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Managing Director & Principal

August 19, 2009

Mr. Joseph Dear
Chief Investment Officer
California Public Employees' Retirement System
400 P Street, Suite 3492
Sacramento, CA 95814

Re: Consultant Review of Internal Risk Managed Absolute Return Strategies (RMARS) Program

Dear Joe,

Wilshire has conducted a review of the internally-managed Risk Managed Absolute Return Strategy's (RM ARS) personnel, investment process, and resources. This review was conducted as part of Wilshire's contractual requirement to periodically review all of the internal asset management functions, and included on-site visits by Wilshire to several external vendors as well as periodic conference calls and in-person meetings with the members CalPERS Staff who serve as the RM ARS team. We also conducted several discussions over the last year with Eric Baggesen, Senior Investment Officer for Global Equities, to review his role with the RM ARS Investment Committee and in the management and oversight process of his Staff. Overall, we are pleased with the quality of the personnel, systems, and processes, and believe that the Investment Committee should continue to support this internal team.

As part of this review, Wilshire conducts on-site due diligence on the RM ARS program's two external consultants, Union Bank of Switzerland (UBS) in Connecticut and Pacific Alternative Asset Management (PAAMCO) in Newport Beach, California, every other year. For the first time, we also reviewed six of the external fund of hedge funds managers on-site and will now review all fund of funds periodically, as well. The managers reviewed included:

- 47° North in Pfaeffikon, Switzerland
- ERAAM in Paris
- Ermitage in Jersey, United Kingdom
- PAAMCO, formerly KBC, in Singapore
- SPARX in Hong Kong
- Visions in Hong Kong

Summary of Conclusions

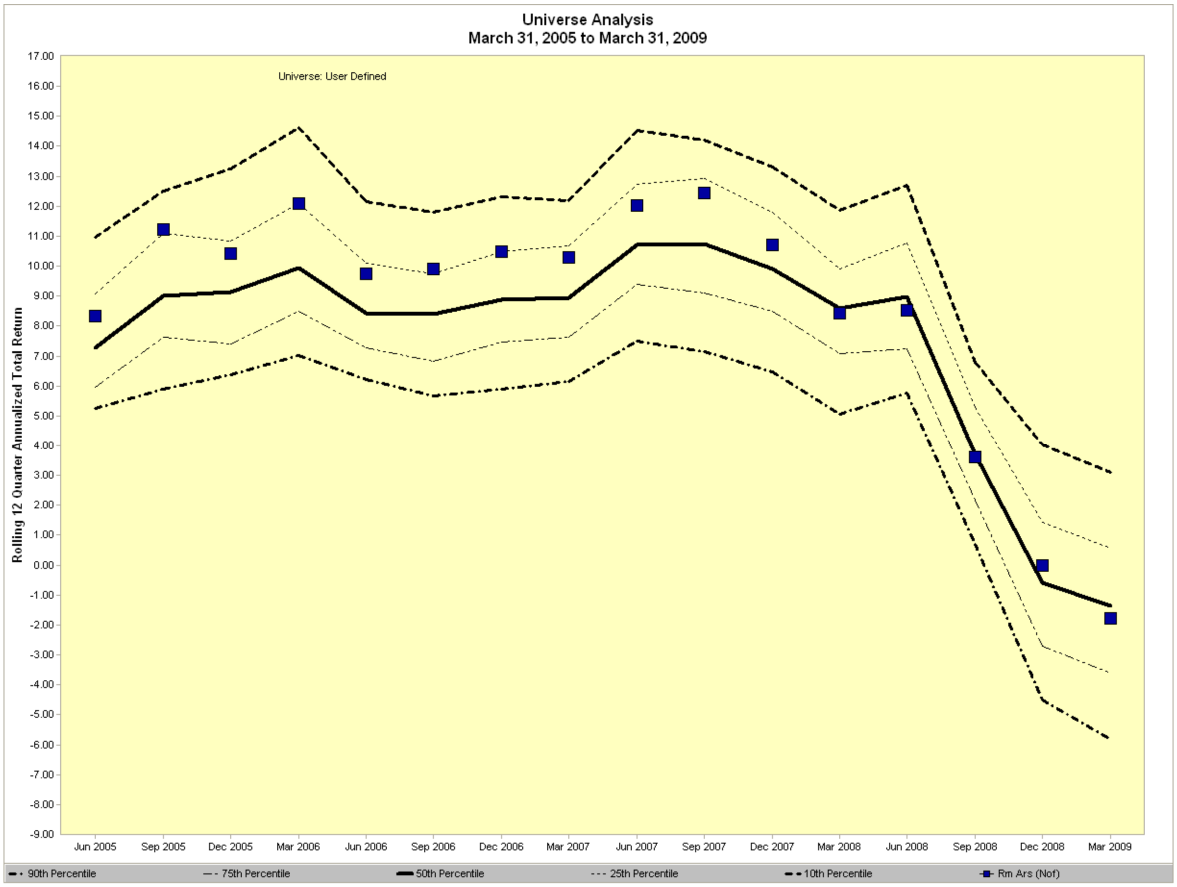
As will be outlined in the sections that follow, we believe that the RM ARS program is being managed in a manner generally consistent with the direction from the Investment Committee and in compliance with the RM ARS program's policy. We also found that the two external advisors retained by CalPERS to assist in the areas of research and portfolio management, the third-party data collector and risk aggregator (IFS), and the external fund of funds managers make a significant contribution to the overall investment process.

Performance

	Market Value	Qtr	1 Year	3 Year	5 Year	5-Year Info Ratio[35]	5-Year Up Capture Ratio	5-Year Down Capture Ratio	5-Year Sharpe Ratio[36]	5-Year Sortino Ratio[36]
Total RM ARS Program	**5.8**	**0.2%**	**-15.3%**	**-1.8%**	**2.7%**	**-0.8**	**0.3**	**1.1**	**-0.1**	**-0.1**
Total RM ARS Program w/Overlay	**5.9**	**-6.3%**	**-38.3%**	**-11.6%**	**-3.6%**					
Policy Index[34]		1.2%	7.7%	10.0%	8.8%					
Value Added		-1.0%	-23.0%	-11.8%	-6.1%					
Total Direct Investments	4.5	0.3%	-17.2%	-2.4%	2.5%					
Total Fund of Funds	1.3	-0.2%	-7.4%	0.3%	2.5%					
ML 1-Year Treasury Note Index + 5% Index		1.2%	7.7%	9.9%	8.8%					
HFRI Fund of Funds Index		0.5%	-16.1%	-2.4%	1.7%					

Recent performance of the RMARS program has not lived up to the "absolute return" portion of the acronym. For the past five years through March 31, 2009, the RMARS program has returned +2.7% versus a benchmark of +8.8%. This performance is better than the HFRI universe of all Funds of Funds, which was up 1.7% for that period, but still far short of the overall objective for the program. If the equity overlay is included (Staff buys equity futures to mimic market movements and mitigate dispersion versus Global Equity's overall equity benchmark) performance is negative for the last five years.

