

Agenda Report

TO: DEANNA J. SANTANA CITY ADMINISTRATOR

FROM: Katano Kasaine

SUBJECT: Informational Report on PFRS investments

DATE: November 22, 2012

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City Administrator Date Approval COUNCIL DISTRICT: City-Wide

RECOMMENDATION

Staff recommends that the Council accepts this informational report on the Oakland Police and Fire Retirement System (PFRS) Investment Portfolio as of September 30, 2012.

EXECUTIVE SUMMARY

Per the request of City Council, the attached report provided by the Oakland Police and Fire **R**etirement System's (PFRS) Investment Consultant summarizes the performance of the PFRS' investment portfolio for the quarter ended September 30, 2012. This report is being provided in accordance with the funding agreement between the City and the PFRS Board pursuant to the issuance of the 2012 Pension Obligation Bonds (POB).

OUTCOME

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

BACKGROUND/LEGISLATIVE HISTORY

The Oakland Police and Fire Retirement System (the System) is a closed defined benefit plan established by the City of Oakland (City) Charter. The System is governed by a board of seven trustees (the PFRS Board). The System covers the City's swom police and fire employees hired prior to July 01, 1976. The Plan was closed to new members on June 30, 1976. There is only one remaining active member; all other members are retirees and beneficiaries. As of September 30, 2012, the System membership was 1,073.

Item: Finance and Management Committee December 11, 2012 The System's investments portfolio are controlled by the investment policy set by the PFRS Board. The Board sets an investment policy that authorizes investment in a variety of domestic and international equity and fixed income securities. The System's portfolio is currently managed by eleven external investment managers, except for the bond iShares which are managed internally. The majority of the portfolio is held in a Trust at The Bank of New York-Mellon. The System investments are also restricted by the City Charter. In November 2006, City voters passed Measure M amending the City Charter to allow the System's Board to invest in non-dividend paying stocks and to change the asset allocation structure from 50% equities and 50% fixed income to the Prudent Person Standard as defined by the Califomia Constitution.

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

As of July 1, 2011 (the date of the System's last actuarial valuation), the unfunded actuarial accrued liability is approximately \$426.8 million.

In July 2012, the City issued additional Pension Obligation Bonds and contributed \$210 million to the System, which lowered the unfunded liability from the \$426.8 million unfunded amount to an estimated amount of \$216 million. A new actuarial valuation report will need to be performed to determine the new unfunded actuarial accrued liability after the 2012 POB deposit. As a result of a funding agreement entered into between the System's Board and the City of Oakland, no additional contributions are required until July 01, 2017.

In addition, the City recently prevailed in a preliminary lawsuit against the PFRS Board requiring the Board to adjust the pay of the PFRS' Police members. This matter is still being litigated. If the City prevails on the appeal, there would be a reduction in the total PFRS Police member's prospective pay of approximately \$2 million per year. The Board will also have to retroactively adjust for approximately three years. These reductions would also need to be reflected in the new PFRS actuarial valuation report.

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ANALYSIS

PFRS Membership

The City Charter establishes plan membership, contribution, and benefit provisions. The System serves the City's swom employees hired prior to July 1, 1976 who have not transferred to the California Public Employees' Retirement System (CalPERS). As of September 30, 2012, the System membership was 1,073, which included 1 active member, 750 retirees and 322 beneficiaries.

Table 1 PFRS Membership as of September 30, 2012								
Membership	Membership POLICE FIRE TOTAL							
Retiree	439	311	750					
Beneficiary 170 152 322								
Active 1 0 1								
Total Membership	6 10	463	1,073					

PFRS Investment Portfolio

As of the quarter ended September 30, 2012, the PFRS portfolio had an aggregate value of \$481.35 million. This amount includes the City of Oakland deposit of \$210 million in POB proceeds made during the quarter. The POB assets are curtently invested in a conservative fixed income transition fund.

Table 2PFRS Investment Portfolioas of September 30, 2012			
Investment	Fair Value		
Fixed Income	\$	280,425,338	
Equities	152,164,782		
International Equities	44,070,702		
Cash Equivalents	4,688,297		
Total Portfolio	\$	481,349,120	

PFRS Investment Performance

During the latest quarter ending September 30, 2012, the PFRS Total Portfolio generated a retum of 3.3%, gross of fees, outperforming its benchmark target. The Plan's Fixed Income asset class matched its benchmark while both International and U.S. equity asset classes lagged their respective benchmarks for the quarter. The PFRS quarterly performance includes the City of Oakland deposit of \$210 million POB proceeds which are temporarily invested in a conservative fixed income transition fund. Excluding the POB proceeds, the PFRS portfolio returned 4.9% for the quarter ending September 30th. Over the latest 12-month period, this same portfolio eamed 20.6%.

The Total Portfolio produced positive results over all time periods measured, gross of fees. Relative to the Median Fund, the total portfolio trailed the median for the quarter but outperformed for the 1-year, 3-year, and 5-year periods. Relative performance with respect to the Median Fund can be largely attributed to differences in asset allocation.

