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

Re: Consultant Review of Global Equity Program

Dear Mr. Jones:

Wilshire has conducted a review of the CalPERS Global Equity (GE) Program. As of 2013, the top 200 U.S. defined benefit plans managed \$405.3 billion¹ in equity assets internally, CalPERS represents nearly 30% of that subset making it the largest internally managed global equity program in the country.

The Global Equity program has continued to evolve over the past several years and now focuses on a primary philosophy of efficiency and strategy justification. The GE team views its mandate as the delivery of the global equity market return, or beta, plus a target excess return of approximately 15 basis points with a risk budget of 25 to 50 basis points of tracking error. Given this mandate, 83% of assets under management (AUM) are managed to a combination of index and risk-controlled strategies, with the remaining 17% allocated to external managers who fulfill traditional active, emerging managers and activist mandates.

One of the key initiatives being pursued by the Global Equity team is program efficiency. The team oversees 56 accounts/strategies within the PERF (20 are internally managed), which are all in the process of being evaluated to determine if they individually and collectively add value on a long-term basis. The evaluation framework must satisfactorily answer three questions:

¹Pensions&Investments, February 3, 2014.

- Where does the strategy fit into the overall mandate?
- What is the risk profile?
- How does the strategy fit into the fee philosophy?

This framework has infiltrated the culture of the Global Equity team and is repeated consistently when individual Staff members describe their mission and philosophy. If a particular strategy cannot be justified according to this framework, then the team is actively eliminating or reducing exposure. We view the ongoing adoption of this rationalization of strategies to be a very positive contributor to maintaining a disciplined holistic investment program.

The Global Equity investment program is organized by three functional areas that are integrated by populating two decision-making committees with members of each functional area. These committees – the Investment Review Committee (IRC) and the Global Equity Capital Allocation Committee (GECAC) - also contain members from outside of Global Equity and serve to provide an external viewpoint into the process and communicate the outcome of committee meetings to their particular program SIOs. A potentially positive byproduct of this integration is the creation of additional communication channels that can move the decision focus from a Global Equity-only orientation to a more total fund perspective that can benefit CalPERS as a whole. These communication channels could improve further as INVO continues to evolve to a silo-less entity.

Because of their importance to the overall global equity program, below we review each functional area separately. However, it should be noted that while we review the roles of the IRC and GECAC within a particular functional area, in practice they operate across functional lines.

Portfolio Strategy and Development

The Portfolio Strategy and Development function is responsible for due diligence of investment strategies and monitoring of all current external and internal allocations. This area is the primary research function of the Global Equity program. As the program has moved more strategies into the internal management process the team is seeking to capitalize on the scale and resources of the program by licensing intellectual capital from outside advisors and bringing the implementation of these strategies in house in order to be managed less expensively. While strategy ideas can come from anywhere within the organization, it is through the IRC where strategies are assessed for eligibility for inclusion within the portfolio. To be eligible, the IRC looks for strategies that bring some form of unique value to the portfolio, such as intellectual capital or unique exposures. The team has cultivated important strategic relationships to bolster internal research and continues to seek relationships that can enhance the depth and experience of the team.

The depth of due diligence and attention to risk is very apparent and sufficiently rigorous in all levels of decision making and is designed to prevent attachment to any single strategy or firm. One potential area of improvement that the team is looking to address is a more disciplined approach to termination of managers or strategies. Investment managers and strategies are evaluated on a frequent basis but concrete metrics of manager underperformance do not exist.

As part of avoiding unnecessary complexity and the strategy justification process, the team has a particular focus on the emerging manager program. CalPERS is moving away from taking ownership stakes in emerging manager firms and using fewer managers while taking larger positions in the selected firms. This direction should provide greater focus on best ideas and potentially allow for greater impact from a return and risk perspective to the equity portfolio.

