Investment Committee

California Public Employees' Retirement System

Agenda Item 6a

June 17, 2013

ITEM NAME: Adoption of Capital Market Assumptions

PROGRAM: Total Fund

ITEM TYPE: Asset Allocation, Performance & Risk – Action

RECOMMENDATION

Adopt the Capital Market Assumptions (CMAs), as presented by staff in Attachment 1, for use in the 2013 Asset Liability Management (ALM) Process. Consultant opinion letters from Wilshire Associates and Pension Consulting Alliance are provided as Attachments 2 and 3 respectively.

EXECUTIVE SUMMARY

CMAs are the essential inputs to the Strategic Asset Allocation process. The presented metrics represent the output of a comprehensive and prudent estimation approach. This approach has been informed by multiple sources including outside consultants and internal Senior Investment Officers. Consensus was reached through an open and thorough discussion process.

STRATEGIC PLAN

This item supports the CalPERS Strategic Plan goal of improving long-term pension and health benefit sustainability. CalPERS conducts an in-depth ALM Process every three years to review asset and liability management. These triennial processes culminate in the selection of a Policy Portfolio which is then used to guide and define the strategic asset allocation across the Total Fund.

BACKGROUND

The ALM Process is an important step to help ensure that contributions, plus investment returns, are sufficient to pay the benefits and expenses of the California Public Employees' Retirement System. Every three years staff presents, to the Investment Committee, potential allocations to each asset class that are estimated to allow CalPERS to realize its long-term assumed rate of return while maintaining prudent levels of risk.

CMAs for each asset class are critical inputs to the process that ultimately constructs the Policy Portfolio. CMAs have a direct impact on the composition of the Policy Portfolio and therefore directly affect the risk and return profile of the Total Fund.

CMAs were discussed at the May 13, 2013 Investment Committee workshop. The presentation included an overview of the methodology used to create CMAs, as well as some of the key considerations and caveats associated with CMAs.

ANALYSIS

Identifying CMAs is a critical step in the ALM Process. Not only does it require knowledge and expertise of every asset class in our Policy Portfolio, but also it depends on CalPERS customized benchmarks and investment strategies. In addition, there is inherent uncertainty and difficulty in estimating CMAs. An open and inclusive approach, including surveying all major investment banks, was adopted to gain as much information as possible.

Consensus was reached through open and thorough discussion between consultants and internal staff. For every asset class, this discussion verified the theoretical justification for the underlying valuation models and assumptions used therein. We noted the legitimate dispersion of opinion regarding expectations about the future and made choices consistent with our best knowledge. For example, there is a limited range of dispersion regarding the expected returns of Global Equity because there is widely available information and more industry consensus on fundamental valuation models. On the other hand, expected returns for Real Estate have wider dispersion due to the various benchmarks, methodologies and leverage assumptions used. In that case, we had a deeper discussion and adopted assumptions that were most consistent with our investment strategy for Real Estate. See Attachment 1 for additional detail.

BENEFITS/RISKS

CMAs are the essential inputs and starting points of the ALM Process. All subsequent analyses depend on their identification making the timing of adoption important. Staff recommends adoption of the presented CMAs for the following reasons:

1. Our procedure is time-tested and consistent with industry standards;
2. There are no pending issues nor unresolved concerns;
3. Our consensus was reached through open and thorough discussions;
4. Inherent uncertainty has been adequately noted and will be incorporated into our subsequent analyses.

The benefit of adoption of these metrics is that it allows staff to proceed with the ALM Process and devote more time and effort to subsequent analyses which involve a conscious attempt to compensate for some of the uncertainty inherent in estimating CMAs. The risk of non-adoption would be more time and effort spent without a clear target for improvement.