PFRS TOTAL as of S	Table 3 L FUND PERF September 30, 2	ORMANCE 2012	•	
	Quarter	1 Year	3 Year	5 Year
PFRS Fund	3.30%	18.7%	10.0%	2.5%
<u>Comparisons:</u>	•	•		
PFRS Actuarial Expected Rate of			– 0 – 0(-
Retum (blend) (c) (d)	1.69%	6.75%	7.02%	7.48%
Policy Target (blend) (a)	2.80%	17.70%	9.10%	2.00%
Median Fund (b) (d)	4.80%	16.60%	9.50%	2.40%
CalPERS Investment Returns	4.30%	13.50%	9.20%	0.40%
CalSTRS Investment Returns	4.20%	15.20%	9.90%	0.50%
East Bay Mud Investment Returns	5.00%	20.60%	10.50%	2.00%
Colorado F&P Investment Returns	4.40%	14.20%	9.60%	1.60%
QTR: Excluding this fund the Total Por (a) Mellon Total Fund Public Universe (b) The Evolving Policy Benchmark cons BC Universal, and 55% t-bills. (c) The actuarial expected rate of return w through 6/30/2011, and 6.75% currently. (d) The quarterly actuarial expected rate of assumption	rtfolio Quarterly ists of 20% Russel as 8% through 6/2 of return is calculat	Performance Il 3000, 7% MS 30/2009, 7.5% ted based on th	would have be SCI ACWI ex ¹ through 6/30/2 e 6.75% annua	een 4.9% U.S., 18% 010, 7% I retum

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Pension Obligation Bonds

In July 2012, the City of Oakland issued a Pension Obligation Bond (POB) to help fund the PFRS portfolio. These assets were temporarily invested in a short-term transition account managed by one of PFRS current fixed income managers and largely consist of high quality, short-duration fixed income issues. The rollout of these assets will be done in conjunction with the broader goals of moving to the new long-term asset allocation. The primary drivers of the evaluation process consisted of capital preservation, liquidity, management and transition costs, and flexibility of the investment to meet long-term asset allocation goals. Over the next 12-18 months, the proceeds from the POB will be strategically rolled out into the broader investment portfolio. To date, there has been no investment loss in principal on the 2012 POB assets.

Long-Term Asset Allocation

At its September 26th meeting, the PFRS Board conducted an asset allocation strategy review. During this discussion, the Board reviewed various investment strategy options and, subsequently, adopted a new long-term investment policy allocation for the Retirement Plan.

In summary, the PFRS Board elected to adjust the strategic investment allocations for the Retirement Plan. The most significant change is the inclusion of new Covered Calls and Real Return classes that will each represent ten percent of the strategic allocation policy for both portfolios long-term. The PFRS Board also elected to include a five percent allocation to Private Equity, pending educational reviews of the asset class in 2013. These new classes are expected to be funded over the next 12-18 months. The table below represents the policy allocations as of September 30th, 2012 and the new asset allocation.

Asset Class	9/30/2012 Target Portfolio %	New Long-Term
Fixed Income	30	20
Real Retum	0	10
Covered Calls	0	10
Domestic Equity	53	43
International Equity	17	12
Private Equity	· 0	5

PUBLIC OUTREACH/INTEREST

Not Applicable

COORDINATION

This report was prepared in coordination with the PFRS' Investment Consultant, Pension Consulting Alliance (PCA).

COST SUMMARY/IMPLICATIONS

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

SUSTAINABLE OPPORTUNITIES

Economic: Whenever possible, the PFRS Board seeks to benefit the local Oakland based economy. In 2006, the Board along with staff created the PFRS Local Broker provision. This provision mandates that the PFRS Investment Managers consider using Oakland based broker 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. Since inception, this program has benefited some Oakland based brokerage firms.

Environmental: Not Applicable

Social Equity: Not Applicable

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

Respectfully submitted,

KATANO KASAINE Treasurer

Prepared by: Téir Jenkins, Retirement Systems Accountant Retirement Division

Attachments: Appendix A: PFRS Performance Report as of September 30, 2012

Item: _____ Finance and Management Committee December 11, 2012

Appendix A

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City of Oakland Police and Fire Retirement System

Quarterly Report Executive Summary

September 30, 2012

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As of September 30, 2012, the City of Oakland Police and Fire Retirement System (OPFRS) portfolio had an aggregate value of \$481.3 million. This represents a \$215.7 million increase in value over the quarter. During the previous one-year period, the OPFRS Total Portfolio increased by \$235.8 million, including (\$21.6) million in withdrawals during the period.

Asset Allocation Trends

The asset allocation targets (see table on page 19) reflect those as of September 30, 2012. Target weightings reflect the Plan's current asset allocation (effective 10/1/2007).

With respect to policy targets, the portfolio ended the latest quarter underweight Domestic and International Equity while overweight Fixed Income.

Recent Investment Performance

During the most recent quarter, the OPFRS Total Portfolio generated a positive absolute return of 3.3%, gross of fees. The Plan outperformed its policy benchmark by 50 basis points. The portfolio has outperformed its policy benchmark over all time periods.

