
Annual State Retirement and Pension System's Investment Overview

**Presented to the
Joint Committee on Pensions**

**Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland**

December 2017

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At the request of the Joint Committee on Pensions, the Department of Legislative Services (DLS) annually reviews the investment performance of the State Retirement and Pension System (SRPS) for the preceding fiscal year. This report is intended to provide an overview of SRPS performance, a comparison of this performance to its peers, and an identification of issues meriting further comment by the State Retirement Agency (SRA).

State Retirement and Pension System Investment Performance

Asset Allocation

The SRPS Board of Trustees sets the allocation of assets to each investment class and continuously monitors the appropriateness of the allocation in light of its investment objectives. The SRPS Investment Policy Manual sets forth the investment objectives:

The board desires to balance the goal of higher long-term returns with the goal of minimizing contribution volatility, recognizing that they are often competing goals. This requires taking both assets and liabilities into account when setting investment strategy, as well as an awareness of external factors such as inflation. Therefore, the investment objectives over extended periods of time (generally, ten to twenty years) are to achieve an annualized investment return that:

1. In nominal terms, equals or exceeds the actuarial investment return assumption of the System adopted by the board. The actuarial investment return assumption is a measure of the long-term rate of growth of the System's assets. In adopting the actuarial return assumption, the board anticipates that the investment portfolio may achieve higher returns in some years and lower returns in other years.
2. In real terms, exceeds the U.S. inflation rate by at least 3.0%. The inflation-related objective compares the investment performance against the rate of inflation as measured by the Consumer Price Index (CPI) plus 3.0%. The inflation measure provides a link to the System's liabilities.

3. Meets or exceeds the system's investment policy benchmark. The investment policy benchmark is calculated by using a weighted average of the Board-established benchmarks for each asset class. The policy benchmark enables comparison of the system's actual performance to a passively managed proxy and measures the contribution of active investment management and policy implementation.

The assets allocation is structured into five categories. The growth equity class includes public equity (domestic, global, international, and emerging markets) and private equity investments. The rate sensitive class includes fixed income, treasury inflation protected securities, and cash. The credit class includes high yield bonds and bank loans and emerging market debt. The real assets class includes real estate, commodities, and natural resources and infrastructure investments. Absolute return is the final asset class category and consists of investments that are expected to exceed U.S. treasuries with low correlation to public stocks. Included within these asset classes are sub-asset classes. The board approves adjustments to the asset allocations and sets transitional targets. The board also approves target ranges for sub-asset classes as well as constraints on hedge fund exposure, with total hedge fund investments capped across all asset classes. **Exhibit 1** shows system asset allocations in relation to the strategic targets in effect on June 30, 2017.

Exhibit 1 also shows a continuation of a trend that began with significant restructuring of the portfolio in fiscal 2008 and 2009. Most notably, public equity has dropped from 62.8% in fiscal 2008 to 37.4% in fiscal 2016. As of June 30, 2017, the public equity allocation has grown slightly to 38.7%, with domestic public equity increasing from 14.8% in fiscal 2016 to 16.7% at the close of fiscal 2017. The allocation for private equity – one of the system's strongest performing asset classes – increased to 10.3% as of June 30, 2017, with the allocation reaching 11.1% as of September 30, 2017. The overall strategy of diminishing allocations to public equity is part of an approach by the board to decrease risk through diversification in the wake of the 2008 financial crisis, while increased investment in private equity has resulted in positive returns for the system with less experienced volatility than public equity. Lower allocations to public equity investments are expected to result in lower returns when public equities are in growth patterns. However, as public equity can be a highly volatile asset class, a more diverse investment allocation will provide protection when equity markets perform poorly or decline. While mitigating volatility will result in not taking full advantage of highly performing public equity markets, return volatility will exacerbate swings in employer contribution rates. The board of trustees and the investment committee monitor the allocation of assets and continue to discuss the appropriate allocation (in consultation with the system's investment staff and investment consultants) that will achieve the system's investment return needs.

Exhibit 1
State Retirement and Pension System Asset Allocation

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Actual June 30, 2017</u>	<u>Actual September 30, 2017</u>
Growth/Equity	47.0%	49.0%	50.6%
U.S. Equity	16.0%	16.7%	15.9%
International Equity	12.0%	13.4%	14.1%
Emerging Market Equity	8.0%	8.7%	9.5%
Private Equity	11.0%	10.3%	11.1%
Rate Sensitive	21.0%	21.0%	20.7%
Long-term Government Bonds	10.0%	9.8%	10.4%
Securitized and Corporate Bonds	6.0%	6.6%	5.7%
Inflation-linked Bonds	5.0%	4.6%	4.6%
Credit	9.0%	9.5%	9.2%
High Yield Bonds and Bank Loans	6.0%	6.6%	6.2%
Emerging Market Debt	3.0%	3.0%	3.0%
Real Assets	15.0%	12.1%	10.4%
Real Estate	10.0%	8.0%	8.2%
Commodities	3.0%	2.2%	0.4%
Natural Resources and Infrastructure	2.0%	1.9%	1.8%
Absolute Return	8.0%	7.2%	6.4%
Cash and Cash Equitization	0.0%	1.2%	2.6%
Total Fund	100.0%	100.0%	100.0%

Note: Columns may not add to total due to rounding. Target allocation is as of June 30, 2017.

Source: State Retirement Agency

As of October 1, 2017, the asset allocation targets have been revised. Target allocations to the growth equity class are increased to 50%, with increased target allocations to emerging markets and private equity and a decreased international equity target. The rate sensitive class is decreased

to 19%. Within the credit class, the allocation targets increase the allocation to high yield bonds and bank loans and decrease the target allocation for emerging market debt. The system's *Investment Policy Manual* for the board of trustees for the SRPS will reflect actions of the board altering the asset allocation and can be found on SRA's website.

Investment Performance

The system's investment return for fiscal 2017 was 10.02% net of management fees, exceeding the assumed rate of return for the first time in three years. The performance was driven primarily by growth equity returns, which made up 49.0% of the portfolio and returned 18.53% for the fiscal year. As shown in **Exhibit 2**, the system's assets totaled \$49.1 billion as of June 30, 2017, an increase of over \$3.6 billion over fiscal 2016. Additionally, as of September 30, 2017, the fund has increased to \$50.3 billion, the first time the fund has exceeded \$50.0 billion. As noted below, the strongest performing asset classes were public and private equity, credit, and real estate.

As shown in **Exhibit 3**, the system as a whole performed 15 basis points above the benchmark. Public equity, private equity, credit, and natural resources and infrastructure all had strong returns above the assumed rate of return of 7.55%. Commodities and nominal fixed income had the poorest returns, at -8.22% and -2.35%, respectively, though nominal fixed income returned 156 basis points above its benchmark. Absolute return's performance of 3.31% was 285 basis points below its benchmark return of 6.16%. The system's cash and cash equitization program had the best performance relative to its benchmark, returning 5.11% against a benchmark of 0.46%.

Exhibit 2
State Retirement and Pension System of Maryland
Fund Investment Performance for Periods Ending June 30, 2017
(\$ in Millions)

	<u>Assets</u>	<u>% Total</u>	<u>Time Weighted Total Returns</u>		
			<u>1 Year</u>	<u>5 Years</u>	<u>10 Years</u>
Growth Equity					
Public Equity	\$19,022	38.7%	19.02%	11.42%	4.21%
Private Equity	5,045	10.3%	16.44%	14.11%	10.00%
Subtotal	\$24,067	49.0%	18.53%	12.00%	4.64%
Rate Sensitive					
Nominal Fixed Income	\$8,049	16.4%	-2.35%	3.11%	5.25%
Inflation Sensitive	2,255	4.6%	-0.76%	1.12%	n/a
Subtotal	\$10,304	21.0%	-2.08%	2.91%	5.15%
Credit	\$4,683	9.5%	9.99%	7.13%	n/a
Real Assets					
Real Estate	\$3,939	8.0%	7.19%	11.41%	4.70%
Commodities	1,082	2.2%	-8.22%	-7.92%	n/a
Natural Resources and Infrastructure	910	1.9%	12.87%	5.03%	n/a
Subtotal	\$5,931	12.1%	4.67%	0.57%	4.24%
Absolute Return	\$3,528	7.2%	3.31%	2.34%	n/a
Cash and Cash Equitization	\$585	1.2%	5.11%	2.37	n/a
Total Fund	\$49,098	100.0%	10.02%	7.64%	4.15%

Note: Data presented includes funds invested by the system on behalf of the Maryland Transit Administration. Returns beyond 1 year are annualized. Returns are net of fees, except for 10-year returns, which are gross of fees. Columns may not add to total due to rounding.

Source: State Street Investment Analytics

Exhibit 3
State Retirement and Pension System of Maryland
Benchmark Performance for Periods Ending June 30, 2017

	<u>Return</u>	<u>Benchmark</u>	<u>Excess</u>
Public Equity	19.02%	20.12%	-1.10%
Private Equity	16.44%	13.67%	2.77%
Nominal Fixed Income	-2.35%	-3.96%	1.61%
Inflation-linked Bonds	-0.76%	-0.67%	-0.09%
Credit	9.99%	9.93%	0.06%
Real Estate	7.19%	7.16%	0.03%
Commodities	-8.22%	-6.50%	-1.72%
Natural Resources and Infrastructure	12.87%	13.35%	-0.49%
Absolute Return	3.31%	6.16%	-2.85%
Cash and Cash Equitization	5.11%	0.46%	4.65%
Total Fund	10.02%	9.88%	0.15%

Note: Excess may not sum due to rounding.

Source: State Street Investment Analytics

Appendix 1 presents the fiscal year-end performance by each investment manager for fiscal 2017 and prior periods by asset class and asset sub-class.

DLS requests SRA to comment on the 2017 return performance in relation to the policy benchmarks and for any asset classes and asset sub-classes that underperformed the benchmark; to comment on the factors that led to the underperformance, whether those factors are expected to negatively affect performance in fiscal 2018; and to comment what actions are being taken to mitigate those factors impacting the fiscal 2018 returns.

Additionally, SRA should comment on the utilization of any strategic adjustments to asset allocation during fiscal 2017 and the impact on investment performance.

Performance Relative to Other Systems

One method of evaluating the system's investment performance is to compare the system's investment performance with the performance of other systems. The Wilshire Trust Universe Comparison Service (TUCS) rankings are useful for providing a big-picture, snapshot assessment

of the system's performance relative to other large public pension plans. In the TUCS analysis, the one-hundredth percentile represents the lowest investment return, and the first percentile is the highest investment return. According to TUCS, the system's fiscal 2017 investment performance was rated in the ninety-fifth percentile among the public pension funds with at least \$25 billion in assets, as shown in **Exhibit 4**. As the system has a low allocation to equity investments compared to its peers, the system's investment policy will have a low TUCS ranking when equity markets are experiencing strong performance, as was the case during fiscal 2017. With the exception of the one-year return for fiscal 2016, long-term performance rankings place SRPS in the bottom quartile for every timeframe examined. The TUCS rankings are based on returns gross of fees.

Exhibit 4
TUCS Percentile Rankings for Periods Ending June 30
Fiscal 2014-2017

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
1 Year	94	81	57	95
3 Years	94	88	95	91
5 Years	84	88	95	87
10 Years	99	91	95	100

TUCS: Wilshire Trust Universe Comparison Service

Note: Rankings for systems greater than \$25 billion.

Source: Wilshire Trust Universe Comparison Service

TUCS rankings on their own offer limited insight into the manner in which a system's asset allocation drives performance. The rankings by themselves offer little by way of explaining why Maryland's performance differs from that of other funds and do not reflect a clear picture of the increased investment volatility risks borne by a system with heavier investment in equity, particularly public equity. Additionally, total system TUCS rankings will be driven by the asset allocation. SRA noted in its presentation on the Investment Division that in certain asset classes the system does outperform peers, but that when the system as a whole is compared, the low allocation to public equity will drive down the system's overall ranking.

TUCS also provides data on the risk-return profile of its members. The data shows that the system's level of risk over the three-year period ending June 30, 2017, was below the median for other public funds with assets greater than \$25 billion. This is consistent with the system's comparatively low allocation to public equity, which is a highly volatile asset class. The system's asset allocation sets the system up to protect against more extreme losses in down markets. Due to the nature of the benefits that the system's investments ultimately fund, there is prudence in setting an asset allocation that achieves the necessary investment returns with the lowest level of risk capable of achieving those returns.

Asset allocation and returns in comparably sized public pension plans further illustrate the relationship between allocations to equity and fund performance. Over the last few years, high allocations to public equity resulted in higher returns due to the run-up in those markets. Based on data compiled by SRA, DLS identified seven other state pension funds with total fund values similar to Maryland, five of which utilize internal asset management. All but one of the systems had a higher share of equity allocations, and all outperformed Maryland in returns. These systems are shown in **Exhibit 5**. As expected, the systems with higher allocations to equity outperformed Maryland. Pennsylvania's Public School Employees' Retirement System (PSERS) had a substantially lower allocation to public equity than SRPS but had similar overall returns for the year.

Exhibit 5
Performance and Equity Allocation of Public Pension Fund Peers
As of June 30, 2017

	<u>Assets (\$ in Billions)</u>	<u>Total Equity Exposure</u>	<u>Asset Allocation</u>			<u>Fiscal 2017 Performance</u>
			<u>Public Equity</u>	<u>Private Equity</u>	<u>Real Estate</u>	
Minnesota	\$64.1	73.8%	64.9%	8.0%	0.9%	15.10%
Massachusetts	66.9	65.4%	45.7%	10.6%	9.1%	13.20%
Colorado	46.0	74.4%	57.9%	7.9%	8.6%	13.00%
Illinois	49.4	64.1%	36.4%	13.2%	14.5%	12.60%
Virginia	74.4	62.6%	41.3%	8.7%	12.6%	12.10%
Tennessee	47.0	66.0%	54.4%	3.9%	7.7%	11.42%
Pennsylvania	52.4	44.3%	21.3%	11.3%	11.7%	10.14%
Maryland	\$49.1	57.1%	38.7%	10.3%	8.0%	10.02%

Note: Maryland, Massachusetts, and Minnesota do not manage investments internally. Massachusetts returns are gross of fees.