This level of low performance has not always been the case. As the next graph illustrates, RM ARS' performance has generally been in the 8% to 12% range over the last few years on a medium term (3 years) basis. The relatively poor recent performance of this program is due largely to a very negative period for hedge fund investments over the past 18 months.

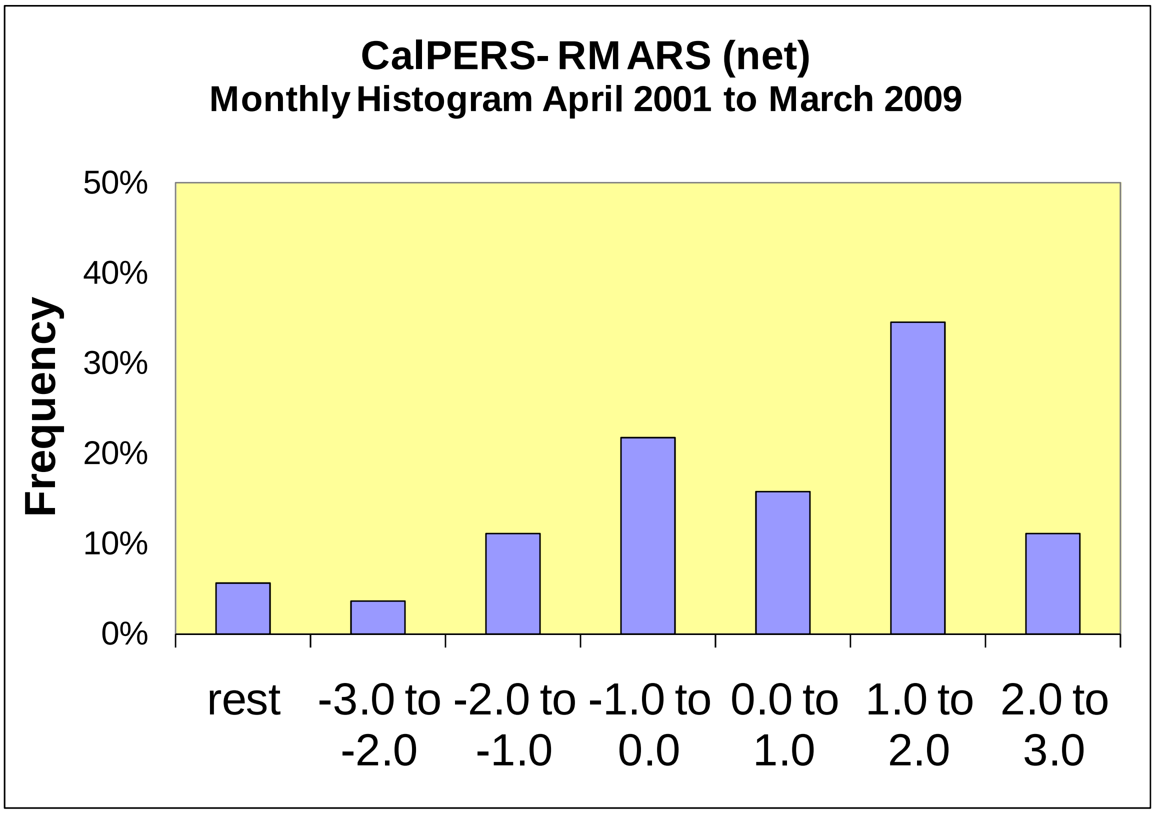


This performance, however, begs the question of the nature of the investments in the RMARS portfolio. Hedge funds come in many flavors, and the fact that the performance for the general universe of hedge funds was down significantly does not imply that every hedge fund had equally poor performance. CalPERS performance is reflective of the universe of Funds of Hedge Funds in general, but is it reflective of what the Investment Committee expects of this program?

Wilshire does not have much interaction with the underlying direct investments made by the RMARS team. However, we did review the underlying funds in each of the six funds of funds we visited and were surprised by the number of “macro”, commodities, and currency funds in the portfolios. CalPERS has defined the investment parameters for each underlying fund and approves or vetoes each underlying fund that is proposed to be included in each fund of funds. As a result, the higher risk profile of some of these investment types appear to be acceptable to Staff.

The chart below reflects the result of the potentially-riskier-than-anticipated investment selection process – approximately 20% of monthly returns exceed the bounds of +/- 2%. While we would expect a few outliers over a five-plus year track record, 20% seems high. The Investment Committee should discuss whether this is the level of risk it was anticipating when this program was created.

When Wilshire first began producing this exhibit, approximately four years ago, we told the Investment Committee that we expected the results to form a clear bell curve over time. While the results do have an approximate bell shape, the result after five-plus years is far "lumpier" than we expected it to be.



Questions Regarding Structure and Oversight

The RM ARS program is the most complicated of all CalPERS investment programs from a governance standpoint. Staff makes all decisions, within the bounds of delegated authority, but receives advice regarding any decision it makes regarding direct investments from two outside managers. In addition, Wilshire monitors the overall program for the Investment Committee.

No consultant or manager advises Staff regarding funds of hedge funds investments. Wilshire met with six of the fund of hedge funds such managers as part of this review process, but this was the first time that Wilshire or any other non-Staff party met with these managers on CalPERS' behalf. The Investment Committee should provide direction to Staff and Wilshire regarding whether or not it would like future investments to be reviewed by a third party (including the general pension consultant), as is the case for Corporate Governance managers and external traditional equity managers, and / or whether Wilshire or some other external party should monitor Funds of Hedge Funds as we currently do for traditional managers and Corporate Governance managers.

Finally, our review of the funds of hedge funds raised the question of how to evaluate the funds of funds fairly. CalPERS has the ability to veto any investment that a fund of hedge funds wishes to make. To date, this power has been used sparingly. However, given that the external funds of hedge funds have performance-based incentives, were CalPERS to reject an investment that turned out to be spectacular, the firms might have a legitimate complaint that they were unduly restricted. Granted, these firms agreed to these terms in advance, but we still wish to make the Investment Committee aware of this issue should it come up in the future.

Question Regarding Beta Overlay

Staff began adding a beta (market exposure) overlay to the RM ARS program a few years ago. Despite RM ARS relatively strong performance versus its benchmark, RM ARS underperformed the broad stock market from 2003 to 2007. As a result, RM ARS was a drag on the returns of the total of Global Equities versus a market benchmark. This had an impact on Total Fund performance relative to target and also on incentive compensation. As a result, Staff hoped to mitigate this performance drag by buying equity futures to increase the market exposure of the total program. When returns fell in 2008 and early 2009, this increase in market exposure had the effect of magnifying the negative performance of RM ARS.

