

# NEW JERSEY DIVISION OF INVESTMENT

**Directors Report**

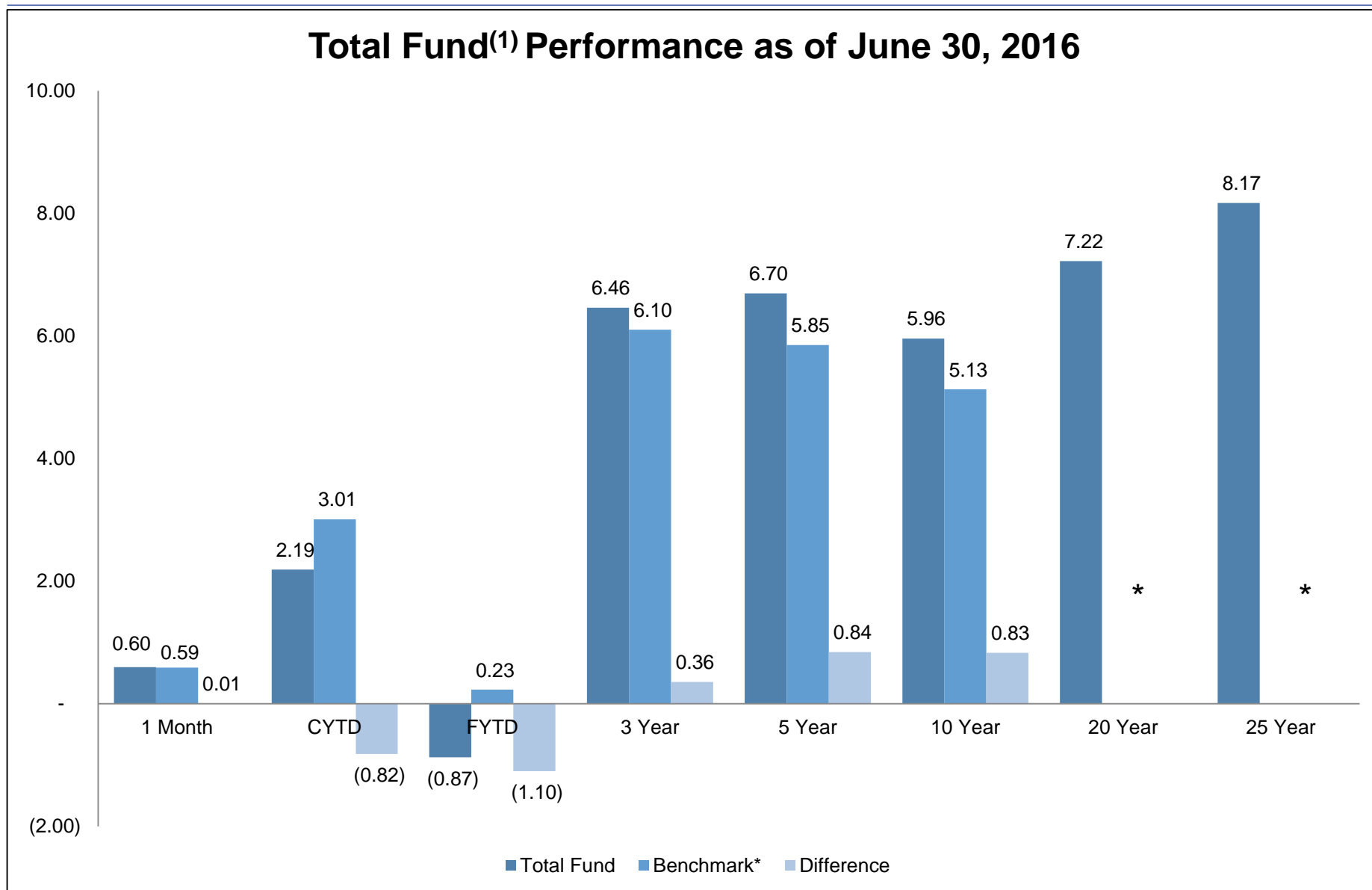
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**September 28, 2016**

**State Investment Council Meeting**

*“The mission of the New Jersey Division of Investment is to achieve the best possible return at an acceptable level of risk using the highest fiduciary standards.”*

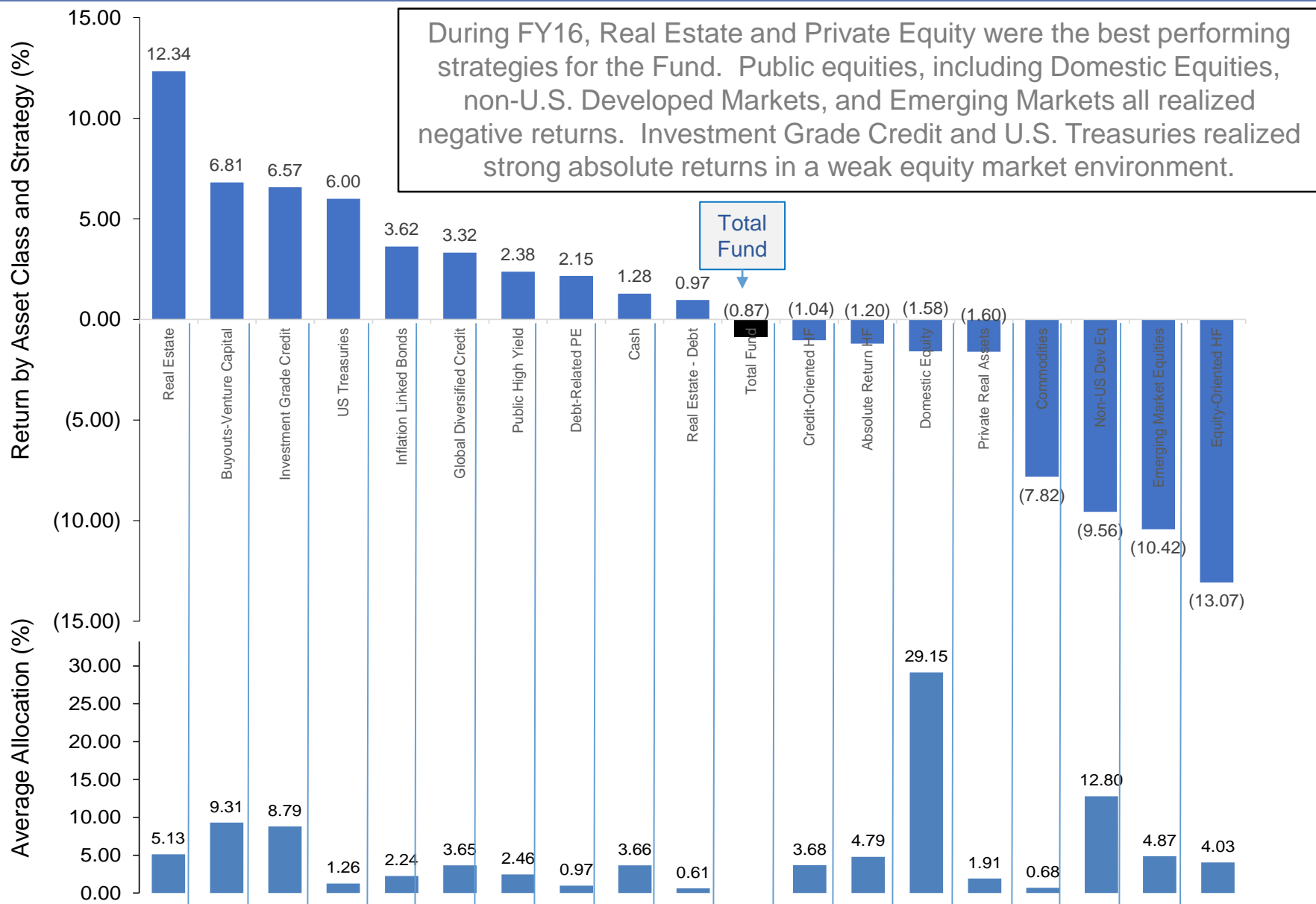
## Total Fund<sup>(1)</sup> Performance for Periods Ended June 30, 2016



(1) Pension Fund return excludes Police and Fire Mortgage Program; Returns are Unaudited as of 9/9/16

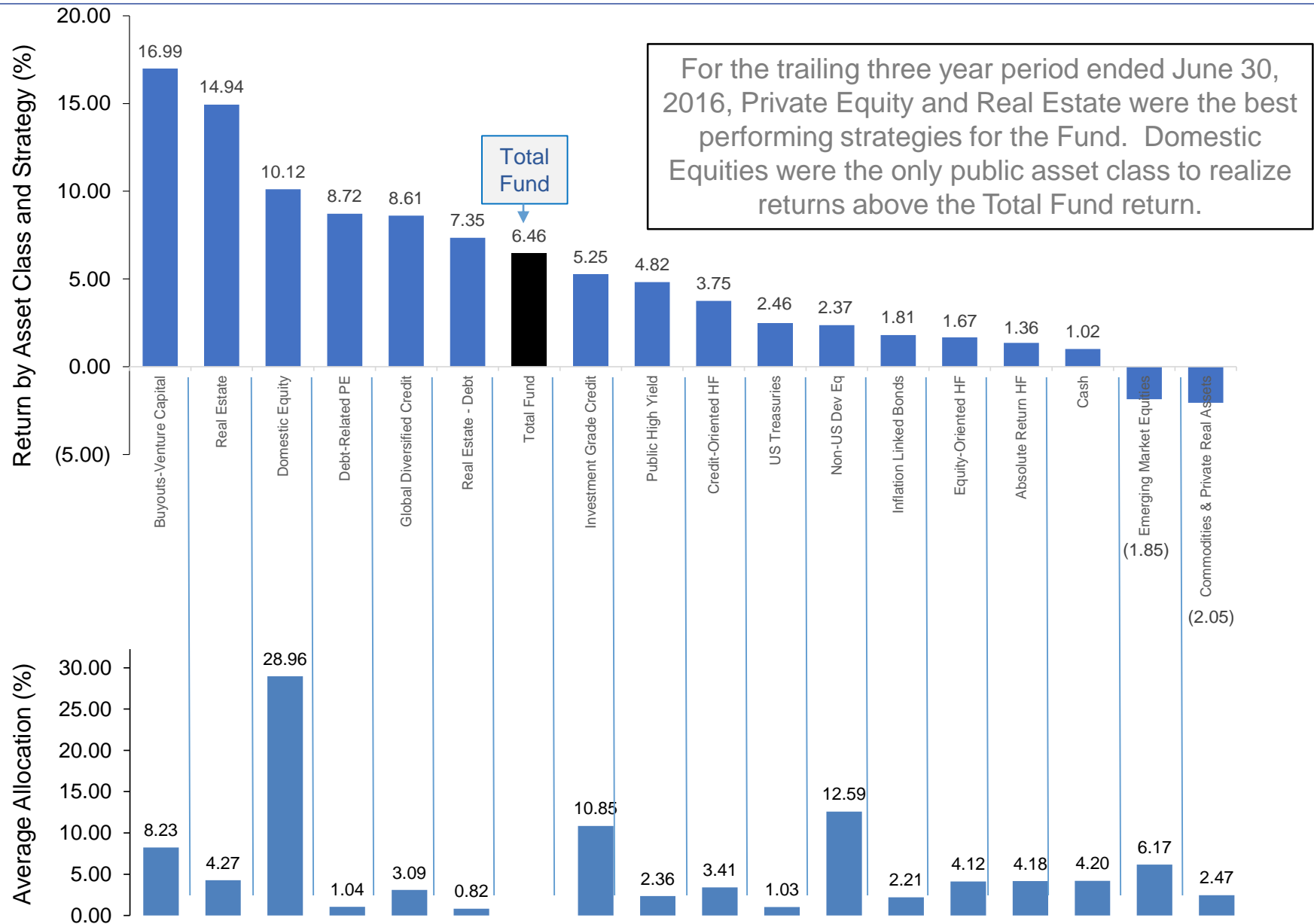
\*Benchmark return not available for 20 and 25-Year period

## Pension Fund Returns<sup>(1)</sup> By Asset Class and Strategy: Fiscal Year 2016



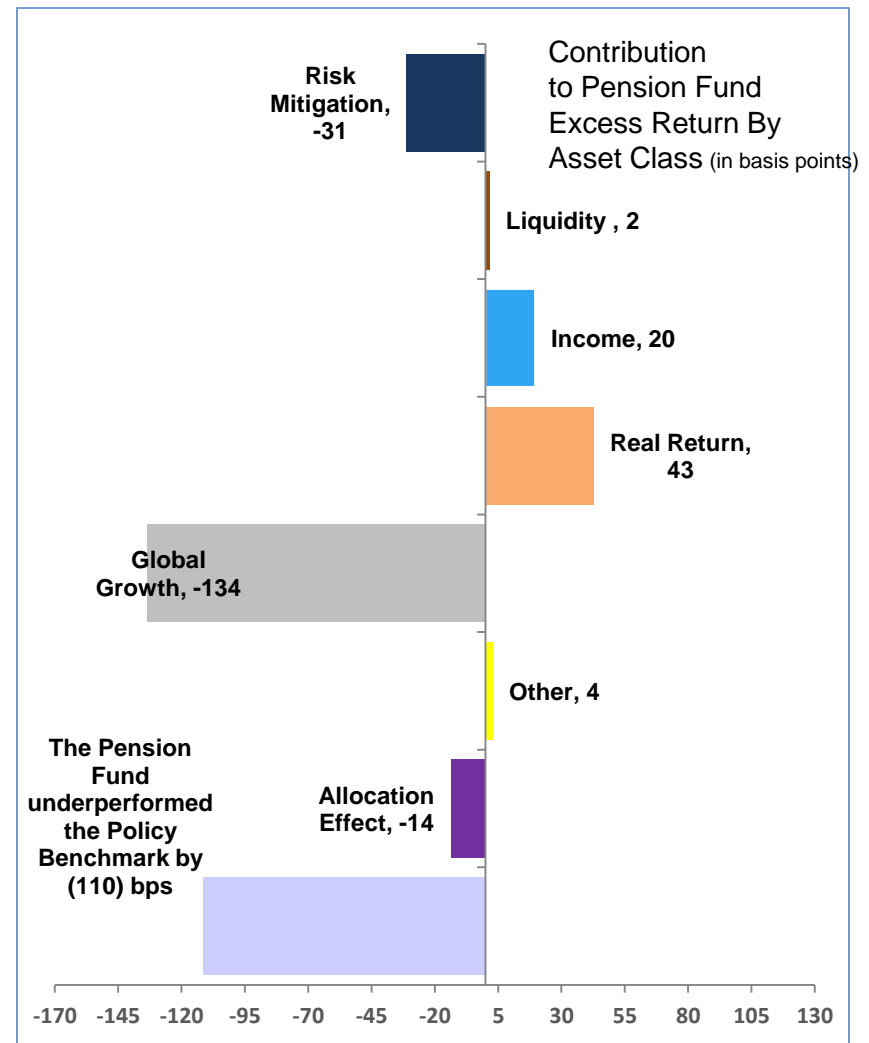
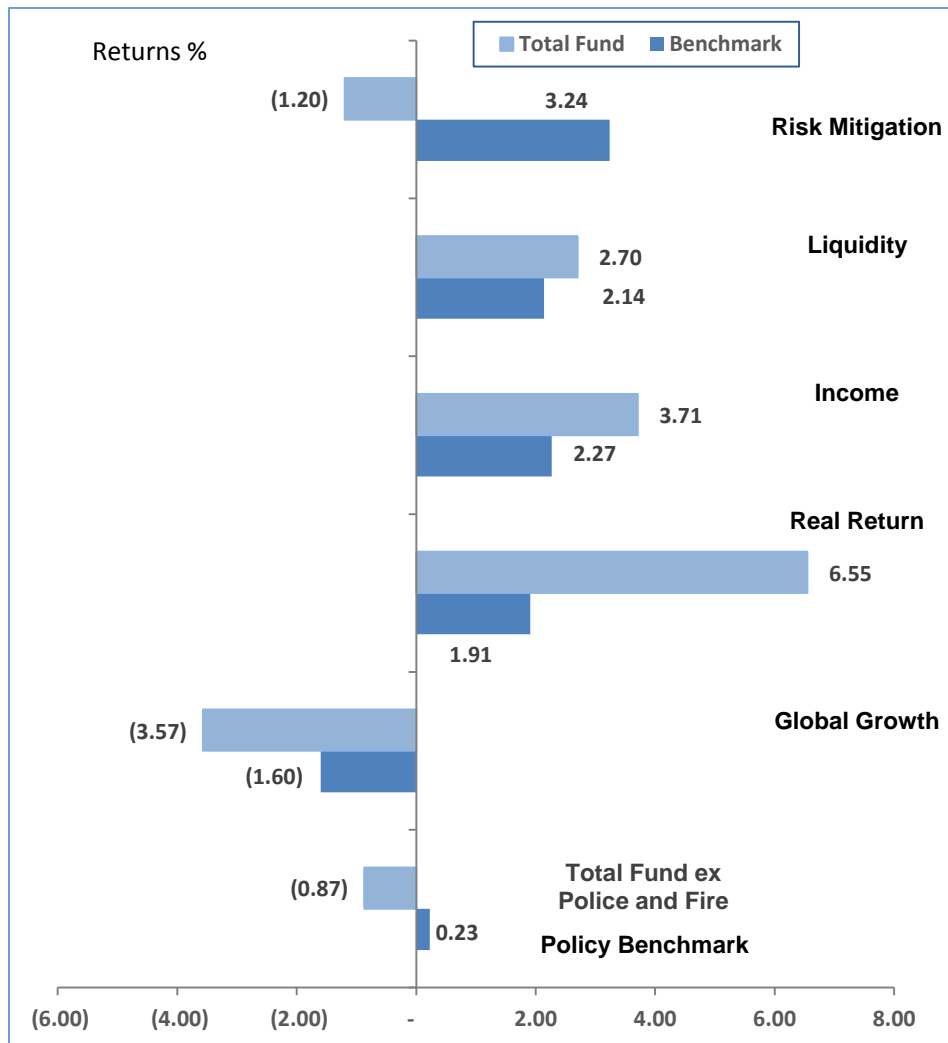
(1) Returns are unaudited. Pension Fund return excludes Police and Fire Mortgage Program.

# Pension Fund Returns<sup>(1)</sup> By Asset Class and Strategy: Three Year Period Ended June 30, 2016



(1) Returns are unaudited. Pension Fund return excludes Police and Fire Mortgage Program.

## Total Fund Attribution versus Policy Benchmark: Fiscal Year 2016<sup>(1)</sup>

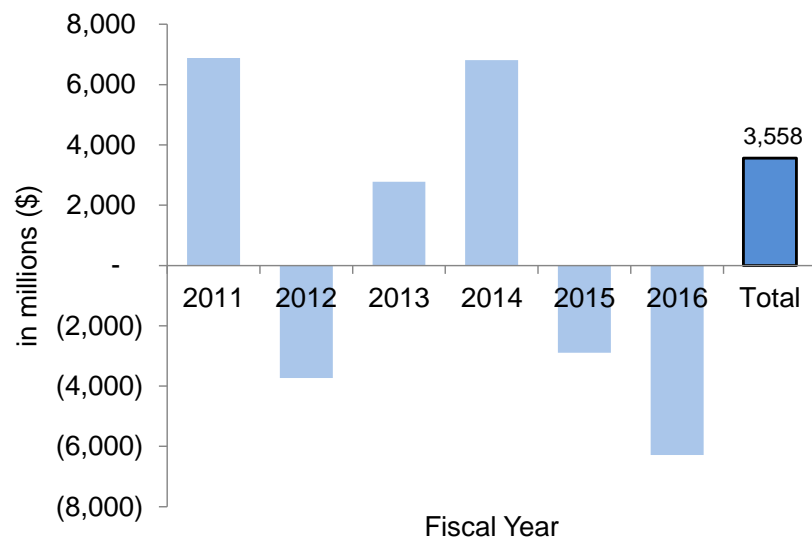


During FY16, underperformance within the U.S. Equity, Equity-Related Hedge Fund and Risk Mitigation portfolios adversely impacted returns relative to the Policy Benchmark. This was partially offset by outperformance within the Real Return portfolio.

