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August 30, 2016

Mr. Henry Jones
Chairman of the Investment Committee
California Public Employees' Retirement System
400 P Street, Suite 3492
Sacramento, CA 95814

Re: Internal Fixed Income Annual Review

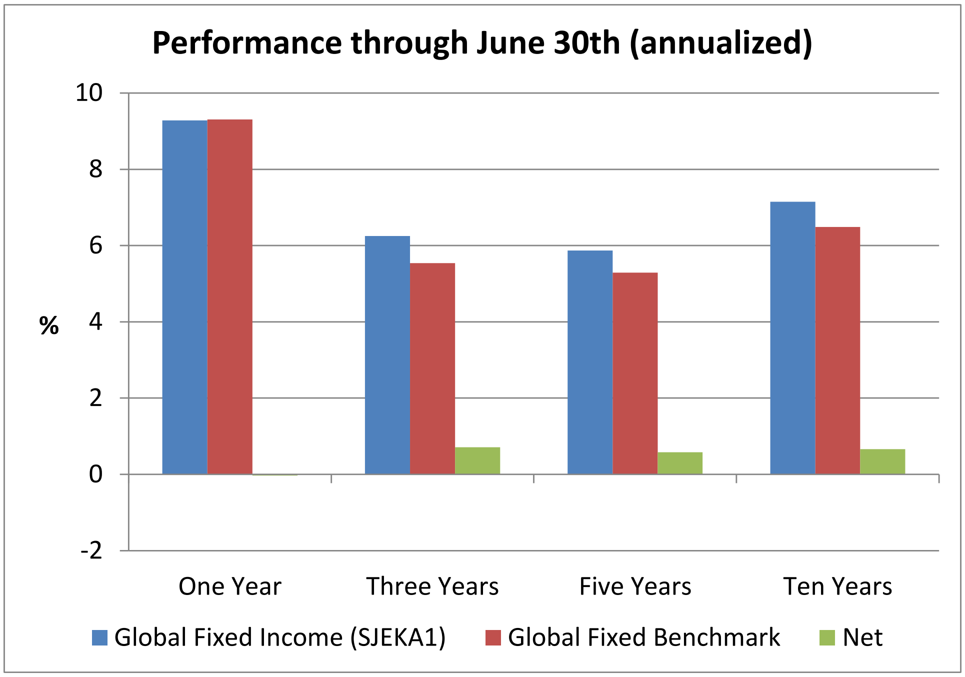
Dear Mr. Jones:

Wilshire conducted an on-site review of the internal fixed income team's personnel, investment process, and resources. The CalPERS Fixed Income Programs are designed to diversify equity risk for the total fund and provide current income and liquidity. The Programs are actively managed with almost 93% of the $81.8 billion in assets managed internally by staff and the remaining 7% outsourced to external managers.
As part of our review, we met with Staff members involved with the management and trading of the various fixed income portfolios. Discussions with Staff focused on the evolution of the team and the impact of the Vision 2020 initiative on both the fixed income portfolio and the Total Fund.

Summary

We continue to believe the investment approach remains appropriate for the various CalPERS' portfolios and Staff is aware of and appropriately manages the investment risks faced by the portfolios. Wilshire believes that the team continues to manage the portfolio in an effective, risk-aware manner and has sophisticated systems to assist in monitoring and managing the portfolio. Performance has been in-line with or ahead of the Program's policy benchmark as shown in Exhibit One.

Exhibit One




Importantly, the Fixed Income Program has met one of its key strategic objectives; that of diversifying the equity risk within the Total Fund, as illustrated by Exhibits Two and Three. As has been discussed on numerous occasions, Wilshire believes that the longer duration of CalPERS fixed income program compared to many public fund peers adds meaningfully to the equity-risk diversifying characteristics of the asset class. In spite of the greater interest rate sensitivity and potential for losses when rates are rising, Wilshire considers the duration to be appropriate when considering the CalPERS portfolio holistically.

Exhibit Two

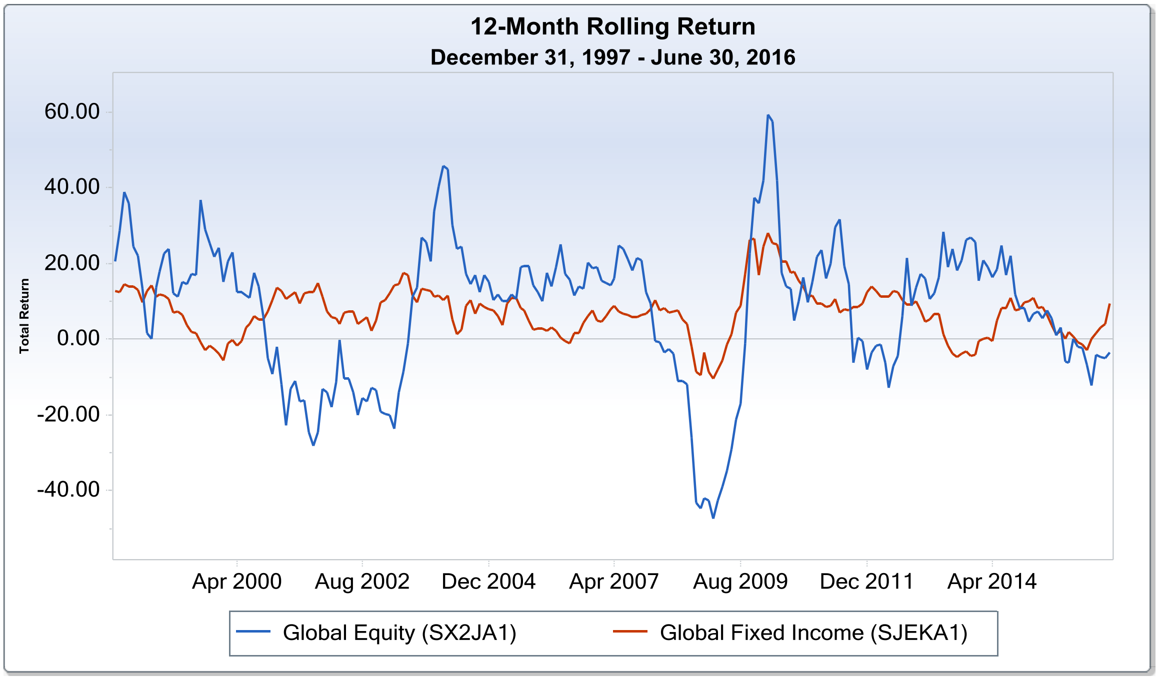
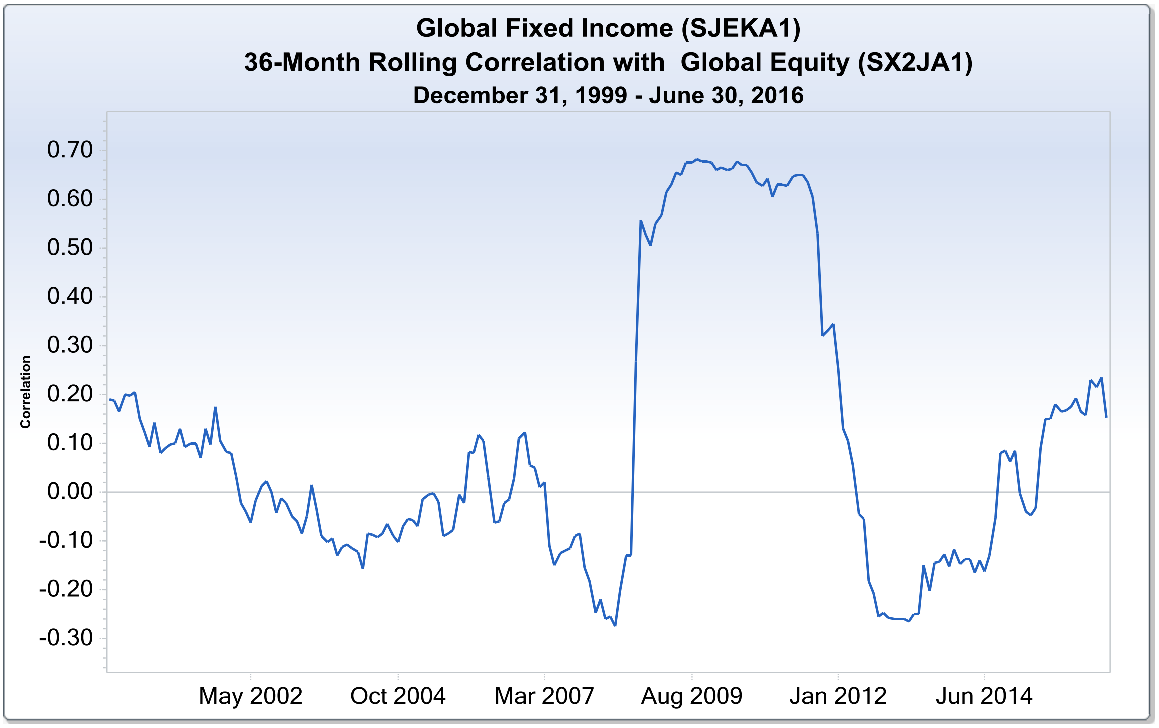