It is not clear if the Investment Committee prefers that RM ARS function as a truly standalone program. The Investment Committee should provide Staff with a clear direction regarding the use of a market overlay. If such an overlay is not desired, then the Investment Committee may wish to exclude RM ARS from the performance of the Global Equity composite and making it an explicit pseudo-asset class in the calculation of the Total Fund benchmark. We believe that there are four possible solutions to this issue:

1. Overlay 100% of the value of RMARS with an S&P / EAFE / Russell 2000 futures program to make this a pure "portable alpha" portfolio.
2. Calculate the residual beta of RMARS (to the equity market) and overlay the program with futures in the amount of (1 – X)% (this is roughly the current methodology).
3. Change the benchmark of Global Equities to 92% public equity markets and 8% RMARS benchmark.

4. Treat RMARS as a pseudo-asset class for the purpose of benchmark computation, allocating 46% to Global Equities and 3% to RMARS. RMARS will remain under the purview of the SIO-Global Equities.

In our opinion, option 3 is the cleanest solution until the new asset allocation study can be completed in late 2010.

Organizational Structure

Due to the number of parties involved in the RM ARS portfolio management process, the overall investment process is more complicated than any other internally or externally managed investment portfolio. CalPERS' Staff retains all ultimate decision-making authority in sector allocations and manager selection, but utilizes UBS and PAAMCO for both strategic guidance and individual manager research.

Both UBS and PAAMCO are compensated largely based on the overall performance of the portfolio, and thus have an incentive to assist in improving portfolio returns wherever possible. However, despite a similar overall incentive, the two external firms play different and complementary roles in the management of the portfolio.

Staff is charged with creating the overall asset allocation structure within the RM ARS program, deciding upon the proper allocations to a variety of absolute return strategies currently in the marketplace. This allocation process is accomplished through three main steps. First, both UBS' and PAAMCO's staffs review the RM ARS program's sector allocations and make recommendations to CalPERS Staff as is warranted. Second, Staff models PAAMCO's and UBS' recommended portfolio allocation changes, as well as their own internally-developed asset allocation ideas, using their own internally-developed asset allocation software to verify whether the proposed sector allocation changes will improve the expected distribution of monthly and quarterly returns. Input may also be sought from the variety of funds of hedge funds with which CalPERS has invested, or through a variety of other channels and contacts within the hedge fund industry. Second, Staff also conducts its own independent research on sector and manager allocations, with or without input from PAAMCO or UBS, if they believe that the return distribution can be improved. Finally, the RM ARS Staff produces a written recommendation for the new asset allocation, which is presented to the RM ARS Advisory Board for approval. The Advisory Board, consisting of the SIO for Global Equities, SIO for AIM, and RM ARS portfolio manager has final authority over all changes to the program.

If the internal Staff and PAAMCO team is the equivalent of the "portfolio manager", then UBS is the "research analyst". Given budgetary constraints, it is unlikely that CalPERS would be able to assemble a team of research analysts sufficiently large and skilled as to be able to monitor all of the approximately 10,000 absolute return vehicles (hedge funds) currently in operation. As a result, UBS' fund of hedge funds team is primarily responsible for sourcing ideas for new funds in which CalPERS may invest. Managers may be suggested either as a result of a new sector allocation or as a replacement / diversifier for a current fund. Managers recommended by UBS to CalPERS are fully screened and approved for investment in UBS' portfolios through their own due diligence process. CalPERS Staff then takes the process a step further and conducts its own independent due diligence, including on-site visits to each suggested manager, resulting in duplicative reviews of managers. Although some might argue that such a duplicative effort is a waste of time and resources, we believe that having a complete due diligence conducted by both UBS and Staff allows for twice as many opportunities to spot issues and avoid bad investments. Given the lack of governmental / regulatory oversight in the absolute return industry, two complete sets of due diligence reviews help to protect CalPERS more than would simply relying on the external advisor. Managers recommended by UBS are also submitted to PAAMCO and/or some of the external fund of hedge funds managers for comment, based on their expertise and familiarity with each candidate manager.

Both third-party advisors (PAAMCO and UBS) are also free to play the opposite roles as they see fit. UBS contributes to the overall portfolio management process by recommending sector allocation changes as necessary, and PAAMCO will discuss managers under consideration that are discovered/proposed by Staff. The major difference between the UBS and PAAMCO relationships is that UBS acts as a source of new manager ideas while PAAMCO serves as a "sounding board" or second opinion for Staff. PAAMCO does not source new ideas for Staff in order to avoid potential conflicts of interest by disadvantaging its asset management clients and is paid a significantly lower fee than is UBS in recognition of the contribution it makes to the investment process.

Finally, beginning in September 2008 all new managers or increased funding to existing managers is reviewed by both CalPERS' legal office and Wilshire to verify that the allocation changes being made my Staff comply with both the policy for the RMARS program and Staff's delegated authority.

Investments in Fund of Hedge Funds Portfolios

Over the last few years, the RM ARS program has added investments in European and Asian funds of hedge funds, a move that we fully support since there are many opportunities outside of the United States that warrant investment by CalPERS yet are beyond the reach of Staff's expertise and resources even with the combined resources of UBS and PAAMCO. Although Staff is beginning to review non-US managers on its own, without having any members of Staff based overseas it is difficult to exercise the same level of due diligence as is currently employed in selecting managers within the US on a frequent basis. As a result, despite the higher cost of investing through funds of hedge funds, (typically an additional layer of management base fees with a possible incentive fee) these overseas partnerships are still the most cost-effective manner for

CalPERS to gain most of its exposure to non-US absolute return managers at this time. Non-US funds of hedge funds also provide an opportunity for current Staff to become more familiar with non-US portfolios, potentially laying the groundwork for greater use of direct investments in the future. As Staff continues to expand, and as the assets in the RM ARS program grow, it may become more cost-effective in the future solely to invest directly in non-US absolute return managers, or Staff may determine that some mix of direct investments and funds of funds is the most efficient.

We have included summaries of the six funds of hedge funds on which we conducted due diligence over the past few months at the end of this report. In general, we are pleased with the overall quality of these managers and believe that they add skills and resources to the investment process which add to the overall program. Each of these managers is fairly small, compared to the "mega-funds" that tend to dominate hedge fund investing, and so they can find unique sources of value-added that may be off the radar for CalPERS' other partners. As noted in our comments on the managers, however, small firms do have their own limitations, especially in staffing. As they grow, we hope that they have the same priorities for future hiring as we do.

Risks

In this section, we will discuss the risks specific to the investment process, including research and portfolio construction. The risks inherent in absolute return investing are already well documented and therefore not discussed in this section, since they were accepted by the CalPERS Investment Committee when the RM ARS program was first approved. Our review of this portfolio discovered no previously unknown risks involved with absolute return investing.

Much of the allocation decision process is based on the impact new strategies or managers will have on the overall distribution of portfolio returns. In other words, the portfolio management team seeks to determine whether a new manager or strategy would help to mitigate or offset the volatility in some other manager or strategy (or in the portfolio as a whole) based on historical performance. Although qualitative factors are considered during due diligence, our understanding is that Staff utilizes quantitative tools for a significant portion of the modeling and allocation process.

