2012-2013

Strategic Investment Plan

Prepared by the SERS Investment Office
06/25/12

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I. INTRODUCTION

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Major themes of the Pennsylvania State Employees' Retirement System's calendar year *2012-2013 Strategic Investment Plan* include **reorganization, rebalancing,** and **liquidity.**

Asset allocation is a major factor in achieving the objectives of the SERS Pension Fund (the "Fund") and, thus, receives significant consideration in this plan. Yet, to achieve investment excellence, the Fund must also demonstrate the mindset of a principal investor, a willingness to deviate from consensus, good planning, and timely execution.

Woven throughout this document are key concepts, including the idea of **reorganizing** asset classes based on their overall roles in the Fund. This plan also outlines ways to improve responsiveness—and, thus, investment outcomes—with more timely data, greater transparency into the portfolio, and active management.

Important to the overall success of this plan is the dynamic **rebalancing** of the Fund to manage risk—with an emphasis on mitigating capital impairment risk. Among other activities, this plan outlines steps to reduce cash-flow volatility, increase vintage year diversification, and articulate acceptable allocation ranges to facilitate active, flexible management.

Finally, SERS is a mature fund, with more members receiving benefits than paying contributions. **Liquidity** is, and must continue to be, a primary concern in the coming years. This plan includes establishment of a liquidity reserve and a budget limitation on capital commitments to illiquid investments that complement the new asset allocation to achieve overall Fund objectives.

A. PURPOSE & SCOPE

This plan establishes the strategic asset allocation that the SERS Board considers optimal to achieve the Fund's objectives over a five- to ten-year investment horizon. It describes the investment strategy, structure, and implementation of SERS' investment program and asset classes. It also identifies, in broad terms, important initiatives SERS will pursue over the plan period.

This plan was developed by SERS' investment professionals and SERS' investment consultants after careful analysis of a number of quantitative and qualitative factors—including the unique needs, preferences, objectives, and constraints of SERS—and expected long-term market conditions.

This plan will be updated biennially and shall remain in effect until the Board acts otherwise. In the interim, if economic, fiscal, or capital market conditions should change significantly, SERS professionals and consultants will so inform the Board and, if warranted, recommend modifications to the investment plan.

B. CURRENT STATUS OF THE SERS PENSION PLAN

The SERS pension plan is mature, with more retirees and beneficiaries receiving benefits than active members making contributions.

At December 31, 2011 (Table 1), the plan had assets with an actuarial value of $27.6 billion and an accrued actuarial liability of $42.3 billion, resulting in an unfunded liability of $14.7 billion and an actuarial value funded ratio of 65%. On a market value basis, the plan's funded ratio is 58%.

Table 1
Current Status of SERS Pension Plan
($ billion, except as noted)

Plan Status	12/31/10	12/31/11
Assumed Investment Return [1]	8.00%	7.50%
Market Value of Plan Assets [2]	$25.9	$24.4
Actuarial Value of Plan Assets	$29.4	$27.6
Actuarial Accrued Liabilities	$39.2	$42.3
Unfunded Liability	($9.7)	($14.7)
Actuarial Funded Ratio	75%	65%
Market Value Funded Ratio	66%	58%
Plan Membership (000's)		
Active Members	109.2	107.0
Retirees and Beneficiaries	111.7	115.3
Inactive Members	6.3	6.2

Source: The Hay Group and R.V. Kuhns & Associates, Inc
[1] "7.50%" was adopted by the SERS Board on May 2, 2012.
[2] Estimated 2011 asset value pending final audited valuation.

C. CASH FLOW PROJECTIONS

Based on the 2011 actuarial valuation performed by the Hay Group and the 2011 asset/liability study conducted by SERS' general consultant, R.V. Kuhns & Associates, Inc. ("R.V. Kuhns"), the SERS pension plan is projected to realize steadily increasing positive cash flow (Figure 1). The projections assume a constant annual return equal to the Fund's actuarial return of 7.5% and 100% of scheduled employer contributions prescribed by Pennsylvania law (Act 2010 - 120).

