

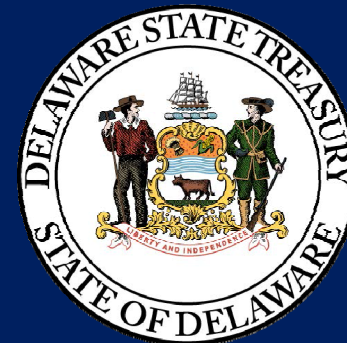
# INVESTMENT PERFORMANCE SUMMARY QUARTER ENDING MARCH 31, 2018

## OFFICE OF THE STATE TREASURER & CASH MANAGEMENT POLICY BOARD

March 31, 2018

John Krimmel, CPA, CFA, Partner

Kevin M. Leonard, Partner



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# MARKET ENVIRONMENT

NEPC, LLC

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# MARKET ENVIRONMENT

## Introduction

Volatility roared back into US equity markets in the first quarter, snapping an 18-month benign streak. Stoked by fears of rising Treasury yields and a tumultuous unwinding in the short-equity volatility trade, the S&P 500's run of 15 straight months in the black ended in February. Markets fared no better in March amid an escalation in trade tensions between the United States and China. The prospect of disruption in economic trade between the world's two largest economies rattled markets globally, sending stocks lower and pushing credit spreads higher.

The tit-for-tat tariffs levied by the US and China underscore our concerns around the backlash against globalization—one of our key market themes for 2018—as decades of unevenly distributed economic gains and loss of manufacturing jobs fuel a rise in populism. Politically, this fatigue with globalization is broadly expressed as a desire to shy away from multilateral relations and to turn inward as a nation, as demonstrated by the Brexit vote in 2016. We view this as a long-term trend as the underlying drivers—unequal wealth distribution and a shrinking middle class in the developed world—are unlikely to reverse course in the foreseeable future. We believe the result is a persistent anti-establishment political bias, as a disenfranchised electorate in Europe and the US challenge political norms and economic conventions.

To this end, the tensions surrounding the trade relations between the United States and China strike at the heart of the global economy's free trade orthodoxy. US trade with China totals nearly \$650 billion and the combined value of trade amongst its main trading partners—China, Canada and Mexico—is nearly \$2 trillion. With these trade balances playing a prominent role in the global economy, US trade policy has been a major area of focus within our globalization backlash theme. While we maintain our belief that a shift to an aggressive US protectionist trade policy is a lower probability tail-risk, a sharp decline in trade with the US's main trading partners would significantly disrupt global economic activity.



# MARKET ENVIRONMENT

## Introduction Continued

Viewing the ongoing US-China trade dispute through a basic game theory lens, our expectation is that an all-out, no-holds-barred trade war is a low-probability event. If we assume the two nations act in their self-interest, then each side is heavily incentivized to avoid a full-blown trade war as the outcome is adverse for both. The two countries' leaders and their advisors are also keenly aware that a trade war would radically destabilize the global economy and equity markets. So, on the table are three basic strategies:

(a) China chooses to not respond to the tariffs levied by the US, which is an unlikely outcome.

(b) China and the US reach a negotiated settlement, which is possible but requires a mutual win for both nations. The challenge will be to find a narrow agreement that offers economic gains to the US and China but doesn't compromise their longer-term strategic interests. At the same time, both leaders would need to highlight successes to claim victory on the issue to their audience back home.

(c) Let the current game of tariff tit-for-tat play on with the US and China matching the response of the opposing player's most recent move; their self-interest in avoiding a global trade war ensures a calibrated response to not let the situation get out of hand. In our view, this is the likely outcome for US-China trade relations, paving the way for greater volatility but not materially altering the equilibrium in the capital markets and the global economy.



# MARKET ENVIRONMENT

## Introduction Continued

To this end, our slate of current opportunities remains largely unchanged. Global growth conditions are on the upswing supported by easy financial conditions and an improved corporate earnings outlook. We believe equities outside the US are best positioned to benefit from this combination and encourage investors to maintain an overweight to emerging market stocks and increase exposure to small-cap equities in the developed world, specifically Japan and Europe. Looking to the US, while the current economic expansion can continue to support domestic stocks, valuations and profit margins are hovering around cyclical highs; as a result, we recommend trimming gains from US equities. Similarly, we suggest reducing credit exposure as we feel current spread levels for return-seeking fixed income, such as high-yield debt and dollar-based emerging market bonds, are not adequately compensating investors. Furthermore, we encourage the addition of safe-haven fixed-income exposure, for instance, Treasury Inflation-Protected Securities (TIPS) and Treasuries, to mitigate potential market drawdowns and maintain a diversified risk-balanced portfolio against the backdrop of US-China trade tensions and higher volatility in equities.

## Global Equities

Volatility dulled returns in the first quarter amid heightening concerns around trade tensions between the United States and China. Developed market stocks outside of North America declined 1.5%, according to the MSCI EAFE Index, while emerging market equities eked out gains of 1.4%. The currency-hedged MSCI EAFE Index lost 4.3% during the quarter as most currencies strengthened against the dollar. US stocks fell 3.7% in February, snapping their 15-month winning streak; they ended the quarter in the red, losing a modest 0.8%. Information technology dominated sector performance, posting strong returns globally.

Within private equity, the fundraising run rate in North America fell in the first quarter from a year ago; in contrast, fund raising in Europe touched a record high. Driven by larger deals, global buyout volume also scaled a new peak for the three months ended March 31, up nearly 90% over the first quarter of 2017; buyout exits continued to decline, modestly down from the same period a year ago.

Equity hedge funds initially rallied, led by fundamental and market-neutral strategies, but market volatility eroded returns with the HFRI Equity Index ending the quarter at 2.3%. Within sectors, technology outperformed, returning 4.8%. Within special situations strategies, large-cap special-situations trades sold off with the HFRI ED: Special Situations Index nearly flat for the three months ended March 31.



# MARKET ENVIRONMENT

## Global Fixed Income

Credit was mostly subdued in the first quarter with the Bloomberg Barclays Aggregate down 1.5% and the Bloomberg Barclays High Yield Index losing 0.9%; breaking from the pack, the S&P LSTA Leveraged Loan Index was up 1.4%. US long credit was down 3.8%, while long Treasuries fell 3.3% with yields on the 10-year note at 2.74%.

Outside the US, emerging markets continued to rally with local debt leading the way. The JPM GBI-EM Index returned 4.4% in the first quarter, bolstered by emerging market currencies which were up 2.5%. Hard-currency sovereign debt didn't fare as well, falling 2.0% as spreads widened.

Within hedge funds, long/short credit strategies suffered losses in March with the HFRI Credit Index ending the quarter at 1.9%. Relative-value arbitrage, convertible, global-credit and yield-alternative approaches also pared gains for the quarter in March. Mortgage-backed securities outperformed other asset-backed investments for the quarter due to their lower sensitivity to traditional credit risk.

## Real Assets

Commodities declined 0.4% in the first quarter, according to the Bloomberg Commodity Index. Agriculture and energy were in the black while industrial metals lagged. We remain positive on natural resources equities; we also recommend midstream energy equities (MLPs) with security selection being key.

Within private real assets, we favor energy-focused private equity and credit opportunities. The recent strength in the underlying commodities has stabilized prices but transaction volumes are sharply down. Opportunities exist as publicly-traded companies or those aiming to go public struggle to tap capital markets, especially to issue equity. We are also constructive on the mining sector over the mid to longer term.



# MARKET ENVIRONMENT

## **Real Assets Continued**

Within real estate, fundamentals remain healthy in the US core property market, but the pace of value appreciation is moderating amid rising interest rates and slowing growth in net operating income. A disconnect between asset values, underscored by publicly traded REITs and private transactions, appears to be widening as most REITs are changing hands at double digit discounts to their net asset values; if this dynamic persists, public markets may be more attractive for core US real estate. For non-core US real estate, relative-value opportunities remain more appealing. We favor demographically-driven property sectors and managers that are attentive to duration risk in the later innings of the expansion cycle.

## **Final Thoughts**

US trade policies for China and NAFTA are at the forefront of investors' minds today. At NEPC, we have been examining the disruption surrounding free trade and globalization for nearly two years now and believe this theme is here to stay. That said, we think a willingness to weather uncertainty, paired with appropriate returns as compensation for risk, has the potential to improve returns over the long term. To this end, we encourage investors to overweight equities outside the US as the outlook for corporate earnings remains strong. We also ask investors to look to areas of the portfolio that may not offer adequate compensation for risk and reduce exposure to high-yield bonds, while adding to TIPS and Treasury bonds.

We hope to expand on these themes and more at NEPC's 23rd Annual Investment Conference on May 14-15 in Boston. We plan to explore a wide variety of topics through the prism of this year's theme of 'disruption.' In addition, we are excited to bring you a roster of accomplished external speakers. We hope you can join us and we look forward to seeing you this month.



# INDEX PERFORMANCE SUMMARY AS OF 03/31/2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Jan	Feb	Mar	Q1	YTD
<b>Reserve Custom Index</b>	2.58%	3.01%	2.35%	1.51%	0.12%	1.1%	0.86%	1.15%	1.00%	-0.37%	-0.12%	0.23%	-0.26%	-0.26%
<b>Endowment Custom Index</b>	20.44%	10.23%	-0.01%	11.29%	14.46%	5.43%	-0.07%	5.71%	14.52%	2.71%	-2.86%	-1.05%	-1.28%	-1.28%
<b>S&amp;P 500</b>	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	5.7%	-3.7%	-2.5%	-0.8%	-0.8%
<b>Russell 1000</b>	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	5.5%	-3.7%	-2.3%	-0.7%	-0.7%
<b>Russell 2000</b>	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	2.6%	-3.9%	1.3%	-0.1%	-0.1%
<b>Russell 2500</b>	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	3.0%	-4.1%	1.0%	-0.2%	-0.2%
<b>MSCI EAFE</b>	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	5.0%	-4.5%	-1.8%	-1.5%	-1.5%
<b>MSCI EM</b>	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	8.3%	-4.6%	-1.9%	1.4%	1.4%
<b>MSCI ACWI</b>	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	5.6%	-4.2%	-2.1%	-1.0%	-1.0%
<b>BC US Aggregate</b>	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	4.2%	-1.2%	-0.9%	0.6%	-1.5%	-1.5%
<b>BC Global Aggregate</b>	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.2%	-0.9%	1.1%	1.4%	1.4%
<b>Alerian MLP</b>	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	5.8%	-9.7%	-6.9%	-11.1%	-11.1%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse, Thomson One





# RETURNS FOR KEY INDICES RANKED IN ORDER OF PERFORMANCE

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
MSCI EMERGING MARKETS 32.17	MSCI EMERGING MARKETS 39.39	BC AGGREGATE 5.24	MSCI EMERGING MARKETS 78.51	RUSSELL 2000 GROWTH 29.09	BC AGGREGATE 7.84	MSCI EMERGING MARKETS 18.22	RUSSELL 2000 GROWTH 43.30	S&P 500 13.69	RUSSELL 1000 GROWTH 5.67	RUSSELL 2000 VALUE 31.74	MSCI EMERGING MARKETS 37.28
MSCI EAFE 26.34	RUSSELL 1000 GROWTH 11.81	RUSSELL 2000 VALUE -28.92	RUSSELL 1000 GROWTH 37.21	RUSSELL 2000 26.85	RUSSELL 1000 GROWTH 2.64	RUSSELL 2000 VALUE 18.05	RUSSELL 2000 38.82	RUSSELL 1000 VALUE 13.45	S&P 500 1.38	RUSSELL 2000 21.31	RUSSELL 1000 GROWTH 30.21
RUSSELL 1000 VALUE 22.25	MSCI EAFE 11.17	RUSSELL 2000 -33.79	RUSSELL 2000 GROWTH 34.47	RUSSELL 2000 VALUE 24.5	S&P 500 2.11	RUSSELL 1000 VALUE 17.51	RUSSELL 2000 VALUE 34.52	RUSSELL 1000 13.24	RUSSELL 1000 0.92	RUSSELL 1000 VALUE 17.34	MSCI EAFE 25.03
RUSSELL 2000 VALUE 23.48	RUSSELL 2000 GROWTH 7.06	RUSSELL 1000 VALUE -36.85	MSCI EAFE 31.78	MSCI EMERGING MARKETS 18.88	RUSSELL 1000 1.50	MSCI EAFE 17.32	RUSSELL 1000 GROWTH 33.48	RUSSELL 1000 GROWTH 13.05	BC AGGREGATE 0.55	RUSSELL 1000 12.05	RUSSELL 2000 GROWTH 22.17
RUSSELL 2000 18.37	BC AGGREGATE 6.97	S&P 500 -37.0	RUSSELL 1000 28.43	RUSSELL 1000 GROWTH 16.71	RUSSELL 1000 VALUE 0.39	RUSSELL 1000 16.42	RUSSELL 1000 33.11	BC AGGREGATE 5.97	MSCI EAFE -0.81	S&P 500 11.96	S&P 500 21.83
S&P 500 15.8	RUSSELL 1000 5.77	RUSSELL 1000 -37.6	RUSSELL 2000 27.16	RUSSELL 1000 16.10	RUSSELL 2000 GROWTH -2.91	RUSSELL 2000 16.35	RUSSELL 1000 VALUE 32.53	RUSSELL 2000 GROWTH 5.60	RUSSELL 2000 GROWTH -1.38	RUSSELL 2000 GROWTH 11.32	RUSSELL 1000 21.69
RUSSELL 1000 15.46	S&P 500 5.49	RUSSELL 1000 GROWTH -38.44	S&P 500 26.46	RUSSELL 1000 VALUE 15.51	RUSSELL 2000 -4.18	RUSSELL 1000 16.00	S&P 500 32.39	RUSSELL 2000 4.89	RUSSELL 1000 VALUE -3.83	MSCI EMERGING MARKETS 11.19	RUSSELL 2000 14.65
RUSSELL 2000 GROWTH 13.35	RUSSELL 1000 VALUE -0.17	RUSSELL 2000 GROWTH -38.54	RUSSELL 2000 VALUE 20.58	S&P 500 15.06	RUSSELL 2000 VALUE -5.50	RUSSELL 1000 GROWTH 15.26	MSCI EAFE 22.78	RUSSELL 2000 VALUE 4.22	RUSSELL 2000 -4.41	RUSSELL 1000 GROWTH 7.08	RUSSELL 1000 VALUE 13.66
RUSSELL 1000 GROWTH 9.07	RUSSELL 2000 -1.56	MSCI EAFE -43.38	RUSSELL 1000 VALUE 19.69	MSCI EAFE 7.75	MSCI EAFE -12.14	RUSSELL 2000 GROWTH 14.59	BC AGGREGATE -2.02	MSCI EMERGING MARKETS -2.19	RUSSELL 2000 VALUE -7.46	BC AGGREGATE 2.65	RUSSELL 2000 VALUE 7.84
BC AGGREGATE 4.33	RUSSELL 2000 VALUE -9.78	MSCI EMERGING MARKETS -53.33	BC AGGREGATE 5.93	BC AGGREGATE 6.54	MSCI EMERGING MARKETS -18.42	BC AGGREGATE 4.21	MSCI EMERGING MARKETS -2.60	MSCI EAFE -4.90	MSCI EMERGING MARKETS -14.93	MSCI EAFE 1.00	BC AGGREGATE 3.54

QTD	1 Year	3 year	5 Year	10 Year
RUSSELL 2000 GROWTH 2.30	MSCI EMERGING MARKETS 24.93	RUSSELL 1000 GROWTH 12.90	RUSSELL 1000 GROWTH 15.53	RUSSELL 1000 GROWTH 11.34
RUSSELL 1000 GROWTH 1.42	RUSSELL 1000 GROWTH 21.25	S&P 500 10.78	S&P 500 13.31	RUSSELL 2000 GROWTH 10.95
MSCI EMERGING MARKETS 1.42	RUSSELL 2000 GROWTH 18.63	RUSSELL 1000 10.39	RUSSELL 1000 13.17	RUSSELL 2000 9.84
RUSSELL 2000 -0.08	MSCI EAFE 14.8	MSCI EMERGING MARKETS 8.81	RUSSELL 2000 GROWTH 12.9	RUSSELL 1000 9.61
RUSSELL 1000 -0.69	S&P 500 13.99	RUSSELL 2000 GROWTH 8.76	RUSSELL 2000 11.47	S&P 500 9.49
S&P 500 -0.76	RUSSELL 1000 13.98	RUSSELL 2000 8.39	RUSSELL 1000 VALUE 10.78	RUSSELL 2000 VALUE 8.61
BC AGGREGATE -1.46	RUSSELL 2000 11.79	RUSSELL 2000 VALUE 7.87	RUSSELL 2000 VALUE 9.96	RUSSELL 1000 VALUE 7.78
MSCI EAFE -1.53	RUSSELL 1000 VALUE 6.95	RUSSELL 1000 VALUE 7.88	MSCI EAFE 6.50	BC AGGREGATE 3.63
RUSSELL 2000 VALUE -2.64	RUSSELL 2000 VALUE 5.13	MSCI EAFE 5.55	MSCI EMERGING MARKETS 4.99	MSCI EAFE 2.74
RUSSELL 1000 VALUE -2.83	BC AGGREGATE 1.20	BC AGGREGATE 1.20	BC AGGREGATE 1.82	MSCI EMERGING MARKETS 3.02



# EXECUTIVE SUMMARY

NEPC, LLC

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Delaware Office of the State Treasurer

