WURTS ASSOCIATES

MEMORANDUM

To: **Board of Trustees, Fresno County Employees' Retirement Association**

From: **Jeffrey MacLean, Wurts & Associates**

Date: **July 25, 2012**

Re: **Risk Dashboard**

Over the last nine months, Wurts & Associates has invested considerable resources into risk. Last year, we hired Max Giolitti as our Director of Risk Allocation. Max has over 15 years of investment experience principally centered on understanding risk within investment portfolios. Earlier this year, Wurts invested in BARRA One as well as other important risk oriented systems to help us better measure risk within portfolios and we are proud of the fact that we are one of the few consultants in the world that have this capability.

While this technology has been acquired principally to help us manage our discretionary mandates, we wanted to make a version of Risk Dashboard available to our non-discretionary clients. We recognize that these capabilities will not be appreciated by all of our clients and given the limited capacity we have in generating these reports; we are rolling them out slowly to some clients.

I will spend some time at the meeting to review the Risk Dashboard and answer any questions the Board of Trustees might have about what all of the exhibits mean. Should FCERA choose to receive the Risk Dashboard, it would be made available on a monthly basis to all of the Trustees several days following the end of each month.

The additional fee for this service is $15,000 per annum. This helps to defray the costs associated with our initial investment into risk as well as the additional ongoing cost associated with preparing and proofing the reports.

Please let me know if you have any questions; I look forward to seeing everyone on August 1st.

FRESNO COUNTY DASHBOARD-ALLOCATION AS OF: 6/30/2012

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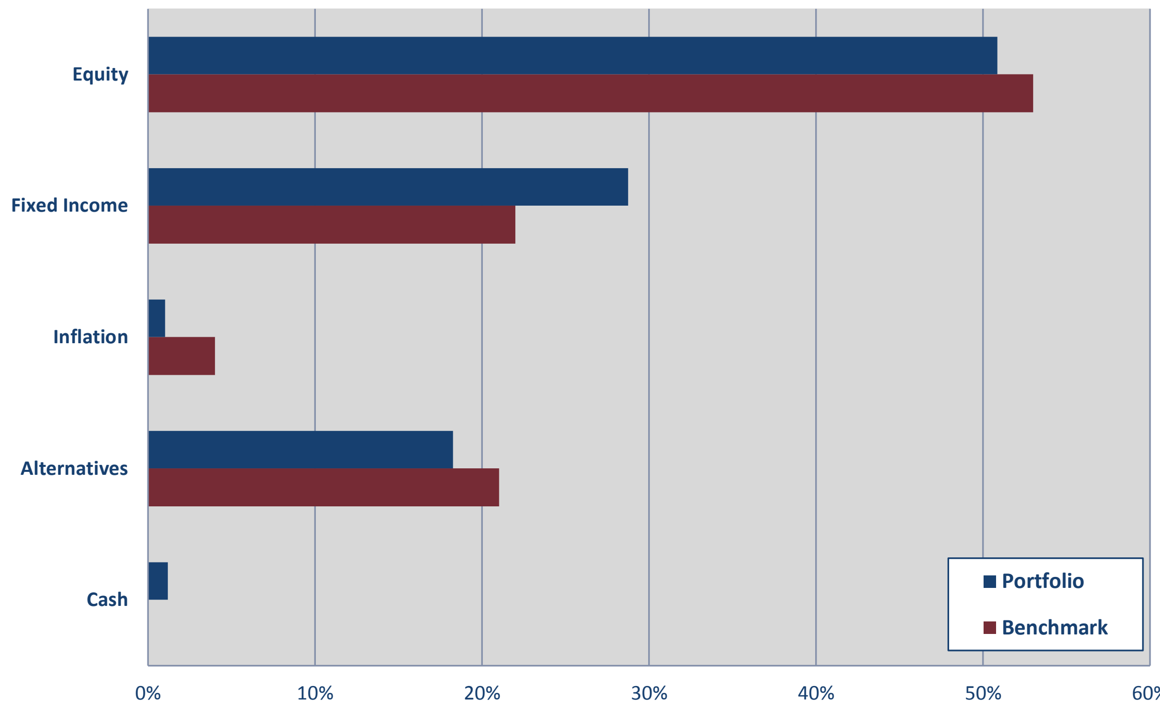
Dollar Allocation



