



Investment Committee

Agenda Item 7a

September 13, 2021

Item Name: Asset Liability Management: Adoption of Capital Market Assumptions

Program: Trust Level Portfolio Management and Implementation

Item Type: Action

Recommendation

For use in the 2021-22 ALM process, adopt the proposed baseline economic scenario CMAs, which include:

1. Projected returns, 5 years and 20 years
2. Projected volatility, 20 years
3. Asset class correlations, 20 years

Executive Summary

This agenda item puts forth for adoption the CMAs to be used in the CalPERS 2021-22 ALM process for the Public Employees' Retirement Fund. The CMAs have been developed from survey data for a baseline economic scenario and have been reviewed by the Investment Office to help ensure that the expected returns are appropriate for our asset classes and strategies. Economic scenarios (baseline, upside, downside) have been used with the CMAs to assess portfolios to understand a range of possible outcomes. This item includes supplementary information in the appendix about the economic scenarios and the CMAs associated with the upside and downside economic scenarios. CMAs for the Affiliate Funds will be presented at a future meeting.

Strategic Plan

This agenda item supports the CalPERS Strategic Plan goal to improve long-term pension and health benefit sustainability. This item provides information regarding the capital market assumptions, which are foundational to the ALM process, and supports the CalPERS Investment Committee in their oversight capacity.

Investment Beliefs

This agenda item supports CalPERS' Investment Belief 2: A long term investment horizon is a responsibility and an advantage and Belief 6: Strategic asset allocation is the dominant determinant of portfolio risk and return.

Background

CMAs for each asset class are critical inputs to the ALM process and have a direct impact on the portfolio allocation. Determining appropriate CMAs requires asset class expertise and an understanding of CalPERS' benchmarks and investment strategies. Given that there is uncertainty with CMAs, our process of surveying consultants and asset managers and reviewing the results with our research team and each asset class within Investment Office is intended to capture as much information as possible.

The CMAs are presented for 5 years and 20 years to incorporate both a long-term and near-term view of the market. While longer views are relevant to the discount rate, the near-term economic and market environment can be impactful. Assessing both timeframes for CMAs in constructing portfolios incorporates this dynamic.

To understand a range of possible outcomes when assessing portfolios, an upside and downside economic scenario are applied to the CMAs. This helps to evaluate possible portfolio performance in different economic and market environments, in addition to the baseline economic scenario.

Analysis

Not Applicable.

Budget and Fiscal Impacts

Not Applicable.

Benefits and Risks

CMAs are the essential inputs and starting points of the ALM process. The benefit of adopting the CMAs is that it allows the process to proceed with the evaluation of candidate portfolios. A risk of adopting the CMAs is that they are inherently uncertain and need to be evaluated with an understanding that they are not precision estimates. The risk of non-adoption would be more time and effort spent without a clear target for improvement.

Attachments

Attachment 1 – Asset Liability Management – Adoption of Capital Market Assumptions

Attachment 2 – Wilshire Opinion Letter

James Sterling Gunn

Managing Investment Director
Trust Level Portfolio Management

Dan Bienvenue

Interim Chief Investment Officer

Asset Liability Management: Adoption of Capital Market Assumptions

Sterling Gunn, Managing Investment Director, TLPPI

Investment Committee
September 13, 2021

Summary

- Capital Market Assumptions (CMAs) include projected asset returns, volatility and correlation. This presentation brings forward the CMAs for adoption to use in the 2021-22 Asset Liability Management (ALM) process for the Public Employees' Retirement Fund. CMAs for the Affiliate Funds will be presented for adoption at a future meeting.
- The CMAs have been developed from 03/31/21 survey data and reviewed internally to help ensure the expected returns are appropriate for our asset classes and strategies.
- The survey represents diverse views and incorporates economic and market uncertainty into our ALM process.
- As long-term investors, we believe the longer views are most relevant to our discount rate; however, the near-term economic and market environment can be impactful. The CMAs presented here are 5 years and 20 years to incorporate this dynamic.
- When assessing portfolios, economic scenarios can be used to evaluate portfolio performance in varying economic markets. Included in the appendix are three economic scenarios: baseline, upside, and downside for the near-term and long-term time horizons along with corresponding CMAs for the upside and downside scenarios.
- Our process includes use of investment analysis tools and technology from leading industry providers.
- Recommendation: Adopt the proposed CMAs in the baseline economic scenario for use in the 2021-22 ALM process.