Exhibit Three



The Investment Office has continued to discuss ways to enhance the internal management capabilities of the fixed income program, which will only increase in importance as INVO manages through an unprecedented low interest rate environment globally. The fixed income team has also served as a source for senior positions within other Investment Office teams, which underlines the skill set and expertise that has been cultivated internally. Further, the Global Fixed Income Programs' investment policy documents afford Staff sufficient flexibility to manage the portfolio's inherent investment risks.

The remainder of this report provides Wilshire thoughts, "scoring," and rationale on the Global Fixed Income Program. Please note that Wilshire has updated our scoring format for both the Global Fixed Income Program and the Global Equity Programs as our thoughts on how to best evaluate asset managers continues to evolve.

**Scoring**

Wilshire rates the GFI Program highly, ranking the overall Program in the second decile of other similar asset managers. Significant positives include an experienced and capable team with a consistent portfolio construction process, while lack of equity ownership is a significant detractor.

| Manager's Score | | Tier |
|---|---|---|
| Total Qualitative Score | | 2nd |
| | Wt. | Tier |
| **Organization** | 20% | 4th |
| **FIRM** | *50%* | 6th |
| Quality and Stability of Senior Management | | |
| Quality of Organization | | |
| Ownership/Incentives | | |
| **TEAM** | *50%* | 3rd |
| Stability of Investment Professionals | | |
| Quality of Team | | |
| Commitment to Improvement | | |
| | | |
| **Information Gathering** | 20% | 1st |
| Information Resources | | |
| Depth of Information | | |
| Breadth of Information | | |
| | | |
| **Forecasting** | 20% | 1st |
| Clear & Intuitive Forecasting Approach | | |
| Repeatable Process | | |
| Strength, Clarity, and Intuitiveness of Valuation Methodology | | |
| Forecasting Success | | |
| Unique Forecasting Approach | | |
| | | |
| **Portfolio Construction** | 20% | 2nd |
| Risk Budgeting/Control | | |
| Defined Buy/Sell Discipline | | |
| Consistency of Portfolio Characteristics | | |
| | | |
| **Implementation** | 10% | 3rd |
| Resources | | |
| Liquidity | | |
| Compliance/Trading/Monitoring | | |
| | | |
| **Attribution** | 10% | 3rd |
| Depth of Attribution | | |
| Integration of Attribution | | |

**Discussion**

Organization - Firm

CalPERS does face some unique organizational risks that for-profit enterprises have greater flexibility in managing. The lack of long-term ownership in the enterprise as a significant retention incentive puts the organization at risk for losing intellectual capital. While the Fixed Income team continues to look for outstanding candidates for new and open positions, compensation bands constrain its ability to attract candidates and have generally extended the search timeline. There are currently a number of open positions at the IM and IO levels, which play an important role in supporting the senior team and will be crucial in maintaining the quality of personnel over the long term. Ensuring that CalPERS as an organization has the tools necessary to recruit and retain qualified, diverse candidates should be a strong focus in line with Investment Belief #10 - Resources and Process. Of note, continued work regarding incentive compensation structures has increased the discretion around target ranges which can be used as an effective management tool to help differentiate between top performers and others.

Organization - Team

The broad team structure has been consistent and the senior investment team remains stable. The MID-Fixed Income has overall responsibility for all portfolios' sector weights and duration positioning. The MID-Fixed Income will adjust exposures at the aggregate portfolio level, but does not direct the portfolio managers (e.g., the internally managed credit portfolio or the mortgage portfolio) to change the underlying portfolios' exposures provided they remain within the appropriate guidelines.

The fixed income team manages portfolios with various duration targets ranging from highly liquid, short-term Treasury Bill benchmarked portfolios to longer duration portfolios benchmarked to the Barclay's Long Liability Index. Additionally, the fixed income team invests across the credit spectrum from U.S. Treasury bonds to high yield bonds and in a variety of structured fixed income securities, such as mortgage obligations and asset-backed securities. Staff also manages international fixed income, and currency. A separate allocation to inflation-linked bonds and commodities as a part of the Inflation Assets portfolio is also managed within the internal fixed income program. The internal staff is able to effectively manage the portfolio at much lower cost relative to placing capital with external managers in line with Investment Belief #8 – Costs Matter. Finally, there are a number of external managers who provide direct investment management and act as strategic partners to provide research and insight, supplementing the work performed by Staff.

Staff has sector specialists that focus on credit (corporate), structured products (mortgage-backed, asset-backed, etc.), global governments, and inflation linked assets that are highly knowledgeable and manage their respective sectors of the portfolio against appropriate benchmarks. In addition, the domestic research team has been expanded over the last few years in line with Investment Belief #10 – Resource/Process, while also remaining cognizant of Investment Belief #8 – Costs Matter. Wilshire views the addition of research resources favorably and believes that continuing to build out the depth and breadth of the internal fixed income team should be a long-term goal for CalPERS, particularly if new mandates are considered for internal management. At this point, the MID and ID's do not foresee bringing significant new mandates internally, such as lower quality non-investment grade fixed income. These areas require skill sets which are more specialized and are of a size such that the impact on the broader fixed income portfolio and the Total Fund is likely to be limited. This coincides well with Investment Belief #8 - Costs Matter.

Regarding the Liquidity portfolio, CalPERS previously analyzed and formed a plan to consolidate the management of all short-term investment funds. This is likely to be put into effect in the next six months and further signals a commitment to improving internal capabilities across fixed income markets as well as providing cross asset class infrastructure. Operational complexities do present a challenge, but the investment team is aware of them and has the expertise in management of STIF portfolios to address them.

Investment team turnover continues to be a long-term concern, as the employment market continues to tighten and the compensation packages offered to private sector employees become increasingly competitive. Turnover can be and is mitigated with a positive and intellectually challenging work environment and a strong sense of mission, which has allowed CalPERS to attract qualified investors. Staff is clearly cognizant of this issue and has structured the team with layers of expertise for coverage of critical investment functions.