# TOTAL FUND PERFORMANCE SUMMARY

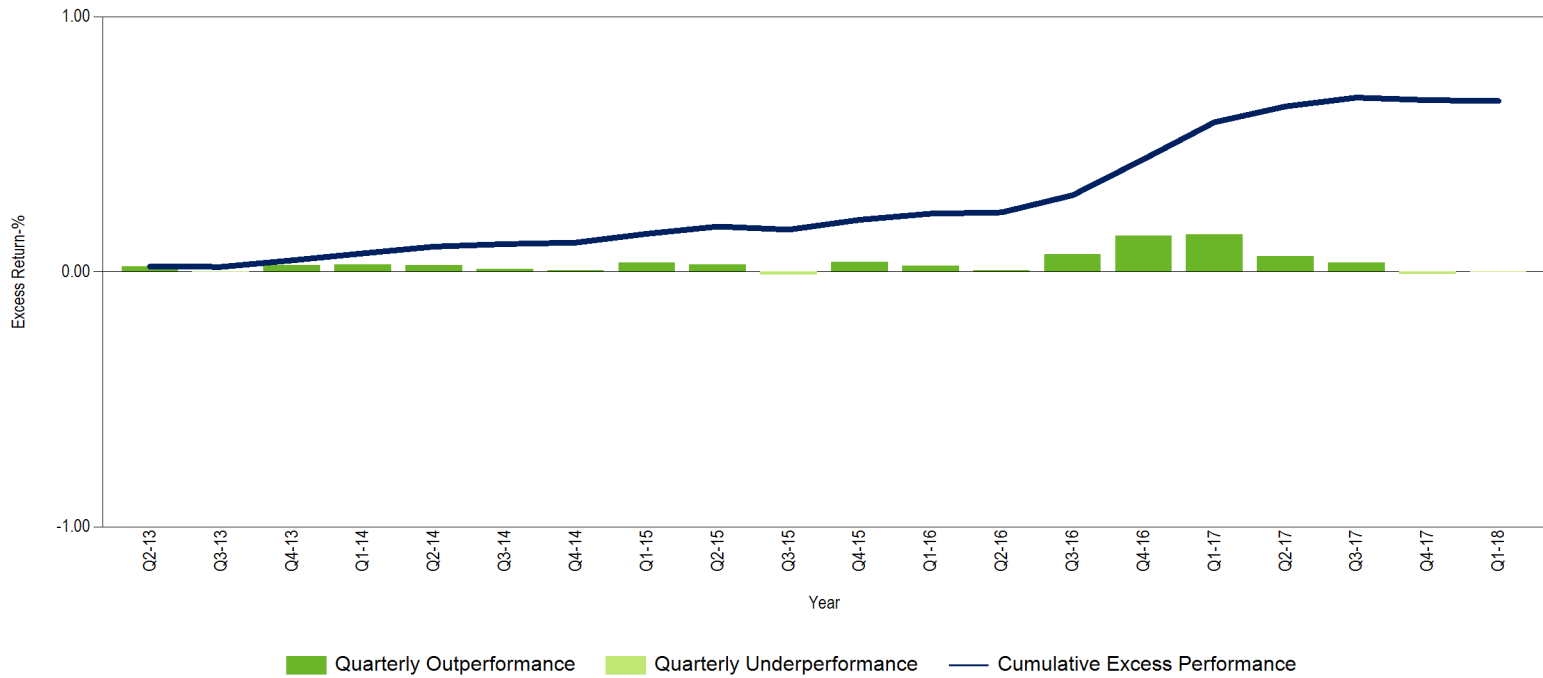
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	Inception	Inception Date
<b>Delaware Total Consolidation</b>	<b>\$1,851,779,991</b>	<b>-0.06%</b>	<b>0.59%</b>	<b>1.10%</b>	<b>1.02%</b>	<b>0.84%</b>	<b>1.89%</b>	<b>Jan-05</b>
<b>Total Liquidity &amp; Reserve</b>	<b>\$1,780,176,556</b>	<b>-0.16%</b>	<b>0.22%</b>	<b>0.59%</b>	<b>--</b>	<b>--</b>	<b>0.79%</b>	<b>Jan-16</b>
<b>Total Liquidity</b>	<b>\$568,141,335</b>	<b>0.19%</b>	<b>0.69%</b>	<b>0.99%</b>	<b>0.85%</b>	<b>0.67%</b>	<b>1.72%</b>	<b>Jan-05</b>
<i>eV US Cash Management Net Median</i>		<i>0.33%</i>	<i>0.92%</i>	<i>1.14%</i>	<i>0.72%</i>	<i>0.48%</i>	<i>1.43%</i>	<i>Jan-05</i>
<b>Total Reserve</b>	<b>\$1,212,035,221</b>	<b>-0.29%</b>	<b>0.01%</b>	<b>0.46%</b>	<b>0.82%</b>	<b>0.78%</b>	<b>2.16%</b>	<b>Jan-05</b>
<i>Reserve Custom Index</i>		<i>-0.26%</i>	<i>-0.07%</i>	<i>0.35%</i>	<i>0.67%</i>	<i>0.75%</i>	<i>2.38%</i>	<i>Jan-05</i>
<i>eV US Short Duration Fixed Inc Net Median</i>		<i>-0.24%</i>	<i>0.10%</i>	<i>0.59%</i>	<i>0.87%</i>	<i>0.93%</i>	<i>2.61%</i>	<i>Jan-05</i>
<b>Total Endowment</b>	<b>\$71,603,435</b>	<b>-0.42%</b>	<b>7.04%</b>	<b>10.78%</b>	<b>--</b>	<b>--</b>	<b>6.55%</b>	<b>Aug-15</b>
<i>Endowment Custom Index</i>		<i>-1.28%</i>	<i>5.42%</i>	<i>8.57%</i>	<i>5.36%</i>	<i>6.62%</i>	<i>5.71%</i>	<i>Aug-15</i>
<i>eV Global Balanced Net Median</i>		<i>-2.20%</i>	<i>5.10%</i>	<i>7.67%</i>	<i>4.90%</i>	<i>6.04%</i>	<i>5.63%</i>	<i>Aug-15</i>

Fiscal year ends June 30.



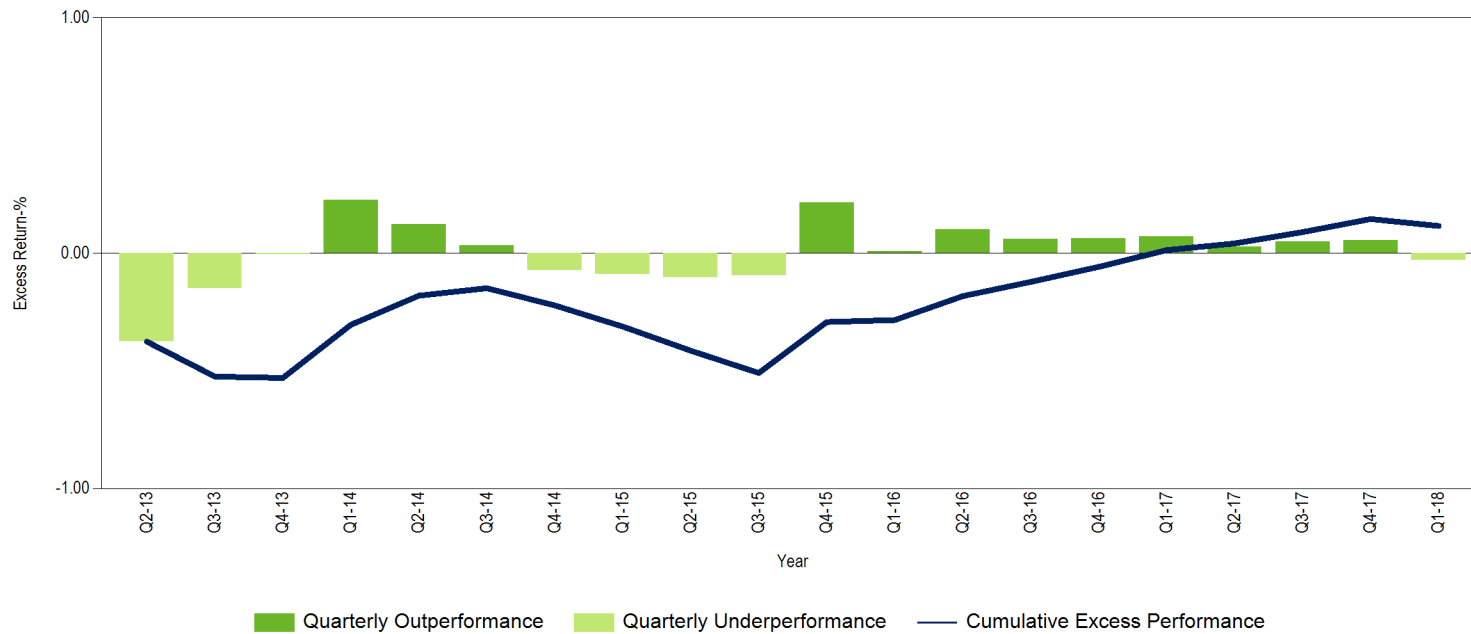
# TOTAL FUND PERFORMANCE SUMMARY

Quarterly and Cumulative Excess Performance  
Total Liquidity vs. Liquidity Custom Index



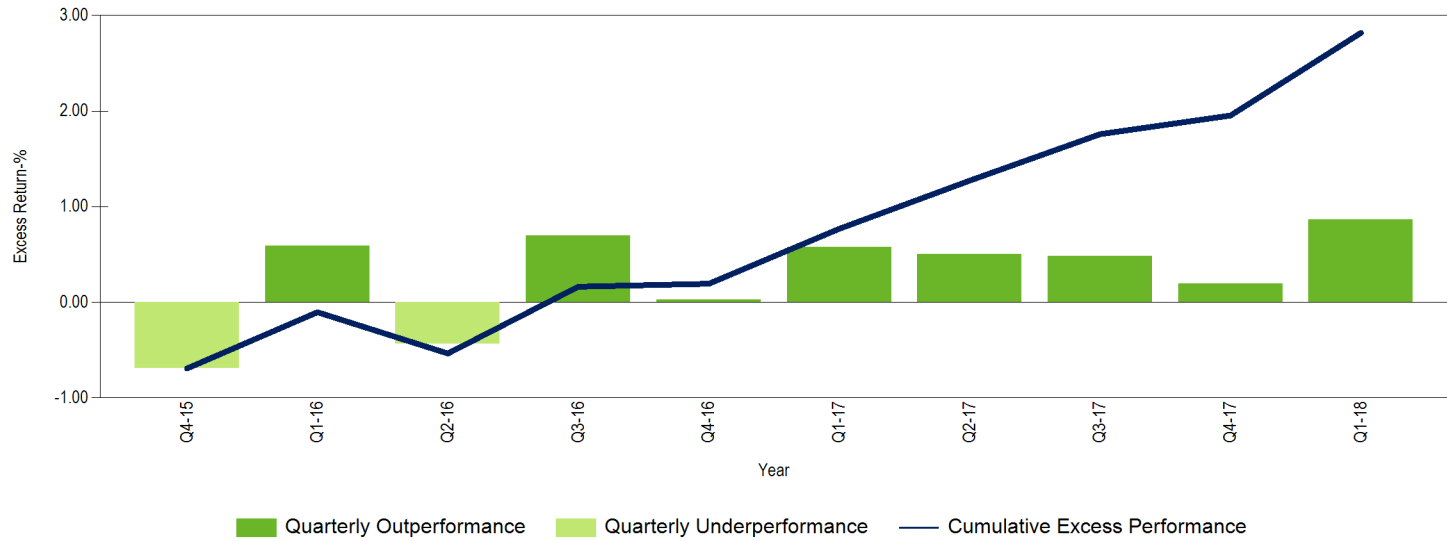
# TOTAL FUND PERFORMANCE SUMMARY

Quarterly and Cumulative Excess Performance  
Total Reserve vs. Reserve Custom Index



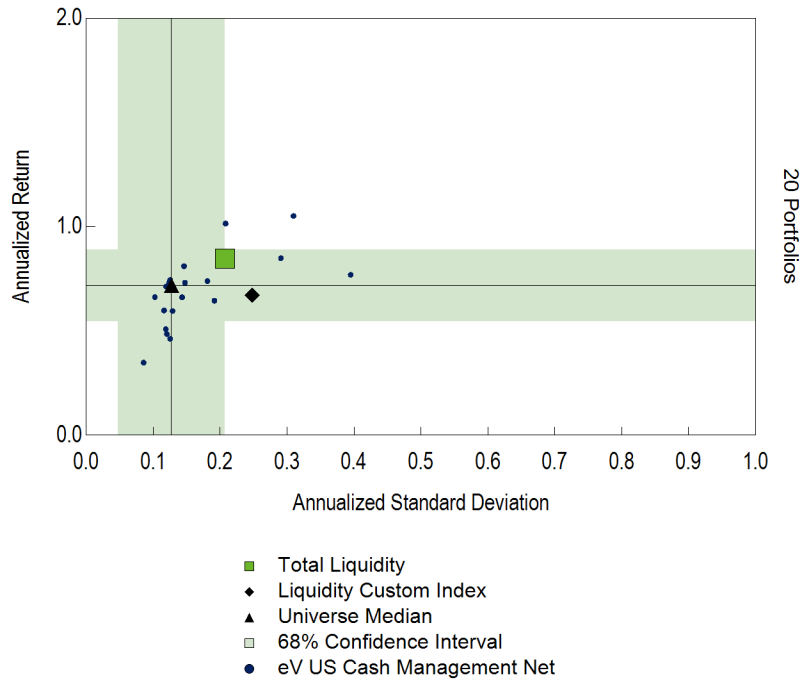
# TOTAL FUND PERFORMANCE SUMMARY

Quarterly and Cumulative Excess Performance  
Total Endowment vs. Endowment Custom Index

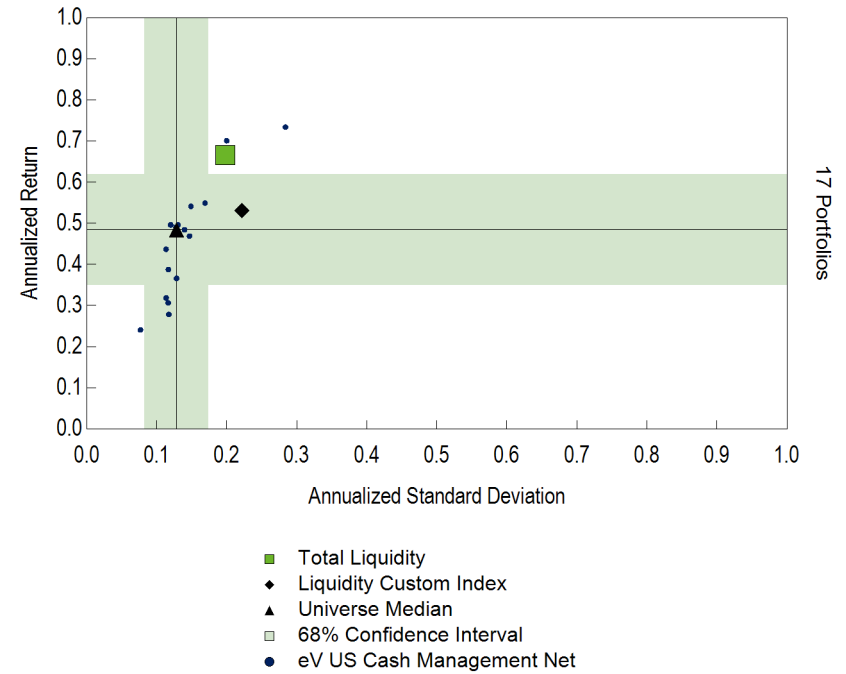


# LIQUIDITY RISK/RETURN - 3 & 5 YEARS

3 Years Ending March 31, 2018



5 Years Ending March 31, 2018



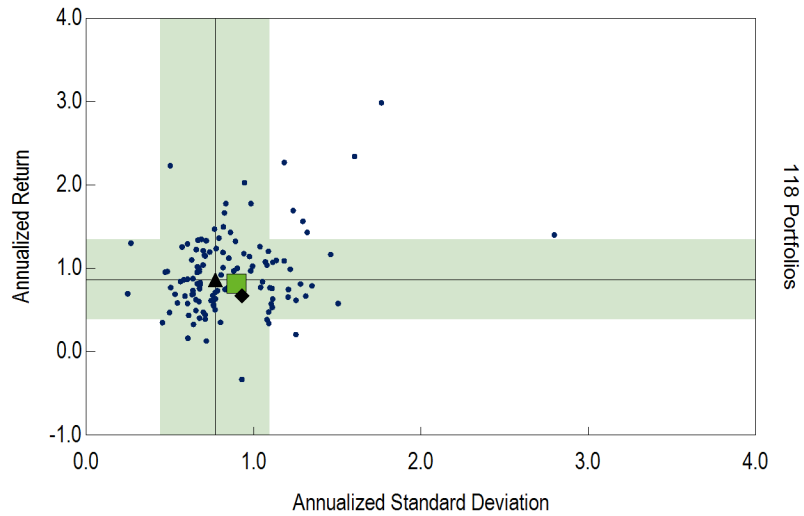
3 Years Ending March 31, 2018			
	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Liquidity	0.85%	0.21%	1.43
Liquidity Custom Index	0.67%	0.25%	0.50

5 Years Ending March 31, 2018			
	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Liquidity	0.67%	0.20%	1.64
Liquidity Custom Index	0.53%	0.22%	0.86



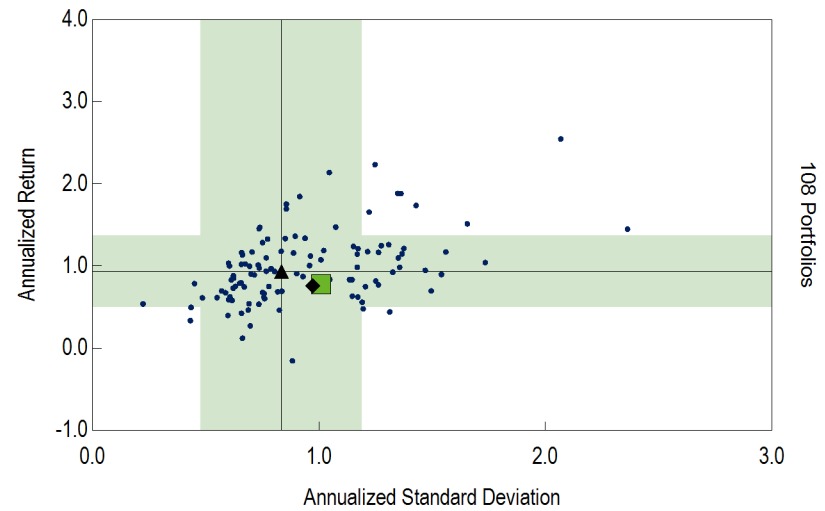
# RESERVE RISK/RETURN - 3 & 5 YEARS

3 Years Ending March 31, 2018



- Total Reserve
- ◆ Reserve Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Short Duration Fixed Inc Net

5 Years Ending March 31, 2018



- Total Reserve
- ◆ Reserve Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Short Duration Fixed Inc Net

3 Years Ending March 31, 2018

	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Reserve	0.82%	0.90%	0.40
Reserve Custom Index	0.67%	0.93%	0.23

