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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

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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