TEACHERS' RETIREMENT BOARD

INVESTMENT COMMITTEE

SUBJECT: Risk-Based Asset Investment Strategies – Part 2 ITEM NUMBER: 8

CONSENT: ____ ATTACHMENT(S): 1

ACTION: ____ DATE OF MEETING: November 3, 2011 / *60 minuntes*

INFORMATION: _X_ PRESENTER(S): Christopher J. Ailman and Steven Tong

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POLICY

This item is governed by the CalSTRS Investment Policy & Management Plan and addresses the first objective on the Investment Committee (Committee) Work Plan for the fiscal year 2011-12.

BOARD STRATEGIC PLAN GOAL

Goal 4: Ensure a financially sound retirement system through adequate contributions and optimal investment returns.
➢ Objective B: Explore different alternatives to portfolio management.

HISTORY OF THE ITEM

For the fiscal year 2011-12, the Committee identified risk-based asset allocation strategies as a top concern and directed Pension Consulting Alliance (PCA) and staff to review this topic. At the September 2011 meeting, the Committee received a comprehensive report from staff and PCA. This report is the second discussion on risk management strategies.

PURPOSE

This agenda item details the additional investment management tools being contemplated by CalSTRS to improve the risk-adjusted return of the portfolio. The tools can be applied to help mitigate the impact of a severe macroeconomic or market event. The new strategies are intended to help CalSTRS improve the investment process and enhance the overall risk-return characteristics of the total portfolio.

BACKGROUND

CalSTRS' current strategic asset allocation is appropriate for a plan of its size and long-term investment horizon. However, periods of financial distress such as the one we are currently experiencing can reduce the effectiveness of diversification and cause the correlations between asset classes to increase. Moreover, the unpredictable nature of fiscal and monetary policies being considered and implemented can add to both the volatility and increased correlations witnessed in the markets. Having a broader tool set and additional lenses to view the risk inherent in CalSTRS' portfolio will help staff better position the portfolio in a timelier manner.

Before the Committee decides to approve the risk-based asset investment strategies, CalSTRS must decide whether the strategies are appropriate for the total portfolio. Pension Consulting Alliance (PCA) and staff had extensive discussions regarding the new risk mitigation strategies and tools. Both parties are prepared to answer any questions the Committee may have about these strategies. Only after all concerns regarding the risk-based investment strategies have been addressed should the Committee approve the strategies.

NEXT STEPS

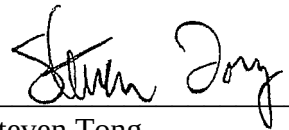
If the Committee is satisfied with incorporating risk-based approaches into the investment decision making process, then the Committee's next step would be to focus on developing policies to govern the new strategies. Staff will make a follow-up presentation to the Committee at the November 2011 meeting. At this meeting, staff will make a formal recommendation regarding policy language for the Investment Policy and Management Plan. The revisions will integrate the new risk-based asset allocation strategy into the Policy.

The strategy will be the first step to improve risk management. CalSTRS is entering the last phase of its risk model building, whereby PCA and staff will incorporate the remaining two factors; leverage/financing and regulatory/accounting rule change. After completion of developing CalSTRS' Risk Factor Model, the system will be fully integrated into the risk management process and tested thoroughly. In the summer of next year, staff may ask the Committee to consider additional risk measures and further revisions to the risk-based asset allocation strategy.

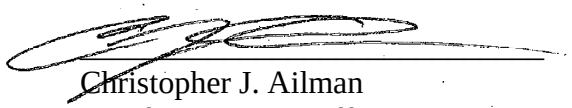
CONCLUSION

After extensive research and analysis, PCA and staff conclude that risk-based asset allocation strategies can serve a beneficial role in the CalSTRS' total fund as a tool to help protect the portfolio value against negative market shocks impacting asset performance. Risk management is an iterative process that should be integrated with the investment process. It begins with analyzing information to define the economic environment and potential outcomes. Based on information such as risk factor exposures, fundamentals such as economic data, and technical indicators, staff can assess the attractiveness of each asset class and the portfolio's current position. In line with this outlook, risk management should assist in determining whether an alpha or hedging opportunity exists. Allocation adjustments and a broader set of investment tools are invaluable to protect the preserve the fund's capital. This increased flexibility in anticipation of and during periods of financial stress is crucial to the decision-making process. Staff will also evaluate the actions taken and adjust portfolio risk as markets and market views change to remain well-positioned. This process is dynamic as new information becomes available and iterative as each step feeds into the next. Risk management will continue to evolve but its core tenant is to preserve capital.