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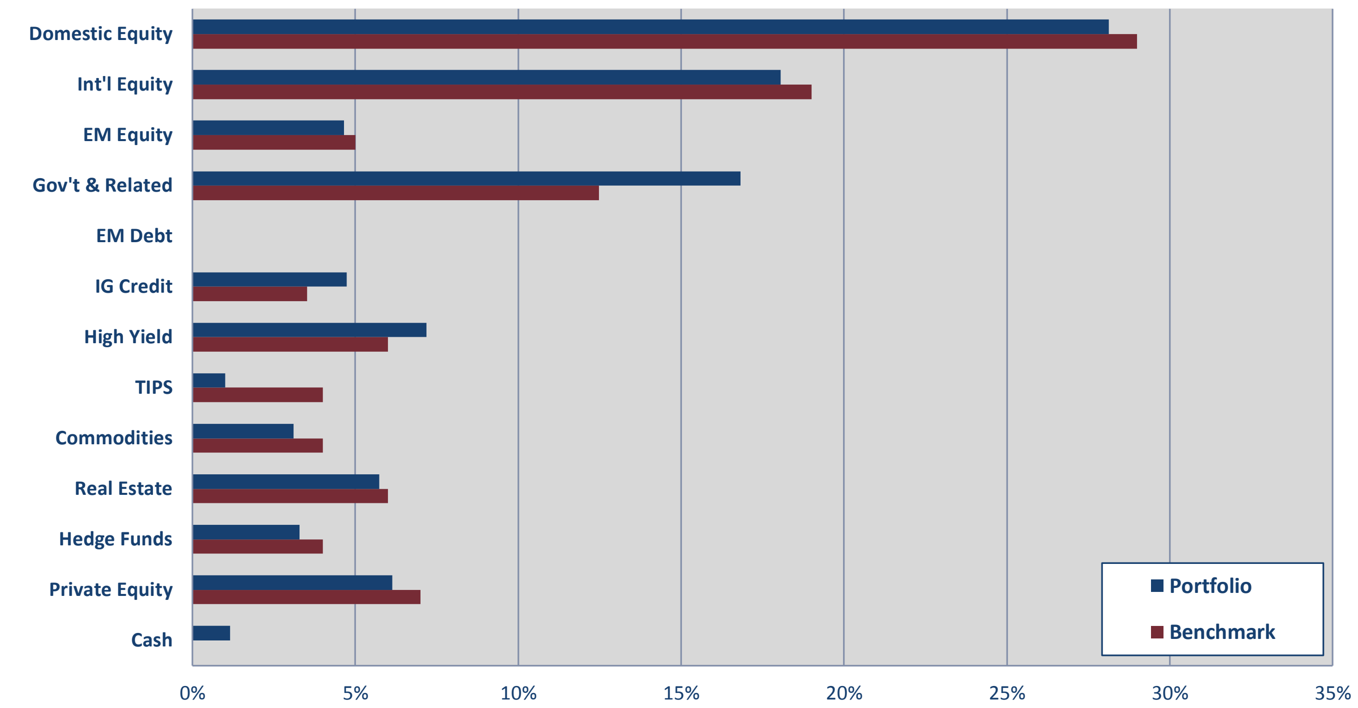
Dollar Allocation Details



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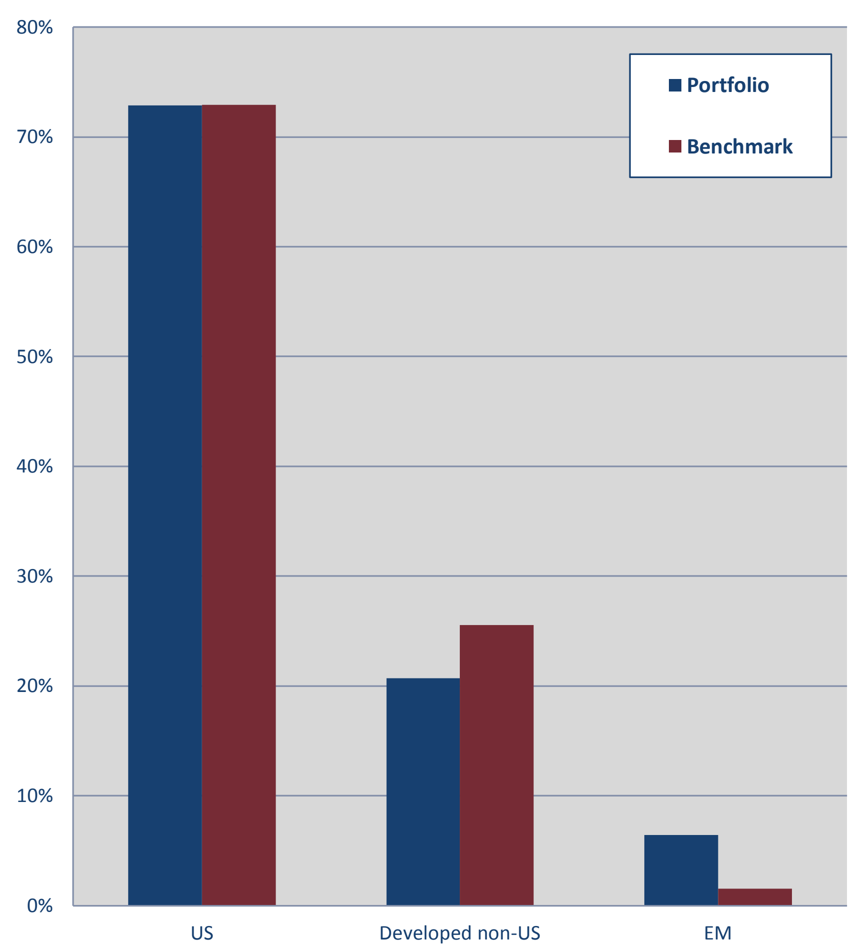
Geographic Allocation



