

# 2013 Capital Market Assumptions

## Asset Allocation

June 17, 2013

# Proposed 2013 Capital Market Assumptions

Asset Class	Compound E(R)	Volatility (St. Dev.)	Cash Yield	Correlations							
				Public Equity	Private Equity	Fixed Income	Real Estate	Infra. & Forest	Inflation Assets	Liquid	ARS
Global Equity	7.75	17.40	2.73	1.00	0.73	0.21	0.37	0.27	0.03	0.00	0.50
Private Equity	9.33	25.00	0.00	0.73	1.00	0.12	0.38	0.20	0.01	0.00	0.35
Fixed Income	2.76	7.00	3.70	0.21	0.12	1.00	0.13	0.20	0.25	0.50	0.06
Real Estate	7.00	14.00	2.00	0.37	0.38	0.13	1.00	0.50	0.10	0.05	0.27
Infra. & Forest.	7.00	11.00	2.50	0.27	0.20	0.20	0.50	1.00	0.20	0.20	0.20
Inflation Assets	2.95	7.25	0.88	0.03	0.01	0.25	0.10	0.20	1.00	0.14	0.00
Liquidity	1.95	3.00	2.02	0.00	0.00	0.50	0.05	0.20	0.14	1.00	0.10
ARS	5.89	7.00	0.00	0.50	0.35	0.06	0.27	0.20	0.00	0.10	1.00