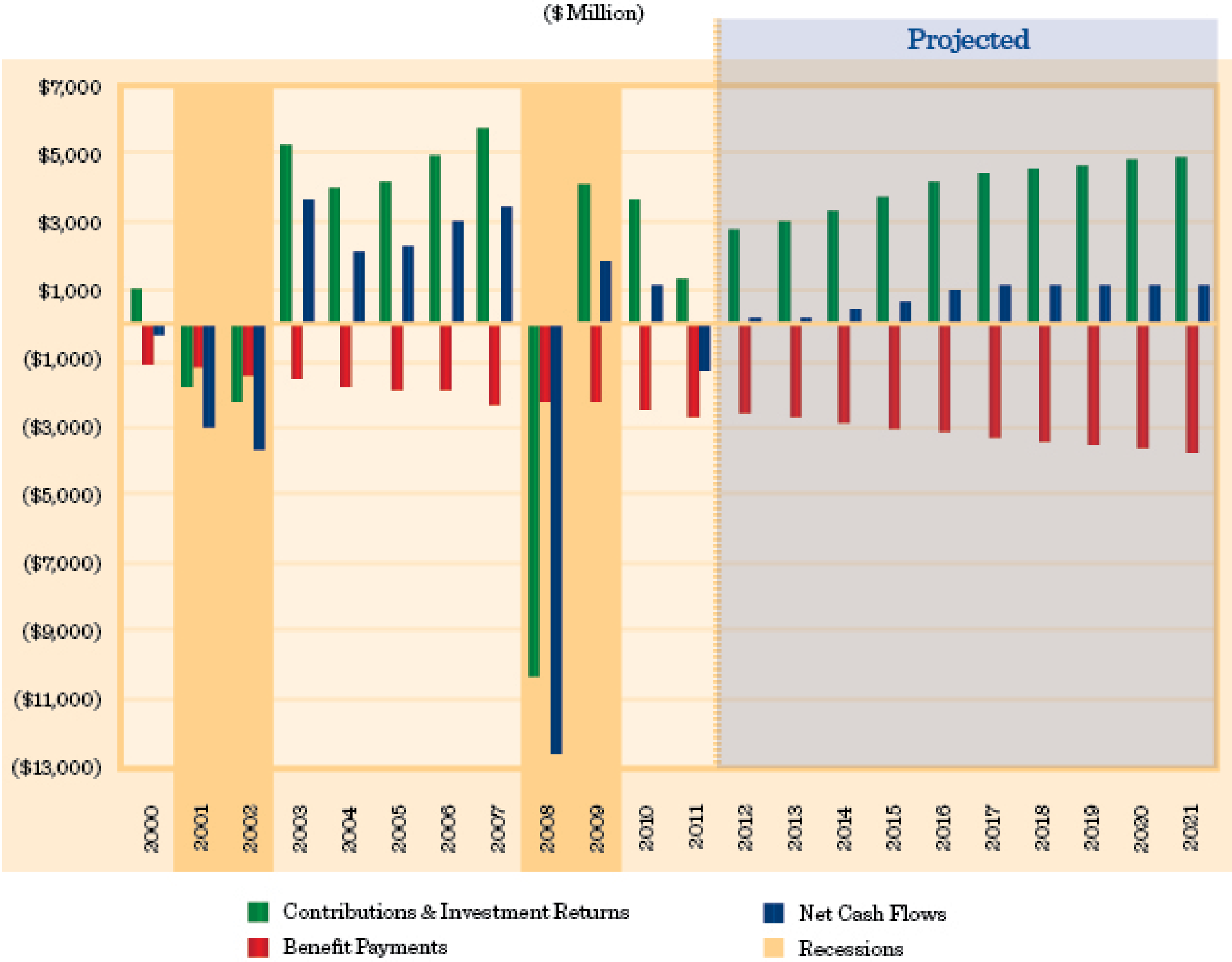
Experience, however, shows that actual cash flows can deviate substantially from projections, particularly during periods of market stress. During the 2001-2002 recession, for example, the Fund experienced a $7 billion net drawdown. The following five years provided meaningful positive cash flow due to a strong global economy and robust investment returns. That ended abruptly with the Great Recession of 2008 when the asset value of the Fund declined nearly $13 billion in a single year.

Highly volatile cash flow is due primarily to a variable payout ratio caused by a fixed benefit payment obligation with a variable Fund asset value. During periods of prolonged market stress, the depletion rate of assets accelerates, causing the funding status of the plan to deteriorate rapidly. *Effectively controlling cash flow volatility is a crucial component of SERS' 2012-2013 Strategic Investment Plan.*

Figure 1

SERS Actual & Projected Cash Flow

($ Million)



II.TOTAL FUND INVESTMENT PLAN

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A. GOALS & OBJECTIVES

As indicated in SERS' *Statement of Investment Policy*, the primary goal of the Fund is to provide benefit payments to plan participants and beneficiaries at the lowest cost to the Commonwealth through a carefully planned and diligently executed investment program.

