/ High Yield Strategies (13%)	Russell Investments (Barclays Global Aggregate ex US Unhedged) Alcentra Clareant European Direct Lending Fund - Kneiff Tower Alcentra Clareant Strategic Credit Fund - Kneiff Tower Alcentra Limited SMA - Kneiff Tower Alcentra Mezzanine III/Alcentra Capital Corp. - Kneiff Tower Alcentra Structured Credit Opportunity Fund III - Kneiff Tower Cairn Capital Limited SMA - Kneiff Tower Cairn European CLO Strategy - Kneiff Tower Cairn Loan Investments - Kneiff Tower Cairn Special Opportunities Credit Fund - Kneiff Tower Cairn Strata Credit Fund - Kneiff Tower Cairn Subordinated Financials Fund II - Kneiff Tower Halcyon European Credit Opportunities Fund Ltd. (MCA) Marathon Asset Management SMA - Gold Coast I Marathon CLO Equity Fund - Gold Coast I Marathon Distressed Debt Fund - Gold Coast I Marathon European Credit Opportunities Fund - Gold Coast I Marathon European Credit Opportunity Fund II - Gold Coast I Marathon European Credit Opportunity Fund III - Gold Coast I Marathon Loan Opportunities Fund - Gold Coast I Marathon Structured Product Strategies Fund - Gold Coast I York Global Credit Income Fund
	Global Fixed Income (20% Target)	International Core (1%)	Ashmore Emerging Markets MCA Gramercy Capital Solutions Fund (MCA) Gramercy Distressed Argentina Fund III Private (MCA) Gramercy Distressed Opportunity Fund II (MCA) Gramercy Distressed Opportunity Fund III (MCA) Gramercy Emerging Markets Debt Allocation Fund (MCA) Gramercy Separate Account (MCA) Gramercy Venezuela Opportunity Fund (MCA) Marathon Global Emerging Markets Fund - Gold Coast I PGIM Emerging Market Debt Opportunities Fund
		International Credit (11%)	
		Emerging Market Debt (8%)	



San Bernardino County Employees' Retirement Association

GLOBAL DEBT STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Global Fixed Income With Beta Overlay	3,153,572,824	29.2	3.7	--	-3.6	--	-1.6	--	1.2	--	1.6	--	--	--
<i>BBgBarc Global Aggregate TR</i>			<u>2.7</u>	--	<u>5.7</u>	--	<u>6.2</u>	--	<u>4.1</u>	--	<u>3.9</u>	--	<u>2.4</u>	--
Excess Return			1.0		-9.3		-7.8		-2.9		-2.3			
Total Fixed	3,673,626,043	34.1	3.2	3	-5.7	99	-4.4	99	1.0	99	4.3	41	5.5	1
<i>InvMetrics Public DB Total Fix Inc Net Median</i>			1.3		5.8		6.4		4.4		4.0		3.8	
U.S. Credit Strategies	1,453,448,989	13.5	3.4	37	-1.6	99	0.8	99	3.8	90	5.2	73	6.9	1
<i>50% CS Leveraged Loan / 50% ICE BofA US HY BB-B Rated Constrained Index</i>			<u>4.2</u>	14	<u>-0.1</u>	99	<u>2.0</u>	99	<u>3.8</u>	90	<u>5.3</u>	71	<u>5.4</u>	7
Excess Return			-0.8		-1.5		-1.2		0.0		-0.1		1.5	
<i>ICE BofA US High Yield TR</i>			4.7	13	-0.3	99	2.3	99	3.8	90	6.6	4	6.3	1
<i>eV Global Credit Fixed Inc Net Median</i>			2.8		6.0		7.5		5.3		5.6		4.4	
Golden Tree Asset Management	465,007,001	4.3	4.4	13	-4.3	99	0.3	99	4.5	79	6.7	4	--	--
Beach Point Capital (Formerly Post)	171,598,807	1.6	8.5	1	2.9	82	4.7	87	5.2	58	7.1	4	8.4	1
Golden Tree Distressed Debt	12,438,400	0.1	-30.4	99	-27.1	99	-30.1	99	-11.2	99	-6.0	99	4.1	66
Mackay / Gold Coast	120,921,829	1.1	4.7	13	1.6	93	4.0	91	4.2	89	5.7	44	6.3	1
MD SASS Waterfall Victoria	15,331,350	0.1	-53.3	--	-38.5	--	-32.3	--	-10.7	--	-3.5	--	--	--
Russell Interest Rate Hedging	5,095,170	0.0	-3.0	99	-35.8	99	-36.5	99	-39.9	99	-33.0	99	-27.4	99
Stone Tower Credit (Apollo)	113,917,784	1.1	3.4	51	14.4	2	19.6	1	11.2	1	9.8	1	--	--
Gold Coast Capital IV	107,281,688	1.0	1.9	--	-1.9	--	-1.5	--	3.3	--	4.0	--	--	--
Waterfall Asset Management	50,343,050	0.5	15.6	--	-16.3	--	-18.1	--	1.3	--	10.4	--	--	--
Waterfall Victoria	51,657,836	0.5	3.0	--	-4.3	--	-1.8	--	5.9	--	7.3	--	--	--
Stone Tower Offshore Credit (Apollo)	339,822,613	3.2	5.7	--	0.9	--	1.3	--	3.2	--	4.5	--	6.9	--
AG Capital	6,839	0.0	-0.2	99	47.1	1	45.0	1	8.9	1	5.6	61	6.5	1



San Bernardino County Employees' Retirement Association

GLOBAL DEBT STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Non-U.S. Fixed Income Composite	2,220,177,053	20.6	3.0	4	-8.3	99	-7.5	99	-0.6	99	3.8	68	4.1	28
<i>BBgBarc Global Aggregate ex US</i>			<u>4.1</u>	1	<u>4.8</u>	74	<u>5.5</u>	78	<u>3.2</u>	98	<u>3.7</u>	70	<u>1.4</u>	99
Excess Return			-1.1		-13.1		-13.0		-3.8		0.1		2.7	
<i>InvMetrics Public DB Total Fix Inc Net Median</i>			1.3		5.8		6.4		4.4		4.0		3.8	
Non-U.S. Credit Composite	1,221,399,823	11.3	3.2	3	-11.2	99	-10.6	99	0.1	99	3.9	61	4.7	11
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	1	<u>1.8</u>	99	<u>6.9</u>	41	<u>1.5</u>	99	<u>5.3</u>	12	<u>4.2</u>	22
Excess Return			-3.9		-13.0		-17.5		-1.4		-1.4		0.5	
Marathon/Gold Coast	237,727,568	2.2	1.8	90	1.4	94	2.5	99	9.3	1	8.1	2	7.6	1
Halcyon Asset Management	163,873,785	1.5	-2.6	99	-24.0	99	-23.2	99	-6.1	99	0.0	99	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	1	<u>1.8</u>	91	<u>6.9</u>	71	<u>1.5</u>	98	<u>5.3</u>	72	<u>4.2</u>	62
Excess Return			-9.7		-25.8		-30.1		-7.6		-5.3			
<i>eV Global Credit Fixed Inc Net Median</i>			2.8		6.0		7.5		5.3		5.6		4.4	
Caim Composite	346,073,799	3.2	6.3	8	-2.6	99	-1.0	99	2.3	95	5.6	50	4.2	64
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	1	<u>1.8</u>	91	<u>6.9</u>	71	<u>1.5</u>	98	<u>5.3</u>	72	<u>4.2</u>	62
Excess Return			-0.8		-4.4		-7.9		0.8		0.3		0.0	
<i>eV Global Credit Fixed Inc Net Median</i>			2.8		6.0		7.5		5.3		5.6		4.4	
Alcentra - KT1	353,651,115	3.3	2.7	--	-18.8	--	-16.4	--	-1.8	--	4.5	--	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	--	<u>1.8</u>	--	<u>6.9</u>	--	<u>1.5</u>	--	<u>5.3</u>	--	<u>4.2</u>	--
Excess Return			-4.4		-20.6		-23.3		-3.3		-0.8			
Alcentra SP1 - KT1	5,477,225	0.1	1.7	--	-4.5	--	-69.5	--	--	--	--	--	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	--	<u>1.8</u>	--	<u>6.9</u>	--	<u>1.5</u>	--	<u>5.3</u>	--	<u>4.2</u>	--
Excess Return			-5.4		-6.3		-76.4							
Alcentra SP2 - KT1	19,309,871	0.2	-14.2	--	-18.6	--	-20.0	--	-12.2	--	--	--	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	--	<u>1.8</u>	--	<u>6.9</u>	--	<u>1.5</u>	--	<u>5.3</u>	--	<u>4.2</u>	--
Excess Return			-21.3		-20.4		-26.9		-13.7					
Alcentra SP3 - KT1	40,232,002	0.4	27.7	--	-21.9	--	-22.3	--	-5.7	--	--	--	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	--	<u>1.8</u>	--	<u>6.9</u>	--	<u>1.5</u>	--	<u>5.3</u>	--	<u>4.2</u>	--
Excess Return			20.6		-23.7		-29.2		-7.2					
Alcentra SP4 - KT1	55,054,458	0.5	4.4	--	5.7	--	8.5	--	--	--	--	--	--	--
<i>ICE BofA Euro High Yield Constrained TR</i>			<u>7.1</u>	--	<u>1.8</u>	--	<u>6.9</u>	--	<u>1.5</u>	--	<u>5.3</u>	--	<u>4.2</u>	--
Excess Return			-2.7		3.9		1.6							



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GLOBAL DEBT STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets Debt Composite	998,777,231	9.3	2.8	41	-4.6	73	-3.4	96	-2.1	98	3.5	91	2.5	66
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified			1.5	76	-3.4	67	0.0	65	1.9	56	5.5	57	3.0	65
Excess Return			1.3		-1.2		-3.4		-4.0		-2.0		-0.5	
eV All Emg Mkts Fixed Inc Net Median			2.5		-1.6		1.5		2.1		5.7		4.2	
Ashmore Emerging Markets Liquid Investments	159,624,263	1.5	1.5	76	-3.4	67	0.0	65	1.9	56	5.5	57	3.0	65
JP Morgan GBI - EM Global Diversified Index			0.6	89	-6.3	83	-1.4	79	0.2	74	4.8	72	0.5	78
Excess Return			0.9		2.9		1.4		1.7		0.7		2.5	
eV All Emg Mkts Fixed Inc Net Median			2.5		-1.6		1.5		2.1		5.7		4.2	
Ashmore Local Currency	98,106,331	0.9	4.0	29	-10.9	99	-7.6	99	-2.9	99	3.5	84	--	--
JP Morgan ELM+ TR USD			1.4	91	-4.0	97	-0.4	93	-0.1	98	2.4	95	-0.3	99
Excess Return			2.6		-6.9		-7.2		-2.8		1.1			
JP Morgan EMBI Global Index			2.3	78	0.4	73	2.5	74	3.3	66	6.0	21	5.2	20
eV All Global Fixed Inc Net Median			3.4		3.0		4.9		3.8		4.7		3.6	
Gramercy Funds Management LLC	634,987,517	5.9	0.8	86	-3.7	69	-3.7	96	-3.7	99	2.5	99	--	--
JP Morgan ELM+ TR USD			1.4	76	-4.0	70	-0.4	67	-0.1	77	2.4	99	-0.3	92
Excess Return			-0.6		0.3		-3.3		-3.6		0.1			
JP Morgan EMBI Global Index			2.3	58	0.4	32	2.5	39	3.3	31	6.0	39	5.2	14
eV All Emg Mkts Fixed Inc Net Median			2.5		-1.6		1.5		2.1		5.7		4.2	
PGIM Fixed Income	106,059,120	1.0	13.2	1	-0.9	44	2.5	38	1.8	58	7.0	11	--	--
JP Morgan ELM+ TR USD			1.4	76	-4.0	70	-0.4	67	-0.1	77	2.4	99	-0.3	92
Excess Return			11.8		3.1		2.9		1.9		4.6			
JP Morgan EMBI Global Index			2.3	58	0.4	32	2.5	39	3.3	31	6.0	39	5.2	14
eV All Emg Mkts Fixed Inc Net Median			2.5		-1.6		1.5		2.1		5.7		4.2	



ABSOLUTE RETURN (ALPHA POOL)

<p>Absolute Return (Alpha Pool) (7% Target)</p>	<p>Core & Credit Strategies (7%)</p> <ul style="list-style-type: none">Apollo Accord Fund (MCA)Apollo Global SMA (MCA)Apollo MicCap Financial Holdings Trust (MCA)Apollo Offshore Credit Fund LTD (MCA)Ares Enhanced Credit Opportunites Master Fund II, LTD (MCA)Birch Grove Credit Strategies FundCorrum Capital Global Credit Opportunities FundCorrum Capital GCO Co-Invest FundStateStreet Global Advisors Short Term Treasury Strategy SMAZais Group SMAZais Opportunity Fund, LTDZais Zephyr A-6, LP
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San Bernardino County Employees' Retirement Association

ALPHA POOL STRATEGIES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alpha Pool Composite	1,424,929,848	13.2	4.7	25	-5.5	78	-5.2	79	1.6	60	3.4	23	5.4	10
<i>91 Day T-Bill + 3%</i>			<u>0.8</u>	85	<u>2.7</u>	34	<u>3.8</u>	49	<u>4.6</u>	16	<u>4.2</u>	14	<u>3.6</u>	21
Excess Return			3.9		-8.2		-9.0		-3.0		-0.8		1.8	
Alpha Liquidity (Ssga)	6,233,545	0.1	-0.3	99	1.2	68	1.8	81	2.0	84	1.4	99	0.9	99
Apollo Global Management	37,942,916	0.4	9.5	1	19.1	1	27.5	1	19.6	1	20.4	1	--	--
Ares Eco Master Fund II	509,373,428	4.7	5.6	9	1.5	64	1.5	81	2.1	84	--	--	--	--
Birch Grove Credit Strategies	136,059,881	1.3	4.4	19	-2.0	89	-0.8	94	4.4	37	4.1	66	--	--
Sterling Stamos	245,737,091	2.3	-0.2	99	-17.2	99	-17.2	99	-1.6	99	1.4	99	2.5	70
Zais	107,806,243	1.0	6.5	5	-17.3	99	-20.1	99	-6.0	99	-1.7	99	9.1	1
Zais Group Invest Advisors	275,216,884	2.6	4.9	13	-8.9	99	-8.6	99	0.6	96	5.6	28	--	--
Zais Zephyr A 6 LP	15,004,364	0.1	16.2	1	-38.3	99	-35.8	99	-4.3	99	--	--	--	--
Zais Zephyr 8	36,308,256	0.3	6.7	4	2.2	58	2.2	78	--	--	--	--	--	--
Zais Zephyr 7	30,247,240	0.3	16.6	1	--	--	--	--	--	--	--	--	--	--



PRIVATE ASSETS

Private Assets (16% Target)	Private Equity	Diversified	Partners Group SMA (MCA) Pathway Capital SMA (MCA) Pathway PE Fund VII LLC SL Capital European Strategic Partners 2004 SL Capital European Strategic Partners 2008
		Buyout Funds	Aurora Equity Partners IV Kayne Partners Fund IV LP (MCA) Partners Group Direct Equity 2016 (MCA) Partners Group Direct Investments 2012 LP (MCA) Partners Group European Buyout 2005 (A) LP (MCA) Waterfall Sentinel Fund (MCA)
		Venture Funds	Industry Ventures Direct LP (MCA) Industry Ventures Fund V LP (MCA) Industry Ventures Fund VI LP (MCA) Industry Ventures MCA Industry Ventures Partnership Holdings II LP (MCA) Industry Ventures Partnership Holdings III LP (MCA) Industry Ventures Partnership Holdings III-A LP (MCA) Industry Ventures Partnership Holdings IV LP (MCA) Industry Ventures Special Opportunities Fund II-A LP (MCA)
		Secondary Funds	Aberdeen Standard Secondary Opportunities Fund IV Industry Ventures Secondary VII LP (MCA) Industry Ventures Secondary VIII LP (MCA) Lexington Capital Partners VI Lexington Capital Partners VII Lexington Middle Market Investors I Lexington Middle Market Investors II Partners Group Secondary 2004 LP (MCA) Partners Group Secondary 2008 LP (MCA) SL Capital Secondary Opportunities Fund I SL Capital Secondary Opportunities Fund II SL Capital Secondary Opportunities Fund III
		Sector Specific Funds	Kayne Anderson Energy Fund VII LP (MCA) Tennenbaum Energy Opportunities Fund LP (MCA)
		Direct Lending	Ares Private Credit Solutions Fund (MCA) Tennenbaum Lending Fund VIII LLC (MCA) Tennenbaum Waterman Fund LP (MCA)
	Private Debt	Mezzanine Funds	Crescent Mezzanine Partners V
		Credit/Distressed/ Opportunistic/ Special Situations	Apollo Private Equity Fund VII Ares European Loan Funding LP (MCA) Ares ICOF II (MCA) Ares ICOF III (MCA) Ares SMA (MCA) Ares Special Situations Fund IV (MCA) Catalyst Fund LP II Crestline Portfolio Financing Fund Kayne Anderson Solutions Fund (MCA) Sigular Guff Distressed Opportunity Fund III LP Tennenbaum Co-Invest (MCA) Tennenbaum Opportunities Fund V LLC (MCA) Tennenbaum Opportunities Fund VI LLC (MCA) Tennenbaum Special Situations Fund IX LLC (MCA)



REAL ESTATE

Real Estate Portfolio (7% Target)	Core Real Estate (3.5%)	Core Real Estate	PRISA II 348 West Hospitality Invesco Real Estate Asia Fund Kayne Anderson Real Estate Debt III (MCA) Marathon Real Estate Debt Fund Pramerica Real Estate Capital VI LP
	Non-Core Real Estate (3.5%)	Enhanced Real Estate/ High Return	Apollo Real Estate Fund II LP (MCA) Bryanston Retail Opportunity Fortress Japan Opportunity Fund II Kayne Anderson Real Estate Partners V LP (MCA) Morgan Stanley RE Fund V International Oaktree RE Opportunities Fund V PRISA III Starwood Global Opportunity Fund VII-A Starwood Opportunity Fund VII Walton Street Real Estate Fund V
		Real Estate Secondaries	Partners Group Real Estate Secondary 2013 A LP (MCA) Partners Group Real Estate Secondary 2017 A LP (MCA)



