



New York City
Board of Education Retirement System
Performance Overview as of June 30, 2018

Total Fund Overview

**New York City
Board of Education Retirement System**

Table of Contents:

Consultant's Commentary & Performance Charts	p.3
Appendix A - Consolidated Performance Report	p.32
Appendix B - Public Markets Manager Performance Detail	p.37
Appendix C - Alternative Assets Manager Performance Detail	p.44
Appendix D - Footnotes	p.49

New York City Board of Education Retirement System (BERS)

Consultant's Commentary – Through June 30, 2018

Total Fund Performance

The Board of Education Retirement System (BERS) Total Fund returned +0.81% net of fees for the quarter ended June 30, 2018, versus the policy benchmark's return of +0.92%. For the fiscal year as of June 30, 2018, the Total Fund returned +10.37% net of fees, versus the benchmark return of +8.63%.

Total Fund Asset Allocation

As of June 30, 2018, the BERS Total Fund had \$5.99 billion, up from \$5.91 billion at March 2018. From an asset allocation perspective, the allocation effect was negative while the manager selection relative to index added value. Relative to the new policy benchmark, U.S. equity, emerging markets equity, international emerging managers and global equity added value for the quarter. The private equity, private real estate core and non-core, infrastructure, and high yield were the larger detractors. The fixed income strategies all proved helpful for the quarter, particularly U.S. government Treasuries.

Active U.S. Equity Commentary

As of June 30, 2018, U.S. Equity was \$1.84 billion (30.7%) of the NYBERS Total Fund. The U.S. equity composite was positive in the second quarter of 2018 returning +4.61%. This performance outperformed the Russell 3000 index return of +3.89%.

Active U.S. Equity Managers

- **Wellington** returned +4.14% during the quarter versus +4.29% for the S&P Midcap 400 index. For the fiscal year as of June 30, 2018, Wellington returned +19.53% versus +13.50% for the S&P Midcap 400 index. Wellington is the only active mid cap U.S. manager. BERS is participating in the search to expand the allocation to small cap U.S. active.
- The portfolio's absolute performance this quarter was driven by strong stock selection in the industrials and information technology sectors, which was partially offset by weak stock selection within the healthcare sector.

Through June 30, 2018



- Top contributors were spread across several sectors. TransUnion, a credit reporting bureau which is categorized as an industrial sector stock, delivered strong results given new products, international growth, and new partnership announcements. Ultragenyx, a biotech company that specializes in the treatment of rare diseases, reported positive clinical data for a drug that treats a type of bone disorder that includes rickets. WEX, a provider of payment processing for vehicle fleets, rose on continued growth and the positive impact of higher fuel prices. Finally, TripAdvisor, an online travel company, delivered strong profit growth based on more efficient marketing, lower operating expenses, and faster than expected growth in the non-hotel portion of their business.
- Top detractor for the quarter was Alkermes, a biotech company with a broad pipeline of attractive opportunities that has had some recent disappointments. The stock fell when the FDA initially declined to review clinical trial data for an anti-depression drug, a decision that has since been reversed.

World ex-USA Commentary

As of June 30, 2018, World ex-USA Equity was \$742.3 million (12.4%) of the NYBERS Total Fund. World ex-USA Equity returned -0.57% in the second quarter of 2018 versus -0.77% for the World ex-USA custom benchmark.

Active World ex-USA Equity Managers

- **Sprucegrove** returned -1.62% (net) during the quarter versus -0.77% for the World ex-USA custom benchmark. For the fiscal year as of June 30, 2018, Sprucegrove returned +10.08% versus +7.82% for the World ex-USA custom benchmark.
- The portfolio continues to represent high quality value style holdings with a projected ROE of 14.5%, which is higher than the World ex-USA Index at 11.0% and financial leverage of 2.1x, which is below the World ex-USA Index at 2.6x. The portfolio has had a normalized P/E of 13.5x, a 2.0x P/B and a 3.1% dividend yield. These characteristics are consistent with the historical profile of the manager. The manager believes the portfolio is attractively valued compared to the market.
- The U.K. was the largest country exposure in the Fund at 23.2%, followed by Japan at 11.8%. Exposure to Emerging Markets was 13.1% and cash was 4.5% of the Fund at quarter end.
- Over the quarter, the majority of the markets were negative. The largest positive returns in the developed markets were from New Zealand (+5.7%), Australia (+5.2%) and Canada (+4.7%). The weakest returns were from Singapore (-7.5%), Italy (-7.3%) and Denmark (-7.0%).
- The top 10 holdings represent +23.3% of the portfolio.

 Segal Marco Advisors

Through June 30, 2018



- **Baillie Gifford** returned +1.91% in the quarter versus -0.77% for the World ex-USA custom benchmark. For the fiscal year as of June 30, 2018, Baillie Gifford returned +24.73% versus +7.82% for the World ex-USA Custom Benchmark.
- Ferrari, a designer and manufacturer of sports cars, was the portfolio's largest holding at 5.3%.
- At quarter end, the portfolio had +14.0% invested in Emerging Markets. Emerging Market exposure has been a net positive for the manager.
- The top 10 holdings represent +39.5% of the portfolio.

- **Acadian** underperformed for the quarter, -4.51% versus -1.84% for the S&P EPAC Small Cap Index. However, Acadian outperformed for the fiscal year as of June 30, 2018, +12.35% versus +11.27% for the S&P EPAC Small Cap Index.
- Losses incurred from stock selection were coupled with losses from country allocations. Key sources of negative active return included stock selection in Germany, Japan, and the Netherlands. More successful investments included a combination of stock selection and an underweight position in Korea, an opportunistic exposure to Canada, and stock selection in Switzerland.
- At quarter end, the portfolio's emerging markets exposure was 11.6%. The portfolio held 1,092 stocks.

Emerging Markets Equity Commentary

As of June 30, 2018, Emerging Markets Equity was \$451.4 million (7.5%) of the NYBERSTotal Fund. Emerging Markets underperformed for the quarter, -9.83% versus -7.96% for the MSCI Emerging Markets, net Index. Emerging Markets also underperformed for the fiscal year as of June 30, 2018, +6.72% versus +8.20% for the MSCI Emerging Markets, net Index.

Emerging Markets Equity Managers

- **Acadian** underperformed for the quarter, posting a -10.66% versus -7.96% for the MSCI Emerging Markets, net Index. Acadian also underperformed for the fiscal year as of June 30, 2018, +6.03% versus +8.20% for the MSCI Emerging Markets, net Index.

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Through June 30, 2018



- Losses incurred from stock selection were coupled with negative country allocations. Key sources of negative active return included a combination of stock selection and underweight position in India and China, along with a combination of stock selection and an overweight position in Turkey. More successful investments included stock selection in Brazil, Indonesia, and Poland.
- At quarter end, the portfolio held 506 stocks.
- **CONY GT EM BlackRock** slightly outperformed for the quarter, -7.90% versus -7.96% for the MSCI Emerging Markets, net Index. However, CONY GT EM BlackRock slightly underperformed for the fiscal year as of June 30, 2018, +8.05% versus +8.20% for the MSCI Emerging Markets, net Index.
- Regionally, Latin America was the worst performing, led lower by Brazil (-26%), despite the region having the highest earnings per share growth rate in EM. The Brazilian economy stumbled given a trucker strike that affected most sectors within the country.
- From a sector standpoint, all sectors returns moved lower. Shares of financials (-12.5%) and industrials (-11.3%) declined the most, as tightening U.S. financial conditions, tariffs on raw materials, and resultant uncertainty created an unfavorable environment for EM cyclicals. Technology (-4.6%) and energy (-5.1%) outperformed other sectors aided by high earnings growth and rising oil prices.

Fixed Income – Structured Manager Composite Commentary

As of June 30, 2018, The Total Structured Portfolio was \$1.29 billion (21.6%) of the NYBERS Total Fund. Structured Fixed Income returned -0.11% in the second quarter versus -0.28% for the benchmark. For the fiscal year as of June 30, 2018, Structured Fixed Income returned -0.50% versus -0.48% for the benchmark.

Fixed Income – Structured Manager Composite Managers

- **BlackRock (mortgages)** returned +0.24% in the quarter, underperforming the FTSE Mortgage index return of +0.26%. For the fiscal year as of June 30, 2018, BlackRock (mortgages) returned +0.17% versus +0.11% for the FTSE Mortgage index.
- The Agency MBS Index as measured by the FTSE Mortgage Index posted a total return of approximately 5 bps during June with an excess return of approximately 3 bps. Mortgages were range-bound over the month of June, finishing unchanged both on a nominal basis and on an option-adjusted basis vs. Treasury hedges, while outpacing other spread assets. Over the course of the month, performance of the mortgage

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basis continued to exhibit directionality to broad risk sentiment and rate volatility, albeit with a lower beta. The favorable fundamental and technical backdrop due to a benign prepay environment, persistent domestic bank demand, and subdued origination volume contributed to mortgages' relative resilience versus other risk assets during the month. Within mortgages, coupon swaps were flat to marginally tighter on a duration-adjusted basis. 15-year and Ginnie Mae MBS modestly outperformed as the beneficiaries of both supportive supply technicals and marginal yield-type buying from banks and overseas, finishing the month 1-3 ticks tighter.

- In CMBS, the two biggest reasons for the outperformance of subordinates versus seniors in 1H18 were supply differences and the emergence of the base rate, as a substitutable good for tight-trading seniors. On the former, the growth of the subordinate buyer base has engendered an imbalance where not enough product is created in the new issue market to satisfy demand.
- **Prudential (credit)** returned -0.81% in the quarter, outperforming the Investment Grade Credit index return of -0.88%. For the fiscal year as of June 30, 2018, Prudential (credit) returned -0.45% versus -0.72% for the Investment Grade Credit index.
- **SSgA (governments)** returned -0.02% in the quarter, trailing the +0.09% return for its NYC - Treasury Agency plus five index benchmark. For the fiscal year as of June 30, 2018, SSgA (governments) returned -0.99% versus -0.96% for the NYC - Treasury Agency plus five index.
- In the U.S. Investment Grade sector, a 35 basis point year to date widening in long term corporate spreads to 1.75%, along with rising long term Treasury yields has translated to a year to date return decline of 6.4% for the Bloomberg Barclays Long U.S. Credit Index, worst among the U.S. Barclays Aggregate primary sectors.
- **SSgA 1 -3 Yr. Treasury Index** returned +0.21% in the quarter, slightly behind the FTSE USBIG Treasury 1 -3 Yr. index return of +0.22%. For the fiscal year as of June 30, 2018, the SSGA 1-3 Yr. Treasury Index returned +0.01%, slightly behind the FTSE USBIG Treasury 1 -3 Yr. index return of +0.06%.
- Over the reporting period, tracking for the strategy was very tight; therefore, an attribution analysis is not applicable.
- **Taplin, Canida & Habacht** returned -1.04% in the quarter versus -0.88% for the Investment Grade Credit index. For the fiscal year as of June 30, 2018, Taplin, Canida & Habacht returned -0.55% versus -0.72% for the Investment Grade Credit index.
- Timing and trading costs related to withdrawals from the accounts had a modest negative impact on performance.

Through June 30, 2018



- Security selection detracted from performance during the quarter. In particular, issuers within telecommunications and retail sectors reduced relative performance, while issuers within pharmaceuticals contributed to performance, offsetting some of the negative impact.
- Negative absolute returns were driven by the overall credit spread widening (13 basis points) which resulted in lower returns versus Treasuries (-91 basis points of excess return). Overweight allocation to industrials (-113 bps excess returns) detracted from returns, while the underweight allocation to utilities (-137 bps excess returns) benefitted the portfolio.

Enhanced Yield Fixed Income & Bank Loans Commentary

As of June 30, 2018, Enhanced Yield Fixed Income & Bank Loans was \$391.8 million (6.5%) of the NYBERS Total Fund. This allocation is in line with the investment policy target. The high yield manager search has been completed and Shenkman and Loomis will be replaced with Nomura and Mackay Shields.

Enhanced Yield Fixed Income & Bank Loans Managers

- **Shenkman** returned +0.71% in the quarter, underperforming the +0.92% return for its Citigroup BB&B index benchmark. For the fiscal year as of June 30, 2018, Shenkman returned +2.47%, slightly outperforming the +2.42% return for the Citigroup BB&B index.
- For the quarter, Index prices fell by \$0.63 to \$97.84, leaving June's yield-to-worst at 6.53%, 18bps wider than March's closing level. The Index spread-to-worst was unchanged at +382bps and remained range-bound between +340bps and +398bps for the past 15 months. There were only three defaults for the period, with an aggregate total of \$1.3 billion. The trailing twelve month default rate dwindled from 2.21% at the end of March to 1.98% in June. Excluding the widely anticipated February default of iHeart Communications from the calculation, the default rate would total 1.26%. Following 1Q18's lackluster primary market, new issue volume was again lethargic in 2Q18 as only \$53.5 billion priced, compared to \$82 billion of average quarterly volume over the past five years. Although at 51% refinancing still represents the largest use of proceeds, and while overall ratings quality is reasonably healthy with 85% single-B or higher rated, the mix of new issuance has shifted somewhat to Mergers and Acquisitions and LBO's. Meanwhile, investors pulled \$4.5 billion out of high yield mutual funds during the quarter.

Through June 30, 2018



- **Babson** returned +0.78% during the quarter, in line with the +0.78% return of the Credit Suisse Leveraged Loan Index. For the fiscal year as of June 30, 2018, Babson returned +4.85%, outperforming the +4.67% return of the Credit Suisse Leveraged Loan Index.
- Both Credit Selection and Sector Allocation contributed favorably to results for the period albeit at the margin. Sector Allocation results by industry category were a mix of small pluses and minuses leading to a modest positive result.
- Within Credit selection, however, the results were much more dramatic although in the end it was only modestly positive. On the negative front two credits, Veritas in the information technology space and Appvionin Forest Products/Containers generated meaningful negative results. Veritas is transitioning away from a license/maintenance revenue model to a more
- During the second quarter the three-month Libor rate was largely unchanged. While three-month Libor is generally thought of as the primary base rate for loans, borrowing rate options also include one-month Libor. As short term rates overall have risen over the past year the percentage of the portfolio being pegged to one-month Libor has been growing. That rate, while lower than three-month Libor on an absolute basis, increased by 21 basis points during the quarter and was a significant contributor to the increase in portfolio yields in the second quarter.

TIPS, ETI, Cash Commentary

As of June 30, 2018, Fixed Income – TIPS, ETI and Cash was \$394.5 million (6.6%) of the NYBERS Total Fund.

Fixed Income – TIPS Managers

- **SSgA (TIPS)** returned +0.77% in the quarter, in line with the 0.77% return for its Barclays Global Inflation Linked Index. SSgA (TIPS) returned +2.16% for the fiscal year as of June 30, 2018, ahead of the +2.11% return for its Barclays Global Inflation Linked Index.