Prepared by:



Steven Tong
Director of Innovation and Risk



Christopher J. Ailman
Chief Investment Officer

CALSTRS
HOW WILL YOU SPEND YOUR FUTURE?

Risk Based Asset Investment Strategies Part 2

Investments – Innovation & Risk

INTRODUCTION

This paper is the second of a two-part series on risk management strategies. It follows staff's presentation on the topic at the September 7, 2011, Investment Committee meeting and discusses changes for the Committee to consider and implement going forward.

The past decade has been challenging for institutional investors. In 2002, investors felt the effects of the Tech bubble bursting and were again ravaged by the effects of the 2008 credit crisis and 2011 sovereign debt and banking issues. In response to these crises, many plan sponsors have made risk management a top priority and are beginning to reevaluate their risk management practices. To enhance its own risk management processes, CalSTRS created a unit to oversee investment risk at the total fund level. The objective of this risk management group is to enable CalSTRS to understand the underlying factors driving different asset classes and what the future performance might look like under certain market/economic scenarios. Furthermore, in the fiscal year 2010-11, after reviewing a series of reports from PCA and staff, the Committee affirmed this concept and acknowledged that the portfolio is exposed to several common risk factors. Subsequently, in September 2011, staff presented a report to the Committee with an overview of how CalSTRS might begin to implement a more risk-based investment allocation strategy. This approach begins with a process that CalSTRS will utilize to monitor and measure the portfolio's sensitivities to changes in the macroeconomic environment. In addition to the monitoring and measurement process, staff seeks to further enhance the overall investment process to become more oriented toward risk management. Some contemplated improvements to the risk management "toolbox" may very well be (but not necessarily limited to):

- Building fund-wide risk management process focused on both absolute and relative risks
- Assessing new investment opportunities to help diversify the total portfolio
- Modifying the portfolio rebalancing policy
- Budgeting for fat-tail risks
- Activating the Equity Return (ER) committee

In managing its portfolio, CalSTRS has two fundamental objectives: 1) minimizing exposure to the possibility of loss and 2) maximizing outperformance (alpha) versus its policy benchmark. The absolute return objective is to generate a long-term average return hurdle of 7.75 percent for the Total Portfolio, irrespective of financial market conditions. The alpha objective is to outperform its market-based policy benchmark by 0.60 percent (60 basis points) on average per year. CalSTRS' goal is to achieve or exceed both the alpha and absolute return targets on average over the long-term. The strategic allocation strategy should help CalSTRS reach its long-term absolute return objective. To help manage downside risks or exposure to the possibility of loss, CalSTRS will need additional tools in its investment management process.

INTEGRATION OF FUND-WIDE RISK AND PORTFOLIO MANAGEMENT

In order to achieve its investment objective, CalSTRS must ensure the risk management function is fully integrated with portfolio management. According to a survey conducted by MSCI Barra in 2009, "only a minority of institutions...surveyed...actively incorporate risk in the investment process." In contrast, CalSTRS is seeking to fully embed its risk management functions within the investment process. Staff believes the interaction between risk management and portfolio management is a key element for successful investment management and helping CalSTRS realize its return objectives. Risk analytics and tools will provide key insights that will inform and assist the portfolio management team. Risk management will help the portfolio management team better understand what factors are affecting the performance of the total portfolio and its investment classes. By seamlessly integrating risk analytics with portfolio management, CalSTRS should be able to make efficient and more informed investment decisions and potentially see significant improvements in risk reduction and return-on-assets.

In early 2011, CalSTRS made refinements to the risk management program by establishing an internal risk oversight committee. The committee meets on a monthly basis and is chaired by the investment officer responsible for the day-to-day duties of risk management. The members of the committee include the Director of Innovation and Risk, risk management staff and investment officers across the other investment classes. The committee reviews and evaluates fund-wide risk exposures and tolerances, and assesses the steps management has taken to monitor, control and report such risk exposures. Additionally, the committee assesses emerging investment risks. Also, it will rigorously evaluate risk mitigation solutions and determine which strategy offers the most benefit to the total fund. The risk oversight committee will also alert senior investment staff of significant fund-wide risk issues. On the basis of information received from the risk oversight committee, supplemented with market analysis from senior investment staff, the CIO will make the final decision on whether to implement strategies to mitigate the risk of CalSTRS' portfolio suffering an economic loss.