As risk management research and reporting has become a more integrated component of the portfolio management process, the experience gained from the 2008 market environment has highlighted the importance of down-side risk protection for the Global Equity portfolio and how volatility contributes to the overall risk profile of the PERF. Albeit at the margins, the portfolio is making greater use of low-volatility and other alternative weighting strategies in an effort to change the risk profile of the program. The licensing of intellectual capital from investment management firms and other strategic partners is a cost-effective way to employ these quantitative strategies without paying additional fees for implementation and capitalizing on the unique skills and capacity of the Global Equity investment team.

Currently, there is a limited amount of risk reduction that is achievable with the Statement of Investment Policy for Global Equity dictating a target range of 25-50 basis points of relative risk (tracking error). A significant risk reduction would require a material deviation from the characteristics of the market cap weighted Global Equity benchmark. Since Global Equity is the largest single contributor to total fund volatility, Wilshire believes that any sizeable reduction in the total volatility associated with the asset class will require a rethink of its strategic role in the CalPERS portfolio. Staff is conducting research into more risk-efficient ways to invest the Global Equity portfolio, but meaningful changes are not possible with the current tracking error range and a capitalization weighted benchmark.

Portfolio Structuring and Risk Management

The Portfolio Structuring and Risk Management function focuses on portfolio construction by allocating to strategies approved by the Global Equity Capital Allocation Committee and on monitoring risk factors underlying the individual allocations and the total equity portfolio in aggregate. The interaction between the IRC, which is responsible for assessing strategy eligibility, and the GECAC, which determines strategy inclusion and sizing, imposes an important discipline into the investment program that helps protect the portfolio from growing overly attached to a strategy that is not adding value to the overall

program. This function is also responsible for portfolio analysis and attribution which includes a risk monitoring dashboard that highlights active tilts and contributions to risk by individual factors identified by multiple risk management systems and customized to highlight key drivers of risk and return.

The risk reporting process for Global Equity has been greatly improved over the past few years and provides a meaningful feedback loop at the factor, strategy, manager and total portfolio levels. The reports are utilized throughout the due diligence and research process, allowing Staff to leverage off of their value throughout the Global Equity program. The team has plans to continue expanding its risk reporting capabilities, with development of region specific reports, for example. The reporting package and the team's commitment to building on these capabilities are impressive.

Portfolio Implementation

The Portfolio Implementation function is primarily responsible for portfolio trading including rebalancing and transition management. The Global Equity program has been moving more and more strategies away from external managers to internally managed portfolios by licensing intellectual capital. The Global Equity team has invested significantly in sophisticated, customized trading systems which allow traders to implement internal strategies in combination with best execution trading practices.

The implementation of the expanded trading capability also serves to increase capacity for the Global Equity program to continue migrating investment strategies that can be managed in house more cost effectively. At present, the transition management function is not part of this customized trading capability and could offer further opportunities for the team to reduce costs and simplify the program.

One area of potential concern is the lack of clarity of roles and responsibilities between the Investment Compliance (ICOR) function and the Enterprise Compliance (ECOM) function. A review of the particular activities that overlap and a clear understanding of the roles and responsibilities of INVO, ICOR and ECOM, may help resolve communication issues and improve efficiency within the organization. CalPERS has hired KPMG to review and compare the current model with industry best practices which may present an opportunity for improvement in the current structure.

Affiliated Investment Program

The Affiliated Investment Program (AIP), which previously operated independently within INVO, has recently moved into the Global Equity program. The move into Global Equity is supported within the AIP team and has integrated decision making for the program and provided an environment to more closely align the AIP with the PERF. The team has focused on this alignment by adopting, to the extent possible, the asset liability management process used in the Asset Allocation and Risk Management team and by

aligning responsibilities toward standardizing processes. The team is looking to invest in a customized technology solution for trading across the various portfolios that support the individual product line-ups in each of the Affiliate plans. The Supplemental Income Plans, Healthcare plan, Long-Term Care plan, and a portion of the California Employers' Retirement Benefit Trust (CERBT) plans have been transitioned to State Street Global Advisors for index investment management. The Legislators' Retirement System (LRS), Judges Retirement System (JRS), Judges Retirement System II (JRS II), and a portion of the CERBT continue to purchase units in CalPERS portfolios.