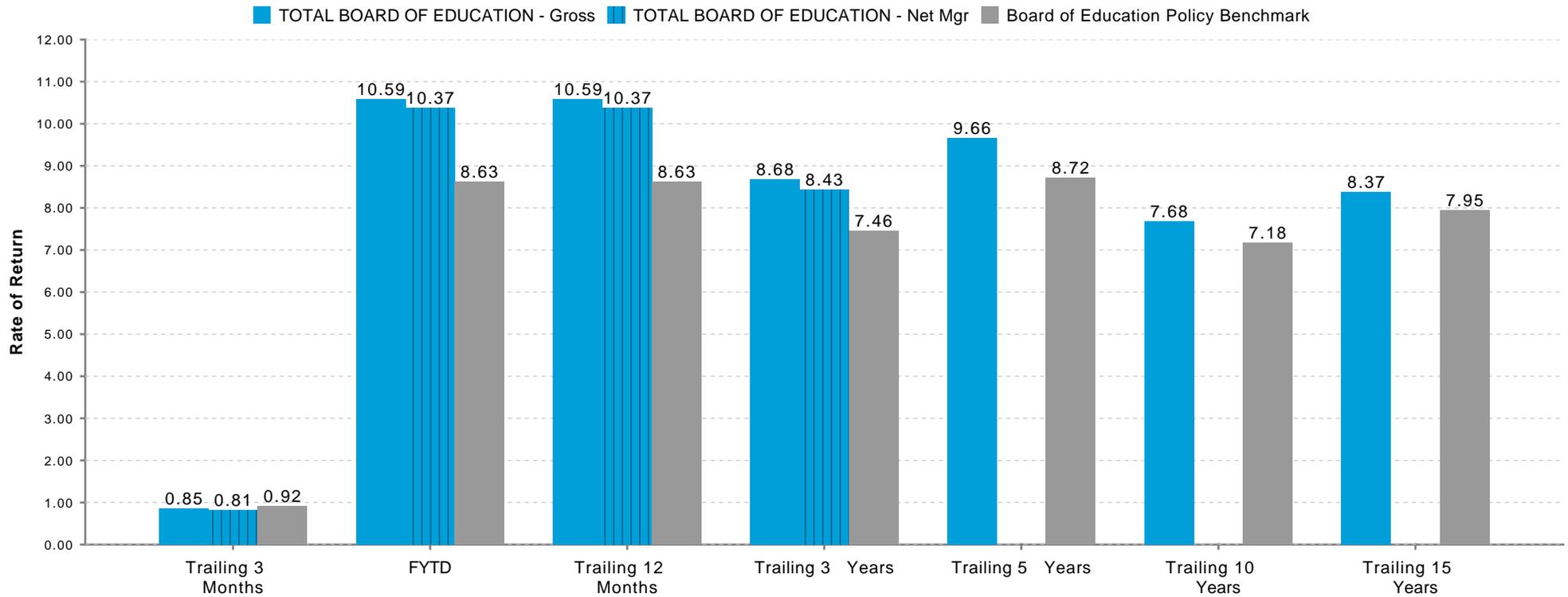
Total Portfolio Returns: June 30, 2018



TOTAL BOARD OF EDUCATION

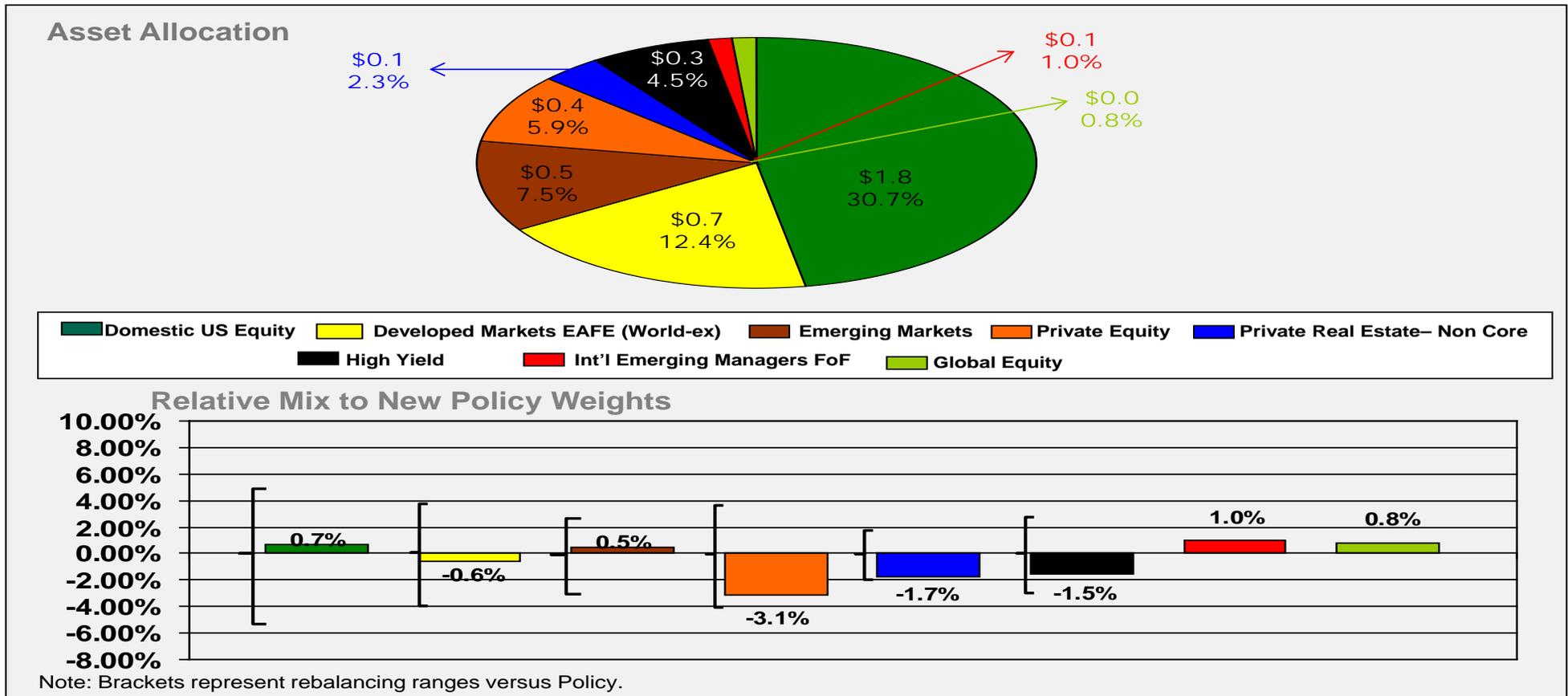
Market Value (Billions)

\$6.0

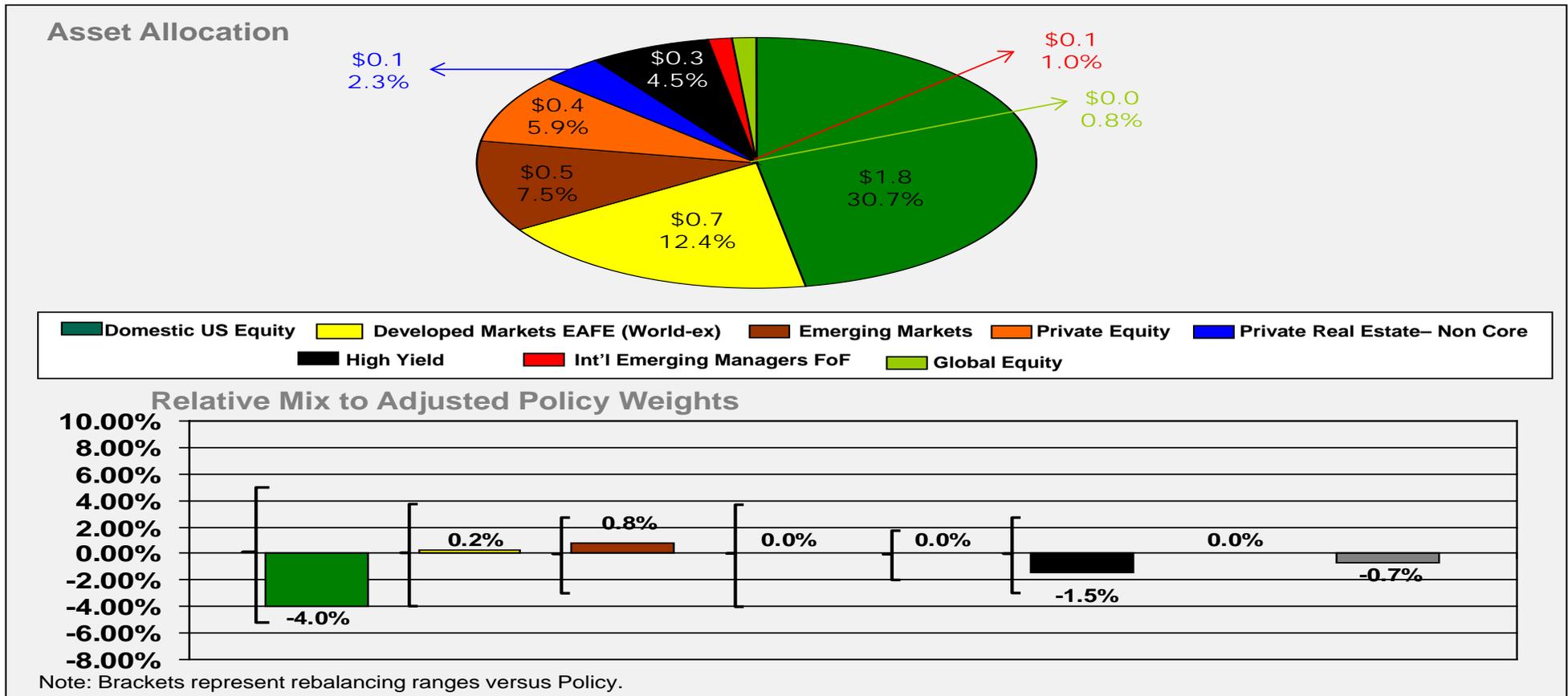


	Plan 3 Years	Benchmark 3 Years	Plan 5 Years	Benchmark 5 Years	Plan 10 Years	Benchmark 10 Years
Standard Deviation						
TOTAL BOARD OF EDUCATION	6.9	6.5	9.7	6.4	10.9	11.3

Portfolio Asset Allocation – Growth

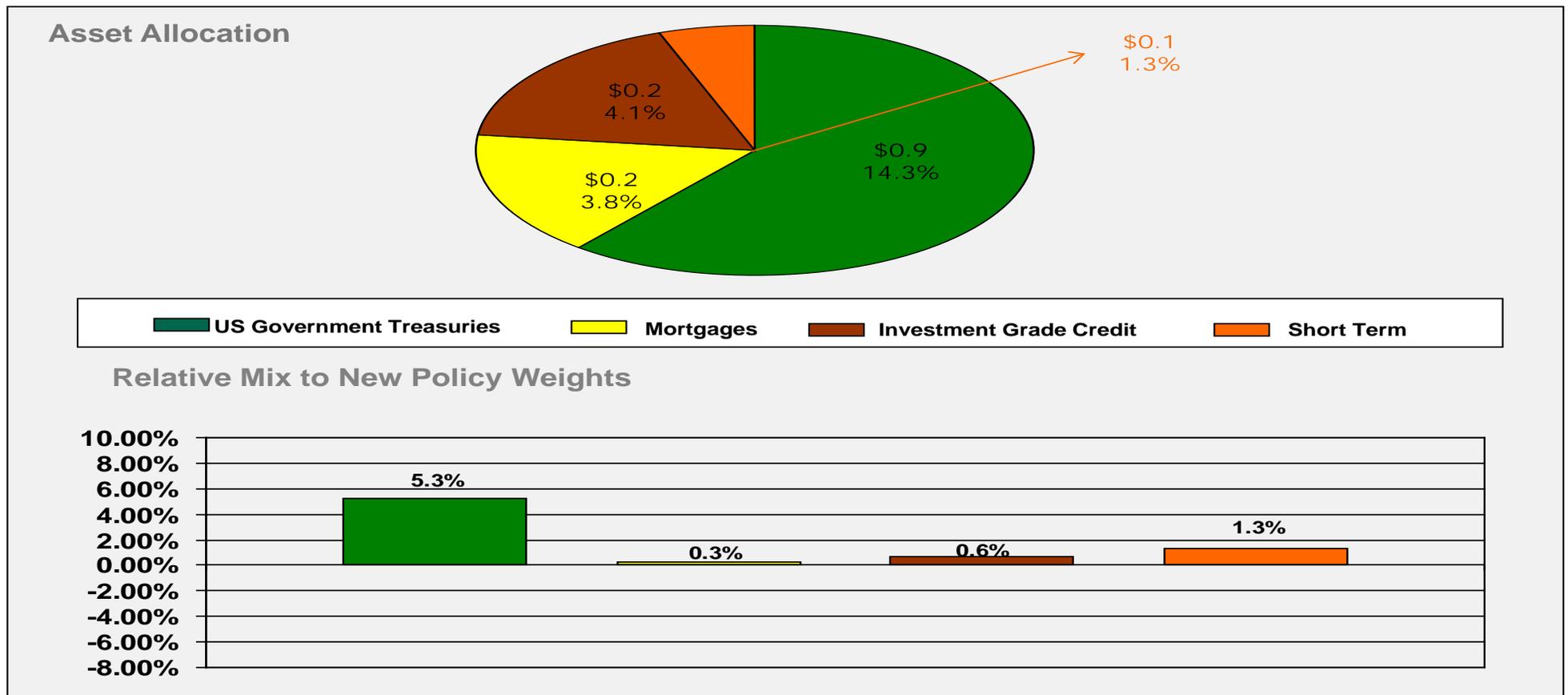


Portfolio Asset Allocation – Growth

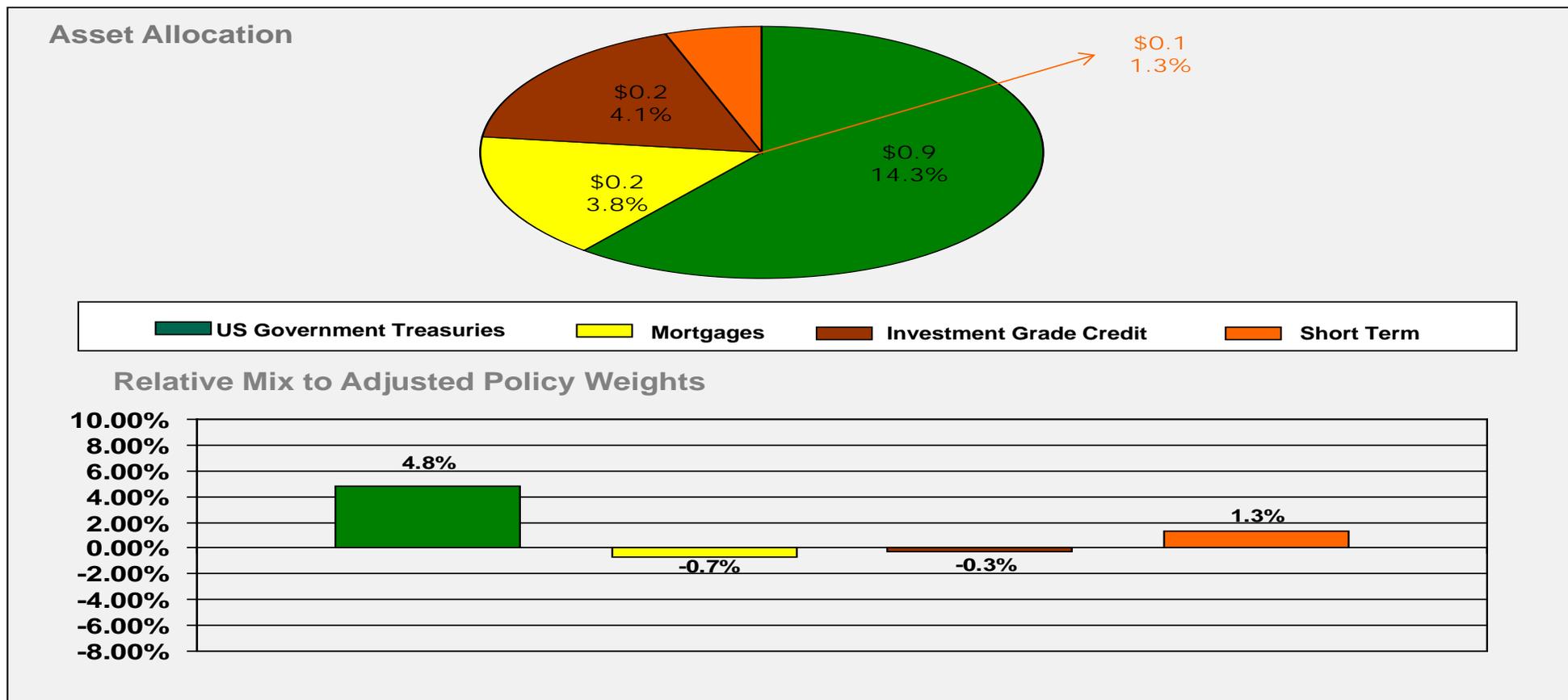


Note: On June 29, 2018 BERS' combined Fixed Income and Cash portfolios have a duration of 5.2 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

