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2015 JUN 10 PM 4:00

# AGENDA REPORT

**TO:** John A. Flores  
Interim City Administrator

**FROM:** Katano Kasaine

**SUBJECT:** Informational Report on PFRS' Investment Portfolio and Actuarial Valuation

**DATE:** May 28, 2015

City Administrator  
Approval

Date

6/5/15

**COUNCIL DISTRICT:** City-Wide

## RECOMMENDATION

Staff recommends that the Council accept:

**An informational report on the Oakland Police and Fire Retirement System ("PFRS") Investment Portfolio as of March 31, 2015 and Actuarial Valuation as of July 1, 2014.**

## OUTCOME

This is an informational report with no direct fiscal impact or outcome.

## EXECUTIVE SUMMARY

The attached investment report (*Attachment A*) provided by the PFRS Investment Consultant, Pension Consulting Alliance ("PCA"), summarizes the performance of the PFRS investment portfolio for the quarter ended March 31, 2015. This report is being provided in accordance with the funding agreement between the City of Oakland and the PFRS Board pursuant to the issuance of the 2012 Pension Obligation Bonds ("2012 POB"). In addition, the City Council is being provided the recently updated PFRS' Actuarial Valuation (*Attachment B*), provided by Cheiron Associates, as of July 1, 2014.

## BACKGROUND/LEGISLATIVE HISTORY

The Oakland Police and Fire Retirement System (PFRS) (the "System") is a closed defined benefit plan established by the City of Oakland's (the "City") Charter. PFRS is governed by a board of seven trustees (the "PFRS Board"). The System covers the City's sworn police and fire employees hired prior to July 1, 1976. The Plan was closed to new members on June 30, 1976. All of the members of the System are retired. As of March 31, 2015, the System had 974 members.

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Finance and Management Committee  
June 23, 2015

The System’s investment portfolio is governed by the investment policy set by the PFRS Board. The PFRS Board sets an investment policy that authorizes investments in a variety of domestic and international equity and fixed income securities. The System’s portfolio is currently managed by thirteen external investment managers. In accordance with the City Charter, the PFRS Board makes investment decisions in accordance with the prudent person standard as defined by applicable court decisions and as required by the California Constitution.

In March 1997, the City issued Pension Obligation Bonds (“POBs”) and as a result deposited \$417 million into the plan to pay the City’s contributions through June 2011. In accordance with the funding agreement entered into at the time the POBs were issued in 1997, City payments to PFRS were suspended from February 25, 1997 to June 30, 2011. The City of Oakland resumed contributing to PFRS effective July 1, 2011. The City of Oakland contributed \$45,507,996 in the fiscal year (FY) ended June 30, 2012.

In July 2012 the City issued \$212,540,000 Taxable Pension Obligation Bonds, Series 2012. The City subsequently deposited \$210 million in Pension Obligation Bond proceeds into the System and entered into a funding agreement with the PFRS Board. As a result of a funding agreement, no additional contributions are required until July 1, 2017.

As of July 1, 2014, the System’s Unfunded Actuarial Liability is approximately \$230.16 million and the System had a Funded Ratio of 71.2 percent. The next required City contribution is projected to be approximately \$35.1 million in fiscal year 2017/2018, which is payable from excess Pension Tax Override revenues and the City’s General Fund.

**ANALYSIS**

*PFRS Membership*

The City Charter establishes plan membership, contribution, and benefit provisions. The System serves the City’s sworn employees hired prior to July 1, 1976 who have not transferred to the California Public Employees’ Retirement System (“CalPERS”). As of March 31, 2015, the System’s membership was 974, which included 683 retirees and 291 beneficiaries (**Table 1**).

<b>Table 1</b>			
PFRS Membership as of March 31, 2015			
<b>Membership</b>	<b>POLICE</b>	<b>FIRE</b>	<b>TOTAL</b>
Retiree	412	271	683
Beneficiary	151	140	291
<b>Total Membership</b>	<b>563</b>	<b>411</b>	<b>974</b>

Portfolio Valuation

The PFRS portfolio had an aggregate value of \$440.9 million as of March 31, 2015. During the latest quarter, the portfolio decreased by \$3.1 million, despite paying \$15 million in pension payments. Over the latest year, the portfolio decreased by \$29.5 million, while paying out \$60 million in pension payments (**Table 2**).

	March 31, 2015	March 31, 2014	Annual Change	Percentage Change
PFRS	\$440.9	\$470.4	(\$29.5)	(6.7%)

\*The calculations listed above represent change in dollar value and not investment returns.

PFRS Investment Portfolio

**Table 3** below shows the PFRS Investment Portfolio as of March 31, 2015.

Investment	Fair Value
Equities	\$215,368,177
Fixed Income	82,041,345
International Equities	50,006,164
Real Return	44,820,848
Covered Calls	45,595,890
Cash Equivalents	3,041,795
<b>Total Portfolio</b>	<b>\$440,874,219</b>

PFRS Investment Performance

During the most recent quarter ending March 31, 2015, the PFRS Total Portfolio generated an absolute return of 2.8 percent, gross of fees, outperforming its policy benchmark by 80 basis points. The portfolio has outperformed its benchmark over the three- and five-year periods, while slightly underperforming its benchmark over the one-year period. In addition, the Portfolio outperformed its Actuarial Expected Rate of Return for the one-, three-, and five-year time periods. The current Actuarial Rate of Return is a blended rate of 6.54 percent (Table 4).

<b>Table 4</b>				
PFRS Total Fund Performance as of March 31, 2015				
	Quarter	1 Year	3 Year	5 Year
<b>PFRS Investment Portfolio</b>	2.80%	7.60%	8.70%	9.30%
<b>Comparisons:</b>				
PFRS Actuarial Expected Rate of Return (blend)	1.63%	6.68%	6.73%	6.87%
(a) (b)				
Policy Target (blend) (c)	2.00%	7.70%	7.60%	8.30%
Median Fund (d)	2.32%	6.88%	9.78%	9.68%
CalPERS Investment Returns	1.87%	6.42%	10.42%	9.59%
CalSTRS Investment Returns	2.34%	8.09%	11.62%	10.71%
East Bay Mud Investment Returns	2.55%	8.52%	11.96%	11.20%
Colorado F&P Investment Returns	2.47%	9.08%	10.59%	9.98%
<p>(a) The actuarial expected rate of return was eight percent through 6/30/2009, 7.5 percent through 6/30/2010, seven percent through 6/30/2011, and 6.75 percent through 6/30/2014 and 6.5 percent currently.</p> <p>(b) The quarterly actuarial expected rate of return is calculated based on the 6.50 percent annual return assumption.</p> <p>(c) The Policy Benchmark consists of 48 percent Russell 3000, 12 percent MSCI ACWI ex U.S., 20 percent BC Universal, 10 percent CBOE BXM and 10 percent CPI + three percent.</p> <p>(d) Mellon Total Fund Public Universe Fund.</p>				

PFRS Actuarial Valuation and Funding Status

The latest actuarial valuation as of July 1, 2014 was performed by Actuary, Cheiron Associates. As of this report, the PFRS Funded Ratio (actuarial value of assets divided by present value of future benefits) is 71.2 percent. The City's next Annual Required Contribution to the System is not due until FY 2017/2018 and is projected to be \$35.1 million. **Table 5** below shows a summary of the July 1, 2014 PFRS Actuarial valuation results.

Actuarial Valuation date	Actuarial Liability (a)	Market Value of Assets (b)	Unfunded Actuarial Liability (a-b)	Funded Ratio (b/a)
7/1/2012*	\$658.3	\$268.5	\$389.8	40.8%
7/1/2013	\$655.4	\$455.6	\$199.8	69.5%
7/1/2014	\$651.1	\$463.8	\$187.3	71.2%

\* Actuarial valuation was prior to the City's contribution of \$210 million of Pension Obligation Bond proceeds on July 30, 2012.

Projected City of Oakland Contributions

Article XXVI Section 2619 (6) required that the City fully fund the PFRS Plan by 2026. The following table summarizes the projected employer contributions assuming 6.54 percent blended future market value returns (**Table 6**).

Fiscal Year Ending	Employer Contribution
2015	\$ 0.0
2016	0.0
2017	0.0
2018	35.1
2019	35.4
2020	35.8
2021	36.1
2022	36.5
2023	36.8
2024	37.0
2025	37.0
2026	36.2

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### **PUBLIC OUTREACH/INTEREST**

This item did not require any additional public outreach other than the required posting on the City's website.

### **COORDINATION**

This report was prepared in coordination with the PFRS' Investment Consultant PCA, PFRS Actuary Cheiron Associates, City Attorney's Office and Budget Office.

### **COST SUMMARY/IMPLICATIONS**

Since this is an informational report, there are no budget implications associated with the report.

### **SUSTAINABLE OPPORTUNITIES**

***Economic:*** Whenever possible, the PFRS Board seeks to benefit the local Oakland based economy. In 2006, the Board, along with staff, created the PFRS Local Broker provision. This provision mandates that the PFRS Investment Managers consider using Oakland based brokers for all trades conducted on behalf of the fund based on best execution. This program aims to regenerate some of the commissions generated by the System into the Oakland economy.

***Environmental:*** There are no environmental opportunities associated with this report.

***Social Equity:*** There are no social equity opportunities associated with this report.

For questions regarding this report, please contact Katano Kasaine, Treasurer, at 510-238-2989.

Respectfully submitted,



KATANO KASAINÉ

Treasurer

Prepared by:  
Téir Jenkins, Investment Officer  
Oakland Police and Fire Retirement System

**Attachment A:** *PFRS Performance Report as of March 31, 2015*  
**Attachment B:** *PFRS Actuary Valuation as of July 1, 2014*

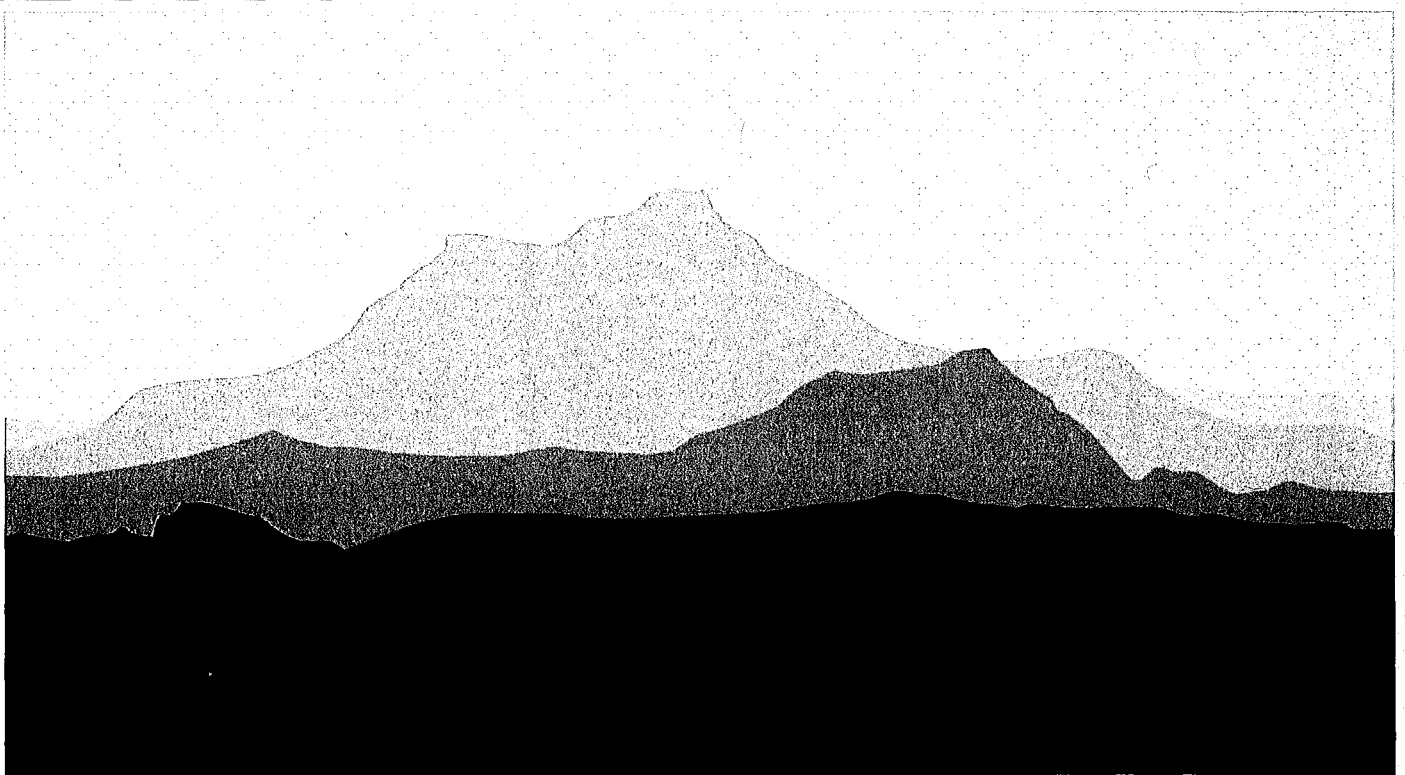
Item: \_\_\_\_\_  
Finance and Management Committee  
June 23, 2015

**ATTACHMENT A:  
PFRS INVESTMENT PERFORMANCE  
AS OF MARCH 31, 2015**

1Q

2015

OAKLAND POLICE & FIRE RETIREMENT SYSTEM  
QUARTERLY PERFORMANCE REPORT



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Nothing herein is intended to serve as investment advice, a recommendation of any particular investment or type of investment, or a suggestion of the merits of purchasing or selling securities, or an invitation or inducement to engage in investment activity.



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- F** INDIVIDUAL MANAGER PERFORMANCE

## TOTAL PORTFOLIO SUMMARY

As of March 31, 2015, the City of Oakland Police and Fire Retirement System (OPFRS) portfolio had an aggregate value of \$440.9 million. This represents a (\$3.1) million decrease in value over the quarter. During the previous one-year period, the OPFRS Total Portfolio decreased by (\$29.5) million, including (\$60) million in withdrawals during the period.

**Asset Allocation Trends**

The asset allocation targets (see table on page 19) reflect those as of March 31, 2015. Target weightings reflect the Plan's evolving asset allocation (effective 3/31/2014).

With respect to policy targets, the portfolio ended the latest quarter **overweight Domestic Equity, Covered Calls, Real Return, and cash, while underweight International Equity and Fixed Income.**

**Recent Investment Performance**

During the most recent quarter, the OPFRS Total Portfolio generated an absolute return of 2.8%, gross of fees, outperforming its policy benchmark by 80 basis points. The portfolio has outperformed its benchmark over the latest fiscal year-to-date, 3-, and 5-year periods, while slightly underperforming over the 1-year period.

The Total Portfolio outperformed the Median fund's return over the most recent quarter, fiscal year-to-date and 1-year period, but underperformed the Median fund over the 3- and 5-year periods. Performance differences with respect to the Median Fund continue to be attributed largely to differences in asset allocation.

	Quarter	Fiscal YTD	1 Year	3 Year	5 Year
Total Portfolio <sup>1</sup>	2.8	4.0	7.6	8.7	9.3
Policy Benchmark <sup>2</sup>	2.0	3.7	7.7	7.6	8.3
<b>Excess Return</b>	<b>0.8</b>	<b>0.3</b>	<b>(0.1)</b>	<b>1.1</b>	<b>1.0</b>
Reference: Median Fund <sup>3</sup>	2.3	2.9	6.9	9.8	9.7
Reference: Total Net of Fees <sup>4</sup>	2.7	3.7	7.2	8.3	8.9

<sup>1</sup> Gross of Fees. Performance since 2005 includes securities lending.

<sup>2</sup> Evolving Policy Benchmark consists of 48% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 10% CBOE BXM and 10% CPI+3%.

<sup>3</sup> Mellon Total Funds Public Universe.

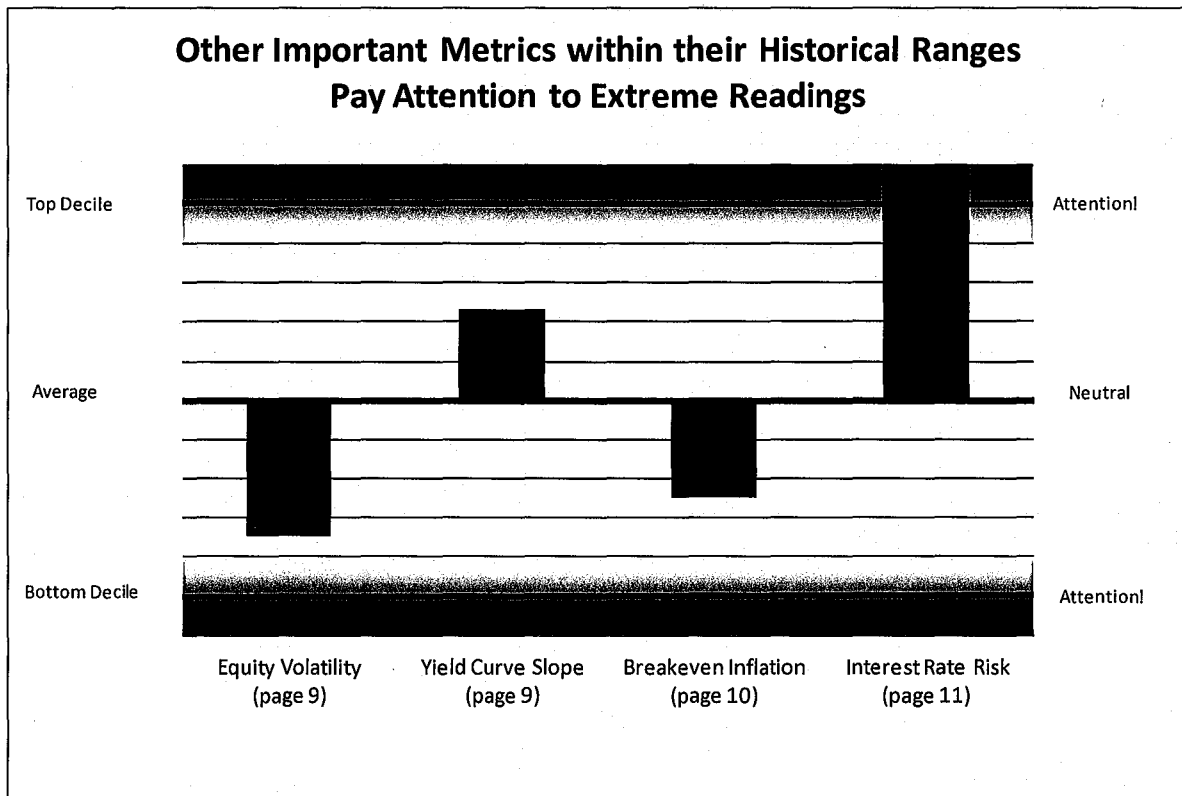
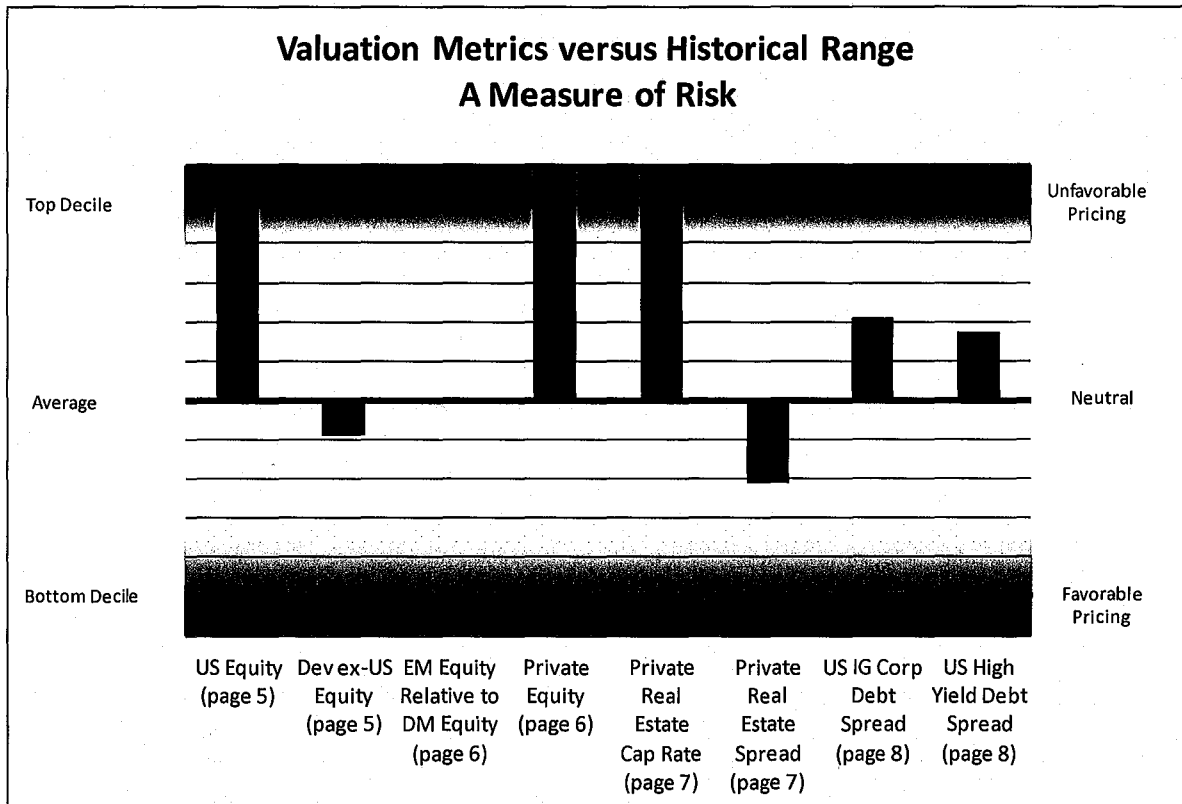
<sup>4</sup> Net of fee returns are estimated based on OPFRS manager fee schedule.

## INVESTMENT MARKET RISK METRICS

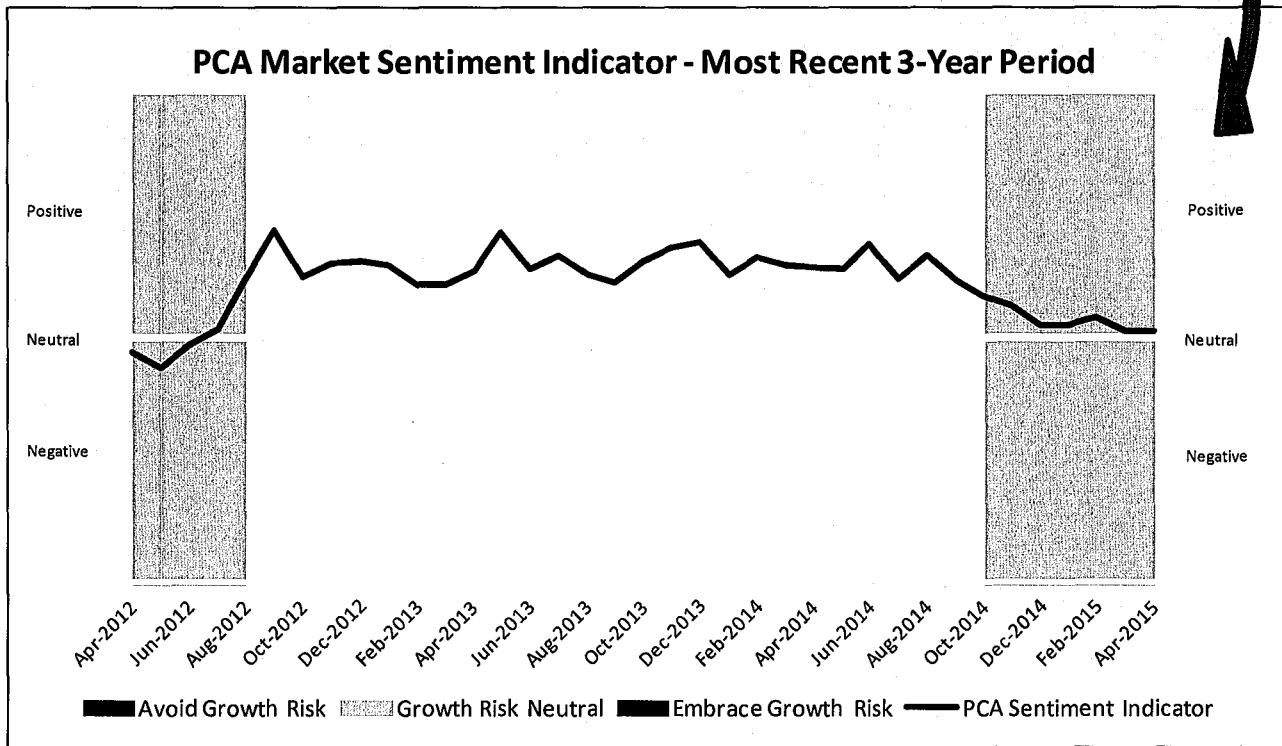
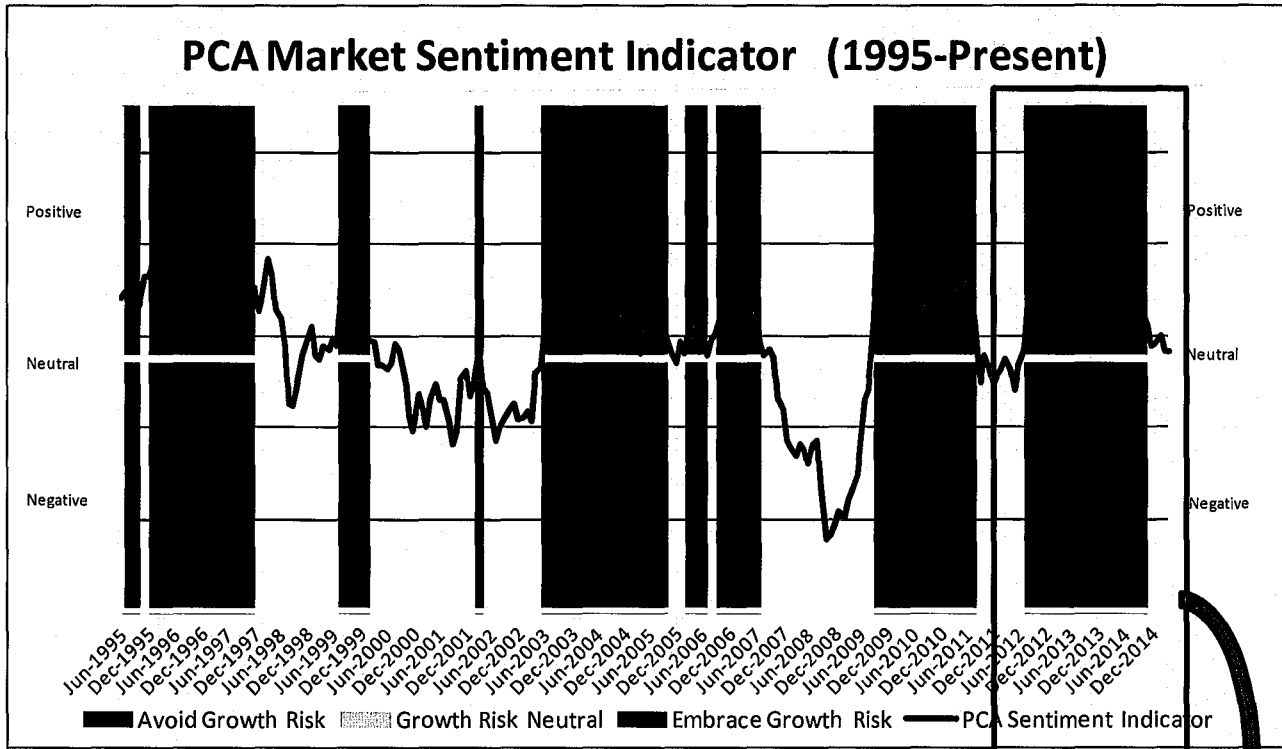
**Takeaways**

- The U.S. 10-year Treasury interest rate rose before the March Federal Reserve policy meeting, but ended March below 2%, as the timing of any interest rate increase continues to be pushed out.
- U.S. equity, private equity, and private real estate metrics all remain in top decile valuation territory.
- Despite significant first quarter gains, international equity valuations are below their historical average levels.
- With the compression of interest rates year-over-year, the spread between the core real estate cap rate and the 10-year Treasury interest rate increased from 2014 levels, indicating valuations have room to rise.
- Interest rate risk remains significant, with duration on the 10-year Treasury note at approximately 9. (A 100 basis point rise in rates leads to a -9% capital loss.)
- The 10-year breakeven inflation rate moved off of its low for the year, but remains below 2%, and commodity prices declined again in March. The market is pricing (expecting) low future inflation.
- The PCA Market Sentiment Indicator remained **neutral** in March.