ATTACHMENTS
Attachment 1 – 2013 Capital Market Assumptions
Attachment 2 – Wilshire Associates Opinion Letter
Attachment 3 – Pension Consulting Alliance Opinion Letter

ERIC BAGGESEN
Interim Senior Investment Officer
Asset Allocation and Risk Management

JOSEPH A. DEAR
Chief Investment Officer

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

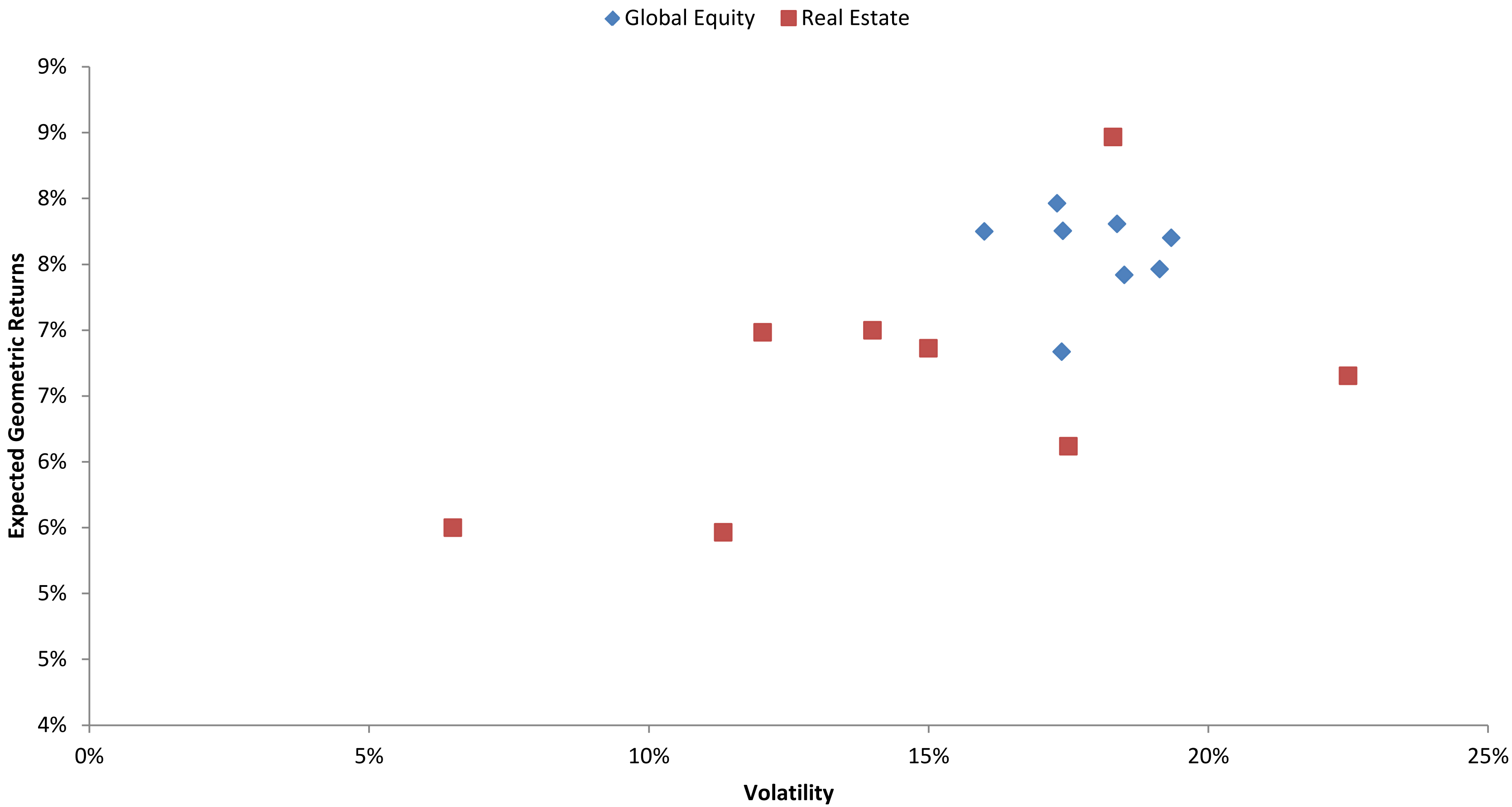
