

QUARTERLY PERFORMANCE REPORT

SAN BERNARDINO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION



December 31, 2019

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

MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

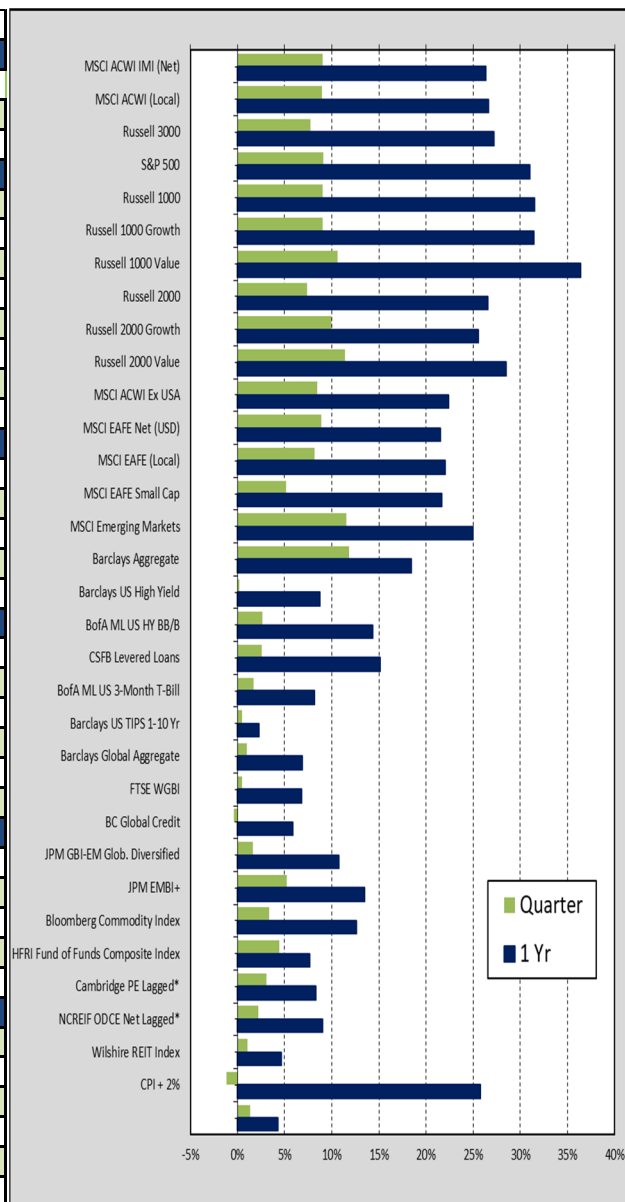
ECONOMIC ENVIRONMENT

- **Q3 Real GDP increased at an annual rate of 2.1%.**
 - Retail sales ended November at +5.7% on a YoY basis. In the same period last year the YoY growth rate was 3.5%.
 - Corporate profits (ended July) as a percent of GDP decreased to 8.5% from 8.8% (in September) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended November flat at 1.4 from June levels and has remained relatively constant since early 2010.
 - The U.S. trade deficit fell sharply ended November (-5.4% vs. October) as imports decreased.
- **The unemployment rate remained flat at 3.5% in Q4; U-6, a broader measure of unemployment, decreased to 6.7% from 6.9% during Q4.**
- **The Case-Shiller Home Price Index (ended October) increased to 212.4 from 212.2 (in September) 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 2.29% from 1.74% ended Q4; Capacity Utilization decreased to 77% from 77.5% in Q4.**
- **Fed Funds rate was decreased by 0.25% in Q4 to a targeted range of 1.50%-to-1.75%. The 10-year Treasury Yield (constant maturity) finished Q4 up to 1.9% from 1.7%.**
- **The Fed balance sheet increased in size ended Q4, and the European Central Bank balance sheet continues to grow.**
 - ECB held its benchmark refinance rate at 0%, deposit rates remain at -0.5%.
- **S&P valuations increased in Q4, remaining above the 10-year and long-term averages.**
 - Cyclically adjusted Shiller PE ratio (30.9x) is above the long-term average of 16.7x and above the 10-year average of 25.6x.



MARKET ENVIRONMENT – Q4 2019 OVERVIEW

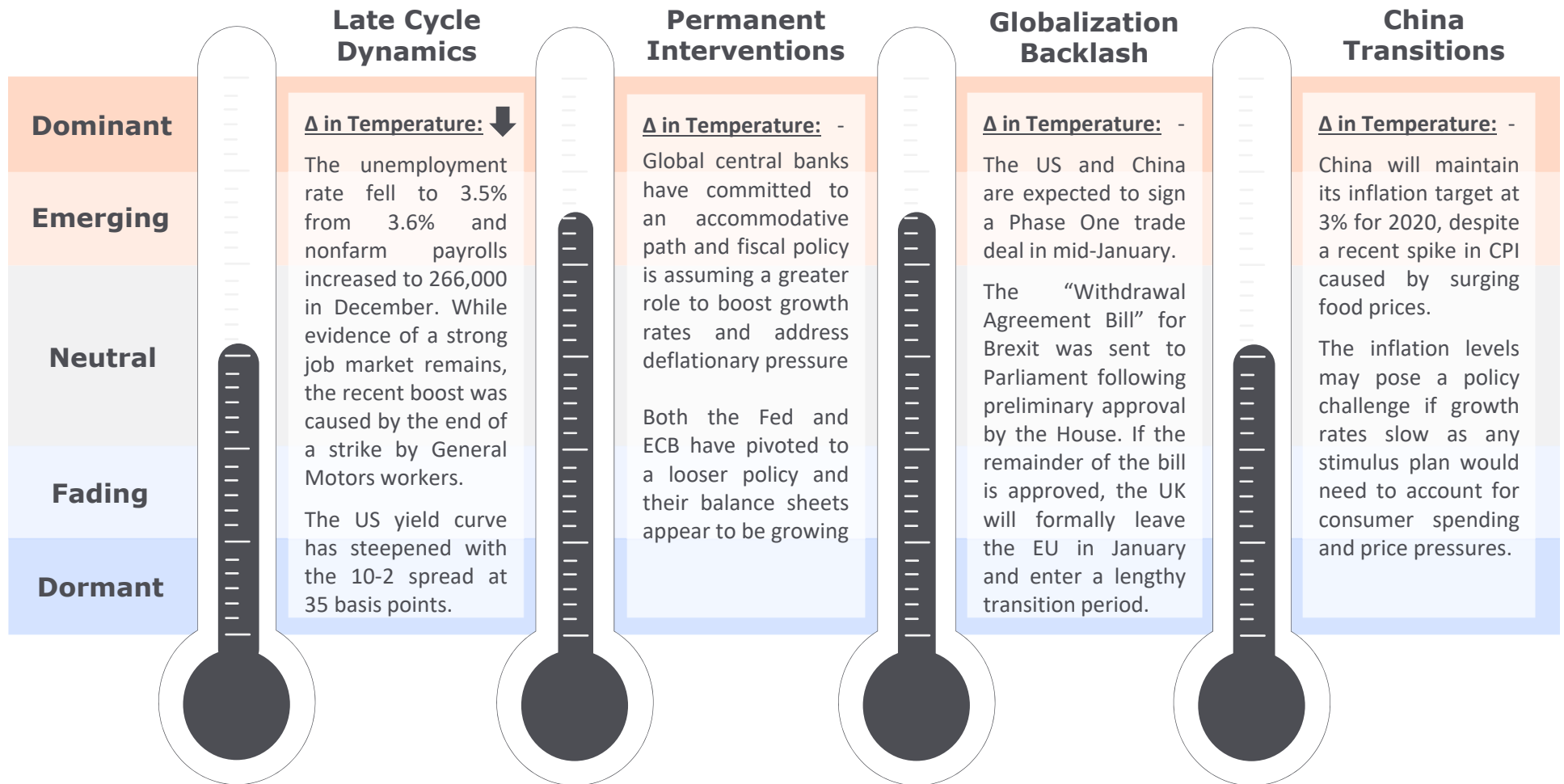
		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI IMI (Net)	World with Small Cap	9.05%	26.35%	12.09%	8.34%	8.91%
MSCI ACWI Net (USD)	World W/O Small Cap	8.95%	26.60%	12.44%	8.41%	8.79%
MSCI ACWI (Local)	World (Local Currency)	7.73%	27.18%	11.56%	8.87%	9.66%
Domestic Equity Benchmarks						
Russell 3000	Domestic All Cap	9.10%	31.02%	14.57%	11.24%	13.42%
S&P 500	Large Core	9.07%	31.49%	15.27%	11.70%	13.56%
Russell 1000	Large Core	9.04%	31.43%	15.05%	11.48%	13.54%
Russell 1000 Growth	Large Growth	10.62%	36.39%	20.49%	14.63%	15.22%
Russell 1000 Value	Large Value	7.41%	26.54%	9.68%	8.29%	11.80%
Russell 2000	Small Core	9.94%	25.52%	8.59%	8.23%	11.83%
Russell 2000 Growth	Small Growth	11.39%	28.48%	12.49%	9.34%	13.01%
Russell 2000 Value	Small Value	8.49%	22.39%	4.77%	6.99%	10.56%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	8.92%	21.51%	9.87%	5.51%	4.97%
MSCI EAFE Net (USD)	Int'l Developed	8.17%	22.01%	9.56%	5.67%	5.50%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	5.19%	21.67%	7.66%	6.73%	7.24%
MSCI EAFE Small Cap	Small Cap Int'l	11.52%	24.96%	10.92%	8.85%	8.74%
MSCI Emerging Markets	Emerging Equity	11.84%	18.44%	11.57%	5.61%	3.68%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	0.18%	8.72%	4.03%	3.05%	3.75%
Barclays US High Yield	High Yield	2.61%	14.32%	6.37%	6.13%	7.57%
BofAML US HY BB/B	High Yield	2.58%	15.14%	6.48%	6.12%	7.43%
CSFB Levered Loans	Bank Loans	1.68%	8.17%	4.48%	4.54%	5.18%
BofAML US 3-Month T-Bill	Cash	0.46%	2.28%	1.67%	1.07%	0.58%
Barclays US TIPS 1-10 Yr	Inflation	1.00%	6.85%	2.79%	2.36%	2.57%
Global Fixed Income Benchmarks						
Barclays Global Aggregate	Global Core Bonds	0.48%	6.84%	4.27%	2.31%	2.48%
FTSE WGBI	World Gov. Bonds	-0.35%	5.90%	4.12%	2.03%	1.85%
BC Global Credit	Global Bonds	1.60%	10.74%	5.31%	3.15%	3.93%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	5.20%	13.47%	7.03%	2.78%	2.71%
JPM EMBI+	Em. Mkt. Bonds	3.38%	12.60%	4.90%	5.20%	6.10%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	4.42%	7.69%	-0.94%	-3.93%	-4.73%
HFRI Fund of Funds Composite Index	Fund of Hedge Funds	3.04%	8.34%	3.87%	2.36%	2.82%
Cambridge PE Lagged*	Private Equity	2.21%	9.02%	14.59%	11.64%	14.14%
NCREIF ODCE Net Lagged*	Real Estate	1.08%	4.65%	6.34%	8.36%	9.84%
Wilshire REIT Index	REIT	-1.14%	25.76%	7.63%	6.86%	11.94%
CPI + 2%	Inflation/Real Assets	1.33%	4.33%	4.15%	3.85%	3.78%



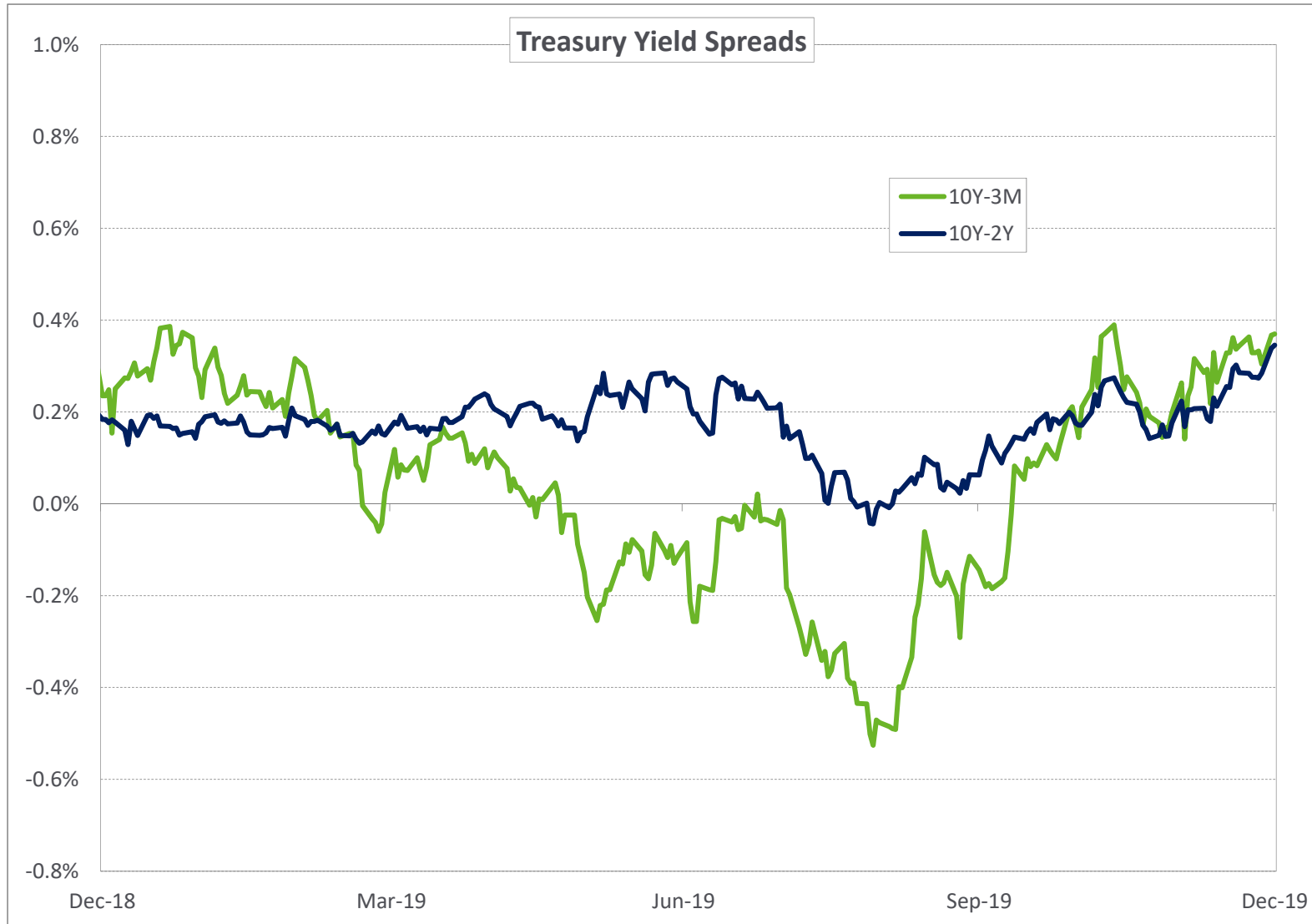
* As of 9/30/2019

ASSESSING THE KEY MARKET THEMES

Current Temperatures



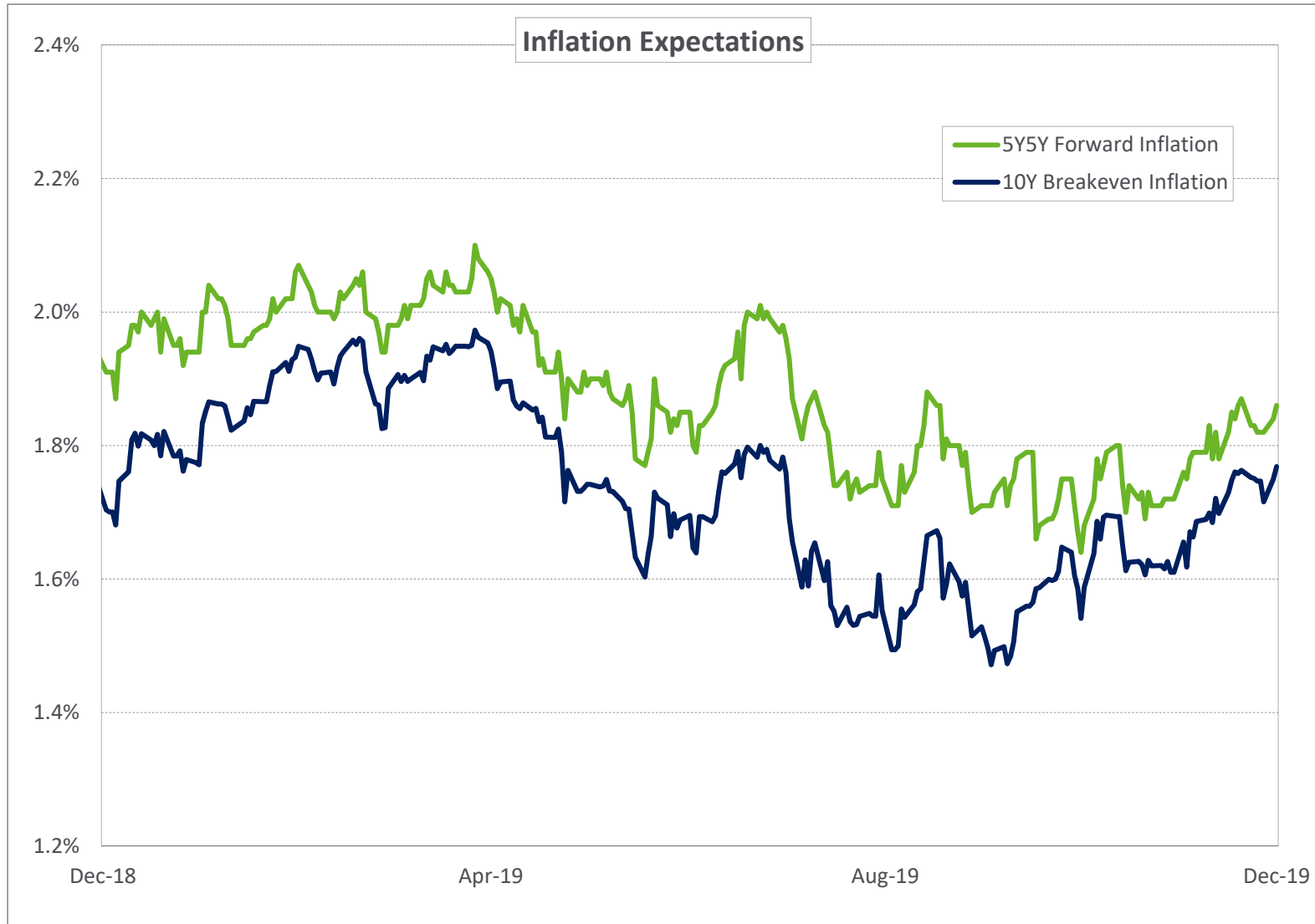
THE YIELD CURVE STEEPENED DURING Q4



Source: FactSet



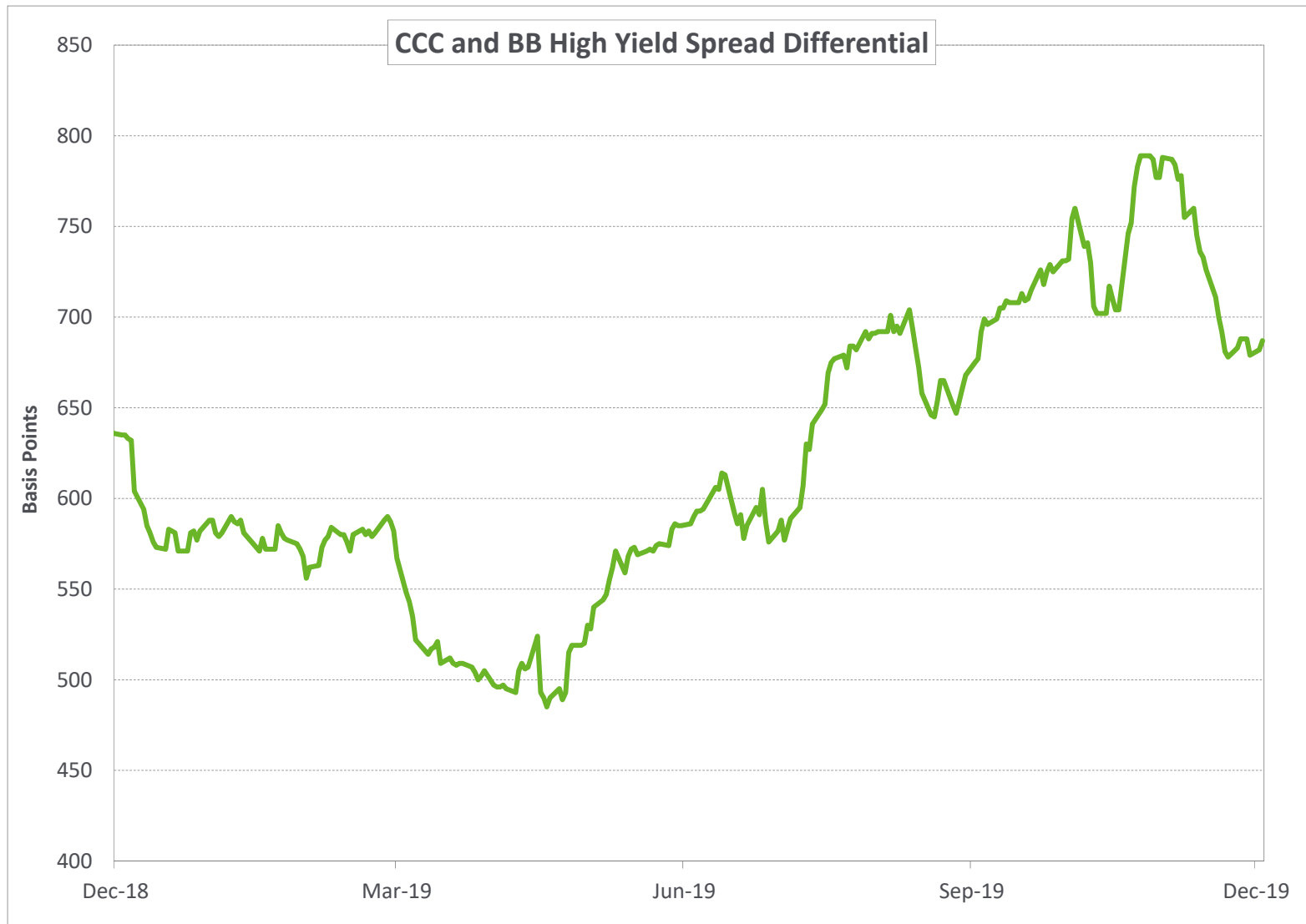
INFLATION EXPECTATIONS REMAIN LOW



Source: FactSet



CCC SPREADS WIDENED DURING THE YEAR



Source: Bloomberg, FactSet



TOTAL FUND PERFORMANCE

NEPC, LLC

TOTAL FUND PERFORMANCE SUMMARY (GROSS)

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
Total Fund	\$11,074,080,814	3.8%	99	4.7%	97	12.2%	99	8.4%	96	7.1%	58	8.5%	48
Policy Index		4.4%	93	5.0%	96	15.8%	83	8.3%	96	6.1%	96	7.2%	99
S&P 500		9.1%	1	10.9%	1	31.5%	1	15.3%	1	11.7%	1	13.6%	1
BBgBarc US Aggregate TR		0.2%	99	2.5%	99	8.7%	99	4.0%	99	3.0%	99	3.7%	99
60% MSCI ACWI (Net) / 40% FTSE WGBI		5.2%	47	5.6%	64	18.2%	35	9.2%	59	6.0%	96	6.2%	99
InvMetrics Public DB > \$1B Gross Median		5.1%		5.6%		17.5%		9.5%		7.2%		8.4%	

In the year ended December 31, 2019 the Fund return of 12.2% ranked in the 99th percentile of Public Funds > \$1 Billion and outperformed the actuarial assumed rate of 7.25%. The Fund's assets totaled \$11.1 billion, an increase of \$1.2 billion from a year ago.

The Fund experienced a net investment gain of \$1.2 billion during the year including a net investment gain of \$405.7 million in the fourth calendar quarter.

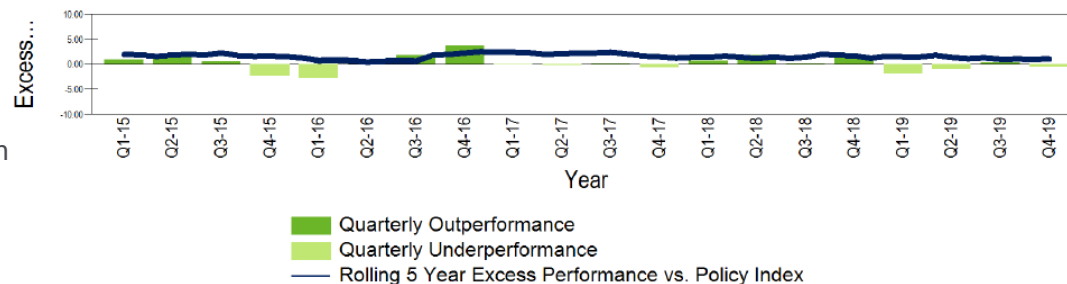
In the three-year period ended December 31, 2019 the Fund return of 8.4% ranked in the 96th percentile among its peers. The Sharpe Ratio over this period of 2.0 ranks in the 1st percentile, indicating that the Fund earned a higher rate of return for each incremental unit of risk taken during the period versus its peers.

In the five-year period ended December 31, 2019 the Fund return of 7.1% ranked in the 58th percentile among its peers. On a risk adjusted basis the Fund's Sharpe and Sortino Ratios rank in the 1st percentile indicating both strong returns per unit of risk taken and strong returns per unit of downside risk experienced when compared to a universe of public fund peers >\$1B.

Note: InvestMetrics Public Funds >\$1B Gross of Fee universe contains 20 portfolios with \$146 billion in assets.