(1) Returns are unaudited. Pension Fund return excludes Police and Fire Mortgage Program.

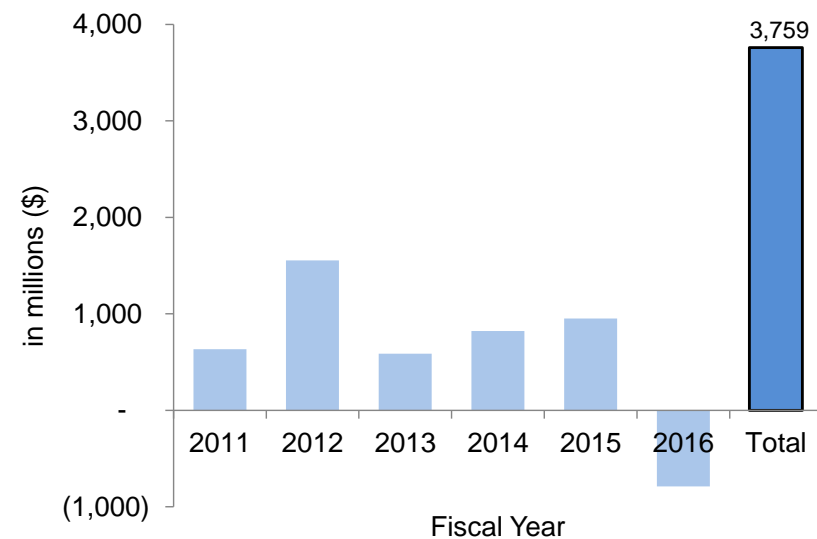
## Value Added Through Alpha Generation Over Time

Value Added  
Outperformance versus Assumption Rate<sup>(1)</sup>



Over the last six fiscal years, outperformance versus the assumption rate has generated approximately \$3.6 billion of additional value for the Pension Fund.

Value Added  
Outperformance versus Policy Benchmark<sup>(1)</sup>



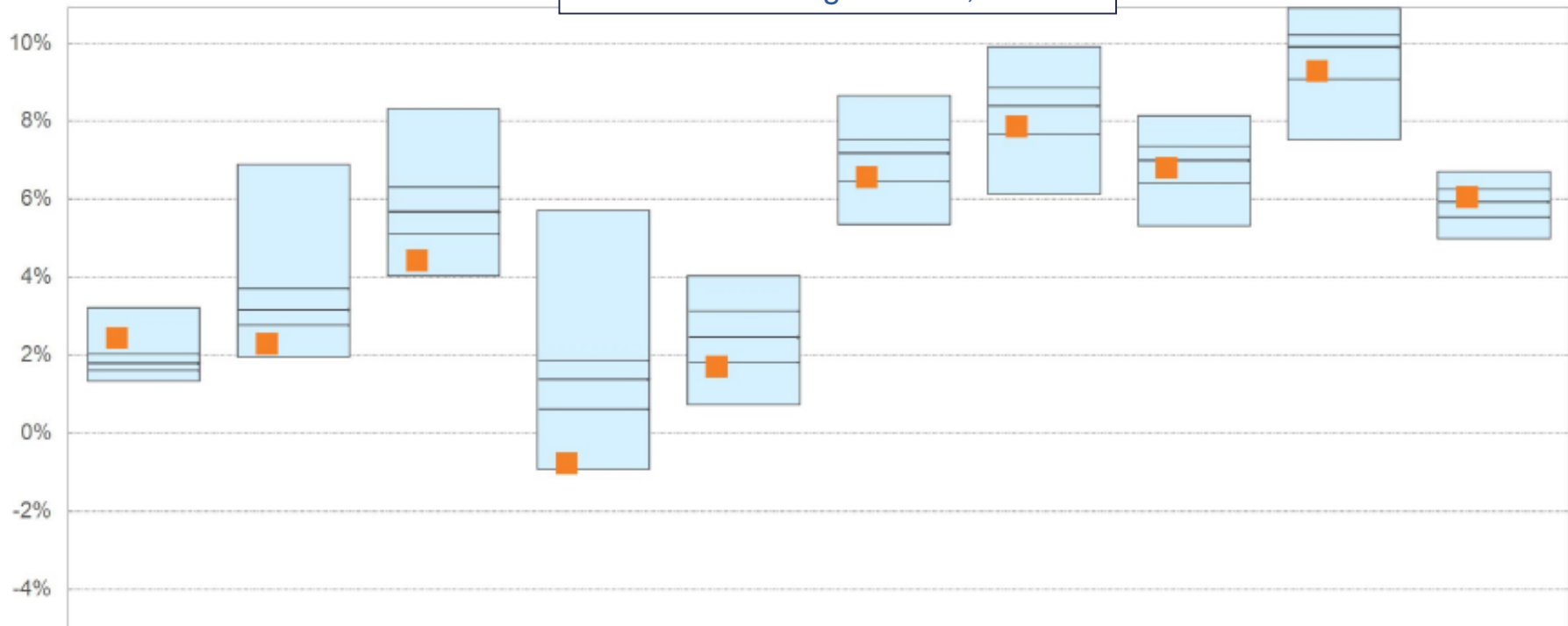
Over the last six fiscal years, outperformance versus the Total Fund Policy Benchmark has generated approximately \$3.8 billion of additional value for the Pension Fund.

Notwithstanding disappointing absolute and relative returns during FY16, the Fund has added value over the longer term relative to both the statutory assumption rate (currently 7.9%) and the Policy Benchmark.

(1) Based on average fund balances for each fiscal year and unaudited FY16 Total Fund return

## NJ Pension Fund Performance Comparison versus Other Large Public Pension Funds<sup>(1)</sup>

Periods Ending June 30, 2016



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	3.22	6.89	8.31	5.71	4.04	8.66	9.90	8.14	10.90	6.71
25th	2.04	3.71	6.32	1.86	3.13	7.52	8.87	7.36	10.22	6.27
50th	1.79	3.16	5.68	1.38	2.47	7.18	8.40	7.00	9.91	5.93
75th	1.60	2.77	5.12	0.62	1.82	6.46	7.67	6.41	9.08	5.54
95th	1.34	1.95	4.03	-0.92	0.73	5.36	6.14	5.32	7.52	5.00

No. Of Obs	49	49	49	49	49	49	49	49	45	45
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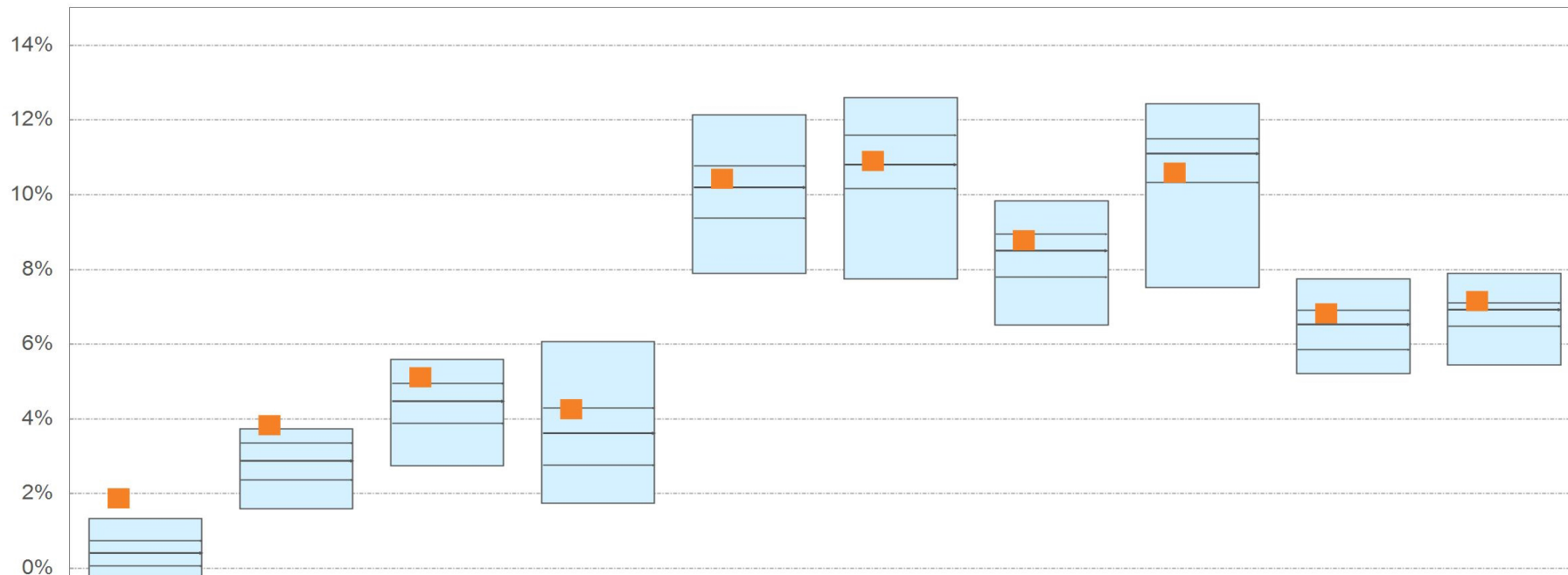
<span style="color: orange;">■</span> Total Pension Fund ex	2.34 (11)	2.19 (90)	4.32 (90)	-0.87 (94)	1.61 (83)	6.46 (75)	7.77 (68)	6.70 (60)	9.19 (70)	5.96 (43)
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The Fund's return ranked in the bottom quartile for the fiscal year among public plans with assets over \$10 billion. For longer-term periods, the Fund ranks more in line with the median large public pension plan.

(1) Based on Wilshire Trust Universe Comparison Service® (TUCS®) comparison of all public plans in its universe with AUM in excess of \$10 billion

# NJ Pension Fund Performance Comparison versus Other Large Public Pension Funds<sup>(1)</sup>

Periods Ending June 30, 2015



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	1.34	3.73	5.60	6.07	12.13	12.60	9.84	12.44	7.75	7.90
25th	0.74	3.35	4.95	4.30	10.77	11.59	8.95	11.50	6.90	7.10
50th	0.41	2.87	4.48	3.61	10.20	10.80	8.50	11.10	6.53	6.92
75th	0.07	2.36	3.88	2.77	9.37	10.17	7.79	10.33	5.85	6.48
95th	-0.28	1.59	2.74	1.74	7.90	7.74	6.52	7.52	5.22	5.44
No. Of Obs	51	51	51	51	51	51	51	49	47	46
Total Pension Fund ex	1.77 (1)	3.74 (3)	5.02 (19)	4.16 (30)	10.33 (40)	10.81 (48)	8.68 (40)	10.49 (66)	6.73 (43)	7.05 (29)

A year ago, the Fund ranked above the median manager for the trailing 1-, 2-, 3-, 4-, 7-, and 10-year periods. The Fund has historically realized returns above the median manager, demonstrating the “point in time” sensitivity of current performance comparisons.



## Ten Year Comparison of Top 50% of State Pension Returns and Risks<sup>(1)</sup>

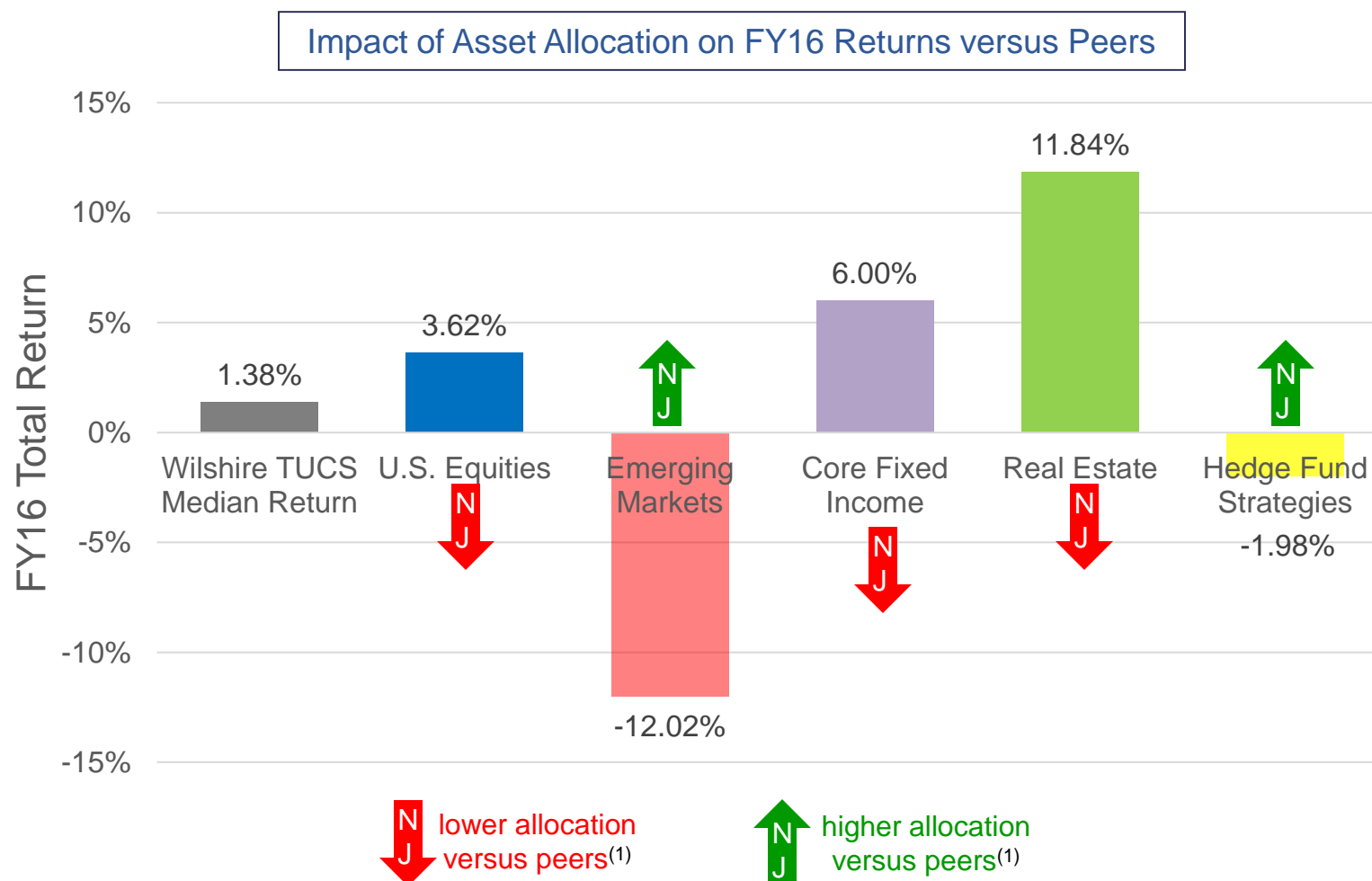
### Ten Years Ending June 30, 2015

	10 Year Return	10 Year Return/Risk
1 Oklahoma Teachers	8.3%	0.68
2 South Dakota	8.1%	0.67
3 Delaware	7.9%	0.66
4 Minnesota	7.8%	0.66
5 West Virginia	7.8%	0.66
6 Missouri Local	7.7%	0.65
7 Washington	7.6%	0.64
8 Kansas	7.4%	0.63
9 LASERS	7.4%	0.62
10 Louisiana TRS	7.4%	0.62
11 Ohio STRS	7.3%	0.62
12 Iowa PERS	7.2%	0.62
13 MPERS	7.2%	0.60
14 NYSTRS	7.2%	0.60
15 Arkansas PERS	7.2%	0.60
16 New Jersey	7.1%	0.59
17 CalStrs	7.0%	0.58
18 Idaho	7.0%	0.58
19 Kentucky TRS	7.0%	0.57
20 Mass PRIT/PRIM	7.0%	0.57
21 MOSERS	7.0%	0.56
22 Oklahoma PERS	7.0%	0.56
23 Oregon	7.0%	0.56
24 Hawaii	6.9%	0.56
25 Arizona	6.9%	0.56
26 Iowa Fire & Police	6.9%	0.55
27 Mississippi	6.9%	0.55
28 Nebraska	6.9%	0.55
29 Nevada	6.9%	0.55
30 New Hampshire	6.9%	0.54
31 New Mexico ERB	6.9%	0.54
32 Wisconsin	6.9%	0.54
33 Louisiana School	6.9%	0.54
34 Florida	6.9%	0.54

Based on a recently published analysis of state pension fund returns, the NJ Fund's long-term return ranks in the top quartile and the NJ Fund's long-term Sharpe Ratio ranks in the 4<sup>th</sup> percentile.

(1) Based on Cliffwater LLC's report entitled *An Examination of State Pension Performance: 2006 to 2015* that includes a universe of 68 state funds and was published on September 6, 2016

## NJ Pension Fund Performance Attribution versus Other Large Public Pension Funds

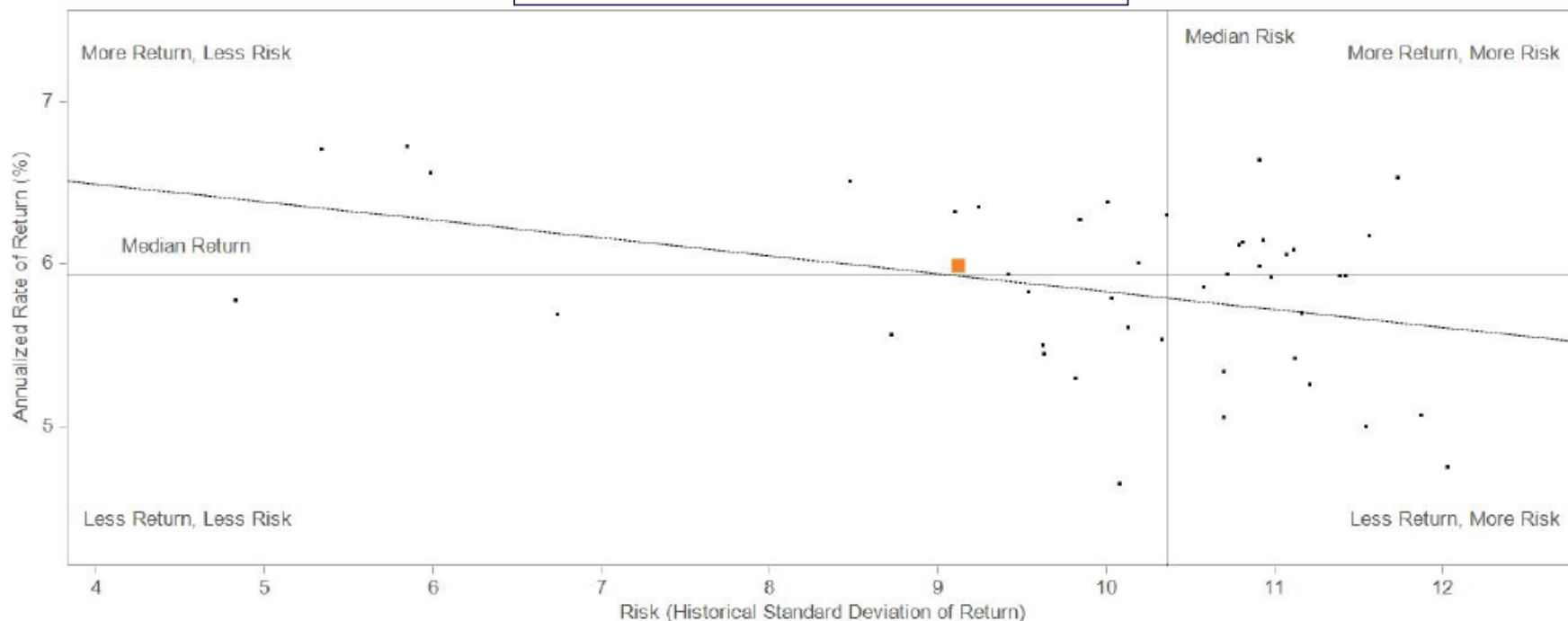


Asset allocation adversely impacted the Fund's returns versus peers during FY16. The Fund had a lower allocation to some of the better performing strategies (e.g., Core Fixed Income, Real Estate, and U.S. Equities) and a higher allocation to some of the weaker performing strategies (e.g., Emerging Market Equities and Hedge Funds) versus peers.

