POLICE PENSION BOARD AGENDA

AUGUST 15, 2012 - 3:30 P.M.

CITY HALL COUNCIL CHAMBERS
15 LOOCKERMAN PLAZA
DOVER, DELAWARE

Public comments are welcomed on any item and will be permitted at appropriate times. When possible, please notify the City Clerk (736-7008 or e-mail at CityClerk@dover.de.us) should you wish to be recognized.

AGENDA ADDITIONS/DELETIONS

1. Adoption of Minutes - Police Pension Board Meeting of May 9, 2012

2. Organizational Issues - Election of Chair

3. Quarterly Performance Review *(Quarter Ending June 30, 2012) (Milliman, Inc.)*

4. Discussion - Liability to Asset Allocation Study *(Milliman, Inc.)*

5. Scheduling of Future Meeting Dates

6. Adjournment by 4:00 P.M.

TO ASSURE THAT THERE WILL BE A QUORUM,
PLEASE RSVP BY CONTACTING THE CITY CLERK'S OFFICE
BY EMAIL AT CITYCLERK@DOVER.DE.US OR BY CALLING 736-7008
AS SOON AS POSSIBLE.

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THE AGENDA ITEMS AS LISTED MAY NOT BE CONSIDERED IN SEQUENCE. THIS AGENDA IS SUBJECT TO CHANGE TO INCLUDE THE ADDITION OR THE DELETION OF ITEMS, INCLUDING EXECUTIVE SESSIONS.

POLICE PENSION BOARD

A meeting of the Police Pension Board was held on May 9, 2012 at 4:09 p.m. with Dr. McGlumphy, presiding in the absence of Chairman Mullaney. Members present were Mr. Bonar, Mr. Koenig, Ret. Lt. Knotts, and Ret. Cpl Stallings. Chief Hosfelt was absent.

AGENDA ADDITIONS/DELETIONS

Mr. Bonar moved for approval of the agenda as presented, seconded by Mr. Knotts and unanimously carried.

Quarterly Return Summary and Quarterly Investment Monitor Report *(Milliman, Inc.)*

Mr. Jeff Marzinsky, Principal and Employee Benefits Consultant, Milliman, Inc., stated that it was his honor to be retained by the City of Dover to serve in an investment advisory capacity. He stated his intention to review the initial report for the Police Pension Plan and some of the projects planned for the next few months, looking at the asset allocation, the investments in the portfolio, and the duration of the liabilities, so that the actuarial results and the funded status of the plan could be tied together. He stated that Milliman would be reviewing funded status to determine whether the portfolio should be more of a growth-type versus a liability-driven portfolio.

Mr. Marzinsky provided members a revised Quarterly Investment Monitor - Summary Report for the Quarter Ending March 31, 2012 Prepared for City of Dover, Delaware Police Pension Plan ***(Attachment #1)***, which included a Quarterly Return Summary, and presented an overview of the report. He explained that Section A contained the Market Commentary, which summarized the status of the world economy. He indicated that for the majority of the quarter, most of the three (3) month and one (1) year returns were positive, with a slight lag in smaller cap equity categories and noted that favorable economic signs were being seen.

Referring to the Quarterly Return Summary in the Performance Summary section of the Report, Mr. Marzinsky noted that some of the calculations of the City's prior advisor had been replicated to show month-to-month and quarter-to-quarter performance. He noted a 7.01% net return and 7.08% gross return for the quarter.

Mr. Marzinsky stated that Asset Allocation was reflected on Page 9 of the report and that Milliman may recommend some future changes in this regard. He indicated that the current allocation of the plan was approximately 66% equity and 34% fixed income, which he stated was a fairly aggressive portfolio. He noted that international investments accounted for approximately 18% of equity investments and that the portfolio was fairly growth oriented.

Mr. Marzinsky explained that Page 10, Investment Policy Review - Active Management, focused on the investment parameters of the report. He noted that Columns 1 and 2, Return Rank, reflected how each fund compared to the same type of funds in that asset category. Columns 3 and 4 reflected Excess Return, showing how the fund's performance over the time period compared to its market benchmark. He indicated that highlighting reflects that a fund is performing worse than it should be. Mr. Marzinsky advised members that Columns 5 and 6 related to Standard Deviation, which is

a measure of the volatility of returns. He explained that the columns labeled Alpha and Sharpe are measures that show how well the fund manager does with their investment style within the fund. He noted that Alpha indicated the value being added and Sharpe was a measure of the reward per unit of risk being taken.

As an illustration, Mr. Marzinsky reviewed statistics regarding the Vanguard Prime Cap Investor Shares Fund. He pointed out that, on Page 10, this fund had a Return Rank of 79 (highlighted). He explained that funds are ranked within their peer group from 0 (best) to 99 (lowest); therefore, at 79, this fund ranked below the halfway mark; however, over five (5) years it ranked better than half of the funds in its peer group. Mr. Marzinsky stated that Excess Return compared the fund to a large-cap benchmark and noted that for the three (3) year period the fund was trailing its benchmark by -3.51% and over five (5) years by -0.45%. In reference to standard deviation, Mr. Marzinsky explained that figures greater than 1.0 reflect that a fund was a little more aggressive than its benchmark; therefore this fund was slightly more volatile than the market. With this amount of volatility, he felt that figures for excess return should have been better. He reminded members that Alpha and Sharpe were peer group comparisons and that the rank of 72, in over three (3) and five (5) years, under Alpha reflected the fund's ability to generate value compared to the peer group. He stated that the figures indicated that this fund was underperforming its peers.

Mr. Marzinsky explained that Page 11, Investment Policy Review - Passive Management, reflected similar measures for passive funds by providing Beta and Tracking Error information. He explained that if a fund had a beta of 1.0 it was following the index exactly and the majority of index funds have a beta that is close to 1.0. He stated that Milliman had used a three (3) year benchmark in their report and would be adjusting this to a five (5) year benchmark and that the beta would then be close to 1.0 and tracking error would be very low.

Mr. Marzinsky advised members that the Investment Policy Review, contained on Pages 10-11, functions as a "scorecard" which ties back to the parameters set in the investment policy for fund managers that are included in the plan. He indicated that the high-level review conducted showed underperformance in some funds but nothing major at this time and that a more thorough review of asset allocation and managers would be performed.

Referring to Page 14, U.S. Equity Style Map, Mr. Marzinsky noted that the grid assessed how a manager was doing in accordance with a style-specific index, taking actual performance over time periods and comparing it to the performance style of the index to see if it is well correlated. He noted that this would reflect if a manager was adhering to his/her style. For example, the actions of a large cap value manager should appear in the upper left quadrant, and a small cap growth manager should be in the lower right quadrant. He explained that a fund that moves "all over the place" would illustrate that a manager was not adhering to his/her style, which could cause overlapping styles in the plan and duplication of efforts. Mr. Marzinsky noted that the lower right quadrant of the grid indicated that there were no small growth or mid-cap investments in the portfolio and that these may be asset categories that would enhance the trust fund.

Mr. Marzinsky stated that Page 16 of the report began the Core Fund Review, which provided details regarding individual investments in the plan. He noted that during the Civilian Pension Board

Meeting held prior to this meeting, he was requested to create an executive summary based on the information in the report and offered to do the same for the Police Pension Board.

Mr. Bonar advised members that during the Civilian Pension Board Meeting, Mr. Marzinsky was asked to provide an executive summary in advance of the meeting so that it could be read and, in the long run, a representative from Milliman may not need to attend meetings more than twice per year. He noted that this decision would be up to members.

Dr. McGlumphy felt that it would be a good idea to have the executive summary well in advance of meetings.

Mr. Marzinsky noted that Page 25 of the report contained statistics regarding the Vanguard Primcap Investors' Fund, including a breakdown of the overall asset allocation of the fund, portfolio region, portfolio structure, sector allocation, and credit quality. He explained that the middle column contained information about the fund manager, the average market cap of the investments, and the overall Morningstar rating (four (4) out of five (5) possible stars). Mr. Marzinsky noted that the expense ratio indicated that this particular fund was well below its peers, which he stated was a very good thing in a pension portfolio. He indicated that there was a paragraph about the fund and information regarding its performance over the last three (3) months, year to date, one (1) year, three (3) years, and five (5) years. He noted that in the Performance vs. Peer Group chart, the floating bar chart demonstrated the range of returns of the other investments in the fund's asset class and that this particular fund was underperforming other funds in year to date, one (1) year, and three (3) year timeframes, but the five (5) year return showed fairly good performance.

Mr. Marzinsky concluded his report by reviewing Page 26 of the report, which provided information regarding the fund year-by-year, as well as a numerical comparison performance index on a year-to-year basis compared to the Standard & Poor Index and risk-adjusted measures, rolling period returns, Up/Down Market Capture Ratio, and Return vs. Risk.

Mr. Marzinsky noted that he works very closely with Mr. Scott Porter, Milliman, Inc., who works on the actuarial side, and stated that he would return in a few months with recomomendations regarding the asset allocation of the plan and whether changes should be made to asset categories and managers within categories. He noted that in the future his report would consist of more summarized information but wanted to provide members with information regarding fund analysis.

Mrs. Mitchell advised members that Milliman, Inc., was also serving as the City's actuary and would be matching assets with the structure of the portfolio. She stated that the members of the Police Pension Plan are all retired and the plan is closed; therefore, the plan would likely end up with a different structure than the Civilian Pension Plan. For this reason, she anticipated that meetings would be held separately in the future because there would be different choices to be made. She noted that in the future, the Other Post-Employment Benefits Board, Civilian Pension Board, and Police Pension Board would likely meet on the same day with brief meetings scheduled back-to-back.