Rolling 5 Year Annualized Excess Return



3 Years Ending December 31, 2019

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	2.0	1	2.8	1
InvMetrics Public DB > \$1B Gross Median	1.2	--	1.6	--

5 Years Ending December 31, 2019

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	1.6	1	2.8	1
InvMetrics Public DB > \$1B Gross Median	0.9	--	1.4	--

San Bernardino County Employees' Retirement Association

TOTAL FUND PERFORMANCE SUMMARY

Statistics Summary								
1 Year Ending December 31, 2019								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	12.2%	99	3.0%	1	3.4	1	16.1	1
InvMetrics Public DB > \$1B Gross Median	17.5%	--	6.8%	--	2.2	--	3.5	--

Statistics Summary								
3 Years Ending December 31, 2019								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	8.4%	96	3.4%	1	2.0	1	2.8	1
InvMetrics Public DB > \$1B Gross Median	9.5%	--	6.3%	--	1.2	--	1.6	--

Statistics Summary								
5 Years Ending December 31, 2019								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	7.1%	58	3.7%	1	1.6	1	2.8	1
InvMetrics Public DB > \$1B Gross Median	7.2%	--	6.6%	--	0.9	--	1.4	--

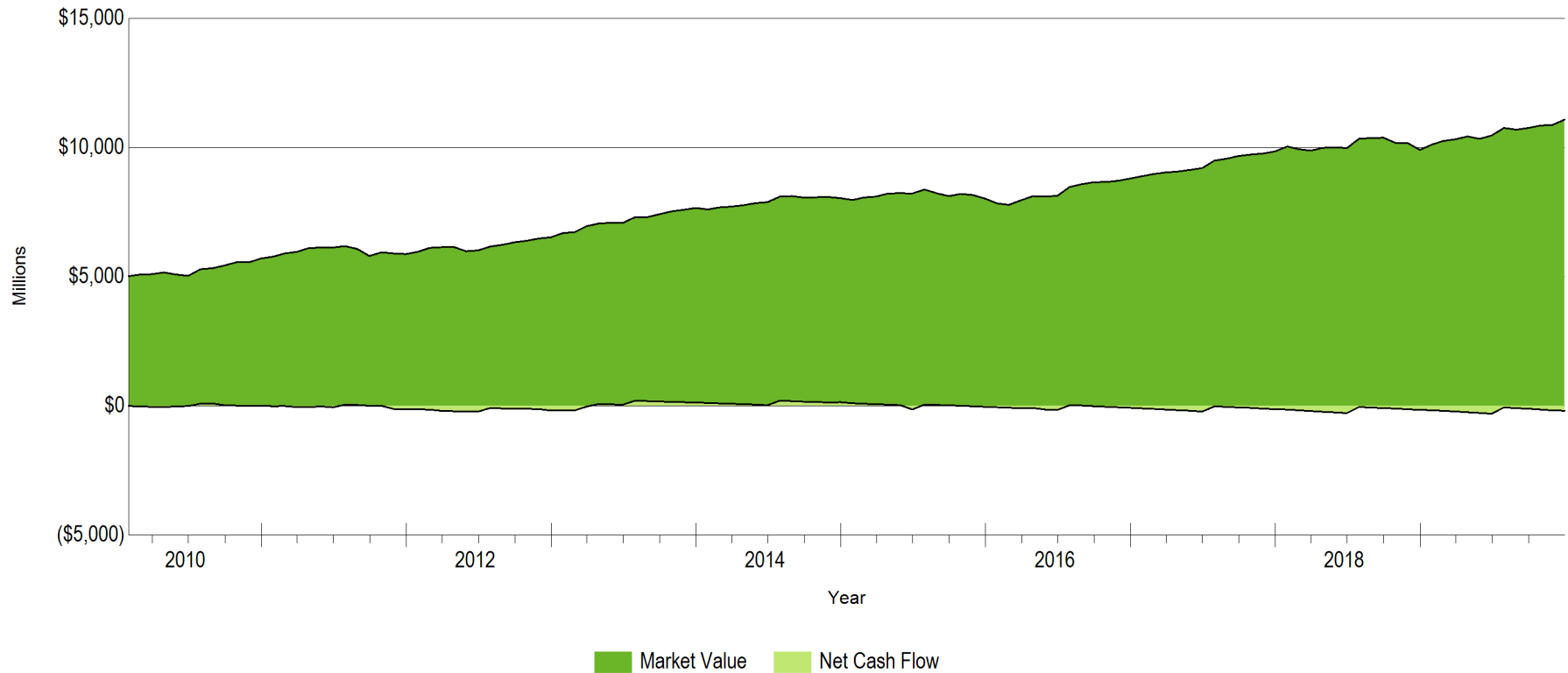
Sortino Ratio requires at least two negative points during the time period in order to calculate



San Bernardino County Employees' Retirement Association

TOTAL FUND ASSET GROWTH SUMMARY

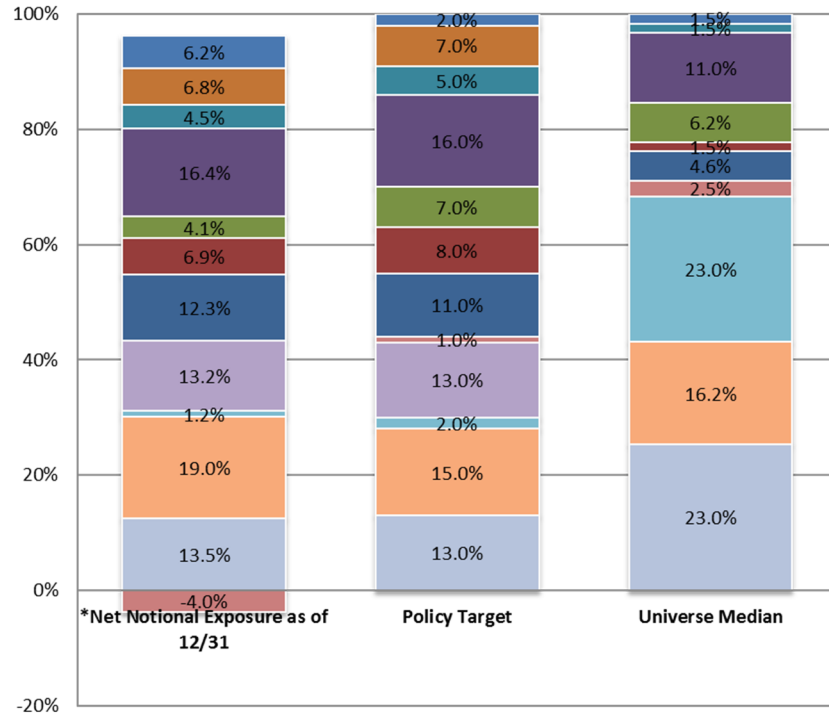
10 Years Ending December 31, 2019



	Last Three Months	Year-To-Date	One Year	Five Years	Ten Years
Beginning Market Value	\$10,748,847,525	\$9,902,558,228	\$9,902,558,228	\$8,034,830,748	\$5,073,566,984
Net Cash Flow	-\$80,453,974	-\$32,542,014	-\$32,542,014	-\$332,150,731	-\$184,009,408
Net Investment Change	\$405,687,263	\$1,204,064,600	\$1,204,064,600	\$3,371,400,797	\$6,184,523,238
Ending Market Value	\$11,074,080,814	\$11,074,080,814	\$11,074,080,814	\$11,074,080,814	\$11,074,080,814



TOTAL FUND PERFORMANCE SUMMARY



- 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

	*Net Notional Exposure	*Net Notional Exposure as of 12/31	Policy Target	*Difference	Policy Ranges	Within Range
US Equities	1,490,954	13.5%	13.0%	0.5%	8%-18%	Yes
Int'l Equities	2,103,978	19.0%	15.0%	4.0%	10%-20%	Yes
U.S. Core Fixed Income	128,100	1.2%	2.0%	-0.8%	-3%-7%	Yes
US Credit	1,458,742	13.2%	13.0%	0.2%	8%-18%	Yes
Non-US Core Fixed Income	(442,963)	-4.0%	1.0%	-5.0%	-4%-6%	Yes
Non-US Credit	1,361,871	12.3%	11.0%	1.3%	6%-16%	Yes
Emerging Market Debt	763,247	6.9%	8.0%	-1.1%	3%-13%	Yes
Real Estate	450,563	4.1%	7.0%	-2.9%	0%-14%	Yes
Private Equity	1,819,873	16.4%	16.0%	0.4%	6%-21%	Yes
Real Assets	493,179	4.5%	5.0%	-0.5%	0%-10%	Yes
Absolute Return	756,359	6.8%	7.0%	-0.2%	0%-12%	Yes
Cash	690,177	6.2%	2.0%	4.2%	0%-10%	Yes
	11,074,081	100.0%	100.0%			



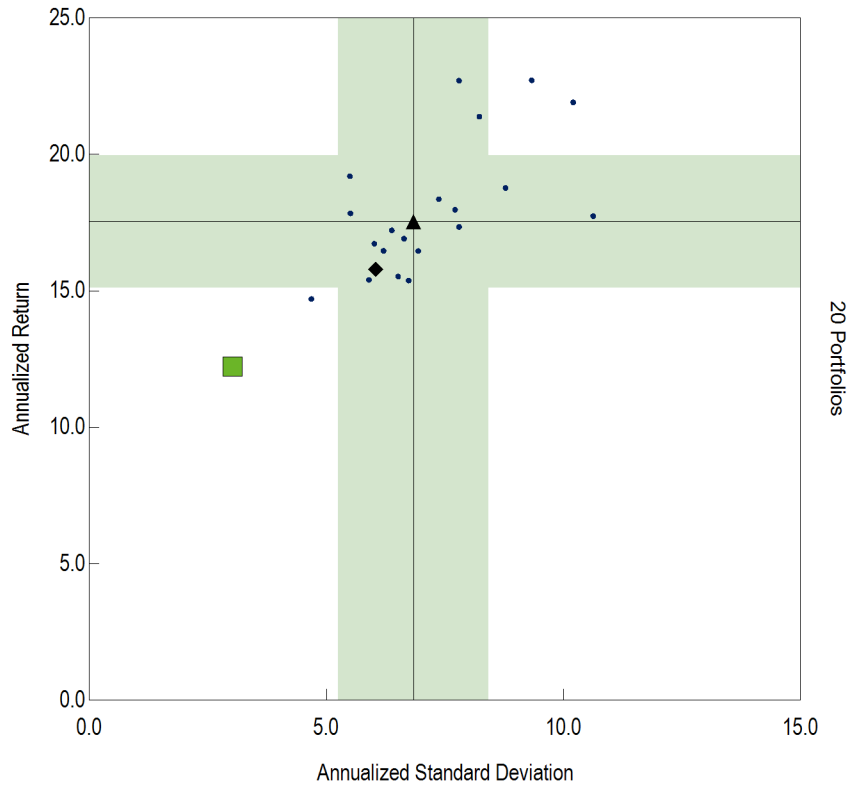
TOTAL FUND PERFORMANCE SUMMARY

<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	10,950.4	100.0%	0.0	0.0%	10,950.4	100.0%	10,950.4	100.0%	10,950.4	100.00%
Cash	1,260.1	11.51%	-1,212.6	-11.07%	47.5	0.43%	0.0	0.0%	0.0	0.00%
Cash	1,260.1	11.51%	-1,212.6	-11.07%	47.5	0.43%	0.0	0.0%	0.0	0.00%
Equity	1,772.4	16.19%	1,784.7	16.3%	3,557.1	32.48%	3,574.8	32.65%	3,558.9	32.50%
Emerging Markets	443.4	4.05%	430.5	3.93%	873.9	7.98%	879.9	8.04%	876.0	8.00%
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	53.8	0.49%	1,152.0	10.52%	1,205.7	11.01%	1,209.9	11.05%	1,204.5	11.00%
US Large Cap	1,275.0	11.64%	-69.2	-0.63%	1,205.8	11.01%	1,209.9	11.05%	1,204.5	11.00%
US Small Cap	0.2	0.0%	271.5	2.48%	271.7	2.48%	275.0	2.51%	273.8	2.50%
Fixed	3,814.6	34.84%	-572.2	-5.23%	3,242.4	29.61%	3,272.3	29.88%	3,257.7	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	2,328.0	21.26%	-700.3	-6.4%	1,627.7	14.86%	1,649.9	15.07%	1,642.6	15.00%
High Yield **	1,133.2	10.35%	0.0	0.0%	1,133.2	10.35%	1,044.9	9.54%	1,040.3	9.50%
US Fixed Income	353.3	3.23%	128.1	1.17%	481.5	4.4%	577.5	5.27%	574.9	5.25%
Other	4,103.4	37.47%	0.0	0.0%	4,103.4	37.47%	4,103.4	37.47%	4,133.8	37.75%
Alternatives	50.8	0.46%	0.0	0.0%	50.8	0.46%	50.8	0.46%	76.7	0.70%
Commodities	246.0	2.25%	0.0	0.0%	246.0	2.25%	246.0	2.25%	251.9	2.30%
Infrastructure	198.1	1.81%	0.0	0.0%	198.1	1.81%	198.1	1.81%	186.2	1.70%
Private Equity	1,765.8	16.13%	0.0	0.0%	1,765.8	16.13%	1,765.8	16.13%	1,784.9	16.30%
Real Estate	457.3	4.18%	0.0	0.0%	457.3	4.18%	457.3	4.18%	449.0	4.10%
Tactical Cash	1,385.2	12.65%	0.0	0.0%	1,385.2	12.65%	1,385.2	12.65%	1,385.2	12.65%



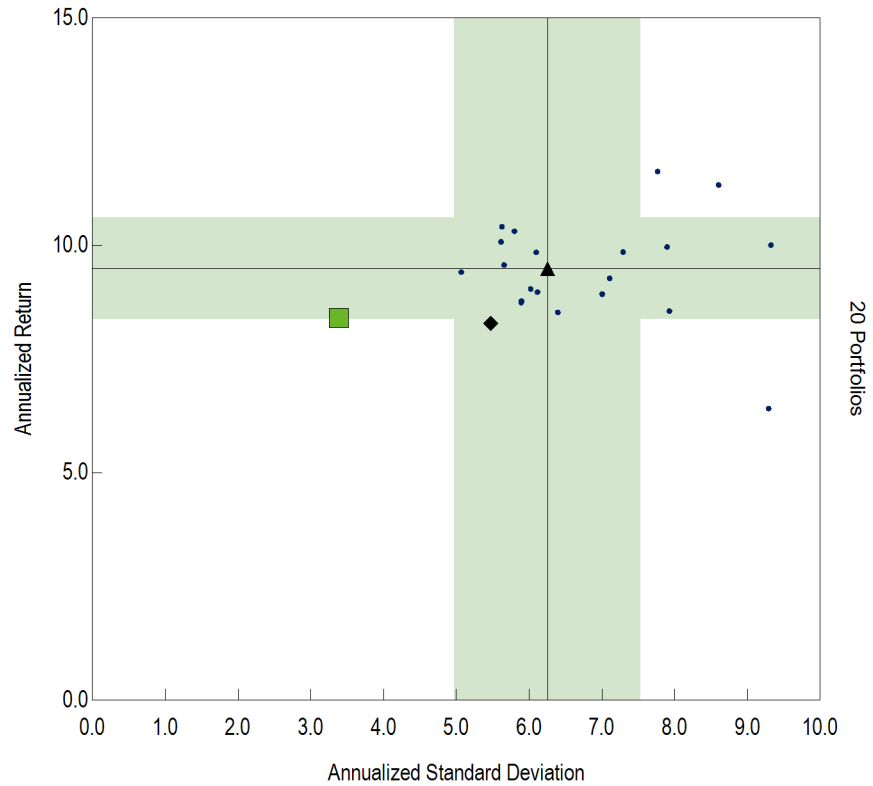
TOTAL FUND RISK/RETURN

1 Year Ending December 31, 2019



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

3 Years Ending December 31, 2019



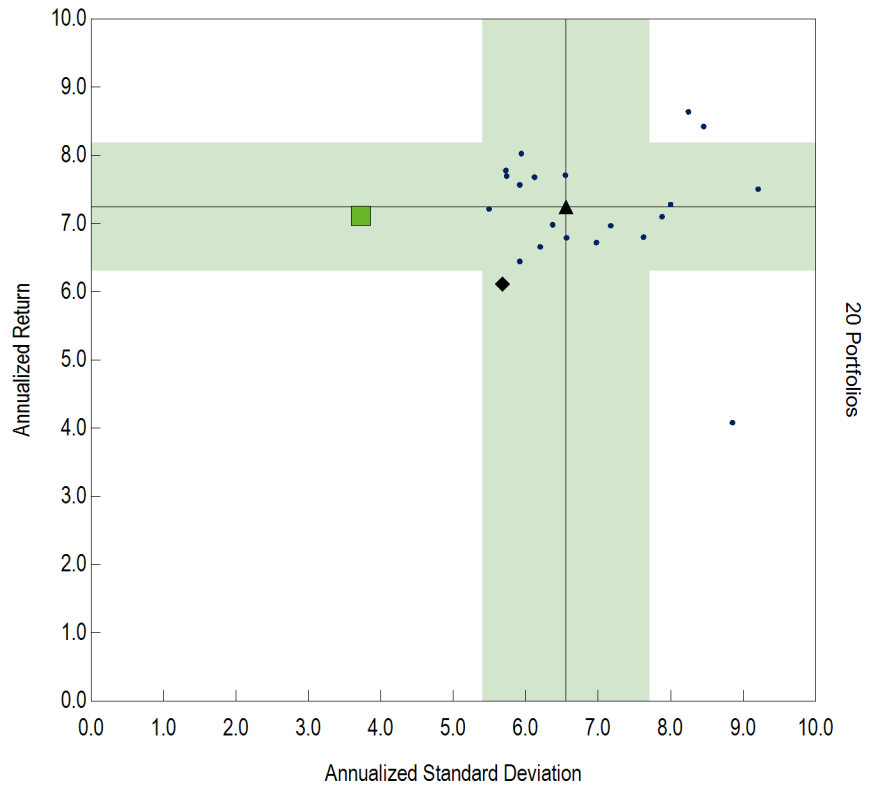
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Gross



San Bernardino County Employees' Retirement Association

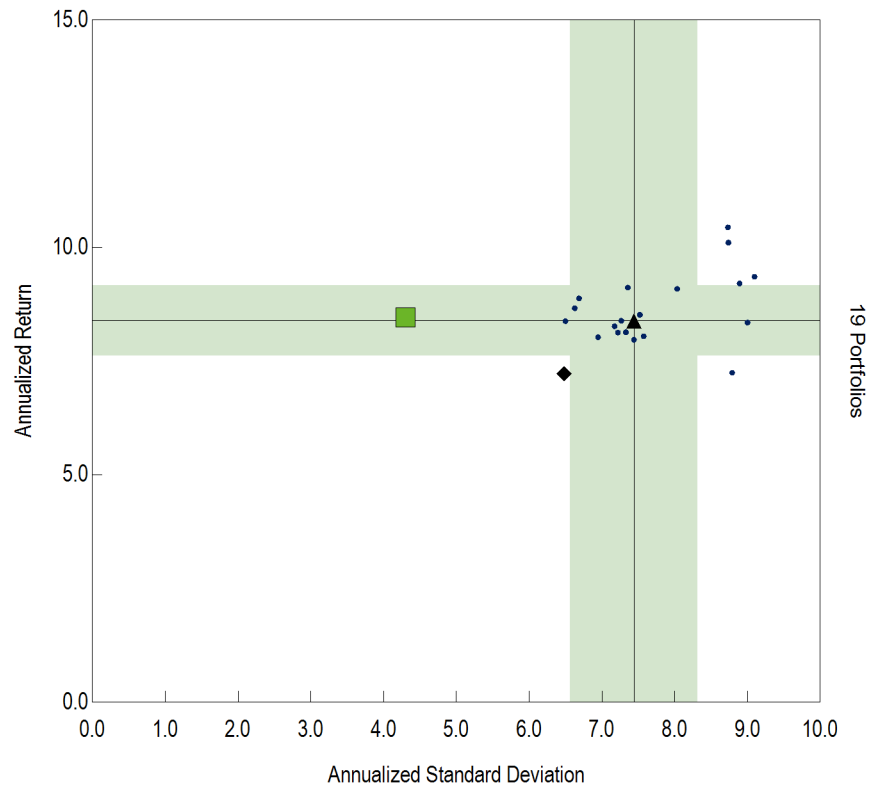
TOTAL FUND RISK/RETURN

5 Years Ending December 31, 2019



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

10 Years Ending December 31, 2019



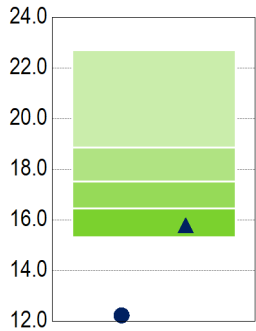
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB > \$1B Gross



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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

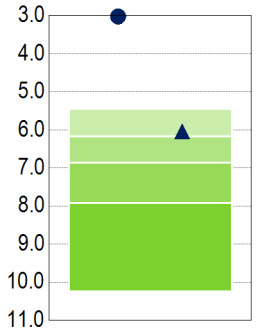
Anlzd Return



● Total Fund	
Value	12.2
Rank	99
▲ Policy Index	
Value	15.8
Rank	83

Universe	
5th %tile	22.7
25th %tile	18.9
Median	17.5
75th %tile	16.5
95th %tile	15.3

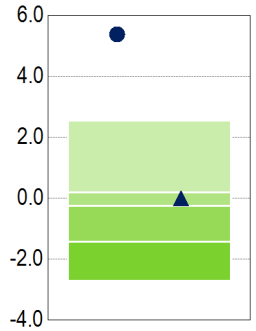
Anlzd Standard Deviation



● Total Fund	
Value	3.0
Rank	1
▲ Policy Index	
Value	6.0
Rank	22

Universe	
5th %tile	5.5
25th %tile	6.2
Median	6.8
75th %tile	7.9
95th %tile	10.2

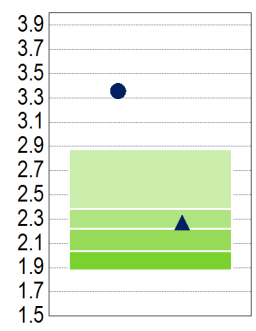
Anlzd Alpha



● Total Fund	
Value	5.4
Rank	1
▲ Policy Index	
Value	0.0
Rank	37

Universe	
5th %tile	2.5
25th %tile	0.2
Median	-0.2
75th %tile	-1.4
95th %tile	-2.7

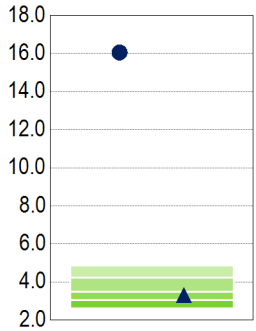
Sharpe Ratio



● Total Fund	
Value	3.4
Rank	1
▲ Policy Index	
Value	2.3
Rank	42

Universe	
5th %tile	2.9
25th %tile	2.4
Median	2.2
75th %tile	2.0
95th %tile	1.9

Sortino Ratio



● Total Fund	
Value	16.1
Rank	1
▲ Policy Index	
Value	3.3
Rank	60

Universe	
5th %tile	4.9
25th %tile	4.3
Median	3.5
75th %tile	3.1
95th %tile	2.7

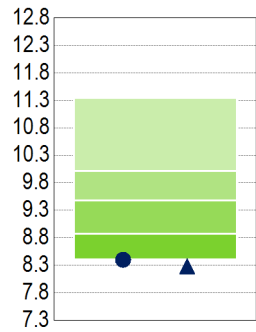
Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

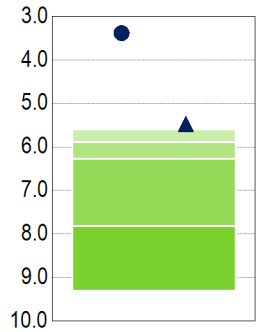
Total Fund vs. InvMetrics Public DB > \$1B Gross (USD) 3 Years

Anlzd Return



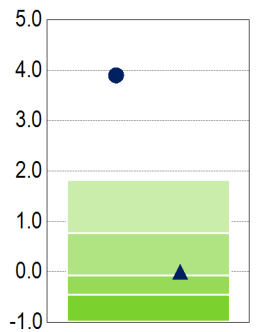
● Total Fund	
Value	8.4
Rank	96
▲ Policy Index	
Value	8.3
Rank	96
Universe	
5th %tile	11.3
25th %tile	10.0
Median	9.5
75th %tile	8.9
95th %tile	8.4

Anlzd Standard Deviation



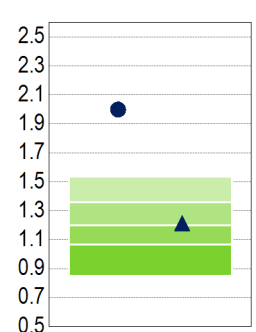
● Total Fund	
Value	3.4
Rank	1
▲ Policy Index	
Value	5.5
Rank	4
Universe	
5th %tile	5.6
25th %tile	5.9
Median	6.3
75th %tile	7.8
95th %tile	9.3

Anlzd Alpha



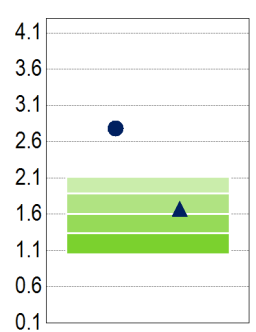
● Total Fund	
Value	3.9
Rank	1
▲ Policy Index	
Value	0.0
Rank	49
Universe	
5th %tile	1.8
25th %tile	0.8
Median	-0.1
75th %tile	-0.4
95th %tile	-1.0

Sharpe Ratio



● Total Fund	
Value	2.0
Rank	1
▲ Policy Index	
Value	1.2
Rank	42
Universe	
5th %tile	1.5
25th %tile	1.4
Median	1.2
75th %tile	1.1
95th %tile	0.9

Sortino Ratio



● Total Fund	
Value	2.8
Rank	1
▲ Policy Index	
Value	1.7
Rank	37
Universe	
5th %tile	2.1
25th %tile	1.9
Median	1.6
75th %tile	1.4
95th %tile	1.1

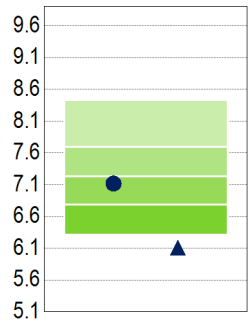
Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

