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Agenda Item 6

September 12, 2011

TO: MEMBERS OF THE INVESTMENT COMMITTEE

I. SUBJECT: Absolute Return Strategies (ARS) Allocation

II. PROGRAM: Asset Allocation/Risk Management

III. RECOMMENDATION: Staff recommends Framework B stated on page 3 of this memorandum as a means of allocating capital to the ARS program.

IV. ANALYSIS:

At the August 2011 Investment Committee (the "Committee") meeting, staff discussed a proposed framework for allocating capital to the ARS program since ARS was not designated as a strategic asset class during the 2010 strategic asset allocation review and, therefore, was not included in the policy portfolio or the benchmark. The Committee directed staff to review the role of ARS and to assess the merit of different frameworks for allocating capital to the ARS program.

THE ROLE OF ARS

The ARS program has continued to evolve since inception in 2002. Initially, the ARS portfolio comprised primarily long-short equity hedge funds within the Global Equity (GE) program. In 2004, the Committee authorized a change of the ARS mandate to a "multi-strategy" hedge fund model; however, the program remained within GE. In July 2011, recognizing the multi-strategy nature of the program, the program moved from GE to the direct responsibility of the Chief Investment Officer.

Since the launch of the ARS program, there have been periodic discussions about its role. Because of the wide variety of hedge fund strategies in the market, these strategies can play many roles in portfolio construction. The *primary* role of the CalPERS ARS program could be:

- *To reduce risk (volatility) in the policy portfolio, or*
- *To add excess return (alpha) to the policy portfolio*

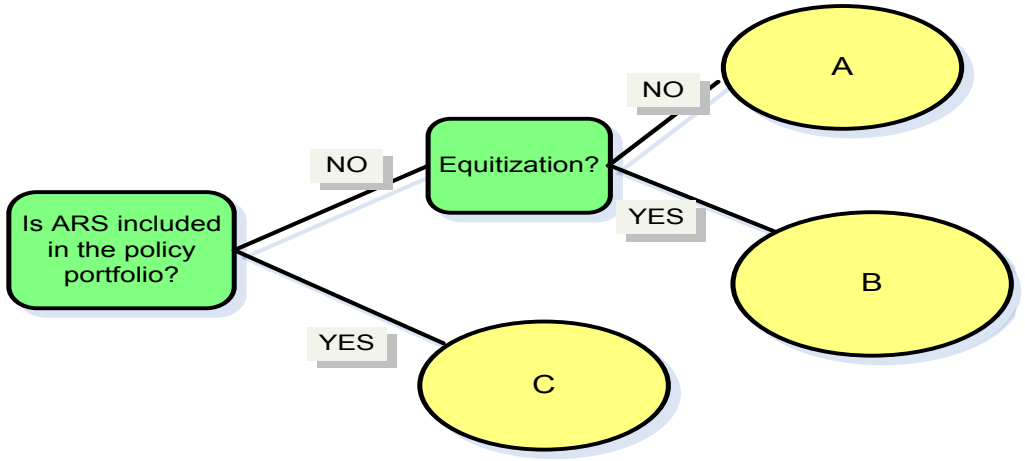
During the 2010 asset allocation study, staff concluded that the primary role of the ARS program should be to add alpha to the policy portfolio. ARS is a collection of active trading strategies characterized by both long and short positions in equities, fixed income and commodities and with minimal net exposure to any asset class. By employing long-short strategies in multiple asset classes, ARS returns diversify other sources of active returns. Therefore, staff believes that ARS strategies should be used to add return to the policy portfolio while keeping the volatility of the policy portfolio unchanged. (Staff expressed this view to the Committee in the September 13, 2010 and October 18, 2010 Asset Liability Management Updates.)

Alternatively, the primary role of ARS could be to reduce the volatility of the policy portfolio. It appears that this was the primary goal of the ARS program when it was initially launched in 2002. However, during the market crisis of 2008, ARS did not play this role. It suffered a significant drawdown and was not the most effective diversifier for equities and market risk, in general. Staff has been working to change the ARS portfolio since then to reduce the directional market exposures (beta.) This appears to have been successful, as the ARS program significantly outperformed the GE portfolio in the market volatility of August 2011. However, if the primary purpose of the ARS program is to reduce the volatility of the policy portfolio, staff is not convinced that ARS strategies are the most efficient way to achieve that goal. Other asset classes and/or strategies might serve the same purpose with less cost and complexity.