<sup>(1)</sup> Based on review of available asset allocation data from various peer group universes provided by Aon Hewitt, Cliffwater LLC, Pension and Investments, and Wilshire

# NJ Pension Fund Risk-Adjusted Returns Comparison versus Other Large Public Pension Funds<sup>(1)</sup>

Ten Year Period Ending June 30, 2016



	Risk Value	Risk Rank	Return Value	Return Rank
■ Total Pension Fund ex Police	9.15	82	5.96	43
Median	10.36		5.93	

For Risk Rank- 100 is best; 1 is worst  
For Return Rank- 1 is best; 100 is worst

Over the last 10 years, the Fund has generated returns greater than the median peer fund while taking less risk than 82% of its peers

# The NJ Alternative Investments Program Has Outperformed on an Absolute and Risk-Adjusted Basis

## NJ Alternative Investments Program Five Year Performance Track Record

(Periods Ending 6/30/16)

	NJ Alternative Investments Program (A)	NJ Total Fund	NJ Total Fund excluding Alternative Investments Program (B)	Broader Market Return <sup>(1)</sup> 70% Global Stocks / 30% Fixed Income (C)	<u>Outperformance of NJ Alternative Investments Program</u> vs NJ Total Fund ex Alts (in basis points) (A) - (B)		vs Broader Market Return (in basis points) (A) - (C)
<u>Annualized Returns</u> (net of all fees)							
One Year	1.67%	-0.87%	-2.21%	-0.81%	388	248	
Two Years	4.73%	1.61%	0.02%	0.12%	471	461	
Three Years	8.10%	6.46%	5.54%	5.57%	255	253	
Four Years	9.10%	7.77%	7.00%	7.00%	210	210	
Five Years	7.56%	6.70%	6.14%	5.07%	142	249	
<u>Five Year Volatility</u>	4.58%	6.73%	8.33%	8.93%			
<u>Five Year Sharpe Ratio</u>	1.57	0.94	0.69	0.53			

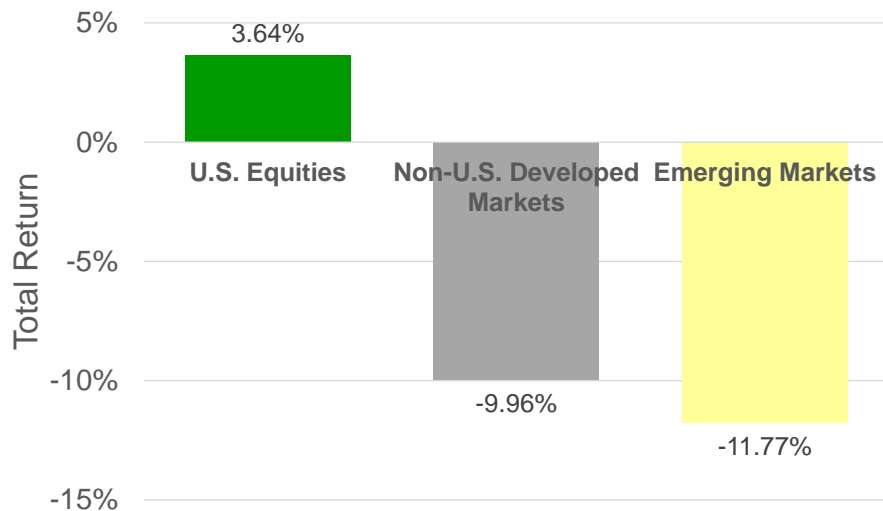
The Alternative Investments Program (net of all fees) has outperformed the broader Pension Fund and a mix of broader global public markets over all trailing time periods shown above on both an absolute and risk-adjusted basis. Over the past five years, the outperformance of the Alternative Investment Program has added \$1.9 billion of value for the Fund, net of all fees.

(1) Broader Market Return reflects performance of a portfolio comprised of 70% MSCI ACWI (net) and 30% Barclays Capital Aggregate Bond Index

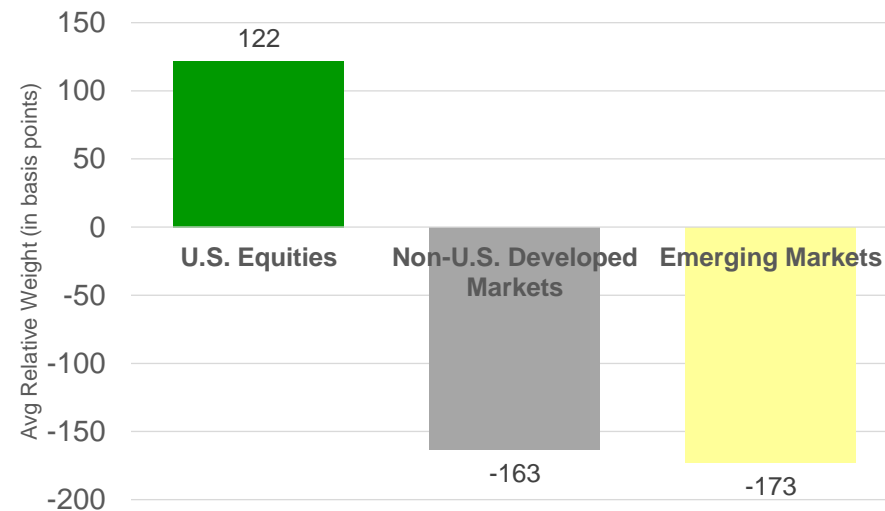
# Global Equity Portfolio Review and Outlook

## Fiscal Year 2016 Global Equity Returns and NJ Asset Allocation

### FY16 Global Equity Benchmark Returns



### FY16 Average Relative Weighting



During FY16, U.S. Equities outperformed Non-U.S. Developed Market and Emerging Market Equities by 13.60% and 15.41%, respectively.

Throughout FY16, the Fund maintained an overweight allocation to U.S. Equities and an underweight allocation to Non-U.S. Developed Market and Emerging Market Equities.

During FY16, tactical asset allocation added value within the global equity portfolio. The Pension Fund remained overweight U.S. Equities and underweight both Non-U.S. Developed and Emerging Market Equities throughout the fiscal year as U.S. Equities outperformed the global equity marketplace.

# Domestic Equity Portfolio Review and Outlook

## FY16 US Equity Portfolio Review and FY17 Key Investment Themes

- **During FY16, the U.S. Equity Portfolio returned -1.58% versus the Benchmark S&P 1500 return of +3.64%, marking just the second time in the past twelve years that the portfolio underperformed its benchmark.**
  - security selection was the key factor impacting relative returns as the market environment was a challenging one for the U.S. Equity Portfolio whose investment approach that emphasizes valuations and fundamentals
    - during FY16, valuations appeared to take a secondary role as some of the best performing stocks (i) trade at high multiples relative to historical norms, and (ii) have lower EPS growth prospects relative to the broader market
    - high dividend yielding stocks performed well as investors sought alternative sources of income in the midst of highly accommodative global monetary policies and historically low interest rates
  - other market themes that impacted security selection include outperformance of large caps and low volatility stocks
  - sector selection also adversely impacted returns, with higher dividend yielding sectors generally outperforming

➤ *The U.S. Equity Portfolio underperformed in a challenging investment environment, with returns impacted by security selection across all sectors of the equity market*
- **We remain committed to our investment process that emphasizes traditional valuation metrics and we believe our process will add value over time, particularly if there is a shift in market emphasis from income to valuations**
  - increased allocation to the Consumer Discretionary and Technology sectors reflects our view that these sectors should benefit from improving U.S. economic growth prospects
  - increased allocation to Health Care and Telecom are driven by dividend yields, reasonable valuations, and earnings growth
  - Energy and Materials remain a significant underweight based on global growth concerns
  - Utilities are underweight due to high valuations and low earnings growth prospects

➤ *During FY17, we expect to maintain our underweight commitment to the Utility and Consumer Staples Sectors due to valuation concerns, but we have established an overweight allocation to the Telecom Sector as telecom stocks continue to offer above average yields and reasonable valuations*



## U.S. Equity Portfolio Return By Fiscal Year

(Total Return in %)	New Jersey	S&P 1500 Benchmark	Relative outperformance
<u>Fiscal Year</u>	Division of Investment Domestic Equity Portfolio		(in basis points)
2005	7.49	7.23	26
2006	10.47	9.22	125
2007	20.56	20.22	34
2008	-10.16	-12.72	256
2009	-23.86	-26.34	248
2010	16.43	15.57	86
2011	33.40	31.65	175
2012	3.54	4.63	-109
2013	21.89	21.13	76
2014	26.23	24.70	153
2015	7.48	7.31	17
2016	-1.58	3.64	-522

### Annualized Returns

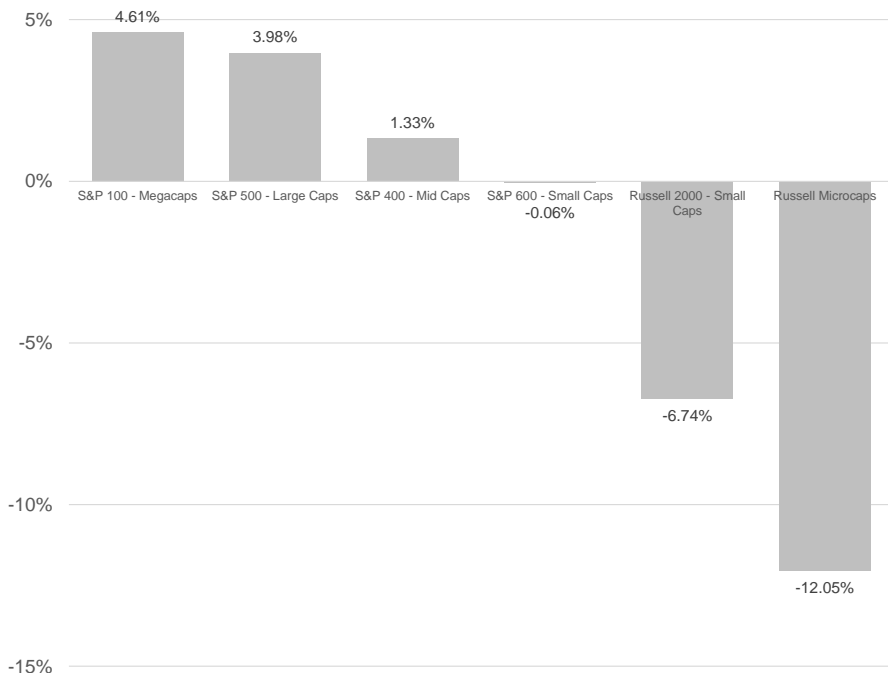
(Periods Ending 6/30/16)

One Year	-1.58	3.64	-522
Three Years	10.12	11.52	-140
Five Years	11.00	11.94	-94
Ten Years	8.00	7.53	47

The U.S. Equity portfolio has outperformed in eight of the last ten fiscal years, realizing outperformance of 47 basis points (annualized) over the same horizon. Based on an average portfolio value of \$25.9 billion, the 47 basis points of outperformance over the past decade is equivalent to an additional \$1.2 billion of value for the Fund.

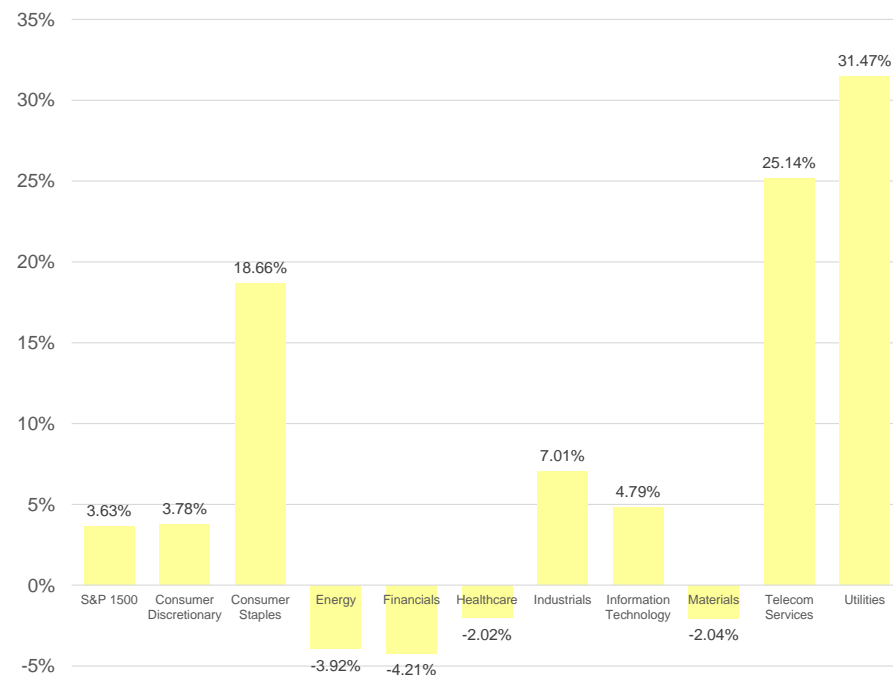
## FY16 U.S. Equity Returns By Market Cap and Sector

### FY16 U.S. Equity Returns By Market Cap



Large Cap stocks significantly outperformed Small Cap stocks during FY16, with Megacaps outperforming Microcaps by 16.66% (+4.61% versus -12.05%).

### FY16 U.S. Equity Returns By Sector



There was a wide disparity of returns across U.S. Equity sectors during FY16, with the best performing sector (Utilities, +31.47%) outperforming the worst performing sector (Financials, -4.21%) by 35.68%.

During FY16, there was a large deviation of returns across size and sectors of the U.S. Equity market. The impact of size also captures, in part, the performance advantage realized by lower volatility stocks. The performance advantage of high dividend stocks, in turn, is partly reflected in the wide range of returns across sectors.

## U.S. Equity Portfolio Investment Strategy in the FY16 Market Environment

	FY16 Returns	Div yield (%) As Of 6/30/15	EPS Est growth (%)		Forward P/E		
			2015A	2016E	6/30/2015	6/30/2016	10-yr avg
S&P 500	4.0%	1.9%	0.0%	0.7%	15.5	16.7	13.9
Utilities	31.5%	3.8	-0.1%	1.7%	15.2	17.3	15.0
Telecom	25.1%	4.9	11.6%	-5.2%	12.2	13.6	14.8
Consumer Staples	18.7%	2.6	-1.4%	4.5%	18.6	20.5	14.8
Industrials	7.0%	2.1	3.4%	1.3%	14.8	16.7	14.4
Information Technology	4.8%	1.5	7.2%	1.8%	14.9	16.7	14.3
Consumer Discretionary	3.8%	1.4	14.2%	13.1%	17.7	17.4	15.9
Health Care	-2.0%	1.3	12.2%	8.1%	15.9	15.2	14.0
Materials	-2.0%	2.2	-6.1%	0.2%	14.4	17.1	15.0
Energy	-3.9%	2.9	-60.8%	-70.1%	20.0	28.3	16.3
Financials	-4.2%	1.8	11.2%	1.4%	13.0	14.3	13.1

The best performing stocks of FY16 tended to be higher dividend yielding stocks. At the start of the fiscal year, many higher dividend yielding stocks also faced slower earnings growth and traded at higher multiples. In contrast, many of the weaker performing stocks of FY16 offered more attractive earnings growth potential and better valuations, but often provided lower dividend yields.

During FY16, strong returns for high dividend stocks often coincided with outperformance of stocks with less earnings growth potential and higher valuations. A key driver of adverse security selection during FY16 may be attributable to the U.S. Equity portfolio's investment approach that focuses on higher quality stocks with strong fundamentals.

## U.S. Equity Portfolio As of 6/30/16

### Domestic Equity Portfolio versus Benchmark – Key Metrics

	Yield (%)	P/E	P/CF	P/Book	LTD/Cap (%)
U.S. Equity Portfolio	1.99	16.19	10.12	2.40	42.07
S&P 1500 Benchmark	2.07	17.35	11.20	2.60	42.21

### U.S. Equity Portfolio Top Holdings As Of 6/30/16

<u>Company</u>	<u>Portfolio Weight</u>	<u>S&amp;P 1500 Weight</u>	<u>Overweight/ Underweight</u>
<b>Apple</b>	3.25%	2.61%	+64 bps
<b>Alphabet</b>	2.72%	2.02%	+70 bps
<b>Microsoft</b>	2.33%	1.99%	+34 bps
<b>Walt Disney</b>	2.27%	0.73%	+154 bps
<b>Exxon</b>	1.99%	1.91%	+7 bps
<b>Facebook</b>	1.96%	1.31%	+65 bps
<b>Johnson &amp; Johnson</b>	1.79%	1.64%	+14 bps
<b>Wells Fargo</b>	1.63%	1.08%	+55 bps
<b>General Electric</b>	1.53%	1.42%	+10 bps
<b>Amazon</b>	1.51%	1.38%	+13 bps

## U.S. Equity Portfolio: Key Drivers Of Security Selection For FY16

### FY16 Outperformers

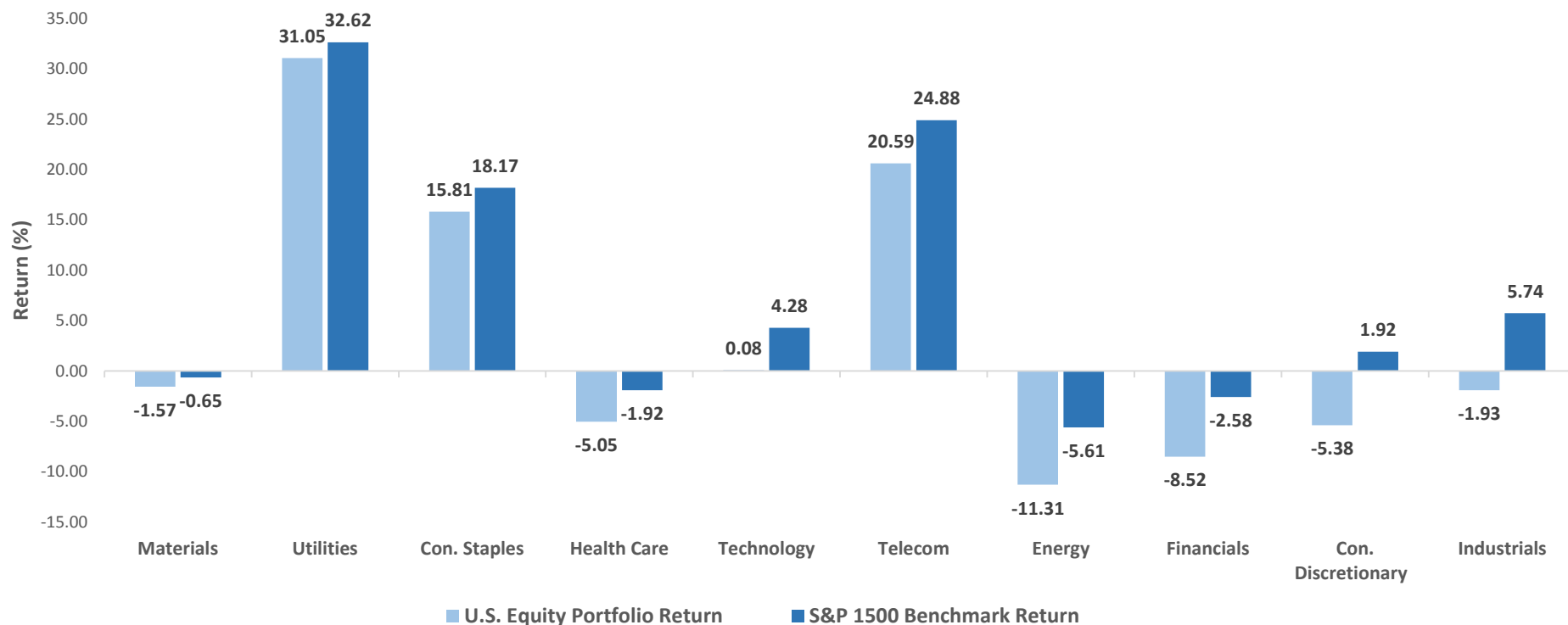
<u>Company</u>	<u>Average Portfolio Weight</u>	<u>Average Benchmark Weight</u>	<u>Benchmark Total Return</u>	<u>Relative Contribution</u>
EPR Properties	0.60%	0.02%	56.65%	+30 bps
Martin Marietta Materials	0.37%	0.05%	37.01%	+12 bps
Facebook	1.67%	1.17%	33.25%	+12 bps
Astec Industries	0.25%	0.00%	35.56%	+10 bps
ONEOK	0.19%	0.03%	29.77%	+9 bps