5 Years Ending March 31, 2018

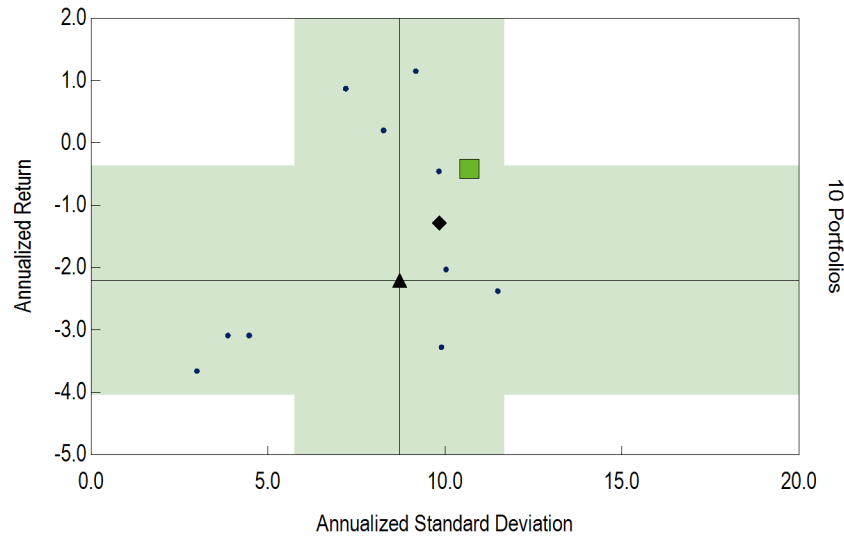
	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Reserve	0.78%	1.01%	0.49
Reserve Custom Index	0.75%	0.97%	0.48





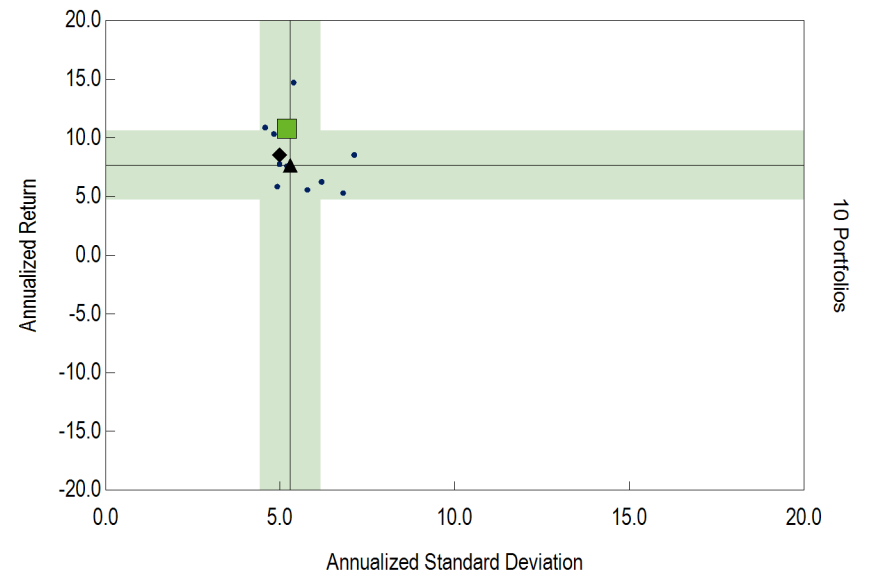
# ENDOWMENT RISK/RETURN - 3 MONTH & 1 YEAR

**3 Months Ending March 31, 2018**



- Total Endowment
- ◆ Endowment Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- eV Global Balanced Net

**1 Year Ending March 31, 2018**



- Total Endowment
- ◆ Endowment Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- eV Global Balanced Net

**3 Months Ending March 31, 2018**

	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Endowment	10.78%	5.20%	1.85
Endowment Custom Index	8.57%	4.98%	1.49

**1 Year Ending March 31, 2018**

	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio
Total Endowment	10.78%	5.20%	1.85
Endowment Custom Index	8.57%	4.98%	1.49



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# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Delaware Total Consolidation</b>	<b>1,851,779,991</b>	<b>100.00</b>	<b>-0.06</b>	<b>--</b>	<b>0.59</b>	<b>--</b>	<b>1.10</b>	<b>--</b>	<b>1.02</b>	<b>--</b>	<b>0.84</b>	<b>--</b>	<b>1.89</b>	<b>Jan-05</b>
<b>Total Liquidity &amp; Reserve</b>	<b>1,780,176,556</b>	<b>96.13</b>	<b>-0.16</b>	<b>--</b>	<b>0.22</b>	<b>--</b>	<b>0.59</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.79</b>	<b>Jan-16</b>
<b>Total Liquidity</b>	<b>568,141,335</b>	<b>30.68</b>	<b>0.19</b>	<b>92</b>	<b>0.69</b>	<b>88</b>	<b>0.99</b>	<b>81</b>	<b>0.85</b>	<b>11</b>	<b>0.67</b>	<b>8</b>	<b>1.72</b>	<b>Jan-05</b>
<i>eV US Cash Management Net Median</i>			<i>0.33</i>		<i>0.92</i>		<i>1.14</i>		<i>0.72</i>		<i>0.48</i>		<i>1.43</i>	<i>Jan-05</i>
Insight Investment	1,214	0.00												
PFM Asset Management	285,418,696	15.41	0.27	78	0.76	84	1.07	65	0.95	8	--	--	0.80	Jun-13
Wells Capital Inv. Liquidity	2,321	0.00												
Wilmington Liquidity	282,719,104	15.27	0.13	95	0.52	98	0.77	97	0.73	45	0.57	12	4.24	Jan-85
<b>Total Reserve</b>	<b>1,212,035,221</b>	<b>65.45</b>	<b>-0.29</b>	<b>58</b>	<b>0.01</b>	<b>59</b>	<b>0.46</b>	<b>59</b>	<b>0.82</b>	<b>55</b>	<b>0.78</b>	<b>67</b>	<b>2.16</b>	<b>Jan-05</b>
<i>Reserve Custom Index</i>			<i>-0.26</i>	<i>51</i>	<i>-0.07</i>	<i>71</i>	<i>0.35</i>	<i>70</i>	<i>0.67</i>	<i>72</i>	<i>0.75</i>	<i>68</i>	<i>2.38</i>	<i>Jan-05</i>
<i>eV US Short Duration Fixed Inc Net Median</i>			<i>-0.24</i>		<i>0.10</i>		<i>0.61</i>		<i>0.87</i>		<i>0.93</i>		<i>2.62</i>	<i>Jan-05</i>
Blackrock Financial Mangement	303,021,600	16.36	--	--	--	--	--	--	--	--	--	--	0.19	Mar-18
Chandler Asset Management	305,519,911	16.50	-0.35	74	-0.16	80	0.38	67	0.77	58	--	--	0.94	Jun-13
Federated Investors	1,528	0.00												
JPM Intermediate	301,411,273	16.28	-0.36	75	-0.08	73	0.39	66	0.77	59	--	--	0.88	Jun-13
Lazard Financial Management	302,076,593	16.31	--	--	--	--	--	--	--	--	--	--	0.49	Mar-18
Morgan Stanley	1,294	0.00												
Schroder Intermediate	3,022	0.00												
<b>Total Endowment</b>	<b>71,603,435</b>	<b>3.87</b>	<b>-0.42</b>	<b>30</b>	<b>7.04</b>	<b>17</b>	<b>10.78</b>	<b>12</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>6.55</b>	<b>Aug-15</b>
<i>Endowment Custom Index</i>			<i>-1.28</i>	<i>42</i>	<i>5.42</i>	<i>45</i>	<i>8.57</i>	<i>30</i>	<i>5.36</i>	<i>51</i>	<i>6.62</i>	<i>32</i>	<i>5.71</i>	<i>Aug-15</i>
<i>eV Global Balanced Net Median</i>			<i>-2.03</i>		<i>5.36</i>		<i>7.75</i>		<i>5.39</i>		<i>6.25</i>		<i>5.68</i>	<i>Aug-15</i>
SEI Funds	23,291,057	1.26	-0.81	36	6.92	20	10.47	18	--	--	--	--	7.81	Aug-15
MSIFT Global Strategist	22,238,611	1.20	0.42	17	7.60	9	12.05	7	--	--	--	--	6.15	Aug-15
JP Morgan Diversified	22,515,802	1.22	-0.95	38	7.49	10	11.27	9	--	--	--	--	6.81	Aug-15
Cash Account	3,557,965	0.19	0.28	76	0.66	89	0.79	96	--	--	--	--	0.43	Aug-15

Notes: Net of Fees. Results for periods longer than one year are annualized.

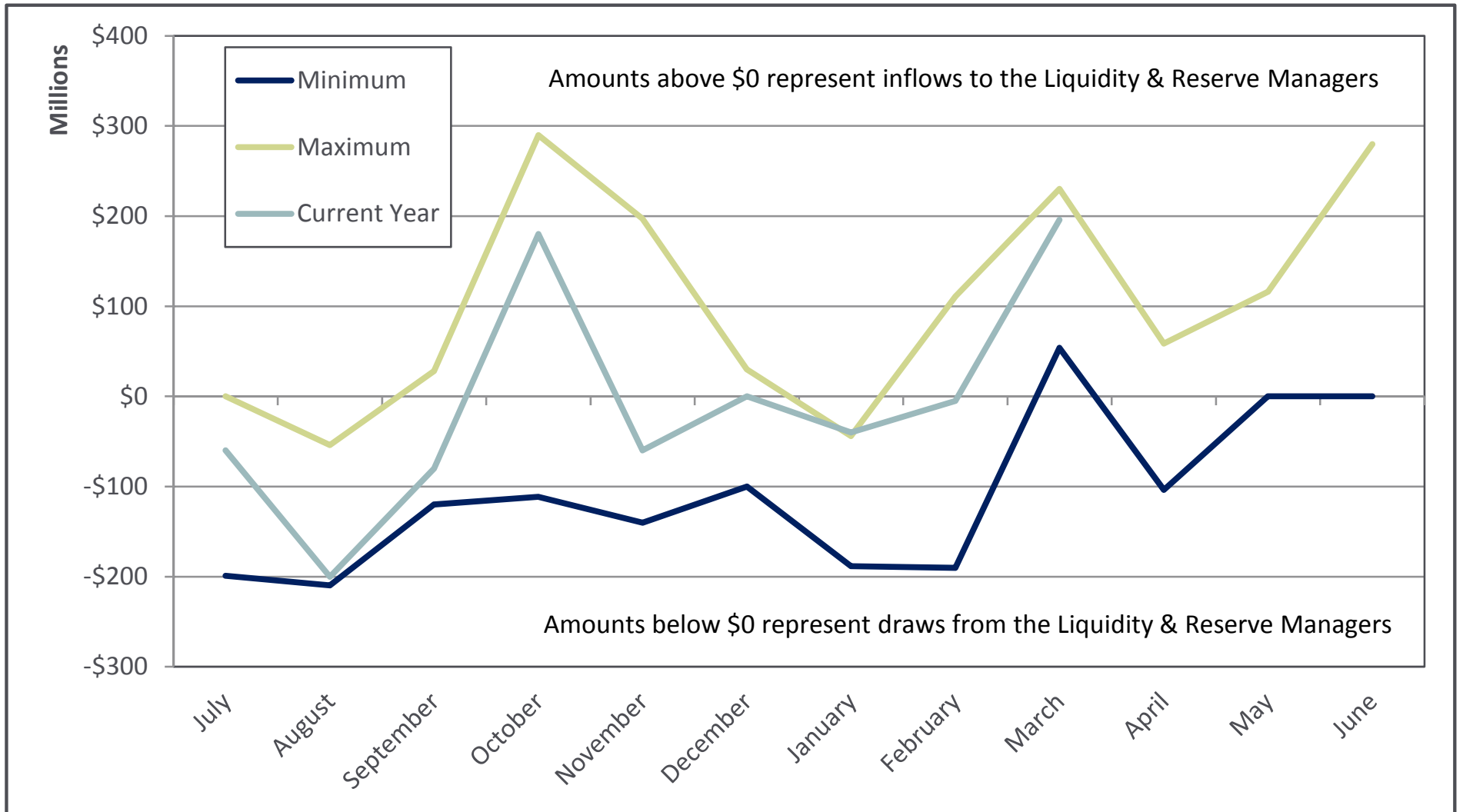
Performance history through 12/2015 is from BNY Mellon. NEPC performance start date is January, 2016. Fiscal Year end is June 30.

Liquidity Custom Index is comprised of 25% BofA Merrill Lynch 1-3 Year Govt/Corporate A+ or Better/ 75% 6 Month Treasury Bill.

Reserve Custom index is comprised of 75% BofA Merrill Lynch 1-5 Year Govt/Corporate A+ or better/ 25% 6 Month Treasury Bill.



# CASH FLOWS – FISCAL YEAR 2018



# MONTH ENDED MARCH 31, 2018

## Change in Market Value Month Ending March 31, 2018

	Beginning Market Value	Contributions	Withdrawals	Fees	Income	Unrealized Gain (Loss)	Realized Gain (Loss)	Amortization / Accretion	Ending Market Value
<b>Liquidity Managers</b>									
Insight Investment	\$ 126,944,394	\$ -	\$ (126,920,094)	\$ (23,108)	\$ 22	\$ -	\$ -	\$ -	\$ 1,214
PFM Asset Management	\$ 210,058,885	\$ 75,000,000	\$ -	\$ -	\$ 297,891	\$ (20,719)	\$ (803)	\$ 83,441	\$ 285,418,696
Wells Capital Inv. Liquidity	\$ 128,707,332	\$ -	\$ (128,687,112)	\$ (21,702)	\$ 3,818	\$ -	\$ (15)	\$ -	\$ 2,321
Wilmington Liquidity	\$ 207,387,433	\$ 75,000,000	\$ -	\$ -	\$ 323,903	\$ (56,942)	\$ (233)	\$ 64,943	\$ 282,719,104
<b>Total Liquidity Managers</b>	<b>\$ 673,098,044</b>	<b>\$ 150,000,000</b>	<b>\$ (255,607,206)</b>	<b>\$ (44,810)</b>	<b>\$ 625,634</b>	<b>\$ (77,661)</b>	<b>\$ (1,051)</b>	<b>\$ 148,384</b>	<b>\$ 568,141,335</b>
<b>Reserve Managers</b>									
BlackRock Financial Management	\$ -	\$ 301,347,288	\$ -	\$ -	\$ 1,532,697	\$ 199,052	\$ 3,102	\$ (60,540)	\$ 303,021,600
Chandler Asset Management	\$ 103,709,555	\$ 199,954,607	\$ -	\$ -	\$ 1,373,773	\$ 952,859	\$ (466,083)	\$ (4,800)	\$ 305,519,911
Federated Investors	\$ 145,968,515	\$ -	\$ (145,455,626)	\$ (29,250)	\$ (482,111)	\$ -	\$ -	\$ -	\$ 1,528
JPM Intermediate	\$ 300,986,266	\$ -	\$ -	\$ -	\$ 463,689	\$ (78,014)	\$ 1,219	\$ 38,112	\$ 301,411,273
Lazard Asset Management	\$ -	\$ 300,607,205	\$ -	\$ -	\$ 605,411	\$ 1,077,842	\$ (303,267)	\$ 89,402	\$ 302,076,593
Morgan Stanley	\$ 156,529,586	\$ -	\$ (155,891,662)	\$ (25,081)	\$ (611,549)	\$ -	\$ -	\$ -	\$ 1,294
Schroder Intermediate	\$ 200,853,989	\$ -	\$ (199,954,607)	\$ (38,417)	\$ (857,943)	\$ -	\$ -	\$ -	\$ 3,022
<b>Total Reserve Managers</b>	<b>\$ 908,047,911</b>	<b>\$ 801,909,100</b>	<b>\$ (501,301,895)</b>	<b>\$ (92,748)</b>	<b>\$ 2,023,967</b>	<b>\$ 2,151,739</b>	<b>\$ (765,029)</b>	<b>\$ 62,174</b>	<b>\$ 1,212,035,221</b>
<b>Total Liquidity &amp; Reserve Managers</b>	<b>\$ 1,581,145,955</b>	<b>\$ 951,909,100</b>	<b>\$ (756,909,101)</b>	<b>\$ (137,558)</b>	<b>\$ 2,649,601</b>	<b>\$ 2,074,078</b>	<b>\$ (766,080)</b>	<b>\$ 210,559</b>	<b>\$ 1,780,176,556</b>
<b>Land &amp; Water Endowment</b>									
SEI Funds	\$ 23,248,925	\$ 199,716	\$ -	\$ -	\$ 21,411	\$ (178,996)	\$ -	\$ -	\$ 23,291,057
MSIFT Global Strategist	\$ 22,064,821	\$ 199,716	\$ -	\$ -	\$ 437	\$ (76,211)	\$ 49,847	\$ -	\$ 22,238,612
JP Morgan Diversified	\$ 22,518,291	\$ 199,716	\$ -	\$ -	\$ 93,512	\$ (317,671)	\$ 21,952	\$ -	\$ 22,515,801
Cash Account	\$ 3,554,033	\$ -	\$ -	\$ -	\$ 3,932	\$ -	\$ -	\$ -	\$ 3,557,965
<b>Total Land &amp; Water Endowment</b>	<b>\$ 71,386,070</b>	<b>\$ 599,148</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 119,292</b>	<b>\$ (572,878)</b>	<b>\$ 71,799</b>	<b>\$ -</b>	<b>\$ 71,603,435</b>
<b>Total</b>	<b>\$ 1,652,532,025</b>	<b>\$ 952,508,248</b>	<b>\$ (756,909,101)</b>	<b>\$ (137,558)</b>	<b>\$ 2,768,893</b>	<b>\$ 1,501,200</b>	<b>\$ (694,281)</b>	<b>\$ 210,559</b>	<b>\$ 1,851,779,991</b>

### Footnotes:

Values provided by Northern Trust and are reconciled to the audited custodian reports.

Income is a product of income received during the month plus accrued income.

Numbers may not add due to rounding.



