August 15, 2024

Mr. David Miller Chair of the Investment Committee California Public Employees' Retirement System 400 P Street Sacramento, CA 95814

Re: Consultant Global Fixed Income Program Review

Wilshire's review of CalPERS' investment programs included regular conference calls with the Managing Investment Directors (MIDs) and key investment personnel throughout the year to discuss team structure, portfolio construction, positioning, and performance. This opinion letter starts with focus on the Global Fixed Income program and concludes with an appendix of the Wilshire's scores, consistent with past annual reviews.

Global Fixed Income

The CalPERS Global Fixed Income (GFI) Program is designed to diversify equity risk for the total fund and provide current income and liquidity. The review process included discussions with senior Staff members of each fixed income segment within the GFI Program. Review topics included Program investment process, personnel and resource management, as well as investment and risk management procedures.

The Program is actively managed with 77.1% of the \$148.9 billion in assets managed internally by Staff, and the remaining 22.9% outsourced to external managers. In addition, the team is responsible for managing short term funds and a Total Fund tactical fixed income portfolio, together accounting for \$17.6 billion. For fiscal year 2024, Treasuries were the worst performing segment with a return of -3.6%. Mortgages and Investment Grade Corporates rebounded this year with positive returns of 2.7% and 3.1%, respectively. High Yield was the standout performer in absolute terms, up 9.9%. EM Sovereigns were also up 7.5% during the fiscal year to build off a strong start for the program.

As Staff's presentation highlights, Treasuries and Mortgages have both underperformed expectations since the 2021 ALM, while Investment Grade Credit and EM Sovereign have performed in-line with expectations. High Yield has outperformed expectations, similar to other riskier asset classes.

Team

We believe the Global Fixed Income Program is managed in an effective and risk-conscious manner, leveraging the deep expertise of the senior management team. As we have discussed in the past, the size of the internal GFI team remains a risk factor to ensuring continuity of the demonstrated investment success of the portfolio. Currently, there are 1 Investment Director and

2 Assistant Investment Manager positions open, though this is likely to shift given ongoing recruiting efforts. The engagement of Staff in cross-functional initiatives yields valuable perspectives and underscores their commitment to the Total Fund's success. This increased demand on the Staff's time further emphasizes the importance of effective resource management, especially in terms of recruiting and retaining talent within the organization.

The MID for Global Fixed Income has made progress recruiting across the functional team areas. This includes expanding the internal credit, research and strategy, emerging market debt, and structure securities positions, and success in filling open positions. In our discussions with the team, they feel the quality of applicants has noticeably increased during the fiscal year and bodes well for recruitment going forward. The lengthy recruiting process and some compensation restrictions, relative to the private sector, remain challenges to attracting skilled investment professionals. Given the additional team resources, Wilshire has increased that score in this evaluation.

Portfolio

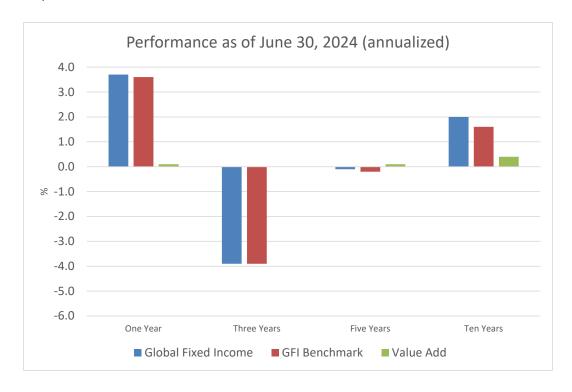
The Global Fixed Income portfolio consists of five component segments: 1) Treasuries, 2) Mortgages, 3) Investment Grade Corporates, 4) Sovereign Emerging Market Debt, and 5) High Yield. The roles and characteristics of each segment are sufficiently distinct that separating them during the asset allocation optimization process allowed for more efficient portfolio construction.

Treasuries offer very high levels of liquidity and have offered solid protection against equity drawdowns but experience direct sensitivity to interest rate changes. Mortgages are similarly very liquid and together with Treasuries can offer a funding source for the leverage that is now incorporated into the asset allocation targets. Investment grade corporate bonds balance interest rate sensitivity with higher quality credit risk for additional income. Sovereign EMD, as a dedicated asset class, offer enhanced yields as well as diversification across different economies globally. High yield bonds behave more like equities in bear markets but offer a significant pickup in yield versus other instruments and some diversification process to help achieve CalPERS' investment objectives. Additionally, a tactical Total Fund Fixed Income mandate is available and has been used to take advantage of market dislocations. The team has taken advantage of tactical triggers based on credit spreads to enter into these higher-level portfolio tilts, which have been successful in driving value-add. Importantly, they have maintained a disciplined approach to realizing gains on a tactical basis.

