Investment Section

CHIEF INVESTMENT OFFICER'S REPORT

INVESTMENT OVERVIEW

The Maryland State Retirement and Pension System returned 1.16 percent net of fees in fiscal year 2016. After the payment of benefits, the fair value of managed assets decreased by approximately $36 million, from $45.83 billion on June 30, 2015 to $45.47 billion on June 30, 2016. While the fund did not meet the actuarial return target of 7.55 percent, the achieved return is well within the range expected in any given year.

Private markets and nominal fixed income provided the best returns for the year. Private equity and private real estate produced 9.9 percent and 11.6 percent, respectively, while nominal fixed income returned 10.7 percent. At the other end of the spectrum, commodities and natural resources returned -13.6 percent and -12.6%, respectively.

The Board's annual asset allocation study resulted in some meaningful changes in how the assets were invested. The changes were approved in September and were implemented during the course of the fiscal year. The changes reorganized the asset class structure into five broad categories: Growth/Equity, Rate Sensitive, Credit, Real Assets, and Absolute Return.

The growth portfolio is comprised of public equity and private equity. Within public equity, the portions allocated to developed markets were reduced and replaced with a larger focus on emerging markets equities. This change was intended to harness the greater proportion of global growth that is expected to be generated from these economies.

In the rate sensitive category, the allocation was shifted to focus exclusively on U.S. bonds to take advantage of the more attractive interest rates relative to foreign bonds, and to better match the System's liabilities, which are more closely tied to U.S. inflation. Also, the duration of the bonds in this asset class was extended to provide more diversification in a deflationary environment.

The credit asset class was adjusted to remove the exposure to investment-grade corporate bonds to reflect the representation of these bonds in the rate sensitive portfolio. Also, the allocation to emerging market debt was increased to take advantage of the potential higher returns offered by this asset class. The new real assets portfolio combines real estate with commodities, natural resources and infrastructure, while moving inflation protection bonds to the rates sensitive program.

INVESTMENT POLICY AND OBJECTIVES

The Board of Trustees is charged with the responsibility of managing the assets of the System. In doing so, the Board is required to exercise its fiduciary duties solely in the interest of the participants with the care, skill, and diligence that a prudent person would exercise under similar circumstances. This standard of care encourages diversifying investments across various asset classes.

Investment objectives are designed to support the fulfillment of the Board's mission to optimize risk-adjusted returns to ensure that sufficient assets are available to pay benefits to members and beneficiaries when due. As a long-term investor, the Board understands that short-term market returns will fluctuate.

These investment objectives are implemented in accordance with investment policies developed by the Board. The "prudent person standard", as outlined in both the Maryland Annotated Code and the Board's investment policies, allows for the Board to set investment policies and delegate authority to investment professionals employing active and passive strategies. Firms retained generally have a demonstrated performance record and a clearly defined and consistently applied investment process.

The Board manages the assets for the System with the goal of achieving an annualized investment return that over a long-term time frame: (1) meets or exceeds the investment policy benchmark for the System; (2) in nominal terms, equals or exceeds the actuarial investment return assumption adopted by the Board; and (3) in real terms, exceeds the U.S. inflation rate by at least 3 percent. A more detailed discussion of each of these goals follows below.

1. **Meeting or exceeding the Investment Policy Benchmark for the System**. The Investment Policy Benchmark is calculated by using a weighted average of the Board-established benchmarks for each asset class. This benchmark enables the comparison of the actual performance of the System to a passively managed proxy, and provides a measure of the contribution of active management and policy implementation to overall fund returns.

2. **In nominal terms, equaling or exceeding the actuarial investment return assumption of the System.** The Board adopts the

actuarial rate of interest, which was set at 7.55 percent for fiscal year 2016. The actuarial investment return assumption functions as an estimate of the long-term rate of growth of the assets for the System. In adopting an actuarial return assumption, the Board anticipates that the investment portfolio will achieve higher or lower returns each year but will trend toward 7.55% over time.

3. **In real terms, exceeding the U.S. inflation rate by at least 3 percent**. The inflation related objective compares the investment performance against a rate of inflation measured by the Consumer Price Index (CPI) plus 3 percent. The inflation measure provides a link to the liabilities of the System, which have an embedded sensitivity to changes in the inflation rate.

The Board is also responsible for establishing the asset allocation policy for the System. It does this by weighing three liability-oriented objectives when making asset allocation determinations. These objectives include:

1. achieving and maintaining a fully funded pension plan;
2. minimizing contribution volatility year to year; and
3. realizing surplus assets.

Asset allocation policy targets are determined by recognizing that liabilities (future benefit payments to the participants and beneficiaries of the System) must be paid in full and on time. The mix of asset classes is chosen to provide sufficient growth to meet the long term return objective of the System, while providing sufficient diversification to moderate the volatility of that return. For example, a portfolio of equities will likely provide the required return over a long time horizon, but will subject the fair value of the portfolio to unacceptable levels of volatility such that the goals of minimizing contribution volatility and realizing surplus assets would be difficult to achieve. Combining other asset classes with equities will provide differentiated return sources, reduce the volatility of returns and help realize those liability oriented objectives.

The Board's long-term asset class targets and ranges as of June 30, 2016 are shown below.

ASSET CLASS	LONG-TERM POLICY TARGET	RANGE
Growth/Equity	**47%**	**+/-5%**
U.S Equity	16%	
International Developed Equity	12%	
Emerging Markets Equity	8%	
Private Equity	11%	
Rate Sensitive	**21%**	**+/- 5%**
Long-term Government Bonds	10%	
MBS/Corporate Bonds	6%	
TIPS	5%	
Credit	**9%**	**+/- 4%**
High Yield Bonds/Bank Loans	6%	
Emerging Market Debt	3%	
Real Assets	**15%**	**+/- 4%**
Real Estate	10%	
Commodities	3%	
Natural Resources/Infrastructure	2%	
Absolute Return	**8%**	**+/- 4%**
Total Assets	**100%**	

For private market investments in the real estate and private equity asset classes, additional risk reduction may be achieved through temporal diversification, making investments over time to take advantage of varying opportunities. To reflect the desirability of investing over time in accordance with a prudent pacing schedule, transitional allocations are implemented. Assets not yet deployed to private equity are assigned to the public equity transitional target. Assets not yet deployed to real estate are assigned to the rate sensitive transitional target.

INVESTMENT PERFORMANCE

Investment performance is calculated using time-weighted rates of total return. Total return includes interest and dividends, as well as capital appreciation.

The investment program realized a return of 1.2 percent for fiscal year 2016. Annualized returns for the 3-, 5-, 10-, 20- and 25-year periods ending June 30, 2016 were 5.9 percent, 5.7 percent, 4.9 percent, 6.1 percent and 7.2 percent, respectively.

	FY 2016 SRPS Performance	FY 2016 Benchmark Performance	SRPS Exposure June 30, 2016
Public Equity	-4.3%		37.4%
Custom Benchmark		-3.9%	
U.S. Equity	0.6%		7.7%
Russell 3000		2.1%	
International Equity	-11.1%		8.7%
MSCI ACWI ex. U.S.		-10.2%	
MSCI EAFE		-10.2%	
MSCI Emerging Markets		-12.1%	
MSCI World ex U.S.		-9.8%	
Global Equity	-4.0%		12.9%
MSCI AC World		-3.73%	
Emerging Markets Equity	NA		8.1%
MSCI Emerging Markets		-12.1%	
Private Equity	9.9%		9.2%
Custom State Street PE		4.6%	
Rate Sensitive	9.3%		22.7%
Custom Benchmark		10.7%	
BC U.S. Gov't Long Index		19.0%	
BC U.S. TIPS Index		4.6%	
Credit/Debt Strategies	2.2%		9.4%
Custom Benchmark		2.7%	
BC High Yield		1.6%	
S&P LSTA Leveraged Loan		0.9%	
JP Morgan GBI EM GD		2.0%	
JP Morgan EMBI GD		9.8%	
JP Morgan CEMBI Broad		5.6%	
Real Assets	-1.7%		12.7%
Custom Benchmark		0.9%	
NCREIF ODCE		13.7%	
FTSE EPRA NAREIT		11.6%	
Bloomberg Commodities Index		-13.3%	
Absolute Return	-3.0%		8.6%
Custom Benchmark		-2.7%	
TOTAL FUND	**1.2%**	**1.7%**	**100%**

The allocation as of June 30, 2016 reflects the ranges and transitional targets of the System as described in the previous section.

ECONOMIC AND CAPITAL MARKET OVERVIEW

For fiscal year 2016, the System produced its seventh consecutive year of positive performance. Seven years into the recovery, financial markets have slowed to more closely match the pace of global growth. With slower global growth and central banks struggling to generate either inflation or growth, performance among different sectors and geographies has become more varied. This was a year characterized by modest investment returns from a portfolio perspective, but widely varied returns within the underlying investments of the fund. Overall, the assets for the System produced a net return of 1.2%, representing a modest absolute return and lagged the System's policy benchmark of 1.7%.

With returns by asset class ranging from negative thirteen percent to positive nineteen percent, the particular mix of assets was a significant determinant of whether returns

were negative or slightly positive. For example, U.S. stocks as measured by the Russell 3000 index returned positive 2.1% for the year, while the MSCI Emerging Markets Equity Index returned negative 12%. At the same time, U.S. long government bonds as measured by the Barclays Long Government Bond Index returned 19%, while the Bloomberg Commodity Index returned negative 13% for the fiscal year.