Colorado: Public Employees' Retirement Association of Colorado

Illinois: Teachers' Retirement System of the State of Illinois

Maryland: Maryland State Retirement and Pension System

Massachusetts: Massachusetts Pension Reserves Investment Management Board

Minnesota: Minnesota State Board of Investments

Pennsylvania: Pennsylvania Public School Employees' Retirement System

Tennessee: Tennessee Consolidated Retirement System

Virginia: Virginia Retirement System

Source: State Retirement Agency; Pennsylvania Public School Employees' Retirement System *2017 Comprehensive Annual Financial Report*

SRPS returns in public equity and private equity generated significant returns in fiscal 2017 above the actuarial target of 7.55%, and real estate returned 7.19% for the fiscal year. Other systems shown in Exhibit 5 highlight the strength of equity performance in fiscal 2017. All things being equal, a system with a higher allocation in these asset classes would be expected to have performed better than SRPS in fiscal 2017. However, PSERS provides an example of mitigating exposure to more volatile assets while still achieving returns that meet or exceed the investment return assumptions. PSERS had significantly less public equity exposure to SRPS yet achieved a slightly higher return than SRPS. PSERS investment return assumption was 7.25%, compared to SRPS target of 7.55%, meaning PSERS return of 10.14% provided more excess return than the SRPS return of 10.02%. While these returns were comparatively lower than other systems, they still were above the assumed rates of return and shield their beneficiaries and funding employers in periods where equity markets sustain losses. Additionally, allocations that limit exposure to more volatile assets will result in more stable employer contribution rates. Contribution rates take into account investment returns, so even fluctuations in returns that are near or above the assumed rate of return could cause swings in year-to-year employer contributions. An allocation that would result in mitigating volatility of returns (whether excess gains or returns below the assumed rate of return or investment losses) will also mitigate the impact to employer contributions from contribution rate increases due to prior year returns being higher than current year returns.

DLS requests that SRA comment on the risk profile of the system's asset allocation and comment on investment strategies that can take advantage of short-term market opportunities while still maintaining the system's overall risk tolerance.

Investment Management Fees

As shown in **Exhibit 6**, SRPS incurred \$333.6 million in investment management fees during fiscal 2017, a slight increase of \$329.6 million over fiscal 2016 fees. Management fees for the plan as a whole have grown substantially since the system adjusted its asset allocation to invest more heavily in alternative asset classes with higher fee structures. The shift of public equity assets to global and emerging market equity managers, which are almost all active managers, contributed significantly to the growth in fees over the past few years. While management fees increased slightly, the total plan assets increased significantly, reducing the portion of fees relative to assets under management. SRA credits its ability to negotiate favorable fee arrangements as a contributing factor in reducing management fees.

Exhibit 6
Asset Management Fees Paid by Asset Class
Fiscal 2016-2017
(\$ in Millions)

	<u>2016</u>	<u>2017</u>
Public Equity	\$83.6	\$80.1
Rate Sensitive	10.0	10.5
Credit and Debt Related	36.9	35.7
Real Return	29.6	25.4
Absolute Return	49.2	54.1
Private Equity	81.4	86.0
Real Estate	32.6	34.2
Currency	3.1	4.6
Service Providers/Other	3.1	3.1
Total	\$329.6	\$333.6

Note: Columns may not sum to total due to rounding.

Source: State Retirement Agency

While active management of assets results in higher overall fees, the system has benefited from active management by achieving excess returns over performance benchmarks. Private equity returned 277 basis points in excess of its fiscal 2017 benchmark. Actively managed U.S. equity outperformed passive U.S. equity with returns of 19.71% and 17.56%, respectively. International developed equity in the Terra Maria program outperformed passively managed international developed equity with returns of 20.69% and 20.01%, respectively. Actively managed investments in emerging market equity returned 24.42%, while passive investments returned 23.22%. Passive domestic nominal fixed income returned -4.01%, while active management returned -2.36% for the fiscal year. The system has demonstrated an ability to receive value when paying for active management by mitigating the extent of negative returns and achieving excess returns when market opportunity is available. Review of SRPS fees has concluded that SRPS has continued to be effective at negotiating more favorable fee arrangements than peer systems.

Private Equity Fees

Private equity investments comprise 10.3% of total system assets as of June 30, 2017. The total private equity investment has increased from 8.0% as of June 30, 2015. The system's private

equity program is relatively young, beginning in 2005. Management fees for private equity comprise nearly 26.0% of total management fees, despite only constituting 10.3% of system assets in fiscal 2017. The reason for the high amount of fees in private equity involves a substantial degree of active management. Fee structures are similar to those used in hedge funds, with a set management fee, plus a portion of earnings referred to as “carried interest.” The management fees only reflect the management fees, not carried interest. Because of the nature of private equity fee arrangements, carried interest fees are tied to performance. When the system pays higher carried interest fees, a higher return on investment is the result. SRA indicates that private equity returns are reported net of management fees and carried interest. Management fees for private equity shown reflect increased investment commitments in fiscal 2017.

While private equity does involve substantial management fees, the system’s private equity portfolio was one of the strongest performing asset classes in 2017, with a return of 16.44%. This return was 277 basis points above its benchmark. Investment in private equity has resulted in positive returns for the system with less experienced volatility than public equity. Returns for the one-, three-, and five-year periods ending June 30, 2017, were 16.44%, 13.15%, and 14.11%, respectively. Returns for those same periods also provided significant excess returns over the asset class benchmarks. Additionally, SRA’s chief investment officer has indicated plans for co-investments in private equity. Such investments would be companion investments to private equity funds SRPS is already investing in but would not carry the associated fee structure. Under this approach, SRPS would effectively be reducing its fees for any private equity investments it co-invests by increasing the invested funds with a portion of the investment not being subject to fees.

Absolute Return Fees

Absolute return comprises 7.2% of SRPS investments. Absolute return was among the lower performing asset classes in fiscal 2017, underperforming its benchmark by 285 basis points with a return of 3.31%. The system’s Investment Policy Manual describes the absolute asset class as, “investments whose performance is expected to exceed the three month U.S. Treasury bill by 4-5% over a full market cycle and exhibit low correlation to public stocks.” Only four investments within the absolute return class achieved returns above the asset class benchmark, with a number of investments sustaining significant losses. Similar to private equity, absolute return asset fee structures include set management fees and incentive compensation based on performance. Fees paid for absolute return were \$54.1 million in fiscal 2017, which was a little more than 16% of management fees. In contrast, private equity (with similar fee structures) returned 277 basis points above its benchmark where the absolute return asset class returned 285 basis points below its benchmark, for a net return of 3.31%. Since inception, absolute return has returned 3.22% with a benchmark for that same period of 1.28%.

Given the low rate of return and high management fee structures, DLS requests SRA to comment on the returns of the absolute return asset class, including the market conditions leading to the low level of returns and what market conditions would result in markedly improved returns for investments in the asset class.

Investment Division Staffing

During the 2016 interim, the board of trustees requested legislation to give SRA authority to set the compensation of personnel in the SRA Investment Division and to establish positions within the division. Legislation introduced during the 2017 session did not pass, but language was included in the *Joint Chairmen Report* on the 2018 State Operating Budget requiring SRA to submit a report on how the requested authority would be utilized. That report was presented at the October 25, 2017 meeting of the Joint Committee on Pensions.

The report noted that “it would be in the best interest of the System to be provided the additional authority to allow it to make necessary adjustments to the investment management program through time, specifically in the areas of compensation, creating and eliminating positions, and procuring investment-related products and services.” The report noted that while authority to set compensation will not eliminate turnover, it would reduce compensation-related turnover, providing more staff continuity to the system. The report noted that the ability to control the positions within the division (initially creating additional positions) would allow more senior managers to pass down necessary administrative functions to junior staff positions, allowing senior staff to focus more on developing and enhancing investment strategies. The report further noted that with control over personnel, the division can be structured so that no critical functions are the sole responsibility of one individual. Control over the number of division staff “will enable the division to expand the universe of potential managers or investments to pursue, enhance the methodology of evaluating those opportunities, or design tactical strategies to adjust the mix of investments for intermediate-term performance.” As the fund has grown, the complexity of the assets under management has also grown. The request for staffing authority would allow SRA to expand its staff resources, as both the complexity of the fund assets and the size of the assets under management is expected to grow.

Longer term, the report indicates that economies of scale will likely necessitate moving to internal management functions. The report noted that out of 24 peer plans with assets greater than \$40 billion, only 4 (including SRPS) had no internal management functions. The report noted that in the early 2000s, about one-third of system assets were under internal management, but the internal management functions were stopped due to the inability to attract and retain personnel to perform the function. The report noted that a mix of internal and external management will be necessary and that moving into internal management will be a long-term process, phasing up to its target of 50% of assets managed internally over a 10-year period.

Previously, DLS noted that a shift to internal management would require significant operational changes. Performance measures would need to be adopted to monitor and evaluate the effectiveness of internal management of system assets compared to external management. Additionally, guidelines and reporting requirements would need to be implemented to track the

internal management of system funds as well as any expansion or reduction of internal management once implemented. The report acknowledged that personnel will need to be evaluated more stringently under higher compensation structures and given the higher expectations for asset management.

One of the arguments for internal management is that it can reduce fees paid for asset management. The report noted that fee savings of just 1 basis point would net the system \$5 million. Utilization of internal management would have the potential to significantly reduce management fees, resulting in net gains to the system. However, SRA has been effective at negotiating favorable fee arrangements with external managers, and external management provides SRPS with options to select asset managers and to diversify the management of assets among multiple managers. When particular managers do not perform well, SRPS is able to terminate the management arrangement and place the funds under management elsewhere. If assets under internal management fail to adequately perform, the investment performance would be an SRA personnel issue, rather than a manager selection issue. Flexibility and diversification in managements of assets will need to be balanced with potential cost savings from reduced fees. Additionally, turnover of internal management personnel could affect investment performance continuity.

Terra Maria Program

The Terra Maria program is the system's emerging manager program. One of the Terra Maria program's stated goals is to achieve returns in excess of benchmarks. The program has demonstrated the ability to achieve excess returns over benchmarks, with instances of significant returns over benchmarks at times. With one exception, fiscal 2017 returns by manager yielded returns double the SRPS total plan assumed rate of return of 7.55%. The manager that underperformed started with the program in February 2017. Though the program as a whole performed under benchmark, three of the five managers had net returns above their benchmarks.

Over the past year, SRPS underwent reorganizing of the program asset management to better utilize the asset diversification that the program can bring to SRPS. The program transition includes eliminating mandates for allocations to large-cap domestic equity were and increasing mandates for international small-cap and emerging markets. The program consolidated under five managers, after terminating three managers and adding one new program manager. With the size of program investments in domestic equity in recent years, investment performance was tracking close to markets, making it more difficult to achieve excess returns in an asset class where it is already difficult to outperform the market, in addition to incurring active management fees. The program has maintained a diverse roster of managers through the transition.

The program continued to add value to the portfolio, but its performance has weakened compared with its early years. Now in its tenth year, the program return of 14.60% underperformed its benchmark by 74 basis points in fiscal 2017, though since inception the program has performed 64 basis points above its benchmark. Domestic public equity under Terra Maria managers had a cumulative return of 16.75%, which was 201 basis points below its

benchmark. By comparison, the system returned 19.71% in actively managed domestic public equity, which was 155 basis points above the benchmark. However, in the program's largest asset allocation, international developed equity, the program outperformed SRPS' actively managed international developed equity portfolio. In this asset class, Terra Maria returned 20.69%, which was 26 basis points above benchmark compared to non-Terra Maria returns of 17.53% in the asset class, which was 232 basis points below its benchmark.

The program has also continued to experience some retrenchment in size. Total assets devoted to the program decreased from \$2.6 billion in fiscal 2016 to \$2.3 billion in fiscal 2017. As a proportion of total assets, Terra Maria dropped from 5.7% of total assets in fiscal 2016 to 4.7% in fiscal 2017. **Exhibit 7** provides an overview of the Terra Maria program by program manager and asset class.

Exhibit 7
Terra Maria Program Performance
Investment Performance for Periods Ending June 30, 2017
(\$ in Millions)

<u>Program Manager</u>	<u>Total Assets</u>	<u>Performance</u>			
		<u>Fiscal 2017 Actual</u>	<u>Fiscal 2017 Benchmark</u>	<u>Inception Actual</u>	<u>Inception Benchmark</u>
Acutas	\$97.1	-2.11%	5.82%	-2.11%	5.82%
Attucks	444.9	19.62%	19.49%	13.42%	8.66%
Capital Prospects	956.0	16.41%	15.67%	15.06%	14.86%
FIS Group	385.4	19.26%	22.96%	12.21%	11.62%
Leading Edge	437.5	19.69%	19.49%	12.17%	8.66%
<u>Asset Class</u>					
U.S. Equity	\$410.4	16.75%	18.76%	8.03%	8.12%
International Developed Equity	1,217.6	20.69%	20.42%	2.71%	1.02%
Emerging Market Equity	50.6	17.89%	23.75%	10.17%	13.67%
Rate Sensitive	642.7	1.07%	0.11%	2.78%	2.22%
Total	\$2,321.4	14.60%	15.34%	5.69%	5.05%

Note: Actual returns are net of fees; returns beyond one year are annualized. Total assets may not sum to total due to rounding and outstanding payables from closed accounts. Acuitas inception date is February 1, 2017.