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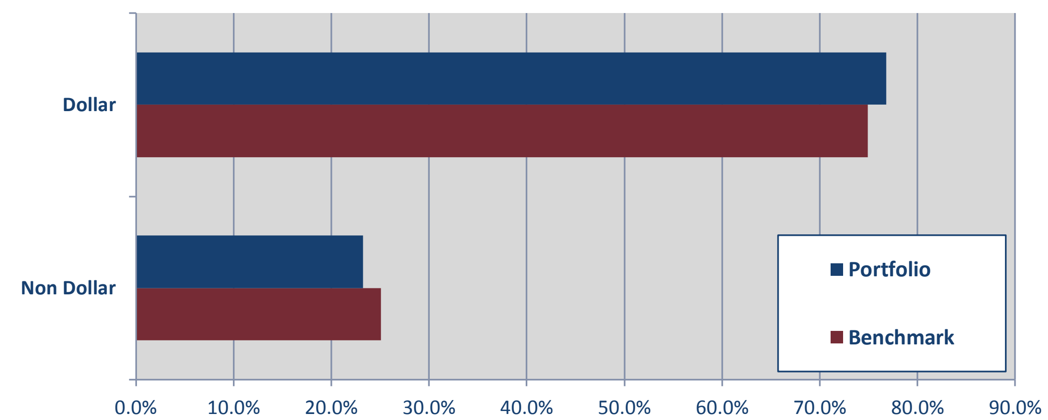
Currency Risk



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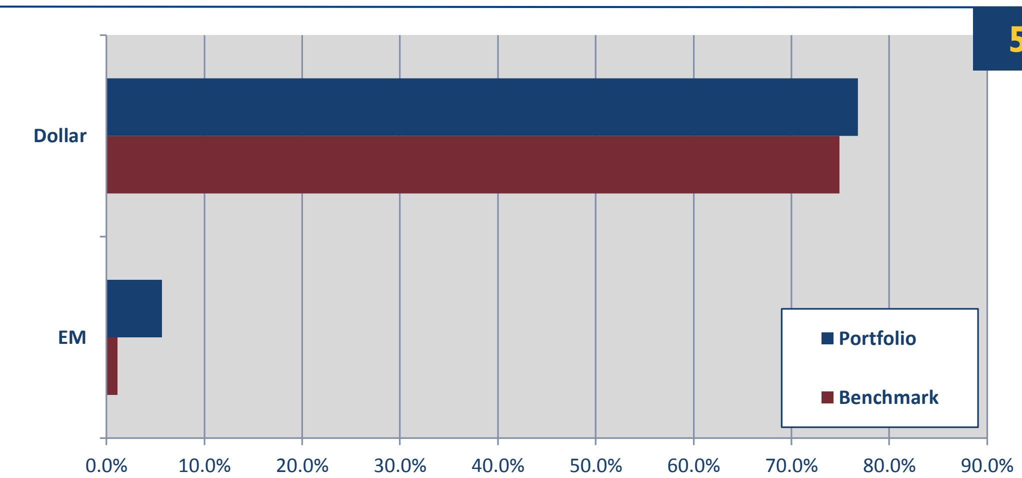

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Portfolio Benchmark

	Portfolio	Benchmark
Rate Duration	1.6	1.4
Spread Duration	1.5	1.4
Portfolio Beta	1.0	N/A
Equity Beta	0.6	0.6
Annual Tracking Error	71bps	N/A
Monthly Tracking Error	20bps	N/A