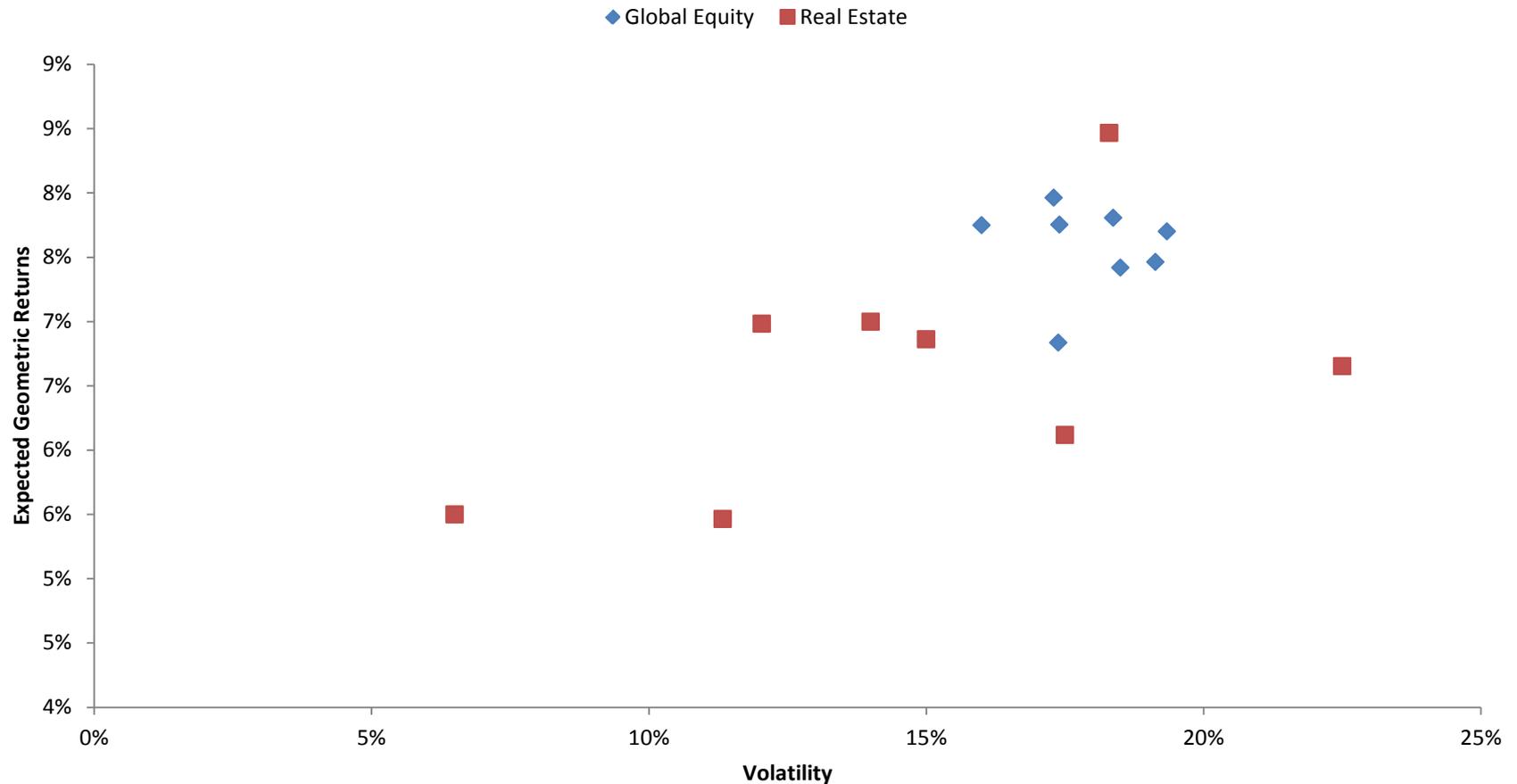
# CMA Comparisons – 2010 to 2013

Global Equity and Fixed Income assets are the largest contributors to changes in the return and risk of the Policy Portfolio.

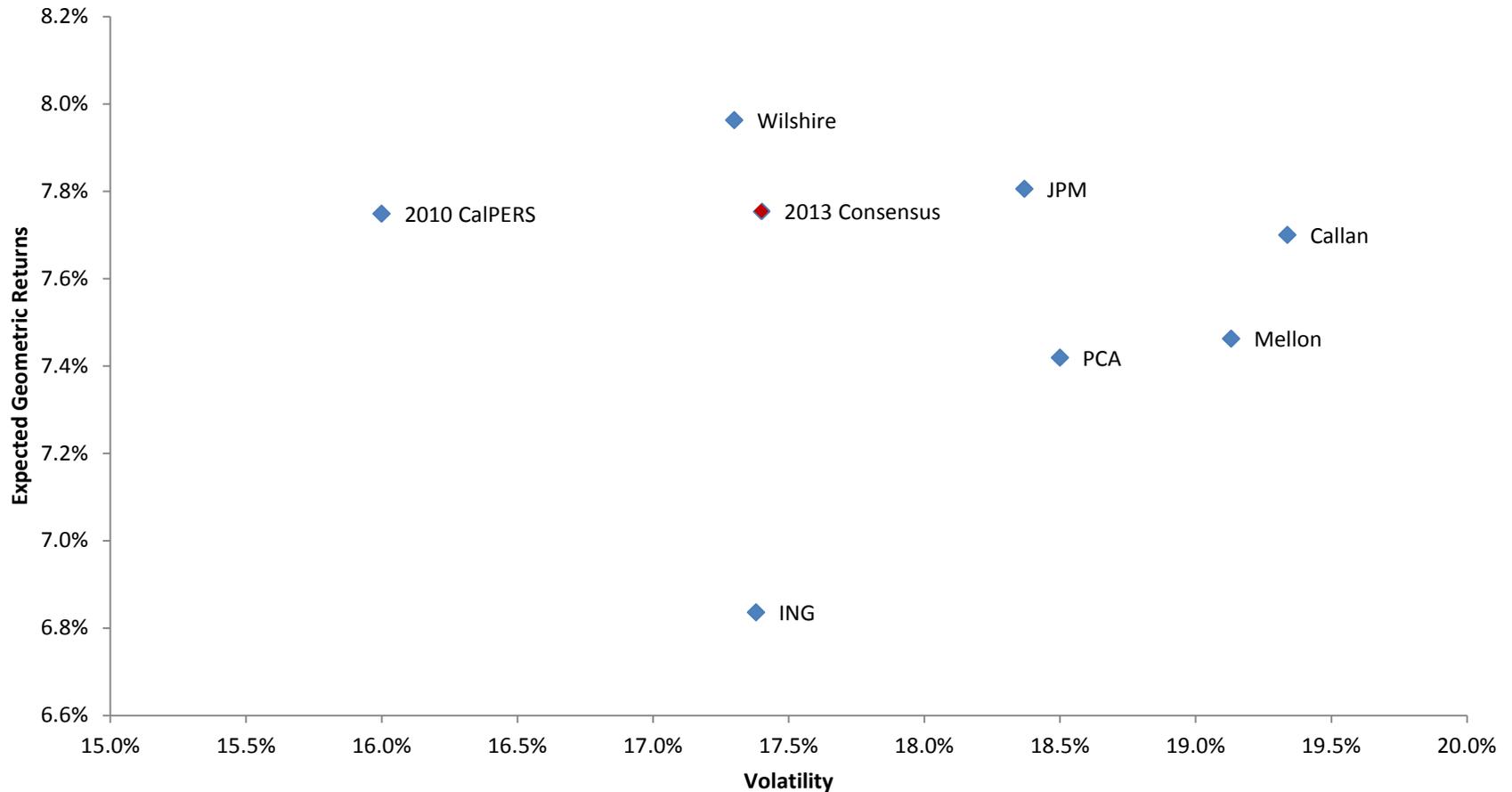
- The increased volatility of Global Equity has the single largest effect on the volatility of the portfolio.
- Reduced returns in Fixed Income assets, including Income, Inflation Assets, and Liquidity, are the largest contributors to reduced returns to the portfolio.