Most of the market volatility during fiscal year 2016 can be attributed to commodities. The sharp drop in oil prices that began in 2014 continued through the middle of February 2016, when spot prices for West Texas Intermediate Crude oil fell below $27. This sharp drop in commodity prices had far reaching implications for credit markets and the investment behavior of large investors with oil based budgets. As oil prices fell, investors became concerned about a rise in loan defaults from the energy sector spilling over into the markets more broadly. Many countries reliant on energy exports to fund their budgets found their revenues falling rapidly, and needed to tap into their sovereign wealth funds to fund normal government expenditures. Not only did these large investors no longer have new assets to invest, but they were forced to sell some of their assets regardless of price. These large flows roiled markets through February. As oil prices stabilized, the most impacted markets staged significant recoveries for the rest of the fiscal year. For example, emerging market stocks were down more than 27% for the fiscal year as of January 20, 2016, and then staged a strong rally to finish the fiscal year down 12%. At the end of the year, the Brexit vote caused one last bout of volatility as Britain's vote to leave the European Union surprised markets and was associated with a large drop in the value of the pound.

Monetary policy was also impactful in the midst of these commodity related flows. In December 2015, the Federal Reserve tightened monetary policy by raising rates for the first time since 2006. In the same timeframe, the European Central Bank and Bank of Japan expanded monetary stimulus. The European Central Bank extended the time period of its asset purchases, expanded the eligible assets to include corporate bonds, and lowered the overnight rate even further into negative territory. The Bank of Japan introduced negative interest rates and expanded asset purchases to corporate equity and debt. These divergent monetary policies and their resulting impact on the dollar and emerging market investment flows likely contributed to the Fed's decision to delay its second tightening from March of 2016 to some future date. This pause in the pace of monetary policy tightening was a second signal to markets to rebound for the remainder of the fiscal year.

Fiscal year 2016 saw a continuation of the recent pattern of outperformance of U.S. stocks. For the five-year period ending June 30, 2016, the Russell 3000 index produced nearly 10% more return than the MSCI EAFE index on an annualized basis, and over 15% more than emerging market equities as measured by the MSCI Emerging Markets Index. Asset allocations with a bias to U.S. equities have had a significant return advantage over this time frame.

PUBLIC EQUITIES

As of June 30, 2016, approximately $17 billion of the total assets of the System were invested in public equities, representing 37.4% of total assets. The public equity program has transitioned to a new asset allocation consisting of three components: U.S. equities, international developed equities and emerging markets equities. At the start of the fiscal year, the public equity country mix was similar to the MSCI ACWI Index. However, throughout the year this allocation has increased exposure to emerging markets at the expense of domestic and international developed markets.

The Terra Maria program for the System, which seeks to identify promising smaller or developing management firms, is an integral part of the public equities asset class. As of June 30, 2016, 70% of the Terra Maria program was invested in public equities, with 40 percent in U.S. equities. Each of the managers in the Terra Maria program has an active management mandate. A more detailed discussion of the Terra Maria program follows below.

A. **U.S. Equities**

As of June 30, 2016, approximately $6.7 billion, or 14.8 percent of total assets, were invested in U.S. public equities. Passively and enhanced-passively managed equities totaled $3.2 billion, while actively managed assets outside of the Terra Maria program totaled $2.5 billion and Terra Maria program assets were $990 million, representing 7.05 percent, 5.59 percent, and 2.18 percent of total assets, respectively.

U.S. Equity	$ Millions	% of Total Plan
Passively Managed	**$3,206**	**7.05%**
Actively Managed (exclude T.M.)	**$2,542**	**5.59%**
Terra Maria Program	**$990**	**2.18%**
Total U.S. Equity	**$6,740**	**14.82%**

For fiscal year 2016, U.S. equities returned 0.56 percent, compared to 2.14 percent for its benchmark, the Russell 3000 Index.

B. International Equities

As of June 30, 2016, approximately $6 billion, or 13.4% of total assets, were invested in international equities. Passively managed assets totaled approximately $2.7 billion, while actively managed assets outside of the Terra Maria program totaled approximately $2.7 billion and Terra Maria assets were $0.7 billion, representing 5.9%, 5.9% and 1.6% of total assets, respectively. As more fully described below, in 2009 the System instituted a currency overlay program which is designed to protect the value of some foreign equities in a rising dollar environment.

International Equity	$ Millions	% of Total Plan
Passively Managed	**$2,693.3**	**5.92%**
Actively Managed (exclude T.M.)	**$2,700.4**	**5.94%**
Terra Maria Program	**$761.2**	**1.57%**
Currency Overlay	**-$33.4**	**-0.07%**
Total Global Equity	**$5,063.0**	**11.0%**

For fiscal year 2016, international equities, including the impact of the currency overlay program, returned -11.1% compared to -11.5% for its custom benchmark, a combination of the MSCI All Country World ex-U.S. Index and the MSCI World ex-U.S.

C. Emerging Market Equities

As of June 30, 2016, approximately $4.2 billion, or 9.2% of total assets were invested in emerging market equities. Actively managed long-only assets outside of the Terra Maria program totaled $3.1 billion, Terra Maria assets were $146 million, and passively managed assets were $908 million, representing 6.9%, 0.3%, and 2.0% of total assets, respectively.

Emerging Equity	$ Millions	% of Total Plan
Passively Managed	**$908.4**	**2.0%**
Actively Managed (exclude T.M.)	**$3,137.4**	**6.9%**
Terra Maria Program	**$146.0**	**0.3%**
Total International Equity	**$4,191.9**	**9.2%**

Emerging market equities were not a dedicated part of the asset allocation for the entire fiscal year 2016. However, for the calendar year-to-date, the portfolio returned 6.2% compared to 6.4% for the MSCI Emerging Market Index.

CURRENCY OVERLAY PROGRAM

The currency overlay program was implemented in May of 2009. An objective of the program is to provide insurance against a strengthening dollar, which could negatively impact returns from foreign currency denominated equities. Managers in this program use a systematic currency overlay strategy and generally, do not make fundamental currency valuation assessments. The strategy is also dynamic in that the degree to which currency hedging is applied changes depending on currency market conditions. Managers in this program tend to use low hedge ratios when the dollar is weak and high hedge ratios when the dollar is strong.

During fiscal year 2016, the currency program acted as a drag to returns in the System's foreign equity holdings as the U.S. dollar weakened relative to other currencies. The cost of the currency hedging program during the fiscal year was $47.7 million. While the program produced moderate losses during fiscal year 2016, it has served to reduce volatility and improve the risk/return profile of non-U.S. stocks since its inception.

PRIVATE EQUITY

As of June 30, 2016, private equity totaled $4.2 billion, or 9.2% of total assets. This asset class includes buyouts, growth equity, venture capital, secondaries and funds-of-funds.

In fiscal year 2016, commitments were made to 17 private equity funds, totaling $1.4 billion. Since the inception of the private equity program in fiscal year 2005, $10 billion in commitments have been made to 168 different funds. In fiscal year 2016, the private equity program returned 9.9%, compared to 4.6% for its benchmark, the State Street Private Equity Index.

In fiscal year 2017, the Board expects that exposure to private equity will continue to increase toward its long-term targeted levels as unfunded commitments of $4.5 billion are drawn down by the fund managers. Future commitments will follow a pacing model designed to approach the 11% allocation target for invested assets. This allocation is expected to be maintained with distributions from mature partnerships, providing the funds to invest in new partnerships.

RATE SENSITIVE

As of June 30, 2016, the rate sensitive portfolio represented $9.8 billion, or 21.6% of total assets. This program experienced significant structural changes during the fiscal year as the new asset allocation was implemented. Most notably, the portfolio was transitioned from an intermediate duration positioning to a longer duration structure. This change resulted in considerable value added as rates fell throughout the year. The rate sensitive portfolio returned 9.3% for the year, compared to 10.7% for its blended benchmark: 50% Barclays US Government Long Bond Index, 15% Barclays US Investment Grade Corporate Index, 15% Barclays US Securitized Index, and 20% Barclays US TIPS Index.

CREDIT/DEBT STRATEGIES

The credit/debt strategies portfolio totaled approximately $4.3 billion, representing 9.4% of total plan assets as of June 30, 2016. Investments in this asset class are held in both liquid and illiquid structures. Asset types in the portfolio include: mezzanine and distressed debt, high yield bonds, bank loans, and emerging market debt. The portfolio has a blended benchmark of 67 percent U.S. (80% BC U.S. Corporate High Yield Index, 20% S&P LSTA Leveraged Loan Index), and 33% Non-U.S. (50% JP Morgan GBI EM Global Diversified Index, 25% JP Morgan EMBI Global Diversified Index, 25% JP Morgan CEMBI Broad Index). Prior to November 1, 2016, the benchmark was 50% Barclays U.S. High Yield Index, 20% Barclays U.S. Credit Index, 20% JP Morgan GBI EM Global Diversified Index and 10% S&P LSTA Leveraged Loan Index. The portfolio returned 2.2% for the fiscal year, versus 2.7% for its benchmark. This underperformance relative to the benchmark was primarily due to the underperformance of active public credit managers and hedge funds, and below benchmark exposure to emerging markets debt during the second half of fiscal year 2016.