Source: State Retirement Agency

DLS requests SRA to comment on the restructuring of the Terra Maria program, including how the reallocation of assets continues to promote the goals of the program and positions the program to continue to add investment value to SRPS.

Anti-boycott, Divestment, and Sanctions Executive Order

On October 23, 2017, Governor Lawrence J. Hogan, Jr., issued Executive Order 01.01.2017.25, which prohibits executive agencies from executing procurement contracts with a business entity unless the entity certifies that it is not engaging in a boycott of Israel and will refrain from a boycott of Israel for the duration of the contractual obligation. SRA does not consider the executive order to apply to SRPS investments. In the accompanying press release, it was noted that the Governor requested the board of trustees to “take divestment action with regard to any companies that hold investments with entities who participate in the BDS movement”. Legislation was introduced during the 2017 legislative session, but no vote was taken at the committee level.

Currency Program

Adopted in fiscal 2009, the program is designed to protect against losing value when the dollar appreciates relative to some foreign currencies in countries in which the system holds assets. During periods when the dollar is weak, the currency management program’s cost manifests as a slight drag on international equity holdings. However, when the dollar appreciates, the program provides gains that help offset the currency losses generated by the strengthening dollar. During fiscal 2017, the program lowered returns by \$41.4 million. However, as of June 30, 2017, the currency program added value of \$225.7 million since inception. Gains when the dollar is strong should outweigh losses when the dollar is weak, and the system has taken steps to lock in program gains. The primary objective of the program is to lower volatility related to currency fluctuations.

The currency hedging program is only applied to a relatively small portion of the system’s total assets. In addition, not all foreign currencies are included in the hedging program. Due to liquidity constraints and higher transaction costs in some currencies, the program is currently limited to the euro, Japanese yen, Swedish krona, Swiss franc, Canadian dollar, Australian dollar, and British pound.

DLS requests SRA to comment on its process for evaluating utilization of the currency program and plans for the program moving forward.



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL PLAN	49,097,846,204	100.0	0.43	3.29	7.52	10.02	10.02	4.55	7.64	4.15	8.07	07/01/86
TOTAL PLAN POLICY INDEX ⁽¹⁾			0.14	2.94	6.93	9.88	9.88	4.06	6.89	3.75		07/01/86
<i>Excess</i>			0.29	0.35	0.59	0.15	0.15	0.49	0.75	0.41		
TOTAL GROWTH EQUITY	24,067,258,565	49.0	0.78	5.05	11.96	18.53	18.53	6.97	12.00	4.64	5.75	01/01/98
GROWTH EQUITY CUSTOM BENCHMARK ⁽²⁾			0.34	4.47	11.12	18.80	18.80					01/01/98
<i>Excess</i>			0.44	0.59	0.83	-0.27	-0.27					
TOTAL RATE SENSITIVE EX OVERLAY	10,300,853,171	21.0	-0.03	2.28	3.91	-2.11	-2.11	2.96	2.90	5.15	7.12	07/01/86
CUSTOM RATE SENSITIVE BENCHMARK ⁽³⁾			-0.06	2.26	3.55	-3.20	-3.20	2.97	2.45	4.35		07/01/86
<i>Excess</i>			0.04	0.03	0.36	1.09	1.09	-0.02	0.45	0.79		
TOTAL CREDIT/DEBT STRATEGIES EX OVERLAY	4,682,594,600	9.5	0.24	2.71	6.28	9.99	9.99	3.70	7.13	10.11	10.11	03/01/09
MSRA CUSTOM CREDIT BENCHMARK ⁽⁴⁾			0.15	2.19	5.51	9.93	9.93	3.05	4.58	8.65	8.65	03/01/09
<i>Excess</i>			0.09	0.52	0.77	0.06	0.06	0.65	2.55	1.45		
TOTAL REAL ASSETS EX OVERLAY	5,925,166,574	12.1	0.57	1.34	2.55	4.73	4.73	-0.79	0.58	4.25	3.87	02/01/06
CUSTOM REAL ASSETS BENCHMARK ⁽⁵⁾			-0.08	0.68	2.22	5.12	5.12	-0.33	0.20	3.09	2.89	02/01/06
<i>Excess</i>			0.65	0.66	0.33	-0.39	-0.39	-0.46	0.39	1.16	0.97	
TOTAL ABSOLUTE RETURN	3,527,847,666	7.2	-0.67	-1.01	0.06	3.31	3.31	0.31	2.34	3.22	3.22	04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁶⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14	1.28	1.28	04/01/08
<i>Excess</i>			-0.55	-1.59	-1.99	-2.85	-2.85	-1.68	-1.80	1.94	1.94	
TOTAL CASH AND EQUITIZATION	584,886,533	1.2	0.46	1.06	2.44	5.11	5.11	3.19	2.37	2.94	2.94	07/01/08
CITIGROUP 3 MONTH T-BILL			0.07	0.18	0.30	0.46	0.46	0.20	0.15	0.20	0.20	07/01/08
<i>Excess</i>			0.39	0.88	2.13	4.65	4.65	2.98	2.22	2.73	2.73	

ENDNOTES

- [1] Since 07/01/2008: Calculated monthly using transitional weights and asset class benchmarks. Prior to 07/01/2008: MSRA TOTAL PLAN STATIC POLICY.
- [2] Benchmark is a dynamic blend of the Public Equity Benchmark and the State Street Private Equity Index based off of sub-asset class weights used in the policy benchmark.
- [3] Since 07/01/2016: 48% Barclays Long-Term Government, 14% Barclays Securitized, 14% Barclays Corporate, 24% Barclays U.S. TIPS
From 11/01/2015 to 06/30/2016: 50% Barclays Long-Term Government, 15% Barclays Securitized, 15% Barclays Corporate, 20% Barclays U.S. TIPS
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal.
Formerly named "Custom Fixed Income Benchmark" prior to 11/01/2015.
- [4] Since 01/01/2016: 67% US Credit Benchmark, 33% non-U.S Credit Benchmark.
From 11/01/2015 to 12/31/2015: 75% US Credit Benchmark, 25% non-U.S Credit Benchmark.
From 07/01/2013 to 10/31/2015: 50% BC High Yield / 20% BC Credit / 20% JP Morgan GBI EM Global Diversified / 10% S&P/LSTA Leveraged Loan Index
Prior to 01/01/2010 to 06/30/2013: 50% BC Credit / 50% BC High Yield
Prior to 01/01/2010: 75% BC Credit / 25% BC High Yield
- [5] Since 11/01/2015: Benchmark is dynamically calculated using the beginning market values of the Real Estate, Commodities and Natural Resource/Infrastructure sub-asset classes and their corresponding benchmarks.
From 12/01/2012 to 10/31/2015: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%, 8% Max, 60% - 50% BC US TIPS Index/50% BC World Inflat-Linked Bond Index
From 07/01/2011 to 11/30/2012: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%, 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
From 07/01/2009 to 06/30/2011: 20% - DJ UBS Commodities Index (Total Return), 20% - CPI + 5%, 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
07/01/2008 to 06/30/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks Prior to 07/01/2008: 100% Barclays US TIPS Index
Prior to 07/01/2008: 100% Barclays US TIPS Index
Formerly named "Custom Real Return Benchmark" prior to 11/01/2015.
- [6] Since 11/01/2015: HFRI Fund of Funds Conservative + 100 bps.
From 07/01/2014 to 10/31/2015: HFRI FOF: Conservative Index.
From 07/01/2008 to 06/30/2014 benchmark was HFRI Fund of Funds index.
Prior to 07/01/2008 benchmark was the Citigroup 3-Month T-bill + 500 bps.

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State Retirement Agency of Maryland
 Rates of Return - Net Mgr.
 Periods Ending June 30, 2017



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
GROWTH EQUITY												
U.S. EQUITY												
RHUMBLINE RUSSELL 1000	2,621,509,940	5.3	0.71	3.06	9.22	17.95	17.95	9.25	9.25	14.69	14.69	11/01/12
Russell 1000			0.70	3.06	9.27	18.03	18.03	9.26	9.26	14.72	14.72	11/01/12
Excess			0.01	0.00	-0.06	-0.08	-0.08	-0.02	-0.02		-0.02	
RHUMBLINE S&P 600 INDEX	384,164,957	0.8	2.98	1.72						1.61	1.61	03/01/17
S&P SMALLCAP 600			2.99	1.71						1.59	1.59	03/01/17
Excess			-0.01	0.01						0.02	0.02	
TOTAL US EQUITY PASSIVE												
	3,005,675,070	6.1	0.99	2.89	8.94	17.56	17.56			11.95	11.95	11/01/15
D.E. SHAW ALL CAP CORE ENHANCED												
D.E. Shaw All Cap Custom Benchmark ⁽¹⁾	637,899,695	1.3	0.48	2.76	8.98	19.09	19.09	9.50	9.50	13.24	13.24	04/01/13
Excess			-0.22	-0.30	-0.29	0.29	0.29	0.31	0.31		0.35	
T. ROWE PRICE ENHANCED												
S&P 500	585,783,593	1.2	0.48	4.22	11.29	19.83	19.83	10.27	15.10	7.74	8.58	05/01/06
Excess			0.62	3.09	9.34	17.90	17.90	9.61	14.63	7.18	7.94	05/01/06
			-0.15	1.13	1.95	1.93	1.93	0.66	0.47	0.55	0.64	
RHUMBLINE US SCIENTIFIC BETA												
SciBeta USA Multi-Beta MStrat 4F-EW TR	567,958,426	1.2	0.91	3.59	9.18					9.18	9.18	01/01/17
Excess			0.93	3.63	9.28					9.28	9.28	01/01/17
			-0.01	-0.04	-0.10					-0.10	-0.10	
TOTAL U.S. EQUITY ACTIVE												
ACTIVE US EQ BM ⁽²⁾	1,792,560,379	3.7	0.62	3.50	10.18	19.71	19.71	8.75	15.00	5.43	5.43	06/01/94
Excess			0.75	3.25	9.30	18.16	18.16	9.46	14.54			06/01/94
			-0.13	0.25	0.88	1.55	1.55	-0.71	0.46			