We remain concerned that Staff may become over-reliant on such quantitative models for two reasons. First, historical performance data does not predict future returns with certainty. A manager who would have been a good diversifier over the last few years may not provide the same correlation benefits under a different economic, interest rate, or political regime in the future. Reliance on historical data may not properly anticipate the true risk in the portfolio, especially in times of market shocks. Further, absolute return strategies tend to be dynamic in nature and therefore historical results may not truly reflect that strategy's behavior in the future. In other words, the flexible nature of hedge funds which makes them so desirable as an investment also makes them unreliable to model consistently. A fund with a two year track record is still maturing and may have shifts in its strategies or implementation process that lead it to perform differently than the models precisely expect. While building a portfolio of hedge funds on the backs of these models and assumptions and fine-tuning the skewness and kurtosis results to a high degree of accuracy is standard practice for funds of hedge funds, the entire process can be meaningless and inaccurate if the underlying funds do not perform or interact as expected.

Finally, many absolute return vehicles lack a track record that encompasses all economic environments, and it may be difficult to determine how a manager will fare in a different environment. The creation of strategy proxies (used in modeling new investment strategies under consideration for inclusion in the portfolio) is equally limited since they are largely based on historical data. Second, over-engineering the portfolio can lead to middling performance at a high cost. In a simplistic example, if the portfolio has a long bias (i.e., a higher correlation than desired to movements in markets as a whole), the temptation exists to offset that bias with a short-biased manager to reduce overall market risk. While this approach should work in theory, the net result of combining a broadly invested long manager with a broadly invested short manager, for example, could be a net performance of zero and a very high fee paid to both parties. As a result, we believe that sector allocations and manager selection need to be based as much on qualitative assessments of the true value they add as on purely quantitative projections. PAAMCO states that they do provide qualitative advice to Staff, in addition to quantitative modeling, but we believe that there is a chance such advice can become lost amid the preponderance of models and quantitative factors.

We recognize that the current RM ARS policy states that the portfolio should be managed through the use of quantitative tools, and we do not want to discount the value of such tools or to recommend a change to the policy language. However, we believe it is important to make sure that the qualitative input of Staff and the outside advisors will continue to override the quantitative factors when the aggregate wisdom of all parties involved recommends a different investment approach than what the models dictate. In addition, we encourage Staff to discuss internally and with the outside advisors whether the allocations recommended by the modeling process make fundamental sense even when the mathematical result may be compelling. Our understanding is that the qualitative inputs can, indeed, overrule the investment models, and we would encourage Staff to make policy language changes in the future as their experience grows.

As with any investment management organization, CalPERS is subject to the impact of departures by Staff. Unfortunately, CalPERS has a higher rate of attrition than a similar-sized investment management organization, largely due to the inability to offer compensation which is competitive with institutional investment managers. Investing in absolute return vehicles is often a “relationship” business, where the right reputation and contact base can make a significant impact in a portfolio’s success. As a result, it could be argued that the performance of this portfolio is more subject to the retention of a few key individuals than is the case for many other CalPERS investments. However, this concern is mitigated by the presence of UBS and PAAMCO, who provide significant resources to the overall effort. In the event of significant Staff departures, UBS and PAAMCO should be able to provide assistance with portfolio monitoring and the training of replacement Staff, with the wind-down of the portfolio, or with the wholesale shift of the portfolio to external fund of funds managers.

Conclusion

Staff is assisted and backed by two independent advisors and a third-party data collection and risk aggregator. Any function which Staff lacks the ability to provide on its own is covered one to three times over by the external advisors and data providers, as well as by other relationships such as the external fund of funds managers. In our opinion, there is no resource or tool which is not available to Staff through either its in-house capabilities or one of these external parties.

Our criticisms of this program are as follows: First, we believe the internal portfolio construction process is heavily dependent on quantitative tools and historical performance. However, this concern is mitigated by the qualitative input provided by PAAMCO, UBS, and the RM ARS Advisory Group prior to any investment by the portfolio management team.

Second, we believe that the track record over the past year, while not dissimilar from the majority of funds of hedge funds, indicates that there may be more macro, currency, commodity, or directional risk in the program than the Investment Committee prefers.

Third, as currently designed, there is no clear oversight of Staff's activities regarding external funds of hedge funds investments. The Investment Committee should either reaffirm that these investments should be entirely delegated to Staff or should be monitored in the same way that Corporate Governance and traditional external relationships are handled.

In the sections that follow, we have added separate commentary on the external advisors, UBS and PAAMCO, and six of the external funds of hedge funds, analyzing their organizations, people, processes, and resources as stand-alone entities. In addition, we have provided a point-by-point scoring table for all aspects of the RM ARS program.

Sincerely,

<u>Review of PAAMCO's People, Process, and Resources</u>

Organization & People

PAAMCO is an independent, employee-owned absolute return strategy advisory firm started in 2000 by its four founding partners, Jane Buchan, Judy Posnikoff, James Berens, and William Knight, who all previously worked together at Collins Associates from 1997 to 2000. All four founding members have PhDs in finance and economics. In 2005, the founding partners decided to extend the partnership to five other senior professionals. PAAMCO attempts to foster a positive work environment by allowing members of the team to grow and seeks to maintain long tenure among its employees through profit sharing and other incentives. PAAMCO has experienced very low turnover on an absolute basis and extremely low turnover on a relative basis compared to its peers. They have been SEC-registered since inception and currently manage in excess of $10.5 billion dollars, plus $9BN in advisory assets.

Investment Philosophy & Portfolio Construction

The investment committee sets tactical asset allocation for each strategy on a quarterly basis. The committee creates expectations for each strategy developed from historical data, current sector spreads, and PAAMCO's forward-looking views which are input into a proprietary optimizer, as well as a Northfield optimizer. Views are made with a one-year time horizon and tactical moves tend to be gradual and small, involving macro-economic scenarios, stress-tests, and sector expectational views.

The Strategy Allocation Subcommittee (SAS) reviews the optimizer outputs and adjusts the results with a heavy qualitative overlay, accounting for tail risks, asset flows, strategy flexibility and adaptability, as well as the capacity of appropriate managers within each sector. The SAS makes asset allocation recommendations to the Investment Management Committee, who then reviews, may adjust, and approves all final investments.