REAL ASSETS

Real Asset Portfolio (5% Target)	Commodities (2% Target)	Energy Spectrum Partners VI LP Pinnacle Natural Resources LP Pinnacle Physicals & Financing LTD Starwood Energy Infrastructure Fund
	Infrastructure (1% Target)	Fortress Worldwide Transportation & Infrastructure LP Highstar Capital III Kayne Anderson MLP Strategy (MCA)
	Timber (2% Target)	Hancock Timberland VII & VIII LP Timbervest Crossover Partners II LP Timbervest Partners II LP



San Bernardino County Employees' Retirement Association

ALTERNATIVES - NET

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity Composite	1,887,700,513	17.5	11.6	--	4.9	--	7.0	--	12.1	--	11.6	--	12.6	--
<i>CJA Global All PE (Qtr Lag)</i>			<u>10.1</u>	--	<u>5.0</u>	--	<u>5.5</u>	--	<u>11.1</u>	--	<u>10.3</u>	--	<u>12.5</u>	--
Excess Return			1.5		-0.1		1.5		1.0		1.3		0.1	
<i>Russell 3000</i>			9.2	--	5.4	--	15.0	--	11.6	--	13.7	--	13.5	--
<i>CJA US All PE (1 Qtr Lag)</i>			10.3	--	3.0	--	4.3	--	10.9	--	10.5	--	13.0	--
Real Estate Composite	457,246,715	4.2	0.8	21	1.8	6	3.3	10	5.7	19	6.6	38	9.2	75
<i>NCREIF Property Index 1 Qtr. Lag</i>			<u>-1.0</u>	96	<u>1.3</u>	9	<u>2.7</u>	13	<u>5.4</u>	26	<u>6.8</u>	33	<u>9.7</u>	55
Excess Return			1.8		0.5		0.6		0.3		-0.2		-0.5	
<i>InvMetrics Public DB Real Estate Pub+Priv Net Median</i>			0.1		-1.1		0.2		4.9		6.5		9.9	
Real Assets Composite	478,426,688	4.4	4.4	7	-3.3	48	1.3	36	1.6	66	0.8	65	2.5	99
<i>Real Assets Custom Blend</i>			<u>7.1</u>	4	<u>-5.2</u>	61	<u>-2.1</u>	58	<u>-0.4</u>	72	<u>0.2</u>	79	<u>-0.6</u>	99
Excess Return			-2.7		1.9		3.4		2.0		0.6		3.1	
<i>67% Bloomberg Commodity/ 33% Barclays US TIPS</i>			7.1	4	-5.2	61	-2.1	58	-0.8	73	-0.4	86	-2.7	99
Timber	47,521,691	0.4	-0.1	--	-2.9	--	-3.6	--	-3.0	--	-1.9	--	1.2	--
<i>NCREIF Timberland 1 Qtr. Lag</i>			<u>0.1</u>	--	<u>0.2</u>	--	<u>0.3</u>	--	<u>2.3</u>	--	<u>2.7</u>	--	<u>4.4</u>	--
Excess Return			-0.2		-3.1		-3.9		-5.3		-4.6		-3.2	
Infrastructure	146,432,316	1.4	4.9	--	-24.6	--	-18.9	--	-8.8	--	-3.6	--	1.4	--
<i>Russell 3000</i>			<u>9.2</u>	--	<u>5.4</u>	--	<u>15.0</u>	--	<u>11.6</u>	--	<u>13.7</u>	--	<u>13.5</u>	--
Excess Return			-4.3		-30.0		-33.9		-20.4		-17.3		-12.1	
Commodities	284,472,681	2.6	5.0	--	11.8	--	17.2	--	11.9	--	6.6	--	4.8	--
<i>Bloomberg Commodity Index</i>			<u>9.1</u>	--	<u>-12.1</u>	--	<u>-8.2</u>	--	<u>-4.2</u>	--	<u>-3.1</u>	--	<u>-6.0</u>	--
Excess Return			-4.1		23.9		25.4		16.1		9.7		10.8	

Universe information is unavailable for the Private Equity Composite.



**APPENDIX: PRIVATE EQUITY, REAL ESTATE AND
REAL ASSETS PERFORMANCE**

NEPC, LLC

REAL ESTATE PERFORMANCE ENDED JUNE 30, 2020

Investment Name	Vintage Year	Commitment Paid in Capital		Cumulative Distributions	Valuation	TVPI Ratio	IRR
		Amount					
American Realty Advisors	1996	128,009,773	128,009,773	278,446,295	43,919	2.18	6.89%
American Realty Value Add	2006	13,125,215	13,125,215	32,080,321	0	2.44	10.92%
Apollo US Real Estate Fund II	2015	20,000,000	13,142,075	4,629,892	12,430,186	1.30	9.59%
Beacon Capital Strategic Partners IV, L.P.	2006	38,000,000	38,000,000	31,424,699	0	0.83	-3.26%
Beacon Capital Strategic Partners V, L.P.	2007	18,000,000	18,000,000	11,174,695	0	0.62	-7.87%
BlackRock Diamond Property Fund	2005	25,000,000	25,000,000	15,233,347	0	0.61	-9.31%
Bryanston Real Estate Opportunity Fund II, L.P.	2009	20,000,000	8,589,256	11,847,997	0	1.38	10.19%
Bryanston Retail Opportunity Fund, L.P.	2004	20,000,000	8,228,165	21,098,321	10,520,309	3.84	70.76%
CBRE Strategic Partners III	2003	10,000,000	10,000,000	12,698,783	0	1.27	8.02%
CBRE Strategic Partners IV	2005	40,000,000	40,000,000	2,609,685	0	0.07	-27.76%
Fillmore East Fund	2006	25,000,000	31,403,818	20,777,177	0	0.66	-9.78%
Fillmore West Fund	2008	20,000,000	19,561,557	21,175,799	0	1.08	1.14%
Fortress Japan Opportunity Fund II	2012	21,739,130	3,756,160	24,147,764	3,919,326	7.00	25.78%
Invesco Asian Real Estate Partners II (USD), LP	2007	20,000,000	8,412,833	11,465,147	0	1.36	7.52%
Invesco High Yield Debt Fund I	2007	20,000,000	20,000,000	8,567,605	0	0.43	-35.57%
Invesco Real Estate Asia Fund	2014	51,732,500	51,732,500	12,160,905	63,038,081	1.40	6.44%
INVESCO Real Estate Fund I	2005	10,000,000	9,248,390	10,015,656	0	1.08	1.54%
Kayne Anderson Real Estate Debt III	2018	20,000,000	18,669,008	3,607,721	16,683,801	1.08	9.44%
Kayne Anderson Real Estate Partners V	2017	20,000,000	13,000,000	633,697	14,112,811	1.15	9.06%
LaSalle Income & Growth Fund IV	2005	20,000,000	19,469,417	13,482,024	0	0.69	-5.51%
North Haven Real Estate Fund V International	2005	27,500,000	27,377,414	32,070,486	1,167,918	1.21	6.85%
Oaktree Real Estate Opportunities V	2012	25,000,000	25,000,000	37,777,185	2,042,908	1.56	12.94%
Pramerica Real Estate Capital VI	2016	24,898,411	21,805,036	6,921,154	12,808,332	0.90	-7.78%
Prologis Japan Fund	2005	25,290,819	25,290,819	33,126,118	0	1.31	4.81%
Prudential PRISA II	2004	140,000,000	140,000,000	51,596,056	166,751,704	1.49	7.34%
Prudential PRISA III	2003	75,000,000	58,845,117	49,628,617	56,684,661	1.70	17.43%
RREEF America REIT III	2004	20,000,000	20,539,309	23,658,675	0	1.15	3.00%
Square Mile Partners II	2007	19,831,232	19,831,232	5,311,330	0	0.27	-19.11%
Square Mile Partners III LP	2008	20,000,000	19,730,190	28,756,613	78,325	1.46	11.51%
Starwood Capital Hospitality Fund I-2	2006	30,000,000	30,000,000	27,879,087	2,500,708	1.01	0.17%
Starwood Debt Fund II, LP	2008	20,000,000	17,599,882	21,912,511	0	1.25	6.45%
Starwood Opportunity Fund VII - A	2006	25,000,000	25,000,000	19,517,190	642,919	0.81	-2.34%
Structured Real Estate III, LP (Guggenheim)	2008	20,000,000	20,000,000	16,320,664	0	0.82	-4.99%
Tri Continental Capital VII	2005	23,000,000	22,277,928	2,847,785	742,784	0.16	-15.59%
Tuckerman Multi-Family Development Fund III	2002	10,000,000	10,219,311	16,939,699	0	1.66	26.67%
Walton Street Real Estate Fund IV, LP	2003	10,000,000	9,770,890	15,939,604	71,451	1.64	10.73%
Walton Street Real Estate Fund V, LP	2006	40,000,000	40,000,000	26,257,673	3,283,131	0.74	-3.32%
Total: San Bernardino		1,116,127,080	1,030,635,294	963,737,980	367,523,275	1.28	3.13%

Note: All metrics are calculated since inception

* Denotes cash adjusted



REAL ASSETS PERFORMANCE ENDED JUNE 30, 2020

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Fortress Transportation Infrastructure LLC	2015	45,403,354	45,403,354	16,745,828	34,693,510	1.13	3.29%
Hancock Timberland VII	2005	90,000,000	90,000,000	101,142,900	0	1.12	1.02%
Hancock Timberland VIII	2006	40,000,000	40,000,000	8,271,925	30,910,807	0.98	-0.18%
Highstar Capital III, L.P.	2007	60,000,000	59,119,119	62,905,543	417,205	1.07	0.87%
Timbervest Crossover Partners II, L.P.	2008	30,000,000	30,000,000	16,274,831	12,129,137	0.95	-0.79%
Timbervest Partners II, L.P.	2007	50,000,000	50,000,000	47,875,000	4,575,760	1.05	0.50%
Total: San Bernardino		315,403,354	314,522,473	253,216,027	82,726,419	1.07	0.73%

Note: All metrics are calculated since inception

* Denotes cash adjusted



PRIVATE EQUITY PERFORMANCE ENDED JUNE 30, 2020

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Advantech Capital II, L.P.	2018	3,000,000	1,045,048	-	955,261	0.91	-15.80%
Advent International GPE VIII, LP	2016	10,000,000	8,409,999	-	10,349,955	1.23	15.71%
Apollo Accord Fund, LP	2017	30,000,000	7,500,000	5,511,478	2,571,890	1.08	5.90%
Apollo European Principal Finance Fund (Feeder), LP	2009	53,899,305	46,403,245	69,083,088	293,314	1.49	11.80%
Apollo Investment Fund VII, L.P.	2008	10,000,000	8,756,428	15,706,389	1,633,988	1.98	22.90%
Apollo PCPL Webb V	2010	4,844,398	4,844,398	5,196,757	30,555	1.08	6.36%
Apollo PCPL Webb VIII	2010	4,734,303	4,734,303	12,146,258	2,101	2.57	46.47%
ARES European Loan Opp Fund	2015	15,000,000	8,413,136	7,613,498	-	0.90	-6.02%
Ares Special Situations Fund IV, LP	2015	50,000,000	47,686,469	199,120	44,478,404	0.94	-3.13%
Aurora Equity Partners III, L.P.	2005	25,000,000	23,544,536	41,738,196	187,019	1.67	13.61%
Aurora Equity Partners IV, L.P.	2012	20,000,000	16,785,610	30,861,074	7,694,557	1.99	18.84%
Aurora Resurgence Fund, L.P.	2008	15,000,000	5,653,009	10,350,965	-	1.82	17.60%
Baring Asia Private Equity Fund IV, L.P.	2015	2,931,918	2,591,669	3,221,120	327,076	1.37	12.35%
Blue Point Capital Partners IV, LP	2018	3,550,000	1,020,391	-	1,048,176	1.03	4.93%
BNY Mellon - Alcentra Mezzanine III	2012	25,000,000	23,254,658	26,736,979	-	1.15	12.73%
Catalyst Fund II, L.P.	2007	10,000,000	9,927,306	4,259,103	16,968,459	2.12	9.49%
Catalyst Fund LP IV, L.P.	2015	8,000,000	6,556,305	-	9,246,042	1.41	14.55%
Centerbridge Capital Partners II	2018	2,244,228	1,929,729	91,960	1,120,268	0.63	-39.06%
Charlesbank Equity Fund VIII	2015	7,500,000	6,775,721	4,424,468	5,827,593	1.51	18.32%
Clearlake Capital Partners V, L.P.	2018	10,000,000	4,715,565	61,006	7,147,089	1.53	63.83%
Crestline Portfolio Financing Fund	2018	50,000,000	18,108,110	-	19,692,609	1.09	9.52%
DRI II, L.P.	2009	20,000,000	19,917,669	26,302,807	-	1.33	19.64%
European Strategic Partners 2004	2004	240,974,965	220,679,633	265,791,019	14,627,340	1.27	4.01%
European Strategic Partners 2008	2010	31,441,878	28,273,807	28,212,632	13,305,943	1.46	9.11%
Flywheel Co-investment LLC	2018	8,000,000	6,400,000	796,264	6,397,727	1.12	12.37%
GTCR Fund XII	2018	8,000,000	1,980,800	70,534	1,603,887	0.85	-23.87%
Industry Ventures Direct, LP	2016	25,000,000	17,071,292	1,900,632	17,025,714	1.11	7.74%
Industry Ventures Fund V	2008	10,000,000	9,500,000	22,139,234	6,969,685	3.06	30.21%
Industry Ventures Fund VI	2011	20,000,000	18,400,000	17,915,137	6,294,716	1.32	7.76%
Industry Ventures Partnership Holdings Fund II, L.P.	2012	25,000,000	23,500,000	15,979,999	51,082,786	2.85	23.51%
Industry Ventures Partnership Holdings Fund III, L.P.	2013	25,000,000	23,277,042	4,673,818	40,973,195	1.96	21.89%
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	12,500,000	10,793,396	3,582,626	7,558,205	1.03	1.04%
Industry Ventures Partnership Holdings IV, LP	2016	25,000,000	16,000,000	1,224,603	17,857,469	1.19	14.25%
Industry Ventures Partnership Holdings V, LP	2018	25,000,000	2,125,000	65,247	2,694,348	1.30	47.55%
Industry Ventures Secondary VII, L.P.	2013	25,000,000	22,500,000	17,417,276	18,737,725	1.61	15.61%
Industry Ventures Secondary VIII	2017	25,000,000	11,750,000	2,748,194	14,840,664	1.50	61.38%
Industry Ventures Special Opportunities II-A	2016	12,500,000	867,500	439,632	1,079,748	1.75	47.47%
Industry Ventures Tech Buyout LP	2018	25,000,000	3,418,023	-	3,064,477	0.90	-10.96%
Insight Venture Partners III Co-Invest	2014	4,000,000	4,000,000	8,864,478	1,883,586	2.69	27.22%
Kayne Anderson Energy Fund VII, L.P.	2017	10,000,000	7,378,811	215,495	7,634,263	1.06	2.85%
Kayne Anderson Private Energy Income Fund II, L.P.	2018	20,000,000	3,820,000	430,171	3,492,677	1.03	2.57%
Kayne Partners Fund IV (QP), LP	2017	20,000,000	10,402,580	-	11,405,123	1.08	8.01%
Kayne Solutions Fund LP	2018	20,000,000	5,331,927	1,746,256	4,302,858	1.13	12.27%

Note: All metrics are calculated since inception

* Denotes Cash adjusted value



PRIVATE EQUITY PERFORMANCE ENDED JUNE 30, 2020

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Apollo Accord Fund, LP	2017	30,000,000	7,500,000	8,310,474	0	1.11	7.44%
Apollo European Principal Finance Fund (Feeder), L	2009	53,001,432	46,434,825	69,228,391	240,373	1.50	11.81%
Apollo Investment Fund VII, L.P.	2008	10,000,000	8,782,319	16,013,358	934,327	1.93	22.45%
Apollo PCPL Webb V	2010	4,844,398	4,844,398	5,196,757	0	1.07	6.04%
Apollo PCPL Webb VIII	2010	4,734,303	4,734,303	12,146,258	0	2.57	46.47%
ARES European Loan Opp Fund	2015	15,000,000	8,413,136	7,613,498	0	0.90	-6.02%
Ares Special Situations Fund IV, LP	2015	50,000,000	47,686,469	332,617	45,030,282	0.95	-1.61%
Aurora Equity Partners III, L.P.	2005	25,000,000	23,544,536	41,738,196	0	1.67	13.61%
Aurora Equity Partners IV, L.P.	2012	20,000,000	17,262,661	30,861,074	8,935,443	2.00	18.47%
Aurora Resurgence Fund, L.P.	2008	15,000,000	5,653,009	10,350,965	0	1.82	17.60%
BNY Mellon - Alcentra Mezzanine III	2012	25,000,000	23,254,658	26,736,979	0	1.15	12.73%
Catalyst Fund II, L.P.	2007	10,000,000	10,356,944	4,259,103	17,868,382	2.12	8.94%
Crestline Portfolio Financing Fund	2018	50,000,000	27,619,147	1,509,952	30,701,839	1.17	11.72%
DRI II, L.P.	2009	20,000,000	19,917,669	26,302,807	0	1.33	19.64%
European Strategic Partners 2004	2004	238,553,825	220,902,901	274,575,296	5,791,944	1.27	3.98%
European Strategic Partners 2008	2010	31,159,059	29,168,898	31,667,068	10,281,684	1.43	8.39%
Industry Ventures Direct II, LP	2019	50,000,000	8,865,515	0	8,151,894	0.92	-12.51%
Industry Ventures Direct, LP	2016	25,000,000	20,420,175	1,917,517	22,295,761	1.19	8.75%
Industry Ventures Fund V	2008	10,000,000	9,500,000	27,196,010	245,017	2.89	29.32%
Industry Ventures Fund VI	2011	20,000,000	18,400,000	20,400,016	4,423,494	1.35	8.00%
Industry Ventures Partnership Holdings Fund II, L.P.	2012	25,000,000	23,500,000	26,489,746	45,248,458	3.05	21.94%
Industry Ventures Partnership Holdings Fund III, L.P.	2013	25,000,000	23,277,042	18,609,082	39,489,226	2.50	23.82%
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	12,500,000	11,034,493	5,890,545	5,888,098	1.07	1.81%
Industry Ventures Partnership Holdings IV, LP	2016	25,000,000	18,475,000	1,255,046	22,538,258	1.29	13.19%
Industry Ventures Partnership Holdings V, LP	2018	25,000,000	8,500,000	117,222	9,625,081	1.15	20.85%
Industry Ventures Secondary VII, L.P.	2013	25,000,000	22,500,000	22,500,000	16,060,592	1.71	15.51%
Industry Ventures Secondary VIII	2017	25,000,000	16,325,000	3,664,115	23,330,017	1.65	43.46%
Industry Ventures Special Opportunities II-A	2016	12,500,000	1,530,722	745,354	2,337,388	2.01	54.19%
Industry Ventures Tech Buyout LP	2018	50,000,000	6,836,046	0	6,239,869	0.91	-8.50%