Consistent with this goal, the Fund's investment objective is to achieve a total net return over a rolling five- to ten-year period that:

- exceeds the actuarial rate of return adopted by the Board; and,
- exceeds the composite benchmark for the Fund in the Board-approved *Strategic Investment Plan*, with Market Risk (i.e., Equity Beta) that does not exceed that of the Fund's composite benchmark.

B. ASSET CLASSES

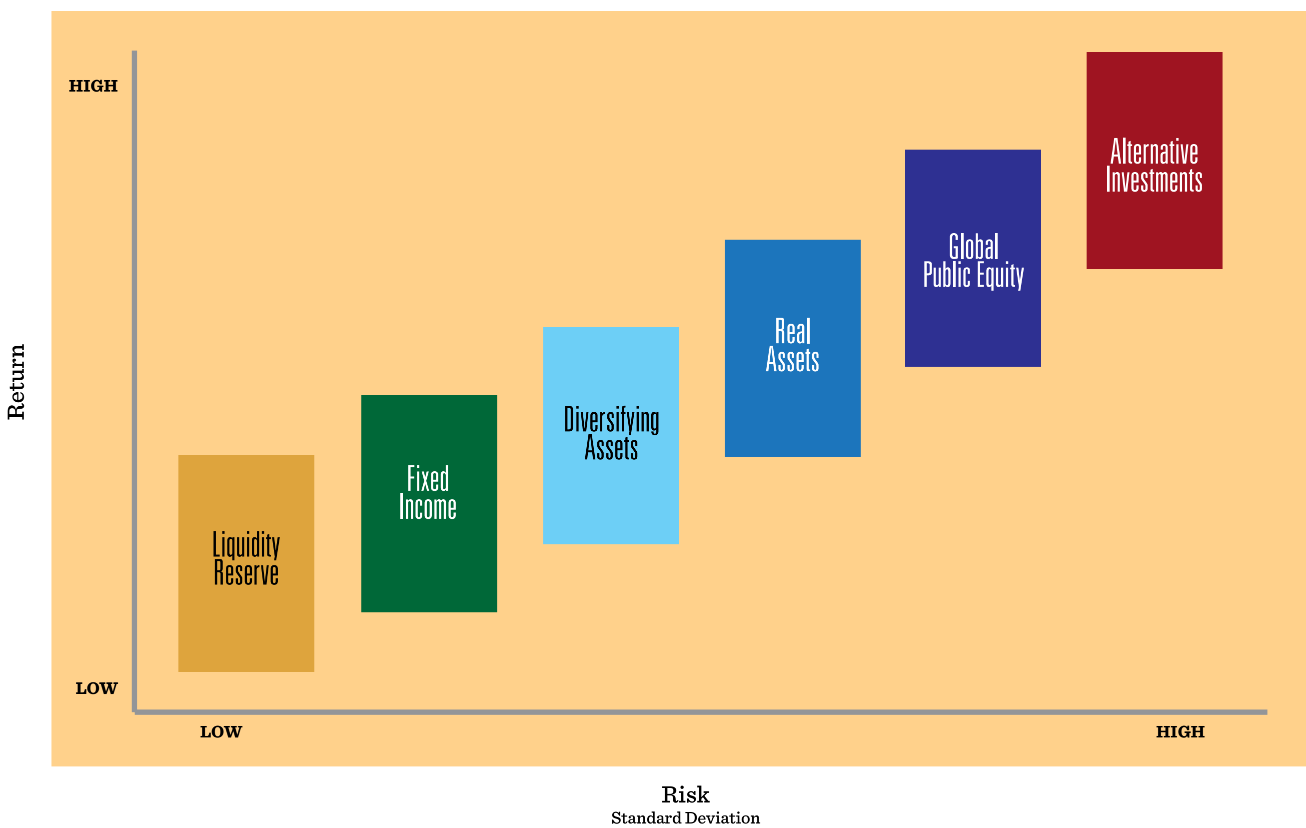
This plan adopts thematic categorization of the major asset classes that constitute the SERS Fund. Detailed descriptions and plans for each are provided in subsequent sections of this plan; briefly, however, the asset classes and their thematic roles in the Fund are:

Asset Class	Thematic Role
Alternative Investments	High Growth
Global Public Equity	Growth
Real Assets	Inflation Protection
Diversifying Assets	Diversification & Alpha
Fixed Income	Capital Preservation & Liquidity

Each asset class is differentiated by unique return and risk characteristics along a continuum consistent with Modern Portfolio Theory and the Capital Asset Pricing Model (Figure 2). The benefits of this structure include:

- **Portfolio Efficiency:** Allows identification and elimination of unintended hedges in the total Fund, thereby improving portfolio return.
- **Liquidity Management:** Groups investments by their liquidity characteristics to better understand and manage total Fund liquidity.
- **Risk Control:** Enhances measurement, monitoring, and management of the Fund's non-diversifiable, systemic risk.
- **Manager Oversight:** Improves ability to monitor and evaluate manager performance in fulfilling their overall role within the Fund.