The Total Portfolio has produced a negative return relative to the Median Fund for the quarter while producing positive returns over all other extended time periods, gross of fees. Performance differences with respect to the Median Fund can be attributed largely to differences in asset allocation.

	Quarter	1 Year	3 Year	5 Year
Total Portfolio ¹	3.3	18.7	10.0	2.5
Policy Benchmark ²	2.8	17.7	9.1 ·	20
Excess Return	0.5	1.0	0 .9	0. 5
Reference: Median Fund ³	4.8	16.6	9.5	2.4
Reference: Total Net of Fees ⁴	3.2	18.1	9.4	1.9

¹ Gross of Fees, Performance since 2005 includes securities lending.

² Evolving Policy Benchmark consists of 20% Russell 3000, 7% MSCI ACWI ex U.S., 18% BC Universal, and 55% tbills.

³ Mellon Total Funds Public Universe.

⁴ Net of fee returns are estimated based on OPFRS manager fee schedule.

Investment Market Risk Metrics

Takeaways

- Interest rate risk remains high, but yields remained low in September:
 - The 10-year Treasury yield ended September at 1.65%.
 - Bond sensitivity to interest rates (duration) remains at 30 year highs, and real yields are at all time lows (negative out past 20 years for government issues).
- Signals of growth risk receded from the highs reached on June 1st:
 - o Equity market volatility (VIX) receded to 17 (from 26 on June 1st).
 - Equity prices recovered lost ground, rising sharply on announcements of European bank support measures.
- The PCA Market Sentiment Indicator "PMSI" continued its positive trend and read green in September. The positive reading does not take into account the various issues and imbalances facing the world economy which could result in an abrupt reversal.

The positive sentiment indication results from:

- positive returns to US stocks year-over-year, and
- narrowing of credit spreads year-over-year.

Quarterly Report









Q3-12



Developed Equity Markets





US Private Equity



Private Real Estate Markets



Quarterly Report

US Fixed Income





OPFRS

Other Market Metrics





Measures of Inflation Expectations





OPFRS

Measures of US Treasury Interest Rate Risk



Quarterly Report

Overview: After a volatile second quarter, U.S. equities rallied as optimism surrounding the prospects for the Fed and other central bank stimuli around the world dominated stock market sentiment. International developed market equities rallied late in the quarter after the European Central Bank announced its plan to buy vast quantities of government bonds as an attempt to relieve investor pressure on troubled countries and spread responsibility for repaying national debts to the eurozone countries as a group. The Fed officially launched the third round of quantitative easing, QE3, as an effort to keep interest rates near zero until there is sustained economic growth and employment improvements. The bond purchases will total \$40 billion a month, and will be concentrated in the mortgage sector.

Economic Growth

- Real GDP grew at an annualized rate of 2.0 percent in the third quarter of 2012, rising from 1.3 percent in the second quarter of 2012.
- Consumer spending on goods accelerated mainly on an upturn in durable goods. Federal government spending increased as national defense spending increased over the quarter. Inventory investment also contributed to the acceleration in economic growth.
- Offsetting further acceleration was a turndown in business investment and net exports, although a downturn in exports was partially offset by a downturn in imports.

Inflation

- The Consumer Price Index for All Urban Consumers (CPI-U) rose by 5.0 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 1.2 percent for the quarter on an annualized basis.
- Over the last 12 months, CPI-U increased 2.0 percent before seasonal adjustment.

Unemployment

- The U.S. economy gained 373,000 jobs in the quarter.
- The official unemployment rate decreased 0.4% from the second quarter to 7.8%.
- The majority of jobs gained occurred in professional and business services, health care, and food services and drinking places.

Interest Rates & U.S. Dollar

- U.S. Treasury yields increased during the quarter.
- The Federal Reserve has maintained the federal funds rate between 0.00% and 0.25% since December 2008.
- The U.S. dollar depreciated against the Euro, the Sterling, and the Yen by 1.5%, 2.9%, and 2.3%, respectively.
- Subsequent to quarter end, rates remained near low historic levels.

Annualized Quarterly GDP Growth





Unemployment Rate



Treasury Yield Curve Changes





Quarterly Report

Fixed income

• The bond markets trailed equity markets during the quarter, and were led by high yield, which produced the best performance over the quarter and trailing one-year periods.





U.S. Fixed Income Sector Performance (BC Aggregate Index)						
Sector	Weight	QTR	1 Year			
Governments*	40.2%	0.6% ໌	2.9%			
Inv. Grade Credit	21.1%	3.5%	10.1%			
Agencies	6.5%	0.8%	2.8%			
MBS	30.0%	1.1%	3.7%			
ABS	0.3%	1.2%	3.7%			
CMBS	1.9%	3.8%	11.7%			

*U.S. Treasuries and Government Related

U.S. Equities

- The U.S. stock market rose in the third quarter after declining during the second quarter.
- U.S. Consumer Confidence increased from the second quarter, while investors still remained relatively cautious due to continued economic uncertainty.
- During the quarter, value indices outperformed growth throughout all market capitalizations.
- The Energy, Telecom Services, and Consumers Discretionary sectors produced the highest returns during the quarter as all sectors produced positive returns during the period. All ten sectors also produced positive returns for the trailing 12-month period.