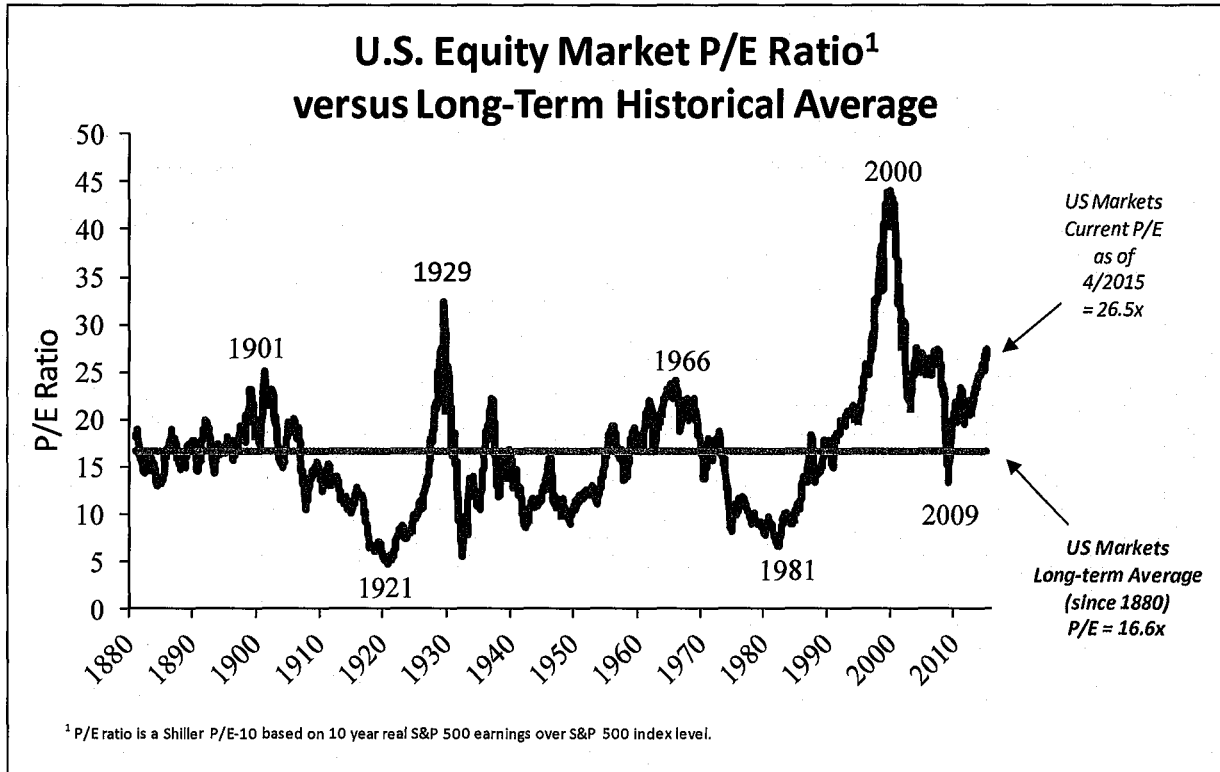
Risk Overview



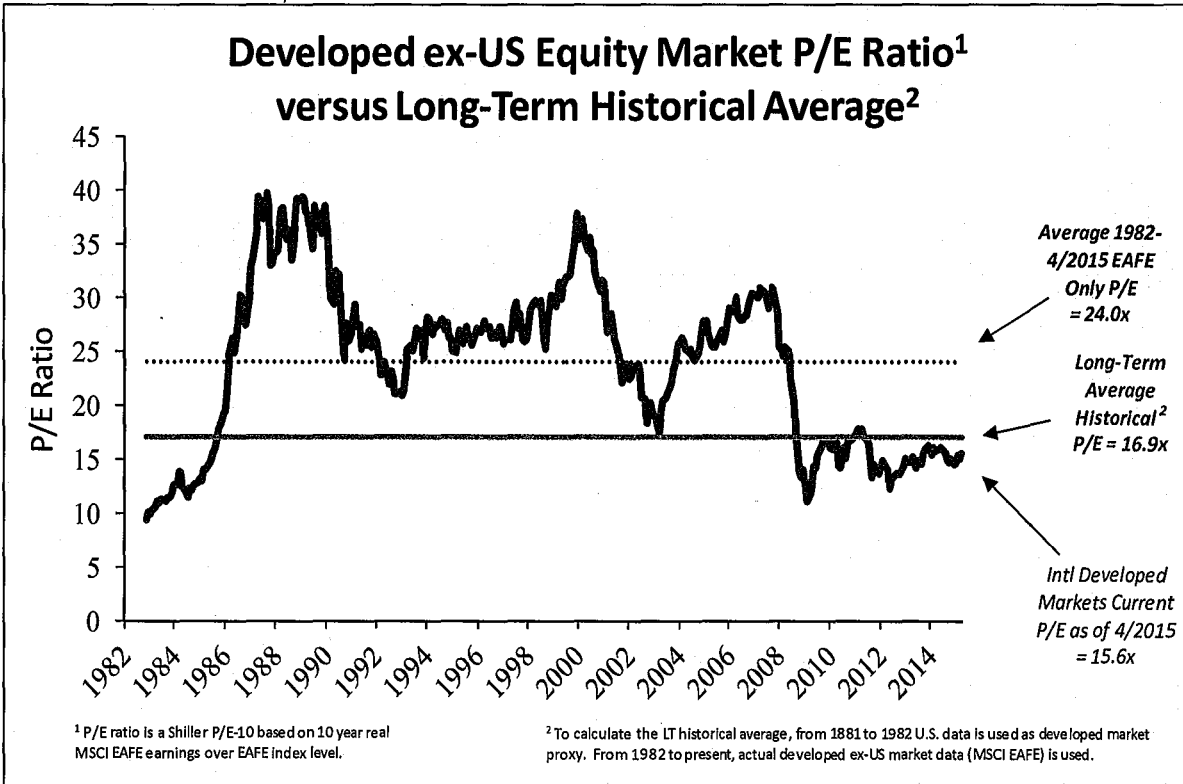
Market Sentiment



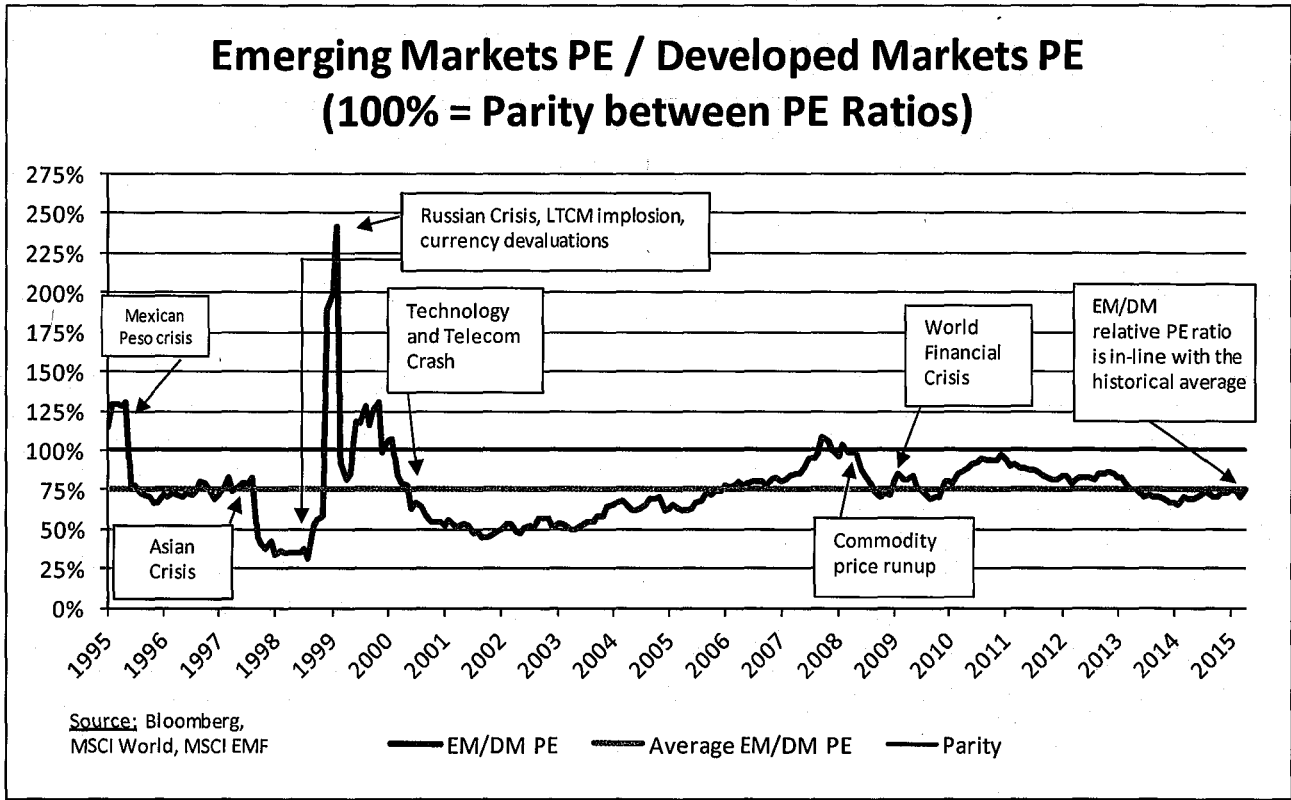
Developed Equity Markets



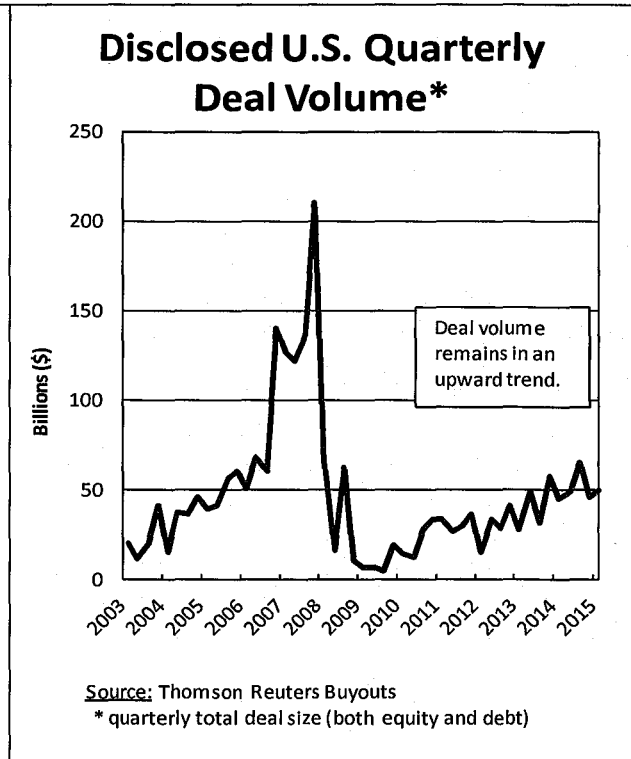
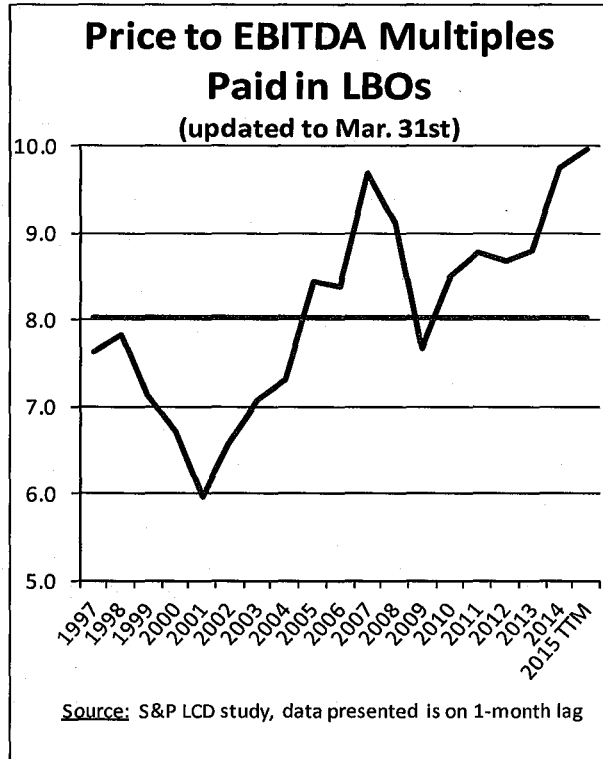
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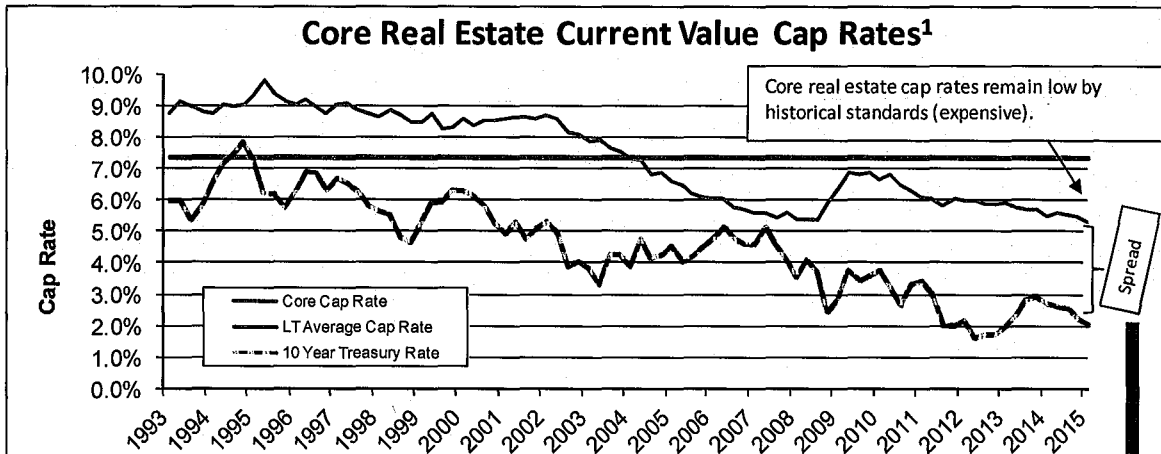
Emerging Market Equity Markets



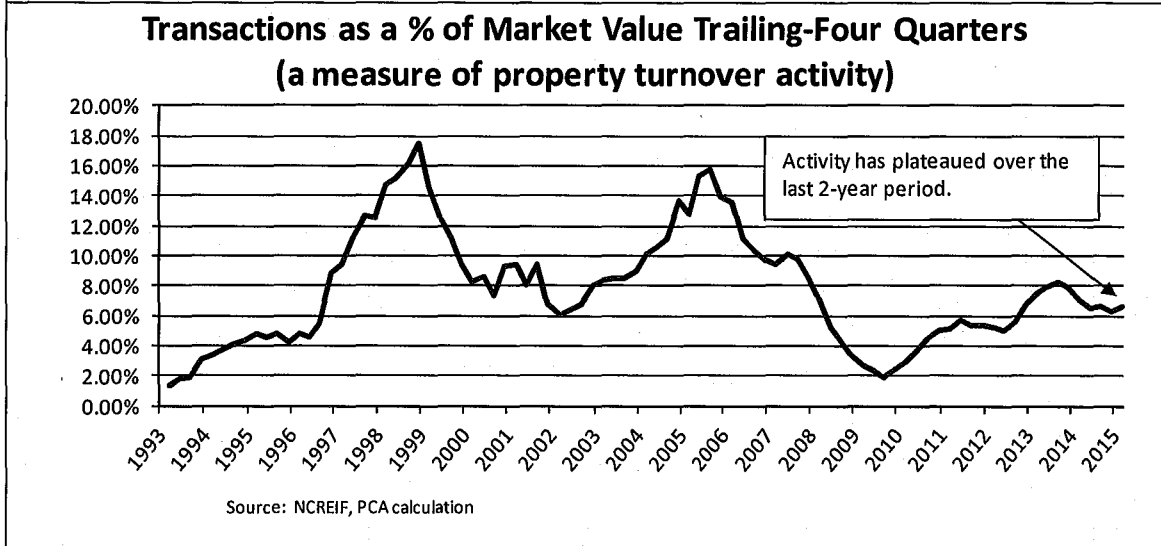
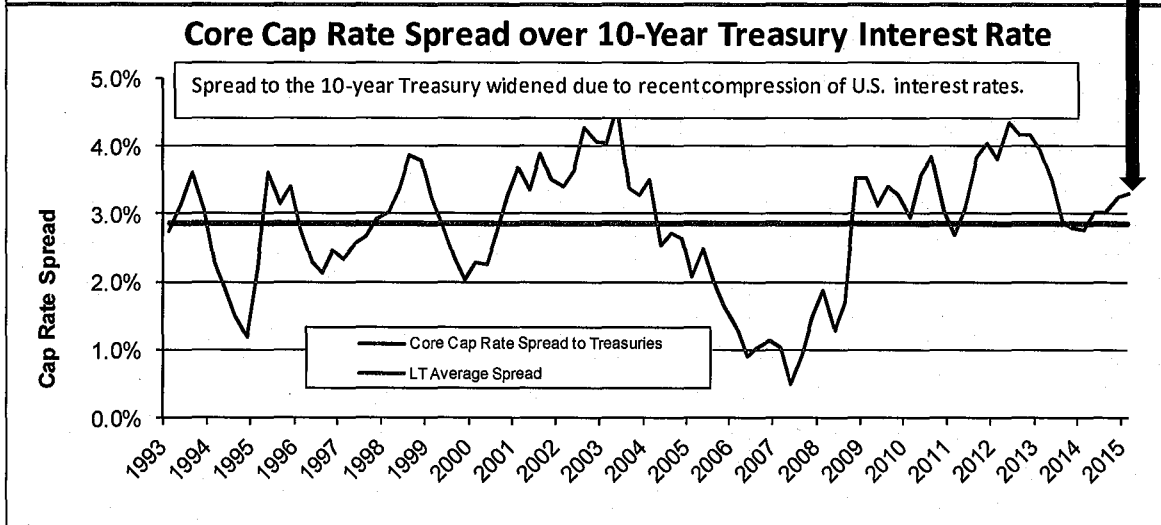
US Private Equity



Private Real Estate Markets

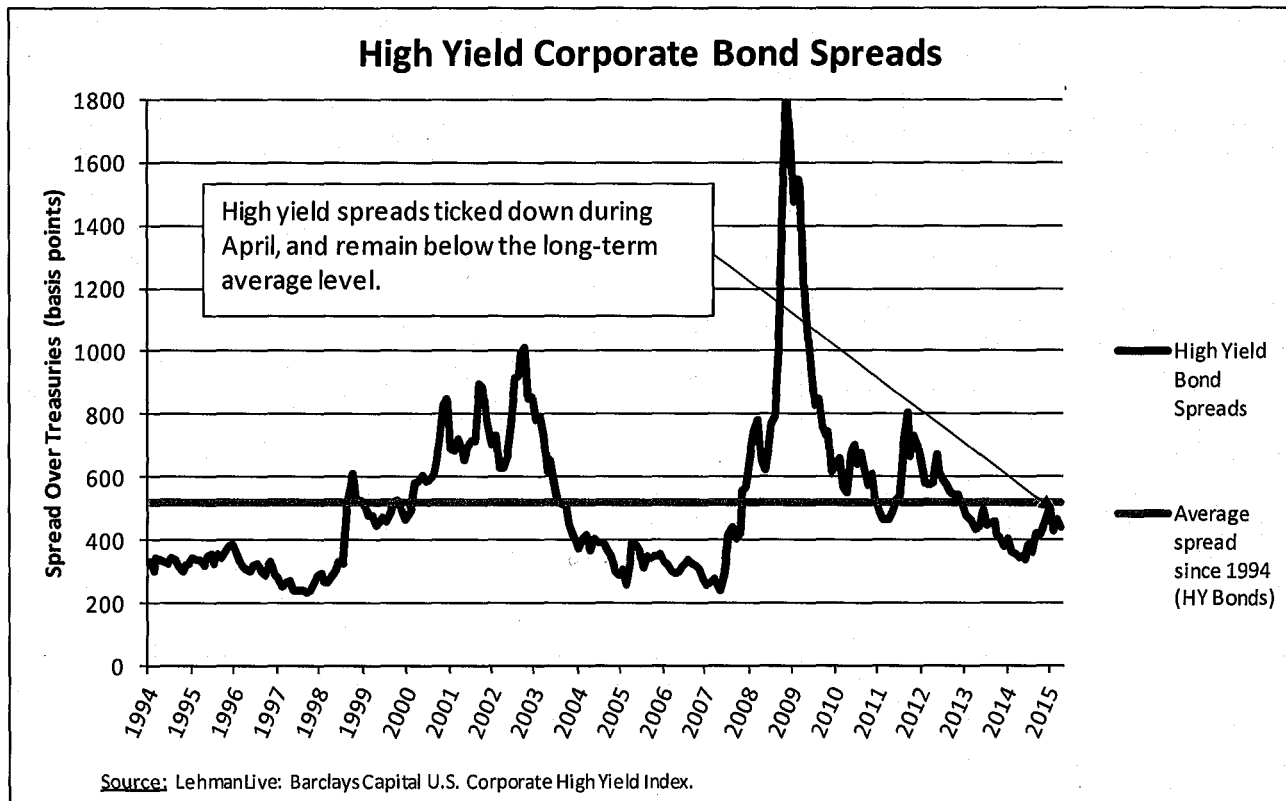
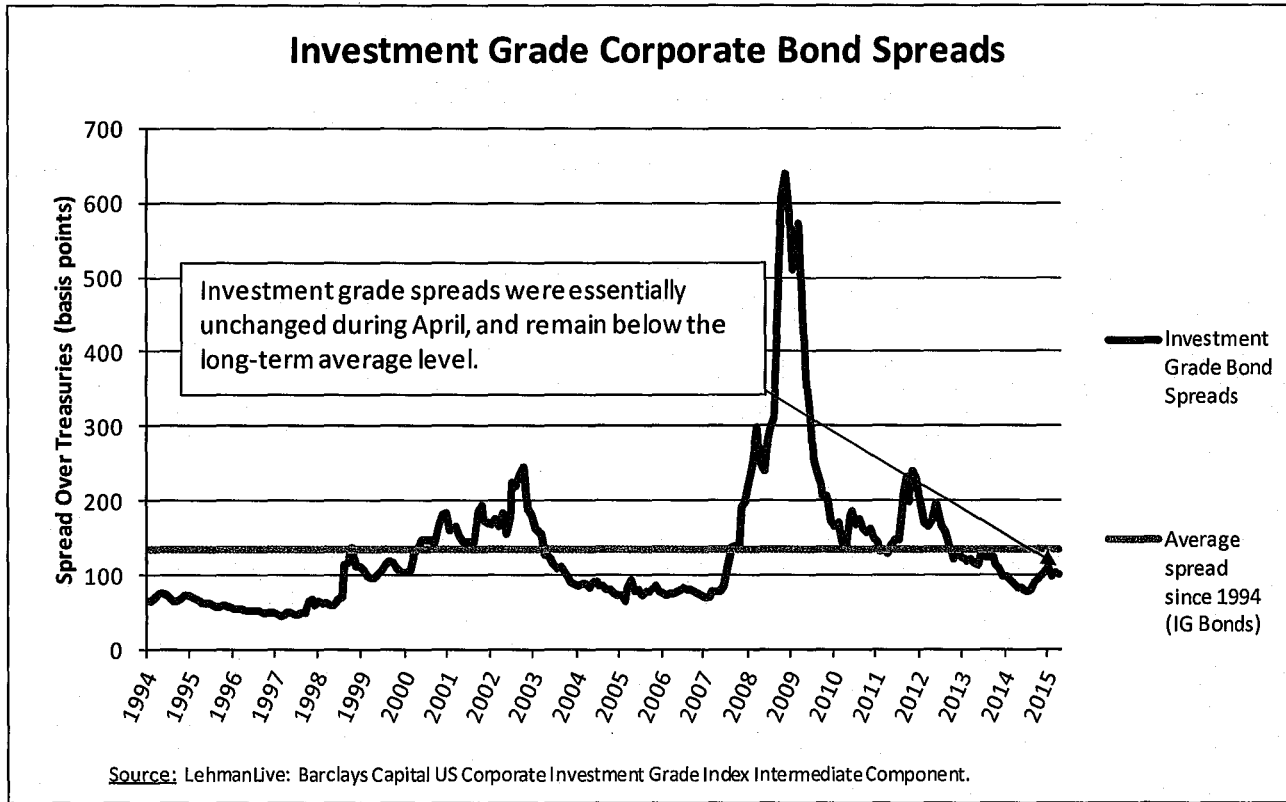


Sources: NCREIF, www.ustreas.gov <sup>1</sup>A cap rate is the current annual income of the property divided by an estimate of the current value of the property. It is the current yield of the property. Low cap rates indicate high valuations.

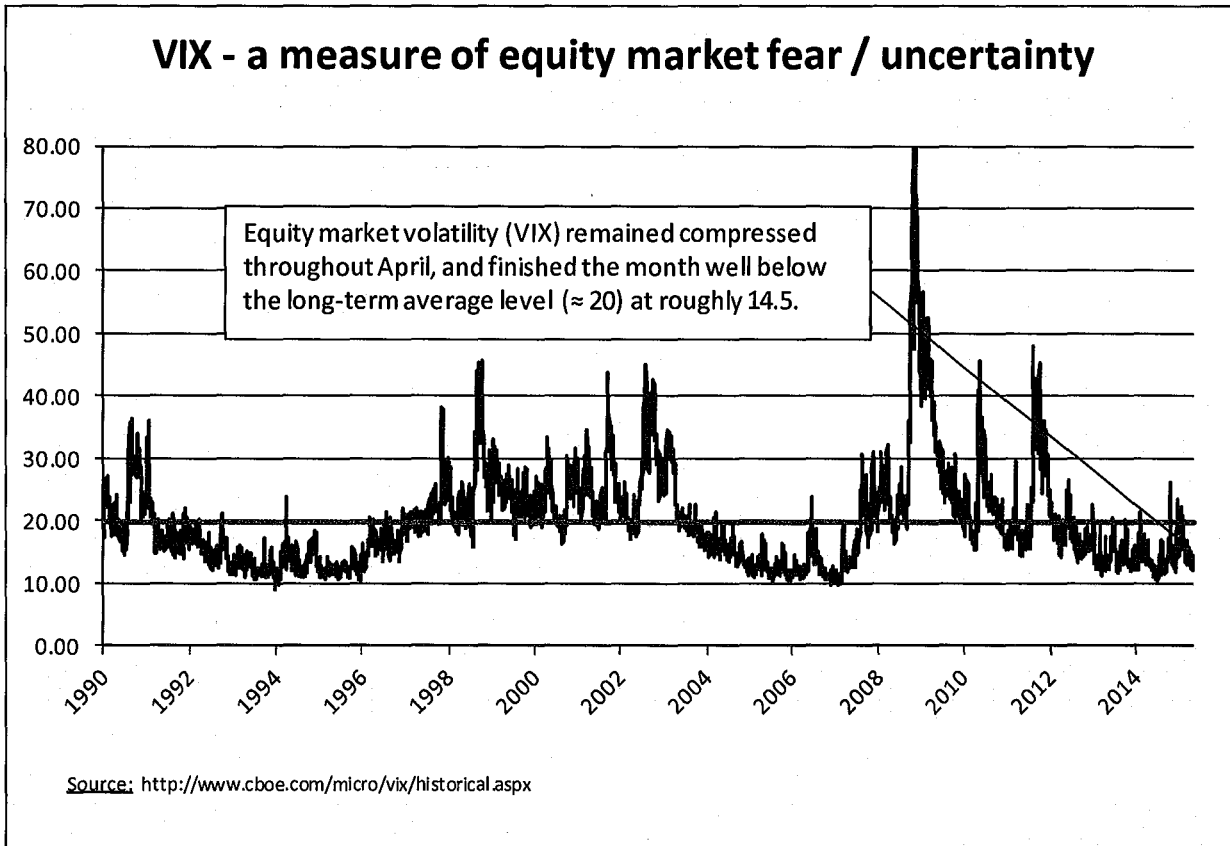




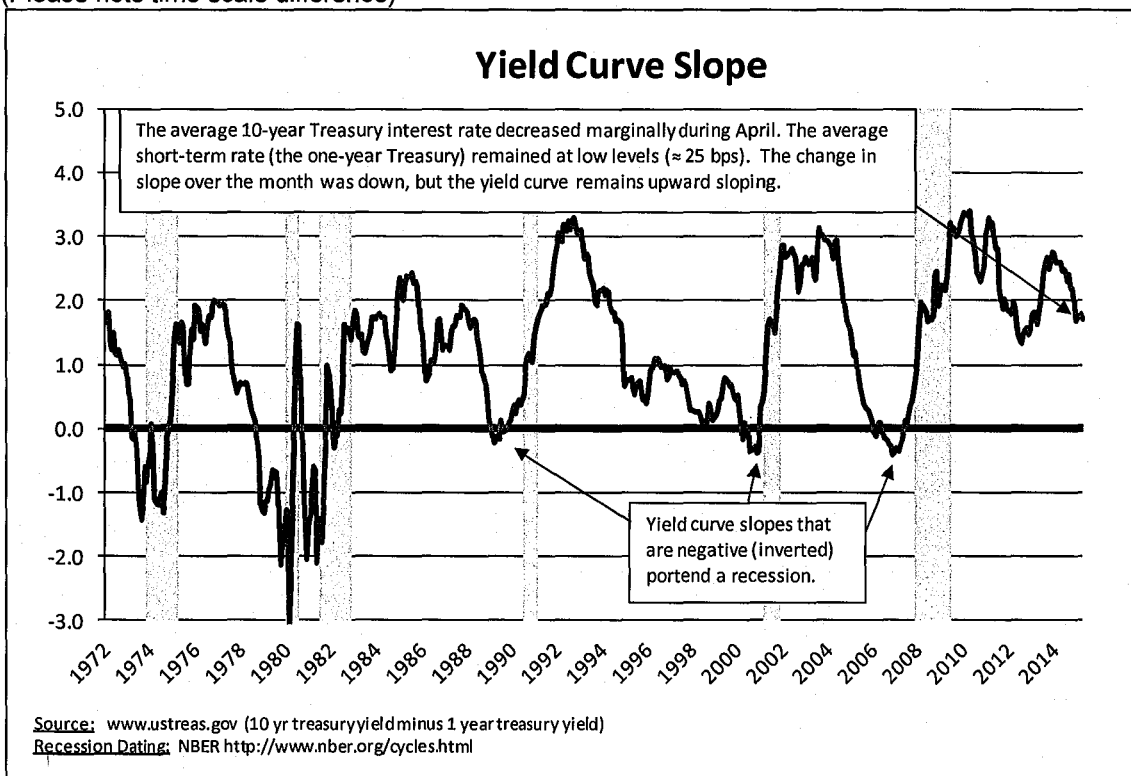
US Fixed Income



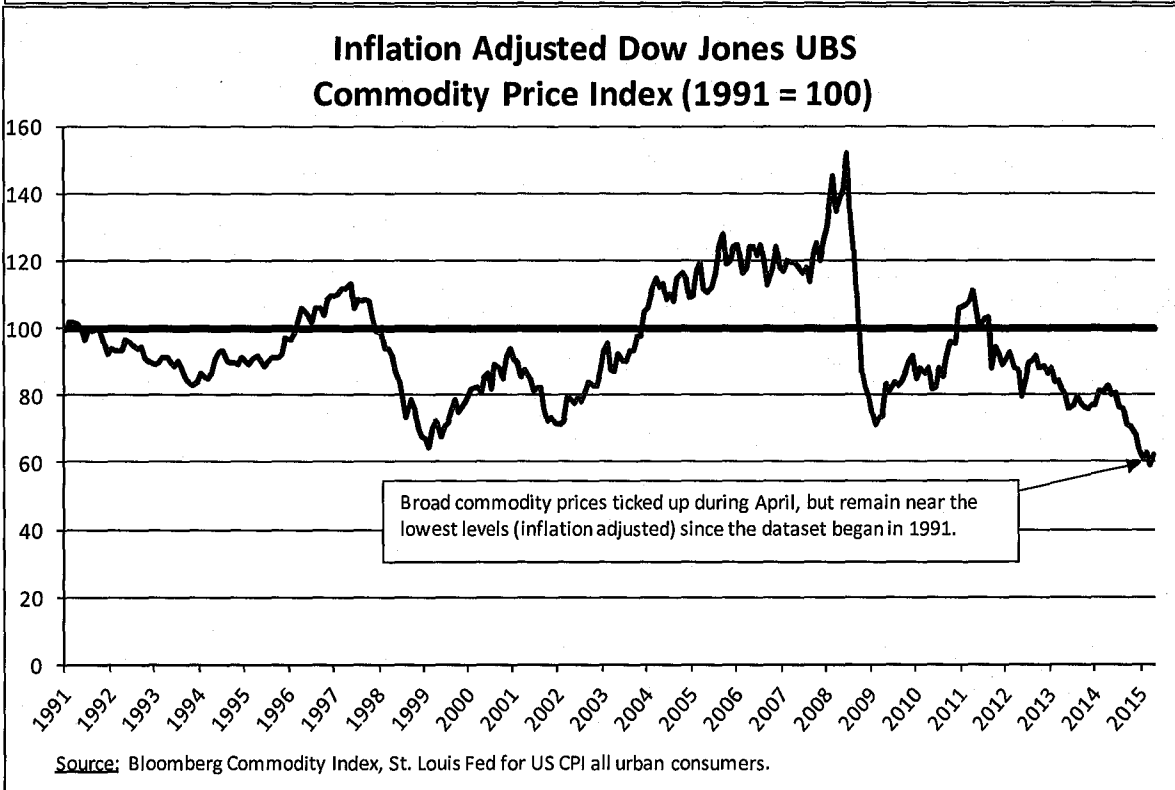
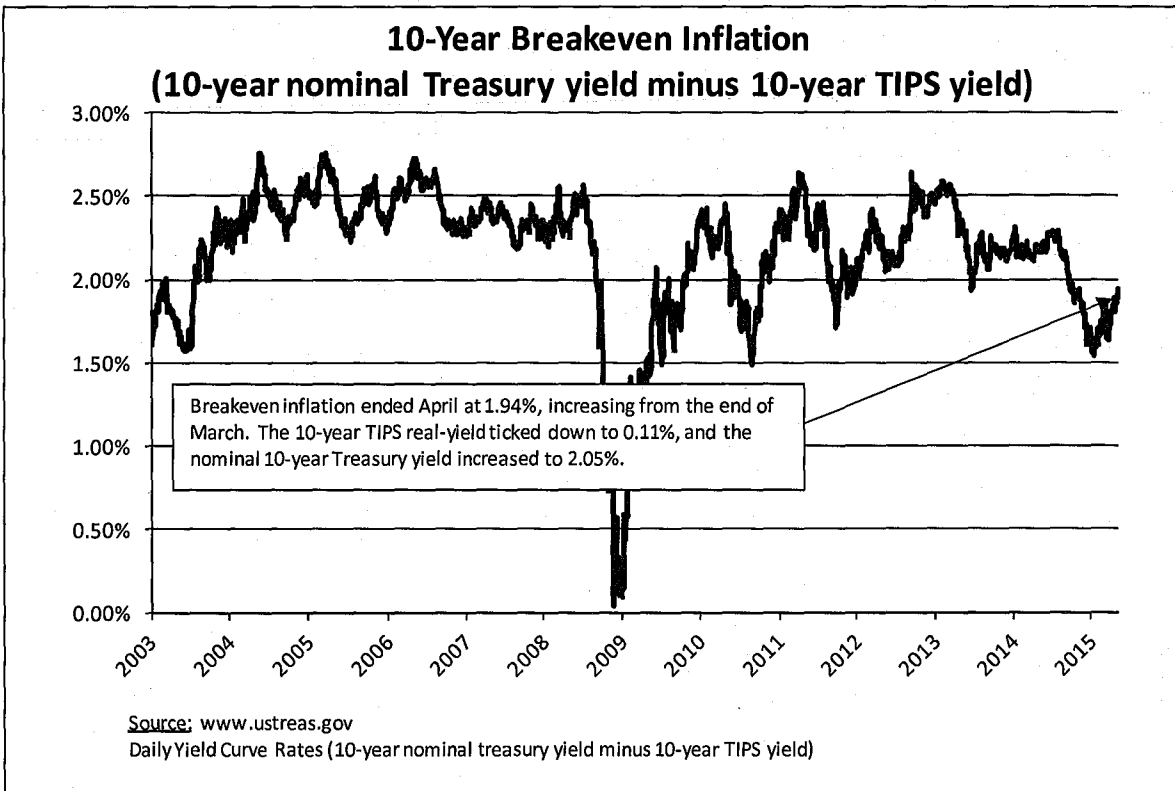
Other Market Metrics