REAL ASSETS

The real assets portfolio totaled approximately $5.8 billion, representing 12.7% of total assets as of June 30, 2016. The objectives of this asset class are to provide a level of protection against inflation, and to enhance diversification for the total fund. As of June 30, 2016, the largest component of the asset class was real estate, totaling $3.7 billion, or 8.2% of total assets. Commodities represented $1.3 billion, or 2.8% of total assets. The remaining assets consisted of investments associated with natural resources and infrastructure totaling $0.8 billion or 1.7% of total assets.

The real assets portfolio returned -1.7% for the fiscal year, compared to 0.9% for its blended benchmark, which is dynamically calculated using the beginning fair values of the real estate, commodities and natural resources/infrastructure sub-asset classes and their corresponding benchmarks.

ABSOLUTE RETURN

The absolute return portfolio totaled approximately $3.9 billion, representing 8.6% of total assets as of June 30, 2016. The portfolio consists of three global macro funds, three multi-asset funds, eight relative value multi-strategy funds, and one opportunistic fund. Its goal is to provide diversification for the total plan through its low correlation to the broad financial markets. The absolute return portfolio returned -3.0%, compared to the -2.7% return for its benchmark: Hedge Funds Research, Inc. (HFRI) Fund of Funds Index: Conservative +1%.

TERRA MARIA PROGRAM

As previously mentioned, the Terra Maria program seeks to identify promising smaller or developing managers. The seven existing public market program managers serve as an extension of staff to source investment managers, perform manager due diligence, monitor managers and prepare manager "hire/fire" and funding recommendations. The managers include Attucks Asset Management, Bivium Capital Partners, Capital Prospects LLC, FIS Group, Leading Edge Investment Advisors, Northern Trust Global Advisors and Progress Investment Management Company.

Terra Maria publicly-traded assets totaled approximately $2.6 billion, or 5.4 percent of total assets at June 30, 2016. The program returned -3.7% for the fiscal year, compared to the custom benchmark return of -1.7%. The relative performance results have remained positive since the April 2007 inception of the program.

During fiscal year 2011, the Terra Maria program was expanded to include investments in private equity partnerships. Since January 2011, $6.6 billion has been committed globally to 87 private equity funds. Of this, $3.7 billion has been committed to 49 domestic funds, which includes $631 million to 17 Terra Maria emerging managers.

Additionally, at the end of fiscal year 2016, $5.1 billion, or 11.3 percent of the System's total assets, were managed by minority and women-owned firms.

INVESTMENT MANAGEMENT FEES

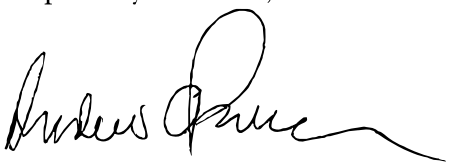
The asset allocation of the System is the primary determinant of return. The asset allocation is also the primary determinant in the cost of investing the assets. Of secondary importance is the proportion of assets invested passively. Alternative assets such as closed-end limited partnerships used for private equity, infrastructure and some real estate do not offer passive avenues for investment. In addition, open-end partnerships used for real estate and hedge fund strategies cannot be invested passively. Alternative assets are included in the asset allocation with the objective of earning higher returns over time, reducing risk by earning returns that are differentiated from stock and bond returns, or for both reasons. Staff is mindful of the negative effects fees have on net investment performance and is committed to aggressively negotiating fair and reasonable terms to mitigate the drag on performance, while maintaining exposure to investments that exhibit positive risk and return characteristics in a total portfolio context.

CONCLUSION

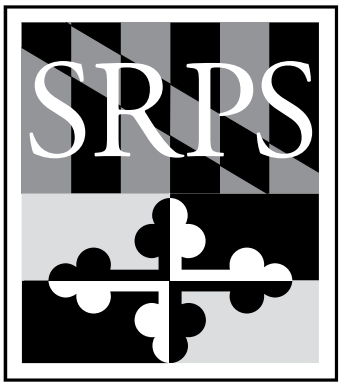
Fiscal year 2016 was a difficult environment for investors attempting to meet a fixed or growing liability. While returns were low, they were within the expected range of variability for the asset allocation of the System. The changes to the policy targets initiated in November improved the performance of the System's portfolio, and to a greater extent the policy portfolio. Looking to 2017 and beyond, the investment staff will continue to implement the Board's policies in a prudent and thoughtful way to maximize value for beneficiaries, while being ever mindful of the risks and uncertainties present in the global capital markets.

It has been an honor and a privilege to work with the Board and investment staff over the past year to meet the investment needs of the System and its beneficiaries.

Respectfully submitted,



Andrew C. Palmer CFA
Chief Investment Officer



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MARYLAND STATE RETIREMENT AND PENSION SYSTEM

INVESTMENT PORTFOLIO SUMMARY
as of June 30, 2016 and 2015
(Expressed in Thousands)

		2016		2015	
		Fair Value	% of Fair Value	Fair Value	% of Fair Value
	Rate Sensitive				
	Fixed Income	$ 8,332,955	18.3%	$ 6,059,914	13.2%
	Inflation linked bonds	1,856,604	4.1	3,504,186	7.6
(1)	Cash (non-manager)	521,400	1.1	226,580	0.5
(2)	Net cash & cash equivalents (manager)	-390,975	-0.9	-78,746	-0.2
	Total Rate Sensitive	**10,319,984**	**22.7**	**9,711,934**	**21.2**
	Credit				
	Hight Yield Bond/Bank Loans	2,930,858	6.4	3,867,036	8.4
	Emerging markets debt	1,308,262	2.9	530,955	1.2
(2)	Net cash & cash equivalents (manager)	54,512	0.1	62,853	0.1
	Total Credit	**4,293,632**	**9.4**	**4,460,844**	**9.7**
	Equity				
	Domestic stocks	3,466,768	7.6	4,599,465	10.0
	Emerging markets stocks	3,645,061	8.0	793,296	1.7
	Global stocks	5,811,305	12.8	7,422,753	16.2
	International stocks	3,842,096	8.5	4,174,143	9.1
(2)	Net cash & cash equivalents (manager)	240,503	0.5	257,328	0.6
	Total Public Equity	**17,005,733**	**37.4**	**17,246,985**	**37.6**
	Private Equity	**4,169,027**	**9.2**	**3,675,473**	**8.0**
	Total Equity	**21,174,760**	**46.6**	**20,922,458**	**45.6**
	Absolute Return	**3,884,482**	**8.5**	**4,874,342**	**10.6**
	Real Estate (includes private)	**3,718,494**	**8.2**	**3,351,289**	**7.3**
	Commodities	**1,259,220**	**2.8**	**1,588,919**	**3.5**
	Natural Resources & Infrastructure	**769,029**	**1.7**	**815,763**	**1.8**
(2)	**Net cash & cash equivalents (manager)**	**45,758**	**0.1**	**107,894**	**0.2**
	Total Portfolio	**$ 45,465,359**	**100.0%**	**$ 45,833,443**	**100.0%**

(1) Securities lending collateral payable has been netted against the actual collateral. The amounts net to zero.
(2) Includes investment receivables and payables.
(3) Allocations for FY2015 have been restated to be comparable to FY2016.

Note: This schedule includes assets invested on behalf of the Maryland Transit Administration.

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

INVESTMENT PORTFOLIOS BY MANAGER
as of June 30, 2016
(Expressed in Thousands)

	Fair Value	Investment Advisory Fees
Public Equity		
State Street Global Advisors	$ 2,620,075	$ 1,747
Equity Long Short (1)	1,479,958	37,944
RhumbLine Advisors	1,401,734	149
D E Shaw & Co., LP	1,189,074	4,225
AQR Capital Management, LLC	1,105,291	4,165
Dimensional Fund Advisors, Inc.	1,091,949	2,148
Baillie Gifford & Company	961,779	2,794
Acadian Asset Management	686,252	1,806
Templeton Investment Counsel, Inc.	555,954	1,887
Fisher Investments	525,392	76
Longview Partners Ltd.	498,952	2,455
T. Rowe Price Associates, Inc.	488,845	1,869
Artisan Partners Limited Partnership	485,445	2,427
Brown Capital Management	446,322	3,033
Schroders Investment Management	441,070	1,079
Capital Prospects, LLC (1)	373,855	1,858
FIS Group, Inc.(1)	346,009	1,389
Leading Edge Invest. Advisors, LLC (1)	309,305	2,393
Axiom International Investors	305,824	560
Polunin Capital Management	303,820	0
Attucks Asset Management, LLC (1)	298,564	1,846
Bivium Capital Partners(1)	279,051	1,848
Northern Trust Global Advisors, Inc.(1)	265,868	1,345
Genesis Asset Management	204,877	1,601
Zevenbergen Capital Investment LLC	87,650	551
Record Currency Management	(51,245)	3,012
Other (2)	304,066	2,931
	$ 17,005,733 (3)	**$ 87,139** (4)

	Fair Value	Investment Advisory Fees
Fixed Income Manager		
Western Asset Management	$ 2,752,734	$ 3,315
Pacific Investment Management Company	1,345,678	861
Aberdeen Asset Management, Inc.	681,172	1,111
State Street Global Advisors	668,746	97
Dodge & Cox	477,313	532
Fidelity Institution Asset Mgt	473,942	596
Principal Global Investors	469,440	561
Goldman Sachs Asset Management	466,417	820
Progress Investment Management (1)	325,864	1,237
Northern Trust Global Advisors, Inc.(1)	173,469	384
Attucks Asset Management, LLC (1)	122,932	468
Capital Prospects, LLC (1)	72,272	148
Leading Edge Invest. Advisors, LLC (1)	42,340	208
Cash - *Internally Managed*	521,400	N/A
Other (2)	158	2,602
	$ 8,593,877 (3)	**$ 12,940** (4)
Credit/Debt Related (1)	$ 4,192,621	$ 34,263
Private Equity Funds (1)	4,169,027	81,957
Real Return (1)	3,870,956	29,112
Absolute Return (1)	3,892,010	49,493
Real Estate		
Private Real Estate (1)	3,077,006	29,286
Morgan Stanley Investment Management	447,128	1,753
SSGA Global Liquid RE Securities	210,796	206
Record Currency Management	(3,575)	154
Other (2)	9,779	5,338
	$ 19,865,748 (3)	**$ 231,560** (4)

(1) Sub-managers separately listed on the following pages
(2) Consulting fees and/or investment managers no longer under contract as of 6/30/16
(3) Includes assets invested on behalf of the Maryland Transit Administration.
(4) Includes management fees allocated to the Maryland Transit Administration.