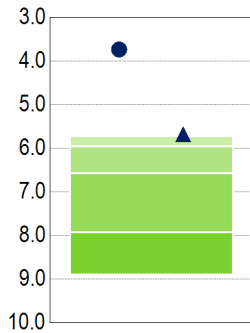
Total Fund vs. InvMetrics Public DB > \$1B Gross (USD) 5 Years

Anlzd Return



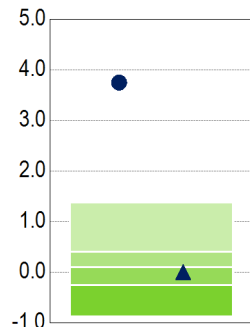
● Total Fund	
Value	7.1
Rank	58
▲ Policy Index	
Value	6.1
Rank	96
Universe	
5th %tile	8.4
25th %tile	7.7
Median	7.2
75th %tile	6.8
95th %tile	6.3

Anlzd Standard Deviation



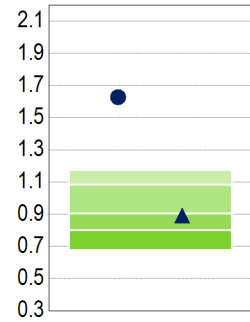
● Total Fund	
Value	3.7
Rank	1
▲ Policy Index	
Value	5.7
Rank	5
Universe	
5th %tile	5.7
25th %tile	5.9
Median	6.6
75th %tile	7.9
95th %tile	8.9

Anlzd Alpha



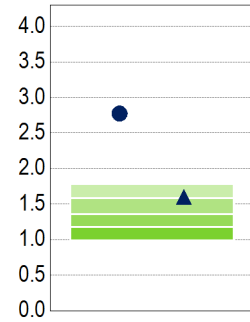
● Total Fund	
Value	3.7
Rank	1
▲ Policy Index	
Value	0.0
Rank	61
Universe	
5th %tile	1.4
25th %tile	0.4
Median	0.1
75th %tile	-0.2
95th %tile	-0.9

Sharpe Ratio



● Total Fund	
Value	1.6
Rank	1
▲ Policy Index	
Value	0.9
Rank	56
Universe	
5th %tile	1.2
25th %tile	1.1
Median	0.9
75th %tile	0.8
95th %tile	0.7

Sortino Ratio



● Total Fund	
Value	2.8
Rank	1
▲ Policy Index	
Value	1.6
Rank	22
Universe	
5th %tile	1.8
25th %tile	1.6
Median	1.4
75th %tile	1.2
95th %tile	1.0

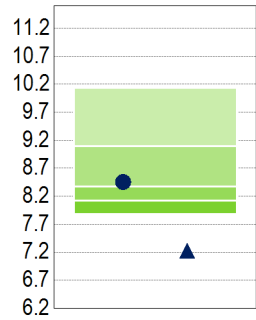
Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

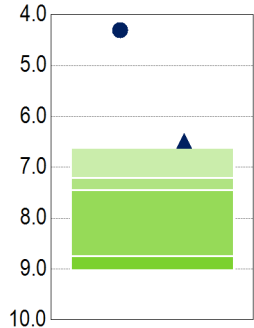
**Total Fund vs. InvMetrics Public DB > \$1B Gross (USD)
10 Years**

Anlzd Return



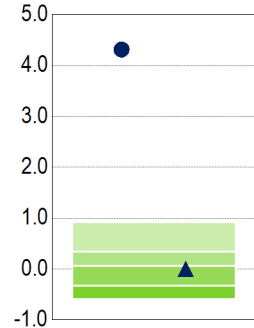
● Total Fund	
Value	8.5
Rank	48
▲ Policy Index	
Value	7.2
Rank	99
Universe	
5th %tile	10.1
25th %tile	9.1
Median	8.4
75th %tile	8.1
95th %tile	7.9

Anlzd Standard Deviation



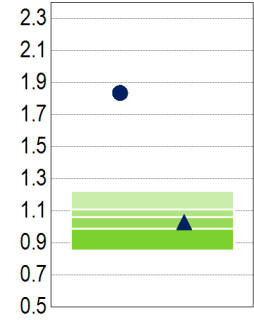
● Total Fund	
Value	4.3
Rank	1
▲ Policy Index	
Value	6.5
Rank	1
Universe	
5th %tile	6.6
25th %tile	7.2
Median	7.4
75th %tile	8.7
95th %tile	9.0

Anlzd Alpha



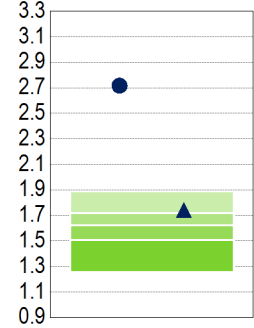
● Total Fund	
Value	4.3
Rank	1
▲ Policy Index	
Value	0.0
Rank	56
Universe	
5th %tile	0.9
25th %tile	0.4
Median	0.1
75th %tile	-0.3
95th %tile	-0.6

Sharpe Ratio



● Total Fund	
Value	1.8
Rank	1
▲ Policy Index	
Value	1.0
Rank	68
Universe	
5th %tile	1.2
25th %tile	1.1
Median	1.1
75th %tile	1.0
95th %tile	0.9

Sortino Ratio



● Total Fund	
Value	2.7
Rank	1
▲ Policy Index	
Value	1.7
Rank	24
Universe	
5th %tile	1.9
25th %tile	1.7
Median	1.6
75th %tile	1.5
95th %tile	1.3

Sortino Ratio requires at least two negative points during the time period in order to calculate.
Sample size is 20 Portfolios



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

1 Years Ending December 31, 2019								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	13.5%	26.8%	95	12.0%	7	2.1%	-2.0	--
Russell 3000	--	31.0%	16	13.5%	69	0.0%	--	--
International Equity With Beta Overlay	19.0%	19.1%	97	11.4%	17	1.8%	-1.6	--
MSCI ACWI ex USA Gross	--	22.1%	57	12.7%	70	0.0%	--	--
Global Fixed Income With Beta Overlay	29.5%	5.1%	--	4.0%	--	5.5%	-0.3	--
BBgBarc Global Aggregate TR	--	6.8%	--	3.9%	--	0.0%	--	--
U.S. Credit Strategies	13.2%	8.6%	87	3.0%	24	4.7%	-0.6	--
50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index	--	11.6%	73	3.6%	62	0.0%	--	--
Non-U.S. Credit Composite	12.2%	6.2%	--	5.3%	--	9.1%	-0.3	--
ICE BofAML Euro High Yield Constrained TR	--	9.3%	--	7.1%	--	0.0%	--	--
Emerging Markets Debt Composite	9.2%	5.5%	98	3.6%	17	6.0%	-1.5	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	14.3%	48	6.9%	59	0.0%	--	--
Alpha Pool Composite	14.9%	7.3%	38	3.2%	44	3.1%	0.7	30
91 Day T-Bill + 3%	--	5.1%	68	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	16.4%	11.4%	27	4.0%	46
Cambridge Associates Global All PE (Qtr Lag)	--	7.9%	51	5.9%	67
Real Estate Composite	4.1%	7.0%	39	1.3%	52
NCREIF Property Index 1 Qtr. Lag	--	6.2%	47	2.6%	80
Real Assets Composite	4.5%	8.9%	56	6.4%	67
Real Assets Custom Blend	--	5.5%	79	5.5%	47

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 December 31, 2019								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	13.5%	9.7%	99	10.7%	1	2.9%	-1.7	--
Russell 3000	--	14.6%	18	12.4%	53	0.0%	--	--
International Equity With Beta Overlay	19.0%	8.4%	89	10.4%	7	2.5%	-0.8	--
MSCI ACWI ex USA Gross	--	10.4%	37	11.5%	33	0.0%	--	--
Global Fixed Income With Beta Overlay	29.5%	2.0%	--	3.2%	--	4.9%	-0.5	--
BBgBarc Global Aggregate TR	--	4.3%	--	3.6%	--	0.0%	--	--
U.S. Credit Strategies	13.2%	7.2%	8	3.2%	52	3.8%	0.5	9
50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index	--	5.5%	78	3.1%	41	0.0%	--	--
Non-U.S. Credit Composite	12.2%	8.6%	--	4.1%	--	8.8%	0.2	--
ICE BofAML Euro High Yield Constrained TR	--	6.8%	--	7.8%	--	0.0%	--	--
Emerging Markets Debt Composite	9.2%	2.9%	99	4.1%	22	6.3%	-0.6	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	6.9%	49	6.6%	59	0.0%	--	--
Alpha Pool Composite	14.9%	5.8%	14	2.6%	10	2.7%	0.4	37
91 Day T-Bill + 3%	--	4.7%	42	0.2%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	16.4%	15.3%	29	3.7%	15
Cambridge Associates Global All PE (Qtr Lag)	--	13.3%	46	6.3%	62
Real Estate Composite	4.1%	5.8%	98	2.5%	71
NCREIF Property Index 1 Qtr. Lag	--	6.8%	84	2.7%	73
Real Assets Composite	4.5%	3.3%	40	5.7%	30
Real Assets Custom Blend	--	1.4%	63	4.4%	1

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 December 31, 2019								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	11.6%	5.3%	--	8.4%	--	9.8%	-0.6	--
Russell 3000	--	11.2%	--	12.2%	--	0.0%	--	--
International Developed	0.5%	2.8%	99	18.8%	99	14.4%	-0.2	--
MSCI EAFE	--	5.7%	55	12.2%	73	0.0%	--	--
International Emerging	4.2%	3.1%	--	12.7%	--	4.8%	-0.5	--
MSCI Emerging Markets	--	5.6%	--	15.8%	--	0.0%	--	--
U.S. Credit Strategies	13.2%	6.6%	2	3.3%	17	3.8%	0.3	3
50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index	--	5.3%	22	3.6%	42	0.0%	--	--
Non-U.S. Credit Composite	12.2%	7.2%	--	3.8%	--	10.0%	0.4	--
ICE BofAML Euro High Yield Constrained TR	--	3.1%	--	9.3%	--	0.0%	--	--
Emerging Markets Debt Composite	9.2%	4.5%	66	5.1%	23	6.1%	0.0	66
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	4.6%	65	7.6%	61	0.0%	--	--
Alpha Pool Composite	14.9%	4.7%	6	3.5%	27	3.5%	0.2	36
91 Day T-Bill + 3%	--	4.1%	23	0.2%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	16.4%	12.9%	38	3.9%	25
Cambridge Associates Global All PE (Qtr Lag)	--	11.1%	59	5.8%	47
Real Estate Composite	4.1%	8.1%	69	2.7%	47
NCREIF Property Index 1 Qtr. Lag	--	8.6%	54	3.7%	60
Real Assets Composite	4.5%	2.0%	38	5.9%	19
Real Assets Custom Blend	--	0.4%	42	5.8%	18

Percent of Total equals 90.8% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.



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 - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Equity	1,807,679,026	16.3	8.7	34	8.3	88	24.2	96	9.2	99	5.5	99	5.6	99
MSCI ACWI			9.0	31	8.9	48	26.6	83	12.4	73	8.4	85	8.8	99
Excess Return			-0.3		-0.6		-2.4		-3.2		-2.9		-3.2	
InvMetrics Public DB Total Eq Gross Median			8.4		8.9		27.6		12.9		9.5		11.0	
Domestic Equity With Beta Overlay	1,490,919,297	13.5	8.6	28	9.7	29	26.8	95	9.7	99	7.3	99	--	--
Russell 3000			9.1	14	10.4	8	31.0	16	14.6	18	11.2	24	13.4	27
Excess Return			-0.5		-0.7		-4.2		-4.9		-3.9			
InvMetrics Public DB US Eq Gross Median			8.3		9.3		30.0		13.7		10.8		13.0	
Domestic Equity	1,286,742,453	11.6	8.7	--	10.1	--	29.2	--	8.3	--	5.3	--	4.9	--
Russell 3000			9.1	--	10.4	--	31.0	--	14.6	--	11.2	--	13.4	--
Excess Return			-0.4		-0.3		-1.8		-6.3		-5.9		-8.5	
Tobam AB US Equity	335,350,200	3.0	8.4	48	8.5	52	28.4	53	--	--	--	--	--	--
Russell 3000			9.1	35	10.4	27	31.0	36	14.6	38	11.2	36	13.4	45
Excess Return			-0.7		-1.9		-2.6							
eV All US Equity Gross Median			8.3		8.7		28.7		12.6		10.2		13.2	
Large Cap Equity	951,145,143	8.6	8.8	41	10.7	22	29.5	46	9.5	70	6.9	87	6.0	99
S&P 500			9.1	36	10.9	19	31.5	32	15.3	32	11.7	29	13.6	40
Excess Return			-0.3		-0.2		-2.0		-5.8		-4.8		-7.6	
eV All US Equity Gross Median			8.3		8.7		28.7		12.6		10.2		13.2	
SsgA S&P500	942,121,094	8.5	9.1	35	10.9	18	29.9	43	11.4	59	9.1	63	8.6	99
S&P 500			9.1	36	10.9	19	31.5	32	15.3	32	11.7	29	13.6	40
Excess Return			0.0		0.0		-1.6		-3.9		-2.6		-5.0	
eV All US Equity Gross Median			8.3		8.7		28.7		12.6		10.2		13.2	
Russell US Large Cap Volatility	9,024,050	0.1												
Small Cap Equity	247,110	0.0												
Russell US Small Cap Volatility	247,110	0.0												



San Bernardino County Employees' Retirement Association

GLOBAL EQUITY STRATEGIES - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
International Equity With Beta Overlay	2,103,953,618	19.0	7.6	94	6.5	91	19.1	97	8.4	89	5.4	70	--	--
MSCI ACWI ex USA Gross			<u>9.0</u>	84	<u>7.1</u>	81	<u>22.1</u>	57	<u>10.4</u>	37	<u>6.0</u>	47	<u>5.4</u>	75
Excess Return			-1.4		-0.6		-3.0		-2.0		-0.6			
InvMetrics Public DB ex-US Eq Gross Median			9.9		7.7		22.8		9.9		5.9		6.3	
International Equity	520,936,572	4.7	8.7	--	4.3	--	13.4	--	8.3	--	3.9	--	5.5	--
MSCI ACWI			<u>9.0</u>	--	<u>8.9</u>	--	<u>26.6</u>	--	<u>12.4</u>	--	<u>8.4</u>	--	<u>8.8</u>	--
Excess Return			-0.3		-4.6		-13.2		-4.1		-4.5		-3.3	
International Developed	53,956,315	0.5	5.1	99	4.0	99	11.0	99	1.5	99	2.8	99	8.6	12
MSCI EAFE			<u>8.2</u>	96	<u>7.0</u>	99	<u>22.0</u>	57	<u>9.6</u>	56	<u>5.7</u>	55	<u>5.5</u>	81
Excess Return			-3.1		-3.0		-11.0		-8.1		-2.9		3.1	
InvMetrics Public DB Dev Mkt ex-US Eq Gross Median			9.6		7.8		23.6		10.1		6.5		7.6	
Russell International Volatility	4,497,565	0.0												
Tobam AB World Ex-US Equity	49,458,750	0.4	5.5	99	4.3	99	11.9	99	--	--	--	--	--	--
MSCI ACWI ex USA			<u>8.9</u>	75	<u>7.0</u>	76	<u>21.5</u>	74	<u>9.9</u>	71	<u>5.5</u>	80	<u>5.0</u>	92
Excess Return			-3.4		-2.7		-9.6							
eV All ACWI ex-US Equity Gross Median			10.0		8.3		25.4		11.4		7.1		7.5	
International Emerging	466,980,257	4.2	9.2	--	4.3	--	13.7	--	9.8	--	3.1	--	2.7	--
MSCI Emerging Markets			<u>11.8</u>	--	<u>7.1</u>	--	<u>18.4</u>	--	<u>11.6</u>	--	<u>5.6</u>	--	<u>3.7</u>	--
Excess Return			-2.6		-2.8		-4.7		-1.8		-2.5		-1.0	
Mondrian	155,582,295	1.4	13.1	17	7.7	43	19.2	54	9.6	81	3.7	92	4.0	84
MSCI Emerging Markets			<u>11.8</u>	40	<u>7.1</u>	51	<u>18.4</u>	62	<u>11.6</u>	54	<u>5.6</u>	67	<u>3.7</u>	91
Excess Return			1.3		0.6		0.8		-2.0		-1.9		0.3	
eV Emg Mkts Equity Gross Median			11.5		7.1		19.6		11.8		6.4		5.3	
Tobam	311,397,962	2.8	7.4	93	2.7	91	11.2	94	9.8	78	--	--	--	--
MSCI Emerging Markets			<u>11.8</u>	40	<u>7.1</u>	51	<u>18.4</u>	62	<u>11.6</u>	54	<u>5.6</u>	67	<u>3.7</u>	91
Excess Return			-4.4		-4.4		-7.2		-1.8					
eV Emg Mkts Equity Gross Median			11.5		7.1		19.6		11.8		6.4		5.3	



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 - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Global Fixed Income With Beta Overlay	3,262,077,628	29.5	2.1	--	2.5	--	5.1	--	2.0	--	3.9	--	--	--
BBgBarc Global Aggregate TR			0.5	--	1.2	--	6.8	--	4.3	--	2.3	--	2.5	--
Excess Return			1.6		1.3		-1.7		-2.3		1.6			
Total Fixed	3,834,263,596	34.6	1.6	4	2.4	30	6.8	72	6.7	1	6.3	1	7.1	1
InvMetrics Public DB Total Fix Inc Gross Median			0.4		1.9		7.8		4.1		3.0		4.2	
U.S. Credit Strategies	1,466,673,707	13.2	2.4	18	4.0	39	8.6	87	7.2	8	6.6	2	8.1	1
50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index			2.1	22	3.5	59	11.6	73	5.5	78	5.3	22	6.3	12
Excess Return			0.3		0.5		-3.0		1.7		1.3		1.8	
ICE BofAML US High Yield TR			2.6	16	3.9	46	14.4	19	6.3	41	6.1	4	7.5	1
eV Global Credit Fixed Income Gross Median			1.5		3.7		13.2		6.1		4.4		4.9	
Golden Tree Asset Management	454,829,940	4.1	4.8	4	4.7	8	14.7	18	10.8	1	9.8	1	10.2	1
Beach Point Capital (Formerly Post)	166,791,680	1.5	1.7	44	4.1	38	7.8	89	6.5	33	7.3	1	8.7	1
Golden Tree Distressed Debt	17,060,705	0.2	-4.1	99	-4.1	99	-5.4	99	2.1	99	3.5	79	--	--
Mackay / Gold Coast	118,565,407	1.1	2.5	17	6.5	3	12.7	60	6.6	25	5.0	39	7.0	1
MD SASS Waterfall Victoria	26,100,600	0.2	10.1	--	15.1	--	6.1	--	6.2	--	--	--	--	--
Russell Interest Rate Hedging	7,931,408	0.1	-1.2	99	-25.7	99	-65.0	99	-36.9	99	-28.1	99	-26.1	99
Stone Tower Credit (Apollo)	99,547,138	0.9	4.5	9	5.2	7	9.0	60	8.0	4	6.6	6	--	--
Gold Coast Capital IV	108,545,614	1.0	0.7	--	3.5	--	9.0	--	6.2	--	--	--	--	--
Waterfall Asset Management	57,673,027	0.5	-2.1	--	5.1	--	16.1	--	14.1	--	--	--	--	--
Waterfall Victoria	53,992,823	0.5	2.6	--	6.3	--	9.9	--	9.3	--	--	--	--	--
Stone Tower Offshore Credit (Apollo)	355,603,919	3.2	0.3	--	2.1	--	5.0	--	4.4	--	4.9	--	8.0	--
AG Capital	4,650	0.0	-1.4	99	-1.4	99	-4.2	99	-3.0	99	-3.0	99	3.1	90



San Bernardino County Employees' Retirement Association

GLOBAL DEBT STRATEGIES - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Non-U.S. Fixed Income Composite	2,367,589,889	21.4	1.1	12	1.4	87	5.7	97	6.5	1	6.2	1	6.0	5
<i>BBgBarc Global Aggregate TR</i>			<u>0.5</u>	40	<u>1.2</u>	91	<u>6.8</u>	67	<u>4.3</u>	43	<u>2.3</u>	90	<u>2.5</u>	99
Excess Return			0.6		0.2		-1.1		2.2		3.9		3.5	
<i>InvMetrics Public DB Total Fix Inc Gross Median</i>			0.4		1.9		7.8		4.1		3.0		4.2	
Non-U.S. Credit Composite	1,347,006,557	12.2	0.9	--	2.7	--	6.2	--	8.6	--	7.2	--	6.9	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-4.1		0.9		-3.1		1.8		4.1		1.9	
Marathon/Gold Coast	234,116,602	2.1	1.4	53	6.8	3	11.4	76	12.2	1	8.8	1	--	--
Halcyon Asset Management	187,131,858	1.7	1.5	50	2.6	85	4.2	99	4.4	93	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	3	<u>1.8</u>	91	<u>9.3</u>	86	<u>6.8</u>	13	<u>3.1</u>	86	<u>5.0</u>	50
Excess Return			-3.5		0.8		-5.1		-2.4					
<i>eV Global Credit Fixed Income Gross Median</i>			1.5		3.7		13.2		6.1		4.4		4.9	
Cairn Composite	365,073,098	3.3	1.6	48	4.7	8	12.1	70	10.3	1	6.6	2	5.0	50
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	3	<u>1.8</u>	91	<u>9.3</u>	86	<u>6.8</u>	13	<u>3.1</u>	86	<u>5.0</u>	50
Excess Return			-3.4		2.9		2.8		3.5		3.5		0.0	
<i>eV Global Credit Fixed Income Gross Median</i>			1.5		3.7		13.2		6.1		4.4		4.9	
Alcentra - KT1	434,335,442	3.9	3.0	--	2.2	--	3.7	--	9.9	--	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-2.0		0.4		-5.6		3.1					
Alcentra SP1 - KT1	5,873,779	0.1	-68.0	--	-67.4	--	-63.5	--	--	--	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-73.0		-69.2		-72.8							
Alcentra SP2 - KT1	22,395,641	0.2	-1.8	--	-20.3	--	-26.1	--	--	--	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-6.8		-22.1		-35.4							
Alcentra SP3 - KT1	44,381,773	0.4	-0.5	--	20.9	--	10.4	--	12.4	--	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-5.5		19.1		1.1		5.6					
Alcentra SP4 - KT1	53,698,365	0.5	2.6	--	2.8	--	--	--	--	--	--	--	--	--
<i>ICE BofAML Euro High Yield Constrained TR</i>			<u>5.0</u>	--	<u>1.8</u>	--	<u>9.3</u>	--	<u>6.8</u>	--	<u>3.1</u>	--	<u>5.0</u>	--
Excess Return			-2.4		1.0									



San Bernardino County Employees' Retirement Association

GLOBAL DEBT STRATEGIES - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets Debt Composite	1,020,583,332	9.2	1.5	94	-0.2	98	5.5	98	2.9	99	4.5	66	4.0	71
<i>50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified</i>			<u>3.5</u>	46	<u>3.9</u>	48	<u>14.3</u>	48	<u>6.9</u>	49	<u>4.6</u>	65	<u>4.9</u>	65
Excess Return			-2.0		-4.1		-8.8		-4.0		-0.1		-0.9	
<i>eV All Emg Mkts Fixed Inc Gross Median</i>			3.3		3.8		14.2		6.9		5.8		6.5	
Ashmore Emerging Markets Liquid Investments	181,803,543	1.6	3.5	46	3.9	48	14.3	48	6.9	49	4.6	65	4.9	65
<i>JP Morgan GBI - EM Global Diversified Index</i>			<u>5.2</u>	19	<u>4.4</u>	29	<u>13.5</u>	68	<u>7.0</u>	44	<u>2.8</u>	88	<u>2.7</u>	89
Excess Return			-1.7		-0.5		0.8		-0.1		1.8		2.2	
<i>eV All Emg Mkts Fixed Inc Gross Median</i>			3.3		3.8		14.2		6.9		5.8		6.5	
Ashmore Local Currency	97,459,060	0.9	3.7	15	-0.7	97	6.7	82	5.9	34	2.6	71	--	--
<i>JP Morgan ELM+ TR USD</i>			<u>3.7</u>	14	<u>1.6</u>	77	<u>5.2</u>	89	<u>4.3</u>	78	<u>1.6</u>	88	<u>0.6</u>	96
Excess Return			0.0		-2.3		1.5		1.6		1.0			
<i>JP Morgan EMBI Global Index</i>			2.1	42	3.5	35	14.4	15	6.1	30	5.9	12	6.6	16
<i>eV All Global Fixed Inc Gross Median</i>			1.7		2.7		9.8		5.3		3.7		4.2	
Gramercy Funds Management LLC	634,276,329	5.7	0.4	99	-1.4	98	1.6	99	-0.6	99	4.7	64	--	--
<i>JP Morgan ELM+ TR USD</i>			<u>3.7</u>	44	<u>1.6</u>	90	<u>5.2</u>	98	<u>4.3</u>	96	<u>1.6</u>	99	<u>0.6</u>	99
Excess Return			-3.3		-3.0		-3.6		-4.9		3.1			
<i>JP Morgan EMBI Global Index</i>			2.1	87	3.5	61	14.4	47	6.1	81	5.9	50	6.6	45
<i>eV All Emg Mkts Fixed Inc Gross Median</i>			3.3		3.8		14.2		6.9		5.8		6.5	
PGIM Fixed Income	107,044,400	1.0	3.7	44	6.7	2	17.4	6	9.3	3	5.3	57	--	--
<i>JP Morgan ELM+ TR USD</i>			<u>3.7</u>	44	<u>1.6</u>	90	<u>5.2</u>	98	<u>4.3</u>	96	<u>1.6</u>	99	<u>0.6</u>	99
Excess Return			0.0		5.1		12.2		5.0		3.7			
<i>JP Morgan EMBI Global Index</i>			2.1	87	3.5	61	14.4	47	6.1	81	5.9	50	6.6	45
<i>eV All Emg Mkts Fixed Inc Gross Median</i>			3.3		3.8		14.2		6.9		5.8		6.5	