Resources seem sufficient to manage the current program and the addition of a customized trading solution should enhance current processes further as long as there is sufficient funding to build and maintain a custom system and continued support from other functional areas within the INVO.

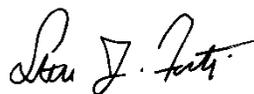
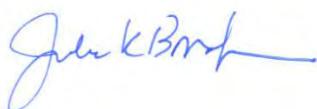
Investment Beliefs

It is evident from interviews with Global Equity Staff that the adoption of the CalPERS' Investment Beliefs is widespread. The focus on efficiency and strategy justification reflects an awareness of the risk/reward relationship, the multi-faceted nature of risk and the impact of costs on the ultimate performance of the PERF. The strategic goals of the Global Equity program also recognize the long-term horizon of the investment portfolio and a responsibility to manage the portfolio to achieve the assumed actuarial rate of return of 7.5%.

Conclusion

The CalPERS Global Equity Program has provided consistent outperformance versus its benchmark over the past three years while continuing to improve the overall risk profile of the portfolio. The program is supported by a team and resources that are united in the common goal of streamlining the global investment portfolio by reducing the number of strategies and pursuing a fee philosophy that is aligned with CalPERS Investment Beliefs. The Global Equity Program continues to add value to the PERF and has sufficient resources and attention to operations to foster a creative investment environment with a strong focus on risk management not only for the equity portfolio but with a focus on how the equity portfolio can be managed to help achieve the common goal of delivering 7.5% over a long term basis.

Sincerely,



Organization (0-100)

SCORE:

COMMENTS:

Ownership/Incentives (0-30)

Direct Ownership/Phantom Stock
 Profit Sharing
 Performance Bonus
 Depth of Incentives

Compensation is salary plus incentive-based bonus. No profit sharing, phantom stock or direct ownership is available, in contrast to most private sector investment managers.

Score: 10

Team (0-25)

Communication
 Role of Manager, Research, and Operations
 Longevity of Team

Management of team is aligned with CalPERS' mission and philosophy. The team has made great strides in risk reporting and integrating a risk focus into the management process. The IRC and GECAC promote information sharing across functional areas and create a positive, productive, and disciplined environment for research.

Score: 23

Quality of Key Professionals (0-15)

Experience
 Quality of Leadership
 Quality of Education

SIO exhibits strong leadership skills and commitment to improving team and organization. Education and experience level of the investment and trading staff is strong and compares well to external investment management organizations. The team works well together and promotes a culture of creativity and respect.

Score: 15

Turnover of Senior Professionals (0-15)

Low (<10%), Medium (<20%), High (>20%)

Staff turnover for CalPERS has been high in previous years. The hiring process is iterative and, therefore, sluggish, with several senior positions remaining open. The current stability is positive for the overall portfolio, however the Global Equity Program is somewhat immune relative to other organizations to turnover given the largely index-oriented nature of the equity portfolio. The hiring process is time-consuming which is evident by the number of open positions.

Score: 7

Commitment to Improvement (0-15)

Clear Mission
 Re-investment
 Process Enhance

The SIO, SPMs, PMs all demonstrate a commitment to reducing complexity and justification of strategies. This strategy awareness is pervasive through the culture and positive to the forward momentum currently present in the overall management process.

Score: 15

Philosophy/Process (0-100)

SCORE:

COMMENTS:

Market Anomaly/Inefficiency (0-40)

Permanent or Temporary
Clear Identification
Where and How Add Value
Empirical or Academic Evidence to Support

The Global Equity portfolio strategy is to deliver a global market return plus approximately 15 basis points given a 25 – 50 basis point risk budget. The IRC's role in assessing strategy eligibility and the GECAC's risk-controlled approach to allocating capital across strategies ensures an appropriate pursuit of investment objectives.

Score: 40

Information (0-15)

Unique Sources, Unique Process

Highest score given as these are generally index-oriented portfolios that have met or exceeded their mandates. The IRC's focus on assessing eligible strategies for their potential to deliver unique value to the total fund provides the opportunity to identify informational advantages. Future internally-managed strategies that seek to exploit inefficiencies or information advantage may receive a different score.