Portfolio Asset Allocation – Deflation Protection

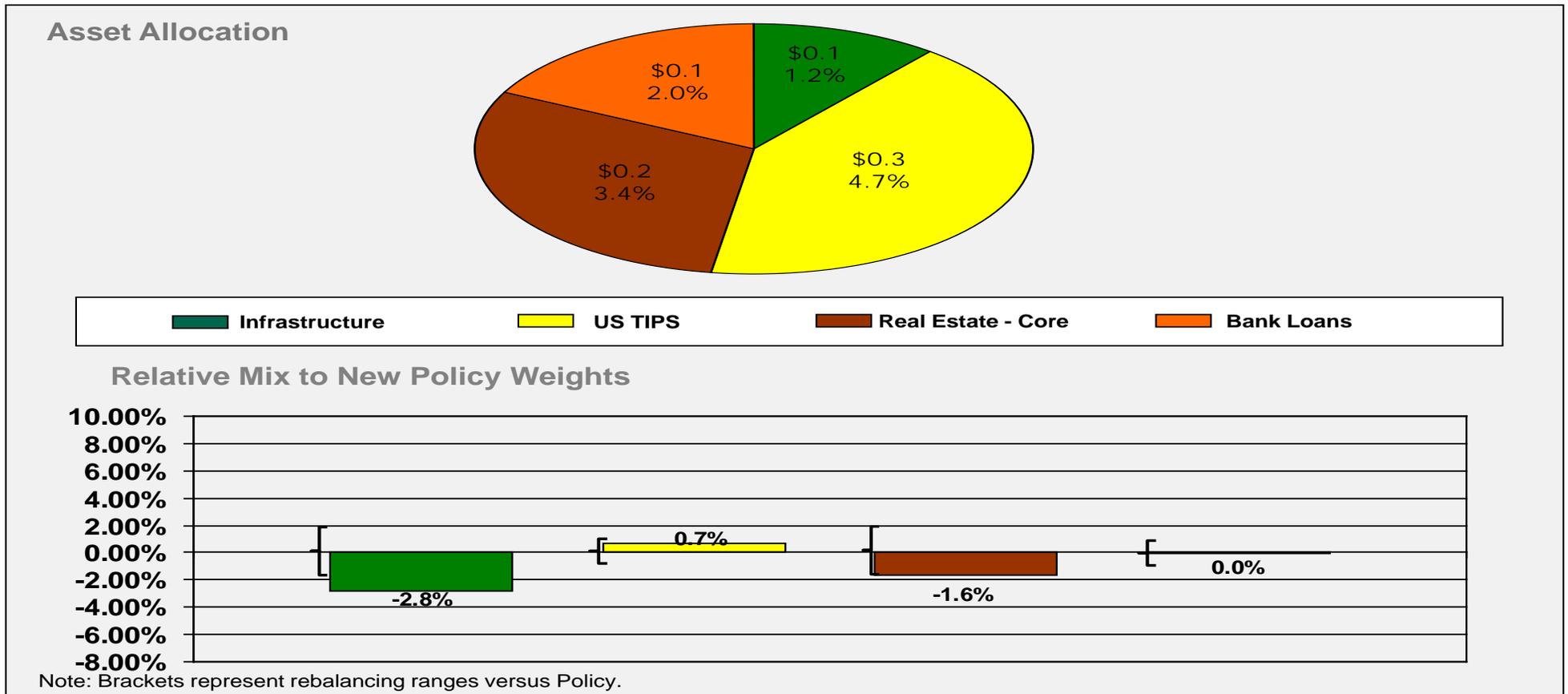


Portfolio Asset Allocation – Deflation Protection

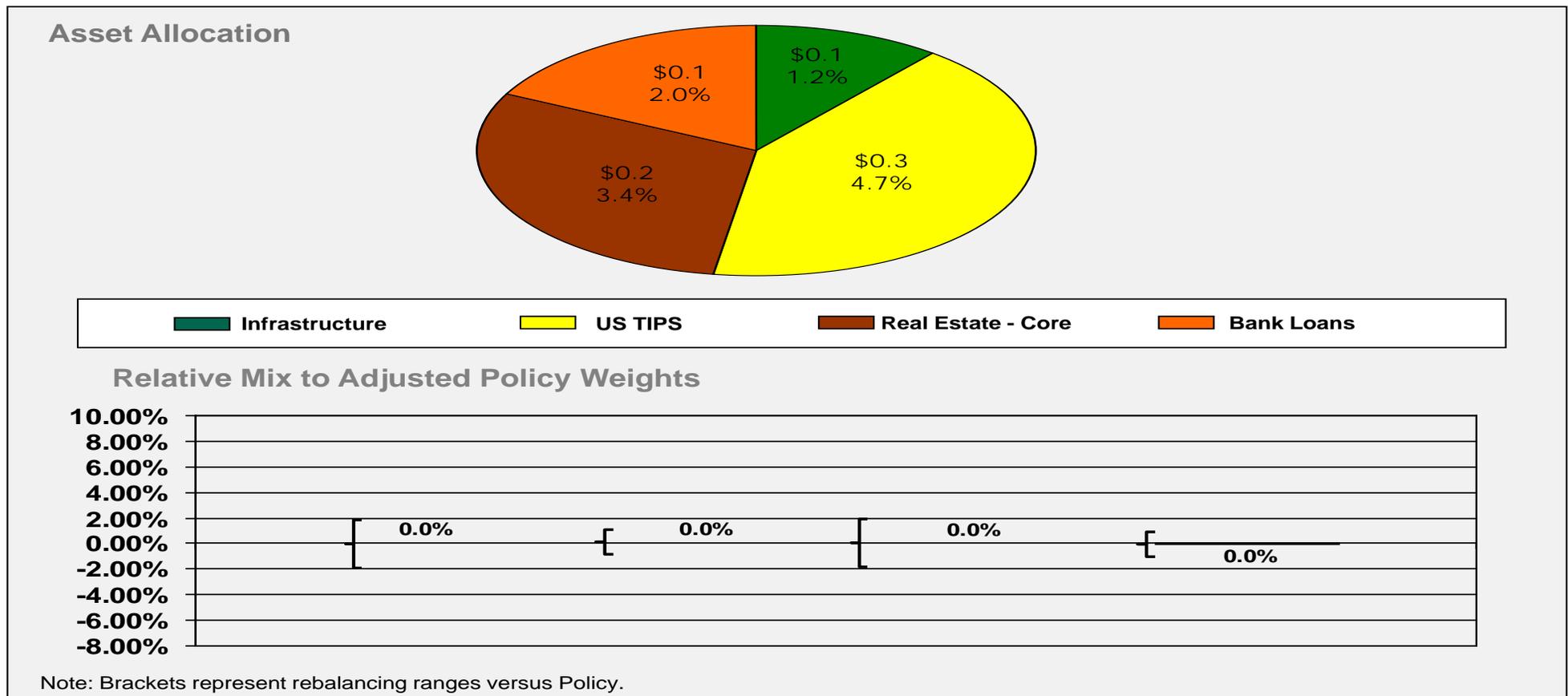


Note: On June 29, 2018 BERS' combined Fixed Income and Cash portfolios have a duration of 5.2 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

Portfolio Asset Allocation – Inflation Protection

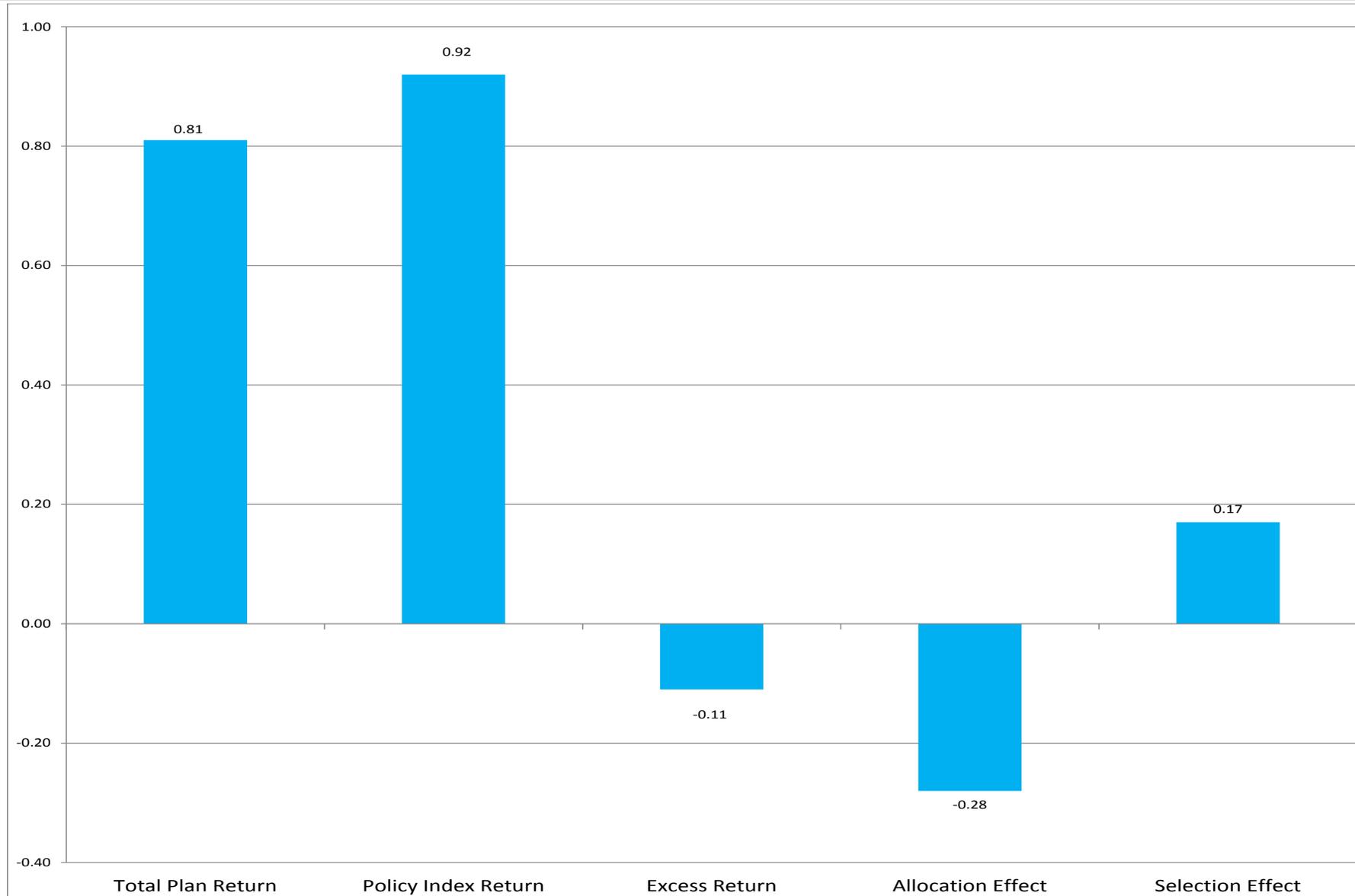


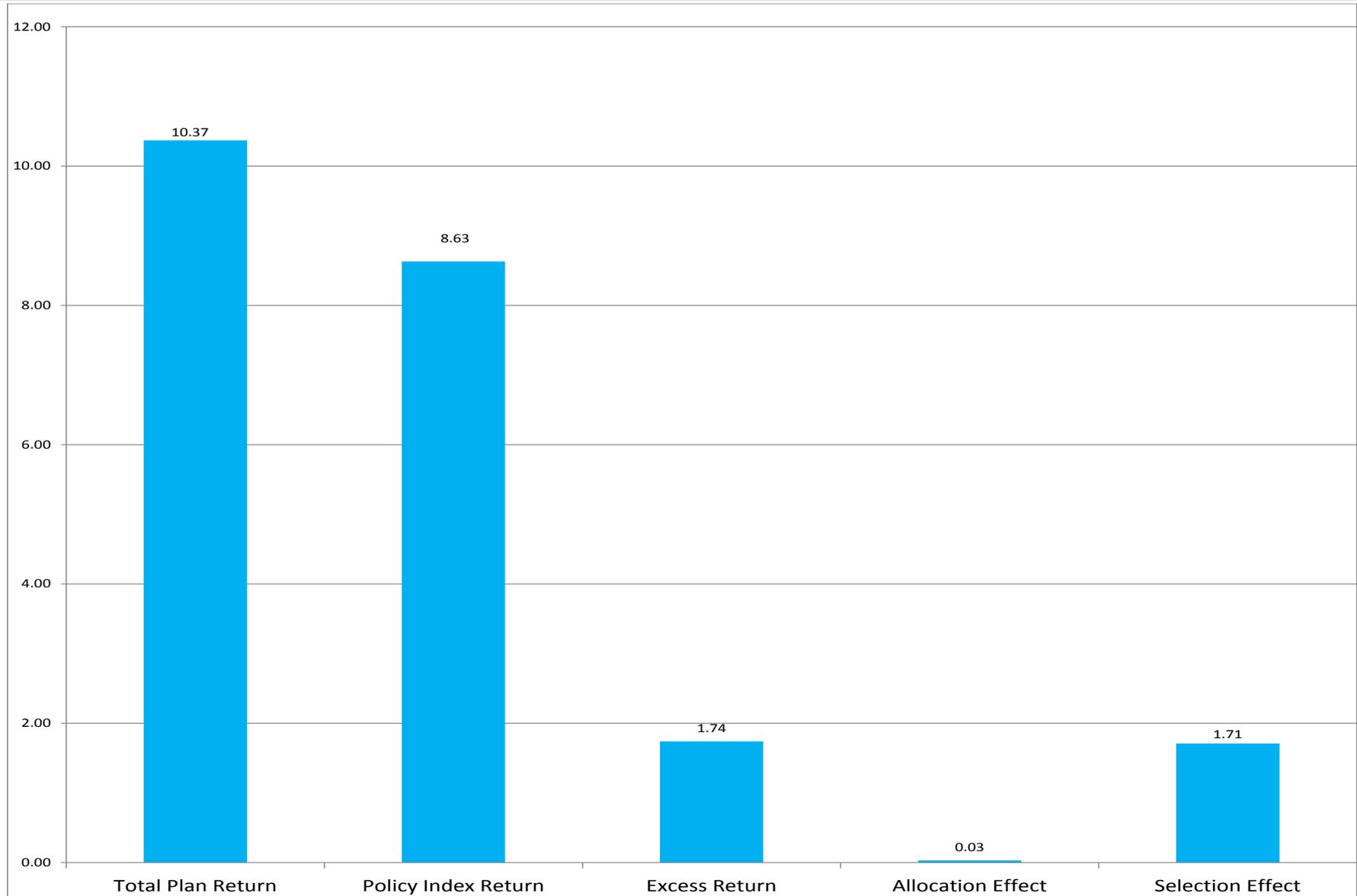
Portfolio Asset Allocation – Inflation Protection



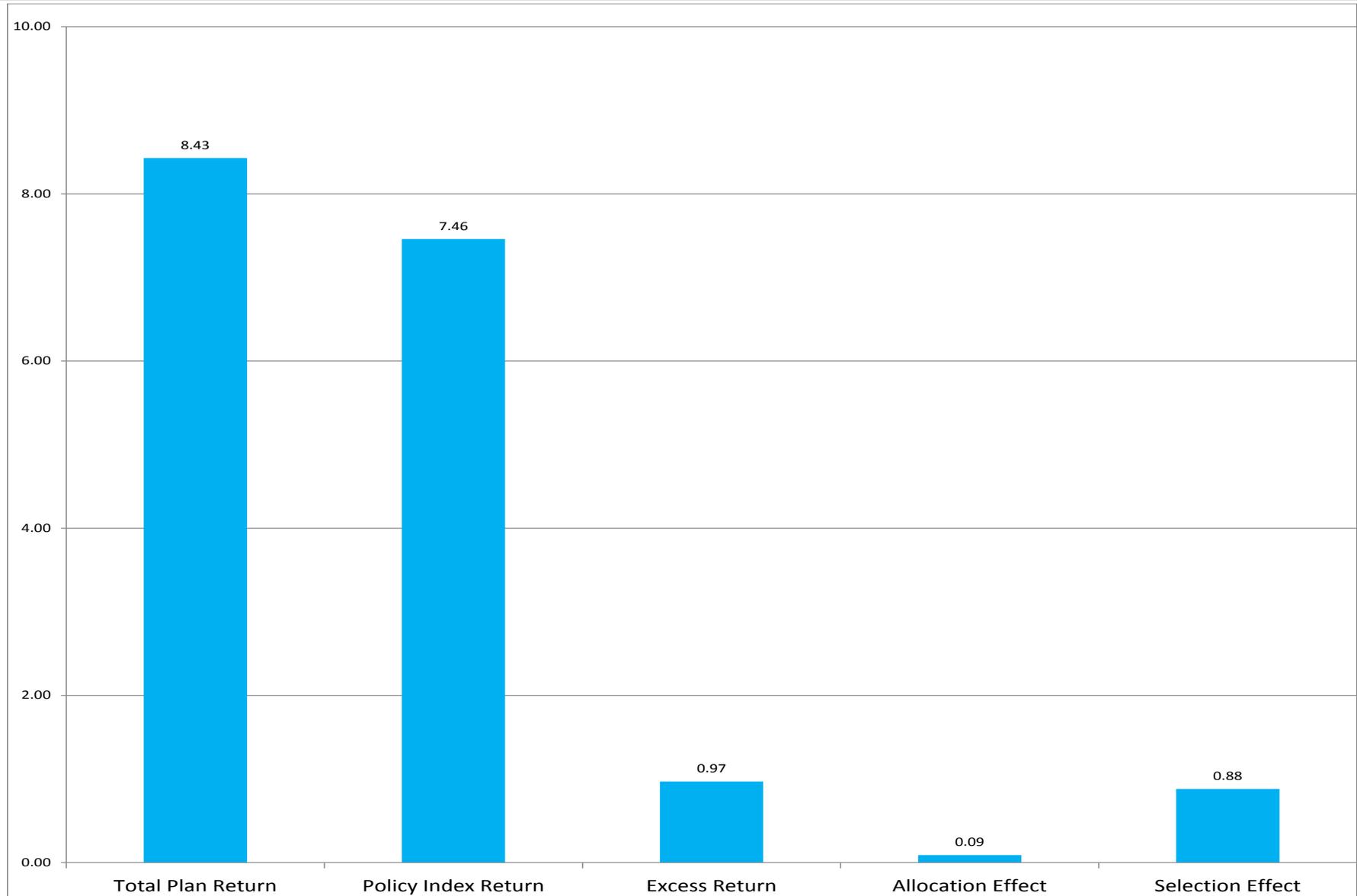
Note: On June 29, 2018 BERS' combined Fixed Income and Cash portfolios have a duration of 5.2 years. The duration of the Barclays US Aggregate Index was 6 years on that date.