Lastly, successful risk management starts with senior investment staff sponsorship and support. Effective investment processes have a culture where managing risk is openly discussed by the entire investment office staff. Greater collaboration and improved dialogue between the risk managers and portfolio managers should vastly improve the investment process and prove critical in building a strong risk management culture.

PORTFOLIO RISK MANAGEMENT ENHANCEMENTS

A successful investment process requires continuous risk monitoring and proactive risk budgeting. Additionally, there must be a focus on assessing new investment opportunities and portfolio rebalancing. Risk management should help CalSTRS identify pertinent investment risks and determine its potential economic impact on the value of the portfolio. In doing so, the entire process should bolster CalSTRS' ability to maintain a financially sound retirement plan.

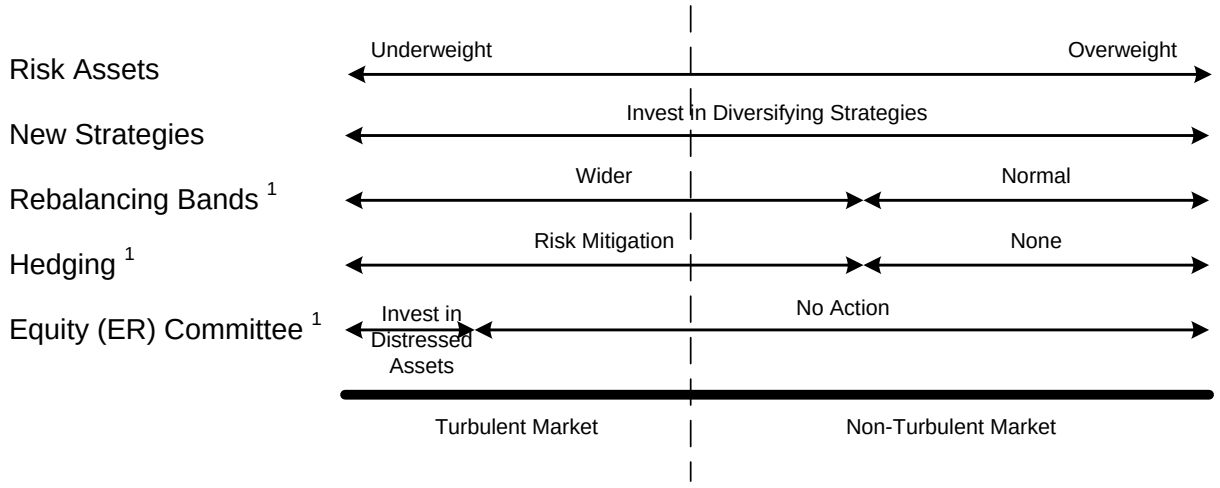
CalSTRS' general framework for risk management is represented in Chart 1 below.

Chart 1: CalSTRS' Current Portfolio Risk Management

Risk Management Process	Description	Total Fund	Global Equities	Private Equity	Fixed Income	Real Estate	Inflation Sensitive
Diversification	Construct a portfolio that has exposure to several forms of risk (that are not necessarily related to one another) that reward investors for bearing such risk.	X	X	X	X	X	X
Tactical Asset Allocation	Reduce risk exposure in favor of increasing allocation to a risk factor that offers a better expected risk/return tradeoff.	X	X	X	X	X	X
Risk Budgeting	Quantifying (in $ terms) the amount of exposure to each type of major risk.	X	X	X	X	X	X
Strategic Allocation Review	Review of market and strategic class allocation weightings by Tactical Asset Allocation Committee (TAAC)	X					
Strategic Class Review	Review of major risk exposures within each strategic class and implementation structures associated with effectively capturing those risk exposures.		X	X	X	X	X
Manager/General Partner Review	Monitor and evaluate performance. Periodic on-site due-diligence.		X	X	X	X	X
Account Structure Review	Negotiate favorable terms		X	X	X	X	X
Counterparty Review	Monitor and evaluate risk of default/solvency of counterparties in derivative transactions		X		X		
Business Continuity Plan	A large segment of the total portfolio is managed internally. Test business continuity plan on a periodic basis.	X	X	X	X	X	X

The existing risk management framework can be improved by upgrading existing practices and adding new risk management strategies. These improvements and new tools are summarized in Chart 2 and will be discussed in further detail later in this report. CalSTRS considers these tools to be invaluable for managing market extremes.