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 - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alpha Pool Composite	1,654,881,795	14.9	0.4	79	0.8	78	7.3	38	5.8	14	4.7	6	7.2	1
91 Day T-Bill + 3%			1.1	67	2.4	34	5.1	68	4.7	42	4.1	23	3.6	37
Excess Return			-0.7		-1.6		2.2		1.1		0.6		3.6	
Alpha Liquidity (Ssga)	164,837,403	1.5	0.6	78	1.2	83	2.6	97	1.9	98	1.3	92	0.8	95
Apollo Global Management	46,940,929	0.4	7.0	3	12.1	1	28.7	1	20.7	1	--	--	--	--
Ares Eco Master Fund II	479,243,992	4.3	0.1	86	1.0	86	10.6	43	4.3	76	--	--	--	--
Birch Grove Credit Strategies	138,886,392	1.3	1.2	59	2.8	49	7.1	79	6.3	25	5.5	17	--	--
Sterling Stamos	306,806,341	2.8	0.0	87	-0.6	97	3.0	96	6.8	14	5.8	13	5.3	33
Zais	130,427,754	1.2	-3.3	99	-5.6	99	-3.1	99	2.8	93	2.7	69	17.4	1
Zais Group Invest Advisors	300,499,930	2.7	0.8	73	-0.5	97	8.1	68	8.1	4	8.0	1	--	--
Zais Zephyr A 6 LP	38,212,952	0.3	4.0	--	14.5	--	25.6	--	14.9	--	--	--	--	--
ZAIS Zephyr 8	24,026,101	0.2	0.0	--	1.4	--	--	--	--	--	--	--	--	--



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 - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity Composite	1,819,873,387	16.4	2.1	16	6.3	20	11.4	27	15.3	29	12.9	38	13.3	51
<i>Cambridge Associates Global All PE (Qtr Lag)</i>			<u>0.5</u>	60	<u>4.3</u>	32	<u>7.9</u>	51	<u>13.3</u>	46	<u>11.1</u>	59	<u>13.0</u>	61
Excess Return			1.6		2.0		3.5		2.0		1.8		0.3	
<i>Russell 3000</i>			9.1	1	10.4	1	31.0	1	14.6	42	11.2	57	13.4	47
<i>Cambridge Associates US All PE (1 Qtr Lag)</i>			2.2	15	5.7	22	9.0	48	14.6	42	11.6	50	14.1	9
Real Estate Composite	450,563,464	4.1	1.4	21	2.7	73	7.0	39	5.8	98	8.1	69	9.3	99
<i>NCREIF Property Index 1 Qtr. Lag</i>			<u>1.4</u>	22	<u>2.9</u>	43	<u>6.2</u>	47	<u>6.8</u>	84	<u>8.6</u>	54	<u>9.8</u>	89
Excess Return			0.0		-0.2		0.8		-1.0		-0.5		-0.5	
<i>InvMetrics Public DB Real Estate Pub+Priv</i>			1.3		2.9		6.0		7.3		8.8		11.7	
<i>Gross Median</i>														
Real Assets Composite	493,178,585	4.5	4.8	31	4.0	30	8.9	56	3.3	40	2.0	38	2.7	--
<i>Real Assets Custom Blend</i>			<u>3.2</u>	40	<u>2.5</u>	68	<u>5.5</u>	79	<u>1.4</u>	63	<u>0.4</u>	42	<u>-0.1</u>	--
Excess Return			1.6		1.5		3.4		1.9		1.6		2.8	
<i>67% Bloomberg Commodity/ 33% Barclays US</i>			3.2	40	2.5	68	8.1	69	0.5	74	-1.7	57	-1.9	--
<i>TIPS</i>														
Timber	50,832,527	0.5	-0.8	--	-0.1	--	-8.8	--	-3.1	--	-0.5	--	0.6	--
<i>NCREIF Timberland 1 Qtr. Lag</i>			<u>0.2</u>	--	<u>1.2</u>	--	<u>2.1</u>	--	<u>3.1</u>	--	<u>4.4</u>	--	<u>4.0</u>	--
Excess Return			-1.0		-1.3		-10.9		-6.2		-4.9		-3.4	
Infrastructure	188,020,276	1.7	7.6	--	2.4	--	15.8	--	6.4	--	3.5	--	6.1	--
<i>Russell 3000</i>			9.1	--	10.4	--	31.0	--	14.6	--	11.2	--	13.4	--
Excess Return			-1.5		-8.0		-15.2		-8.2		-7.7		-7.3	
Commodities	254,325,782	2.3	4.8	--	7.4	--	11.5	--	7.4	--	3.5	--	3.7	--
<i>Bloomberg Commodity Index</i>			4.4	--	2.5	--	7.7	--	-0.9	--	-3.9	--	-4.7	--
Excess Return			0.4		4.9		3.8		8.3		7.4		8.4	



APPENDIX: PRIVATE EQUITY, REAL ESTATE AND REAL ASSETS PERFORMANCE

NEPC, LLC

REAL ESTATE PERFORMANCE ENDED DECEMBER 31, 2019

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
American Realty Advisors	1996	128,009,773	128,009,773	278,446,295	0	2.18	6.89%
Tuckerman Multi-Family Development Fund III	2002	10,000,000	10,219,311	16,939,699	0	1.66	26.67%
CBRE Strategic Partners III	2003	10,000,000	10,000,000	12,698,783	0	1.27	8.02%
Prudential PRISA III	2003	75,000,000	58,845,117	48,640,106	55,982,998	1.67	17.81%
Walton Street Real Estate Fund IV, LP	2003	10,000,000	9,770,890	15,939,604	74,089	1.64	10.73%
Bryanston Retail Opportunity Fund, L.P.	2004	20,000,000	8,228,165	18,828,095	10,037,915	3.51	70.77%
Prudential PRISA II	2004	140,000,000	140,000,000	49,038,801	172,099,904	1.51	8.02%
RREEF America REIT III	2004	20,000,000	20,539,309	23,658,675	0	1.15	3.00%
BlackRock Diamond Property Fund	2005	25,000,000	25,000,000	15,233,347	0	0.61	-9.31%
CBRE Strategic Partners IV	2005	40,000,000	40,000,000	2,609,685	0	0.07	-27.76%
INVESCO Real Estate Fund I	2005	10,000,000	9,248,390	10,015,656	0	1.08	1.54%
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	1,170,014	1.21	6.88%
Prologis Japan Fund	2005	25,290,819	25,290,819	33,126,118	0	1.31	4.81%
Tri Continental Capital VII	2005	23,000,000	22,277,928	2,847,785	832,523	0.17	-15.52%
American Realty Value Add	2006	13,125,215	13,125,215	32,080,321	0	2.44	10.92%
Beacon Capital Strategic Partners IV, L.P.	2006	38,000,000	38,000,000	31,424,699	0	0.83	-3.26%
Fillmore East Fund	2006	25,000,000	31,403,818	20,777,177	0	0.66	-9.78%
Starwood Capital Hospitality Fund I-2	2006	30,000,000	30,000,000	27,879,087	2,527,679	1.01	0.18%
Starwood Opportunity Fund VII - A	2006	25,000,000	25,000,000	19,517,190	740,045	0.81	-2.29%
Walton Street Real Estate Fund V, LP	2006	40,000,000	40,000,000	26,257,673	3,559,055	0.75	-3.23%
Beacon Capital Strategic Partners V, L.P.	2007	18,000,000	18,000,000	11,174,695	0	0.62	-7.87%
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%
Square Mile Partners II	2007	19,831,232	19,831,232	5,311,330	0	0.27	-19.11%
Fillmore West Fund	2008	20,000,000	19,561,557	21,175,799	0	1.08	1.14%
Square Mile Partners III LP	2008	20,000,000	19,730,190	28,756,613	91,828	1.46	11.53%
Starwood Debt Fund II, LP	2008	20,000,000	17,599,882	21,912,511	0	1.25	6.45%
Structured Real Estate III, LP (Guggenheim)	2008	20,000,000	20,000,000	16,320,664	0	0.82	-4.99%
Bryanston Real Estate Opportunity Fund II, L.P.	2009	20,000,000	8,589,256	11,847,997	0	1.38	10.19%
Fortress Japan Opportunity Fund II	2012	21,739,130	2,709,055	21,639,490	5,730,734	9.24	26.13%
Oaktree Real Estate Opportunities V	2012	25,000,000	25,000,000	37,777,185	2,121,460	1.57	13.04%
Invesco Real Estate Asia Fund	2014	51,732,500	51,732,500	11,538,691	64,764,762	1.43	7.33%
Partners Group RE Secondary 2013 (USD) A	2014	65,000,000	49,541,590	23,844,908	48,885,191	1.48	14.07%
Apollo US Real Estate Fund II	2015	20,000,000	12,198,723	3,440,335	14,932,775	1.50	16.08%
Pramerica Real Estate Capital VI	2016	25,891,935	19,999,123	6,748,225	12,900,801	0.98	-1.87%
Kayne Anderson Real Estate Fund V, L.P.	2017	20,000,000	11,800,000	633,697	12,418,156	1.12	9.44%
Partners Group RE Secondary 2017 (USD) A	2017	75,000,000	34,571,580	118,130	39,592,252	1.15	14.52%
Kayne Anderson Real Estate Debt III	2018	20,000,000	12,177,413	2,570,068	10,318,975	1.06	7.06%
Total: San Bernardino		1,257,120,604	1,103,260,499	976,354,398	458,781,156	1.29	4.23%

Note: All metrics are calculated since inception

* Denotes cash adjusted



REAL ASSETS PERFORMANCE ENDED DECEMBER 31, 2019

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
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	7,837,925	31,523,434	0.98	-0.15%
Highstar Capital III, L.P.	2007	60,000,000	59,119,119	53,315,157	10,175,049	1.07	0.91%
RREEF North American Infrastructure Fund	2007	50,000,000	50,000,000	55,238,754	0	1.09	12.09%
Timbervest Partners II, L.P.	2007	50,000,000	50,000,000	46,525,000	5,982,062	1.05	0.51%
Pinnacle Natural Resources Offshore Fund Ltd.	2008	105,000,000	50,000,000	0	76,783,055	1.54	3.72
Timbervest Environmental Investments II, L.P.	2008	30,000,000	30,000,000	16,274,831	11,846,161	0.94	-0.97%
Pinnacle Physicals and Financing Master, Ltd	2009	200,000,000	130,815,984	2,018,221	126,654,061	0.98	4.30
Fortress Transportation Infrastructure LLC	2015	45,403,354	45,403,354	14,983,109	52,187,158	1.48	11.44%
Total: San Bernardino		670,403,354	545,338,457	297,335,897	315,150,980	1.12	2.19%

Note: All metrics are calculated since inception

** Denotes cash adjusted*



PRIVATE EQUITY PERFORMANCE ENDED DECEMBER 31, 2019

Investment Name	Vintage Year	Commitment	Amount Paid	in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
European Strategic Partners 2004	2004	240,674,821	220,679,633		265,791,019	15,557,497	1.27	4.04%
Partners Group MCA	2004	800,000,000	736,365,658		612,797,210	413,875,619	1.39	7.98%
Pathway Private Equity Fund VII, L.P.	2004	904,500,000	848,983,772		1,169,795,322	356,812,598	1.80	11.31%
Aurora Equity Partners III, L.P.	2005	25,000,000	23,544,536		41,738,196	0	1.67	13.61%
Lexington Middle Market I	2005	25,000,000	24,771,942		38,015,763	2,661,231	1.64	11.57%
NB Secondary Opportunities I, LP	2005	20,000,000	18,500,843		24,330,105	0	1.32	6.49%
Lexington Capital Partners VI-B	2006	25,000,000	24,591,319		33,051,052	2,059,938	1.43	6.94%
Siguler Guff DOF II	2006	30,000,000	30,000,000		42,440,278	0	1.42	8.64%
TCW/Crescent Mezzanine IV, L.P.	2006	40,000,000	39,590,976		45,049,090	0	1.14	3.03%
Catalyst Fund II, L.P.	2007	10,000,000	9,956,944		3,859,103	16,569,646	2.04	8.36%
Tennenbaum Opportunities Fund V, L.P.	2007	10,000,000	10,000,000		11,880,153	1,708,346	1.36	4.65%
Apollo Investment Fund VII, L.P.	2008	10,000,000	8,762,458		15,822,999	1,423,607	1.97	22.73%
Aurora Resurgence Fund, L.P.	2008	15,000,000	5,653,009		10,350,965	0	1.82	17.60%
Industry Ventures Fund V	2008	10,000,000	9,500,000		23,742,191	3,634,013	2.88	29.39%
Lexington Middle Market II - Offshore	2008	10,000,000	9,773,736		13,453,676	3,158,289	1.69	14.26%
NB Secondary Opportunities II, LP	2008	20,000,000	17,080,642		26,888,038	0	1.54	14.40%
Siguler Guff DOF III	2008	10,000,000	9,700,000		13,998,268	1,659,277	1.61	10.62%
TCW/Crescent Mezzanine V, L.P.	2008	20,000,000	19,949,723		25,841,574	913,997	1.34	9.46%
Apollo European Principal Finance Fund (Feeder), LP	2009	53,788,447	46,403,245		69,083,088	279,711	1.49	11.79%
DRI II, L.P.	2009	20,000,000	19,917,669		26,302,807	0	1.33	19.64%
Apollo PCPL Webb V	2010	4,844,398	4,844,398		5,196,757	0	1.08	6.39%
Apollo PCPL Webb VIII	2010	4,734,303	4,734,303		12,146,258	0	2.57	46.47%
European Strategic Partners 2008	2010	31,393,829	28,320,115		29,504,925	12,470,182	1.47	9.04%
Industry Ventures Fund VI	2011	20,000,000	18,400,000		20,400,016	4,256,959	1.34	8.00%
Lexington Capital Partners VII (Offshore)	2011	25,000,000	20,409,757		26,834,247	5,982,677	1.60	14.92%
Tennenbaum Opportunities Fund VI, L.P.	2011	20,000,000	10,577,358		11,278,455	6,069,170	1.64	7.20%
Aurora Equity Partners IV, L.P.	2012	20,000,000	17,262,661		30,861,074	8,582,408	1.99	18.68%
BNY Mellon - Alcentra Mezzanine III	2012	25,000,000	23,254,658		26,736,979	0	1.15	12.73%
Industry Ventures Partnership Holdings Fund II, L.P.	2012	25,000,000	23,500,000		20,327,499	50,649,026	3.02	23.01%
Tennenbaum Waterman Fund, LP	2012	70,000,000	70,000,000		48,449,234	68,516,307	1.67	11.11%

Note: All metrics are calculated since inception

* Denotes Cash adjusted value



PRIVATE EQUITY PERFORMANCE ENDED DECEMBER 31, 2019

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Industry Ventures Partnership Holdings Fund III, L.P.	2013	25,000,000	23,277,042	5,133,472	48,208,201	2.29	23.81%
Industry Ventures Secondary VII, L.P.	2013	25,000,000	22,500,000	19,895,455	19,525,856	1.75	17.08%
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	12,500,000	10,795,051	4,389,580	7,060,909	1.06	1.75%
Pathway SBCERA MCA	2014	250,000,000	201,534,565	6,662,500	327,725,898	1.66	20.15%
SL Capital SOF I LP	2014	25,000,000	20,978,367	17,995,893	10,837,893	1.37	11.42%
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	228,201	44,538,412	0.94	-2.44%
Tennenbaum Special Situations Fund IX	2015	50,000,000	44,061,824	11,874,048	46,542,493	1.32	13.15%
Industry Ventures Direct, LP	2016	25,000,000	18,870,621	1,900,632	20,275,942	1.18	9.86%
Industry Ventures Partnership Holdings IV, LP	2016	25,000,000	17,675,000	1,255,046	20,691,544	1.24	13.99%
Industry Ventures Special Opportunities II-A	2016	12,500,000	1,225,000	439,632	2,247,866	2.19	66.89%
TCP Direct Lending Fund VIII-L, LLC	2016	40,000,000	31,377,482	3,081,323	31,784,429	1.11	6.61%
Tennenbaum Energy Opportunities Fund, LP	2016	20,000,000	11,383,007	6,078,949	11,686,197	1.56	16.78%
Apollo Accord Fund, LP	2017	30,000,000	7,500,000	8,310,474	0	1.11	7.44%
Industry Ventures Secondary VIII	2017	25,000,000	16,250,000	2,901,187	21,404,883	1.50	50.97%
Kayne Anderson Energy Fund VII, L.P.	2017	10,000,000	7,615,357	215,495	6,086,961	0.83	-7.04%
Kayne Partners Fund IV (QP), LP	2017	20,000,000	12,880,504	0	15,835,011	1.22	15.90%
Kayne SBCERA MLP	2017	130,000,000	125,000,000	30,340	125,654,153	1.01	0.28%
SL Capital SOF III LP	2017	25,000,000	14,962,519	534,831	19,954,151	1.37	34.44%
Crestline Portfolio Financing Fund	2018	50,000,000	21,149,259	327,964	24,275,125	1.16	12.64%
Industry Ventures Partnership Holdings V, LP	2018	25,000,000	4,550,000	117,222	5,515,124	1.24	42.91%
Industry Ventures Tech Buyout LP	2018	50,000,000	6,836,046	0	6,016,065	0.88	-22.31%
Kayne Anderson Private Energy Income Fund II, L.P.	2018	20,000,000	3,680,000	948,219	5,291,707	1.70	63.31%
Kayne Flywheel Co-investment LLC	2018	8,000,000	6,600,000	1,596,464	10,039,444	1.76	73.99%
Kayne SBCERA (D.I.)	2018	45,000,000	26,250,000	4,535,431	11,085,717	0.60	-53.61%
Kayne Solutions Fund LP	2018	20,000,000	5,336,100	3,178,743	4,453,424	1.43	29.09%
Industry Ventures Direct II, LP	2019	50,000,000	2,910,623	0	2,734,468	0.94	-8.81%
Kayne Renewable Opportunities Partners (TE), LP	2019	100,000,000	16,656,451	0	16,158,233	0.97	-2.99%
Waterfall Sentinel Co-Investments	2019	30,000,000	15,000,000	0	14,918,957	0.99	-0.54%
Waterfall Sentinel Fund	2019	30,000,000	12,359,551	0	12,162,733	0.98	-1.59%
Total: San Bernardino		3,787,935,798	3,120,343,328	2,855,210,941	1,869,552,294	1.51	9.90%



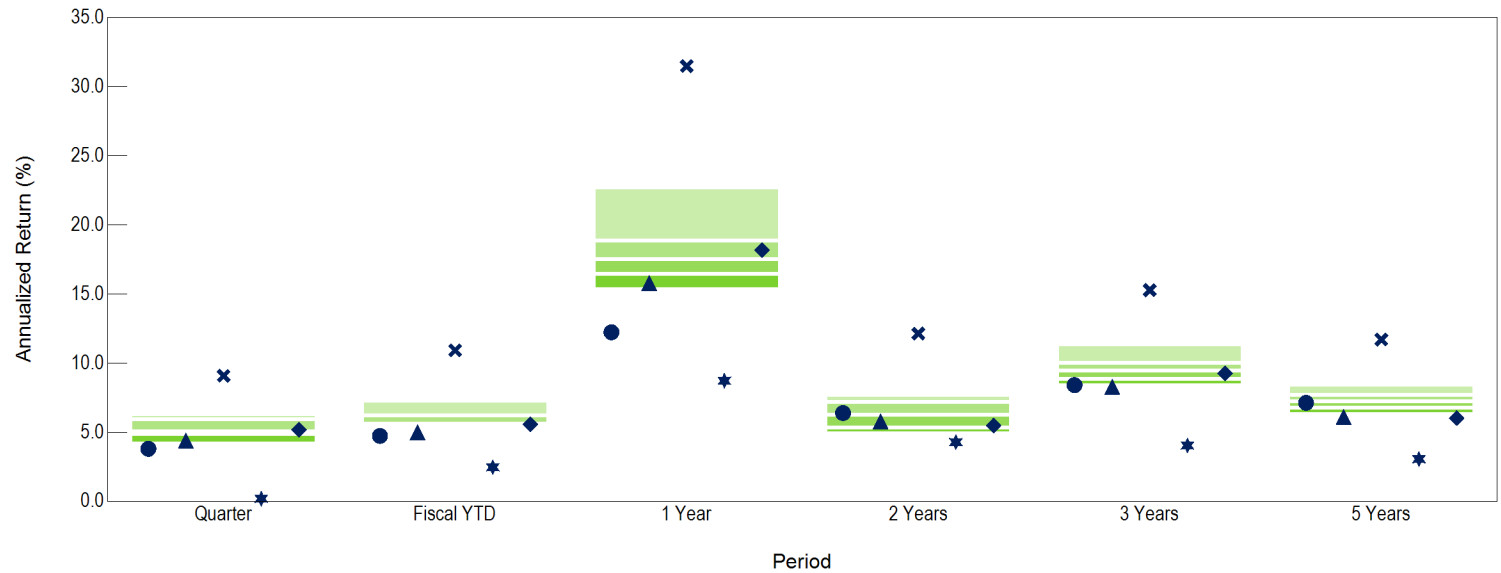
Note: All metrics are calculated since inception. * Denotes Cash adjusted value

APPENDIX MARKET OUTLOOK

NEPC, LLC

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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



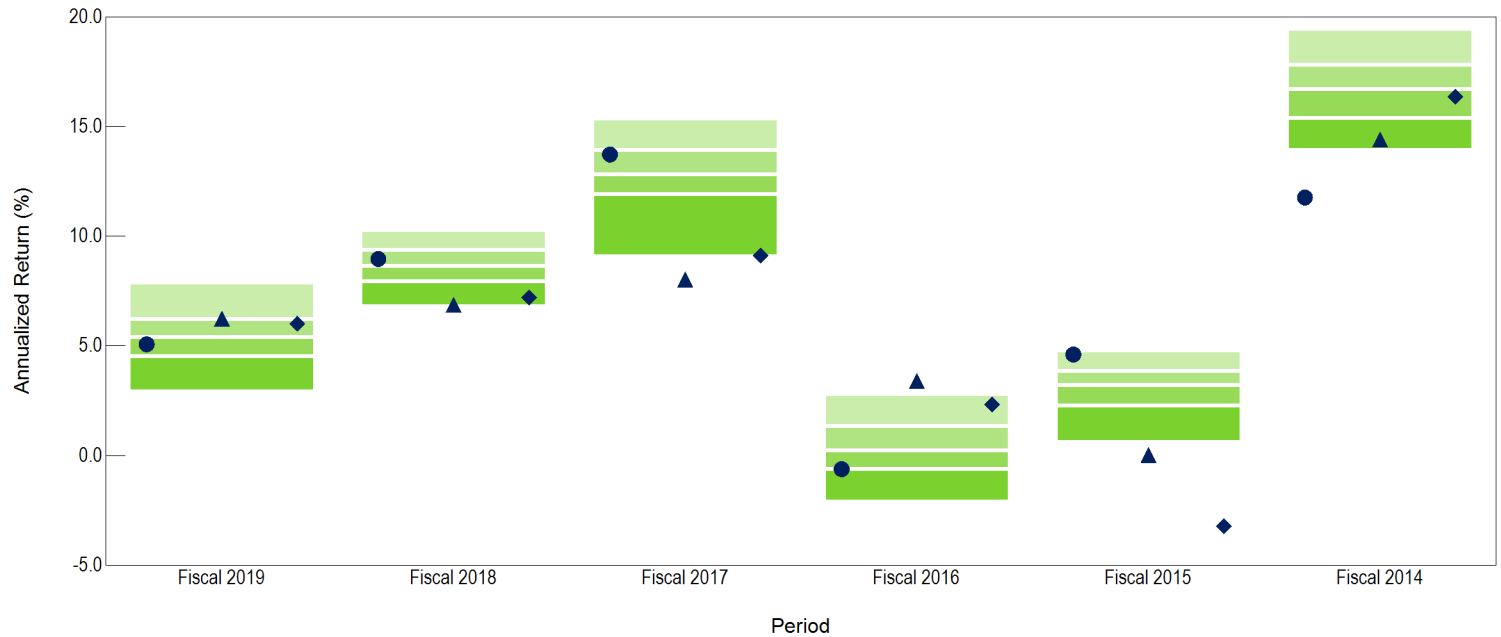
	Return (Rank)											
5th Percentile	6.3		7.3		22.7		7.7		11.3		8.4	
25th Percentile	6.0		6.2		18.9		7.2		10.0		7.7	
Median	5.1		5.6		17.5		6.3		9.5		7.2	
75th Percentile	4.9		5.4		16.5		5.3		8.9		6.8	
95th Percentile	4.2		5.1		15.3		5.0		8.4		6.3	
# of Portfolios	20		20		20		20		20		20	
● Total Fund	3.8	(99)	4.7	(97)	12.2	(99)	6.4	(43)	8.4	(96)	7.1	(58)
▲ Policy Index	4.4	(93)	5.0	(96)	15.8	(83)	5.8	(63)	8.3	(96)	6.1	(96)
× S&P 500	9.1	(1)	10.9	(1)	31.5	(1)	12.1	(1)	15.3	(1)	11.7	(1)
* BBGBarc US Aggregate TR	0.2	(99)	2.5	(99)	8.7	(99)	4.3	(99)	4.0	(99)	3.0	(99)
◆ 60% MSCI ACWI (Net) / 40% FTSE WGBI	5.2	(47)	5.6	(64)	18.2	(35)	5.5	(68)	9.2	(59)	6.0	(96)



San Bernardino County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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