CMA Comparisons – 2010 to 2013

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

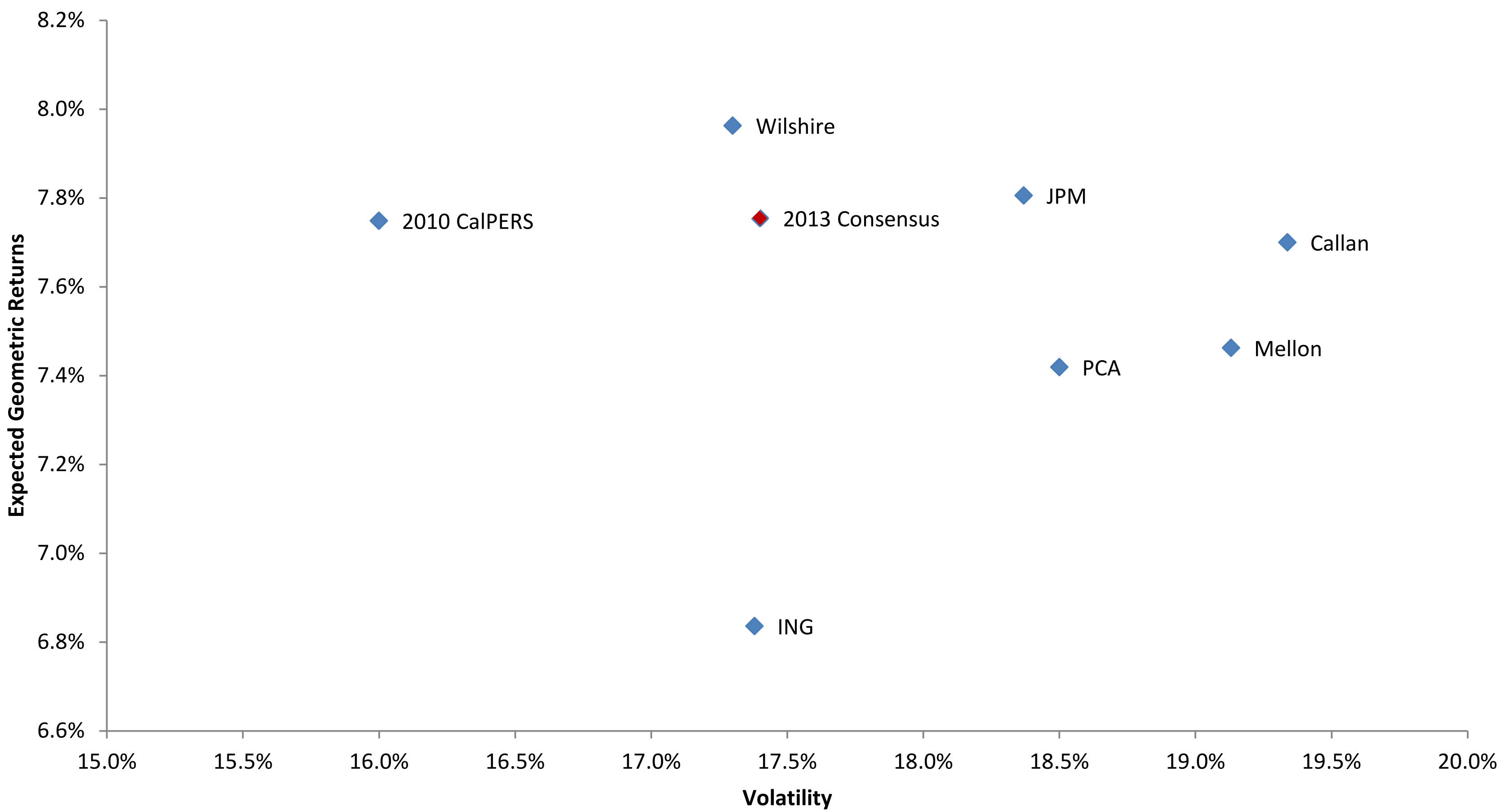
- The increased volatility of Global Equity has the single largest effect on the volatility of the portfolio.
- Reduced returns in Fixed Income assets, including Income, Inflation Assets, and Liquidity, are the largest contributors to reduced returns to the portfolio.