U.S. Equity Sector Performance (Russell 3000 Index)						
Sector	Weight	QTR	1 Year			
Information Tech	19.1%	6.6%	30.3%			
Financials	16.0%	6.2%	34.4%			
Consumer Disc	12.2%	8.0%	36.4%			
Health Care	11.9%	6.4%	31.9%			
Industrials	10.7%	3.6%	30.3%			
Energy	10.2%	10.0%	26.6%			
Consumer Staples	9.5%	3.8%	23.3%			
Materials	3.9%	6.7%	31.9%			
Utilities	3.5%	0.4%	13.7%			
Telecom Svc	2.9%	8.1%	35.4%			

International Equities

- Most international developed equity markets increased during the third quarter and over the trailing one-year period, Japan produced negative returns during both periods.
- As an attempt to counteract the eurozone debt crisis, the European Central Bank put forth a new program of unlimited government bond buying which helped push returns higher towards the end of the third quarter.
- Emerging equities performed on par with most developed markets, trailing only MSCI Europe for both the quarter and trailing one-year periods.



International Equity Region Performance (in USD) (MSCI ACW Index ex U.S.)							
Sector	Weight	QTR	1 Year				
Emerging Markets	23.9%	7.9%	17.3%				
Europe E x. UK	28.5%	9.7%	16.7%				
Japan	13.6%	-0.8%	-1.5%				
Pacific Ex. Japan	9.6%	11.0%	24.7%				
United Kingdom	15.8%	7 1%	20.8%				
Canada	8.3%	10.6%	14.7%				

MarketSummary=Long-termPertormance²

Indexes	1 Year	3 Year	5 Year	10 Year	20 Year
Global Equity					
MSCI All Country World	21.7%	7.8%	-1.5%	9.2%	7.3%
Domestic Equity					
S&P 500	30.2%	13.2%	1.1%	8.0%	8.5%
Russell 3000	30.2%	13.3%	1.3%	8.5%	8.7%
Russell 3000 Growth	29.3%	~14.7%	3.2%	8.6%	7.4%
Russell 3000 Value	31.1%	11.8%	-0.7%	8.3%	9.4%
Russell 1000	30.1%	13.3%	1.2%	8.4%	8.7%
Russell 1000 Growth	29.2%	14.7%	3.2%	8.4%	7.5%
Russell 1000 Value	30.9%	11.8%	-0.9%	8.2%	9.3%
Russell 2000	31.9%	13.0%	2.2%	10.2%	9.1%
Russell 2000 Growth	31.2%	14.2%	3.0%	10.5%	7.0%
Russell 2000 Value	32.6%	11.7%	1.3%	9.7%	10.7%
CBOE BXM	25.3%	9.3%	2.1%	7.2%	8.2%
International Equity					
MSCI All Country World ex US	15.0%	3.6%	-3.7%	10.3%	6.7%
MSCI EAFE	14.3%	2.6%	-4.8%	8.7%	5.9%
MSCI Pacific	7.9%	2.8%	-3.9%	7.3%	3.0%
MSCI Europe	18.1%	2.7%	-5.1%	9.4%	8.0%
MSCI EM (Emerging Markets)	17.3%	6.0%	-1.0%	17.4%	8.9%
Fixed Income					
BC Aggregate Bond	5.2%	6.2%	6.5%	5.3%	6.3%
BC Government	2.9%	5.2%	6.0%	4.7%	6.1%
BC Credit Bond	10.1%	8.7%	7.9%	6.4%	7.0%
BC Mortgage Backed Securities	3.7%	5.0%	6.4%	5.2%	6.2%
BC High Yield Corporate Bond	19.4%	12.9%	9.3%	11.0%	8.1%
BC WGILB - Hedged	7.0%	7.2%	6.7%	6.0%	NA
BC Global Agg – Hedged	5.7%	5.0%	5.5%	4.8%	6.3%
BC Emerging Markets	19.8%	12.2%	10.0%	12.7%	NA
Real Estate					
NCREIF (Private RE)	11.0%	10.9%	2.3%	8.3%	8.6%
NAREIT (Public RE)	34.4%	20.3%	2.5%	10.8%	10.7%
Commodity Index					
DJ-UBS Commodity	6.0%	5.3%	-3.0%	5.2%	5.5%

* Performance is annualized for periods greater than one year.

Q3-12

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, 2012, the OPFRS Total Portfolio generated a return of 3.3%, gross of fees, outperforming its benchmark target. The Plan's Fixed Income asset class matched its benchmark while both International and U.S. equity asset classes lagged their respective benchmarks for the quarter.

The Total Portfolio produced positive relative results over all time periods, gross of fees. Relative to the Median Fund, the total portfolio trailed the median for the quarter but outperformed for the 1-year, 3-year, and 5-year periods. Relative performance with respect to the Median Fund can be largely attributed to differences in asset allocation.