	2010 CMA				2013 CMA
		Add ONLY 2013 Global Equity CMA	Add ONLY 2013 Fixed Income, Inflation Assets and Liquidity CMA	Add 2013 Global Equity, Fixed Income, Inflation Assets and Liquidity CMA	
Geometric Return	7.38%	7.41%	7.11%	7.15%	7.18%
Volatility	11.90%	12.57%	11.90%	12.57%	12.39%

# Dispersion of CMAs: Global Equity Versus Real Estate



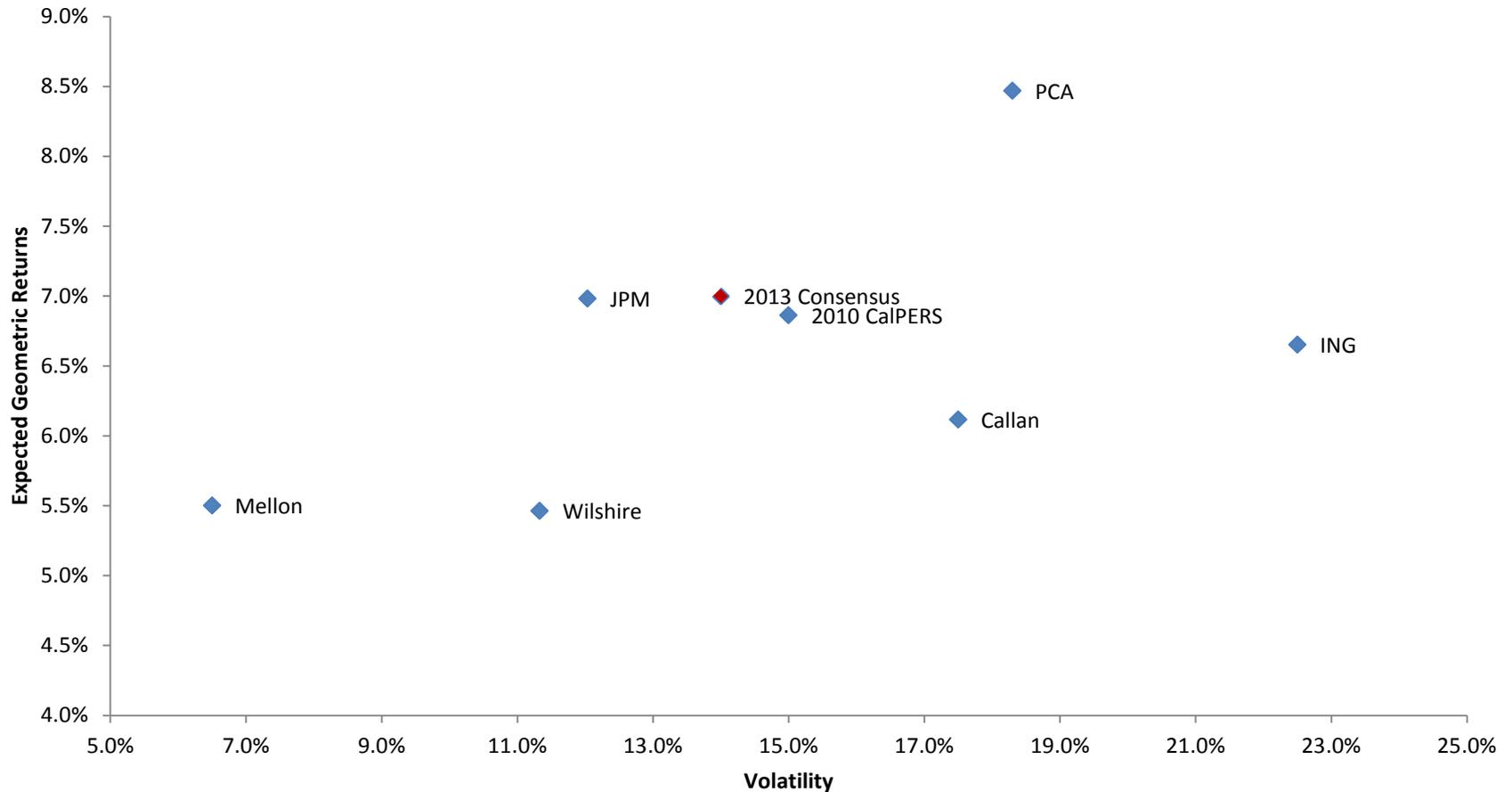
# 2013 Capital Market Assumptions for Global Equity