On a positive note for the CalPERS organization, part of the turnover in the internal fixed income team has been due to members moving into positions within other INVO groups. This cross fertilization is a benefit for the organization even as it poses a challenge for the internal fixed income team. For example, the team for the Commodity program has an open position for an additional Staff resource to focus on research and trading as there was a lateral shift within the team since the last review. The Investment Director responsible for U.S. Governments is slated to move to the Opportunistic team and the Investment Director - Economics will be taking over U.S. Government responsibility. At the same time, an IM-Quantitative Analysis has transitioned to a role with the Asset Allocation team. This impacts the continued push to build out the quantitative framework utilized internally, but also highlights that the internal fixed income team is adequately structured to ensure continuity in portfolio management.

From a team perspective, a large and identifiable future risk to the internally managed fixed income team is the succession from the current MID-Fixed Income to the next generation of leadership. It will be imperative for the leadership transition to be communicated clearly and executed in a thoughtful manner with meaningful input from all stakeholders. Any personnel changes will need to be done in such a way that it maintains and builds on an investment culture that has cultivated success over a long time horizon. Strong internal candidates with the experience and broad investment expertise are certainly an option. Further, a transition must also take into account the impact on mid-level positions, which could be in a position to step into more senior roles for which they are qualified. In this way, the introduction of an Associate ID level designation can act as a bridge to more senior investment roles and provide further depth for the team. At the same time, the potential for some changes in responsibility at the ID level will test the ability of the team to promote outstanding candidates and recruit new or experienced staff. We discussed with senior staff the importance of diversity of viewpoints and the staff supports and continues to provide opportunity to all qualified candidates.

Staff is pursuing initiatives related to the 20/20 Vision, and as these initiatives demand material time commitment, balancing the demands of the day-to-day portfolio management with the desires to move the organization forward strategically is imperative. The additional workload is no doubt material - including cross asset class committees, attribution improvements, and ESG initiatives - but the theme that was prevalent in the discussions with multiple team members across various portfolios was the importance they placed on the initiatives' impact on CalPERS. This attitude underscores a prevalent focus on improvement, not just for individual day-to-day responsibilities but for the Total Fund as well. That said, the team seems more capacity constrained than in prior years given portfolio responsibilities and necessary strategic initiatives.

<u>Information Gathering</u>

For internal management purposes, Staff has sector specialists covering sovereign bonds, structured securities, and corporate bonds. The Global Governments ex-U.S. Investment Director continues with oversight of all Government ex-U.S. portfolios in addition to Commodities, non-U.S., and Emerging Markets Debt. The team has put in place process and structure to help manage an increased opportunity set, including weekly macro outlook and portfolio strategy meetings. These areas of diversification within Global Fixed Income will be increasingly important as monetary policies diverge between global central banks and offer opportunities to add value relative to the index.

In addition, internal research related to modeling duration and the shape of the yield curve illustrates a continued effort to improve the portfolio management inputs. Staff would like to continue to build out the team's capabilities by adding additional resources. Wilshire would support this direction, particularly as additional international fixed income assets are managed internally, but it will need to be done in such a way that the expertise provided by external partners is thoroughly covered without undue internal key person risk. This is likely to be a longer term process, which is appropriate given Investment Belief #4 - Long Term Value Requires Effective Management of Three Forms of Capital - Financial, Physical, Human. The sector specialists are also involved in sourcing and evaluating securities that might fit into the opportunistic bucket, although the MID-Fixed Income is the ultimate arbiter of that portion of the portfolio.

Further, in line with Investment Beliefs #3 and #4– Stakeholders and Three Forms of Capital, the internal fixed income team is working to integrate environmental, social, and governance (ESG) factors into their investment process. Last year the team created Sustainable Practice Guidelines to provide guidance to incorporate these factors into the investment process. Recognizing that the mandate for Global Fixed Income is to be a diversifier to global equity volatility and a reliable source of income for CalPERS, the team considers a range of risks that include ESG factors and regulatory factors. These are re-evaluated periodically in recognition of the evolution of research on the materiality of current factors and newly identified factors that describe the return and risk drivers of a fixed income portfolio. The team uses MSCI's ESG pillars and the PRI Reporting Framework definition of Corporate Focused ESG risks to help identify these factors. As evidence of continued improvement in the realm of ESG, the UN PRI assessment grade went from a B in 2015 to an A in 2016. For context, this grade placed CalPERS in the top quartile of UN PRI respondents.

Our discussions with the credit research team included specific descriptions of situations in which ESG factors played an important role in the investment decision making process. These examples included both corporate and sovereign bond situations. By necessity, given the high percentage of US Government and Government Sponsored Entities in the program's policy benchmark, the use of ESG factors impacts less than 40% of the broad fixed income portfolio. The Investment Committee would have to approve an adjustment to the benchmark to increase that penetration rate.

In addition to the above integration of ESG and Regulatory factors into the internally managed fixed income portfolios, the team has conducted a survey of external managers and incorporated questions into due diligence questionnaires to determine how these factors are used within these strategies.

One theme which emerged during our interviews with a number of the senior members of the team was the cross-functional work being done to help improve Total Fund performance. For example, the weekly economic scorecard and analysis produced by the fixed income team is shared with other parts of the Investment Office for debate and discussion. The derivatives policy committee within fixed income works to improve counterparty governance and monitoring, which provides a benefit throughout the Investment Office. This work integrates staff from operations and risk to reduce missteps as new types of derivative implementation is explored.

There continues to be meaningful resources committed to improving the enhanced cash and CLO capabilities, responsibilities which are being transitioned into the Opportunistic Asset Class portfolio. Additional legal and research resources (likely external) will be necessary to provide the appropriate level of support due to the complexity and legal documentation required for strategies using CLOs. This will be handled outside of Global Fixed Income going forward, however.

<u>Forecasting</u>

The MID-Fixed Income has overall responsibility for managing the duration of the portfolio and the sector mix. The MID-Fixed Income determines the appropriate mix of sectors based on their relative attractiveness, comparing the option-adjusted spread of each sector and stress testing the forecasted results of the portfolio under different economic assumptions. Philosophically, the MID-Fixed Income believes that improved risk-adjusted returns are likely to come from spread sectors such as credit; hence, the portfolio is likely to show a consistent bias towards those sectors. The staff presentation illustrates this tilt with the underweight government and overweight opportunistic positioning, which is consistent with the strategic tilt discussed in prior reviews. That said, the active risk in the portfolio does vary over time and is adjusted based on the conviction level of the team. Currently, the portfolio is positioned with a lower level of active risk than seen historically.

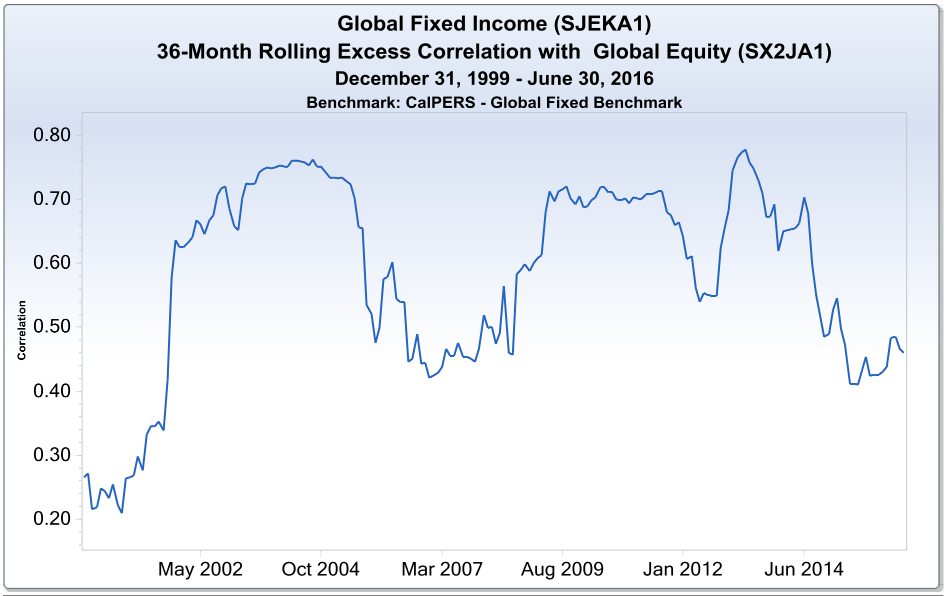
Strategically, the IM-Commodities views the commodity exposure as an insurance policy against unexpected or accelerating inflation expectations, which paid performance dividends over the past year. The diversification or tail risk hedging properties of a commodities position remain, and reflect adherence to Investment Belief #9 – Multi-faceted Risk. In addition, the IM continues to look for other ways to generate return through volatility selling strategies with derivatives or strategy replication implementation.