FRESNO COUNTY DASHBOARD-RISK FACTORS AS OF: 6/30/2012

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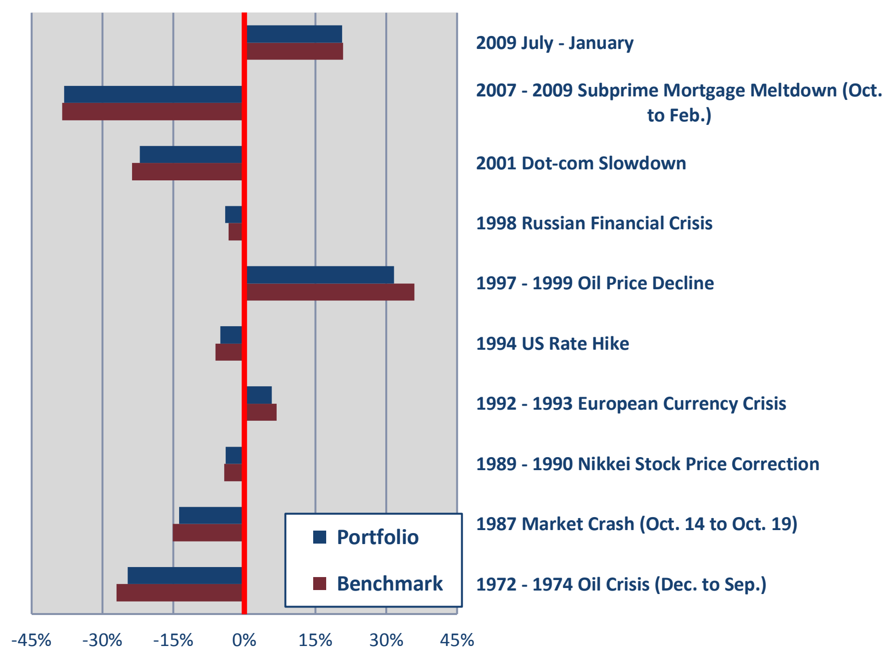
Tail Risk - Scenario Analysis



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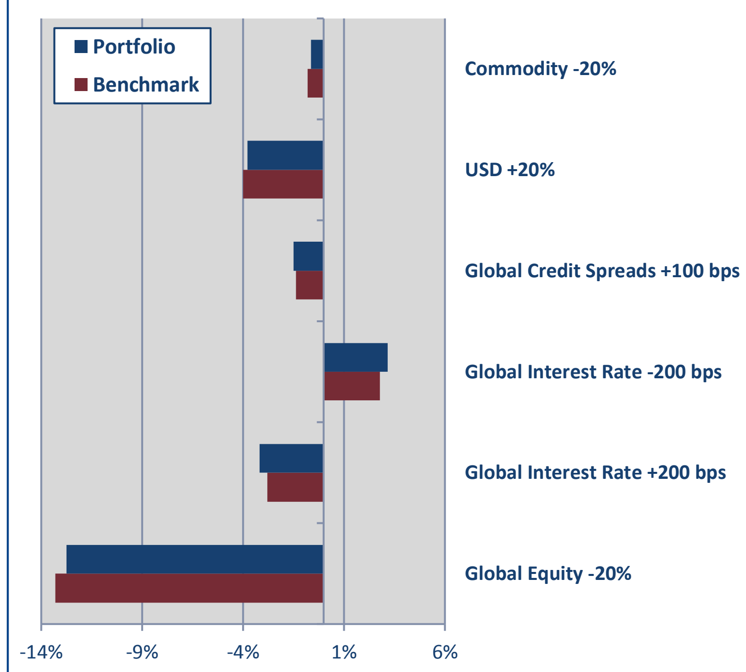
Tail Risk - Stress Testing