Periods Ending September 30, 2012 (annualized)

^{*} Net of fee returns are estimated based on OPFRS manager fee schedule.

^{**} The Evolving Policy Benchmark consists of 20% Russell 3000, 7% MSCI ACWI ex U.S., 18% BC Universal, and 55% tbills.

^{***} Asset Allocation Benchmark by Asset Class is calculated using actual weightings of the broad asset classes.

^{****} Asset Allocation Benchmark by Manager consists of weighted average return of individual manager benchmarks, based on managers' actual allocations.

^{*****} Median Fund is the Mellon Total Public Funds Universe.

Quarterly Report

Absolute performance results have been positive in four of the last five 12-month periods ending September 30. The Plan outperformed its policy benchmark in four of the 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 \$481.3 million as of September 30, 2012. During the latest quarter, the portfolio increased by \$215.7 million, due to the receipt of the POB proceeds. Over the latest year, the portfolio increased by \$235.8 million, including (\$21.6) million in net benefit payment.

Investment Portfolio Valuation as of September 30, 2012*

	September 30,	June 30,	Quarterly	Percentage	September 30,	Annual	Percentage
	2012	2 0 12	Change	Change	2011	Change	Change
OPFRS	\$481.3	\$265.5	\$215.7	55.2%	\$245.5	\$235.8	51.0%

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

Actual vs. Target Allocations

With respect to policy targets, the portfolio ended the latest quarter underweight Domestic and International Equity while overweight Fixed Income. Target weightings reflect the Plan's current asset allocation (effective 10/1/2007).

As of September 30, 2012				
Segment	Actual \$(000)	Actual %*	Target %	Variance
Total Investment Portfolio	481,300	100.0%	100.0%	
Domestic Equity Large Cap Equity Mid Cap Equity Small Cap Equity	152,165 110,734 26,562 14,869	31.6% 23.0% 5.5% 3.1%	53.0% 38.4% 9.3% 5.3%	-21.4% -15.4% -3.8% -2.2%
International Equity	44,071	9.2%	17.0%	-7.8%
Total Equity	196,236	40.8%	70.0%	-29.2%
Fixed Income	280,425	58.3%	30.0%	28.3%
Real Estate	33	0.0%	0.0%	0.0%
Cash	4,606	1.0%	0.0%	1.0%
* In aggregate, asset class allocations equ	al 100% of total investment portf	olio. Differences due to roun	ding.	

During the latest quarter, the actual weighting of Domestic Equity and International Equity both decreased by (21.8%) and (6.2%), respectively. Fixed Income increased by 28.4% and Cash decreased by (0.7%).

Investment Portfolio Actual Asset Allocation Comparison



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Asset Class Performance

The Domestic Equity asset class underperformed the policy benchmark by (40) basis points over the current quarter, and underperformed by (60) basis points over the latest 1-year period. Over the latest 3-year period the asset class outperformed by 0.9% and by 40 basis points over the 5-year period.

The International Equity portfolio underperformed its policy benchmark by (1.0%) during the quarter. Over the latest 1-year period, the International Equity portfolio outperformed its policy benchmark by 2.0% while underperforming by 50 basis points, over the 3-year period. Over the latest 5-year period, the International Equity portfolio underperformed the policy benchmark by (1.1%), on an annualized basis.

The Fixed Income asset class matched the performance of its policy benchmark the quarter and outperformed by 0.8% for the 1-year period. The Fixed Income portfolio has outperformed over the 3- and 5-year time periods by 0.8% and 60 basis points, respectively.

Periods ending September 30, 2012

Asset Class	Quarter	1 Year	3 Year	5 Year
Total Investment Portfolio	3.3	· 18.7	10.0	2.5
Policy Benchmark ¹	2.8	17.7	9. <i>1</i>	2.0
Public Equity Policy Benchmark ² Domestic Equity Blended Benchmark ⁴ Large Cap Russell 1000 Mid Cap Russell Midcap Small Cap Russell 2000	6.0 6.5 5.8 6.2 6.0 6.3 4.8 5.6 6.2 5.3	26.6 26.5 29.6 30.2 29.7 30.1 27.9 28.0 32.1 31.9	11.5 10.9 14.2 13.3 13.5 13.3 14.5 14.3 17.8 13.0	0.2 0.2 1.7 1.3 1.1
International Equity	6.5	17.0	3.1	-4.8
Blended Benchmark ⁵	7.5	15.0	3.6	-3.7
Fixed Income	2.4	8.1	8.2	7.6
BC Universal (blend) ⁶	2.4	7.3	7.4	7 0

¹ The Evolving Policy Benchmark consists of 20% Russell 3000, 7% MSCI ACWI ex U.S., 18% BC Universal, and 55% tbills.

² The Public Equity benchmark consists of 76% Russell 3000 and 24% MSCI ACWI ex U.S.

⁴ 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.

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

⁶ 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 two of the five latest 12-month periods. The Plan finished the latest 12-month ending September 30, 2012 with a return of 29.6%, underperforming the policy benchmark by 60 basis points.