PAAMCO only invests in the following strategies, and therefore advises CalPERS mainly in these areas:

- Convertible fixed income arbitrage
- Debt & mortgage hedging
- Capital structure arbitrage
- Distressed fixed income investing
- Equity market neutral
- Merger arbitrage
- Long/short equity
- Short-biased equity

Managers Selection & Monitoring

PAAMCO believes that original research by an experienced and focused group of professionals will improve the manager selection process. Due diligence is also based on the requirement that absolute return managers provide PAAMCO with position level transparency to assess manager risk. Refusal is grounds for disqualification. The due diligence process addresses five major areas of concern, organizational/behavior, investment strategy and process, operations, overall risk, and the firm as a business. The sector specialist and research manager construct a research team of investment professionals to address areas of concern. The group is made up of various individuals with skill sets relevant to analyzing the areas of concern. Research process includes: background checks, reference checks, a due diligence questionnaire, review of fund documents and an audit, regulatory registrations, back up procedures, and portfolio attribution analysis. Specialists will also try to negotiate a preferential side letter which guarantee superior deal terms to PAAMCO as compared to the average client. In addition, an Independent Risk Analysis (IRA) is performed by a PAAMCO founding partner who has not previously been involved in the research process. If the manager passes the IRA, the research is passed to the investment committee.

PAAMCO will evaluate and hire both new and experienced managers. Approximately 80% of managers are established while new managers have the relevant experience even while the organization is new. They do not see any benefit to artificially limiting the universe of absolute return managers based on age.

Average manager turnover is roughly 25% -- average to below average for the industry.

Risk Management

PAAMCO demands position level transparency although they do not make it available to investors. Clients are not informed of the names of underlying managers, risk exposures, and portfolio level detail due to confidentiality agreements with the absolute return managers. Risk management is based on aspects such as long exposure, short exposure, net and gross exposure, sector concentration, geographic allocation, equity beta, market cap exposures, growth/value exposures, position concentration, liquidity, credit exposure, and duration. This allows the specialist to ascertain what risk a particular manager brings to the overall portfolio and its diversification benefits. They use a variety of tools including SQL Server for positions, optimizers and in-house models, RiskMetrics, Northfield, Bloomberg API, and proprietary (internally developed) analytics.

Conclusion

PAAMCO is a large and established institutional absolute return strategy advisory firm with a solid organizational structure, low turnover among its employees, and more than $10 billion in client assets. PAAMCO’s four founding partners bring a unique approach to absolute return investing due to their academic backgrounds combined with significant hedge fund and consulting experience. PAAMCO is one of the most stable and institutional quality absolute return advisors.

Review of UBS Global Asset Management's People, Process, and Resources

Organization & People

Alternative and Quantitative Investments (A&Q) is wholly owned subsidiary of UBS Global Asset Management and was established in 2003, bringing together several disparate components of the UBS absolute return platform. Alternative Investment Solutions (AIS) is a unit within A&Q which services the CalPERS relationship. UBS is a large global organization involved in all aspects of absolute return vehicle management, including direct absolute return management and seeding, prime brokerage, administration, and risk management. This platform creates vast resources for the AIS unit to use. AIS currently oversees approximately $30 billion, in both non-discretionary and discretionary assets.

Individuals are paid a base salary and bonus. There is one bonus pool set by management. They also have a deferred compensation plan in place for certain employees which vests over time.

AIS has experienced significant turnover especially at the more senior investment level over the past three years on both an absolute and relative basis.

Managers Selection & Monitoring

The investment process separates absolute return vehicles into four main strategy clusters or working groups and three non-strategy clusters for operational due diligence, asset allocation, and risk management. Each strategy cluster is handled by one analyst, one investment officer, and one senior investment officer. Analysts rotate through each strategy on 6 month intervals while simultaneously sitting on the operational due diligence or risk management clusters. AIS maintains offices in the USA, Europe, and Asia for manager and market research, and benefits from the UBS affiliate absolute return portfolio administrator who is responsible for all NAV calculations done for their internal funds.

AIS research process begins first with strategy research in order to understand the drivers of risk and return. This establishes a framework for manager research to understand the underlying strategies utilized by managers based upon these factors and their outlook. The group seeks to identify changes in strategies and adapt research by monitoring macro factors and market technical indicators. As one of the largest absolute return managers in the world, AIS has a competitive advantage in sourcing new managers. AIS has developed a proprietary system called "Octane" which encompasses every aspect of the manager selection and monitoring process including quantitative, qualitative, operational, risk management, and NAV calculations done by the administrator. The strategy research, sourcing, and Octane software all facilitate and augment their manager research process which includes several meetings with managers. Analysts go through manager portfolios, portfolio management, and risk control processes and then conduct peer group analysis. If the manager is approved through this initial due diligence phase it will then be passed onto the Manager Approval Committee consisting of SIO's and the CIO. If recommended, managers move to the operational due diligence team and will either receive a fail, qualify or pass score. The operational due diligence group looks at a variety of issues including valuation methodology, cash policies, IT systems, and disaster recovery etc. If the firm fails any of these screens, UBS will work with it to enhance its operational controls and move it to qualify or pass if processes are improved. Once this step is completed, UBS conducts security checks and continues to monitor each manager. The managers are then sent back to the Manager Approval Committee.

AIS has experienced above-average manager turnover in its portfolios, with recent turnover running around 40% in their fund of fund portfolios. While this level of turnover is not abnormally high, it does call into question the quality of manager selection in prior years.

Risk Management

AIS focuses on analytical decomposition of fund performance. The group utilizes performance-based analysis of portfolio risks and aggregate measures of manager risk at the portfolio level. This is achieved through the development of multi-factor models to explain performance in both normal and stress environments. A strictly quantitative process is employed and the firm does not utilize underlying holdings to any significant degree.

Conclusion

UBS AIS is one of the largest hedge fund of fund managers in the world, and is able to leverage the UBS platform for more robust manager selection and monitoring processes than the typical absolute return strategy advisory firm. However, AIS has experienced moderate personnel turnover which is a cause for concern.

47° North Capital Management

Organization & People

47°N was established in 2006 by Claude Porret. Over the last few years the firm has steadily added people, with the exception of the downsizing of 2 members of the team in 2008, largely from Ms. Porret's prior contacts at RMF and Man Investments. Most members of the team have very significant experience in the hedge fund industry.

All employees own stock in the firm. Approximately 1/3 of the equity in the firm is held by CalPERS, another large client, and an "angel" seed investor.

With total assets in the $200MM range, the team is necessarily fairly small, with six individuals who conduct portfolio management, research, due diligence, etc. All members of the investment team "wear many hats", with no clear division of labor. As the organization grows, we hope to see further definition of roles, including the development of a team dedicated to operational due diligence, which we believe is a skill set that requires specialized experience. At the present time, given the asset size, we believe that the team is sufficient to the task, especially due to the very high level of experience possessed by the senior employees.

Manager Selection & Monitoring

47°N focuses primarily on new generation hedge funds and sees itself as a start-up, innovation, or new fund seeding satellite manager for clients who have "core" hedge fund positions. 47°N tries to focus on new areas of innovation and new types of investments more than just new managers in traditional areas. The company has made significant investments in areas such as power-trading, carbon-trading, and insurance-linked products that tend to fall outside the scope of most traditional funds of funds. The firm has even explored, but not invested in, such areas as seafood futures, intellectual property, and soccer player rights to stay ahead of the curve for new development of future types of hedge fund investments. Interestingly for CalPERS, one of the criteria that 47°N uses to ascertain whether a new type of hedge funds is investible is an evaluation of whether the investment area is "ethical".