Performance Attribution: Total Plan - Quarter Ending: June 30, 2018





Performance Attribution: Total Plan - 3 Years Ending: June 30, 2018



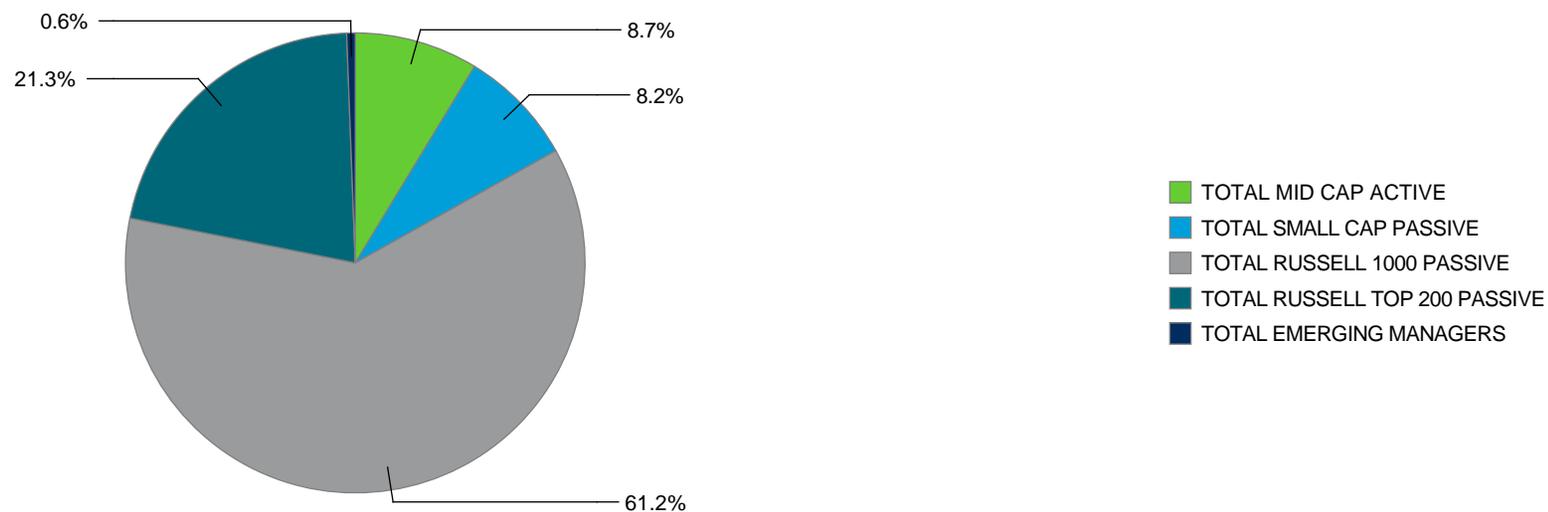
Allocation Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL BOARD OF EDUCATION	-0.28	0.03	0.09	Board of Education Policy Benchmark
TOTAL DOMESTIC EQUITY	-0.09	-0.04	0.00	RUSSELL 3000
TOTAL DEVELOPED EQUITY	-0.03	-0.03	0.07	MSCI World ex USA IMI Net
TOTAL GLOBAL EQUITY	0.01	0.01	0.00	MSCI AC WORLD
TOTAL EMERGING MARKETS	-0.15	-0.09	-0.02	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.00	0.00	MSCI ACWI Ex US IMI Net
TOTAL PRIVATE EQUITY	0.00	0.00	0.00	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.00	0.00	-0.01	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.00	0.01	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.00	0.00	CPI + 4%
TOTAL US TREASURY SHORT TERM	-0.04	-0.15	-0.13	FTSE USBIG Treasury 1-3 Y Index
TOTAL ACTIVE GOVERNMENT	0.02	0.28	0.25	NYC - Treasury Agency Plus Five
TOTAL INVESTMENT GRADE CREDIT	0.00	-0.03	-0.03	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.06	0.04	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL HIGH YIELD	0.00	0.07	0.04	FTSE BB&B
TOTAL BANK LOANS	0.00	-0.01	-0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.00	-0.01	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CASH	0.00	-0.06	-0.08	

Selection Effect - Asset Class Breakdown				
	<u>Quarter</u>	<u>FYTD</u>	<u>3 Years</u>	<u>Benchmark</u>
TOTAL BOARD OF EDUCATION	0.17	1.71	0.88	Board of Education Policy Benchmark
TOTAL DOMESTIC EQUITY	0.20	0.30	0.04	RUSSELL 3000
TOTAL DEVELOPED EQUITY	0.01	1.23	0.64	MSCI World ex USA IMI Net
TOTAL GLOBAL EQUITY	0.00	0.00	0.00	MSCI AC WORLD
TOTAL EMERGING MARKETS	-0.17	-0.12	0.02	MSCI Emerging Markets
TOTAL INTERNATIONAL FOF	0.00	0.01	0.00	MSCI ACWI Ex US IMI Net
TOTAL PRIVATE EQUITY	0.13	-0.02	-0.06	Russell 3K + 300bps
TOTAL PRIVATE REAL ESTATE - CORE	0.00	0.00	0.00	NCREIF ODCE net
TOTAL PRIVATE REAL ESTATE - NON CORE	0.00	0.22	0.09	NCREIF ODCE net + 200bps
TOTAL INFRASTRUCTURE	0.00	0.09	0.06	CPI + 4%
TOTAL US TREASURY SHORT TERM	0.00	0.00	0.00	FTSE USBIG Treasury 1-3 Y Index
TOTAL ACTIVE GOVERNMENT	-0.01	0.00	0.00	NYC - Treasury Agency Plus Five
TOTAL INVESTMENT GRADE CREDIT	0.00	0.01	0.01	NYC - Investment Grade Credit
TOTAL MORTGAGES	0.00	0.00	0.01	FTSE MORTGAGE INDEX
TOTAL ETI	0.00	0.00	0.00	ETI Custom Benchmark
TOTAL HIGH YIELD	0.00	-0.01	-0.02	FTSE BB&B
TOTAL BANK LOANS	0.00	0.00	-0.01	Credit Suisse Lev Loan Index
TOTAL TIPS MANAGERS	0.00	0.00	0.00	BBG BARC Gbl Inf-Lk: US TIPS (Dly)
TOTAL CASH	0.00	0.00	0.01	

Total Domestic Equity Asset Allocations: June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL DOMESTIC EQUITY	\$1.8	30.7

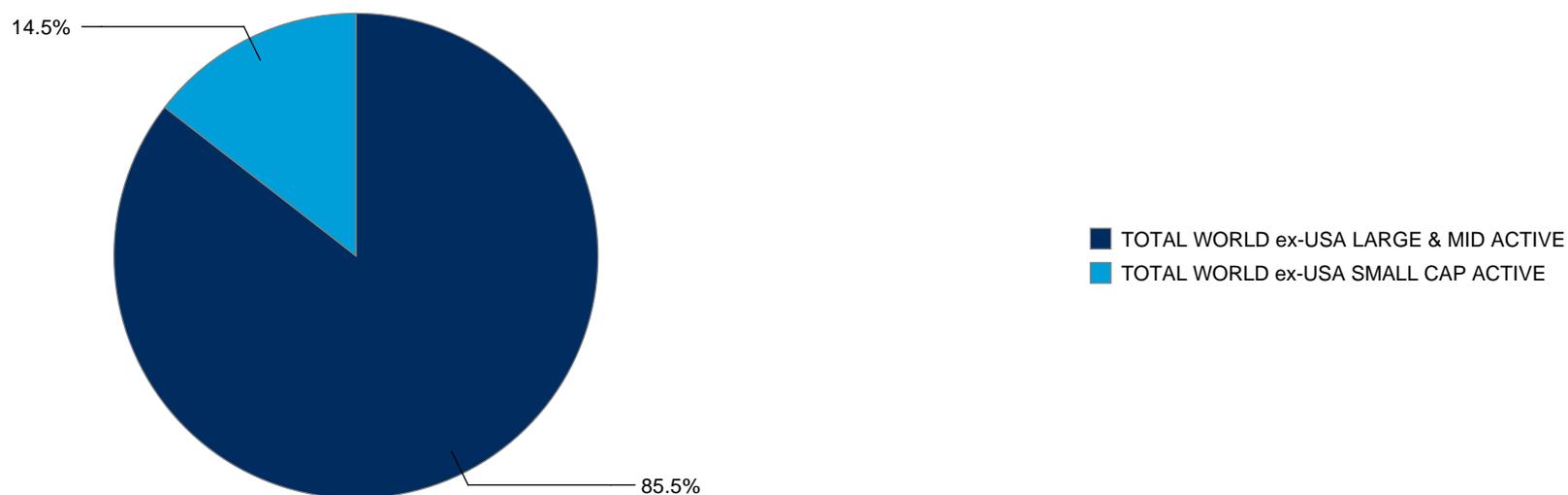


	<u>Policy Weight</u>	<u>Actual Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL MID CAP ACTIVE	7.0	8.7	1.7	4.1	2.8	1.3
TOTAL SMALL CAP PASSIVE	7.1	8.2	1.1	7.7	7.8	(0.1)
TOTAL RUSSELL 1000 PASSIVE	67.5	61.3	(6.2)	3.8	3.6	0.2
TOTAL RUSSELL TOP 200 PASSIVE	17.9	21.3	3.4			
TOTAL EMERGING MANAGERS	0.6	0.6	0.0	8.0	7.8	0.3

World ex-USA Equity Asset Allocation: June 30, 2018



	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL WORLD ex-USA	\$742.3	12.4

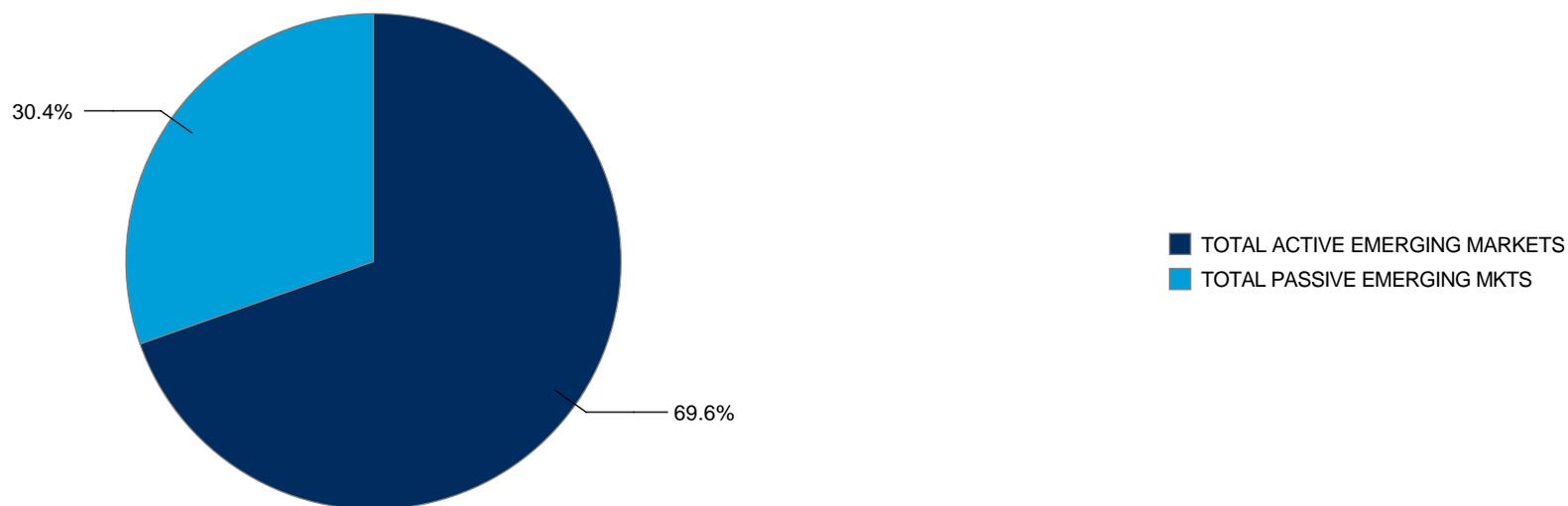


	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL WORLD ex-USA LARGE & MID ACTIVE	85.45	0.13	(0.75)	0.88
TOTAL WORLD ex-USA SMALL CAP ACTIVE	14.55	(4.51)	(1.84)	(2.67)
TOTAL WORLD ex-USA	100.00	(0.57)	(0.77)	0.20

Emerging Markets Equity Asset Allocation: June 30, 2018



	<u>Market Value (Millions)</u>	<u>% of Plan</u>
TOTAL EMERGING MARKETS	\$451.4	7.5

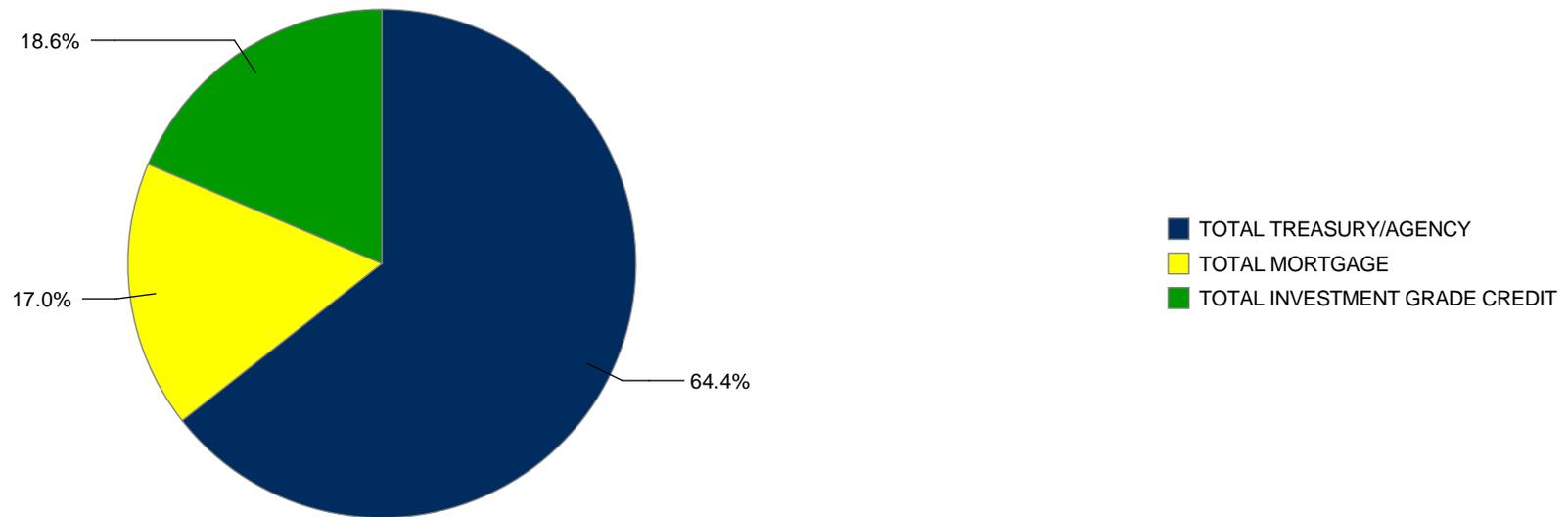


	<u>Asset Weight</u>	<u>Quarterly Returns</u>		
		<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL ACTIVE EMERGING MARKETS	69.63	(10.66)	(7.96)	(2.70)
TOTAL PASSIVE EMERGING MARKETS	30.37	(7.90)	(7.96)	0.06
TOTAL EMERGING MARKETS	100.00	(9.83)	(7.96)	(1.87)

Structured Fixed Income Asset Allocation: June 30, 2018



	<u>Market Value (Billions)</u>	<u>% of Plan</u>
TOTAL STRUCTURED + ETI	\$1.3	22.2