Capital Market Assumptions – Baseline Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	6.8%	6.8%	17.0%
	Global Equity – Non-Cap Weighted	5.1%	6.1%	13.5%
	Private Equity	8.9%	9.6%	30.1%
Income	Long U.S. Treasuries	0.1%	2.6%	12.4%
	Spread Product – Mortgage-Backed Securities	1.2%	2.8%	3.1%
	Spread Product – Investment Grade Corporates	0.1%	3.9%	8.5%
	Spread Product – High Yield	2.2%	4.7%	9.2%
	Spread Product – Sovereigns	3.2%	4.5%	10.4%
	High Yield Segment	2.2%	4.6%	9.0%
Real Assets	Real Estate	5.3%	5.5%	12.2%
Liquidity	Liquidity	0.3%	1.7%	0.8%
Other	Private Debt	6.8%	5.9%	9.9%
	Emerging Market Debt	2.7%	4.8%	10.3%

Asset Class Average Correlations – 20 Years

	Global Equity Cap-weighted	Global Equity Non-Cap-weighted	Private Equity	Treasury	Mortgage-backed Securities	Sovereign Bonds	Investment Grade Corporates	High Yield CP	High Yield Segment	Emerging Market Debt	Private Debt	Real Assets	Liquidity	Risk-free Asset
Global Equity Cap-weighted	1.00	0.97	0.62	0.11	0.13	0.21	0.29	0.38	0.46	0.27	0.42	0.36	0.11	0.11
Global Equity Non-Cap-weighted	0.97	1.00	0.61	0.11	0.14	0.21	0.28	0.37	0.45	0.27	0.42	0.36	0.17	0.16
Private Equity	0.62	0.61	1.00	0.08	0.09	0.15	0.20	0.27	0.33	0.19	0.33	0.22	0.06	0.06
Treasury	0.11	0.11	0.08	1.00	0.77	0.96	0.91	0.79	0.36	0.59	0.07	0.09	0.09	0.09
Mortgage-backed Securities	0.13	0.14	0.09	0.77	1.00	0.78	0.72	0.66	0.41	0.50	0.10	0.13	0.19	0.19
Sovereign Bonds	0.21	0.21	0.15	0.96	0.78	1.00	0.94	0.86	0.49	0.64	0.11	0.11	0.11	0.11
Investment Grade Corporates	0.29	0.28	0.20	0.91	0.72	0.94	1.00	0.93	0.65	0.66	0.14	0.13	0.10	0.10
High Yield CP	0.38	0.37	0.27	0.79	0.66	0.86	0.93	1.00	0.85	0.65	0.18	0.15	0.10	0.10
High Yield Segment	0.46	0.45	0.33	0.36	0.41	0.49	0.65	0.85	1.00	0.49	0.21	0.15	0.12	0.12
Emerging Market Debt	0.27	0.27	0.19	0.59	0.50	0.64	0.66	0.65	0.49	1.00	0.13	0.10	0.09	0.09
Private Debt	0.42	0.42	0.33	0.07	0.10	0.11	0.14	0.18	0.21	0.13	1.00	0.20	0.21	0.21
Real Assets	0.36	0.36	0.22	0.09	0.13	0.11	0.13	0.15	0.15	0.10	0.20	1.00	0.16	0.16
Liquidity	0.11	0.17	0.06	0.09	0.19	0.11	0.10	0.10	0.12	0.09	0.21	0.16	1.00	0.98
Risk-free Asset	0.11	0.16	0.06	0.09	0.19	0.11	0.10	0.10	0.12	0.09	0.21	0.16	0.98	1.00