At its core, the firm believes that start-up or new generation managers allow for 47°N to receive better terms on liquidity, transparency, fees, etc. than they would by investing in traditional or established hedge fund strategies which may have more competition among investors, and therefore less willingness to negotiate terms. Several members of the team worked together at another fund of funds who would not allow them to build a start-up fund platform in-house, leading to their departure. This history indicates to us the level of dedication the team has to this particular subset of hedge fund investing.

Risk Management and Technology

47°N has built a proprietary screening, tracking, and due diligence system for monitoring, tracking, and evaluating prospective investments. This system was obviously easy to use and very user friendly. This single system also had full database functionality, allowing for storage of all notes, manager documents, etc. in one place.

We were very impressed with the analysis 47°N can conduct with this system. The system appears to have one of the most complete charting and evaluation packages available and the firm conducts very large amounts of quantitative analysis and peer comparison as part of its review and portfolio management process.

Conclusion

Despite its small size, we believe that 47°N provides CalPERS with a unique skill set and access to a section of the hedge fund market not available through its other relationships. The team is very experienced and well-suited to the task at hand.

Ermitage

Organization & People

Ermitage was originally founded in 1975 as a private wealth management firm, began offering single hedge funds in 1984, and then launched a fund of hedge funds business in the late 1990s.

Ermitage is 60% owned by Caledonia and 40% by management, following a sale of the business by the former parent in 2006.

Manager Selection & Monitoring

Ermitage employs a structured approach where they divide each fund into one of three buckets – Long/Short Equity, Relative Value, or Directional (CTA, macro, natural resources) and then assign dedicated staff to evaluate it.

Instead of viewing themselves as simply a fund selector, Ermitage tries to operate as a capital markets allocator – they will put on and take off positions depending on their global economic, currency, etc. outlook. As a result, they function somewhat as a "macro" fund of hedge funds. In doing so, they are willing to invest in funds with high volatility under the assumption that they can properly time the market regarding when to get in and out. To this end, the portfolio management team holds weekly meetings in which they discuss not just the underlying funds but also the market environment and where the opportunities lie. Ermitage believes that this is a competitive advantage since their peers do not make full use of all the information they are privy to.

In March of 2008, this process worked – all three style teams concluded that the market was headed down, so the fund liquidated 40% of the portfolio and protected clients against some of the downside.

Operational due diligence is a separate and dedicated team with three individuals and one open (hiring) position.

Risk Management and Technology

Ermitage has two proprietary risk management and modeling systems that allow them to extract data from external databases, merge it with market data, and then model their portfolios under a variety of conditions and stress tests – an important skill for a fund of funds that wants to time the markets. Ermitage has very extensive analytics for modeling portfolios in various market conditions, with lots of ability to override historical information and program in unique expectations for future market conditions. This system is currently being explored for use by CalPERS' Global Equity team for overall portfolio management within CalPERS.

New funds require five reference checks from known contacts within Ermitage's network. They do not use the usual background checks except for small, startup funds that are outside their network.

All portfolio and cash management tools have trading functionality built in so the portfolio managers can send redemption or funding directions from within their portfolio modeling system.

Conclusion

Ermitage relies more heavily on macro-economic forecasting than the other funds of hedge funds, but has the systems and modeling tools to back it up. This is not a typical bottom-up fund manager but rather a macro-style fund of hedge funds. As a result, this fund should have a unique return stream versus the other managers and should introduce an uncorrelated return for CalPERS.

Europanel Research & Alternative Asset Management (ERAAM)

Organization & People

ERAAM launched in 1998 by two partners with extensive sales and trading backgrounds for major investment banks – both had been the heads of the equity, fixed income, and derivatives desks for Europe. This background gives them extensive contacts with all the major traditional fund managers from the 1990s who have now branched out into hedge funds.

ERAAM had substantial exposure to high net worth client accounts over the last few years. As the market imploded, these accounts were redeemed disproportionately, putting pressure on ERAAM's budgets and operations. ERAAM has since restructured its private client offerings to pose more of a hurdle for "fast money" business. Four staff members were terminated as assets fell.

ERAAM is 80% owned by four partners and an employee-benefit trust.

Manager Selection & Monitoring

ERAAM relies heavily on its network of past relationships and the fund managers in its portfolio for new investment ideas. One of the partners said that database screenings are the least valuable tool at their disposal to find new investments.

Each investment opportunity is assigned a "leader" and a "challenger" to review the opportunity, and both will visit the fund independently. A separate operational due diligence person is assigned to review each investment, as well.

ERAAM is 100% bottom-up focused. The team has no macro-structure or model portfolio, but rather reviews opportunities and finds what it believes to be are the best investments without regard to style or region.

Risk Management and Technology

ERAAM tends to focus its investments in continental Europe, where reporting standards are significantly higher than in other regions. As a result, while operational due diligence is still important, they tend to rely a bit more on the regulators and auditors than do the funds reviewed located elsewhere. For example, ERAAM does not contract with the usual background investigators for new investments. Instead, the partners conduct their own checks with their contacts and then rely on the FSA/ARM for criminal, educational, etc. background checks.

For reviewing opportunities, ERAAM demonstrated a sophisticated custom-made quantitative package that helps to discern how much of each manager's return is due to skill (alpha) versus hidden residual market exposure (beta). Their analytics can perform the full suite of "what if" analysis, including modeling current and prospective portfolios under a variety of conditions and stress tests. However, the partners made clear that while they value these tools, they believe that their experience and intuition is more than half of the investment process and they do not rely on the quantitative software to make any decisions – merely to test and validate their assumptions.

Conclusion

This is a team with tremendous market experience and contacts, although no direct experience managing hedge fund assets. The team has extensive quantitative tools at its disposal but clearly contends that it relies more on its experience and contacts than such tools. We believe that this team has a very strong investment and review process, although it may rely a little too heavily on market regulators to assure the safety of investments.

Pacific Alternative Asset Management (Singapore team)

Organization & People

The Singapore-based PAAMCO team is a recent addition to the PAAMCO organization. Last year, as the team's former firm (the investment bank KBC) decided to shut down Fund of hedge fund operations, PAAMCO emerged as a natural buyer for the group, with CalPERS' assistance. The team initially began operations in 2001 as a Japan-only Fund of hedge funds but has grown to encompass all of Asia.

Integration with PAAMCO is still ongoing, with the investment process about halfway completed. Generating full transparency into all manager positions, as is required by PAAMCO, is still in process. In addition, while PAAMCO structure its research around sector specialists, the Singapore team is still focused on hedge fund generalists. All legal review of fund documents is now handled by PAAMCO's legal team in California.

Manager Selection & Monitoring

The team generally does not seek out "high beta" (high market exposure) managers and invest little in the macro style. Mainly, the team focuses on finding funds with an optimal tradeoff between risk and reward.