### FY16 Underperformers

<u>Company</u>	<u>Average Portfolio Weight</u>	<u>Average Benchmark Weight</u>	<u>Benchmark Total Return</u>	<u>Relative Contribution</u>
Tenet Healthcare	0.31%	0.02%	-52.25%	-23 bps
Walt Disney	2.35%	0.81%	-13.25%	-20 bps
Apple	3.95%	3.06%	-22.22%	-19 bps
Lions Gate	0.12%	0.00%	-44.64%	-13 bps
Ameriprise	0.44%	0.09%	-26.08%	-11 bps

## FY16 Domestic Equity Sector Returns

Domestic Equity Portfolio FY16 Sector Returns versus Benchmark

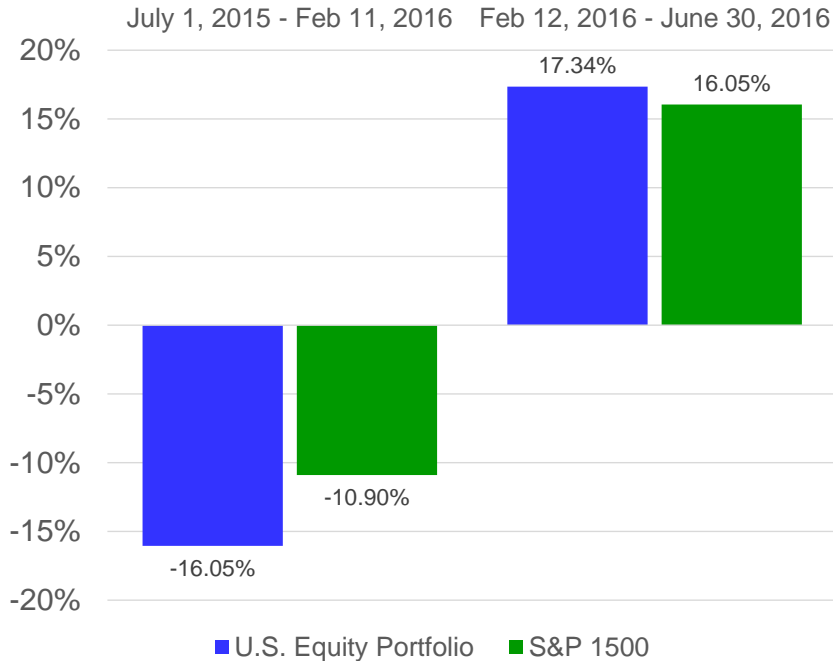


Domestic Equity Portfolio FY16 Return: -1.58%  
 S&P 1500 Benchmark FY16 Return: 3.64%

During FY16, security selection was the primary factor adversely impacting absolute and relative returns, as the Fund's performance trailed for each of the ten sectors of the benchmark index

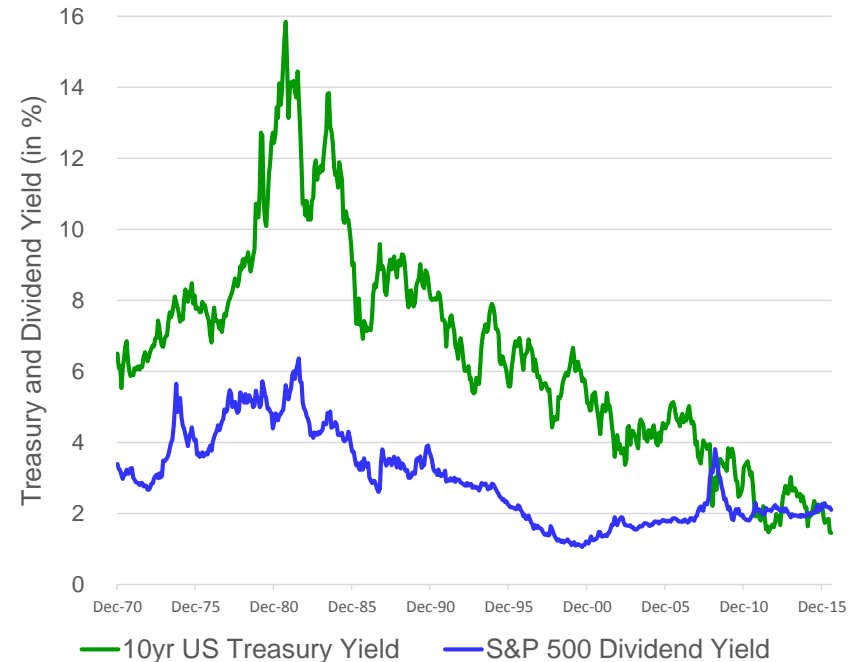
# The U.S. Equity Portfolio Appears Poised to Perform Well in a More Normalized Environment

## FY16 U.S. Equity Returns Before and After Market Bottoming



Since the bottoming of the broader equity market in February 2016, the U.S. Equity portfolio has realized attractive absolute and relative returns

## Long-Term Comparison of Treasury and Equity Yields



While multiples appear high versus historical levels, U.S. Equity valuations are more attractive versus other asset classes in the context of a low interest rate environment

The U.S. Equity Portfolio has performed well since the February 2016 trough that may have marked a change in market themes, as investor focus appears to have shifted from dividend income to valuations. While multiples are high, we are more constructive on equity valuations relative to other asset classes in the midst of historically low bond yields.

# International Equity Portfolio Review and Outlook



## FY16 International Equity Portfolio Review and FY17 Key Investment Themes

- **During FY16, the International Equity Portfolio outperformed its benchmark by 20 bps in a challenging market environment**
  - uncertainty regarding China's economic growth and its fiscal and FX policies, a sharp correction in tech stocks, political turmoil in certain Emerging Market (EM) countries, and dollar weakness led to negative returns for global equities
  - the portfolio's defensive positioning in a weak market environment and below benchmark allocation to EM relative to Developed Markets (DM) added value as the DM benchmark outperformed EM by 181 basis points
  - favorable relative returns were partially offset by currency hedging strategies
  
- **Within DM, the portfolio's tactical allocation to defensive sectors benefited relative returns**
  - the DM portfolio was underweight cyclical sectors and overweight Health Care and certain Consumer Staples stocks, based on our concerns regarding subpar economic growth, the impact of negative interest rate monetary policies, and rising political risk
  - a risk mitigating ETF investment strategy also added value as lower volatility investments outperformed
    - *Within DM, an underweight allocation to Consumer Discretionary and Financials, as well as an overweight allocation to Health Care and certain Consumer Staples stocks, added value*
    - *During FY17, we anticipate maintaining a more defensive strategy as we believe the macro risks (persistent low economic growth, greater deployment of unconventional monetary policies) and political risks (the consequences of Brexit on Europe) will continue to adversely impact returns*
  
- **Within EM, the primary driver of outperformance was security selection and an underweight allocation to China**
  - we maintained an underweight allocation to China based on structural economic growth concerns and an overall unattractive risk-reward allocation profile
    - *Our below market exposure to China is based on our concern that the impact of stimulative monetary and fiscal policies may be diminishing and the transition of China to a service-oriented economy may impact longer-term economic growth prospects*
    - *Within EM, more attractive valuations may present opportunities over time to gain exposure following an extended period of maintaining a below-benchmark allocation*

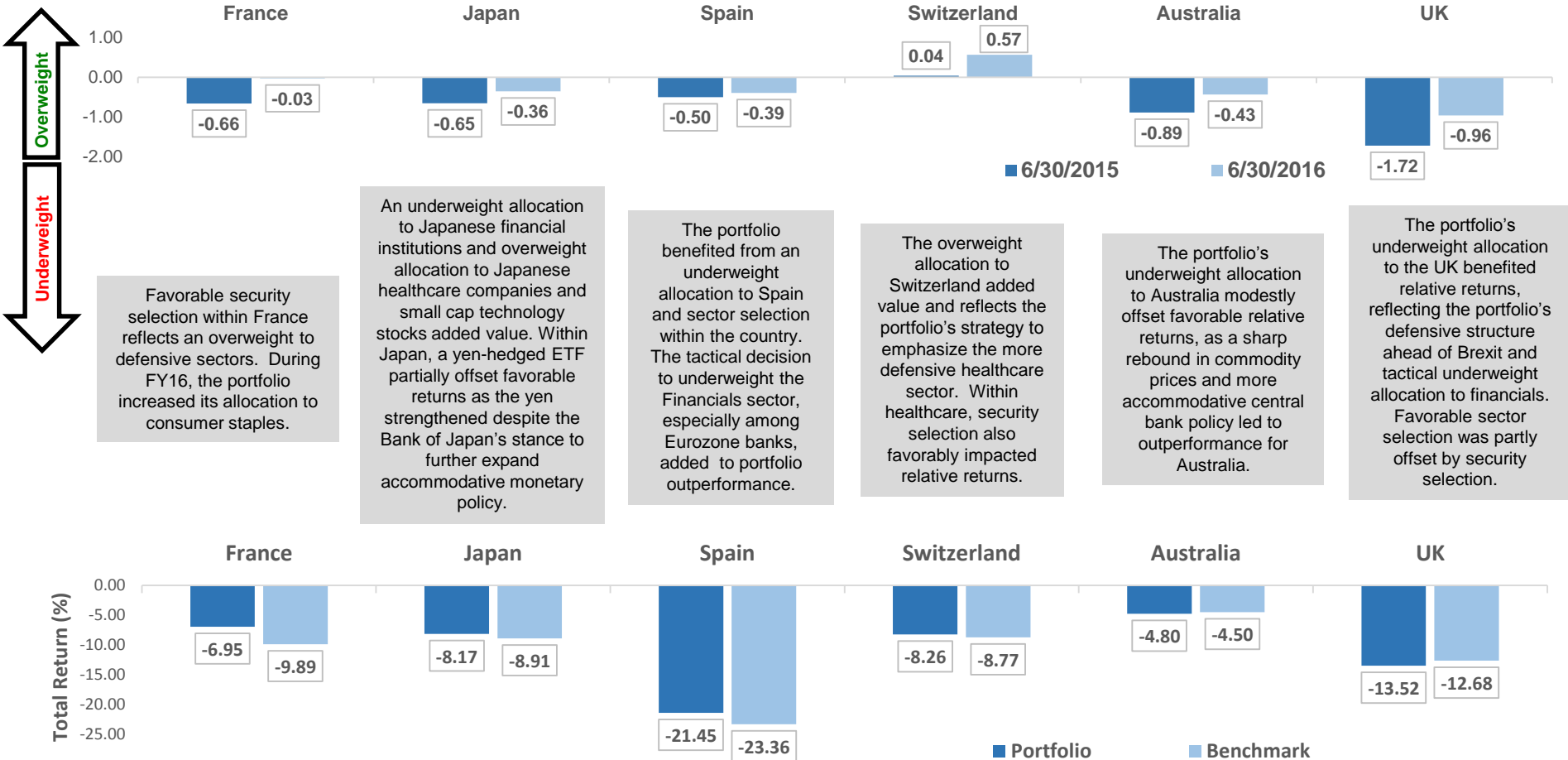
## International Equity Portfolio: Fiscal Year 2016 Performance Review

(Total Return in %)	Quarter Ended									
	9/30/2015		12/31/2015		3/31/2016		6/30/2016		Fiscal Year 2016	
Market	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark
International Equity with Hedges	-12.76	-12.92	3.34	2.91	-0.58	0.45	0.17	-0.50	-10.23	-10.43
International Equity (ex Hedges)	-12.74	-12.92	3.19	2.91	-0.27	0.45	0.18	-0.50	-10.05	-10.43
International Developed Markets	-10.52	-10.56	4.26	3.94	-2.46	-2.06	-0.60	-1.11	-9.56	-9.96
International Emerging Markets	-17.23	-17.64	-0.043	0.755	6.03	5.64	2.12	0.64	-10.42	-11.77

During FY16, the International Equity Portfolio outperformed its benchmark by 20 basis points (-10.23% vs -10.43%). Defensive positioning in a weak global equity market and an underweight allocation to China proved to be a successful investment strategy.

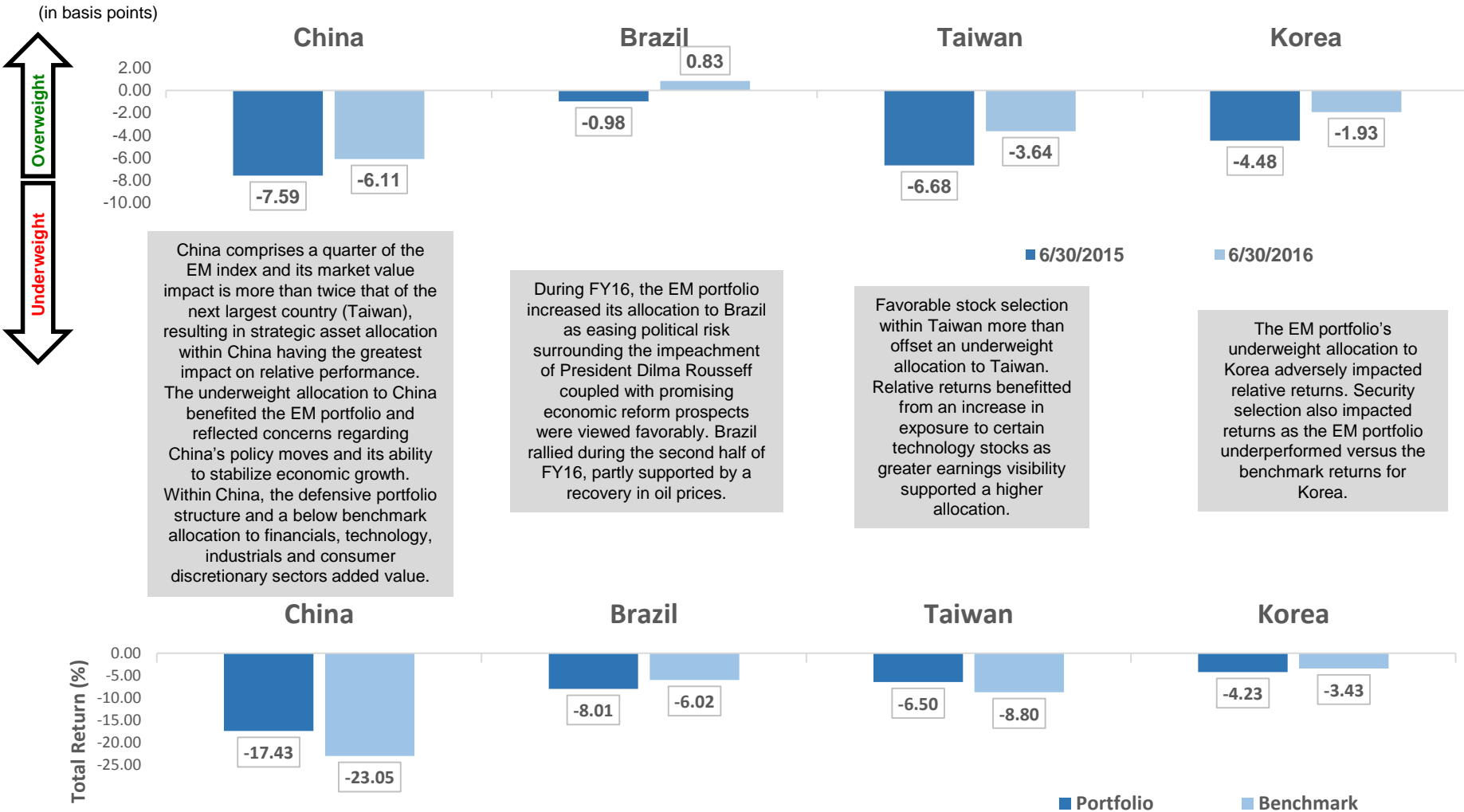
## Select Developed Market Country FY16 Relative Weights and Returns

(in basis points)



For FY16, key drivers of outperformance within the DM portfolio included an underweight allocation to Financials and Consumer Discretionary stocks, and an overweight allocation to Healthcare, reflecting a broader defensive strategy in the midst of lackluster global economic growth, subdued inflation and rising geopolitical risk.

# Select Emerging Market Country FY16 Relative Weights and Returns



For FY16, the key drivers of strong outperformance within the EM portfolio was the underweight allocation to China and favorable security selection, with favorable relative returns within other areas of EM adding value to a lesser degree.

# Fixed Income Portfolio Review and Outlook

## FY16 Fixed Income Portfolio Review and FY17 Key Investment Themes

- **The Fixed Income portfolio modestly outperformed its benchmark index by 2 basis points during FY16**
  - FY16 marked the eighth time in the past ten years that the Fixed Income portfolio has outperformed its benchmark
  - favorable relative returns for High Yield (HY) and Global Diversified Credit (GDC) were offset by underperformance within the Investment Grade (IG) and US Treasury portfolios primarily due to a short duration bias
  - the portfolio's above benchmark allocation to IG added value as IG outperformed versus other fixed income sectors
    - *During FY16, the Fund benefited from strong relative returns within the HY and GDC portfolios, as well as an overweight allocation to IG, offset by a below-benchmark duration profile*
  
- **Within the public fixed income portfolio, the key drivers of relative returns were favorable sector and quality selection, offset by a below benchmark duration profile in a declining interest rate environment**
  - the overweight allocation to higher quality securities in the IG portfolio added value as lower quality credit spreads widened sharply during the first half of FY16
    - within IG, the portfolio's overweight allocation to AA rated corporates added value as AA outperformed BBB rated corporates by 200 basis points on a duration-matched basis
    - within HY, the portfolio's underweight allocation to energy added value as HY Energy bonds underperformed by 15.9% on a duration-matched basis
  - within the US Treasury and IG portfolios, the underweight allocation to long-dated securities adversely impacted returns
    - during FY16, Long Treasuries outperformed Intermediate Treasuries by 15.3%
    - during FY16, Long IG Credit outperformed Intermediate IG Credit by 8.8%
  
- **The FY17 target allocation to Fixed Income has increased by 2.5% (from 18% to 20.5%)**
  - the increased target allocation represents a shift from a declining trend; since FY11, the target allocation to Fixed Income had been cut by half (from 39% to 18%) as yields and longer-term return prospects declined
  - while TIPS remain an allowable investment, there is no targeted allocation to TIPS for FY17; the principal role of TIPS within the Fund is for tactical allocation based on the relative value of TIPS versus nominal bonds
  - the FY17 benchmark for the IG portfolio now excludes BBB rated securities; the adjustment is intended to better capture the DOI's opportunity set and to be more consistent with the DOI's portfolio composition and investment goals
    - *During FY17, we expect to opportunistically reduce the allocation to TIPS within the U.S. Government portfolio and to BBB rated securities within the IG portfolio; while there is no longer a targeted allocation for TIPS and BBBs, both remain investible assets and represent an opportunity to achieve alpha based on relative value*
    - *We expect fixed income yields to move higher over time as rates normalize and we expect to increase the overall duration of the portfolio as yields rise; over time, we expect duration to play less of a role in active strategy*

## The Fixed Income Portfolio Has Realized A Consistent Track Record of Outperformance

(Total Return in %)			
<u>Fiscal Year</u>	New Jersey Division of Investment	Benchmark	Outperformance (in basis points)
2007	5.22	6.99	-177
2008	9.06	6.78	228
2009	6.65	5.34	131
2010	16.75	16.49	26
2011	5.98	3.20	278
2012	15.89	16.50	-61
2013	1.73	0.87	86
2014	7.66	7.45	21
2015	1.80	0.52	128
2016	4.95	4.93	2

### Annualized Returns

(Periods Ending 6/30/16)

One Year	4.95	4.93	2
Three Years	4.77	4.26	51
Five Years	6.28	5.90	38
Ten Years	7.46	6.78	68

The Fixed Income portfolio has outperformed in eight of the last ten fiscal years, realizing outperformance of 68 basis points (annualized) over the same horizon. Based on an average portfolio value of \$19 billion, the 68 basis points of outperformance over the past decade is equivalent to an additional \$1.3 billion of value for the Fund.