Chart 2: Risk Management in Normal and Turbulent Market Regimes



[1] Investment Policy and Management Plan modification required

Under the revised framework, CalSTRS will continue to manage the investment program with a disciplined approach. The enhanced framework should help the System better address exposure to threatening factors during poor macroeconomic environments. PCA has reviewed the merits and risks associated with each of these approaches and concurs with Staff that each of the strategies could be used as a tool to help minimize economic loss in the portfolio.

The CalSTRS' Risk Factor Model will be used to develop signals and/or probability estimates of entering a turbulent market regime. The model should also provide a rough estimate of how sensitive the CalSTRS' Portfolio might be to certain shocks or significant changes in risk factors during turbulent periods. An example of a warning signal that potential financial turbulence in the financial markets may occur might be when two or more of CalSTRS' six risk factors reach high risk levels. To prepare for a potential turbulent market regime, CalSTRS will take appropriate action such as decreasing its allocation to risky assets (e.g., equities). Under such challenging market environments, CalSTRS' standard rebalancing bands could be expanded to a wider range. This step would allow CalSTRS to further decrease exposure to an asset class expected to underperform during periods of high volatility.

Contingency planning for specific actions, as described above (i.e., crisis protocol), should help to reduce portfolio losses when such a crisis inevitably occurs.

1. Diversification

CalSTRS continually strives to improve portfolio diversification and efficiency. In 2009, CalSTRS expanded its strategic asset allocation roster to include inflation-sensitive assets. For the fiscal year 2011-12, the strategic weight to this asset class is two percent. The allocation of this asset class targets 50 percent TIPS and 50 percent infrastructure. Additionally, in the Innovation portfolio, CalSTRS will invest up to $150 million in commodities. Historically, these strategies have performed well relative to equities during turbulent market regimes. Furthermore, staff has found that global macro hedge funds are often able to exploit periods of high market volatility and capture risk premiums across a wide range of markets and regions of the world.

Going forward, finding new investment opportunities is critical for improving the risk and return characteristics of the total fund. Currently, the total fund is dominated by the equity beta. As a result, the health of the overall pension fund is highly correlated to the performance of its

equities portfolios. To improve the diversification of the overall portfolio, staff continually seeks to find new strategies that are expected to perform well on an absolute basis as well as relative basis to equities during turbulent market regimes. Through simulation modeling and portfolio analysis, staff evaluates the potential long-term benefits of new opportunities. The CalSTRS' risk factor model will help staff assess if capital is being allocated across investment opportunities with exposure to a different set of risk factors. This more robust analysis should help improve diversification. For example, staff found evidence that an investment in top-tier global macro hedge funds should vastly improve diversification and should provide reasonable downside protection during equity market corrections.

2. Rebalancing Bands

Over the long-term, the portfolio will face a never-ending series of changes in the value of its underlying asset holdings. As a result, the strategic class weightings can unintentionally drift from their respective target weights. In order to minimize the tracking error from the strategic policy benchmark, the portfolio is rebalanced periodically based on allocation ranges around the strategic target allocations, as approved by the Investment Committee. Strategic classes are rebalanced when the proportional weightings of one or more of the strategic classes fall outside the rebalancing bands. This "rebalancing policy" is an important component of the risk management toolkit. Over the years, a number of academic studies have indicated that rebalancing can improve risk-adjusted performance of a broadly diversified portfolio. Historically, staff has been able to incrementally add value through disciplined rebalancing.

It is important that the rebalancing policy accommodate changes in the market environment. The policy should be flexible and allow CalSTRS to make material shifts in its strategic allocation if the markets are providing relatively clear signals that certain risks are not being accurately valued. If staff can successfully over the long-term identify such market dislocations, CalSTRS should be able to further stabilize it return pattern over the long-term.

The current rebalancing bands are most effective under normal market environments, but may not be optimal during periods of market stress or periods of heightened volatility. During turbulent market regimes, volatility increases and correlations between (as well as within) the strategic classes can rise significantly. Staff reviewed alternative rebalancing ranges and believes a wider range during turbulent markets may better accommodate managing risk at the total fund level through financial turmoil. In stress markets, CalSTRS can avoid unwanted trades into an asset class with unfavorable risk return characteristics relative to other assets classes.