	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



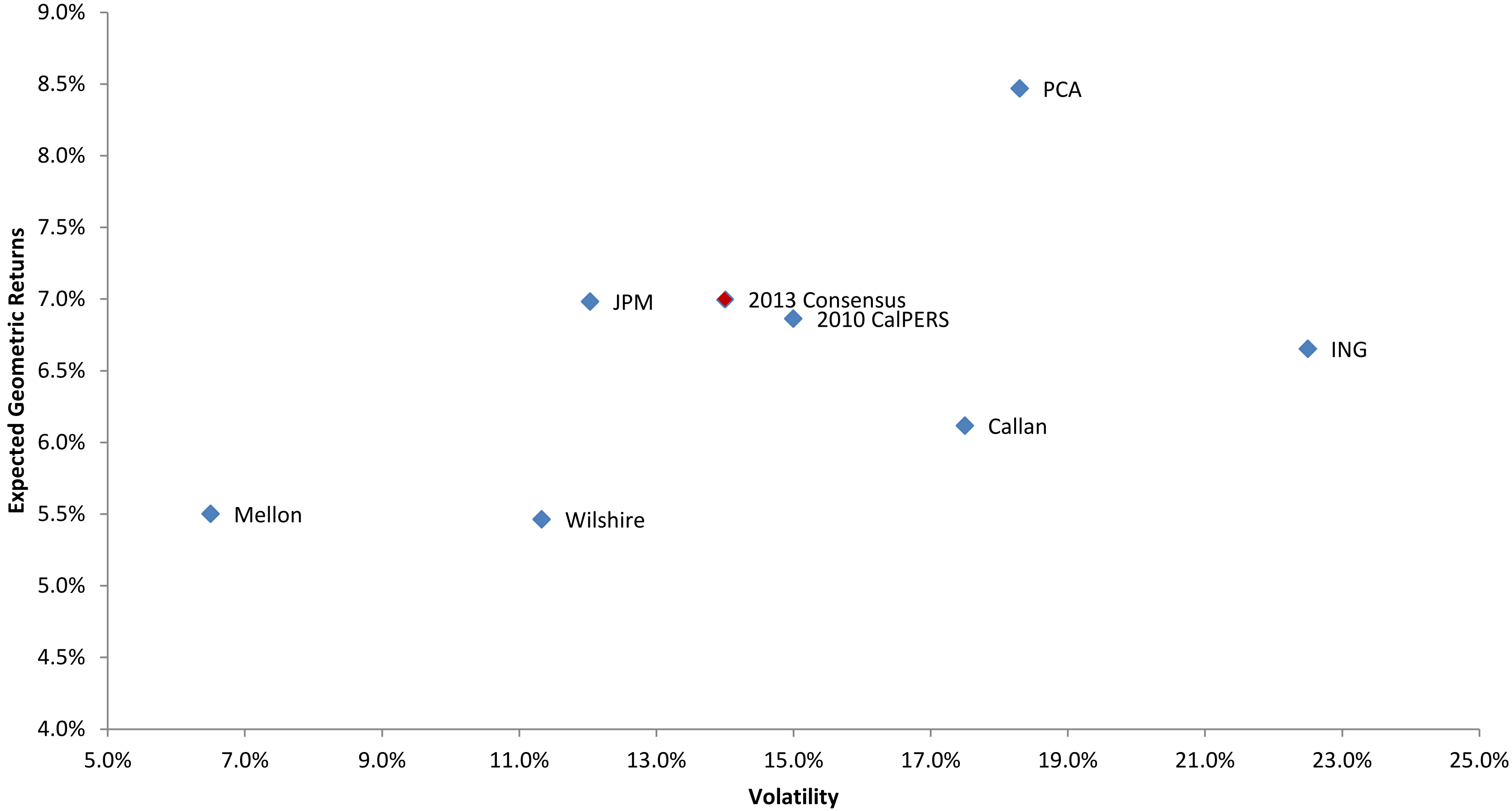
2013 Capital Market Assumptions for Global Equity



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 E(R)	Volatility (St. Dev.)	Inflation
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 E(R)**	**Volatility (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%

Michael C. Schlachter, CFA
Managing Director & Principal

Andrew Junkin, CFA, CAIA
Managing Director & Principal

May 25, 2013

Mr. Henry Jones
Chair, Investment Committee
California Public Employees' Retirement System
400 Q Street
Sacramento, CA 95814

Re: Adoption of 2013 Capital Market Assumptions

Dear Mr. Jones,

You requested our opinion regarding the agenda item from Staff that presents the Capital Market Assumptions for return, risk, and correlation for use in the 2013 Asset Liability Modeling process.

Recommendation

Wilshire recommends that the Investment Committee adopt the assumptions as presented for use in the Asset Liability Modeling process.

Discussion

The assumptions presented by Staff will drive the asset allocation process as the Investment Committee considers potential long term target allocations.