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

ALTERNATIVE INVESTMENTS RELATIONSHIP LISTING

as of June 30, 2016

Private Equity

1315 Capital, LP
Abbott Capital Private Equity Fund III, LP
ABS Capital Partners VI, LP
ABS Capital Partners VII, LP
Adams Street Partners, LLC
Advent Central & Eastern Europe IV, LP
Advent International GPE V-D, LP
Advent International GPE VI-A, LP
AIF Capital Asia IV,LP
Alchemy Partners, LP
Apax Europe VI-A, LP
Apax Europe VII-A, LP
Apax France VIII
Apollo Investment Fund VII (AIF), LP
Apollo Investment Fund VIII (AIF), LP
Arcadia II Beteiligungen BT GmbH & Co
Astorg VI
Audax Private Equity Fund II, LP
Audax Private Equity Fund III, LP
Audax Private Equity Fund IV, LP
Audax Private Equity Fund V, LP
Azure Capital Partners II, LP
Azure Capital Partners III, LP
Bain Capital Asia Fund III
Bain Capital Europe Fund IV, LP
Bain Capital Fund IX, LP
Bain Capital IX Coinvestment Fund, LP
Bain Capital Fund X, LP
Bain Capital X Coinvestment Fund, LP
Bain Capital Fund XI, LP
Baring Asia Private Equity Fund VI, LP
BC European Capital VIII, LP
BC European Capital IX, LP
Black River Capital Partners Fund (Agr. A) LP
Blackstone Capital Partners VI, LP
Blue Wolf Capital Fund III, LP
Brazos EquityFund III, LP
Bridgepoint Europe Fund V,LP
Bunker Hill Capital II, LP
Calvert Street Capital Partners III, LP
Camden Partners Strategic Fund IV, LP
Carlyle Partners V, LP
Carlyle Partners VI, LP
CDH Fund V, LP
Charterhouse Capital Partners VIII, LP
Charterhouse Capital Partners IX, LP
Clayton, Dubilier & Rice Fund VIII, LP
Clayton, Dubilier & Rice Fund IX, LP
Coller Capital Partners VI, LP
Coller Capital Partners VII, LP
Commonwealth Capital Ventures IV, LP
Court Square Capital Partners III, LP
Crescent Capital Partners IV, LP
Crescent Capital Partners V, LP
CVC European Equity Partners V-B, LP
Dover Street VII, LP
ECI 8, LP
ECI 9, LP
Equistone Partners Europe Fund IV, LP
Equistone Partners Europe Fund V, LP
Everstone Capital Partners II, LLC
Everstone Capital Partners III, LLC
Fort Point Capital (FPC Small Cap) I, LP
Frazier Healthcare V, LP
Frazier Healthcare VI, LP
Frazier Healthcare VII, LP
Frazier Life Sciences VIII, LP
Frontier Fund III, LP
Frontier Fund IV, LP
Goldman Sachs Vintage Fund V, LP
Graphite Capital Partners VII
Graphite Capital Partners VII, Top Up
Graphite Capital Partners VIII
Great Hill Equity Partners III, LP
Great Hill Equity Partners IV, LP
Great Hill Equity Partners V, LP
Hancock Park Capital III, LP
HarbourVest Partners VI - Buyout Fund, LP
HarbourVest Partners VI - Partnership Fund, LP
Hellman & Friedman Capital Partners VI, LLC
Hellman & Friedman Capital Partners VII, LLC
Hg Capital 5, LP
Hg Capital 6A, LP
Hg Capital 7C, LP
Hg Capital Mercury A, LP
Institutional Venture Partners XV
ICV Partners III, LP
KKR European Fund III, LP
Landmark Equity Partners XIV, LP
Landmark Equity Partners XV, LP
Lexington Capital Partners, VII
Lexington Middle Market Investors III, LP
Lion Capital Fund I, LP
Lion Capital Fund II, LP
Lion Capital Fund III, LP
Littlejohn Fund III, LP
Littlejohn Fund IV, LP
Littlejohn Fund V, LP
LLR Equity Partners IV, LP
Lombard Asia IV, LP
Longitude Venture Partners, LP
Longitude Venture Partners II LP
Madison Dearborn Capital Partners V, LP
Madison Dearborn Capital Partners VI, LP
Madison Dearborn Capital Partners VII, LP
MBK Partners Fund III, LP
MD Asia Investors, LP
MD Asia Investors II, LP
Navis Asia Fund VI, LP
New Mainstream Capital Fund II, LP
New Mountain Partners III, LP
New Mountain Partners IV, LP
North Sky Clean Tech Fund IV, LP
Northstar Equity Partners IV
Orchid Asia V, LP
Orchid Asia VI, LP
PAG Asia Capital II, LP
Pacific Equity Partners V, LP
Partners Group Secondary 2008, LP
Partners Group Secondary 2011, LP
Partners Group Emerging 2011, LP
Partners Group Secondary 2015, L.P
Permira IV, LP
Point 406 Ventures II, LP
Point 406 Ventures III, LP
Point 406 Ventures 2016 Opportunities Fund
Private Equity Partners Fund IV
Quaker BioVentures II, LP
Riverside Asia Pacific Fund II, LP
Riverside Capital Appreciation Fund V, LP
Riverside Capital Appreciation Fund VI, LP
Riverside Europe Fund IV, LP
RLH Investors II, LP
RLH Investors III, LP
Siris Partners II, LP
SSG Capital Partners III, LP
Summer Street Capital Fund II, LP
Summer Street Capital Fund III, LP
Symmetric Partners, LP
TA X, LP
TA XI, LP
TA XII, LP
TDR Capital III, LP
Thoma Bravo Fund XII, LP
TPG Partners VI, LP
TPG Partners VII, LP
Triton Fund III, LP
Triton Fund IV, LP
Valhalla Partners II, LP
Vector Capital IV, LP
Vestar Capital Partners V, LP
Vista Equity Partners Fund IV, LP
Vista Equity Partners Fund V, LP
Vista Equity Partners Fund VI, LP
Vista Foundation Fund II, LP
Vistria Fund I, LP
Wind Point Partners VII LP
Yucaipa American Alliance Fund II LP

Private Real Estate

AEW Senior Housing Fund II, LP
Blackrock Asia Property Fund III, LP
CBRE US Core Partners
CBRE Strategic Partners Europe Fund III
CBRE Strategic Partners UK Fund III
CBRE Strategic Partners US Value 5, LP
CBRE Strategic Partners US Value 6, LP
CBRE Strategic Partners US Value 7, LP
Covenant Apartment Fund VII
Europe Fund III, LP
Federal Capital Partners Fund II
Federal Capital Partners Fund III
Frogmore Real Estate Partners II, LP
GI Partners Fund III, LP
GI Partners Fund IV, LP
JP Morgan Investment Management Inc
Lion Industrial Trust
Lone Star Real Estate Fund II, LP
Lone Star Real Estate Fund III, LP
Lone Star Real Estate Fund IV, LP
Lubert Adler Real Estate Fund III, LP
Lubert Adler Real Estate Fund VI
Lubert Adler Real Estate Fund VI-A
Morgan Stanley Prime Property Fund, LLC
PRISA II (Prudential Real Estate Investors)
Realty Associates Fund IX
Realty Associates Fund X
Rockwood Capital R E Partners Fund VIII, LP
Rockwood Capital R E Partners Fund IX, LP
Secured Capital Japan R E Partners Asia, LP
Secured Capital Japan R E Partners IV, LP
Starwood Debt Fund II, LP
Starwood Hospitality Fund II, LP
Tristan Capital- European Special Opps 3
Tristan Capital- European Special Opps 4
UBS Trumbull Property Fund

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

ALTERNATIVE INVESTMENTS RELATIONSHIP LISTING

as of June 30, 2016

(continued)