Staff recommends a rebalancing strategy that can accommodate changes from normal to turbulent market environments. Table 2 shows the proposed rebalance bands:

Table 2: 2011/12 CalSTRS Policy Targets and Ranges

	Target Allocation	Current Bands	Proposed Bands
Cash	1%	+/- 3%	**-2% min./+6% max. (allocation)**
Global Equities	53%	+/- 6%	+/- 6%
Fixed Income	20%	+/- 3%	**+/- 6%**
Real Estate	12%	+/- 3%	+/- 3%
Private Equity	12%	+/- 3%	+/- 3%
Inflation Sensitive	2%	+/- 3%	+/- 3%

Recently, a major investment bank surveyed 20 U.S. public plan sponsors and found other large public plans with wider normal rebalancing bands, ranging from +/-3 percent to +/-10 percent. The surveys were carried out by reviewing their plan website and annual report. The size of the participants, reflected by assets under management, ranged from $8.7 billion to $231.8 billion. Table 1 and 2 shows the rebalancing bands for equities and fixed income, respectively. Among CalSTRS' peers, approximately 50 percent have a rebalance band of +/-5 percent for both equities and fixed income. Also, the survey shows that at least 4 of 20 funds (20 percent) have a rebalance band of +/-10 percent for equities and fixed income.