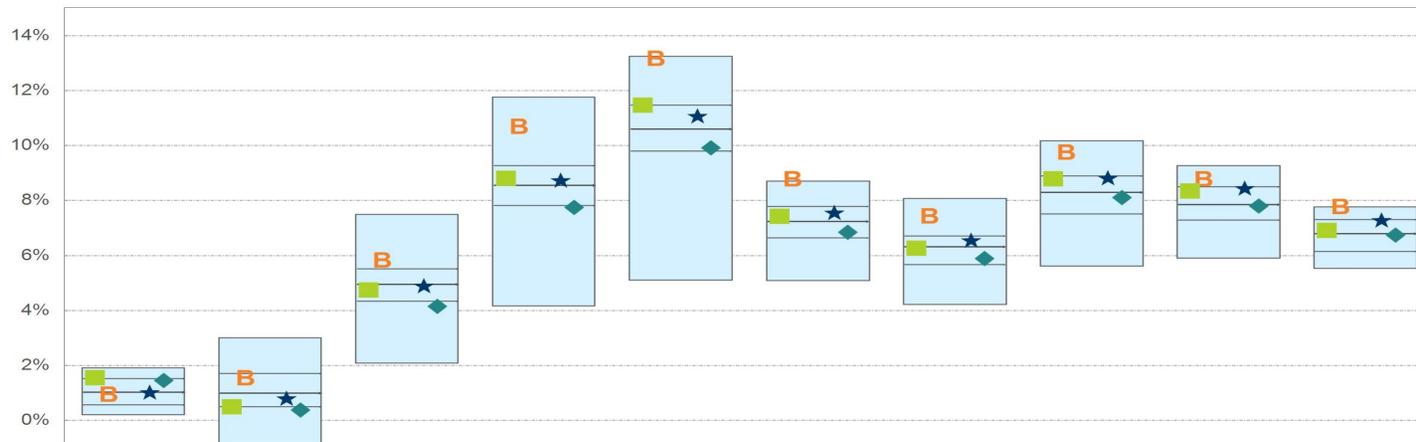


	<u>Policy Weight</u>	<u>Asset Weight</u>	<u>Under/Over Weight</u>	<u>Quarterly Returns</u>		
				<u>Fund</u>	<u>Benchmark</u>	<u>Excess</u>
TOTAL TREASURY/AGENCY	61.54	64.38	2.84	0.07	0.09	(0.01)
TOTAL MORTGAGE	19.23	17.01	(2.22)	0.19	0.26	(0.07)
TOTAL INVESTMENT GRADE CREDIT	19.23	18.61	(0.62)	(0.92)	(0.88)	(0.04)



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Cumulative Periods Ending : June 30, 2018



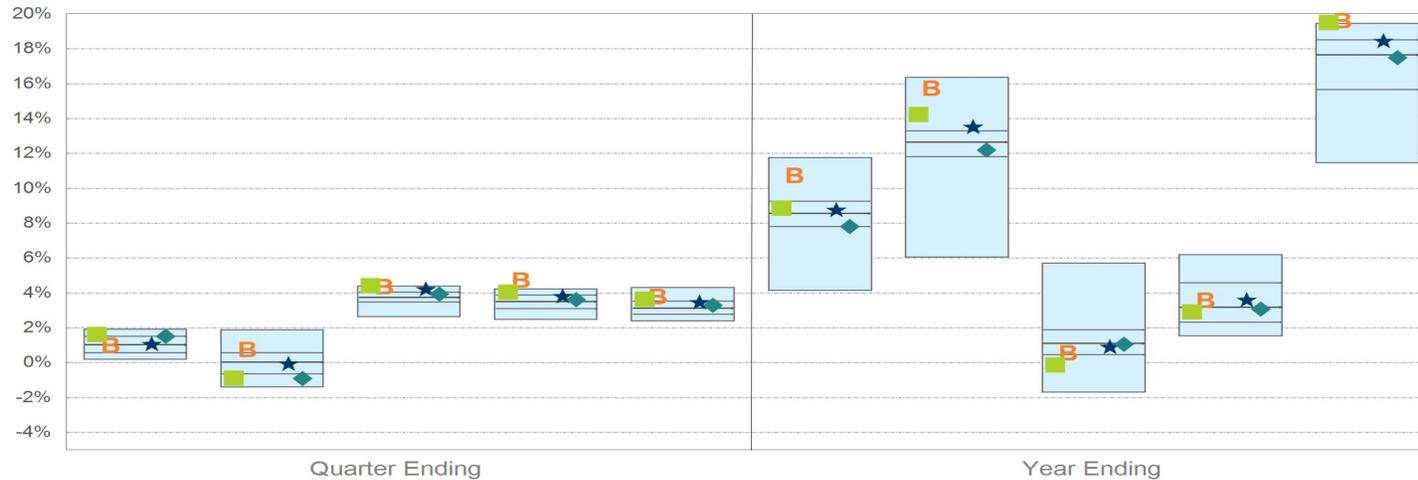
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	1.91	3.00	7.50	11.76	13.24	8.71	8.07	10.17	9.26	7.76
25th	1.52	1.71	5.51	9.27	11.47	7.79	6.71	8.90	8.50	7.31
50th	1.03	0.99	4.95	8.55	10.59	7.24	6.32	8.29	7.85	6.79
75th	0.56	0.50	4.34	7.82	9.79	6.64	5.66	7.51	7.28	6.15
95th	0.20	-0.85	2.08	4.16	5.11	5.09	4.21	5.62	5.90	5.53
No. Of Obs	51	51	51	51	51	51	51	51	51	46
B Total System - BOE	0.85 (58)	1.46 (32)	5.73 (21)	10.59 (9)	13.07 (5)	8.68 (9)	7.34 (13)	9.66 (9)	8.69 (21)	7.68 (5)
★ Board of Ed Policy Ben	0.92 (54)	0.70 (66)	4.79 (52)	8.63 (40)	10.98 (32)	7.46 (36)	6.45 (42)	8.72 (32)	8.35 (30)	7.18 (29)
■ Public Mkt Equiv 25	1.45 (32)	0.39 (75)	4.65 (54)	8.70 (38)	11.36 (26)	7.33 (44)	6.17 (56)	8.68 (32)	8.24 (34)	6.81 (47)
◆ Public Mkt Equiv 35	1.35 (34)	0.27 (83)	4.05 (79)	7.64 (75)	9.82 (72)	6.75 (70)	5.78 (68)	8.00 (66)	7.70 (62)	6.64 (52)

Wilshire Trust Universe Comparison Service® (TUCS®)



City of New York Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$1 Billion
Consecutive Time Periods: June 30, 2018



Percentile Rankings	Jun 18	Mar 18	Dec 17	Sep 17	Jun 17	Jun 18	Jun 17	Jun 16	Jun 15	Jun 14
5th	1.91	1.89	4.39	4.24	4.32	11.76	16.38	5.71	6.20	19.45
25th	1.52	0.56	4.04	3.88	3.54	9.27	13.29	1.88	4.59	18.53
50th	1.03	0.02	3.75	3.50	3.12	8.55	12.65	1.12	3.19	17.66
75th	0.56	-0.65	3.47	3.10	2.79	7.82	11.81	0.45	2.32	15.68
95th	0.20	-1.40	2.64	2.49	2.41	4.16	6.07	-1.69	1.53	11.48
No. Of Obs	51	51	51	51	51	51	51	51	51	51
B Total System - BOE	0.85 (58)	0.60 (19)	4.21 (13)	4.59 (1)	3.65 (17)	10.59 (9)	15.60 (7)	0.41 (75)	3.41 (46)	19.47 (3)
★ Board of Ed Policy Ben	0.92 (54)	-0.22 (66)	4.06 (23)	3.66 (36)	3.32 (34)	8.63 (40)	13.39 (21)	0.75 (60)	3.46 (44)	18.30 (32)
■ Public Mkt Equiv 25	1.45 (32)	-1.05 (85)	4.25 (13)	3.87 (25)	3.49 (25)	8.70 (38)	14.09 (17)	-0.30 (81)	2.74 (64)	19.36 (5)
◆ Public Mkt Equiv 35	1.35 (34)	-1.06 (85)	3.77 (48)	3.45 (58)	3.14 (48)	7.64 (75)	12.03 (66)	0.89 (56)	2.91 (58)	17.33 (54)

Wilshire Trust Universe Comparison Service® (TUCS®)

Actual and Estimated Fees

Through June 30, 2018



BOARD OF EDUCATION RETIREMENT SYSTEM

ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2017 AND ESTIMATED FEES FOR FY 2018 UPDATED THROUGH DECEMBER 2017

INVESTMENT STYLE (EQUITIES)	Actual 2017						Estimates 2018			
	Avg. MV FY 2017 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
Total US Equities	1,804.61	1,307.64	7.25	81.98	-	1,389.62	7.70	2,049.37	545.71	2.66
Small Cap Active	-	-	-	-	-	-	-	-	-	-
Small Cap Growth	-	-	-	-	-	-	-	-	-	-
Small Cap Value	-	-	-	-	-	-	-	-	-	-
Small Cap Core	-	-	-	-	-	-	-	-	-	-
Small Cap Fundamental Index	-	-	-	-	-	-	-	-	-	-
Mid Cap Active	134.76	479.17	35.56	81.98	6.08	561.15	41.64	140.94	413.76	29.36
Mid Cap Growth	-	-	-	-	-	-	-	-	-	-
Mid Cap Value	-	-	-	-	-	-	-	-	-	-
Mid Cap Core	134.76	479.17	35.56	81.98	6.08	561.15	41.64	140.94	413.76	29.36
Russell 1000 Fundamental	-	-	-	-	-	-	-	-	-	-
Active Emerging Managers (U.S. Equities)	121.79	739.16	60.69	-	-	739.16	60.69	10.75	52.49	48.81
U.S. Environmental Managers	-	-	-	-	-	-	-	-	-	-
Total US Active Equities	256.55	1,218.33	47.49	81.98	3.20	1,300.31	50.68	151.70	466.25	30.74
Small Cap Passive	-	-	-	-	-	-	-	-	-	-
Small Cap Passive	88.72	3.91	0.44	-	-	3.91	0.44	178.15	7.45	0.42
Mid Cap Passive	-	-	-	-	-	-	-	-	-	-
Mid Cap Passive	-	-	-	-	-	-	-	-	-	-
Russell 1000 Passive	-	-	-	-	-	-	-	-	-	-
Russell 1000 Growth Passive	724.62	54.02	0.75	-	-	54.02	0.75	869.84	36.57	0.42
Russell 1000 Value Passive	734.71	31.39	0.43	-	-	31.39	0.43	849.69	35.43	0.42
Passive Russell 3000	0.01	-	-	-	-	-	-	0.00	-	-
Passive S&P 500	-	-	-	-	-	-	-	-	-	-
Total US Passive Equities	1,548.06	89.31	0.58	-	-	89.31	0.58	1,897.68	79.46	0.42

Actual and Estimated Fees

Through June 30, 2018



BOARD OF EDUCATION RETIREMENT SYSTEM

ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2017 AND ESTIMATED FEES FOR FY 2018 UPDATED THROUGH DECEMBER 2017

	Avg. MV FY 2017 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Actual 2017			Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Estimates 2018	
			Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS				Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
Total International Equities	1,215.56	2,878.36	23.68	-	-	2,878.36	23.68	1,285.05	3,281.64	25.54
Active EAFE Equities	792.16	1,900.17	23.99	-	-	1,900.17	23.99	774.73	1,915.46	24.72
Developed Growth	348.07	862.28	24.77	-	-	862.28	24.77	333.70	857.42	25.69
Developed Value	350.87	737.46	21.02	-	-	737.46	21.02	325.42	689.85	21.20
Developed Small Cap	93.21	300.43	32.23	-	-	300.43	32.23	115.62	368.18	31.84
Developed Core	-	-	-	-	-	-	-	-	-	-
Total Progress Intl.	-	-	-	-	-	-	-	-	-	-
NON-U.S. Environmental Managers	-	-	-	-	-	-	-	-	-	-
Active Emerging Markets	264.24	903.06	34.18	-	-	903.06	34.18	326.25	1,093.56	33.52
Total Active Int'l Fund of Funds	55.71	38.43	6.90	-	-	38.43	6.90	60.36	208.37	34.52
Total Active International Equities	1,112.10	2,841.66	25.55	-	-	2,841.66	25.55	1,161.35	3,217.39	27.70
Int'l Passive Equities										
Developed Passive	-	-	-	-	-	-	-	-	-	-
Passive Global	-	-	-	-	-	-	-	-	-	-
Passive Emerging Markets	103.45	36.70	3.55	-	-	36.70	3.55	123.70	64.25	5.19
Total Int'l Passive Equities	103.45	36.70	3.55	-	-	36.70	3.55	123.70	64.25	5.19
REITS Active Equities	-	-	-	-	-	-	-	-	-	-

Actual and Estimated Fees

Through June 30, 2018



BOARD OF EDUCATION RETIREMENT SYSTEM

ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2017 AND ESTIMATED FEES FOR FY 2018 UPDATED THROUGH DECEMBER 2017

INVESTMENT STYLE (FIXED INCOME)	Avg. MV FY 2017 (\$MM)	Actual 2017					Estimates 2018			
		Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
Fixed Income	1,501.52	1,660.97	11.06	-	-	1,660.97	11.06	1,623.26	1,785.72	11.00
Structured Program	789.49	365.52	4.63	-	-	365.52	4.63	895.93	441.52	4.93
Government Treas/Agency Sector	296.72	59.70	2.01	-	-	59.70	2.01	449.55	150.09	3.34
Long Duration Treasury	-	-	-	-	-	-	-	-	-	-
Mortgage Sector	200.01	95.68	4.78	-	-	95.68	4.78	177.31	76.81	4.33
Investment Grade Credit Sector	292.75	210.14	7.18	-	-	210.14	7.18	269.07	214.62	7.98
Global Fixed Income	-	-	-	-	-	-	-	-	-	-
Progress Fixed Emerging Managers	-	-	-	-	-	-	-	-	-	-
TIPS	226.68	11.11	0.49	-	-	11.11	0.49	260.70	12.72	0.49
Active TIPS Managers	0.01	-	-	-	-	-	-	-	-	-
Passive TIPS Managers	226.67	11.11	0.49	-	-	11.11	0.49	260.70	12.72	0.49
High Yield	256.13	832.70	32.51	-	-	832.70	32.51	270.09	872.65	32.31
Bank Loans	111.69	374.20	33.50	-	-	374.20	33.50	115.93	381.12	32.88
Convertible Bonds	-	-	-	-	-	-	-	-	-	-
ETI - Access - RBC	6.06	14.17	23.38	-	-	14.17	23.38	8.07	15.33	19.00
ETI - AFL-CIO HIT	15.87	63.28	39.87	-	-	63.28	39.87	16.08	62.38	38.80
Total Public Markets (Externally managed)	4,426.09	5,846.98	13.21	81.98	0.19	5,928.96	13.40	4,901.22	5,613.07	11.45
Other ETI Programs	7.89	-	-	-	-	-	-	8.94	-	-
In-House Short Term	87.70	-	-	-	-	-	-	47.53	-	-
Total Public Markets	4,521.68	5,846.98	12.93	81.98	0.18	5,928.96	13.11	4,957.69	5,613.07	11.32

Actual and Estimated Fees

Through June 30, 2018



BOARD OF EDUCATION RETIREMENT SYSTEM

ACTUAL FEES FOR FISCAL YEAR ENDED JUNE 30, 2017 AND ESTIMATED FEES FOR FY 2018 UPDATED THROUGH DECEMBER 2017

INVESTMENT STYLE (PRIVATE MARKETS)	Avg. MV FY 2017 (\$MM)	Actual 2017					Estimates 2018			
		Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS	Incentive Fees in (\$M)	Incentive Fees in BPS	Total Fees in (\$M)	Total Fees in BPS	Avg. MV FYTD 12-31-17 (\$MM)	Mgmt. Fees w/ Partnership Expenses (\$M)	Mgmt. Fees w/ Partnership Expenses in BPS
Hedge Funds	-	-	-	-	-	-	-	-	-	-
Private Equity	250.56	5,689.46	227.07	876.55	34.98	6,566.01	262.06	301.27	3,729.14	123.78
Private Real Estate	288.45	3,667.75	127.16	562.83	19.51	4,230.58	146.67	327.62	3,745.08	114.31
Infrastructure	40.23	1,114.36	98.90	-	-	1,114.36	98.90	52.07	1,278.17	81.93
Opportunistic Fixed Income	-	-	-	-	-	-	-	-	-	-
Total Private Markets	579.24	10,471.57	180.78	1,439.38	24.85	11,910.95	205.63	680.96	8,752.39	128.53
Total Overall	5,100.92	16,318.55	31.99	1,521.36	2.98	17,839.91	34.97	5,638.65	14,365.46	25.48

The overall carried interest and incentive fees paid by BERS in Fiscal Year 2017: 2.98 BPS

General Footnotes:

1) Private Markets data reflect: carried interest realized and/or Incentive fees as stated by its corresponding partnership. Management fees reported are inclusive of partnership expenses associated with the partnership for the stated fiscal year.

2) Infrastructure's expense data is based off the total committed amounts rather than current market value due to its early fund life juncture.

3) Estimated Fees for the Public Markets data does not take into account major rebalancing shifts and is calculated at a fixed NAV. Estimates fees for the Private Markets data is based solely off gross management fee data and is not inclusive of any offsets. Both estimates are considered to be equitably conservative and should be construed as such. Estimates for FY 2018 for Private Equity is provided by the consultant.