Mr. Marzinsky noted that, in the future, rather than reviewing all of the information, Milliman would provide a one (1) to two (2) page memo with bullet points to highlight issues or recommendations for change or "watch."

Ret. Lt. Knotts moved for adjournment, seconded by Ret. Cpl. Stallings and unanimously carried.

Meeting adjourned at 4:29 P.M.

William P. McGlumphy
Acting Chairman

WPM/JS/dd/tm
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Attachment to Original
Attachment #1 - Revised Quarterly Investment Monitor - Summary Report for the Quarter Ending March 31, 2012 - Prepared for City of Dover, Delaware Police Pension Plan, Including Quarterly Return Summary

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MEMO

August 2, 2012

To:	City of Dover, DE – Police Pension Board
From:	Jeff Marzinsky/Milliman
Re:	Meeting Notes – 8/15/2012

Enclosures: Milliman Quarterly Investment Monitor Report and Asset Liability Study

1. Investment Performance Review as of June 30, 2012 – See Quarterly Investment Monitor Report
    a. Plan assets have changed from $11.00 million at the beginning of the period to $10.69 million at the end of the period. After contributions of approximately $325k and withdrawals of $374k, the plan had a net gain/loss of (5.70%).
    b. Some of the actively managed investments are trailing their benchmarks over three and five year time periods, as well as ranking below median in their respective peer groups.
    c. The passive-index investments are following their respective benchmarks.
    d. No changes to funds at this time. Milliman will be completing an asset allocation review and changes to asset classes and fund may be forthcoming.

2. Asset Liability Study – See Asset Liability Study
    a. Background:
        i. Plan has closed to new participants for over 20 years and is significantly underfunded.
        ii. Plan is following a 13-year amortization schedule to meet a projected fully funded status.
        iii. Target actuarial interest rate is set at 7.00%.
    b. Milliman has conducted an asset liability study to determine the duration of plan cash flows in comparison to the duration of plan assets.
        i. The study determined approximate cash flow duration on plan liabilities of approximately 13 years, while current plan assets have a fixed income duration of approximately 3.95 years and an overall plan asset duration of 1.26 years.
        ii. By adding longer duration bond investments, the plan could increase the duration of fixed income assets (and the overall plan).
    c. The expected return on plan assets, based on the current allocation is approximately 6.70%, with a standard deviation of 12.19. The allocation is approximately 64% equity and 36% fixed income.
        i. It could be possible to produce an expected return more in line with the actuarial target return of 7.00%, provide more diversification, provide a slightly better match of plan liabilities to assets and lower expected standard deviation (~12.13) by adding additional asset classes to the plan. The allocation would be approximately 61% equity and 39% fixed income.
    d. It should also be noted that a dynamic investment policy should be considered, whereby the plan reduces equity exposure as funded status improves.

The analysis in this report was prepared utilizing data from third parties and other sources including but not limited to internal computer software and databases, including among others mpiStylus Pro©,, software designed by Markov Processes International. Reasonable care has been taken to assure the accuracy of the data contained herein, and comments are objectively stated and are based on facts gathered in good faith. These reports do not constitute investment advice with respect to the sale or disposition of individual securities. Milliman disclaims responsibility, financial or otherwise, for the accuracy or completeness of this report.

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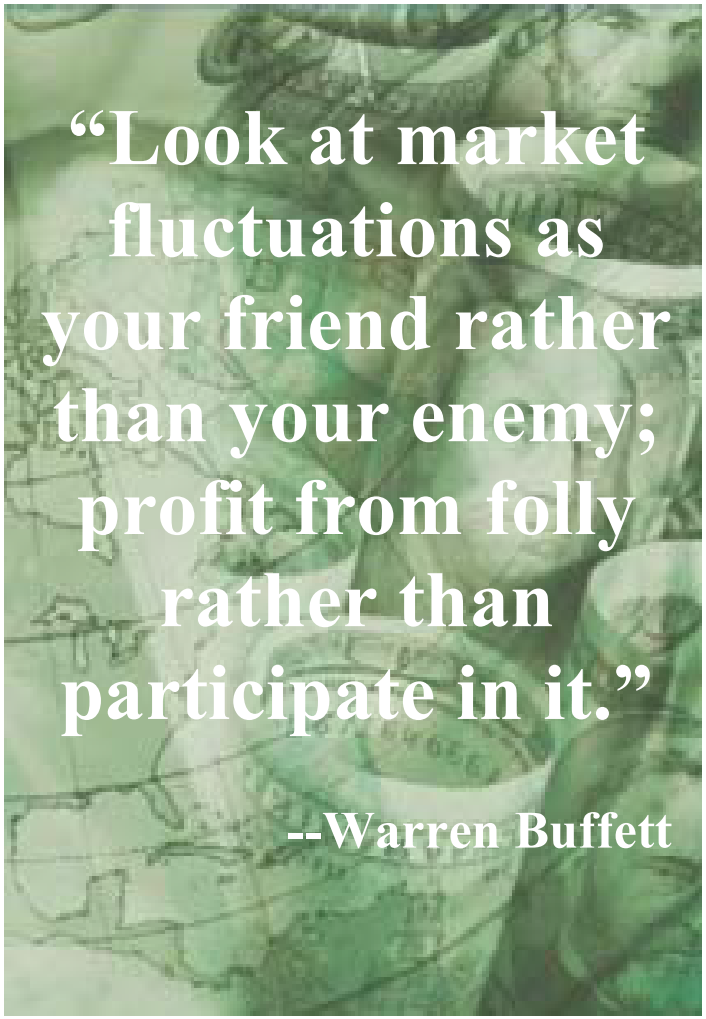
Past performance is no guarantee of future results.

Unless explicitly stated in your Service Agreement, there should be no reliance on Milliman services to provide analysis or reporting on a daily basis, the changes to manager rankings, ratings or opinions thereon.

Unless explicitly stated in your Service Agreement, Milliman services are not intended to monitor investment manager compliance with individual security selection criteria, limits on security selection, and/or prohibitions to the holding of certain securities or security types.

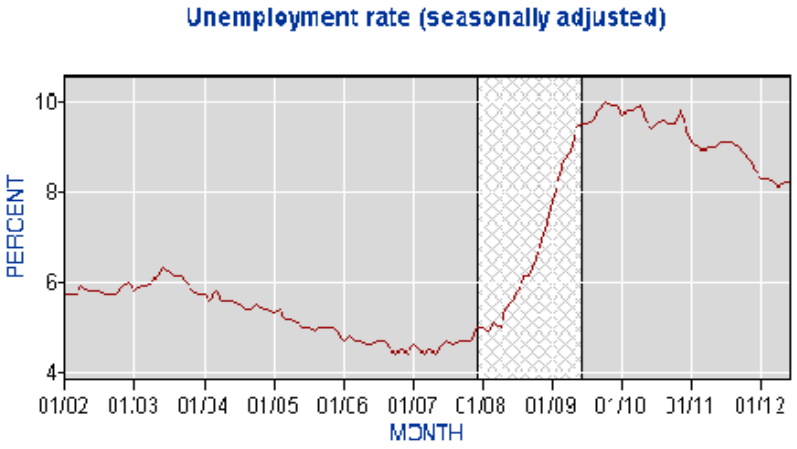
Milliman provides a copy of its SEC Form ADV Part II to clients without charge upon request.

Market Commentary - 2nd Quarter 2012

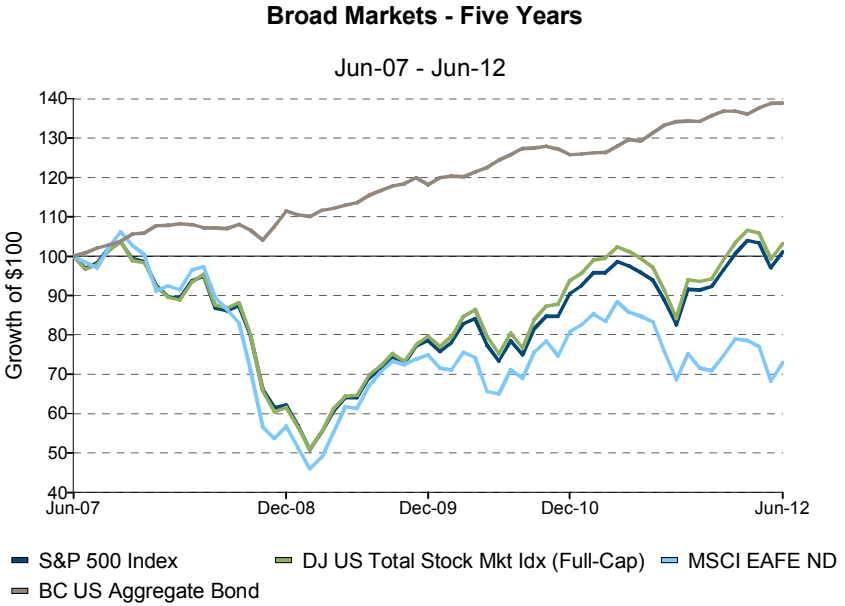


	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
S&P 500 Index	-2.75	5.45	16.40	0.22	5.33
DJ US Total Stock Mkt Idx (Full-Cap)	-3.21	3.78	16.84	0.63	6.16
Russell 1000 Index	-3.12	4.37	16.64	0.39	5.72
Russell 1000 Value Index	-2.20	3.01	15.80	-2.19	5.28
Russell 1000 Growth Index	-4.02	5.76	17.50	2.87	6.03
Russell 2000 Index	-3.47	-2.08	17.80	0.54	7.00
Russell 2000 Value Index	-3.01	-1.44	17.43	-1.05	6.50
Russell 2000 Growth Index	-3.94	-2.71	18.09	1.99	7.39
MSCI EAFE ND	-7.13	-13.83	5.96	-6.10	5.14
MSCI EAFE Small Cap ND	-8.65	-15.06	9.17	-5.32	8.49
MSCI Europe ND	-7.47	-16.48	6.29	-6.97	5.09
MSCI Japan ND	-7.30	-7.23	1.85	-6.51	2.50
MSCI EM ND	-8.90	-15.95	9.77	-0.09	14.08
DJ World Real Estate	1.89	0.76	17.36	-3.58	9.13
DJ US Select REIT Index	3.75	13.29	33.52	1.97	10.27
ML 3-month T-Bill	0.03	0.06	0.12	0.98	1.87
BC US Gov 1-3Y Bonds	0.20	0.86	1.69	3.40	3.14
BC US Gov/Corp Bonds	2.56	8.78	7.34	6.90	5.79
BC US Aggregate Bond	2.06	7.47	6.93	6.79	5.63
BC US Gov Long Bonds	10.32	31.42	13.51	11.92	8.92
BC US Corp Long Bonds	5.12	18.74	15.10	9.85	8.45
BC US High Yield Bonds	1.83	7.27	16.28	8.45	10.16
BC TIPS	3.15	11.66	9.63	8.44	7.23