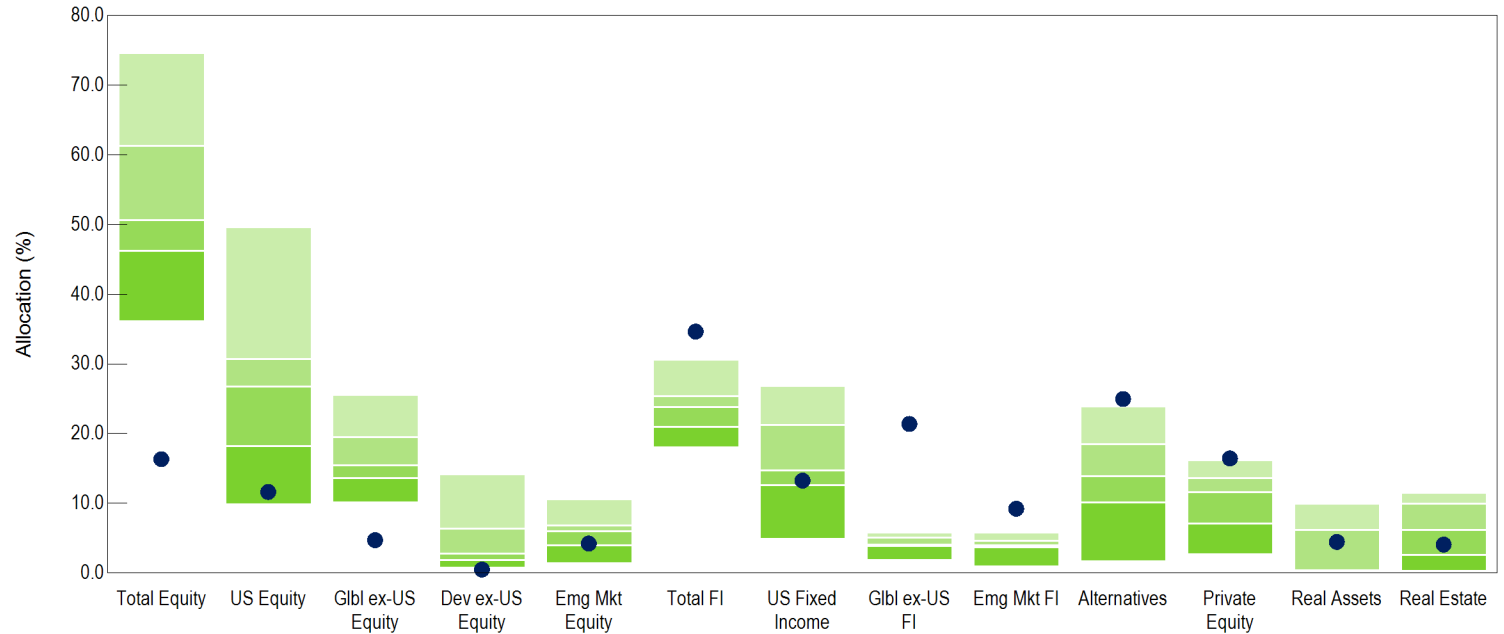
	Fiscal 2019		Fiscal 2018		Fiscal 2017		Fiscal 2016		Fiscal 2015		Fiscal 2014	
Return (Rank)												
5th Percentile	7.9		10.3		15.3		2.8		4.8		19.4	
25th Percentile	6.2		9.4		14.0		1.4		3.9		17.8	
Median	5.4		8.7		12.9		0.3		3.2		16.7	
75th Percentile	4.5		8.0		11.9		-0.6		2.3		15.4	
95th Percentile	2.9		6.8		9.1		-2.1		0.6		13.9	
# of Portfolios	88		62		108		91		92		65	
● Total Fund	5.1	(59)	9.0	(38)	13.7	(29)	-0.6	(77)	4.6	(7)	11.8	(99)
▲ Policy Index	6.2	(26)	6.9	(94)	8.0	(97)	3.4	(3)	0.0	(97)	14.4	(87)
◆ 60% MSCI ACWI (Net) / 40% FTSE WGBI	6.0	(35)	7.2	(90)	9.1	(95)	2.3	(11)	-3.2	(99)	16.4	(58)



San Bernardino County Employees' Retirement Association

TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

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



	Total Equity	US Equity	Gbl ex-US Equity	Dev ex-US Equity	Emg Mkt Equity	Total FI	US Fixed Income	Gbl ex-US FI	Emg Mkt FI	Alternatives	Private Equity	Real Assets	Real Estate	
5th Percentile	74.5	49.6	25.6	14.1	10.5	30.6	26.8	5.8	5.8	23.9	16.2	10.0	11.5	--
25th Percentile	61.4	30.8	19.6	6.5	6.9	25.5	21.3	5.2	4.7	18.6	13.7	6.3	10.0	--
Median	50.8	26.8	15.6	2.9	6.0	23.9	14.8	4.1	4.1	14.0	11.7	0.5	6.2	--
75th Percentile	46.3	18.3	13.7	2.0	4.1	21.1	12.7	4.0	3.7	10.2	7.2	0.2	2.7	--
95th Percentile	36.2	10.0	10.2	0.8	1.5	18.2	5.0	2.0	1.1	1.8	2.8	0.0	0.4	--
# of Portfolios	19	13	18	9	15	19	13	9	8	17	15	7	17	--
• Total Fund	16.3 (99)	11.6 (92)	4.7 (99)	0.5 (99)	4.2 (72)	34.6 (1)	13.2 (65)	21.4 (1)	9.2 (1)	25.0 (2)	16.4 (5)	4.5 (30)	4.1 (66)	--



TOP 10 MANAGERS BY AUM: AS OF DEC. 31, 2019

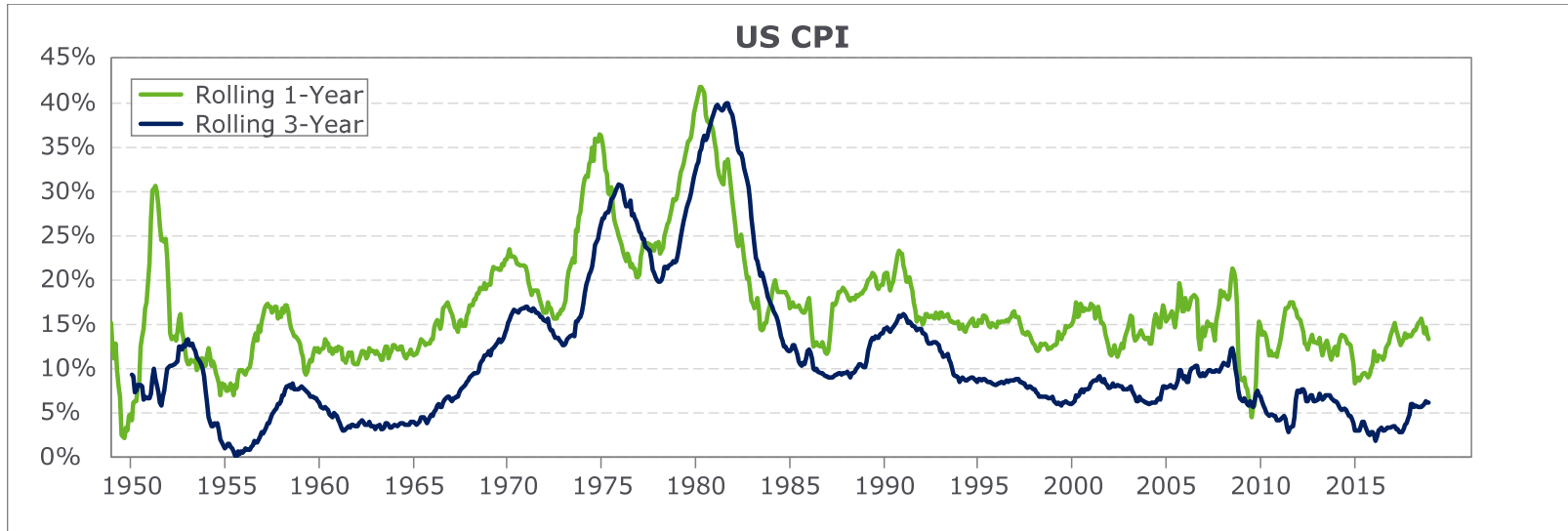
Manager	Market Value
SSGA S&P500 Flagship Fund	942,121,094
Total Tobam	696,206,912
Total Ares	684,587,306
Total Pathway	638,687,119
Gramercy Funds Management	634,276,329
Total Alcentra	560,684,999
Apollo/Stone Tower	542,235,422
Total Russell	510,001,064
Total Zais	493,166,737
Total GoldenTree	471,890,644



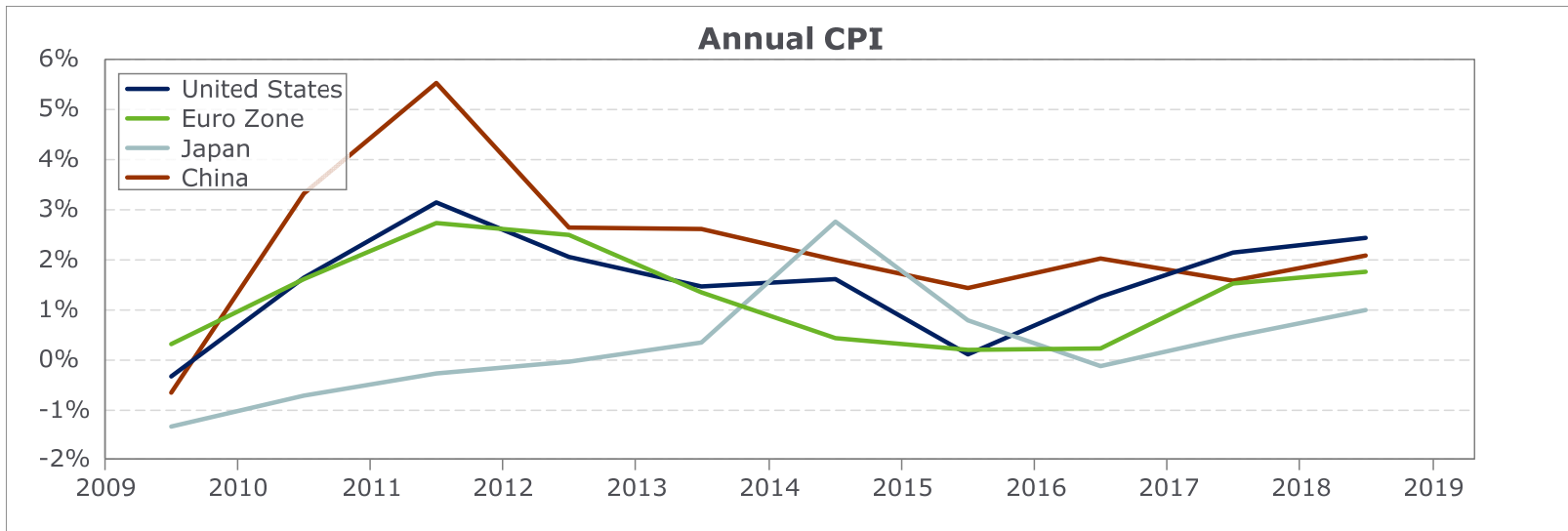
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NEPC, LLC

INFLATION



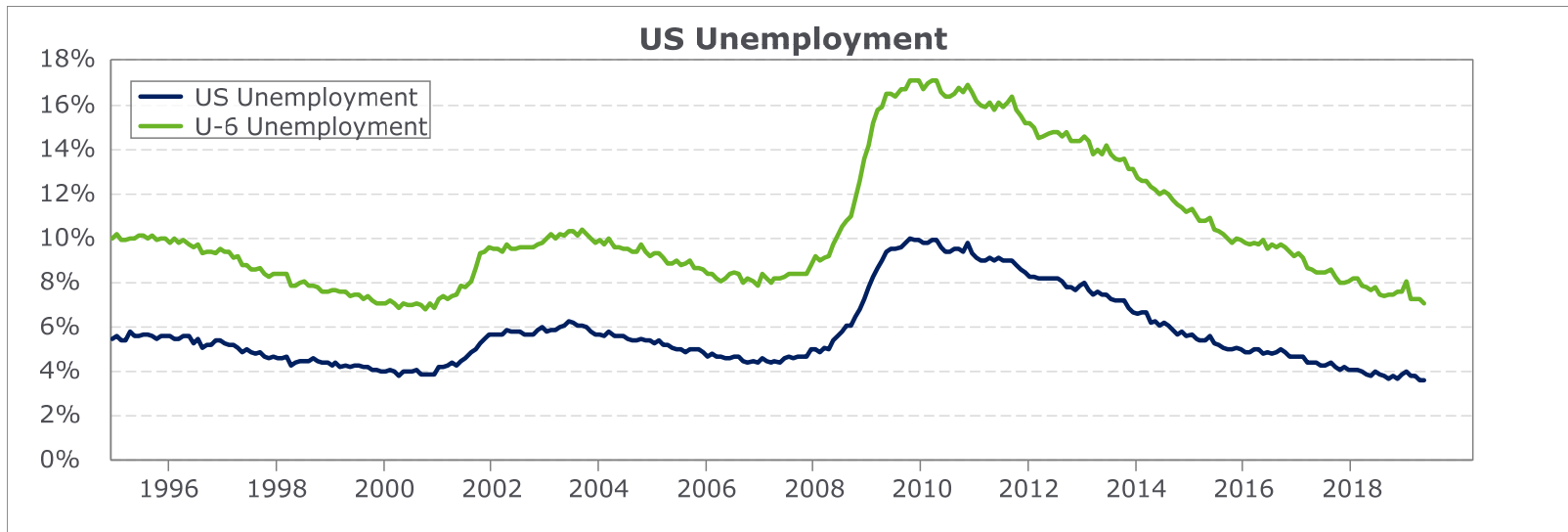
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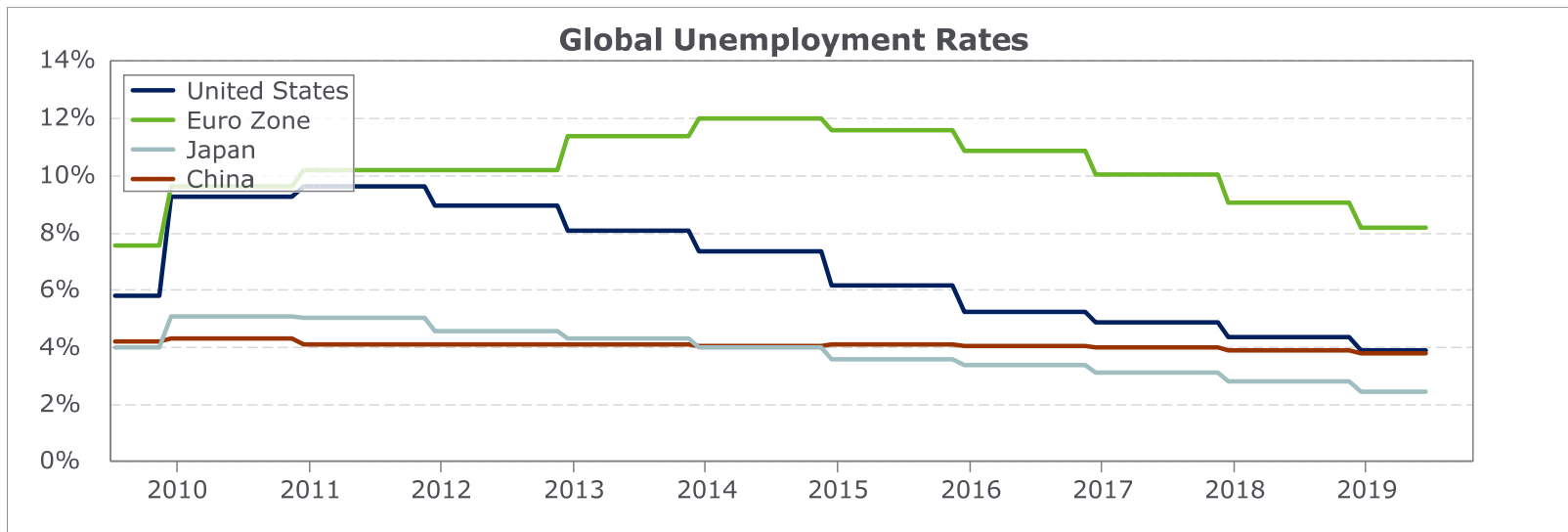
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UNEMPLOYMENT



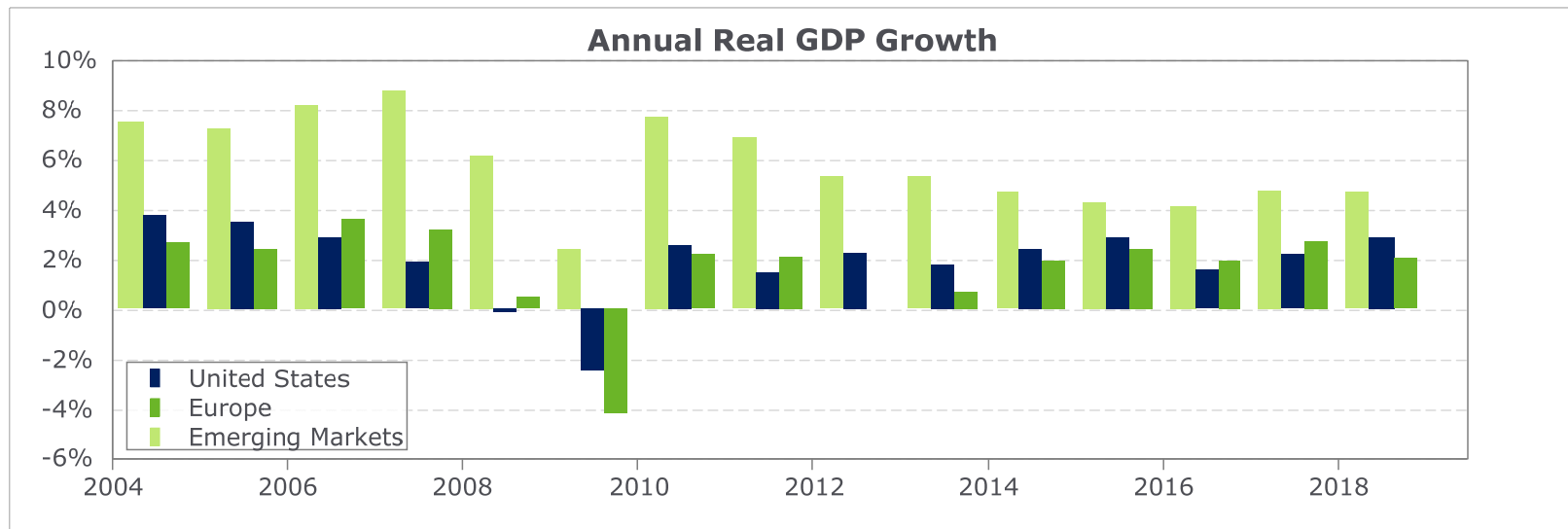
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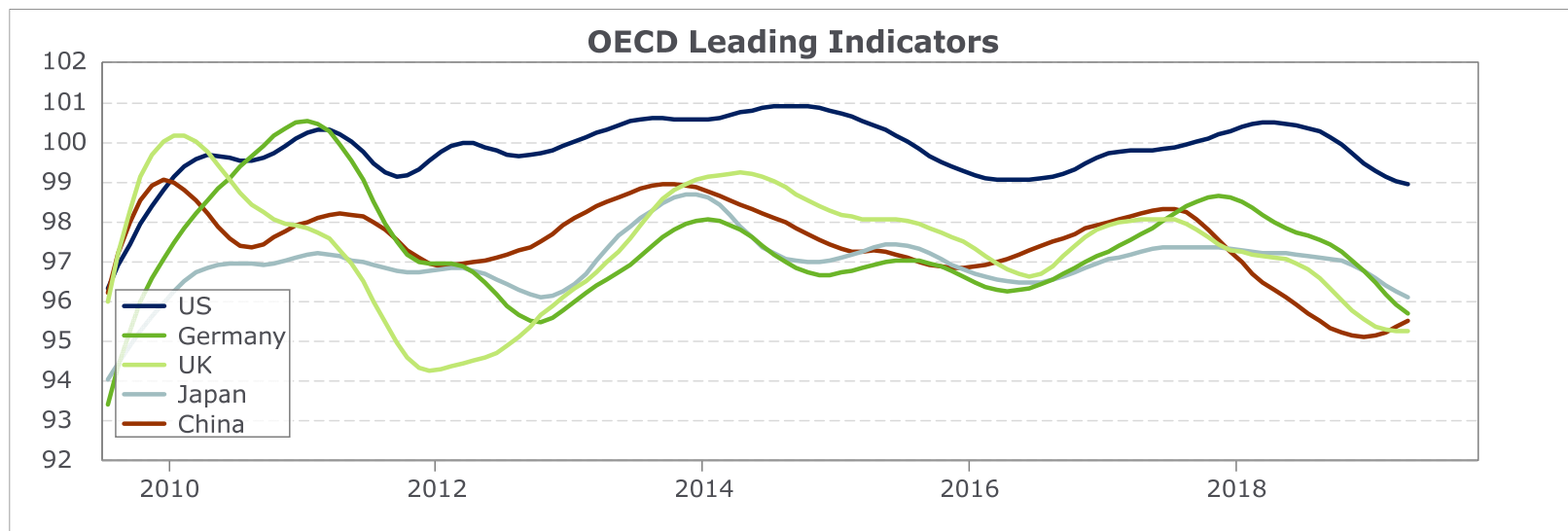
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ECONOMIC INDICATORS



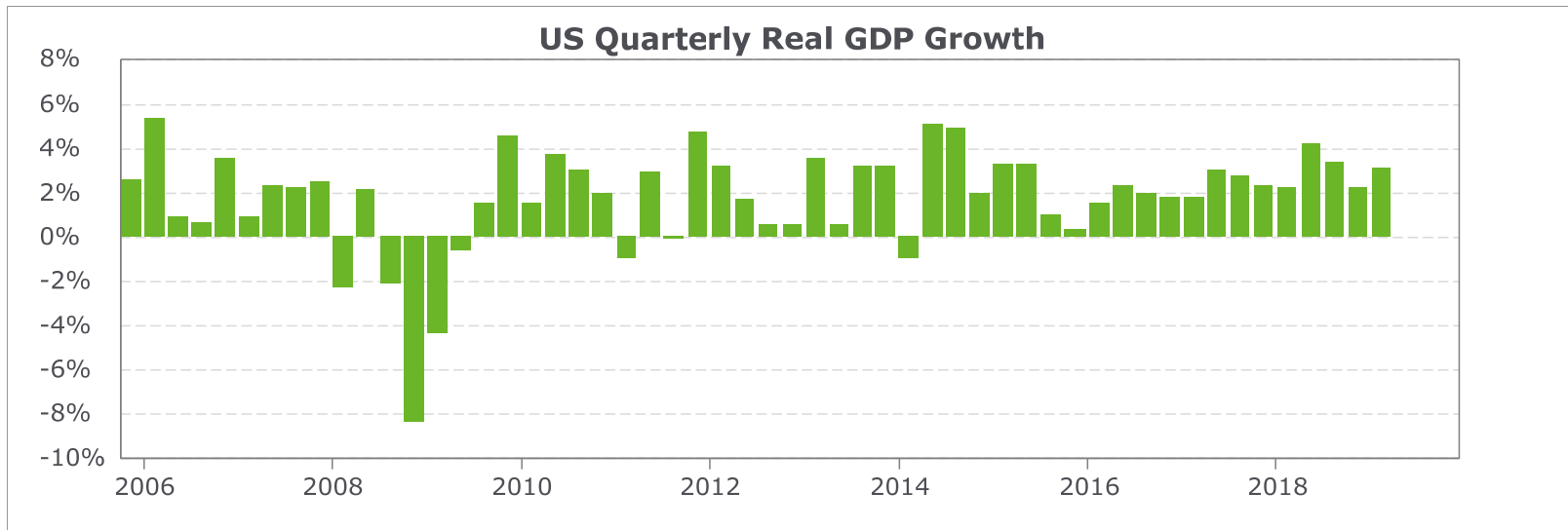
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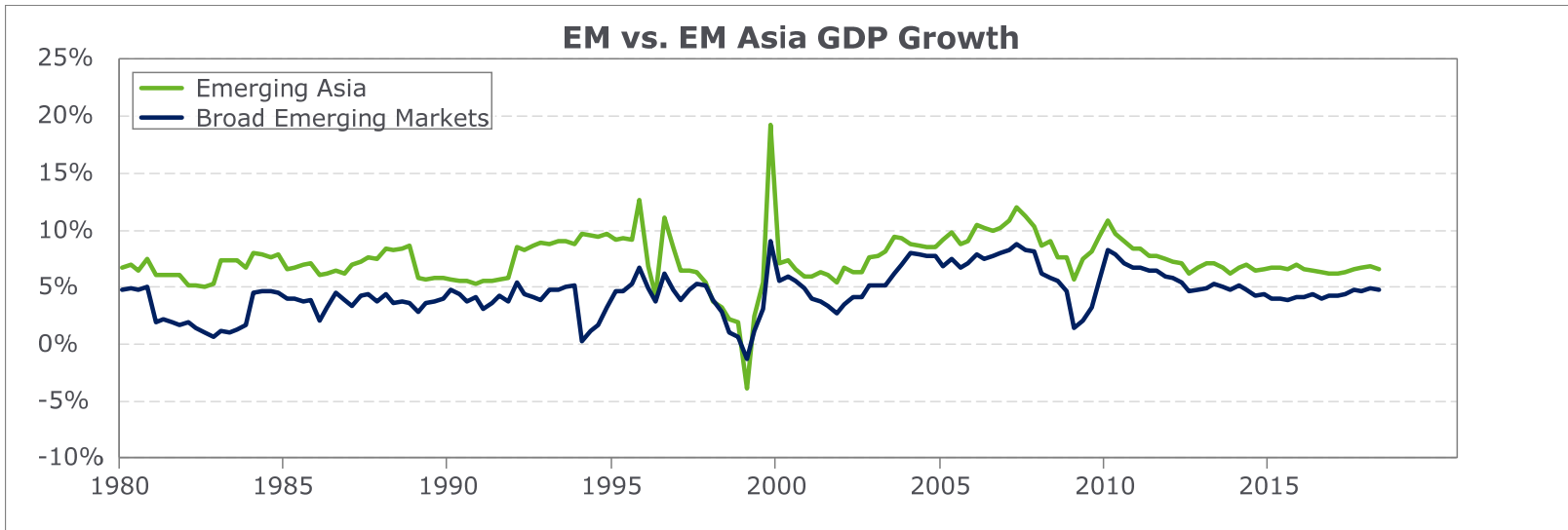
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GROSS DOMESTIC PRODUCT