Staff continues to build out quantitative capabilities internally, which will further enhance forecasting capabilities across the portfolio. The Global Fixed Income Programs cumulative performance (attached as an appendix) shows that the internal fixed income team has generated excess returns over both short and long periods of time. This provides tangible evidence that the internal fixed income team is managing the portfolio in an effective manner.

Portfolio Construction

The portfolio construction process is based on garnering a yield advantage over a full market cycle in each sector compared to the sector's yield, but without substantially increasing the risk of default in the sector. Wilshire believes that Staff is appropriately monitoring and managing the two primary investment risks of fixed income securities - interest rate risk and default risk. The duration of the portfolio is generally kept very close to the duration of the index, ameliorating much of the interest rate risk *relative* to the index. The MID-Fixed Income is able to vary the duration of the portfolio by -50%/+10% versus the benchmark per policy. This level of flexibility allows Staff to significantly shorten the duration of the portfolio if they have high conviction that rates will rise. Default risk is managed by limitations on the size of any corporate issuer in the total portfolio, and a strong research effort. The Fixed Income policy further controls credit risk with minimum rating requirements by sector and by placing net ranges around sector weights. Default risk cannot be eliminated without forgoing the potential return of credit-related securities and investing solely in Treasury securities, and academic studies clearly illustrate that the increased yield from credit over a market cycle fully compensates for any normal level of default risk.

The Global Fixed Income strategy is managed to reflect the overall macroeconomic view of the Program through its duration and spread positioning, with a tendency to favor spread oriented sectors. Staff's active portfolio management looks to take advantage of dislocations across different fixed income and commodity sectors and tends to perform very well across a market cycle. The excess return for Global Fixed Income is likely to exhibit some correlation to equity market performance as changes in economic fundamentals are likely to have directionally similar, albeit different in magnitude, impacts for stocks as well as fixed income spread sectors.




The Investment Manager (IM) and Investment Director (ID) specialists manage their sectors against the performance and characteristics of the respective sectors of the index. Each sector specialist, as well as the MID-Fixed Income, emphasized the importance of having an established framework with which to construct and monitor a portfolio. In this way, the sector specialists maintain consistency across time as they evaluate securities for inclusion/exclusion from the portfolio. This process aligns well with Investment Belief #5 – Accountability as the relative performance comparisons of the sector specialists are driven by the sector team's decisions versus an appropriate benchmark.

Staff can add value in the Liquidity program by managing a short duration portfolio that has some credit exposure and some increase in duration. Interest rate risk would still be considered minimal. The securities lending collateral is managed conservatively with investments invested in securities with short maturities, which are generally highly rated. Additionally, stress testing is performed on structured securities in order to understand and appropriately manage how changes in interest rates will affect the price of the securities.

Overall, the portfolio construction approach comports very well with Investment Beliefs #1 – Liabilities, #2 – Long Term Horizon, and #7 – Risk vs. Reward.

## Implementation and Attribution

The third-party portfolio management and trading platform, which is one of the most important tools for any asset management organization, is high quality and helps to achieve the program's goals. This investment should not be (and is not currently) viewed as a one-time investment. It is clear that Staff is well aware of the re-investment requirement and is actively engaged in improving system capabilities and supplementing them when necessary with outside input and expertise. The enhancement of the internal systems continues to be a focus for certain team members and ensures that new capabilities keep pace with the additional workload being undertaken by the internal team, a process which Wilshire fully supports. Of note, senior Staff continues to work to improve the attribution capabilities of the system to provide clearer information on the drivers of portfolio risk and return. This theme was prevalent in our discussions once again this year and will further improve the program's alignment with Investment Beliefs #5 – Accountability and #10 – Resources/Process.

The Execution Service platform was designed to reduce operational risk by centralizing currency, derivatives, securities lending and other liquid transactions between Global Fixed Income and Global Equity. In practice, Global Fixed Income is not participating fully and Execution Services will only be handing spot currency transactions. Wilshire recognizes that global fixed income investing is inextricably linked to currency management and that the expertise to design alpha currency strategies resides within the internal fixed income team. Staff continues to feel strongly that the benefit in terms of market knowledge and alpha generating trade ideas is meaningful enough that having currency trading capabilities within the fixed income team is most effective. That said, Wilshire recommends that this arrangement be continually evaluated in an effort to improve efficiency of implementation in accordance with Investment Belief #8 – Costs Matter, but only if it can be done without impacting the prospects for effective currency management within the non-U.S. Fixed Income portfolio.

The Commodities IM continues to utilize a risk system to monitor the inflation portfolio and a tactical inflation strategy utilizing a quantitative framework developed internally which was a large driver of alpha over the last year. The implementation remains focused on directional views implemented in a risk-adjusted manner through options positions.

Operational and compliance risk is also present in the internal fixed income portfolio, as would be for any external manager. CalPERS has both enterprise and investment compliance teams, and a risk management group which are collectively tasked with monitoring portfolios across asset classes. Given the size and complexity of the CalPERS portfolio, ensuring that the risk management group is adequately staffed is important.

**Conclusion**

In summary, we believe that Staff has demonstrated the ability to both effectively and efficiently manage CalPERS' fixed income portfolios. The investment philosophy has been applied consistently for years, is appropriate to CalPERS' needs, and sufficient investment risk controls are present to mitigate many of the risks of managing fixed income portfolios. Operational and compliance risks continue to be examined and improved upon. **Wilshire's score on this strategy utilizing the new manager research scoring framework is 2nd decile, which continues to reflect the strong team and clear success at managing the portfolio as charged.** The main challenges from a scoring perspective overall are largely due to organizational-level issues such a lack of long-term retention incentives rather than issues specific to the portfolio management process.

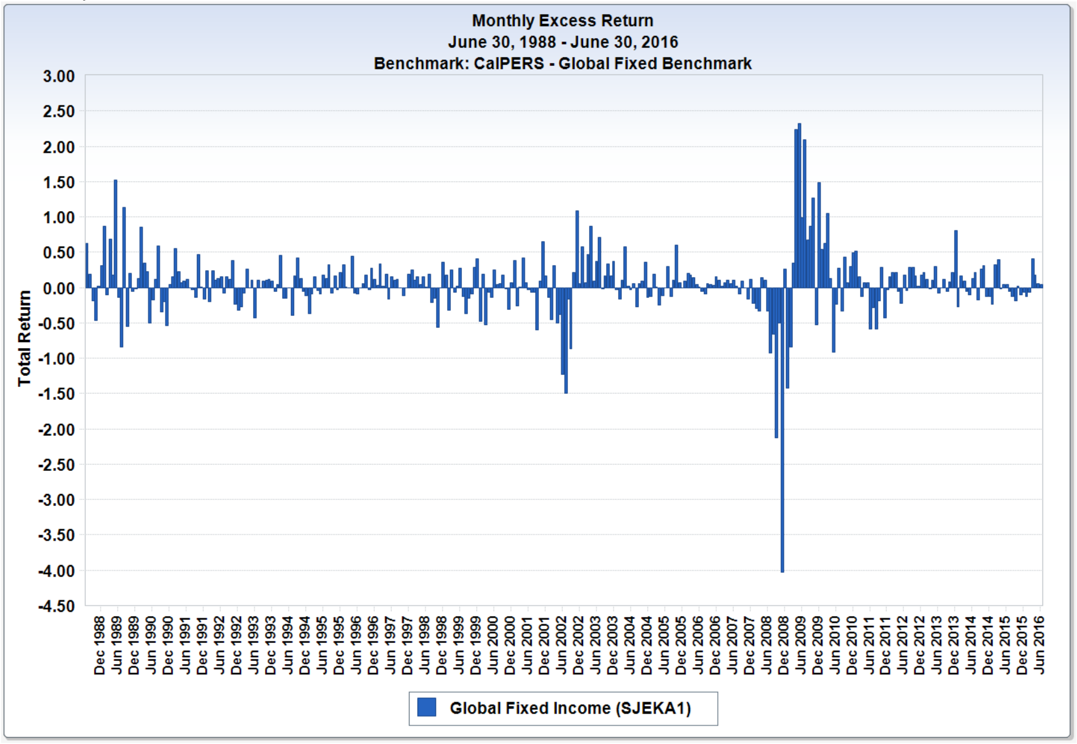
Should you require anything further or have any questions, please do not hesitate to contact us.