Note: All metrics are calculated since inception. * Denotes Cash adjusted value



PRIVATE EQUITY PERFORMANCE ENDED JUNE 30, 2020

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Kayne Anderson Energy Fund VII, L.P.	2017	10,000,000	8,214,431	215,495	2,493,041	0.33	-35.52%
Kayne Anderson FRG	2020	30,000,000	30,000,000	1,473,926	34,309,792	1.19	20.79%
Kayne Anderson Private Energy Income Fund II, L.P.	2018	20,000,000	3,680,000	948,219	5,570,314	1.77	46.71%
Kayne CLO Partners II, LP	2020	50,000,000	25,325,827	0	24,435,332	0.96	-4.13%
Kayne Flywheel Co-investment LLC	2018	8,000,000	6,400,000	1,396,464	10,600,485	1.87	53.00%
Kayne Partners Fund IV (QP), LP	2017	20,000,000	15,122,062	0	18,943,624	1.24	14.43%
Kayne Renewable Opportunities Partners (TE), LP	2019	100,000,000	21,143,024	0	20,863,853	0.99	-1.08%
Kayne SBCERA (D.I.)	2018	45,000,000	40,660,422	15,996,484	21,228,164	0.92	-12.47%
Kayne SBCERA MLP	2017	130,000,000	126,225,037	1,257,201	91,284,064	0.73	-12.13%
Kayne Solutions Fund LP	2018	20,000,000	7,166,940	3,397,053	7,382,870	1.50	34.08%
Lexington Capital Partners VI-B	2006	25,000,000	24,591,319	33,338,784	1,586,949	1.42	6.84%
Lexington Capital Partners VII (Offshore)	2011	25,000,000	20,409,757	27,345,433	4,948,689	1.57	14.35%
Lexington Middle Market I	2005	25,000,000	24,771,942	38,106,672	2,167,701	1.63	11.41%
Lexington Middle Market II - Offshore	2008	10,000,000	9,773,736	13,830,266	2,466,067	1.66	13.71%
NB Secondary Opportunities I, LP	2005	20,000,000	18,500,843	24,330,105	0	1.32	6.49%
NB Secondary Opportunities II, LP	2008	20,000,000	17,080,642	26,888,038	0	1.54	14.40%
Partners Group MCA	2004	800,000,000	768,634,878	615,092,046	433,626,549	1.36	7.54%
Pathway Private Equity Fund VII, L.P.	2004	904,500,000	823,332,091	1,167,306,783	282,410,550	1.72	10.19%
Pathway SBCERA MCA	2014	250,000,000	208,357,565	6,662,500	358,395,730	1.75	19.41%
Siguler Guff DOF II	2006	30,000,000	30,000,000	42,440,278	0	1.42	8.64%
Siguler Guff DOF III	2008	10,000,000	9,700,000	14,126,592	1,900,722	1.65	10.87%
SL Capital SOF I LP	2014	25,000,000	21,117,524	20,500,425	7,514,248	1.33	9.84%
SL Capital SOF III LP	2017	25,000,000	14,196,382	1,087,381	18,410,003	1.37	22.52%
TCP Direct Lending Fund VIII-L, LLC	2016	40,000,000	37,669,103	4,828,120	36,646,512	1.10	5.42%
TCW/Crescent Mezzanine IV, L.P.	2006	40,000,000	39,590,976	45,049,090	0	1.14	3.03%
TCW/Crescent Mezzanine V, L.P.	2008	20,000,000	20,291,044	26,182,895	890,720	1.34	9.41%
Tennenbaum Energy Opportunities Fund, LP	2016	20,000,000	10,561,089	6,078,949	9,635,188	1.49	12.65%
Tennenbaum Opportunities Fund V, L.P.	2007	10,000,000	9,931,186	11,838,864	1,418,841	1.33	4.37%
Tennenbaum Opportunities Fund VI, L.P.	2011	20,000,000	9,501,887	11,278,455	5,005,754	1.71	7.06%
Tennenbaum Special Situations Fund IX	2015	50,000,000	43,253,272	13,603,622	45,748,839	1.37	12.40%
Tennenbaum Waterman Fund, LP	2012	70,000,000	70,000,000	52,950,234	62,353,657	1.65	10.24%
Waterfall Sentinel Co-Investments	2019	30,000,000	15,000,000	0	11,870,634	0.79	-15.36%
Waterfall Sentinel Fund	2019	30,000,000	18,645,942	133,991	16,086,990	0.87	-14.21%
Total: San Bernardino		3,864,793,017	3,244,088,785	2,923,311,809	1,865,853,310	1.46	7.35%

Note: All metrics are calculated since inception

* Denotes Cash adjusted value



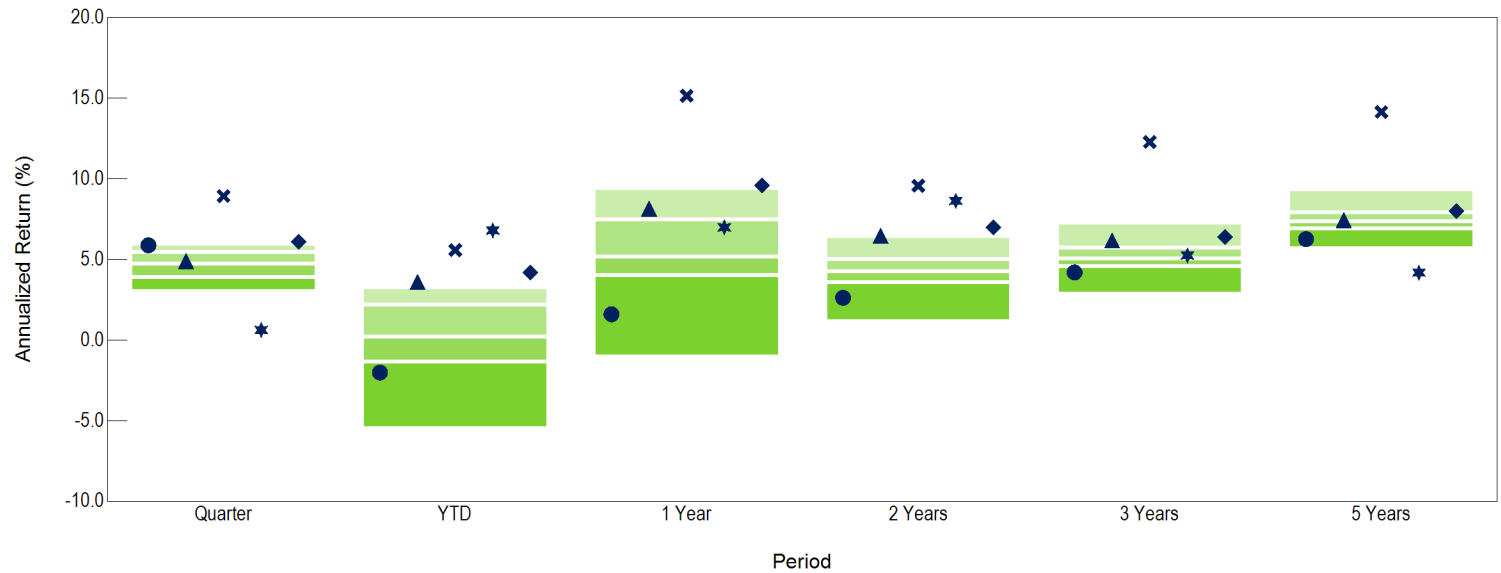
APPENDIX MARKET OUTLOOK

NEPC, LLC

San Bernardino County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvMetrics Public DB > \$1B Net



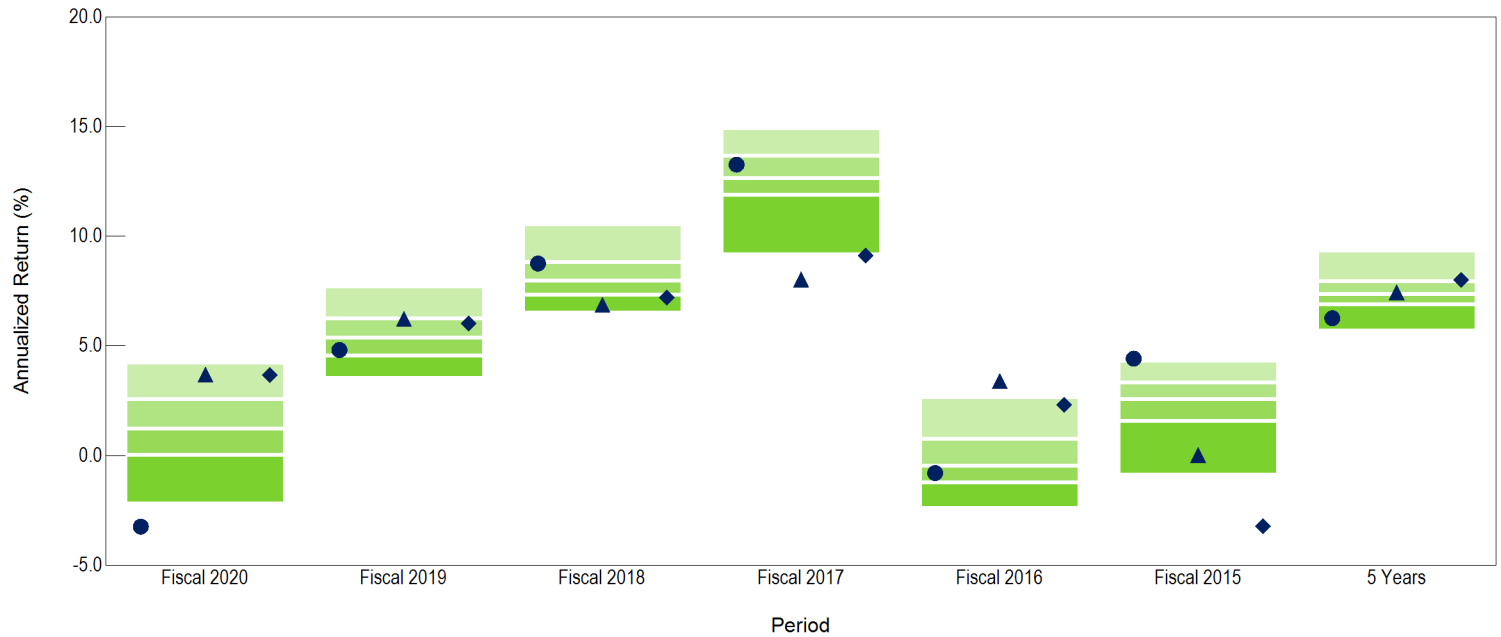
	Return (Rank)											
5th Percentile	6.0		3.3		9.4		6.4		7.3		9.3	
25th Percentile	5.5		2.2		7.5		5.0		5.8		8.0	
Median	4.7		0.2		5.2		4.3		5.1		7.4	
75th Percentile	3.9		-1.3		4.0		3.6		4.6		6.9	
95th Percentile	3.1		-5.5		-1.0		1.2		2.9		5.7	
# of Portfolios	29		29		29		29		29		29	
● Total Fund	5.9	(7)	-2.0	(82)	1.6	(93)	2.6	(85)	4.2	(81)	6.3	(86)
▲ Policy Index	4.9	(36)	3.6	(3)	8.1	(19)	6.5	(5)	6.2	(24)	7.4	(43)
× S&P 500	8.9	(1)	5.6	(1)	15.1	(1)	9.6	(1)	12.3	(1)	14.1	(1)
* BBgBarc US Aggregate TR	0.6	(99)	6.8	(1)	7.0	(33)	8.6	(1)	5.2	(47)	4.2	(99)
◆ 60% MSCI ACWI (Net) / 40% FTSE WGBI	6.1	(3)	4.2	(1)	9.6	(4)	7.0	(2)	6.4	(23)	8.0	(25)



San Bernardino County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvMetrics Public DB > \$1B Net



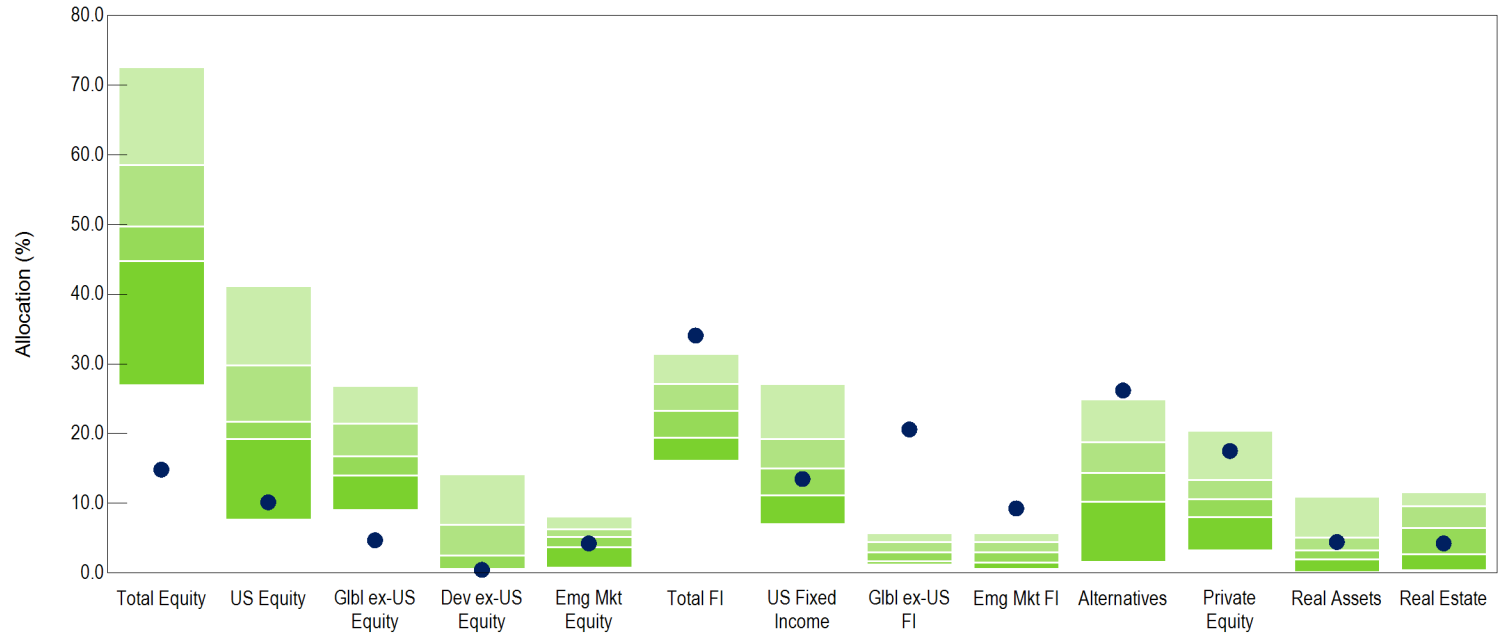
	Fiscal 2020		Fiscal 2019		Fiscal 2018		Fiscal 2017		Fiscal 2016		Fiscal 2015		5 Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	4.2		7.7		10.5		14.9		2.7		4.3		9.3	
25th Percentile	2.6		6.3		8.8		13.7		0.8		3.3		8.0	
Median	1.3		5.4		8.0		12.7		-0.5		2.6		7.4	
75th Percentile	0.0		4.6		7.3		11.9		-1.2		1.6		6.9	
95th Percentile	-2.2		3.5		6.5		9.2		-2.4		-0.9		5.7	
# of Portfolios	71		77		51		65		55		53		29	
● Total Fund	-3.2	(98)	4.8	(69)	8.8	(29)	13.3	(33)	-0.8	(66)	4.4	(2)	6.3	(86)
▲ Policy Index	3.7	(14)	6.2	(27)	6.9	(91)	8.0	(96)	3.4	(1)	0.0	(93)	7.4	(43)
◆ 60% MSCI ACWI (Net) / 40% FTSE WGBI	3.7	(14)	6.0	(31)	7.2	(79)	9.1	(96)	2.3	(8)	-3.2	(99)	8.0	(25)



San Bernardino County Employees' Retirement Association

TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

Total Plan Allocation vs. InvMetrics Public DB > \$1B Net



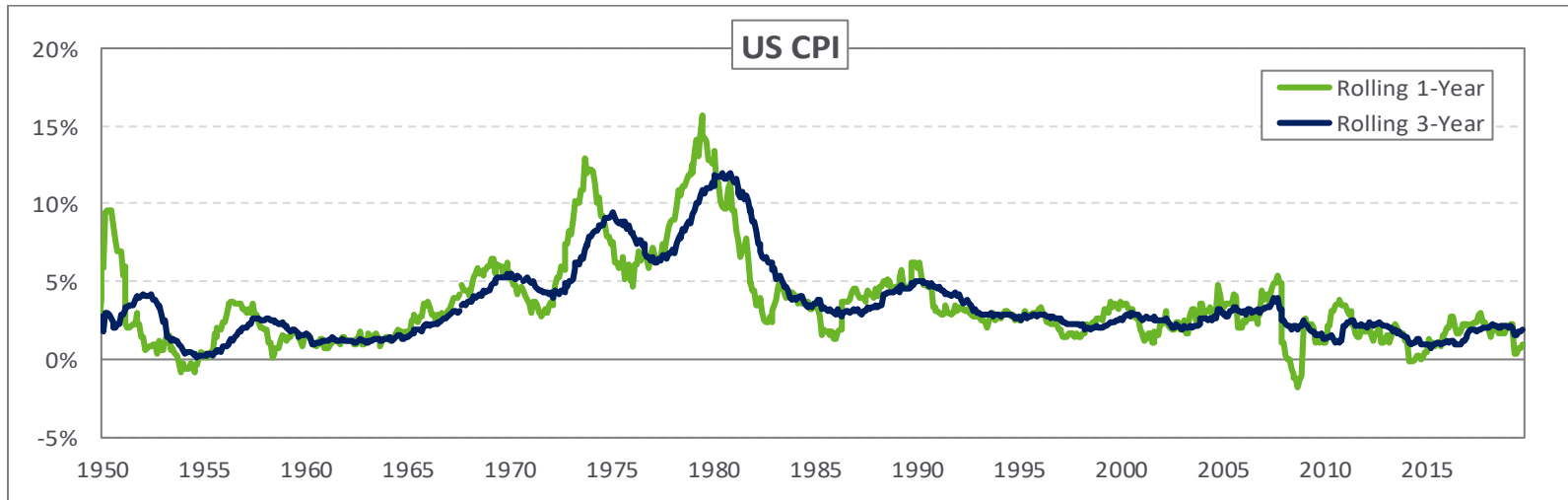
	Allocation (Rank)													
5th Percentile	72.6	41.2	26.8	14.1	8.1	31.4	27.1	5.7	5.7	24.9	20.4	11.0	11.6	--
25th Percentile	58.6	29.8	21.5	7.0	6.4	27.2	19.3	4.6	4.6	18.8	13.4	5.2	9.7	--
Median	49.8	21.8	16.9	2.6	5.2	23.4	15.1	3.0	3.0	14.4	10.7	3.3	6.6	--
75th Percentile	44.9	19.3	14.1	0.7	3.8	19.5	11.2	1.8	1.6	10.3	8.1	2.1	2.7	--
95th Percentile	27.0	7.7	9.1	0.6	0.9	16.2	7.1	1.3	0.6	1.7	3.3	0.2	0.5	--
# of Portfolios	23	17	21	11	18	23	16	11	11	21	19	9	21	--
● Total Fund	14.8 (99)	10.1 (93)	4.7 (99)	0.4 (99)	4.2 (67)	34.1 (1)	13.5 (58)	20.6 (1)	9.3 (1)	26.2 (5)	17.5 (9)	4.4 (33)	4.2 (67)	--