Market Commentary - 2nd Quarter 2012



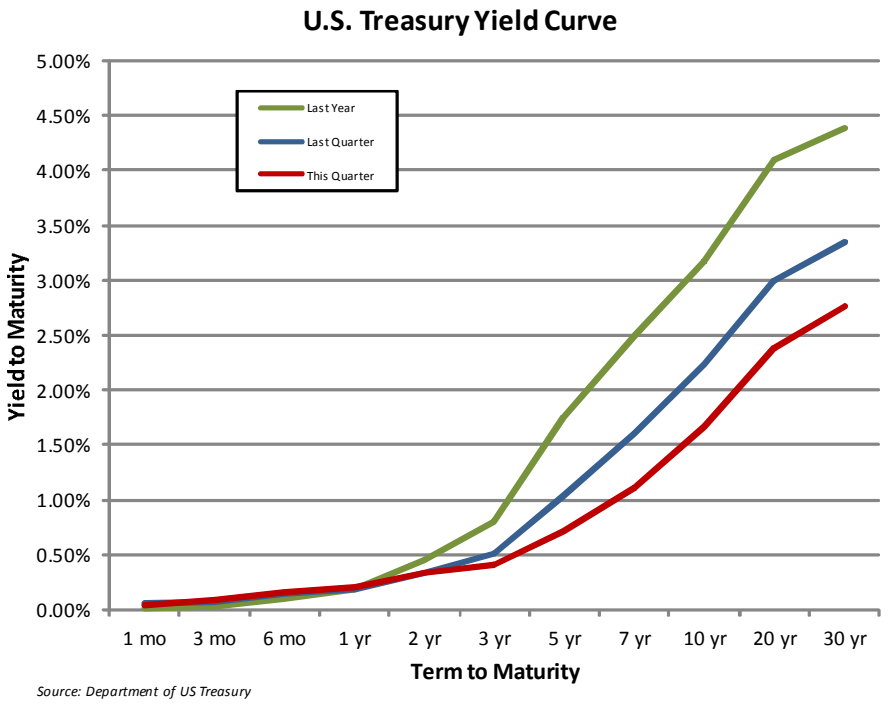
Note: Cross-hatched area represents recession.



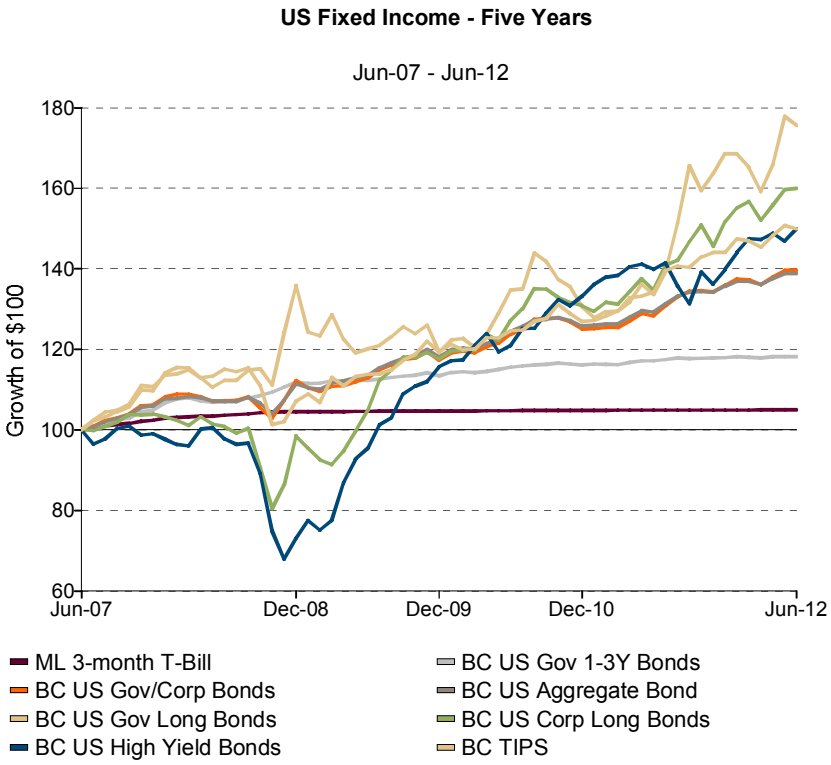
Market Commentary

- The U.S. stock market declined on worries about the European debt crisis, weaker economic data in the U.S. and China, and concerns about the oncoming "fiscal cliff" in the U.S.
- The international equity markets fell in response to slowing global economic growth and fear that the European debt crisis could cause the Euro zone to break up.
- The Federal Reserve Bank continued to sell shorter-term U.S. Treasuries and buy longer-term bonds, with the goal of pushing down long-term interest rates to stimulate borrowing and spending.
- As the quarter ended, mutual fund investors increased their holdings in bonds and decreased their holdings in stocks. For the quarter, bond funds had net inflows of $58.8 billion, while stock funds had net outflows of $19.2 billion. Total money market mutual fund assets decreased by $66.90 billion to $2.538 trillion.
- The unemployment rate remained at 8.2%, as total employment increased by 225,000 jobs.
- The price of oil decreased from $106 per barrel to $82 during the quarter, a decrease of 22.6%.
- For the three months ending June 30, 2012, annualized seasonally adjusted CPI – U was -0.8%. Falling prices for fuel oil and gasoline drove the decrease.