Securities Lending Income

Through June 30, 2018



**NYC BOARD OF EDUCATION RETIREMENT SYSTEM
SECURITIES LENDING INCOME
June 30, 2018**

	<u>U. S. FIXED INCOME</u>	<u>U. S. EQUITY</u>	<u>INTERNATIONAL EQUITY</u>	<u>TOTAL</u>
1989	70,000	-	-	70,000
1990	79,000	-	-	79,000
1991	111,000	-	-	111,000
1992	122,000	11,000	-	133,000
1993	79,000	32,000	15,000	126,000
1994	93,000	77,000	20,000	190,000
1995	112,000	93,000	12,000	217,000
1996	99,000	76,000	27,000	202,000
1997	101,000	126,000	40,000	267,000
1998	111,000	170,000	60,000	341,000
1999	159,000	263,000	100,000	522,000
2000	193,000	310,000	97,000	600,000
2001	295,000	208,000	159,000	662,000
2002	209,000	143,000	152,000	504,000
2003	153,000	158,000	195,000	506,000
2004	226,000	255,000	174,000	655,000
2005	384,000	479,000	217,000	1,080,000
2006	303,000	734,000	246,000	1,283,000
2007	593,000	1,208,000	272,000	2,073,000
2008	2,514,000	2,266,000	451,000	5,231,000
2009	698,000	1,416,000	367,000	2,481,000
2010	246,000	729,000	326,000	1,301,000
2011	340,000	943,000	599,000	1,882,000
2012	516,000	1,144,000	495,000	2,155,000
2013	349,000	1,325,000	446,000	2,120,000
2014	287,000	512,000	1,387,000	2,186,000
2015	338,000	429,000	1,985,000	2,752,000
2016	418,000	1,585,000	1,685,000	3,688,000
2017	686,000	1,015,000	1,215,000	2,916,000
2018 (6 months)	381,776	324,829	557,448	1,264,053
Since Inception	<u>10,265,776</u>	<u>16,031,829</u>	<u>11,299,448</u>	<u>37,597,053</u>

**New York City
Board of Education Retirement System**

Appendix A

Consolidated Performance Report

Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date
SYSTEM RETURN SUMMARY															
5 BERS-TOTAL PORTFOLIO - GROSS	5,992	100.00	0.85	10.59	1.46	19.09	9.44	(0.20)	6.64	18.78	8.68	9.66	7.68	8.87	07/01/1987
BERS - ESTIMATED INVESTMENT FEES			(0.05)	(0.22)	(0.09)	(0.27)	(0.25)	(0.24)	(0.25)		(0.24)				
EST MANAGEMENT FEES - PUBLIC MARKET (ACCRUAL)			(0.03)	(0.10)	(0.05)	(0.10)	(0.13)	(0.14)	(0.15)		(0.12)				
EST MANAGEMENT FEES - ALTERNATIVE MARKETS (CASH)			(0.02)	(0.12)	(0.04)	(0.17)	(0.12)	(0.10)	(0.10)		(0.12)				
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL PORTFOLIO - NET MGR			0.81	10.37	1.38	18.82	9.19	(0.44)	6.39		8.43				
BOARD OF EDUCATION POLICY BENCHMARK			0.92	8.63	0.70	16.63	8.66	(0.08)	6.93	18.10	7.46	8.72	7.18		
EXCESS RETURN			(0.12)	1.74	0.68	2.18	0.53	(0.36)	(0.53)	0.68	0.97	0.94	0.49		
EQUITY RETURN DETAIL															
18 BERS-TOTAL EQUITY (INCLUDES PE & RA) - GROSS	3,912	65.29	1.31	14.89	2.51	25.58	10.72	(0.13)	7.08	27.83	11.16	12.31	8.66	9.40	08/01/1993
ESTIMATED INVESTMENT FEES			(0.06)	(0.28)	(0.10)	(0.34)	(0.30)	(0.30)	(0.28)		(0.30)				
EST MANAGEMENT FEES			(0.06)	(0.28)	(0.10)	(0.34)	(0.30)	(0.30)	(0.28)		(0.30)				
EST INCENTIVE FEES															
EST OTHER FEES															
EST FEE OFFSETS															
BERS-TOTAL EQUITY (INCL PE & RA) - NET MGR			1.25	14.61	2.41	25.24	10.42	(0.43)	6.81		10.86				
26 BERS-TOTAL DOMESTIC EQUITY - GROSS	1,842	30.74	4.62	15.87	4.17	21.47	12.69	0.51	11.27	35.96	11.84	13.51	10.34	9.99	09/01/1991
ESTIMATED INVESTMENT FEES			(0.01)	(0.04)	(0.02)	(0.04)	(0.12)	(0.12)	(0.13)		(0.08)				
BERS-TOTAL DOMESTIC EQUITY - NET MGR			4.61	15.84	4.15	21.43	12.57	0.39	11.14		11.77				
RUSSELL 3000 (DAILY)			3.89	14.78	3.22	21.13	12.74	0.48	12.56	33.55	11.58	13.29	10.23	9.83	
EXCESS RETURN			0.72	1.06	0.93	0.29	(0.17)	(0.09)	(1.42)	2.41	0.18	0.22	0.11	0.16	
36 BERS-TOTAL SMALL CAP - GROSS	150	2.51	7.70	17.76	7.73	14.47	21.28	(6.44)	3.20	44.74	10.60	11.89	9.56	7.65	04/01/2004
ESTIMATED INVESTMENT FEES			(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.08)	(0.15)		(0.00)				
BERS-TOTAL SMALL CAP - NET MGR			7.69	17.76	7.73	14.47	21.28	(6.52)	3.05		10.59				
RUSSELL 2000 (DAILY)			7.75	17.57	7.66	14.65	21.31	(4.41)	4.89	38.82	10.96	12.46	10.60	8.89	
EXCESS RETURN			(0.06)	0.19	0.07	(0.18)	(0.03)	(2.11)	(1.85)	5.92	(0.37)	(0.57)	(1.04)	(1.24)	
46 BERS-TOTAL MID CAP - GROSS	159	2.66	4.22	19.89	7.75	25.33	12.90	2.56	10.77	37.52	13.76	15.44		15.37	10/01/2010
ESTIMATED INVESTMENT FEES			(0.08)	(0.36)	(0.16)	(0.27)	(0.62)	(0.55)	(0.41)		(0.45)				
BERS-TOTAL MID CAP - NET MGR			4.14	19.53	7.59	25.06	12.28	2.01	10.36		13.30				
RUSSELL MIDCAP (DAILY)			2.82	12.33	2.35	18.52	13.80	(2.44)	13.22	34.76	9.58	12.22		13.58	
EXCESS RETURN			1.33	7.20	5.24	6.54	(1.51)	4.45	(2.86)	2.76	3.72	3.22		1.79	
56 BERS-TOTAL RUSSELL 1000 - GROSS	1,128	18.83	3.80											3.80	04/01/2018
ESTIMATED INVESTMENT FEES			(0.00)											(0.00)	
BERS-TOTAL RUSSELL 1000 - NET MGR			3.80											3.80	
RUSSELL 1000 (DAILY)			3.57											3.57	
EXCESS RETURN			0.23											0.23	
66 BERS-TOTAL RUSSELL TOP 200 PASSIVE - GROSS	392	21.29												3.30	05/01/2018
ESTIMATED INVESTMENT FEES														(0.01)	
BERS-TOTAL RUSSELL TOP 200 PASSIVE - NET MGR														3.29	
RUSSELL TOP 200 INDEX (DAILY)														3.31	
EXCESS RETURN														(0.02)	
76 BERS-TOTAL EMERGING MANAGER- GROSS	12	0.20	8.15	15.16	7.29									13.40	05/01/2017
ESTIMATED INVESTMENT FEES			(0.14)	(0.57)	(0.27)									(0.40)	
BERS-TOTAL EMERGING MANAGER - NET MGR			8.01	14.59	7.02									13.01	
RUSSELL 2000 (DAILY)			7.75	17.57	7.66									16.20	
EXCESS RETURN			0.25	(2.98)	(0.65)									(3.20)	

Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
EQUITY RETURN DETAIL																
88	BERS-TOTAL WORLD ex-USA EQUITY - GROSS	742	12.39	(0.51)	16.82	1.14	35.49	6.19	(4.75)	(4.81)	24.21	9.82	9.78	6.04	8.09	11/01/1992
	ESTIMATED INVESTMENT FEES			(0.06)	(0.29)	(0.12)	(0.32)	(0.26)	(0.24)	(0.24)		(0.27)				
	BERS-TOTAL WORLD ex-USA EQUITY - NET MGR			(0.57)	16.53	1.01	35.18	5.93	(4.98)	(5.04)		9.56				
	NYC DEVELOPED EQUITY BENCHMARK			(0.77)	7.56	(2.57)	25.65	1.00	(0.81)	(4.90)	22.78	5.14	6.58	2.91	6.25	
	EXCESS RETURN			0.20	8.97	3.58	9.53	4.93	(4.17)	(0.14)	1.43	4.42	3.20	3.13	1.84	
98	BERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - GROSS	634	10.59	0.19	17.56	1.86	35.81	6.12	(6.35)	(4.83)		9.72			6.62	11/01/2013
	ESTIMATED INVESTMENT FEES			(0.06)	(0.27)	(0.12)	(0.31)	(0.25)	(0.22)	(0.23)		(0.25)			(0.25)	
	BERS-TOTAL WORLD ex-USA LARGE & MID ACTIVE - NET MGR			0.13	17.29	1.74	35.51	5.87	(6.57)	(5.05)		9.46			6.37	
	NYC CUSTOM WORLD EX-USA LG & MID ACT INDEX			(0.75)	6.95	(2.77)	25.18	1.00	(0.81)	(4.90)		4.94			3.72	
	EXCESS RETURN			0.88	10.34	4.51	10.32	4.87	(5.76)	(0.15)		4.53			2.64	
118	BERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - GROSS	108	1.80	(4.43)	12.72	(2.89)	38.82	6.76	9.04	(4.60)		12.79	13.12		11.29	05/01/2013
	ESTIMATED INVESTMENT FEES			(0.08)	(0.36)	(0.16)	(0.44)	(0.35)	(0.36)	(0.32)		(0.37)				
	BERS-TOTAL WORLD ex-USA SMALL CAP ACTIVE - NET MGR			(4.51)	12.35	(3.05)	38.38	6.41	8.68	(4.92)		12.43			9.44	
	S&P EPAC SMALL CAP USD NET			(1.84)	11.27	(2.14)	33.47	1.34	8.58	(3.43)		9.23	11.05		9.44	
	EXCESS RETURN			(2.67)	1.08	(0.91)	4.91	5.07	0.09	(1.49)		3.20	2.08		1.84	
128	BERS-TOTAL ACTIVE EMERGING MARKETS - GROSS	314	5.25	(10.58)	6.39	(8.21)	40.92	13.14	(14.83)	4.14	(4.70)	6.40	6.78	2.07	8.88	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.08)	(0.36)	(0.15)	(0.47)	(0.40)	(0.31)	(0.37)		(0.37)				
	BERS-TOTAL ACTIVE EMERGING MARKETS - NET MGR			(10.66)	6.03	(8.36)	40.45	12.74	(15.14)	3.77		6.03				
	MSCI EMERGING MARKETS			(7.96)	8.20	(6.66)	37.28	11.19	(14.92)	(2.19)	(2.60)	5.60	5.01	2.26	8.31	
	EXCESS RETURN			(2.70)	(2.17)	(1.71)	3.16	1.55	(0.22)	5.96	(2.10)	0.43	1.77	(0.18)	0.57	
138	BERS-TOTAL PASSIVE EMERGING MARKETS - GROSS	137	2.29	(7.89)	8.12	(6.54)	37.41								17.15	12/01/2016
	ESTIMATED INVESTMENT FEES			(0.01)	(0.06)	0.02	(0.15)								(0.07)	
	BERS-TOTAL PASSIVE EMERGING MARKETS - NET MGR			(7.90)	8.06	(6.52)	37.26								17.08	
	MSCI EMERGING MARKETS			(7.96)	8.20	(6.66)	37.28								17.15	
	EXCESS RETURN			0.06	(0.14)	0.14	(0.02)								(0.07)	
148	BERS-TOTAL INTERNATIONAL FUND OF FUNDS - GROSS	61	1.02	(2.17)	9.27	(2.35)									10.65	05/01/2017
	ESTIMATED INVESTMENT FEES			(0.09)	(0.38)	(0.17)									(0.39)	
	BERS-TOTAL INTERNATIONAL FUND OF FUNDS - NET MGR			(2.26)	8.89	(2.52)									10.27	
	MSCI ACWI EX USA IMI NET			(2.61)	7.75	(3.65)									9.80	
	EXCESS RETURN			0.35	1.14	1.12									0.47	
158	BERS-TOTAL GLOBAL EQUITY - GROSS	50	0.83												(0.86)	06/01/2018
	ESTIMATED INVESTMENT FEES														(0.04)	
	BERS-TOTAL GLOBAL EQUITY - NET MGR														(0.90)	
	MSCI AC WORLD (DAILY CONST)														(0.54)	
	EXCESS RETURN														(0.36)	

Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
EQUITY RETURN DETAIL																
170	BERS-TOTAL PRIVATE EQUITY (TIME WEIGHTED)	354	5.91	3.42	19.00	8.80	19.22	10.42	14.26	22.16	15.34	14.45	17.20	10.78	7.07	07/01/2006
	NYC R3000 +3% LAGGED			0.09	17.19	7.21	22.22	18.37	2.49	21.24	24.53	13.51	16.21	13.73	12.63	
	EXCESS RETURN			3.32	1.81	1.59	(3.00)	(7.96)	11.77	0.92	(9.19)	0.95	0.99	(2.95)	(5.55)	
180	BERS-TOTAL PRIVATE REAL ESTATE (TIME WEIGHTED)	339	5.65	2.32	13.28	6.43	13.57	10.75	16.06	13.67	8.64	13.32	12.61	12.24	12/01/2010	
	NCREIF NFI-ODCE NET + 100 BP			2.06	8.54	4.33	7.72	8.86	15.08	12.56	14.02	9.45	11.12	12.47		
	EXCESS RETURN			0.26	4.75	2.10	5.85	1.89	0.98	1.10	(5.39)	3.87	1.49	(0.23)		
190	BERS-TOTAL INFRASTRUCTURE (TIME WEIGHTED)	73	1.21	2.26	19.95	7.11	24.82	9.26	11.63	18.85		15.06		15.54	12/01/2013	
	CPI + 4%			1.55	6.91	3.19	6.20	6.17	4.69	4.69		5.90		5.58		
	EXCESS RETURN			0.71	13.04	3.92	18.62	3.09	6.94	14.17		9.16		9.96		