# FISCAL YEAR TO DATE

	Change in Market Value Fiscal Year-to-Date Through March 31, 2018								
	Beginning Market Value	Contributions	Withdrawals	Fees	Income	Unrealized Gain (Loss)	Realized Gain (Loss)	Amortization / Accretion	Ending Market Value
<b>Liquidity Managers</b>									
Insight Investment	\$ 245,868,623	\$ 45,000,000	\$ (291,920,094)	\$ (157,481)	\$ 1,792,292	\$ (88,788)	\$ (503,408)	\$ 10,070	\$ 1,214
PFM Asset Management	\$ 248,829,522	\$ 145,000,000	\$ (110,000,000)	\$ (121,224)	\$ 2,200,578	\$ (596,765)	\$ (60,997)	\$ 167,582	\$ 285,418,696
Wells Capital Inv. Liquidity	\$ 247,394,630	\$ 45,000,000	\$ (293,687,112)	\$ (141,608)	\$ 1,972,277	\$ 97,211	\$ (628,317)	\$ (4,760)	\$ 2,321
Wilmington Liquidity	\$ 246,587,584	\$ 156,845,000	\$ (121,845,000)	\$ (126,835)	\$ 1,817,084	\$ (902,995)	\$ (34,825)	\$ 379,089	\$ 282,719,104
<b>Total Liquidity Managers</b>	<b>\$ 988,680,359</b>	<b>\$ 391,845,000</b>	<b>\$ (817,452,206)</b>	<b>\$ (547,148)</b>	<b>\$ 7,782,230</b>	<b>\$ (1,491,337)</b>	<b>\$ (1,227,547)</b>	<b>\$ 551,981</b>	<b>\$ 568,141,335</b>
<b>Reserve Managers</b>									
BlackRock Financial Management	\$ -	\$ 301,347,288	\$ -	\$ -	\$ 1,532,697	\$ 199,052	\$ 3,102	\$ (60,540)	\$ 303,021,600
Chandler Asset Management	\$ 104,214,660	\$ 199,954,607	\$ -	\$ (66,932)	\$ 2,629,160	\$ (683,105)	\$ (485,652)	\$ (42,827)	\$ 305,519,911
Federated Investors	\$ 146,429,584	\$ -	\$ (145,455,626)	\$ (154,522)	\$ 1,000,379	\$ (1,684,153)	\$ (18,946)	\$ (115,187)	\$ 1,528
JPM Intermediate	\$ 246,533,929	\$ 55,000,000	\$ -	\$ (172,071)	\$ 3,287,635	\$ (3,019,068)	\$ (193,181)	\$ (25,970)	\$ 301,411,273
Lazard Asset Management	\$ -	\$ 300,607,205	\$ -	\$ -	\$ 605,411	\$ 1,077,842	\$ (303,267)	\$ 89,402	\$ 302,076,593
Morgan Stanley	\$ 156,784,983	\$ -	\$ (155,891,662)	\$ (133,919)	\$ 1,210,238	\$ (1,959,311)	\$ (20,562)	\$ 11,530	\$ 1,294
Schroder Intermediate	\$ 201,408,815	\$ -	\$ (199,954,607)	\$ (211,437)	\$ 1,464,527	\$ (2,600,180)	\$ (27,392)	\$ (76,704)	\$ 3,022
<b>Total Reserve Managers</b>	<b>\$ 855,371,971</b>	<b>\$ 856,909,100</b>	<b>\$ (501,301,895)</b>	<b>\$ (738,881)</b>	<b>\$ 11,730,046</b>	<b>\$ (8,668,924)</b>	<b>\$ (1,045,899)</b>	<b>\$ (220,296)</b>	<b>\$ 1,212,035,221</b>
<b>Total Liquidity &amp; Reserve Managers</b>	<b>\$ 1,844,052,330</b>	<b>\$ 1,248,754,100</b>	<b>\$ (1,318,754,101)</b>	<b>\$ (1,286,029)</b>	<b>\$ 19,512,276</b>	<b>\$ (10,160,260)</b>	<b>\$ (2,273,446)</b>	<b>\$ 331,685</b>	<b>\$ 1,780,176,556</b>
<b>Land &amp; Water Endowment</b>									
SEI Funds	\$ 22,788,788	\$ 199,716	\$ (1,208,808)	\$ (58,750)	\$ 475,376	\$ 814,383	\$ 280,349	\$ -	\$ 23,291,057
MSIFT Global Strategist	\$ 21,618,353	\$ 199,716	\$ (1,152,062)	\$ -	\$ 258,625	\$ 78,207	\$ 1,235,769	\$ -	\$ 22,238,612
JP Morgan Diversified	\$ 21,920,165	\$ 199,716	\$ (1,175,187)	\$ -	\$ 355,955	\$ 88,733	\$ 1,126,417	\$ -	\$ 22,515,801
Cash Account	\$ 1,407	\$ 3,422,180	\$ (1,307)	\$ 113,777	\$ 21,908	\$ -	\$ -	\$ -	\$ 3,557,965
<b>Total Land &amp; Water Endowment</b>	<b>\$ 66,328,713</b>	<b>\$ 4,021,328</b>	<b>\$ (3,537,364)</b>	<b>\$ 55,027</b>	<b>\$ 1,111,864</b>	<b>\$ 981,324</b>	<b>\$ 2,642,536</b>	<b>\$ -</b>	<b>\$ 71,603,435</b>
<b>Total</b>	<b>\$ 1,910,381,043</b>	<b>\$ 1,252,775,428</b>	<b>\$ (1,322,291,465)</b>	<b>\$ (1,231,002)</b>	<b>\$ 20,624,141</b>	<b>\$ (9,178,937)</b>	<b>\$ 369,090</b>	<b>\$ 331,685</b>	<b>\$ 1,851,779,991</b>

## Footnotes:

Values provided by Northern Trust and are reconciled to the audited custodian reports.

Income is a product of income received during the month plus accrued income.

Numbers may not add due to rounding.



# DEFAC PROJECTION

	DEFAC Current Year	Δ From Previous Observation	FY 19	FY 19 Δ From Previous Observation	FY 20	FY 20 Δ From Previous Observation	FY 21	FY 21 Δ From Previous Observation	FY 22	FY 22 Δ From Previous Observation
	<u>Totals</u>		<u>Totals</u>		<u>Totals</u>		<u>Totals</u>		<u>Totals</u>	
Total Interest	\$28,998,547	(\$39,657)	\$38,473,447	(\$168,929)	\$40,541,073	(\$634,872)	\$42,716,901	(\$1,148,147)	\$44,877,251	(\$1,666,340)
Change in Market Value	(\$18,750,921)	(\$1,427,076)	(\$6,617,171)	(\$3,659,483)	(\$5,763,984)	(\$2,517,732)	(\$5,744,121)	(\$2,504,150)	(\$5,724,326)	(\$2,490,624)
Less: School Special Fund Interest Payments	(\$6,850,907)	\$9,369	(\$9,089,352)	\$39,909	(\$9,577,829)	\$149,988	(\$10,091,868)	\$271,250	(\$10,602,251)	\$393,672
Less: Banking Services	(\$3,819,504)	-	(\$3,819,504)	-	(\$3,819,504)	-	(\$3,819,504)	-	(\$3,819,504)	-
Less: Investment Manager Fees	(\$1,584,471)	\$21,133	(\$1,529,519)	\$65,726	(\$1,524,248)	\$67,911	(\$1,518,995)	\$70,083	(\$1,513,761)	\$72,242
DEFAC Projection	(\$2,007,255)	(\$1,436,230)	\$17,417,901	(\$3,722,776)	\$19,855,509	(\$2,934,704)	\$21,542,413	(\$3,310,965)	\$23,217,410	(\$3,691,048)

As of 03/31/2018

Change from previous figures are calculated from the 02/28/2018 DEFAC forecast

- **The front end of the Treasury curve rose in March as the Fed hiked rates for the first time in 2018**
  - The central bank expects two additional rate hikes this year, but has indicated a willingness to accelerate rate increases as needed
  - The Fed raised projections for 2019 to three hikes from two with higher expected growth
- **Higher expected future interest rates have increased estimated total interest levels in future fiscal year projections – holding all other assumptions constant**



# ASSUMPTIONS FOR DEFAC PROJECTION

- ***Net Cash Flows – Assumed to be net neutral over the course of each fiscal year and follow historical seasonality patterns, FY 19 through FY 22 each follow the previous year’s cash flow pattern***
- ***Changes in Yield – Actual changes reflected as they are realized, projected changes based on forward yield curve at 1 year and 5 year forward points; Current Year projection of 6 bps rise realized at equidistant points of remaining fiscal year, FY 19-22 projection of 56 bps rise realized pro rata across all months***
- ***Interest – Actual interest reflected as it is realized, projected interest calculated as projected yield times projected market value***
- ***Banking Services – Flat estimate of \$318,292 per month***
- ***School and Special Fund Interest Payments – Estimated at 42% of fiscal year interest earned on 56% of total assets***
- ***Investment manager fees – July 2017 – February 2018 uses old architecture estimate of 9.5 bps per year of assets under management. March 2018 and forward incorporates the new estimate of 9.13 bps***

# LIQUIDITY MANAGER REVIEW

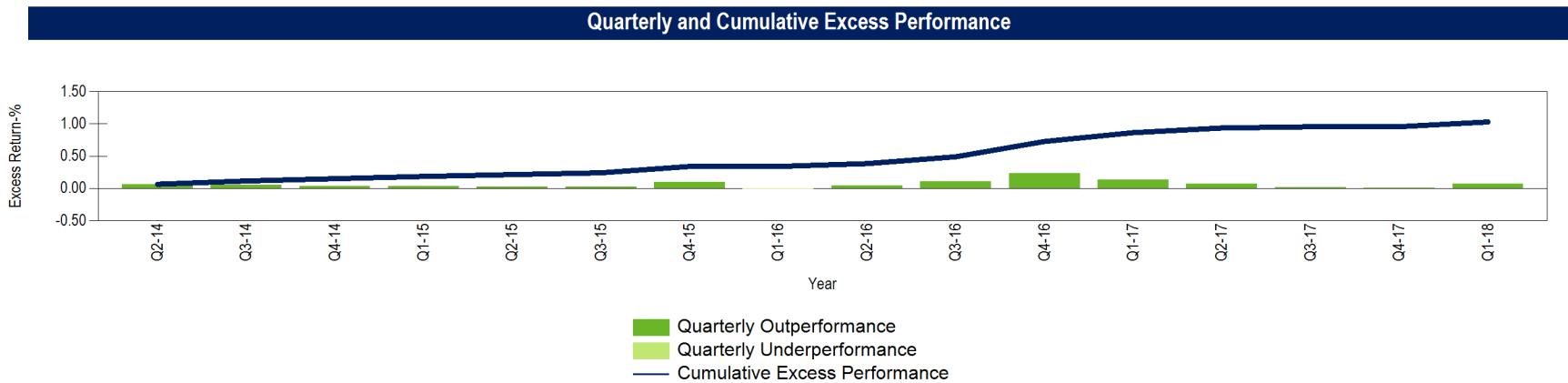
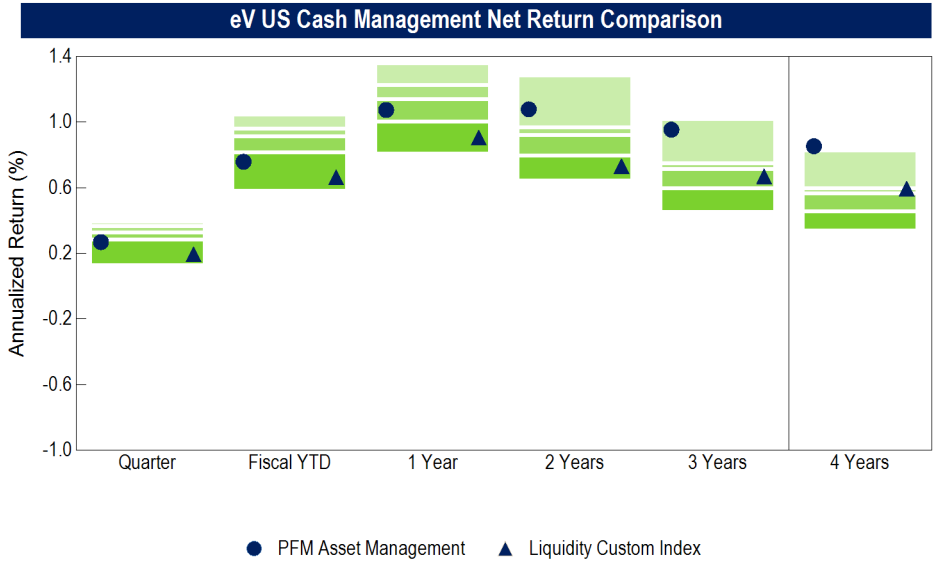
NEPC, LLC

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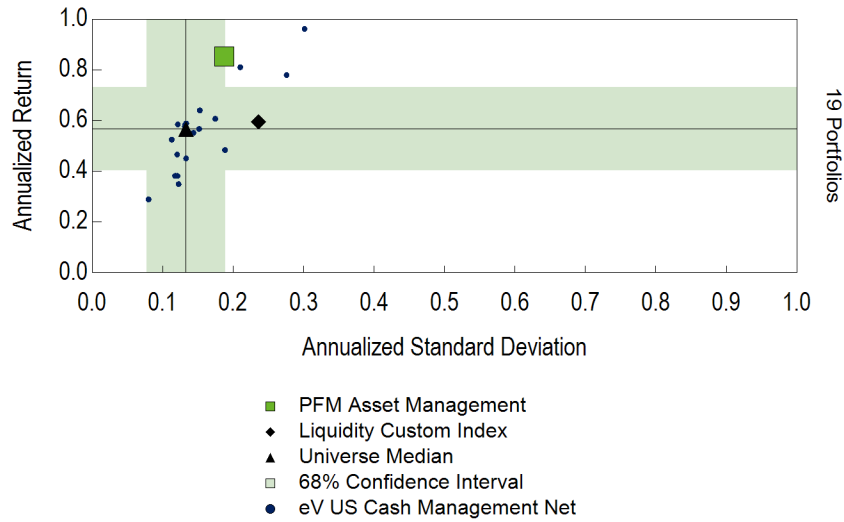
# PFM ASSET MANAGEMENT

PFM asset management manages an enhanced cash strategy. The enhanced cash strategy aims to achieve a higher total return than short-term investments such as money market funds while seeking to maintain a high level of principal stability and providing for occasional liquidity needs. The investments utilized include government securities as well as non-government instruments such as commercial paper, corporate notes, certificates of deposit, and asset-backed securities.

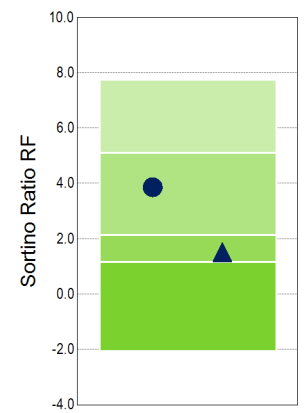
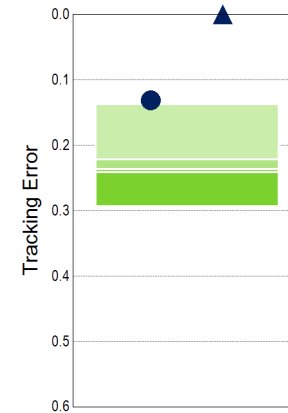
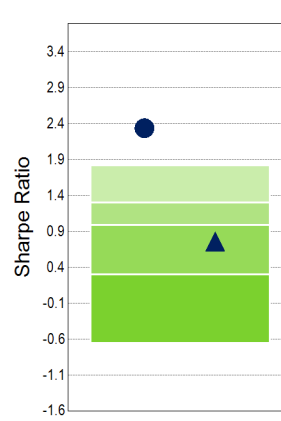
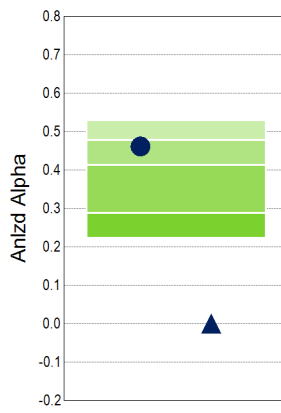
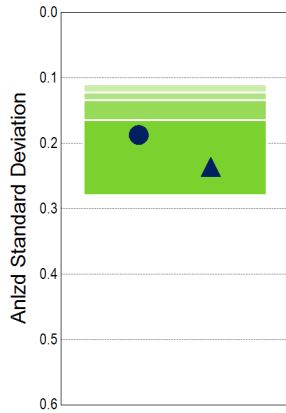
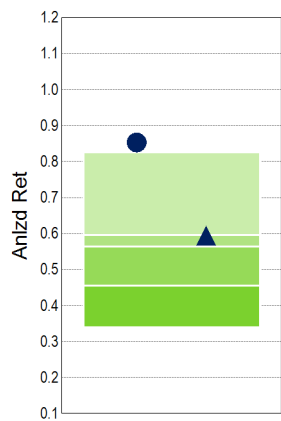
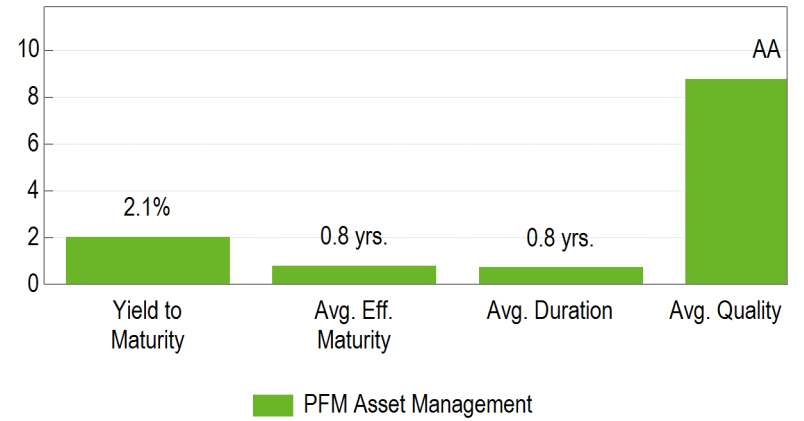


# PFM ASSET MANAGEMENT

## 4 Year Risk Return



## Characteristics



● PFM Asset Management ▲ Liquidity Custom Index

■ 5th to 25th Percentile ■ 25th to Median ■ Median to 75th Percentile ■ 75th to 95th Percentile

