

#### RECOMMENDATION

Staff Recommends That The Council Accept An Informational Report On The Oakland Police And Fire Retirement System ("PFRS") Investment Portfolio As Of September 30, 2015.

#### EXECUTIVE SUMMARY

The attached Quarterly Performance report provided by the PFRS Investment Consultant, Pension Consulting Alliance, and (PCA) summarizes the performance of the PFRS investment portfolio for the quarter ended September 30, 2015 as *Attachment A*, herein. This report is being provided in accordance with the funding agreement between the City and the PFRS Board pursuant to the issuance of the Taxable Pension Obligation Bonds Series 2012 ("2012 POB").

During the most recent quarter, the PFRS Total Portfolio generated an absolute return of (5.8%), gross of fees, underperforming its policy benchmark by (80) basis points. The portfolio also underperformed its benchmark over the latest 1-year period, while continuing to outperform over the 3- and 5-year periods. This is discussed in more detail in the "Investment Performance" section of this report.

|   | Quarter | 1 Year | 3 Year | 5 Year |
|---|---------|--------|--------|--------|
| Total Portfolio <sup>1</sup>              | (5.8)   | (1.0)  | 6.4    | 7.5    |
| Policy Benchmark <sup>2</sup>             | (5.0)   | (0.8)  | 5.7    | 6.8    |
| Excess Return                             | (0.8)   | (0.2)  | 0.7    | 0.7    |
| Reference: Median Fund <sup>3</sup>       | (4.9)   | (0.7)  | 7.0    | 7.8    |
| Reference: Total Net of Fees <sup>4</sup> | (5.9)   | (1.4)  | 6.0    | 7.1    |

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

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

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

#### BACKGROUND / LEGISLATIVE HISTORY

The Oakland Police and Fire Retirement System (the "PFRS") 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"). PFRS covers the City's sworn police and fire employees hired prior to July 1, 1976. PFRS was closed to new members on June 30, 1976. As of September 30, 2015, PFRS had 954 retired members and no active members.

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 twelve external investment managers. The majority of the portfolio is held in custody at Northern Trust. 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 Taxable Pension Obligation Bonds, Series 1997 ("1997 POBs") and as a result deposited \$417 million into the System to pay the City's contributions through June 2011. In accordance with the funding agreement entered into at the time the 1997 POBs were issued, 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 and contributed \$45.5 million for the fiscal year ended June 30, 2012.

In July 2012, the City issued \$212.5 million of Taxable Pension Obligation Bonds, Series 2012. The City subsequently deposited \$210 million into the System and entered into a funding agreement with the PFRS Board. As a result, 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 on a Market Value of Assets (MVA) basis. The next required City contribution is projected to be approximately \$35.1 million in fiscal year 2017/2018.

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#### ANALYSIS

#### <u>PFRS' Membership</u>

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 September 30, 2015, the System's membership was 954, which included 661 retirees and 293 beneficiaries as shown on Table 1.

| Table 1     PFRS Membership     as of September 30, 2015 |                              |     |     |  |  |  |  |
|--|------------------------------|-----|-----|--|--|--|--|
| Membership   | Membership POLICE FIRE TOTAL |     |     |  |  |  |  |
| Retiree  | 404                          | 257 | 661 |  |  |  |  |
| Beneficiary 153 140 293                                  |                              |     |     |  |  |  |  |
| Total Membership   | 557                          | 397 | 954 |  |  |  |  |

#### Portfolio Valuation

As of September 30, 2015, the PFRS'portfolio had an aggregate value of \$387.9 million. This represents a (\$36) million decrease in value over the quarter. During the previous one-year period, the PFRS' Total Portfolio decreased by (\$63.1) million, including (\$60) million in withdrawals to pay retire pension payments during the same one-year period as shown in Table 2 below.

## Table 2Investment Portfolio Valuation as of September 30, 2015\*

|      | September 30, 2015 | June 30,<br>2015 | Quarterly<br>Change | Percentage<br>Change | September 30,<br>2014 | Annual<br>Change | Percentage<br>Change |
|------|--------------------|------------------|---------------------|----------------------|-----------------------|------------------|----------------------|
| PFRS | \$387.9            | \$423.9          | (\$36)              | (8.4%)               | \$451.0               | (\$63.1)         | (14.0%)              |

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

#### PFRS Investment Portfolio

| Table 3                   |               |  |  |  |
|---------------------------|---------------|--|--|--|
| PFRS Investment Portfolio |               |  |  |  |
| as of September 30, 2015  |               |  |  |  |
| Investment Fair Value     |               |  |  |  |
| Domestic Equities         | \$167,501,399 |  |  |  |
| Fixed Income              | 75,658,079    |  |  |  |
| International Equities    | 40,336,289    |  |  |  |
| Real Return               | 37,697,346    |  |  |  |
| Covered Calls             | 62,607,340    |  |  |  |
| Cash Equivalents          | 4,109,615     |  |  |  |
| Total Portfolio           | \$387,910,068 |  |  |  |

Table 3 below shows PFRS' Investment Portfolio as of September 30, 2015.

#### **PFRS Investment Performance**

During the latest quarter ending September 30, 2015, the OPFRS Total Portfolio generated a return of -5.8%, gross of fees, underperforming its benchmark by 80 basis points (0.80%). The Plan's Domestic Equity allocation underperformed its benchmark by 40 basis points (0.40%), while the Plan's International Equity allocation outperformed its benchmark by 1.0%. The Plan's Fixed Income allocation underperformed its benchmark by 10 basis points (0.10%), while Real Return and Covered Calls both underperformed their respective benchmarks by (57%) and (1.1%), respectively.

The PFRS portfolio's quarterly underperformance relative to its benchmark can be mainly attributed to Wellington, the Plan's real return manager, which has faced difficult market conditions as the traditional inflation-linked asset classes it invests in, mainly oil, have trended strongly downward over the period. To a smaller extent, the Plan's domestic small-cap equity managers also failed to beat their respective benchmarks, contributing further to overall portfolio underperformance.

Over the one year period ending September 30, 2015, the PFRS Total Portfolio generated a return of -5.8%, gross of fees, which was lower that its policy benchmark target. The Portfolio has outperformed the policy benchmark over the 3, and 5 year time periods, gross of fees. Relative to the Median Fund, the Total Portfolio underperformed over the quarter, 1-, 3-, and 5-year time periods. Relative performance with respect to the Median Fund can be largely attributed to differences in asset allocation.

Relative to the actuarial expected rate of return, the PFRS Total Portfolio underperformed the actuarial expected rate for the 1-year and 3-year time periods. However, the investment portfolio exceeded its actuarial expected rate of return over 5-year period as shown in Table 4. The Actuarial Rate of Return was gradually lowered from 8.0% in FY 2008 to a blended rate of 6.54% in 2014. Table 4 below compares PFRS Total Portfolio performance to other pension funds and benchmarks.

| Table 4PFRS TOTAL FUND PERFORMANCE COMPARISONas of September 30, 2015 |         |        |        |        |  |  |
|---|---------|--------|--------|--------|--|--|
|   | Quarter | 1 Year | 3 Year | 5 Year |  |  |
| PFRS Fund   | -5.80%  | -1.0%  | 6.40%  | 7.50%  |  |  |
| Comparisons:  |         |        |        |        |  |  |
| PFRS' Actuarial Expected Rate of Return (blend) (a) (b)               | 1.63%   | 6.50%  | 6.72%  | 6.72%  |  |  |
| Policy Target (blend) (c)   | -5.00%  | -0.80% | 5.70%  | 6.80%  |  |  |
| Median Fund (d)   | -4.90%  | -0.70% | 7.00%  | 7.80%  |  |  |
| CalPERS Investment Returns  | -4.90%  | -1.37% | 7.56%  | 7.97%  |  |  |
| CalSTRS Investment Returns  | -4.20%  | 0.62%  | 9.16%  | 9.44%  |  |  |
| East Bay Mud Investment Returns                                       | -5.20%  | 0.10%  | 9.30%  | 9.70%  |  |  |
| Colorado F&P Investment Returns                                       | -2.90%  | 1.70%  | 8.00%  | 8.30%  |  |  |

(a) The actuarial expected rate of return was 8% through 6/30/2009, 7.5% through 6/30/2010, 7% through 6/30/2011, and 6.75% through 6/30/2014 and 6.54% currently.

- (b) The quarterly actuarial expected rate of return is calculated based on the 6.50% annual return assumption.
- (c) The Policy Benchmark consists of 43% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 15% CBOE BXM and 10% CPI+3%.
- (d) Mellon Total Fund Public Universe Fund.

#### FISCAL IMPACT

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

#### **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), City Attorney's Office and Budget Office.

#### SUSTAINABLE OPPORTUNITIES

*Economic*: Whenever possible, the PFRS Board seeks to benefit the local Oakland based economy. In 2006, the PFRS 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.

#### ACTION REQUESTED OF THE CITY COUNCIL

Staff recommends that the Council accept this informational report on the Oakland Police and Fire Retirement System ("PFRS") Investment Portfolio as of September 30, 2015.

Respectfully submitted,

eteno Kosaini

KATANO KASAINE Treasurer/ Plan Administrator

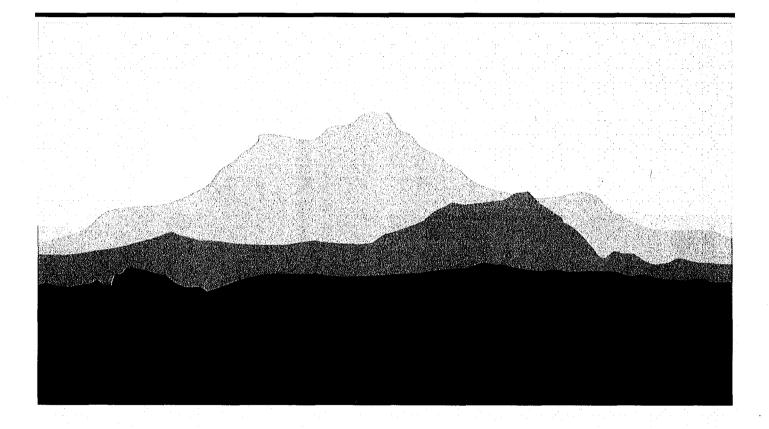
Prepared by: Téir Jenkins, Investment Officer Retirement Division

Attachments: Attachment A: PFRS Performance Report as of September 30, 2015

## ATTACHMENT A: PFRS INVESTMENT PERFORMANCE AS OF SEPTEMBER 30, 2015



# 3Q 2015 OAKLAND POLICE & FIRE RETIREMENT SYSTEM QUARTERLY PERFORMANCE REPORT



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- F INDIVIDUAL MANAGER PERFORMANCE

Appendix

#### TOTAL PORTFOLIO SUMMARY

As of September 30, 2015, the City of Oakland Police and Fire Retirement System (OPFRS) portfolio had an aggregate value of \$387.9 million. This represents a (\$36) million decrease in value, which includes (\$15) million in benefit payments, over the quarter. During the previous one-year period, the OPFRS Total Portfolio decreased by (\$63.1) million, including (\$60) million in withdrawals during the period.

#### Asset Allocation Trends

The asset allocation targets (see table on page 80) reflect those as of September 30, 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**, **and cash**, **while underweight International Equity**, **Fixed Income**, **and Real Return**.

#### **Recent Investment Performance**

During the most recent quarter, the OPFRS Total Portfolio generated an absolute return of (5.8%), gross of fees, underperforming its policy benchmark by (80) basis points. The portfolio has also underperformed its benchmark over the latest 1-year period, while continuing to outperform over the 3- and 5-year periods.