The capital allocation framework for the ARS program should be determined by the Committee's view of the *primary* role of the ARS program. If the primary purpose of the ARS program is to enhance the return of the policy portfolio, there would be no ARS allocation in the policy portfolio. If the primary role of ARS is to reduce the risk of the policy portfolio, there would be an allocation to ARS in the policy portfolio. The remainder of this agenda item illustrates these concepts in order to facilitate a decision by the Committee.

THE ALLOCATION FRAMEWORK

Discussions between staff and Wilshire have resulted in three potential ARS program capital allocation frameworks. The key differences are whether the ARS program has an allocation in the policy portfolio and whether the ARS allocation is "equitized." If ARS allocation is not in the policy portfolio, equitization entails buying equity market index futures to restore the GE allocation to its intended weight in the policy portfolio. The pros and cons of the three approaches are discussed below.



A. Zero policy weight to ARS / ARS exposure unequitized
In this approach, ARS is not included in the policy portfolio (benchmark). The ARS allocation reduces the GE weight in the actual portfolio, and there is no equitization. This approach was in effect from ARS inception to 2008. It has also been in effect since July 1, 2011 when staff implemented the new policy portfolio. This approach results in an underweight to GE and an overweight to ARS in the actual portfolio relative to benchmark. This results in a persistent tracking error between the policy portfolio and the actual portfolio. There will be positive performance vs. the benchmark in periods when ARS outperforms GE (as has been the case in fiscal year 11/12 to date). There will be negative performance vs. the benchmark in periods when GE outperforms ARS (as was the case from program launch through 2007). Because of the persistent tracking error generated, this approach is not recommended.

B. Zero policy weight to ARS / ARS exposure equitized
In this case, ARS is not included in the policy portfolio. ARS is funded from GE but there is equitization of approximately 2% of the total fund to restore the GE weight to the benchmark allocation. This minimizes the tracking error between the policy portfolio and actual portfolio. As long as ARS outperforms cash, the actual portfolio will outperform the policy portfolio. If ARS underperforms cash, the actual portfolio will underperform the policy portfolio.

C. Include ARS weight (2.5%) in policy benchmark
In this case, the GE weight in the policy portfolio is reduced by 2.5% and the policy portfolio includes a 2.5% allocation to ARS. The ARS benchmark, T-bills + 5%, is included in the policy benchmark. This changes the policy

allocation and policy benchmark approved by the Committee in early 2011. There will be no tracking error between the actual portfolio and the policy portfolio due to asset allocation; there could be tracking error (positive or negative) if the ARS program does not achieve its benchmark of T-bills +5%.

As an illustration, in the table below, staff estimated expected returns and risk for the policy portfolio and actual portfolio under each of the three frameworks. Since staff did not forecast returns and risk for ARS during the strategic asset allocation work, staff needed to develop return/risk assumptions for this analysis. This analysis assumes an ARS expected return of T-bills + 3.5% and a volatility of 5.7%, the historical return and volatility respectively since inception through June 2011.

EXPECTED RETURNS AND RISK (%/yr)

	A	**B**	**C**
Policy allocation to ARS?	No	No	Yes
Equitization?	No	Yes	No
Policy portfolio			
Return	7.38	7.38	7.34
Total Risk	11.92	11.92	11.60
Sharpe Ratio	0.388	0.388	0.396
Actual portfolio			
Return	7.34	7.44	7.34
Total Risk	11.60	11.91	11.60
Sharpe Ratio	0.396	0.394	0.396

- Assumptions and calculations are listed in Attachment 1
- Return = expected annual nominal compound return
- Total risk = expected annualized standard deviation (volatility) of portfolio returns
- Sharpe Ratio = the asset return minus the cash return all divided by the volatility of the asset return (in this version of the Sharpe ratio, cash volatility is ignored as it is very low).
- Assumed returns: Cash = 2.75%, ARS = Cash + 3.5% = 6.25%; GE = 7.75%
- The actual portfolio is assumed to be the same as the policy portfolio except for differences in ARS policy allocations and the use of equitization.

The information in the table leads to the following observations:

- Framework A lowers the risk and lowers the return of the actual portfolio relative to the policy portfolio.

- Framework B increases the return of the actual portfolio relative to the policy portfolio, with a "Total Risk" nearly equal to the "Total Risk" of the policy portfolio.

- Framework C reduces the risk and return of the policy and actual portfolios compared to the policy portfolio of A and B.

  The portfolios in the table illustrate the risk/return trade-off based on the potential roles for ARS. In Framework B, the primary role of the ARS program is to increase return, which is demonstrated by the increased return of 7.44% for the actual portfolio vs. the policy portfolio of 7.38% at essentially the same risk level. In Framework C, the primary role of the ARS program is to reduce risk, as demonstrated by the total risk of 11.6% vs. the 11.92% risk in the policy portfolio adopted by the Committee.