Table 1A: Public Fund Survey: Upper Rebalancing Band for Equities

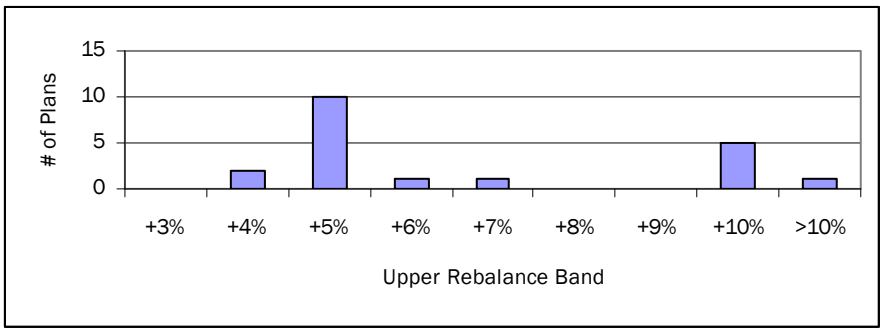


Table 1B: Public Fund Survey: Lower Rebalancing Band for Equities

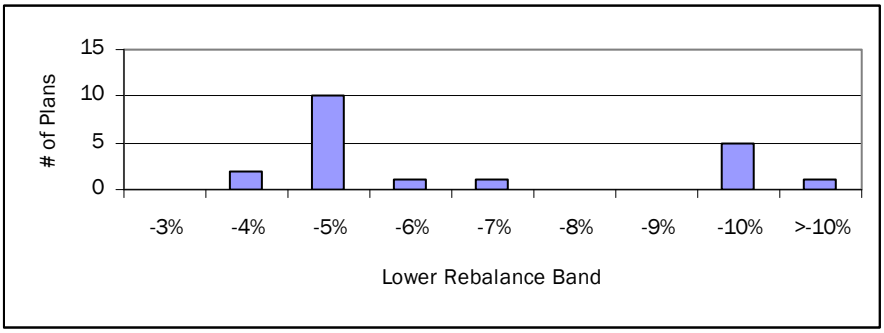


Table 2A: Public Fund Survey: Upper Rebalancing Band for Fixed Income

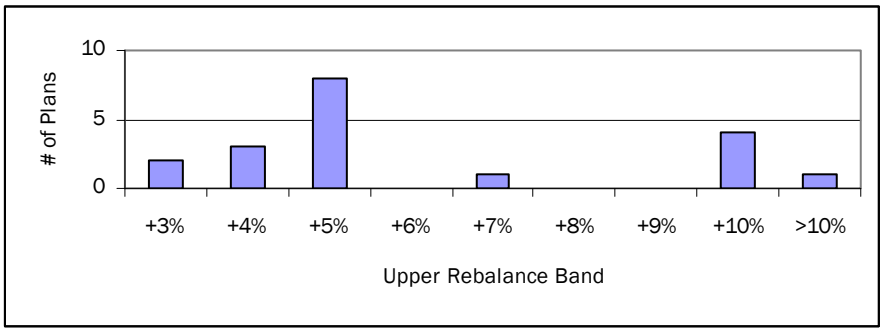
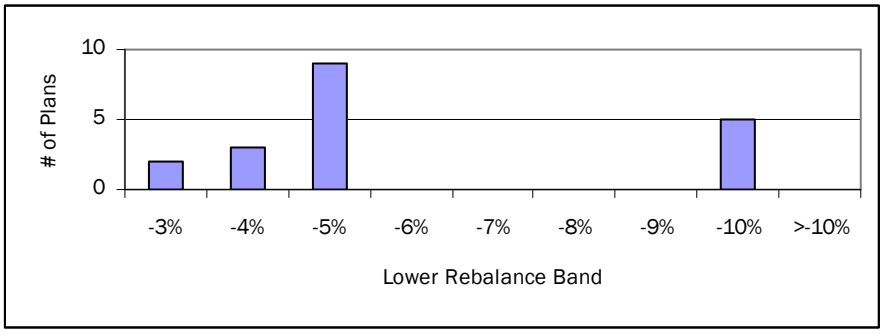


Table 2B: Public Fund Survey: Lower Rebalancing Band for Fixed Income



Over the period of the last eight fiscal years, staff has been able to add on average annually approximately 0.30 percent (30 basis points) from asset rebalancing decisions under the current "tight" rebalancing policy. Increasing staff's rebalancing flexibility during periods of market stress should allow staff to improve upon this incremental performance.

3. Tail Hedges

Investors were reminded from the 2008 market collapse that traditional asset allocation does not always deliver positive returns regardless of underlying market conditions. In an environment of uncertainty coupled with higher volatility, tail hedging should be considered.

While risk models are essential for managing risk, they do have limitations. Traditional risk model tools often underestimate the frequency and severity of these left tail events. While tail risks are events that tend to occur relatively rarely, they can have a substantial negative impact on the economic value of the portfolio. Due to the repeat occurrence of extreme market events, the impact from these risks needs to be contained and managed. To offset the limitations of risk models, plan sponsors may need to use some form of tail risk hedges for controlling loss.

Hedging strategies often involve the use of options. Options can serve as a hedging vehicle; act as portfolio insurance and lock-in gains. CalSTRS would be able to maintain exposure to its strategic asset classes while protecting the value of its investments by limiting potential downside. For the purposes of this paper, staff will focus on how to develop an options structure that provides positive returns when the equity market experiences a severe decline. One of the challenges in considering option strategies is that they are difficult to evaluate. Unlike an equity manager, there is no obvious benchmark for assessing risk/return characteristics.

An investor that worries about absolute risk will typically use options to limit downside risk. In contrast, an investor that is focused on relative performance will seek an option strategy that enhances returns relative to the benchmark. Options provide a valuable set of tools to tailor a portfolio exposure to both types of risk. Option strategies can be used to take advantage of a market outlook that differs for the expected "normal" probability distributed performance. The key is to determine what CalSTRS' risk preferences are, and then design a strategy that addresses these needs.

To be effective against tail risk, the hedge must be cost efficient without giving up too much upside participation. One simple strategy is to buy out-of the-money index puts. Unfortunately, this strategy for hedging equity exposure can be costly. However, a hedge can be structured to minimize costs. For example, the costless collar, a standard options strategy, gives the investor limited upside participation if an asset class (e.g., equities) increases in value while limiting the

downside risk. Costless collars are created by selling call options against a security or an index, and using the proceeds to purchase an equivalent amount of put options. Therefore, the premiums of each of the option transactions offset one another. However, this low-cost strategy comes with an opportunity cost (i.e., lost upside participation). Before implementing this strategy, the investor must decide on whether to bear the explicit costs to protect the portfolio from potential declines in the portfolio value, but also give up gains if the equity market performance moves sharply upwards.

Many investors are confronted with a difficult decision on whether or not to hedge the portfolio. To assist in making this decision, the investor could consider his or her utility function by considering the probability of the entire distribution of returns. If the expected marginal utility of returns in the event of a tail event payoff is greater than the expected opportunity cost, the investor should be inclined to put on the tail-risk hedge. Although the cost of hedging can be expensive, the investor might be willing to bear the cost because the consequences of a tail risk event are perceived to be too high. If the Committee authorizes staff to hedge tail risks, CalSTRS will need to develop guidelines on what fraction of its portfolio can be hedged. For example, the range might be 0 percent to 5 percent of the equity segment of the total fund. Additionally, the cost of the insurance should be budgeted to allow the Investment Committee to (i) have a clear understanding about the costs of hedging strategies and to (ii) potentially place a dollar cap on the use of hedging during the specified period.