Performance

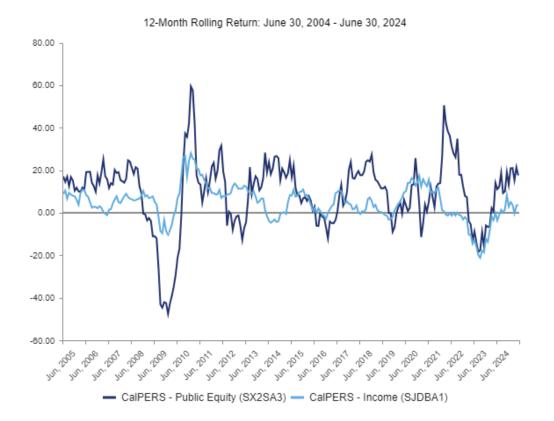
Fiscal year 2024 represented a recovery period for fixed income asset returns, though still muted relative to other asset classes. The chart below shows the Program's historical performance relative to its benchmark. Global Fixed Income was buffeted by a historically difficult period for interest rate markets in both fiscal years 2021 and 2022, which continues to impact the 3 and 5-year returns. Performance across sectors outside of Treasuries were positive on an absolute basis,

with High Yield and Emerging Market Debt posting returns which exceeded the actuarial target rate.



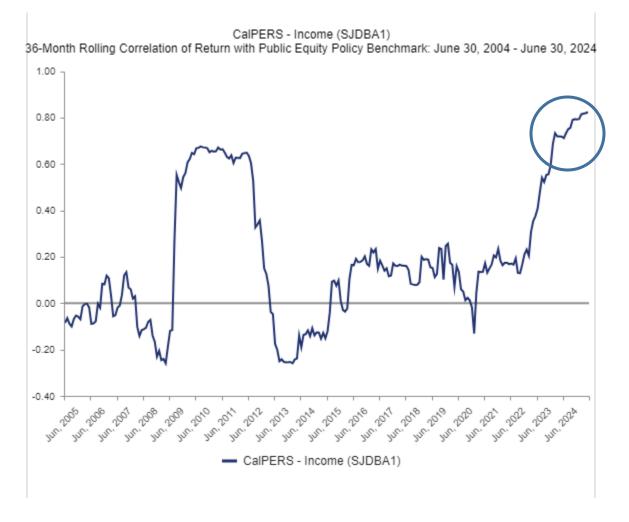
The Global Fixed Income team has delivered positive active value-add relative to the index over 1, 5, and 10-year time horizons.

The 12-month rolling returns and 3-year rolling correlation with Global Equity are shown in the following charts. Together, these demonstrate the strategic role the GFI portfolio plays in diversifying equity returns over different market cycles throughout the past 20+ years. This relationship was tested over the '22-'23 fiscal years, however. Fiscal year 2024 continued to shower higher than average levels of correlation, though in this case that was because both equity and fixed income markets rallied.



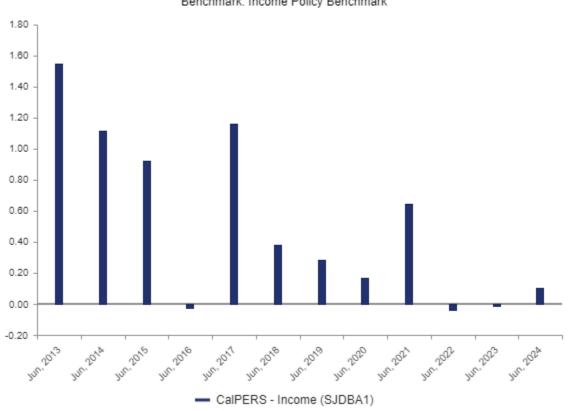
The Board will note that the most recent correlations between fixed income and equity are at the highest levels of the past 20 years. This highlights a risk Wilshire communicated in previous discussion - when starting with low interest rates, fixed income had lower diversification benefits. As inflation accelerated and expectations for Federal Reserve rate increases climbed in 2022, both public equity and fixed income were negatively impacted at the same time. With expectations for easing by the Federal Reserve increasing, Wilshire expects this elevated correlation to moderate and improve the portfolio diversification benefits of fixed income assets to be more in-line with historical experience.





From an active return perspective, the CalPERS GFI program exceeded the benchmark during the most recent one-year period. Over longer-term periods, the Global Fixed Income portfolio has been a consistent source of value-add for the portfolio. In the last fiscal year, Mortgages and Emerging Market Sovereign portfolios outperformed their relevant indexes, while Investment Grade Credit underperformed. High Yield had the highest absolute return and succeeded in matching the index after accounting for costs. The Treasury portfolio was flat versus its index by design. From a relative return standpoint, the Emerging Market Sovereign portfolio was a standout contributor in its first full fiscal year, even as the size of the portfolio increased meaningfully to \$26.7 billion. Over the long term 5 and 10-year periods, the underlying active strategies in the fixed income portfolio have matched or exceeded benchmark performance.