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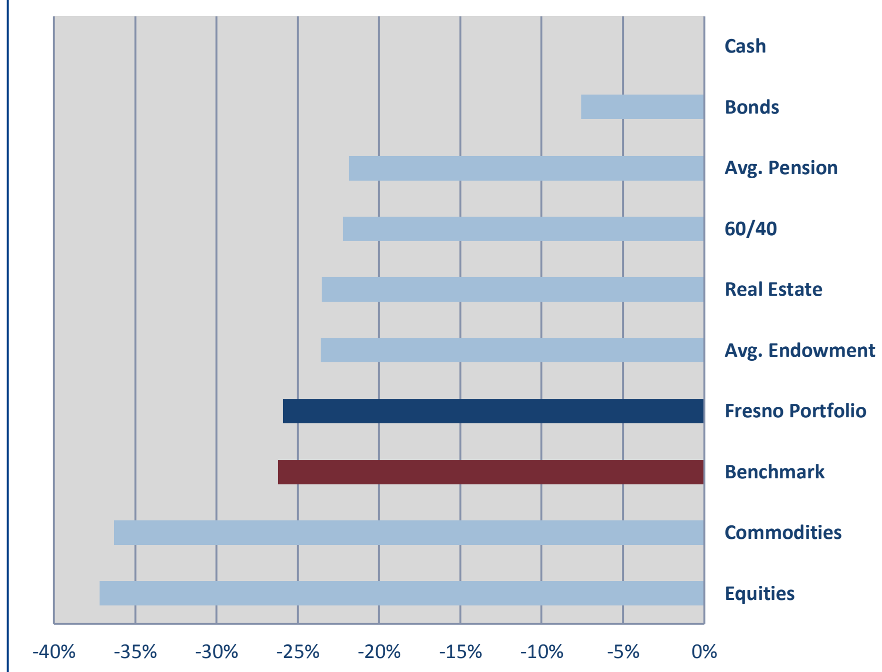
Relative Risk



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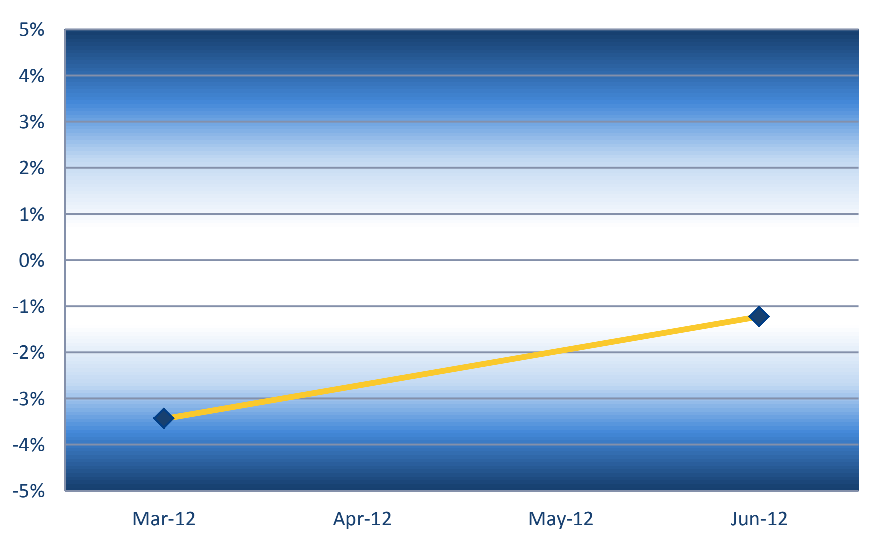
Portfolio Relative VaR



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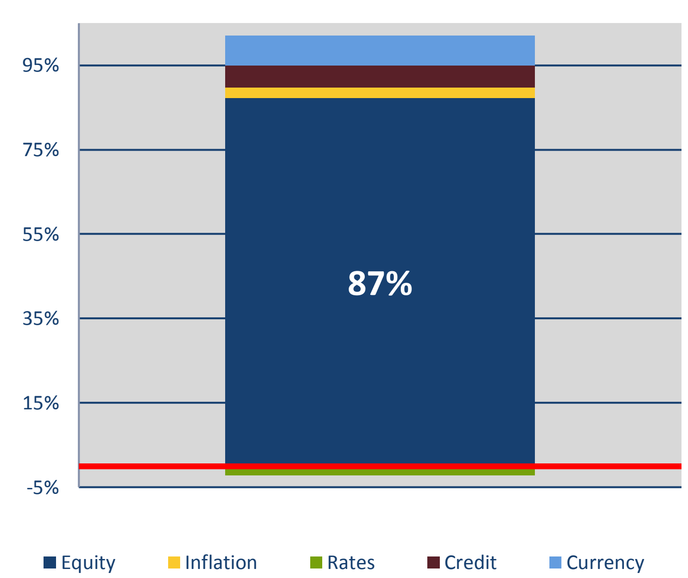
Risk Decomposition