Recommendation

For use in the 2021-22 ALM process for the Public Employees' Retirement Fund, adopt the proposed baseline economic scenario CMAs, which include:

1. Projected returns, 5 years and 20 years
2. Projected volatility, 20 years
3. Asset class correlations, 20 years

Appendix

Economic Scenarios: U.S. Near-Term

Economic Scenario	Growth	Inflation	Drivers/Assumptions	Representative Projected Returns		
				Public Equity	US Treasuries	US Real Estate
Baseline	2.7%	2.4%	- Labor force participation recovers moderately - Fed keeps rates low for longer - No assumptions made on US fiscal infrastructure bill	6.8%	0.1%	5.3%
Upside	2.9%	2.6%	- Rapid recovery, confidence boost, re-opening - Labor force participates in labor market sooner - Fed keeps rates low for longer - Output driven by pent-up demand and excess savings	7.2%	-0.5%	5.7%
Downside	2.3%	1.8%	- Labor force participation recovers moderately - Business investment weakens - Fiscal debt overhang, government seeks to repay gradually	6.2%	0.9%	4.5%

Economic Scenarios: U.S. Long-Term

Economic Scenario	Growth	Inflation	Drivers/Assumptions	Representative Projected Returns		
				Public Equity	US Treasuries	US Real Estate
Baseline	1.8%	2.3%	Long-run equilibrium relationships remain consistent with history	6.8%	2.6%	5.5%
Upside	2.3%	2.7%	- No permanent negative impact to supply side of economy from pandemic - In the long-run total factor productivity rises - Fed framework facilitates higher inflation on average - Income accrues to labor	7.5%	2.7%	6.2%
Downside	1.6%	1.7%	- Demographics/population growth remain weak - Flat productivity growth	6.3%	2.7%	4.7%

Capital Market Assumptions – Upside Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	7.2%	7.5%	17.0%
	Global Equity – Non-Cap Weighted	5.4%	6.6%	13.5%
	Private Equity	9.7%	10.8%	30.1%
Income	Long U.S. Treasuries	-0.5%	2.7%	12.4%
	Spread Product – Mortgage-Backed Securities	1.1%	2.9%	3.1%
	Spread Product – Investment Grade Corporates	-0.5%	4.0%	8.5%
	Spread Product – High Yield	2.2%	4.8%	9.2%
	Spread Product – Sovereigns	2.7%	4.6%	10.4%
	High Yield Segment	2.2%	4.7%	9.0%
Real Assets	Real Estate	5.7%	6.2%	12.2%
Liquidity	Liquidity	0.4%	1.7%	0.8%
Other	Private Debt	6.9%	5.8%	9.9%
	Emerging Market Debt	2.4%	4.9%	10.3%

Capital Market Assumptions – Downside Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	6.2%	6.3%	17.0%
	Global Equity – Non-Cap Weighted	4.6%	5.5%	13.5%
	Private Equity	8.0%	8.5%	30.1%
Income	Long U.S. Treasuries	0.9%	2.7%	12.4%
	Spread Product – Mortgage-Backed Securities	1.4%	2.5%	3.1%
	Spread Product – Investment Grade Corporates	0.8%	4.0%	8.5%
	Spread Product – High Yield	2.3%	4.3%	9.2%
	Spread Product – Sovereigns	3.9%	4.6%	10.4%
	High Yield Segment	2.3%	4.3%	9.0%
Real Assets	Real Estate	4.5%	4.7%	12.2%
Liquidity	Liquidity	0.0%	1.0%	0.8%
Other	Private Debt	6.3%	4.8%	9.9%
	Emerging Market Debt	3.2%	4.8%	10.3%