The International Equity portfolio outperformed the policy benchmark in one of the five latest 12-month periods. The Plan finished the latest 12-month period ending September 30, 2012 with a return of 17.0%, outperforming the policy benchmark by 2.0%.

International Equity 12-Month Performance – Periods Ending September 30, 2012



The Fixed Income portfolio outperformed the policy benchmark in three of the last five 12-month periods. The Plan finished the latest 12-month period ending September 30, 2012 with a return of 7.9%, outperforming the policy benchmark by 1.5%.





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Manager Performance

Manager	Mkt Value (\$000)	Asset Class	Quarter	1 YR	3 YR	6 YR	Since Inception*	Inception Date**
De aware	15,750	Large Cap Growth	6.5	31.5	17.7	4.0	22.9	9/2006
Russell 1000 Growth Index			6.1	29.2	14.7	3.2	19.5	
Northern Trust R1000 Index	68,798	Large Cap Core	6.3	29.9			17.3	5/2010
Russell 1000 Index			6.3	30.1			17.3	
Barrow Hanley	26,183	Large Cap Val <i>u</i> e	5.1	28.3	11.8	0.0	16.1	9/2005
Russell 1000 Value Index		***	6.5	30.9	11.8	-0.9	15.2	
Earnest	26,561	Mid Cap Core	4.8	27.9	14.5	3.7	16.2	3/2006
Russell MidCap			5.6	28.0	14.3	2.2	16.7	
NWQ	6,697	Small Cap Value	6.7	34.1	17.2	1.5	20.6	1/2006
Russell 2000 Value Index			5.7	32.6	11.7	1.3	13.8	
Lord Abbett	8,172	Small Cap Growth	5.8	29.1			22.1	6/2010
Russell 2000 Growth Index			4.8	31.2			18.2	

Domestic Equity – Periods ending September 30, 2012

* 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, 2012, four of OPFRS' active domestic equity managers outperformed or matched their respective benchmarks.

Delaware, the Plan's active large cap growth manager, ended the quarter with a 6.5% return, outperforming the Russell 1000 Growth Index's return by 40 basis points. Over the latest 1-year period, Delaware posted a strong 31.5% return, outperforming its benchmark by 2.3%. Over the latest 3- and 5-year periods, Delaware outperformed its benchmark by 3.0% and 0.8%, respectively.

Barrow Hanley, OPFRS' large cap value manager, finished the quarter returning 5.1%, underperforming the Russell 1000 value Index by (1.4%). The portfolio underperformed its benchmark by (2.6%) over the latest 1-year period. Over the latest 5-year period, **Barrow Hanley** outperformed its benchmark by 90 basis points.

Earnest Partners, the Plan's mid cap core manager, completed the quarter with a 4.8% return, underperforming the Russell Midcap Index by 80 basis points. Over the latest 1-year period, Earnest underperformed its benchmark by (10) basis points and outperformed its benchmark over the 3-year period by 20 basis points. Over the 5-year period, Earnest outperformed its benchmark by 1.5%.

NWQ, the Plan's small cap value manager, outperformed the Russell 2000 value Index by 1.0%, over the latest 3-month period. Over the latest 1-year period, NWQ outperformed its benchmark by 1.5%. Over the 3- and 5-year periods, NWQ outperformed its benchmark by 5.5% and outperformed by 20 basis points, respectively.

Lord Abbett, the Plan's small cap growth manager, outperformed the Russell 2000 Growth Index by 1.0% for the quarter. Over the 1-year period, Lord Abbett has underperformed by (2.1%).

International Equity - Periods ending September 30, 2012

Manager	Mkt Value (\$000)	Asset Class	Qua r ter	1 YR	3 YR	5 YR	Since Inception*	Inception Date**
SSgA	11,262	International	6.9	14.1	3.0	-4.6	6.2	7/2002
MSCI EAFE Index			7.0	14.3	2.6	-4.8	6.5	
Hansberger	16,337	International	6.6	18.2	2.6	-4.3	4.2	1/2006
MSCI ACWI x US			7.5	15.0	3.6	-3.7	5.8	
Fisher	16,470	International	8.0	18.0			-10.6	4/2011
MSCI ACWI x US			7.5	15.0			-111	

* 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, 2012, one of OPFRS' two active International Equity managers outperformed their benchmark.

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

Hansberger, one of OPFRS' active international equity managers, underperformed the MSCI ACWI x US Index by (0.9%) during the quarter. During the latest 1-year period, the portfolio returned 18.2% besting its benchmark by 3.2%. During the latest 3- year period, the portfolio lagged its benchmark by (1.0%) per annum. Over the 5-year period, Hansberger underperformed its benchmark by (0.6%).

Fisher, one of OPFRS' active international equity managers, outperformed the MSCI ACWI x US Index by 50 basis points during the quarter. Over the latest 1-year period, Fisher outperformed its benchmark target by 3.0%.