STAFF RECOMMENDATION

Based on this assessment, staff believes Framework B – an ARS allocation outside the current policy portfolio with equitization applied to restore the GE allocation to the policy portfolio level is a better approach than A or C. Framework B results in an enhanced return vs. the policy portfolio at essentially the same risk level approved by the Committee, and is more consistent with staff's views about the role hedge funds should play in portfolio construction. It is also consistent with the strategic asset allocation the staff implemented as of July 1, 2011, so would not require any changes to the policy portfolio and would only require the initiation of positions in long equity futures.

If the Committee chooses Framework C, staff will make appropriate changes to the asset allocation and benchmark policies for submission to the Policy Subcommittee. When those changes are approved by the Committee, staff would proceed with any needed rebalancing of the actual portfolio.

An opinion letter from Wilshire is included as Attachment 2.

V. STRATEGIC PLAN:

This item addresses Strategic Plan Goals VIII, manage the risk and volatility of assets and liabilities to ensure sufficient funds are available, first, to pay benefits and second, to minimize and stabilize contributions; and IX, achieve long-term, sustainable, risk adjusted returns.

VI. RESULTS/COSTS:

Implementation costs for this item are expected to be minimal.

_____
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_____
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Chief Investment Officer

Attachment 1

Calculated of Expected Policy and Implementation Returns

Assumptions

- ARS is 2.5% of the total fund for all three implementation portfolios
- ARS beta to global equity = 0.20
- ARS beta to cash = 0.80
- All asset class returns are equal to the policy (benchmark) returns presented at the November 2010 ALM Workshop.
    - Forecasts were not presented for cash or for the ARS program
- Assumed annual compound returns:
    - Cash = 2.75%
    - ARS = cash + 3.5% = 6.25%
    - Global equity = 7.75%
- The equitization in the B implementation portfolio increases the exposure to global equity by 2% of the total fund.
    - The equitization is long equity futures with notional value equal to the ARS cash beta times the ARS market value
      B equitization notional = ARS cash beta * ARS market value
      = 0.80 * 2.5% of total fund
      = 2.0% of total fund

POLICY RETURN

Historical and expected ARS returns

Since inception through June 30, 2011, ARS has outperformed cash by 3.5% (5.66% vs. 1.96%, ARS Program Update, 8-15-11, p.18). This is an excellent return, outperforming other hedge funds by 1.43% annually (5.66 vs. 4.03%, ARS Program Update, IC 8-15-11, p.18). In this memo, ARS is assumed to continue to outperform cash by 3.5% per year.

Policy (benchmark) portfolio returns

A policy return

The policy portfolio A was approved by the Investment Committee in December (portfolio A7 with policy weights rounded to whole percentages). Its expected return of 7.38% was unaffected by ARS since ARS had a zero policy allocation.

B policy return

Policy portfolios A and B are identical and thus have the same expected returns.

C policy return

Policy portfolio C is the same as the other policy portfolios except that ARS has a 2.5% policy weight funded via an equal reduction in the global equity allocation.

Change in total fund return = (ARS return - equity return) * ARS policy wt.
= [(cash return + 3.5%) - 7.75%]*2.5%
= [(2.75% + 3.5%) - 7.75%]*2.5%
= (6.25% - 7.75%)*2.5%
= .04% = 4 basis points
Hence the portfolio C policy return = A policy return – 4 bp
= 7.38% - .04% = 7.34%

Assuming that ARS outperforms cash by 3.5% annually as it has historically, then adopting a 2.5% policy allocation to RMARS funded from global equity decreases the expected return of the total fund policy portfolio by 4 basis points.

Implementation portfolio returns

C *implementation portfolio return*
The implementation portfolio C is the same as its policy portfolio, so it has the same expected return (7.34%).

A *implementation portfolio return*
Implementation portfolios A and C are the same, so they have the same expected returns (7.34%).

B *implementation portfolio return*
Implementation portfolio B differs from its policy portfolio in the following:

i) Global equity securities portfolio is reduced by 2.5% in B
The change in total fund return = change in equity weight * equity return
= -2.5% * 7.75% = - 0.00194% = - 19.4 bp

ii) Equitization position goes from zero to 2.0%
The expected return on the equitization (long equity futures) is the equity return less the cash return
Change in total fund return = change in equitiz. wt. * equitiz. return
= 2.0% * (7.75% - 2.75%)
= 0.0010% = +10.0 bp

iii) ARS position goes from zero to 2.5%
The change in total fund return = change in ARS wt. * ARS return
= chg. in ARS wt. * (ARS return premium + cash rtn.)
= 2.5% * (3.50% + 2.75%)
= 0.00156% = 15.6 bp

The sum of these three effects is (-19.4 bp) + (10.0 bp) + (15.6 bp), or + 6.2 bp. The policy portfolio return of P2 plus 6.2 bp is 7.44% (7.38% + 0.06%).