The Total Portfolio underperformed the Median fund's return over the most recent quarter, underperformed the Median fund's return over the fiscal year-to-date, and underperformed the Median fund return over the 1-, 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>              | (5.8)   | (5.8)      | (1.0)  | 6.4    | 7.5    |
| Policy Benchmark <sup>2</sup>             | (5.0)   | (5.0)      | (0.8)  | 5.7    | 6.8    |
| Excess Return                             | (0.8)   | (0.8)      | (0.2)  | 0.7    | 0.7    |
| Reference: Median Fund <sup>3</sup>       | (4.9)   | (4.9)      | (0.7)  | 7.0    | 7.8    |
| Reference: Total Net of Fees <sup>4</sup> | (5.9)   | (5.9)      | (1.4)  | 6.0    | 7.1    |

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

<sup>&</sup>lt;sup>2</sup> Evolving Policy Benchmark consists of 43% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 15% CBOE BXM and 10% CPI+3%. <sup>3</sup> Mellon Total Funds Public Universe.

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

#### OPFRS Quarterly Report – 3Q 2015

INVESTMENT MARKET RISK METRICS

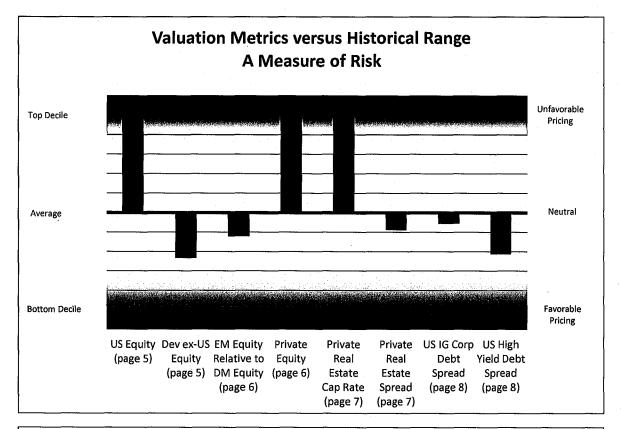
#### <u>Takeaways</u>

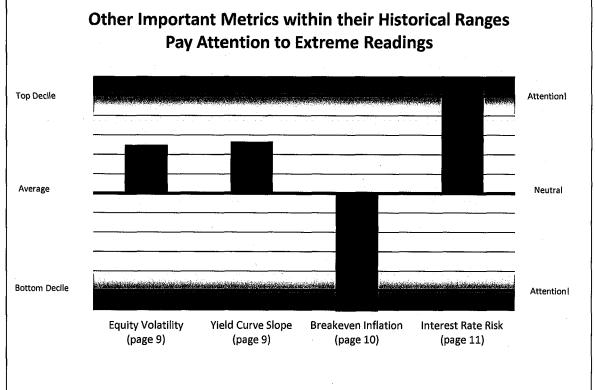
- Market growth concerns compounded as the Federal Reserve decided not to raise interest rates in September.
- The VIX settled down somewhat, averaging 24 in September after hitting 40 in August. The long-term average is 20.
- U.S. public equity valuations dropped below top decile levels on price declines, while U.S. private equity and private real estate continued to register top decile valuation levels, albeit on lagging price measures.
- U.S. credit spreads widened further in September and Treasury interest rates fell as growth concerns grew.
- International equity valuations fell further below their historical average levels; cheap relative to U.S. valuation levels.
- Commodity prices continued their five-year <u>decline</u>, and 10-year breakeven inflation levels dropped below 1.4%, a level of anticipated inflation not seen since the 2008 global financial crisis.
- The PCA Market Sentiment Indicator flipped to **negative** at month end. The credit spread element of the indicator has been negative since last year. Now, year-over-year equity returns have turned negative as well.

Any change in the PCA Market Sentiment Indicator needs to be confirmed for a couple of months prior to making any judgements. While not a market timing indicator, should this negative reading be sustained, clients should consider this to be a less favorable growth environment.

PC2

**Risk Overview** 



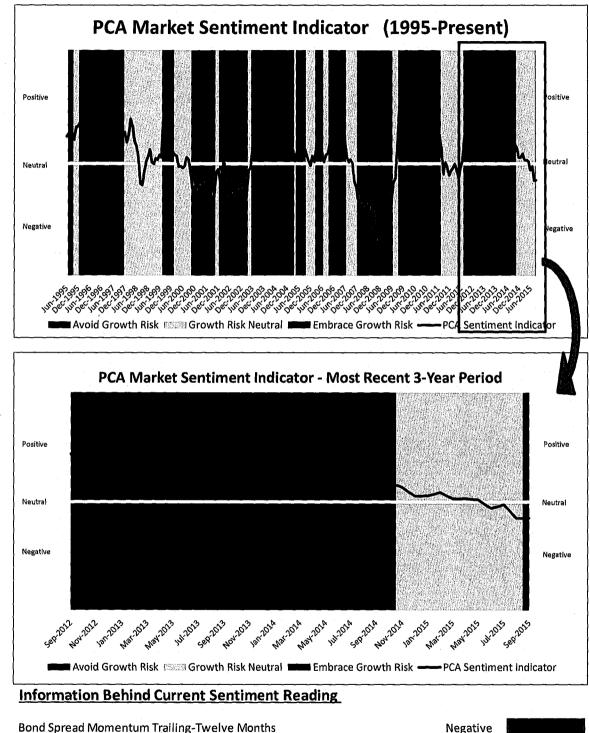


| PCA

#### OPFRS Quarterly Report - 3Q 2015

PCA

#### Market Sentiment

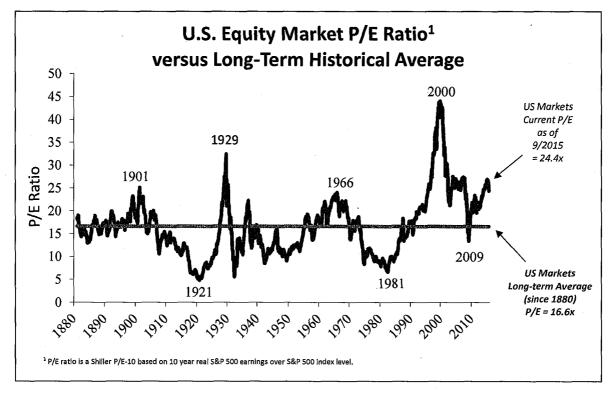


| Growth Risk Visibility (Current Overall Sentiment)                 | Negative |  |
|--|----------|--|
| Agreement Between Bond Spread and Equity Spread Momentum Measures? | Agree    |  |
| Equity Return Momentum Trailing-Twelve Months                      | Negative |  |
|  |          |  |

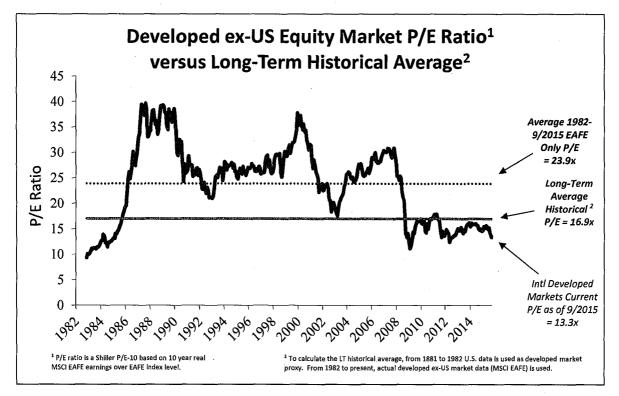
#### OPFRS Quarterly Report - 3Q 2015

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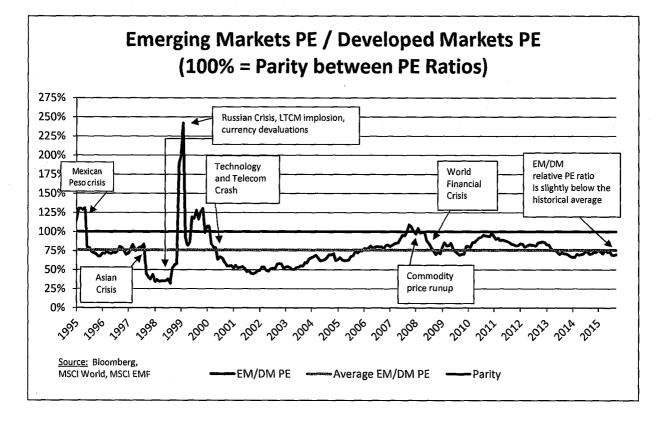
**Developed Equity Markets** 



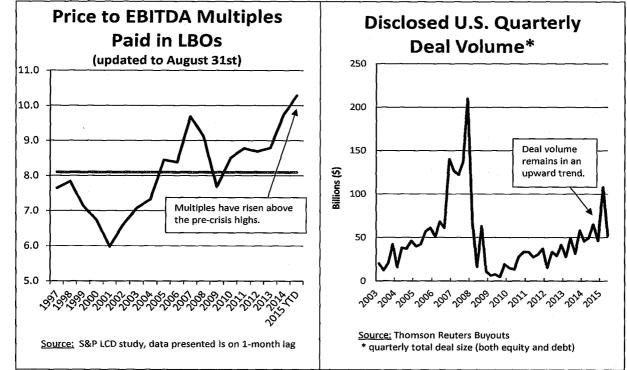
<sup>(</sup>Please note time scale difference)