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Fixed Income - Periods ending September 30, 2012

Manager	Mkt Value (\$000)	Asset Class	QUarter	1 YR	3 YR	5 YR	Since Inception **	Inception Date ***
Reams	25,434	Core Plus	2.5	10.5	8.4	8.4	7.3	1/1998
BC Universal Index (blend)*	-		2.0	6.4	6.7	6.6	6.1	
T. Rowe Price	46,407	Core	2.2	6.5			6.7	5/2011
BC Aggregate Index			1.6	5.2			7.3	
BC TIPS (iShares)	7,731	TIPS	1.9	8.5			9.1	2/2010
BC U.S. TIPS Index			21	9.1			9,7	
Reams (Transition)	200,851	Transition						8/2012
90-day T-bill								

* 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, 2012, both of OPFRS' two active Fixed Income managers outperformed their respective benchmark.

Reams, the Plan's core plus fixed income manager, produced a quarterly return of 2.5%, outperforming the BC Universal (blend) Index by 50 basis points. During the latest 1-year period, the portfolio outperformed its benchmark by 4.1%, issue selection has been a strong driver of relative performance. The portfolio topped its benchmark by 1.7% during the latest 3-year period, and 1.8% during the latest 5-year period, on an annualized basis.

T. Rowe Price, the Plan's core fixed income manager, produced a quarterly return of 2.2%, besting the BC Aggregate Index by 60 basis points.

iShares BC TIPS, the Plan's Treasury Inflation Protected Securities (TIPS) ETF, slightly lagged the BC TIPS Index with a 1.9% return during the quarter. The portfolio also performed roughly in-line with its benchmark over the 1 year period. This performance is within expectations for a passive mandate.

OPFRS --- Risk/Return Analysis Period ending September 30, 2012



Growth of a Dollar Past 5 Years

Five-Year Annualized Risk/Return



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City of Oakland Police & Fire Retirement, Asset Allocation as of 9/30/12

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Manager	Style	Market Value \$(000)	Target	Actual ¹	Difference
Total Plan		\$481,300	100.0%	100.0%	. 0.0%
Public Equity		\$196,236	70.0%	40.8%	-29.2%
Domestic Equity		\$152,165	53. 0%	31.6%	-21.4%
Large Cap Equity					
Northern Trust	Large Cap Core	68,799	23.9%	14.3%	-9.6%
Barrow Hanley	Large Cap Value	26,184	9.3%	5.4%	-3.8%
Delaware	Large Cap Growth	15,751	5.3%	3.3%	-2.0%
Mid Cap Equity					
Earnest Partners	Mid Cap Core	26,562	9.3%	5.5%	-3.8%
· Small Cap Equity					
NWQ	Small Cap Value	6,697	2.7%	1.4%	-1.3%
Lord Abbett	Small Cap Growth	8,172	2.7%	1.7%	-1.0%
International Equity		\$44,071	17.0%	9.2%	-7.8%
SSgA	International	11,263	4.3%	2.3%	-1.9%
Hansberger	International	16,337	6.4%	3.4%	-3.0%
Fisher	International	16,471	6.4%	3.4%	-3.0%
Fixed Income		\$280,425	30.0%	58.3%	28.3%
Reams	Core Plus	25,434	10.7%	5.3%	-5.4%
T. Rowe Price	Core	46,408	16.3%	9.6%	-6.7%
BC TIPS (iShares)	Inflation Linked	7,732	3.0%	1.6%	-1.4%
Transition (Reams)	Transition Portfolio	200,851		41.7%	
Real Estate		\$33			
Residential Mortgage	Real Estate	33			
Total Cash ²		\$4,606	0.0%	1.0%	1.0%
Torrey Pines Bank	Money Market	984	0.0%	0.2%	0.2%

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

2. Includes cash balance with City Treasury.



Monitoring/Probation Status

As of September 30, 2012 Return vs. Benchmark since Corrective Action

Portfolio	Status	Concern	Months Since Corrective Action	Performance^ Since Corrective Action	Date of Corrective Action*

^ 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

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

All criteria are on an annualized 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, 2012

Mellon Total Funds - Public Universe				
	<u>Quarter</u>	<u>1- Year</u>	<u>3-Year</u>	<u>5-Year</u>
Maximum	6.7	26.0	16.3	7.5
Percentile 25	5.1	18.4	10.1	3.2
Median	4.8	16.6	9.5	2.4
Percentile 75	4.3	14.6	8.5	1.6
Minimum	-0.1	-0.4	1.5	-1.0
Number of Portfolios	112	111	99	94
Oakland Police & Fire Total				
Retum	3.3	18.7	10.0	2.5
Quartile Rank	4th	2nd	2nd	2nd

Notes:

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



Oakland Large Cap Growth Manager Comparisons as of September 30, 2012



	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
Delaware	3.95	19.60	0.20
Russell 1000 Growth Index	.3.24	19.39	0.17
LC Growth Universe Median	2.63	20.06	0.13



	Annualized	Annualized	Sharpe
	Excess	Excess	Ratio,
	Return, %	StDev, %	Excess
Delaware	0.71	4.57	0.16
Russeli 1000 Growth Index	0.00	· 0.00	NA
LC Growth Universe Median	-0.61	4.46	-0.15