Market Commentary - 2nd Quarter 2012



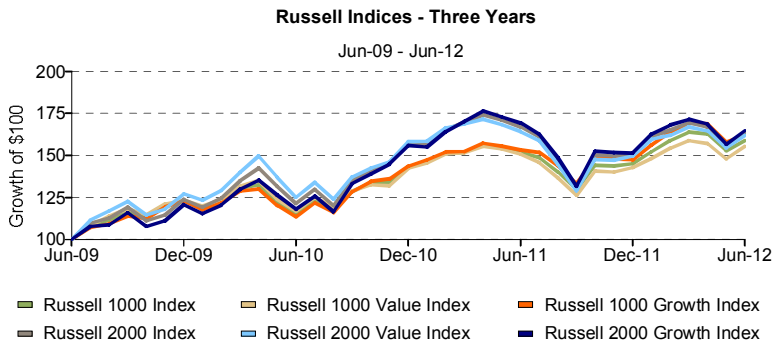
Source: Department of US Treasury

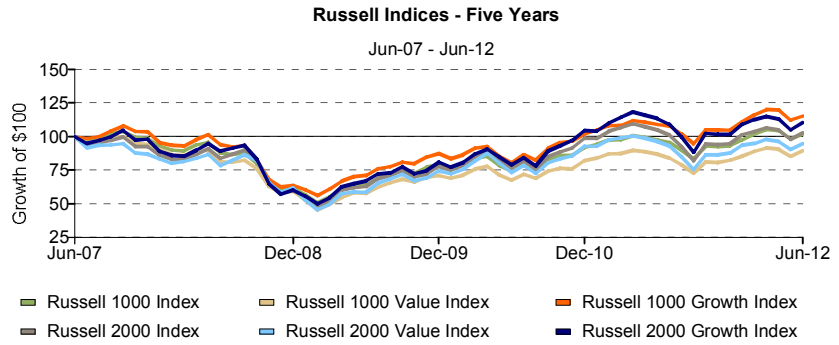


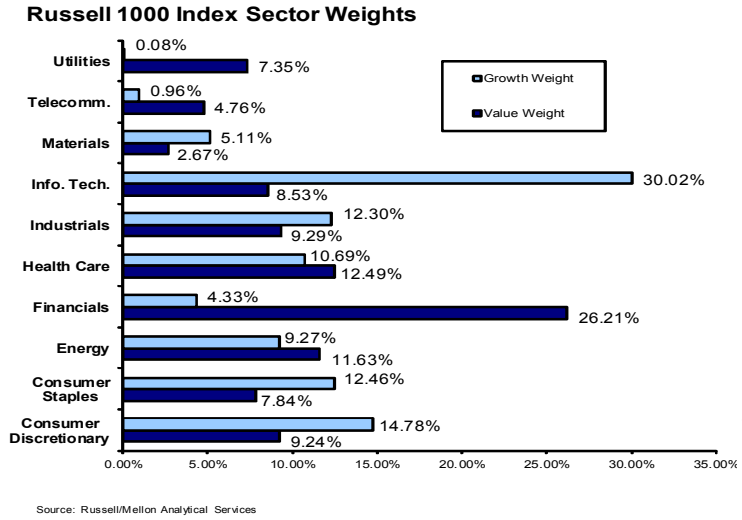
US Bond Market

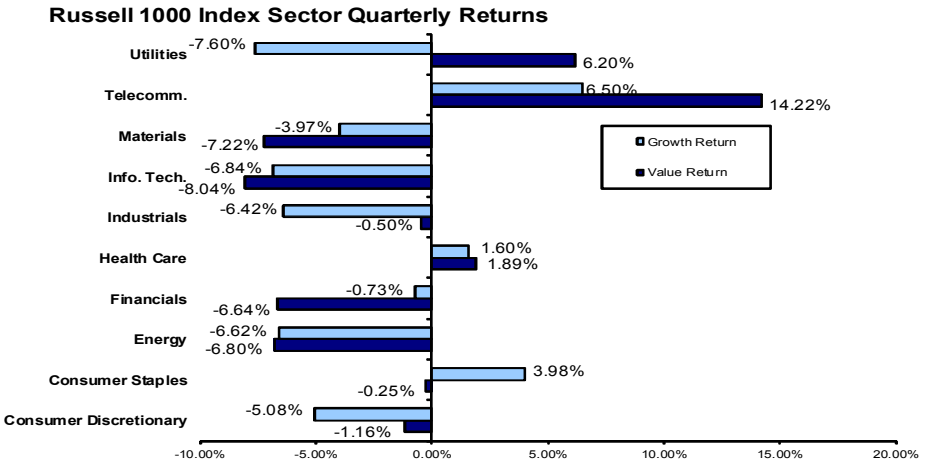
- Most fixed income markets rose in the 2nd quarter, as investors shifted from lower quality bonds to higher quality bonds.
- The short end of the yield curve remained unchanged as the Fed maintained its near-zero interest rate policy.
- Interest rates moved decidedly lower in the 10- and 30-year Treasury rates.
- Long-term government bonds were the best performing sector this quarter, up 10.32%, as investors sought the safety of government bonds.
- Long-term corporate bonds also performed well this quarter, up 5.12%, as long-term corporate rates fell sharply.
- Mortgage-backed securities were the worst performing sector this quarter, up 1.08%, as heavy refinancing activity dampened mortgage returns.
- 91-Day T-Bill returned 0.03% in the second quarter as compared with 0.01% in the first quarter.

Market Commentary - 2nd Quarter 2012









Source: Russell/Mellon Analytical Services

US Stock Market

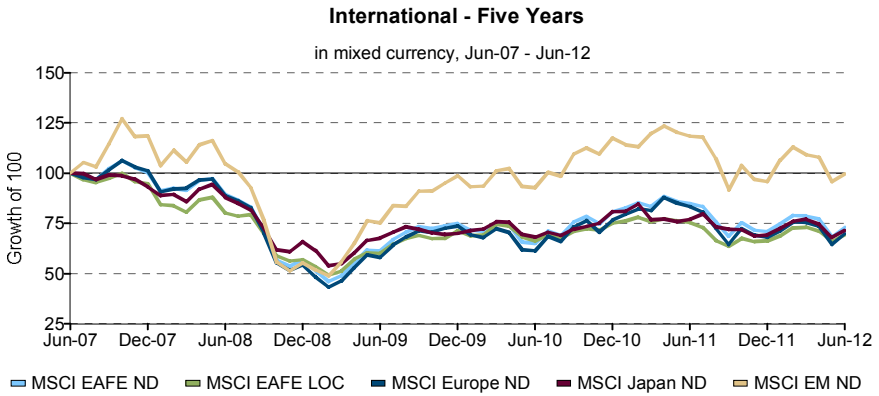
- Most major domestic equity indices posted a loss for the quarter. The large-cap Russell 1000 Value Index had the best return, down 2.2%.
- Large-cap stocks outperformed small-caps, down 3.1% vs. -3.5%.
- In comparing styles, value stocks did better than growth stocks.
- REITs had a strong quarter, up 3.75%, due to solid fundamentals, including growing cash flow and improving occupancy and rental rates. The best performing sectors were infrastructure and health care.
- Telecommunication services were the best performing sector, up 13.07%, on better-than-expected earnings from AT&T and Verizon.
- Info technology was the worst performing sector, down 7.11%, as corporate IT spending slowed significantly.

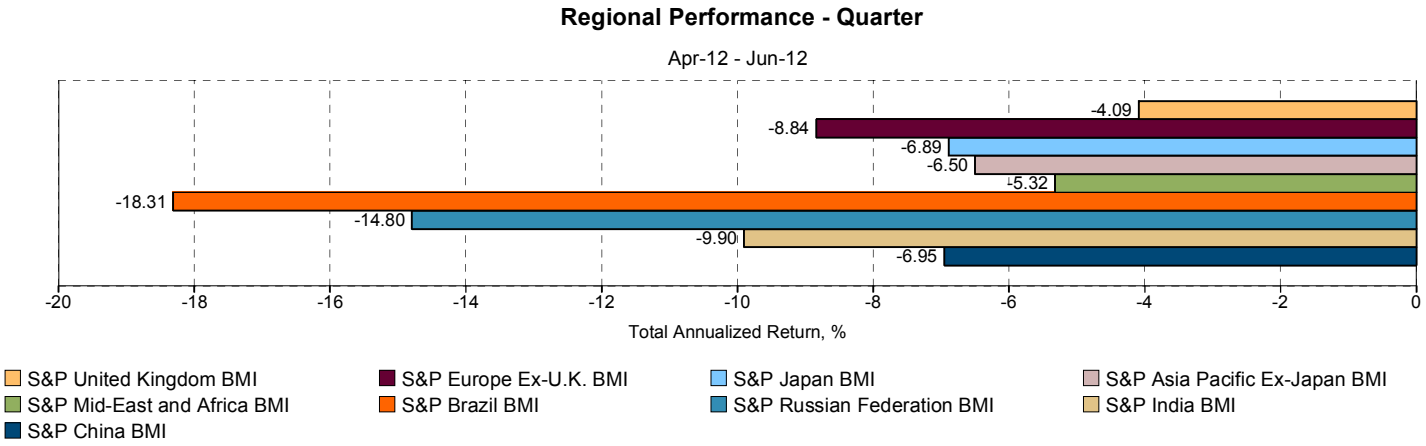
Market Commentary - 2nd Quarter 2012

Currency Exchange Rates

	Units per US Dollar		
	This Quarter	Last Quarter	% Change
Brazil Reais	2.01	1.83	10.00%
China Yuan Renminbi	6.36	6.30	0.88%
Euro	0.79	0.75	5.22%
India Rupees	55.57	50.87	9.24%
Japan Yen	79.81	82.87	-3.69%
Mexico Pesos	13.41	12.81	4.71%
Russia Rubles	32.42	29.32	10.56%
United Kingdom Pounds	0.64	0.62	2.84%

Source: www.xe.com





International Markets

- The dollar was up against the euro and pound, but down against the yen.
- For the quarter, the EAFE Index was down 7.13% and Emerging Markets were down 8.90%. Local currency returns for the EAFE Index and Emerging Markets were -5.43% and -5.26%, respectively.
- Among the major international regions, Brazilian stocks had the lowest return (-18.31%) on concerns about the country's future economic growth.
- Stocks in Russia also fell substantially (-14.80%), as a result of lower oil prices and a reduction in gas exports to Europe.
- Small-cap stocks, down 8.7%, underperformed large-cap stocks.

City of Dover
Police Pension Plan
Quarterly Return Summary

Month End	BMV	Contribution	Withdrawls	Fees	Gain	EMV	POLICE-NET RETURN	POLICE GROSS-RETURN
4/30/2012	$ 11,004,757.07	$ 14,000.00	$ 124,966.29	$ 461.66	$ (144,214.42)	$ 10,865,903.79	-1.31%	-1.31%
5/31/2012	$ 10,865,903.79	$ -	$ 124,966.29	$ 458.10	$ (633,036.63)	$ 10,228,335.14	-5.83%	-5.83%
6/30/2012	$ 10,228,335.14	$ 311,966.87	$ 124,996.26	$ 439.89	$ 149,512.40	$ 10,685,354.61	1.46%	1.46%
		$ 325,966.87	$ 374,928.84	$ 1,359.65	$ (627,738.65)	Quarterly Return	-5.70%	-5.70%

Monthly Returns are calculated with a mid month weighting on cash flows.

Performance Summary

Asset Allocation

	Balances As of 06/30/2012	Percent As of 06/30/2012	Balances As of 03/31/2012	Percent As of 03/31/2012	Notes
Wells Fargo Advantage Treas Plus MMkt I	$598,954	5.61%	$274,342	2.49%	
Vanguard Short-Term Bond Index Signal	$2,272,230	21.26%	$2,341,365	21.28%	
Vanguard Interm-Term Bond Index Signal	$1,186,963	11.11%	$1,179,688	10.72%	
Vanguard Equity-Income Adm	$1,477,296	13.83%	$1,544,250	14.04%	
Vanguard Morgan Growth Adm	$724,833	6.78%	$802,566	7.30%	
Vanguard PRIMECAP Inv	$566,323	5.30%	$615,641	5.60%	
Vanguard Mid-Cap Value Index Admiral	$888,874	8.32%	$964,678	8.77%	
DFA US Targeted Value I	$499,674	4.68%	$547,870	4.98%	
DFA International Value I	$603,121	5.64%	$693,700	6.31%	
American Funds New Perspective R6	$939,439	8.79%	$1,016,145	9.24%	
Harding Loevner Global Equity Inst	$927,644	8.68%	$1,021,040	9.28%	
Plan Total	**$10,685,352**		**$11,001,284**		

Investment Policy Review - Active Management

Fund Name	Return Rank 3Y	Return Rank 5Y	Excess Return 3Y	Excess Return 5Y	Relative StdDev 3Y	Relative StdDev 5Y	Alpha Rank 3Y	Sharpe Rank 3Y	Alpha Rank 5Y	Sharpe Rank 5Y
Vanguard Equity-Income Adm	3	6	3.29	4.45	0.81	0.84	4	4	5	6
Vanguard Morgan Growth Adm	28	53	-1.08	-2.10	1.18	1.14	44	37	55	53
Vanguard PRIMECAP Inv	67	37	-3.74	-1.13	1.11	1.06	62	63	38	39
DFA US Targeted Value I	35	70	-0.07	-1.16	1.09	1.08	82	74	67	67
DFA International Value I	78	81	0.65	0.28	1.07	1.10	79	79	56	60
American Funds New Perspective R6	28	19	1.97	3.30	0.97	0.93	26	24	19	19
Harding Loevner Global Equity Inst	29	11	1.82	3.94	0.95	0.94	24	23	14	12

Definitions

Return Rank - Fund's category percentile return rank, a value less than 50 (1 is the best and 100 is the worst) implies the fund is beating more than 50% of its peer group.