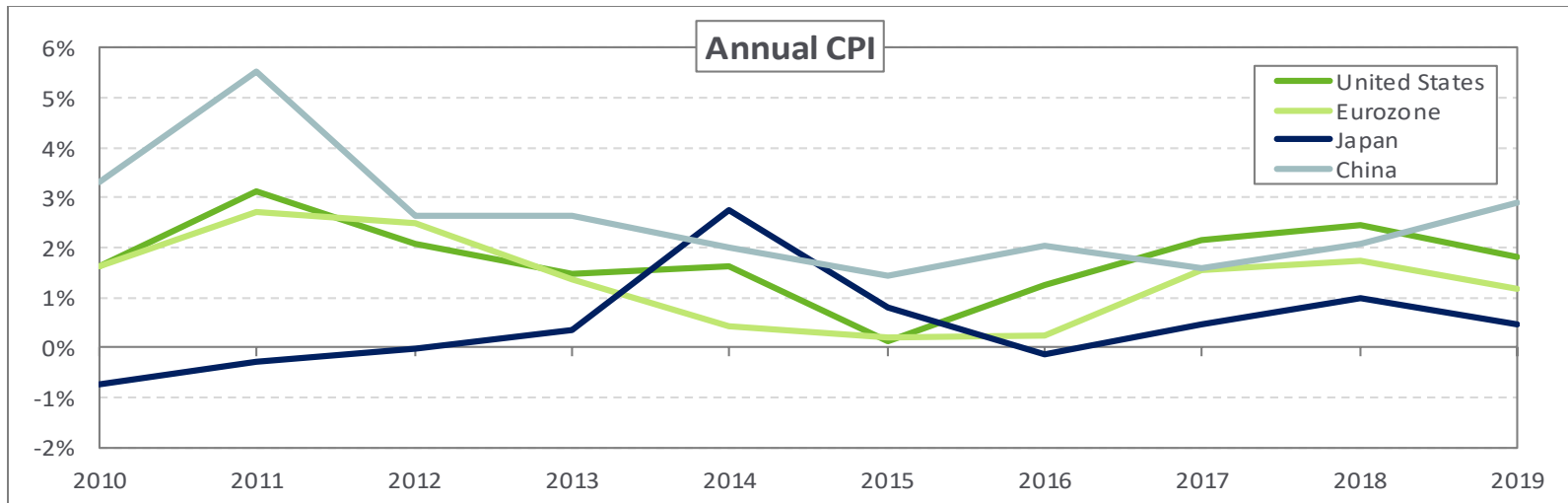
MACRO

NEPC, LLC

INFLATION



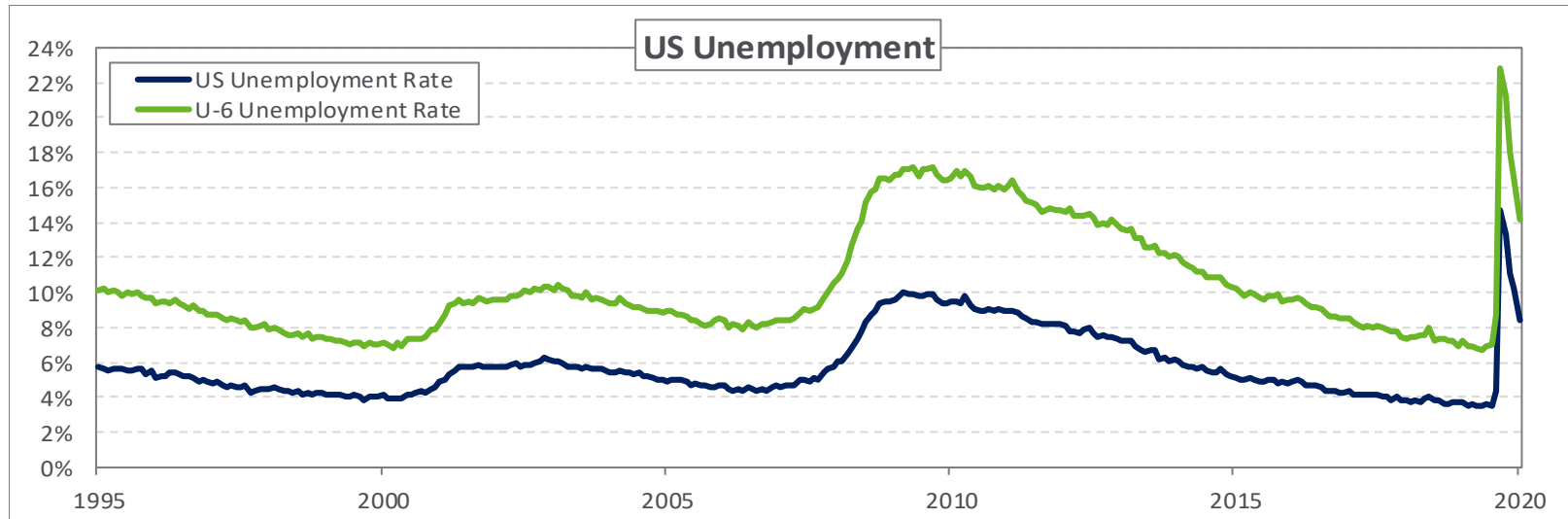
Source: Bureau of Labor Statistics, FactSet



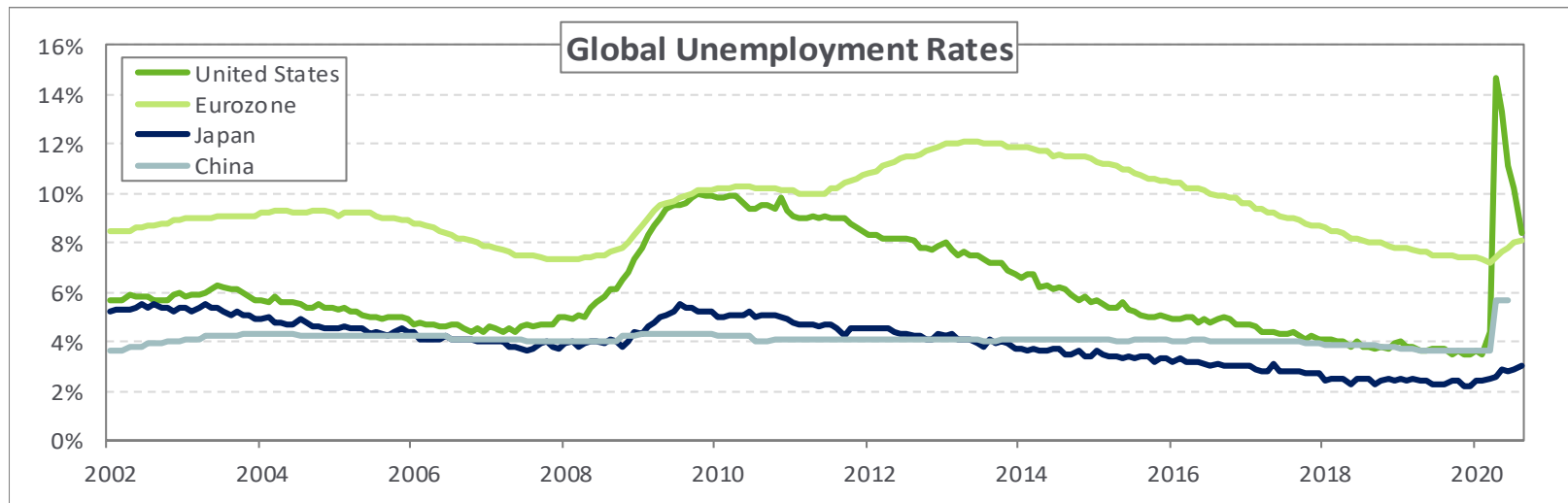
Source: FactSet



UNEMPLOYMENT



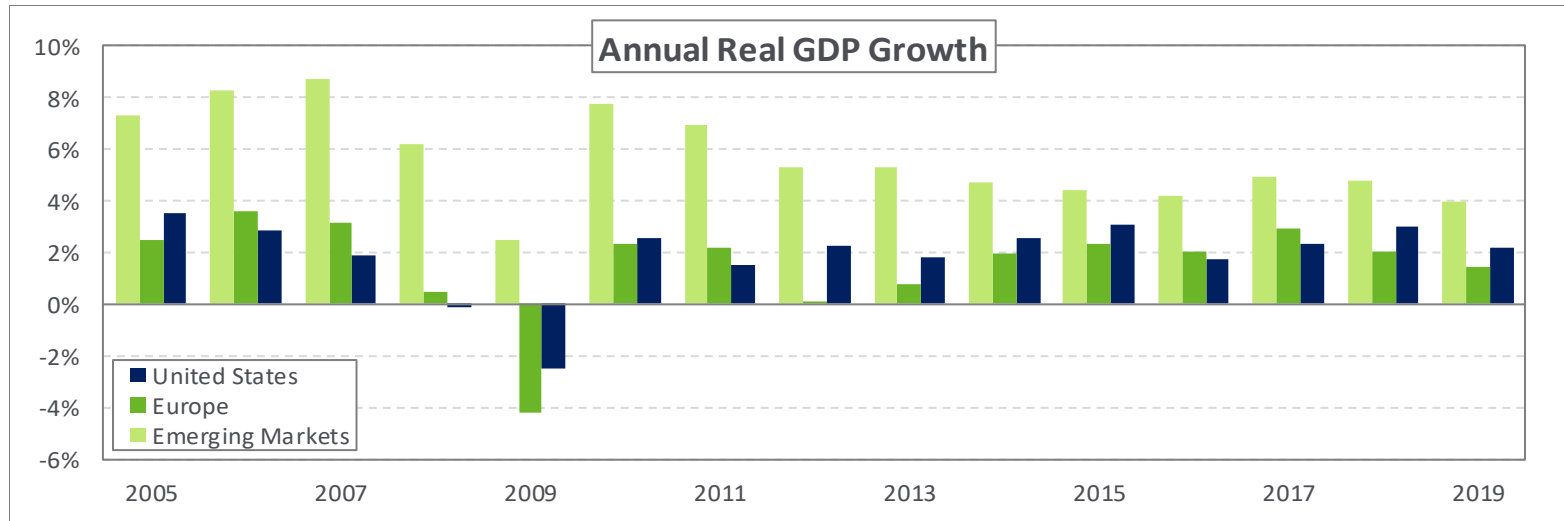
Source: FactSet



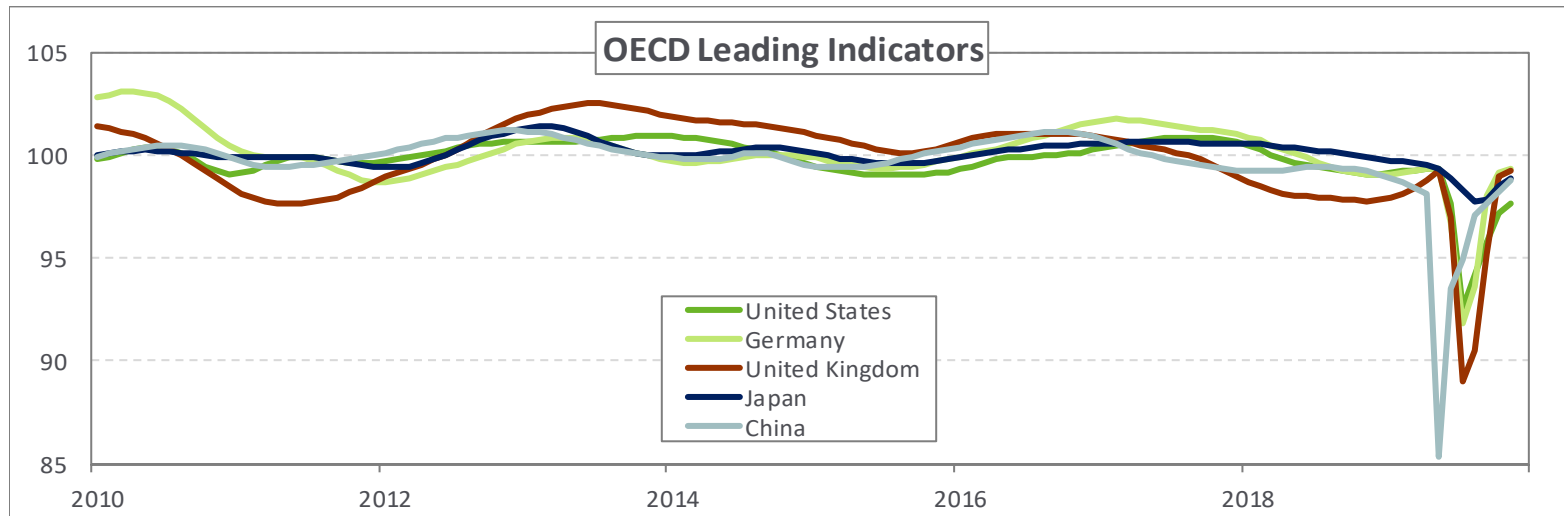
Source: FactSet



ECONOMIC INDICATORS



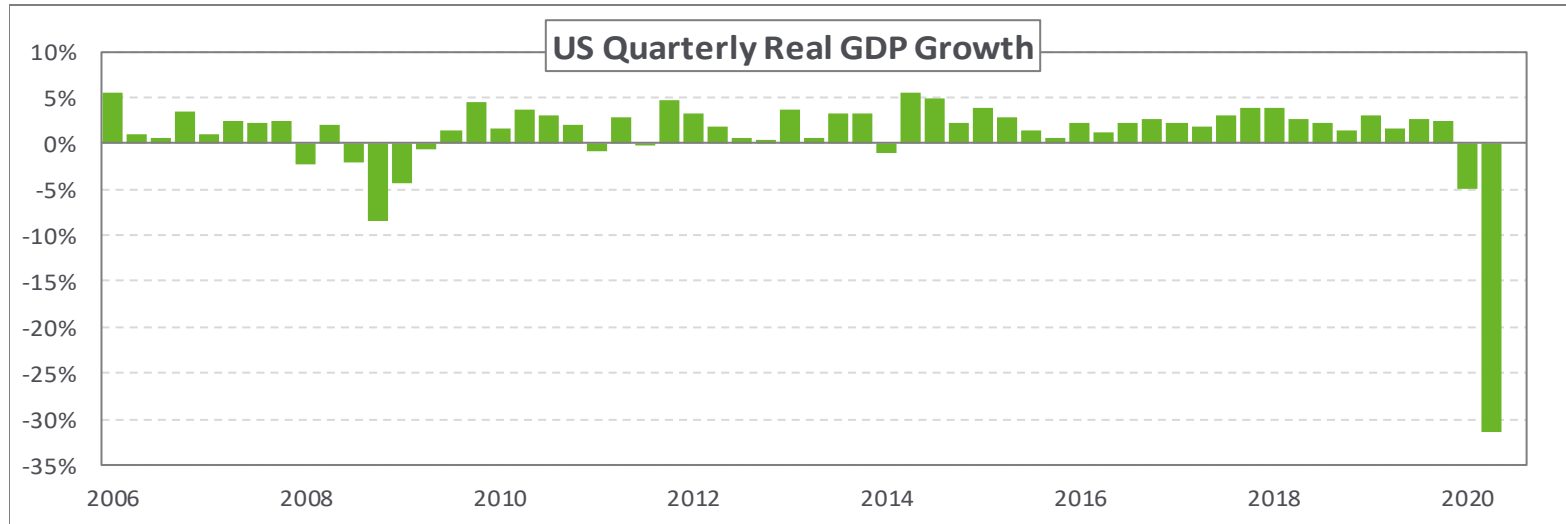
Source: Bureau of Economic Analysis, Oxford Economics, FactSet