While it may be difficult to decide on whether to hedge, academic studies show a portfolio with tail risk hedges may have a more attractive risk/return profile than a portfolio without this insurance. The hedge could improve the risk/return of the portfolio in turbulent market environments by reducing the portfolio's return volatility. When deciding on an appropriate strategy, CalSTRS will compare strategies and identify the strategy which would provide the most optimal mix of liquidity, protection, cost of carry and transparency. Additionally, the strategy should be the most efficient means of systematically investing in volatility for portfolio hedging purposes.

Given the array of tail risk hedges available, it is important to develop a systematic process for selecting the appropriate hedging strategy. Derivatives and derivative-based strategies are increasingly becoming an essential tool for investors. Table 3 shows basic uses of derivatives:

Table 3: Basic Derivatives Strategies

Strategy	Purpose
Buy put	To protect from risk of market decline
Sell call	To collect premium when market is expected rise minimally
Sell futures	To reduce or eliminate equity exposure

Source: Morgan Stanley

Currently equity, both public and private, accounts for as much as 90 percent of the total fund's volatility. Chart 3 below highlights some of the specific strategies/instruments that might be considered that would be expected to increase in value as overall equity market volatility increases. These vehicles are based on the VIX index, a measure of the market expectations of near-term volatility in the S&P 500.

Chart 3: Hedging Strategy Examples Using Volatility-based Derivatives

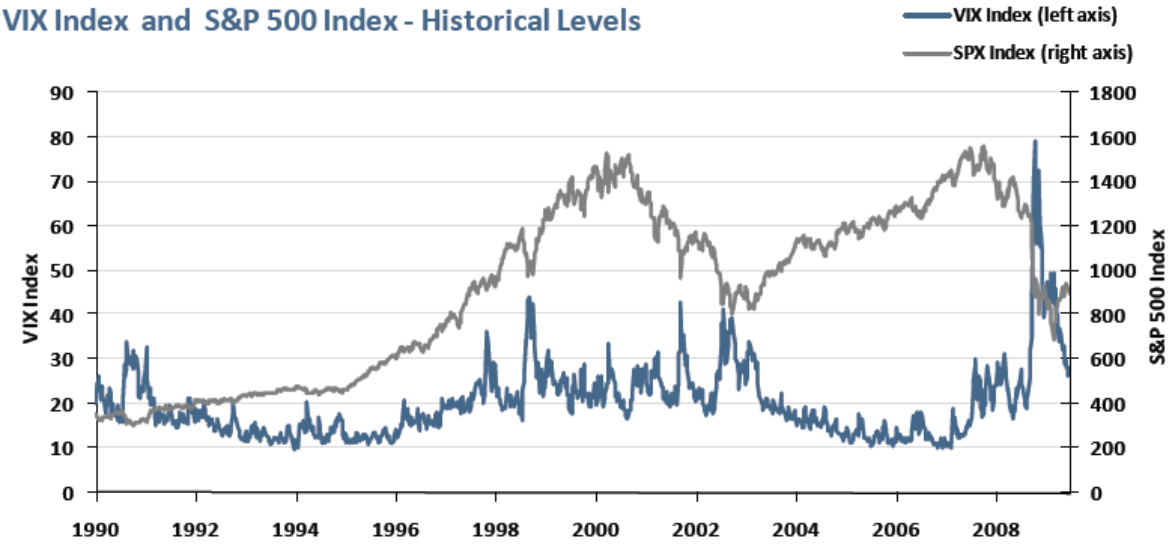
Vehicle Used	Type of Protection
VIX Futures	Captures unlimited upside to extreme moves in VIX, depending on maturity. Shorter maturities react more strongly to market moves. Requires continuous marked-to-market and margin account maintenance.
VIX Calls	Captures unlimited upside to extreme moves in VIX, depending on maturity. Shorter maturities react more strongly to market moves. Purchase of calls limited to payment of options premiums.
VIX Calendar Call Spreads/Vanilla Call Spreads	Benefits from tendency of VIX options maturity curve to invert in market stress. Has outperformed other cost effective hedges since credit crisis.
Put Spread Collars	Downside protection is capped. Pay for protection by selling upside. Strikes easily customized.