Real Return

Alinda Infrastructure Fund II, LP
Astenbeck Commodities Fund II, LP
Core Commodity Management Diversified I, LLC
Edesia Dynamic Agriculture Fund, LP
EIF US Power Fund IV, LP
First Reserve Fund XII, LP
First Reserve Fund XIII, LP
Global Timber Investors 9
Gresham Investment Management, LLC
Hancock Timberland X, LP
Harvest Fund Advisors, LLC
Koppenberg Macro Commodity Fund, LP
Natural Gas Partners VIII, LP
Natural Gas Partners IX, LP
Natural Gas Partners X, LP
Natural Gas Partners XI, LP
NGP Midstream & Resources, LP
Quantum Energy Partners IV, LP
Quantum Energy Partners V, LP
Quantum Energy Partners VI, LP
RMS Forest Growth III,LP
State Street Global Advisors US Tips
Taylor Woods Partners, LP
Timbervest Partners III, LP
Tortoise Capital Advisors, LLC
Vermillion/Celadon Commodities Fund
White Deer Energy, LP

Absolute Return

Aristeia Capital
Aristeia Co-Invest
Bridgewater All Weather
Bridgewater Pure Alpha
Carlson Double Black Diamond
DGAM Diversified Strategies Fund
Garda Firvo
Graham Tactical Trend
Hudson Bay Fund
Hutchin Hill Diversified Alpha Fund
InvestCorp Dynamic Alt Beta Fund
Mellon Global Alpha II
Nephia Palmetto Fund
Pine River Fund
Rock Creek Potomac Fund

FIXED INCOME RELATIONSHIP LISTING

as of June 30, 2016

Credit/Debt Related

Alchemy Special Opps Fund II
Alchemy Special Opps Fund III
Anchorage Capital Group
Apollo Credit Opps Fund III
CarVal Credit Value Fund A LP
CarVal Credit Value Fund II
CarVal Credit Value Fund III
Castle Lake III
Castle Lake IV
Clearlake Capital Group
Clearlake Capital Group IV
Crescent Capital Mezzanine Partners VI
EIG Energy Fund XV
EIG Energy Fund XVI
Falcon Strategic Partners III
Falcon Strategic Partners IV
King Street Capital
KKR Flexible Credit
KKR Mezzanine Partners 1
LBC Credit Partners II LP
Logan Circle Partners EMD
Mackay Shields
Merit Mezzanine Fund V
Neuberger Berman Flexible Credit
Oaktree European Principal Fund III
Oaktree Opportunity Fund VIII
Oaktree Opportunity Fund VIIIB
Oaktree Principal Fund V
Park Square Capital Partners II
Partners Group European Mezzanine 2008 LP
Peninsula Fund V
Perella Weinberg Partners
Prudential Capital Partners III
Prudential Capital Partners IV
Shoreline China Val Fund III
SSGA Emerging Markets Debt
SSGA Emerging Markets Hard Currency
Stone Harbour Blended EMD
TA Subordinated Debt Fund III
Varde Fund X
Wayzata Investment Partners III

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

TERRA MARIA PROGRAM

as of June 30, 2016

Terra Maria Program

Attucks Asset Management
Advent Capital Management, LLC
Apex Capital Management
Brown Investment Advisory
Campbell Newman Asset Management
Chicago Equity Partners
Globeflex Capital LP
Hanseatic Management Services, Inc
LM Capital Group, LLC
Lombardia Capital Partners, LLC
Mar Vista Investment Partners, LLC
Nicholas Investment Partners, LP
Opus Capital Management, LLC
Paradigm Asset Management Company, LLC
Seizert Capital Partners, LLC
The Edgar Lomax Company
Thomas White International LTD

Bivium Capital Partners
ARGA Investment Management, LP
Aristotle Capital Management, LLC
Bailard Inc
Chautauqua Capital Management, LLC
Cornerstone Capital Management, LLC
Cupps Capital Management, LLC
Phocas Financial Corporation
Vulcan Value Partners, LLC
WCM Investment Management

Capital Prospects LLC
AH Lisanti Cap;ital Growth, LLC
Bernzott Capital Advisors
Henderson Geneva Capital Management Ltd
Inview Investment Management, LLC
Lebenthal Lisanti Capital Growth LLC
Matrix Asset Advisors, Inc
Next Century Growth Investors, LLC
Paradigm Asset Management Company, LLC
Piedmont Investment Advisors, LLC
Profit Investment Management
Redwood Investments, LLC
Twin Capital Management, Inc
Sterling Advisors
Walthausen & Company, LLC

FIS Group
Ativo Capital Management, LLC
Black Creek Investment Management, Inc.
Channing Capital Management, LLC
Greenfield Seitz Capital Management, LLC
Martin Investment Management, LLC

Leading Edge Investment Advisors
Apex Capital Management
Driehaus Capital Management, LLC
Gratry & Company, Inc
Herndon Capital Management, LLC
Kirr, Marbach & Company, LLC
Markston International, LLC
New Century Investment Management, Inc
Penn Capital Management Co, LLC
Reed, Conner & Birdwell, LLC
SIT Investment Associates, Inc
Westwood Global Investments, LLC

Northern Trust
ClariVest Asset Management, LLC
Dolan McEniry Capital Management, LLC
Longfellow Investment Management Company, LLC
Magee Thompson Investment Partners, LLC
New Century Advisors, LLC
Riverbridge Partners, LLC
Strategic Global Advisors, LLC
Summit Creek Advisors, LLC

Progress Investment Management
Garcia Hamilton & Associates, LP
New Century Advisors, LLC
Pugh Capital Management, Inc

Bold denotes Program Manager for the Terra Maria Program

EQUITY RELATIONSHIP LISTING

as of June 30, 2016

Equity Long/Short

Amici Qualified Associates, LP
Criterion Capital Partners Fund
Hoplite OnShore
Indus-Pacific Opportunities Fund
Marshall Wace Eureka Fund
Neon Liberty Capital Management
Scopia Capital Management
Stelliam Fund

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

EQUITY COMMISSIONS TO BROKERS
for the Fiscal Year Ended June 30, 2016
(Expressed in Thousands)

Brokers (1)	Total Shares	Total Commission
State Street Bank and Trust	249,186	$ 1,008
Goldman Sachs	99,098	441
Instinet	102,272	398
Credit Suisse Securities	147,820	312
Merrill Lynch	96,572	311
J P Morgan Securities	46,882	273
Morgan Stanley	78,853	264
UBS	37,231	203
Barclays Capital, Inc.	11,856	165
Loop Capital	8,862	162
Investment Technology Group	15,087	150
Deutsche Bank Securities, Inc.	57,584	145
BNY	33,316	140
Societe Generale	16,384	122
Citigroup Global Markets	27,770	116
HSBC	44,971	113
Sanford C. Bernstein	15,858	109
Jefferies & Company	10,303	104
Other Broker Fees	295,665	2,043
Total broker commissions	1,395,570	$ 6,579

(1) Proceeds from the sale and disbursements for the purchase of securities are reported net of brokers' commissions. As such, brokers' commissions are not included as investment expenses on the Statement of Changes in Plan Net Position. Other broker fees include 230 brokers each receiving less than $100,000 in total commissions.

For the fiscal year ended June 30, 2016, total domestic equity commissions averaged .49 cents per share, and total international equity commissions averaged 5.79 basis points per share.

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

LARGEST STOCK & BOND HOLDINGS AT MARKET

as of June 30, 2016

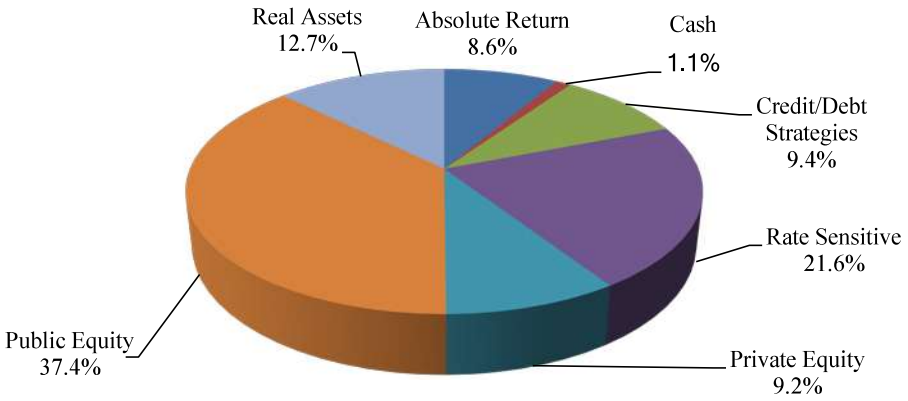
EQUITY INCOME SECURITIES:	Shares	Fair Value
Amazon.Com Inc.	195,507	$ 139,908,719
Nestle SA Reg	1,250,092	96,432,369
Facebook Inc. A	839,885	95,982,058
Apple Inc.	992,687	94,900,877
Microsoft Corporation	1,682,180	86,077,151
Tencent Holdings Ltd	3,634,882	82,509,261
Roche Holdings AG Genusschein	273,927	72,010,578
Exxon Moble Corporation	764,680	71,681,103
Taiwan Semi Conductor SP ADR	2,321,118	60,882,925
Pfizer Inc.	1,720,117	60,565,320
Samsung Electronics Co Ltd	46,978	58,118,375
Sanofi	675,245	56,202,214
Alphabet Inc Cl C	79,158	54,785,252
Johnson & Johnson	435,743	52,855,626
Wal Mart Stores Inc.	716,284	52,303,058