# Reaching Consensus on Global Equity

- 2013 expected (geometric) return forecasts are within a tight band.
- Simple average of expected return of the 7 firms is 7.56%, with a range of 1.13%.
- If we exclude ING from consideration (which is an outlier), the range of Expected Returns reduces to 0.54%.
- Reason for closeness in estimates:
  - Readily available information on Global Equity markets;
  - Consensus on Valuation models for Global Equity;
- Volatility expectations have increased from 2010 to 2013, on average by 2.2%.

# 2013 Capital Market Assumptions for Real Estate



# Reaching Consensus on Real Estate

- Returns and volatilities vary widely as benchmarks, methodologies, and the assumption of leverage vary widely
  - Benchmarks
    - REITs
    - NCREIF Property Index
    - Proprietary indices
  - Methodologies
    - Apply Capitalization Rate to expected net cash flow
    - Treat Real Estate as a hybrid of Equity and Fixed Income
- Adopt assumptions that are most appropriate for our Real Estate portfolio
- Apply insights from internal staff
- Reach consensus through open and thorough discussion

# Global Equity Appendix

Return and Volatility			
Global Equity CMA Source	Compound	Volatility	Inflation
	E(R)	(St. Dev.)	
2013 Consensus	7.75%	17.40%	2.75%
2013 Wilshire	7.96%	17.30%	2.55%
2013 PCA	7.42%	18.50%	3.00%
2013 Mellon	7.46%	19.13%	2.50%
2013 JPM	7.81%	18.37%	2.50%
2013 Callan	7.70%	19.34%	2.50%
2013 ING	6.84%	17.38%	1.70%
2010 CalPERS	7.75%	16.00%	3.00%
Range [max-min]:	1.13%	2.04%	1.30%
Simple average:	7.56%	18.00%	2.54%
Without ING			
Range [max-min]:	0.54%	3.34%	0.50%
Simple average:	7.68%	18.11%	2.68%

# Real Estate Appendix

Return and Volatility		
Real Estate CMA Source	Compound	Volatility
	E(R)	(St. Dev.)
2013 Consensus	7.00%	14.00%
2013 Wilshire	5.46%	11.33%
2013 PCA	8.47%	18.30%
2013 Mellon	5.50%	6.50%
2013 JPM	6.98%	12.03%
2013 Callan	6.12%	17.50%
2013 ING	6.65%	22.50%
2010 CalPERS	6.86%	15.00%
Range [max-min]:	3.00%	16.00%
Simple average:	6.58%	14.74%