Best regards,

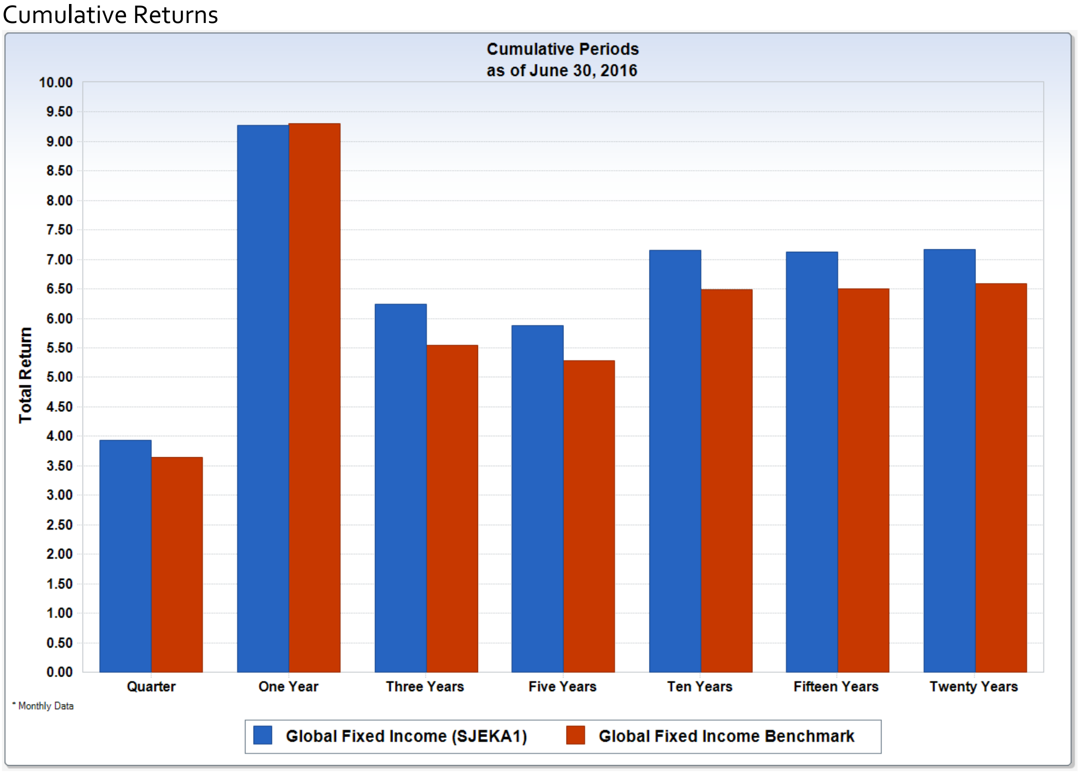
**Performance Appendix**

| | Market Value | Qtr | 1-Year | 3-Year | 5-Year | 10-Year | Date |
|---|---|---|---|---|---|---|---|
| **INCOME** | **59.9** | **3.9%** | **9.3%** | **6.2%** | **5.9%** | **7.1%** | **6/88** |
| *Income Policy Benchmark* | | 3.6% | 9.3% | 5.5% | 5.3% | 6.5% | |
| *Value Added* | | 0.3% | 0.0% | 0.7% | 0.6% | 0.6% | |
| **Internal US Income + Opportunistic** | **53.4** | **4.2%** | **9.6%** | **6.9%** | **6.6%** | **7.5%** | **12/95** |
| Mortgage Bonds | 10.5 | 1.5% | 4.7% | 5.6% | 4.5% | 5.8% | 12/82 |
| Long Duration Mortgages | 4.1 | 2.5% | 7.4% | 5.6% | 5.2% | 7.3% | 6/05 |
| Corporate Bonds | 11.9 | 6.0% | 10.1% | 7.8% | 8.1% | 8.3% | 3/02 |
| U.S. Government | 19.7 | -1.2% | -0.3% | 0.6% | 5.4% | 5.6% | 12/99 |
| Sovereign Bonds | 2.2 | 5.5% | 10.3% | 7.9% | 6.7% | 7.5% | 6/96 |
| Long Duration Corporates | 2.7 | 5.4% | 15.6% | 6.6% | 9.5% | 9.6% | 9/05 |
| *Custom Benchmark* | | 3.8% | 9.6% | 6.2% | 6.0% | 6.8% | |
| **Opportunistic** | **4.1** | **4.6%** | **2.7%** | **6.0%** | **5.0%** | **5.1%** | **6/00** |
| Internal High Yield Bonds | 1.0 | 5.1% | 5.0% | 8.8% | 6.7% | 10.1% | 9/99 |
| External High Yield | 1.8 | 6.0% | 1.1% | 4.4% | 6.2% | 5.6% | 3/02 |
| High Yield Mortgage | 0.3 | 2.1% | 1.1% | 5.9% | 9.6% | -.-% | 3/08 |
| *Citigroup High Yield Cash Pay* | | 5.8% | 0.9% | 3.7% | 5.4% | 7.1% | |
| **Special Investments** | **0.0** | **2.0%** | **8.4%** | **8.3%** | **9.0%** | **7.1%** | **3/91** |
| **Total International Fixed Income** | **6.5** | **2.1%** | **6.7%** | **0.5%** | **-0.5%** | **4.0%** | **3/89** |
| *Custom Benchmark* | | 2.2% | 6.7% | -0.1% | -1.2% | 3.2% | |
| *Value Added* | | -0.1% | 0.0% | 0.6% | 0.7% | 0.8% | |
| **Securities Lending** | **12.5** | **0.1%** | **0.4%** | **0.5%** | **0.6%** | **1.3%** | **8/00** |
| *Custom Benchmark* | | 0.1% | 0.3% | 0.1% | 0.1% | 1.0% | |
| *Value Added* | | 0.0% | 0.1% | 0.4% | 0.5% | 0.3% | |
| Internal Active Short Term | 2.7 | 0.2% | 0.5% | 0.3% | 0.3% | -.-% | 3/11 |
| *Custom Benchmark* | | 0.1% | 0.3% | 0.1% | 0.1% | -.-% | |
| *Value Added* | | 0.1% | 0.2% | 0.2% | 0.2% | -.-% | |
| CalPERS ESEC Cash Collateral | 9.8 | 0.1% | 0.4% | 0.3% | 0.3% | -.-% | 6/10 |
| *Custom Benchmark* | | 0.1% | 0.3% | 0.1% | 0.1% | -.-% | |
| *Value Added* | | 0.0% | 0.1% | 0.2% | 0.2% | -.-% | |
| | **Market Value** | **Qtr** | **1-Year** | **3-Year** | **5-Year** | **10-Year** | **Inception Date** |
| **INFLATION** | **17.8** | **4.6%** | **-3.6%** | **-2.6%** | **-1.5%** | **-.-%** | **9/07** |
| *Inflation Policy Benchmark* | | 4.4% | -5.0% | -3.6% | -2.0% | -.-% | |
| *Value Added* | | 0.2% | 1.4% | 1.0% | 0.5% | -.-% | |
| **Internal Commodities** | **3.0** | **12.6%** | **-26.0%** | **-20.0%** | **-14.3%** | **-.-%** | **9/07** |
| *GSCI Total Return Index* | | 12.7% | -26.1% | -19.8% | -14.0% | -.-% | |
| *Value Added* | | -0.1% | 0.1% | -0.2% | -0.3% | -.-% | |
| **Core Inflation Linked Bonds** | **12.1** | **1.5%** | **2.4%** | **2.3%** | **2.6%** | **-.-%** | **3/08** |
| *Custom Benchmark* | | 1.6% | 2.4% | 1.9% | 2.2% | -.-% | |
| *Value Added* | | -0.1% | 0.0% | 0.4% | 0.4% | -.-% | |
| **Tactical Commodities** | **1.7** | **18.1%** | **-20.0%** | **-17.8%** | **-.-%** | **-.-%** | **1/13** |
| *GSCI Total Return Index* | | 12.7% | -26.1% | -19.8% | -.-% | -.-% | |
| *Value Added* | | 5.4% | 6.1% | 2.0% | -.-% | -.-% | |
| **Tactical TIPS** | **1.0** | **1.7%** | **4.2%** | **2.1%** | **-.-%** | **-.-%** | **1/13** |
| *CalPERS TIPS* | | 1.7% | 4.4% | 2.3% | -.-% | -.-% | |
| *Value Added* | | 0.0% | -0.2% | -0.2% | -.-% | -.-% | |