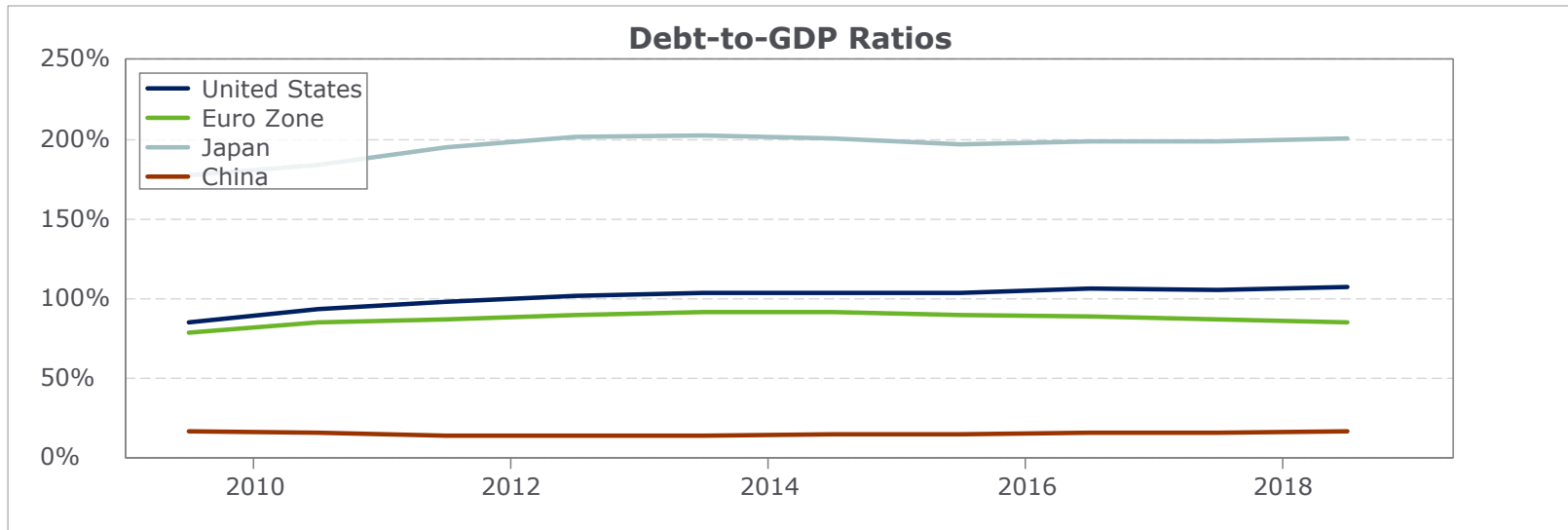
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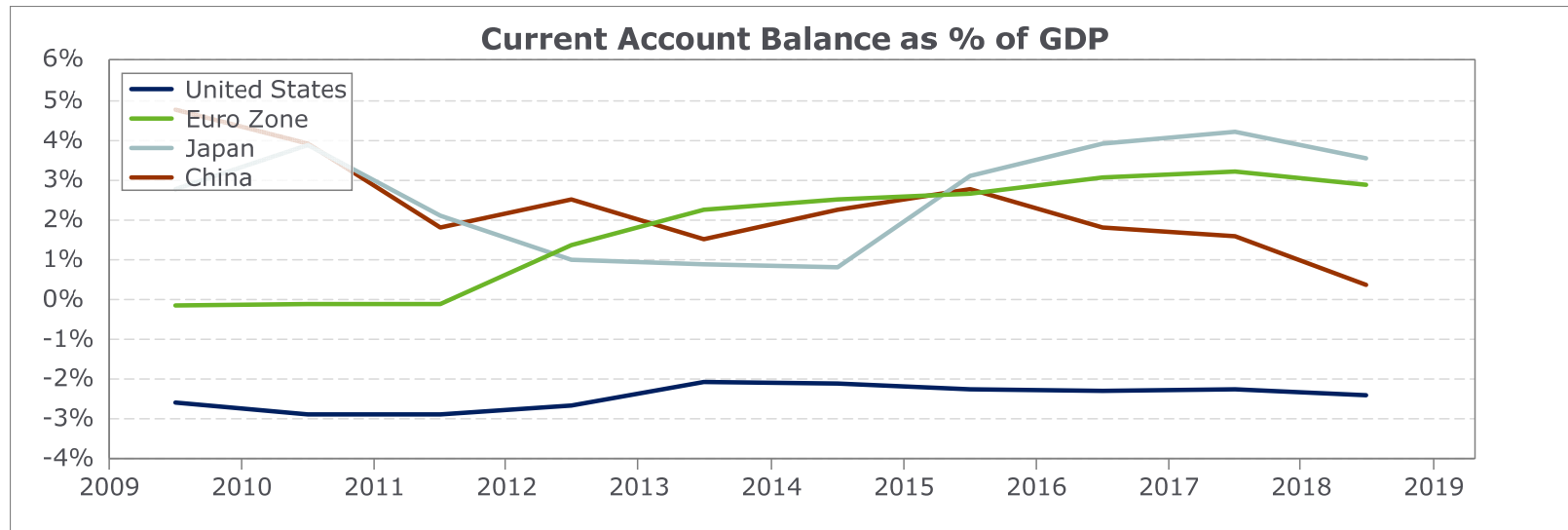
Source: FactSet



GROSS DOMESTIC PRODUCT METRICS



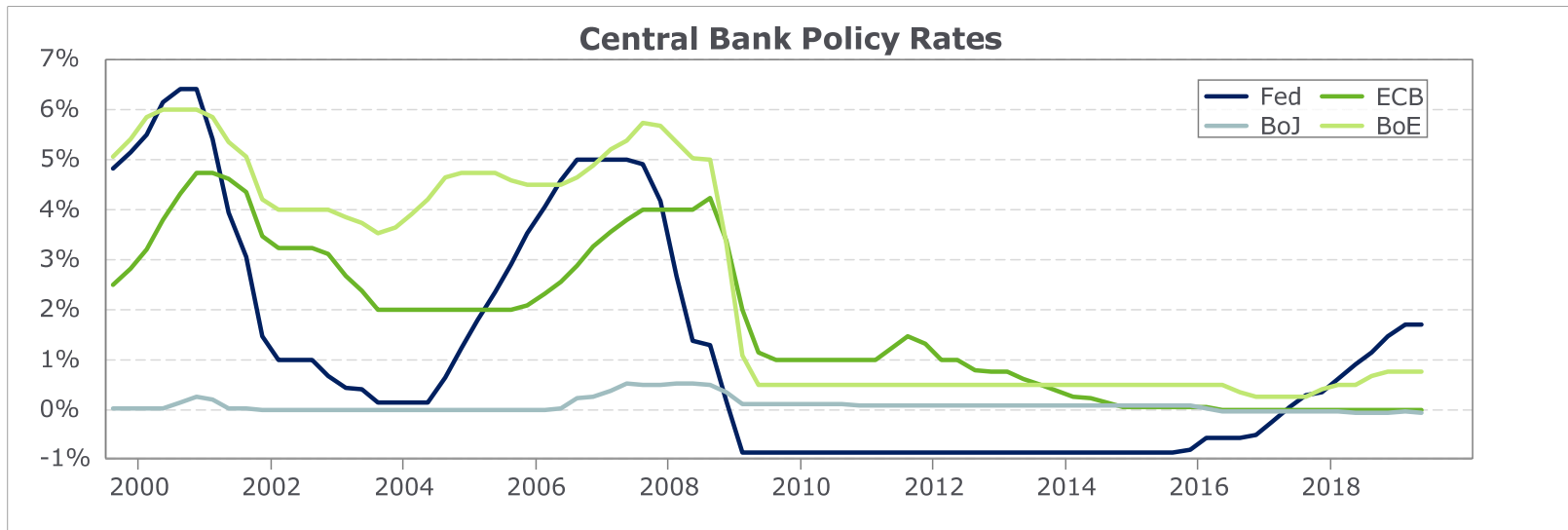
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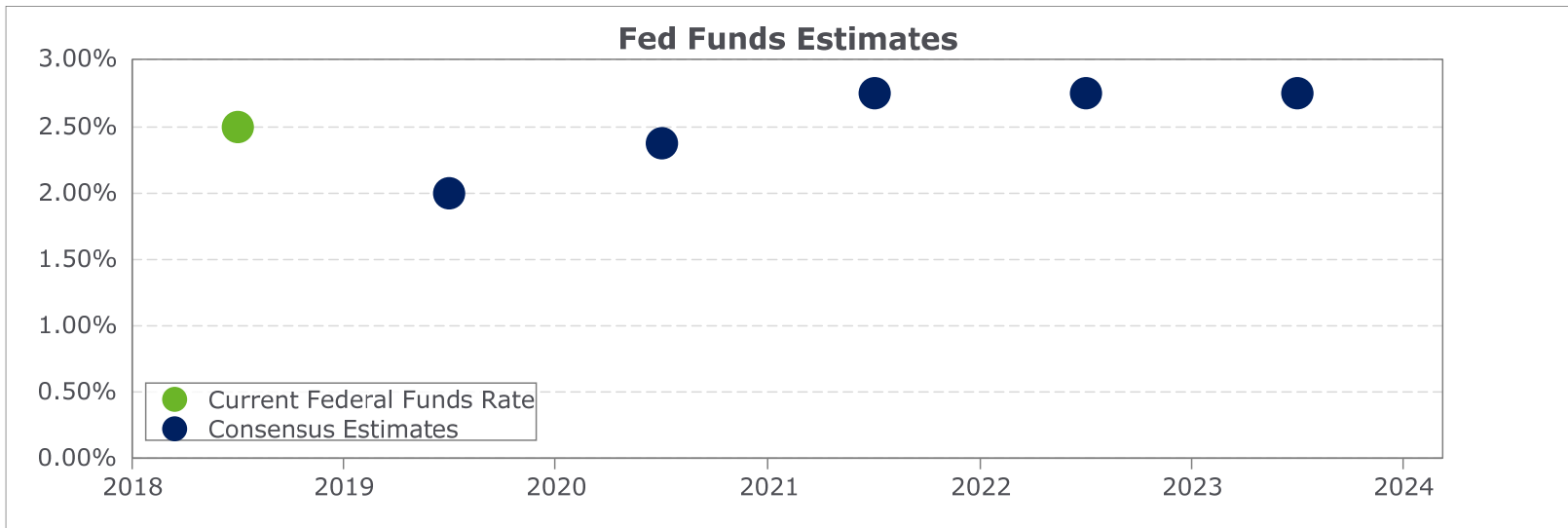
Source: FactSet



CENTRAL BANK RATES



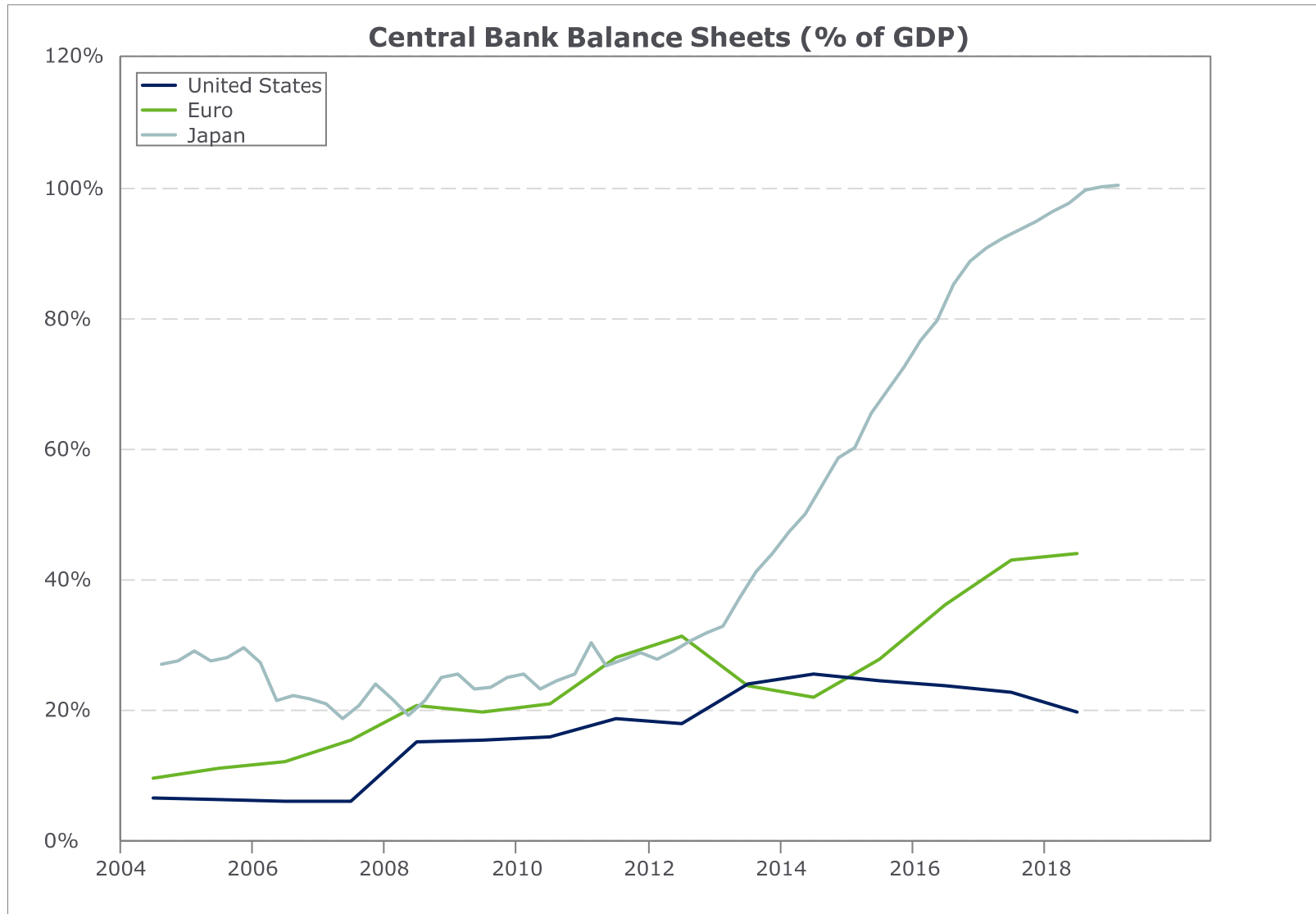
Source: FactSet



Source: FactSet



CENTRAL BANK BALANCE SHEETS



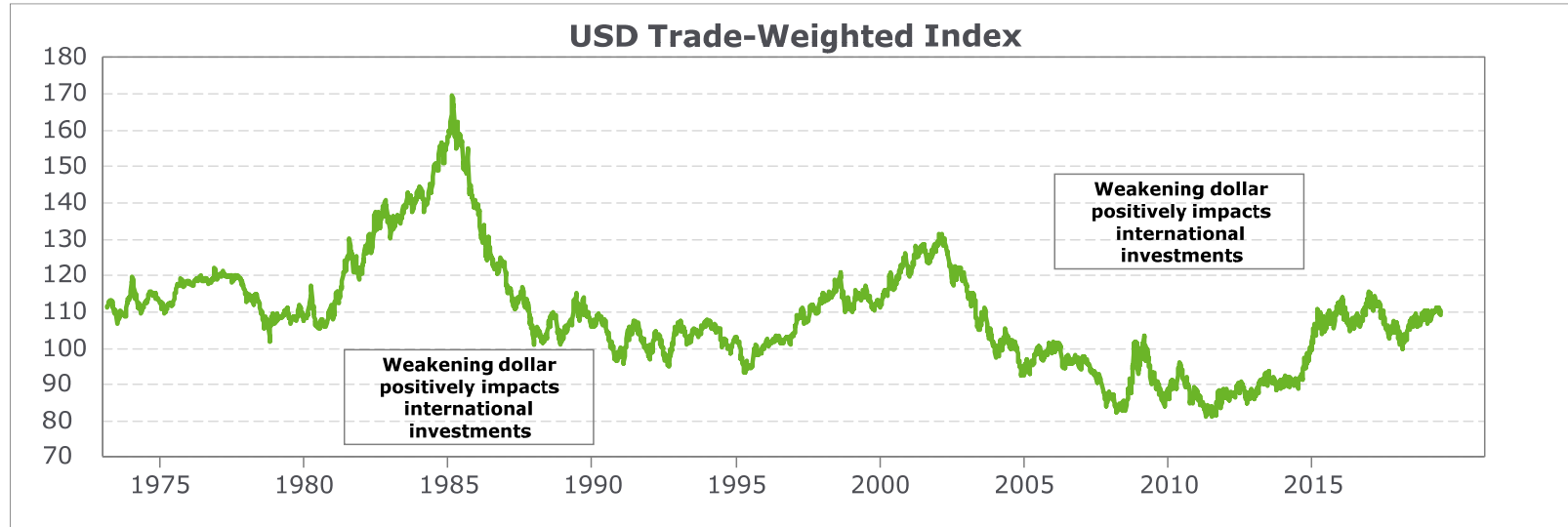
Source: FactSet



CURRENCIES

Currencies	Spot	% Change Relative to USD		
		1 Month	YTD	1 Year
Euro	1.14	1.92%	-0.38%	-1.64%
British Pound	1.27	0.41%	-0.07%	-2.80%
Japanese Yen	107.74	-1.63%	-1.80%	-2.39%
Swiss Franc	0.98	-3.35%	-1.10%	-2.30%
Australian Dollar	1.43	-1.25%	0.32%	4.69%
Chinese Yuan	6.87	-0.65%	0.04%	3.65%
Brazilian Real	3.83	-4.81%	-1.11%	-0.23%
Russian Ruble	63.08	-2.56%	-9.08%	-0.01%
Indian Rupee	69.03	-0.94%	-1.13%	0.43%
Mexican Peso	19.21	0.16%	-2.45%	-3.53%
South African Rand	14.10	-4.32%	-1.97%	1.65%

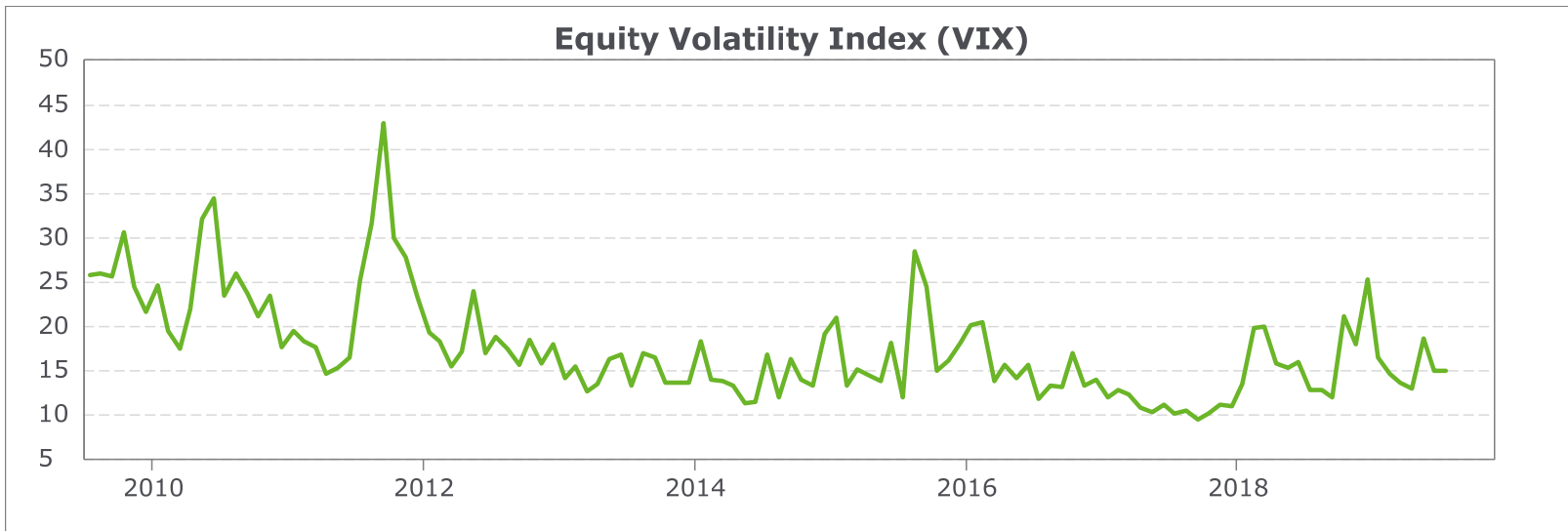
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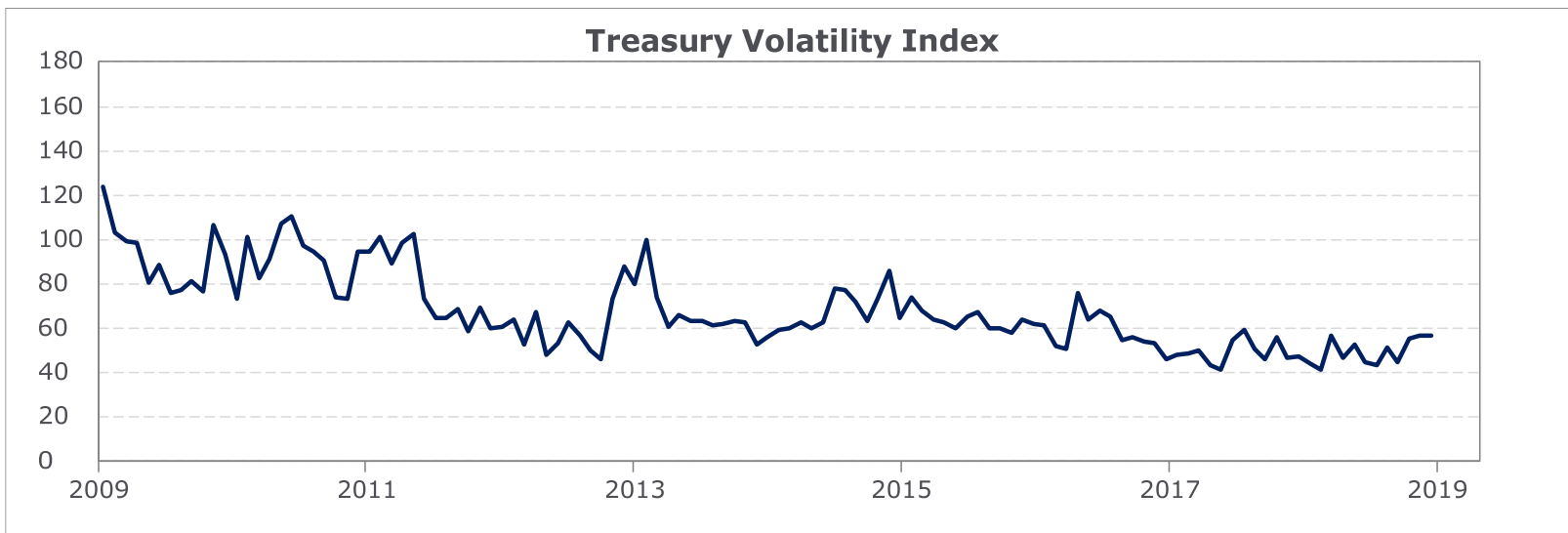
Source: FactSet



VOLATILITY



Source: FactSet



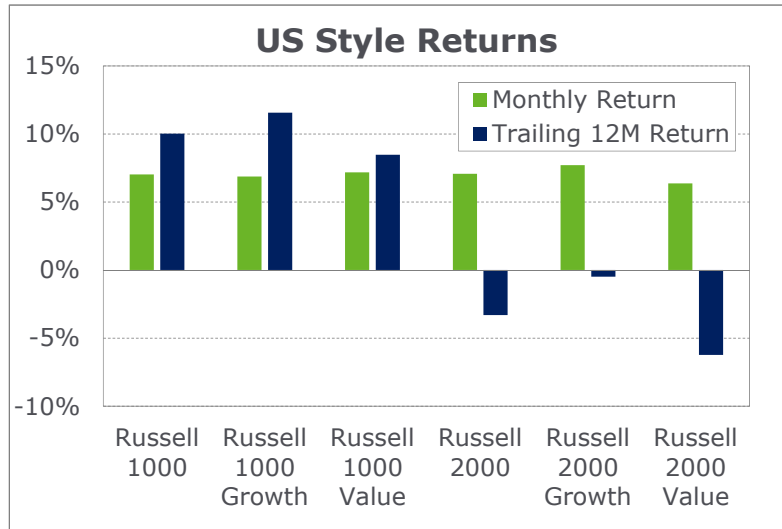
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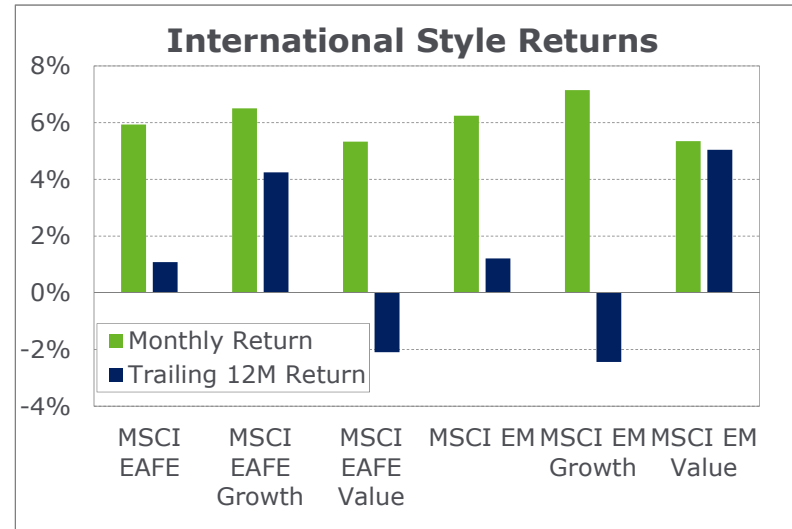
EQUITY