Figure 2
Asset Class Structure of SERS Fund
Risk/Return Profile



C. INVESTMENT STRATEGY

The Fund will continue to shift away from its legacy “endowment model” which had significant allocation to illiquid investments and toward a more-liquid, total return strategy with Market Risk that does not exceed that of the Board-approved composite benchmark.

Exposure to Market Risk will be managed by setting and adjusting asset allocations within ranges permitted under this plan (Table 2).

A liquidity reserve will be established and dynamically sized based on capital market conditions to protect capital and minimize capital impairment risk—the risk of needing to sell assets at distressed prices. The liquidity reserve will be targeted to a size not less than the sum of three months of benefits payments and capital calls.

Security-specific risk (i.e., non-systematic risk) will be minimized through broad global diversification.

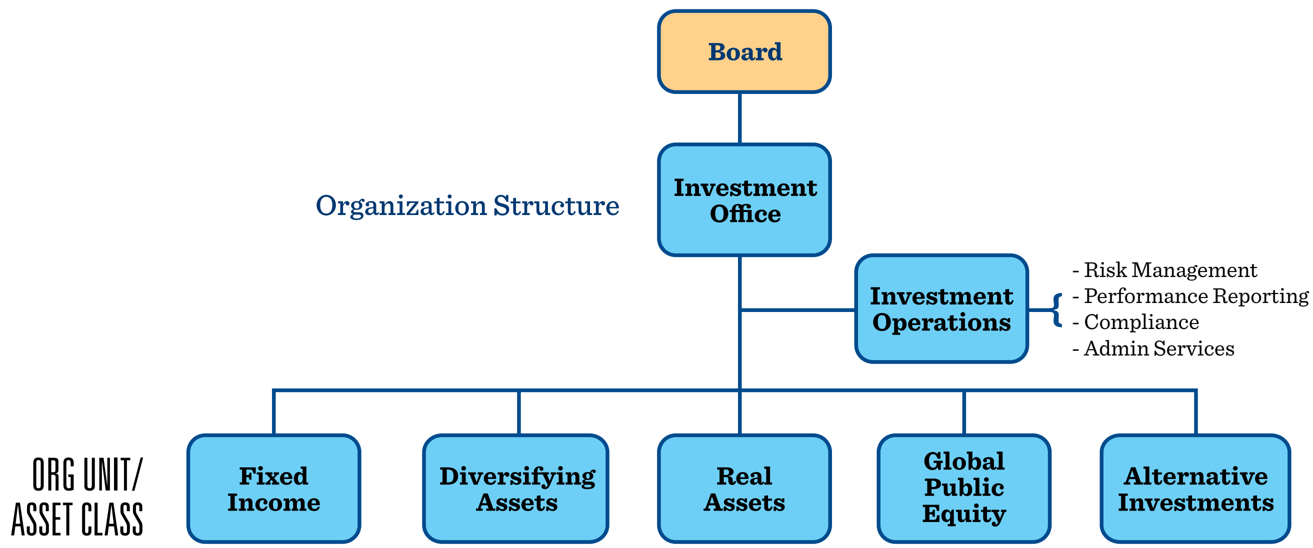
D. PROGRAM STRUCTURE

The operating units of the SERS Investment Office coincide with the Fund’s asset classes; professional responsibility and accountability are matched directly to enable effective management and control of the program (Figure 3). Domain expertise is concentrated in each operating unit and aligned with Fund structure.

The flat organizational structure of the SERS Investment Office improves the responsiveness, efficiency, and performance of the SERS investment program and facilitates close coordination and unencumbered communication across operating units and with the CIO and Board.