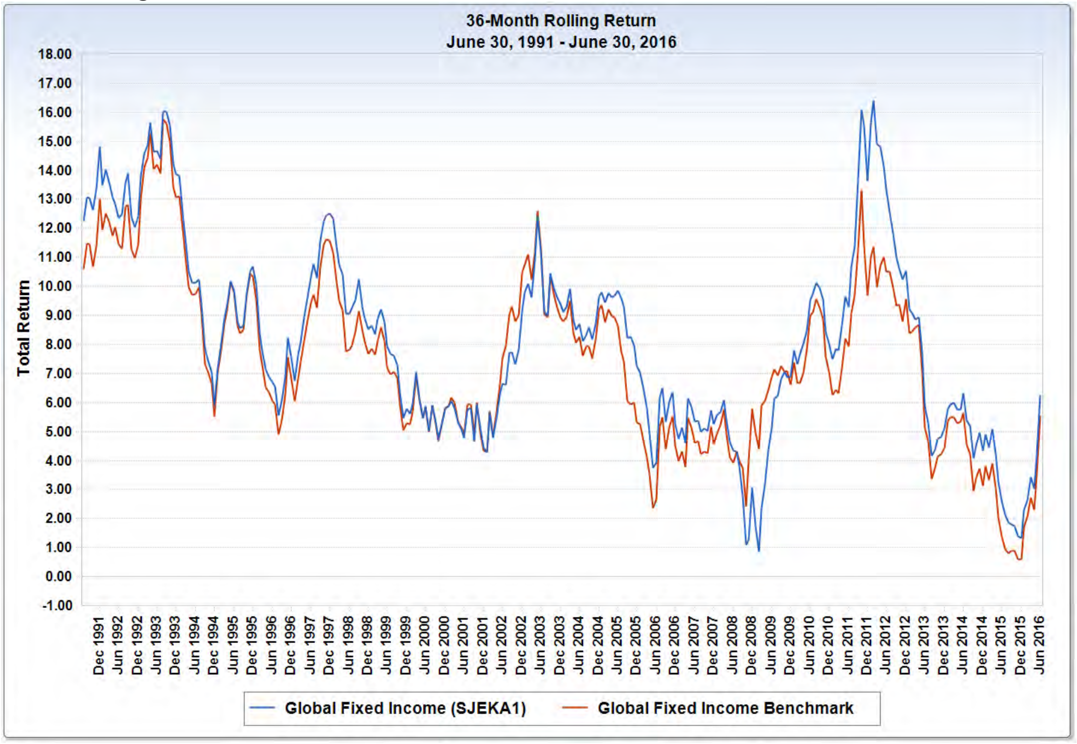
Monthly Excess Returns



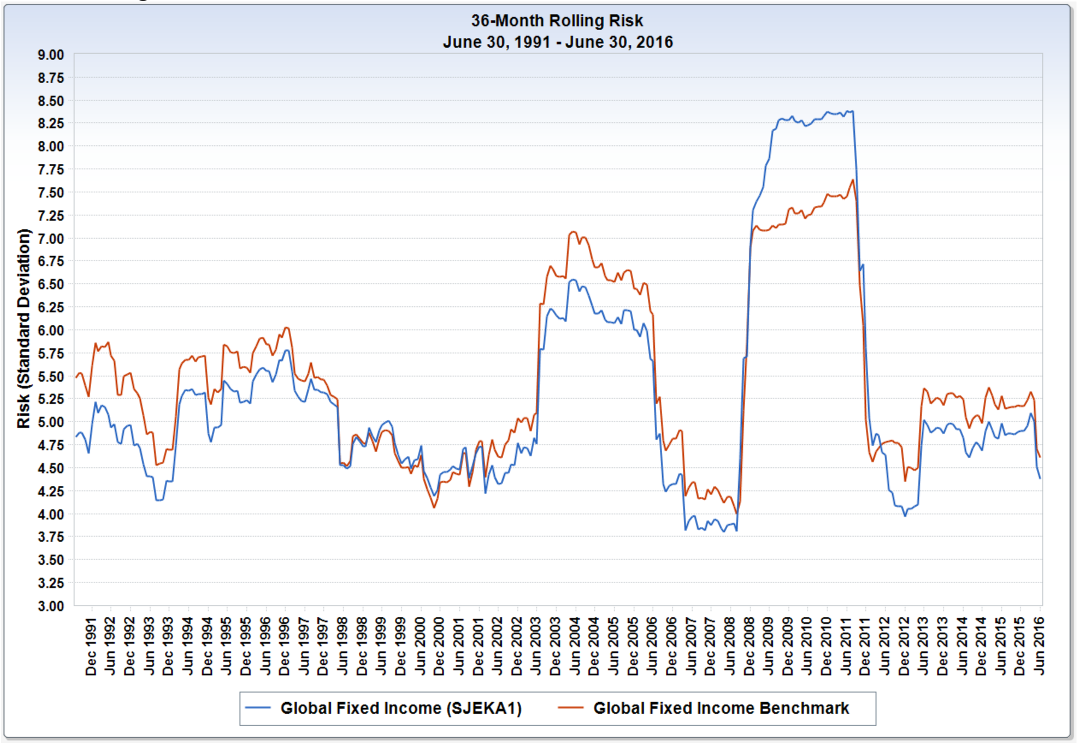

Cumulative Returns



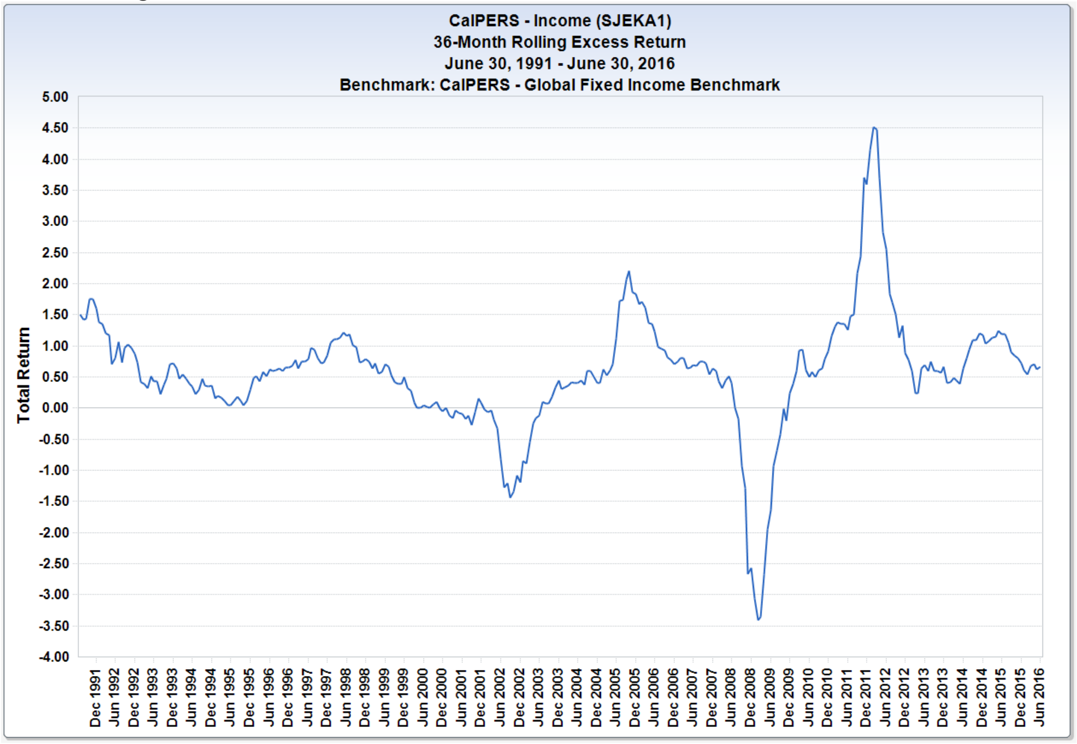
3 Year Rolling Returns



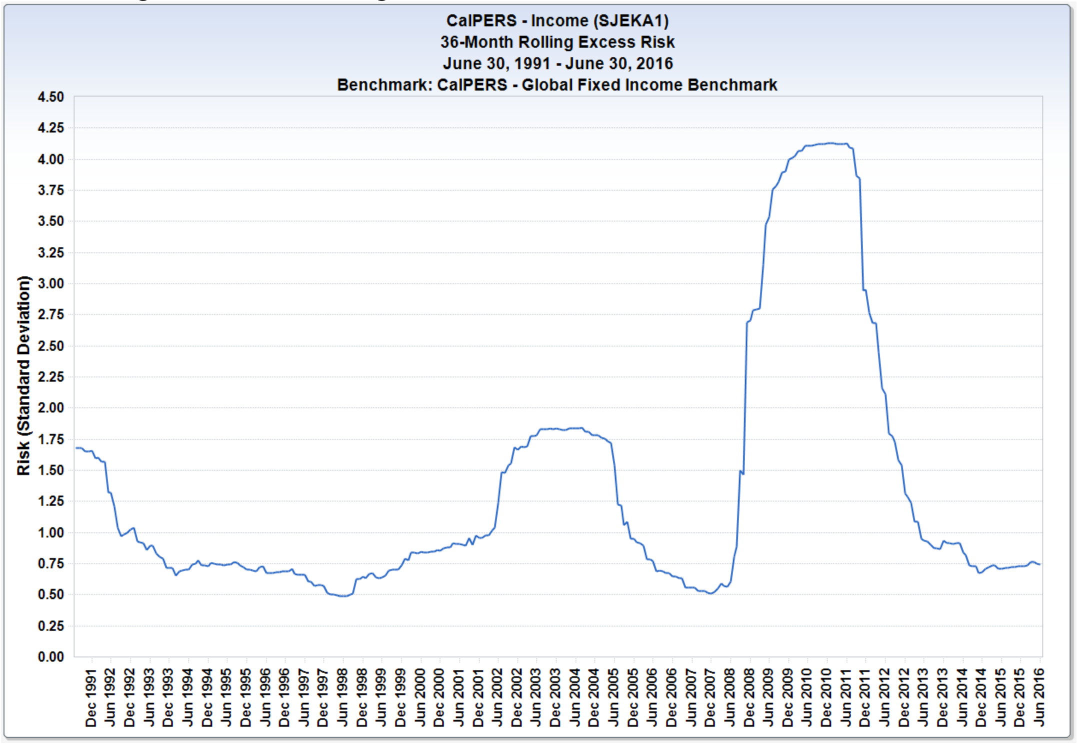