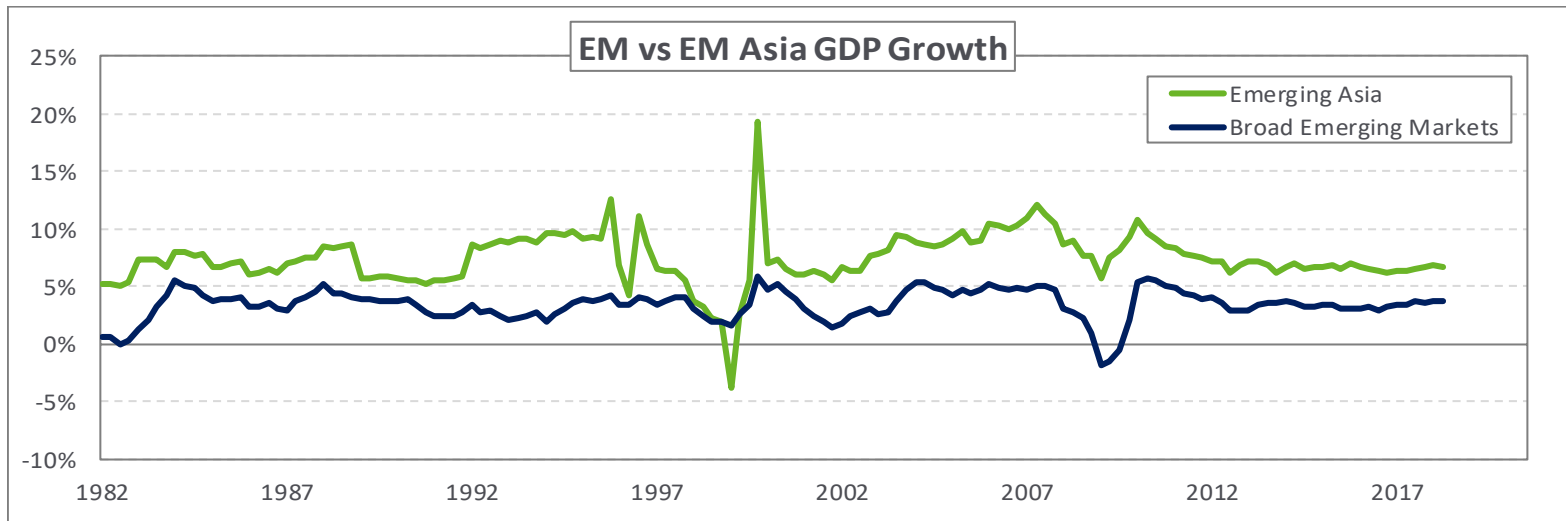
Source: OECD, FactSet



GROSS DOMESTIC PRODUCT



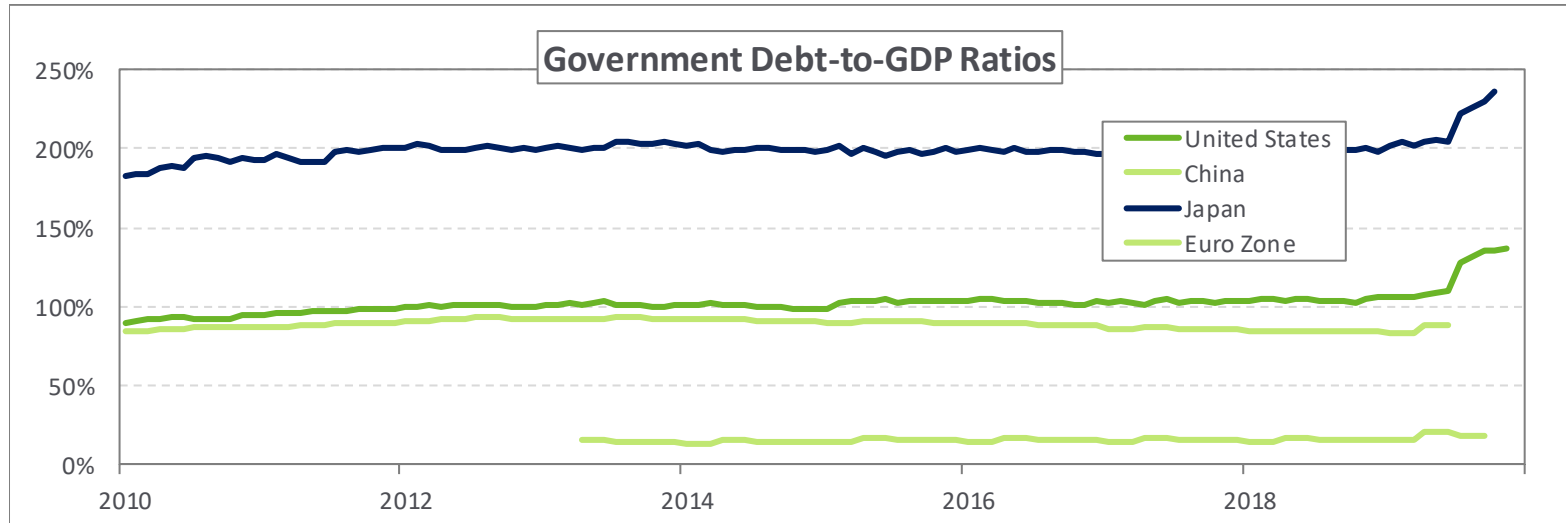
Source: Bureau of Economic Analysis, FactSet



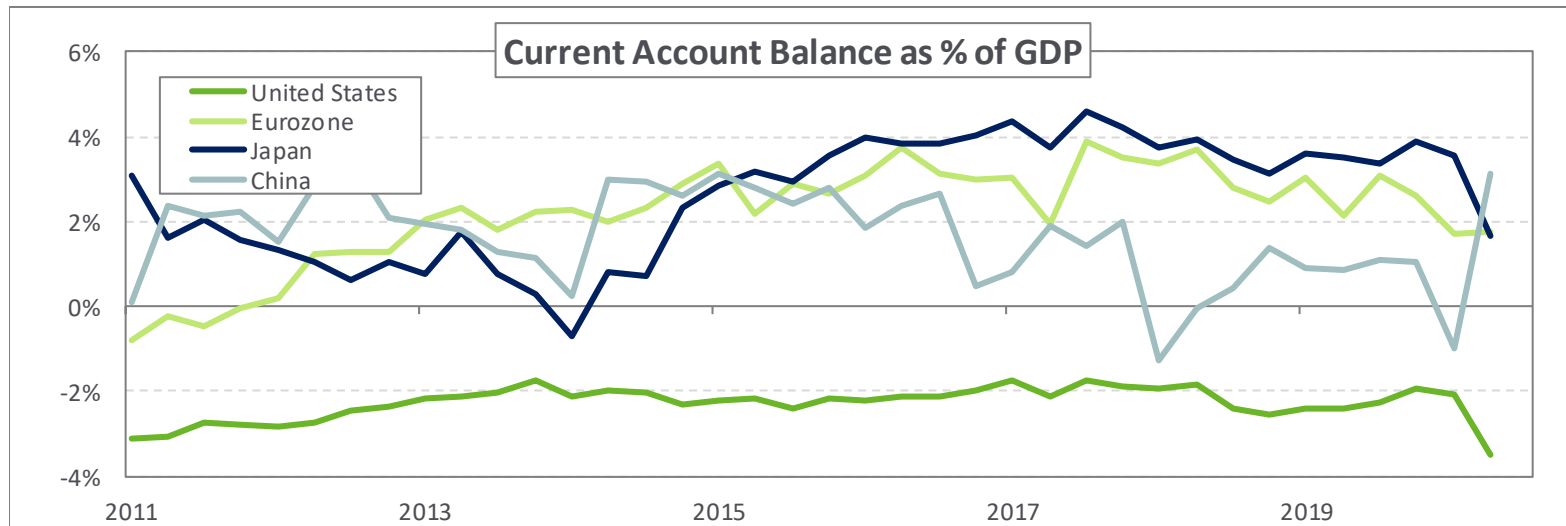
Source: IMF, FactSet



GROSS DOMESTIC PRODUCT METRICS



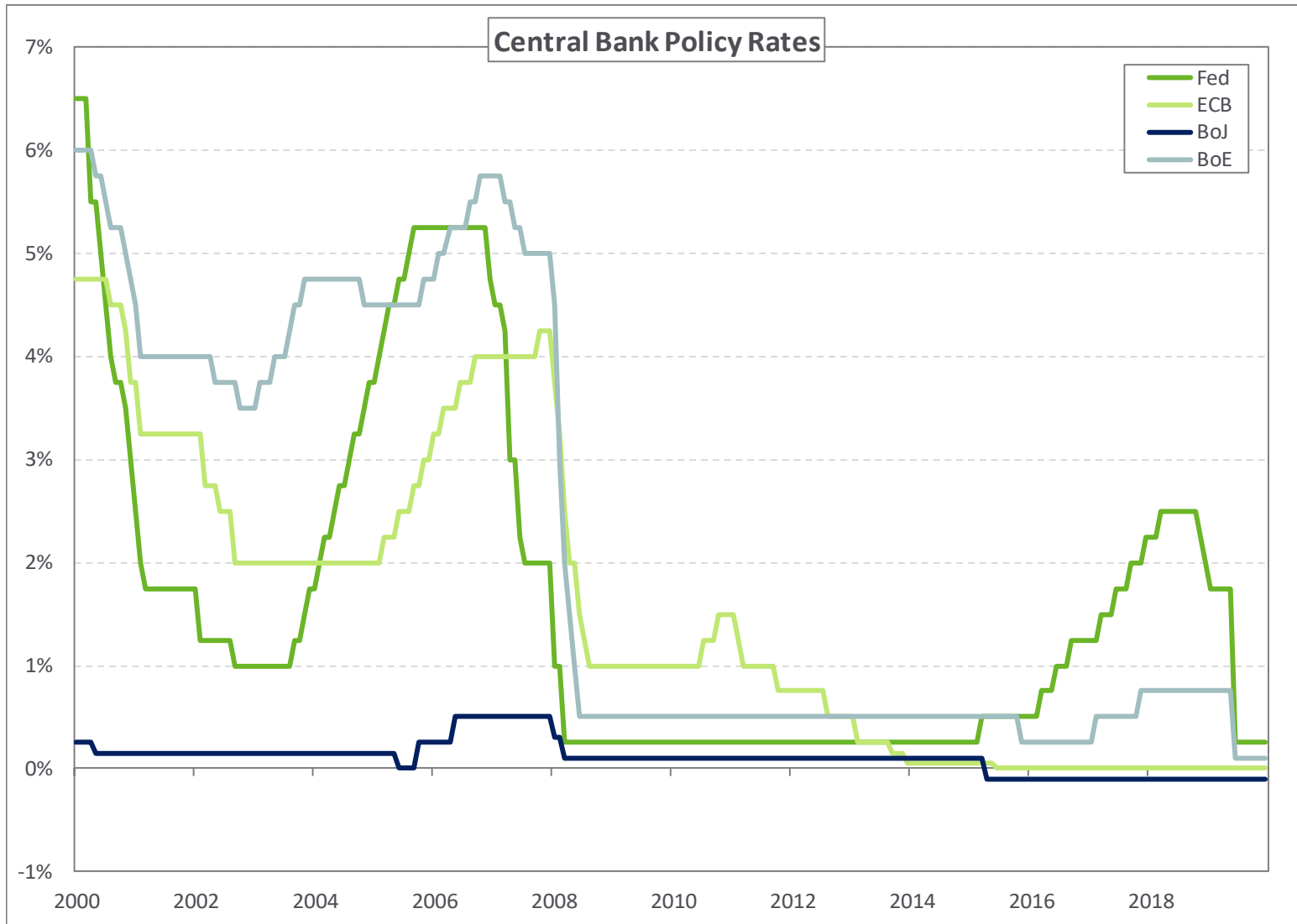
Source: IMF, FactSet



Source: FactSet



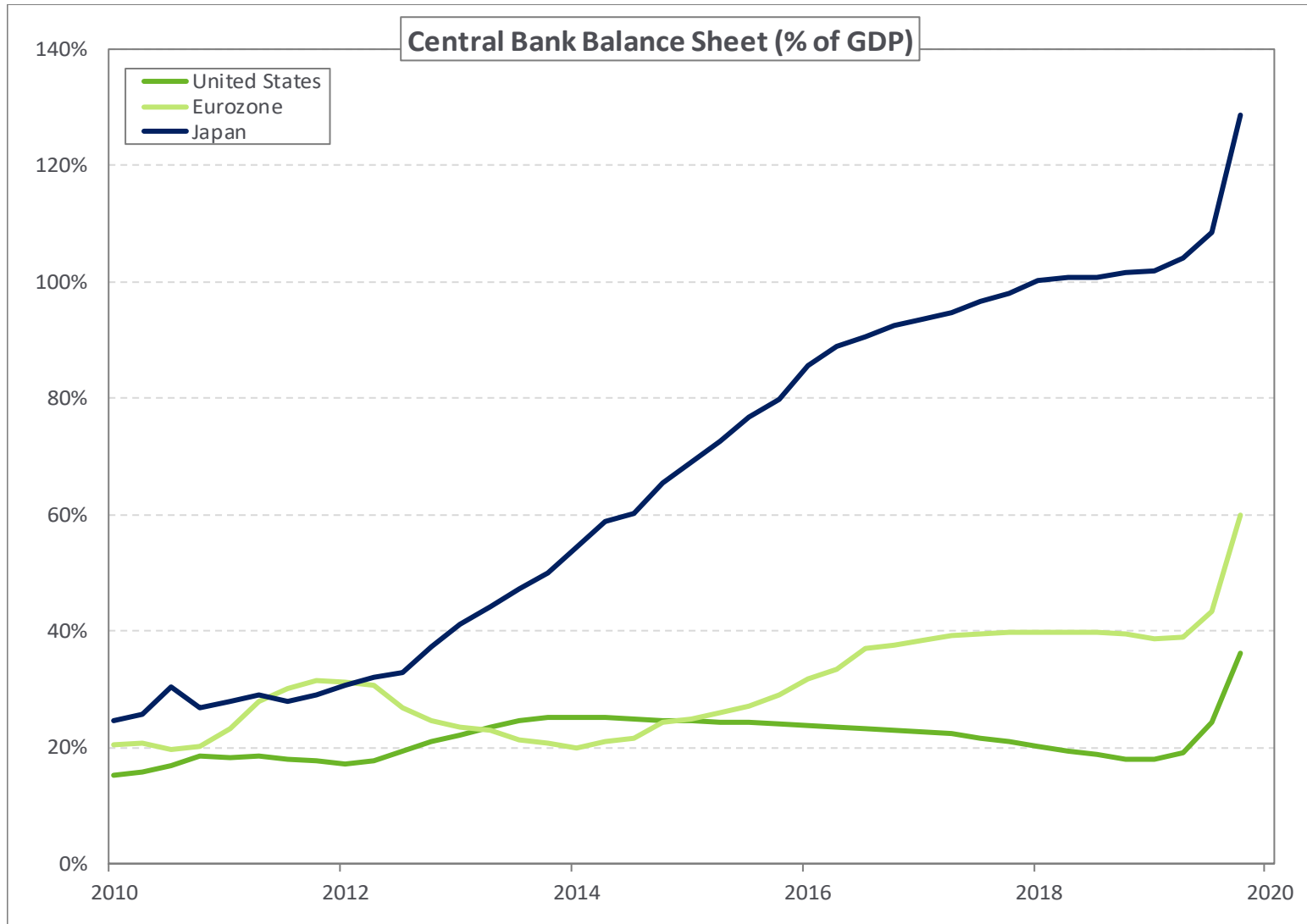
CENTRAL BANK RATES



Source: Federal Reserve, ECB, Bank of Japan, Bank of England, FactSet



CENTRAL BANK BALANCE SHEETS



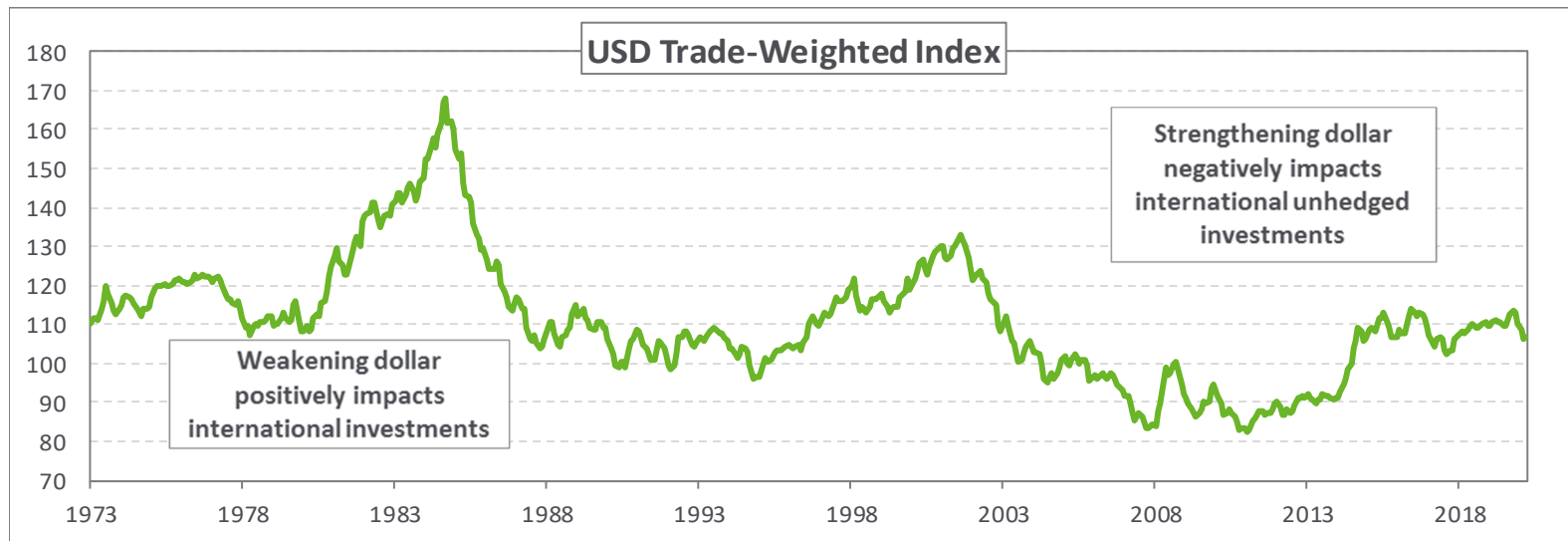
Source: FactSet



CURRENCIES

% Change Relative to USD				
Currencies	Spot	1 Month	YTD	1 Year
Euro	1.17	-1.9%	4.5%	7.6%
British Pound	1.29	-3.4%	-2.4%	4.9%
Japanese Yen	105.53	0.5%	3.0%	2.4%
Swiss Franc	0.92	-2.0%	5.4%	8.5%
Australian Dollar	0.72	-3.1%	2.0%	6.3%
Chinese Yuan	6.81	0.6%	2.3%	4.8%
Brazilian Real	5.64	-2.7%	-28.6%	-26.1%
Russian Ruble	77.60	-4.5%	-20.0%	-16.4%
Indian Rupee	73.78	-0.2%	-3.3%	-3.9%
Mexican Peso	22.08	-0.9%	-14.5%	-10.6%
South African Rand	16.68	1.6%	-16.2%	-9.1%