Oakland Large Cap Growth Manager Comparisons as of September 30, 2012











Oakland Large Cap Value Manager Comparisons as of September 30, 2012



	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
Barrow Hanley	-0.01	19.34	0.00
Russell 1000 Value Index	-0.90	20.30	-0.04
LC Value Universe Median	0.1 5	19.74	0.01

% 10 Excess Annualized StdDev, %

5-Year Excess Risk/Return



	Annualized Excess	Annualized Excess	Sharpe Ratio,
Barrow Hanley		5(Dev, %	Excess
Russell 1000 Value Index	0.00	0.00	NA
LC Value Universe Median	1.05	4.49	0.26





Oakland Large Cap Value Manager Comparisons as of September 30, 2012



OPFRS



Oakland Mid Cap Core Manager Comparisons as of September 30, 2012



	Annualized Return, %	Annualized StdDev. %	Sharpe Ratio
Earnest	3.71	23.08	0.16
Russell Mid-Cap Index	2.24	23.02	0.10
Mid Cap Core Universe Median	3.65	22.58	0.16

▲ E arn e st ♦ Russell Mid-Cap Index



	Annualized Excess Return, %	Annualized Excess StDev, %	Sharpe Ratio, Excess
Earnest	1.47	· 3.82	0.39
Russell Mid-Cap Index	0.00	0.00	NA
Mid Cap Core Universe Median	1.41	5.17	0.24

🔺 Earnest ♦ Russell Mid-Cap index















Oakland Small Cap Value Manager Comparisons as of September 30, 2012



	Annualized	' Annualized	Sharpe
	Return, %	StdDev, %	Ratio
NWQ	1.48	27.15	0.05
Russell 2000 Value Index	1.35	25.01	0.05
Small Cap Value Universe Median	3.29	24.42	0.13



	Annualized	Annualized	Sharpe
	Excess	Excess	Ratio,
	Return, %	StDev, %	Excess
NWQ	0.13	8.50	0.02
Russell 2000 Value Index	0.00	0.00	NA
Small Cap Value Universe Median	1.94	7.21	0.29

A NWQ ◆ Russell 2000 Value Index





Oakland Small Cap Value Manager Comparisons as of September 30, 2012







Oakland Small Cap Growth Manager Comparisons as of September 30, 2012



	Annualized	Annualized	Sharpe
Lord Abbett	16.27	18.73	0.87
Russell 2000 Growth Index	13.89	20.13	0.69
Small Cap Growth Universe Median	15.19	20.04	0.78



	Annualized Excess	Annualized Excess	Sharpe Ratio.
	Return, %	StDev. %	Excess
Lord Abbett	2.37	5.10	0.47
Russell 2000 Growth Index	0.00	0.00	NA
Small Cap Growth Universe Median	1.30	5.47	0.27





Oakland Small Cap Value Manager Comparisons as of September 30, 2012









Oakland International Equity Manager Comparisons as of September 30, 2012



	Annualized	Annualized	Sharpe
	Return, %	StdDev, %	Ratio
Hansberger	-4.34	27.43	-0.16
MSCI AC World Index ex USA	-3,67	24.44	-0.15
International Equity Universe Median	-3.06	24.18	-0.13

▲ Hansberger ◇MSCIAC World Index ex USA











Oakland International Equity Manager Comparisons as of September 30, 2012







Oakland Fixed Income Manager Comparisons as of September 30, 2012



	Annualized	Annualized	Sharpe
	Return, %	StdDev, %	Ratio
Reams	8.35	9.22	0.91
Oakland BC Universal Blend	6.63	3.72	1.78
U.S. Fixed Income Universe Median	7.01	3.77	1.84

◇Oakland BC Universal Blend **▲** Reams



	Annualized	Annualized	Sharpe
	Excess	Excess	Ratio,
	Return, %	StDev, %	Excess
Reams	1.72	7.54	0.23
Oakland BC Universal Blend	0.00	0.00	NA
U.S. Fixed Income Universe Median	0.38	2.05	0.21

• Oakland BC Universal Blend ▲ Reams





Oakland Fixed Income Manager Comparisons as of September 30, 2012







International Equity



Fixed Income



Asset Loadings - Manager

Oct-09 - Sep-12



Gov 1-3Y Bond Gov Int Bond Gov Long Bond Corporate Bond Mortgage-Backed Securities 🖬 High Yield Bonds 🗖 Cash



Mar-10 Jun-10 Sep-10 Dec-10 Mar-11 Jun-11 Sep-11 Oec-11 Mar-12 Jun-12 Sep-12 Oct-09

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Appendix

Glossary

<u>Alpha</u>

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

Annualized Performance

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

Batting Average

Percentage of periods a portfolio outperforms a given index.

<u>Beta</u>

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

Bottom-up

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

Dividend Discount Model

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

Growth Stocks

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

Information Ratio

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

R-Squared

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

Standard Deviation

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

Sharpe Ratio

A measure of a portfolio's excess retum 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.



Definition of Indices

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 ail 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.



RISK METRIC DESCRIPTION – Rationale for selection and calculation methodology

US Equity Markets:

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

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published guarterly 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 tralling-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.

Measur	e 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.



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.