**Emerging Market Equity Markets** 

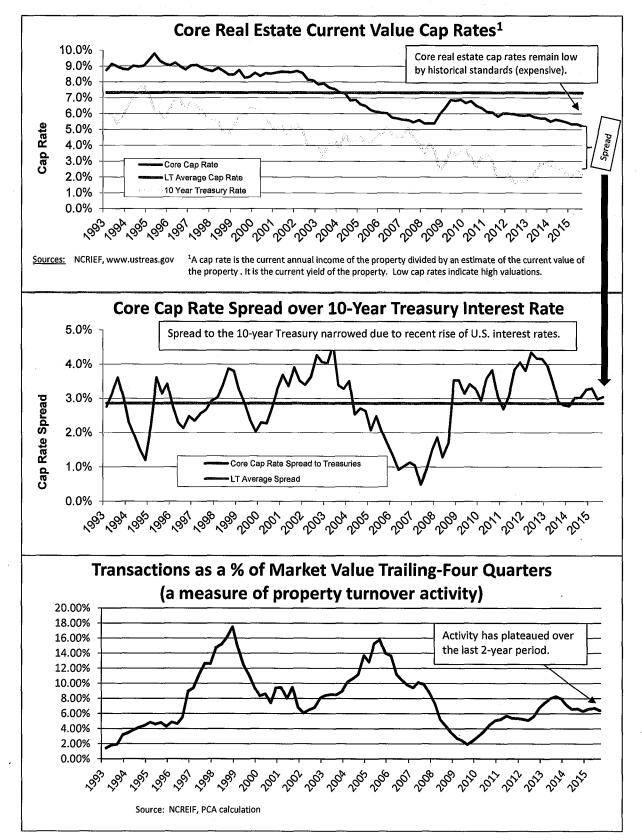


**US Private Equity** 

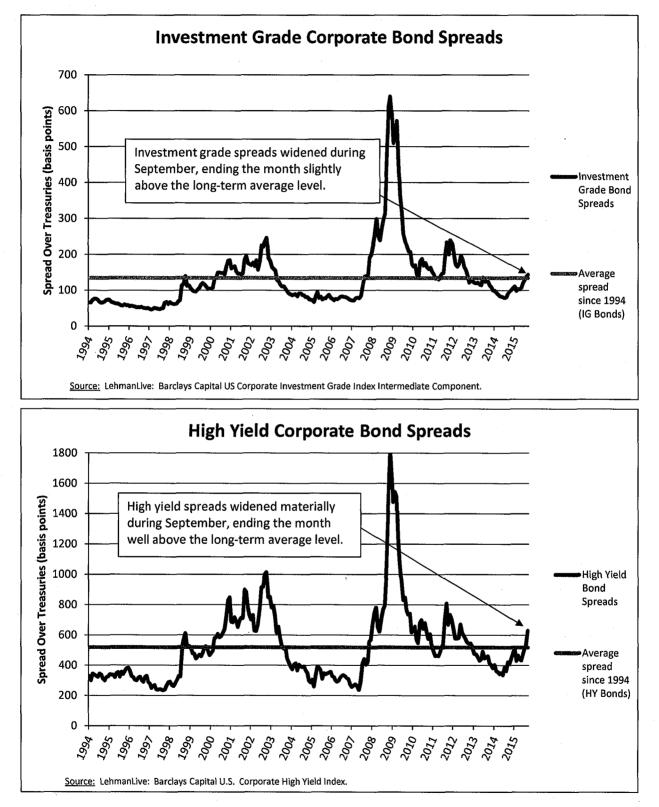


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Private Real Estate Markets

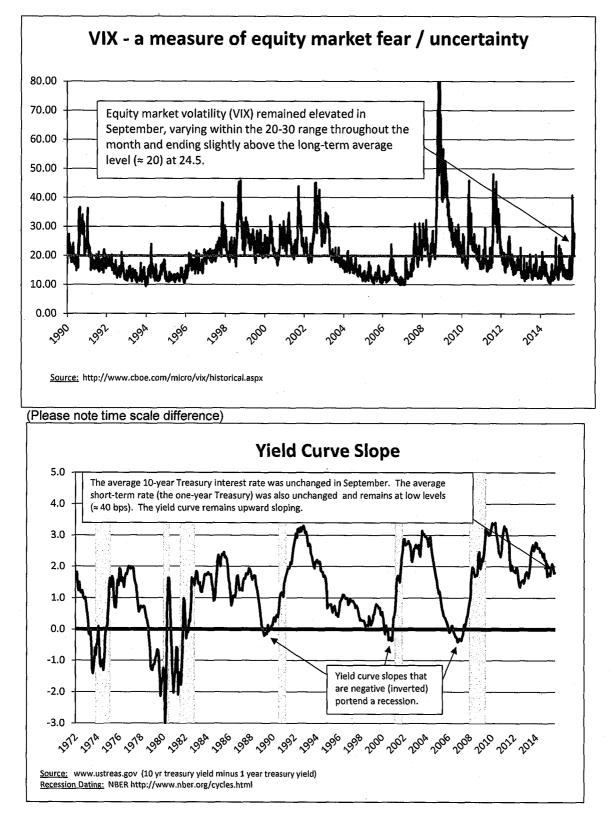


#### **US Fixed Income**



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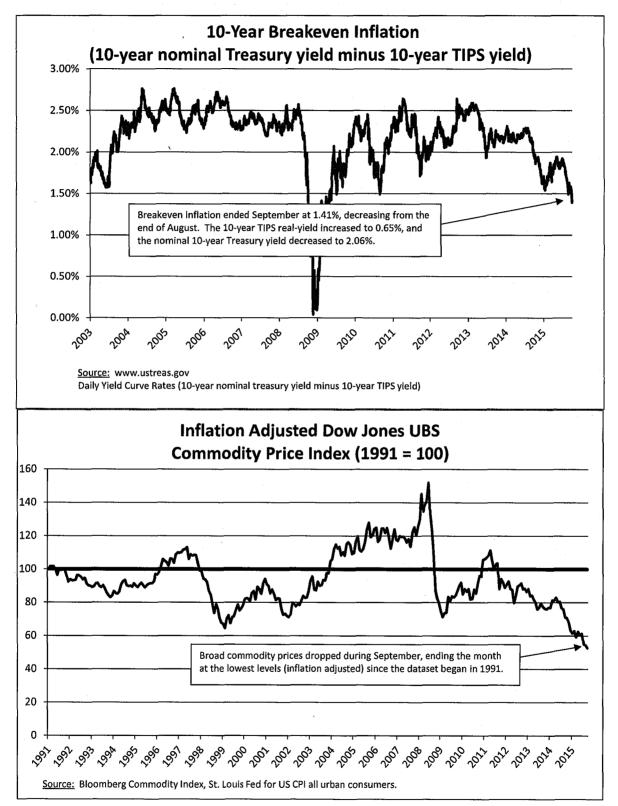
Other Market Metrics



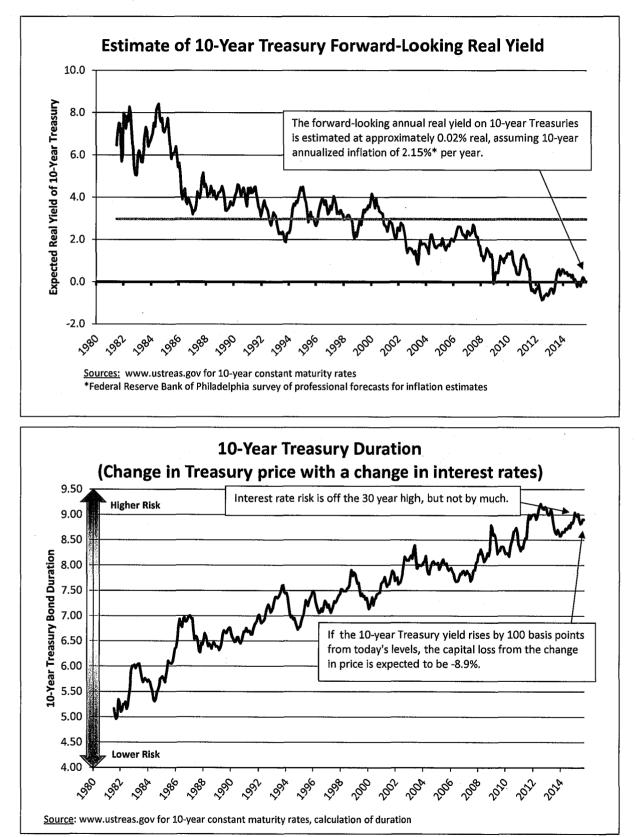
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Measures of Inflation Expectations



Measures of US Treasury Interest Rate Risk



#### ECONOMIC OVERVIEW

US GDP growth for the third quarter (advanced estimate) has slowed since the second quarter falling from 3.9% to 1.5%. GDP growth during the third quarter was driven mostly by consumer spending in healthcare which was partly offset by a decrease in private inventory investments. The unemployment rate dropped to 5.1% as of the quarter end, continuing its downward trend over the last 2+ years. After the Consumer Price Index for All Urban Consumers posted its largest quarterly increase since the third quarter of 2012 last quarter, it has decreased by (0.4%) during this quarter. Commodities returned to their downward trend decreasing by (14.5%) after increasing by 4.7% in the second quarter. The US dollar depreciated against the Yen and the Euro this quarter while appreciating against the British pound. After posting slightly positive returns last quarter, US Equities floundered in the third quarter. Global Equities performed poorly during the quarter as both international developed and emerging market equity produced double digit negative returns. The BC Universal Index returned 0.7% during the quarter and continued its positive year-to-date performance at 2.3%.

Economic Growth

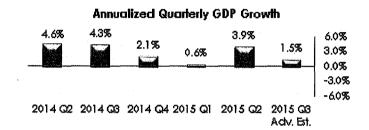
- Real GDP increased at an annualized rate of 1.5 percent in the second quarter of 2015 after increasing at an annualized rate of 3.9 percent in the second quarter of 2015.
- An increase in consumer spending on health care and the continued rise of spending on durable and nondurable goods had the largest impact on GDP.
- State and local government spending, business investment, exports and residential investment also contributed to an increase in GDP during the quarter.

#### Inflation

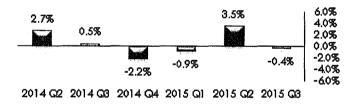
- The Consumer Price Index for All Urban Consumers (CPI-U) decreased by 0.4 percent in the quarter on an annualized basis after seasonal adjustment.
- Quarterly percent changes may be adjusted between data publications due to periodic updates in seasonal factors.
- Core CPI-U increased by 1.7 percent for the quarter on an annualized basis.
- Over the last 12 months, core CPI-U increased 1.9 percent after seasonal adjustment.

Unemployment

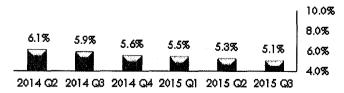
- The US economy gained approximately 538,000 jobs in the quarter.
- The unemployment rate dropped to 5.1% at quarter end.
- The majority of jobs gained occurred in professional and business services, health care, retail, and food services and drinking places.







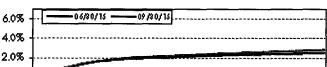
**Unemployment Rate** 



#### OPFRS Quarterly Report – 3Q 2015

Interest Rates & U.S. Dollar

- US Treasury yields rose 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 British Pound by 3.7% while depreciating against the Euro and Yen by (0.3%) and (2.1%), respectively.



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Source: U.S. Treasury Department

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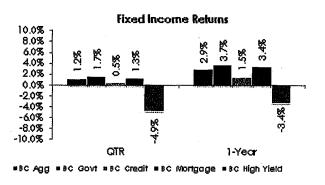
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#### **Fixed** Income

• US bond markets delivered positive returns for the quarter with the exception of high yield, which had a return of minus (4.9%).

0.0%

High yield produced a second consecutive negative quarterly return as it continued to trail all other bond sectors. Governments and Mortgage performed favorably with returns of 3.7% and 3.4% over the trailing 1-year period.



| U.S. Fixed Income Sector Performance<br>(BC Aggregate Index) |        |      |        |  |  |  |
|--|--------|------|--------|--|--|--|
| Sector   | Weight | QTR  | 1 Year |  |  |  |
| Governments*   | 40.6%  | 1.7% | 3.7%   |  |  |  |
| Agencies   | 4.5%   | 1.0% | 2.9%   |  |  |  |
| Inv. Grade<br>Credit   | 24.0%  | 0.5% | 1.5%   |  |  |  |
| MBS  | 28.4%  | 1.3% | 3.4%   |  |  |  |
| ABS  | 0.6%   | 0.7% | 2.4%   |  |  |  |
| CMBS   | 1.9%   | 1.5% | 3.7%   |  |  |  |

\*U.S. Treasuries and Government Related

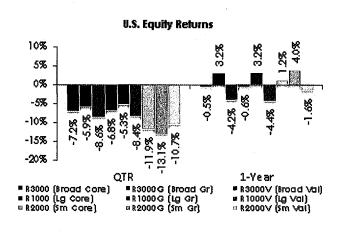
#### **Treasury Yield Curve Changes**

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#### **U.S. Equities**

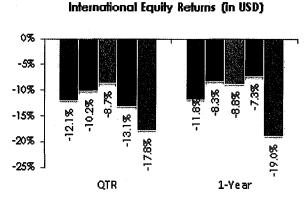
- During the quarter large cap stocks outperformed small cap stocks.
- During the 1-year period, growth outperformed value stocks across all market capitalizations. Small cap growth stocks performed the best over the 1-year period, but also had the worst overall performance for the quarter.



| U.S. Equity Sector Performance<br>(Russell 3000 Index) |        |        |        |  |  |  |
|--|--------|--------|--------|--|--|--|
| Sector   | Weight | QTR    | 1 Year |  |  |  |
| Information<br>Tech.                                   | 19.5%  | -4.8%  | 2.3%   |  |  |  |
| Financials   | 18.2%  | -6.0%  | 1.7%   |  |  |  |
| Health Care  | 14.3%  | -11.6% | 6.9%   |  |  |  |
| Consumer Disc.   | 13.7%  | -4.2%  | 10.7%  |  |  |  |
| Industrials  | 10.7%  | -8.1%  | -3.8%  |  |  |  |
| Consumer<br>Staples                                    | 8.7%   | -0.9%  | 7.0%   |  |  |  |
| Energy   | 6.3%   | -19.0% | -32.5% |  |  |  |
| Utilities  | 3.2%   | 4.2%   | 5.3%   |  |  |  |
| Materials  | 3.1%   | -17.3% | -17.9% |  |  |  |
| Telecomm. Serv.  | 2.2%   | -17.3% | -17.9% |  |  |  |

#### International Equities

- Poor performance in both emerging and developed markets during the third quarter resulted in double digit negative performance for the MSCI ACWI ex-U.S. Index.
- One year returns were negative across all international equities.