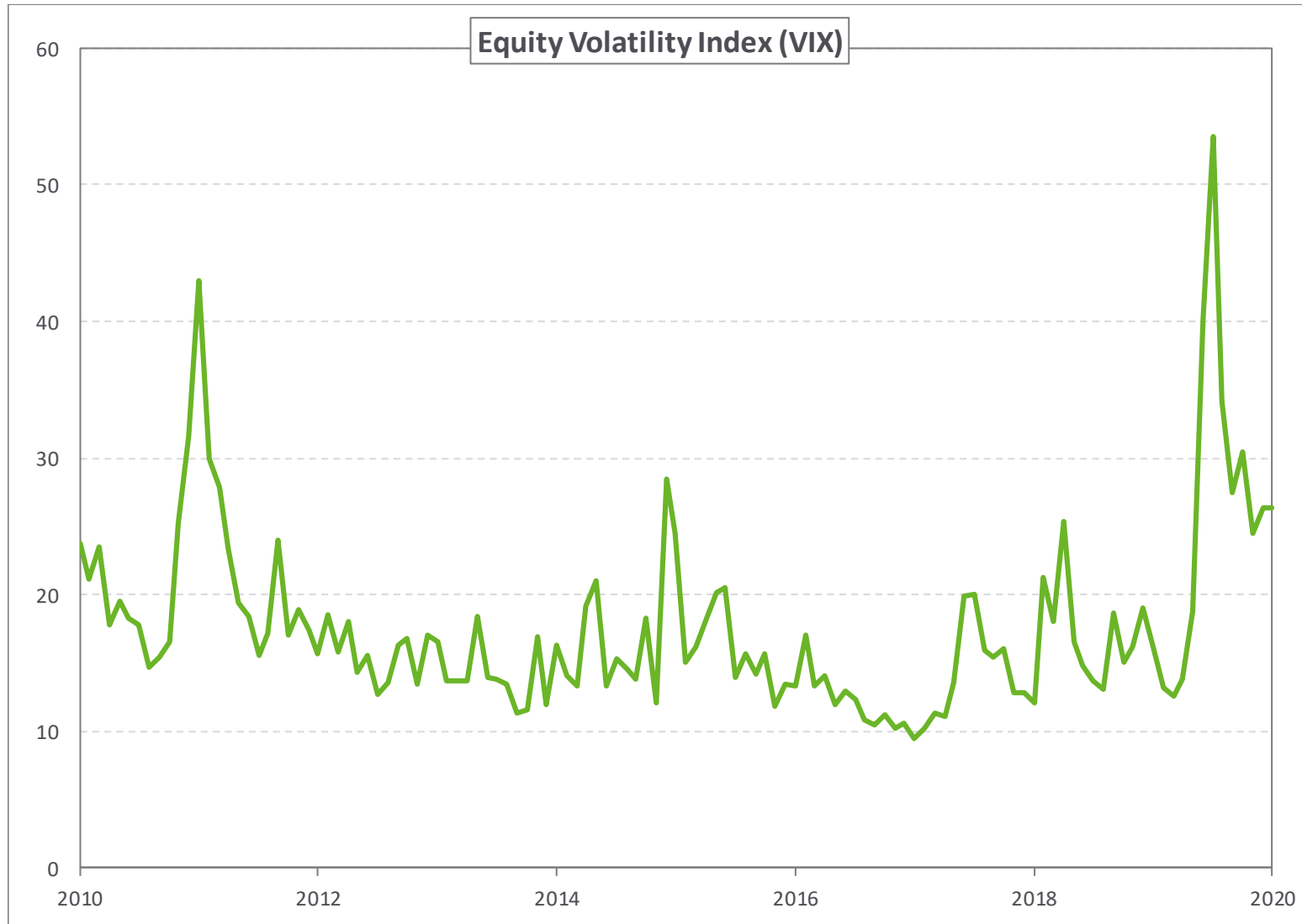
Source: FactSet



Source: FactSet



VOLATILITY



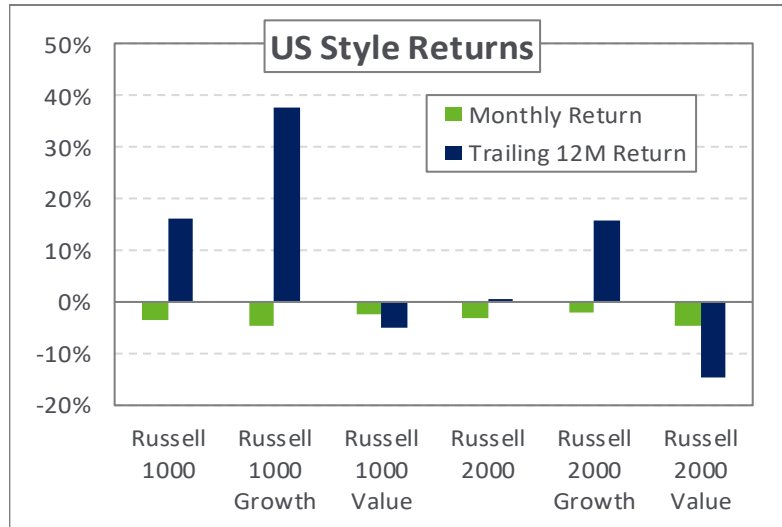
Source: CBOE, FactSet



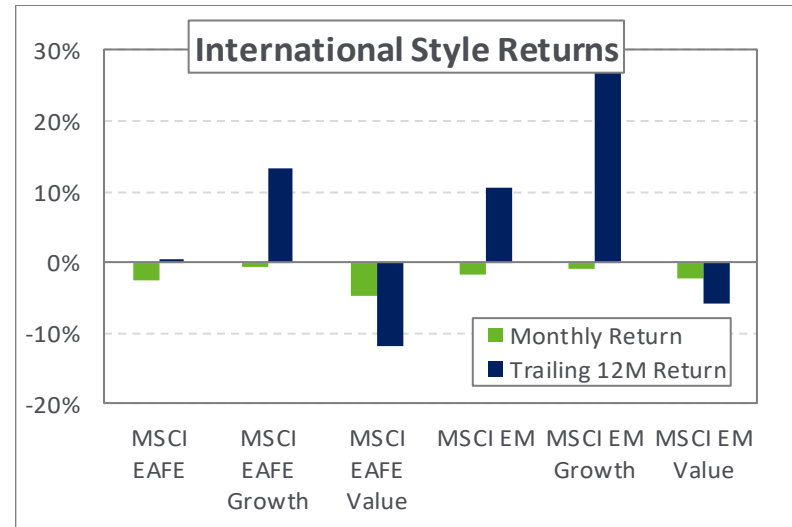
EQUITY

NEPC, LLC

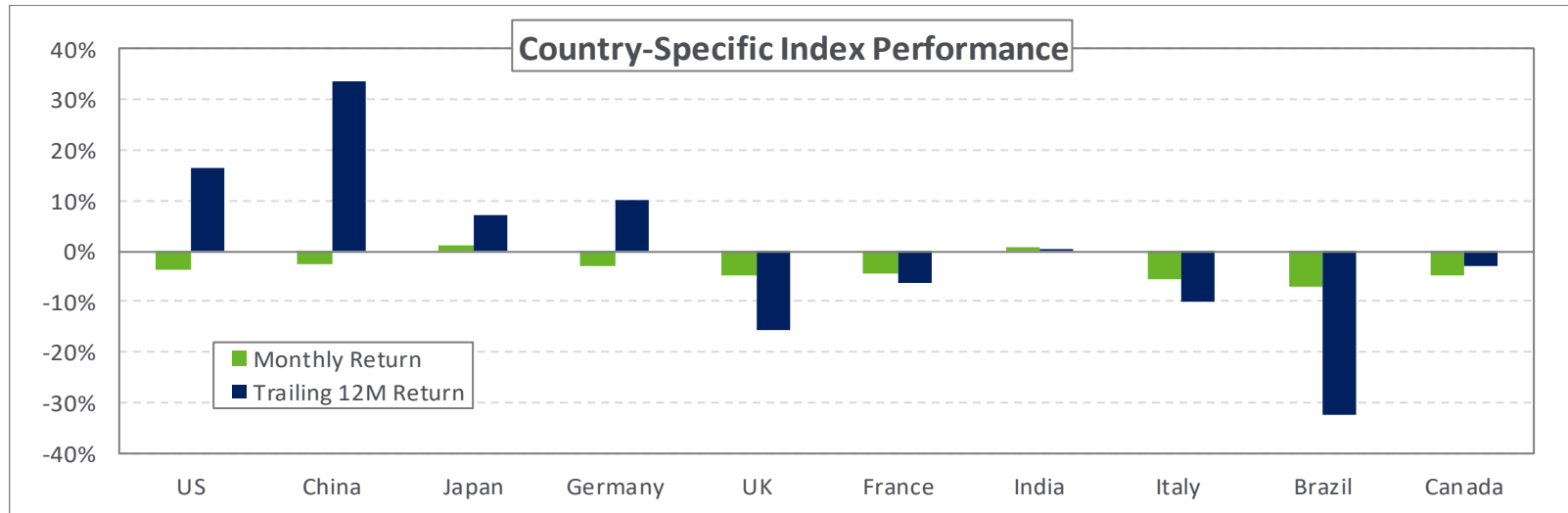
EQUITY INDEX PERFORMANCE



Source: Russell, FactSet



Source: MSCI, FactSet



Source: MSCI, FactSet
Represents returns in USD



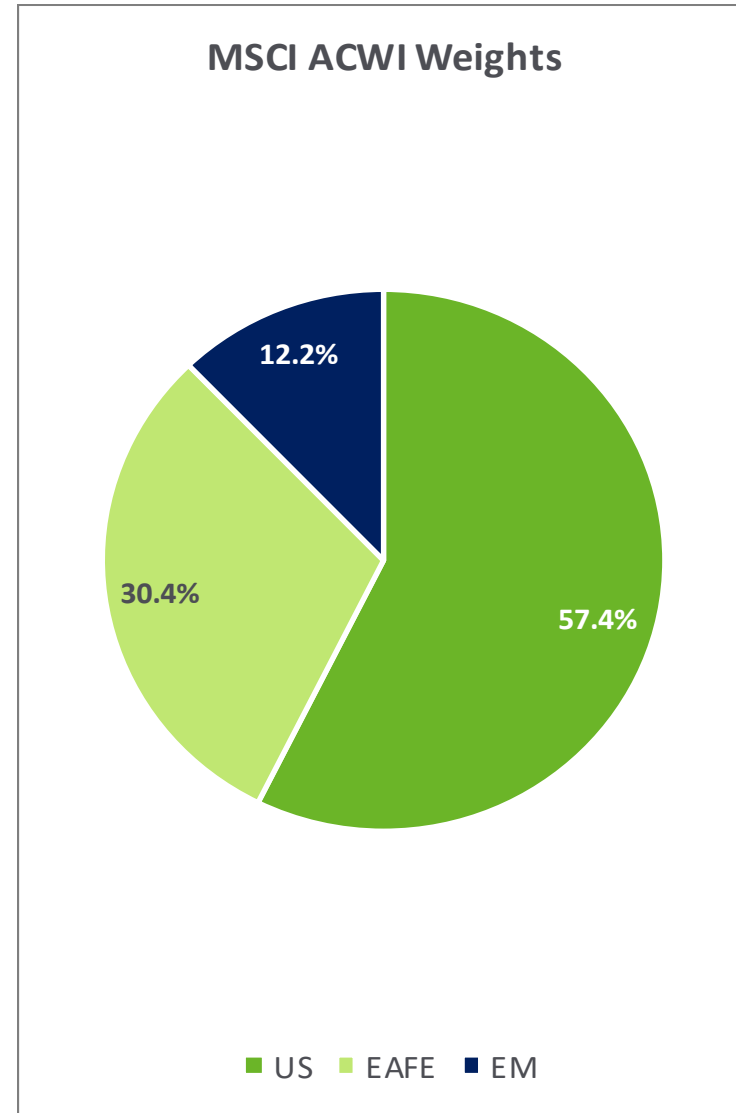
INDEX COMPOSITION

	MTD	QTD	YTD	Index Weight
S&P 500	-3.8%	8.9%	5.6%	100.0%
Communication Services	-0.7%	1.0%	1.0%	10.8%
Consumer Discretionary	-0.4%	1.6%	2.7%	11.6%
Consumer Staples	-0.1%	0.7%	0.1%	7.0%
Energy	-0.4%	-0.5%	-2.2%	2.1%
Financials	-0.4%	0.4%	-3.4%	9.7%
Health Care	-0.3%	0.9%	0.9%	14.2%
Industrials	-0.1%	1.0%	-0.6%	8.3%
Information Technology	-1.5%	3.3%	7.9%	28.2%
Materials	0.0%	0.3%	0.2%	2.6%
Real Estate	-0.1%	0.1%	-0.4%	2.6%
Utilities	0.0%	0.2%	-0.4%	3.0%

Source: S&P, FactSet

	MTD	QTD	YTD	Index Weight
MSCI ACWI	-3.2%	8.1%	1.4%	100.0%
Communication Services	-0.5%	0.7%	0.9%	9.3%
Consumer Discretionary	-0.3%	2.1%	2.5%	12.9%
Consumer Staples	-0.1%	0.6%	-0.1%	8.0%
Energy	-0.4%	-0.4%	-2.3%	2.8%
Financials	-0.7%	0.2%	-4.8%	12.5%
Health Care	-0.2%	0.6%	1.2%	12.6%
Industrials	-0.1%	1.0%	-0.6%	9.6%
Information Technology	-0.7%	2.6%	5.7%	21.7%
Materials	-0.1%	0.5%	0.2%	4.8%
Real Estate	-0.1%	0.1%	-0.8%	2.8%
Utilities	0.0%	0.1%	-0.4%	3.1%