NEPC, LLC

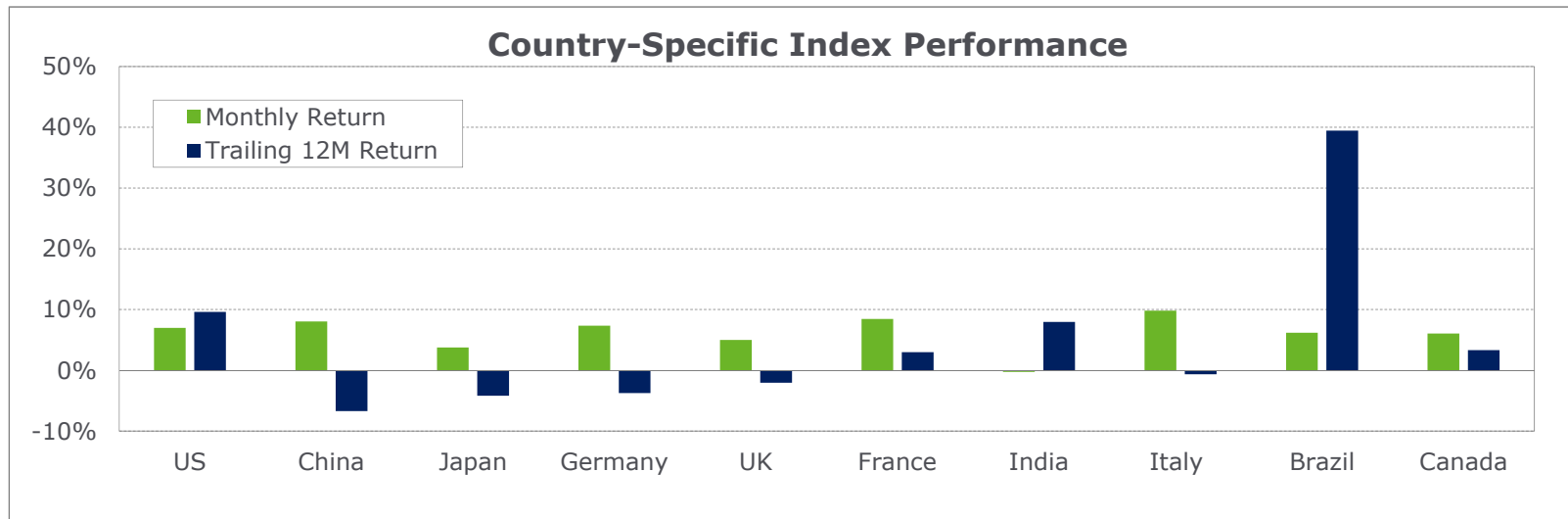
EQUITY INDEX PERFORMANCE



Source: FactSet



Source: FactSet



Source: FactSet



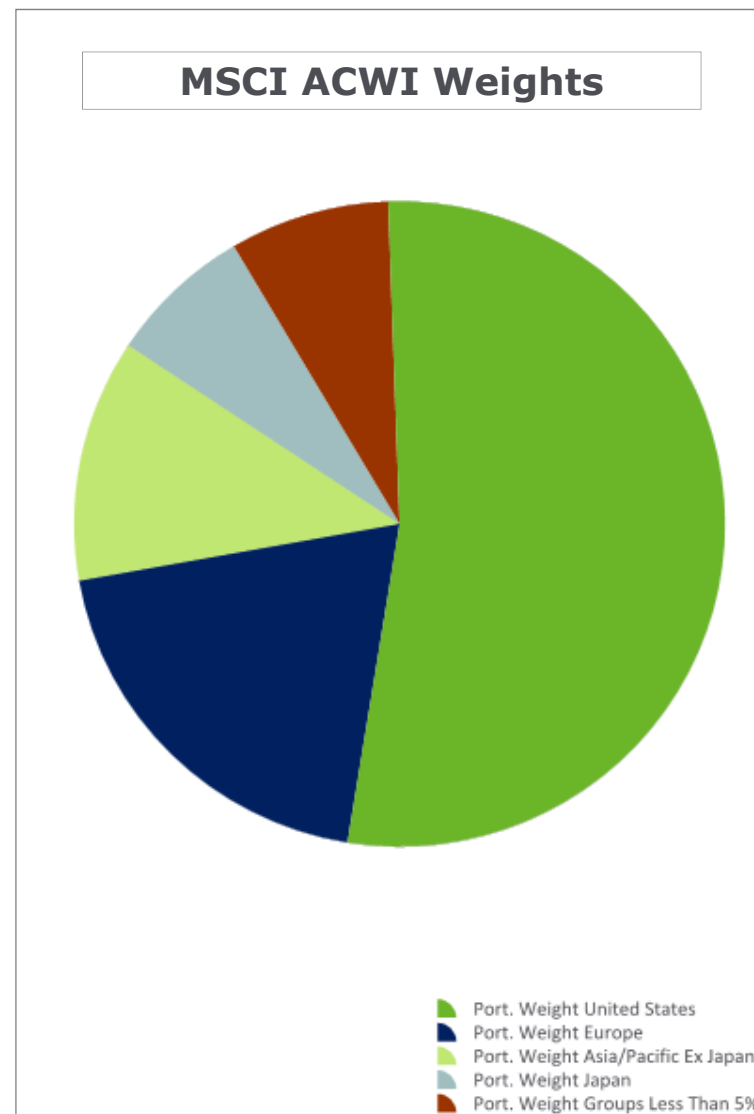
INDEX COMPOSITION

Return Contribution	MTD	QTD	YTD	Index Weight
S&P 500	7.0%	4.3%	18.5%	100.0%
Communication Services	0.4%	0.4%	1.9%	10.2%
Consumer Discretionary	0.8%	0.5%	2.2%	10.2%
Consumer Staples	0.4%	0.3%	1.2%	7.3%
Energy	0.5%	-0.2%	0.8%	5.0%
Financials	0.9%	1.0%	2.3%	13.1%
Health Care	0.9%	0.2%	1.3%	14.2%
Industrials	0.7%	0.3%	2.0%	9.4%
Information Technology	1.9%	1.3%	5.3%	21.5%
Materials	0.3%	0.2%	0.5%	2.8%
Real Estate	0.1%	0.1%	0.6%	3.1%
Utilities	0.1%	0.1%	0.5%	3.3%

Source: FactSet

Return Contribution	MTD	QTD	YTD	Index Weight
MSCI ACWI	6.5%	3.6%	16.2%	100.0%
Communication Services	0.4%	0.3%	1.3%	8.7%
Consumer Discretionary	0.9%	0.5%	1.9%	10.8%
Consumer Staples	0.4%	0.2%	1.2%	8.3%
Energy	0.4%	-0.1%	0.9%	5.9%
Financials	1.0%	1.0%	2.5%	16.9%
Health Care	0.8%	0.2%	1.2%	11.4%
Industrials	0.8%	0.5%	2.0%	10.5%
Information Technology	1.3%	0.8%	3.6%	16.0%
Materials	0.5%	0.2%	0.8%	4.9%
Real Estate	0.1%	0.0%	0.5%	3.2%
Utilities	0.1%	0.1%	0.4%	3.3%

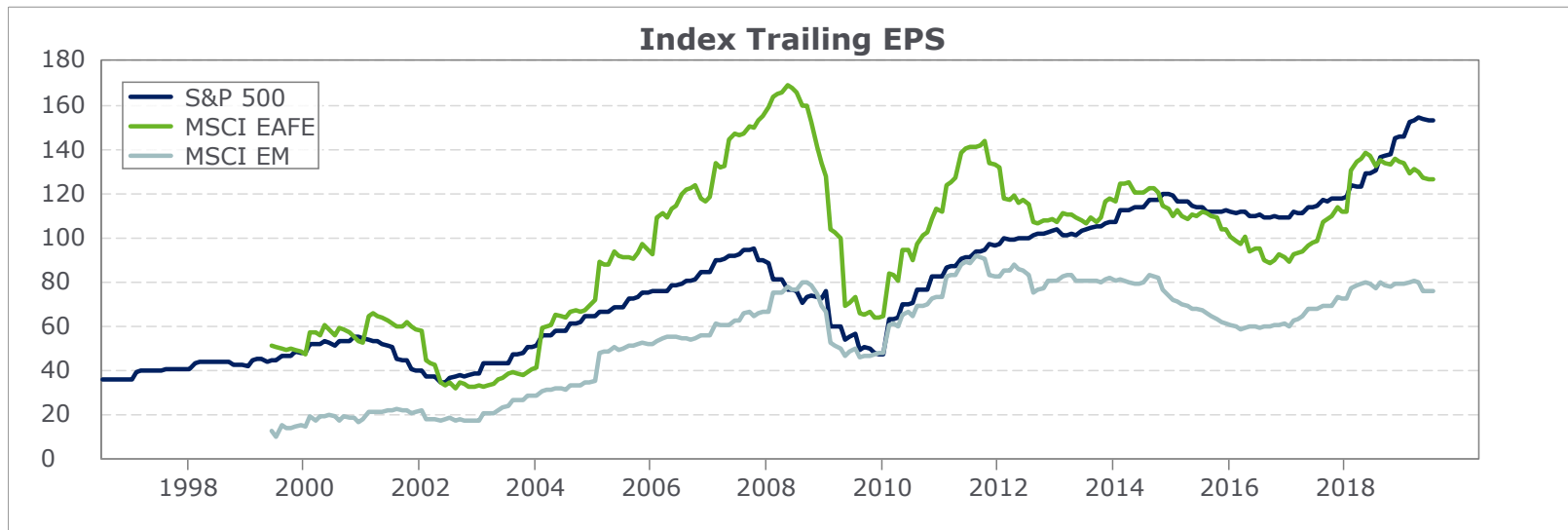
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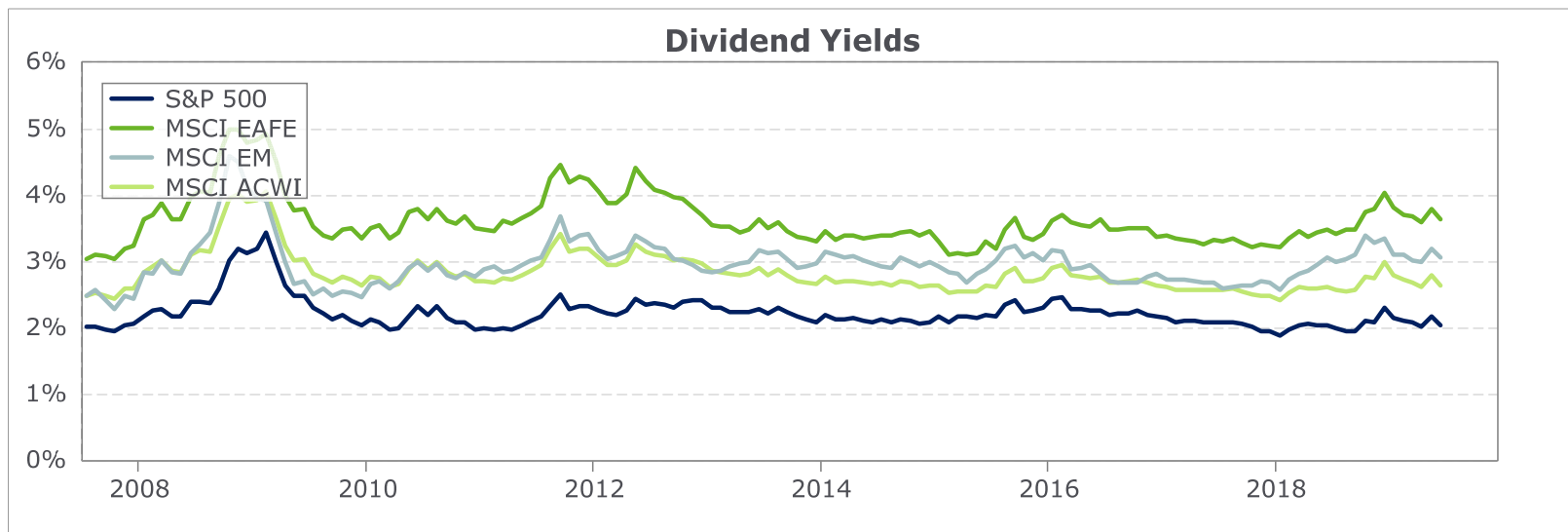
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EARNINGS & YIELDS



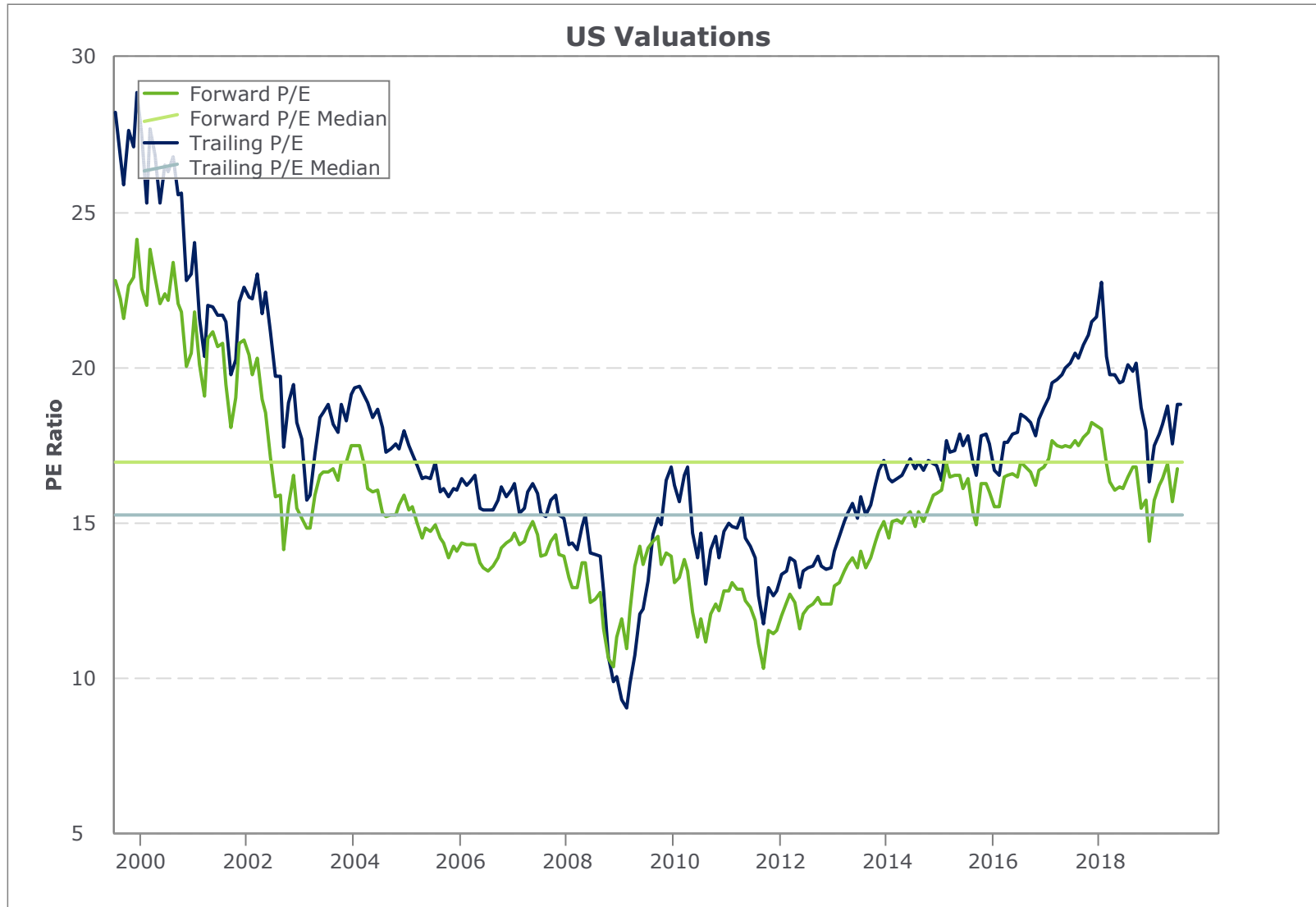
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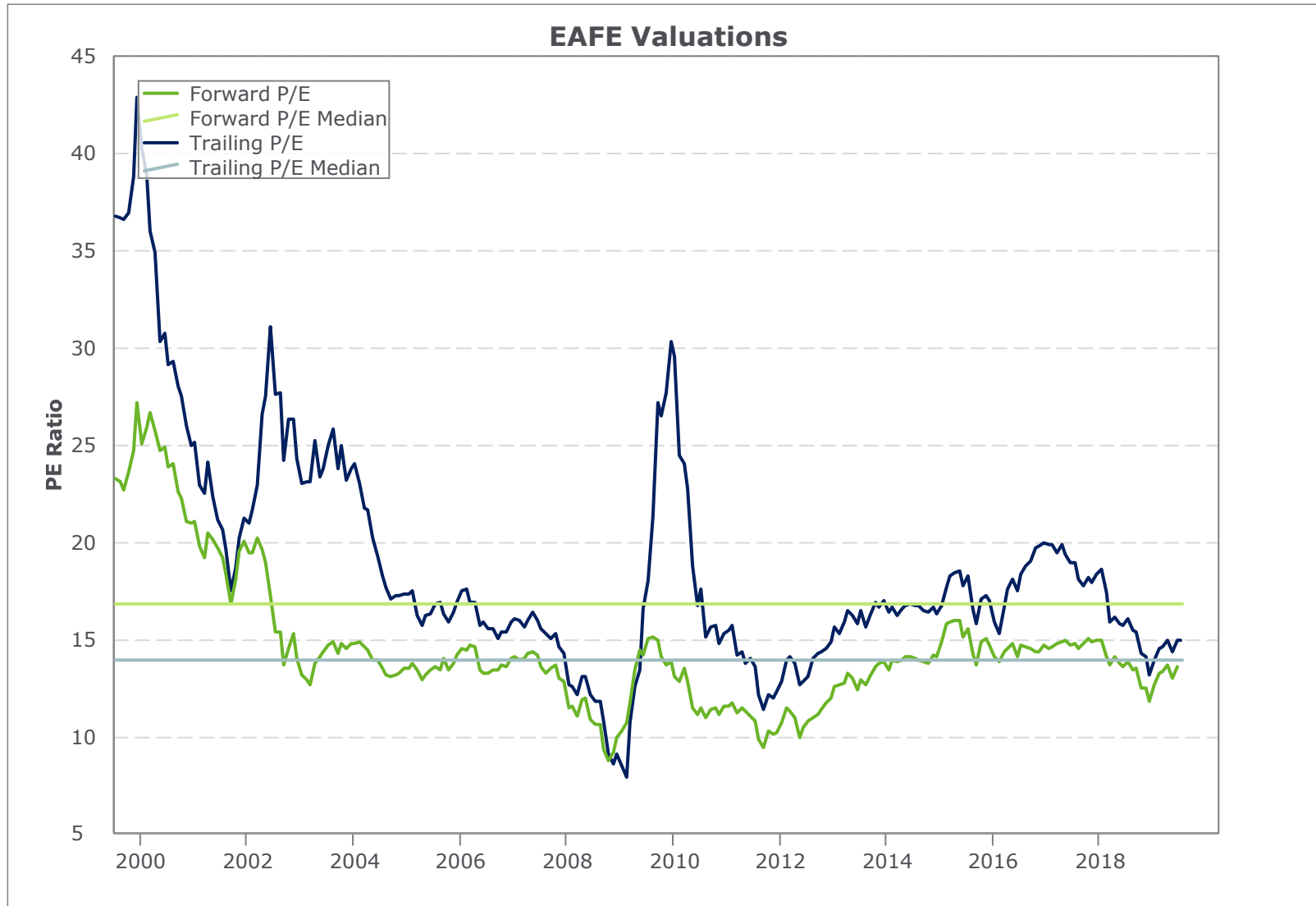
US EQUITY VALUATIONS



Source: FactSet



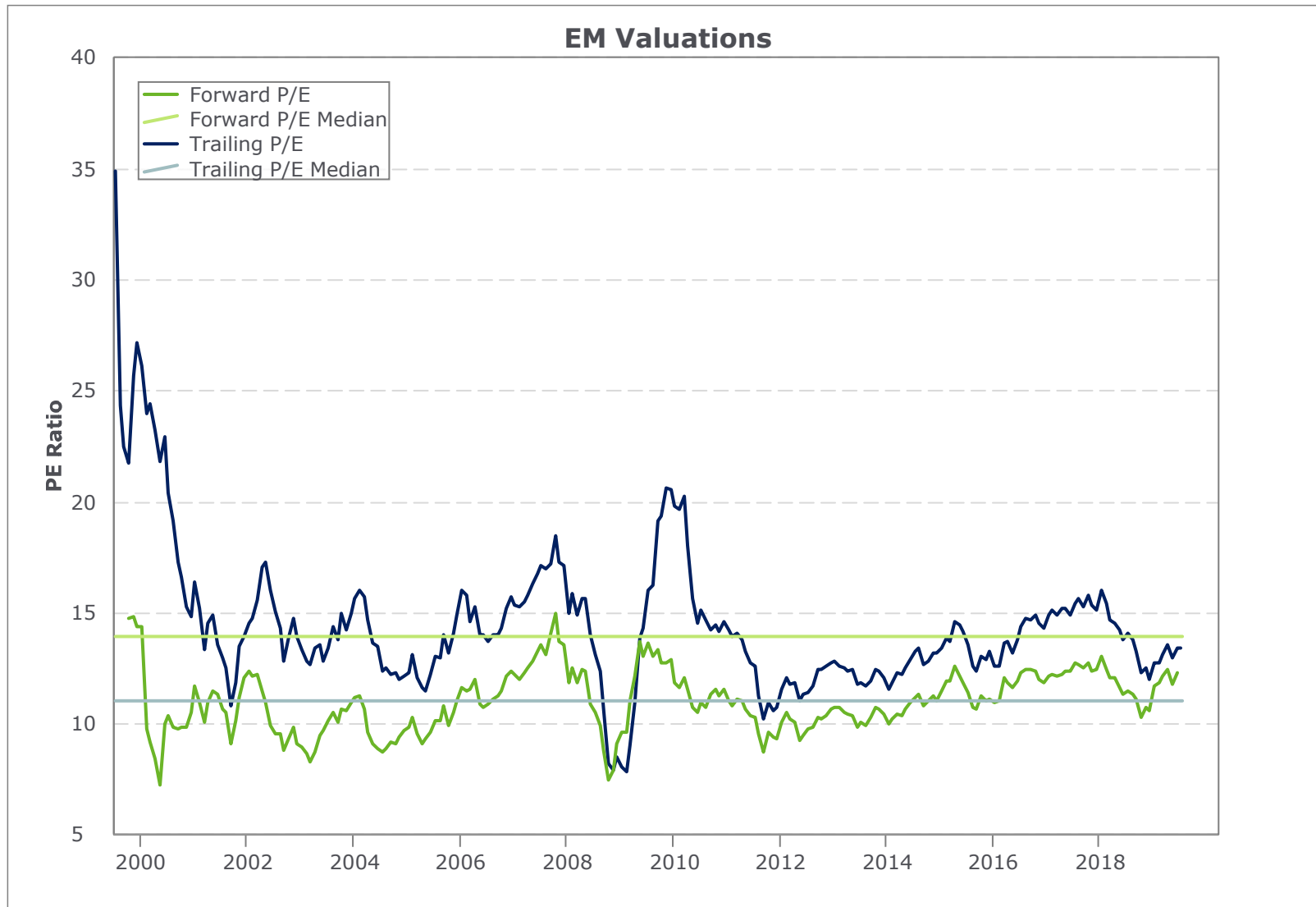
EAFE EQUITY VALUATIONS



Source: FactSet



EM EQUITY VALUATIONS



Source: FactSet



CREDIT

NEPC, LLC

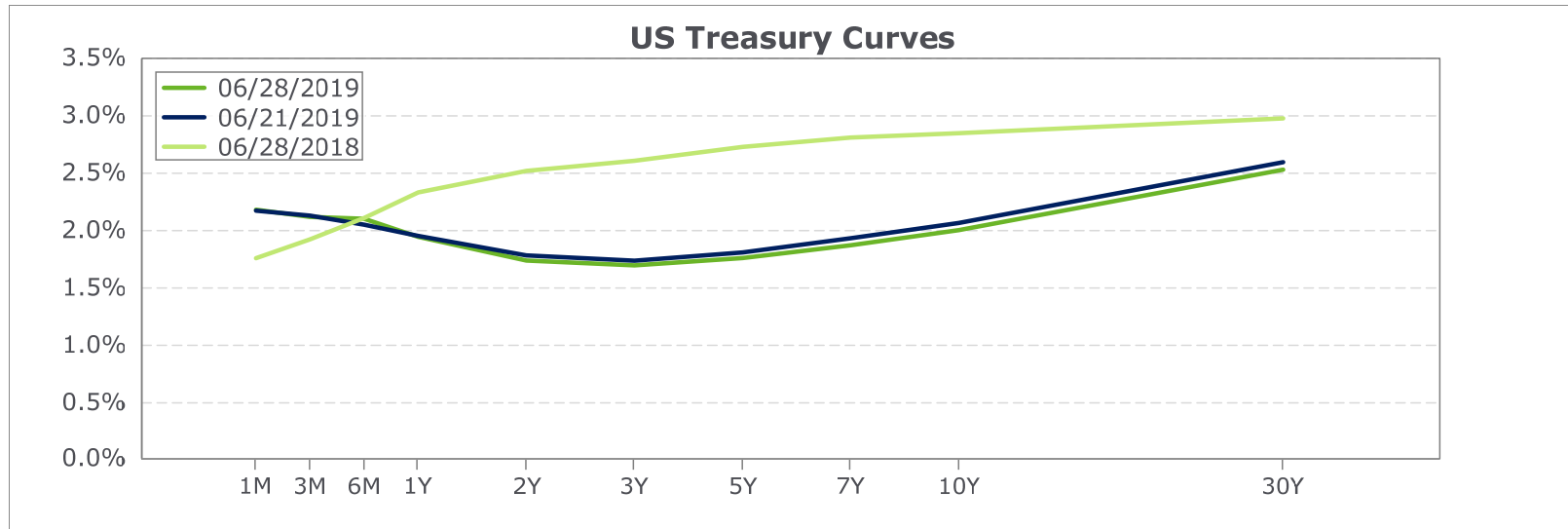
FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	2.49%	46	5.7	1.3%	6.1%	7.9%
Barclays Treasury	1.92%	-	6.4	0.9%	5.2%	7.2%
Barclays Agency	2.07%	14	4.0	0.7%	4.2%	6.1%
Barclays MBS	2.70%	46	3.2	0.7%	4.2%	6.2%
Barclays ABS	2.21%	41	2.2	0.4%	3.2%	5.0%
Barclays CMBS	2.38%	52	5.4	1.0%	6.1%	8.6%
Barclays Corp IG	3.16%	115	7.6	2.4%	9.9%	10.7%
Barclays Muni	2.02%	-	5.5	0.4%	5.1%	6.7%
Barclays HY Muni	4.41%	-	8.0	0.5%	6.7%	7.8%
Barclays TIPS	2.11%	-	1.1	0.9%	6.2%	4.8%
Barclays HY	5.87%	377	3.2	2.3%	9.9%	7.5%
Barclays Global Agg	1.48%	46	7.1	2.2%	5.6%	5.8%
JPM EMBI Glob Div	-	345	7.1	3.4%	11.3%	12.4%
JPM GBI - EM	5.23%	-	5.3	5.5%	8.7%	9.0%