MSCLACW EXUS. = MSCLEAFE = MSCLEurope = MSCLPacific = MSCLEM

| International Equity Region Performance (in USD)<br>(MSCI ACW Index ex U.S.) |        |        |        |  |  |  |  |
|--|--------|--------|--------|--|--|--|--|
| Sector   | Weight | QTR    | 1 Year |  |  |  |  |
| Europe Ex. UK  | 33.5%  | -8.1%  | -7.3%  |  |  |  |  |
| Emerging<br>Markets  | 20.6%  | -17.8% | -19.0% |  |  |  |  |
| Japan  | 16.5%  | -11.7% | -1.9%  |  |  |  |  |
| United Kingdom   | 14.9%  | -10.0% | -12.1% |  |  |  |  |
| Pacific Ex. Japan  | 8.0%   | -15.9% | -16.7% |  |  |  |  |
| Canada   | 6.5%   | -14.0% | -23.4% |  |  |  |  |

Market Summary - Long-term Performance\*

| Indexes                              | 1 Year | 3 Year  | 5 Year       | 10 Year      | 20 Year |
|--------------------------------------|--------|---------|--------------|--------------|---------|
| Global Equity                        |        |         |              |              |         |
| MSCI All Country World               | 0.00   | 17. mm  |              |              |         |
| Domestic Equity                      | -9.3%  | -6.2%   | 7.5%         | 7.4%         | 5.1%    |
|                                      |        |         |              |              |         |
| S&P 500                              | -6.4%  | -0.6%   | 12.4%        | 13.3%        | 6.8%    |
| Russell 3000                         | -7.2%  | -0.5%   | 12.5%        | 13.3%        | 6.9%    |
| Russell 3000 Growth                  | -5.9%  | 3.2%    | 13.5%        | 14.4%        | 8.1%    |
| Russell 3000 Value                   | -8.6%  | -4.2%   | 11.4%        | 12.1%        | 5.7%    |
| Russell 1000                         | -6.8%  | -0.6%   | 12.7%        | 13.4%        | 7.0%    |
| Russell 1000 Growth                  | -5.3%  | 3.2%    | 13.6%        | 14.5%        | 8.1%    |
| Russell 1000 Value                   | -8.4%  | -4.4%   | 11.6%        | 12.3%        | 5.7%    |
| Russell 2000                         | -11.9% | 1.2%    | 11.0%        | 11.7%        | 6.5%    |
| Russell 2000 Growth                  | -13.1% | 4.0%    | 12.8%        | 13.3%        | 7.7%    |
| Russell 2000 Value                   | -10.7% | -1.6%   | 9.2%         | 10.2%        | 5.3%    |
| CBOE BXM                             | -2.4%  | 0.4%    | 5.7%         | 7.3%         | 4.2%    |
| International Equity                 |        |         |              |              |         |
| MSCI All Country World ex US         | -12.1% | -11.8%  | 2.8%         | 0.207        | 2 507   |
| MSCI EAFE                            | -10.2% | -8.3%   | 2.0%<br>6.1% | 2.3%<br>4.4% | 3.5%    |
| MSCI Pacific                         | -13.1% | -7.3%   | 5.0%         |              | 3.4%    |
| MSCI Europe                          | -8.7%  | -8.8%   | 6.6%         | 3.7%         | 2.6%    |
| MSCI EM (Emerging Markets)           | -17.8% | -19.0%  | -4.9%        | 4.9%         | 3.9%    |
| Fixed Income                         | 17.078 | -17.076 | -4.7 /0      | -3.2%        | 4.6%    |
|                                      |        |         |              |              |         |
| BC Universal Bond                    | 0.7%   | 2.3%    | 1.9%         | 3.4%         | 4.8%    |
| BC Global Agg – Hedged               | 1.3%   | 3.1%    | 3.0%         | 3.5%         | 4.4%    |
| BC Aggregate Bond                    | 1.2%   | 2.9%    | 1.7%         | 3.1%         | 4.6%    |
| BC Government                        | 1.7%   | 3.7%    | 1.3%         | 2.5%         | 4.3%    |
| BC Credit Bond                       | 0.5%   | 1.5%    | 2.0%         | 4.1%         | 5.3%    |
| BC Mortgage Backed Securities        | 1.3%   | 3.4%    | 2.0%         | 3.0%         | 4.7%    |
| BC High Yield Corporate Bond         | -4.9%  | -3.4%   | 3.5%         | 6.1%         | 7.3%    |
| BC WGILB - Hedged                    | 0.0%   | 2.4%    | 1.5%         | 3.7%         | 4.4%    |
| BC Emerging Markets                  | -2.4%  | -1.4%   | 1.3%         | 4.7%         | 6.9%    |
| Real Estate                          |        |         |              |              |         |
| NCREIF (Private RE)                  | 3.1%   | 13.5%   | 11.9%        | 12.6%        | 8.0%    |
| NAREIT (Public RE)                   | 0.8%   | 7.4%    | 8.6%         |              |         |
| Commodity Index                      | 0.070  | / .4/0  | 0.0%         | 11.7%        | 6.3%    |
| •                                    |        |         |              |              |         |
| Bloomberg Commodity (formerly DJUBS) | -14.5% | -26.0%  | -16.0%       | -8.9%        | -5.7%   |
|                                      |        |         |              |              |         |

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

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#### TOTAL PORTFOLIO REVIEW

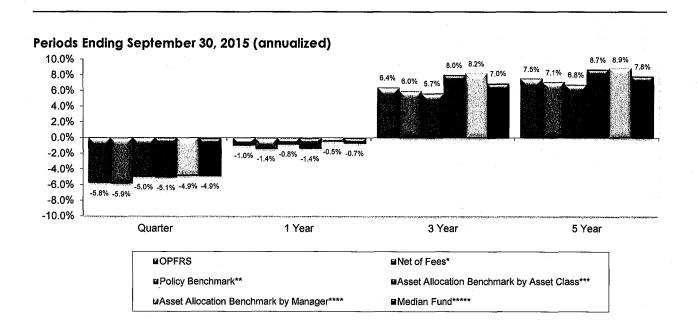
#### **OPFRS Portfolio Performance**

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 September 30, 2015, the OPFRS Total Portfolio generated a return of (5.8%), gross of fees, underperforming its benchmark by (80) basis points. The Plan's Domestic Equity allocation underperformed its benchmark by (40) basis points, while the Plan's International Equity allocation outperformed its benchmark by 1.0%. The Plan's Fixed Income allocation underperformed its benchmark by 1.0%. The Plan's Fixed Income allocation underperformed its benchmark by (10) basis points, while Real Return and Covered Calls both underperformed their respective benchmarks by (57%) and (1.1%), respectively.

The Total Portfolio produced negative relative results versus the policy benchmark over the quarter and 1year periods while outperformed over the 3- and 5-year periods, gross of fees. Relative to the Median Fund, the Total Portfolio underperformed over the quarter, 1-, 3-, and 5-year time periods. Relative performance with respect to the Median Fund can be largely attributed to differences in asset allocation.



\*\*\*\*\* Median Fund is the Mellon Total Public Funds Universe.

Net of fee returns are estimated based on OPFRS manager fee schedule.
The Evolving Policy Benchmark consists of 43% Pursell 3000, 12% MSCLACIWL or U.S. 20% I

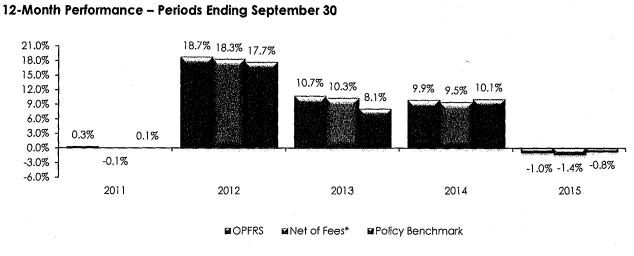
<sup>\*\*</sup> The Evolving Policy Benchmark consists of 43% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 15% CBOE BXM and 10% CPI+3%.

<sup>\*\*\*</sup> Asset Allocation Benchmark by Asset Class is calculated using actual weightings of the broad asset classes.

<sup>\*\*\*\*</sup> Asset Allocation Benchmark by Manager consists of weighted average return of individual manager benchmarks, based on managers' actual allocations.

#### OPFRS Quarterly Report – 3Q 2015

Absolute performance results have been positive in four of the last five 12-month periods ending September 30. The Plan also outperformed or matched its policy benchmark in three out of the last five periods, gross of fees.



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

#### Portfolio Valuation

The OPFRS portfolio had an aggregate value of \$387.9 million as of September 30, 2015. During the latest quarter, the portfolio decreased by (\$36) million, including (\$15) million in net benefit payments. Over the latest year, the portfolio decreased by (\$63.1) million, including (\$60) million in net benefit payments.

#### Investment Portfolio Valuation as of September 30, 2015\*

|       | September 30, | June 30, | Quarterly | Percentage | September 30, | Annual   | Percentage |
|-------|---------------|----------|-----------|------------|---------------|----------|------------|
|       | 2015          | 2015     | Change    | Change     | 2014          | Change   | Change     |
| OPFRS | \$387.9       | \$423.9  | (\$36)    | (8.4%)     | \$451.0       | (\$63.1) | (14.0%)    |

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

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#### Actual vs. Target Allocations

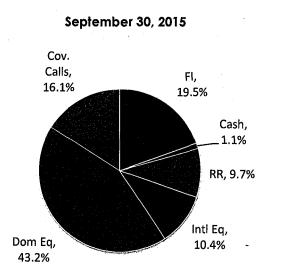
With respect to policy targets, the portfolio ended the latest quarter **overweight Domestic Equity**, **Covered Calls**, **and cash**, **while underweight International Equity**, **Fixed Income**, **and Real Return**. Target weightings reflect the Plan's evolving asset allocation (effective 3/31/2014).

| As of September 30, 2015   |                       |                  |          |          |
|----------------------------|-----------------------|------------------|----------|----------|
| <u>Segment</u>             | <u>Actual \$(000)</u> | <u>Actual %*</u> | Target % | Variance |
| Total Investment Portfolio | 387,911               | 100.0%           | 100.0%   |          |
| Domestic Equity            | 167,503               | 43.2%            | 43.0%    | 0.2%     |
| Large Cap Equity           | 117,004               | 30.1%            | 29.0%    | 1.1%     |
| Mid Cap Equity             | 30,451                | 7.8%             | 8.0%     | -0.2%    |
| Small Cap Equity           | 20,048                | 5.2%             | 6.0%     | -0.8%    |
| International Equity       | 40,336                | 10.4%            | 12.0%    | -1.6%    |
| Total Equity               | 207,839               | 53.6%            | 55.0%    | -1.4%    |
| Fixed Income               | 75,658                | 19.5%            | 20.0%    | -0.5%    |
| Covered Calls              | 62,607                | 16.1%            | 15.0%    | 1.1%     |
| Real Return                | 37,697                | 9.7%             | 10.0%    | -0.3%    |
| Cash                       | 4,110                 | 1.1%             | 0.0%     | 1.1%     |

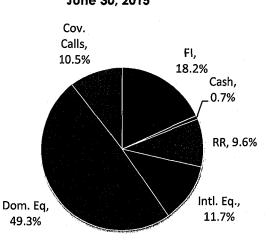
\* In aggregate, asset class allocations equal 100% of total investment portfolio. Differences due to rounding.