FIXED INCOME SECURITIES:	Par Value	Fair Value
United States Treasury Bonds, 3.125%, due Aug 15, 2044	$ 257,578,525	$ 293,959,680
United States Treasury Bonds, 2.875%, due May 15, 2043	222,153,607	238,616,778
United States Treasury Notes, 1.875%, due Oct 31, 2022	224,857,490	229,225,460
United States Treasury Bonds, 3.00%, due Nov 15, 2045	180,199,238	206,205,407
Federal National Mortgage Assn., 0.00%, due Oct 9, 2019	193,214,774	197,213,233
United States Treasury Bonds, 3.00%, due Nov 15, 2044	160,922,665	172,465,500
United States Treasury Bonds, 3.00%, due May 15, 2045	154,166,945	170,882,785
United States Treasury Strip, 0.00%, due May 15, 2043	135,900,909	156,997,883
Federal National Mortgage Assn., 3.50%, due Aug 16, 2046	147,839,539	147,968,964
United States Treasury Bonds, 2.875%, due Aug 15, 2045	136,100,677	146,872,889
United States Treasury Bonds, 3.00%, due Nov 15, 2044	120,988,617	139,915,511
United States Treasury Bonds, 2.50%, due Feb 15, 2046	121,510,649	125,918,097
United States Treasury Bonds, 6.125%, due Aug 15, 2029	115,686,508	118,565,700
United States Treasury Bonds, 2.875%, due May 15, 2043	96,676,005	109,075,530
United States Treasury Inflation Linked, .125%, due Apr 15, 2018	80,075,303	80,359,747

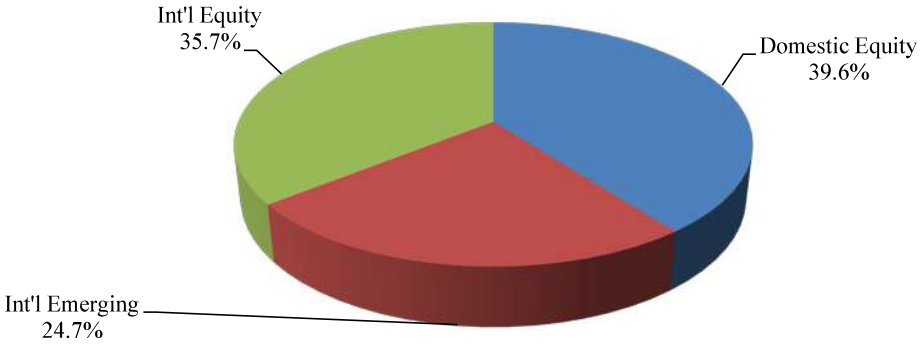
A complete list of portfolio holdings is available upon request.

MARYLAND STATE RETIREMENT AND PENSION SYSTEM

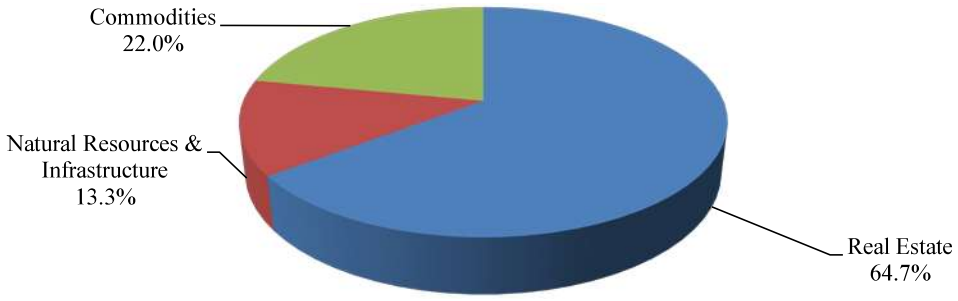
INVESTMENT PORTFOLIO ALLOCATION
as of June 30, 2016



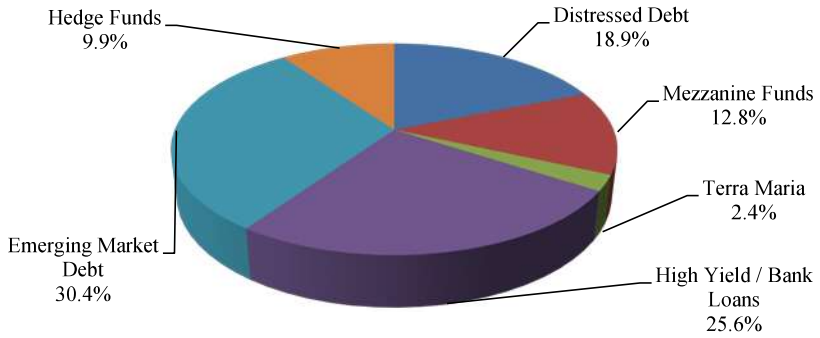
PUBLIC EQUITY DISTRIBUTION BY TYPE
as of June 30, 2016



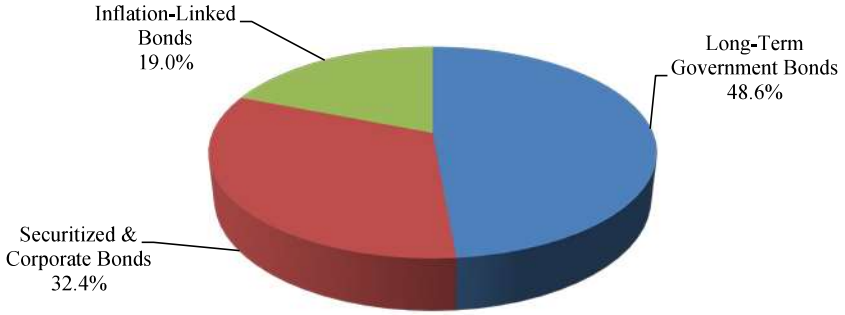
REAL ASSETS DISTRIBUTION BY TYPE
as of June 30, 2016



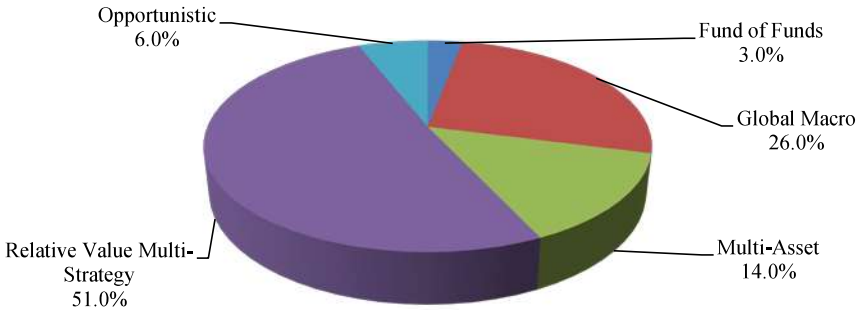
MARYLAND STATE RETIREMENT AND PENSION SYSTEM
CREDIT/DEBT STRATEGIES DISTRIBUTION BY TYPE
as of June 30, 2016