Excess Return - Fund's excess return over its becnchmark, a value greater than 0 implies the fund's return is higher than its benchmark.

Relative StdDev - Fund's standard deviation relative to its benchmark, a value less than 1 implies the fund's standard deviation is lower than its benchmark.

Alpha Rank - Fund's category percentile Alpha rank, a value less than 50 (1 is the best and 100 is the worst) implies the fund is beating more than 50% of its peer group.

Sharpe Rank - Fund's category percentile Sharpe Ratio rank, a value less than 50 (1 is the best and 100 is the worst) implies the fund is beating more than 50% of its peer group.

Investment Policy Review - Passive Management

Fund Name	Excess Return 3Y	Excess Return 5Y	Beta 3Y	Tracking Error 3Y	Beta 5Y	Tracking Error 5Y	Expense Ratio
Vanguard Short-Term Bond Index Signal	1.25	1.00	1.74	0.82	1.50	0.90	0.11
Vanguard Interm-Term Bond Index Signal	-0.03	0.11	1.02	0.34	1.02	0.44	0.11
Vanguard Mid-Cap Value Index Admiral	-0.08	-0.67	0.97	2.96	0.98	4.49	0.10

Definitions

Excess Return - Fund's excess return over its becnchmark, a value greater than 0 implies the fund's return is higher than its benchmark.

Beta - Fund's Beta or sensitivity to movements compared to its benchmark, a value of 1 implies its moving in sync with its benchmark.

Tracking Error - Fund's Tracking Error versus its benchmark, a value of 0 implies the Fund's ups and downs are the same size as its benchmark.

Investment Option Return Summary

Asset Class	Fund Name	3 Months	YTD	1 Year	3 Years	5 Years	10 Years	Ticker	Mstar Rating	Expense Ratio
Taxable Money Market	Wells Fargo Advantage Treas Plus MMkt I	0.00	0.01	0.01	0.01	0.76	1.69	PISXX	NA	0.20
	BofA ML 3-month T-bill total return Index	*0.03*	*0.04*	*0.06*	*0.12*	*0.98*	*1.87*	*N/A*	*NA*	*NA*
Short-term Bond	Vanguard Short-Term Bond Index Signal	0.59	1.04	2.44	3.51	4.67	3.99	VBSSX	4.00	0.11
	Barclays US Govt/Credit 1-3 Yr TR USD	*0.22*	*0.58*	*1.12*	*2.26*	*3.67*	*3.43*	*N/A*	*NA*	*NA*
Intermediate-term Bond	Vanguard Interm-Term Bond Index Signal	3.31	3.97	11.11	9.94	8.68	6.81	VIBSX	5.00	0.11
	Barclays US Govt/Credit 5-10 Yr TR USD	*3.22*	*3.96*	*11.03*	*9.97*	*8.57*	*6.89*	*N/A*	*NA*	*NA*
Large Value	Vanguard Equity-Income Adm	(0.79)	7.52	9.37	18.61	1.77	6.43	VEIRX	5.00	0.22
	S&P 500 Value	*(3.58)*	*8.92*	*3.00*	*15.32*	*(2.68)*	*4.90*	*N/A*	*NA*	*NA*
Large Growth	Vanguard Morgan Growth Adm	(6.03)	10.14	0.73	16.38	0.93	6.44	VMRAX	4.00	0.30
Large Growth	Vanguard PRIMECAP Inv	(3.49)	6.51	(0.89)	13.71	1.90	7.90	VPMCX	4.00	0.45
	S&P 500 Growth	*(2.05)*	*9.97*	*7.76*	*17.45*	*3.04*	*5.67*	*N/A*	*NA*	*NA*
Mid-Cap Value	Vanguard Mid-Cap Value Index Admiral	(4.33)	6.40	(0.73)	19.60	0.01	NA	VMVAX	3.00	0.10
	MSCI US Mid Cap 450 Index USD	*(5.46)*	*7.23*	*(2.71)*	*19.68*	*0.68*	*8.24*	*N/A*	*NA*	*NA*
Small Value	DFA US Targeted Value I	(5.27)	6.08	(5.41)	18.22	(0.89)	8.02	DFFVX	3.00	0.38
	S&P 600 Value	*(4.93)*	*7.30*	*1.74*	*18.29*	*0.27*	*6.76*	*N/A*	*NA*	*NA*
Foreign Large Value	DFA International Value I	(9.56)	0.70	(20.11)	4.76	(7.57)	6.71	DFIVX	3.00	0.45
	MSCI EAFE Large Value NR USD	*(6.79)*	*1.79*	*(14.97)*	*4.11*	*(7.85)*	*4.27*	*N/A*	*NA*	*NA*
World Stock	American Funds New Perspective R6	(4.06)	9.22	(3.12)	12.77	0.60	7.89	RNPGX	4.00	0.46
World Stock	Harding Loevner Global Equity Inst	(5.22)	9.85	(2.76)	12.61	1.25	7.40	HLMVX	4.00	0.95
	MSCI AC World Index ND USD	*(5.56)*	*5.65*	*(6.49)*	*10.80*	*(2.70)*	*5.73*	*N/A*	*NA*	*NA*
Total Plan	POLICE GROSS-RETURN	(5.64)	1.05	(4.52)	9.24	1.45	NA	N/A	NA	NA
Total Plan	POLICE-NET RETURN	(5.70)	0.91	(4.78)	8.94	1.16	NA	N/A	NA	NA
	Police Plan Policy Index	*(2.01)*	*6.03*	*2.20*	*11.72*	*1.92*	*5.86*	*N/A*	*NA*	*NA*

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City of Dover, DE - Police Pension Asset Liability Study

Date Prepared: July 31, 2012

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Optimization Input Review

	Expected Annual Return	Annual Standard Deviation	Sharpe Ratio
Cash	2.50%	1.20	0.00
ML U.S. Treasuries, Inflation-Linked	2.35%	4.45	-0.03
Barclays Capital Interm U.S.Govt/Credit	2.65%	3.95	0.04
Barclays Capital Long Gov/Credit Index	3.90%	9.50	0.15
Russell 1000 Value Index	8.30%	17.75	0.33
Russell 1000 Growth Index	9.15%	21.25	0.31
Russell Midcap Index	9.10%	20.85	0.32
Russell 2000 Index	9.70%	23.55	0.31
FTSE NAREIT REIT: Equity	8.30%	22.50	0.26
MSCI EAFE (Net) Index	9.10%	21.45	0.31
MSCI EM (Emerging Markets) Index	11.30%	30.40	0.29