3 Year Rolling Risk



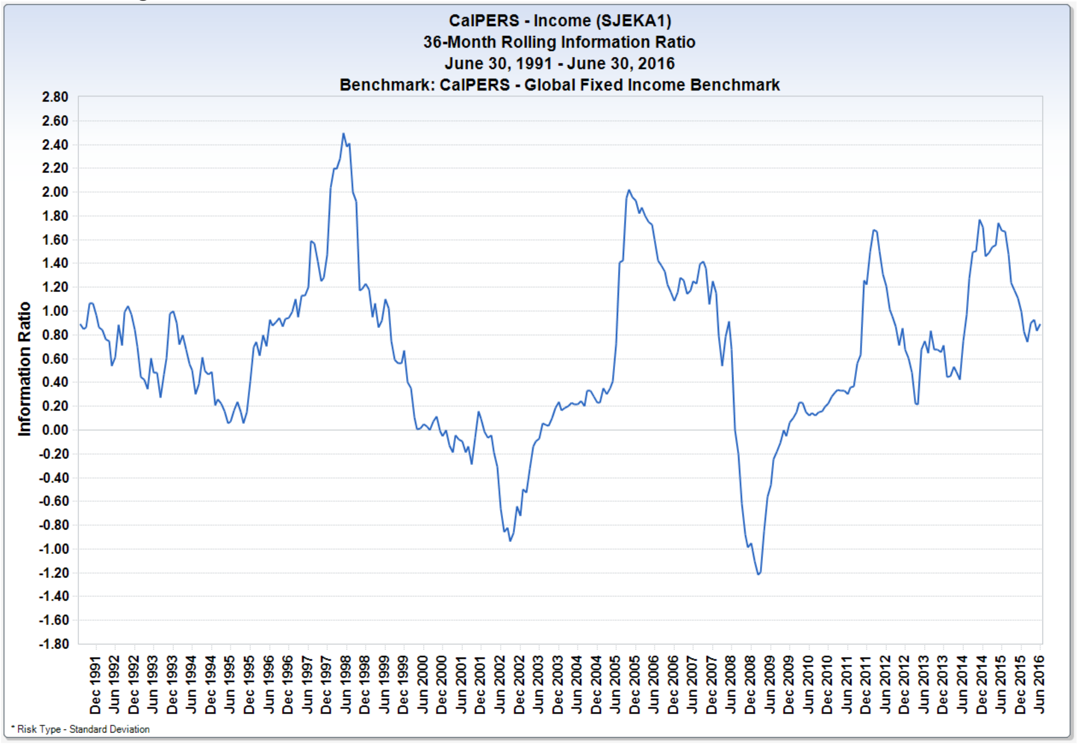
3 Year Rolling Excess Returns



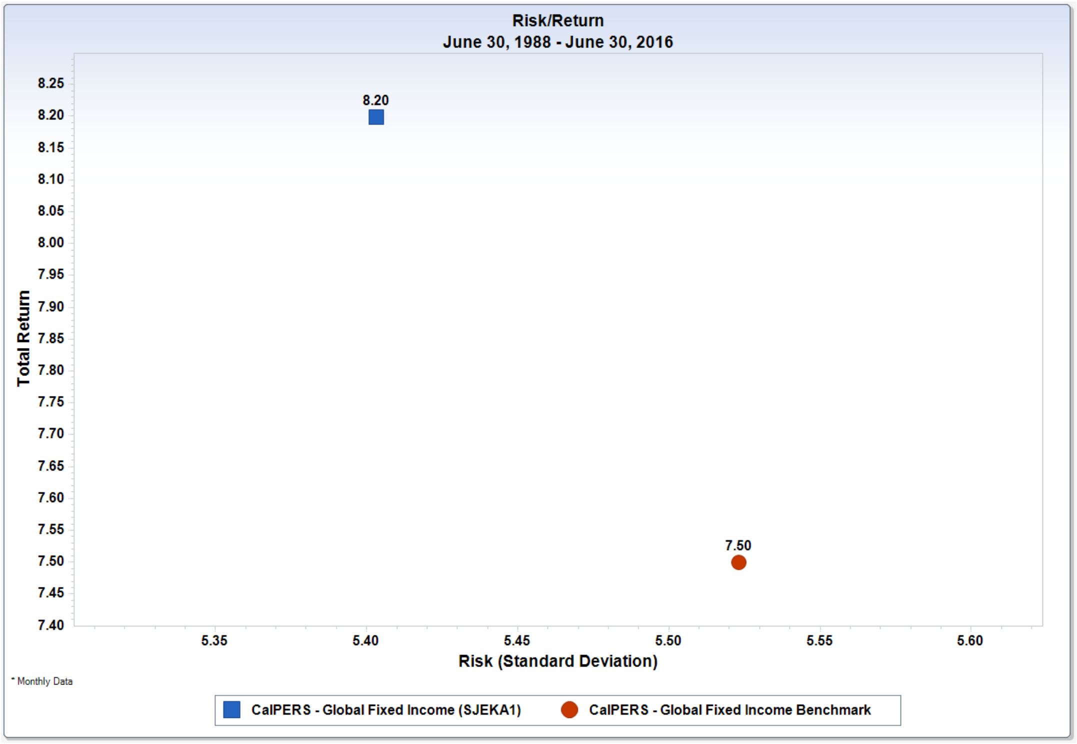

3 Year Rolling Excess Risk (Tracking Error)



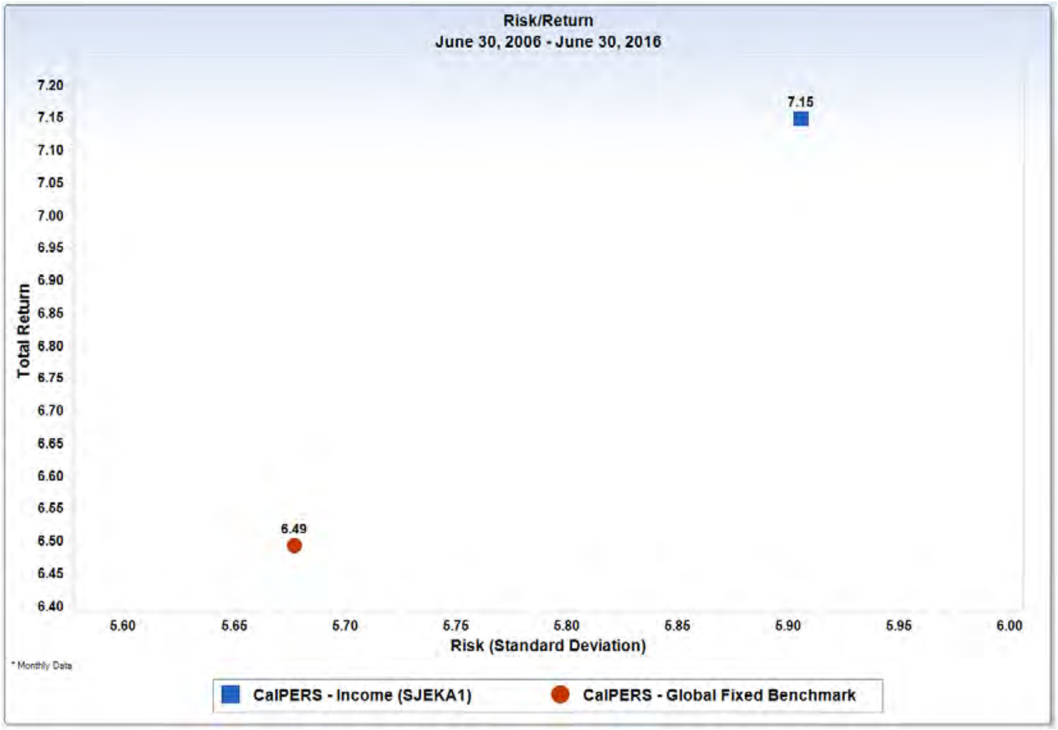