## Fixed Income Portfolio: Fiscal Year 2016 Performance Review

### New Jersey Division of Investment FY16 Fixed Income Returns By Sector

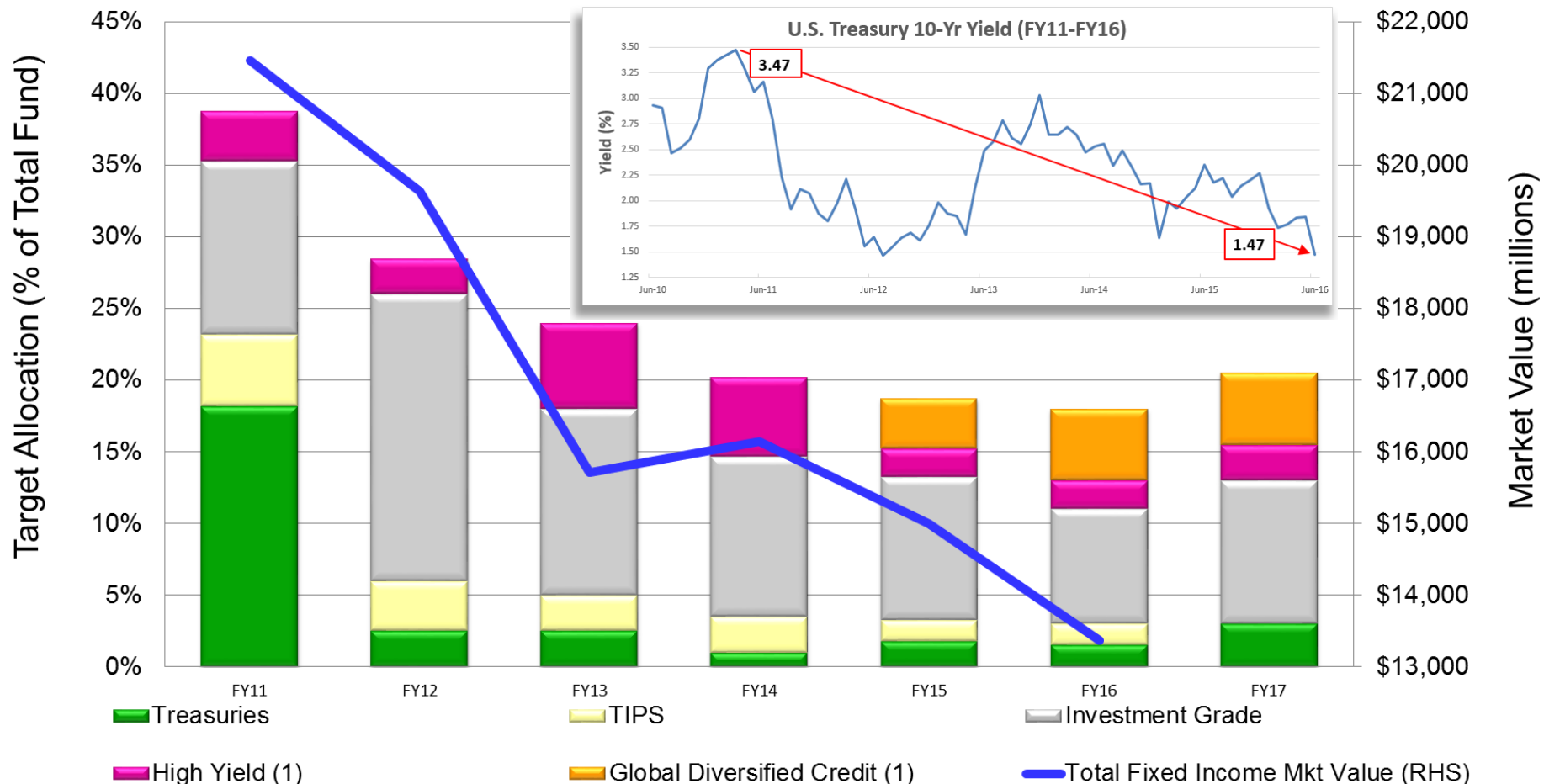
Sector	Quarter Ended								Fiscal Year 2016		FY16 Targeted Allocation	FY17 Targeted Allocation
	9/30/2015		12/31/2015		3/31/2016		6/30/2016					
	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark	NJDOI	Benchmark		
Treasuries	1.91	1.76	-1.18	-0.94	3.41	3.20	1.78	2.10	6.00	6.22	1.50%	3.00%
TIPS	-0.96	-1.22	-0.68	-0.63	3.76	4.67	1.52	1.80	3.62	4.59	1.50%	0.00%
Investment Grade (IG)	0.90	0.53	-1.09	-0.52	3.75	3.92	2.92	3.48	6.57	7.55	8.00%	10.00%
Public High Yield (HY)	-3.95	-4.86	-1.50	-2.07	3.50	3.35	4.55	5.52	2.38	1.62	2.00%	2.50%
Global Diversified Credit (GDC)	-0.40	-4.86	-0.75	-2.07	-1.68	3.35	6.31	5.52	3.32	1.62	5.00%	5.00%
<b>Total Fixed Income</b>	<b>-0.11</b>	<b>-1.63</b>	<b>-0.97</b>	<b>-1.15</b>	<b>2.48</b>	<b>3.73</b>	<b>3.52</b>	<b>4.03</b>	<b>4.95</b>	<b>4.93</b>		

During FY16, the Fixed Income portfolio outperformed its benchmark by 2 basis points (+4.95% versus +4.93%). Strong relative returns for GDC and HY were offset by underperformance within the Treasury and IG sectors. Within the public portfolio, relative returns were adversely impacted by an underweight duration profile in a declining interest rate environment.



## The Allocation to the Fixed Income Portfolio Has Declined Over Time

### New Jersey Division of Investment Fixed Income Targeted Asset Allocation and Market Value

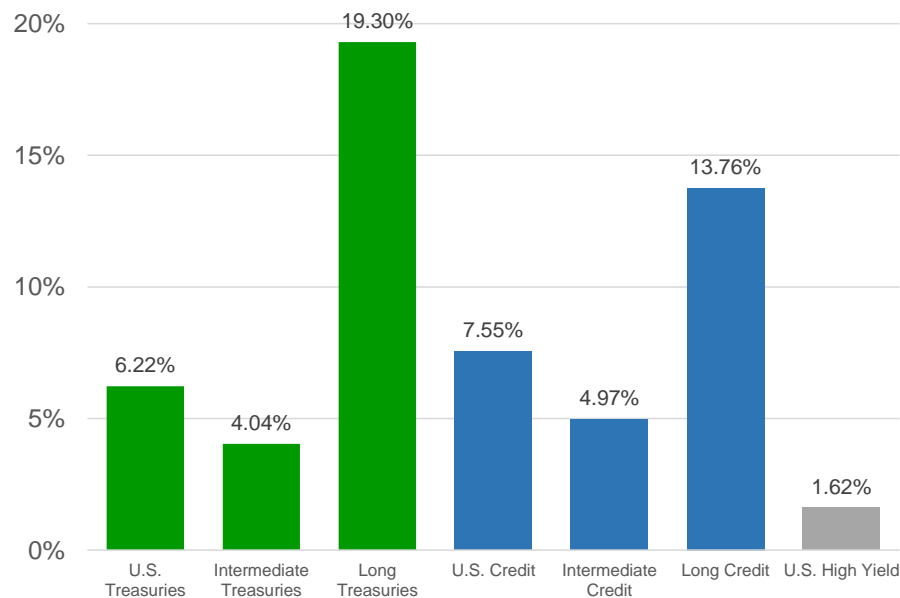


Since FY11, the market value of the Fixed Income portfolio declined from \$21.5 billion to \$13.4 billion, as the targeted allocation declined from 39% to 18% of the Total Fund. Over the same time, the yield on the 10-yr Treasury has dropped by 200 basis points.

(1) Global Diversified Credit (GDC) was a component of High Yield from FY11 through FY14; beginning in FY15, GDC is now segmented as a distinct category

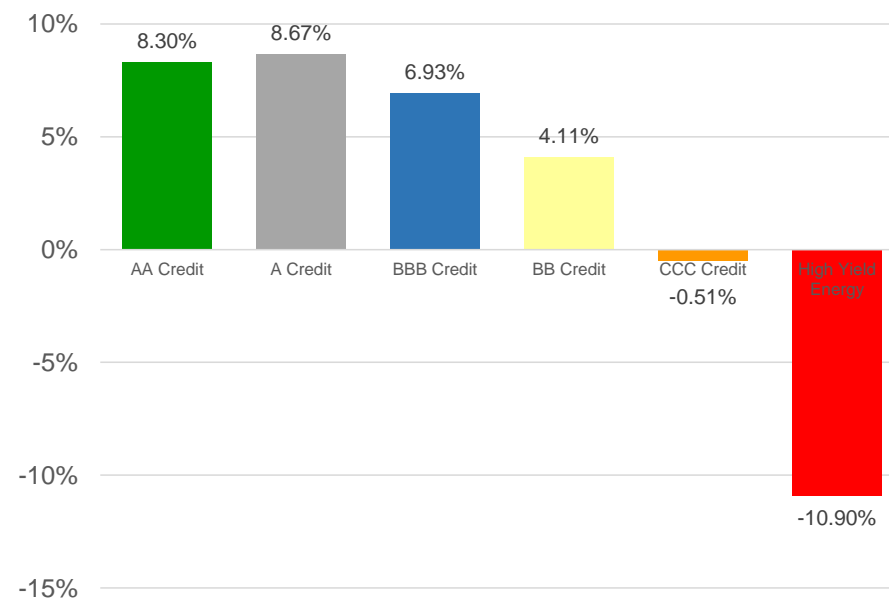
## FY16 Fixed Income Review: Sector, Quality and Yield Curve Returns

### FY16 Select Sector and Yield Curve Returns



During FY16, longer duration securities outperformed. In this environment, the portfolio's underweight duration exposure adversely impacted relative returns. The overweight allocation to IG added value as the U.S. Credit Index outperformed Treasuries by 133 bps.

### FY16 Select Quality Returns



During FY16, higher quality securities outperformed. The portfolio's overweight allocation to higher quality securities added value. Within high yield, the below market allocation to the energy sector added value as High Yield Energy bonds significantly underperformed.

- Going forward, we expect to de-emphasize interest rate anticipation as a source of active management

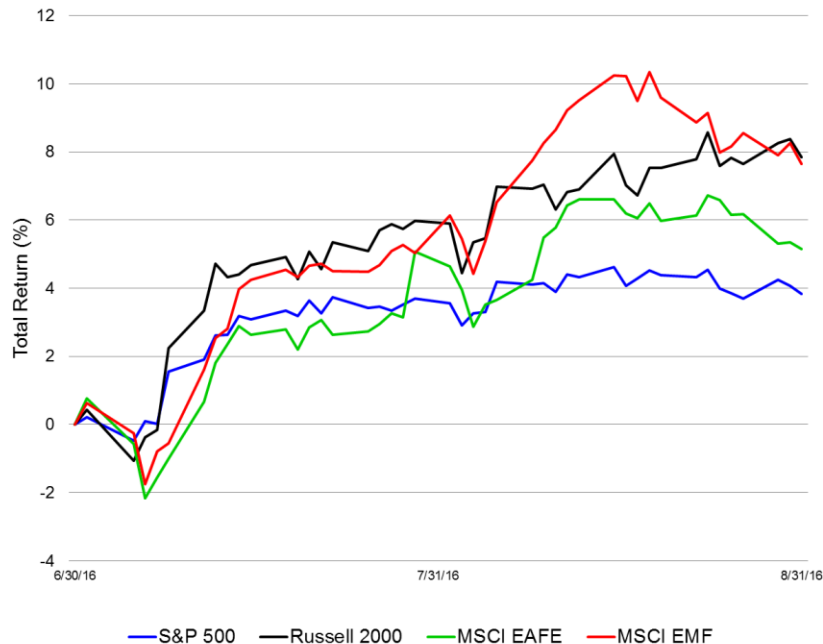
- Going forward, the targeted allocation to higher quality IG securities will increase

Favorable quality selection benefited the IG portfolio during FY16, as the portfolio emphasized higher quality securities that outperformed. The portfolio's below benchmark allocation to longer duration securities detracted from relative returns as interest rates declined.

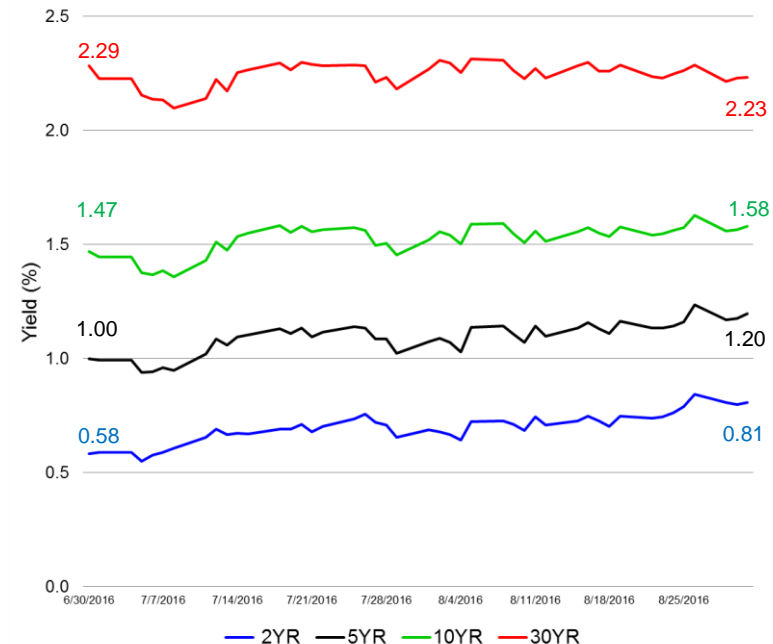
# Capital Markets and Portfolio Update

## Capital Markets Update (through August 31, 2016)

## Fiscal Year 2016 Equity Market Returns



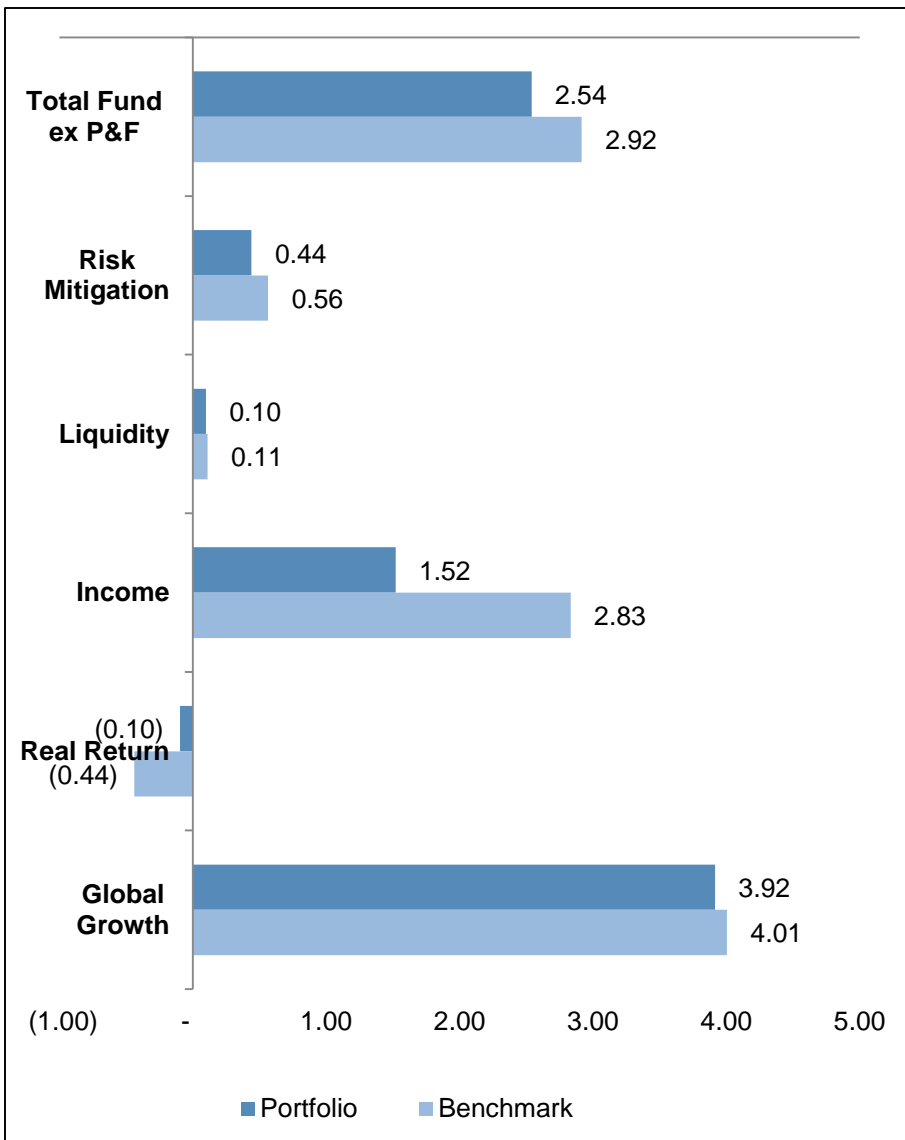
## Fiscal Year 2016 U.S. Treasury Yields