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
US EQUITY TERRA MARIA	410,365,719	0.8	3.01	2.25	5.94	16.75	16.75	5.30	12.18	7.52	8.03	04/01/07
TERRA MARIA US EQUITY BENCHMARK ⁽³⁾			3.75	2.83	6.58	18.76	18.76	8.47	14.18	7.77	8.12	04/01/07
<i>Excess</i>			-0.74	-0.58	-0.64	-2.01	-2.01	-3.17	-2.01	-0.25	-0.09	
TOTAL US EQUITY (CP)	313,202,589	0.6	3.06	3.24							3.24	04/01/17
S&P 600 Small Cap USD NET			2.95	1.61							1.61	04/01/17
<i>Excess</i>			0.11	1.62							1.62	
TOTAL US EQUITY TM + U.S. EQUITY ACTIVE	2,202,926,098	4.5	1.06	3.22	9.01	19.20	19.20	7.51	13.89	6.69	9.17	07/01/08
TM US EQ + ACTIVE US EQ BM ⁽²⁾			1.29	3.16	8.54	18.93	18.93	9.16	14.51	7.27	10.03	07/01/08
<i>Excess</i>			-0.24	0.06	0.47	0.26	0.26	-1.65	-0.62		-0.85	
U.S. EQUITY EX OVERLAY	5,208,601,168	10.6	1.02	3.03	8.96	18.43	18.43	8.20	14.19	6.69	8.77	04/01/94
MSRA CUSTOM US EQUITY INDEX ⁽⁴⁾			0.90	3.02	8.93	18.51	18.51	9.10	14.58	7.27		04/01/94
<i>Excess</i>			0.12	0.02	0.03	-0.08	-0.08	-0.91	-0.39	-0.58		
US Equity Structural	2	0.0										02/01/17
U.S. EQUITY OVERLAY	2	0.0										02/01/17
U.S. EQUITY	5,208,601,170	10.6	1.02	3.03	8.97	18.44	18.44	8.20	14.19	6.69	8.77	04/01/94
INTERNATIONAL DEVELOPED MARKETS												
SSGA INTERNATIONAL FUND	747,238,731	1.5	0.11	5.84	13.22	20.01	20.01	1.07	8.52	1.62	8.62	05/01/03
SSGA INTERNATIONAL CUSTOM INDEX ⁽⁵⁾			0.09	5.63	12.82	19.49	19.49	0.67	8.15	1.27	8.34	05/01/03
<i>Excess</i>			0.02	0.21	0.40	0.52	0.52	0.40	0.37	0.34	0.28	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
INTERNATIONAL DEVELOPED EQUITY PASSIVE	747,238,731	1.5	0.11	5.84	13.22	20.01	20.01				7.65	11/01/15
MSCI WORLD EX US NET (DAILY)			0.09	5.63	12.82	19.49	19.49				7.08	11/01/15
Excess			0.02	0.21	0.40	0.52	0.52				0.57	
ARTISAN PARTNERS, L.P.	551,173,211	1.1	0.28	9.06	18.68	13.54	13.54	0.16	8.46	3.61	8.54	11/01/03
ARTISAN CUSTOM BENCHMARK ⁽⁶⁾			0.09	5.63	12.82	19.49	19.49	0.67	8.15	1.74	7.31	11/01/03
Excess			0.18	3.43	5.85	-5.95	-5.95	-0.52	0.31	1.87	1.23	
AQR ENHANCED ACWI EX-US	596,633,518	1.2	0.10	5.88	13.76	20.34	20.34	1.29			3.07	12/01/13
AQR Enhanced Custom Benchmark ⁽⁷⁾			0.09	5.63	12.82	19.49	19.49	0.40			2.11	12/01/13
Excess			0.01	0.25	0.94	0.85	0.85	0.89			0.97	
BROWN CAPITAL MANAGEMENT INT'L	509,829,985	1.0	-0.85	7.35	15.08	14.42	14.42	2.88	12.02		13.01	12/01/08
Brown Capital Management International Custom Benchmark ⁽⁸⁾			0.13	5.86	13.19	19.74	19.74	0.42	7.12		9.23	12/01/08
Excess			-0.98	1.49	1.89	-5.32	-5.32	2.46	4.90		3.78	
DFA INTERNATIONAL CORE EQUITY	386,595,895	0.8	0.53	6.23	13.75	23.05	23.05	2.41			6.42	05/01/13
MSCI WORLD EX US (NET)			0.09	5.63	12.82	19.49	19.49	0.67			4.24	05/01/13
Excess			0.44	0.60	0.93	3.57	3.57	1.74			2.18	
DFA SMALL CAP INTERNATIONAL	222,741,331	0.5	1.01	7.37	16.39	24.07	24.07	4.56	12.25	3.69	5.93	03/01/06
DFA Custom Benchmark ⁽⁹⁾			0.32	7.28	15.45	21.26	21.26	4.02	11.43	2.90	4.73	03/01/06
Excess			0.69	0.09	0.94	2.81	2.81	0.54	0.82	0.79	1.20	
RHUMBLINE SCI BETA INTL EX-US	359,436,746	0.7	0.36	6.59							9.04	03/01/17
SciBeta Developed ex USA Value Div MS			0.41	6.75							9.24	03/01/17
Excess			-0.05	-0.17							-0.21	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
INTERNATIONAL DEVELOPED EQUITY ACTIVE ^[10]	2,626,765,609	5.4	0.13	7.12	15.26	17.53	17.53	0.60	7.76	0.99		01/01/95
CUSTOM INTL DEV EQ ACTIVE BENCHMARK ^[11]			0.16	5.98	13.30	19.85	19.85	0.69	7.10			01/01/95
Excess			-0.04	1.14	1.96	-2.32	-2.32	-0.09	0.67			
INTL DEVELOPED EQUITY TERRA MARIA ^[10]	1,217,638,278	2.5	-0.05	7.00	16.69	20.69	20.69	2.17	8.37		2.71	11/01/07
TERRA MARIA INTL DEVELOPED EQ BM ^[12]			-0.01	6.44	14.20	20.42	20.42	0.85	7.32		1.02	11/01/07
Excess			-0.03	0.56	2.49	0.26	0.26	1.32	1.04		1.69	
TOTAL INTL DEVELOPED EQUITY (FIS)	334,762,116	0.7	0.49	8.92							8.92	04/01/17
MSCI WORLD EX US SMALL CAP (NET)			0.32	7.28							7.28	04/01/17
Excess			0.17	1.64							1.64	
INTL DEVELOPED EQUITY ACTIVE AND TM ^[10]	3,844,403,887	7.8	0.07	7.08	15.67	18.43	18.43	1.04	7.94		2.52	07/01/08
TM INTL DEV EQ + ACTIVE INTL DEV EQ BM ^[11]			0.11	6.14	13.61	20.07	20.07	0.74	7.17		2.24	07/01/08
Excess			-0.03	0.94	2.07	-1.64	-1.64	0.29	0.78		0.27	
INTL EQUITY TRANSITION ACCOUNT	36,068	0.0										11/01/04
TOTAL INTL DEV EQUITY EX RECORD CURRENCY ^[10]	4,591,678,686	9.4	0.08	6.76	14.94	18.93	18.93	0.61	7.38	1.22		01/01/95
MSRA CUSTOM INTERNATIONAL INDEX ^[13]			0.09	5.63	12.82	19.49	19.49	0.05	6.74	1.00		01/01/95
Excess			-0.02	1.13	2.11	-0.56	-0.56	0.55	0.64	0.22		
RECORD CURRENCY MANAGEMENT	-33,048,699	-0.1										05/01/09



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL INTL DEVELOPED EQUITY EX OVERLAY ⁽¹⁾⁽²⁾	4,558,629,986	9.3	-0.08	6.00	12.61	18.28	18.28	1.59	8.01	1.47	6.38	01/01/95
MSRA CUSTOM INTERNATIONAL INDEX ⁽¹⁾⁽³⁾			0.09	5.63	12.82	19.49	19.49	0.05	6.74	1.00	5.35	01/01/95
<i>Excess</i>			-0.17	0.37	-0.21	-1.21	-1.21	1.53	1.26	0.47	1.03	
International Equity Tactical	8	0.0										01/01/17
International Equity Structural	-10	-0.0										02/01/17
TOTAL INTL DEVELOPED EQUITY OVERLAY	-2	0.0										12/01/16
TOTAL INTL DEVELOPED EQUITY	4,558,629,985	9.3	-0.08	5.94	12.58	18.23	18.23	1.57	8.00	1.47	6.38	01/01/95
EMERGING MARKETS												
SSGA EMERGING MARKETS INDEX FUND	86,220,716	0.2	0.94	6.10	18.18	23.22	23.22	0.63	3.61		3.90	06/01/12
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75	1.07	3.96		4.67	06/01/12
<i>Excess</i>			-0.07	-0.17	-0.25	-0.52	-0.52	-0.45	-0.35		-0.76	
EMERGING MARKETS EQUITY PASSIVE	86,220,716	0.2	0.94	6.10	18.18	23.22	23.22				13.27	11/01/15
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				13.67	11/01/15
<i>Excess</i>			-0.07	-0.17	-0.25	-0.52	-0.52				-0.40	
GENESIS ASSET MANAGERS LTD	241,320,534	0.5	1.04	6.00	16.20	17.79	17.79	-0.04	4.55		8.36	07/01/09
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75	1.07	3.96		6.10	07/01/09
<i>Excess</i>			0.03	-0.27	-2.23	-5.96	-5.96	-1.11	0.60		2.26	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
BAILLIE GIFFORD EMERGING MARKETS	643,078,654	1.3	2.22	9.25	27.15	34.63	34.63				15.75	11/01/15
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				13.67	11/01/15
Excess			1.21	2.98	8.71	10.89	10.89				2.08	
DFA EMERGING MARKETS	729,691,985	1.5	0.90	4.68	19.00	21.94	21.94				27.08	02/01/16
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				27.48	02/01/16
Excess			-0.11	-1.59	0.57	-1.80	-1.80				-0.40	
ACADIAN EMRG MKTS MANAGED VOLATILITY EQ	230,769,000	0.5	0.68	4.76	14.63	13.57	13.57				10.81	04/01/16
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				19.22	04/01/16
Excess			-0.33	-1.51	-3.80	-10.18	-10.18				-8.41	
POLLIN CAPITAL PARTNERS	398,177,252	0.8	2.40	5.47	18.69	31.06	31.06				26.31	04/01/16
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				19.22	04/01/16
Excess			1.40	-0.80	0.26	7.31	7.31				7.09	
AXIOM INTERNATIONAL INVESTORS	372,285,533	0.8	1.37	7.53	20.05	21.73	21.73				20.57	05/01/16
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				20.15	05/01/16
Excess			0.36	1.26	1.62	-2.01	-2.01				0.42	
FISHER INVESTMENTS	648,390,657	1.3	2.02	8.13	21.68	23.41	23.41				20.65	05/01/16
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75				20.15	05/01/16
Excess			1.02	1.86	3.25	-0.33	-0.33				0.50	
WESTWOOD GLOBAL INVESTMENTS	354,213,757	0.7	0.38	3.05	16.16	25.62	25.62	3.06	6.09		14.01	12/01/08
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75	1.07	3.96		10.50	12/01/08
Excess			-0.63	-3.22	-2.27	1.87	1.87	1.99	2.14		3.51	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TRANSITION ACCOUNT EMERGING MARKETS	0	0.0	0.00									05/01/16
TOTAL EMERGING MARKET ACTIVE	3,617,927,372	7.4	1.49	6.39	20.15	24.42	24.42	2.14	5.04	3.50	3.50	07/01/10
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75	1.07	3.96	3.87	3.87	07/01/10
Excess			0.48	0.12	1.71	0.68	0.68	1.07	1.08	-0.37	-0.37	
EMERGING MARKETS EQUITY TERRA MARIA	50,575,832	0.1	1.00	3.94	16.17	17.89	17.89			10.17	10.17	11/01/15
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75			13.67	13.67	11/01/15
Excess			-0.01	-2.33	-2.26	-5.85	-5.85			-3.50	-3.50	
EMERGING MARKETS ACTIVE AND TM	3,668,503,204	7.5	1.48	6.36	20.08	24.17	24.17			15.50	15.50	11/01/15
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75			13.67	13.67	11/01/15
Excess			0.47	0.09	1.65	0.42	0.42			1.83	1.83	
TOTAL EMERGING MARKETS EQUITY EX OVERLAY	3,754,723,920	7.6	1.47	6.35	20.12	24.38	24.38			14.36	14.36	11/01/15
MSCI EMERGING MARKETS			1.01	6.27	18.43	23.75	23.75			13.67	13.67	11/01/15
Excess			0.46	0.08	1.69	0.63	0.63			0.69	0.69	
Emrg Mkts Structural Overlay	13	0.0										02/01/17
TOTAL EMERGING MARKETS OVERLAY	13	0.0										02/01/17
TOTAL EMERGING MARKETS EQUITY	3,754,723,934	7.6	1.47	6.38	20.01	24.26	24.26			14.30	14.30	11/01/15
GLOBAL EQUITY												
ACADIAN ASSET MGT	135,749	0.0										10/01/05



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TEMPLETON INVESTMENT MGT	678,949,139	1.4	1.29	4.22	10.26	22.25	22.25	2.77	11.73	4.57	7.28	01/01/06
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82	10.54	3.71	5.81	01/01/06
Excess			0.83	-0.05	-1.22	3.47	3.47	-2.05	1.19	0.86	1.47	
BAILLIE GIFFORD	653,285,301	1.3	0.86	13.13	31.29	34.94	34.94	13.41	17.39		9.23	02/01/08
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82	10.54		4.72	02/01/08
Excess			0.41	8.86	19.81	16.16	16.16	8.59	6.85		4.51	
LONGVIEW PARTNRS GLOBAL EQUITY	592,314,206	1.2	1.67	4.98	12.29	18.71	18.71	9.35	16.13		13.46	10/01/09
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82	10.54		8.67	10/01/09
Excess			1.21	0.70	0.82	-0.07	-0.07	4.53	5.59		4.79	
BROWN CAPITAL GLOBAL EQUITY	604,570	0.0										01/01/10
AQR CAPITAL - GLOBAL EQUITY	881,423,291	1.8	0.56	4.38	11.62	20.67	20.67	5.24	11.62		10.52	08/01/10
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82	10.54		9.37	08/01/10
Excess			0.10	0.11	0.15	1.89	1.89	0.42	1.08		1.15	
D.E. SHAW INV - GLOBAL EQUITY	769,704,317	1.6	0.21	3.80	11.43	17.80	17.80	5.75	12.31		11.34	08/01/10
MSCI WORLD INDEX			0.38	4.03	10.66	18.20	18.20	5.24	11.38		10.28	08/01/10
Excess			-0.17	-0.22	0.77	-0.40	-0.40	0.51	0.93		1.06	
GMO GLOBAL ALL COUNTRY EQUITY ALLOCATION	769,032	0.0										09/01/13



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
SCHRODER QEP GLOBAL BLEND	313,077,962	0.6	0.83	3.36	9.53	17.92	17.92	4.26			8.19	09/01/13
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82			8.78	09/01/13
Excess			0.38	-0.91	-1.95	-0.86	-0.86	-0.56			-0.58	
TOTAL GLOBAL EQUITY ACTIVE	3,890,385,483	7.9	0.86	5.62	13.89	20.06	20.06	5.96	12.44	4.77	7.04	10/01/05
MSCI AC WORLD INDEX NET			0.45	4.27	11.48	18.78	18.78	4.82	10.54	3.71	5.97	10/01/05
Excess			0.40	1.35	2.42	1.28	1.28	1.14	1.90	1.06	1.07	
GLOBAL EQUITY TERRA MARIA	34,666	0.0										12/01/08
MARSHALL WACE EUREKA FUND	403,491,134	0.8	0.25	3.75	6.22	10.95	10.95	9.81			11.64	10/01/12
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93			5.86	10/01/12
Excess			-0.65	1.79	0.31	-1.20	-1.20	6.88			5.78	
STELLIAM FUND	280,499,750	0.6	2.14	2.12	3.03	11.54	11.54	0.08			3.21	07/01/13
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93			5.25	07/01/13
Excess			1.24	0.16	-2.88	-0.61	-0.61	-2.86			-2.05	
CRITERION HORIZONS FUND	119,640,300	0.2	-1.24	4.49	11.26	8.48	8.48	3.89			4.79	09/01/13
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93			5.11	09/01/13
Excess			-2.15	2.53	5.36	-3.67	-3.67	0.95			-0.32	
SCOPIA PX LLC	234,952,600	0.5	-0.95	-2.01	-2.78	3.35	3.35	1.75	3.27		3.27	07/01/12
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93	6.28		6.28	07/01/12
Excess			-1.86	-3.96	-8.69	-8.80	-8.80	-1.18	-3.00		-3.00	

State Retirement Agency of Maryland
 Rates of Return - Net Mgr.
 Periods Ending June 30, 2017