During the latest quarter, Domestic Equity decreased its weighting by (6.1%), Fixed Income increased its weighting by 1.3%, and International Equity's weighting decreased by (1.3%). Actual weighting for Covered Calls increased by 5.6%, while the acual weighting for Real Return increased by 0.1%. The weighting for Cash also increased by 0.4%.

#### Investment Portfolio Actual Asset Allocation Comparison







#### Asset Class Performance

The **Domestic Equity** asset class underperformed its benchmark by (40) basis points over the most recent quarter and outperformed ny 30 basis points over the 1-year period. Over the longer term, the Domestic Equity portfolio outperformed its benchmark over both the 3- and 5-year periods by 20 basis points.

The **International Equity** portfolio outperformed its policy benchmark by 1.0% during the most recent quarter and by 5.5% over the 1-year period. The International Equity portfolio also outperformed over the 3- and 5-year periods by 2.2% and 1.1%, respectively.

The **Fixed Income** asset class slightly underperformed its benchmark by (10) basis points over the most recent quarter, and outperformed by 50 basis points over the 1-year period. The fixed income portfolio underperformed the benchmark by (10) basis points over the 3-year period, and outperformed by 10 basis points over the 5-year period.

The **Covered Calls** asset class underperformed by (1.1%) and (0.1%) over the most recent quarter and 1year period, respectively.

The **Real Return** asset class performance continues to trail its benchmark, underperforming by (5.7%) over the most recent quarter, and by (10.6%) over the 1-year period.

| Asset Class                       | Quarter      | 1-Year      | 3-Year     | 5-Year     |
|-----------------------------------|--------------|-------------|------------|------------|
| <b>Total Investment Portfolio</b> | <b>-5.8</b>  | <b>-1.0</b> | <b>6.4</b> | <b>7.5</b> |
| Policy Benchmark <sup>1</sup>     | -5.0         | -0.8        | 5.7        | 6.8        |
| Public Equity                     | -8.2         | -1.3        | 11.1       | 11.2       |
| Policy Benchmark <sup>2</sup>     | -8.2         | -2.8        | 10.4       | 10.7       |
| Domestic Equity                   | -7.6         | -0.2        | 12.7       | 13.5       |
| Blended Benchmark <sup>4</sup>    | -7.2         | -0.5        | 12.5       | 13.3       |
| Large Cap                         | -6.7         | -0.6        | 12.5       | 13.4       |
| Russell 1000                      | -6.8         | -0.6        | 12.7       | 13.4       |
| Mid Cap                           | -7.2         | 1.8         | 13.4       | 13.0       |
| Russell Midcap                    | -8.0         | -0.2        | 13.9       | 13.4       |
| Small Cap                         | -13.6        | -0.5        | 13.4       | 14.9       |
| Russell 2000                      | -11.9        | 1.2         | 11.0       | 11.7       |
| International Equity              | -11.1        | -6.3        | 5.0        | 3.4        |
| Blended Benchmark <sup>5</sup>    | -12.1        | -11.8       | 2.8        | 2.3        |
| Fixed Income                      | 0.6          | 2.8         | 1.8        | 3.5        |
| BC Universal (blend) <sup>6</sup> | 0.7          | 2.3         | 1.9        | 3.4        |
| Covered Calls<br>CBOE BXM         | -3.5<br>-2.4 | 0.3<br>0.4  |            |            |
| Real Return                       | -5.3         | -7.6        |            |            |
| CPI + 3%                          | 0.4          | 3.0         |            |            |

Periods ending September 30, 2015

<sup>1</sup> The Evolving Policy Benchmark consists of 43% Russell 3000, 12% MSCI ACWI ex U.S., 20% BC Universal, 15% 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.

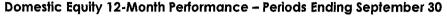
<sup>4</sup> Domestic Equity Benchmark consists of S&P 500 thru 3/31/98, 29% R1000, 57% R1000V, 14% RMC from 4/1/98 - 12/31/04, and Russell 3000 from 1/1/05 to the present.

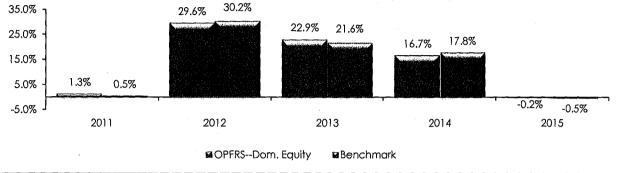
<sup>5</sup> International Equity Benchmark consists of MSCI EAFE thru 12/31/04, and MSCI ACWI x U.S. thereafter.

• Fixed Income Benchmark consists of BC Aggregate prior to 4/1/06, BC Universal prior to 7/1/2012, and a blend of 75% tbills, 25% BC Universal thereafter.

#### Asset Class Performance

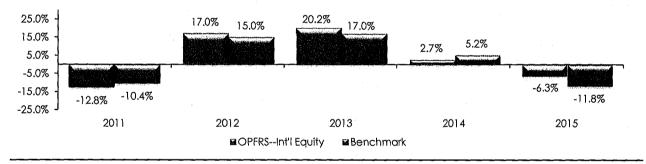
The Domestic Equity portfolio outperformed the policy benchmark in three out of five of latest 12-month periods. The Plan finished the latest 12-month period ending September 30, 2015, with a return of (0.2%), outperforming the policy benchmark by 30 basis points.





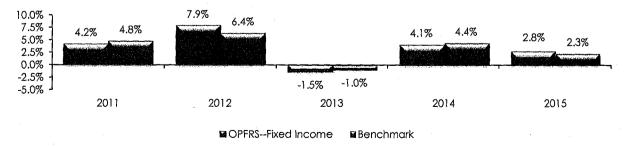
The International Equity portfolio outperformed or matched the policy benchmark in three of the five latest 12-month periods. The Plan finished the latest 12-month period ending September 30, 2015, with a return of (6.3%), outperforming the policy benchmark by 5.5%.





The Fixed Income portfolio outperformed or matched the policy benchmark in two of the last five 12month periods. The Plan finished the latest 12-month period ending September 30, 2015, with a return of 2.8%, outperforming the policy benchmark by 50 basis points.





#### Manager Performance

#### Domestic Equity – Periods ending September 30, 2015

| Manager                    | Mkt Value<br>(\$000) | Asset Class      | Quarter | 1 YR | 3 YR | 5 YR      | Since<br>Inception* | Inception<br>Date** |
|----------------------------|----------------------|------------------|---------|------|------|-----------|---------------------|---------------------|
| Northern Trust R1000 index | 60,912               | Large Cap Core   | -6.7    | -0.4 | 12.7 | 13.4      | 12.6                | 5/2010              |
| Russell 1000 Index         |                      |                  | -6.8    | -0.6 | 12.7 | 13.4      | 11.7                |                     |
| SSgA Russell 1000 Value    | 26,908               | Large Cap Value  | -8.3    |      |      |           | -6.4                | 10/2014             |
| Russell 1000 Value Index   |                      |                  | -8.4    |      |      |           | -6.5                |                     |
| SSgA Russell 1000 Growth   | 29,184               | Large Cap Growth | -5.3    |      |      |           | 0.5                 | 10/2014             |
| Russell 1000 Growth Index  |                      |                  | -5.3    |      |      | <u></u> . | 0.5                 |                     |
| Earnest                    | 30,451               | Mid Cap Core     | -7.2    | 1.8  | 13.4 | 13.0      | 7.5                 | 3/2006              |
| Russell MidCap             |                      |                  | -8.0    | -0.2 | 13.9 | 13.4      | 7.4                 |                     |
| NWQ                        | 10,805               | Small Cap Value  | -12.1   | -1.6 | 13.3 | 15.1      | 5.9                 | 1/2006              |
| Russell 2000 Value Index   |                      |                  | -10.7   | -1.6 | 9.2  | 10.2      | 4.6                 |                     |
| Lord Abbett                | 9,243                | Small Cap Growth | -15.4   | 0.9  | 14.0 | 14.9      | 17.5                | 6/2010              |
| Russell 2000 Growth Index  |                      |                  | -13.1   | 4.0  | 12.8 | 13.3      | 15.2                |                     |

\* 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 September 30, 2015, one 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 (7.2%) return, outperforming the Russell Midcap Index by 0.8%. Over the latest 1-year period, Earnest outperformed its benchmark by 2.0%, while underperforming over the 3- and 5-year periods by (0.5%), and (0.4%), respectively.

**NWQ**, the Plan's small cap value manager, underperformed the Russell 2000 Value Index with a return of (12.1%) over the latest 3-month period. NWQ matched its benchmark return over the 1-year period, while outperforming its benchmark over the longer-term by 4.1%, and 4.9% over the 3- and 5-year periods, respectively.

Lord Abbett, the Plan's small cap growth manager, underperformed the Russell 2000 Growth Index by (2.3%) over the quarter. Over the 1-year period, Lord Abbett underperformed the benchmark by (3.1%) while outperforming over the 3- and 5-year periods by 1.2% and 1.6%, respectively.

#### International Equity – Periods ending September 30, 2015

| Manager         | Mkt Value<br>(\$000) | Asset Class   | Quarter | 1 YR  | 3 YR | 5 YR | Since<br>Inception* | Inception<br>Date** |
|-----------------|----------------------|---------------|---------|-------|------|------|---------------------|---------------------|
| SSgA            | 11,683               | International | -10.2   | -8.4  | 6.0  | 4.3  | 7.0                 | 7/2002              |
| MSCI EAFE Index |                      |               | -10.2   | -8.3  | 6.1  | 4.4  | 7.0                 |                     |
| Hansberger      | 14,574               | International | -11.6   | -4.5  | 4.7  | 3.0  | 3.3                 | 1/2006              |
| MSCI ACWI x US  |                      |               | -12.1   | -11.8 | 2.8  | 2.3  | 3.1                 |                     |
| Fisher          | 14,079               | International | -11.4   | -6.2  | 4.7  |      | 1.3                 | 4/2011              |
| MSCI ACWI x US  |                      |               | -12.1   | -11.8 | 2.8  |      | 0.2                 |                     |

\* 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 September 30, 2015, both of OPFRS' two active International Equity managers outperformed their benchmark.

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 0.5%. The portfolio has also outperformed over the 1-, 3-, and 5-year periods by 7.3%, 1.9%, and 0.7%, respectively.

**Fisher**, one of OPFRS' active international equity managers, outperformed the MSCI ACWI x US Index by 0.7% during the quarter. Over the latest 1-year period, Fisher beat its benchmark target by 5.6%, and outperformed by 1.9% over the 3-year period.