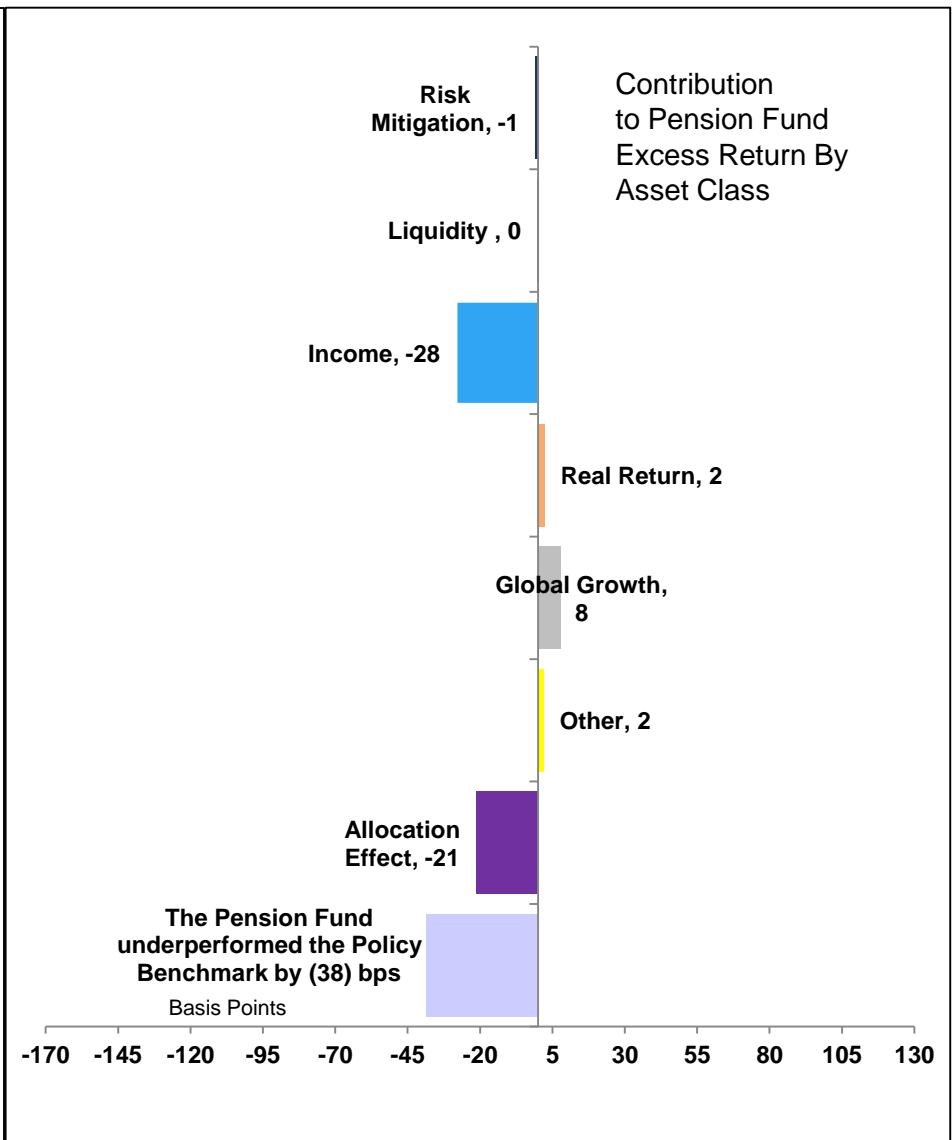
	August 31, 2016	MTD %	FYTD %	CYTD %	1 Yr %	3 Yrs %	5 Yrs %	10 Yrs %	
<b>Domestic Equity</b>	<b>S&amp;P 500</b>	0.14	3.83	7.82	12.54	12.29	14.68	7.51	1
	<b>Russell 2000</b>	1.77	7.84	10.22	8.58	8.53	12.86	7.03	2
<b>International Equity</b>	<b>MSCI EAFE</b>	0.07	5.14	0.49	(0.12)	2.47	5.00	1.71	3
	<b>MSCI EMF</b>	2.49	7.64	14.55	11.83	1.12	(0.42)	3.90	4
<b>Bond</b>	<b>Barclays Agg</b>	(0.11)	0.52	5.86	5.97	4.37	3.24	4.89	5
	<b>Barclays HY</b>	2.09	4.85	14.35	9.07	5.40	7.48	7.79	6
	<b>Barclays US Tips</b>	(0.45)	0.41	6.68	5.38	2.71	1.77	4.44	7
<b>Commodity</b>	<b>Bloomberg</b>	(1.79)	(6.83)	5.36	(8.97)	(14.07)	(12.83)	(6.99)	8
<b>Real Estate</b>	<b>Bloomberg REIT</b>	(3.30)	0.42	13.79	25.58	15.65	13.63	6.56	9
<b>Hedge Funds</b>	<b>HFRI Composite Index*</b>	n/a	2.25	3.49	2.78	3.47	3.46	3.72	10

\*1-month lag

### Performance by Asset Class Fiscal Year to Date through August 31st, 2016



### Pension Fund Attribution vs. Benchmark Fiscal Year through August 31st, 2016



Allocation Effect indicates the effect of asset allocation bets, i.e. overweights or underweights vs. the target allocation

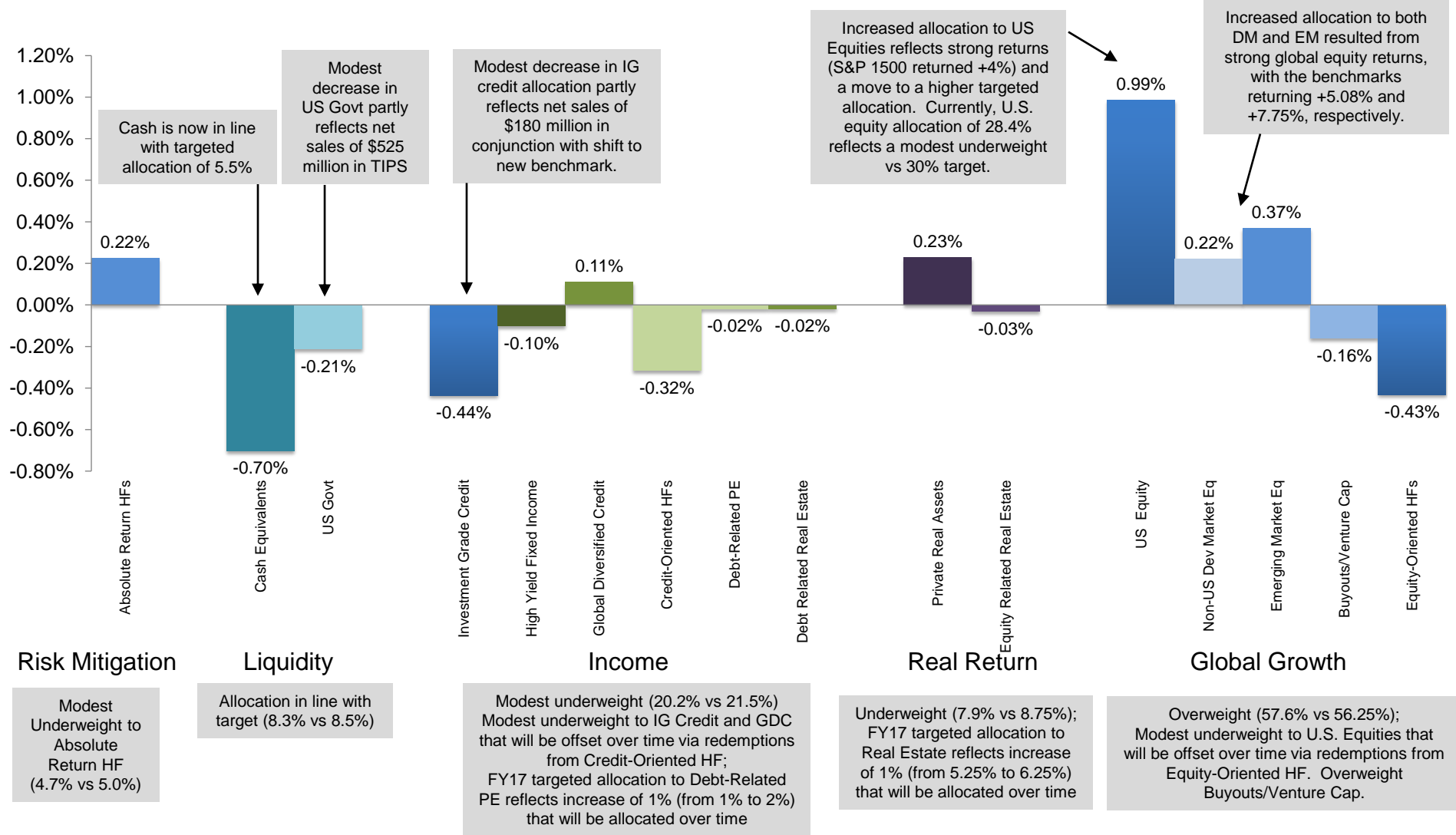
Asset Class	ASSET ALLOCATION <sup>(1)</sup> As of August 31, 2016				PERFORMANCE (for periods ending August 31, 2016) <sup>(2)</sup>								Long Term CMA	
	Mkt Value	Actual (%)	Target (%)	Difference	FYTD		Calendar YTD		Trailing Twelve Months		Trailing Three Years			
					NJ	Bench	NJ	Bench	NJ	Bench	NJ	Bench		
<b>RISK MITIGATION</b>														
Absolute Return HFs	3,363	4.66%	5.00%	-0.34%	0.44%	0.56%	-1.27%	2.22%	-1.08%	3.29%	1.92%	3.15%	5.39%	
Risk Mitigation Hedges	193	0.27%	0.00%	0.27%										
<b>TOTAL RISK MITIGATION</b>	<b>3,556</b>	<b>4.93%</b>	<b>5.00%</b>	<b>-0.08%</b>	<b>0.44%</b>	<b>0.56%</b>	<b>-1.27%</b>	<b>2.22%</b>	<b>-1.08%</b>	<b>3.29%</b>	<b>1.92%</b>	<b>3.15%</b>		
<b>LIQUIDITY</b>														
Cash Eqv	3,801	5.26%	5.50%	-0.24%	0.13%	0.05%	0.89%	0.19%	1.31%	0.23%	1.00%	0.10%	1.00%	
Short Term	167	0.23%	0.00%	0.23%	0.16%	0.05%	0.41%	0.19%	0.78%	0.23%				
TIPS	958	1.33%	0.00%	1.33%	0.37%	0.56%	5.72%	7.15%	4.73%	5.75%	2.01%	4.08%		
US Treasuries	1,079	1.49%	3.00%	-1.51%	-0.40%	-0.15%	4.82%	5.21%	4.76%	5.14%	2.57%	4.37%	1.73%	
<b>TOTAL LIQUIDITY</b>	<b>6,006</b>	<b>8.32%</b>	<b>8.50%</b>	<b>-0.18%</b>	<b>0.10%</b>	<b>0.11%</b>	<b>2.88%</b>	<b>2.41%</b>	<b>2.79%</b>	<b>2.18%</b>	<b>1.27%</b>	<b>2.78%</b>		
<b>INCOME</b>														
Investment Grade Credit	6,317	8.75%	10.00%	-1.25%	0.77%	1.51%	7.60%	9.16%	7.30%	9.14%	5.68%	5.30%	3.54%	
Public High Yield	1,734	2.40%	2.50%	-0.10%	4.43%	4.85%	13.00%	14.35%	8.73%	9.07%	5.96%	5.40%	6.49%	
Global Diversified Credit	2,913	4.03%	5.00%	-0.97%	2.47%	4.85%	7.10%	14.35%	5.85%	9.07%	9.27%	5.40%	6.80%	
Credit-Oriented HFs	2,448	3.39%	1.00%	2.39%	1.21%	2.71%	3.55%	3.89%	0.44%	-1.31%	4.01%	1.56%	6.38%	
Debt-Related PE	681	0.94%	2.00%	-1.06%	-0.31%	5.10%	2.05%	7.98%	1.15%	2.23%	8.74%	6.08%	9.29%	
Debt Related Real Estate	464	0.64%	1.00%	-0.36%	-0.80%	0.76%	-0.86%	0.09%	0.79%	-1.31%	7.01%	5.58%	6.00%	
<b>TOTAL INCOME</b>	<b>14,558</b>	<b>20.16%</b>	<b>21.50%</b>	<b>-1.34%</b>	<b>1.52%</b>	<b>2.83%</b>	<b>6.87%</b>	<b>9.10%</b>	<b>5.47%</b>	<b>6.21%</b>	<b>6.07%</b>	<b>4.54%</b>		
<b>REAL RETURN</b>														
Commodities	353	0.49%	0.00%	0.49%	-6.02%	-6.78%	4.81%	5.57%	-4.98%	-8.76%			4.28%	
Private Real Assets	1,535	2.13%	2.50%	-0.37%	-0.34%	0.00%	1.09%	-10.94%	-1.35%	-19.64%			9.56%	
Equity Related Real Estate	3,796	5.26%	6.25%	-0.99%	0.57%	0.00%	9.42%	5.12%	13.67%	12.62%	14.73%	12.59%	8.09%	
<b>TOTAL REAL RETURN</b>	<b>5,684</b>	<b>7.87%</b>	<b>8.75%</b>	<b>-0.88%</b>	<b>-0.10%</b>	<b>-0.44%</b>	<b>6.94%</b>	<b>0.96%</b>	<b>8.09%</b>	<b>2.24%</b>	<b>8.08%</b>	<b>4.53%</b>		
<b>GLOBAL GROWTH</b>														
US Equity	20,503	28.39%	30.00%	-1.61%	4.41%	3.99%	6.23%	8.36%	8.54%	12.54%	10.81%	12.19%	6.80%	
Non-US Dev Market Eq	8,576	11.88%	11.50%	0.38%	4.83%	5.08%	1.63%	1.77%	0.66%	0.44%	2.77%	2.35%	7.28%	
Emerging Market Eq	3,725	5.16%	6.50%	-1.34%	7.14%	7.75%	16.01%	14.56%	11.84%	12.08%	1.02%	1.41%	8.60%	
Buyouts/Venture Cap	6,566	9.09%	8.25%	0.84%	0.04%	0.00%	4.77%	0.72%	6.10%	3.16%	16.82%	10.90%	10.08%	
Equity-Oriented HFs	2,224	3.08%	0.00%	3.08%	2.94%	2.19%	-4.80%	0.94%	-11.98%	-1.14%	2.36%	4.00%	7.79%	
<b>TOTAL GLOBAL GROWTH</b>	<b>41,594</b>	<b>57.59%</b>	<b>56.25%</b>	<b>1.34%</b>	<b>3.92%</b>	<b>4.01%</b>	<b>5.04%</b>	<b>6.22%</b>	<b>5.36%</b>	<b>7.86%</b>	<b>8.34%</b>	<b>8.25%</b>		
<b>OTHER</b>														
OPPORTUNISTIC PE	350	0.49%			-0.05%		0.72%		-1.00%					
OTHER	472	0.65%												
<b>TOTAL FUND <sup>(3)</sup></b>	<b>72,221</b>	<b>100.00%</b>			<b>2.54%</b>	<b>2.92%</b>	<b>4.79%</b>	<b>6.02%</b>	<b>4.76%</b>	<b>6.52%</b>	<b>6.95%</b>	<b>6.67%</b>		
				S&P 500	3.83%		7.82%		12.54%		12.29%			
				Russell 2000	7.84%		10.22%		8.58%		8.53%			
				MSCI EAFE	5.14%		0.49%		-0.12%		2.47%			
				MSCI EMF	7.64%		14.55%		11.83%		1.12%			
				Barclays Agg	0.52%		5.86%		5.97%		4.37%			
				Barclays HY	4.85%		14.35%		9.07%		5.40%			
				Bloomberg Commodities	-6.83%		5.36%		-8.97%		-14.07%			
				Bloomberg REIT	0.42%		13.79%		25.58%		15.65%			
				HFRI	2.25%		3.49%		2.78%		3.47%			

<sup>1</sup> Current assets are based on preliminary values

<sup>2</sup> Unaudited and based on preliminary market values

<sup>3</sup> Total Fund Assets and Performance excludes Police & Fire Mortgage Program

# Pension Fund Update: Change in Sector Allocation from July 1, 2016 – August 31, 2016



Changes in sector allocations were largely the result of rebalancing towards the FY17 Annual Investment Plan approved by the Council on August 3.

# Noteworthy Developments

- **Israel Legislation:** In August, the Governor signed S1923, a bill that prohibits the investment of pension funds in companies that boycott Israel or Israeli businesses. The Statute requires a report which lists the companies held in the pension funds that is in violation of the statute to be filed with the Legislature within 120 days of enactment. The DOI is seeking to engage with a firm that currently provides us with Sudan and Iran research in order to identify prohibited companies. Once a list of companies is identified, the DOI will send letters to each of the companies on the list to provide for due process prior to submission of the report to the Legislature.



# Alternative Investment Notifications

## Hedge Fund Redemptions

As part of the ongoing restructuring of the hedge fund portfolio, the Division has submitted the following redemptions. Some of the redemptions noted below will be paid out over time as stipulated in the partnership agreement.

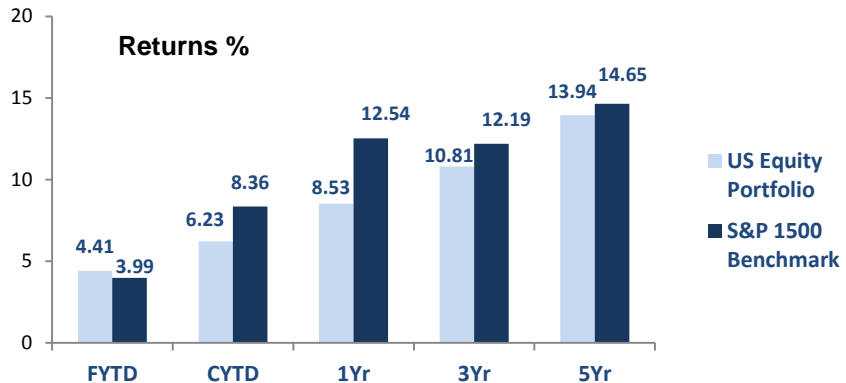
<b>Investment</b>	<b>Date</b>	<b>Amount*</b>	<b>Type</b>
Cevian Capital II, L.P.	09/30/2016	27,200,000	Partial
GSO Special Situations Fund, L.P.	09/30/2016	25,000,000	Partial
Canyon Balanced Fund	09/30/2016	170,737,993	Full
Canyon Vaue Realization Fund	09/30/2016	129,229,663	Full
AIMS/NJ Multi-Strategy Portfolio, LLC	09/30/2016	180,000,000	Partial
OZ Domestic Partners II, Ltd.	09/30/2016	189,654,734	Full
Brevan Howard Fund Limited	11/30/2016	251,851,131	Full
Omega Overseas Partners Ltd. Class-B	12/31/2016	62,344,382	Full
Centerbridge Credit Partners	12/31/2016	217,408,342	Full
Arden Alternative Advisors	12/31/2016	286,526,829	Full
ValueAct Capital Partners II, L.P.	12/31/2016	241,120,859	Full

*\* For full redemptions, valuations as of June 30, 2016*

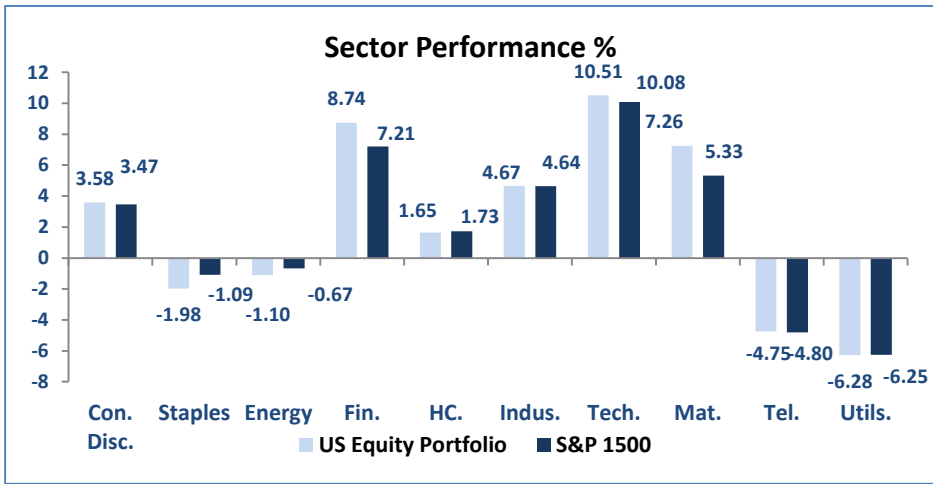
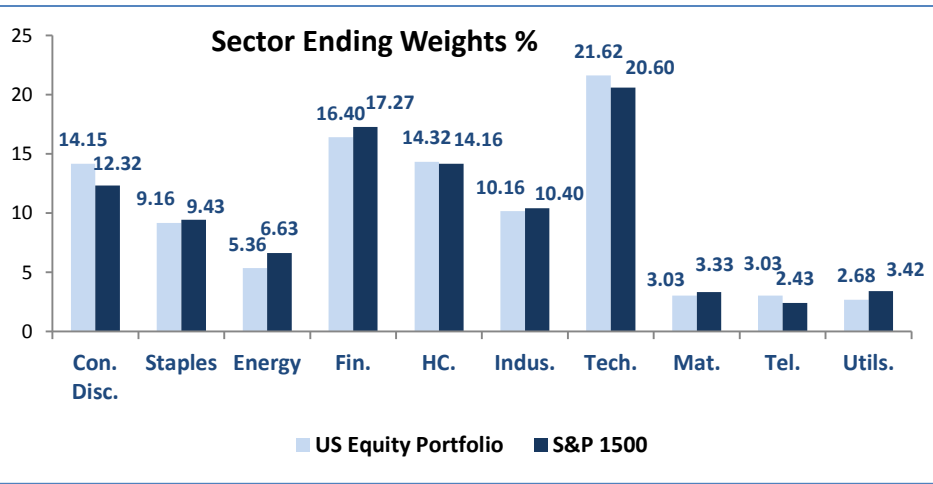
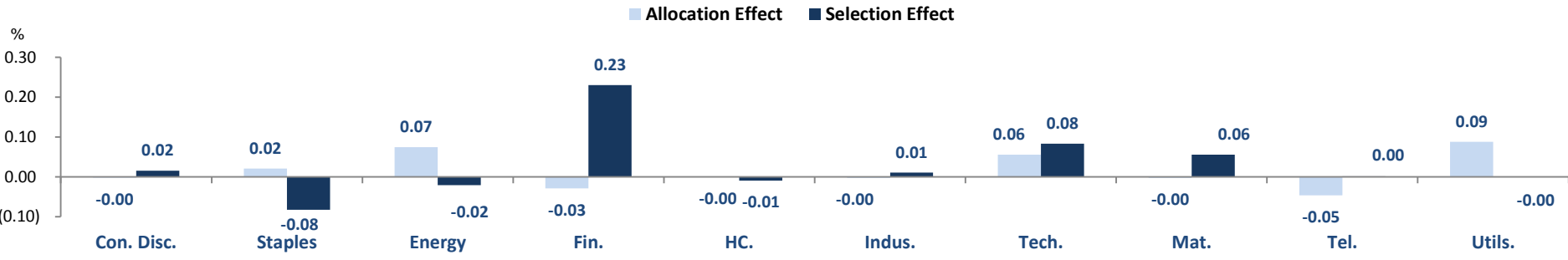
**Purpose of Notification:** The Division is notifying the SIC of these transactions under its Modification Procedures.