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
HOPLITE ONSHORE	286,055,250	0.6	-0.44	2.22	3.89	3.09	3.09	1.22			3.61	02/01/13
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93			5.10	02/01/13
<i>Excess</i>			-1.34	0.26	-2.01	-9.06	-9.06	-1.71			-1.49	
INDUS PACIFIC OPPORTUNITIES FUND	147,334,100	0.3	1.12	7.59	14.86	17.27	17.27	11.06			9.96	06/01/13
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93			4.72	06/01/13
<i>Excess</i>			0.21	5.63	8.96	5.12	5.12	8.13			5.24	
PELORUS JACK 2X LP	148,203,900	0.3	-1.20								-1.20	06/01/17
HFRI Equity Hedge (Total) Index			0.90								0.90	06/01/17
<i>Excess</i>			-2.10								-2.10	
TOTAL EQUITY HEDGE FUND	1,620,177,035	3.3	0.11	2.39	4.74	8.67	8.67	2.52	5.05		5.05	07/01/12
HFRI Equity Hedge (Total) Index			0.90	1.96	5.90	12.15	12.15	2.93	6.28		6.28	07/01/12
<i>Excess</i>			-0.80	0.43	-1.17	-3.48	-3.48	-0.41	-1.22		-1.22	
TOTAL GLB EQ TM + GLB EQ ACTIVE + HF	5,510,597,183	11.2	0.63	4.67	11.27	16.76	16.76	5.05	10.93		5.63	07/01/08
TM GLOBAL + ACTIVE GLOBAL BM + EQ HF [2]			0.58	3.61	9.80	16.82	16.82	4.32	9.84		4.92	07/01/08
<i>Excess</i>			0.06	1.05	1.47	-0.06	-0.06	0.73	1.09		0.72	
GLOBAL EQUITY TRANSITION ACCOUNT	3,167,512	0.0										06/01/11
TOTAL GLOBAL EQUITY EX RECORD CURRENCY	5,513,764,696	11.2	0.64	4.67	11.46	16.96	16.96	5.12	11.19	4.15	6.50	10/01/05
MSRA CUSTOM GLOBAL INDEX [14]			0.45	4.27	11.48	18.78	18.78	4.82	10.54	3.83	6.08	10/01/05
<i>Excess</i>			0.18	0.40	-0.02	-1.82	-1.82	0.30	0.65	0.32	0.42	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
RECORD CURRENCY - GLOBAL	-13,511,394	-0.0										05/01/09
TOTAL GLOBAL EQUITY EX OVERLAY	5,500,253,302	11.2	0.58	4.44	10.80	16.66	16.66	5.50	11.39	4.24	6.58	10/01/05
MSRA CUSTOM GLOBAL INDEX ⁽¹⁴⁾			0.45	4.27	11.48	18.78	18.78	4.82	10.54	3.83	6.08	10/01/05
Excess			0.13	0.17	-0.68	-2.12	-2.12	0.68	0.85	0.41	0.50	
PUBLIC EQUITY												
TOTAL PUBLIC EQUITY EX OVERLAY	19,022,208,377	38.7	0.72	4.84	12.52	19.05	19.05	5.70	11.43	4.21		04/01/94
PUBLIC EQ BM 2 ⁽¹⁵⁾			0.66	4.61	12.31	20.12	20.12	5.13	10.80			04/01/94
Excess			0.06	0.23	0.20	-1.08	-1.08	0.57	0.62			
TOTAL PUBLIC EQUITY OVERLAY	14	0.0										12/01/16
TOTAL PUBLIC EQUITY	19,022,208,391	38.7	0.72	4.83	12.49	19.02	19.02	5.69	11.42	4.21		04/01/94
PRIVATE EQUITY												
TOTAL PRIVATE EQUITY	5,045,050,175	10.3	1.00	5.86	9.69	16.44	16.44	13.15	14.11	10.00	7.52	03/01/94
Custom MD/SS PEI Index ⁽¹⁶⁾			-0.83	3.95	6.63	13.67	13.67	8.56	10.56	7.68		03/01/94
Excess			1.83	1.91	3.06	2.77	2.77	4.59	3.56	2.31		
TOTAL GROWTH EQUITY	24,067,258,565	49.0	0.78	5.05	11.96	18.53	18.53	6.97	12.00	4.64	5.75	01/01/98
GROWTH EQUITY CUSTOM BENCHMARK ⁽¹⁷⁾			0.34	4.47	11.12	18.80	18.80					01/01/98
Excess			0.44	0.59	0.83	-0.27	-0.27					



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
RATE SENSITIVE												
NOMINAL FIXED INCOME												
SSGA US GOVT LONG BOND INDEX	873,996,371	1.8	0.37	3.93	5.46						-2.92	11/01/16
BBG BARC US Gov Lg Idx			0.38	3.93	5.44						-2.80	11/01/16
Excess			-0.01	-0.01	0.02						-0.11	
SSGA US SECURITIZED INDEX	141,200,900	0.3	-0.39	0.92	1.40						-0.43	11/01/16
BBG BARC Sec Idx			-0.39	0.89	1.39						-0.36	11/01/16
Excess			0.00	0.03	0.01						-0.07	
SSGA US LONG INVEST GRADE CORP INDEX	191,797,258	0.4	0.98	4.91	5.65						1.90	11/01/16
BBG BARC Lg Corp			1.08	4.94	6.36						3.07	11/01/16
Excess			-0.09	-0.02	-0.72						-1.17	
SSGA US INTERM INVEST GRADE INDEX	293,498,324	0.6	-0.08	1.48	2.68						1.02	11/01/16
BBG BARC US Corp Int Inv Grd Idx			-0.04	1.49	2.67						1.07	11/01/16
Excess			-0.04	-0.01	0.01						-0.05	
SSGA PASSIVE FIXED INCOME	1,500,492,853	3.1	0.29	3.27	4.62	-4.01	-4.01	2.85	2.20	4.51	4.17	05/01/03
SSgA Aggregate Bond Custom Benchmark [19]			0.22	3.10	4.36	-3.96	-3.96	2.99	2.34			05/01/03
Excess			0.06	0.18	0.25	-0.05	-0.05	-0.14	-0.14			
US NOMINAL FIXED INCOME PASSIVE	1,500,492,853	3.1	0.29	3.27	4.62	-4.01	-4.01				3.43	11/01/15
US NOMINAL FI PASSIVE BENCHMARK [19]			0.22	3.10	4.36	-3.96	-3.96				3.64	11/01/15
Excess			0.06	0.18	0.25	-0.05	-0.05				-0.21	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
PIMCO	1,310,079,028	2.7	0.22	3.09	4.89	-2.65	-2.65	2.77	2.42	4.79		06/01/84
PIMCO Custom Blended Index ^[20]			0.22	3.10	4.36	-3.96	-3.96	2.99	2.34	4.34		06/01/84
Excess			-0.01	-0.01	0.53	1.31	1.31	-0.21	0.08	0.45		
WESTERN ASSET MANAGEMENT	2,774,918,297	5.7	0.29	3.19	5.56	-2.09	-2.09	3.58	3.52	6.14	6.05	09/01/03
WESTERN ASSET MANAGEMENT CUSTOM BM ^[21]			0.22	3.10	4.36	-3.96	-3.96	2.92	2.30	4.32	4.37	09/01/03
Excess			0.06	0.09	1.19	1.87	1.87	0.65	1.22	1.81	1.67	
FIDELITY INSTITUTIONAL ASSET	456,165,323	0.9	0.19	3.08	4.21	-3.75	-3.75	2.80	2.40		4.60	02/01/08
Custom BC Agg Int/BC Agg/US Universal BM ^[22]			0.22	3.10	4.36	-3.96	-3.96	3.11	2.41		3.93	02/01/08
Excess			-0.03	-0.02	-0.15	0.21	0.21	-0.31	-0.01		0.67	
GOLDMAN SACHS FI CORE PLUS	449,593,960	0.9	0.32	3.10	4.39	-3.61	-3.61	2.94	2.81		5.14	03/01/09
Custom BC Agg Int/BC Agg/US Universal BM ^[22]			0.22	3.10	4.36	-3.96	-3.96	3.11	2.41		4.47	03/01/09
Excess			0.10	0.01	0.02	0.35	0.35	-0.17	0.39		0.68	
DODGE & COX - FI CORE	477,525,595	1.0	0.55	3.65	5.22	0.04	0.04	4.28	4.09		5.95	03/01/09
CORE BOND CUSTOM BENCHMARK ^[23]			0.22	3.10	4.36	-3.96	-3.96	3.11	2.41		4.31	03/01/09
Excess			0.33	0.55	0.85	4.00	4.00	1.17	1.68		1.64	
PRINCIPAL CORE BOND	451,969,387	0.9	0.29	3.20	4.44	-3.71	-3.71	2.99	2.67		4.67	07/01/09
CORE BOND CUSTOM BENCHMARK ^[23]			0.22	3.10	4.36	-3.96	-3.96	3.11	2.41		4.09	07/01/09
Excess			0.06	0.11	0.07	0.25	0.25	-0.13	0.25		0.59	
US NOMINAL FIXED INCOME ACTIVE	5,920,251,590	12.1	0.29	3.19	5.09	-2.36	-2.36	3.41	3.07		5.02	07/01/08
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[24]			0.22	3.10	4.36	-3.96	-3.96	3.01	2.47		4.16	07/01/08
Excess			0.06	0.09	0.73	1.59	1.59	0.40	0.59		0.86	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
US NOMINAL FIXED INCOME TERRA MARIA ^[25]	603,560,141	1.2	-0.15	1.17	2.08	1.03	1.03	2.31	2.30	5.78	5.78	11/01/08
TERRA MARIA FI BENCHMARK ^[26]			-0.24	0.97	1.70	-0.01	-0.01	2.09	1.80	6.68	6.68	11/01/08
Excess			0.08	0.20	0.38	1.04	1.04	0.22	0.49	-0.90	-0.90	
TOTAL RATE SENSITIVE (CP)	642,749,273	1.3	-0.22	1.07	1.99	1.14	1.14	2.45	2.57	5.60	5.60	11/01/08
RATE SENSITIVE (CP) BENCHMARK ^[26]			-0.31	0.88	1.62	0.12	0.12	2.21	1.96	4.69	4.69	11/01/08
Excess			0.09	0.19	0.38	1.02	1.02	0.24	0.60	0.91	0.91	
TOTAL US NOMINAL FI ACTIVE + TM	6,523,811,732	13.3	0.25	3.00	4.80	-2.11	-2.11	3.31	2.99	4.96	4.96	07/01/08
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[24]			0.22	3.10	4.36	-3.96	-3.96	3.01	2.47	4.16	4.16	07/01/08
Excess			0.02	-0.10	0.44	1.84	1.84	0.30	0.52	0.80	0.80	
US NOMINAL FIXED INCOME	8,024,304,584	16.3	0.25	3.05	4.77	-2.40	-2.40	3.24	2.87	5.05	5.05	07/01/08
US NOMINAL FIXED INCOME BENCHMARK ^[27]			0.22	3.10	4.36	-3.96	-3.96	2.99	2.34	4.26	4.26	07/01/08
Excess			0.03	-0.05	0.40	1.56	1.56	0.25	0.53	0.79	0.79	
WESTERN ASSET - ISRAEL BD	21,578,741	0.0	0.34	1.69	2.93	-0.85	-0.85	0.44	1.13	2.33	2.67	06/01/05
WESTERN ASSET ISRAEL BOND INDEX			0.30	1.13	1.55	0.70	0.70	2.43	2.89	1.52	0.96	06/01/05
Excess			0.04	0.56	1.38	-1.55	-1.55	-1.99	-1.76	0.80	1.71	
TOTAL GLOBAL FIXED INCOME	21,578,846	0.0	0.34	1.69	2.92	-0.93	-0.93	1.50	2.76	4.40	4.40	07/01/08
CUSTOM GLOBAL FIXED INCOME BM ^[28]			-0.26	0.72	1.25	0.49	0.49	2.30	2.54			07/01/08
Excess			0.60	0.98	1.67	-1.42	-1.42	-0.80	0.22			
NOMINAL FIXED INCOME EX OVERLAY	8,045,883,430	16.4	0.26	3.04	4.76	-2.39	-2.39	3.29	3.10	5.25	7.15	07/01/86
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[24]			0.22	3.10	4.36	-3.96	-3.96	3.01	2.47	4.36	4.36	07/01/86
Excess			0.03	-0.05	0.40	1.56	1.56	0.27	0.63	0.88	0.88	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
Nominal FI Tactical	3,013,798	0.0										01/01/17
Nominal FI Structural	9	0.0										01/01/17
NOMINAL FIXED INCOME OVERLAY	3,013,807	0.0										01/01/17
NOMINAL FIXED INCOME	8,048,897,237	16.4	0.26	3.03	4.81	-2.35	-2.35	3.30	3.11	5.25	7.15	07/01/86
INFLATION SENSITIVE												
SSGA PASSIVE US TIPS	2,215,274,685	4.5	-1.01	-0.39	0.94	-0.79	-0.79	0.69			-0.53	12/01/12
UBBG BARG US TIPS Idx			-0.98	-0.41	0.95	-0.67	-0.67	0.71			-0.47	12/01/12
Excess			-0.04	0.02	-0.01	-0.12	-0.12	-0.02			-0.06	
TOTAL U.S. TIPS	2,215,274,685	4.5	-1.01	-0.39	0.94	-0.79	-0.79	0.69	0.19	4.58	4.16	02/01/06
CUSTOM US TIPS MD BM [29]			-0.98	-0.41	0.95	-0.67	-0.67	0.71	0.26	4.27	3.92	02/01/06
Excess			-0.04	0.02	-0.01	-0.12	-0.12	-0.02	-0.07	0.31	0.24	
NEW CENTURY ADVISORS (CP)	39,189,132	0.1	-1.26	-0.38	0.48	1.63	1.63	4.10	2.65	5.71	5.71	12/01/08
BC World Inflat-Linked Bond Index-Hedged			-1.39	-0.42	0.28	1.93	1.93	4.20	2.97	5.64	5.64	12/01/08
Excess			0.13	0.04	0.19	-0.31	-0.31	-0.10	-0.32	0.07	0.07	
TOTAL GILB	39,695,056	0.1	-1.27	-0.20	0.48	0.86	0.86	4.43	3.10	5.65	5.65	12/01/08
BC World Inflat-Linked Bond Index-Hedged			-1.39	-0.42	0.28	1.93	1.93	4.20	2.97	5.64	5.64	12/01/08
Excess			0.12	0.22	0.20	-1.07	-1.07	0.23	0.14	0.01	0.01	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
INFLATION SENSITIVE FLEX OVERLAY	2,254,969,741	4.6	-1.02	-0.39	0.93	-0.76	-0.76	1.63	1.12	3.84	3.84	07/01/08
CUSTOM INFLATION SENSITIVE BENCHMARK ^[30]			-0.98	-0.41	0.95	-0.67	-0.67	1.76	1.22	3.58	3.58	07/01/08
Excess			-0.04	0.03	-0.01	-0.09	-0.09	-0.13	-0.10	0.27	0.27	
TOTAL RATE SENSITIVE EX OVERLAY	10,300,853,171	21.0	-0.03	2.28	3.91	-2.11	-2.11	2.96	2.90	5.15	7.12	07/01/86
CUSTOM RATE SENSITIVE BENCHMARK ^[31]			-0.06	2.26	3.55	-3.20	-3.20	2.97	2.45	4.35	4.35	07/01/86
Excess			0.04	0.03	0.36	1.09	1.09	-0.02	0.45	0.79	0.79	
TOTAL RATE SENSITIVE OVERLAY	3,013,807	0.0										01/01/17
TOTAL RATE SENSITIVE	10,303,866,978	21.0	-0.02	2.28	3.95	-2.08	-2.08	2.97	2.91	5.15	7.12	07/01/86
CREDIT/DEBT												
US CREDIT												
KKR BANK LOANS	479,875,003	1.0	-0.16	0.75	1.71	6.52	6.52	2.41	5.20	5.82	5.82	09/01/10
KKR S&P LSTA Leveraged Loan ^[32]			-0.04	0.76	1.91	7.42	7.42	2.82	5.08	5.82	5.82	09/01/10
Excess			-0.12	-0.01	-0.20	-0.91	-0.91	-0.41	0.12	0.01	0.01	
NEUBERGER BERMAN HIGH YIELD	549,193,811	1.1	-0.14	1.05	2.91	8.86	8.86	3.61	6.17	6.23	6.23	10/01/10
NB 80% BC US Corp HY; 20% S&P LSTA Leveraged ^[33]			0.10	1.89	4.32	11.63	11.63	4.88	5.85	6.32	6.32	10/01/10
Excess			-0.24	-0.84	-1.41	-2.77	-2.77	-1.27	0.32	-0.08	-0.08	
MACKAY SHIELDS HIGH YIELD	464,745,611	0.9	0.25	2.14	4.37	10.80	10.80	3.32	4.66	4.66	4.66	09/01/13
Mackay 80% BC US Corp HY; 20% S&P LSTA Leveraged ^[34]			0.10	1.89	4.32	11.63	11.63	5.67	6.42	6.42	6.42	09/01/13
Excess			0.15	0.25	0.05	-0.83	-0.83	-2.35	-1.75	-1.75	-1.75	
CREDIT/DEBT TRANSITION ACCOUNT	0	0.0										02/01/09