#### Fixed Income – Periods ending September 30, 2015

| Manager                     | Mkt Value<br>(\$000) | Asset Class | Quarter | 1 YR | 3 YR | 5 YR | Since Inception | Inception<br>Date *** |
|-----------------------------|----------------------|-------------|---------|------|------|------|-----------------|-----------------------|
| Reams                       | 25,318               | Core Plus   | 1.3     | 3.5  | 2.2  | 4.1  | 6.1             | 1/1998                |
| BC Universal Index (blend)* |                      |             | 0.7     | 2.3  | 1.9  | 3.4  | 5.3             |                       |
| T. Rowe Price               | 40,408               | Core        | 1.2     | 2.9  | 2.0  |      | 3.6             | 5/2011                |
| BC Aggregate Index          |                      |             | 1.2     | 2.9  | 1.7  |      | 3.4             |                       |
| DDJ                         | 9,932                | H.Y. / B.L. | -3.2    |      | '    |      | -0.4            | 1/2015                |
| BofAML US HY Master II      |                      |             | -4.9    |      |      |      | -3.2            |                       |

\* 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 September 30, 2015, one of OPFRS' two active Fixed Income managers outperformed its benchmark, while the other fixed income manager matched its benchmark.

**Reams**, the Plan's core plus fixed income manager, produced a quarterly return of 1.3%, outperforming the BC Universal (blend) Index by 60 basis points. During the latest 1-year period, the portfolio beat its benchmark by 1.2% while also outperforming over the 3- and 5-year periods by 30 and 70 basis points, respectively.

**T. Rowe Price**, the Plan's core fixed income manager, produced a quarterly return of 1.2%, matching the BC Aggregate Index. The portfolio also matched its benchmark over the most recent 1-year period, while outperforming its benchmark by 30 basis points over the 3-year period.

**DDJ**, the Plan's High Yield & Bank Loan manager, outperformed its benchmark, the BofAML US High Yield Master II index, by 1.7% over the most recent quarter and by 2.8% since inception.

| Manager    | Mkt Value<br>(\$000) | Asset Class       | Quarter | 1 YR | 3 YR | 5 YR | Since Inception | Inception<br>Date *** |
|------------|----------------------|-------------------|---------|------|------|------|-----------------|-----------------------|
| Parametric | 62,607               | Covered Calls     | -3.5    | 0.3  |      |      | 3.1             | 3/2014                |
| СВОЕ ВХМ   |                      |                   | -2.4    | 0.4  |      |      | 2.9             |                       |
| Wellington | 37,697               | Total Real Return | -5.3    | -7.6 |      |      | -3.4            | 1/2014                |
| CPI + 3%   |                      |                   | 0.4     | 3.0  |      |      | 4.1             |                       |

#### Covered Calls & Total Real Return – Periods ending September 30, 2015

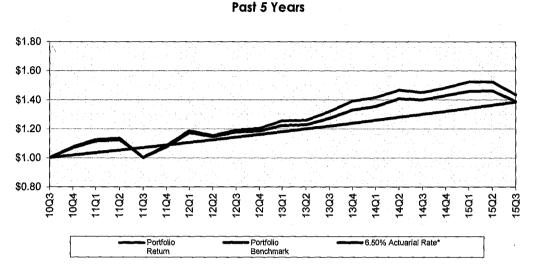
\*\* Performance is calculated based on the first full month of performance since funding.

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

During the latest three-month period ending September 30, 2015, both OPFRS' Covered Calls and Real Return managers underperformed their respective benchmarks.

**Parametric**, the Plan's Covered Calls manager, produced a quarterly return of (3.5%), underperforming its benchmark by (1.1%). Over the most recent 1-year period, the portfolio has underperformed by (10) basis points.

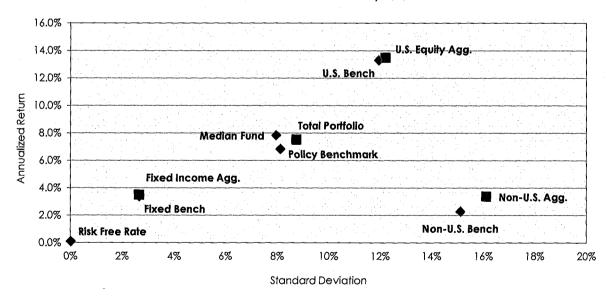
**Wellington**, the Plan's Total Real Return manager, produced a quarterly return of (5.3%), underperforming its benchmark by (5.7%). The portfolio also trailed its benchmark by (10.6%) over the 1-year period.



OPFRS Risk/Return Analysis Period ending September 30, 2015

Growth of a Dollar

\* 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

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| Manager                         | Style                 | Market Value \$(000) | Target | Actual <sup>1</sup> | Difference |
|---------------------------------|-----------------------|----------------------|--------|---------------------|------------|
| Total Plan                      |                       | \$387,911            | 100.0% | 100.0%              | 0.0%       |
| Public Equity                   |                       | \$207,839            | 55.0%  | 53.6%               | -1.4%      |
| Domestic Equity                 |                       | \$167,503            | 43.0%  | 43.2%               | 0.2%       |
| Large Cap Equity                |                       |                      |        |                     |            |
| Northern Trust                  | Large Cap Core        | 60,912               | 14.2%  | 15.7%               | 1.5%       |
| SSgA Russell 1000 Value         | Large Cap Value       | 26,908               | 7.4%   | 6.9%                | -0.5%      |
| SSgA Russell 1000 Growth        | Large Cap Growth      | 29,184               | 7.4%   | 7.5%                | 0.1%       |
| Mid Cap Equity                  |                       |                      |        |                     |            |
| Earnest Partners                | Mid Cap Core          | 30,451               | 8.0%   | 7.8%                | -0.2%      |
| Small Cap Equity                |                       |                      |        |                     |            |
| NWQ                             | Small Cap Value       | 10,805               | 3.0%   | 2.8%                | -0.2%      |
| Lord Abbett                     | Small Cap Growth      | 9,243                | 3.0%   | 2.4%                | -0.6%      |
| International Equity            | · .                   | \$40,336             | 12.0%  | 10.4%               | -1.6%      |
| SSgA                            | International         | 11,683               | 3.6%   | 3.0%                | -0.6%      |
| Hansberger                      | International         | 14,574               | 4.2%   | 3.8%                | -0.4%      |
| Fisher                          | International         | 14,079               | 4.2%   | 3.6%                | -0.6%      |
| Fixed income                    |                       | \$75,658             | 20.0%  | 19.5%               | -0.5%      |
| Reams                           | Core Plus             | 25,318               | 8.0%   | 6.5%                | -1.5%      |
| T. Rowe Price                   | Core                  | 40,408               | 10.0%  | 10.4%               | 0.4%       |
| DDJ                             | High Yield/Bank Loans | 9,932                | 2.0%   | 2.6%                | 0.6%       |
| Transition (Reams) <sup>3</sup> | Transition Portfolio  | 0                    | 0.0%   | 0.0%                |            |
| Covered Calls                   |                       | \$62,607             | 15.0%  | 16.1%               | 1.1%       |
| Parametric (Eaton Vance)        | Active/Replication    | 62,607               | —      | 16.1%               |            |
| Real Return                     |                       | \$37,697             | 10.0%  | 9.7%                | -0.3%      |
| Wellington                      |                       | 37,697               | -      | 9.7%                |            |
| Total Cash <sup>2</sup>         |                       | \$4,110              | 0.0%   | 1.1%                | 1.1%       |

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 9/30/2015.

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

PCA

MANAGER MONITORING / PROBATION LIST

#### Monitoring/Probation Status

#### As of September 30, 2015 Return vs. Benchmark since Corrective Action

|                 |          |                |                                      | Performance^                  |                                  |
|-----------------|----------|----------------|--------------------------------------|-------------------------------|----------------------------------|
| Portfolio       | Status   | Concern        | Months Since<br>Corrective<br>Action | Since<br>Corrective<br>Action | Date of<br>Corrective<br>Action* |
| Hansberger      | On Watch | Organizational | 16                                   | -7.4%                         | 5/28/2014                        |
| MSCI ACWI ex-US |          |                | 16                                   | -11.4%                        |                                  |

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

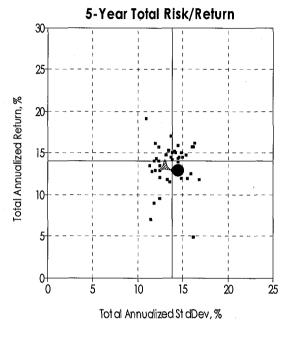
### Oakland Police & Fire Performance Summary and Universe Rankings Period Ending September 30, 2015

| Mellon Total Funds - Public Universe                |         |         |        |        |
|---|---------|---------|--------|--------|
| an digen and an | Quarter | 1- Year | 3-Year | 5-Year |
| Maximum   | -1.3    | 4.8     | 10.3   | 10.2   |
| Percentile 25                                       | -4.3    | 0.2     | 8.2    | 8.5    |
| Median  | -4.9    | -0.7    | 7.0    | 7.8    |
| Percentile 75                                       | -6.0    | -1.8    | 5.9    | 7.0    |
| Minimum   | -8.4    | -6.3    | 3.4    | 4.6    |
| Number of Portfolios                                | 108     | 106     | 95     | 90     |
| Oakland Police & Fire Total                         |         |         |        |        |
| Return  | -5.8    | -1.0    | 6.4    | 7.5    |
| Quartile Rank                                       | 3rd     | 2nd     | 3rd    | 3rd    |

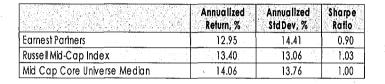
#### Notes:

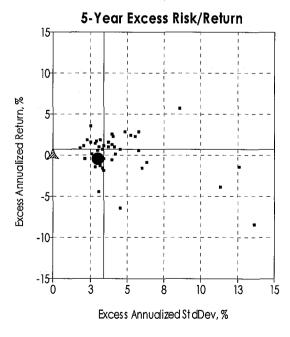
Source: Mellon Total Public Funds Universe All performance is shown **gross of fees**. PCA

# Oakland Mid Cap Core Manager Comparisons as of September 30, 2015







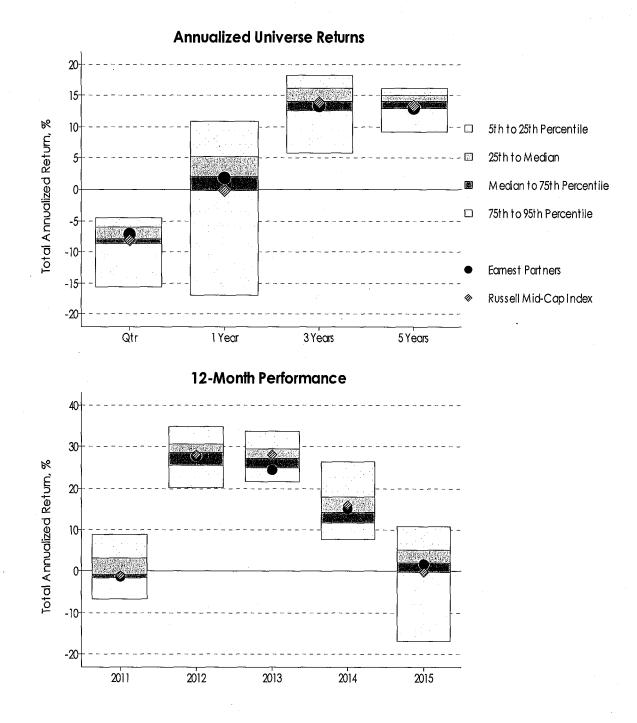


• Earnest Partners A Russell Mid-Cap Index

|                              | Annualized<br>1 Excess<br>Return, % | Annualized<br>Excess<br>StDev, % | Sharpe<br>Railo,<br>Excess |
|------------------------------|-------------------------------------|----------------------------------|----------------------------|
| Earnest Partners             | -0.45                               | 2.99                             | -0.15                      |
| Russell Mid-Cap Index        | 0.00                                | 0.00                             | ŇA                         |
| Mid Cap Core Universe Median | 0.65                                | 3.42                             | 0.19                       |