RATE SENSITIVE DISTRIBUTION BY TYPE
as of June 30, 2016

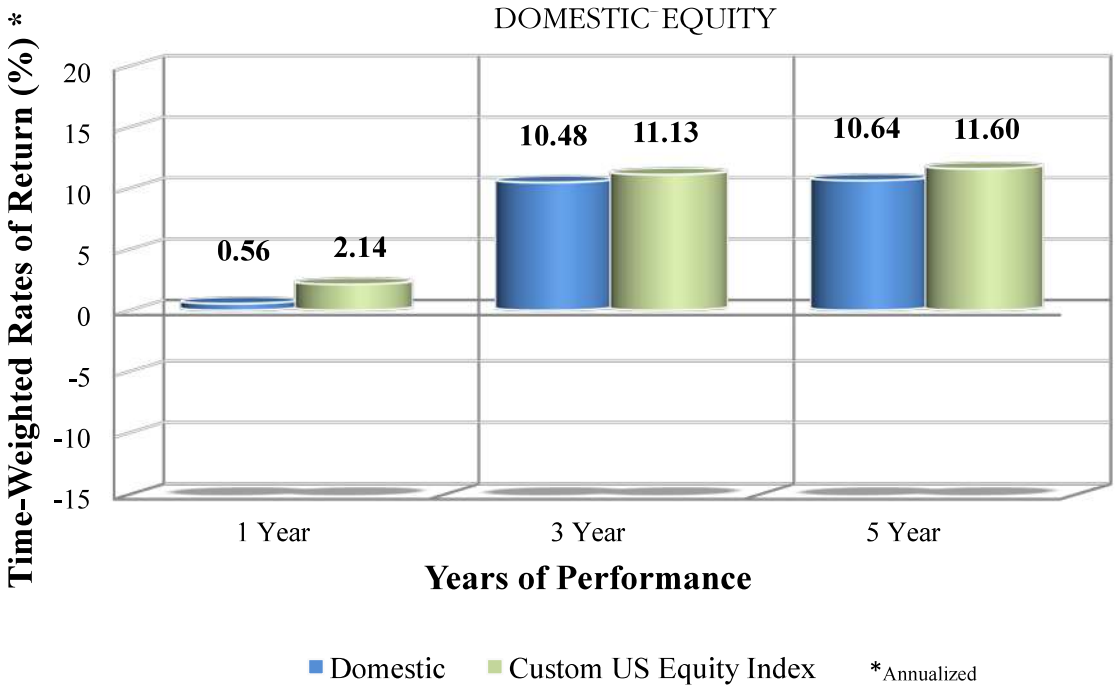


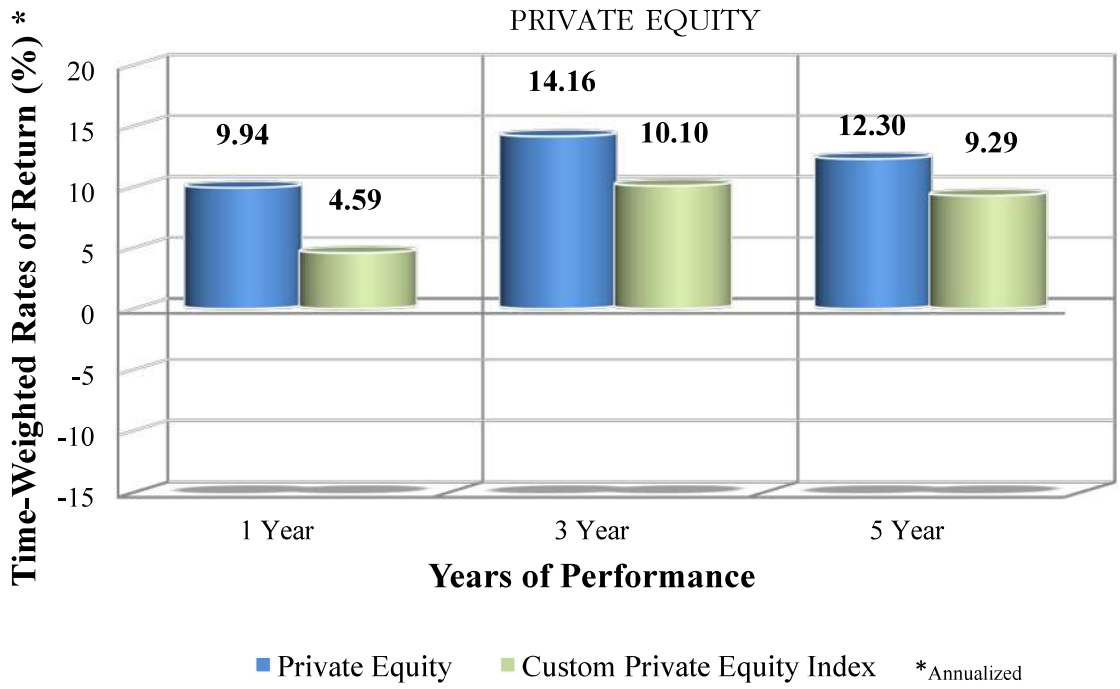
ABSOLUTE RETURN DISTRIBUTION BY TYPE
as of June 30, 2016



MARYLAND STATE RETIREMENT AND PENSION SYSTEM

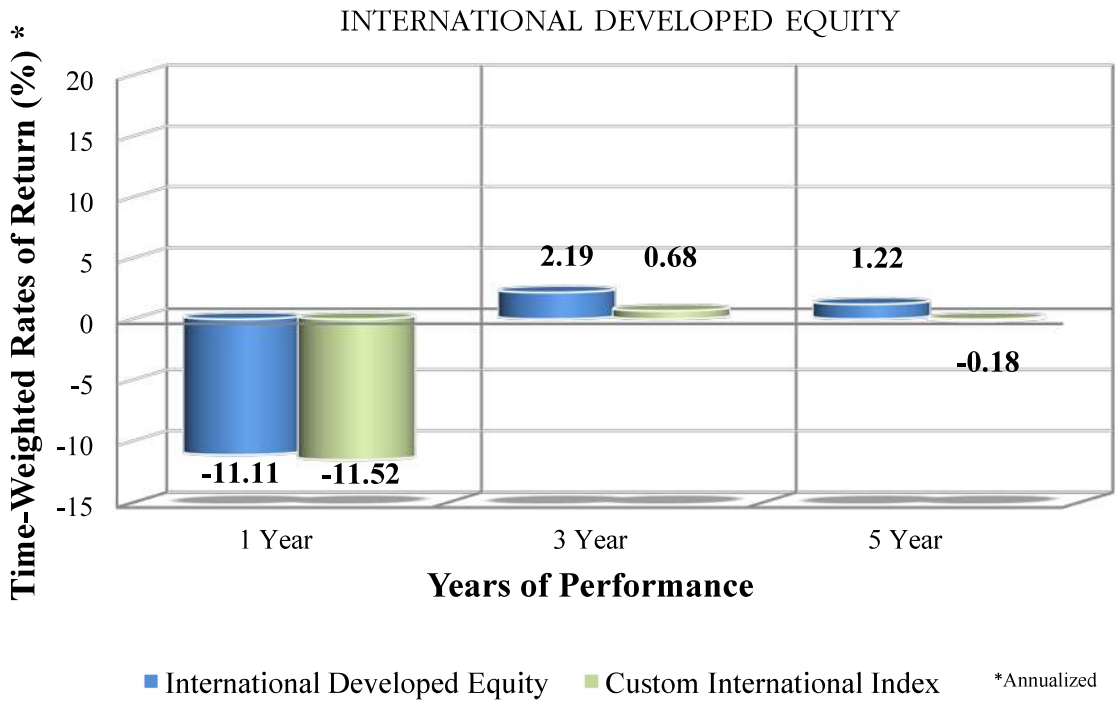
COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2016

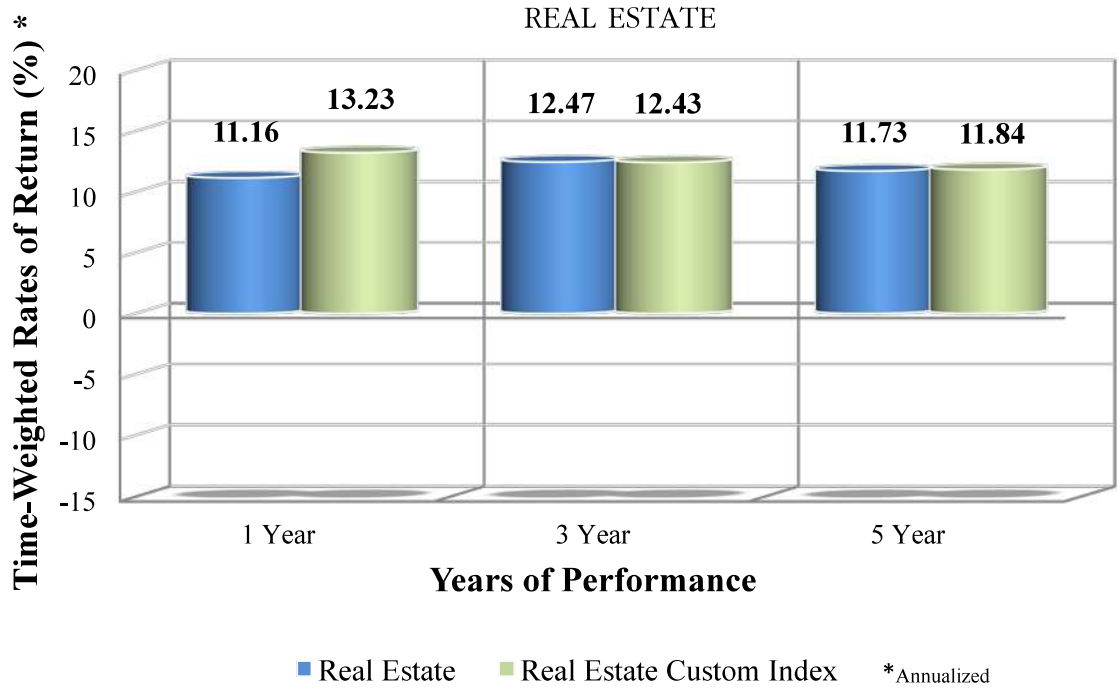




MARYLAND STATE RETIREMENT AND PENSION SYSTEM

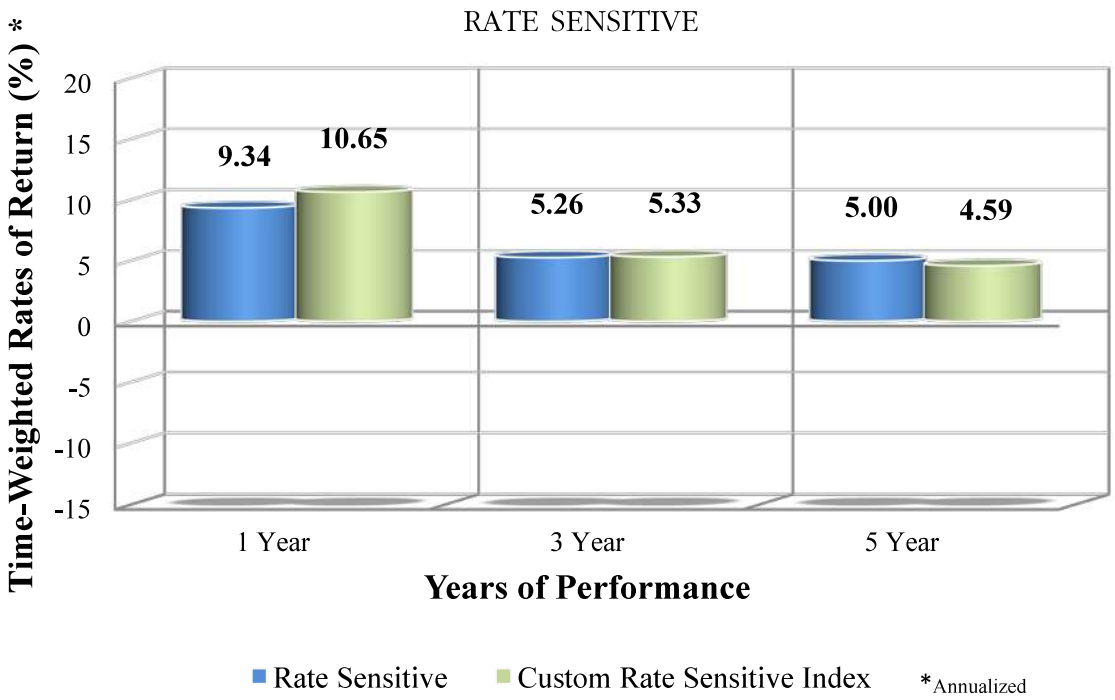
COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2016