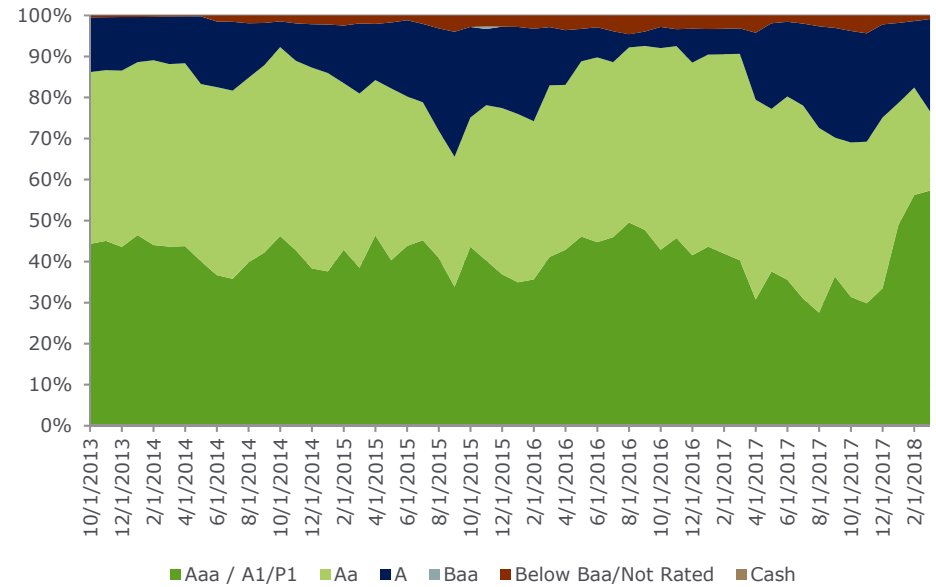
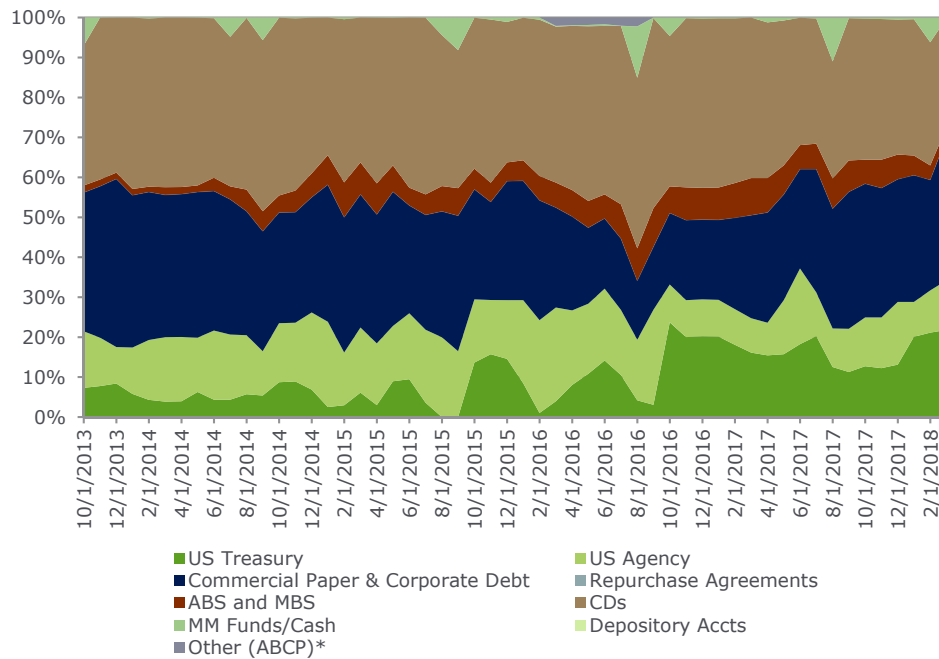


Delaware Office of the State Treasurer

# PFM ASSET MANAGEMENT

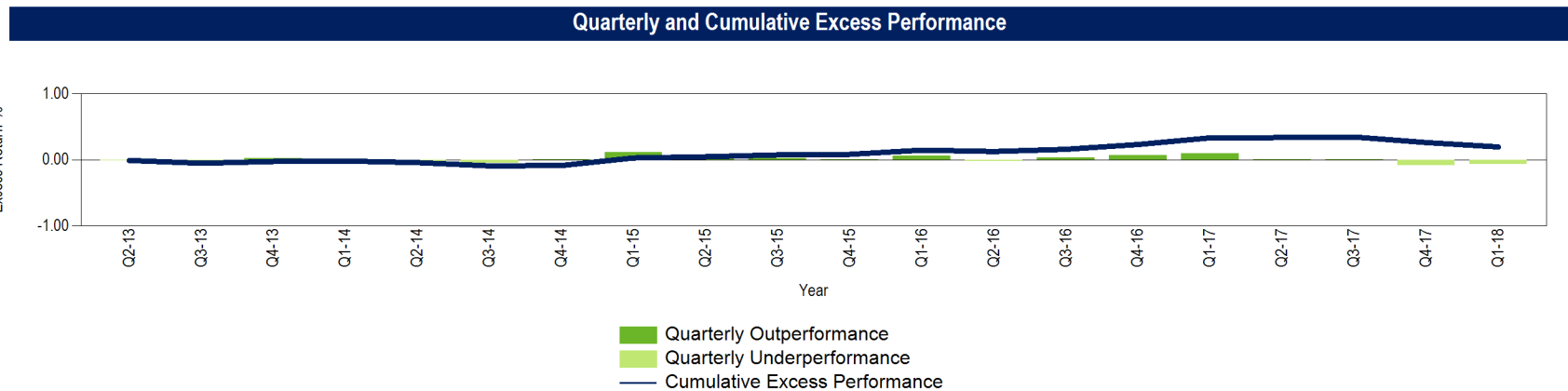
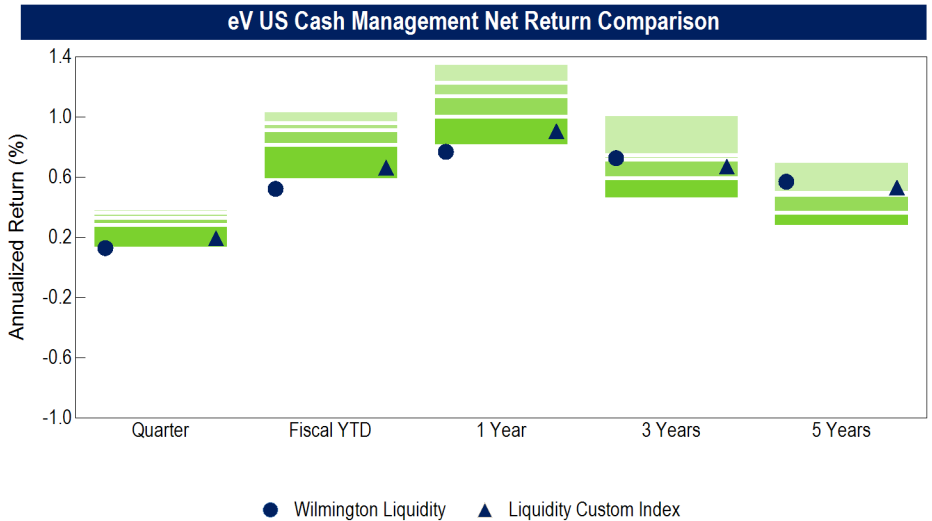
	IPS	Feb-18	Mar-18
US Treasury	100%	21.1%	21.8%
US Agency	50%	10.6%	12.4%
Commercial Paper & Corporate Debt	50%	27.7%	35.8%
Repurchase Agreements	50%	0.0%	0.0%
ABS and MBS	10%	3.6%	2.6%
CDs	50%	30.9%	27.3%
MM Funds/Cash	100%	6.2%	0.2%
Depository Accts	50%	0.0%	0.0%
Other (ABCP)	50%	0.0%	0.0%

	Feb-18	Mar-18
Aaa / A1/P1	56.2%	57.3%
Aa	26.2%	19.3%
A	16.2%	22.6%
Baa	0.0%	0.0%
Below Baa/Not Rated	1.4%	0.9%



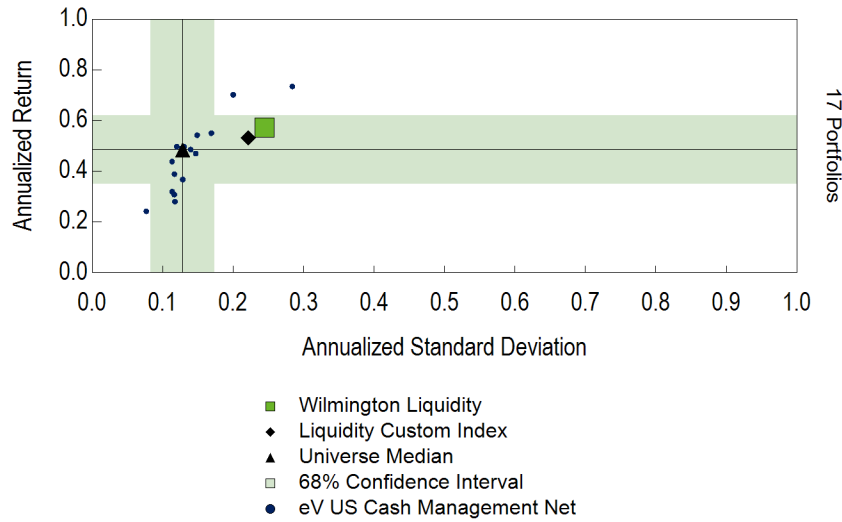
# WILMINGTON LIQUIDITY

Wilmington Trust Investment Advisors manages a portfolio considered to be the “State of Delaware Wilmington Liquidity Portfolio”. The portfolio is a 0-2 year maturity strategy. Using the guidelines and the expected cash flows in or out provided directly from the State, the portfolio is structured accordingly. The bulk of holdings are agency bullets, callable agencies, corporates, commercial paper and asset-backed securities, based on the guideline limitations. It is a fluid strategy based on cash needs and interest rate expectations.

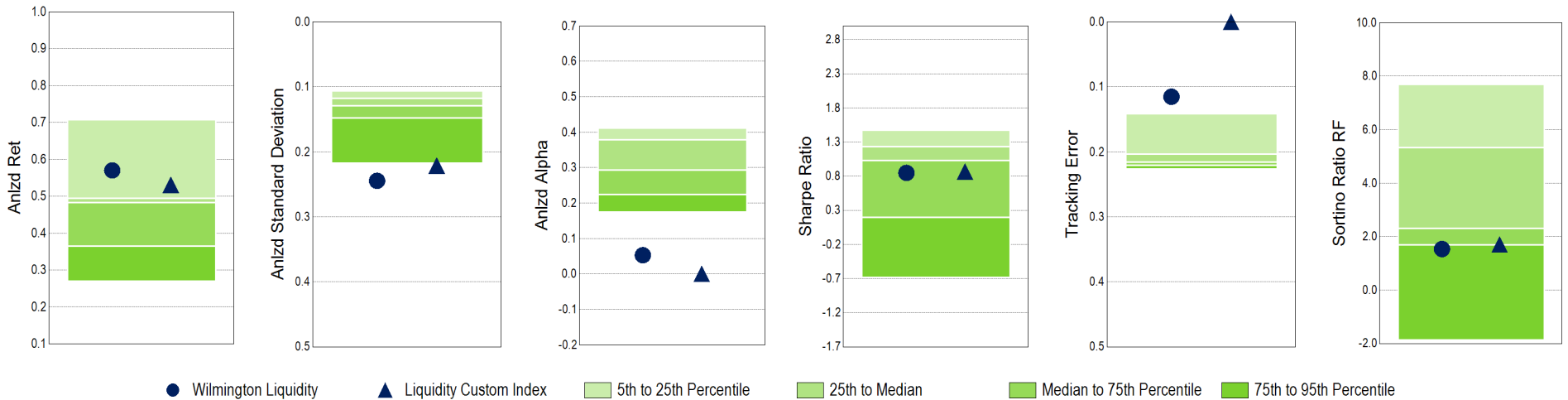
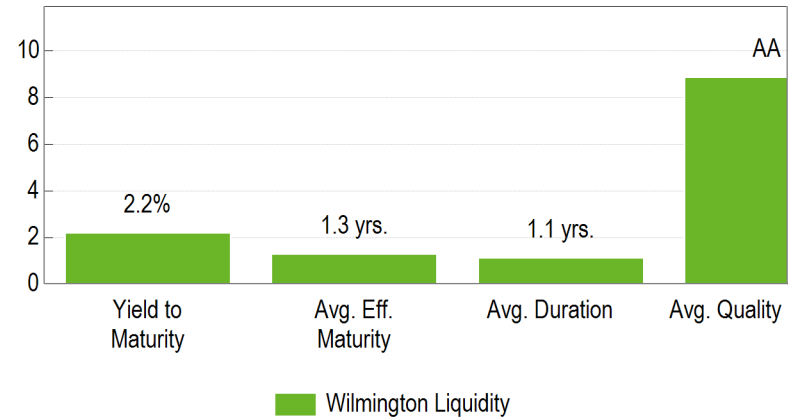


# WILMINGTON LIQUIDITY

## 5 Year Risk Return



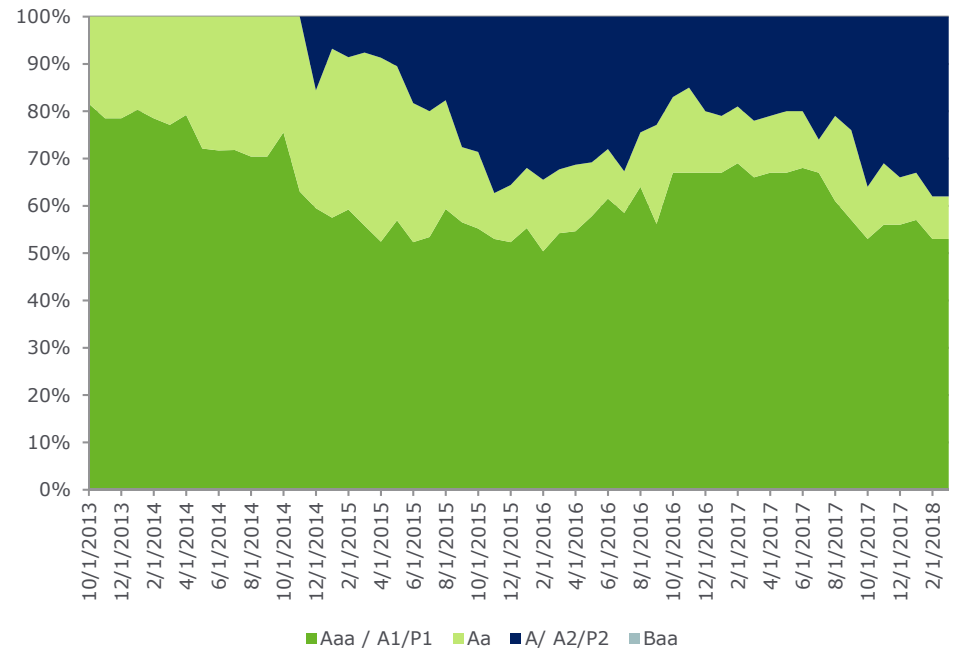
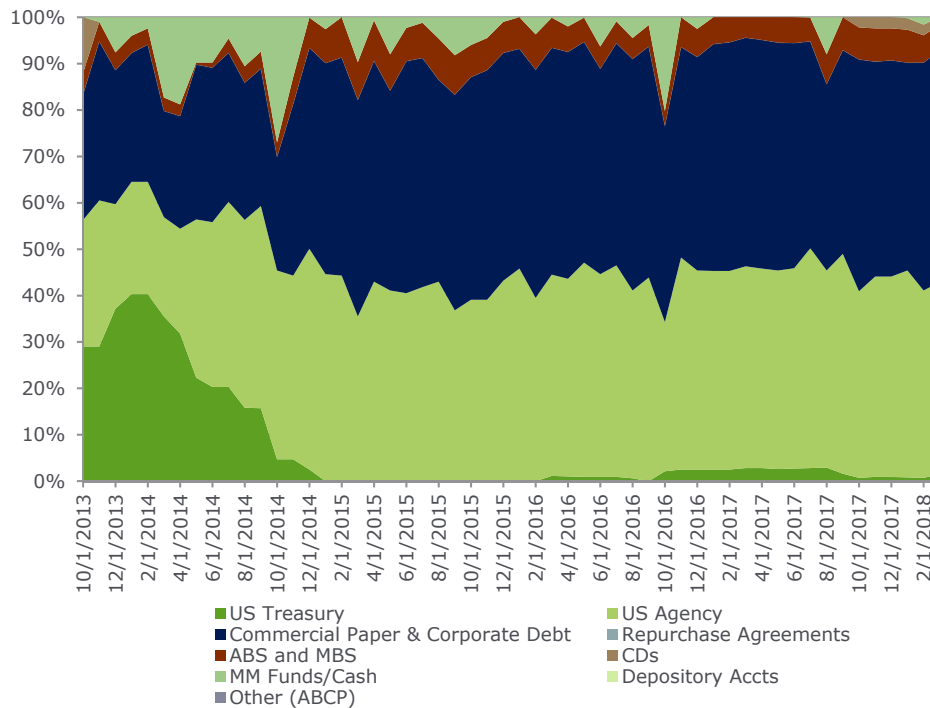
## Characteristics



# WILMINGTON LIQUIDITY

	IPS	Feb-18	Mar-18
US Treasury	100%	0.7%	1.5%
US Agency	50%	40.4%	41.4%
Commercial Paper & Corporate Debt	50%	49.1%	50.0%
Repurchase Agreements	50%	0.0%	0.0%
ABS and MBS	10%	5.9%	5.4%
CDs	50%	2.3%	1.7%
MM Funds/Cash	100%	1.6%	0.0%
Depository Accts	50%	0.0%	0.0%
Other (ABCP)	50%	0.0%	0.0%

	Feb-17	Mar-17
Aaa / A1/P1	53.0%	53.0%
Aa	9.0%	9.0%
A	38.0%	38.0%
Baa	0.0%	0.0%
Below Baa/Not Rated	0.0%	0.0%
<b>Average</b>	<b>Aa</b>	<b>Aa</b>