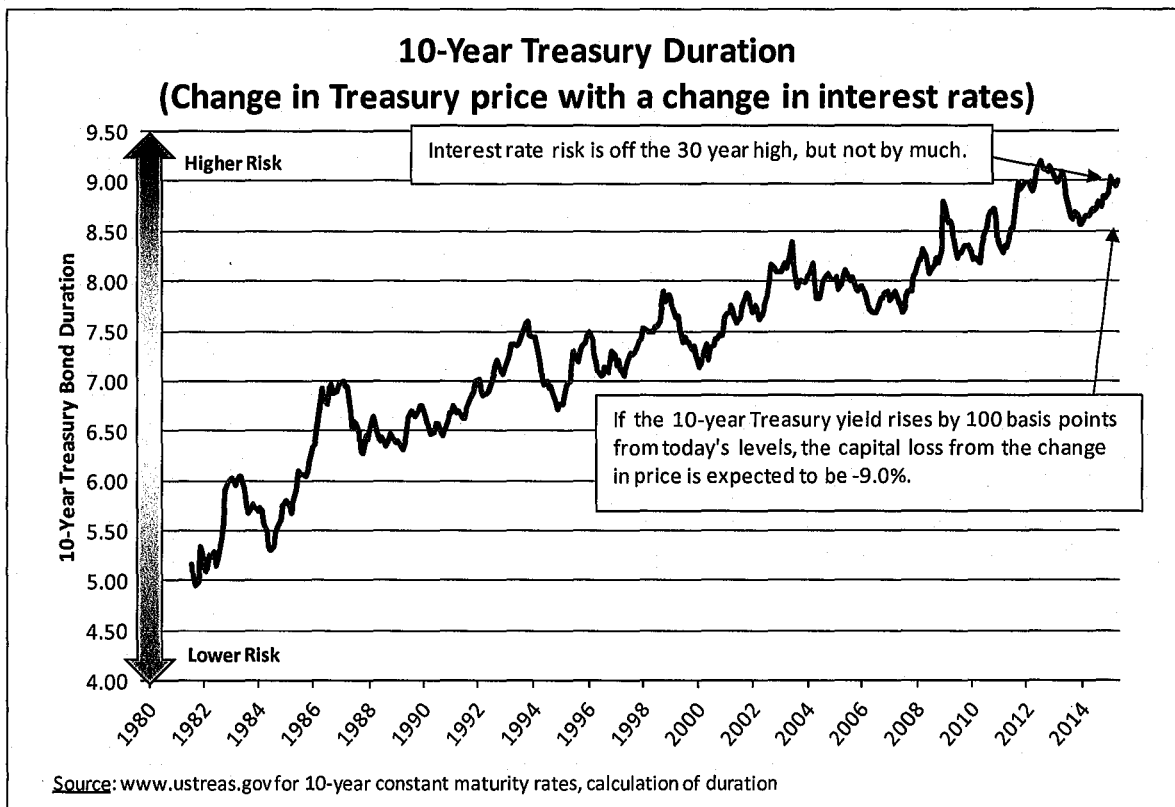
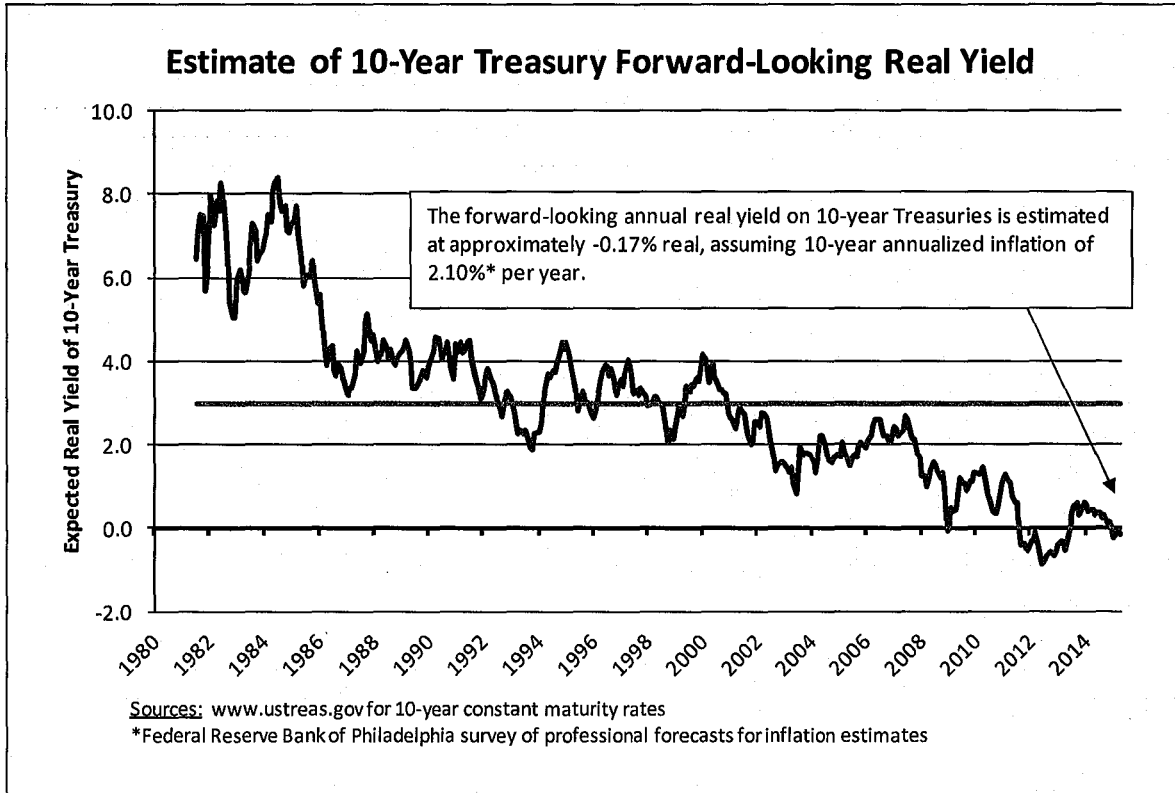
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Measures of Inflation Expectations



Measures of US Treasury Interest Rate Risk

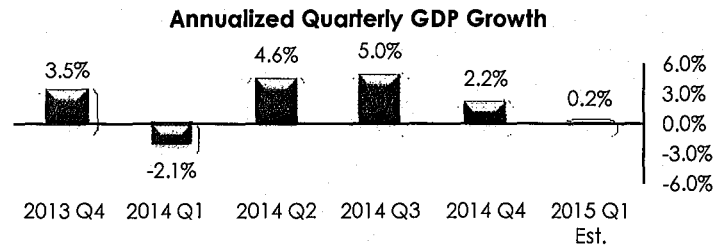


**ECONOMIC OVERVIEW**

US GDP slowed to a crawl during the first quarter of 2015 based on the advanced estimate of growth at 0.2%. Downturns in exports, nonresidential fixed investment, and state and local government spending were offset by positive contributions from personal consumption expenditures and private inventory investment during the quarter. The unemployment rate also held fairly steady quarter-over-quarter as it declined another (0.1%) to 5.5%. Inflation over the 1-year period was 0.0% as it declined for a second consecutive quarter. Commodities declined for a third straight quarter, declining (27%) for the trailing 1-year. The US dollar continued to rally against the Euro, appreciating another 11.3% during the quarter. US Equities finished the quarter in positive territory despite investor concerns over future rising rates and slowing economic conditions, producing volatility during the quarter. International equities outperformed US equities during the quarter as they benefited from a strong dollar driven by increased central bank intervention and signs of renewed economic growth.

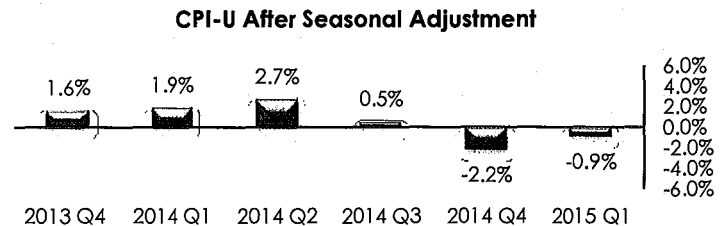
**Economic Growth**

- Real GDP increased at an annualized rate of 0.2 percent in the first quarter of 2015 after increasing at an annualized rate of 2.2 percent in the fourth quarter of 2014.
- Downturns in exports, nonresidential fixed investment, and state and local government spending had a negative impact on GDP growth during the quarter.
- Positive contributions from personal consumption expenditures and private inventory investments were the main contributors to positive growth during the quarter.



**Inflation**

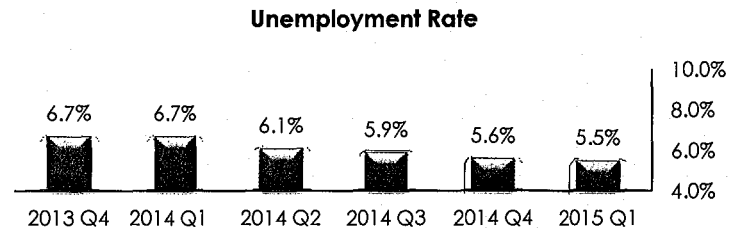
- The Consumer Price Index for All Urban Consumers (CPI-U) decreased by 0.9 percent in the quarter on an annualized basis, after seasonal adjustment.
- Quarterly percent changes may be adjusted between data publications due to periodic updates in seasonal factors.
- Core CPI-U increased by 2.3 percent for the quarter on an annualized basis.
- Over the last 12 months, core CPI-U increased 1.6 percent after seasonal adjustment.



**Unemployment**

- The US economy gained approximately 591,000 jobs in the quarter.
- The official unemployment rate dropped to 5.5 percent at quarter end.

The majority of jobs gained occurred in professional and business services, education and health services, and leisure and hospitality.

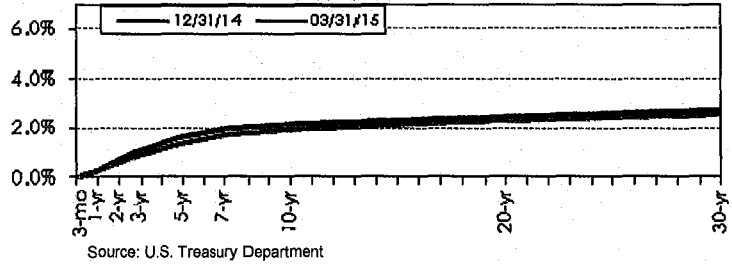


Interest Rates & U.S. Dollar

- US Treasury yields fell on average over the quarter.
- The Federal Reserve has maintained the federal funds rate between 0.00 percent and 0.25 percent since December 2008.

The US dollar appreciated against the Euro, Yen and Sterling by 11.3 percent, 0.3 percent, and 4.9 percent, respectively.

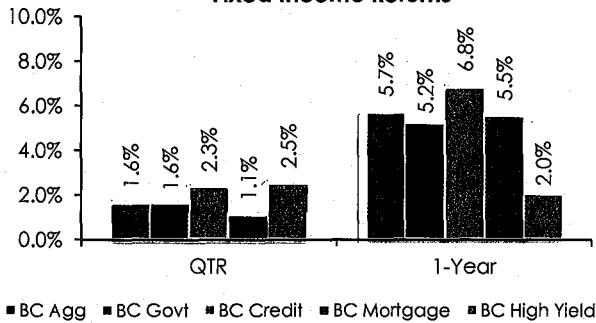
Treasury Yield Curve Changes



Fixed Income

- US bond markets delivered positive returns during the quarter, led by credit and high yield.
- High yield trailed all other bond sectors over the trailing 1-year period.

Fixed Income Returns

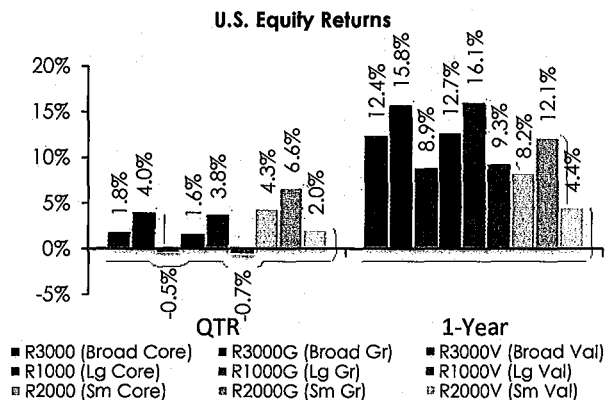


U.S. Fixed Income Sector Performance (BC Aggregate Index)			
Sector	Weight	QTR	1 Year
Governments*	40.6%	1.6%	5.2%
Agencies	5.0%	1.2%	3.6%
Inv. Grade Credit	23.6%	2.3%	6.8%
MBS	28.2%	1.1%	5.5%
ABS	0.6%	0.9%	2.2%
CMBS	2.0%	1.8%	4.4%

\*U.S. Treasuries and Government Related

U.S. Equities

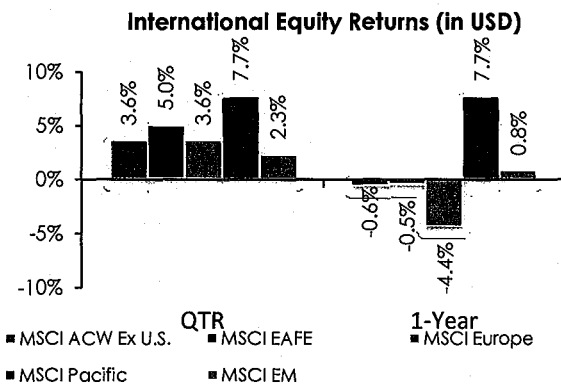
- Large cap US equities were outpaced by small cap stocks during the quarter but remained ahead during the longer 1-year period.
- During the quarter and 1-year periods, growth outperformed value stocks across all market capitalizations.



Sector	Weight	QTR	1 Year
Information Tech.	19.0%	1.7%	17.3%
Financials	17.6%	-0.7%	10.5%
Health Care	14.6%	7.8%	27.6%
Consumer Disc.	13.2%	4.7%	16.8%
Industrials	11.3%	0.4%	7.9%
Consumer Staples	8.5%	1.3%	16.6%
Energy	7.2%	-2.2%	-13.4%
Materials	3.6%	1.0%	3.7%
Utilities	3.1%	-4.6%	10.6%
Telecomm. Serv.	2.0%	1.9%	4.0%

International Equities

- International markets started the year with strong returns across the board the first quarter of 2015.
- One year returns remained negative in broad developed market equities while emerging markets equities turned slightly positive.



Sector	Weight	QTR	1 Year
Europe Ex. UK	32.6%	5.7%	-4.0%
Emerging Markets	21.6%	2.3%	0.8%
Japan	16.0%	10.3%	12.4%
United Kingdom	14.2%	-1.0%	-5.5%
Pacific Ex. Japan	8.7%	3.2%	-0.2%
Canada	6.9%	-5.9%	-5.5%

## Market Summary – Long-term Performance\*

Indexes	1 Year	3 Year	5 Year	10 Year	20 Year
<b>Global Equity</b>					
MSCI All Country World	6.0%	11.3%	9.6%	7.0%	7.4%
<b>Domestic Equity</b>					
S&P 500	12.7%	16.1%	14.5%	8.0%	9.4%
Russell 3000	12.4%	16.4%	14.7%	8.4%	9.6%
Russell 3000 Growth	15.8%	16.4%	15.7%	9.4%	8.6%
Russell 3000 Value	8.9%	16.3%	13.7%	7.2%	10.0%
Russell 1000	12.7%	16.4%	14.7%	8.3%	9.6%
Russell 1000 Growth	16.1%	16.3%	15.6%	9.4%	8.8%
Russell 1000 Value	9.3%	16.4%	13.8%	7.2%	10.0%
Russell 2000	8.2%	16.3%	14.6%	8.8%	9.6%
Russell 2000 Growth	12.1%	17.7%	16.6%	10.0%	7.9%
Russell 2000 Value	4.4%	14.8%	12.5%	7.5%	10.9%
CBOE BXM	4.9%	6.8%	7.2%	4.9%	7.8%
<b>International Equity</b>					
MSCI All Country World ex US	-0.6%	6.9%	5.3%	5.9%	6.0%
MSCI EAFE	-0.5%	9.5%	6.6%	5.4%	5.6%
MSCI Pacific	7.7%	8.6%	6.1%	5.4%	2.4%
MSCI Europe	-4.4%	10.0%	7.0%	5.5%	7.9%
MSCI EM (Emerging Markets)	0.8%	0.7%	2.1%	8.8%	6.8%
<b>Fixed Income</b>					
BC Universal Bond	5.3%	3.5%	4.7%	5.2%	6.2%
BC Global Agg – Hedged	7.4%	4.6%	4.6%	4.8%	6.1%
BC Aggregate Bond	5.7%	3.1%	4.4%	4.9%	6.0%
BC Government	5.2%	2.3%	3.8%	4.5%	5.7%
BC Credit Bond	6.7%	4.9%	6.2%	5.8%	6.7%
BC Mortgage Backed Securities	5.5%	2.5%	3.6%	4.9%	5.9%
BC High Yield Corporate Bond	2.0%	7.5%	8.6%	8.2%	7.8%
BC WGILB - Hedged	9.0%	3.3%	5.2%	5.1%	N/A
BC Emerging Markets	4.2%	4.7%	6.9%	8.2%	11.5%
<b>Real Estate</b>					
NCREIF (Private RE)	12.7%	11.5%	12.8%	8.4%	9.7%
NAREIT (Public RE)	21.9%	14.1%	15.4%	8.8%	11.3%
<b>Commodity Index</b>					
Bloomberg Commodity (formerly DJUBS)	-27.0%	-11.5%	-5.7%	-3.6%	2.8%

\* Performance is annualized for periods greater than one year.



TOTAL PORTFOLIO REVIEW

**OPFRS Portfolio Performance**

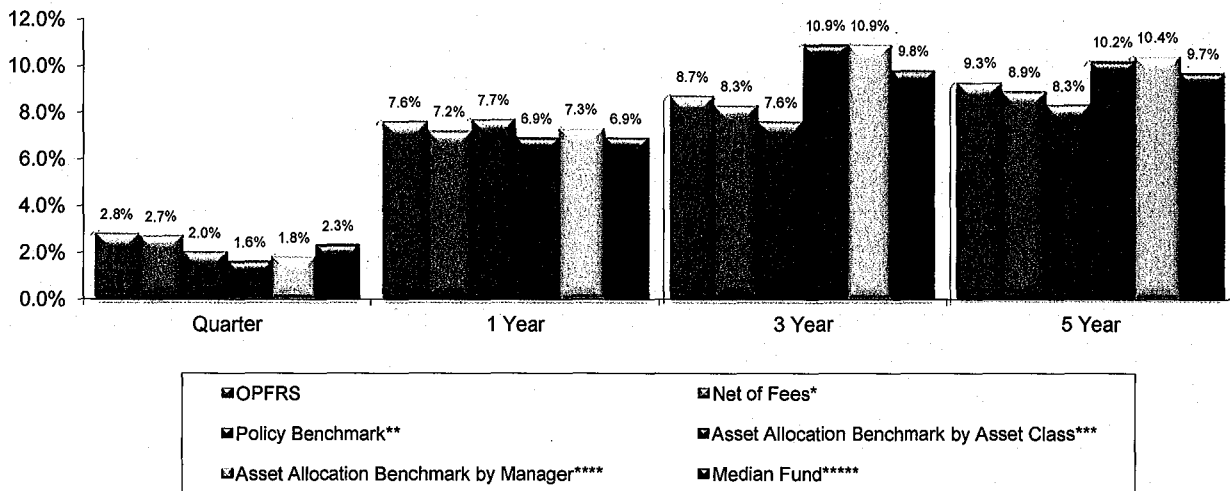
This section includes an overview of the performance of the OPFRS investment portfolio, as well as a detailed analysis of asset classes and specific mandates.

**Portfolio Performance Overview**

During the latest quarter ending March 31, 2015, the OPFRS Total Portfolio generated a return of 2.8%, gross of fees, outperforming its benchmark by 80 basis points. The Plan's Domestic and International Equity both outperformed their respective benchmarks by 0.6% and 2.7%, respectively. The Plan's Fixed Income and Covered Calls allocation both slightly underperformed their respective benchmarks by (0.1%) each, while Real Return handily outperformed its benchmark by 3.6%.

The Total Portfolio produced positive relative results versus the policy benchmark over the quarter, 3-, and 5-year time periods, while slightly underperforming over the 1-year period, gross of fees. Relative to the Median Fund, the Total Portfolio underperformed over the 3- and 5-year time periods, but beat the median fund over the most recent quarter, fiscal year-to-date, and 1-year periods. Relative performance with respect to the Median Fund can be largely attributed to differences in asset allocation.

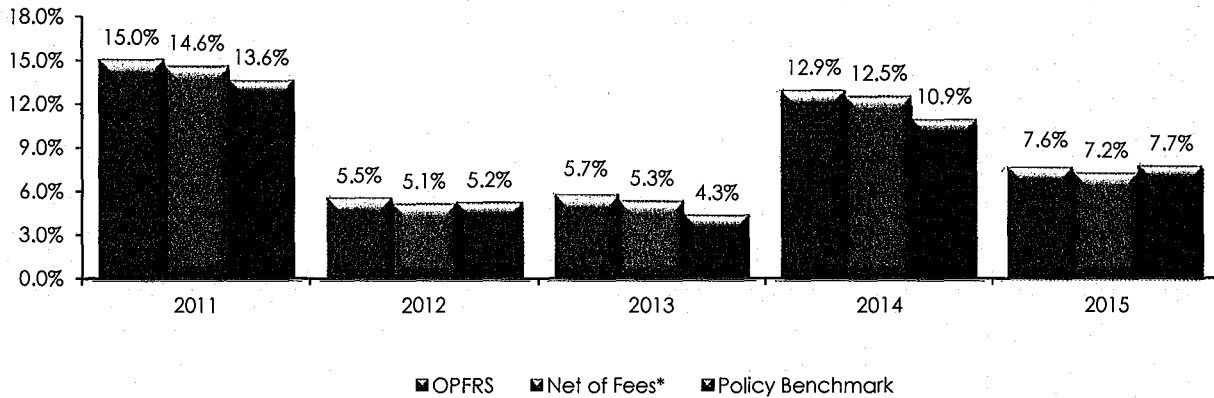
**Periods Ending March 31, 2015 (annualized)**



\* Net of fee returns are estimated based on OPFRS manager fee schedule.  
 \*\* The Evolving Policy Benchmark consists of 48% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 10% CBOE BXM and 10% CPI+3%.  
 \*\*\* Asset Allocation Benchmark by Asset Class is calculated using actual weightings of the broad asset classes.  
 \*\*\*\* Asset Allocation Benchmark by Manager consists of weighted average return of individual manager benchmarks, based on managers' actual allocations.  
 \*\*\*\*\* Median Fund is the Mellon Total Public Funds Universe.

Absolute performance results have been positive in each of the last five 12-month periods ending March 31. The Plan also outperformed its policy benchmark in four out of the last five periods, gross of fees.

**12-Month Performance – Periods Ending March 31**



\*Net of fee returns are estimated based on OPFRS manager fee schedule

**Portfolio Valuation**

The OPFRS portfolio had an aggregate value of \$440.9 million as of March 31, 2015. During the latest quarter, the portfolio decreased by (\$3.1) million. Over the latest year, the portfolio decreased by (\$29.5) million, including (\$60) million in net benefit payments.

**Investment Portfolio Valuation as of March 31, 2015\***

	March 31, 2015	December 31, 2014	Quarterly Change	Percentage Change	March 31, 2014	Annual Change	Percentage Change
OPFRS	\$440.9	\$444.0	(\$3.1)	(0.7%)	\$470.4	(\$29.5)	(6.7%)

\*The calculations listed above represent change in dollar value and not investment returns.

**Actual vs. Target Allocations**

With respect to policy targets, the portfolio ended the latest quarter **overweight Domestic Equity, Covered Calls, Real Return, and cash, while underweight International Equity and Fixed Income**. Target weightings reflect the Plan's evolving asset allocation (effective 3/31/2014).

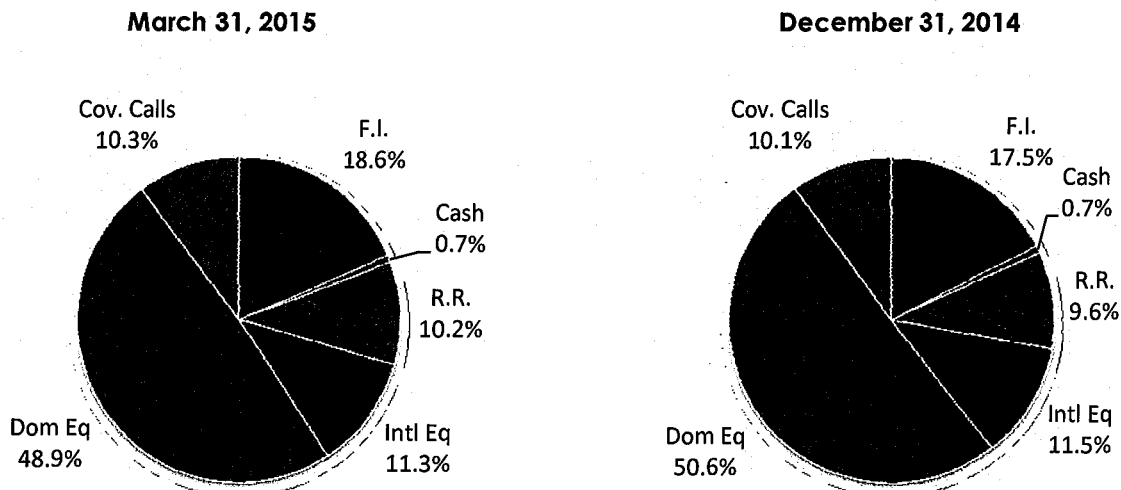
**As of March 31, 2015**

<u>Segment</u>	<u>Actual \$(000)</u>	<u>Actual %*</u>	<u>Target %</u>	<u>Variance</u>
<b>Total Investment Portfolio</b>	<b>440,874</b>	<b>100.0%</b>	<b>100.0%</b>	<b>---</b>
Domestic Equity	215,369	48.9%	48.0%	0.9%
Large Cap Equity	157,574	35.7%	34.0%	1.7%
Mid Cap Equity	32,747	7.4%	8.0%	-0.6%
Small Cap Equity	25,048	5.7%	6.0%	-0.3%
International Equity	50,006	11.3%	12.0%	-0.7%
<b>Total Equity</b>	<b>265,375</b>	<b>60.2%</b>	<b>60.0%</b>	<b>0.2%</b>
<b>Fixed Income</b>	<b>82,038</b>	<b>18.6%</b>	<b>20.0%</b>	<b>-1.4%</b>
<b>Covered Calls</b>	<b>45,596</b>	<b>10.3%</b>	<b>10.0%</b>	<b>0.3%</b>
<b>Real Return</b>	<b>44,821</b>	<b>10.2%</b>	<b>10.0%</b>	<b>0.2%</b>
<b>Cash</b>	<b>3,044</b>	<b>0.7%</b>	<b>0.0%</b>	<b>0.7%</b>

\* In aggregate, asset class allocations equal 100% of total investment portfolio. Differences due to rounding.

During the latest quarter, Domestic Equity decreased its weighting by (1.7%), Fixed Income increased its weighting by 1.1%, and International Equity's weighting decreased by (0.2%). Actual weighting for Covered Calls and Real Return both increased by 0.2% and 0.6%, respectively, while Cash's weighting remained constant.

**Investment Portfolio Actual Asset Allocation Comparison**



### Asset Class Performance

The **Domestic Equity** asset class outperformed the policy benchmark by 60 basis points over the most recent quarter, but underperformed by (70) basis points over the 1-year period. Domestic Equity matched its benchmark over the 3-year period, while outperforming over the 5-year period by 50 basis points.

The **International Equity** portfolio has performed very well as of late, outperforming its policy benchmark by 2.7% during the most recent quarter and by 2.3% over the 1-year period. The International Equity portfolio also outperformed over the 3- and 5-year periods by 0.9% and 0.5%, respectively.

The **Fixed Income** asset class slightly underperformed its index by (10) basis points over both the most recent quarter and 3-year periods while outperforming over both the 1- and 5-year periods by 20 basis points.