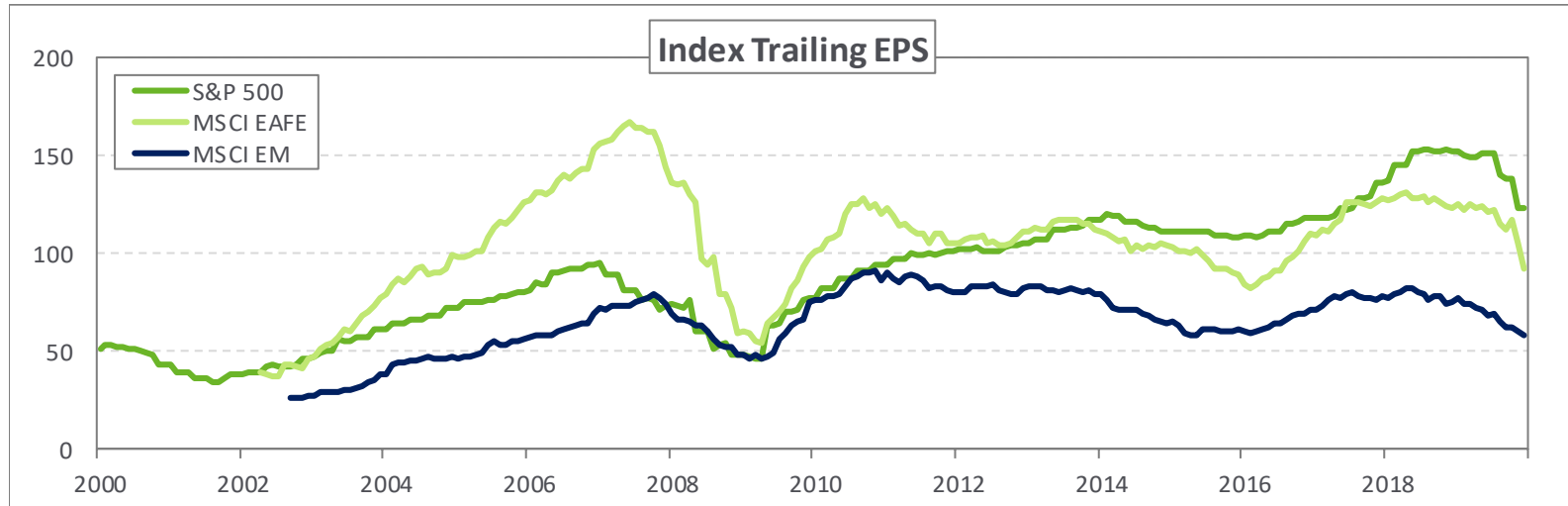
Source: MSCI, FactSet



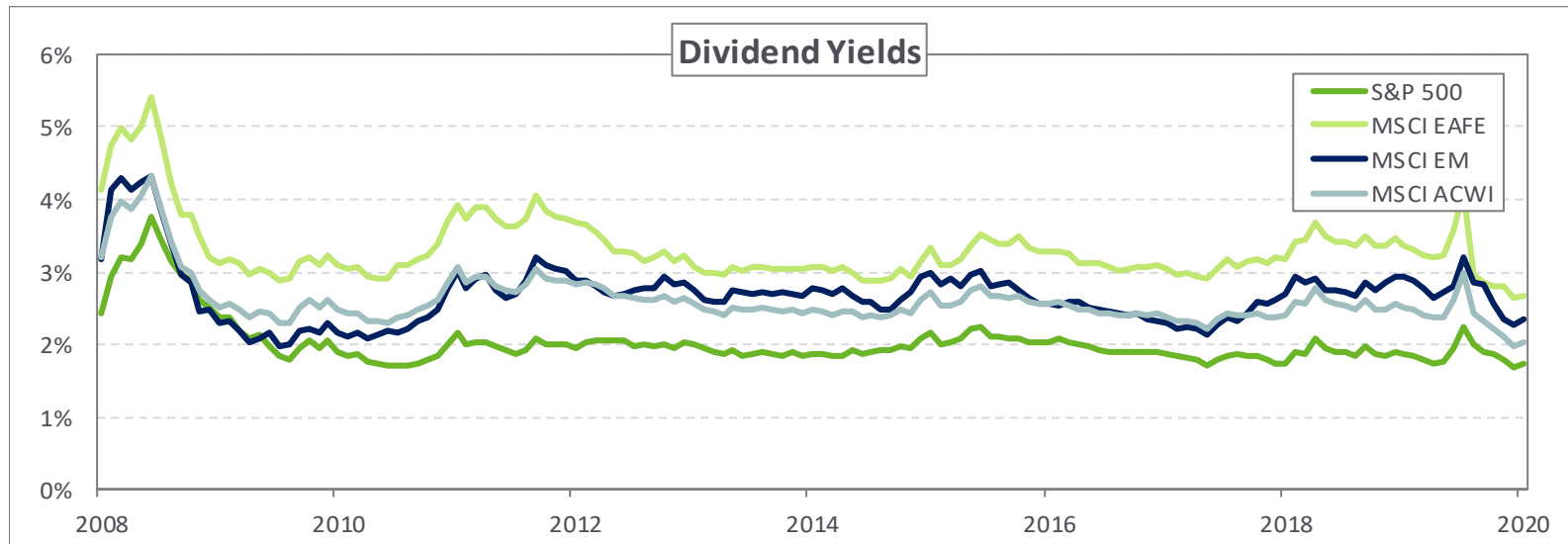
Source: MSCI, FactSet



EARNINGS & YIELDS



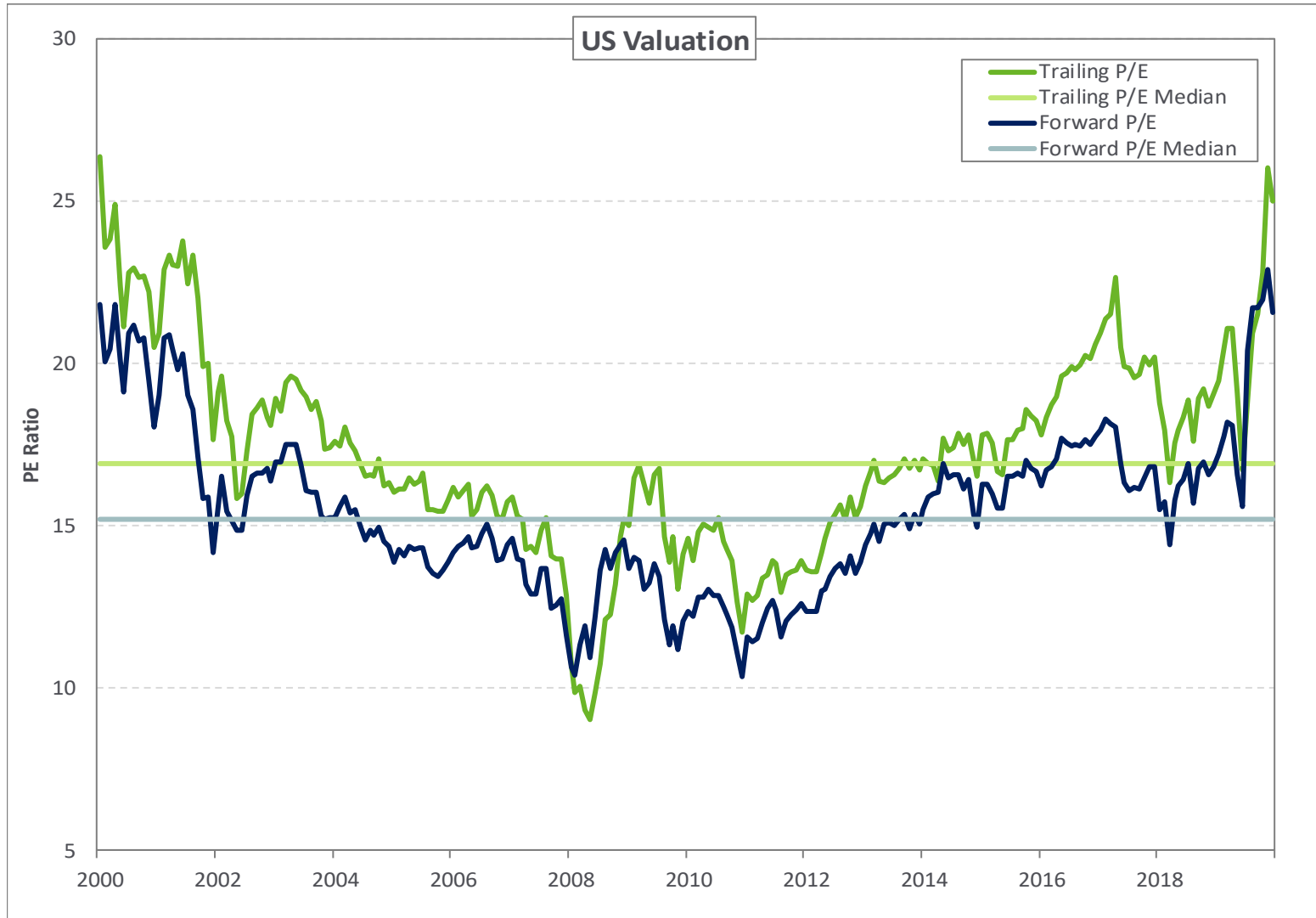
Source: FactSet



Source: FactSet



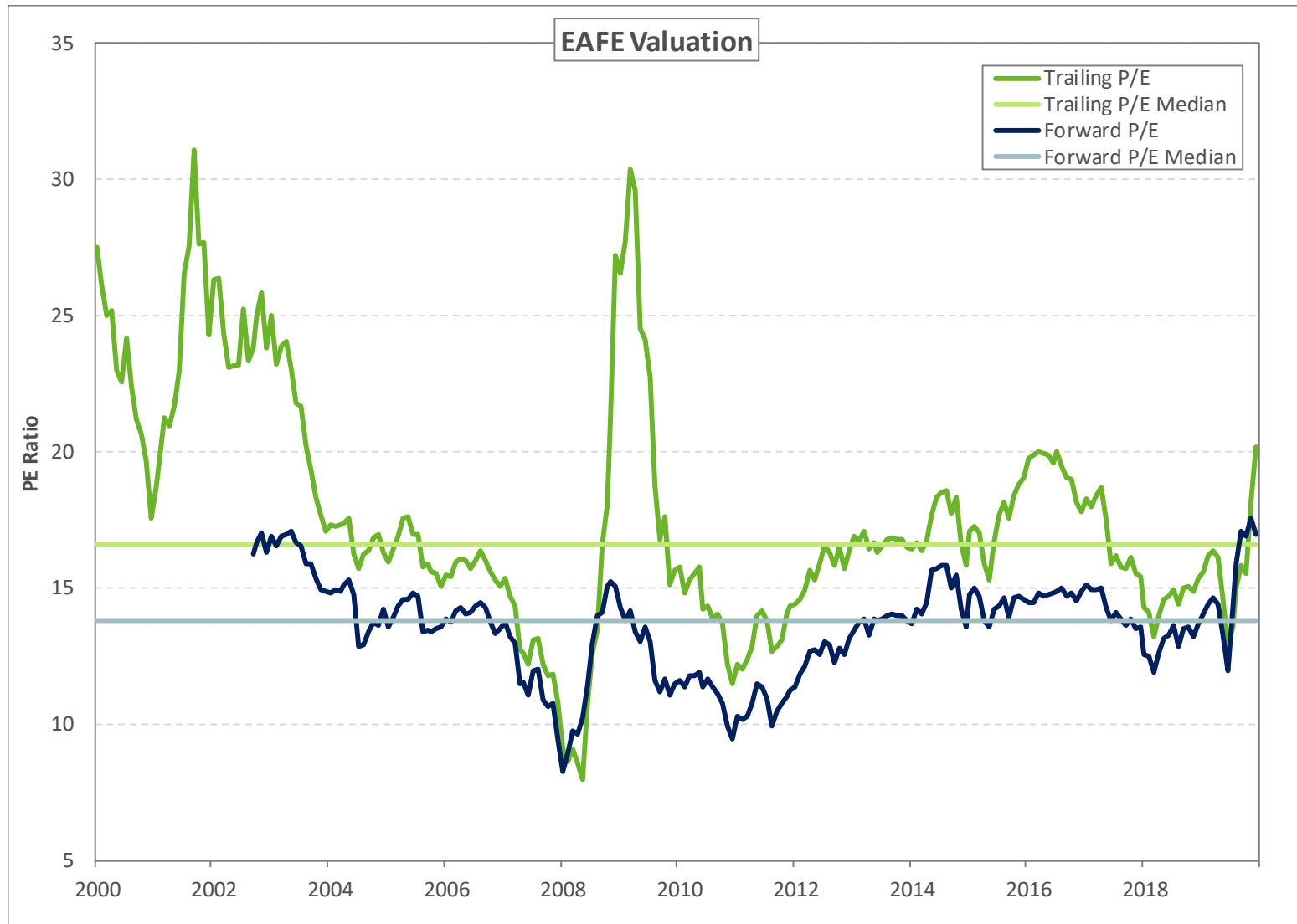
US EQUITY VALUATIONS



Source: S&P, FactSet



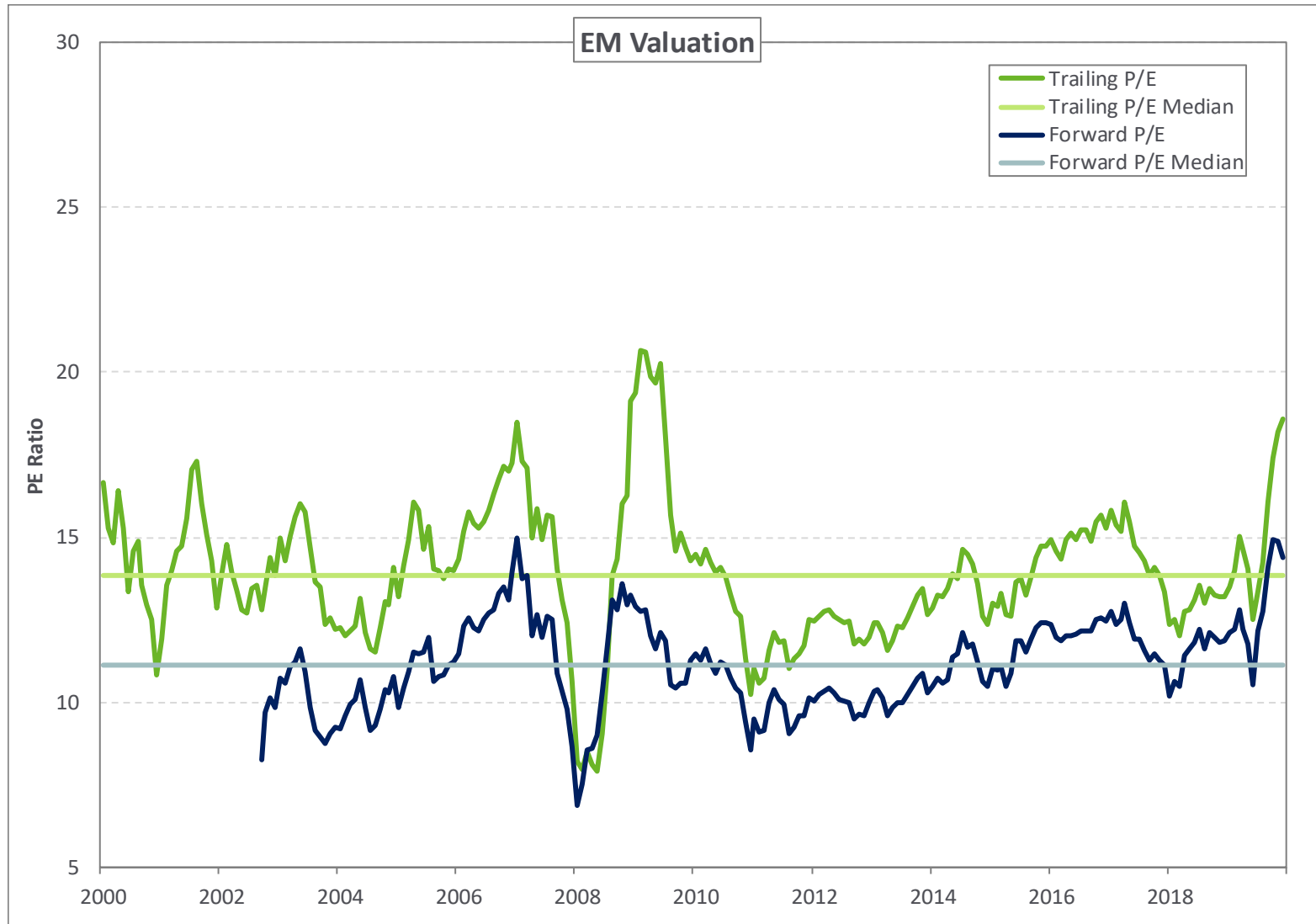
EAFE EQUITY VALUATIONS



Source: MSCI, FactSet



EM EQUITY VALUATIONS



Source: MSCI, FactSet



CREDIT

NEPC, LLC

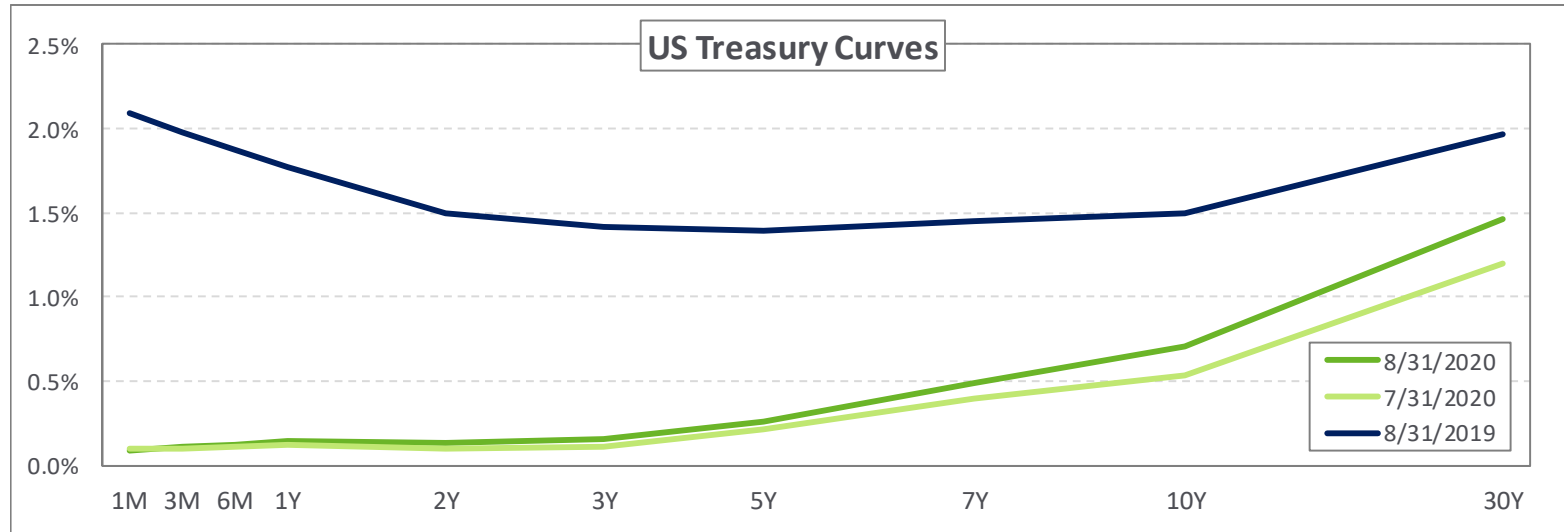
FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	1.18%	60	6.1	-0.1%	6.8%	6.9%
Barclays Treasury	0.48%	-	7.2	0.1%	8.9%	8.0%
Barclays Agency	0.49%	16	3.7	0.2%	5.4%	5.3%
Barclays MBS	1.29%	61	2.1	-0.1%	3.6%	4.3%
Barclays ABS	0.54%	41	2.1	0.1%	4.1%	4.5%
Barclays CMBS	1.08%	68	5.7	0.0%	8.3%	7.8%
Barclays Corp IG	2.01%	136	8.7	-0.3%	6.6%	7.8%
Barclays Muni	1.32%	-	5.4	0.0%	3.3%	4.1%
Barclays HY Muni	4.54%	-	9.0	0.1%	0.4%	1.3%
Barclays TIPS	0.68%	-	5.2	-0.4%	9.2%	10.0%
Barclays HY	5.77%	517	3.8	-1.0%	0.6%	3.2%
Barclays Global Agg	0.90%	50	7.4	-0.4%	5.7%	6.2%
JPM EMBI Glob Div	-	432	7.9	-1.9%	-0.5%	1.3%
JPM GBI - EM	4.48%	-	5.5	-2.0%	-6.3%	-1.4%

Source: Barclays, JP Morgan, FactSet



TREASURIES



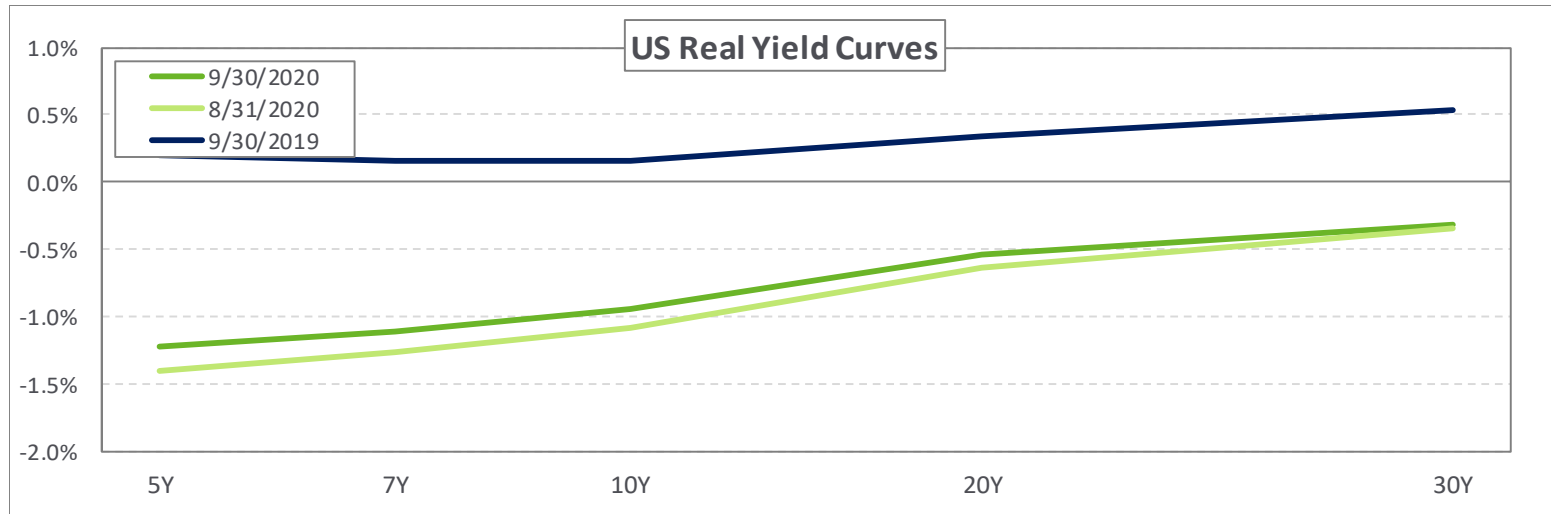
Source: FactSet

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	0.10%	0.11%	1.82%	0.01%	1.10%
6M Treasury	0.11%	0.13%	1.82%	0.02%	1.54%
2Y Treasury	0.13%	0.13%	1.62%	0.02%	3.43%
5Y Treasury	0.28%	0.26%	1.55%	0.01%	7.19%
10Y Treasury	0.68%	0.70%	1.68%	0.22%	10.74%
30Y Treasury	1.45%	1.46%	2.12%	0.13%	17.75%