Consolidated Performance Report

Through June 30, 2018



	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014	2013	3 Year	5 Year	10 Year	ITD	Inception Date	
FIXED INCOME RETURN DETAIL																
202	BERS-TOTAL FIXED INCOME - GROSS	2,003	33.43	0.26	0.86	(0.94)	4.47	6.65	(0.68)	5.69	(0.56)	2.79	3.34	5.27	5.02	04/01/2004
	ESTIMATED INVESTMENT FEES			(0.03)	(0.11)	(0.05)	(0.13)	(0.13)	(0.13)	(0.16)	(0.12)					
	EST MANAGEMENT FEES			(0.03)	(0.11)	(0.05)	(0.13)	(0.13)	(0.13)	(0.16)	(0.12)					
	EST INCENTIVE FEES															
	EST OTHER FEES															
	EST FEE OFFSETS															
	BERS-TOTAL FIXED INCOME - NET MGR			0.24	0.75	(0.99)	4.34	6.51	(0.81)	5.53		2.67				
210	BERS-TOTAL STRUCTURED FIXED INCOME - GROSS	1,293	21.58	(0.10)	(0.45)	(1.89)	4.19	3.95	0.26	7.66	(2.38)	2.20	2.91	4.67	7.46	01/01/1985
	ESTIMATED INVESTMENT FEES			(0.01)	(0.05)	(0.02)	(0.05)	(0.06)	(0.06)	(0.08)	(0.10)	(0.05)				
	BERS-TOTAL STRUCTURED FIXED INCOME - NET MGR			(0.11)	(0.50)	(1.91)	4.14	3.89	0.20	7.58		2.15				
	NYC - CORE PLUS FIVE			(0.28)	(0.48)	(2.08)	4.51	3.20	0.41	7.66	(2.79)	2.10	2.77	4.38		
	EXCESS RETURN			0.17	(0.02)	0.17	(0.37)	0.70	(0.21)	(0.08)	0.41	0.05	0.14	0.29		
220	BERS-TOTAL TIPS - GROSS	283	4.73	0.77	2.16	(0.01)	3.05	4.78	(0.83)	3.37	(8.52)	1.95	1.78	3.22	3.79	06/01/2005
	ESTIMATED INVESTMENT FEES			(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.10)		(0.01)				
	BERS-TOTAL TIPS - NET MGR			0.77	2.16	(0.02)	3.04	4.78	(0.85)	3.27		1.95				
	BBG BARC GBL INF-LK: US TIPS (DLY)			0.77	2.11	(0.02)	3.01	4.68	(1.44)	3.64	(8.61)	1.93	1.68	3.03	3.63	
	EXCESS RETURN			0.00	0.05	0.01	0.04	0.09	0.58	(0.37)	0.09	0.02	0.10	0.19	0.17	
230	BERS-TOTAL HIGH YIELD - GROSS	272	4.54	1.08	2.60	0.31	7.17	15.96	(4.34)	3.09	8.39	4.83	5.52	8.10	5.95	08/01/1997
	ESTIMATED INVESTMENT FEES			(0.08)	(0.33)	(0.16)	(0.36)	(0.36)	(0.32)	(0.34)		(0.34)				
	BERS-TOTAL HIGH YIELD - NET MGR			1.00	2.27	0.14	6.81	15.60	(4.66)	2.75		4.49				
	FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78	6.17	4.80	5.07	6.62	5.95	
	EXCESS RETURN			0.08	(0.15)	0.24	(0.22)	0.12	(0.45)	(0.04)	2.22	(0.32)	0.45	1.48	(0.00)	
240	BERS- TOTAL BANK LOANS - GROSS	119	1.99	0.86	5.20	2.28	4.81	8.86	0.46	2.34	6.33	4.27	4.47	4.60	12/01/2012	
	ESTIMATED INVESTMENT FEES			(0.08)	(0.35)	(0.17)	(0.34)	(0.38)	(0.34)	(0.35)		(0.35)				
	BERS-TOTAL BANK LOANS - NET MGR			0.78	4.85	2.11	4.47	8.48	0.12	1.99		3.92				
	CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06	6.15	4.33	4.24	4.45		
	EXCESS RETURN			(0.01)	0.18	(0.27)	0.22	(1.39)	0.51	(0.07)	0.18	(0.41)	0.22	0.15		
250	BERS-TOTAL TARGETED INVESTMENTS (NO CASH) - GROSS	35	0.58	(0.01)	(0.31)	(1.47)	4.37	2.60	3.60	7.31	(1.66)	2.85	3.32	4.37	6.70	12/01/1984
	ESTIMATED INVESTMENT FEES			(0.06)	(0.24)	(0.12)	(0.26)	(0.29)	(0.30)	(0.35)	(0.36)	(0.27)	(0.30)	(0.34)	(0.12)	
	BERS-TOTAL TARGETED INVESTMENTS (NO CASH) - NET MGR			(0.07)	(0.55)	(1.59)	4.11	2.31	3.30	6.96	(2.02)	2.58	3.02	4.03	6.58	
	BERS CUSTOM BENCHMARK (NO CASH)			0.12	0.12	(1.07)	3.19	2.43	1.18	5.76	(1.71)	1.82	2.36	3.58		
	EXCESS RETURN			(0.19)	(0.67)	(0.52)	0.92	(0.12)	2.12	1.20	(0.31)	0.76	0.66	0.45		
CASH SUMMARY																
262	BOARD OF ED. SHORT TERM - GROSS	76	1.27	0.46	1.42	0.82	1.10	0.55	0.39	0.28	0.29	0.87	0.76	0.89	2.00	10/01/2000
	ESTIMATED INVESTMENT FEES			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	BOARD OF ED. SHORT TERM - NET MGR			0.46	1.42	0.82	1.10	0.55	0.39	0.28	0.29	0.87	0.76	0.89		
266	CASH ACCOUNTS	0	0.00													
268	SECURITY LENDING	0	0.00													

**New York City
Board of Education Retirement System**

Appendix B

Public Markets Manager Performance Detail

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
EQUITY SUMMARY									
US EQUITY									
NYC BERS BLACKROCK R2000 GROWTH	76	1.27	7.17	21.98	9.74	22.26	11.29	(1.30)	5.50
RUSSELL 2000 GROWTH DAILY			7.23	21.86	9.70	22.17	11.32	(1.38)	5.60
Excess			(0.06)	0.11	0.04	0.09	(0.02)	0.08	(0.11)
NYC BERS BLACKROCK R2000 VALUE	74	1.24	8.25	13.32	5.56	7.34	31.71	(7.38)	4.11
RUSSELL 2000 VALUE DAILY			8.30	13.10	5.44	7.84	31.74	(7.47)	4.22
Excess			(0.06)	0.22	0.11	(0.49)	(0.03)	0.09	(0.11)
Wellington Mgmt MCC	159	2.66	4.14	19.53	7.59	25.06	12.28	1.76	10.96
S&P MID CAP 400			4.29	13.50	3.49	16.24	20.74	(2.18)	9.77
Excess			(0.15)	6.03	4.10	8.82	(8.45)	3.94	1.19
NYC BERS BLACKROCK R1000 GROWTH	1	0.01				30.25	7.06	5.78	12.91
RUSSELL 1000 GROWTH - DAILY						30.21	7.08	5.67	13.05
Excess						0.03	(0.02)	0.12	(0.14)
NYC BERS BLACKROCK R1000 VALUE	1	0.02				13.66	17.31	(3.81)	13.39
RUSSELL 1000 VALUE (DAILY)						13.66	17.34	(3.83)	13.45
Excess						(0.01)	(0.03)	0.01	(0.06)
NYC BERS BLACKROCK R1000 CORE	1,126	18.80	3.81						
RUSSELL 1000 (DAILY)			3.57						
Excess			0.25						
SSGA Russell Top 200	392	6.54							
RUSSELL TOP 200 INDEX (DAILY)									
Excess									

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
EMERGING MANAGERS									
BERS-TOTAL EMERGING MANAGERS	12	0.20	8.01	14.59	7.02				
RUSSELL 2000 (DAILY)			7.75	17.57	7.66				
Excess			0.25	(2.98)	(0.65)				
BERS-TOTAL LEGATO									
BERS-TOTAL LEGATO	12	0.20	8.01	14.66	7.01				
RUSSELL 2000 (DAILY)			7.75	17.57	7.66				
Excess			0.26	(2.91)	(0.65)				
NON - US EQUITY									
Sprucegrove MTA	320	5.33	(1.62)	10.08	(3.68)	27.15	11.14	(9.56)	(3.19)
NYC Developed Value Benchmark			(0.75)	7.43	(2.77)	22.77	5.02	(5.68)	(5.39)
Excess			(0.87)	2.66	(0.92)	4.38	6.12	(3.87)	2.21
Baillie Gifford MTA	315	5.25	1.91	24.73	7.29	44.17	0.70	(3.81)	(6.66)
NYC Developed Growth Benchmark			(0.75)	6.47	(2.77)	27.77	(3.04)	4.09	(4.43)
Excess			2.66	18.26	10.05	16.40	3.74	(7.90)	(2.23)
Acadian	108	1.80	(4.51)	12.35	(3.05)	38.38	6.41	8.68	(4.92)
S&P EPAC Small Cap USD NET			(1.84)	11.27	(2.14)	33.47	1.34	8.58	(3.43)
Excess			(2.67)	1.08	(0.91)	4.91	5.07	0.09	(1.49)
EMERGING MARKETS									
ACADIAN	314	5.25	(10.66)	6.03	(8.36)	40.45	12.74	(15.14)	3.77
MSCI EMERGING MARKETS			(7.96)	8.20	(6.66)	37.28	11.19	(14.92)	(2.19)
Excess			(2.70)	(2.17)	(1.71)	3.16	1.55	(0.22)	5.96
BLACKROCK	137	2.29	(7.90)	8.05	(6.52)	37.25			
MSCI EMERGING MARKETS			(7.96)	8.20	(6.66)	37.28			
Excess			0.06	(0.15)	0.14	(0.03)			

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
INTERNATIONAL FOF									
BERS-TOTAL INTERNATIONAL FOF	61	1.02	(2.26)	8.89	(2.52)				
MSCI ACWI ex USA IMI Net			(2.61)	7.75	(3.65)				
Excess			0.35	1.14	1.12				
BERS-TOTAL INTERNATIONAL FIS									
BERS-TOTAL INTERNATIONAL FIS	61	1.02	(2.26)	8.89	(2.52)				
MSCI ACWI ex USA IMI Net			(2.61)	7.75	(3.65)				
Excess			0.35	1.14	1.12				
GLOBAL EQUITY									
Morgan Stanley-ACWI	50	0.83							
MSCI AC WORLD (Daily Const)									
Excess									
FIXED INCOME SUMMARY									
STRUCTURED FIXED INCOME									
Blackrock Mortgages	191	3.19	0.24	0.17	(0.90)	3.06	2.32	1.73	
FTSE MORTGAGE INDEX			0.26	0.11	(0.97)	2.47	1.59	1.56	
Excess			(0.02)	0.06	0.08	0.59	0.73	0.17	
Prudential - Credit	136	2.28	(0.81)	(0.45)	(2.88)	6.21	5.86	(0.22)	7.20
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			0.07	0.27	0.04	0.17	0.30	0.43	0.16
Taplin Canida Habacht - Credit	111	1.85	(1.04)	(0.55)	(3.16)	7.18	8.02	(3.01)	8.68
NYC - Investment Grade Credit			(0.88)	(0.72)	(2.92)	6.04	5.56	(0.65)	7.04
Excess			(0.16)	0.17	(0.24)	1.14	2.46	(2.36)	1.64
State Street Govt	368	6.14	(0.02)	(0.99)	(2.20)	4.92	1.23	0.45	12.21
NYC - Treasury Agency Plus Five			0.09	(0.96)	(2.13)	4.66	1.21	0.72	12.38
Excess			(0.11)	(0.03)	(0.06)	0.27	0.01	(0.27)	(0.16)

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
SSGA 1-3 Treasury Index	487	8.13	0.21	0.01	0.03	0.45			
FTSE USBIG Treasury 1-3 Y Index			0.22	0.06	0.08	0.42			
Excess			(0.01)	(0.05)	(0.05)	0.03			
HIGH YIELD									
Loomis Sayles - High Yield	7	0.12	1.57	2.34	0.61	7.02	19.92	(7.07)	2.83
NYC-Loomis (BoA MLMSTII 7-03/BB&B PRIOR)			1.00	2.53	0.08	7.48	17.49	(4.64)	2.50
Excess			0.57	(0.19)	0.54	(0.46)	2.44	(2.43)	0.33
Shenkman - High Yield	137	2.28	0.71	2.47	(0.05)	6.60	11.62	(1.97)	2.66
FTSE BB & B			0.92	2.42	(0.10)	7.03	15.48	(4.21)	2.78
Excess			(0.22)	0.05	0.05	(0.43)	(3.85)	2.24	(0.13)
High Yield Transition	129	2.15							
BANK LOANS									
Babson BL	119	1.99	0.78	4.85	2.11	4.47	8.48	0.12	1.99
CSFB LEVERAGED LOAN INDEX			0.78	4.67	2.38	4.25	9.88	(0.38)	2.06
Excess			(0.01)	0.18	(0.27)	0.22	(1.39)	0.51	(0.07)
TIPS									
SSGA TIPS	283	4.73	0.77	2.16	(0.02)	3.04	4.78		
BBG BARC Gbl Inf-Lk: US TIPS (Dly)			0.77	2.11	(0.02)	3.01	4.68		
Excess			0.00	0.05	0.01	0.04	0.09		
ECONOMICALLY TARGETED INVESTMENTS									
ACCESS RBC	10	0.16	0.10	(0.37)	(1.37)	2.64	1.61	1.83	6.66
Access RBC Benchmark			0.23	(0.12)	(0.79)	1.96	1.52	1.40	5.08
Excess			(0.13)	(0.25)	(0.58)	0.69	0.09	0.43	1.58
AFL-CIO HOUSING INV TRUST	16	0.26	(0.30)	(0.59)	(1.58)	3.17	1.94	1.13	6.10
BBG BARC Agg (Dly)			(0.16)	(0.40)	(1.62)	3.54	2.65	0.55	5.97
Excess			(0.14)	(0.20)	0.04	(0.38)	(0.71)	0.58	0.14

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
CPC CONST FACILITY	1	0.01	0.75	5.43	2.05	6.05	(3.95)	12.90	
CPC CONST BENCHMARK			0.97	3.66	1.90	3.34	3.03	2.90	
Excess			(0.23)	1.78	0.15	2.72	(6.99)	10.01	
BOA-PPAR (FNMA)	1	0.02	0.88	(1.09)	(1.51)	5.21	4.07	42.03	13.31
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			0.41	(2.13)	(0.97)	1.60	1.69	39.53	6.19
CCD-PPAR (FNMA)	1	0.02	(0.05)	(0.83)	(2.19)	5.26	3.71	6.69	25.71
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.52)	(1.86)	(1.65)	1.65	1.33	4.20	18.58
CCD-PPAR (GNMA)	0	0.01	(0.73)	(2.20)	(2.53)	3.10	2.78	5.08	15.37
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.22)	(2.86)	(1.88)	0.57	0.50	3.06	8.72
CFSB-PPAR (GNMA)	0	0.00	(0.76)	(2.62)	(2.88)	3.83	3.21	5.90	15.34
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.24)	(3.28)	(2.23)	1.30	0.93	3.88	8.69
CPC-PPAR (FNMA)	1	0.02	0.19	(0.39)	(2.05)	5.06	6.15	8.96	13.91
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.27)	(1.43)	(1.51)	1.45	3.77	6.46	6.78
JPMC-PPAR (FNMA)	3	0.05	(0.05)	(1.18)	(2.30)	9.96	7.94	6.18	12.06
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.51)	(2.21)	(1.76)	6.35	5.56	3.68	4.93
LIIF-PPAR (FNMA)	2	0.03	(0.10)	(1.35)	(2.33)	9.55	5.03	6.29	38.12
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(0.56)	(2.39)	(1.79)	5.94	2.65	3.79	30.99

Public Markets Manager Performance Detail



Net Returns Through June 30, 2018

	Market Value (\$MM)	% of Total	3 Month	FYTD	CYTD	2017	2016	2015	2014
LIIF-PPAR (GNMA)	0	0.00	0.17	(0.63)	(0.93)	2.52	3.88	3.92	9.74
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(0.31)	(1.28)	(0.28)	(0.01)	1.61	1.91	3.09
NCBCI-PPAR (FNMA)	0	0.00	(1.25)	(1.43)	(2.87)	1.75	3.46	4.97	14.93
FNMA Plus 85bps			0.47	1.04	(0.54)	3.61	2.38	2.50	7.13
Excess			(1.72)	(2.47)	(2.33)	(1.86)	1.07	2.47	7.81
NCBCI-PPAR (GNMA)	0	0.00	(0.89)	(2.27)	(2.69)	3.01	3.51	5.53	16.66
GNMA Plus 65bps			0.49	0.66	(0.65)	2.53	2.28	2.02	6.65
Excess			(1.37)	(2.93)	(2.04)	0.48	1.23	3.52	10.01
WELLS FARGO-PPAR MTA 2013 (FNMA)	0	0.00							
FNMA Plus 85bps									
Excess									
CASH									
BOARD OF ED. SHORT TERM	76	1.27	0.46	1.42	0.82	1.10	0.55	0.39	0.28
91 DAY T-BILL			0.45	1.36	0.81	0.86	0.33	0.05	0.02
Excess			0.00	0.05	0.01	0.24	0.23	0.35	0.26
CASH ACCOUNTS	0	0.00							
SECURITY LENDING	0	0.00							