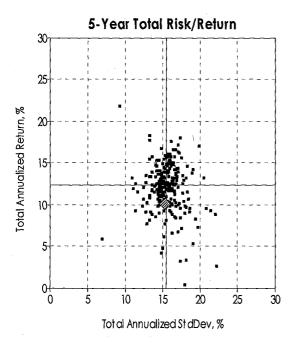


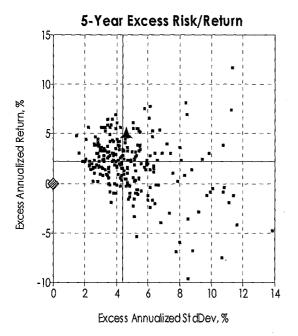
# Oakland Mid Cap Core Manager Comparisons as of September 30, 2015



PCA

# Oakland Small Cap Value Manager Comparisons as of September 30, 2015



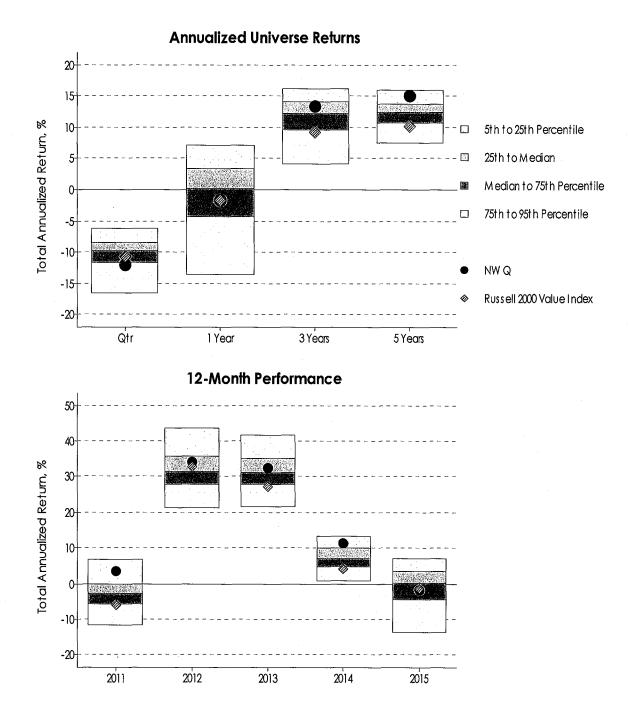


| ▲ | NW Q | 4 | Russell | 2000 | Value | Index |
|---|------|---|---------|------|-------|-------|
|---|------|---|---------|------|-------|-------|

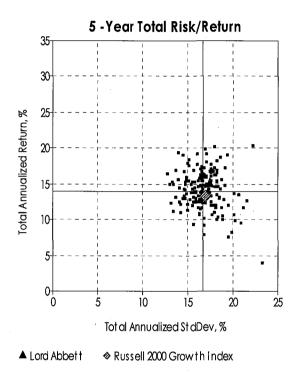
|                                 | Annualized<br>Return, % | Annualized<br>StdDev, % | Sharpe<br>Ratio |
|---------------------------------|-------------------------|-------------------------|-----------------|
| NWQ                             | 15.05                   | 15.94                   | 0.94            |
| Russell 2000 Value Index        | 10.17                   | 15.36                   | 0.66            |
| Small Cap Value Universe Median | 12.36                   | 15.49                   | 0.80            |

|                                 | Annualized<br>Excess<br>Return, % | Annualized<br>Excess<br>SiDev, % | Sharpe<br>Ratio,<br>Excess |
|---------------------------------|-----------------------------------|----------------------------------|----------------------------|
| NWQ                             | 4.88                              | 4.57                             | 1.07                       |
| Russell 2000 Value Index        | 0.00                              | 0.00                             | NA                         |
| Small Cap Value Universe Median | 2.19                              | 4.39                             | 0.49                       |

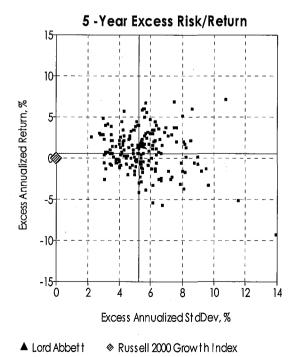
# Oakland Small Cap Value Manager Comparisons as of September 30, 2015



# Oakland Small Cap Growth Manager Comparisons as of September 30, 2015

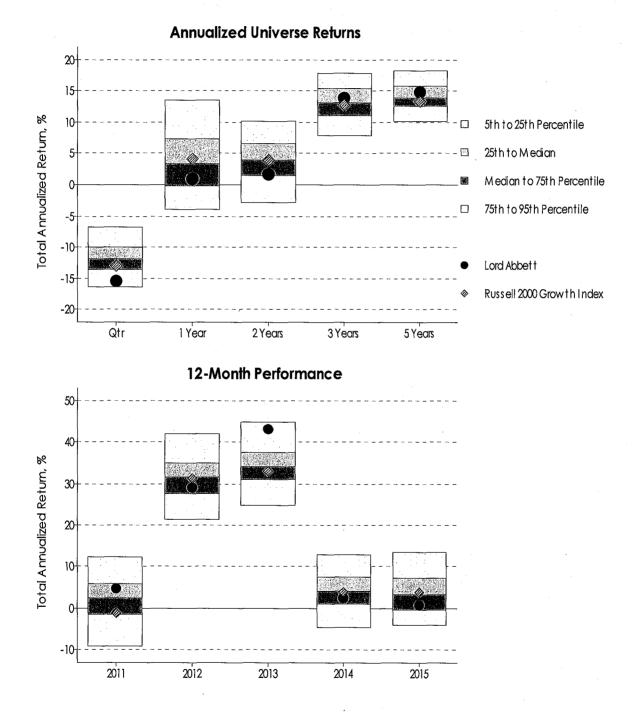


|                                  | Annualized<br>Return, % | Annualized<br>StdDev, % | Sharpe<br>Ratio |
|----------------------------------|-------------------------|-------------------------|-----------------|
| Lord Abbett                      | 14.89                   | 17.49                   | 0.85            |
| Russell 2000 Growth Index        | 13.26                   | 16.92                   | 0.78            |
| Small Cap Growth Universe Median | 13.90                   | 16.67                   | 0.86            |

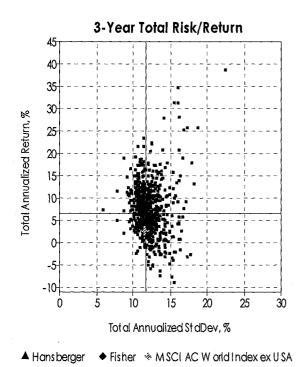


|                                  | Annualized<br>Excess<br>Return, % | Annualized<br>Excess<br>StDev, % | Sharpe<br>Ratio,<br>Excess |
|----------------------------------|-----------------------------------|----------------------------------|----------------------------|
| Lord Abbett                      | 1.63                              | 5.44                             | 0.30                       |
| Russell 2000 Growth Index        | 0.00                              | 0.00                             | NA                         |
| Small Cap Growth Universe Median | 0.64                              | 5.28                             | 0.17                       |

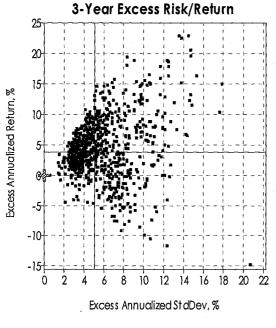
# Oakland Small Cap Growth Manager Comparisons as of September 30, 2015



# Oakland International Equity Manager Comparisons as of September 30, 2015



|                                      | Annualized<br>Return, % | Annualized<br>StdDev, % | Sharpe<br>Ratio |
|--------------------------------------|-------------------------|-------------------------|-----------------|
| Hansberger                           | 4.73                    | 11.58                   | 0.41            |
| Fisher                               | 4.74                    | 11.85                   | 0.40            |
| MSCIAC World Indexex USA             | 2.78                    | 11.61                   | 0.24            |
| International Equity Universe Median | 6,58                    | 11.78                   | 0.57            |

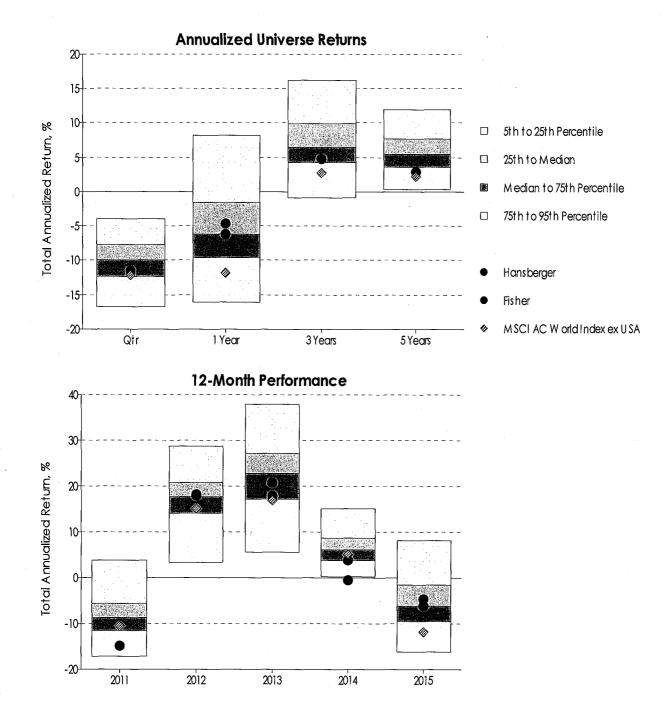


▲ Hansberger ◆ Fisher � MSCI AC World Index ex USA

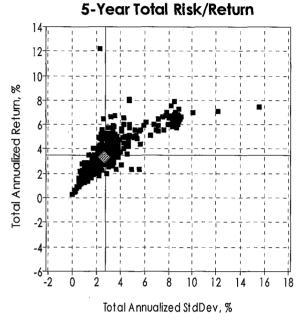
Annualized Annualized Sharpe Excess Excess Ratio, Return, % StDev, % Excess Hansberger 1.95 3.41 0.57 Fisher 1.96 2.98 0.66 MSCI AC World Index ex USA 0.00 0.00 NA International Equity Universe Median 3.79 5.03 0.86

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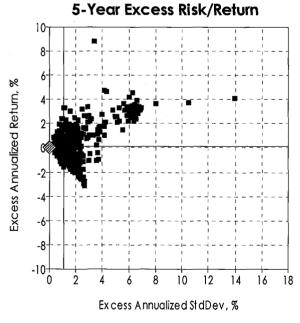


# Oakland Fixed Income Manager Comparisons as of September 30, 2015



|   | Annualized<br>Return, % | Annualized<br>Std Dev, % | Sharpe<br>Ratio |
|---|-------------------------|--------------------------|-----------------|
| Reams                                     | 4.14                    | 2.68                     | 1.54            |
| Oakland BC U niversal Blend               | 3.36                    | 2.68                     | 1.25            |
| U.S. Fixed Income Manager Universe Median | 3.46                    | 2.72                     | 1.33            |