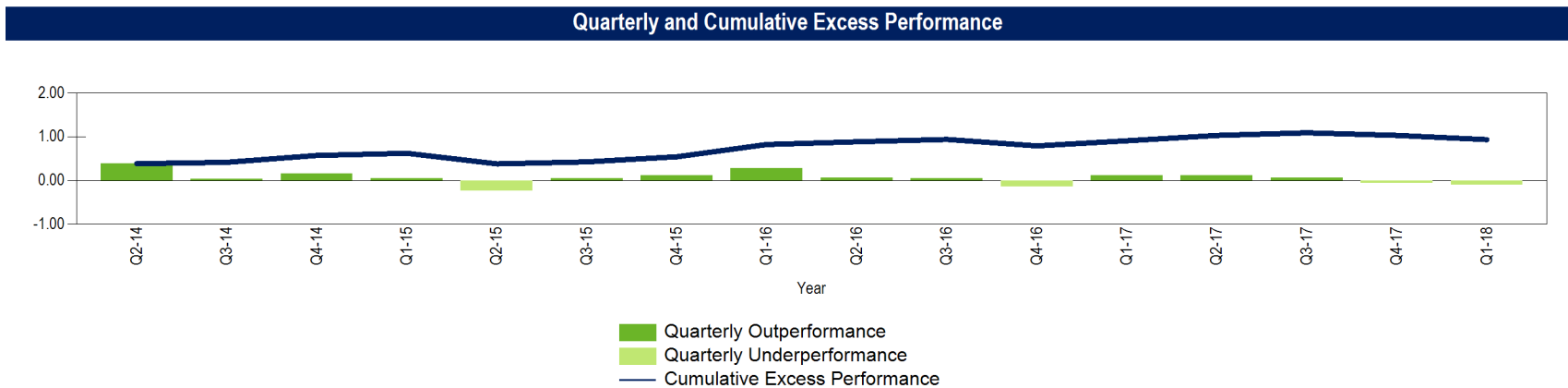
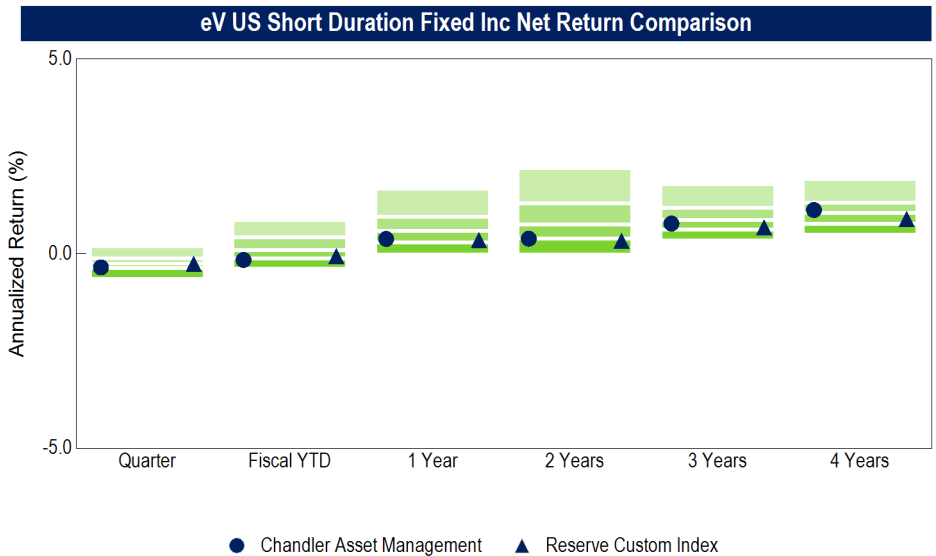
# RESERVE MANAGER REVIEW

NEPC, LLC

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# CHANDLER ASSET MANAGEMENT

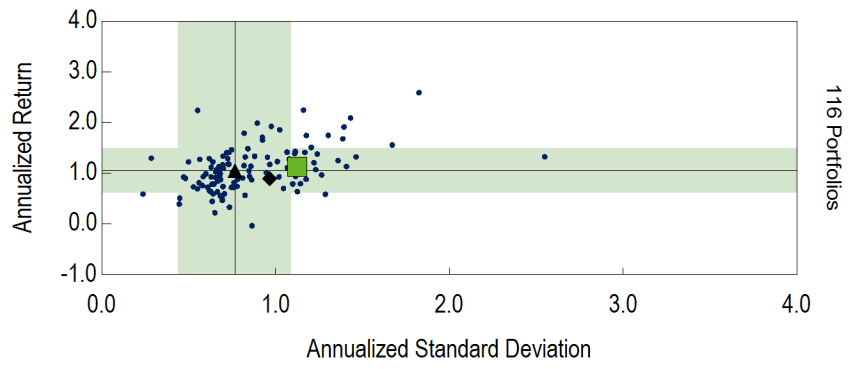
Chandler Asset Management manages a specialized portfolio. The portfolio has its own blended benchmark composed 75% of the Bank of America Merrill Lynch 1-5 Year Government/Corporates rated "A" or better Index, and 25% of the Bank of America Merrill Lynch 6 month US Treasury Bill Index. Through high-quality fixed income securities, the objective is to earn a total rate of return over a market cycle that equals or exceeds the State of Delaware Custom Index.





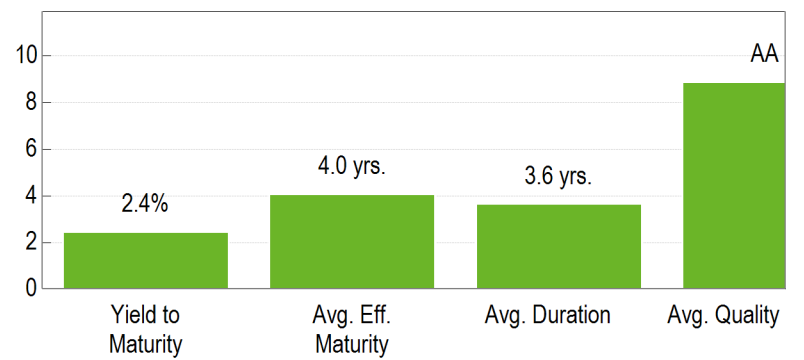
# CHANDLER ASSET MANAGEMENT

## 4 Year Risk Return

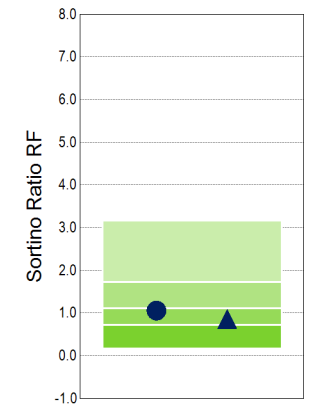
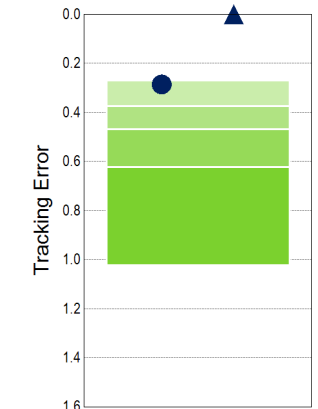
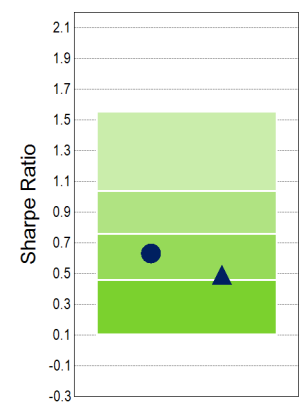
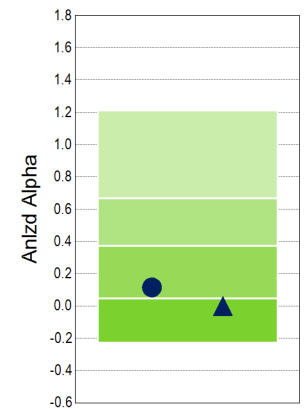
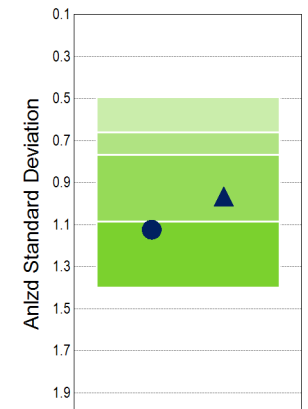
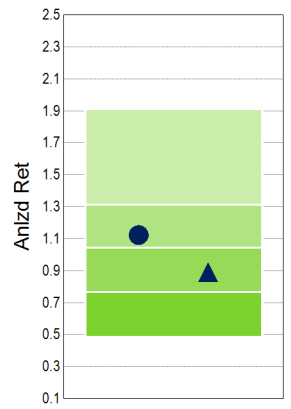


- Chandler Asset Management
- ◆ Reserve Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Short Duration Fixed Inc Net

## Characteristics



■ Chandler Asset Management



- Chandler Asset Management
- ▲ Reserve Custom Index
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

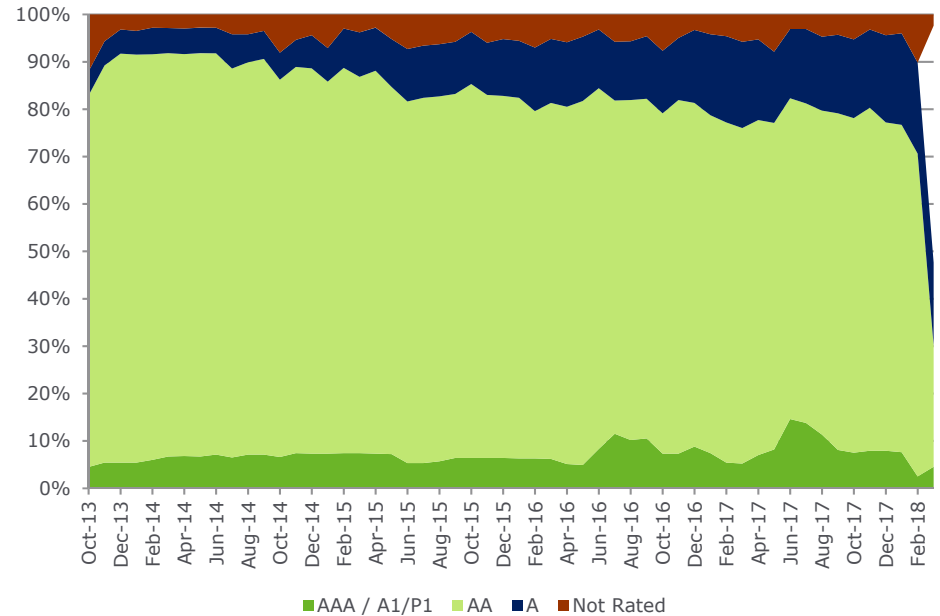
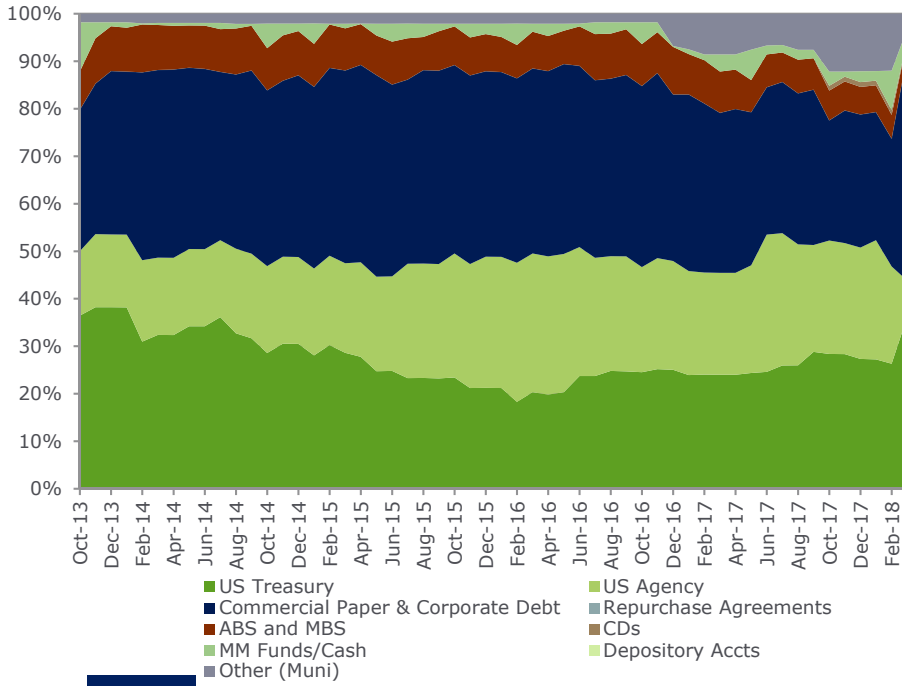


**Delaware Office of the State Treasurer**

# CHANDLER ASSET MANAGEMENT

	IPS	Feb-18	Mar-18
US Treasury	100%	26.3%	36.1%
US Agency	50%	20.5%	7.5%
Commercial Paper & Corporate Debt	50%	26.9%	47.6%
Repurchase Agreements	50%	0.0%	0.0%
ABS and MBS	10%	5.0%	2.7%
CDs	50%	1.0%	0.3%
MM Funds/Cash	100%	8.3%	2.2%
Depository Accts	50%	0.0%	0.0%
Other (Muni)	20%	12.0%	3.1%

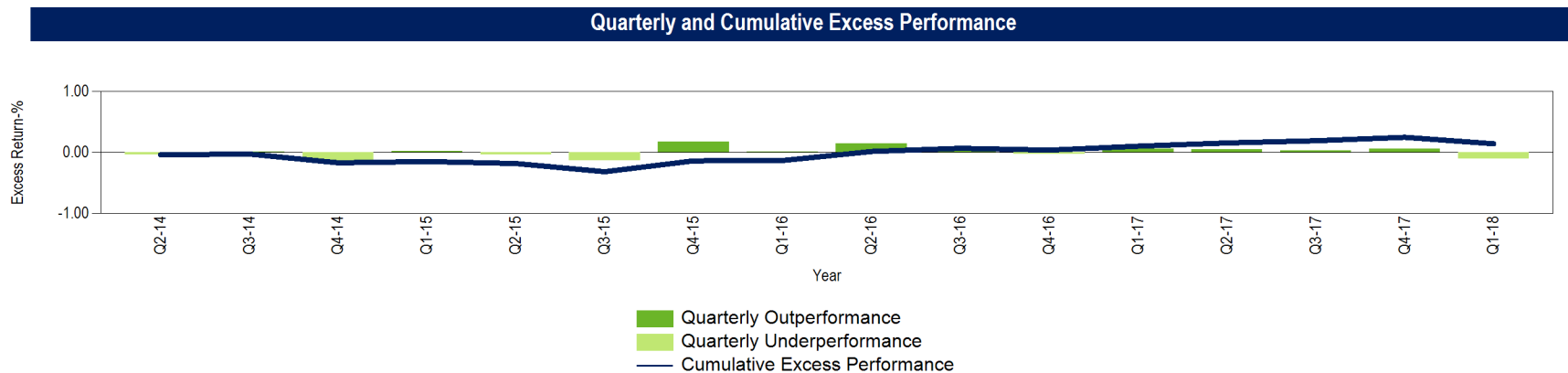
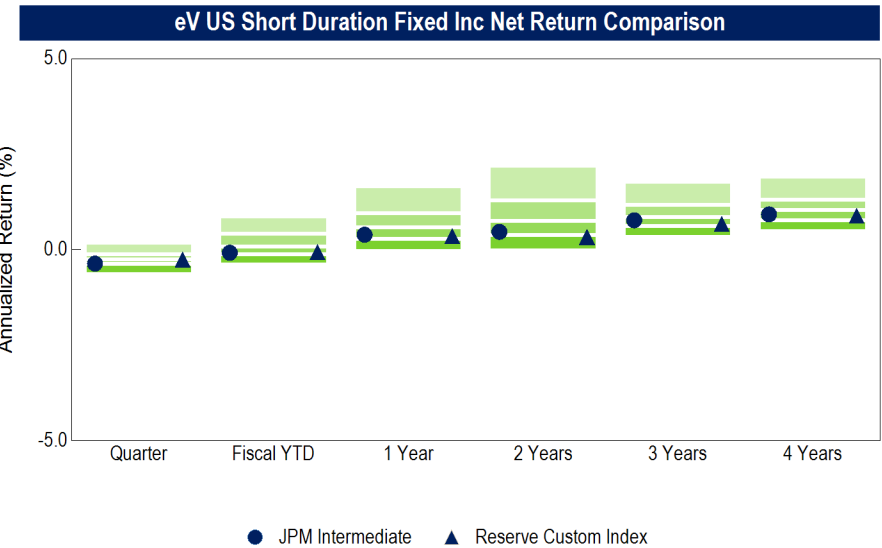
	Feb-17	Mar-17
AAA / A1/P1	2.5%	9.1%
AA	68.1%	51.2%
A	19.2%	34.9%
Not Rated	10.2%	4.8%
<b>Average</b>	<b>AA</b>	<b>AA</b>



# Delaware Office of the State Treasurer

## JPM INTERMEDIATE

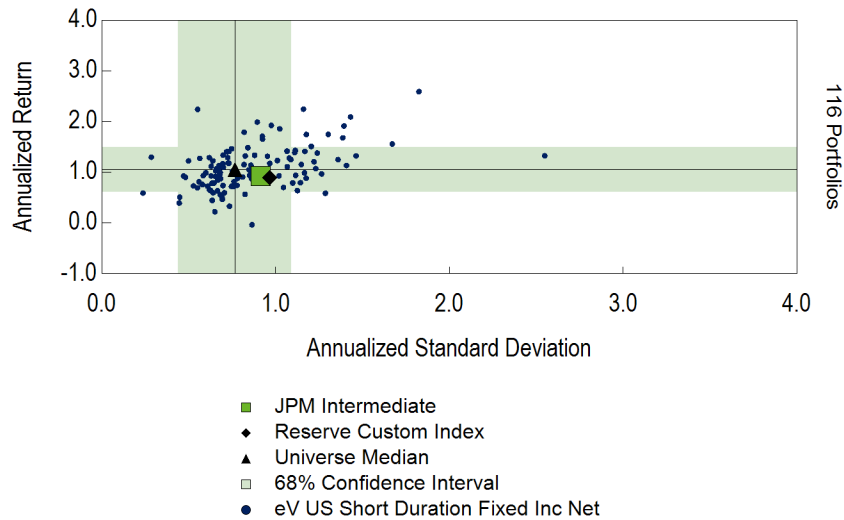
J.P. Morgan manages an intermediate bond strategy. The strategy emphasizes identifying securities that are priced inefficiently through a bottom-up, value-oriented methodology. Sector allocation decisions are based on a broad sector and expected return outlook and valuation analysis combined with the bottom up assessment of individual securities. Any overweighting or underweighting is done with respect to the benchmark. Sectors will be emphasized when the sector dynamics are attractive and undervalued securities can be readily identified. The minimum quality rating for an individual security in the portfolio is BBB.