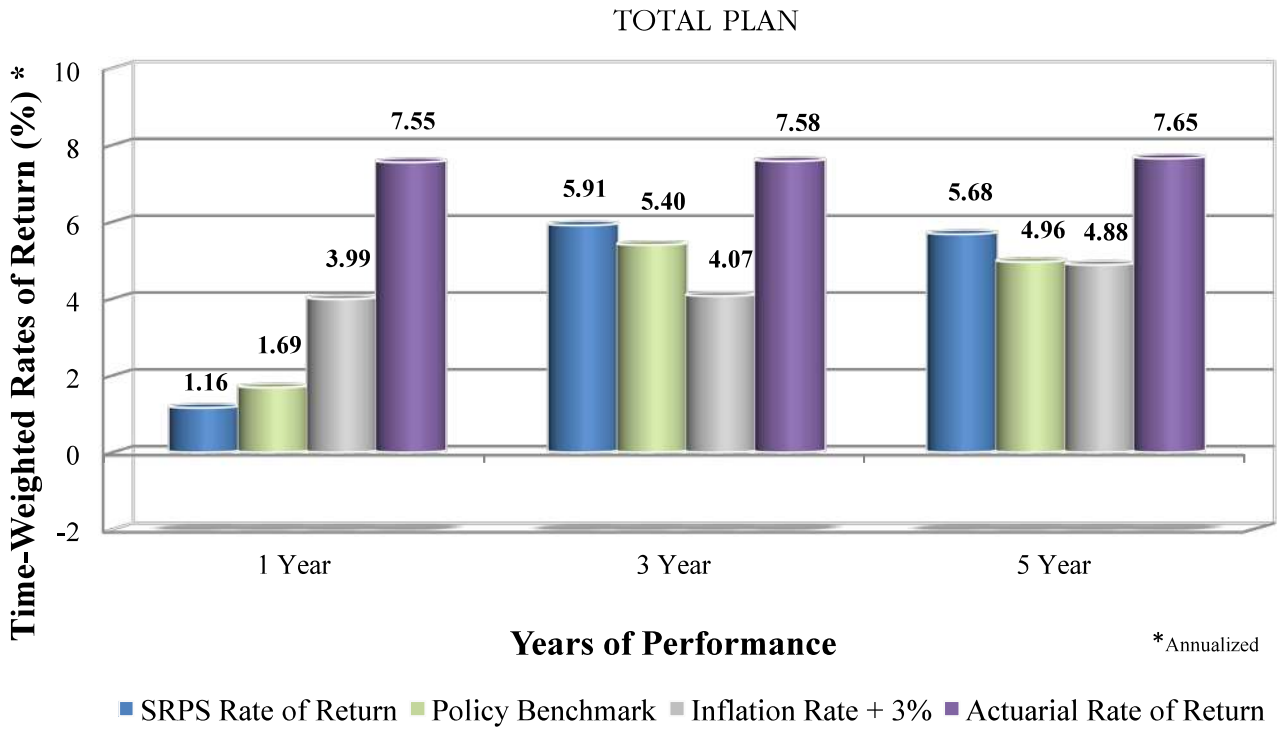




MARYLAND STATE RETIREMENT AND PENSION SYSTEM

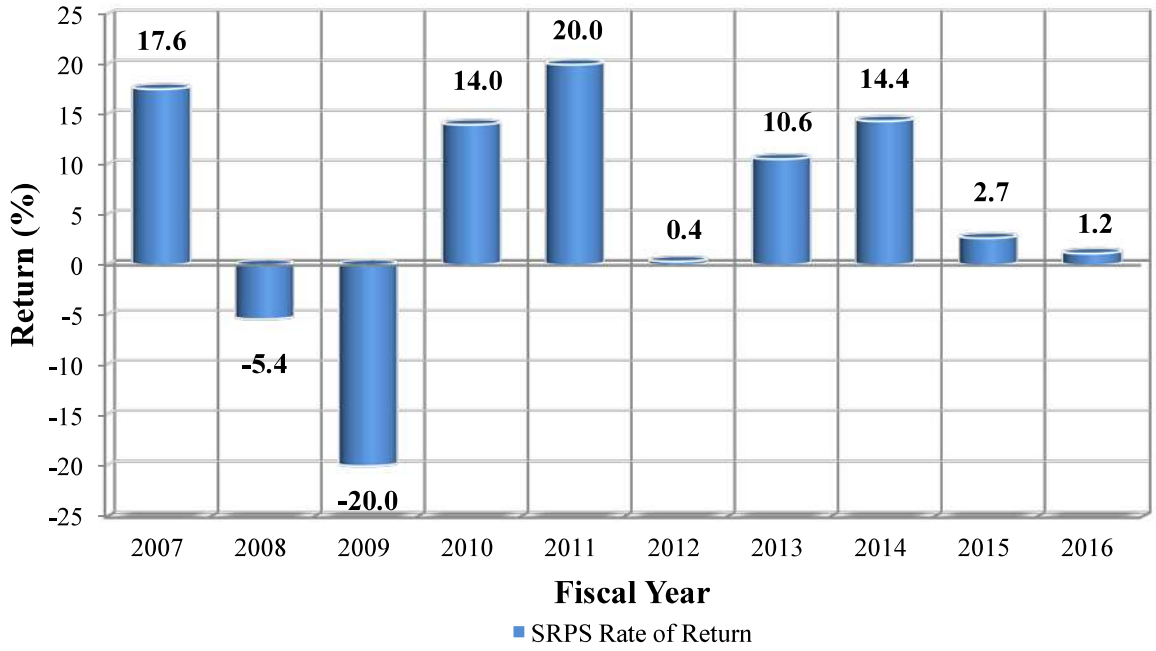
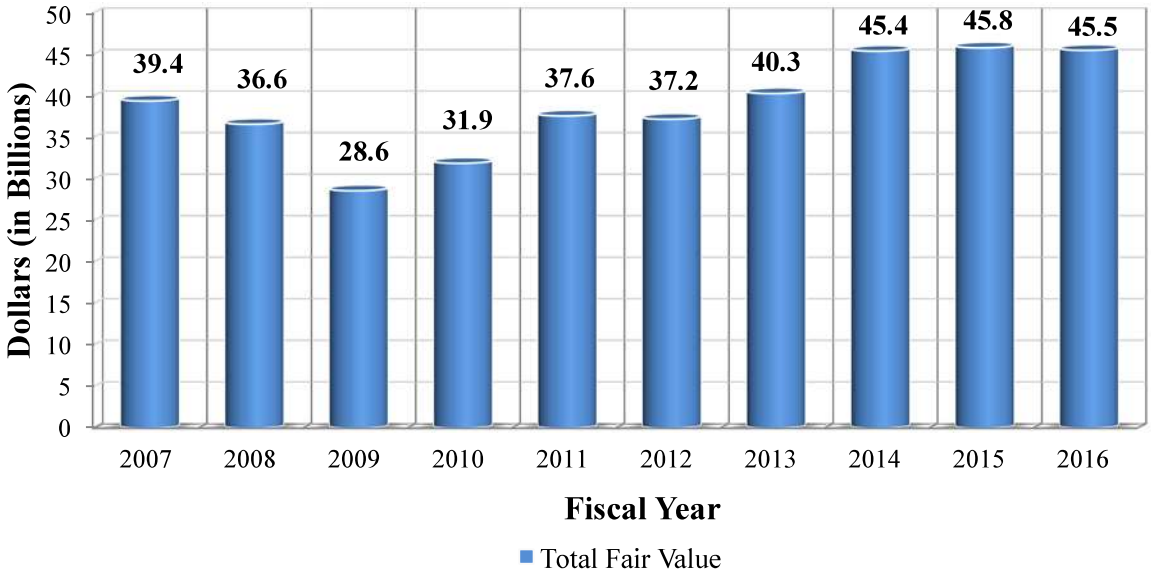
COMPARATIVE INVESTMENT RETURNS ENDING JUNE 30, 2016





MARYLAND STATE RETIREMENT AND PENSION SYSTEM

TEN-YEAR HISTORY OF TIME-WEIGHTED ANNUAL RETURNS



TEN-YEAR GROWTH OF INVESTMENT PORTFOLIO