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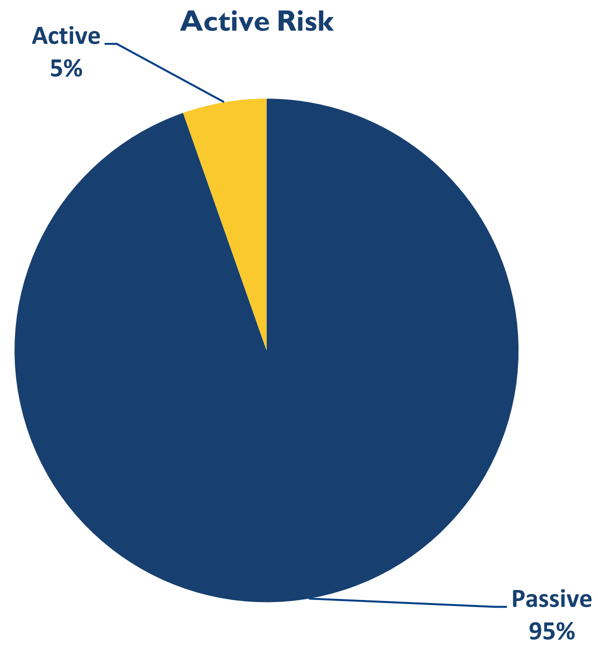
Active Risk



FRESNO COUNTY DASHBOARD-RISK FACTORS AS OF: 6/30/2012

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Asset Allocation & Market Return Summary

		Asset Allocation			Market Returns				
		Portfolio	Benchmark	Difference	Current MTD	Prior 1 Month	Quarter to Date	Year to Date	1 Year
Equity	Domestic Equity	28.1%	29.0%	-0.9%	3.92%	-6.18%	-3.15%	9.32%	3.84%
	Int'l Equity	18.1%	19.0%	-0.9%	7.05%	-11.35%	-6.85%	3.38%	-13.38%
	EM Equity	4.7%	5.0%	-0.4%	3.91%	-11.16%	-8.77%	4.12%	-15.67%
Rates	Gov't & Related	16.8%	12.5%	4.3%	0.04%	0.90%	2.06%	2.37%	7.47%
	EM Debt	0.0%	0.0%	0.0%	3.57%	-2.77%	2.47%	7.45%	10.90%
Credit	IG Credit	4.7%	3.5%	1.2%	0.43%	0.68%	2.46%	4.55%	9.54%
	High Yield	7.2%	6.0%	1.2%	2.11%	-1.31%	1.83%	7.27%	7.27%
Inflation	TIPS	1.0%	4.0%	-3.0%	-0.56%	1.67%	3.15%	4.04%	11.66%
Alternatives	Commodities	3.1%	4.0%	-0.9%	5.49%	-9.13%	-4.55%	-3.70%	-14.32%
	Real Estate	5.7%	6.0%	-0.3%	0.84%	0.84%	2.54%	5.43%	12.38%
	Hedge Funds	3.3%	4.0%	-0.7%	-0.50%	-1.55%	-2.31%	1.00%	-4.49%
	Private Equity	6.1%	7.0%	-0.9%	4.12%	-5.97%	-2.52%	10.57%	6.34%
	Cash	1.2%	0.0%	1.2%	0.01%	0.02%	0.03%	0.04%	0.09%