The **Covered Calls** asset class underperformed by (0.1%) over the most recent quarter, but has outperformed over the 1-year period by 1.6%.

the **Real Return** asset class had a very strong quarter, outperforming its benchmark by 3.6%, but the portfolio still trails its benchmark by (2.4%) over the 1-year period.

### Periods ending March 31, 2015

Asset Class	Quarter	1-Year	3-Year	5-Year
<b>Total Investment Portfolio</b>	<b>2.8</b>	<b>7.6</b>	<b>8.7</b>	<b>9.3</b>
<i>Policy Benchmark<sup>1</sup></i>	2.0	7.7	7.6	8.3
Public Equity	3.1	9.7	14.5	13.1
<i>Policy Benchmark<sup>2</sup></i>	2.2	9.7	14.3	12.6
Domestic Equity	2.4	11.7	16.4	15.2
<i>Blended Benchmark<sup>4</sup></i>	1.8	12.4	16.4	14.7
Large Cap	1.6	12.3	16.0	14.6
<i>Russell 1000</i>	1.6	12.7	16.4	14.7
Mid Cap	3.9	10.5	15.8	15.4
<i>Russell Midcap</i>	4.0	13.7	18.1	16.2
Small Cap	5.5	9.9	20.4	19.4
<i>Russell 2000</i>	4.3	8.2	16.3	14.6
International Equity	6.3	1.7	7.8	5.8
<i>Blended Benchmark<sup>5</sup></i>	3.6	-0.6	6.9	5.3
Fixed Income	1.6	5.5	3.4	4.9
<i>BC Universal (blend)<sup>6</sup></i>	1.7	5.3	3.5	4.7
Covered Calls	1.6	6.5	---	---
CBOE BXM	1.7	4.9	---	---
Real Return	4.9	0.5	---	---
CPI + 3%	1.3	2.9	---	---

<sup>1</sup> The Evolving Policy Benchmark consists of 48% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 10% CBOE BXM, and 10% CPI+3%.

<sup>2</sup> The Public Equity benchmark consists of 80% Russell 3000 and 20% MSCI ACWI ex U.S.

<sup>4</sup> Domestic Equity Benchmark consists of S&P 500 thru 3/31/98, 29% R1000, 57% R1000V, 14% RMC from 4/1/98 - 12/31/04, and Russell 3000 from 1/1/05 to the present.

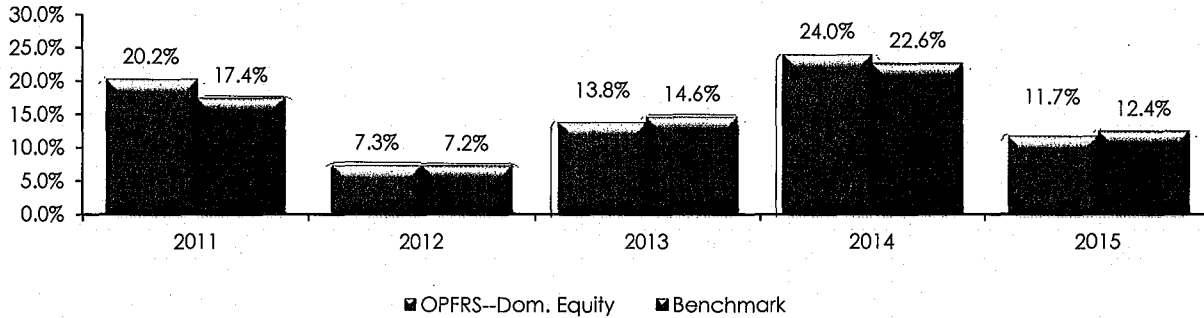
<sup>5</sup> International Equity Benchmark consists of MSCI EAFE thru 12/31/04, and MSCI ACWI x U.S. thereafter.

<sup>6</sup> Fixed Income Benchmark consists of BC Aggregate prior to 4/1/06, BC Universal prior to 7/1/2012, and a blend of 75%tills, 25% BC Universal thereafter.

**Asset Class Performance**

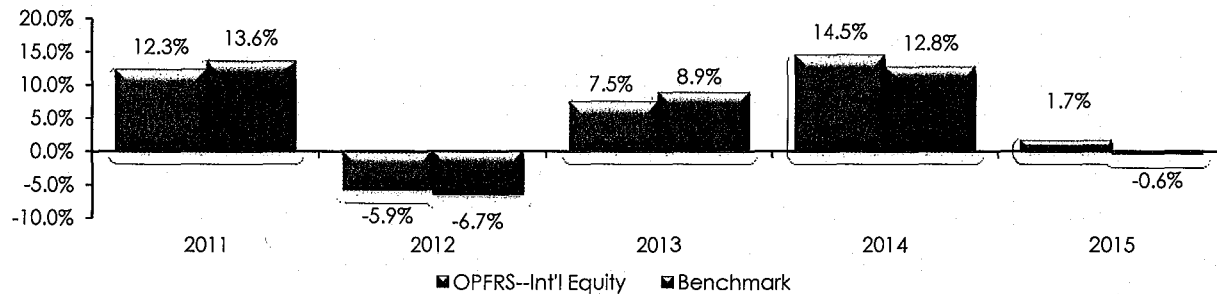
The Domestic Equity portfolio outperformed the policy benchmark in three out of five of latest 12-month periods. The Plan finished the latest 12-month period ending March 31, 2015, with a return of 11.7%, underperforming the policy benchmark by (70) basis points.

**Domestic Equity 12-Month Performance – Periods Ending March 31**



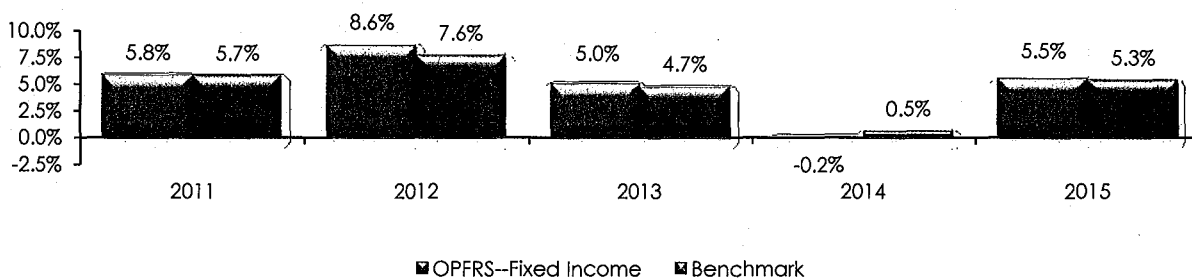
The International Equity portfolio outperformed or matched the policy benchmark in three of the five latest 12-month periods. The Plan finished the latest 12-month period ending March 31, 2015, with a return of 1.7%, outperforming the policy benchmark by 2.3%.

**International Equity 12-Month Performance – Periods Ending March 31**



The Fixed Income portfolio outperformed or matched the policy benchmark in four of the last five 12-month periods. The Plan finished the latest 12-month period ending March 31, 2015, with a return of 5.5%, outperforming the policy benchmark by 20 basis points.

**Fixed Income 12-Month Performance – Periods Ending March 31**



**Manager Performance****Domestic Equity – Periods ending March 31, 2015**

Manager	Mkt Value (\$000)	Asset Class	Quarter	1 YR	3 YR	5 YR	Since Inception*	Inception Date**
Northern Trust R1000 Index	97,486	Large Cap Core	1.6	12.7	16.4	---	16.1	5/2010
Russell 1000 Index	---	---	1.6	12.7	16.4	---	15.1	---
SSgA Russell 1000 Value	29,308	Large Cap Value	-0.7	---	---	---	3.4	10/2014
Russell 1000 Value Index	---	---	-0.7	---	---	---	3.3	---
SSgA Russell 1000 Growth	30,780	Large Cap Growth	3.8	---	---	---	7.2	10/2014
Russell 1000 Growth Index	---	---	3.8	---	---	---	7.2	---
Earnest	32,747	Mid Cap Core	3.9	10.5	15.8	15.4	8.9	3/2006
Russell MidCap	---	---	4.0	13.7	18.1	16.2	9.1	---
NWQ	12,442	Small Cap Value	4.0	10.2	20.7	19.0	7.6	1/2006
Russell 2000 Value Index	---	---	2.0	4.4	14.8	12.5	6.2	---
Lord Abbett	12,606	Small Cap Growth	7.2	9.8	20.6	---	23.1	6/2010
Russell 2000 Growth Index	---	---	6.6	12.1	17.7	---	19.9	---

\* Performance is calculated based on the first full month of performance since funding.

\*\* Inception date reflects the month when portfolio received initial funding.

During the latest three-month period ending March 31, 2015, two of OPFRS' three active domestic equity managers outperformed their respective benchmarks.

**Northern Trust**, the Plan's passive large cap core transition account continues to perform in-line with its benchmark over all time periods measured. This performance is within expectations for a passive mandate.

**SSgA Russell 1000 Value**, the Plan's new passive large cap value account was funded in October 2014 and has continued to perform within expectations for a passive mandate.

**SSgA Russell 1000 Growth**, the Plan's new passive large cap growth account was funded in October 2014 and has continued to perform within expectations for a passive mandate.

**Earnest Partners**, the Plan's mid cap core manager, completed the quarter with an 3.9% return, slightly underperforming the Russell Midcap Index by (0.1%). Over the latest 1-, 3-, and 5-year periods, Earnest underperformed its benchmark by (3.2%), (2.3%), and (0.8%), respectively.

**NWQ**, one of the Plan's small cap value managers, outperformed the Russell 2000 Value Index by 2.0% over the latest 3-month period. NWQ's also handily beat its benchmark over the longer-term as it outperformed by 5.8%, 5.9%, and 6.5% over the 1-, 3-, and 5-year periods, respectively.

**Lord Abbett**, one of the Plan's small cap growth managers, outperformed the Russell 2000 Growth Index by 0.6% for the quarter. Over the 1-year period, Lord Abbett underperformed the benchmark by (2.3%), while outperforming over the 3-year period by 2.9%.

**International Equity – Periods ending March 31, 2015**

Manager	Mkt Value (\$000)	Asset Class	Quarter	1 YR	3 YR	5 YR	Since Inception*	Inception Date**
SSgA	14,976	International	5.0	-0.6	9.4	6.8	8.3	7/2002
MSCI EAFE Index	---	---	5.0	-0.5	9.5	6.6	8.3	---
Hansberger	16,992	International	7.1	1.7	7.2	5.0	4.5	1/2006
MSCI ACWI x US	---	---	3.6	-0.6	6.9	5.3	4.9	---
Fisher	18,038	International	6.7	3.9	7.6	---	5.0	4/2011
MSCI ACWI x US	---	---	3.6	-0.6	6.9	---	3.8	---

\* Performance is calculated based on the first full month of performance since funding.

\*\* Inception date reflects the month when portfolio received initial funding.

During the latest three-month period ending March 31, 2015, both of OPFRS' two active International Equity managers easily outperformed their benchmarks.

The **SSgA** account has performed roughly in-line with its benchmark over all time periods measured. This performance is within expectations for a passive mandate.

**Hansberger**, one of OPFRS' active international equity managers, outperformed the MSCI ACWI x US Index during the quarter by 3.5%. During the latest 1- and 3-year periods, the portfolio outperformed its benchmark by 2.3% and 0.3%, respectively. Over the latest 5-year period, the portfolio underperformed the benchmark by (30) basis points.

**Fisher**, one of OPFRS' active international equity managers, outperformed the MSCI ACWI x US Index by 3.1% during the quarter. Over the latest 1-year period, Fisher beat its benchmark target by 4.5%, and outperformed by 70 basis points over the 3-year period.

**Fixed Income – Periods ending March 31, 2015**

Manager	Mkt Value (\$000)	Asset Class	Quarter	1 YR	3 YR	5 YR	Since Inception **	Inception Date ***
Reams	25,256	Core Plus	1.6	4.8	3.7	5.5	6.2	1/1998
BC Universal Index (blend)*	---	---	1.7	5.3	3.5	4.7	5.5	---
T. Rowe Price	46,623	Core	1.7	5.9	3.5	---	4.2	5/2011
BC Aggregate Index	---	---	1.6	5.7	3.1	---	4.0	---
DDJ	10,159	H.Y. / B.L.	---	---	---	---	1.9	1/2015
BofAML US HY Master II	---	---	---	---	---	---	1.8	---

\* Previously the benchmark for Reams was the BC Aggregate; this was changed to the BC Universal beginning 4/1/2006.

\*\* Performance is calculated based on the first full month of performance since funding.

\*\*\* Inception date reflects the month when portfolio received initial funding.

During the latest three-month period ending March 31, 2015, one of OPFRS' two active Fixed Income managers outperformed its respective benchmark.

**Reams**, the Plan's core plus fixed income manager, produced a quarterly return of 1.6%, underperforming the BC Universal (blend) Index by (10) basis points. During the latest 1-year period, the portfolio trailed its benchmark by (50) basis points while outperforming the benchmark over the 3- and 5-year periods by 20 and 80 basis points, respectively.

**T. Rowe Price**, the Plan's core fixed income manager, produced a quarterly return of 1.7%, outperforming the BC Aggregate Index by 10 basis points. Over the most recent 1- and 3-year periods, the fund outperformed its benchmark by 20 and 40 basis points, respectively.

**DDJ**, the Plan's new High Yield & Bank Loan manager, has not yet been funded for a full quarter, but is currently outperforming its benchmark, the BofAML US High Yield Master II index, by 10 basis points since inception.

**Covered Calls & Total Real Return – Periods ending March 31, 2015**

Manager	Mkt Value (\$000)	Asset Class	Quarter	1 YR	3 YR	5 YR	Since Inception **	Inception Date ***
Parametric	45,596	Covered Calls	1.6	6.5	---	---	6.6	3/2014
CBOE BXM	---	---	1.7	4.9	---	---	4.5	---
Wellington	44,821	Total Real Return	4.9	0.5	---	---	1.7	1/2014
CPI + 3%	---	---	1.3	2.9	---	---	3.8	---

\*\* Performance is calculated based on the first full month of performance since funding.

\*\*\* Inception date reflects the month when portfolio received initial funding.

During the latest three-month period ending March 31, 2014, OPFRS' Covered Calls manager underperformed its benchmark while OPFRS' Real Return manager outperformed its benchmark.

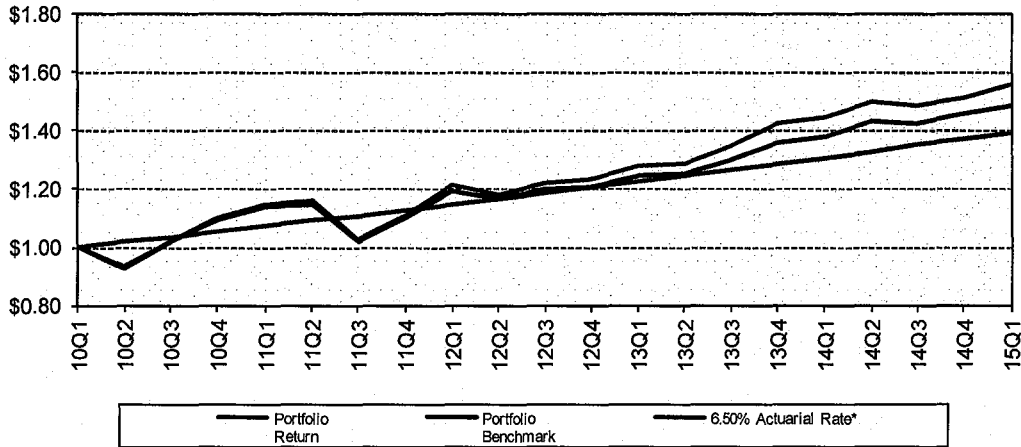
**Parametric**, the Plan's Covered Calls manager, produced a quarterly return of 1.6%, underperforming its benchmark by (10) basis points. Over the most recent 1-year period, the portfolio outperformed by 1.6%

**Wellington**, the Plan's Total Real Return manager, produced a strong quarterly return of 4.9%, outperforming its benchmark by 3.6%. However, the fund still trails its benchmark by (2.4%) over the 1-year period.



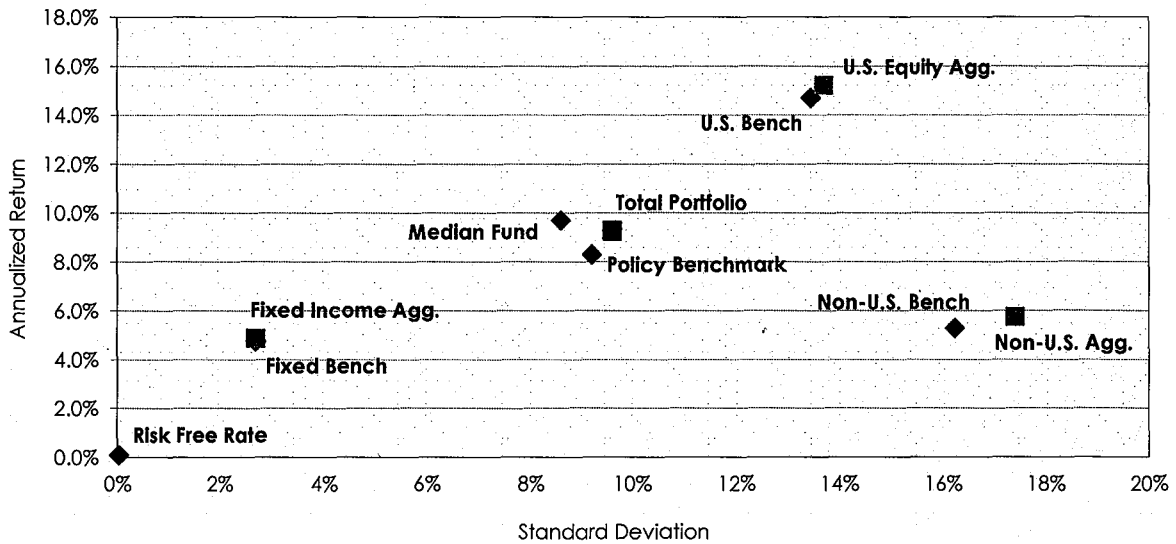
**OPFRS Risk/Return Analysis**  
**Period ending March 31, 2015**

**Growth of a Dollar**  
**Past 5 Years**



\* The actuarial expected rate of return was 8% through 6/30/2009, 7.5% through 6/30/2010, 7% through 6/30/2011, 6.75% through 6/30/2014, and 6.5% currently

**Five-Year Annualized Risk/Return**



**City of Oakland Police & Fire Retirement, Asset Allocation  
as of 3/31/15**

Manager	Style	Market Value \$(000)	Target	Actual <sup>1</sup>	Difference
<b>Total Plan</b>		<b>\$440,874</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>
<b>Public Equity</b>		<b>\$265,375</b>	<b>60.0%</b>	<b>60.2%</b>	<b>0.2%</b>
<b>Domestic Equity</b>		<b>\$215,369</b>	<b>48.0%</b>	<b>48.9%</b>	<b>0.9%</b>
<b>Large Cap Equity</b>					
Northern Trust	Large Cap Core	97,486	19.2%	22.1%	2.9%
SSgA Russell 1000 Value	Large Cap Value	29,308	7.4%	6.6%	-0.8%
SSgA Russell 1000 Growth	Large Cap Growth	30,780	7.4%	7.0%	-0.4%
<b>Mid Cap Equity</b>					
Eamest Partners	Mid Cap Core	32,747	8.0%	7.4%	-0.6%
<b>Small Cap Equity</b>					
NWQ	Small Cap Value	12,442	3.0%	2.8%	-0.2%
Lord Abbett	Small Cap Growth	12,606	3.0%	2.9%	-0.1%
<b>International Equity</b>		<b>\$50,006</b>	<b>12.0%</b>	<b>11.3%</b>	<b>-0.7%</b>
SSgA	International	14,976	3.6%	3.4%	-0.2%
Hansberger	International	16,992	4.2%	3.9%	-0.3%
Fisher	International	18,038	4.2%	4.1%	-0.1%
<b>Fixed Income</b>		<b>\$82,038</b>	<b>20.0%</b>	<b>18.6%</b>	<b>-1.4%</b>
Reams	Core Plus	25,256	8.0%	5.7%	-2.3%
T. Rowe Price	Core	46,623	10.0%	10.6%	0.6%
DDJ	High Yield/Bank Loans	10,159	2.0%	2.3%	0.3%
Transition (Reams) <sup>3</sup>	Transition Portfolio	0	0.0%	0.0%	—
<b>Covered Calls</b>		<b>\$45,596</b>	<b>10.0%</b>	<b>10.3%</b>	<b>0.3%</b>
Parametric (Eaton Vance)	Active/Replication	45,596	—	10.3%	—
<b>Real Return</b>		<b>\$44,821</b>	<b>10.0%</b>	<b>10.2%</b>	<b>0.2%</b>
Wellington		44,821	—	10.2%	—
<b>Total Cash<sup>2</sup></b>		<b>\$3,044</b>	<b>0.0%</b>	<b>0.7%</b>	<b>0.7%</b>

1. In aggregate, asset class allocations equal to 100% of total investment portfolio.

2. Includes cash balance with City Treasury and Torrey Pines Bank as of 3/31/2015.

3. Includes a residual \$84 in the Reams transition account.

## MANAGER MONITORING / PROBATION LIST

**Monitoring/Probation Status**

**As of March 31, 2015**  
**Return vs. Benchmark since Corrective Action**

Portfolio	Status	Concern	Months Since Corrective Action	Performance <sup>^</sup> Since Corrective Action	Date of Corrective Action*
Hansberger	On Watch	Organizational	10	-0.9	5/28/2014
MSCI ACWI ex-US	---	---	10	-3.9	---

<sup>^</sup> Annualized performance if over one year.

\* Approximate date based on when Board voted to either monitor a manager at a heightened level or place it on probation.

**Investment Performance Criteria**  
**For Manager Monitoring/Probation Status**

Asset Class	Short-term (rolling 12 mth periods)	Medium-term (rolling 36 mth periods)	Long-term (60 + months)
<b>Active Domestic Equity</b>	Fd return < bench return – 3.5%	Fd annlzd return < bench annlzd return – 1.75% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
<b>Active International Equity</b>	Fd return < bench return – 4.5%	Fd annlzd return < bench annlzd return – 2.0% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
<b>Passive International Equity</b>	Tracking Error > 0.50%	Tracking Error > 0.45% for 6 consecutive months	Fd annlzd return < bench annlzd return – 0.40% for 6 consecutive months
<b>Fixed Income</b>	Fd return < bench return – 1.5%	Fd annlzd return < bench annlzd return – 1.0% for 6 consecutive months	VRR < 0.98 for 6 consecutive months

All critelized basis.

VRR – Value Relative Ratio – is calculated as: manager cumulative return / benchmark cumulative return.

**Oakland Police & Fire**  
**Performance Summary and Universe Rankings**  
**Period Ending March 31, 2015**

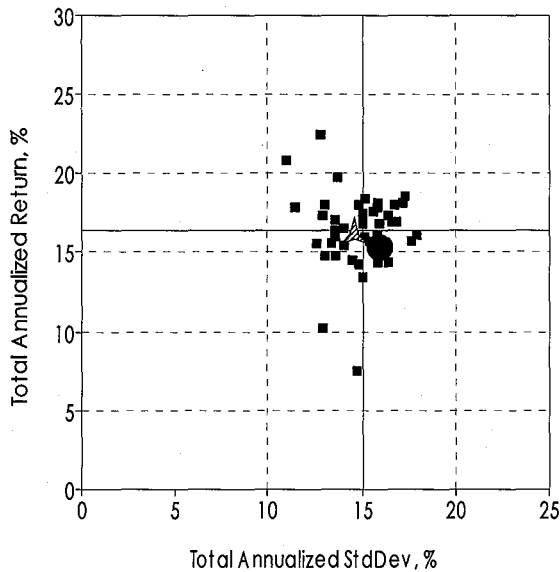
<b>Mellon Total Funds - Public Universe</b>				
	<b>Quarter</b>	<b>1-Year</b>	<b>3-Year</b>	<b>5-Year</b>
Maximum	4.5	15.2	14.1	11.6
Percentile 25	2.6	7.9	10.8	10.1
Median	2.3	6.9	9.8	9.7
Percentile 75	2.0	5.7	8.8	8.8
Minimum	0.0	2.5	4.7	6.1
Number of Portfolios	102	96	90	86
<b>Oakland Police &amp; Fire Total</b>				
Return	2.8	7.6	8.7	9.3
Quartile Rank	1st	2nd	4th	3rd

**Notes:**

Source: Mellon Total Public Funds Universe  
 All performance is shown **gross of fees**.

## Oakland Mid Cap Core Manager Comparisons as of March 31, 2015

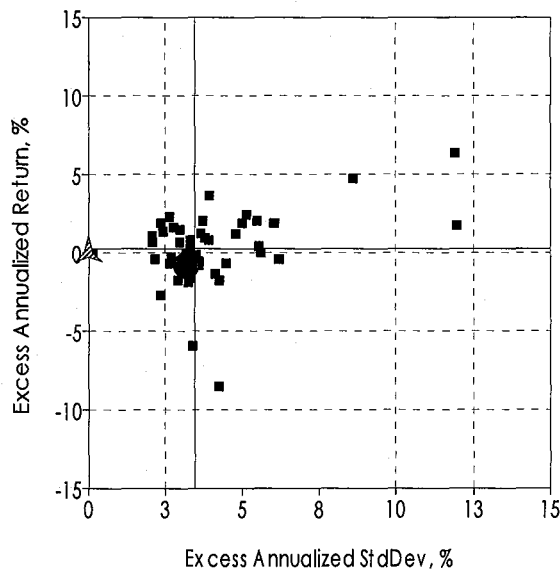
**5-Year Total Risk/Return**



● Earnest Partners    ▲ Russell Mid-Cap Index

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
Earnest Partners	15.37	15.95	0.96
Russell Mid-Cap Index	16.16	14.60	1.11
Mid Cap Core Universe Median	16.48	15.08	1.08

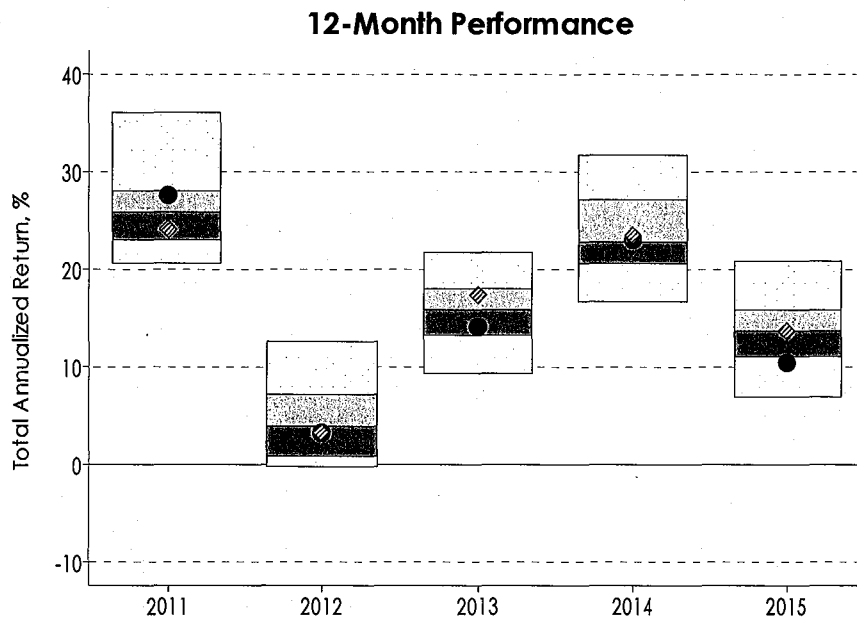
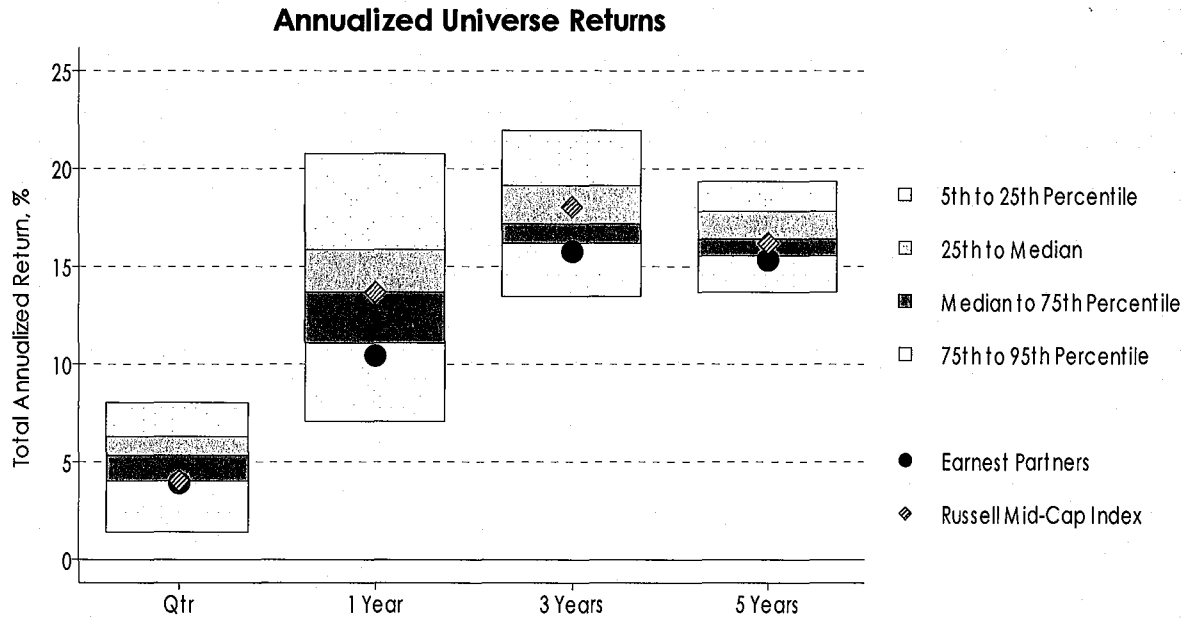
**5-Year Excess Risk/Return**



● Earnest Partners    ▲ Russell Mid-Cap Index

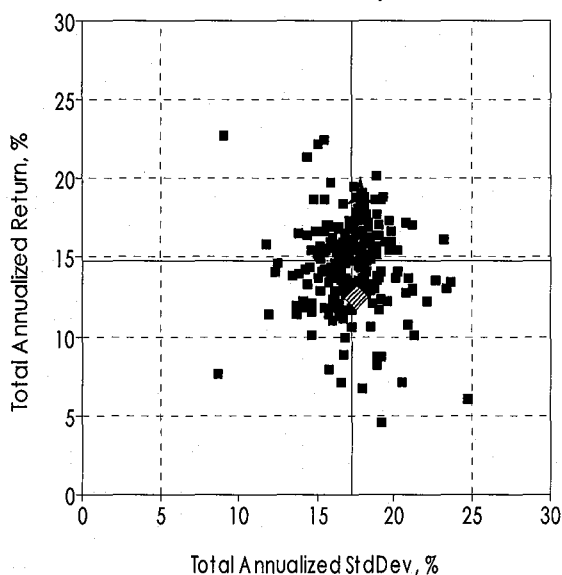
	Annualized Excess Return, %	Annualized Excess StdDev, %	Sharpe Ratio, Excess
Earnest Partners	-0.78	3.20	-0.25
Russell Mid-Cap Index	0.00	0.00	NA
Mid Cap Core Universe Median	0.32	3.45	0.11