Source: FactSet



REAL YIELDS



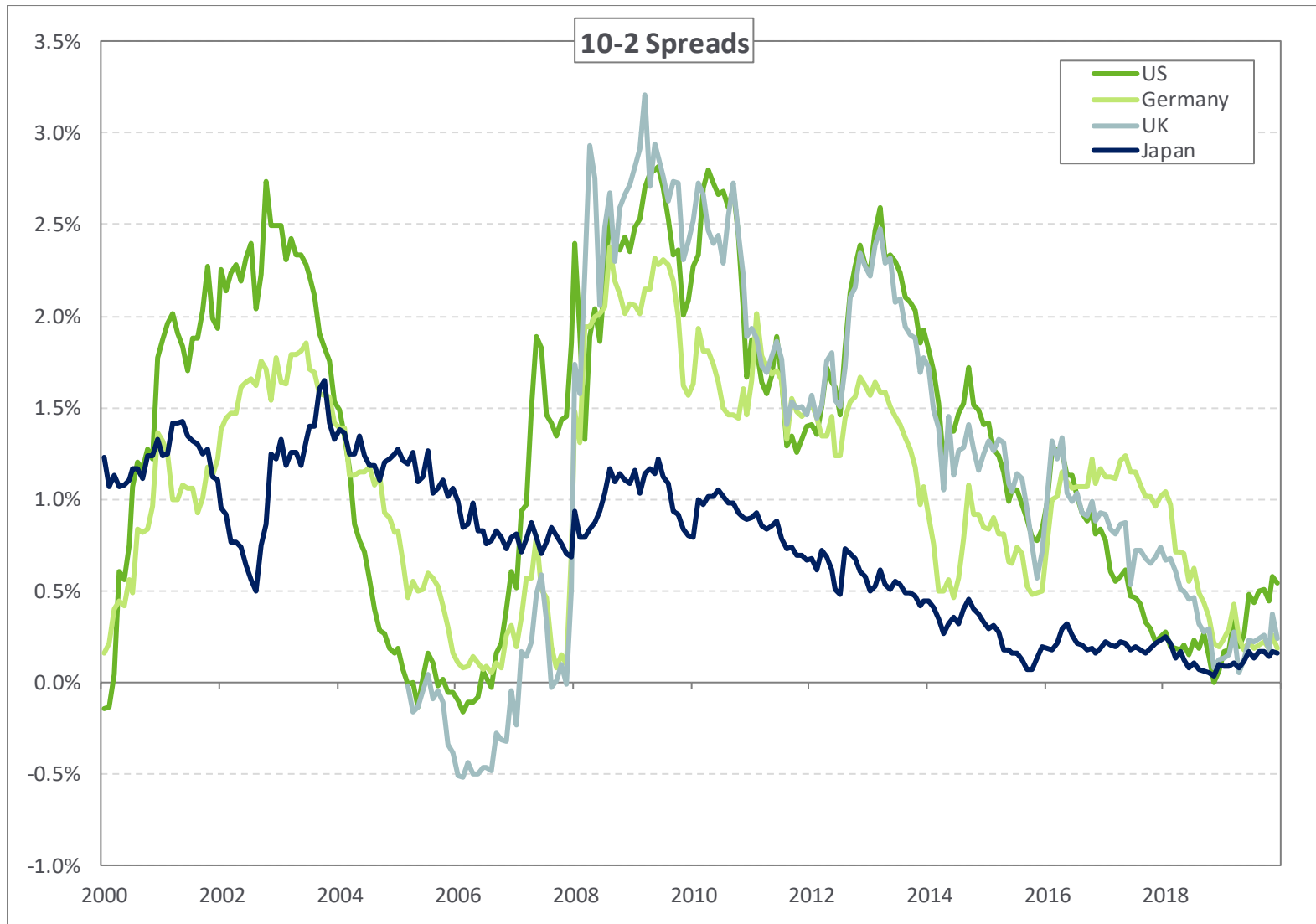
Source: FactSet

	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months
5-Year	-1.22%	-1.41%	0.20%	1.50%	1.35%
7-Year	-1.11%	-1.27%	0.16%	1.57%	1.46%
10-Year	-0.94%	-1.08%	0.15%	1.62%	1.53%
30-Year	-0.32%	-0.35%	0.53%	1.77%	1.59%

Source: FactSet



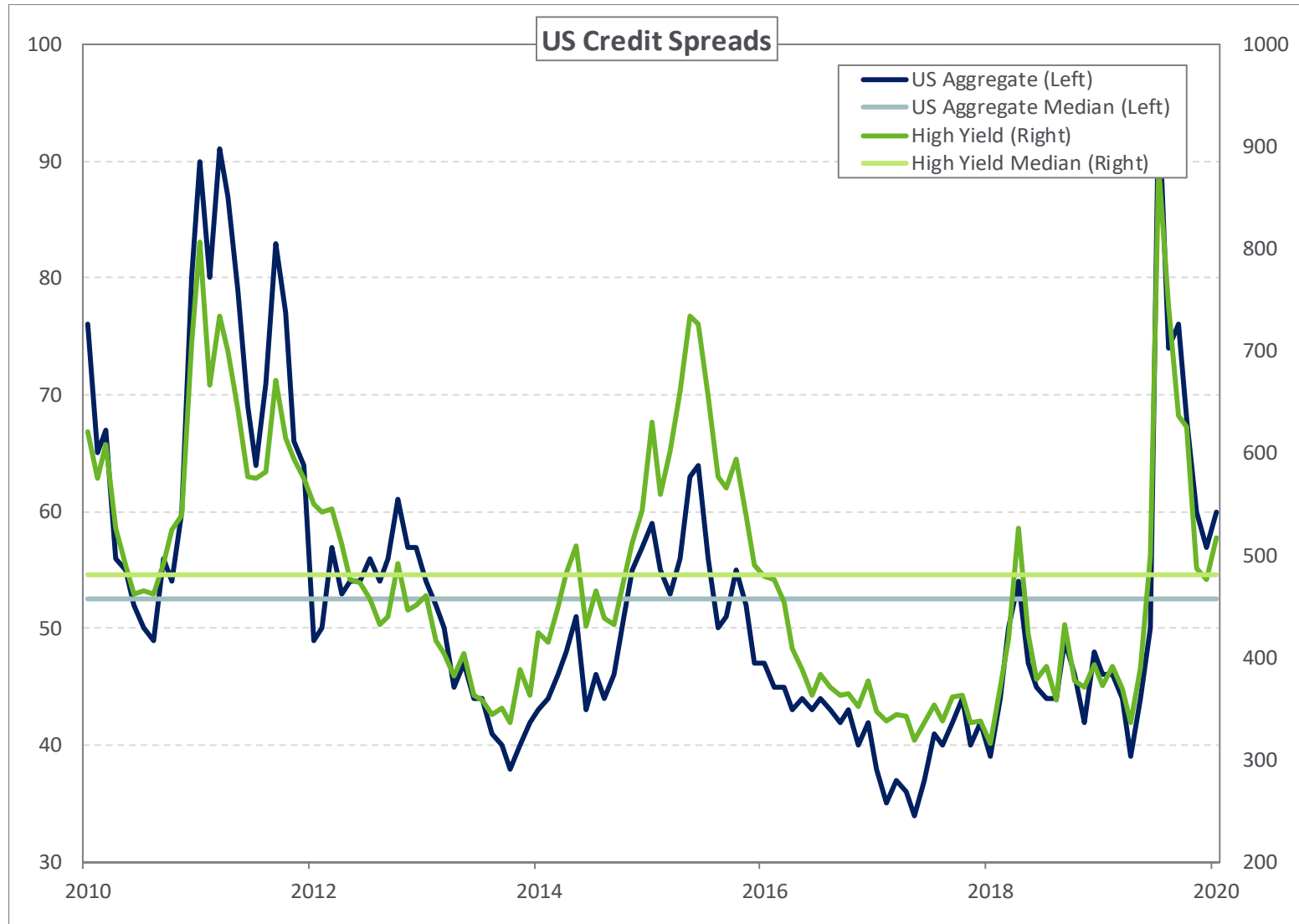
NOMINAL YIELDS



Source: FactSet



CREDIT SPREADS



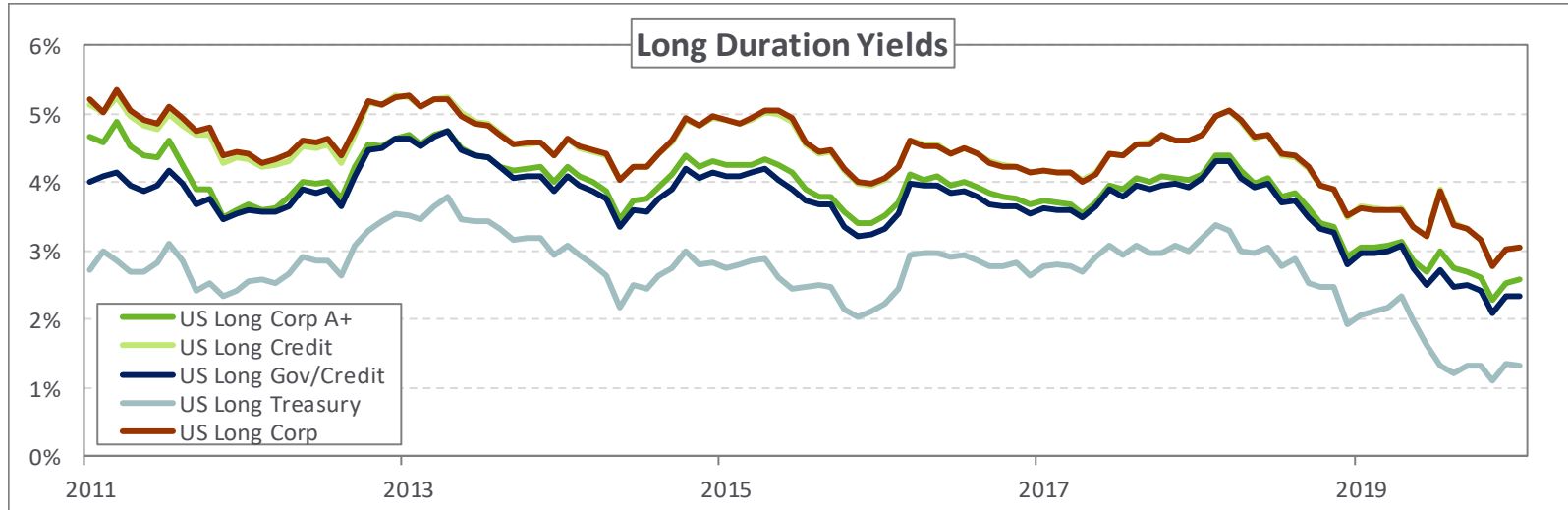
Source: Barclays, FactSet



LONG DURATION

Index	Current	1 Month Ago	12 Months Ago	Duration
Barclays Long Treasury	1.3%	1.3%	2.1%	19.4
Barclays 20+ STRIPS	1.5%	1.5%	2.2%	27.2
Barclays Long Credit	3.0%	3.0%	3.6%	15.1
Barclays Long Gov/Credit	2.4%	2.3%	3.0%	16.8
Barclays Long Corp A+	2.7%	2.7%	3.2%	16.0

Source: Barclays, FactSet



Source: Barclays, FactSet



REAL ASSETS

NEPC, LLC

REAL ASSETS INDEX PERFORMANCE

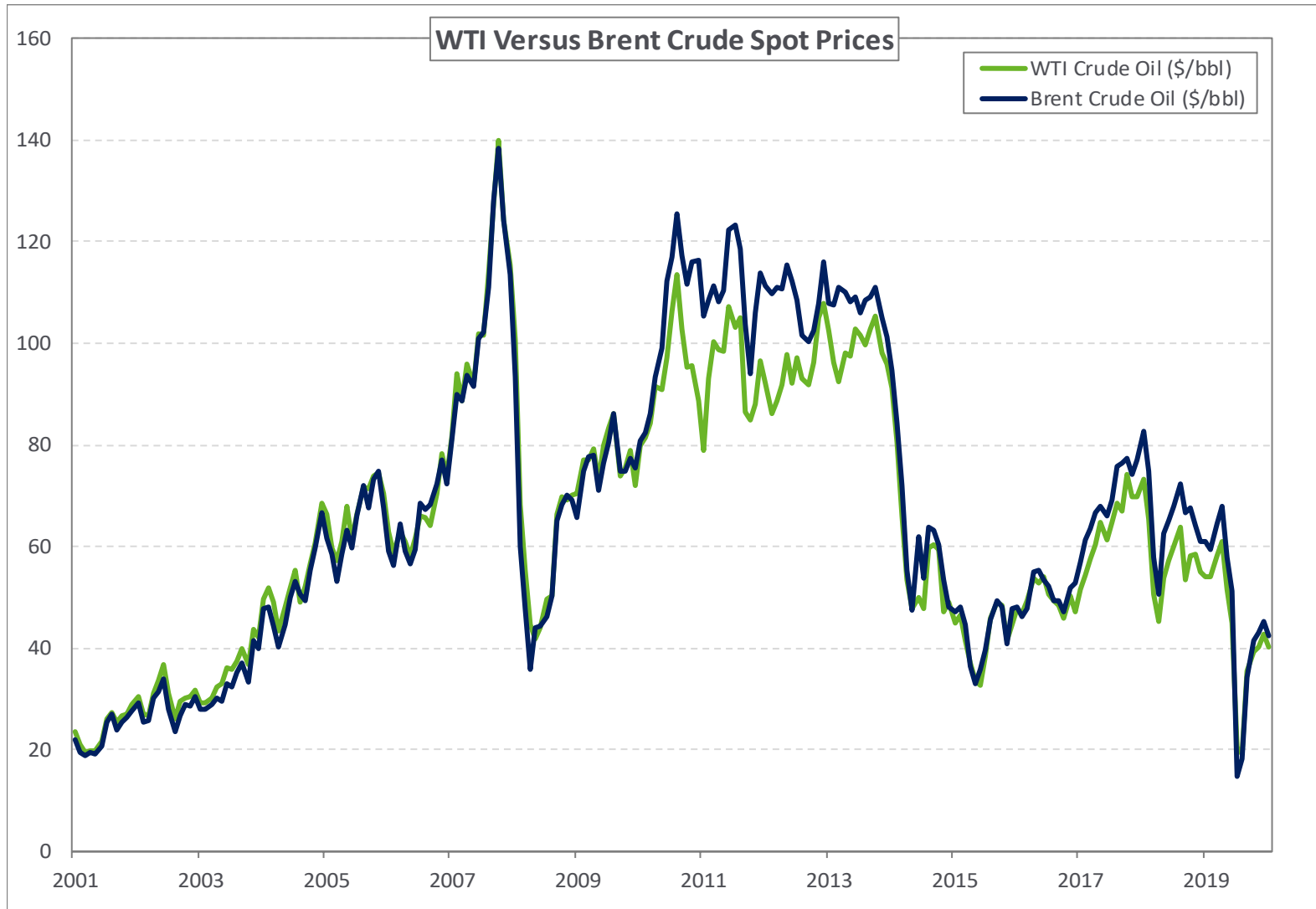
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	-3.4%	9.1%	-12.1%	-8.1%	-4.2%	-3.1%
Bloomberg Sub Agriculture Index	3.4%	11.9%	-4.0%	2.8%	-5.1%	-5.0%
Coffee	-14.0%	7.7%	-19.8%	0.2%	-13.9%	-11.0%
Corn	5.9%	6.7%	-9.8%	-11.4%	-8.0%	-10.1%
Cotton	1.0%	8.1%	-4.9%	5.4%	-1.8%	1.4%
Soybean	7.4%	16.0%	3.7%	6.4%	-3.9%	-1.6%
Soybean Oil	0.8%	15.0%	-9.7%	6.6%	-4.2%	-0.7%
Sugar	1.0%	7.0%	-3.6%	2.7%	-7.8%	-4.6%
Wheat	4.7%	15.5%	0.8%	12.9%	1.6%	-7.1%
Bloomberg Sub Energy	-9.6%	4.3%	-44.0%	-40.5%	-15.8%	-14.0%
Brent Crude	-8.2%	-0.2%	-42.7%	-33.2%	-7.6%	-7.0%
Heating Oil	-7.1%	-7.5%	-50.8%	-46.1%	-16.2%	-11.4%
Natural Gas	-13.5%	15.0%	-28.5%	-40.6%	-26.5%	-24.4%
Unleaded Gas	-0.5%	5.6%	-42.9%	-35.0%	-12.3%	-9.9%
WTI Crude Oil	-6.2%	0.8%	-58.3%	-52.2%	-19.7%	-17.3%
Bloomberg Sub Industrial Metals	-2.8%	11.2%	1.8%	1.6%	-1.0%	4.5%
Aluminum	-2.5%	7.2%	-7.3%	-2.6%	-7.2%	0.2%
Copper	-0.9%	10.3%	6.5%	15.4%	0.0%	4.1%
Nickel	-5.6%	13.0%	2.2%	-15.7%	11.1%	6.1%
Zinc	-4.7%	16.7%	4.4%	0.1%	-4.9%	9.3%
Bloomberg Sub Precious Metals	-7.7%	7.8%	22.6%	27.0%	11.8%	9.5%
Gold	-4.2%	3.6%	21.4%	25.2%	12.3%	9.9%
Silver	-17.8%	25.1%	27.4%	33.5%	10.1%	8.3%
Bloomberg Sub Livestock	7.4%	13.8%	-25.2%	-25.0%	-10.6%	-7.7%
Lean Hogs	19.6%	30.8%	-37.0%	-46.2%	-21.2%	-17.1%
Live Cattle	2.4%	7.2%	-17.6%	-9.9%	-4.8%	-2.3%

Source: Bloomberg, FactSet

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



OIL MARKETS



Source: FactSet



Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
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Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