Wilshire

August 24, 2021

Ms. Theresa Taylor
Chair of the Investment Committee
California Public Employees' Retirement System
400 P Street
Sacramento, CA 95814

Re: Adoption of 2021 Capital Market Assumptions

You requested Wilshire's opinion with respect to adoption of the proposed 2021 capital market assumptions (CMAs) for use in CalPERS' 2021-2022 Asset Liability Management (ALM) process. The importance of the ALM process is clearly articulated by CalPERS Investment Belief 6, which recognizes that **strategic asset allocation is the dominant determinant of portfolio risk and return**. CalPERS' diligence in focusing on the CMA environment during its June 2021 Investment Committee meeting (item 7a: "Current Market Environment") and in two sessions of its July 2021 Board offsite (Day One: 10:45 AM "Capital Market Assumption Education" & 1:00 PM "Capital Market Assumptions: Survey and Methodology")) demonstrates the importance of these key inputs within the ALM process. The CMAs serve to establish baseline expectations to define the characteristics of investable asset classes (i.e., the "A" in "ALM") over various time horizons.

The Process

Staff coordinated a survey of 11 external investment advisors (i.e., consultants, asset managers, etc.) to collect industry forecasts across a variety of asset class segments over 5, 10, 20, and 30-year horizons. The proposed 5-year and 20-year CMAs represent rounded medians from that dataset, including Staff adjustments made in cases where no survey respondents provided time horizon estimates for a particular asset class. For example, if no data was collected for a specific asset class over the 5-year horizon, Staff proxied those figures based on the respondents' median 10-year forecast for that asset class along with the respondents' 10 vs. 5-year median assumption spread for an adjacent/related asset class proxy.

The process benefits from taking a consensus view of market forecasts, which can protect against the potential risk of a unique/outlier in-house view to dominate candidate portfolio choices. The potential downside of such an approach, however, is the possible loss of internal consistency in relative asset class return relationships that might stem from the differing subset of respondents providing estimates across the various asset class segments (for example, where each asset class median is derived from the number of survey respondents providing data for that segment rather than from a consistent set of

Wilshire

respondents providing data across all asset classes). While these issues are somewhat addressed through Staff's adjustment process, they are worth understanding when moving into future stages of the ALM process.

The Results

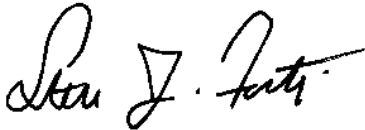
Wilshire believes that Staff's recommended 2021 Capital Market Assumptions represent a reasonable reflection of the potential return, risk and diversification properties across CalPERS' asset class universe, particularly when understood against the pros and cons of the survey method described above. The results generally reflect consensus views across a representative group of institutional investment organizations for the 5 and 20-year time horizons of interest to CalPERS' ALM process. Though they reflect consensus views from a variety of sources, Staff's recommended CMAs over the 20-year horizon are generally consistent with Wilshire's assumptions in these asset classes. And, while Wilshire does not maintain CMAs for a 5-year time horizon, Staff's recommended short-term CMAs are generally consistent with the directional impacts we would expect to see if moving from our standard 10-year forecasts to a shorter 5-year horizon (i.e., lower fixed income returns, etc.), albeit with some of the potential internal inconsistencies noted earlier.

Recommendation

Wilshire is generally comfortable with an approach of outsourcing the establishment of CMAs to a survey of trusted institutional advisors. We believe that with awareness of the strengths and weaknesses of such an approach, the Investment Committee should approve use of the 2021 capital market assumptions as proposed by Staff.

Should you require anything further or have any questions, please do not hesitate to contact us. We look forward to the investment committee discussion and will be prepared to discuss or elaborate on any of the issues noted above.

Best regards,



Steven J. Foresti

Chief Investment Officer, Asset Allocation & Research, Wilshire Advisors