The GFI portfolio has consistently demonstrated a level of forecasting success as evidenced by the positive relative returns for the portfolio as a whole over longer term time periods. FY24 performance was positive on a relative basis, after two challenging fiscal years. Wilshire would like to see continued consistency before elevating the GFI forecasting score in the future. That said, the score remains high given consistency on average over the last 10 years.

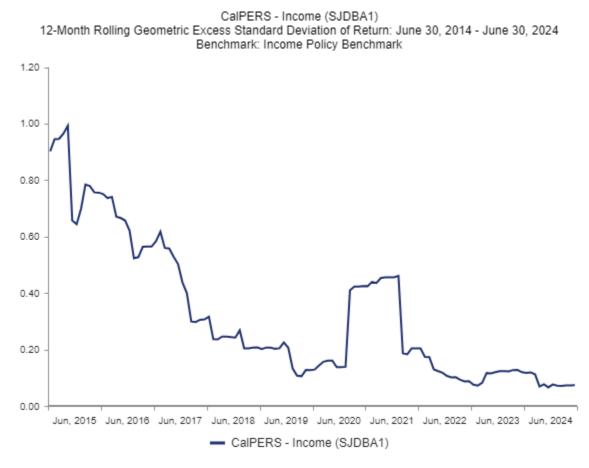


CalPERS - Income (SJDBA1) Annual Geometric Excess Return: June 30, 2012 - June 30, 2024 Benchmark: Income Policy Benchmark

The portfolio construction approach remains well aligned with Investment Beliefs #1 - Liabilities, #2 - Long-Term Horizon, and #7 - Risk vs. Reward. The high portfolio construction score reflects the dynamic approach to active risk positioning, which has not led to significant increases in the portfolio's overall tracking error. This indicates a well-defined risk budgeting process. For instance, the team has adopted a cautious stance in both investment-grade and high-yield markets, where the potential for spread widening outweighed the yield advantage. They also played a key role in planning and implementing a strategic portfolio tilt towards mortgages, which positively contributed to Total Fund returns. Moving forward, they will continue to explore relative value opportunities across different segments.

Staff continue working to implement the mid-cycle ALM shifts in the underlying fixed income segments and have done so in a cost-effective, efficient manner. A continual process of improvement was also highlighted in the Treasury segment, which was restructured to improve its liquidity profile and portfolio management efficiency.

^{*} Monthly data; Net of Investment Management Fees



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Wilshire

The investment approach of the total GFI program remains consistent with its key strategic objective of providing income, stability, and equity risk diversification within the Total Fund. At the same time, GFI has outperformed its benchmark over longer time frames through both subsector relative value decisions and tactical positioning. GFI portfolios have taken advantage of opportunities in certain markets segments, while maintaining relatively tight active risk positioning over time. The team has continued to improve portfolio implementation with use of portfolio trades, improved counter party relationships, and active participation in the new issue market.

Utilizing our standard manager research scoring framework, Wilshire's qualitative assessment of the Program places it in the 3rd decile. The score reflects a reduction in the Firm score given the turnover in the senior investment team, as well as a modest increase in the Team rating due hiring of additional resources. The program consistently demonstrates strong scores in portfolio construction and implementation. Overall, the score highlights the experienced team and their success in managing the portfolio with a focus on risk control over extended time horizons.

Appendix - Evaluation Scores for Global Fixed Income Program

Wilshire

CalPERS Global Fixed Income		Tier	Letter
Total Qualitative Score		3rd	В
	Weight	Tier	Letter
Organization	20%	5th	C
FIRM	50%	7th	D
Quality and Stability of Senior Management			
Quality of Organization			
Ownership/Incentives			
TEAM	50%	4th	В
Stability of Investment Professionals			
Quality of Team			
Commitment to Improvement			
Information Gathering	20%	3rd	В
Information Resources			
Depth of Information			
Breadth of Information			
Forecasting	20%	2nd	Α
Clear & Intuitive Forecasting Approach			
Repeatable Process			
Strength, Clarity, and Intuitiveness of Valuation Methodology			
Forecasting Success			
Unique Forecasting Approach			
Portfolio Construction	20%	2nd	А
Risk Budgeting/Control		•	
Defined Buy/Sell Discipline			
Consistency of Portfolio Characteristics			
Implementation	10%	2nd	А
Resources		•	
Liquidity			
Compliance/Trading/Monitoring			
Attribution	10%	2nd	А
Depth of Attribution			