3 Year Rolling Information Ratio



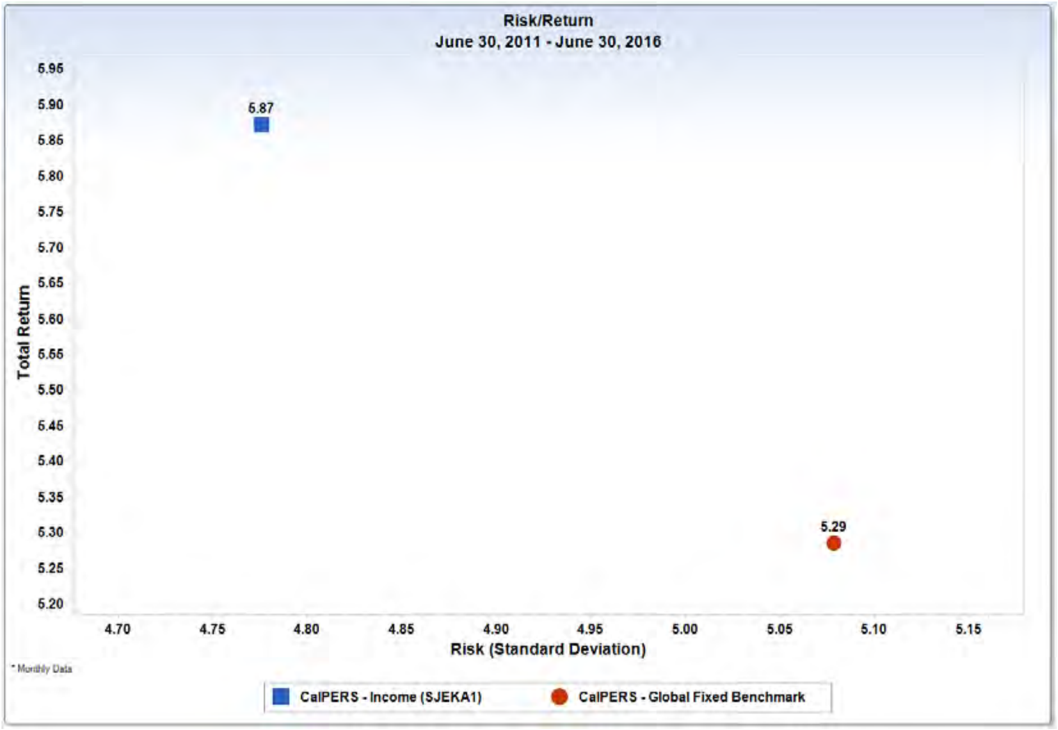

Risk vs. Return since 6/30/1988



Risk vs. Return - Last 10 Years




Risk vs. Return – Last Five Years



Up/Down Market Performance