## Oakland Mid Cap Core Manager Comparisons as of March 31, 2015



## Oakland Small Cap Value Manager Comparisons as of March 31, 2015

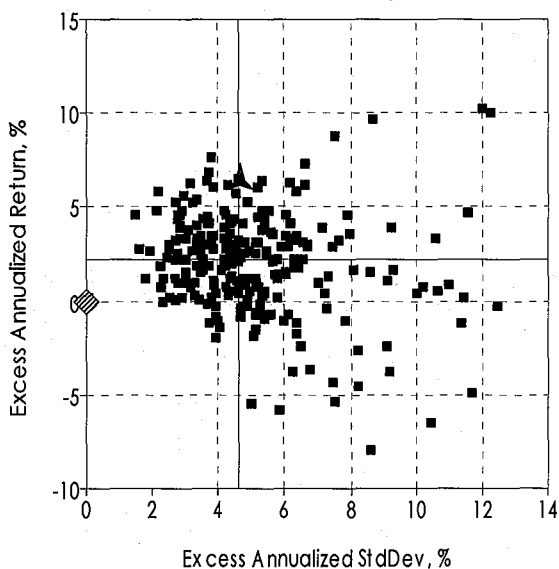
**5-Year Total Risk/Return**



	Annualized Return, %	Annualized StdDev, %	Shape Ratio
NW Q	18.95	17.83	1.06
Russell 2000 Value Index	12.54	17.49	0.72
Small Cap Value Universe Median	14.76	17.23	0.86

▲ NW Q    ◆ Russell 2000 Value Index

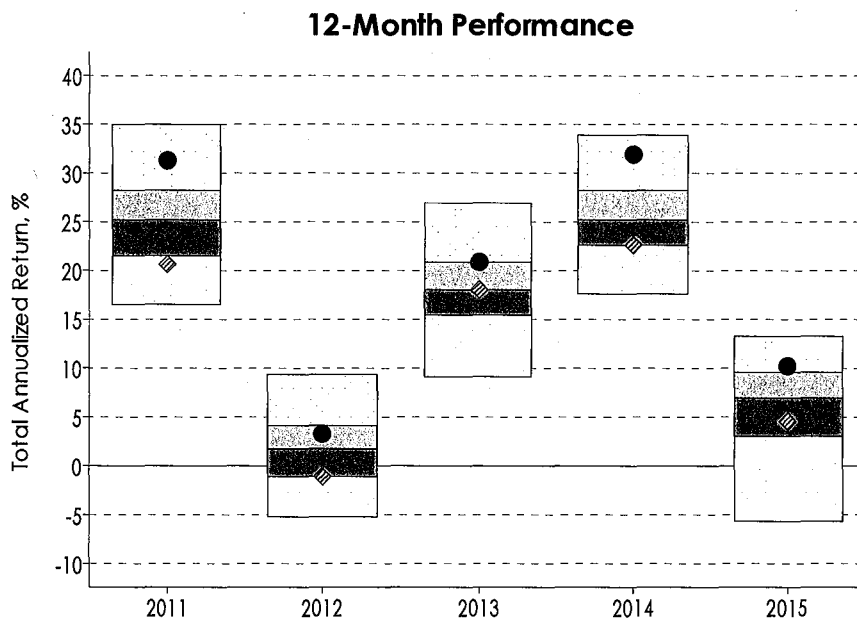
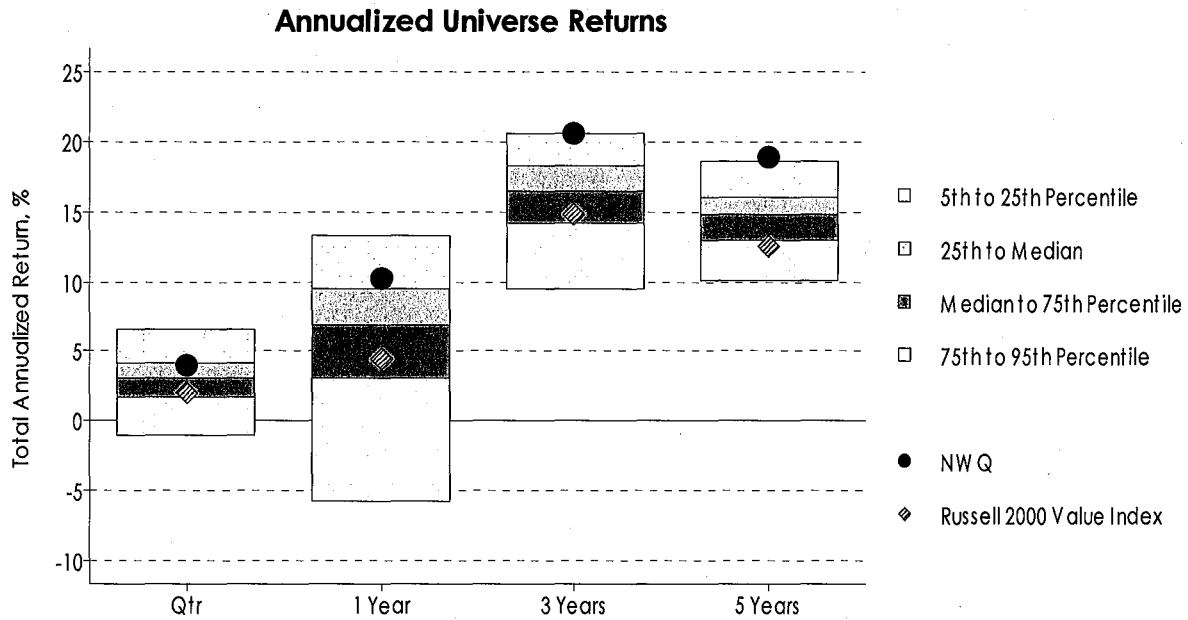
**5-Year Excess Risk/Return**



	Annualized Excess Return, %	Annualized Excess StdDev, %	Shape Ratio, Excess
NW Q	6.41	4.68	1.37
Russell 2000 Value Index	0.00	0.00	NA
Small Cap Value Universe Median	2.22	4.65	0.48

▲ NW Q    ◆ Russell 2000 Value Index

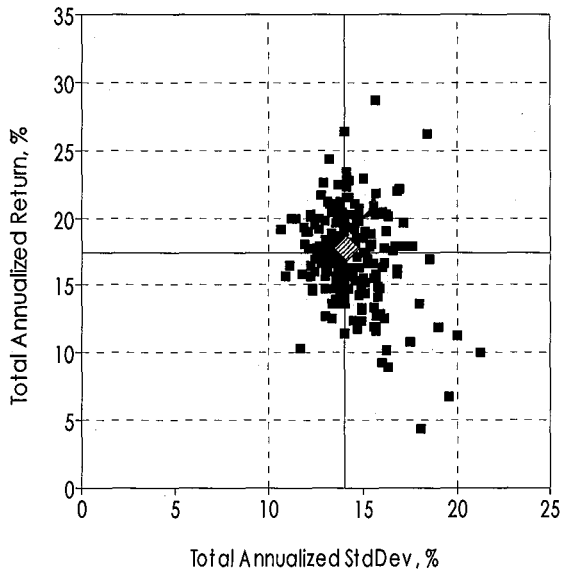
## Oakland Small Cap Value Manager Comparisons as of March 31, 2015





## Oakland Small Cap Growth Manager Comparisons as of March 31, 2015

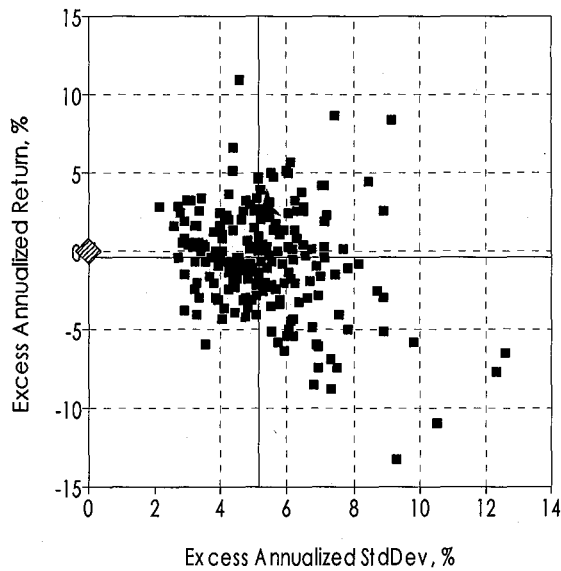
**3 -Year Total Risk/Return**



▲ Lord Abbett    ◆ Russell 2000 Growth Index

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
Lord Abbett	20.57	15.58	1.32
Russell 2000 Growth Index	17.74	14.12	1.26
Small Cap Growth Universe Median	17.40	14.03	1.26

**3 -Year Excess Risk/Return**

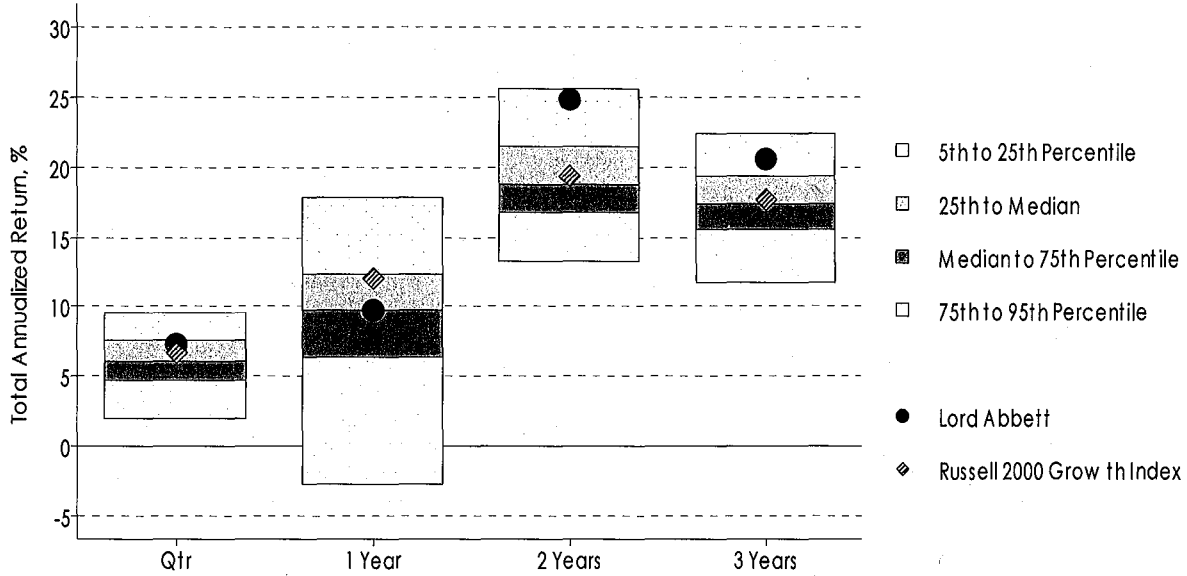


▲ Lord Abbett    ◆ Russell 2000 Growth Index

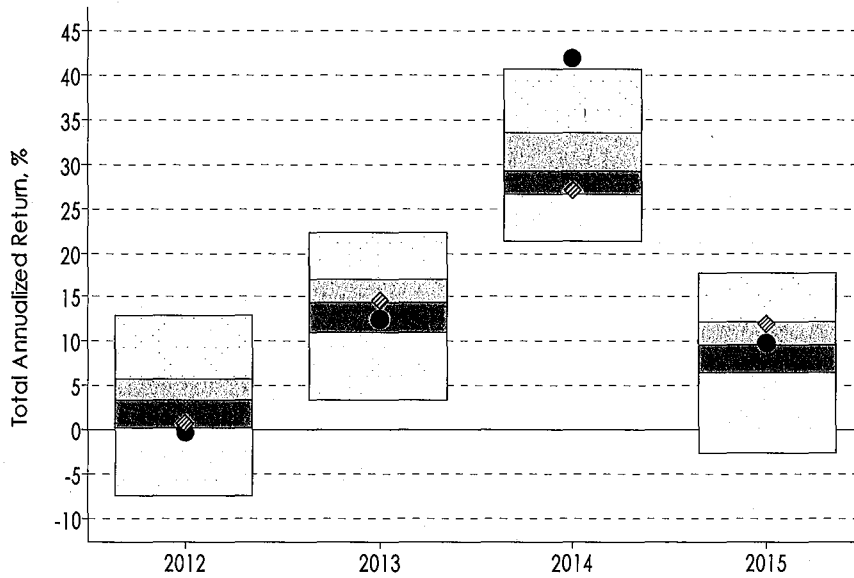
	Annualized Excess Return, %	Annualized Excess StdDev, %	Sharpe Ratio, Excess
Lord Abbett	2.83	5.40	0.52
Russell 2000 Growth Index	0.00	0.00	NA
Small Cap Growth Universe Median	-0.35	5.11	-0.09

## Oakland Small Cap Growth Manager Comparisons as of March 31, 2015

### Annualized Universe Returns

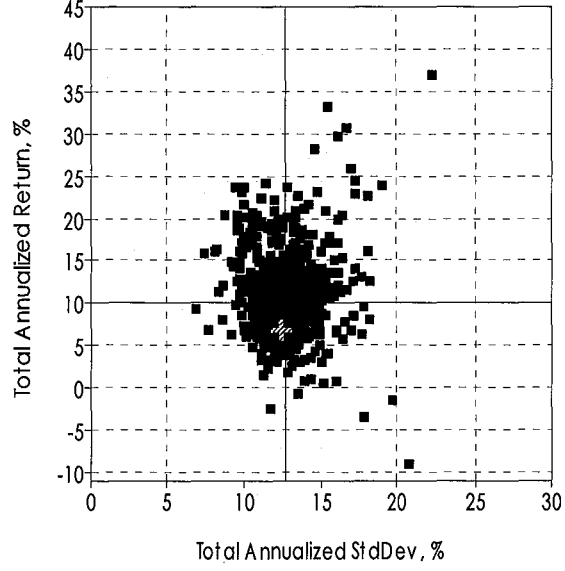


### 12-Month Performance



## Oakland International Equity Manager Comparisons as of March 31, 2015

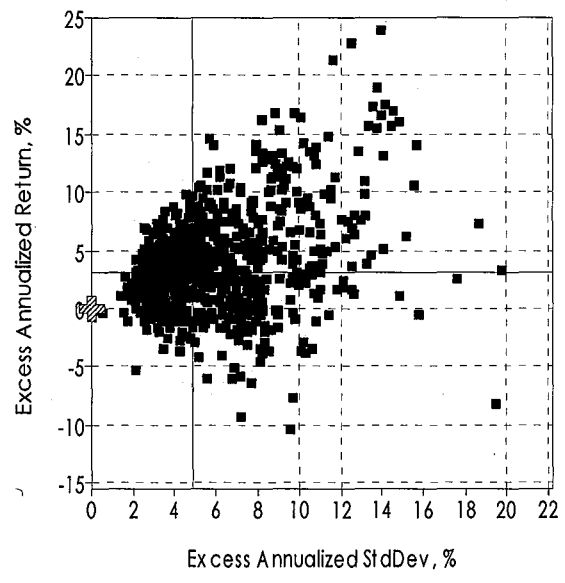
**3-Year Total Risk/Return**



	Annualized Return, %	Annualized StdDev, %	Shape Ratio
Hansberger	7.17	12.90	0.56
Fisher	7.63	12.82	0.60
MSCI AC World Index ex U SA	6.88	12.45	0.55
International Equity Universe Median	9.98	12.66	0.79

▲ Hansberger    ◆ Fisher    ⊗ MSCI AC World Index ex USA

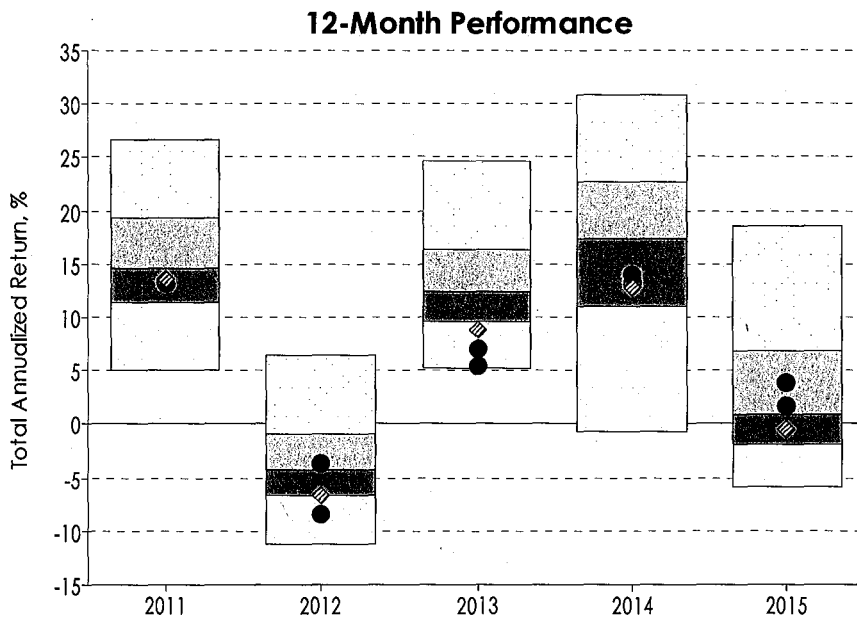
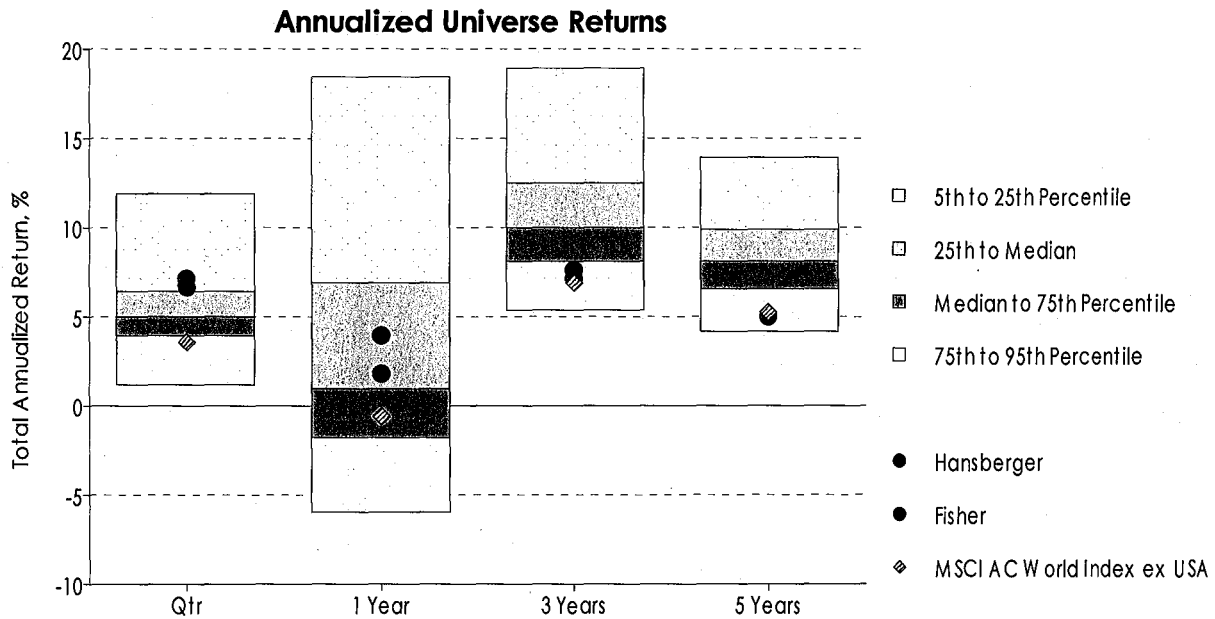
**3-Year Excess Risk/Return**



	Annualized Excess Return, %	Annualized Excess StdDev, %	Shape Ratio, Excess
Hansberger	0.28	3.76	0.08
Fisher	0.75	3.14	0.24
MSCI AC World Index ex U SA	0.00	0.00	NA
International Equity Universe Median	3.10	4.87	0.68

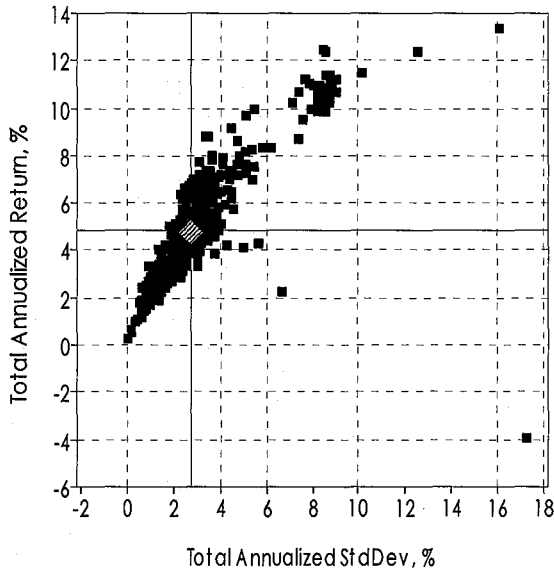
▲ Hansberger    ◆ Fisher    ⊗ MSCI AC World Index ex USA

## Oakland International Equity Manager Comparisons as of March 31, 2015



## Oakland Fixed Income Manager Comparisons as of March 31, 2015

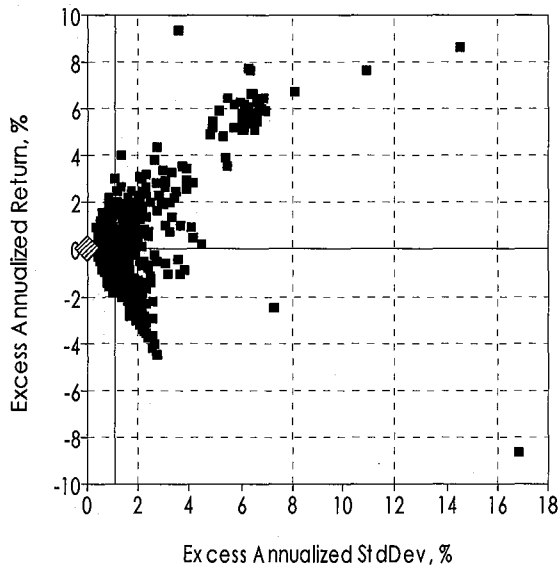
**5-Year Total Risk/Return**



▲ Reams    ◆ Oakland BC Universal Blend

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
Reams	5.48	2.70	2.03
Oakland BC Universal Blend	4.75	2.71	1.75
U.S. Fixed Income Universe Median	4.84	2.76	1.78

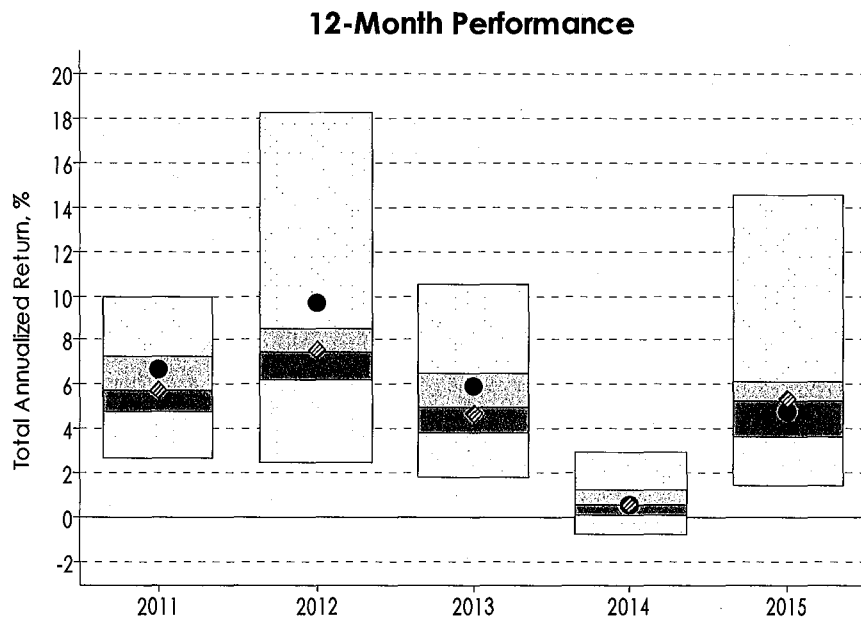
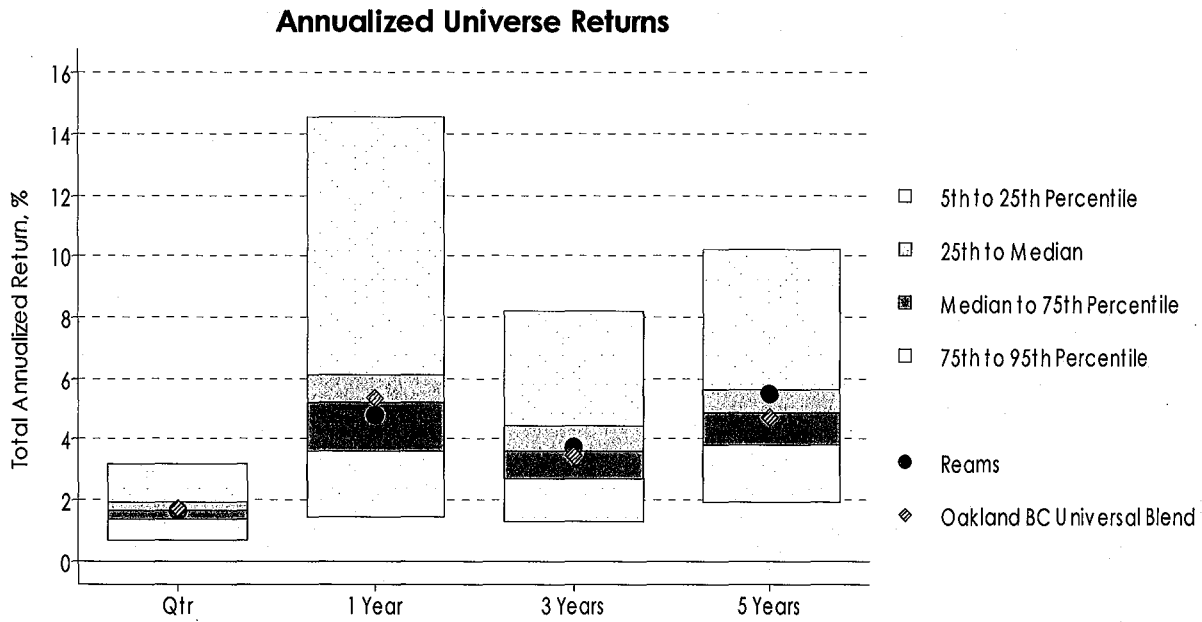
**5-Year Excess Risk/Return**



▲ Reams    ◆ Oakland BC Universal Blend

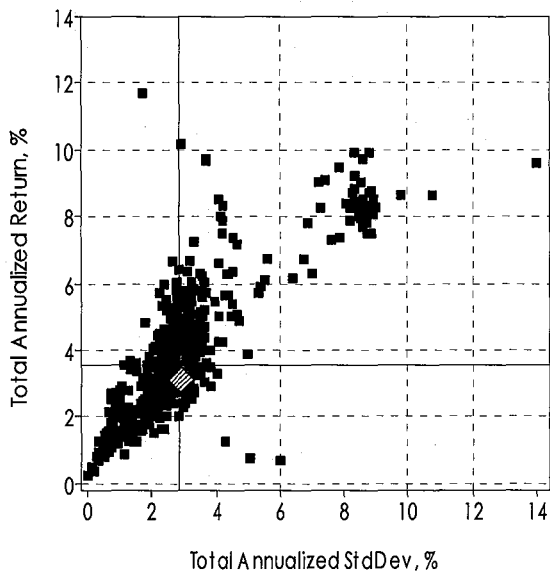
	Annualized Excess Return, %	Annualized Excess StdDev, %	Sharpe Ratio, Excess
Reams	0.73	1.19	0.62
Oakland BC Universal Blend	0.00	0.00	NA
U.S. Fixed Income Universe Median	0.09	1.03	0.10

## Oakland Fixed Income Manager Comparisons as of March 31, 2015



## Oakland Fixed Income Manager Comparisons as of March 31, 2015

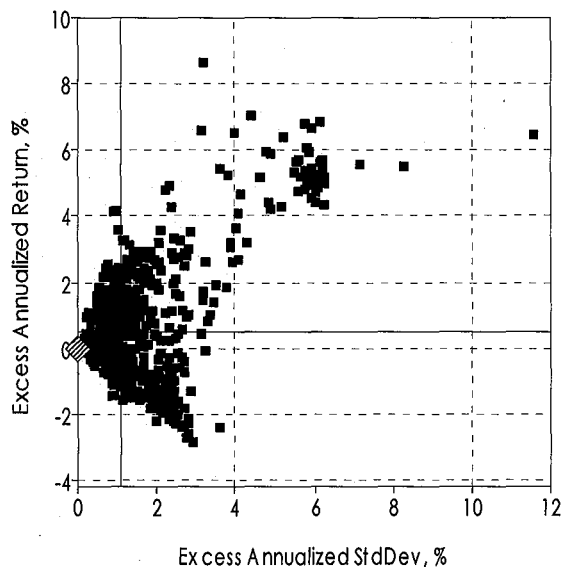
**3-Year Total Risk/Return**



▲ T. Rowe Price    ◆ BC Aggregate Bond

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
T. Rowe Price	3.48	2.89	1.21
BC Aggregate Bond	3.10	2.90	1.07
U.S. Fixed Income Universe Median	3.57	2.82	1.33