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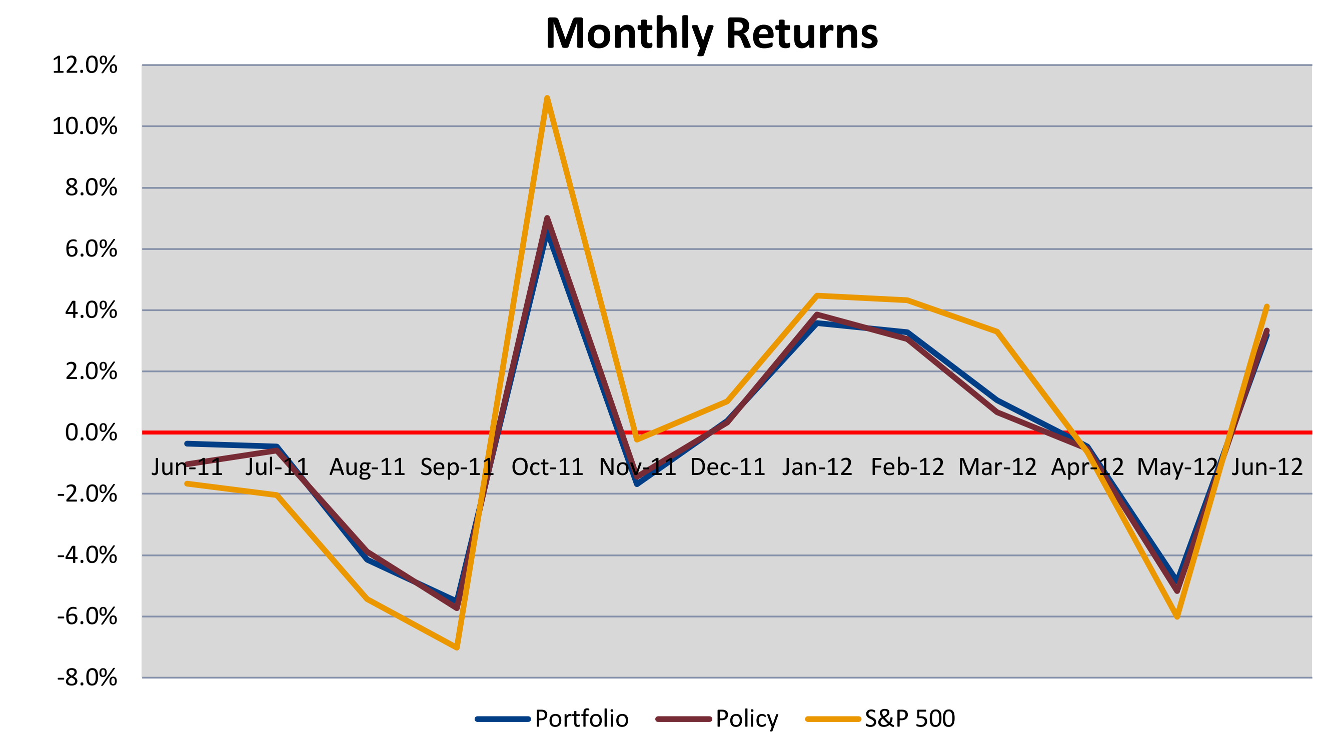

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Attribution Summary

		Current MTD	Prior 1 Month	Quarter to Date	Year to Date	1 Year
Equity	Domestic Equity	-0.03%	0.05%	0.03%	-0.08%	-0.03%
	Int'l Equity	-0.07%	0.11%	0.06%	-0.03%	0.13%
	EM Equity	-0.01%	0.04%	0.03%	-0.01%	0.05%
Rates	Gov't & Related	0.00%	0.04%	0.09%	0.10%	0.32%
	EM Debt	0.00%	0.00%	0.00%	0.00%	0.00%
Credit	IG Credit	0.01%	0.01%	0.03%	0.06%	0.12%
	High Yield	0.02%	-0.02%	0.02%	0.09%	0.09%
Inflation	TIPS	0.02%	-0.05%	-0.09%	-0.12%	-0.35%
Alternatives	Commodities	-0.05%	0.08%	0.04%	0.03%	0.13%
	Real Estate	0.00%	0.00%	-0.01%	-0.01%	-0.03%
	Hedge Funds	0.00%	0.01%	0.02%	-0.01%	0.03%
	Private Equity	-0.04%	0.05%	0.02%	-0.09%	-0.06%
Returns	Portfolio	3.18%	-4.85%	-2.13%	5.48%	0.79%
	Policy	3.33%	-5.18%	-2.37%	5.56%	0.39%
	Fund Alpha	**-0.15%**	**0.32%**	**0.24%**	**-0.08%**	**0.40%**