Source: FactSet



TREASURIES



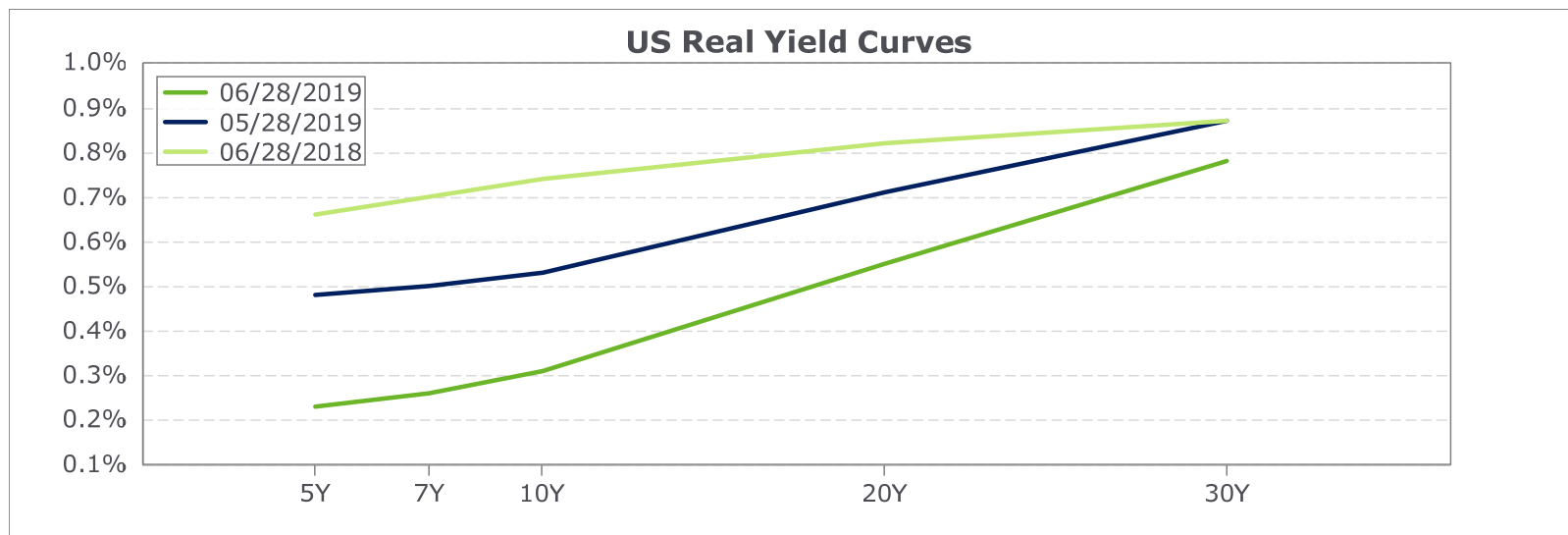
Source: FactSet

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	2.12%	2.35%	1.91%	0.23%	2.26%
6M Treasury	2.10%	2.36%	2.11%	0.24%	2.40%
2Y Treasury	1.73%	1.95%	2.52%	0.77%	3.40%
5Y Treasury	1.75%	1.93%	2.73%	1.79%	6.30%
10Y Treasury	2.00%	2.14%	2.85%	3.35%	8.81%
30Y Treasury	2.53%	2.58%	2.99%	7.52%	11.65%

Source: FactSet



REAL YIELDS



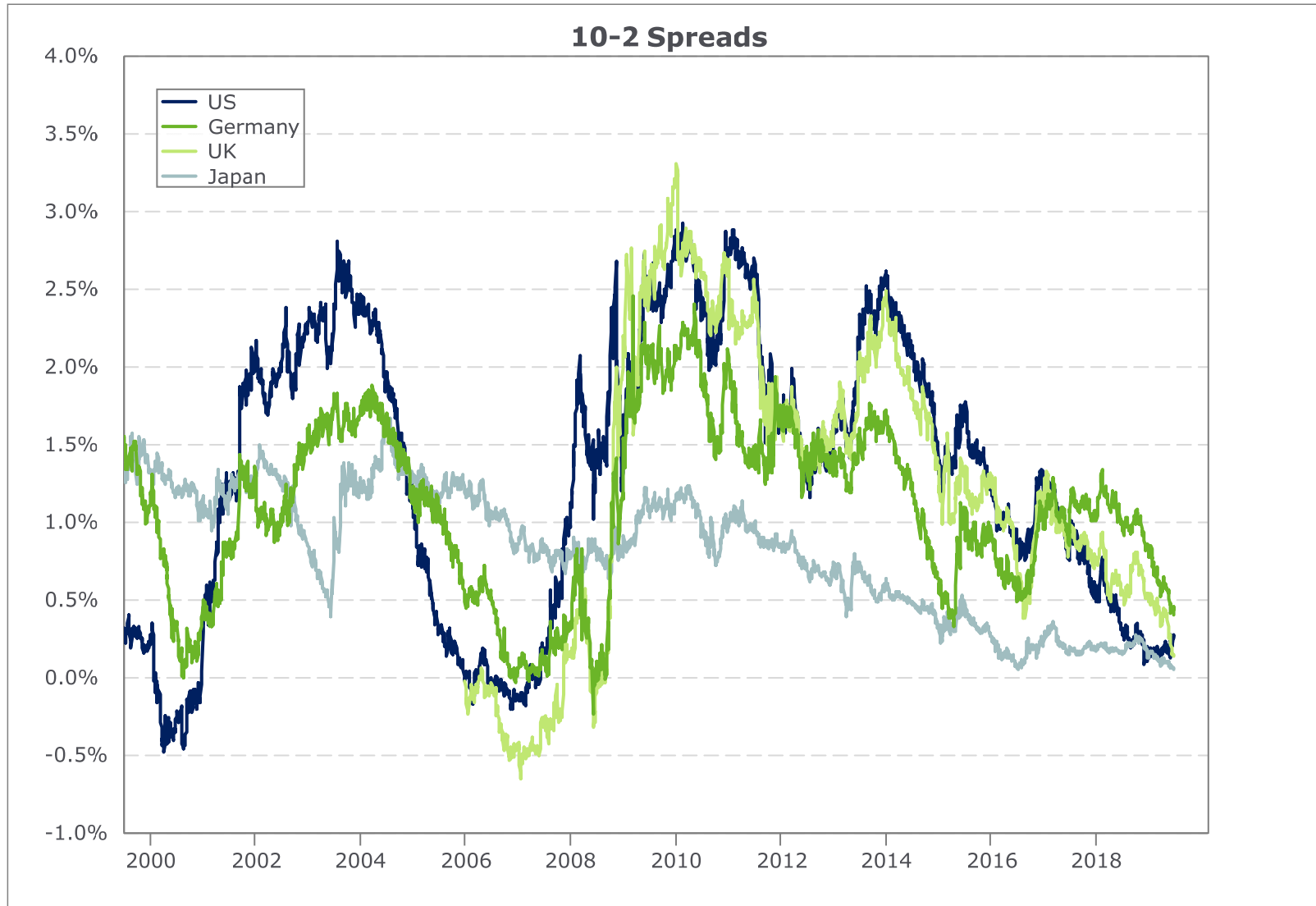
Source: FactSet

	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months Ago
2-Year	-0.35%	0.04%	-0.42%	1.39%	2.09%
5-Year	-0.39%	-0.02%	-0.33%	1.30%	2.27%
10-Year	-0.33%	0.00%	-0.21%	1.43%	2.51%
20-Year	-0.21%	0.08%	-0.13%	1.65%	2.68%
30-Year	-0.08%	0.18%	-0.09%	1.92%	2.75%

Source: FactSet



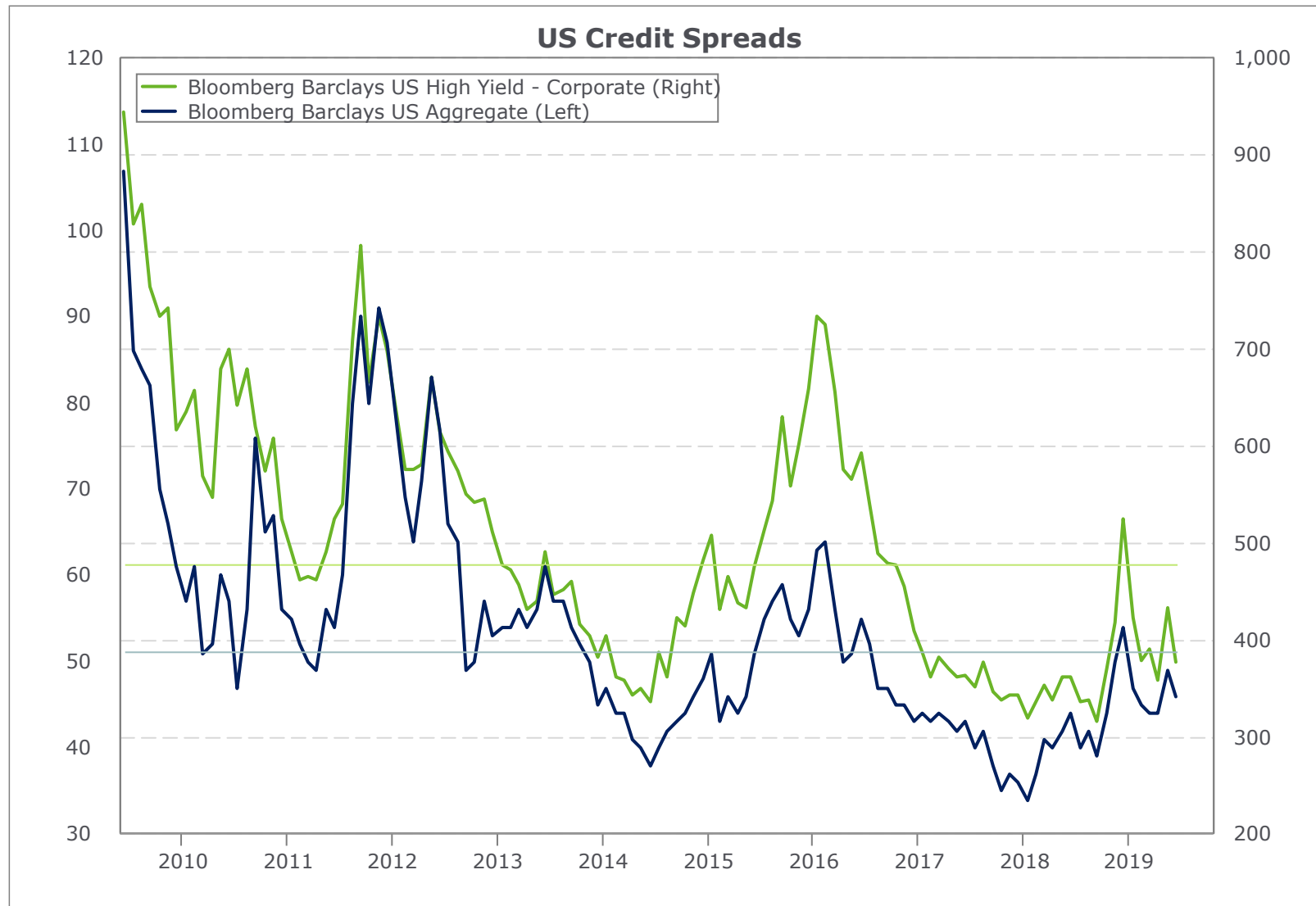
NOMINAL YIELDS



Source: FactSet



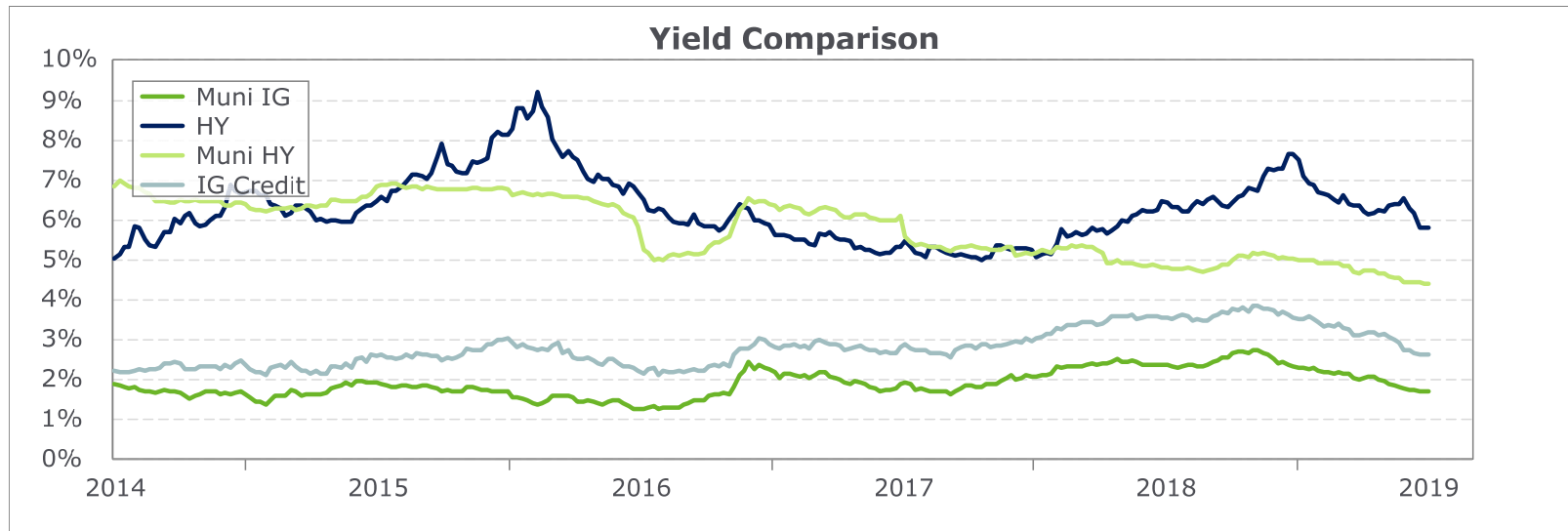
CREDIT SPREADS



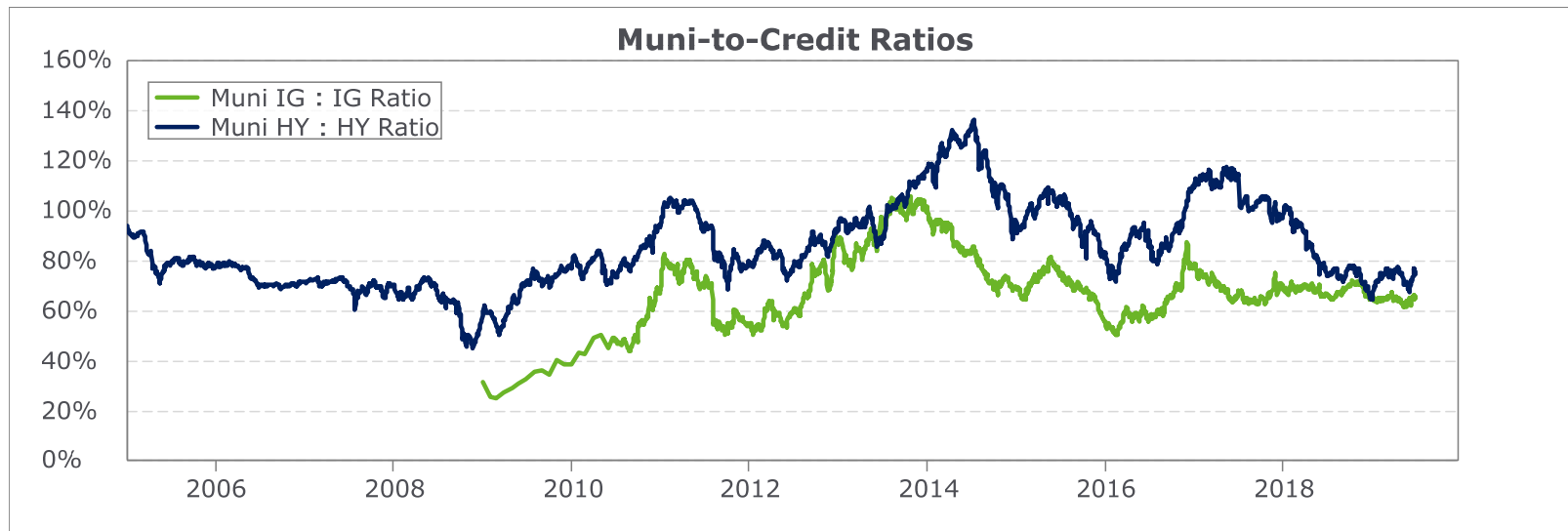
Source: FactSet



MUNICIPAL BOND RATIOS



Source: FactSet



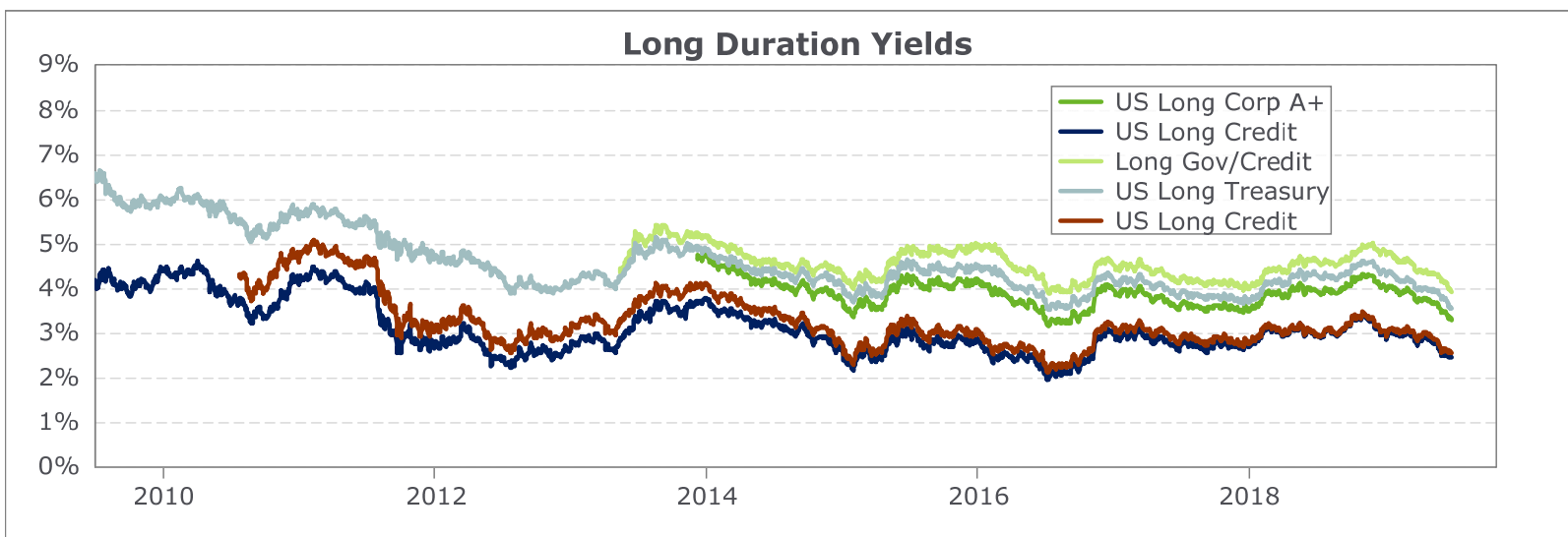
Source: FactSet



LONG DURATION

Index	Month-End Yield	1 Month Prior Yield	1 Year Prior Yield	Duration
Barclays Long Treasury	2.5%	2.9%	3.0%	17.9
Barclays 20+ STRIPS	2.6%	3.0%	3.0%	26.2
Barclays Long Gov/Credit	3.9%	4.2%	4.7%	13.9
Barclays Long Credit	3.3%	3.5%	4.0%	15.6
Barclays Long Corp A+	3.6%	3.8%	4.3%	14.8

Source: FactSet



Source: FactSet



REAL ASSETS

NEPC, LLC

REAL ASSETS INDEX PERFORMANCE

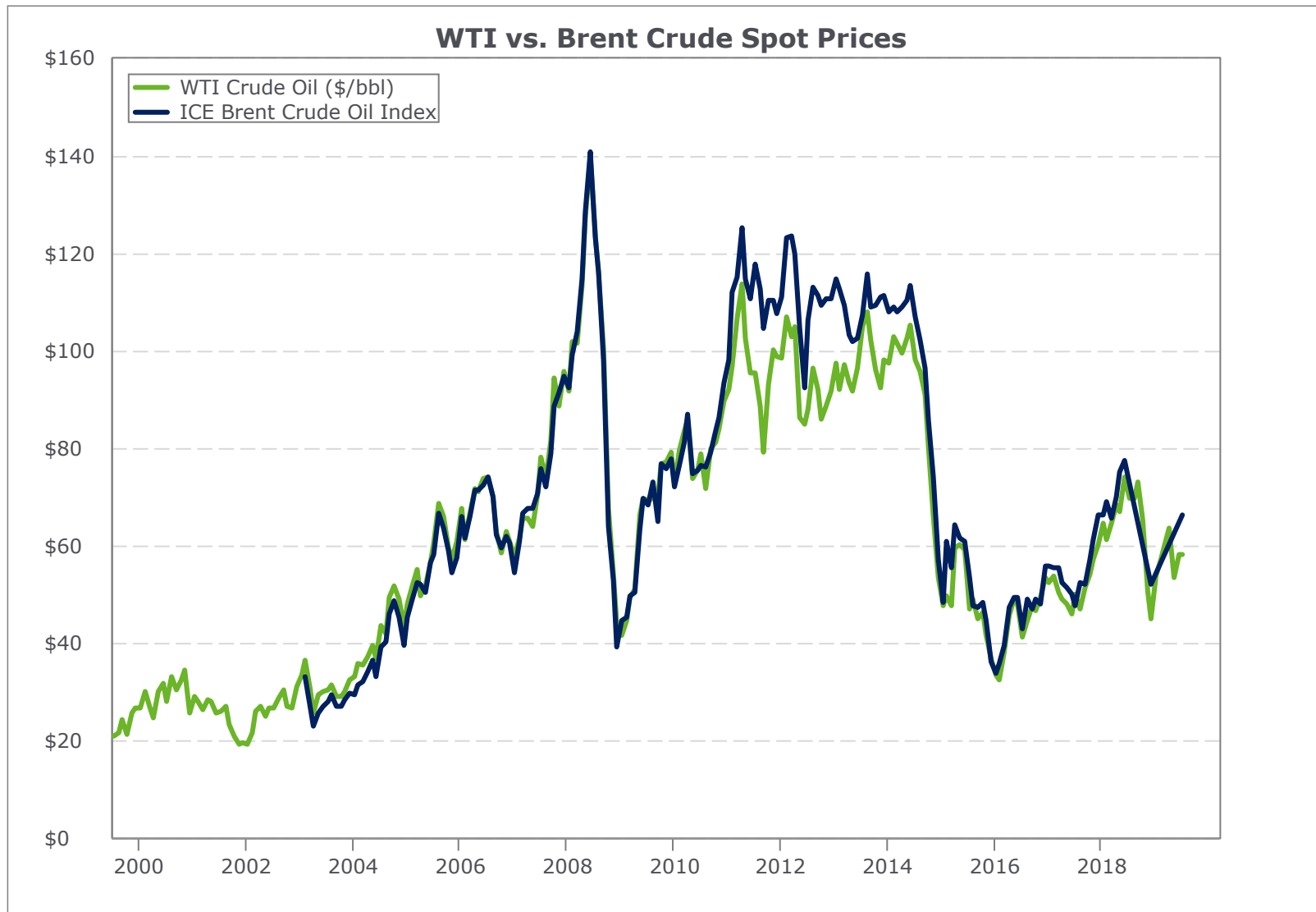
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	2.7%	-1.2%	5.1%	-6.8%	-2.2%	-9.1%
Bloomberg Agriculture Index	0.5%	4.5%	1.2%	-4.2%	-10.3%	-9.7%
Coffee	2.2%	10.6%	0.2%	-15.6%	-17.8%	-17.6%
Corn	-2.2%	14.9%	7.6%	6.1%	-6.3%	-10.1%
Cotton	-2.0%	-14.2%	-8.9%	-22.4%	1.3%	-1.9%
Soybean	2.1%	0.3%	-1.8%	-2.0%	-12.0%	-7.4%
Soybean Oil	2.3%	-1.2%	0.1%	-6.7%	-7.1%	-9.6%
Sugar	2.4%	-1.7%	4.0%	-3.4%	-18.8%	-14.1%
Wheat	4.2%	14.0%	3.8%	-0.6%	-7.7%	-11.4%
Bloomberg Energy	4.0%	-4.6%	10.6%	-14.3%	-0.5%	-18.1%
Brent Crude	6.0%	-0.9%	24.1%	-14.2%	8.3%	-16.1%
Heating Oil	5.1%	-1.8%	17.2%	-10.4%	6.9%	-11.7%
Natural Gas	-6.1%	-16.2%	-22.8%	-20.6%	-19.2%	-27.5%
Unleaded Gas	8.5%	5.2%	33.2%	-12.0%	4.8%	-13.5%
WTI Crude Oil	8.8%	-2.8%	26.5%	-18.4%	2.5%	-19.8%
Bloomberg Industrial Metals	2.0%	-7.2%	4.7%	-11.0%	6.4%	-3.0%
Aluminum	0.0%	-6.8%	-3.8%	-16.5%	2.1%	-3.2%
Copper	2.9%	-7.3%	3.8%	-8.1%	6.1%	-4.2%
Nickel	5.7%	-2.2%	18.8%	-14.9%	9.5%	-8.8%
Zinc	-0.6%	-11.9%	6.2%	-4.2%	9.5%	3.6%
Bloomberg Precious Metals	7.3%	7.1%	7.2%	7.6%	-0.8%	-1.3%
Gold	8.0%	9.0%	10.0%	12.1%	1.5%	0.7%
Silver	5.0%	1.0%	-1.8%	-6.2%	-7.4%	-7.3%
Bloomberg Livestock	-3.5%	-11.0%	-6.8%	-3.5%	-2.5%	-7.1%
Lean Hogs	-10.0%	-13.9%	-8.0%	-10.9%	-9.1%	-14.6%
Live Cattle	1.4%	-8.9%	-6.8%	-0.1%	1.3%	-2.8%

Source: FactSet

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



OIL MARKETS



Source: FactSet



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