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Input Correlation

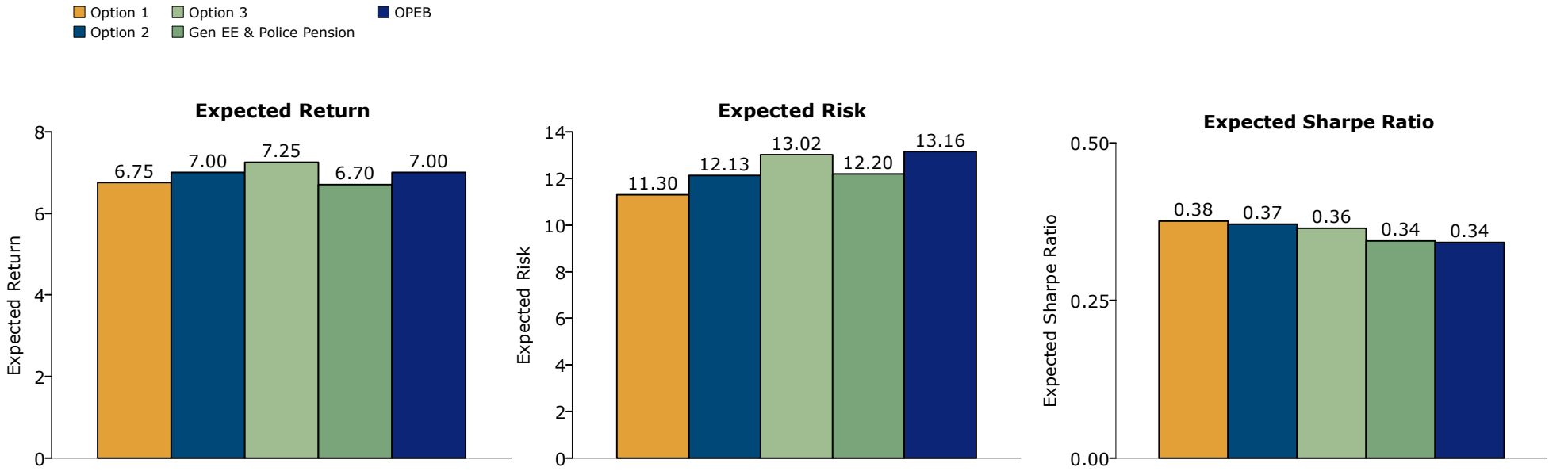
	Corr with Cash	Corr with ML US Treas Infl-Linked	Corr with Barclays Capital Interm U.S.Govt/Credit	Corr with Barclays Capital Long Gov/Credit Index	Corr with Russell 1000 Value Index	Corr with Russell 1000 Growth Index	Corr with Russell Midcap Index	Corr with Russell 2000 Index	Corr with FTSE NAREIT REIT: Equity	Corr with MSCI EAFE (Net) Index	Corr with MSCI EM (Emerging Markets) Index
Cash	1.00	0.03	0.24	0.03	0.07	0.06	-0.01	-0.03	-0.05	-0.08	-0.11
ML U.S. Treasuries, Inflation-Linked	0.03	1.00	0.63	0.56	-0.22	-0.25	-0.19	-0.26	0.05	-0.19	-0.15
Barclays Capital Interm U.S.Govt/Credit	0.24	0.63	1.00	0.86	-0.08	-0.18	-0.17	-0.23	0.04	-0.10	-0.25
Barclays Capital Long Gov/Credit Index	0.03	0.56	0.86	1.00	-0.06	-0.13	-0.12	-0.17	0.04	-0.07	-0.24
Russell 1000 Value Index	0.07	-0.22	-0.08	-0.06	1.00	0.79	0.93	0.87	0.72	0.80	0.61
Russell 1000 Growth Index	0.06	-0.25	-0.18	-0.13	0.79	1.00	0.89	0.83	0.45	0.79	0.68
Russell Midcap Index	-0.01	-0.19	-0.17	-0.12	0.93	0.89	1.00	0.95	0.68	0.83	0.73
Russell 2000 Index	-0.03	-0.26	-0.23	-0.17	0.87	0.83	0.95	1.00	0.70	0.76	0.75
FTSE NAREIT REIT: Equity	-0.05	0.05	0.04	0.04	0.72	0.45	0.68	0.70	1.00	0.58	0.45
MSCI EAFE (Net) Index	-0.08	-0.19	-0.10	-0.07	0.80	0.79	0.83	0.76	0.58	1.00	0.70
MSCI EM (Emerging Markets) Index	-0.11	-0.15	-0.25	-0.24	0.61	0.68	0.73	0.75	0.45	0.70	1.00

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Portfolio Options

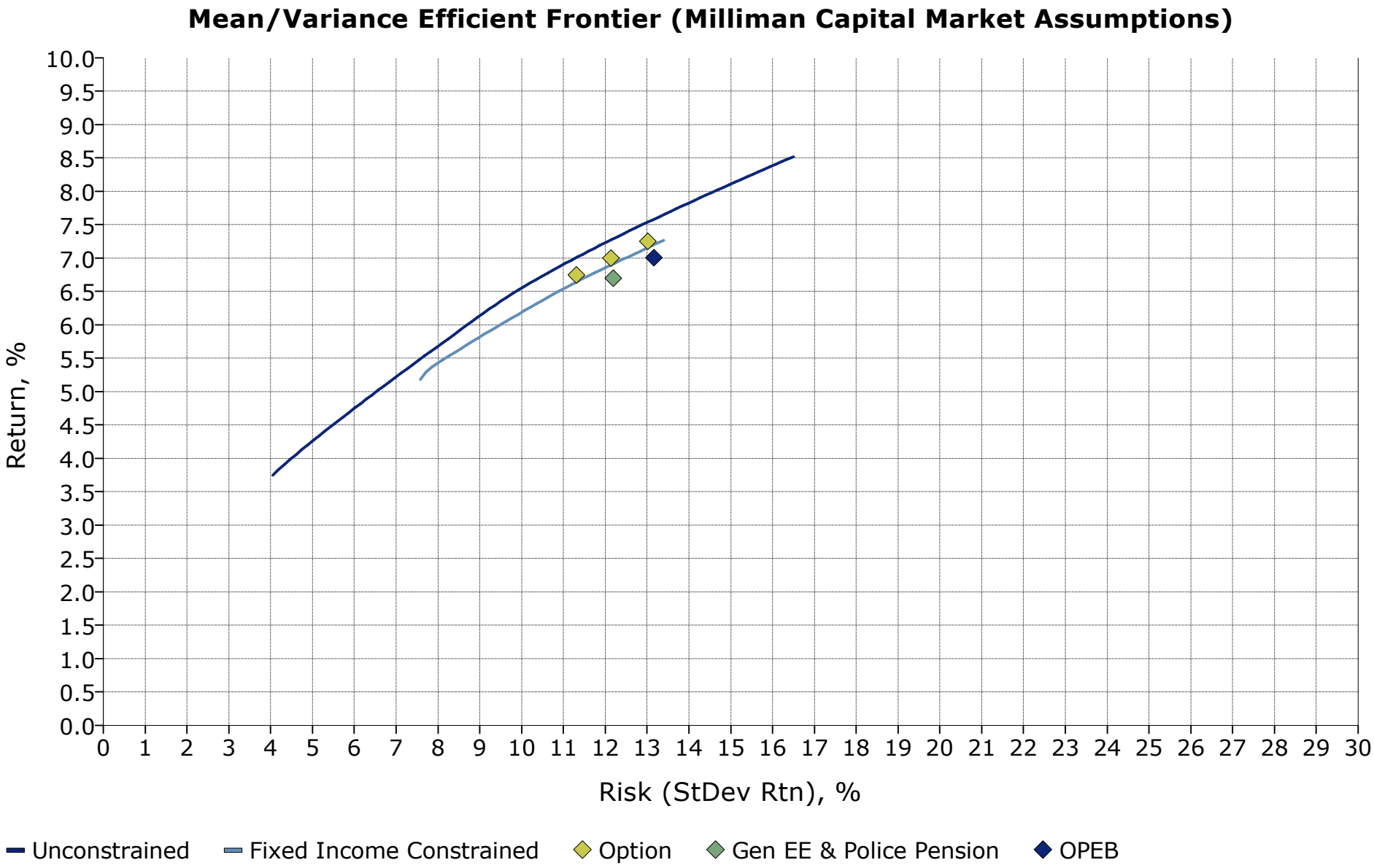
	Option 1	Option 2	Option 3	Gen EE & Police Pension	OPEB
Cash	5.000	5.000	5.000	2.000	1.000
ML U.S. Treasuries, Inflation-Linked	7.000	7.000	7.000	0.000	0.000
Barclays Capital Interm U.S.Govt/Credit	10.000	10.000	10.000	34.000	31.000
Barclays Capital Long Gov/Credit Index	20.000	17.268	12.287	0.000	0.000
Russell 1000 Value Index	12.117	10.000	11.344	14.000	10.000
Russell 1000 Growth Index	10.000	10.738	14.369	14.000	15.000
Russell Midcap Index	5.000	5.000	5.000	8.000	11.000
Russell 2000 Index	5.000	5.000	5.000	5.000	7.000
FTSE NAREIT REIT: Equity	5.000	4.994	5.000	0.000	0.000
MSCI EAFE (Net) Index	10.000	10.000	10.000	23.000	25.000
MSCI EM (Emerging Markets) Index	10.883	15.000	15.000	0.000	0.000
Fixed Income	**42.00%**	**39.27%**	**34.29%**	**36.00%**	**32.00%**
Equity	**58.00%**	**60.73%**	**65.71%**	**64.00%**	**68.00%**

	Option 1	Option 2	Option 3	Gen EE & Police Pension	OPEB
Expected Return	6.75%	7.00%	7.25%	6.70%	7.00%
Expected Standard Deviation	11.3045	12.1307	13.0225	12.1951	13.1609
Expected Sharpe Ratio	0.3760	0.3710	0.3648	0.3444	0.3422