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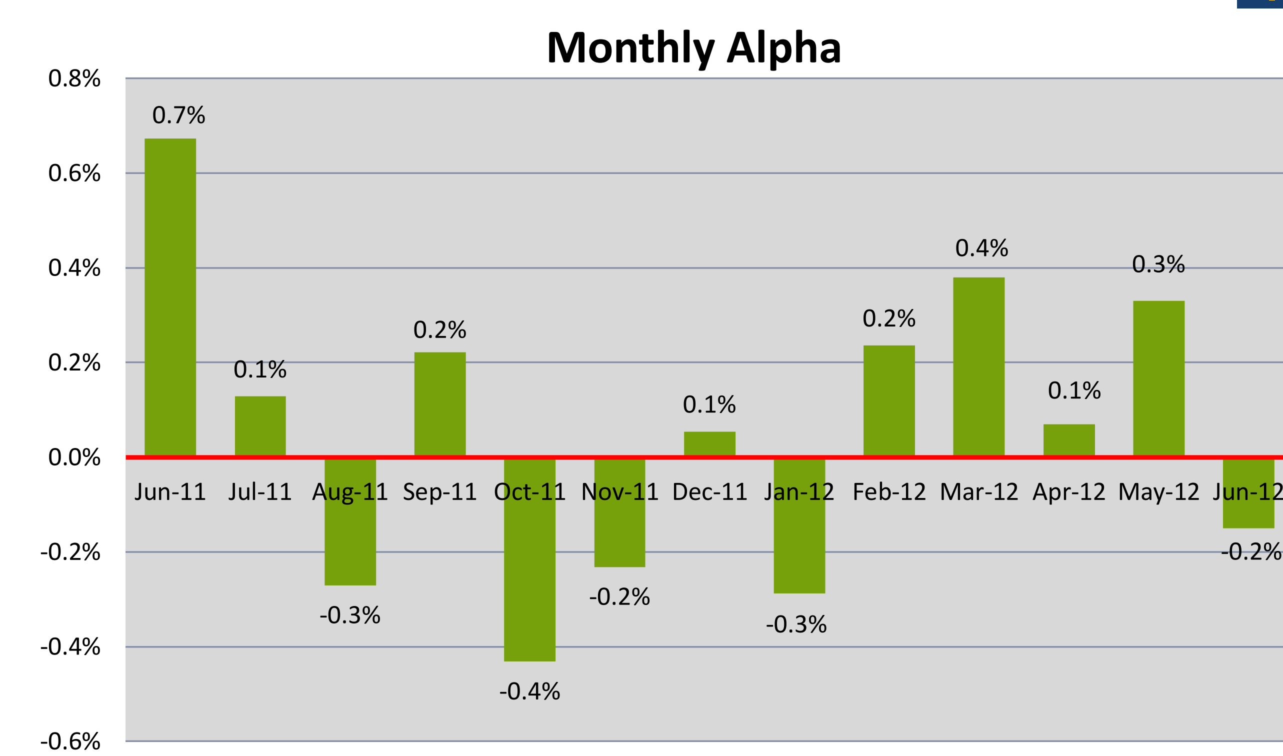

Definitions

1. Portfolio and benchmark dollar allocation among major asset classes.

2. Portfolio and benchmark dollar allocation among asset sub-classes.

3. Portfolio and benchmark geographic allocation among major regions.

4. Portfolio and benchmark currency exposure between dollar and non-dollar.

5. Portfolio and benchmark currency exposure between dollar and emerging markets currencies.

6. Major portfolio and benchmark characteristics:
Rate / Spread Duration is the sensitivity of the portfolio to a 100 basis point change to its interest rates/option-adjusted spreads.
Portfolio Beta is the relative volatility of returns earned from holding the portfolio compared to the benchmark.
Equity Beta is the relative volatility of returns earned from holding the portfolio compared to the broad equity market.
Tracking error is a measure of how closely a portfolio follows its benchmark. It is usually the standard deviation of the difference between the portfolio and benchmark returns. Tracking error is annualized. An index fund would have a tracking error close to zero.
Monthly tracking error is calculated by dividing annual tracking error by the square root of 12.

7. Performance of portfolio and benchmark under various historical scenarios. For each *historical scenario*, portfolio total market value is recalculated at prevailing historical prices to determine total portfolio return over the given scenario time horizon.

8. Performance of portfolio and benchmark under various one-risk-factor *stress tests*. Directly affected asset classes are revalued at the factor levels. Total portfolio return is calculated for each hypothetical stress test.

9. Relative riskiness of various portfolios on a total portfolio level.

10. Portfolio historical monthly relative VaR versus benchmark. *Value at Risk (VaR)* is a measure of the risk of loss for a given portfolio, probability and time horizon. A portfolio with higher relative VaR will exhibit a larger drawdown over the same time horizon. Positive portfolio relative VaR means that portfolio is riskier than benchmark.

11. Current volatility contribution by risk factor for portfolio . *Volatility* is a measure for variation of price of a portfolio or financial instrument over time.

12. Allocation of risk between active and passive. *Active-management risk* is the risk of dollar loss owing to the total deviations from the benchmark. *Passive risk* is the risk of a dollar loss owing to the policy mix selected by the fund.

13. Portfolio and benchmark asset allocation by asset classes as of 6-30-2012 and market returns represented by major indices. All returns are as of 6-30-2012.

14. Portfolio, policy and S&P 500 monthly returns. Returns from June 2011 to March 2012 show actual performance; returns from April 2012 to June 2012 based on asset allocation as of 6-30-2012 and performance of market indices.

15. Attribution summary (allocation of fund alpha) by asset class. Calculations are based on portfolio and benchmark market values as of 6-30-2012 and market returns represented by major indices.

16. Monthly alpha (difference between portfolio and policy performance). Returns from June 2011 to March 2012 show actual performance; returns from April 2012 to June 2012 are based on asset allocation as of 6-30-2012 and market market returns represented by major indices.