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SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
CREDIT/DEBT TERRA MARIA ⁽²⁵⁾	0	0.0										01/01/10
HIGH YIELD/BANK LOAN EX OVERLAY	1,493,814,425	3.0	-0.02	1.23	2.82	8.50	8.50				6.28	11/01/15
HIGH YIELD CUSTOM BENCHMARK ⁽³⁵⁾			0.10	1.89	4.32	11.63	11.63				9.19	11/01/15
<i>Excess</i>			-0.12	-0.66	-1.50	-3.13	-3.13				-2.91	
TOTAL DISTRESSED DEBT	798,230,817	1.6	0.91	5.75	10.00	18.40	18.40	8.05	12.49		9.68	01/01/10
TOTAL MEZZANINE DEBT	514,706,805	1.0	0.55	4.93	9.00	15.72	15.72	8.51	9.61		8.53	01/01/10
PERELLA WEINBERG	96,390,242	0.2	0.00	-3.73	-7.07	-10.94	-10.94	-2.12	4.04		5.93	07/01/10
HFRI ED: Distressed/Restructuring Index			0.27	0.68	3.28	14.94	14.94	0.74	5.72		5.24	07/01/10
<i>Excess</i>			-0.27	-4.41	-10.35	-25.88	-25.88	-2.86	-1.68		0.69	
ANCHORAGE CAPITAL GROUP	170,057,800	0.3	-1.23	-0.75	2.59	6.23	6.23	2.20	8.78		8.52	11/01/11
HFRI ED: Distressed/Restructuring Index			0.27	0.68	3.28	14.94	14.94	0.74	5.72		5.49	11/01/11
<i>Excess</i>			-1.50	-1.43	-0.69	-8.71	-8.71	1.46	3.06		3.03	
KING STREET CAPITAL	150,962,219	0.3	0.65	1.86	2.94	5.92	5.92	1.77	5.75		5.76	12/01/11
HFRI ED: Distressed/Restructuring Index			0.27	0.68	3.28	14.94	14.94	0.74	5.72		5.71	12/01/11
<i>Excess</i>			0.38	1.18	-0.34	-9.02	-9.02	1.03	0.04		0.05	
TOTAL CREDIT HEDGE FUND	417,410,261	0.9	-0.27	-0.54	0.23	1.38	1.38	0.95	5.85		6.73	07/01/10
HFRI ED: Distressed/Restructuring Index			0.27	0.68	3.28	14.94	14.94	0.74	5.72		5.24	07/01/10
<i>Excess</i>			-0.54	-1.22	-3.05	-13.56	-13.56	0.21	0.13		1.49	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
US CREDIT EX OVERLAY	3,224,162,308	6.6	0.26	2.73	5.30	11.15	11.15	4.71	8.20	9.98	9.98	03/01/09
U.S. CREDIT CUSTOM BENCHMARK ^[35]			0.10	1.89	4.32	11.63	11.63	4.60	5.74	9.38	9.38	03/01/09
Excess			0.17	0.84	0.98	-0.47	-0.47	0.10	2.46	0.60	0.60	
NON US CREDIT												
SSGA EMERGING MARKET DEBT	276,544,329	0.6	0.34	3.42	9.99	5.78	5.78	-3.33	-1.40	-0.19	-0.19	10/01/10
JP Morgan GBI EM Global Diversified (H)			0.46	3.62	10.36	6.41	6.41	-2.80	-0.67	0.18	0.18	10/01/10
Excess			-0.11	-0.20	-0.37	-0.64	-0.64	-0.52	-0.73	-0.38	-0.38	
SSGA EMERGING MARKET HARD CURRENCY BOND	230,765,311	0.5	-0.03	1.97	5.44	6.17	6.17			9.97	9.97	01/01/16
SSgA Emerging Market Blended Benchmark ^[37]			0.02	1.95	5.53	6.51	6.51			10.81	10.81	01/01/16
Excess			-0.04	0.02	-0.08	-0.34	-0.34			-0.84	-0.84	
STONE HARBOR BLENDED EMD ^[38]	614,822,652	1.3	0.09	2.60	8.64	7.09	7.09	-3.90		-2.43	-2.43	10/01/13
NON-U.S. CREDIT CUSTOM BENCHMARK ^[39]			0.24	2.79	7.92	6.50	6.50	-2.97		-1.26	-1.26	10/01/13
Excess			-0.15	-0.19	0.71	0.58	0.58	-0.93		-1.16	-1.16	
LOGAN CIRCLE PARTNERS BLENDED EMD	336,300,000	0.7	0.36	2.75	9.05	10.23	10.23			10.23	10.23	07/01/16
NON-U.S. CREDIT CUSTOM BENCHMARK ^[39]			0.24	2.79	7.92	6.50	6.50			6.50	6.50	07/01/16
Excess			0.12	-0.04	1.12	3.72	3.72			3.72	3.72	
NON US CREDIT EX OVERLAY	1,458,432,292	3.0	0.18	2.67	8.42	7.41	7.41	-3.76	-1.83	-0.51	-0.51	10/01/10
NON-U.S. CREDIT CUSTOM BENCHMARK ^[39]			0.24	2.79	7.92	6.50	6.50	-2.97	-0.77	0.11	0.11	10/01/10
Excess			-0.06	-0.12	0.49	0.91	0.91	-0.79	-1.05	-0.62	-0.62	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL CREDIT/DEBT STRATEGIES EX OVERLAY	4,682,594,600	9.5	0.24	2.71	6.28	9.99	9.99	3.70	7.13	10.11	10.11	03/01/09
MSRA CUSTOM CREDIT BENCHMARK ⁽⁴⁰⁾			0.15	2.19	5.51	9.93	9.93	3.05	4.58	8.65	8.65	03/01/09
Excess			0.09	0.52	0.77	0.06	0.06	0.65	2.55	1.45	1.45	

REAL ASSETS

REAL ESTATE

SSGA GLOBAL REAL ESTATE	212,876,999	0.4	0.82	2.91	5.27	0.99	0.99	4.46		5.69	5.69	05/01/14
FTSE EPRA/NAREIT Developed Net Index			0.74	2.71	4.84	0.21	0.21	3.67		4.91	4.91	05/01/14
Excess			0.08	0.20	0.43	0.78	0.78	0.79		0.78	0.78	

MORGAN STANLEY GLOBAL REIT

FTSE EPRA/NAREIT Developed Net Index

MORGAN STANLEY GLOBAL REIT	454,083,146	0.9	0.86	2.00	3.94	1.56	1.56	3.57		4.96	4.96	05/01/14
FTSE EPRA/NAREIT Developed Net Index			0.74	2.71	4.84	0.21	0.21	3.67		4.91	4.91	05/01/14
Excess			0.12	-0.72	-0.90	1.35	1.35	-0.10		0.05	0.05	

TOTAL REITS EX RECORD CURRENCY

CUSTOM MD REIT BM ⁽⁴¹⁾

TOTAL REITS EX RECORD CURRENCY	666,973,682	1.4	0.85	2.29	4.36	1.37	1.37	3.87	7.66	2.61	2.61	04/01/94
CUSTOM MD REIT BM ⁽⁴¹⁾			0.74	2.71	4.84	0.21	0.21	3.67	7.57	2.48	2.48	04/01/94
Excess			0.10	-0.43	-0.48	1.16	1.16	0.20	0.09	0.14	0.14	

RECORD CURRENCY MANAGEMENT-REITS

RECORD CURRENCY MANAGEMENT-REITS	-1,363,951	-0.0										07/01/11
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TOTAL REITS EX OVERLAY

CUSTOM MD REIT BM ⁽⁴¹⁾

TOTAL REITS EX OVERLAY	665,609,730	1.4	0.78	1.99	3.36	1.23	1.23	4.36	8.14	2.84	2.84	04/01/94
CUSTOM MD REIT BM ⁽⁴¹⁾			0.74	2.71	4.84	0.21	0.21	3.67	7.57	2.48	2.48	04/01/94
Excess			0.04	-0.73	-1.48	1.02	1.02	0.69	0.58	0.36	0.36	

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SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL PRIVATE REAL ESTATE	3,273,794,645	6.7	1.23	3.22	5.27	8.44	8.44	11.47	11.91	5.31	9.28	03/01/94
CUSTOM MD PRIVATE REAL ESTATE BM ^[42]			-0.18	1.77	3.93	8.34	8.34	11.79	11.93	7.31	9.74	03/01/94
<i>Excess</i>			1.41	1.44	1.34	0.10	0.10	-0.32	-0.02	-2.00	-0.46	
MSIM Cus FTSE EPRA NAREIT Dev ex US(Net) ^[43]			0.74	2.70	4.82	0.20	0.20	3.67	8.41	1.01		11/01/06
WILSHIRE RESI			2.12	1.91	2.42	-1.23	-1.23	8.82	9.70	5.70		01/01/78

TOTAL REAL ESTATE	3,939,404,375	8.0	1.16	3.00	4.94	7.19	7.19	10.13	11.41	4.70	6.82	07/01/87
REAL ESTATE CUSTOM INDEX ^[44]			-0.04	1.91	4.07	7.16	7.16	10.23	11.27	5.94	8.25	07/01/87
<i>Excess</i>			1.20	1.09	0.87	0.03	0.03	-0.10	0.14	-1.24	-1.43	

COMMODITIES

GRESHAM INVESTMENT MGMT, LLC	339,628,169	0.7	-0.00	-2.19	-3.81	-4.67	-4.67	-13.58	-8.68	-3.66	-3.66	09/01/09
Bloomberg Commodity Index TR			-0.19	-3.00	-5.26	-6.50	-6.50	-14.81	-9.25	-5.08	-5.08	09/01/09
<i>Excess</i>			0.19	0.81	1.45	1.83	1.83	1.23	0.57	1.42	1.42	

CCM DIVERSIFIED I	405,975,740	0.8	-0.12	-3.17	-5.26	-6.50	-6.50	-14.71	-9.52	-9.52	-9.52	07/01/13
Bloomberg Commodity Index TR			-0.19	-3.00	-5.26	-6.50	-6.50	-14.81	-9.56	-9.56	-9.56	07/01/13
<i>Excess</i>			0.07	-0.17	0.00	-0.01	-0.01	0.10	0.03	0.03	0.03	