# Performance Appendix

The 4.41 percent return for the US equities portfolio outpaced the S&P 1500 return by 43 basis points. Equity markets rallied sharply following weakness in late June caused by Brexit-related concerns. The broad equity market hit all-time highs on August 15<sup>th</sup>, but has traded in a narrow 2.2 percent range since mid-July. Small capitalization stocks were strong, with the S&P 600 Smallcap index returning 6.51 percent during the two month period and outperforming the large cap S&P 500 by 268 basis points. Among sectors, financials and technology were the biggest gainers while utilities, telecom services and consumer staples posted negative returns. Stock selection for the fund was strongest among financial names. Selection in consumer staples lagged the benchmark.

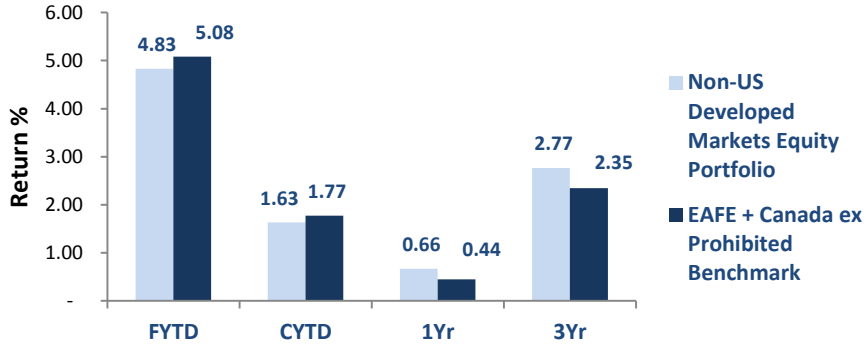


Portfolio Sector Attribution FYTD% - Breakdown of Excess Return:		Portfolio Return:	Benchmark Return:	Excess Return:
		+4.41%	+3.99%	+0.43%

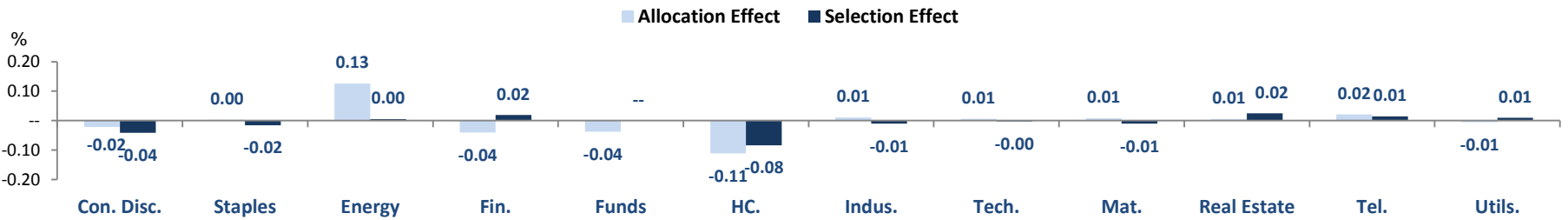


Source: State Street, Factset

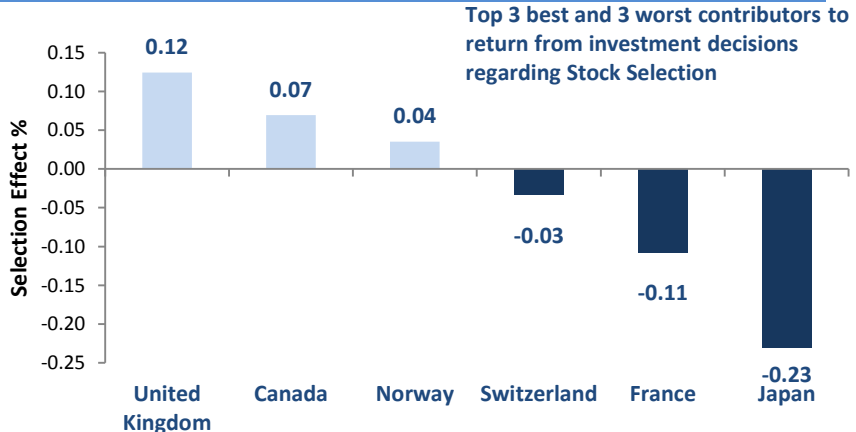
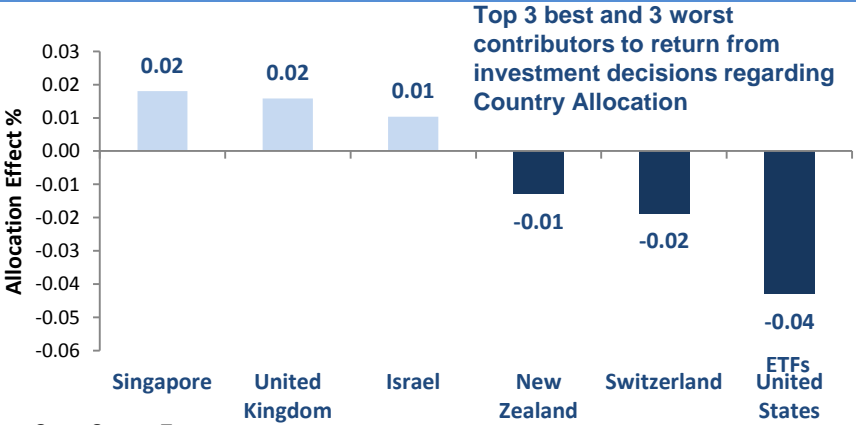
For the fiscal year through August 31<sup>st</sup>, the Non-US Developed Markets Equity Portfolio returned 4.83% versus the Benchmark return of 5.08%. The MSCI EAFE Index was sharply down at the beginning of July on fallout from the Brexit vote but recovered to advance up 4% by month-end. In August, MSCI EAFE was up only 0.50%. Poor Japanese stock selection in the DM portfolio was a main driver of underperformance as was the overweight to and poor stock selection in the Healthcare sector of the portfolio. Strong stock selection in the UK was positive for performance. In sector allocation, an underweight to Energy added value, as oil prices fell by 9% from June to the end of August. Finally, an allocation to broad based ETFs had a negative effect on performance.



<b>Portfolio Sector Attribution FYTD% - Breakdown of Excess Return:</b>	Portfolio Return: +4.83%	Benchmark Return: +5.08%	Excess Return: -0.25%
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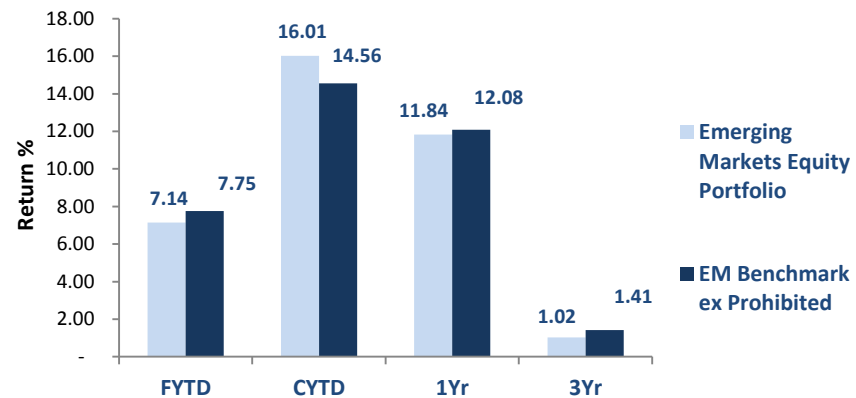


<b>Portfolio Country Attribution FYTD% - Breakdown of Excess Return:</b>	Portfolio Return: +4.83%	Benchmark Return: +5.08%	Excess Return: -0.25%
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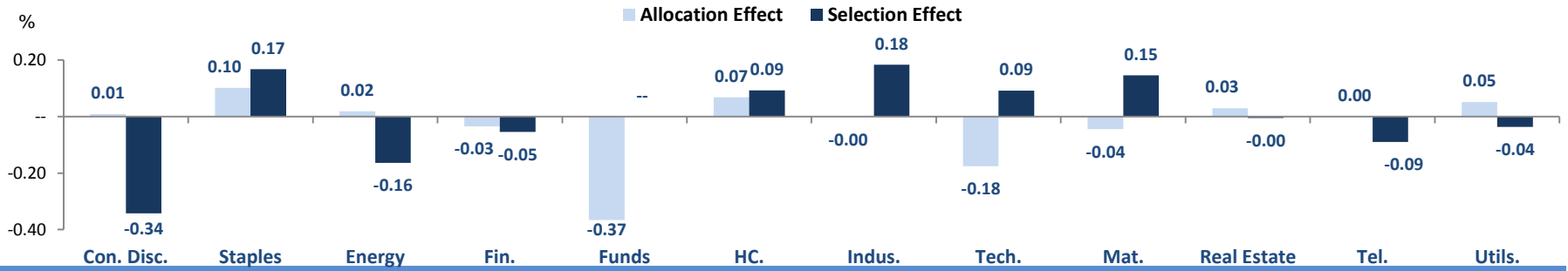


Source: State Street, Factset

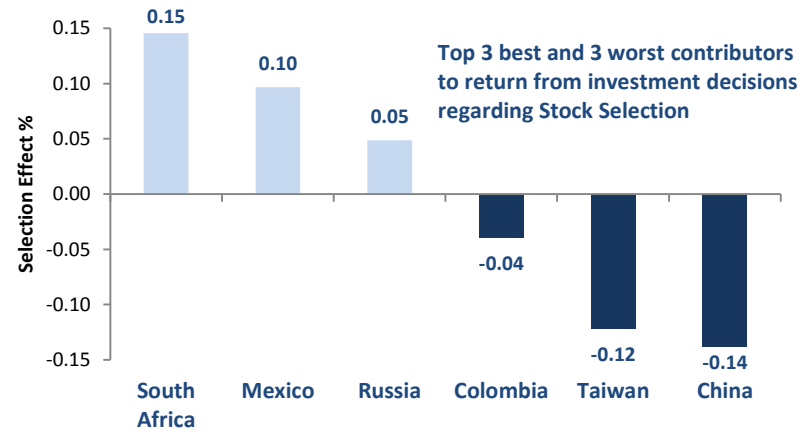
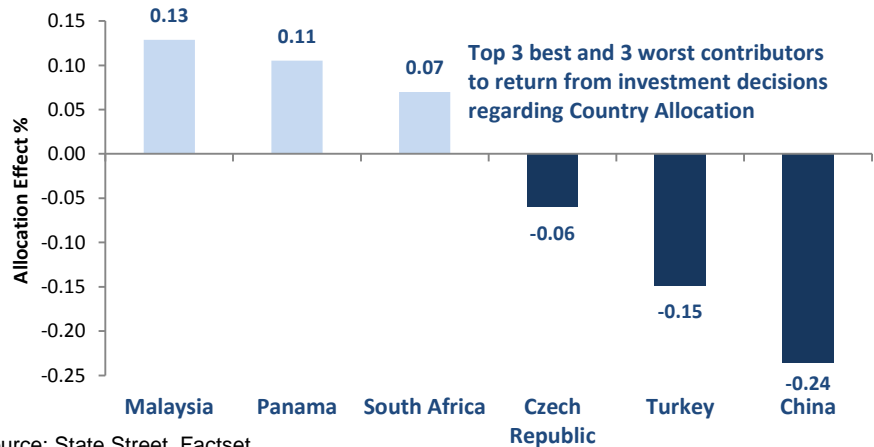
For the fiscal year through August 31<sup>st</sup>, the Emerging Markets Equity portfolio returned 7.14% versus the Custom Benchmark return of 7.75%. Emerging Market equities outperformed Developed Market equities in both July and August. MSCI EM was up 4.7% in July and had the largest monthly inflow of capital since 2014. In August, the EM Index advanced an additional 2.3%. The underweight position to and poor stock selection in China, which had one of the best country returns for the period, were the main drivers of the portfolio's underperformance. Turkey was the worst performing country on an absolute basis following an attempted military coup and the portfolio's overweight position proved a drag on performance. Strong stock selection in Industrials, Consumer Staples, and Materials contributed positively to performance. Finally, the allocation to broad based ETFs had a negative effect on overall performance.



**Portfolio Sector Attribution FYTD% - Breakdown of Excess Return:** Portfolio Return: +7.14% Benchmark Return: +7.75% Excess Return: -0.61%

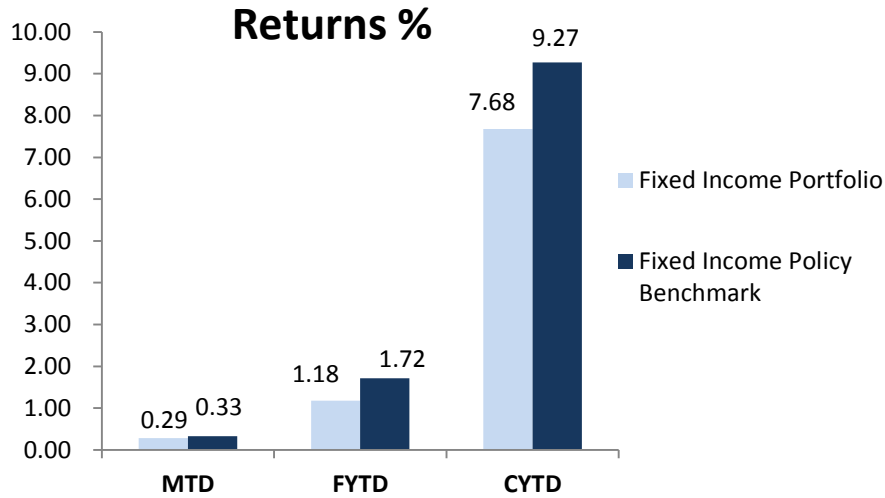


**Portfolio Country Attribution FYTD% - Breakdown of Excess Return:** Portfolio Return: +7.14% Benchmark Return: +7.75% Excess Return: -0.61%

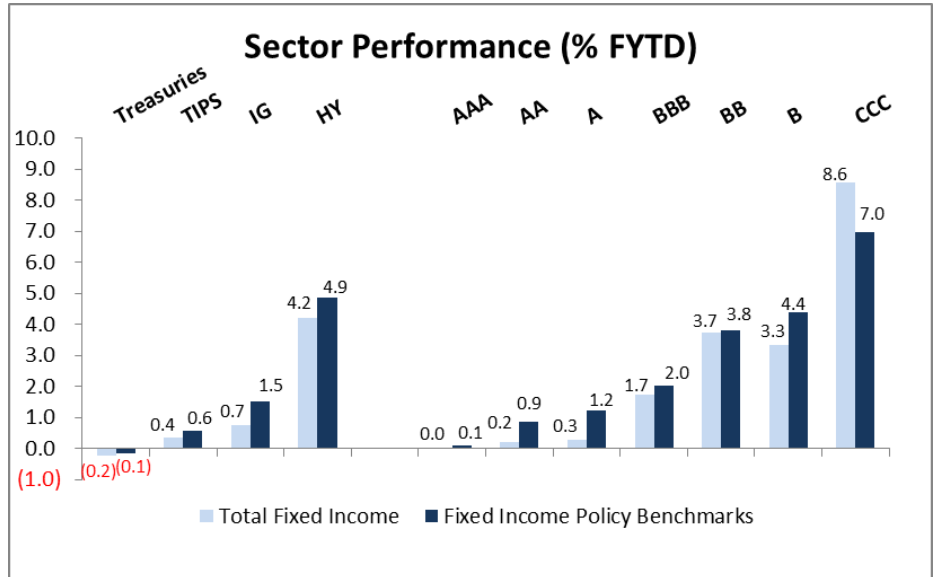
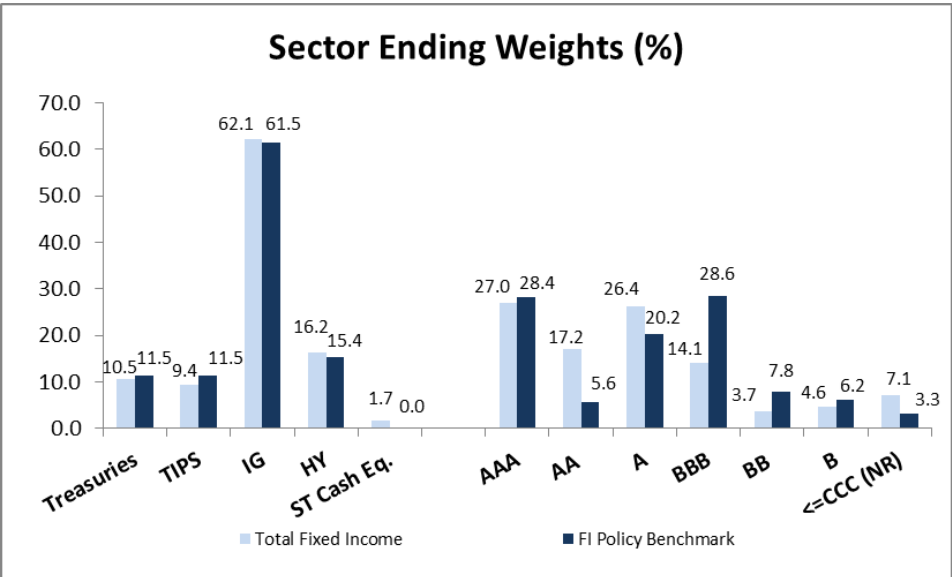