In general, Wilshire regards the consensus assumptions as appropriate, given CalPERS' strategic approach to investing and the size of the assets invested. Broadly, these assumptions reflect the current states of various financial markets and the implications for risk and return for a host of asset classes. While forecasting asset class returns is far from a precise science, we believe the proposed returns are reasonable and use justifiable methods of estimation. The assumptions presented were developed jointly by Staff, Wilshire, and others.

We find two observations noteworthy. First, the proposed returns ascribe a higher potential return to assets that are viewed to be more volatile. This risk premium is a widely held belief and has generally proven to be correct over long periods of time. However, there are periods of time, such as the last 6 or 12 years, when the return to risky assets (like stocks) falls below the return of less risky assets (like bonds). Thus, it will be important for the Investment Committee to continue to focus on the full range of possible outcomes, not just the expected case, when evaluating potential asset allocations.

Second, as outlined at the May 2013 workshop, developing these assumptions is an inexact science and the reality of the next ten years will like differ substantially from the predictions contained in this agenda item. As a result, it is paramount that the Investment Committee understand the potential ramifications of higher and lower than expected outcomes and select an asset allocation that balances the need for a given level of return with the desire to mitigate the possibility of significant or unrecoverable losses in this portfolio.

In the event of a significant movement in the financial markets over the next few months, Wilshire recommends revisiting these assumptions as is appropriate to adjust for the new market environment. At this time, we believe that these assumptions, however, are appropriate and reflective of the current environment for use in the November workshop.

Conclusion

Wilshire judges that the proposed expected return, risk and correlations are appropriate for use in the 2013 Asset Liability Workshop. Having worked with Staff and other investment professionals in developing these estimates, we believe that they properly account for the current economic and market environments and will help the Investment Committee focus on the potential long term outcomes of various asset allocation scenarios during the 2013 Asset Liability Modeling process.

Should you require anything further or have any questions, please do not hesitate to contact us.

Best regards,

15760 Ventura Blvd.. Suite 700
Encino, CA 91436
Phone: 818.995.8713
Fax: 818.990.7403

www.pensionconsulting.com

Los Angeles • Portland • New York

May 21, 2013

Henry Jones, Chairman
Investment Committee
California Public Employees' Retirement System
Sacramento, California 95814

Re: 2013 Capital Market Assumptions

Dear Mr. Jones,

The purpose of this letter is to provide the Investment Committee with Pension Consulting Alliance's (PCA) opinion regarding the consensus Capital Market Assumptions presented in this agenda item. In summary, PCA agrees with and recommends that the Investment Committee adopt the Capital Market Assumptions presented by the staff in the agenda item.

CalPERS' staff, consultants to the Board and independent third party investment management organizations with special expertise in the development of expected risks and returns have undertaken a rigorous and, at times, spirited debate/process to assist the Investment Committee in its consideration of this matter. It is important to note that current market conditions across all asset classes, especially the current level of interest rates, were the key drivers of the consensus assumptions.

In order for the asset allocation-asset/liability decision-making process to be reasonable the assumptions for risk, return and correlation among asset classes must be realistic and achievable. The consensus assumptions are, in PCA's opinion, both realistic and achievable.

In comparison to the 2010 Interim Workshop Capital Market Assumptions, the 2013 assumptions differ in two areas by meaningful amounts. The expected annual return for Fixed Income is approximately 1.75% lower (2.76% versus 4.50%) which takes into consideration the current yield to maturity of the broad fixed income market. The expected annual return of the Inflation-Linked class was reduced by over 3.00% (2.95% versus 6.00%) due to declines in long-term expected yields over the last three years, as well as re-configuration of the class.

The consensus view is that inflation, over the planning horizon, will increase at an annual rate of 2.75% which is 0.25% lower than assumed in 2010. In the near term, inflation is not a significant consideration. Over the long term, the impact of the historic high levels of borrowing in almost all developed markets required to address the post-2008 credit crises has significant potential to foster inflationary pressure later in the investment horizon.

The net result, if realized, of the changes detailed above (particularly with respect to fixed income) and the minor changes not detailed will be the reduction of the expected return for the total portfolio. Many other large institutional investors are going through the same decision-making process and most are reaching similar conclusions.

We look forward to addressing any questions or clarifications on this matter at the Investment Committee meeting.

Respectfully,

Allan Emkin