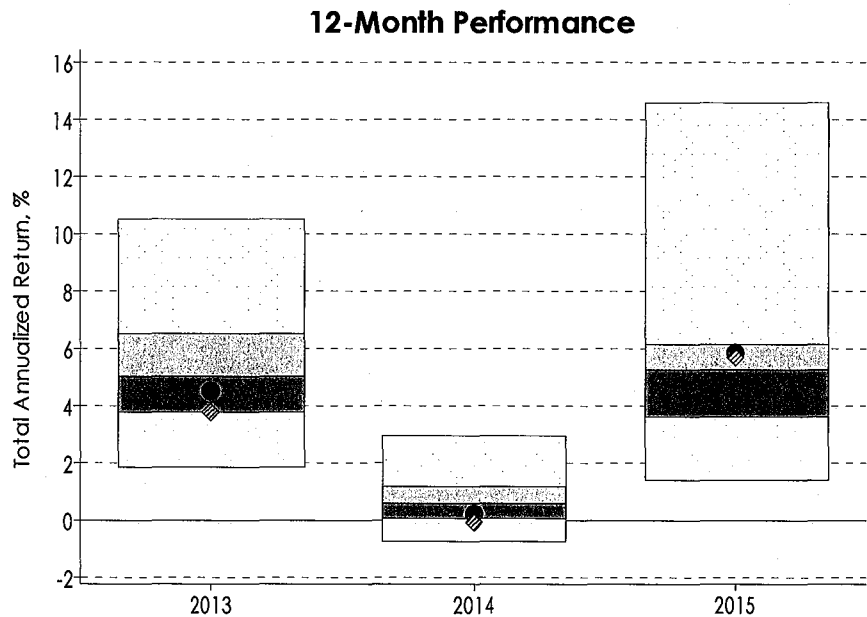
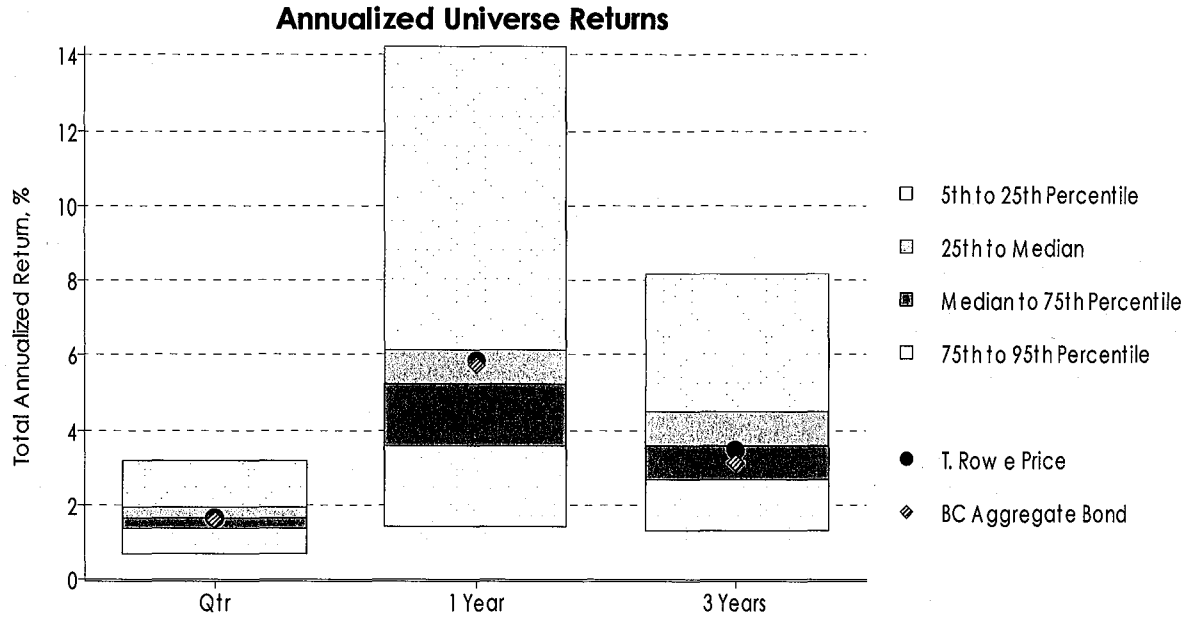
**3-Year Excess Risk/Return**



▲ T. Rowe Price    ◆ BC Aggregate Bond

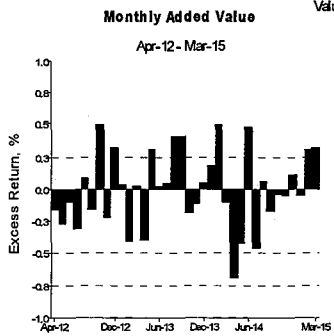
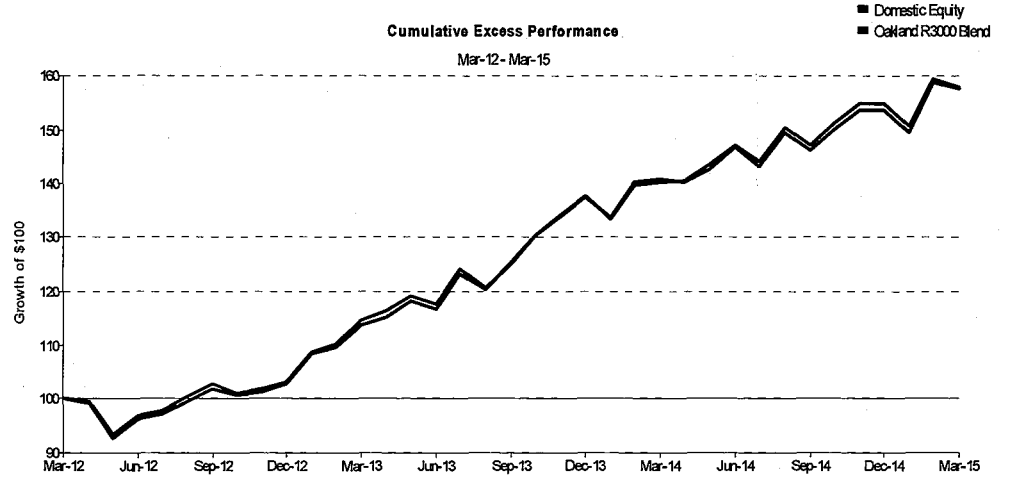
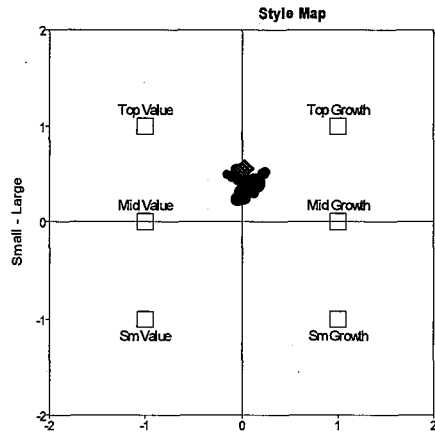
	Annualized Excess Return, %	Annualized Excess StdDev, %	Sharpe Ratio, Excess
T. Rowe Price	0.38	0.45	0.84
BC Aggregate Bond	0.00	0.00	NA
U.S. Fixed Income Universe Median	0.46	1.10	0.61

## Oakland Fixed Income Manager Comparisons as of March 31, 2015

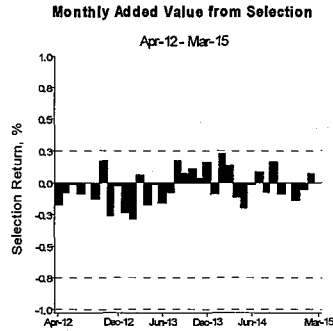




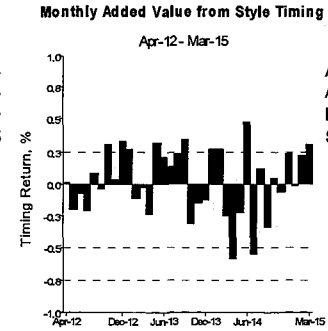
# Domestic Equity



Annualized Return, % -0.1  
 Annualized StdDev, % 1.0  
 Information Ratio -0.1  
 Significance Level, % 53.8



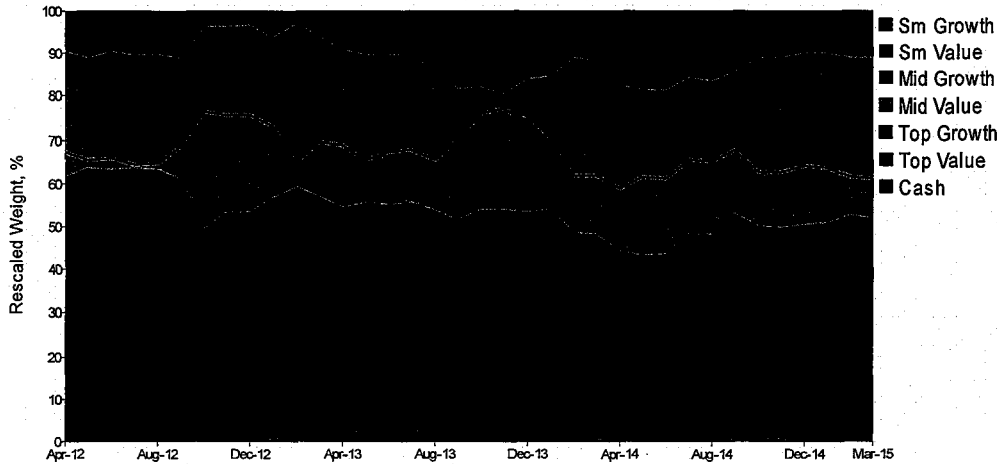
Annualized Return, % -0.4  
 Annualized StdDev, % 0.5  
 Information Ratio -0.9  
 Significance Level, % 89.5



Annualized Return, % 0.3  
 Annualized StdDev, % 0.9  
 Information Ratio 0.3  
 Significance Level, % 67.6

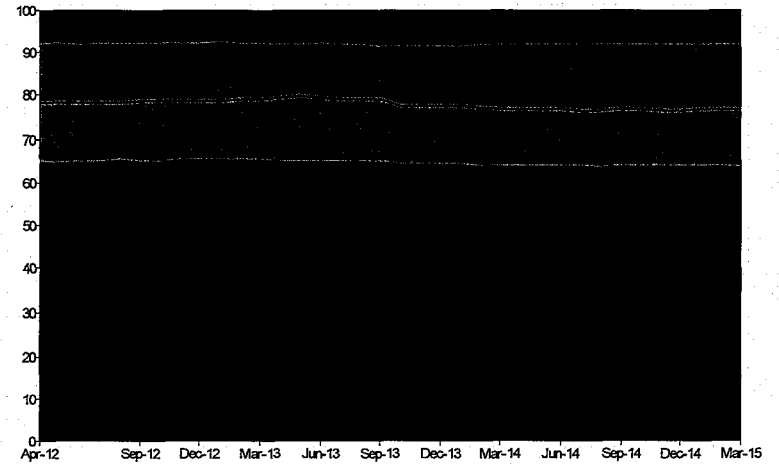
## Asset Loadings - Manager

Apr-12 - Mar-15

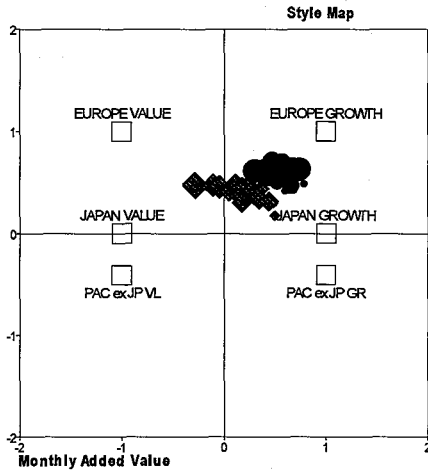


## Asset Loadings - Benchmark

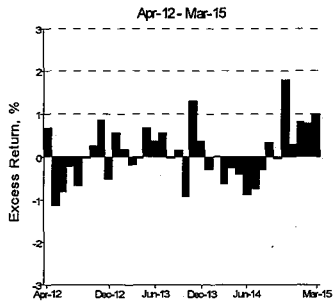
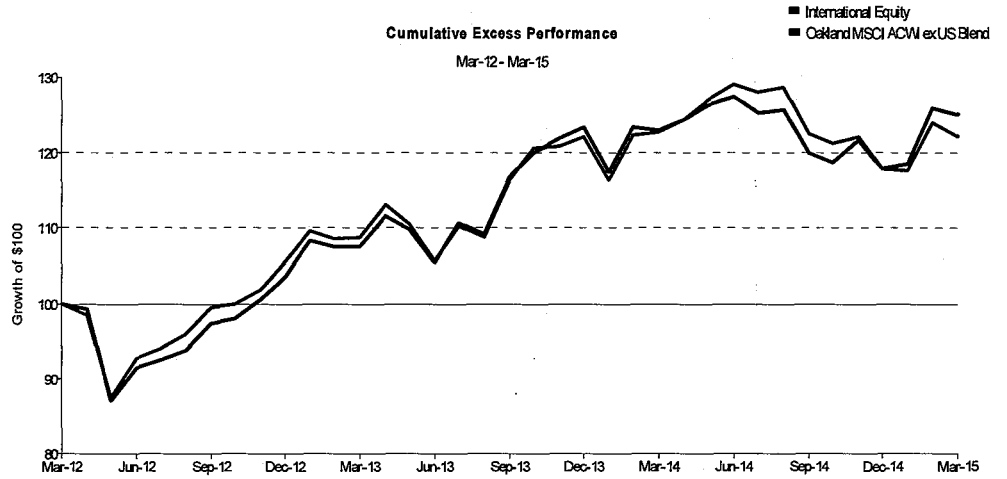
Apr-12 - Mar-15



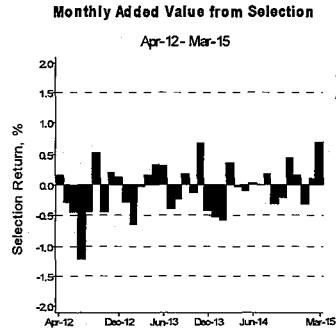
# International Equity



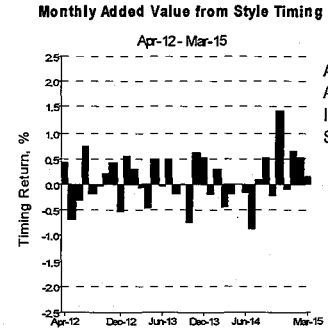
● International Equity  
◆ CaRand MSCI ACWI exUS Blend



Annualized Return, % 0.9  
Annualized StdDev, % 2.3  
Information Ratio 0.4  
Significance Level, % 73.4



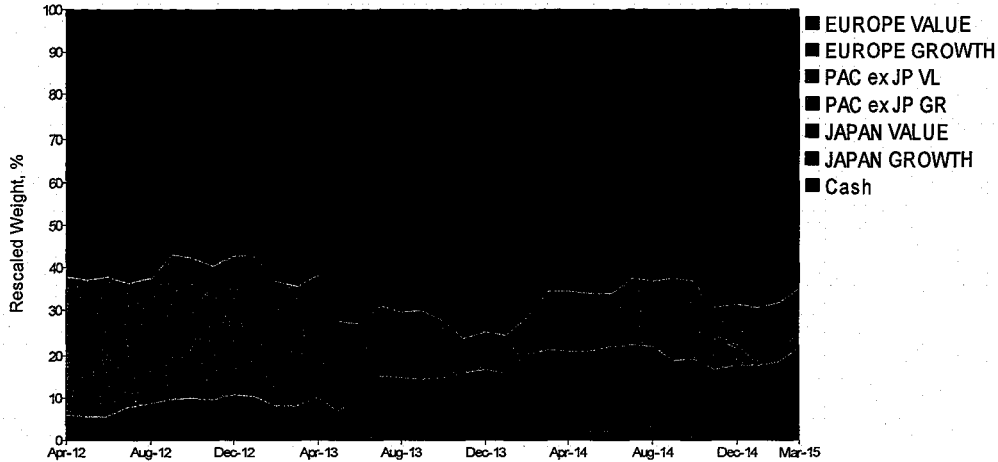
Annualized Return, % -0.9  
Annualized StdDev, % 1.4  
Information Ratio -0.6  
Significance Level, % 83.5



Annualized Return, % 1.1  
Annualized StdDev, % 1.7  
Information Ratio 0.6  
Significance Level, % 84.7

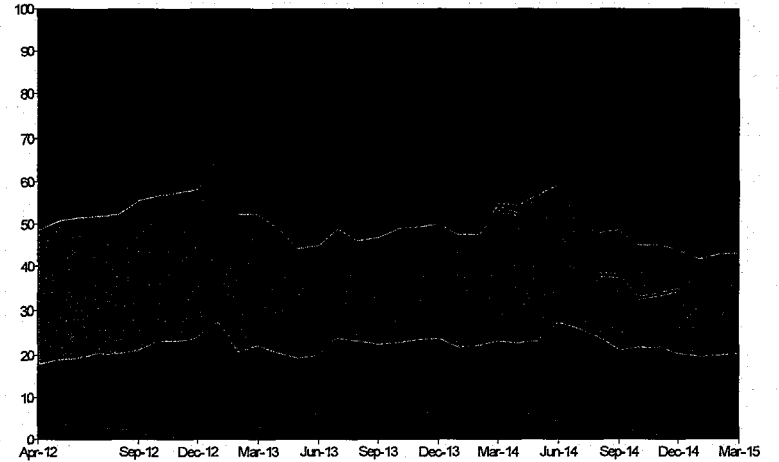
## Asset Loadings - Manager

Apr-12 - Mar-15

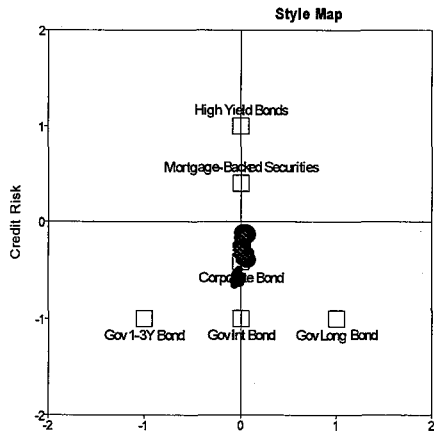


## Asset Loadings - Benchmark

Apr-12 - Mar-15



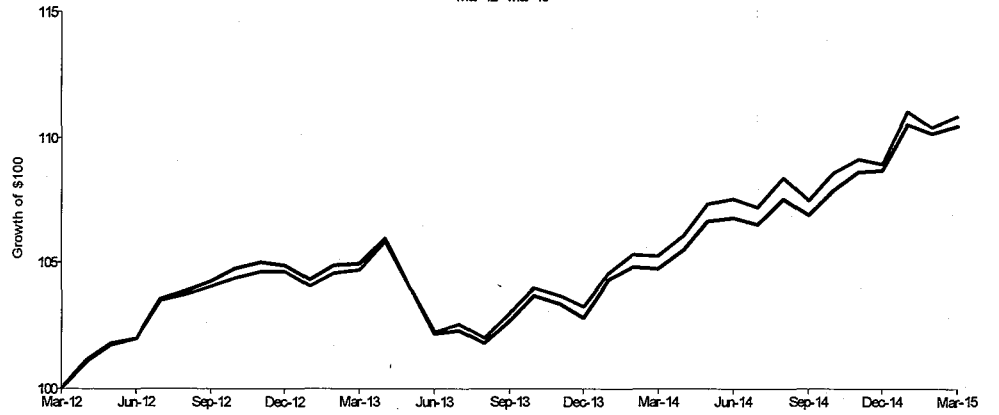
# Fixed Income



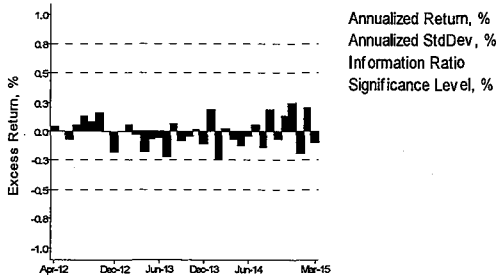
□ Style Map  
● Fixed Income  
◆ Oakland BC Universal Blend

**Cumulative Excess Performance**  
Mar-12 - Mar-15

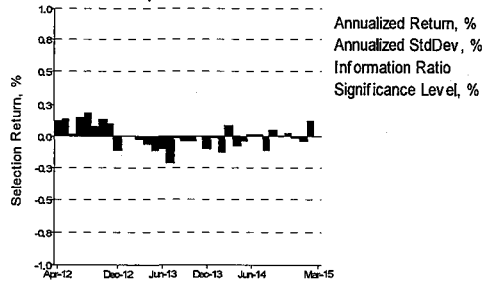
■ Fixed Income  
■ Oakland BC Universal Blend



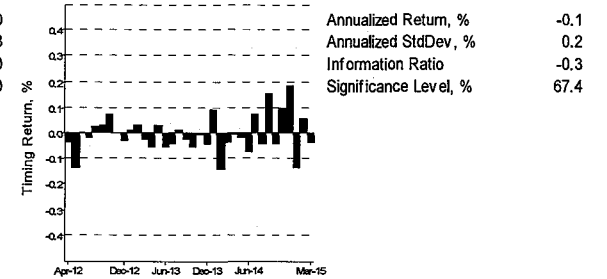
**Monthly Added Value**  
Apr-12 - Mar-15



**Monthly Added Value from Selection**  
Apr-12 - Mar-15

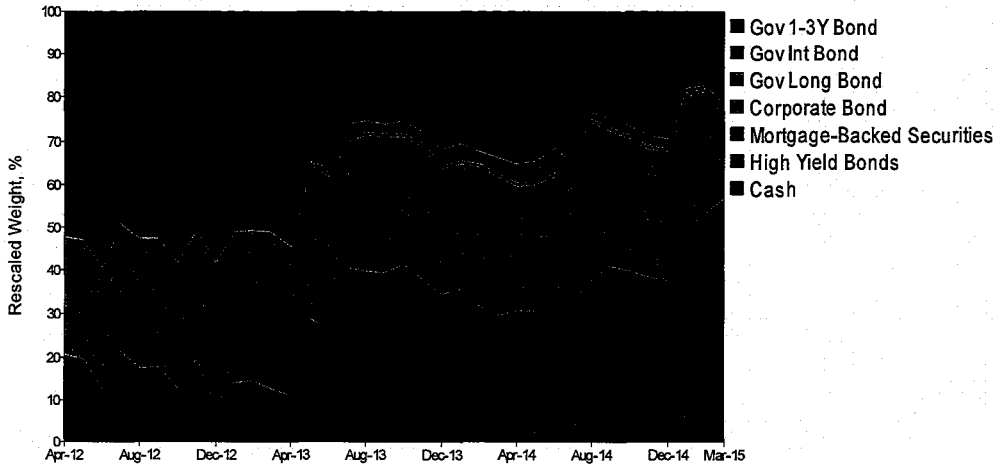


**Monthly Added Value from Style Timing**  
Apr-12 - Mar-15



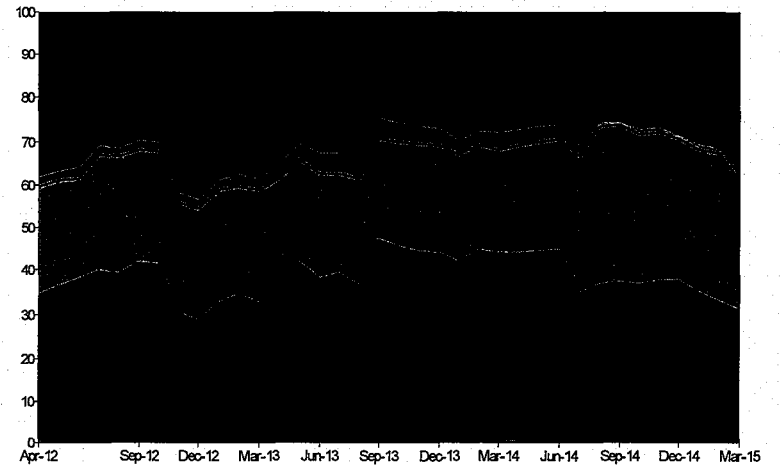
**Asset Loadings - Manager**

Apr-12 - Mar-15



**Asset Loadings - Benchmark**

Apr-12 - Mar-15



# Appendix

## Glossary

### Alpha

The premium an investment earns above a set standard. This is usually measured in terms of a common index (i.e., how the stock performs independent of the market). An Alpha is usually generated by regressing a security's excess return on the S&P 500 excess return.

### Annualized Performance

The annual rate of return that when compounded  $t$  times generates the same  $t$  period holding return as actually occurred from period 1 to period  $t$ .

### Batting Average

Percentage of periods a portfolio outperforms a given index.

### Beta

The measure of an asset's risk in relation to the Market (for example, the S&P 500) or to an alternative benchmark or factors. Roughly speaking, a security with a Beta of 1.5, will have moved, on average, 1.5 times the market return.

### Bottom-up

A management style that emphasizes the significance of economic and market cycles, focusing instead on the analysis of individual stocks.

### Dividend Discount Model

A method to value the common stock of a company that is based on the present value of the expected future dividends.

### Growth Stocks

Common stock of a company that has an opportunity to invest money and earn more than the opportunity cost of capital.

### Information Ratio

The ratio of annualized expected residual return to residual risk. A central measurement for active management, value added is proportional to the square of the information ratio.

### R-Squared

Square of the correlation coefficient. The proportion of the variability in one series that can be explained by the variability of one or more other series a regression model. A measure of the quality of fit. 100% R-square means perfect predictability.

### Standard Deviation

The square root of the variance. A measure of dispersion of a set of data from its mean.

### Sharpe Ratio

A measure of a portfolio's excess return relative to the total variability of the portfolio.

### Style Analysis

A returns-based analysis using a multi-factor attribution model. The model calculates a product's average exposure to particular investment styles over time (i.e., the product's normal style benchmark).

### Top-down

Investment style that begins with an assessment of the overall economic environment and makes a general asset allocation decision regarding various sectors of the financial markets and various industries.

### Tracking Error

The standard deviation of the difference between the performance of a portfolio and an appropriate benchmark.

### Turnover

For mutual funds, a measure of trading activity during the previous year, expressed as a percentage of the average total assets of the fund. A turnover rate of 25% means that the value of trades represented one-fourth of the assets of the fund.

### Value Stocks

Stocks with low price/book ratios or price/earnings ratios. Historically, value stocks have enjoyed higher average returns than growth stocks (stocks with high price/book or P/E ratios) in a variety of countries.

## Benchmark Definitions

**Barclays Capital Universal:** includes market coverage by the Aggregate Bond Index fixed rate debt issues, which are rated investment grade or higher by Moody's Investor Services, Standard and Poor's Corporation, or Fitch Investor's Service, in that order with all issues having at least one year to maturity and an outstanding par value of at least \$100 million) and includes exposures to high yield CMBS securities. All returns are market value weighted inclusive of accrued interest.

**MSCI ACWI x US:** MSCI ACWI (All Country World Index) Free excluding US (gross dividends): is a free-floating adjusted market capitalization index designed to measure equity performance in the global developed and emerging markets. As of April 2002, the index consisted of 49 developed and emerging market country indices.

**MSCI EAFE (Europe, Australasia, Far East):** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the US & Canada.

**Russell 1000:** measures the performance of the 1,000 largest securities in the Russell 3000 Index. Russell 1000 is highly correlated with the S&P 500 Index and capitalization-weighted.

**Russell 1000 Growth:** measures the performance of those Russell 1000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields and higher forecasted growth values than the Value universe.

**Russell 1000 Value:** measures the performance of those Russell 1000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower forecasted growth values than the Growth universe.

**Russell MidCap:** measures the performance of the smallest 800 companies in the Russell 1000 Index, as ranked by total market capitalization.

**Russell 2000:** measures the performance of the 2,000 smallest securities in the Russell 3000 Index. Russell 2000 is market capitalization-weighted.

**Russell 2000 Growth:** measures the performance of those Russell 2000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-to-earnings ratios.

**Russell 2000 Value:** measures the performance of those Russell 2000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-to-earnings ratios.

**CBOE BXM:** measures the performance of a hypothetical buy-write strategy on the S&P 500 Index.

**CPI + 3%:** measures changes in the price level of the Consumer Price Index (CPI) with the addition of an additional 300 basis points. The CPI is a sample estimate which tracks the price level changes of a market basket of consumer goods and services purchased by households.

## RISK METRIC DESCRIPTION – Rationale for selection and calculation methodology

### US Equity Markets:

Metric: P/E ratio = Price / “Normalized” earnings for the S&P 500 Index

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published quarterly earnings. The price= $P$  of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the S&P 500 index). Equity markets are very volatile. Prices fluctuate significantly during normal times and extremely during periods of market stress or euphoria. Therefore, developing a measure of earnings power ( $E$ ) which is stable is vitally important, if the measure is to provide insight. While equity prices can and do double, or get cut in half, real earnings power does not change nearly as much. Therefore, we have selected a well known measure of real, stable earnings power developed by Yale Professor Robert Shiller known as the Shiller E-10. The calculation of E-10 is simply the average real annual earnings over the past 10 years. Over 10 years, the earnings shenanigans and boom and bust levels of earnings tend to even out (and often times get restated). Therefore, this earnings statistic gives a reasonably stable, slow-to-change estimate of average real earnings power for the index. Professor Shiller’s data and calculation of the E-10 are available on his website at <http://www.econ.yale.edu/~shiller/data.htm>. We have used his data as the base for our calculations. Details of the theoretical justification behind the measure can be found in his book *Irrational Exuberance* [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005].

### Developed Equity Markets Excluding the US:

Metric: P/E ratio = Price / “Normalized” earnings for the MSCI EAFE Index

To represent the price of non-US developed equity markets, we have chosen the MSCI EAFE index. This index has the longest published history of price for non-US developed equities. The price= $P$  of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the MSCI EAFE index). The price level of this index is available starting in December 1969. Again, for the reasons described above, we elected to use the Shiller E-10 as our measure of earnings ( $E$ ). Since 12/1972, a monthly price earnings ratio is available from MSCI. Using this quoted ratio, we have backed out the implied trailing-twelve month earnings of the EAFE index for each month from 12/1972 to the present. These annualized earnings are then inflation adjusted using CPI-U to represent real earnings in US dollar terms for each time period. The Shiller E-10 for the EAFE index (10 year average real earnings) is calculated in the same manner as detailed above.

However, we do not believe that the pricing and earnings history of the EAFE markets are long enough to be a reliable representation of pricing history for developed market equities outside of the US. Therefore, in constructing the Long-Term Average Historical P/E for developed ex-US equities for comparison purposes, we have elected to use the US equity market as a developed market proxy, from 1881 to 1982. This lowers the Long-Term Average Historical P/E considerably. We believe this methodology provides a more realistic historical comparison for a market with a relatively short history.

Emerging Market Equity Markets:

Metric: Ratio of Emerging Market P/E Ratio to Developed Market P/E Ratio

To represent the Emerging Markets P/E Ratio, we have chosen the MSCI Emerging Market Free Index, which has P/E data back to January 1995 on Bloomberg. To represent the Developed Markets PE Ratio, we have chosen the MSCI World Index, which also has data back to January 1995 on Bloomberg. Although there are issues with published, single time period P/E ratios, in which the denominator effect can cause large movements, we feel that the information contained in such movements will alert investors to market activity that they will want to interpret.

US Private Equity Markets:

Metrics: S&P LCD Average EBITDA Multiples Paid in LBOs and US Quarterly Deal Volume

The Average Purchase Price to EBITDA multiples paid in LBOs is published quarterly by S&P in their LCD study. This is the total price paid (both equity and debt) over the trailing-twelve month EBITDA (earnings before interest, taxes, depreciation and amortization) as calculated by S&P LCD. This is the relevant, high-level pricing metric that private equity managers use in assessing deals. Data is published monthly.

US quarterly deal volume for private equity is the total deal volume in \$ billions (both equity and debt) reported in the quarter by Thomson Reuters Buyouts. This metric gives a measure of the level of activity in the market. Data is published quarterly.

U.S Private Real Estate Markets:

Metrics: US Cap rates and Annual US Real Estate Deal Volume

Real estate cap rates are a measure of the price paid in the market to acquire properties versus their annualized income generation before financing costs (NOI=net operating income). The data is published by NCREIF. We chose to use current value cap rate. These are capitalization rates from properties that were revalued during the quarter. While this data does rely on estimates of value and therefore tends to be lagging, (estimated prices are slower to rise and slow to fall than transaction prices), the data series goes back to 1979, providing a long data series for valuation comparison. Data is published quarterly.

Annual US real estate deal volume is the total deal transaction volume in \$ billions (both equity and debt) reported by Real Capital Analytics during the trailing-twelve months. This metric gives the level of activity in the market. Data is published monthly.