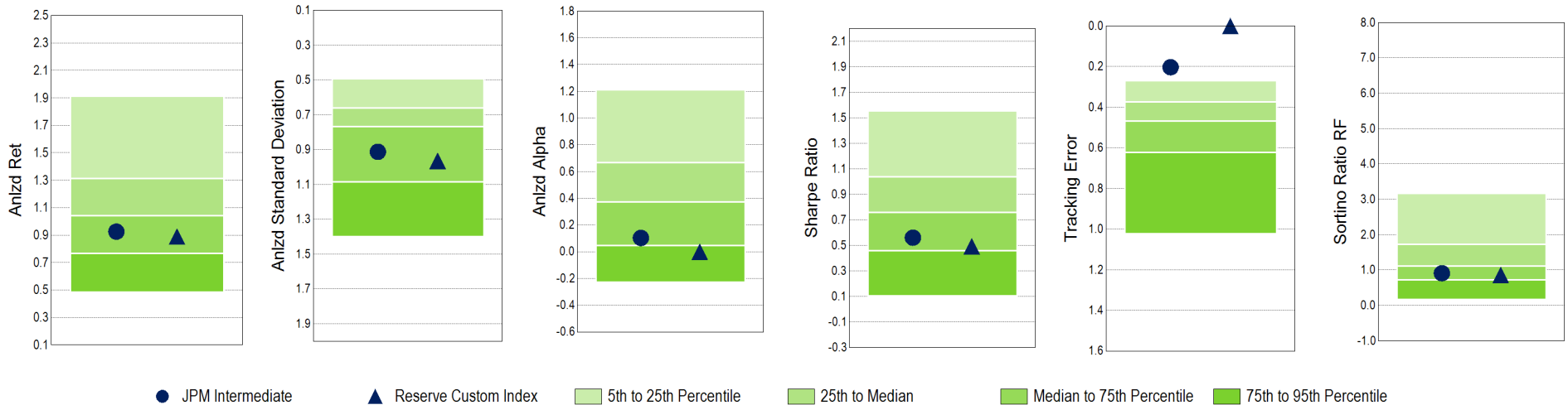
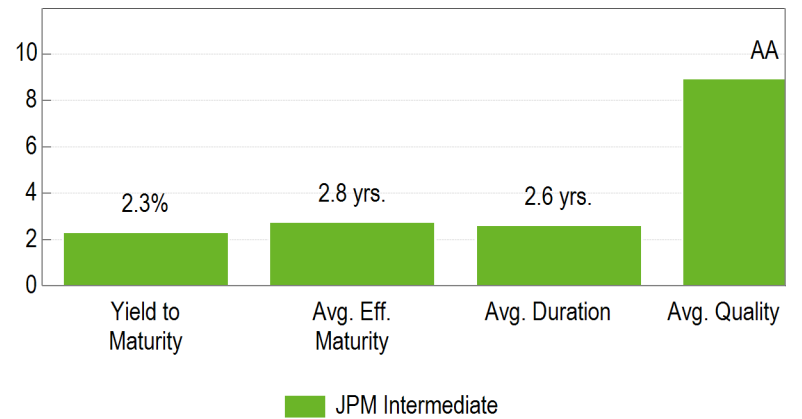
# Delaware Office of the State Treasurer

## JPM INTERMEDIATE

### 4 Year Risk Return



### Characteristics

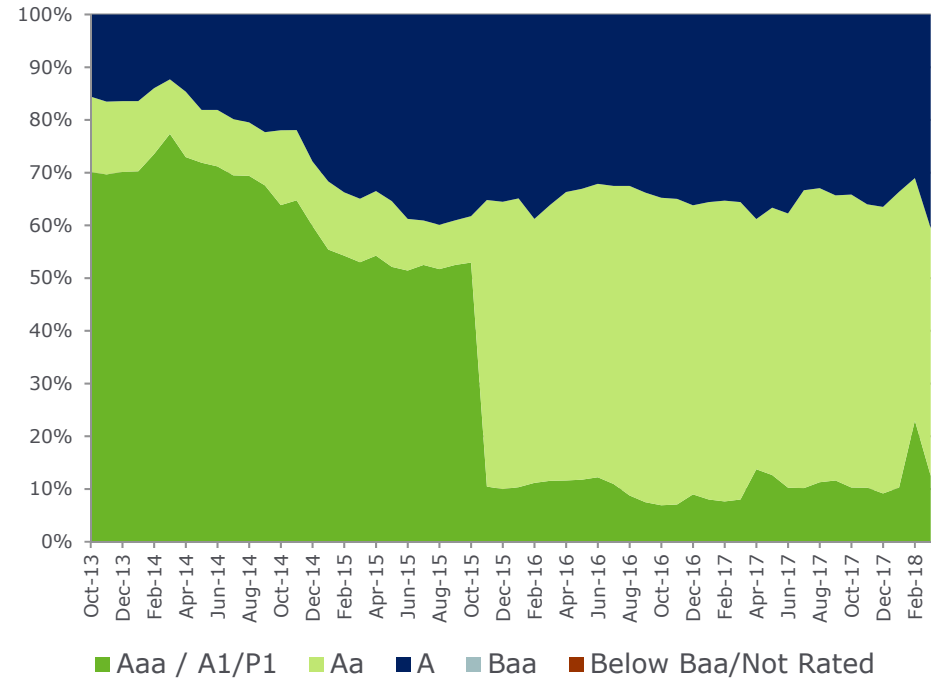
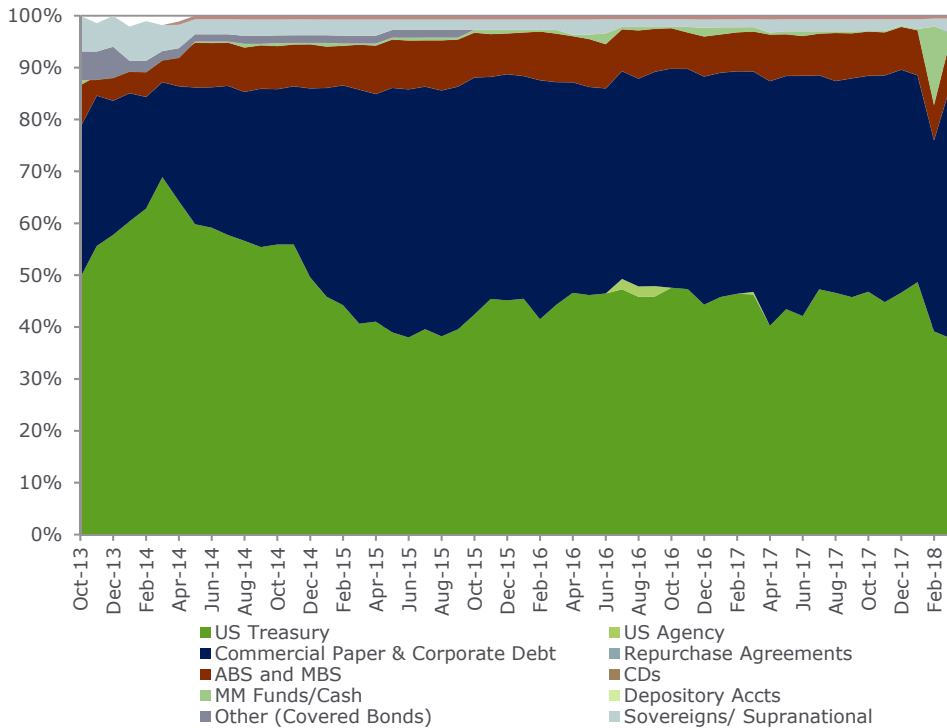


**Delaware Office of the State Treasurer**

**JPM INTERMEDIATE**

	IPS	Feb-18	Mar-18
US Treasury	100%	39.2%	37.8%
US Agency	50%	0.0%	0.0%
Commercial Paper & Corporate Debt	50%	36.9%	48.7%
Repurchase Agreements	50%	0.0%	0.0%
ABS and MBS	10%	6.8%	9.0%
CDs	50%	0.0%	0.0%
MM Funds/Cash	100%	15.1%	1.2%
Depository Accts	50%	0.0%	0.0%
Other (Covered Bonds)	50%	0.0%	0.0%
Sovereigns/ Supranational	50%	1.5%	2.8%
Municipals	20%	0.6%	0.6%

	Feb-18	Mar-18
Aaa / A1/P1	23.0%	12.5%
Aa	46.0%	47.0%
A	31.0%	40.5%
Baa	0.0%	0.0%
Below Baa/Not Rated	0.0%	0.0%
<b>Average</b>	<b>AA</b>	<b>AA</b>



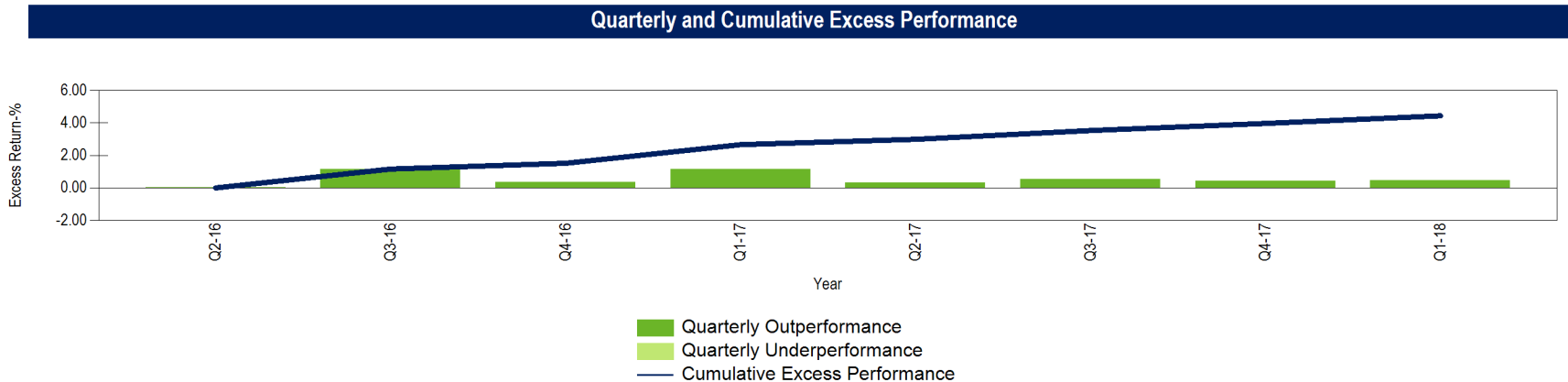
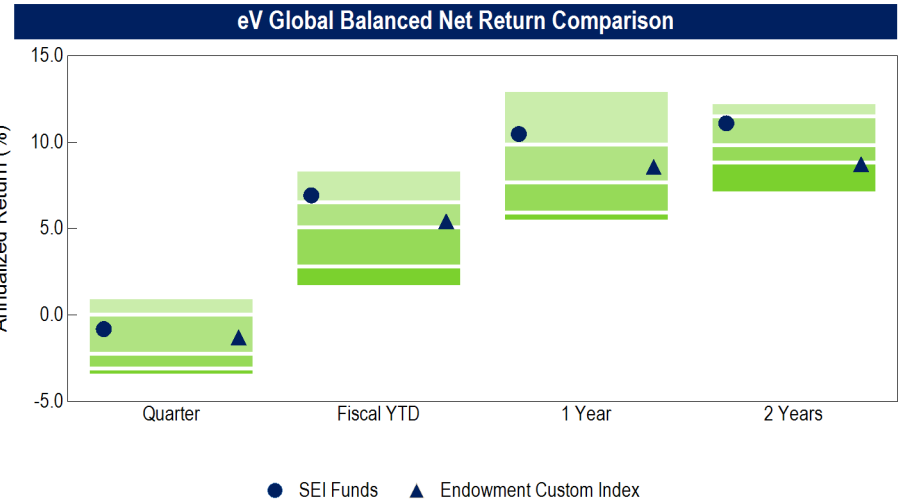
# ENDOWMENT MANAGER REVIEW

NEPC, LLC

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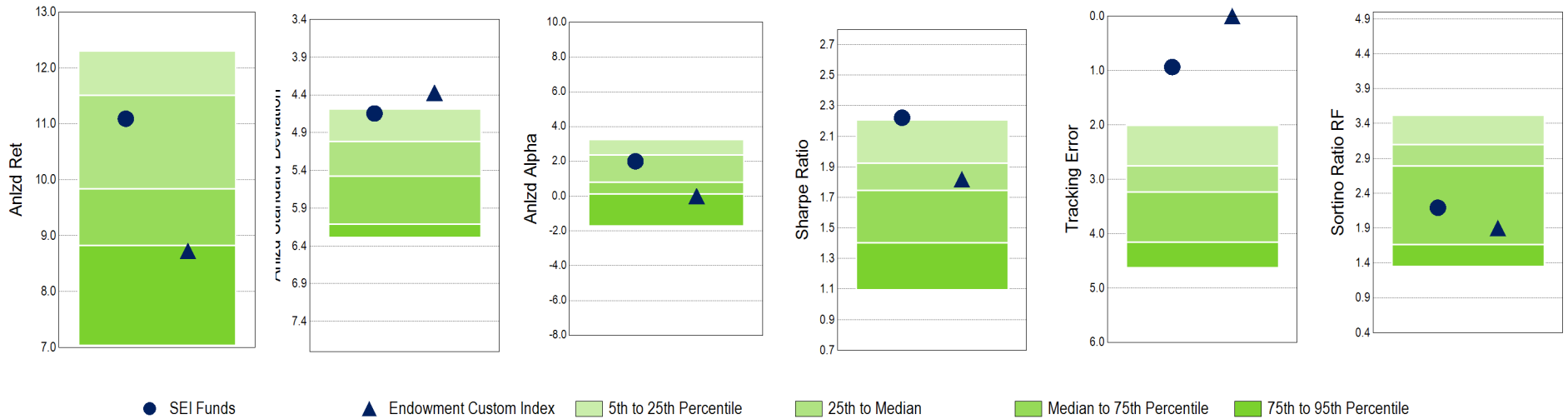
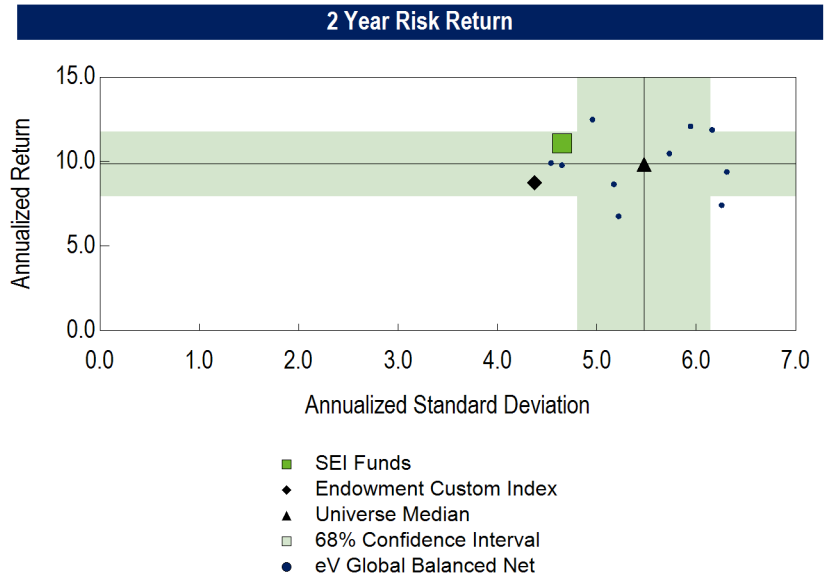
# SEI FUNDS

SEI Funds manages a multi-asset class portfolio subject to a 60% target equity allocation which will be held in a range of 45% to 75%, with international equities not to exceed 35% of the equity allocation. A combination of fixed income, alternative investments, and cash will account for the remaining 40% target allocation. Funds will be managed by the following SEI strategies: SEI US Managed Volatility Strategy, SEI S&P 500 Index Strategy, SEI Extended Markets Index Strategy, SEI Small Cap II Equity Strategy, SEI World Equity ex-US Strategy, SEI Core Fixed Income Strategy, SEI High Yield Strategy, and SEI Emerging Markets Debt Strategy.