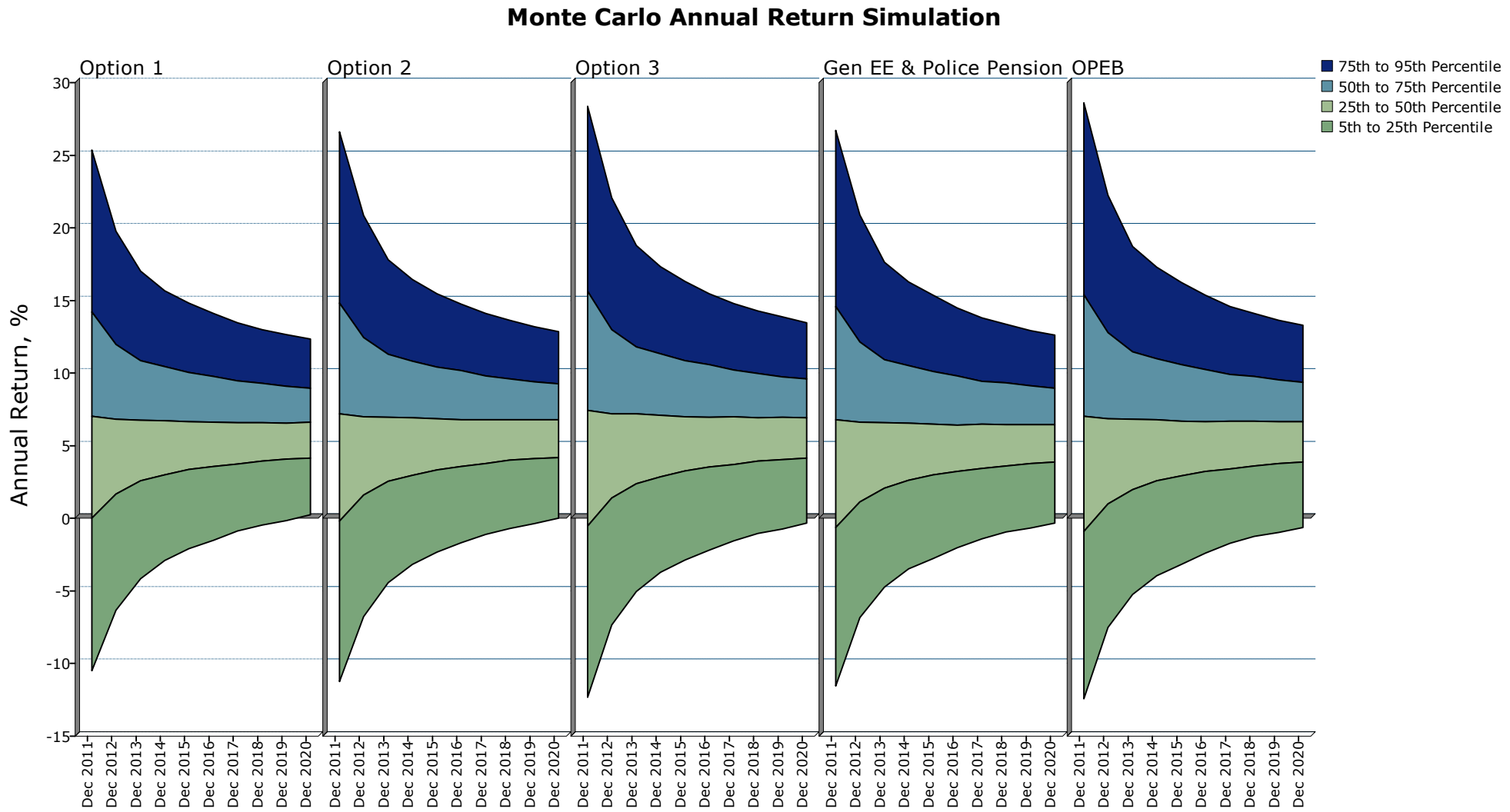
Asset Allocation Study

Efficient Frontier



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Monte Carlo Simulation



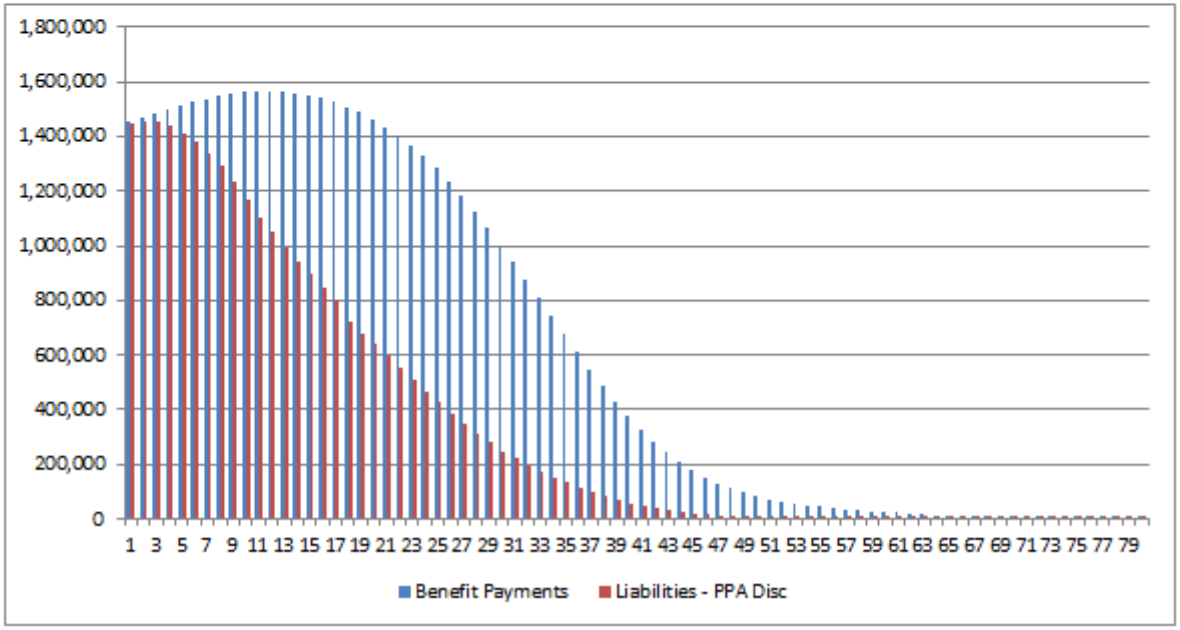
Monte-Carlo Downside Log-stable Simulations

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Liability Duration

Police Pension
Projected Cash Flows and Plan Liability Duration

ACTUAL PROJECTIONS				
Duration	**Isolated Duration**	**Benefit Payments**	**Liabilities**	**%**
Segment I (0-4 yrs)	2.447	7,418,641	7,203,702	26%
Segment II (5-19 yrs)	11.741	23,058,202	15,097,611	54%
Segment III (19+ yrs)	30.008	21,296,960	5,693,032	20%
	13.0642	**51,773,803**	**27,994,345**	**100%**



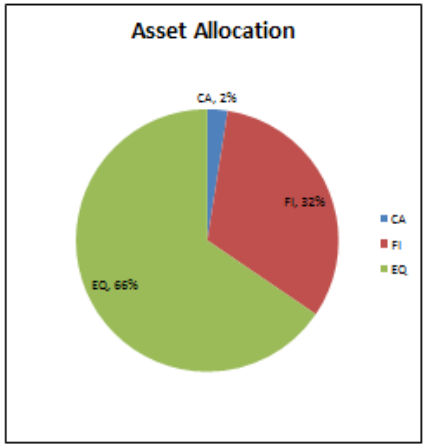
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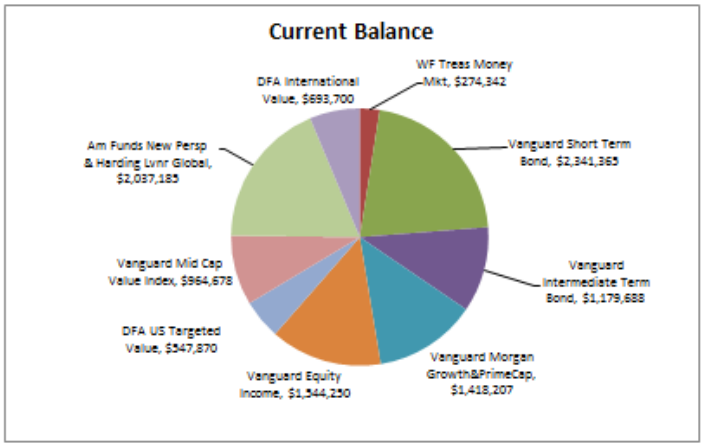
Liability Duration

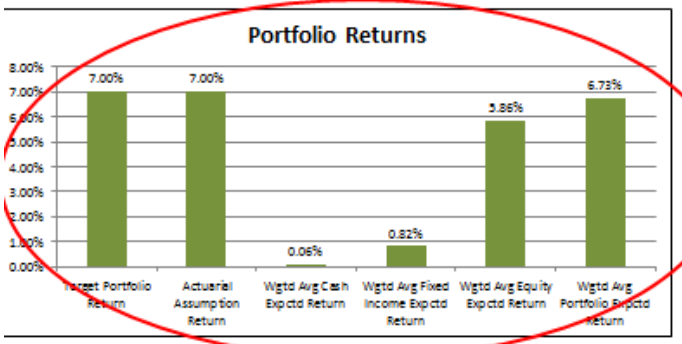
City of Dover – Police Pension
Determination of Portfolio Expected Return and Asset Duration – CURRENT ALLOCATION

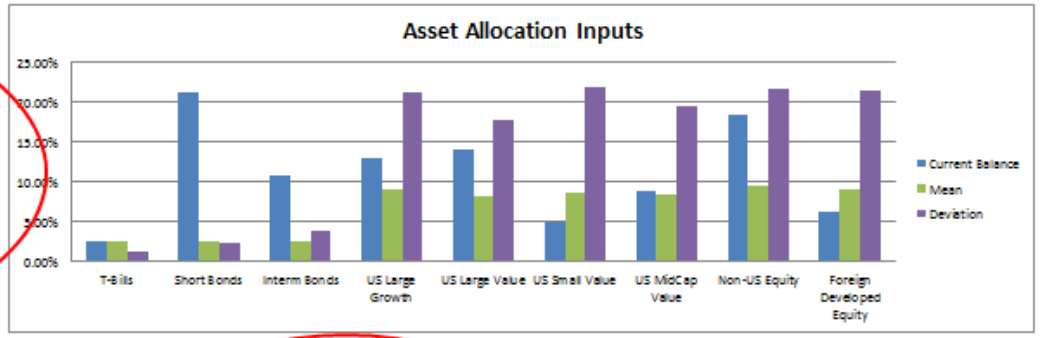
Category		Assets	Allocation
Total Cash Assets	CA	$ 274,342	2%
Total Fixed Income Assets	FI	$ 3,521,053	32%
Total Equity Assets	EQ	$ 7,205,890	66%
	Approx Assets	$ 11,001,285	
	Liability P¹	$ 27,994,345	