EDESIA DYNAMIC AGRICULTURE FUND	23,431,975	0.0	3.65	-0.46	-2.04	-11.94	-11.94	-7.90	-8.54	-8.54	-8.54	01/01/13
Bloomberg Agriculture Sub-Index TR			3.08	-0.40	-3.36	-13.05	-13.05	-10.34	-9.20	-9.20	-9.20	01/01/13
<i>Excess</i>			0.57	-0.06	1.32	1.10	1.10	2.45	0.66	0.66	0.66	

COMMODITY ACTIVE INDEX MANAGER	769,035,884	1.6	0.04	-2.66	-4.53	-7.35	-7.35	-16.13	-10.41	-5.36	-5.36	09/01/09
Bloomberg Commodity Index TR			-0.19	-3.00	-5.26	-6.50	-6.50	-14.81	-9.25	-5.08	-5.08	09/01/09
<i>Excess</i>			0.24	0.35	0.73	-0.85	-0.85	-1.32	-1.16	-0.28	-0.28	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
ASTENBECK COMMODITIES FUND III	73,538,916	0.1	-10.12	-20.95	-29.72	-26.56	-26.56	-18.82			-9.63	09/01/12
HFRX Macro: Commodity-Index			1.08	-0.58	-1.67	-4.76	-4.76	-2.13			-2.75	09/01/12
Excess			-11.21	-20.37	-28.06	-21.80	-21.80	-16.69			-6.88	
KOPPENBERG MACRO COMMODITY FUND LP	117,373,816	0.2	-2.74	-4.78	-0.99	3.19	3.19	5.28			4.34	10/01/12
HFRX Macro: Commodity-Index			1.08	-0.58	-1.67	-4.76	-4.76	-2.13			-2.59	10/01/12
Excess			-3.82	-4.20	0.68	7.94	7.94	7.40			6.92	
MADAVA ENERGY COMMODITY	115,821,000	0.2	-0.07	-1.01	-2.39	-7.37	-7.37	4.89			4.65	06/01/13
HFRX Macro: Commodity-Index			1.08	-0.58	-1.67	-4.76	-4.76	-2.13			-2.44	06/01/13
Excess			-1.15	-0.42	-0.72	-2.61	-2.61	7.02			7.08	
COMMODITY HEDGE FUND	306,733,732	0.6	-3.66	-7.97	-10.27	-9.49	-9.49	-3.24	-1.07		-1.73	12/01/09
Bloomberg Commodity Index TR			-0.19	-3.00	-5.26	-6.50	-6.50	-14.81	-9.25		-6.27	12/01/09
Excess			-3.47	-4.97	-5.01	-3.00	-3.00	11.56	8.18		4.54	
TOTAL COMMODITIES EX OVERLAY	1,075,769,616	2.2	-1.04	-4.23	-6.24	-8.01	-8.01	-12.91	-7.88		-4.05	09/01/09
Bloomberg Commodity Index TR			-0.19	-3.00	-5.26	-6.50	-6.50	-14.81	-9.25		-5.08	09/01/09
Excess			-0.85	-1.23	-0.98	-1.51	-1.51	1.90	1.37		1.03	
Commodity Structural	6,225,288	0.0										01/01/17
TOTAL COMMODITY OVERLAY	6,225,288	0.0										01/01/17
TOTAL COMMODITIES	1,081,994,904	2.2	-1.05	-4.35	-6.44	-8.22	-8.22	-12.97	-7.92		-4.07	09/01/09

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SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
NATURAL RESOURCE AND INFRASTRUCTURE												
TORTOISE CAPITAL DOMESTIC EQ	79,760,992	0.2	0.43	-5.60	-0.85	4.37	4.37	-8.63	7.28		13.02	08/01/09
S&P MLP Total Return Index			-0.24	-6.38	-2.92	3.23	3.23	-11.25	2.48		9.53	08/01/09
Excess			0.66	0.78	2.07	1.14	1.14	2.62	4.80		3.49	
HARVEST FUND ADVISORS												
S&P MLP Total Return Index	74,984,526	0.2	-0.48	-7.27	-3.20	2.80	2.80	-8.02	7.44		14.29	11/01/09
Excess			-0.24	-6.38	-2.92	3.23	3.23	-11.25	2.48		9.30	11/01/09
			-0.24	-0.89	-0.27	-0.43	-0.43	3.23	4.96		4.99	
TOTAL ENERGY FUNDS												
	491,639,857	1.0	0.01	4.42	7.50	25.27	25.27	-2.21	3.07		7.13	01/01/10
TOTAL INFRASTRUCTURE												
	40,613,678	0.1	0.00	0.95	-3.05	-4.02	-4.02	7.31	5.91		4.76	10/01/09
TIMBER LP FUNDS												
	222,993,530	0.5	0.01	0.28	1.84	3.21	3.21	2.63	3.95		7.51	05/01/10
NATURAL RESOURCE AND INFRASTRUCTURE												
	909,992,583	1.9	0.01	1.18	3.70	12.87	12.87	-1.59	5.03		10.76	08/01/09
NATURAL RESOURCE AND INFRASTRUCTURE BM ⁽⁴⁶⁾			-0.08	-0.06	3.94	13.35	13.35	8.12	7.67		7.45	08/01/09
Excess			0.09	1.24	-0.24	-0.49	-0.49	-9.70	-2.63		3.31	
TOTAL REAL ASSETS EX OVERLAY												
	5,925,166,574	12.1	0.57	1.34	2.55	4.73	4.73	-0.79	0.58		4.25	02/01/06
CUSTOM REAL ASSETS BENCHMARK ⁽⁴⁶⁾			-0.08	0.68	2.22	5.12	5.12	-0.33	0.20		3.09	02/01/06
Excess			0.65	0.66	0.33	-0.39	-0.39	-0.46	0.39		1.16	0.97
TOTAL REAL ASSETS OVERLAY												
	6,225,288	0.0										01/01/17
TOTAL REAL ASSETS												
	5,931,391,862	12.1	0.57	1.31	2.49	4.67	4.67	-0.81	0.57		4.24	02/01/06

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	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
ABSOLUTE RETURN												
PINE RIVER GARRISON	150,000,000	0.3										06/01/17
EVENT DRIVEN STRATEGIES	150,000,000	0.3										06/01/17
BRIDGEWATER PURE ALPHA	624,939,696	1.3	-0.43	-3.89	-2.68	9.60	9.60	1.17	3.55		5.05	05/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14		1.24	05/01/08
<i>Excess</i>			-0.31	-4.47	-4.73	3.44	3.44	-0.83	-0.60		3.82	
GRAHAM TACTICAL TREND	308,032,747	0.6	-4.49	-2.85	-3.19	-14.24	-14.24				-7.80	07/01/15
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				1.64	07/01/15
<i>Excess</i>			-4.36	-3.43	-5.24	-20.40	-20.40				-9.44	
GLOBAL MACRO/GTAA STRATEGIES	932,972,443	1.9	-1.81	-3.93	-3.16	-0.43	-0.43	-1.38	0.12		2.09	04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14		1.28	04/01/08
<i>Excess</i>			-1.68	-4.52	-5.21	-6.59	-6.59	-3.37	-4.02		0.81	
NEPHILA PALMETTO FUND	224,268,725	0.5	0.15	0.60	0.79	2.64	2.64	4.73			4.45	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.32	01/01/14
<i>Excess</i>			0.27	0.02	-1.27	-3.52	-3.52	2.73			2.13	
NIMBUS WEATHER FUND LTD	49,822,350	0.1	-0.36								-0.36	06/01/17
HFR1 Fund of Funds Composite Index			-0.11								-0.11	06/01/17
<i>Excess</i>			-0.24								-0.24	

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SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
OPPORTUNISTIC	274,091,075	0.6	0.05	0.48	0.67	2.52	2.52	4.69			4.42	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.32	01/01/14
Excess			0.18	-0.10	-1.39	-3.64	-3.64	2.69			2.09	
CARLSON DOUBLE BLACK DIAMOND	388,110,100	0.8	0.94	0.16	-0.88	5.81	5.81	2.34			3.38	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.32	01/01/14
Excess			1.07	-0.42	-2.94	-0.35	-0.35	0.34			1.06	
PINE RIVER FUND	87,644,559	0.2	-2.22	-0.68	0.69	3.97	3.97	0.46			0.15	04/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.32	04/01/14
Excess			-2.09	-1.27	-1.37	-2.19	-2.19	-1.54			-2.18	
HUTCHIN HILL DIVERSIFIED ALPHA	355,660,200	0.7	-1.11	-1.75	-1.30	3.17	3.17	0.67			0.85	05/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.59	05/01/14
Excess			-0.98	-2.34	-3.36	-2.99	-2.99	-1.32			-1.74	
HUDSON BAY FUND	309,058,800	0.6	0.09	0.88	2.57	5.76	5.76				0.96	10/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				2.09	10/01/14
Excess			0.21	0.30	0.52	-0.40	-0.40				-1.13	
ARISTEIA CAPITAL	319,749,900	0.7	-0.29	0.91	2.75	10.86	10.86				3.01	12/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				2.29	12/01/14
Excess			-0.17	0.32	0.69	4.70	4.70				0.72	
ARISTEIA CO-INVEST	14,059,965	0.0	-4.48	-6.04	-4.97	-9.49	-9.49				-4.73	03/01/16
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				5.38	03/01/16
Excess			-4.36	-6.63	-7.02	-15.65	-15.65				-10.12	

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	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
GARDA FIRVO	218,000,000	0.4	1.21	1.82	3.96	8.64	8.64				7.14	04/01/16
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				5.55	04/01/16
<i>Excess</i>			1.33	1.24	1.90	2.48	2.48				1.59	
INVESTCORP DYNAMIC ALT BETA	108,895,275	0.2	-1.70	-2.94	-3.73	-8.79	-8.79				-8.79	07/01/16
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16				6.16	07/01/16
<i>Excess</i>			-1.58	-3.53	-5.79	-14.95	-14.95				-14.95	
RELATIVE VALUE STRATEGIES	1,801,178,799	3.7	-0.17	-0.16	0.70	4.64	4.64	1.13			1.91	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00			2.32	01/01/14
<i>Excess</i>			-0.04	-0.74	-1.36	-1.52	-1.52	-0.87			-0.41	
BRIDGEWATER ALL WEATHER	343,770,931	0.7	-1.02	0.71	3.81	5.37	5.37	1.56	3.40		8.45	07/01/09
CUSTOM BRIDGEWATER BENCHMARK ⁽⁴⁸⁾			-0.13	0.58	2.06	6.16	6.16	2.00	3.80		5.93	07/01/09
<i>Excess</i>			-0.89	0.13	1.76	-0.79	-0.79	-0.44	-0.40		2.52	
DGAM DIVERSIFIED STRATEGIES FUND	2,961,727	0.0	0.00	-0.00	-2.58	-12.62	-12.62	-3.51	0.40		0.86	01/01/11
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14		2.40	01/01/11
<i>Excess</i>			0.13	-0.58	-4.64	-18.78	-18.78	-5.51	-3.75		-1.54	
ROCK CREEK POTOMAC FUND LTD	22,872,691	0.0	1.54	0.48	5.55	16.41	16.41	3.77	6.62		5.11	02/01/10
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14		2.92	02/01/10
<i>Excess</i>			1.67	-0.10	3.49	10.25	10.25	1.77	2.47		2.19	
MULTI ASSET	369,605,348	0.8	-0.85	0.67	3.92	5.78	5.78	2.00	4.19		4.24	02/01/10
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14		2.92	02/01/10
<i>Excess</i>			-0.73	0.09	1.86	-0.38	-0.38	0.00	0.04		1.33	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL ABSOLUTE RETURN	3,527,847,666	7.2	-0.67	-1.01	0.06	3.31	3.31	0.31	2.34	3.22	3.22	04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.13	0.58	2.06	6.16	6.16	2.00	4.14	1.28	1.28	04/01/08
Excess			-0.55	-1.59	-1.99	-2.85	-2.85	-1.68	-1.80	1.94	1.94	
CASH												
MARYLAND MONEY MARKET ACCOUNT	261,957,044	0.5	0.08	0.23	0.40	0.68	0.68	0.36	0.24	0.20	0.20	01/01/11
CITIGROUP 3 MONTH T-BILL			0.07	0.18	0.30	0.46	0.46	0.20	0.15	0.13	0.13	01/01/11
Excess			0.01	0.05	0.10	0.23	0.23	0.16	0.09	0.07	0.07	
SELF LIQUIDATING ACCOUNT												
CITIGROUP 3 MONTH T-BILL	79,935	0.0	36.70	20.70	14.30	9.05	9.05	22.77	22.89	25.67	25.67	06/01/84
Excess			0.07	0.18	0.30	0.46	0.46	0.20	0.15	0.51	0.51	06/01/84
	36.63	20.51	14.00	8.59	22.56	22.74	25.16					
TOTAL CASH AGGREGATE												
CITIGROUP 3 MONTH T-BILL	271,837,457	0.6	0.58	0.87	1.35	3.56	3.56	2.68	2.06	2.77	2.77	07/01/08
Excess			0.07	0.18	0.30	0.46	0.46	0.20	0.15	0.20	0.20	07/01/08
	0.50	0.69	1.04	3.10	2.47	1.92	2.56					
BLACKROCK CASH EQUITIZATION												
CITIGROUP 3 MONTH T-BILL	313,049,076	0.6	0.82	3.00	6.98					12.27	12.27	12/01/16
Excess			0.07	0.18	0.30					0.33	0.33	12/01/16
	0.75	2.82	6.67	11.93								
TOTAL CASH AND EQUITIZATION												
CITIGROUP 3 MONTH T-BILL	584,886,533	1.2	0.46	1.06	2.44	5.11	5.11	3.19	2.37	2.94	2.94	07/01/08
Excess			0.07	0.18	0.30	0.46	0.46	0.20	0.15	0.20	0.20	07/01/08
	0.39	0.88	2.13	4.65	2.22	2.73						