Every fund is reviewed by a two-person team, in addition to the operational due diligence team, in order to maximize the number of opinions and perspectives on a manager.

The investment process has significant top-down elements, with macro-level considerations given to the firm's view on countries, regions, and strategies.

PAAMCO (Singapore team) has two dedicated operational due diligence people, in addition to the entire operational due diligence team within the PAAMCO parent. The Singapore team is currently in the process of phasing in the use of PAAMCO risk reports. The head of operational due diligence in Singapore has tremendous back office experience due to his history as the COO for a product area at Credit Suisse. The second operational due diligence person was the former head of HSBC's fund administration group. A full operational due diligence review is conducted on existing investments every two years.

PAAMCO revealed that they continue to monitor terminated funds after redemptions have been completed both in absolute terms and versus the funds' peers to act as a check on investment decisions.

Risk Management and Technology

The Singapore team is currently in the process of converting to the use of PAAMCO's full suite of analytics and technology, which is superior to that of the predecessor organization. Until the phase-in is complete, the team will continue to use Risk Metrics to model and stress test all portfolios and prospective changes.

Conclusion

This team has benefited greatly from the acquisition by PAAMCO and will continue to get better as the investment process, technology standards, due diligence process, and ongoing monitoring all are brought up to PAAMCO standards or benefit from PAAMCO's resources. Given that PAAMCO had a fledgling Asian operation prior to this acquisition, we do not see a downside to the merger and integration of these two organizations.

SPARX International

Organization & People

The SPARX fund of hedge funds team is part of the larger SPARX asset management company and has been investing in hedge funds since 1997. As with most funds of hedge funds, assets are down significantly over the past year, but the larger parent company provides financial support to weather the environment.

The senior members of the team have been together for several years and have very deep industry experience.

SPARX recently launched a joint venture with a South Korean conglomerate to expand its distribution platform and reach. As this grows it may help to replace the assets lost in 2008 and allow the firm to add resources.

During our visit, SPARX produced a copy of a SAS 70 audit (a very in-depth voluntary policies and procedures review) that had been completed recently by Ernst & Young. This process costs about $800,000 to complete and SPARX believes that they are the only Asian fund of hedge funds to have undertaken this process.

Manager Selection & Monitoring

SPARX maintains a list of investible managers that the team has approved for client portfolios. The nature of these investments have shifted over time as the firm has recently embraced more volatility and trading-focused funds and shifted away from fundamental buy & hold strategies.

SPARX research and monitoring process is very active. In reviewing the list of funds currently on the internal buy list or focus list, we observed several that had moved from a rating of Neutral to Strong Buy to Neutral to Strong Buy to Sell in a period of 15-16 months. This implies to us a very active research and monitoring process that keeps constant tabs on the managers under consideration.

Despite the SAS 70, we believe that the lack of a dedicated operational due diligence team is a minus for the organization as this is a separate skill set. Currently, investment team members also conduct the operational due diligence. While other small firms that lack a dedicated operational review team might rotate staff so that the person reviewing the investments is NOT the same person reviewing operation, SPARX has the same analyst review both investments and operations. During our visit, we were told that as assets grow, this will be the next area the firm adds.

Risk Management and Technology

As part of the portfolio management process, the team runs a full suite of analytics on the existing portfolio, but they “don’t see the point” of running “what ifs” on future investments / changes. This approach is markedly different than the vast majority of funds of hedge funds, where any portfolio change is modeled extensively prior to execution.

SPARX also does not require full transparency from managers and therefore cannot conduct scenario testing of the entire portfolio.

Reviews of service providers such as prime brokers and fund administrators are limited to questionnaires. On site due diligence of these companies is not performed.

Conclusion

This is an experienced team with strong market knowledge and solid research capabilities. However, we believe that the lack of a dedicated operational due diligence team and portfolio analytics that are not as impressive as those used by some of the other managers are negatives. SPARX’s President indicated that resources will increase as assets and budgets allow, and we will monitor their improvements in staffing and resources over time. We believe that SPARX is acceptable as a small investment for CalPERS, but has substantial areas of improvement prior to any additional funding.

Visions Investment Management

Organization & People

Visions is privately held, with 60% owned by employees and 40% owned by an Italian family that has stakes in many other firms with whom Visions can partner.

The company has $40 MM in cash and could purchase another fund of hedge funds or a private equity fund of funds if the opportunity arises.

The company experienced a fair amount of turnover in 2008 – 6 people left, including the head of proprietary capital, and some analysts. The firm hired 3 replacement personnel in 2008.

Manager Selection & Monitoring

Visions is currently trying to take advantage of the current market unrest. With the decline in investment banks and proprietary trading desks, Visions has seen far less "crowding" of trades and believes that there is far more room to find unique opportunities. To protect itself against further declines in the industry, Visions has shifted from investing in commingled funds to managed accounts (separate accounts) wherever possible.

The firm is currently moving out of distressed funds since these funds are adding long-term lock-ups on capital, which violate CalPERS' terms of investment. Were CalPERS to relax these terms, Visions would pursue several distressed opportunities.

Operational due diligence is conducted by the head of compliance upon initial investment and annually thereafter. In addition to the usual checklists and on-site reviews, Visions also operationally tracks a trade made by the underlying fund from inception to settlement to monitor all steps in the execution, compliance, and settlement process. The firm has five people dedicated to operational due diligence and the firm also conducts operational due diligence on all service providers.

Risk Management and Technology

A risk management team monitors concentration risks, liquidity, etc. and establishes risk guidelines. The fund keeps 50% with 30 day liquidity, and 75% with 180 day liquidity.

Risk management at Visions does not appear to be as technical as at many other firms. Visions seeks out managers that can stand on their own, while still fitting into the portfolio as a whole. While many fund of funds add or delete managers to model a specific desired outcome, Visions appears to be more qualitatively focused, while still adhering to overall portfolio risk limits.

Conclusion

Visions has the strongest operational due diligence effort among the funds reviewed this year on CalPERS' behalf. Although this firm does not have the in-depth risk analytics of many of its peers, we believe that its investment approach and portfolio construction methodology are not as dependent on such systems. As a result, while the firm does not have all the tools of its peers, its process does not require them.

Strategy Evaluation: CalPERS Risk Managed Absolute Return Strategy

Organization (0-100)

SCORE:	**COMMENTS:**
Ownership/Incentives (0-30) Direct Ownership/Phantom Stock Profit Sharing Performance Bonus Depth of Incentives Score: 5	Employees receive performance bonus only.
Team (0-25) Communication Role of Manager, Research, and Operations Longevity of Team Score: 20	Team currently is appropriate given size of operation and portfolio. There is a lead portfolio manager, backed up by a quantitative analyst and sufficient junior staff. Portfolio manager is monitored by RM ARS Advisory Group and is advised by two outside fund of hedge funds managers. Internal Staff is developing a track record together and maturing nicely as a team. Communication links are informal and proximity of team members is close.
Quality of Key Professionals (0-15) Experience Quality of Leadership Quality of Education Score: 15	Experience, education, and technical skills of portfolio manager, investment committee, and quantitative analyst are excellent. Key advisors from UBS and PAAMCO are among the best in the business. Portfolio management team understands risks and issues to be monitored or resolved regarding strategy. Appropriately concerned about process, reporting, and monitoring.