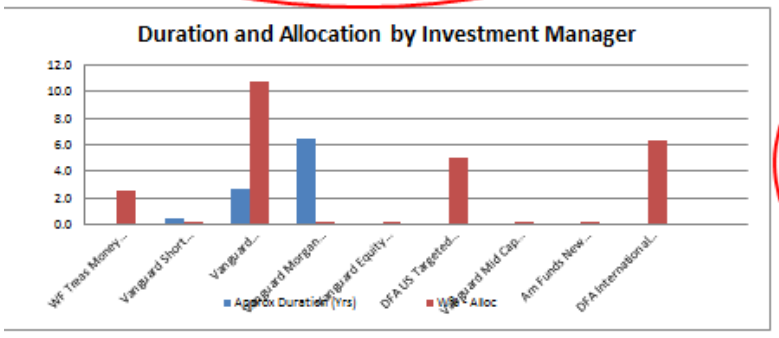
Approximate Plan Funded Status	52.30%
Target Portfolio Return	7.00%
Actuarial Assumption Return	7.00%
Wgtd Avg Cash Expctd Return	0.06%
Wgtd Avg Fixed Income Expctd Return	0.82%
Wgtd Avg Equity Expctd Return	5.86%
Wgtd Avg Portfolio Expctd Return	6.73%
Fixed Income Std Dev	0.89%
Equity Std Dev	12.36%
Portfolio Standard Deviation	12.26%
Weighted Average Portfolio Expense	0.31%
Approximate Cash Flow Duration	13.06
Wgtd Avg Duration of Fixed Income Assets	3.95
Proposed Portfolio Duration	1.26
Hedge Ratio	0.04

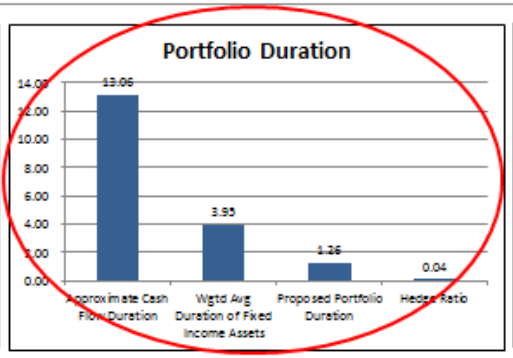


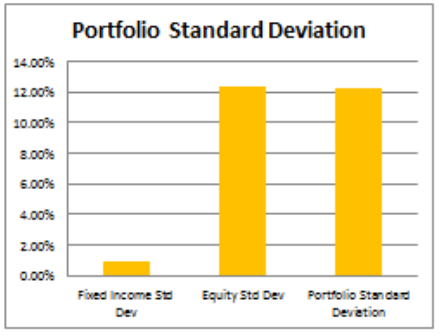












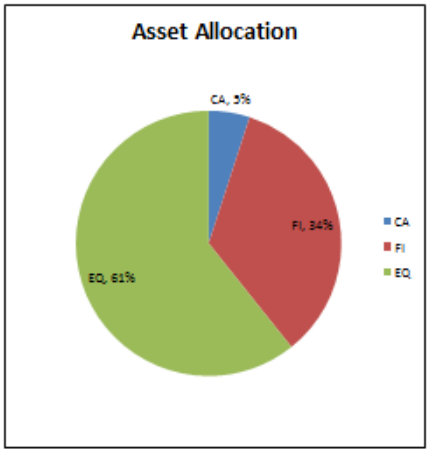
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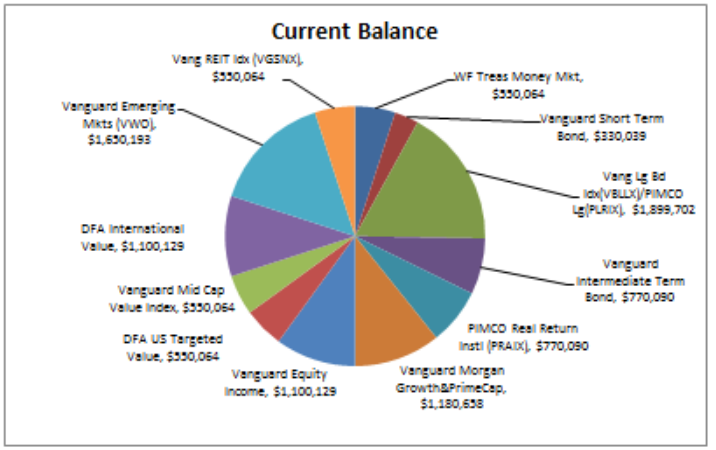
Liability Duration

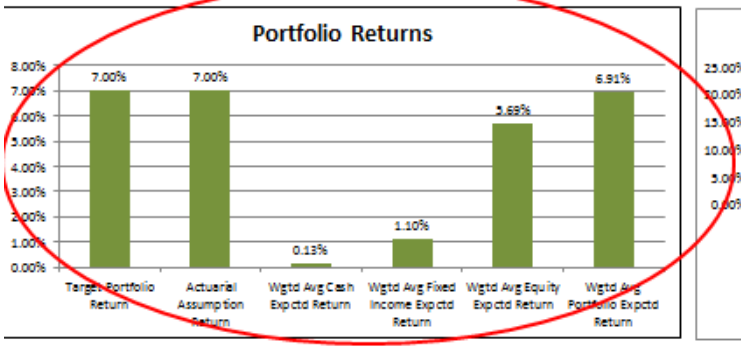
City of Dover – Police Pension
Determination of Portfolio Expected Return and Asset Duration – ADDITIONAL ASSET CLASSES – 61/39 Allocation – 10-12 Year fixed income Duration

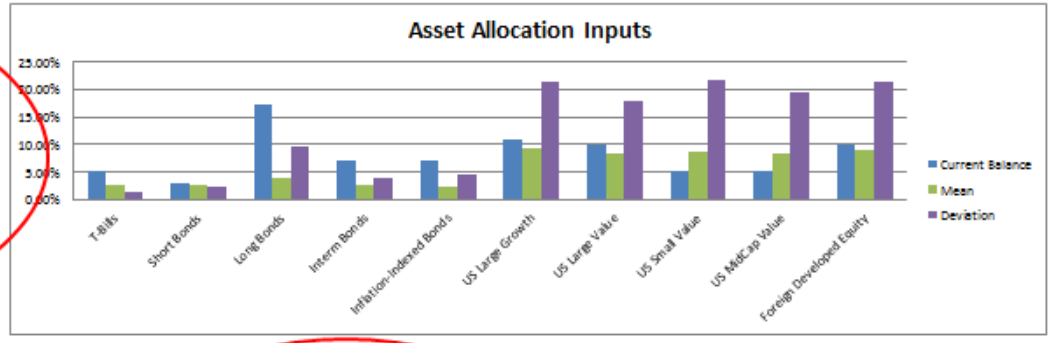
Category		Assets	Allocation
Total Cash Assets	CA	$ 550,064	5%
Total Fixed Income Assets	FI	$ 3,769,920	34%
Total Equity Assets	EQ	$ 6,681,300	61%
	Approx Assets	$ 11,001,285	
	Liability P¹	$ 27,994,345	

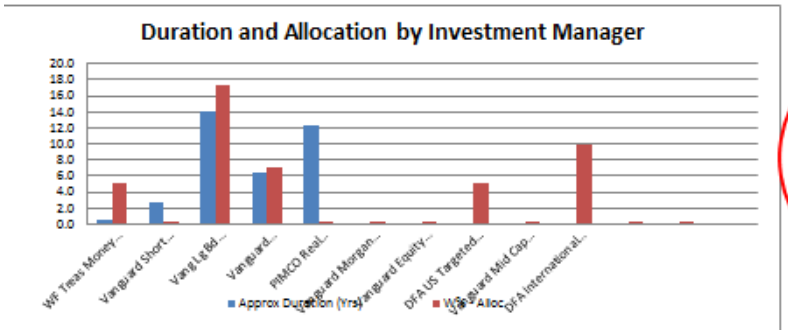
Approximate Plan Funded Status	52.30%
Target Portfolio Return	7.00%
Actuarial Assumption Return	7.00%
Wgtd Avg Cash Expctd Return	0.13%
Wgtd Avg Fixed Income Expctd Return	1.10%
Wgtd Avg Equity Expctd Return	5.69%
Wgtd Avg Portfolio Expctd Return	6.31%
Fixed Income Std Dev	2.13%
Equity Std Dev	12.08%
Portfolio Standard Deviation	11.30%
Weighted Average Portfolio Expense	0.28%
Approximate Cash Flow Duration	13.06
Wgtd Avg Duration of Fixed Income Assets	11.22
Proposed Portfolio Duration	3.85
Hedge Ratio	0.12

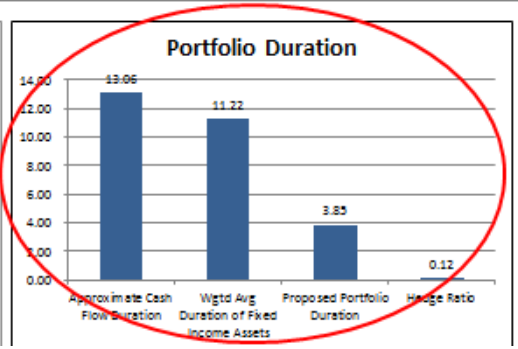


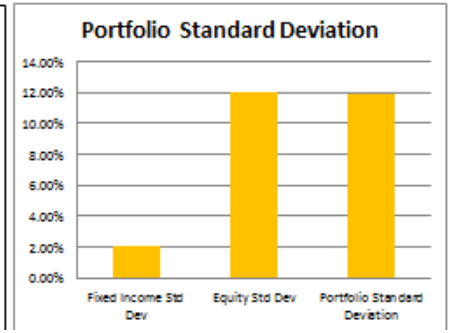












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