**New York City
Board of Education Retirement System**

Appendix C

Alternative Assets Manager Performance Detail

Alternative Assets Manager Performance Detail



Through March 31, 2018

	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
TOTAL PRIVATE EQUITY		704,678,731	399,595,449	214,047,157	356,202,244	1.43	11.6%
TOTAL ACTIVE							
Mesirow Financial Private Equity Partnership Fund III, L.P.	2005	57,000,000	55,093,273	74,986,991	18,007,694	1.69	8.5%
Mesirow Financial Private Equity Partnership Fund IV, L.P.	2006	25,000,000	22,842,233	24,497,289	14,157,220	1.69	10.3%
New York Fairview Private Equity Fund, L.P.	2006	19,000,000	17,320,307	16,347,591	7,334,348	1.37	5.9%
Mesirow Financial Private Equity Partnership Fund V, L.P.	2009	45,000,000	38,042,932	27,907,954	39,779,582	1.78	16.3%
Platinum Equity Capital Partners III, L.P.	2012	15,000,000	14,124,212	14,662,075	10,630,907	1.79	42.5%
Warburg Pincus Private Equity XI, L.P.	2012	25,000,000	24,690,440	14,147,579	23,022,394	1.51	14.1%
Apollo Investment Fund VIII, L.P.	2013	20,000,000	16,039,078	4,237,248	16,955,783	1.32	16.3%
Carlyle Partners VI, L.P.	2013	20,000,000	19,236,152	4,271,244	20,032,373	1.26	12.9%
Landmark Equity Partners XV, L.P.	2013	19,000,000	12,253,482	6,792,108	8,515,441	1.25	14.5%
Landmark Equity Partners XV, L.P. - Side Car	2013	6,000,000	4,810,549	2,081,062	4,515,455	1.37	18.5%
CVC Capital Partners VI, L.P.	2014	17,815,056	15,425,113	2,505,022	16,126,930	1.21	13.2%
Crestview Partners III, L.P.	2013	15,000,000	5,741,871	96,110	6,572,598	1.16	7.8%
Crestview Partners III (Co-Investment B), L.P.	2013	5,000,000	3,067,127	72,440	3,233,352	1.08	4.2%
ASF VI, L.P.	2014	15,000,000	9,611,278	3,465,808	9,812,240	1.38	14.4%
ASF VI NYC Co-Invest, L.P.	2014	5,000,000	3,656,341	2,220,400	2,995,982	1.43	15.8%
Carlyle Partners VI, L.P. - Side Car	2014	2,200,000	1,397,781	737	1,464,452	1.05	1.9%
Lexington Capital Partners VIII, L.P.	2014	20,000,000	10,766,267	4,313,023	10,956,504	1.42	31.8%
Vista Equity Partners Fund V, L.P.	2014	25,000,000	25,391,249	5,627,694	32,643,903	1.51	18.8%
Centerbridge Capital Partners III, L.P.	2015	2,500,000	1,368,119	250,026	1,367,467	1.18	12.1%
Siris Partners III, L.P.	2015	3,500,000	2,444,387	152,329	2,680,919	1.16	11.7%
<u>NYCBERS - 2012 Emerging Manager Program</u>	<u>2012</u>	<u>25,000,000</u>	<u>11,771,371</u>	<u>1,754,213</u>	<u>13,143,104</u>	<u>1.27</u>	<u>12.7%</u>
American Securities Partners VII, L.P.	2015	8,000,000	4,065,751	186,437	4,538,976	1.16	N/M
ASF VII, L.P.	2015	10,000,000	3,021,559	126,709	3,529,989	1.21	25.0%
ASF VII B NYC Co-Invest, L.P.	2015	6,000,000	2,909,857	-	4,147,772	1.43	153.1%
<u>NYCBERS - 2015 Emerging Manager Program</u>	<u>2015</u>	<u>30,000,000</u>	<u>3,382,040</u>	<u>286,347</u>	<u>3,758,602</u>	<u>1.20</u>	<u>N/M</u>
Warburg Pincus Private Equity XII, L.P.	2015	21,500,000	11,450,701	217,702	12,641,916	1.12	12.6%
Welsh, Carson, Anderson & Stowe XII, L.P.	2015	10,000,000	4,162,019	942,694	4,937,732	1.41	20.4%
Bridgepoint Europe V, L.P.	2015	8,744,525	5,962,213	769,344	6,526,980	1.22	21.5%
Bridgepoint Europe V Co-Invest	2015	2,952,009	2,295,550	-	2,697,585	1.18	N/M
EQT VII, L.P.	2015	17,545,374	10,618,275	292,509	12,826,633	1.24	19.1%
Vista Equity Partners Fund VI, L.P.	2016	16,000,000	11,765,846	159,194	12,633,044	1.09	N/M
Apax IX USD, L.P.	2016	13,000,000	5,756,158	64,714	6,089,548	1.07	N/M
Ares Corporate Opportunities Fund V, L.P.	2017	10,000,000	2,926,902	-	2,808,191	0.96	N/M

Information provided by the New York City Board of Education Retirement System Consultants

Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year (Cash Flow)	Commitments	Contributions	Distributions	Market Value	Investment Multiple	ITD IRR%
Green Equity Investors VII, L.P.	2017	10,000,000	3,058,573	13,444	2,907,564	0.96	N/M
BC European Capital X, L.P.	2017	12,195,687	2,838,647	-	2,702,667	0.95	N/M
BC European Capital X Metro Co-Investment L.P.	2017	4,847,780	1,373,793	-	1,386,687	1.01	N/M
Platinum Equity Capital Partners IV, L.P.	2017	11,500,000	5,000,657	595,266	4,534,294	1.03	N/M
CVC Capital Partners VII, L.P.	2018	20,950,280	-	-	(166,701)	N/A	N/M
Apollo Investment Fund IX, L.P.	2018	32,000,000	-	-	-	N/A	N/M
KKR Americas Fund XII, L.P.	2017	16,000,000	1,846,346	-	1,773,992	0.96	N/M
Warburg Pincus Financial Sector, L.P.	2018	13,000,000	2,067,000	3,855	1,978,125	0.96	N/M
EQT VIII SCSP	2018	14,172,248	-	-	-	N/A	N/M
Siris Partners IV, L.P.	2018	10,000,000	-	-	-	N/A	N/M
Bridgepoint Europe VI, L.P.	2018	15,404,618	-	-	-	N/A	N/M
Bridgepoint Europe VI Co-Invest	2018	3,851,154	-	-	-	N/A	N/M

Information provided by the New York City Board of Education Retirement System Consultants

Alternative Assets Manager Performance Detail



Through March 31, 2018

	Vintage Year	Style Sector	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL PRIVATE REAL ESTATE			451,934,482	335,810,969	132,465,381	336,617,941	1.45	12.3%
TOTAL PRIVATE REAL ESTATE								
LaSalle Property Fund	2010	Core Portfolio	27,600,000	27,600,000	8,107,756	38,091,328	1.67	10.9%
UBS Trumbull Property Fund	2011	Core Portfolio	41,400,000	60,912,215	16,370,381	80,726,826	1.81	9.1%
NYC Asset Investor #2 LLC (Related)	2013	Core Portfolio	11,000,000	10,557,373	1,487,426	14,780,954	1.54	16.0%
MetLife Core Property Fund	2014	Core Portfolio	15,000,000	15,000,000	2,118,839	18,283,166	1.36	10.3%
USAA Eagle Real Estate Fund	2015	Core Portfolio	10,000,000	9,512,343	645,247	10,340,913	1.17	8.4%
Brookfield Premier Real Estate Partners	2016	Core Portfolio	10,000,000	10,331,753	331,753	11,478,755	1.15	12.7%
Exeter Industrial Core Club Fund II	2016	Core Portfolio	10,000,000	4,960,000	421,223	5,297,025	1.14	14.0%
Jamestown Premier Property Fund	2016	Core Portfolio	6,246,307	5,440,405	2,091,562	4,357,244	1.20	11.0%
NYCRS Artemis Co-Investment	2016	Core Portfolio	11,000,000	6,078,082	3,365,271	4,270,644	1.26	28.7%
Lion Industrial Trust - 2007	2017	Core Portfolio	10,000,000	10,439,343	439,342	11,585,320	1.16	13.3%
Heitman Core Real Estate Debt Income Trust	2018	Core Portfolio	10,000,000	-	-	-	N/A	N/A
Franklin Templeton Private Real Estate Fund	2011	Non-Core Portfolio	30,000,000	35,413,344	40,188,419	8,098,365	1.65	20.5%
Brookfield Strategic Real Estate Partners	2012	Non-Core Portfolio	10,000,000	11,681,111	10,504,471	10,897,464	1.91	22.2%
Blackstone Real Estate Partners Europe IV	2013	Non-Core Portfolio	32,500,000	31,223,671	24,912,037	21,939,765	1.50	17.7%
NYC Asset Investor #1 LLC (Vanbarton)	2013	Non-Core Portfolio	10,000,000	11,110,958	2,014,888	12,225,030	1.28	8.9%
NYC Asset Investor #3 LLC (Hudson)	2013	Non-Core Portfolio	8,000,000	4,852,396	837,198	5,342,756	1.27	12.1%
Carlyle Realty Partners VII	2014	Non-Core Portfolio	25,000,000	20,012,657	5,685,374	19,525,820	1.30	14.6%
H/ Special Opportunities Fund III	2014	Non-Core Portfolio	15,000,000	15,000,000	5,251,587	13,341,862	1.23	13.3%
Blackstone Real Estate Partners VIII	2015	Non-Core Portfolio	16,500,000	10,289,149	3,531,527	9,443,162	1.26	17.8%
European Property Investors Special Opp IV	2015	Non-Core Portfolio	11,176,931	5,085,193	314,687	5,586,925	1.16	14.5%
Divco West Fund V	2016	Non-Core Portfolio	10,000,000	2,936,636	7,180	2,966,789	1.01	1.6%
Exeter Industrial Value Fund IV	2016	Non-Core Portfolio	10,000,000	2,000,000	-	2,117,091	N/M	N/M
H/ Special Opportunities Fund IV	2016	Non-Core Portfolio	10,000,000	1,168,355	81,350	1,001,028	0.93	-6.8%
Pramerica Real Estate Capital VI	2016	Non-Core Portfolio	10,721,600	4,229,987	1,561,480	3,440,106	1.27	33.7%
PW Real Estate Fund III LP	2016	Non-Core Portfolio	10,624,734	4,317,064	840,211	6,564,917	1.72	62.2%
Westbrook Real Estate Fund X Co-Investment	2016	Non-Core Portfolio	10,000,000	3,438,879	368,421	3,353,517	1.08	10.6%
DRA Growth and Income Fund IX	2017	Non-Core Portfolio	10,000,000	3,683,120	704,682	3,475,852	1.14	20.9%
DRA Growth and Income Fund IX Co-investment	2017	Non-Core Portfolio	2,000,000	-	-	-	N/A	N/A
Lone Star Real Estate Fund V	2017	Non-Core Portfolio	23,164,910	2,412,852	64,252	2,091,445	N/M	N/M
NYCRS-KKR CMBS Retention Partners	2017	Non-Core Portfolio	13,000,000	5,868,487	218,817	5,791,664	N/M	N/M
Brookfield Strategic Real Estate Partners III	2018	Non-Core Portfolio	12,000,000	-	-	-	N/A	N/A
KKR Real Estate Partners Americas II	2018	Non-Core Portfolio	10,000,000	255,597	-	202,208	N/M	N/M

Information provided by the New York City Retirement Systems Consultants. Interim returns are subject to change and may differ due to differences in accounting and performance methodologies.

Alternative Assets Manager Performance Detail

Through March 31, 2018



	Vintage Year	Original Commitment	Total Contributions	Total Distributions	Market Value	Total Value Multiple	Net IRR%
TOTAL INFRASTRUCTURE		156,066,680	65,876,514	14,193,988	67,931,913	1.25	15.0%
TOTAL INFRASTRUCTURE							
Brookfield Infrastructure Fund II, L.P.	2013	10,000,000	7,910,213	1,570,933	9,385,096	1.39	13.1%
KKR Global Infrastructure Investors II L.P.	2014	19,000,000	16,066,552	1,453,523	16,646,598	1.13	11.4%
IFM Global Infrastructure Fund	2014	15,000,000	18,188,432	3,188,432	21,452,514	1.35	13.2%
Global Energy & Power Infrastructure Fund II	2014	15,000,000	9,247,016	6,819,031	6,800,997	1.47	47.9%
Global Infrastructure Partners III-A/B, L.P.	2016	12,000,000	4,779,319	171,075	4,318,951	0.94	-7.7%
Brookfield Infrastructure Fund III, L.P.	2016	10,000,000	1,933,935	191,774	2,161,743	NM	NM
Actis Energy 4	2016	10,600,000	3,141,372	552	3,017,000	NM	NM
NYCRS EIG Energy Partners, L.P.	2017	11,760,000	564,713	-	572,656	NM	NM
EQT Infrastructure III (No.2) SCSp	2017	9,689,527	3,181,421	385,390	2,970,783	NM	NM
Axiom Infrastructure North America	2017	12,477,153	40,968	-	881	NM	NM
ASF VII Infrastructure L.P.	2017	12,000,000	822,574	413,278	604,694	NM	NM
NYCRS EIG Energy Partners Co-Investment, L.P.	2018	2,940,000	-	-	-	NM	NM
KKR Global Infrastructure Investors III L.P.	2018	15,600,000	-	-	-	NM	NM

Information provided by the New York City Board of Education Retirement System Consultants

**New York City
Board of Education Retirement System**

Appendix D

Footnotes

- The Barclays Capital Aggregate (then known as the Lehman Brothers Aggregate) was used prior to 1/1/89. Effective 1/1/89, in the Government Sector, maturities of less than 5 years were dropped from the Salomon and Lehman indices. From that date until 7/1/99 the benchmark was the NYC Core + 5, from Lehman.
 - Effective 7/1/94, the NYC Core + 5 Index includes BBB rated securities.
 - Effective 7/1/99, the basis of the NYC Index was changed from Lehman Brothers to Salomon. Also effective 7/1/99, only Salomon indices have been used to compare all fixed income managers.
 - Effective 4/1/03, the name of the benchmark provider was changed from Salomon to Citigroup.
 - Effective 7/1/03, the “NYC-Loomis” benchmark index for the Loomis Sayles Enhanced Yield portfolio reflects a change from the Citigroup BB&B Index to the more appropriate BofA Merrill Lynch High Yield Master II Index.
 - Effective 7/1/09, the Core+5 program was restructured.
 - The U.S. Gov’t sector benchmark Index was changed from the Citigroup Core+5 Treasury/Gov’t Sponsored Index to the Citigroup Core+5 Treasury/Agency Index.
 - The Corporate and Yankee sectors were combined to form the new Investment Grade Credit sector. The benchmark for the new combined sector is the customized Citigroup Credit Index. For historical performance purposes, the old Corporate sector Index is linked to the new Credit sector Index.
 - There were no changes to the Mortgage sector Index.
 - The total Core+5 results and benchmark returns combine the three sectors. Historical total Core+5 returns continue to include the old Corporate and Yankee sector returns.

General Notes

- Estimated management fees for public market investments are calculated on an accrual basis without adjustment for management fee caps. Alternative investment fees are recorded on a cash basis. Since not all alternative managers currently provide detailed fee disclosure, the alternative investment fees noted here are not comprehensive.
- Public Market returns are Net of Manager Fees for periods after January 2014 and Gross of investment advisory fees for other periods unless otherwise indicated.
- Public market excess returns for periods prior to 2014 are based on Gross performance.

Page Specific

Page 11 - 16 - Portfolio Asset Allocation

- Rebalancing Ranges: the minimum and maximum weights that actual Asset Allocation may reach before rebalancing between Asset Classes is necessary.

Pages 17 - 19 - Performance Attribution: Total Plan

- Plan Return at Policy Weights: the return of the Total Plan assuming actual Asset Class results were maintained at target (Adjusted Policy) weights. *Figure = (Return of Asset Class 1 * Target Weight) plus (Return Of Asset Class 2 * Target Weight) plus (.....)*
- **Allocation Effect** = Total Plan Return minus Plan Return At Adjusted Policy Weights. Allocation is the Contribution to Performance resulting from an overweight or underweight to an asset class. E.g. an underweight to an Asset Class that under-performs results in a positive Allocation Effect and vice versa.
- **Selection Effect** = Equal to the Custom Benchmark (Adjusted Policy Index) Return minus Plan Return at Adjusted Policy Weights. This illustrates how the Managers have added or removed value based on their Security Selection decisions, e.g., *If the manager's Actual Returns are higher than the Implied Return there will be a positive Selection Effect.*
- **Policy Index = Custom Benchmark**
The "policy index" is a custom benchmark representing the weighted average return of the weighted benchmark indexes for each major investment program. Weights may reflect an adjustment of actual policy for outstanding commitments for new or revised programs, such as for private market programs, which are invested gradually, or for any new or updated program requiring the completion of RFPs and contracts. The policy index/custom benchmark is calculated monthly based on adjusted policy weights at the beginning of each month.

Glossary of Terms

Through June 30, 2018



The indexes and most recent policy weights are as follows:

*U.S. Equity: Russell 3000 * 34.72%*

*International Developed (EAFE) Markets: MSCI World ex USA IMI Net * 12.15%*

*International Active – Global Equity: MSCI ACWI * 1.53%*

*Emerging Markets: MSCI Emerging Markets * 6.72%*

*International Emerging Managers FOF: MSCI ACWI Ex US IMI Net * 1.05%*

*Private Equity: Russell 3000 + 300 b.p. per annum * 5.91%*

*Private Real Estate – Core: NFI - ODCE Net * 3.34%*

Private Real Estate – Non Core: NFI - ODCE Net + 200bps 2.30%*

*Infrastructure: CPI + 4% * 1.19%*

*US Treasury Short Term: FTSE USBIG Treasury 1-3Y * 0.00%*

*Total Active Government: NYC Treasury Agency + 5 * 9.48%*

*Core Fixed Income: BBG Barc Agg * 0.00%*

*Progress Fixed: BBG Barc Agg * 0.00%*

*Mortgage: FTSE Mortgage Index * 3.87%*

*ETI: ETI Custom Benchmark * 0.58%*

*Investment Grade Credit: NYC – Investment Grade Credit * 4.45%*

*High Yield: FTSE BB&B * 6.00%*

*Bank Loans: Credit Suisse Leveraged Loan * 2.00%*

*TIPS: BBG BARC Gbl Inf-Lk: US TIPS (Dly) * 4.71%*

Page 20 – Allocation and Selection Effects - Asset Class Breakdown

- This chart aims to break down the Allocation and Selection Effects shown on the Performance Attribution pages. The aim of the Page is to show the asset classes where Managers are either out performing or under performing their benchmark and to show the basis point effect that this is having on Plan performance.