Turnover of Senior Professionals (0-15)
Low (<10%), Medium (<20%), High (>20%)

Score: 0

Staff turnover for CalPERS is high at both the senior and junior levels, including the departure of the SIO for Global Equities, two CIOs, and the CEO over the last few years. Lack of long-term retention incentives lead some staff to consider the organization as a “stepping stone” to better compensation in similar positions elsewhere. Turnover for this strategy is a risk. However, the two external advisors can assist Staff with the continuation or termination of this portfolio in the event of wholesale turnover in key personnel. Current budgetary constraints and Staff pay cuts are impacting morale and potentially turnover.

Commitment to Improvement (0-15)
Clear Mission
Re-investment
Process Enhance

Score: 15

Strategy has clear mission and objectives. Resources are sufficient to the current tasks assigned to team, and support exists within the organization to add staff or other resources if strategy expands or other demands warrant. Outside advisors have a significant on-going effort to re-invest in their own research and other capabilities, which directly impacts the internal Staff.

<u>Philosophy/Process (0-100)</u>

SCORE:	**COMMENTS:**
Market Anomaly/Inefficiency (0-40) Permanent or Temporary Clear Identification Where and How Add Value Empirical or Academic Evidence to Support Score: 40	The strategy seeks to find and invest in a variety of external absolute return portfolios that should generate consistently positive returns with as little market correlation as possible. The portfolio operates under the premise that smaller, more nimble, and less constrained absolute return managers can add value in ways that traditional long-only managers cannot. The portfolio manager and investment committee are able to shift assets as necessary across the broad spectrum of available absolute return strategies, without a requirement that the total portfolio mirrors the universe of investment opportunities or any absolute return industry benchmark allocations.
Information (0-15) Unique Sources, Unique Processing Score: 15	Program seeks out and invests in a variety of absolute return portfolios that are evaluated both on their own merits and on the basis of how they contribute to the performance of the overall blended RM ARS performance. Each portfolio invests slightly or significantly differently from the others, and seeks to exploit some market anomaly or information advantage. Added together, this combination of unique information sources and portfolio management approaches has been very successful.

Buy/Sell Discipline (0-15)
Disciplined/Structured Process
Quantitative and Qualitative Inputs

Score: 12

Managers are hired and fired based on a process that includes input from two third-party advisors, on-site due diligence, and a review by the RM ARS Advisory Group. Internal process is highly reliant on quantitative process for portfolio construction, although outside advisors add a significant element of qualitative input on both manager selection and portfolio construction.

Portfolio Construction (0-15)
Benchmark Orientation
Risk Controls
Ongoing Monitoring

Score: 15

Portfolio construction techniques and monitoring are very good with internally developed and maintained systems. Monitoring of all absolute return manager performance is conducted on an on-going basis, and managers can be hired and fired quickly as events or performance warrant.

Portfolio does not have a traditional benchmark like most other PERS portfolios, but is charged with outperforming short term cash interest rates plus a performance hurdle. As a result, the portfolio is engineered to generate consistently positive returns and the portfolio management team and outside advisors have many tools in place to help construct a portfolio with the required distribution of expected returns.

The absolute return nature of the portfolio should result in consistently positive performance for the CalPERS Total Fund, regardless of the current inflation, interest rate, or macroeconomic environment, excluding the impact of the beta (market) overlay which is added later by Staff.

Recent performance over the past year has not held up to this standard, but does not impact our score. First, the review is based on a qualitative assessment of the team's ability to add value in the future. Second, the trailing year's performance is largely a function of a highly volatile and abnormal market.

Quality Control (0-15)
- Return Dispersion
- Performance Attribution
- Performance Consistency
- Style Drift

Score: 15

The process has tight risk controls built in, and is independently-monitored within the Unit through a separate reporting line to the SIO-Global Equity and SIO-AIM. Within the portfolio management team there is good separation of responsibilities as well as back-up and cross-check functions provided by third party advisors. Wilshire has reviewed and had input into the drafting of the policy that covers portfolio management, research, and monitoring.

Returns have been positive in more than 60% of monthly periods and have generally improved in their consistency as the portfolio has grown, matured, and diversified, with the exception of the past year.

Style drift is not an issue with this portfolio as the portfolio management team is given the right to move assets between absolute return strategies as their research, and that of the third-party advisors, recommends.

Performance attribution and data collection is conducted by a third-party provider (IFS), and provides reports custom-tailored to PERS' specific needs. IFS also maintains an individual on-site in CalPERS' office to provide on-going data collection and risk monitoring services.

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	Research is conducted both by the internal staff and by two third party advisors who function independently of each other. Complete due diligence of each manager is conducted by UBS prior to recommendation to PERS, and then is mirrored by Staff prior to investment. Due diligence of candidate managers is often conducted by PAAMCO, as well, and the results are considered in Staff's ultimate investment decision. Each underlying absolute return vehicle is expected to conduct on-going research into continual improvement in its own investment processes, and managers that fail to improve over time are removed from the portfolio. Staff also conducts on-going research into quantitative tools for continual improvement in portfolio allocation process, and shares in the findings of such research with outside advisors.
Information/Systems Management (0-15) Ability to Manage Large Flows of Data Appropriate Systems for Research and Management Score: 15	Systems at both UBS and PAAMCO have been developed from the beginning to handle the large amounts of data involved in researching, evaluating, and monitoring absolute return vehicles, and are sufficient to their needs. Services provided by IFS to handle in-house data collection are sufficient to Staff's needs, and continually improved by IFS.

Marketing/Administration/Client Service (0-15) Dedicated and Knowledgeable Group Quality of Materials/Presentations of RFPs Responsiveness Measuring Client Satisfaction Score: 15	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 SIOs, but Portfolio Manager, team, and third-party advisors are 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: 30 (maximum score assigned as trading is an external function, conducted by hedge funds hired.)	Strategy invests in external absolute return portfolios, and therefore has no internal trading functions. All external managers are evaluated by Staff, UBS, and, often, PAAMCO, regarding whether their trading functions are sufficient to their investment strategies. Absolute return vehicles that lack sufficient resources to trade effectively, or those that execute at costs which are too high for their style, are not considered for investment.

Discussion

Wilshire’s score on this strategy of 84% or 252 out of 300 possible points reflects the strong team and clear success demonstrated at managing the portfolio as charged. The main reasons for a less-than-perfect score overall are largely due to organizational-level issues such as senior management turnover and lack of retention incentives.