Measure of Equity Market Fear / Uncertainty

Metric: VIX – Measure of implied option volatility for U.S. equity markets

The VIX is a key measure of near-term volatility conveyed by implied volatility of S&P 500 index option prices. VIX increases with uncertainty and fear. Stocks and the VIX are negatively correlated. Volatility tends to spike when equity markets fall.



### Measure of Monetary Policy

Metric: Yield Curve Slope

We calculate the yield curve slope as the 10 year treasury yield minus the 1 year treasury yield. When the yield curve slope is zero or negative, this is a signal to pay attention. A negative yield curve slope signals lower rates in the future, caused by a contraction in economic activity. Recessions are typically preceded by an inverted (negatively sloped) yield curve. A very steep yield curve (2 or greater) indicates a large difference between shorter-term interest rates (the 1 year rate) and longer-term rates (the 10 year rate). This can signal expansion in economic activity in the future, or merely higher future interest rates.

### Definition of “extreme” metric readings

A metric reading is defined as “extreme” if the metric reading is in the top or bottom decile of its historical readings. These “extreme” reading should cause the reader to pay attention. These metrics have reverted toward their mean values in the past.

### Credit Markets US Fixed Income:

Metric: Spreads

The absolute level of spreads over treasuries and spread trends (widening / narrowing) are good indicators of credit risk in the fixed income markets. Spreads incorporate estimates of future default, but can also be driven by technical dislocations in the fixed income markets. Abnormally narrow spreads (relative to historical levels) indicate higher levels of valuation risk, wide spreads indicate lower levels of valuation risk and / or elevated default fears. Investment grade bond spreads are represented by the Barclays Capital US Corporate Investment Grade Index Intermediate Component. The high yield corporate bond spreads are represented by the Barclays Capital US Corporate High Yield Index.

### Measures of US Inflation Expectations

Metrics: Breakeven Inflation and Inflation Adjusted Commodity Prices

Inflation is a very important indicator impacting all assets and financial instruments. Breakeven inflation is calculated as the 10 year nominal treasury yield minus the 10 year real yield on US TIPS (treasury inflation protected securities). Abnormally low long-term inflation expectations are indicative of deflationary fears. A rapid rise in breakeven inflation indicates acceleration in inflationary expectations as market participants sell nominal treasuries and buy TIPS. If breakeven inflation continues to rise quarter over quarter, this is a signal of inflationary worries rising, which may cause Fed action and / or dollar decline.

Commodity price movement (above the rate of inflation) is an indication of anticipated inflation caused by real global economic activity putting pressure on resource prices. We calculate this metric by adjusted in the Dow Jones UBS Commodity Index (formerly Dow Jones AIG Commodity Index) by US CPI-U. While rising commodity prices will not necessarily translate to higher US inflation, higher US inflation will likely show up in higher commodity prices, particularly if world economic activity is robust.

These two measures of anticipated inflation can, and often are, conflicting.

Measures of US Treasury Bond Interest Rate Risk

Metrics: 10-Year Treasury Forward-Looking Real Yield and 10-Year Treasury Duration

The expected annualized real yield of the 10 year US Treasury Bond is a measure of valuation risk for US Treasuries. A low real yield means investors will accept a low rate of expected return for the certainty of receiving their nominal cash flows. PCA estimates the expected annualized real yield by subtracting an estimate of expected 10 year inflation (produced by the Survey of Professional Forecasters as collected by the Federal Reserve Bank of Philadelphia), from the 10 year Treasury constant maturity interest rate.

Duration for the 10-Year Treasury Bond is calculated based on the current yield and a price of 100. This is a measure of expected percentage movements in the price of the bond based on small movements in percentage yield. We make no attempt to account for convexity.

## RISK METRICS DESCRIPTION – PCA Market Sentiment Indicator

### What is the PCA Market Sentiment Indicator (PMSI)?

The PMSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The PMSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

### How do I read the PCA Market Sentiment Indicator (PMSI) graph?

Simply put, the PMSI is a color coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the PMSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the PMSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

### How is the PCA Market Sentiment Indicator (PMSI) Constructed?

The PMSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

1. Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
2. Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight). The scale of this measure is adjusted to match that of the stock return momentum measure.

The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure. The color reading on the graph is determined as follows:

1. If both stock return momentum and bond spread momentum are positive = GREEN (positive)
2. If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
3. If both stock return momentum and bond spread momentum are negative = RED (negative)

### What does the PCA Market Sentiment Indicator (PMSI) mean? Why might it be useful?

There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12 month period. The PMSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

Momentum is defined as the persistence of relative performance. There is a significant amount of academic evidence indicating that positive momentum (e.g., strong performing stocks over the recent past continue to post strong performance into the near future) exists over near-to-intermediate holding periods. See, for example, "Understanding Momentum," *Financial Analysts Journal*, Scowcroft, Sefton, March, 2005.

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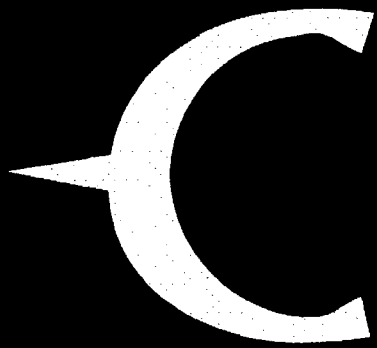
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**ATTACHMENT B:  
PFRS ACTUARY VALUATION  
AS OF JULY 31, 2014**



**Oakland Police and Fire  
Retirement System**

**Actuarial Valuation Report  
as of  
July 1, 2014**

**Produced by Cheiron**

**March 17, 2015**



Classic Values, Innovative Advice

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**LETTER OF TRANSMITTAL**

March 17, 2015

City of Oakland Police and Fire  
Retirement System Board  
150 Frank H. Ogawa Plaza  
Oakland, CA 94612

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Oakland Police and Fire Retirement System (PFRS, the Plan) as of July 1, 2014. This report contains information on the Plan's assets and liabilities. This report also discloses the projected employer contributions in accordance with the funding agreement between the City of Oakland and PFRS, based on the current financial status of the Plan. Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of the Plan. This report is for the use of the Retirement Board and the auditors in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of this report is not an intended user and is considered a third party.

Cheiron's report was prepared solely for the Retirement Board for the purposes described herein, except that the plan auditor may rely on this report solely for the purpose of completing an audit related to the matters herein. It is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

Sincerely,  
Cheiron



David B. Holland, FSA, EA, MAAA  
Consulting Actuary



Graham A. Schmidt, ASA, EA, MAAA  
Consulting Actuary





OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

**FOREWORD**

Cheiron has performed the actuarial valuation of the Oakland Police and Fire Retirement System (PFRS, the Plan) as of July 1, 2014. The valuation is organized as follows:

- In Section I, the **Executive Summary**, we describe the purpose of an actuarial valuation, summarize the key results found in this valuation, and disclose important trends;
- The **Main Body** of the report presents details on the Plan's
  - Section II - Assets
  - Section III - Liabilities
  - Section IV- Contributions
  - Section V - Head Count and Benefit Payment Projections
- In the **Appendices**, we conclude our report with detailed information describing plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent plan provisions (Appendix C), a summary of actuarial assumptions and methods employed in the previous valuation (Appendix D), and a glossary of key actuarial terms (Appendix E).

The results of this report rely on future plan experience conforming to the underlying assumptions. To the extent that actual plan experience deviates from the underlying assumptions, the results would vary accordingly.

In preparing our report, we relied on information (some oral and some written) supplied by the Plan's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION I  
EXECUTIVE SUMMARY**

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The financial condition of the Plan,
- Past and expected trends in the financial progress of the Plan, and
- An estimate of the actuarially determined contributions for years beginning in Fiscal Year 2017-2018.

In prior years, the valuation report included information required by the Governmental Accounting Standards Board (GASB). The information required under the new GASB statements (Nos. 67 and 68) is now included in a separate report, with the report for the Fiscal Year Ending June 30, 2014 provided to the Board in October, 2014.

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the Plan.

**A. Valuation Basis**

This valuation estimates the projected employer contributions in accordance with the funding agreement dated July 1, 2012 between the City of Oakland and the PFRS. Based on that agreement, employer contributions will be suspended until fiscal year 2017-2018, at which time they will resume at a level based upon the recommendation of the actuary. Section IV of this report shows the development of the projected employer contribution for fiscal year 2017-2018. The actual contribution for fiscal year 2017-2018 will be determined by the results of a future actuarial valuation.

The Plan's funding policy is to contribute an amount equal to the sum of:

- The normal cost under the Entry Age Normal Cost Method,
- Amortization of the unfunded actuarial liability, and
- The Plan's expected administrative expenses.

This valuation was prepared based on the plan provisions shown in Appendix C. There have been no changes in plan provisions since the prior valuation.

There have been changes in assumptions since the prior valuation as the result of an Experience Study covering the three-year period from July 1, 2011 through June 30, 2014. A summary of the assumptions and methods used in the current valuation is shown in Appendix B. A summary of the assumptions used in the prior valuation is shown in Appendix D. There have been no changes to the methods since the prior valuation.

SECTION I  
EXECUTIVE SUMMARY

**B. Key Findings of this Valuation**

The key results of the July 1, 2014 actuarial valuation are as follows:

- The City of Oakland issued Pension Obligation Bonds (POBs) in July 2012. The City then contributed \$210 million from the bond proceeds to the Plan. These proceeds act as prepayments for Oakland PFRS contributions from the fiscal year beginning July 1, 2012 through the fiscal year beginning July 1, 2016. Contributions are expected to resume during the fiscal year beginning July 1, 2017, in accordance with the funding agreement dated July 1, 2012 between the City and the PFRS.
- In accordance with the 2012 funding agreement, the employer contribution amount remains at \$0 for Fiscal Year 2015-2016 due to the \$210 million contribution from the POBs.
- During the year ended June 30, 2014, the return on Plan assets was 15.53% on a market value basis net of investment expenses, as compared to the 7.00% assumption. This resulted in a market value gain on investments of \$37.4 million. The Actuarial Value of Assets (AVA) is calculated as the expected Actuarial Value of Assets plus 20% of the difference between the Market Value and the expected Actuarial Value of Assets. This smoothed value of assets returned 9.37%, for an actuarial asset gain of \$10.7 million.

The Plan experienced a gain on the actuarial liability of \$19.9 million, due primarily to the removal of shift pay in the determination of the benefit amounts. Combining the liability and asset gains, the Plan experienced a total gain of \$30.6 million.

- As a result of higher than expected asset returns, the Plan's smoothed funded ratio, the ratio of actuarial assets over actuarial liability, increased from 67.2% last year to 67.8% on an AVA basis as of June 30, 2014 before any changes in assumptions. The Plan's funded ratio increased from 69.5% to 74.8% on a Market Value of Assets (MVA) basis.
- The Plan's funded ratio was reduced from 67.8% to 64.6% on an AVA basis, and from 74.8% to 71.2% on an MVA basis as a result of the various assumption changes adopted as part of the most recent Experience Study, in particular the change in the discount rate and the implementation of new generational mortality assumptions.
- The unfunded actuarial liability (UAL) is the excess of the Plan's actuarial liability over the actuarial value of assets. The Plan experienced a decrease in the UAL from \$215.0 million to \$199.6 million as of July 1, 2014 before any assumption changes, and increased to \$230.2 million after assumption changes.
- Overall participant membership decreased compared to last year. 25 members died, 10 of whom who had their benefits continue to a surviving spouse. In addition, 22 surviving

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION I  
EXECUTIVE SUMMARY

beneficiaries died. The last remaining active member of the Plan also retired during the year.

- As was done in the prior actuarial valuation, we have projected an actuarially determined contribution amount for the Fiscal Year 2017-2018, the first year after the POB-based prepayments have expired, according to the 2012 funding agreement. The estimated contribution for FY 2017-2018 is \$35.1 million, based on the projected value of the liabilities and the projected Actuarial Value of Assets. This represents a small decrease of \$0.5 million from the amount determined in the prior valuation for the same Fiscal Year. The decrease in the projected contribution is the combined result of the asset and liability gains described above.
- If the contribution were determined using a projected asset value based on the current market (i.e. non-smoothed) value of assets, the estimated contribution for FY 2017-2018 would be \$31.6 million. The contribution is smaller than that determined using the projected AVA, because the current market value reflects the full amount of the investment gains experienced in FY 2013-2014 and prior years, while under the AVA projection a portion of those gains are deferred until years after FY 2017-2018.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION I  
EXECUTIVE SUMMARY**

Below we present Table I-1 which summarizes all the key results of the valuation with respect to membership, assets and liabilities, and contributions. The results are presented and compared for both, the current and prior plan year.

<b>TABLE I-1</b>				
<b>Summary of Principal Plan Results</b>				
(\$ in thousands)				
	<b>July 1, 2013</b>	<b>July 1, 2014</b>	<b>% Change</b>	
<b><u>Participant Counts</u></b>				
Active Participants	1	0	-100.00%	
Participants Receiving a Benefit	<u>1,042</u>	<u>1,006</u>	-3.45%	
<b>Total</b>	<b>1,043</b>	<b>1,006</b>	<b>-3.55%</b>	
Annual Pay of Active Members	\$ 0	\$ 0	*	
<b><u>Assets and Liabilities</u></b>				
Actuarial Liability (AL)	\$ 655,399	\$ 651,053	-0.66%	
Actuarial Value of Assets (AVA)	<u>440,383</u>	<u>420,890</u>	-4.43%	
Unfunded Actuarial Liability (UAL)	\$ 215,016	\$ 230,163	7.04%	
Funded Ratio (AVA)	67.2%	64.6%	-3.79%	
Funded Ratio (MVA)	69.5%	71.2%	2.48%	
<b><u>Contributions</u></b>				
Employer Contribution (FY2014-15)	\$ 0	\$ 0	0.00%	
Employer Contribution (FY2017-18)	\$ 35,599	\$ 35,148	-1.27%	

\* One active member as of July 1, 2013 assumed to retire immediately.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION I  
EXECUTIVE SUMMARY**

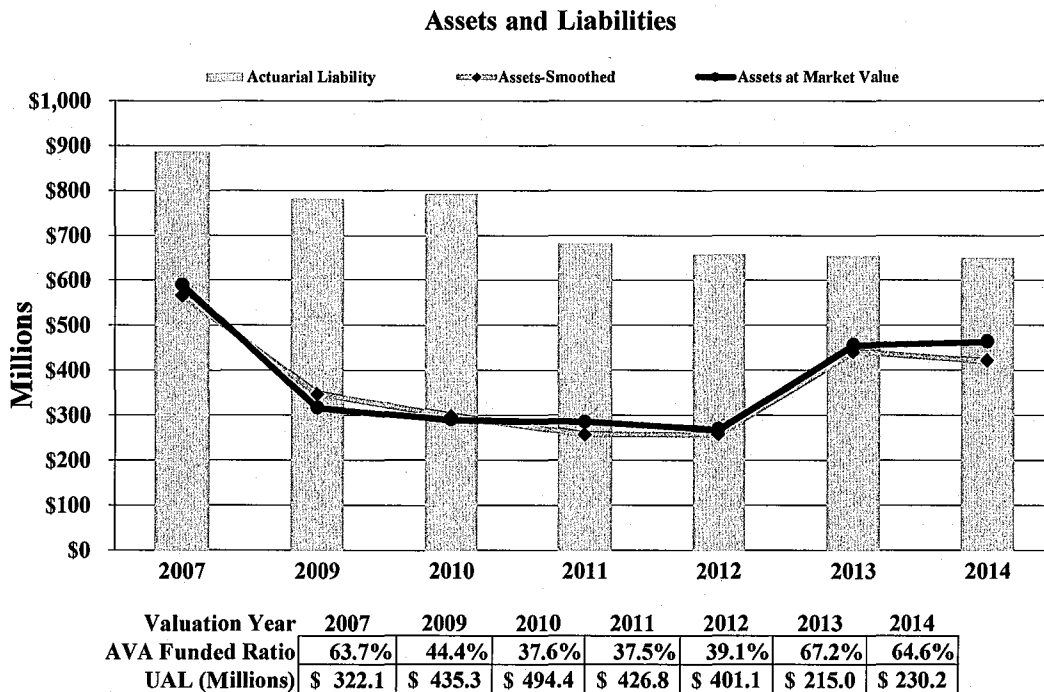
**C. Historical Trends**

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular the size of the current unfunded actuarial liability and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

**Assets and Liabilities**

The chart below compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the Actuarial Liabilities. The percentages shown in the table below the chart are the ratios of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio). We note that for the GASB disclosure report, this ratio is now disclosed using the MVA.

The funded ratio declined from 63.7% in 2007 to 37.5% in 2011 due to negative market returns and no contributions being made in that period (\$417 million in proceeds from a POB were deposited in 1997 which acted as prepayments for 15 years of contributions). The funded ratio has increased to 64.6% as of July 1, 2014 due to positive returns and a \$210 million contribution in July 2012.

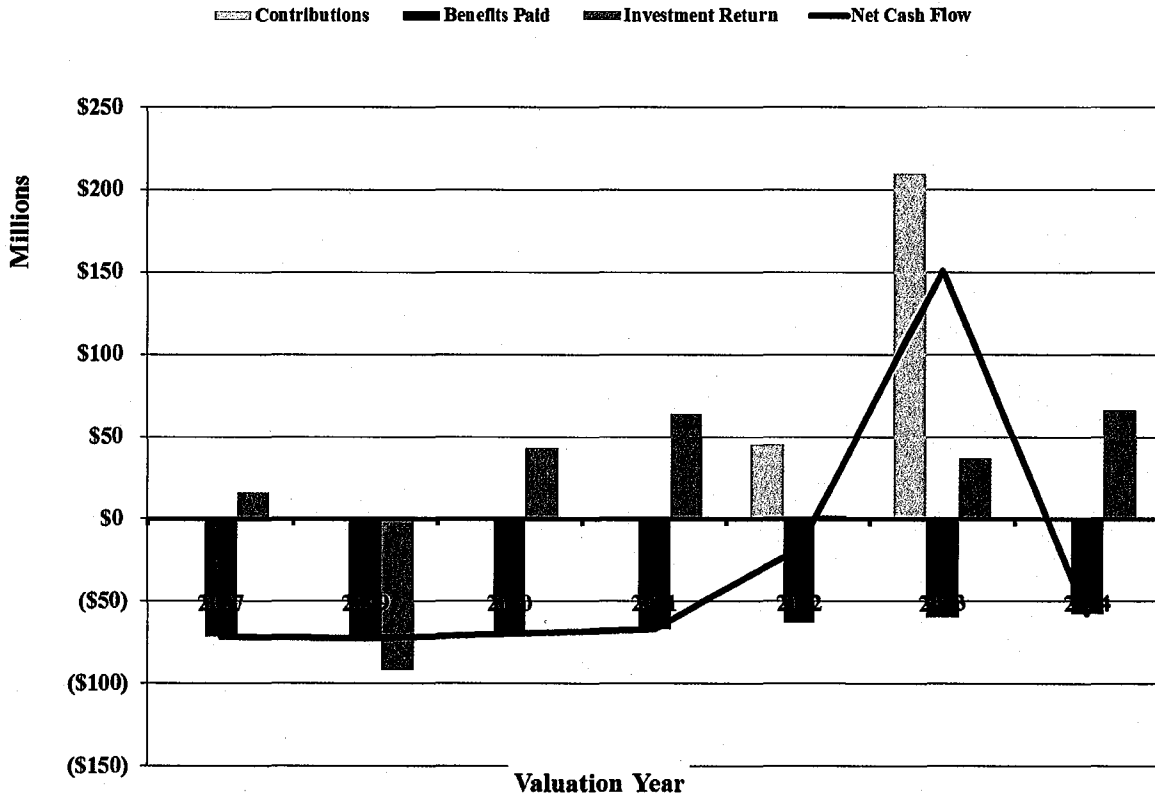


OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
 ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION I  
 EXECUTIVE SUMMARY

**Cash Flows**

The chart below shows the Plan's cash flow, excluding investment returns and expenses (i.e., contributions less benefit payments). This is a critical measure, as it reflects the ability to have funds available to meet benefit payments without having to make difficult investment decisions, especially during volatile markets.



The contributions, benefit payments, investment returns and net cash flow (NCF) excluding investment returns and expenses are represented by the scale on the left. The Plan's net cash flow has been negative five of the last six fiscal years primarily due to no contributions being made between 2007 and 2011, becoming positive in 2013 when a \$210 million contribution was made.

A negative cash flow magnifies the losses during a market decline, hindering the Plan in its ability to absorb market fluctuations. The implications of a plan in negative cash flow are that the impact of market fluctuations can be more severe: as assets are being depleted to pay benefits in down markets, there is less principal available to be reinvested during favorable return periods. The Plan is expected to remain in a negative cash flow position going forward, since the Plan is closed.

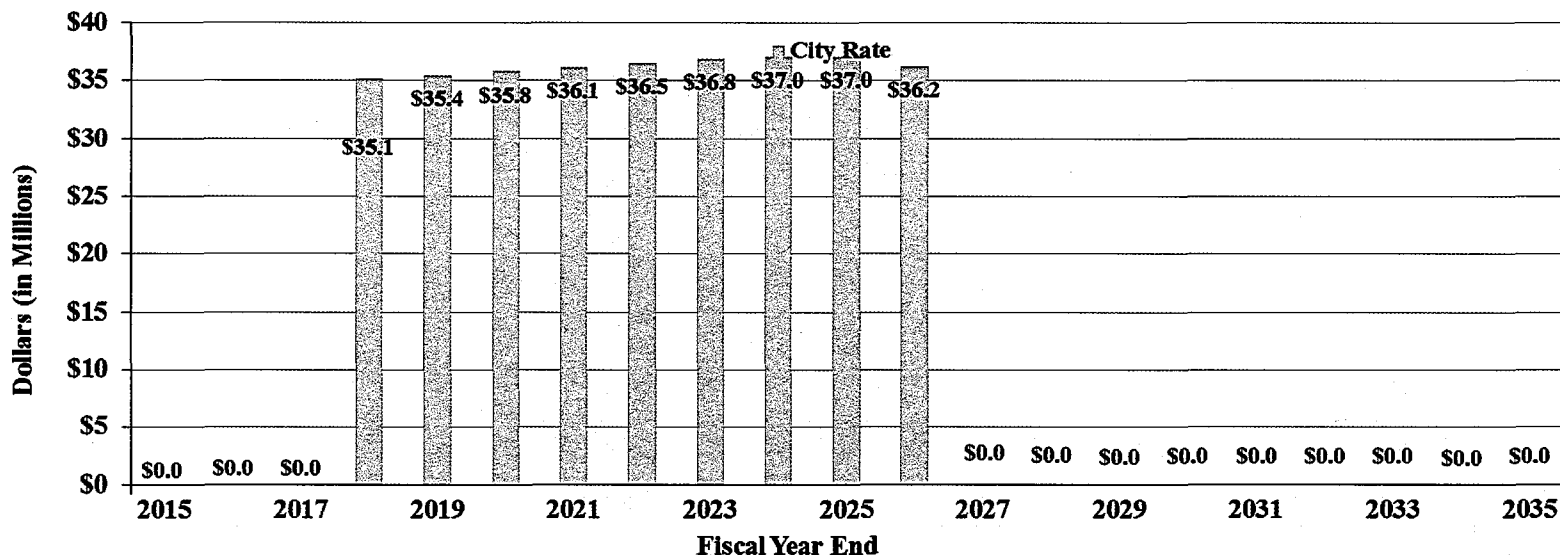
OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
 ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

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D. Future Expected Financial Trends

The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present our assessment of the implications of the July 1, 2014 valuation results in terms of benefit security (assets over liabilities) and contribution levels. All the projections in this section are based on the assumption that the Plan will exactly achieve the assumed rate of return each year (7.0% per year until 2027, then trending down to an annual return of 3.25% over ten years).

Projection of Employer Contributions



The above graph shows that the City’s contributions are expected to resume in fiscal 2017-2018, starting at \$35.1 million and eventually increasing to \$37.0 million as the current unfunded liability is fully amortized. This assumes that the annual payments by the City will equal the administrative expenses, plus an amount needed to amortize the remaining unfunded liability as a level percentage of overall Safety payroll by July 1, 2026, as is required under the City’s charter.



**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION I  
EXECUTIVE SUMMARY**

After July 1, 2026, the UAL is expected to be fully amortized, and the contribution would generally be equal to the administrative expense, beginning in 2026-2027. However, under the current asset smoothing method there are still expected to be some deferred asset gains which will not be recognized until after 2026; the deferred recognition of these gains is expected to be sufficient to offset the administrative expenses in the final years of the chart above.

Note that the graph on the previous page does not forecast any actuarial gains or losses or changes to the amortization policy. Even relatively modest losses relative to the assumed return could push the employer contribution rate over \$50 million in the next few years. We also note that the occurrence of any future gains or losses in the years leading up to or following the required full amortization date (July 1, 2026) may require a reconsideration of the funding policy for those gains or losses, as otherwise these changes would need to be recognized over an extremely short period.

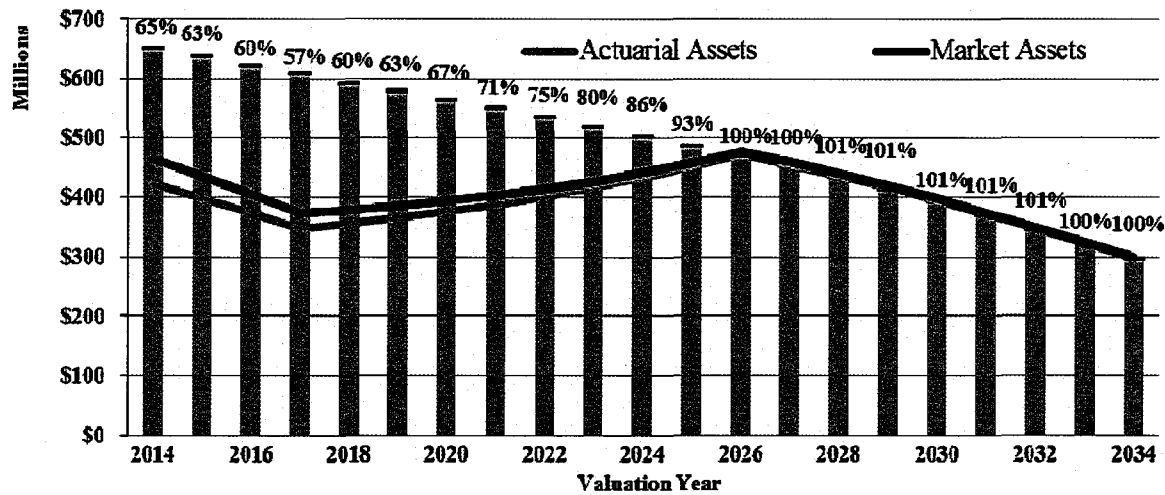
OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
 ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION I  
 EXECUTIVE SUMMARY

Asset and Liability Projections:

The following graph shows the projection of assets and liabilities assuming that assets will earn the assumed rate of return each year during the projection period.

Projection of Assets and Liabilities



The graph shows that the projected funded status decreases until fiscal 2017-2018, when contributions are assumed to resume. At that point, funded status increases as the current unfunded liability is fully amortized, assuming all actuarial assumptions are met.

**SECTION II**  
**ASSETS**

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on Plan assets including:

- **Disclosure** of Plan assets as of June 30, 2013 and June 30, 2014;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;

**Disclosure**

There are two types of asset values disclosed in the valuation, the market value of assets and the actuarial value of assets. The market value represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are sometimes not as suitable for long-range planning as are the actuarial value of assets which reflect smoothing of annual investment returns.

Table II-1 on the next page discloses and compares each component of the market asset value as of June 30, 2013 and June 30, 2014.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION II  
ASSETS**

<b>TABLE II-1</b>				
<b>Statement of Assets at Market Value</b>				
<b>June 30,</b>				
<b>(in thousands)</b>				
	<b>2013</b>		<b>2014</b>	
<b>Cash and Cash Equivalents:</b>	\$	8,621	\$	4,223
<b>Receivables:</b>				
Interest Receivable	\$	813	\$	488
Dividends Receivable		376		339
Investments Receivable		12,912		7,709
Miscellaneous		72		181
<b>Total Receivables</b>		<u>14,172</u>		<u>8,718</u>
<b>Investments, at Fair Value:</b>				
Short-term Investments		11,231		4,675
Bonds		185,034		83,383
Domestic Equities and Mutual Funds		201,060		331,447
International Equities and Mutual Funds		56,868		42,389
Real Estate Mortgage Loans		0		0
Securities Lending Collateral		8,875		74,579
<b>Total Investments</b>		<u>463,069</u>		<u>536,473</u>
<b>Total Assets</b>		485,863		549,414
<b>Liabilities:</b>				
Accounts Payable		23		5
Benefits Payable		4,873		4,708
Investments Payable		16,107		6,283
Accrued Investment Management Fees		388		31
Securities Lending Liabilities		8,875		74,579
<b>Total Liabilities</b>		<u>30,266</u>		<u>85,606</u>
<b>Market Value of Assets</b>	\$	<b>455,596</b>	\$	<b>463,808</b>

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION II  
ASSETS**

**Changes in Market Value**

The components of asset change are:

- Contributions (employer and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table II-2 shows the components of a change in the market value of assets during 2013 and 2014.

<b>TABLE II-2</b>		
<b>Changes in Market Values</b>		
<b>June 30,</b>		
<b>(in thousands)</b>		
	<u><b>2013</b></u>	<u><b>2014</b></u>
<b>Contributions</b>		
Contributions of Plan Members	\$ 7	\$ 4
Contributions from the City	<u>210,000</u>	<u>0</u>
Total Contributions	<u>210,007</u>	<u>4</u>
<b>Investment Income</b>		
Miscellaneous Income	43	159
Investment Income	<u>37,303</u>	<u>66,233</u>
Total Investment Income	<u>37,346</u>	<u>66,392</u>
<b>Disbursements</b>		
Benefit Payments	(59,547)	(57,409)
Administrative Expenses	<u>(684)</u>	<u>(776)</u>
Total Disbursements	<u>(60,231)</u>	<u>(58,185)</u>
<b>Net increase (Decrease)</b>	187,122	8,212
<b>Net Assets Held in Trust for Benefits:</b>		
Beginning of Year	<u>268,474</u>	<u>455,596</u>
End of Year	\$ <u>455,596</u>	\$ <u>463,808</u>
Approximate Return	8.3%	15.5%

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION II  
ASSETS**

**Actuarial Value of Assets (AVA)**

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce the volatile results which could develop due to short-term fluctuations in the market value of assets. For this Plan, the actuarial value of assets is calculated on a modified market-related value. The actuarial value of assets recognizes one-fifth of the difference between the expected asset value (based on the 6.75% return assumption from 2013-2014) and the actual market value each year. The actuarial value is restricted to fall between 90% and 110% of the market value.

<b>Table II-3 Development of Actuarial Value of Assets (in thousands)</b>	
1) Calculate Expected Actuarial Value of Assets	
a) Value of Actuarial Value of Assets - July 1, 2013	\$ 440,383
b) Total Contributions and Misc Income	164
c) Administrative Expense	(776)
d) Benefit Payments	(57,409)
e) Expected Investment Earnings	27,800
f) Expected Actuarial Value of Assets - July 1, 2014 [1a + 1b + 1c + 1d + 1e]	\$ 410,161
2) Calculate Final Actuarial Value of Assets	
a) Value of Market Value of Assets - July 1, 2014	\$ 463,808
b) Excess of MVA over Expected AVA [2a - 1f]	53,647
c) Preliminary AVA [1f + 0.2 * 2b]	420,890
d) 90% of MVA [90% * 2a]	417,427
e) 110% of MVA [110% * 2a]	510,189
3) Final Actuarial Value of Assets [2c, not less than 2d or greater than 2e]	<b>\$ 420,890</b>

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION II  
ASSETS**

**Investment Performance**

The following table calculates the investment related gain/loss for the plan year on both a Market Value and an Actuarial Value basis. The Market Value gain/loss is an appropriate measure for comparing the actual asset performance to the previous valuation's long-term 6.75% assumption.