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	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL PLAN	49,097,846,204	100.0	0.43	3.29	7.52	10.02	10.02	4.55	7.64	4.15	8.07	07/01/86
TOTAL PLAN POLICY INDEX ⁽⁴⁹⁾			0.14	2.94	6.93	9.88	9.88	4.06	6.89	3.75		07/01/86
<i>Excess</i>			0.29	0.35	0.59	0.15	0.15	0.49	0.75	0.41		
TOTAL PLAN CUSTOM STATIC INDEX ⁽⁵⁰⁾			0.14	2.91	6.91	10.03	10.03	4.29	6.99			07/01/08



ENDNOTES

- [1] Since 12/01/2016: 100% Russell 1000
From 04/01/2013 to 11/30/2016: 100% Russell 3000
- [2] Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
- [3] Since 11/01/2008: Benchmark is dynamically calculated using Average Balance (BMV+ Weighted Net Cash Flows) weights of the underlying portfolios and their corresponding indices. From 09/01/2008 - 10/31/2008: Benchmark was dynamically calculated based on the beginning weights of the underlying portfolios and their corresponding indices. From 05/01/2008 - 08/31/2008: 11.1% S&P 500; 13.3% Russell 1000 Value; 33.3% Russell 1000 Growth; 16.7% Russell Mid Cap Growth; 10.9% S&P 500; 13.1% Russell 1000 Value; 33.3% Russell 1000 Growth; 17.2% Russell Mid Cap Growth; 25.6% Russell 2000 Value Prior to 11/01/2007: 11% S&P 500; 13.1% Russell 1000 Value; 32% Russell 1000 Growth; 16.5% Russell Mid Cap Growth; 27.4% Russell 2000 Value
- [4] Since 07/01/2008: 100% Russell 3000
From 01/01/2005 to 6/30/2008: 100% Dow Jones Wilshire 5000
Prior to 01/01/2005: 100% Russell 3000
- [5] Since 09/01/2009: 100% MSCIEAFE + CANADA (NET)
From 01/01/2005 to 08/31/2009: 100% MSCIAWORLD ex US (NET)
From 05/01/2003 to 12/31/2004: 100% MSCIEAFE (NET)
- [6] From 11/01/2003: 100% of MSCIAWORLD ex US (NET)
From 07/01/2012: 100% of MSCIAWORLD EX US (NET)
- [7] Since 04/01/2016: 100% MSCIAWORLD EX US (NET).
From 01/01/2013 to 03/31/2016: 100% MSCIAWORLD ex US Net.
- [8] Since 06/01/2016: 100% MSCIAWORLD Ex US IMI Net
From 12/01/2008 to 05/31/2016: 100% MSCIAWORLD ex US IMI Net
- [9] From 03/01/2006 to 06/30/2012: 100% MSCIEAFE SMALL CAP(G)
Since 07/01/2012: 100% MSCIAWORLD EX US SMALL CAP (NET)
- [10] Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.
- [11] Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks. Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.
- [12] Since 11/01/2008: Benchmark is dynamically calculated using Average Balance (BMV+ Weighted Net Cash Flows) weights. Prior to 11/01/2008: 100% MSCI EAFE (net).
Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.
- [13] Since 11/01/2015: 100% MSCIAWORLD EX US (NET)
From 07/01/2010 to 10/31/2015: 100% MSCIAWORLD ex US (NET)
From 07/01/2009 to 06/30/2010: 100% MSCIAWORLD ex U.S.
From 01/01/2003 to 06/30/2009: 100% MSCIAWORLD ex U.S. IMI Net
Prior to 01/01/2003: 100% MSCIAWORLD ex U.S.
- [14] Since 07/01/2010: 100% MSCIAWORLD NET
From 07/01/2009 to 06/30/2010: 100% MSCIAWORLD NET
Prior to 07/01/2009: 100% MSCIAWORLD NET

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ENDNOTES

[15] Since 07/01/2016: Weighted off Transitional Targets: 44.445% Russell 3000, 33.333% MSCI World ex. U.S. (Net), 22.222% MSCI EM
From 01/01/2016 to 06/30/2016: Weighted off Transitional Targets: 45.946% Russell 3000, 37.838% MSCI World ex. U.S. (Net), 16.216% MSCI EM
From 11/01/2015 to 12/31/2015: Weighted off Transitional Targets: 47.369% Russell 3000, 42.105% MSCI World ex. U.S. (Net), 10.526% MSCI EM
Prior to 11/01/2015: Benchmark is dynamically calculated using the weights of the US Equity, International Equity, and Global Equity aggregates and the corresponding asset class benchmarks

[16] The Private Equity benchmark is the State Street Private Equity Index (1 quarter lag). However, in non-quarter end months, the actual Private Equity return will be applied. In the third month of the quarter, the return will be calculated so that when geometrically linked with months 1 and 2, the three month return equals the published SS PEI (1 quarter lag).

[17] Benchmark is a dynamic blend of the Public Equity Benchmark and the State Street Private Equity Index based off of sub-asset class weights used in the policy benchmark.

[18] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
Prior 07/01/2013: 100% Barclays Aggregate Bond

[19] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index

[20] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
07/01/2009 to 06/30/2013: 100% Barclays Aggregate Bond
11/01/2003 to 06/30/2009: 100% Barclays US Universal Index
Prior to 11/01/2003: 100% Citigroup BIG

4 [21] Since 10/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
07/01/2013 to 09/30/2015: 100% Barclays US Intermediate Aggregate Index
07/01/2009 to 06/30/2013: 100% Barclays Aggregate Bond Index
Prior to 07/01/2009: 100% Barclays US Universal Index

[22] Since 12/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 11/30/2015: 100% Barclays US Intermediate Aggregate Index
From 07/01/2009 to 06/30/2013: 100% BC Aggregate Prior to 07/01/2009: 100% BC U.S. Universal Index

[23] Since 12/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 11/31/2015: 100% Barclays US Intermediate Aggregate Index
Prior 07/01/2013: 100% Barclays Aggregate Bond

[24] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal

[25] As of 01/01/2010 all high yield and convertible managers were moved out of the Fixed Income asset class and into the Credit/Debt asset class. Historical returns for high yield and convertible managers remain in Fixed Income composite.

[26] Benchmark is dynamically calculated based on the Average Balance (BMV + Weighted Net Cash Flows) weights of the underlying portfolios and their corresponding indices

[27] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
Prior 07/01/2013: 100% Barclays Aggregate Bond

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ENDNOTES

- [28] Since 07/01/2013: 100% BC Global Aggregate 1-10 Year Hedged Index
From 07/01/2010 to 06/30/2013: 100% BC Global Aggregate Hedged
Prior to 07/01/2010: 100% BC Global Aggregate Unhedged
- [29] As of 12/01/2012: 100% of Barclays US TIPS Index, B Series
From 02/01/2006 to 11/30/2012: 100% of Barclays Global Inflation Linked:US TIPS, L Series
- [30] Since 11/01/2015: 100% Barclays US TIPS Index
From 12/01/2012 to 10/31/2015: 50% Barclays Global Inflation Linked:US TIPS; 50% Barclays World Inflat-Linked Bond Index
Prior to 11/30/2012: 65% Barclays Global Inflation Linked:US TIPS; 35% Barclays World Inflat-Linked Bond Index
- [31] Since 07/01/2016: 48% Barclays Long-Term Government, 14% Barclays Securitized, 14% Barclays Corporate, 24% Barclays U.S. TIPS
From 11/01/2015 to 06/30/2016: 50% Barclays Long-Term Government, 15% Barclays Securitized, 15% Barclays Corporate, 20% Barclays U.S. TIPS
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal.
Formerly named "Custom Fixed Income Benchmark" prior to 11/01/2015.
- [32] Since 11/01/2015: 100% S&P/LSTA Leveraged Loan Index
From 09/01/2010 to 10/31/2015: 50% S&P/LSTA & 50% B of A ML High Yield Master II
- [33] Since 11/01/2015: 80% BC US Corp HY, 20% S&P LSTA Leveraged
From 10/01/2010 to 10/31/2015: 50% BC CREDIT & 50% BC HIGH YIELD
- [34] Since 11/01/2015: 80% BC US Corp HY, 20% S&P LSTA Leveraged
From 09/01/2013 to 10/31/2015: Barclays Credit
- [35] 80% Barclays US High Yield, 20% S&P/LSTA Leveraged Loan
- [36] Since 11/01/2015: 80% Barclays US High Yield, 20% S&P/LSTA Leveraged Loan.
From 07/01/2013 to 10/31/2015: 62.5% Barclays US High Yield, 25% Barclays Credit, 12.5% S&P/LSTA Leveraged Loan.
From 01/01/2010 to 06/30/2013: 50% Barclays Credit, 50% Barclays Corp High Yield.
From 03/01/2009 to 12/31/2009: 75% Barclays Credit, 25% Barclays Corp High Yield.
- [37] 50% JPM EMBI GLOBAL DIVERSIFIED INDEX / 50% JPM CEMBI BROAD
- [38] Historical data prior to 02/01/2016 is M4ID Stone Harbor Emerging Market Debt.
- [39] Since 11/01/2015: 50% JP Morgan GBI EM Global Diversified, 25% JP Morgan EMBI Global Diversified, 25% JPMorgan CEMBI Broad.
Prior to 11/01/2015: 100% JP Morgan GBI EM Global Diversified.
- [40] Since 01/01/2016: 67% US Credit Benchmark, 33% non-U.S Credit Benchmark.
From 11/01/2015 to 12/31/2015: 75% US Credit Benchmark, 25% non-U.S Credit Benchmark.
From 07/01/2013 to 10/31/2015: 50% BC High Yield / 20% BC Credit / 20% JP Morgan GBI EM Global Diversified / 10% S&P/LSTA Leveraged Loan Index
From 01/01/2010 to 06/30/2013: 50% BC Credit / 50% BC High Yield
Prior to 01/01/2010: 75% BC Credit / 25% BC High Yield

ENDNOTES

- [41] From 11/01/2006: Benchmark is dynamically calculated using BMV weights of the underlying portfolios and their benchmarks.
From 04/01/1994: 100% of LaSalle REIT Benchmark
- [42] The Private Real Estate benchmark is the NCREIF ODCE (1 quarter lag) since 07/01/2013. However, in non-quarter end months, the actual Maryland Private Real Estate return will be applied. In the third month of the quarter, the return will be calculated so that when geometrically linked with months 1 and 2, the three month return equals the published NCREIF ODCE (1 quarter lag).
Prior 07/01/2013, the Private Real Estate benchmark is the NCREIF PROPERTY INDEX QTR LAG.
- [43] Since 11/2007 benchmark is 100% FTSE EPRA NAREIT Developed Ex US (Net) index. Prior to 11/2007, the net version of the index was calculated by and provided to State Street by MSIM
- [44] Since 07/01/2016, a static blend of 85% NCREIF ODCE (one qtr lag) and 15% FTSE EPRA/NAREIT Developed Net Index.
Prior to 07/01/2016, a dynamic blend of the NCREIF ODCE (one qtr lag), and the FTSE EPRA/NAREIT Developed Net Index.
Prior to 05/01/2014, a dynamic blend of the Wilshire RESI, NCREIF ODCE (one qtr lag), and the MSIM Custom EPRA/NAREIT Global ex US
Prior to 07/01/2013, a dynamic blend of the Wilshire RESI, NCREIF Property (one qtr lag), and the MSIM Custom EPRA/NAREIT Global ex US
Prior to 07/01/2008: 50% Wilshire RESI & 50% NCREIF Property (one qtr lag)
- [45] Since 07/01/2016: 75% S&P Global Natural Resources Index; 25% DJ Brookfield Global Infra Comp.
From 11/01/2015 to 06/30/2016: 100% of CPI + 5%; 10% Max.
From 08/01/2009 to 10/31/2015: 100% of CPI + 5%; 8% Max.
- [46] Since 11/01/2015: Benchmark is dynamically calculated using the beginning market values of the Real Estate, Commodities and Natural Resource/Infrastructure sub-asset classes and their corresponding benchmarks.
From 12/01/2012 to 10/31/2015: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max , 60% - 50% BC US TIPS Index/50% BC World Inflat-Linked Bond Index
From 07/01/2011 to 11/30/2012: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max , 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
From 07/01/2009 to 06/30/2011: 20% - DJ UBS Commodities Index (Total Return), 20% - CPI + 5%; 8% Max , 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
07/01/2008 to 06/30/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks Prior to 07/01/2008: 100% Barclays US TIPS Index
Prior to 07/01/2008: 100% Barclays US TIPS Index
Formerly named "Custom Real Return Benchmark" prior to 11/01/2015.
- [47] Since 11/01/2015: HFRI Fund of Funds Conservative + 100 bps.
From 07/01/2014 to 10/31/2015: HFRI FOF: Conservative Index.
From 07/01/2008 to 06/30/2014 benchmark was HFRI Fund of Funds index.
Prior to 07/01/2008 benchmark was the Citigroup 3-Month T-bill + 500 bps.
- [48] Since 07/01/2014 Benchmark is 100% of Custom Absolute Return Benchmark.
From 07/01/2011 to 06/30/2014 Benchmark is composed of 100% 3 month T-Bill + 6.5%
From 07/01/2009 to 06/30/2011 Benchmark is composed of 75% Barclays Capital US TIPS , 10% DJ-AIG Commodities Total Return Index and 15% MSCI ACWI.
- [49] Since 07/01/2008: Calculated monthly using transitional weights and asset class benchmarks. Prior to 07/01/2008: MSRA TOTAL PLAN STATIC POLICY.
- [50] Calculated monthly using the strategic target weights and asset class benchmarks.

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