Source: State Street, Factset

For FY17 year-to-date performance, the US Fixed Income portfolio returned 1.18% versus the benchmark return of 1.72%. Relative returns were adversely impacted by a below benchmark duration profile in a fixed income environment in which the yield curve flattened. FYTD, a significant portion of the yield curve has moved higher as the two, five and ten-year Treasury yields increased 22, 20 and 11 basis points, respectively. The thirty-year yield, however, declined by 5 basis points. In this environment, the short duration profile in the Investment Grade Credit (IG) portfolio and the Treasury Inflation-Protected Security (TIPS) portfolio both underperformed their respective benchmarks. Within IG, Long BBBs were the best performing segment returning 4.01%; our underweight to Long BBBs was a meaningful driver of poor relative returns

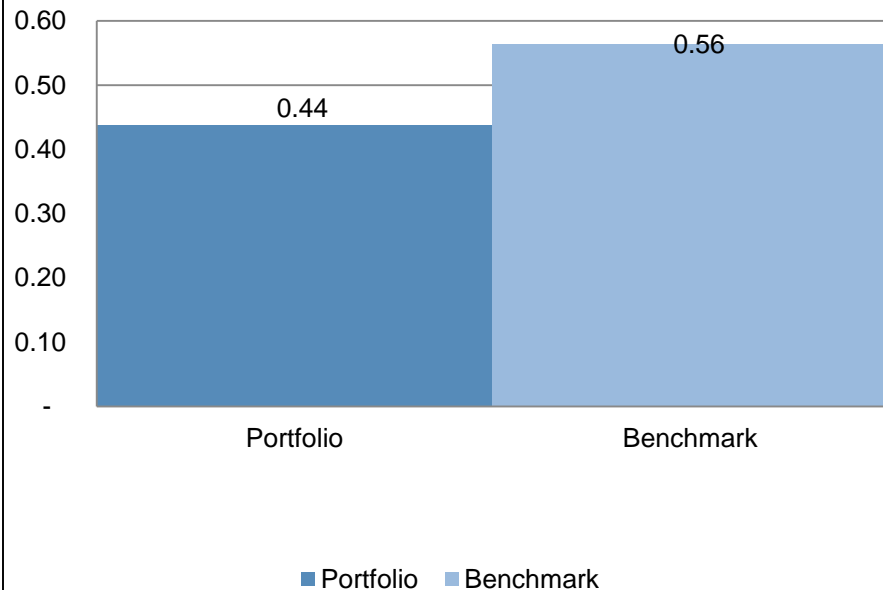


Portfolio Sector Attribution – Weights and Performance

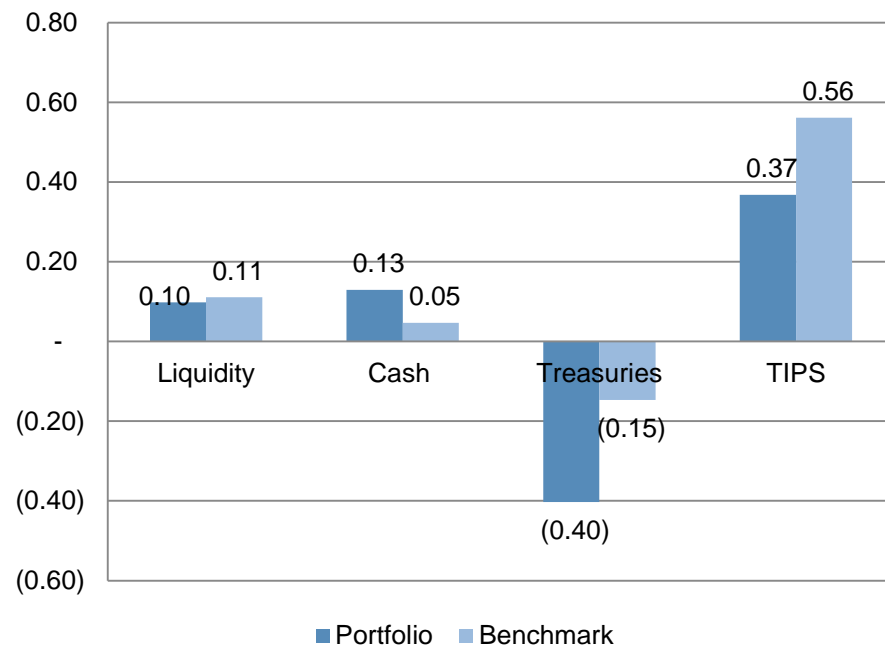


Source: State Street and FactSet

### Risk Mitigation FYTD Performance as of August 31, 2016



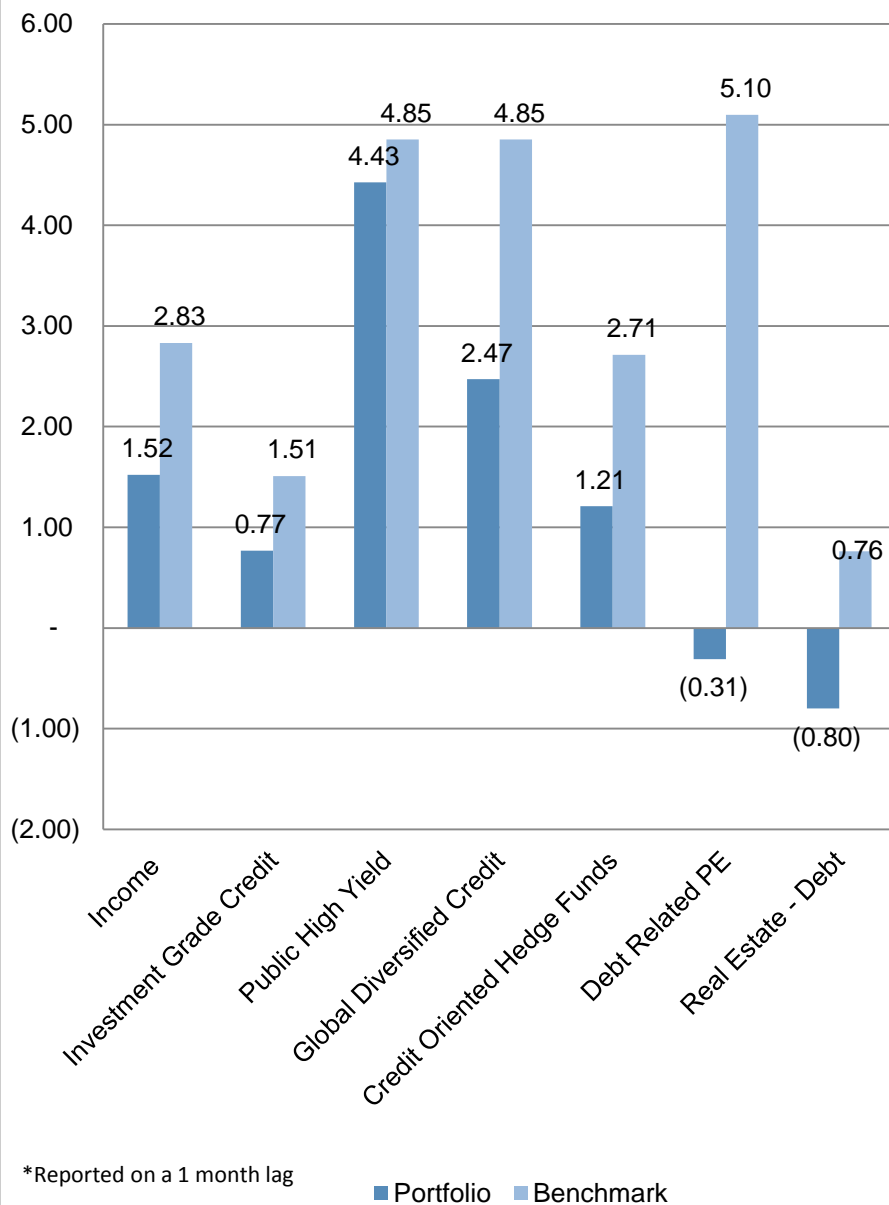
### Liquidity FYTD Performance as of August 31, 2016



Returns as of August 31, 2016	1 Month	FYTD	YTD	1 Year	3 Year
Absolute Return Hedge Funds	0.21	0.44	(1.27)	(1.08)	1.92
T-Bill + 300 BP	0.29	0.56	2.22	3.29	3.15
<i>Difference</i>	<i>(0.08)</i>	<i>(0.13)</i>	<i>(3.49)</i>	<i>(4.37)</i>	<i>(1.23)</i>
<b>Total Risk Mitigation</b>	<b>0.21</b>	<b>0.44</b>	<b>(1.27)</b>	<b>(1.08)</b>	<b>1.92</b>
T-Bill + 300 BP	0.29	0.56	2.22	3.29	3.15
<i>Difference</i>	<i>(0.08)</i>	<i>(0.13)</i>	<i>(3.49)</i>	<i>(4.37)</i>	<i>(1.23)</i>

Returns as of August 31, 2016	1 Month	FYTD	YTD	1 Year	3 Year
Cash Equivalents	0.08	0.13	0.89	1.31	1.00
91 day treasury bill	0.02	0.05	0.19	0.23	0.10
<i>Difference</i>	<i>0.06</i>	<i>0.08</i>	<i>0.70</i>	<i>1.08</i>	<i>0.90</i>
US Treasuries	(0.59)	(0.40)	4.82	4.76	2.57
Custom Benchmark	(0.55)	(0.15)	5.21	5.14	4.37
<i>Difference</i>	<i>(0.04)</i>	<i>(0.26)</i>	<i>(0.39)</i>	<i>(0.38)</i>	<i>(1.80)</i>
TIPS	(0.26)	0.37	5.72	4.73	2.01
Custom Tips Benchmark	(0.43)	0.56	7.15	5.75	4.08
<i>Difference</i>	<i>0.18</i>	<i>(0.19)</i>	<i>(1.43)</i>	<i>(1.03)</i>	<i>(2.07)</i>
<b>Total Liquidity</b>	<b>(0.11)</b>	<b>0.10</b>	<b>2.88</b>	<b>2.79</b>	<b>1.27</b>
Benchmark	(0.17)	0.11	2.41	2.18	2.78
<i>Difference</i>	<i>0.06</i>	<i>(0.01)</i>	<i>0.47</i>	<i>0.61</i>	<i>(1.51)</i>

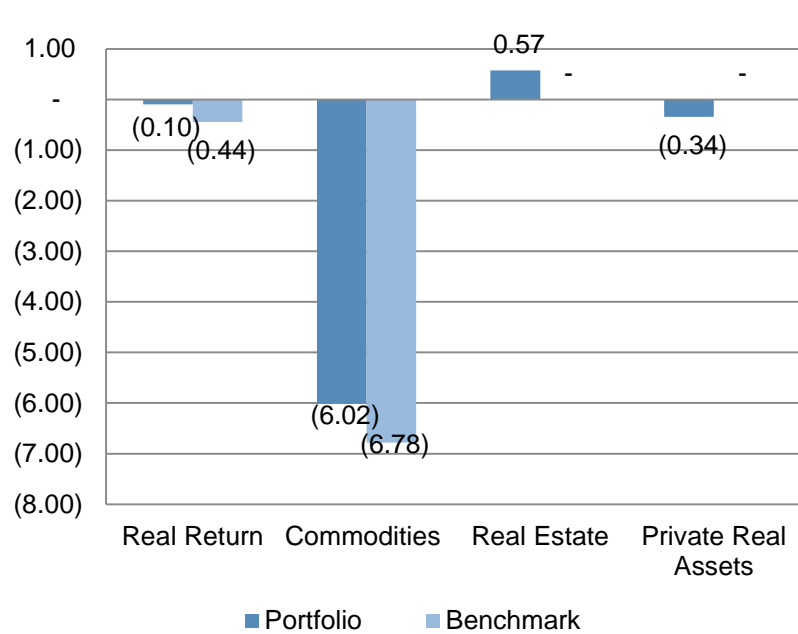
### Income FYTD Performance as of August 31, 2016



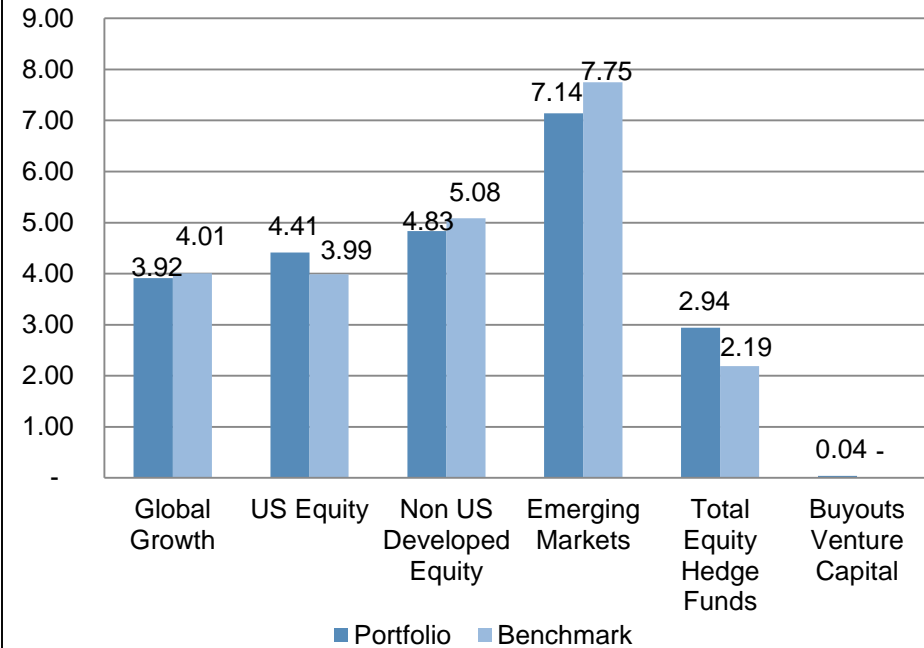
Returns as of August 31, 2016	1 Month	FYTD	YTD	1 Year	3 Year
High Grade	0.05	0.77	7.60	7.30	5.68
Custom IGC Benchmark	0.20	1.51	9.16	9.14	5.30
<i>Difference</i>	<i>(0.15)</i>	<i>(0.74)</i>	<i>(1.57)</i>	<i>(1.84)</i>	<i>0.37</i>
Public High Yield	2.13	4.43	13.00	8.73	5.96
Barclays Corp High Yield (Daily)	2.09	4.85	14.35	9.07	5.40
<i>Difference</i>	<i>0.04</i>	<i>(0.42)</i>	<i>(1.35)</i>	<i>(0.35)</i>	<i>0.56</i>
Global Diversified Credit	2.02	2.47	7.10	5.85	9.27
Barclays Corp High Yield (Daily)	2.09	4.85	14.35	9.07	5.40
<i>Difference</i>	<i>(0.07)</i>	<i>(2.38)</i>	<i>(7.25)</i>	<i>(3.22)</i>	<i>3.87</i>
Credit-Oriented Hedge Funds	0.71	1.21	3.55	0.44	4.01
Custom Benchmark	2.38	2.71	3.89	(1.31)	1.56
<i>Difference</i>	<i>(1.67)</i>	<i>(1.50)</i>	<i>(0.34)</i>	<i>1.75</i>	<i>2.45</i>
Debt-Related Private Equity	(0.22)	(0.31)	2.05	1.15	8.74
BarCap Corp HY (1 Qtr lag) + 300 bps	0.89	5.10	7.98	2.23	6.08
<i>Difference</i>	<i>(1.10)</i>	<i>(5.41)</i>	<i>(5.93)</i>	<i>(1.08)</i>	<i>2.66</i>
Real Estate-Debt	(0.53)	(0.80)	(0.86)	0.79	7.01
Barclays CMBS 2.0 Baa + 100 (Qtr lag)	0.21	0.76	0.09	(1.31)	5.58
<i>Difference</i>	<i>(0.74)</i>	<i>(1.56)</i>	<i>(0.95)</i>	<i>2.10</i>	<i>1.43</i>
<b>Total Income</b>	<b>0.77</b>	<b>1.52</b>	<b>6.87</b>	<b>5.47</b>	<b>6.07</b>
Benchmark	1.20	2.83	9.10	6.21	4.54
<i>Difference</i>	<i>(0.43)</i>	<i>(1.31)</i>	<i>(2.23)</i>	<i>(0.74)</i>	<i>1.53</i>



## Real Return FYTD Performance as of August 31, 2016



## Global Growth FYTD Performance as of August 31, 2016



Returns as of August 31, 2016	1 Month	FYTD	YTD	1 Year	3 Year
Private Real Assets	(0.25)	(0.34)	1.09	(1.35)	
CA Energy Upst & Royalties & PE Lagged Daily	-	-	(10.94)	(19.64)	
<i>Difference</i>	<i>(0.25)</i>	<i>(0.34)</i>	<i>12.03</i>	<i>18.28</i>	
Commodities	(1.15)	(6.02)	4.81	(4.98)	
Bloomberg Commodity Index Total Return	(1.76)	(6.78)	5.57	(8.76)	
<i>Difference</i>	<i>0.62</i>	<i>0.77</i>	<i>(0.76)</i>	<i>3.79</i>	
Real Return Real Estate	(0.71)	0.57	9.42	13.67	14.73
Real Estate Index	-	-	5.12	12.62	12.59
<i>Difference</i>	<i>(0.71)</i>	<i>0.57</i>	<i>4.31</i>	<i>1.05</i>	<i>2.14</i>
<b>Total Real Return</b>	<b>(0.57)</b>	<b>(0.10)</b>	<b>6.94</b>	<b>8.09</b>	<b>8.08</b>
Benchmark	(0.11)	(0.44)	0.96	2.24	4.53
<i>Difference</i>	<i>(0.46)</i>	<i>0.35</i>	<i>5.99</i>	<i>5.85</i>	<i>3.55</i>

Returns as of August 31, 2016	1 Month	FYTD	YTD	1 Year	3 Year
Domestic Equity	0.08	4.41	6.23	8.54	10.81
S&P 1500 Super Composite (Daily)	0.20	3.99	8.36	12.54	12.19
<i>Difference</i>	<i>(0.13)</i>	<i>0.43</i>	<i>(2.13)</i>	<i>(4.00)</i>	<i>(1.38)</i>
Non-US Dev Market Eq	(0.10)	4.83	1.63	0.66	2.77
NJDI ex Iran& Sudan EAFE + Canada	0.08	5.08	1.77	0.44	2.35
<i>Difference</i>	<i>(0.18)</i>	<i>(0.25)</i>	<i>(0.14)</i>	<i>0.22</i>	<i>0.42</i>
Emerging Market Eq	1.97	7.14	16.01	11.84	1.02
NJDI Iran + Sudan Free EM Index	2.52	7.75	14.56	12.08	1.41
<i>Difference</i>	<i>(0.56)</i>	<i>(0.61)</i>	<i>1.45</i>	<i>(0.24)</i>	<i>(0.39)</i>
Total Equity Oriented Hedge Funds	0.66	2.94	(4.80)	(11.98)	2.36
Custom Benchmark	2.84	2.19	0.94	(1.14)	4.00
<i>Difference</i>	<i>(2.18)</i>	<i>0.75</i>	<i>(5.74)</i>	<i>(10.84)</i>	<i>(1.64)</i>
Buyouts-Venture Capital	0.01	0.04	4.77	6.10	16.82
Cambridge Associates PE 1 Qtr Lag	-	-	0.72	3.16	10.90
<i>Difference</i>	<i>0.01</i>	<i>0.04</i>	<i>4.05</i>	<i>2.94</i>	<i>5.92</i>
<b>Total Global Growth</b>	<b>0.23</b>	<b>3.92</b>	<b>5.04</b>	<b>5.36</b>	<b>8.34</b>
Benchmark	0.59	4.01	6.22	7.86	8.25
<i>Difference</i>	<i>(0.37)</i>	<i>(0.09)</i>	<i>(1.19)</i>	<i>(2.50)</i>	<i>0.09</i>