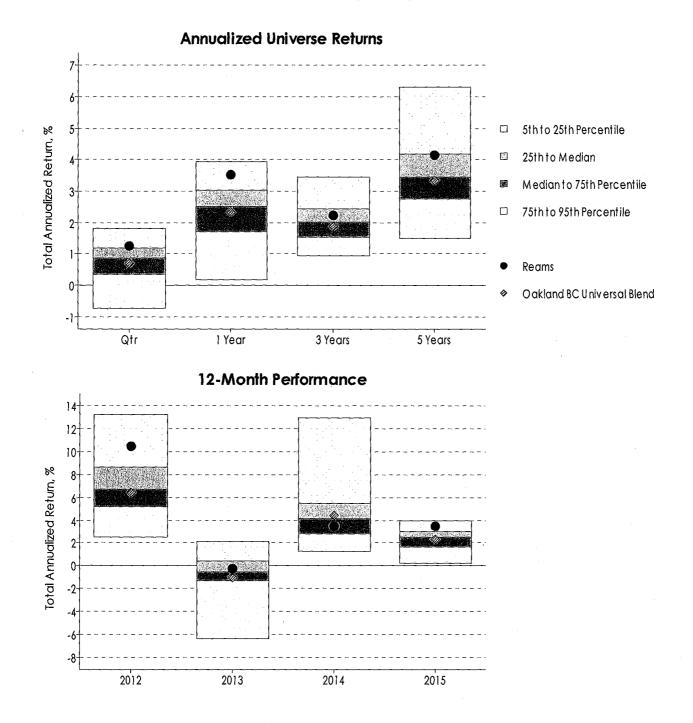


| Reams | Oakland BC Universal Blend |
|-------|----------------------------|

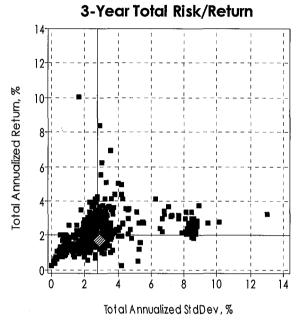
Annualized Annualized Sharpe Excess. Excess Ratio, Return, % SiDev, % Excess Reams 0.78 1.16 0.67 Oakland BC Universal Blend 0.00 0.00 NA U.S. Fixed Income Manager Universe Median 0.11 1.03 0.13



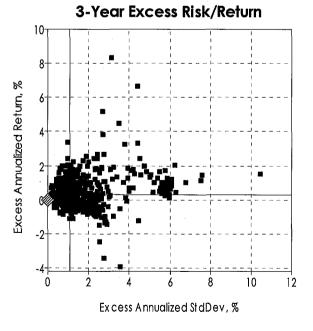




# Oakland Fixed Income Manager Comparisons as of September 30, 2015





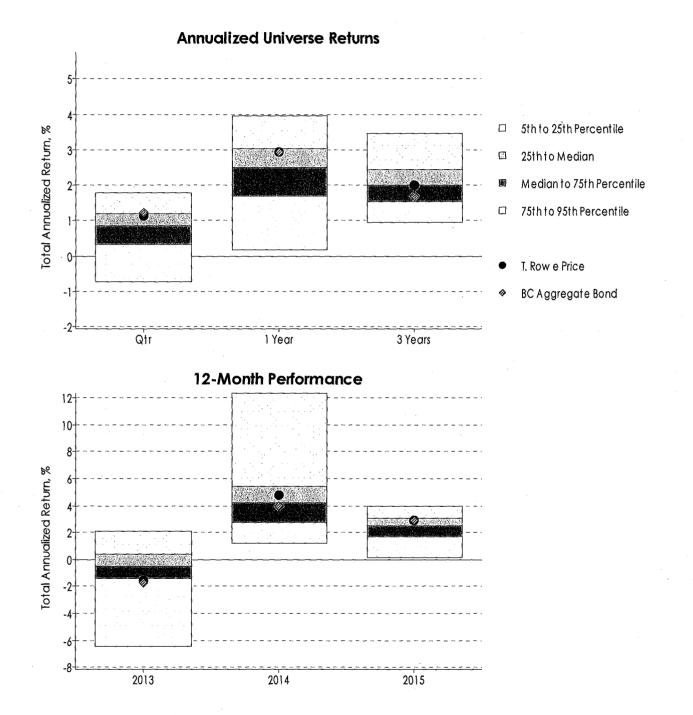


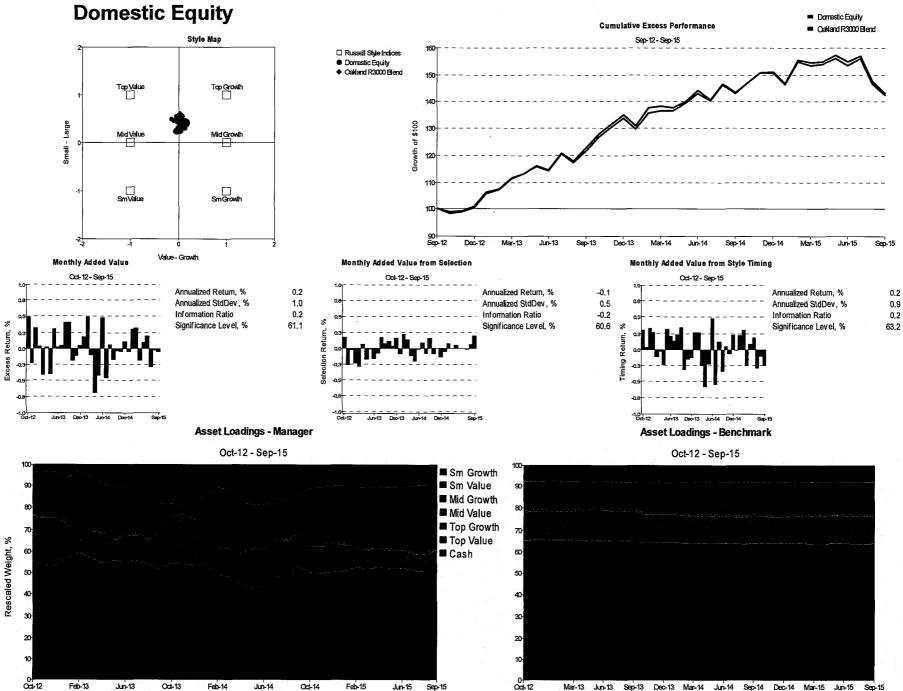
|   | Annualized<br>Return, % | Annualized<br>Std Dev, % | Sharp e<br>Raflo |
|---|-------------------------|--------------------------|------------------|
| T. Rowe Price                             | 2.00                    | 2.89                     | 0.69             |
| BC Aggregate Bond                         | 1.71                    | 2.90                     | 0.59             |
| U.S. Fixed Income Manager Universe Mediar | 2.01                    | 2.78                     | 0.78             |

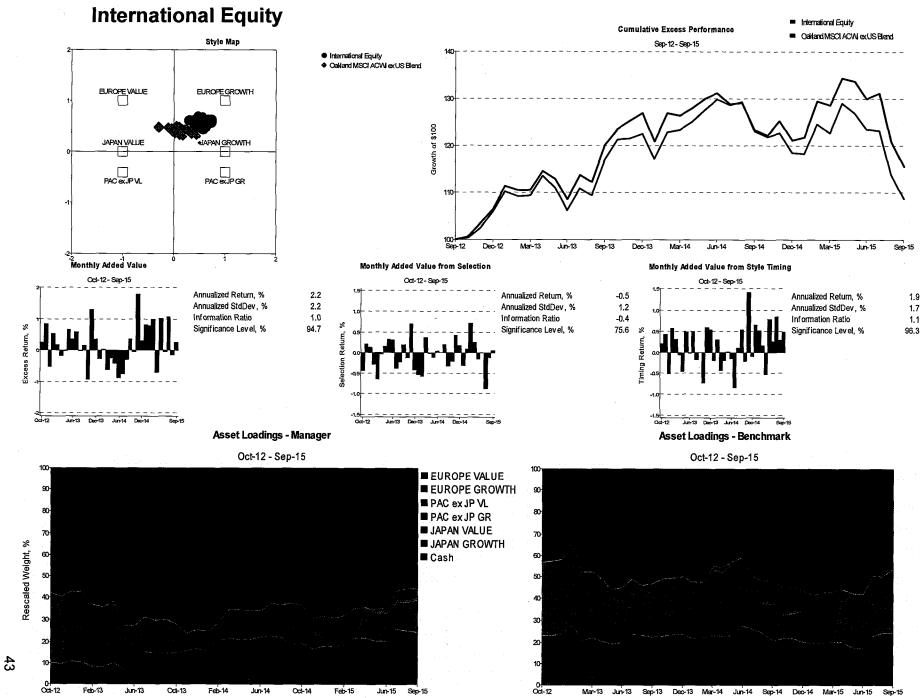
|  | Annvalized<br>Excess<br>Return, % | Annualized<br>Excess<br>SIDev, % | Sharpe<br>Ratio,<br>Excess |
|--|-----------------------------------|----------------------------------|----------------------------|
| T. Rowe Price                            | 0.30                              | 0.36                             | 0.82                       |
| BC Aggregate Bond                        | 0.00                              | 0.00                             | NA                         |
| U.S. Fixed Income Manager Universe Media | n 0.30                            | 1.09                             | 0.21                       |

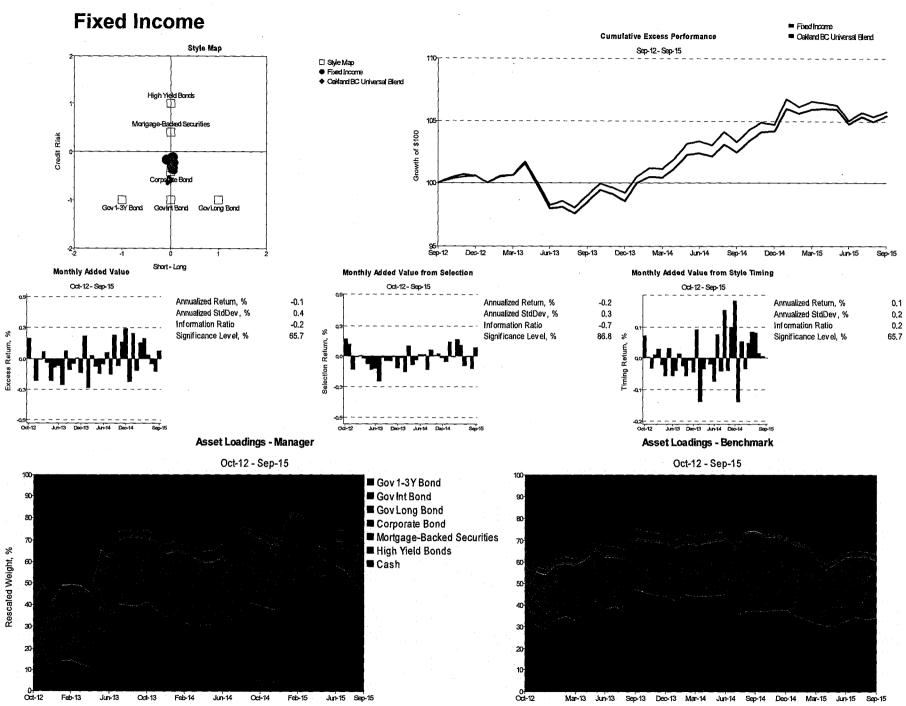
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# Appendix

## 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 exces s 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 port folio 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 t he market return.

#### Bottom-up

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

# Glossary

#### 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 r eturn 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 explaine d 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. 46

# **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.

## 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 date 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 certainly 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.

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# **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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