Source: Bank of America Merrill Lynch

In market stress environments, risk assets often become highly correlated, leading to negative performance for the total portfolio. Assets that are negatively correlated to these risky assets can dramatically improve the diversification benefits during stressful periods. As a result, such assets can serve as legitimate hedging vehicles. If one views volatility as an asset (as the vehicles in Chart 3 present), then volatility, itself, can be considered a valuable investable asset during periods of market stress.

Another reason for considering volatility as a hedging asset is the asymmetry in the performance of volatility. Volatility tends to be relatively stable during up markets and move sharply upwards during rapid downward movements in the equity market. Graph 1 below shows the historical index levels for the S&P 500 and the Chicago Board Options Exchange (CBOE) Volitility Index over the last two decades. Historically, VIX tends to increase sharply during periods of market turmoil.

Graph 1



Source: Clifton Group and Bloomberg

As a result of this behavior, an allocation to volatility may enhance the total fund risk-adjusted returns. Volatility has a high negative correlation to equities and allows an investor to mitigate a degree of portfolio loss in extreme market downward movements. The strategy can be designed to protect the portfolio from both mild corrections and tail events. Investors need to recognize, however, that the payoff of such volatility strategies is also something of a mirror image to more traditional investments. Traditional investments often produce small incremental returns over time, and then deteriorate dramatically during market turmoil. In contrast, the returns associated with volatility strategies, like insurance, would likely be small and negative for extended periods of time, only to expand dramatically during market turmoil. In addition, since volatility is mean-reverting, the long-term expected value of such strategies is likely to be zero or negative.

If the Board authorizes the use of derivatives to hedge risks in the portfolio, then CalSTRS will need to evaluate closely the effectiveness of its internal management process relating to strategies implemented via derivatives. This evaluation of CalSTRS ability should include people, technology, systems and processes that it would employ to manage the process. If deemed inadequate, CalSTRS may need to establish relationships with external providers. Importantly, derivatives-based hedging should start with basic strategies first and move to more complex, multi-dimensional strategies later.

4. Equity (ER) Committee

In late 2008, the Committee established an Equity Return (ER) Committee. The Committee members include the CIO, Directors and portfolio managers from each asset class. The group was tasked with identifying, assessing and approving investment opportunities in dislocated markets. Over the course of its mandate, the ER Committee invested in distressed debt funds, structured mortgage opportunities and stressed real estate. These opportunities generated performance above the U.S. equity market as the economy recovered. As of June 30, 2011, the ER portfolio has generated strong risk-adjusted returns since inception, posting a return of 24.8 percent versus 20.5 percent for the U.S. equity benchmark.
The ER Committee has been a valuable tool that enabled CalSTRS to focus on new opportunities during turbulent market regimes. In a turbulent market regime when asset valuations have fallen to distressed levels and appear to have bottomed out, the ER Committee could be given the authority to invest a specified percent of the Total Fund in distressed markets where the performance is expected to exceed equities as the economy recovers.

BOARD REPORTING

A comprehensive risk report to the Committee will provide an overview of the risks associated with the asset classes and financial markets. The reports will encompass factors driving the performance of the portfolio. The metrics will predominately focus on valuation measures. These measures will be combined with CalSTRS risk factors, thus providing a more complete picture of the risks the total portfolio faces. The valuation measures reflect the attractiveness of an asset class. The information for each asset class can be compared relative to each other. This information can help CalSTRS decide to buy “low” and sell “high.”

To help the Committee monitor risk trends, risk factor reports will be produced for each Committee meeting. The reports will look at the factor contributions to the portfolio risk designed to provide an overview of risk factors driving the performance of the portfolio. Lastly, staff will report to the Committee any rebalancing and hedging activity.

CONCLUSION

The number of economic booms and busts over the last two decades alone indicate the increasing frequency of sharp market moves and extreme events. To enhance staff's ability to preserve the total portfolio's capital, additional tools are needed. These tools include new methods to view the risks in the total portfolio, improved processes that integrate portfolio and risk management, and greater availability of financial instruments to hedge or take advantage of market events or scenarios. However, staff will also use care in implementing these processes and utilizing these instruments by ensuring that the discussion, expertise and technology involved is adequate.

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