As a check, the expected return of the equitization is the difference in the expected returns of equity and cash.[1]

Equitization return = equity return – cash return
= 7.75% - 2.75%
= 5.0%

The portfolio B equitization position is 2.0% of the total fund, so it is expected to increase total fund portfolio return by 10 basis points.

Effect of equitization on total fund return
= equitization return * equitization weighting
= 5.0% * 2.0%
= 0.1% = 10 basis points

[1] It is assumed that futures margin is satisfied with existing cash reserves, such as cash in the Liquidity asset class (that no additional cash is raised as a result of the equitization).

Michael C. Schlachter, CFA

Managing Director & Principal

September 6, 2011

Dr. George Diehr
Chair, Investment Committee
California Public Employees' Retirement System
400 Q Street
Sacramento, CA 95814

Re: RMARS – Asset Allocation

Dear Dr. Diehr:

You requested Wilshire's opinion with respect to the Asset Allocation item 6 for ARS.

Recommendation

Of the three options presented by Staff, Wilshire recommends that the Investment Committee adopt Framework "C" and change the Total Fund benchmark to include a 2.5% allocation to hedge funds. This is consistent with prior action by the Investment Committee to add the ARS benchmark to the Total Fund policy via the Global Equity asset class and also maintains the historic role of ARS as a risk reducing investment.

Discussion

Staff has presented three options for the Investment Committee to consider in regards to how CalPERS should allocate to and benchmark the ARS program. Our thoughts about each are below.

"Framework A" – zero policy weight to ARS / ARS unequitized: neither Staff nor Wilshire recommend this approach to allocating to ARS as it will cause a significant increase in tracking error. While this approach will reduce the impact of significantly negative markets, it will cause underperformance when markets return strongly.

"Framework B" – zero policy weight to ARS / ARS equitized: this approach will change ARS from an absolute return program to a "portable alpha" program, where the "alpha" (outperformance / underperformance) from hedge fund investments is combined with stock index futures to create a portfolio that tracks the performance of the stock market, plus Staff's skill at adding value through manager selection. This was the approach

Staff implemented, briefly, that compounded the losses in the portfolio through the market downturn in 2007 and 2008. While this approach will increase returns in the total portfolio in positive markets, an overlaid ARS will not diversify or reduce risk in the portfolio when markets turn poor and can increase the risk of cash liquidity problems from daily-settled futures contracts. In addition, as Staff's analysis in the agenda item shows, this approach increases the total risk (standard deviation) of the entire Total Fund portfolio.

"Framework C" – include ARS in Total Fund portfolio: following the market downturn in 2007-2008, this was the approach the Investment Committee implemented to reduce risk in the portfolio and to provide a role for ARS as a Total Fund diversifier, via a 5% allocation to the ARS benchmark from within Global Equities. This option maintains that status quo and will normally result in a lower Total Fund volatility than equitizing the program, as Staff's analysis in the agenda item indicates. The downside of this approach is that when markets rise dramatically, total returns will be less than if ARS was equitized (but less negative returns when markets fall). However, over a market cycle, our calculations indicate that ARS and Global Equities should have similar returns. In our 2011 asset class assumptions paper, both Global Equities and T-bills plus 5% return 7.50% over a market cycle.

The calculations that Staff has included in the agenda item show that Framework C has the highest Sharpe Ratio (best return / risk tradeoff) of the three options. In these calculations, Staff assumed a return of only T-bills plus 3.5% for ARS, lower than the program's benchmark of T-bills plus 5%. Given that T-bills plus 5% is the benchmark for the program, the basis for Staff's incentive compensation, and the proposed Total Fund benchmark component, we believe it would be appropriate to use this value in these calculations. Were T-bills plus 5% used, the Sharpe Ratio would be even higher, and the mathematical argument stronger for Framework C.

History, mathematics, and our recommendation aside, this matter really boils down to a simple decision: Does the Investment Committee desire for ARS to remain an absolute return program (Framework C) or does it wish for this to become a portable alpha program (Framework B)? Pension plans commonly employ hedge fund investments in either way, with the determination which one to use based on whether the Investment Committee's primary goal is return enhancement or risk reduction.

Please let us know if you have any questions or comments.

Best regards,

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