<b>TABLE II-4 Asset Gain/(Loss) (in thousands)</b>		
	<b>Market Value</b>	<b>Actuarial Value</b>
<b>July 1, 2013 value</b>	\$ 455,596	\$ 440,383
Contributions of Plan Members	4	4
Contributions from the City	0	0
Miscellaneous Income	159	159
Benefit Payments	(57,409)	(57,409)
Administrative Expenses	(776)	(776)
Expected Investment Earnings (6.75%)	<u>28,827</u>	<u>27,800</u>
Expected Value June 30, 2014	\$ 426,402	\$ 410,161
Investment Gain / (Loss)	<u>37,407</u>	<u>10,729</u>
<b>July 1, 2014 value</b>	<b>463,808</b>	<b>\$ 420,890</b>
Return	15.53%	9.37%

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

**SECTION III  
LIABILITIES**

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of Plan liabilities at July 1, 2013 and July 1, 2014;
- Statement of **changes** in these liabilities during the year.

**Disclosure**

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Future Benefits:** Used for measuring all future Plan obligations, represents the amount of money needed today to fully pay off all benefits of the Plan both earned as of the valuation date and those to be earned in the future by current plan participants under the current Plan provisions, if all assumptions are met.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. Because the Plan has no active members, the Actuarial Liability is equal to the Present Value of Future Benefits (i.e., all benefits are fully accrued).
- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Actuarial Value of Assets.

Table III-1 below discloses each of these liabilities for the current and prior valuations.

<b>TABLE III-1</b>		
<b>Liabilities/Net (Surplus)/Unfunded</b>		
<b>(in thousands)</b>		
	<b>July 1, 2013</b>	<b>July 1, 2014</b>
<b><u>Present Value of Future Benefits</u></b>		
Active Participant Benefits	\$ 1,063	\$ 0
Retiree and Inactive Benefits	654,336	651,053
<b>Present Value of Future Benefits (PVB)</b>	<b>\$ 655,399</b>	<b>\$ 651,053</b>
<b><u>Actuarial Liability</u></b>		
Present Value of Future Benefits (PVB)	\$ 655,399	\$ 651,053
Present Value of Future Normal Costs (PVFNC)	0	0
<b>Actuarial Liability (AL = PVB - PVFNC)</b>	<b>\$ 655,399</b>	<b>\$ 651,053</b>
Actuarial Value of Assets (AVA)	440,383	420,890
<b>Net (Surplus)/Unfunded (AL - AVA)</b>	<b>\$ 215,016</b>	<b>\$ 230,163</b>



**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION III  
LIABILITIES**

**Changes in Liabilities**

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation (not applicable for this Plan)
- Benefits accrued since the last valuation (not applicable for this Plan)
- Plan amendments
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, dying or receiving COLA adjustments at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method or software

Unfunded liabilities will change because of all of the above, and also due to changes in Plan assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure plan assets

<b>TABLE III-2 Changes in Actuarial Liability (in thousands)</b>	
Actuarial Liability at July 1, 2013	\$ 655,399
Actuarial Liability at July 1, 2014	\$ 651,053
Liability Increase (Decrease)	\$ (4,346)
Change due to:	
Actuarial Methods / Software Changes	\$ 0
Assumption Change	30,598
Accrual of Benefits	0
Actual Benefit Payments	(57,409)
Interest	42,334
Data Corrections	0
Actuarial Liability (Gain)/Loss	\$ (19,869)

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION III  
LIABILITIES

<b>Table III-3</b>			
<b>Liabilities by Group as of July 1, 2014</b>			
<b>(in thousands)</b>			
	<b>Police</b>	<b>Fire</b>	<b>Total</b>
<b>Actuarial Accrued Liability</b>			
Active	\$ 0	\$ 0	0
Service Retirees	230,271	118,300	348,571
Disabled Retirees	95,513	87,188	182,701
Beneficiaries	<u>62,122</u>	<u>57,658</u>	<u>119,781</u>
<b>Total Accrued Liability</b>	<b>\$ 387,907</b>	<b>\$ 263,147</b>	<b>\$ 651,053</b>

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
 ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION III  
 LIABILITIES

TABLE III-4 Development of Actuarial Gain / (Loss) (in thousands)		
1. Unfunded Actuarial Liability at Start of Year (not less than zero)	\$	215,016
2. Employer Normal Cost at Start of Year		0
3. Interest on 1. and 2. to End of Year		14,514
4. Contributions and Miscellaneous Income for Prior Year		164
5. Administrative Expenses		(776)
6. Interest on 4. and 5. to End of Year		(20)
7. Change in Unfunded Actuarial Liability Due to Changes in Actuarial Methods		0
8. Change in Unfunded Actuarial Liability Due to Changes in Assumptions		30,598
9. Change in Unfunded Actuarial Liability Due to Changes in Plan Design		0
10. Change in Unfunded Actuarial Liability Due to Data Corrections		0
11. Expected Unfunded Actuarial Liability at End of Year [1. + 2. + 3. - 4. - 5. - 6. + 7. + 8. + 9. + 10.]	\$	260,760
12. Actual Unfunded Actuarial Liability at End of Year (not less than zero)		230,163
13. Unfunded Actuarial Liability Gain / (Loss) [11. - 12.]	\$	30,597

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

SECTION IV  
CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this Plan, the actuarial funding method used to determine the normal cost and the unfunded actuarial liability is the **Entry Age Normal** cost method.

The normal cost rate is determined with the normal cost percentage equal to the total Projected Value of Benefits at Entry Age, divided by Present Value of Future Salary at Entry Age. Normal cost contributions are assumed to be made throughout the year, or on average mid-year. Since there no longer any active employees, the normal cost for this plan is \$0.

The unfunded actuarial liability is the difference between the EAN actuarial liability and the actuarial value of assets. For the contribution projections, the UAL payment is based on the unfunded liability of the Plan being fully amortized by June 30, 2026, in accordance with the City Charter. Amortization payments are determined based on an assumption that payments will increase by 3.25% each year, reflecting the assumed ultimate rate of increase in overall City Safety member salaries.

An amount equal to the expected administrative expenses for the Plan is added directly to the actuarial cost calculation.

Contributions calculated in this valuation are zero, based on a funding agreement between the City of Oakland and PFRS. \$210 million in proceeds from a Pension Obligation Bond were deposited in the PFRS trust in July 2012. This deposit acts as a prepayment for future contributions. The City is expected to resume normal contributions during the fiscal year beginning July 1, 2017, in accordance with the funding agreement dated July 1, 2012 between the City and the PFRS.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION IV  
CONTRIBUTIONS**

Table IV-1 below shows the projected employer contribution amount for the fiscal 2017-2018. The projected assets and liabilities assume that all actuarial assumptions are met and that no contributions are made between now and June 30, 2017. As with any projection of liabilities and assets, these numbers will change depending on asset and liability gains or losses. Losses may drive the contribution amount higher, while gains may decrease the contribution amount. If substantial losses occur, it is possible that contributions may be required before fiscal 2017-2018, due to the short duration of the Plan's benefit payments.

<b>TABLE IV-I Development of Projected 2017-2018 Employer Contribution Amount (in thousands)</b>		
	<b>Actuarial Value of Assets</b>	<b>Market Value of Assets</b>
1. Projected Entry Age Actuarial Liability at June 30, 2017:	\$ 607,194	\$ 607,194
2. Projected Value of Assets at June 30, 2017:	\$ 347,879	\$ 374,798
3. Unfunded Actuarial Liability: (1) - (2)	\$ 259,315	\$ 232,396
4. Funded Ratio: (2) / (1)	57.3%	61.7%
5. Unfunded Actuarial Liability Amortization at Middle of Year as a Level Percentage of Payroll (9 Years Remaining) as of June 30, 2017:	\$ 34,230	\$ 30,677
6. Expected Administrative Expenses for Fiscal 2017-2018:	\$ 918	\$ 918
7. Total Contribution: (5) + (6)	\$ 35,148	\$ 31,595

For this projection, we have shown the projected contribution amount using both the projected actuarial and market value of assets. The current funding policy uses the AVA to determine the UAL and the associated amortization payment. We have included the contribution amount as determined using the current market value of assets to demonstrate what the actuarial cost would be if all deferred asset gains were fully recognized at the time the contributions commence. In both cases, the projected contribution is based on an assumption that the investment returns will exactly equal the assumed rate of return each year until June 30, 2017, which is clearly unlikely.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION V  
HEADCOUNT AND BENEFIT PAYMENT PROJECTIONS**

<b>Benefit Payment and Headcount Projection</b>							
<b>Fiscal Year Ending June 30,</b>	<b>Police</b>		<b>Fire</b>		<b>Total</b>		
	<b>Count</b>	<b>Benefits (in thousands)</b>	<b>Count</b>	<b>Benefits (in thousands)</b>	<b>Count</b>	<b>Benefits (in thousands)</b>	
	2015	581.0	\$ 32,582	425.0	\$ 25,618	1,006.0	58,200
2016	563.8	\$ 31,880	405.9	\$ 25,078	969.7	56,958	
2017	546.7	\$ 31,471	387.2	\$ 24,290	933.9	55,762	
2018	529.5	\$ 31,035	369.0	\$ 23,508	898.6	54,543	
2019	512.5	\$ 30,946	351.3	\$ 23,012	863.8	53,958	
2020	495.7	\$ 30,824	334.1	\$ 22,506	829.8	53,330	
2021	479.0	\$ 30,670	317.4	\$ 21,989	796.3	52,659	
2022	462.5	\$ 30,483	301.1	\$ 21,460	763.6	51,943	
2023	446.1	\$ 30,261	285.4	\$ 20,918	731.5	51,178	
2024	430.0	\$ 30,001	270.1	\$ 20,360	700.0	50,361	
2025	414.0	\$ 29,701	255.2	\$ 19,786	669.2	49,487	
2026	398.1	\$ 29,357	240.8	\$ 19,194	638.9	48,551	
2027	382.3	\$ 28,962	226.8	\$ 18,584	609.1	47,546	
2028	366.5	\$ 28,512	213.3	\$ 17,955	579.7	46,467	
2029	350.7	\$ 28,002	200.1	\$ 17,307	550.8	45,309	
2030	334.8	\$ 27,426	187.4	\$ 16,638	522.1	44,064	
2031	318.8	\$ 26,778	175.0	\$ 15,949	493.8	42,727	
2032	302.6	\$ 26,053	163.0	\$ 15,238	465.6	41,291	
2033	286.2	\$ 25,247	151.4	\$ 14,506	437.6	39,753	
2034	269.7	\$ 24,357	140.1	\$ 13,753	409.8	38,110	
2035	252.9	\$ 23,381	129.1	\$ 12,980	382.0	36,362	
2036	236.0	\$ 22,323	118.5	\$ 12,190	354.5	34,513	
2037	218.9	\$ 21,183	108.2	\$ 11,385	327.1	32,568	
2038	201.8	\$ 19,970	98.2	\$ 10,569	300.1	30,539	
2039	184.8	\$ 18,693	88.6	\$ 9,748	273.4	28,441	
2040	168.0	\$ 17,367	79.5	\$ 8,927	247.4	26,294	
2041	151.5	\$ 16,006	70.7	\$ 8,115	222.2	24,121	
2042	135.5	\$ 14,626	62.5	\$ 7,317	198.0	21,943	
2043	120.2	\$ 13,247	54.7	\$ 6,543	174.9	19,790	
2044	105.6	\$ 11,885	47.5	\$ 5,800	153.1	17,685	

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**SECTION V  
HEADCOUNT AND BENEFIT PAYMENT PROJECTIONS**

<b>Benefit Payment and Headcount Projection</b>							
<b>Fiscal Year Ending June 30,</b>	<b>Police</b>		<b>Fire</b>		<b>Total</b>		
	<b>Count</b>	<b>Benefits (in thousands)</b>	<b>Count</b>	<b>Benefits (in thousands)</b>	<b>Count</b>	<b>Benefits (in thousands)</b>	
2045	91.8	\$ 10,559	40.9	\$ 5,096	132.7	15,655	
2046	79.1	\$ 9,285	34.9	\$ 4,436	114.0	13,721	
2047	67.4	\$ 8,079	29.5	\$ 3,825	96.9	11,903	
2048	56.8	\$ 6,953	24.7	\$ 3,265	81.4	10,218	
2049	47.3	\$ 5,916	20.4	\$ 2,761	67.7	8,677	
2050	39.0	\$ 4,975	16.7	\$ 2,312	55.7	7,287	
2051	31.7	\$ 4,132	13.6	\$ 1,918	45.3	6,051	
2052	25.5	\$ 3,391	10.9	\$ 1,577	36.4	4,967	
2053	20.3	\$ 2,747	8.7	\$ 1,284	28.9	4,032	
2054	15.9	\$ 2,200	6.8	\$ 1,038	22.7	3,238	
2055	12.3	\$ 1,742	5.3	\$ 833	17.7	2,575	
2056	9.4	\$ 1,365	4.1	\$ 665	13.6	2,031	
2057	7.2	\$ 1,060	3.2	\$ 529	10.4	1,589	
2058	5.4	\$ 817	2.5	\$ 420	7.8	1,236	
2059	4.0	\$ 625	1.9	\$ 332	5.9	957	
2060	3.0	\$ 476	1.4	\$ 262	4.4	738	
2061	2.2	\$ 361	1.1	\$ 206	3.3	568	
2062	1.6	\$ 274	0.8	\$ 161	2.5	435	
2063	1.2	\$ 207	0.6	\$ 125	1.8	332	
2064	0.9	\$ 156	0.5	\$ 96	1.3	251	
2065	0.6	\$ 116	0.3	\$ 72	1.0	188	
2066	0.5	\$ 85	0.2	\$ 54	0.7	138	
2067	0.3	\$ 60	0.2	\$ 39	0.5	99	
2068	0.2	\$ 41	0.1	\$ 27	0.3	68	
2069	0.1	\$ 27	0.1	\$ 19	0.2	45	
2070	0.1	\$ 16	0.1	\$ 12	0.1	28	
2071	0.1	\$ 9	0.0	\$ 7	0.1	16	
2072	0.0	\$ 5	0.0	\$ 4	0.1	9	
2073	0.0	\$ 2	0.0	\$ 2	0.0	4	
2074	0.0	\$ 1	0.0	\$ 1	0.0	2	

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX A  
MEMBERSHIP INFORMATION**

**Summary of Participant Data as of**

<b>Active Participants</b>	<b>July 1, 2013</b>			<b>July 1, 2014</b>		
	<b>Police</b>	<b>Fire</b>	<b>Total</b>	<b>Police</b>	<b>Fire</b>	<b>Total</b>
Number	1	0	1	0	0	0
Number Vested	1	0	1	0	0	0
Average Age	73.7	0.0	73.7	0.0	0.0	0.0
Average Service	45.4	0.0	45.4	0.0	0.0	0.0
Average Pay	\$0	\$0	\$0	\$0	\$0	\$0
<b>Service Retirees</b>						
Number	293	175	468	287	164	451
Average Age	71.5	78.1	73.9	72.1	78.7	74.5
Average Annual Benefit	\$63,922	\$62,684	\$63,459	\$62,468	\$70,858	\$65,519
<b>Disabled Retirees</b>						
Number	138	118	256	134	115	249
Average Age	71.8	73.0	72.3	72.5	73.8	73.1
Average Annual Benefit	\$61,178	\$56,968	\$59,237	\$59,327	\$64,391	\$61,665
<b>Beneficiaries</b>						
Number	166	152	318	160	146	306
Average Age	80.2	82.2	81.2	80.8	82.5	81.6
Average Annual Benefit	\$45,464	\$43,672	\$44,608	\$44,793	\$49,207	\$46,899
<b>All Inactives</b>						
Number	597	445	1,042	581	425	1006
Average Age	74.0	78.1	75.7	74.6	78.7	76.3
Average Annual Benefit	\$58,155	\$54,674	\$56,669	\$56,876	\$61,670	\$58,901

Data pertaining to active and inactive Members and their beneficiaries as of the valuation date was supplied by the Plan Administrator on electronic media.



**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX A  
MEMBERSHIP INFORMATION**

**Changes in Plan Membership: Police**

	<b>Actives</b>	<b>Service Retirees</b>	<b>Disabled Retirees</b>	<b>Beneficiaries</b>	<b>Total</b>
July 1, 2013	1	293	138	166	598
Retired	(1)	1	0	0	0
Deceased	0	(7)	(4)	(9)	(20)
New Beneficiary	0	0	0	3	3
July 1, 2014	<b>0</b>	<b>287</b>	<b>134</b>	<b>160</b>	<b>581</b>

**Changes in Plan Membership: Fire**

	<b>Actives</b>	<b>Service Retirees</b>	<b>Disabled Retirees</b>	<b>Beneficiaries</b>	<b>Total</b>
July 1, 2013	0	175	118	152	445
Retired	0	0	0	0	0
Deceased	0	(11)	(3)	(13)	(27)
New Beneficiary	0	0	0	7	7
July 1, 2014	<b>0</b>	<b>164</b>	<b>115</b>	<b>146</b>	<b>425</b>

**Changes in Plan Membership: All**

	<b>Actives</b>	<b>Service Retirees</b>	<b>Disabled Retirees</b>	<b>Beneficiaries</b>	<b>Total</b>
July 1, 2013	1	468	256	318	1,043
Retired	(1)	1	0	0	0
Deceased	0	(18)	(7)	(22)	(47)
New Beneficiary	0	0	0	10	10
July 1, 2014	<b>0</b>	<b>451</b>	<b>249</b>	<b>306</b>	<b>1,006</b>

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX A  
MEMBERSHIP INFORMATION**

**Service Retired Participants**

Age	Police		Fire		Total	
	Number	Total Annual Benefit	Number	Total Annual Benefit	Number	Total Annual Benefit
< 50	0	\$0	0	\$0	0	\$0
50-54	0	\$0	0	\$0	0	\$0
55-59	0	\$0	0	\$0	0	\$0
60-64	33	\$2,047,977	2	\$124,517	35	\$2,172,494
65-69	102	\$6,265,065	30	\$1,906,215	132	\$8,171,280
70-74	83	\$5,015,890	39	\$2,806,929	122	\$7,822,818
75-79	26	\$1,790,203	20	\$1,498,862	46	\$3,289,065
80-84	19	\$1,210,608	27	\$1,875,692	46	\$3,086,300
85-89	14	\$897,125	23	\$1,824,151	37	\$2,721,277
90-94	10	\$701,568	18	\$1,221,212	28	\$1,922,779
95-99	0	\$0	4	\$281,799	4	\$281,799
100+	0	\$0	1	\$81,279	1	\$81,279
<b>Total</b>	<b>287</b>	<b>\$17,928,436</b>	<b>164</b>	<b>\$11,620,655</b>	<b>451</b>	<b>\$29,549,091</b>

**Disability Retired Participants**

Age	Police		Fire		Total	
	Number	Total Annual Benefit	Number	Total Annual Benefit	Number	Total Annual Benefit
< 50	0	\$0	0	\$0	0	\$0
50-54	0	\$0	0	\$0	0	\$0
55-59	0	\$0	0	\$0	0	\$0
60-64	12	\$681,497	13	\$749,189	25	\$1,430,686
65-69	55	\$3,186,141	36	\$2,200,330	91	\$5,386,471
70-74	32	\$1,818,029	29	\$1,910,997	61	\$3,729,026
75-79	13	\$812,079	11	\$780,177	24	\$1,592,256
80-84	7	\$468,538	12	\$817,590	19	\$1,286,128
85-89	9	\$576,302	4	\$276,153	13	\$852,455
90-94	6	\$407,184	8	\$547,268	14	\$954,452
95-99	0	\$0	2	\$123,218	2	\$123,218
100+	0	\$0	0	\$0	0	\$0
<b>Total</b>	<b>134</b>	<b>\$7,949,770</b>	<b>115</b>	<b>\$7,404,922</b>	<b>249</b>	<b>\$15,354,693</b>

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX A  
MEMBERSHIP INFORMATION**

**Beneficiaries**

Age	Police		Fire		Total	
	Number	Total Annual Benefit	Number	Total Annual Benefit	Number	Total Annual Benefit
< 50	0	\$0	0	\$0	0	\$0
50-54	1	\$56,562	1	\$73,617	2	\$130,179
55-59	2	\$97,553	3	\$145,916	5	\$243,469
60-64	10	\$468,890	6	\$345,790	16	\$814,680
65-69	23	\$1,017,994	8	\$427,029	31	\$1,445,023
70-74	19	\$792,017	13	\$643,287	32	\$1,435,305
75-79	11	\$516,867	15	\$665,016	26	\$1,181,883
80-84	17	\$793,288	27	\$1,276,974	44	\$2,070,262
85-89	42	\$1,908,599	43	\$2,034,638	85	\$3,943,237
90-94	28	\$1,198,004	20	\$959,214	48	\$2,157,218
95-99	6	\$291,720	9	\$538,247	15	\$829,967
100+	1	\$25,352	1	\$74,518	2	\$99,870
<b>Total</b>	<b>160</b>	<b>\$7,166,846</b>	<b>146</b>	<b>\$7,184,245</b>	<b>306</b>	<b>\$14,351,091</b>

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX B  
STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the actuarial valuation as of July 1, 2014 are:

**Actuarial Method**

The Entry Age Normal Actuarial Cost Method is used. Under this method, the Plan's Actuarial Liability (AL) is determined as the Present Value of Future Benefits (PVFB) less the Present Value of Future Normal Costs (PVFNC). Since all of the Plan's members are retired or are assumed to retire immediately, the AL and the PVFB are the same.

The excess of the AL over the Actuarial Value of Assets (AVA) is the Unfunded Actuarial Liability (UAL). In accordance with the Plan's funding agreement with the City of Oakland, the UAL must be amortized by July 1, 2026, with contributions resuming in the 2017-2018 fiscal year. The projected fiscal year 2017-2018 contribution has been calculated using level percent of pay amortization, based on total projected City payroll for all Safety employees.

**Actuarial Value of Plan Assets**

In determining the recommended employer contribution to the PFRS, we use a smoothed actuarial value of assets. The asset smoothing method dampens the volatility in asset values that could occur because of the fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process. Assets are assumed to be used exclusively for the provision of retirement benefits and expenses.

The actuarial value of assets is equal to 100% of the *expected actuarial value of assets* plus 20% of the difference between the current market value of assets and the expected actuarial value of assets. In no event will the actuarial value of assets ever be less than 90% of the market value of assets or greater than 110% of the market value of assets.

The expected actuarial value of assets is equal to the prior year's actuarial value of assets increased with actual contributions made, decreased with actual disbursements made, all items (prior assets, contributions, and disbursements) further adjusted with expected investment returns for the year.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX B  
STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions

1. Rate of Return

The expected annual rates of return, net of investment expenses, on all Plan assets are shown in the table below. The equivalent single discount rate for these returns using the Plan's expected projected benefit payments is 6.54%.

Benefit Payment Year	Expected Return
2014-2026	7.000%
2027	6.625%
2028	6.250%
2029	5.875%
2030	5.500%
2031	5.125%
2032	4.750%
2033	4.375%
2034	4.000%
2035	3.625%
2036+	3.250%

2. Inflation

The assumed rate of general inflation is 2.75% (entire US) and local inflation is 2.85% (Bay Area). The general inflation rate is used in the determination of the investment return assumptions. The local inflation rate is used in the determination of the growth in expenses and salaries (which determine the COLA increases).

3. Administrative Expenses

Annual administrative expenses are assumed to be \$900,000, growing at 2.85% per year.

4. Cost-of-Living Adjustments

Cost-of-living adjustments are based on salary increases for a retiree's rank at retirement.

The long-term rate of salary increase is assumed to be 3.25% (2.85% inflation plus 0.4% productivity). The following schedule shows salary increases based on the current Police and Fire contracts, which expire on June 30, 2015 and October 31, 2017, respectively. All increases shown after those dates are assumptions.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX B  
STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

<b>Post-Retirement Benefit Increases (Based on Salary Increases for Rank at Retirement)</b>		
<b>Date of Increase</b>	<b>Police</b>	<b>Fire</b>
Before	0.000%	0.000%
July 1, 2014	0.000%	0.000%
July 1, 2014	2.000%	3.000%
January 1, 2015	2.000%	n/a
July 1, 2015	2.000%	1.000%
November 1, 2015	n/a	1.000%
March 1, 2016	n/a	1.000%
July 1, 2016	2.000%	2.000%
Annual Increases		
Starting	3.250%	3.250%
July 1, 2017		

**5. Rates of Termination**

None.

**6. Rates of Disability**

None.

**7. Rates of Retirement**

None.

**8. Rates of Mortality for Healthy Lives**

CalPERS Healthy Table from the 2006-2011 Experience Study, excluding the 20 year projection using Scale BB.

**9. Rates of Mortality for Disabled Retirees**

CalPERS Industrial Disability Mortality Table from the 2006-2011 Experience Study, excluding the 20 year projection using Scale BB.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX B  
STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

**10. Mortality Improvement**

The mortality tables are projected to improve with MP-2014 mortality improvement tables, with improvements projected from a base year of 2009 (the mid-point of the CalPERS base tables).

**11. Survivor Continuance**

30% of disabled retirees' deaths are assumed to be related to injuries arising out of the performance of duty, entitling the surviving spouse to a 100% continuance.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX C  
SUMMARY OF PLAN PROVISIONS

1. **Plan Year**

July 1 to June 30.

2. **Membership**

The Plan has been closed to new members since June 30, 1976.

3. **Salary**

Retirement allowances are based on the pensionable compensation attached to the average rank held during the three years immediately preceding retirement.

4. **Employee Contributions**

Active participants contribute a percentage of salary based on their age at entry into the plan, with sample rates as follows:

<b>Employee Contribution Rate</b>	
<b>Entry Age</b>	<b>Member Rate</b>
20	6.15%
25	5.81%
30	5.41%
35	7.53%
40	6.89%

5. **Service Retirement**

Eligibility

25 years of service, or 20 years of service and age 55, or age 65. A reduced early retirement is available with 20 years of service.

Benefit Amount

50% of Salary plus 1.67% for each additional year of service beyond that required for service retirement eligibility, to a maximum of 10 years. For retirements with less than 20 years of service, benefits are pro-rated.

6. **Duty-Related Disability Retirement**

Equivalent to service retirement benefit if 25 or more years of service.



OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX C  
SUMMARY OF PLAN PROVISIONS

**7. Non-Duty Related Disability Retirement**

Equivalent to service retirement benefit if age 55 is attained.

**8. Post-Retirement Death Benefit**

For retirees without a spouse at death, a \$1,000 lump sum is paid to designated beneficiary.

**9. Cost-of-Living Adjustments**

Benefit increases are based on increases in salary for rank at retirement (see above definition of Salary).

**10. Benefit Forms**

Benefit is paid for the lifetime of the member. For non-duty related deaths after retirement, a 66-2/3% continuance is paid for the lifetime of the spouse. If the death is duty-related, a continuance of 100% is paid.

**11. Changes in Plan Provisions Since Last Valuation**

None. Amounts includable in pensionable compensation were adjusted as part of a recent court decision, but these were considered as part of the actuarial gains/losses for the current valuation.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

**APPENDIX D**  
**STATEMENT OF PREVIOUS ACTUARIAL ASSUMPTIONS**

The assumptions used in the actuarial valuation as of July 1, 2013 are:

**Actuarial Assumptions**

**1. Rate of Return**

The annual rate of return on all Plan assets is assumed to be 6.75%, net of investment expenses.

**2. Inflation**

The assumed rate of inflation is 3.25% (entire US) and 3.375% (Bay Area).

**3. Administrative Expenses**

Annual administrative expenses are assumed to be \$900,000, growing at 3.375% per year.

**4. Cost-of-Living Adjustments**

Cost-of-living adjustments are based on salary increases for a retiree's rank at retirement.

The long-term rate of salary increase is assumed to be 3.975% (3.375% inflation plus 0.6% productivity). The following schedule shows salary increases based on the current Police and Fire contracts, which expire on June 30, 2015 and October 31, 2017, respectively. All increases shown after those dates are assumptions.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014**

**APPENDIX D  
STATEMENT OF PREVIOUS ACTUARIAL ASSUMPTIONS**

<b>Post-Retirement Benefit Increases (Based on Salary Increases for Rank at Retirement)</b>		
<b>Date of Increase</b>	<b>Police</b>	<b>Fire *</b>
Before		
July 1, 2014	0.000%	0.000%
July 1, 2014	2.000%	3.000%
January 1, 2015	2.000%	n/a
July 1, 2015	2.000%	1.000%
November 1, 2015	n/a	1.000%
March 1, 2016	n/a	1.000%
July 1, 2016	2.000%	2.000%
July 1, 2017	2.000%	3.000%
July 1, 2018	3.000%	3.000%
July 1, 2019	3.000%	3.000%
July 1, 2020	3.000%	3.975%
Annual Increases		
Starting	3.975%	3.975%
July 1, 2021		

\* At July 1, 2014 a 8.85% reduction in pay for Fire members will expire.

**5. Rates of Termination**

None.

**6. Rates of Disability**

None.

**7. Rates of Retirement**

Active employees are assumed to retire on the valuation date.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2014

APPENDIX D  
STATEMENT OF PREVIOUS ACTUARIAL ASSUMPTIONS

**8. Rates of Mortality for Healthy Lives**

RP-2000 Combined Healthy Table for females. For Males, 97% of the RP-2000 Combined Healthy Table with ages set back 1 year for males.

**9. Rates of Mortality for Disabled Retirees**

CalPERS Industrial Disability Mortality Table from the 1997-2007 Experience Study.

**10. Mortality Improvement**

The mortality tables are projected to improve with Scale AA using base years of 2006 (healthy lives) and 2010 (disabled lives).

**11. Survivor Continuance**

30% of disabled retirees' deaths are assumed to be related to injuries arising out of the performance of duty, entitling the surviving spouse to a 100% continuance.

**APPENDIX E  
GLOSSARY**

**1. Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

**2. Actuarial Cost Method**

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

**3. Actuarial Gain (Loss)**

The difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**4. Actuarial Liability**

The portion of the Actuarial Present Value of Projected Benefits which will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

**5. Actuarial Present Value (Present Value)**

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

**6. Actuarial Valuation**

The determination, as of a specified date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

**APPENDIX E  
GLOSSARY**

**7. Actuarial Value of Assets**

The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values.

**8. Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date, with each value based on the same set of actuarial assumptions.

**9. Amortization Payment**

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

**10. Entry Age Normal Actuarial Cost Method**

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

**11. Funded Ratio**

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities.

**12. Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

**13. Projected Benefits**

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of Actuarial Assumptions, taking into account such items as increases in future compensation and service credits.

**14. Unfunded Actuarial Liability**

The excess of the Actuarial Liability over the Actuarial Value of Assets.