Score: 15

Buy/Sell Discipline (0-15)

Disciplined/Structured Process
Quantitative and Qualitative Inputs

High score given as these are generally index-oriented portfolios that have met or exceeded their mandates. The interaction between the IRC and GECAC bolsters discipline at the strategy level. Future internally-managed active strategies that seek to exploit inefficiencies or information advantage may receive a different score. Sell discipline should be bolstered to improve elimination and reduction of manager relationships.

Score: 12

Portfolio Construction (0-15)

Benchmark Orientation
Risk Controls
Ongoing Monitoring

Highest score given as these are generally index-oriented portfolios that have met or exceeded their mandates. The GECAC's access to a rich set of risk reports enables adherence to desired risk levels and position sizing. The process is able to minimize the impact of unintended exposures.

Score: 15

Quality Control (0-15)

Return Dispersion
Performance Attribution
Performance Consistency
Style Drift

Tracking error on all portfolios is reviewed monthly, and discretion is given to Staff to add modest amounts of value only if clear skill is demonstrated. Portfolios managed as pure index funds have had almost no tracking error.

Score: 15

Resources (0-100)

SCORE:

COMMENTS:

Research (Alpha Generation) (0-40)
 Appropriate for Product Style
 Conducted Internally/Externally
 Quantitative/Qualitative
 Sufficient Databases and Models for Research
 How are Research Capabilities Enhanced

Score: 40

These are largely index-oriented portfolios, and Staff receives all data feeds that are required to maintain them in line with published indices. Small amounts of value may be added through the utilization of additional quantitative information from several investment banks. Licensing of intellectual capital is productive and a creative use of resources to supplement research efforts.

Information/Systems Management (0-15)
 Ability to Manage Large Flows of Data
 Appropriate Systems for Research and Management

Score: 14

The organization has recognized the importance of data integrity and has changed the relationship with the custodian to improve data. In addition, improvements to the portfolio construction and trading systems have been made and with the recent enhancements to the trading platform, there is potential to double the implementation team's capacity to manage internal strategies.

Marketing/Administration/Client Service (0-15)
 Dedicated and Knowledgeable Group
 Quality of Materials/Presentations of RFPs
 Responsiveness
 Measuring Client Satisfaction

Score: 14

Since marketing and client service are not involved, unlike external sources for such a strategy, full resources of portfolio managers will be devoted to CalPERS, as the portfolio managers will not have to travel to service other clients or market to prospects. End client (Investment Committee) has regular meetings that usually require SIO and some Senior Portfolio Managers, but team is able to continue to operate in their absence.

Trading (0-30)
 Turnover Relative to Process
 Sophistication of Trading Process
 Measurement of Trading Costs
 Soft Dollars in Client Interest

Score: 25

CalPERS' trading room is very sophisticated, was constructed in the last few years, and has subscriptions to all of the requisite trading data resources, i.e. Bloomberg, Instinet, ITG, WM, etc. Part of the underpinning of the value-added strategies resides in effective trading, and there have been no significant trading issues that should impact the execution of the strategy. There is sufficient back-up and separation of responsibilities in the trading function. Staff uses at least two systems for monitoring transaction costs, and scores well under both systems. CalPERS does not use soft dollars.

Discussion**Wilshire Scores 2009-2014**

	2014	2013	2012	2011	2010	2009
Organization	70	66	64	62	57	55
Philosophy/Process	97	100	100	100	100	100
Resources	93	92	92	91	91	89
Total Points	260	258	256	253	248	244
Total Percent	87%	86%	85%	84%	83%	81%

Wilshire gives the Global Equity Program a score of 260 out of 300 possible points or 87%. This score has steadily improved over the past several years and is slightly ahead of last year's score of 258 or 86%. The scores show a steady improvement over six years in all categories except for Philosophy/Process. The team is in the process of determining more concrete metrics to evaluate strategy underperformance, and we would expect to see further improvement in this category going forward. Organizational issues are improving but continue to be a drag on scoring. The lack of direct ownership makes the Global Equity Program less attractive versus external investment manager firms.