# Delaware Office of the State Treasurer

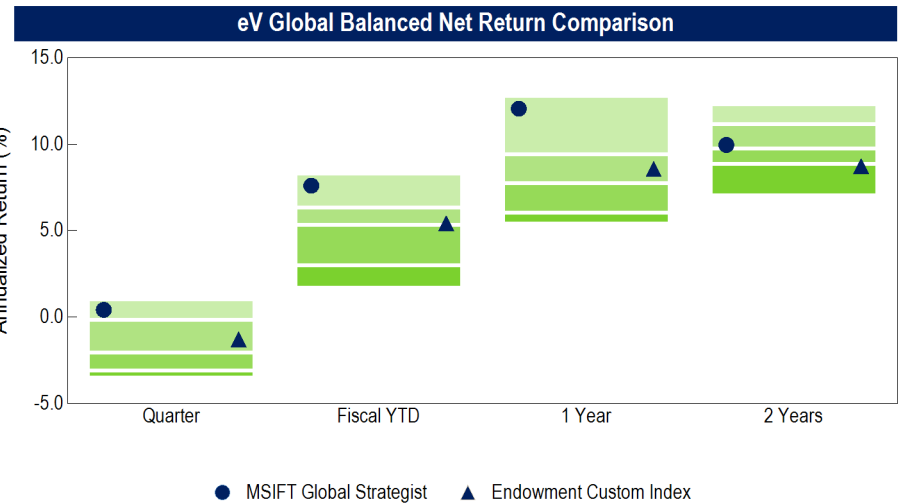
## SEI FUNDS



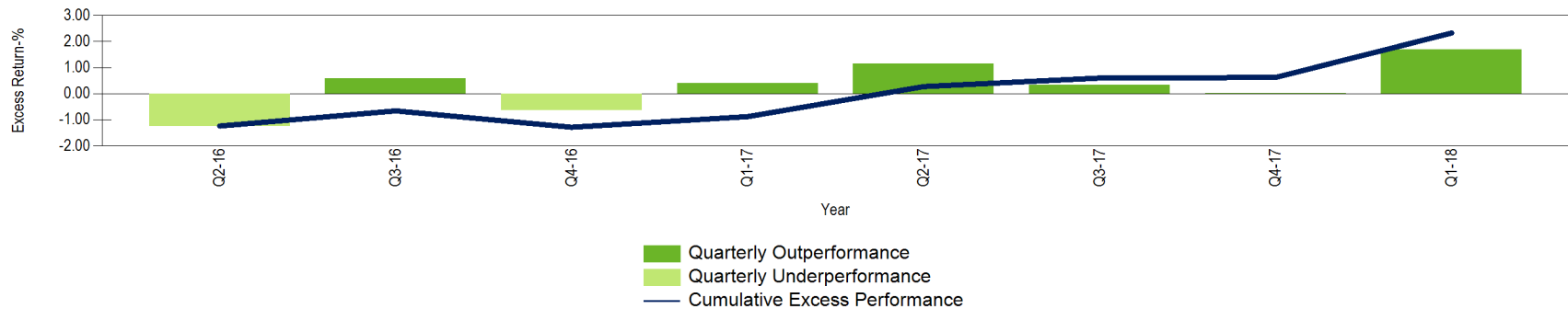


# MSIFT GLOBAL STRATEGIST

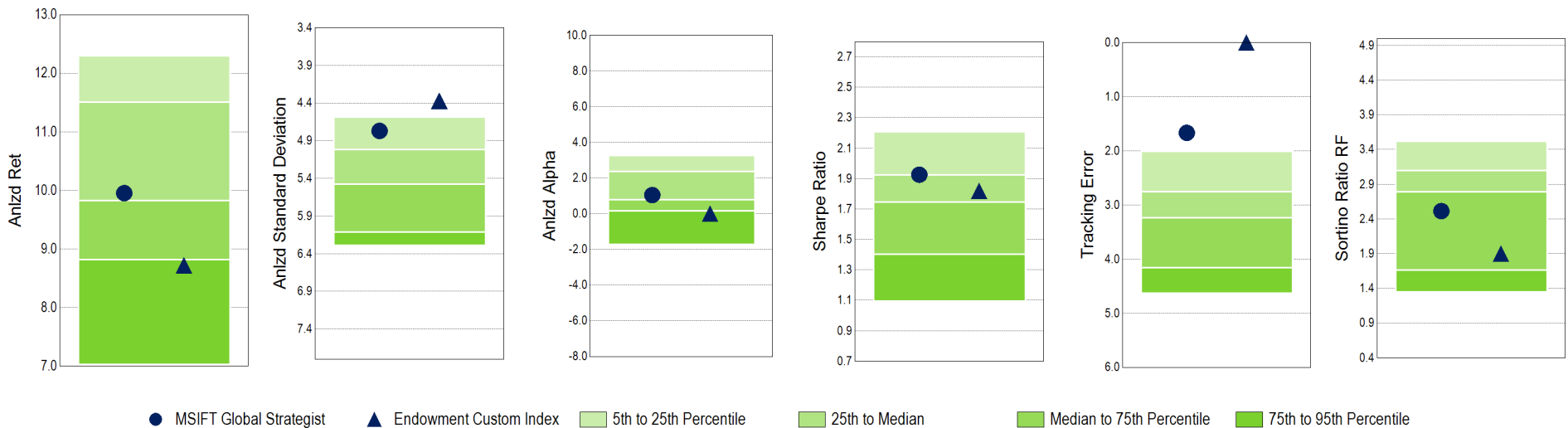
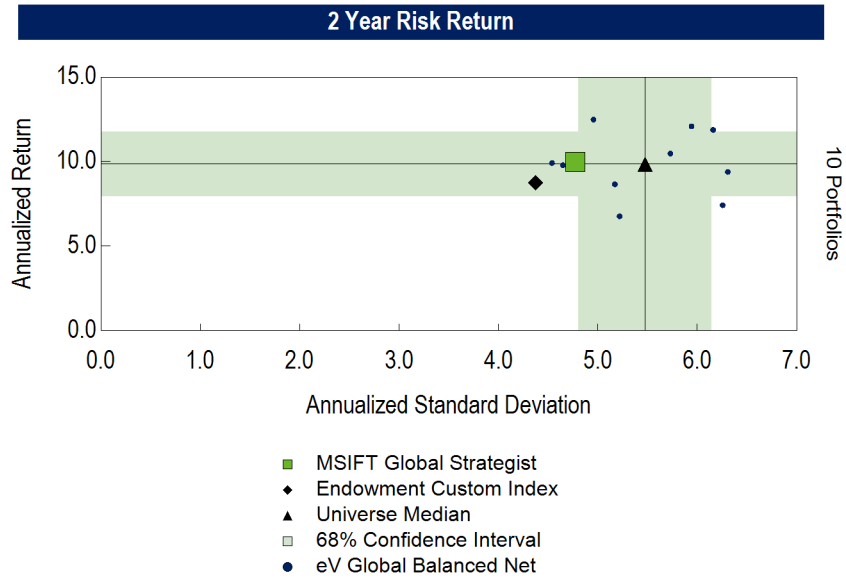
Morgan Stanley manages a multi-asset class portfolio. The portfolio seeks to achieve its investment objective by investing primarily in a blend of equity and fixed income securities of U.S. and non-U.S. issuers. The equity portfolio will be diversified by types of securities (i.e. common and preferred shares of equity), issuer, industry and sectors. The fixed income portfolio will be diversified by security types (i.e government, agency and corporate bonds), issuer, duration and yield characteristics.



## Quarterly and Cumulative Excess Performance

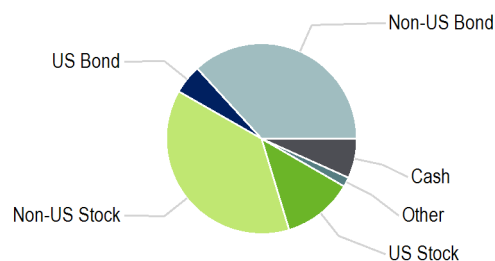


# MSIFT GLOBAL STRATEGIST



# MSIFT GLOBAL STRATEGIST

## Mutual Fund Allocation as of December 31, 2017



## Portfolio Fund Information as of December 31, 2017

Ticker	MPBAX
Morningstar Category	World Allocation
Average Market Cap (\$mm)	45,179.23
Net Assets (\$mm)	69.41
% Assets in Top 10 Holdings	40.51
Total Number of Holdings	1,715
Manager Name	Mark A. Bavoso
Manager Tenure	7
Expense Ratio	0.74%

## Fund Characteristics as of December 31, 2017

Sharpe Ratio (3 Year)	
Average Market Cap (\$mm)	45,179.23
Price/Earnings	15.28
Price/Book	1.89
Price/Sales	1.43
Price/Cash Flow	5.74
Dividend Yield	2.93
Number of Equity Holdings	1,308
R-Squared (3 Year)	

## Top Holdings as of December 31, 2017

S+P500 EMINI FUT MAR18 XCME 20180316	12.18%
MSCI EMGMKT MAR18 IFUS 20180316	5.82%
MS INST. FUND TRUST GLBL STRATEGIST CAYMAN POR LTD	5.51%
US 10YR ULTRA FUT MAR18 XCBT 20180320	4.18%
EURO STOXX 50 MAR18 XEUR 20180316	3.27%
US 2YR NOTE (CBT) MAR18 XCBT 20180329	2.59%
US 10YR NOTE (CBT)MAR18 XCBT 20180320	2.00%
SMI65V971 IRS MXN P V 01MTIIE II6545770171220 CCPVANILLA	1.68%
SMI65V971 IRS MXN R F 8.04000 II6543070171220 CCPVANILLA	1.68%

## Sector Allocation as of December 31, 2017

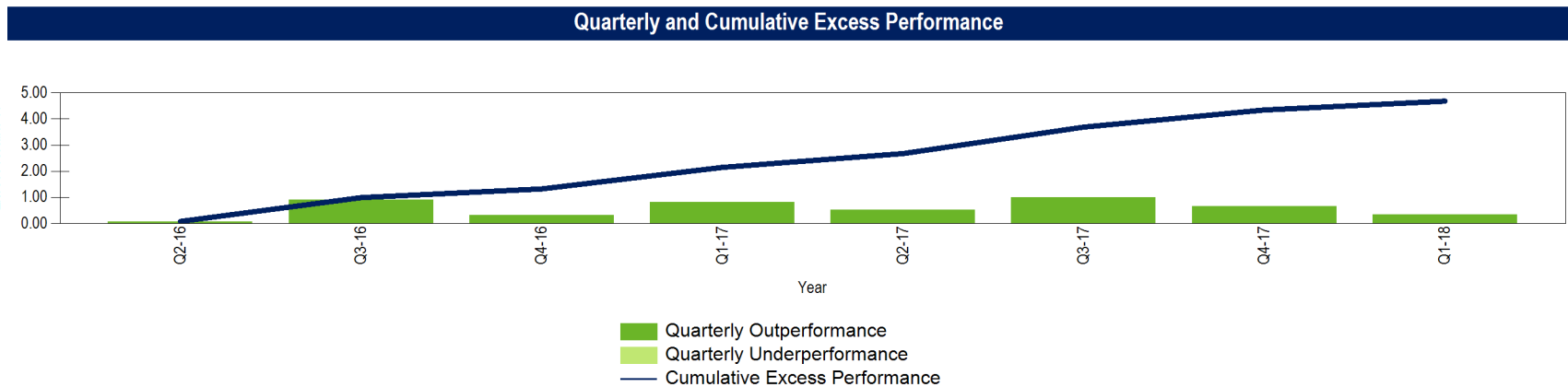
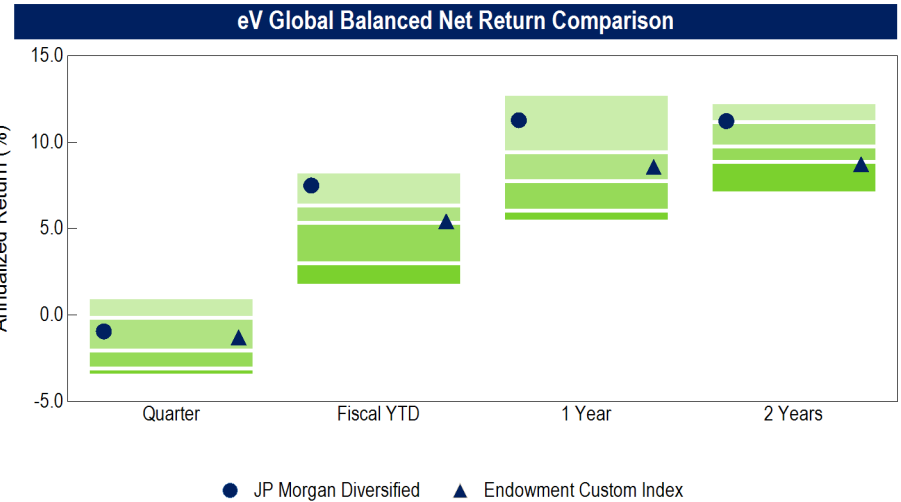
BASIC MATERIALS	6.07%
COMMUNICATION SERVICES	3.93%
CONSUMER CYCLICAL	10.57%
CONSUMER DEFENSIVE	8.33%
ENERGY	5.32%
FINANCIAL SERVICES	28.71%
HEALTHCARE	8.31%
INDUSTRIALS	14.52%
REAL ESTATE	2.21%
TECHNOLOGY	9.45%
UTILITIES	2.58%

Characteristics have not been released for the fourth quarter.

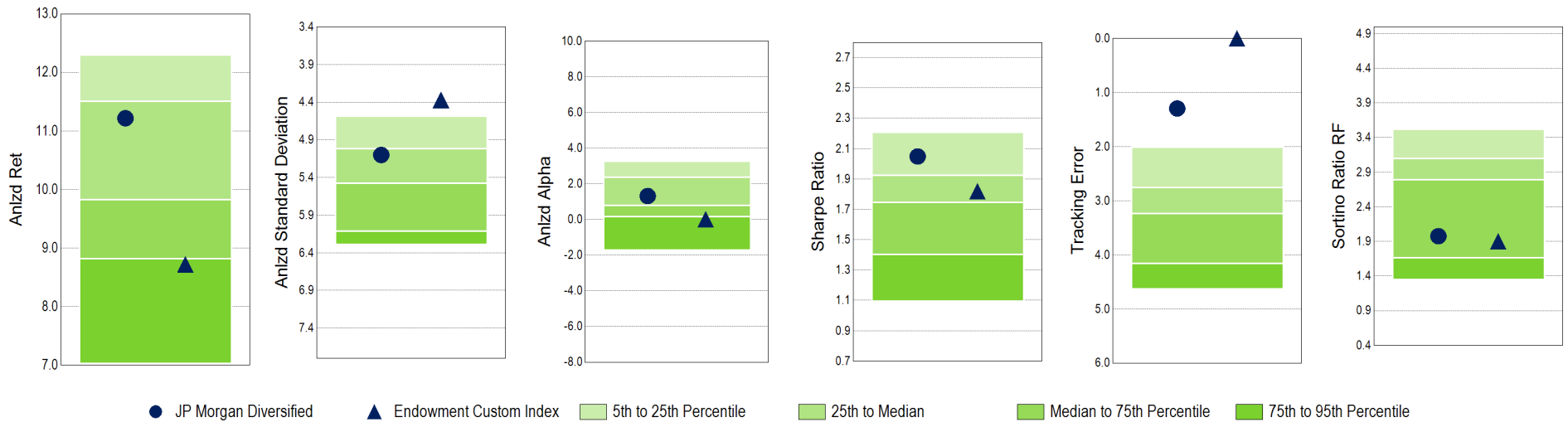
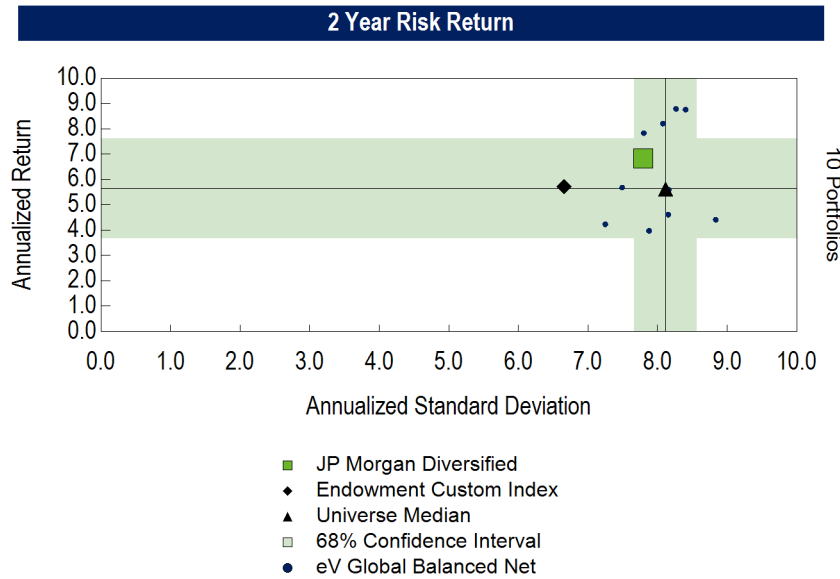


# JP MORGAN DIVERSIFIED

J.P Morgan manages a diversified multi-asset class portfolio. The strategy seeks to provide a high total return from a diversified portfolio of equity and fixed income investments based on a model allocation. JP Morgan may periodically increase or decrease the Fund's actual asset allocation according to the relative attractiveness of each asset class. Within its equity allocations, the Fund primarily invests in the common stock and convertible securities of U.S. and foreign companies. Within its fixed income allocations, the Fund primarily invests in corporate bonds, mortgage-backed securities, mortgage "dollar rolls" and U.S. government securities.

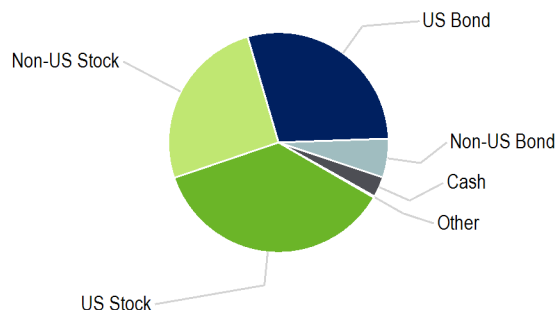


# JP MORGAN DIVERSIFIED



# JP MORGAN DIVERSIFIED

Mutual Fund Allocation as of March 31, 2018



Portfolio Fund Information as of March 31, 2018

Ticker	JPDVX
Morningstar Category	Allocation--50% to 70% Equity
Average Market Cap (\$mm)	42,854.38
Net Assets (\$mm)	307.43
% Assets in Top 10 Holdings	17.80
Total Number of Holdings	2,857
Manager Name	Michael Schoenhaut
Manager Tenure	9
Expense Ratio	0.79%
Closed to New Investors	No

Fund Characteristics as of March 31, 2018

Sharpe Ratio (3 Year)	
Average Market Cap (\$mm)	42,854.38
Price/Earnings	15.34
Price/Book	2.11
Price/Sales	1.62
Price/Cash Flow	7.36
Dividend Yield	2.26
Number of Equity Holdings	1,079
R-Squared (3 Year)	
Alpha (3 Year)	

Top Holdings as of March 31, 2018

JPMORGAN EMERGING MARKETS EQUITY R6	3.83%
JPMORGAN CORE PLUS BOND R6	3.76%
JPMORGAN MID CAP EQUITY R6	2.52%
JPMORGAN EMERGING MARKETS DEBT R6	2.08%
JPMORGAN EMERGING MARKETS STRAT DBT R6	1.67%
APPLE INC	0.92%
AMAZON.COM INC	0.84%
MICROSOFT CORP	0.82%
BANK OF AMERICA CORPORATION	0.76%
UNITED STATES TREASURY NOTES 1.12%	0.62%

Sector Allocation as of March 31, 2018

BASIC MATERIALS	4.99%
COMMUNICATION SERVICES	2.07%
CONSUMER CYCLICAL	13.78%
CONSUMER DEFENSIVE	6.30%
ENERGY	4.97%
FINANCIAL SERVICES	21.33%
HEALTHCARE	9.55%
INDUSTRIALS	11.68%
REAL ESTATE	4.84%
TECHNOLOGY	18.50%
UTILITIES	1.98%



# APPENDIX

NEPC, LLC

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# GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

**Average Effective Maturity<sup>4</sup>** - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

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

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

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

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

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

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

**Correlation<sup>1</sup>** - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

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





# GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

**Derivative Instrument<sup>2</sup>** – A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

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

*Formula:*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



# GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

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

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

**Total Effects<sup>2</sup>** - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

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

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

**Upside Deviation<sup>1</sup>** - Standard Deviation of Positive Returns

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

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

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

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgero.net



## **Information Disclaimer**

- Past performance is no guarantee of future results.
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## **Reporting Methodology**

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