Figure 3

SERS Investment Program Structure



ORG UNIT/ ASSET CLASS	Fixed Income	Diversifying Assets	Real Assets	Global Public Equity	Alternative Investments
SUB-ASSET CLASSES	- Core Plus Bonds - Core Bonds - TIPS - U.S. Treasuries - Cash & Equivalents	- Absolute Return - Hedged Strategies	- Real Estate - Inflation Protection	- Global Equity - U.S. Equity - Non-U.S. Equity - Emerging Market Equity	- Private Equity - Special Situations - Venture Capital - Private Energy[1] - Non-core Real Estate[1]
INVESTMENT ROLE	Capital Preservation Liquidity Reserve	Diversification/ Alpha	Inflation Protection	Growth	High Growth
OBJECTIVE	Current Income/ Liquidity	Uncorrelated Total Return	Real Total Return	Capital Appreciation	High Capital Appreciation
BENCHMARK	US Agg Bond Idx/ US/Crdt 1-3 Yr Idx	R3000; Custom Index	CPI + 3%; Custom Index	MSCI ACWI IMI	R3000 + 3%; Custom Index
RETURN	Low ←			→	High
RISK	Low ←			→	High
LIQUIDITY	High	Medium	Medium	High	Low

[1]Reported under Alternative Investments, managed by Real Assets unit.

E. STRATEGIC ASSET ALLOCATION

SERS' *Strategic Asset Allocation Policy* (Table 2) provides a long-term, ten-year asset allocation target for each asset class as well as an interim, five-year target to help calibrate progress toward achieving the long-term goal.

The policy is based on a comprehensive asset allocation study conducted by R.V. Kuhns. Various portfolios—including SERS' current portfolio—were developed, modeled, and evaluated to identify the most efficient portfolios at different levels of risk, return, and liquidity (summary provided in the Appendix). The selected asset allocation is considered optimal given SERS' unique needs, requirements, and preferences.

Table 2

SERS Strategic Asset Allocation Policy

	December 31, 2011 Allocation		STRATEGIC ASSET ALLOCATION POLICY				Over / (Under)	
Asset Class	**Amount ($ Mil)**	**% of Fund**	**Interim 5-Year Target**	**Long-term 10-Year Target**	**Range**	**Benchmark(s)**	**Interim 5-Year Target**	**Long-term 10-Year Target**
Alternative Investments[1]	7,162	30%	**24%**	**16%**	+/- 5%	**R3000 + 3%; Custom**	6%	14%
Global Public Equity	6,925	29%	**32%**	**38%**	+/- 4%	**MSCI ACWI IMI**	(3%)	(9%)
Real Assets[2,3]	2,859	12%	**12%**	**12%**	+/- 3%	**CPI + 3%; Custom**	0%	0%
Diversifying Assets	1,985	8%	**12%**	**12%**	+/- 2%	**R3000; Custom**	(4%)	(4%)
Fixed Income	4,471	19%	**17%**	**19%**	+/- 2%	**BC US Agg Bd Idx**	2%	0%
Liquidity Reserve	763	3%	**3%**	**3%**	+/- 2%	**BC US Govt/Credit 1-3 Year Index**	0%	0%
Total Fund	**24,165**	**100%**	**100%**	**100%**		**Fund Composite**		
Expected Return		**7.67%**	**7.55%**	**7.77%**				
Expected Risk (Standard Deviation)		**14.89%**	**14.38%**	**13.71%**				
Expected Equity Beta (Market Risk)		**0.68**	**0.67**	**0.66**				
RVK Liquidity Metric (T-Bills = 100)		**56**	**59**	**66**				

[1]Includes Private Energy funds, Emerging Markets Private Equity funds, and Non-core Real Estate funds.

[2]Includes Core Real Estate funds, Real Estate Separate Accounts, and REITS that have near-term liquidity.

[3]Includes Commodities, Timber, and Energy funds that have near-term liquidity.

Tables throughout document may not add due to rounding.

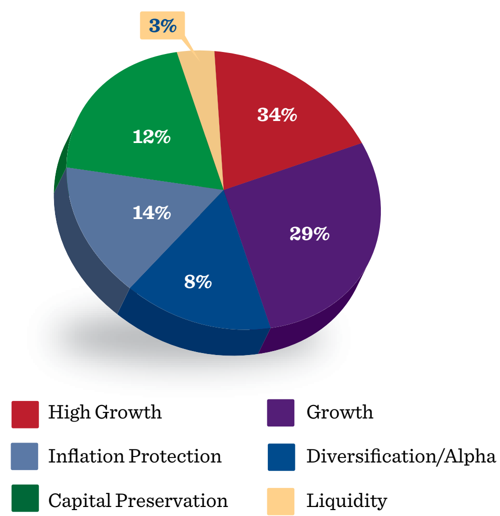
Historically, the SERS Fund sought to increase investment returns by giving up liquidity. Prospectively, however, SERS' liquidity needs are rising as the plan becomes more mature. The allocation policy systematically and prudently reduces exposure to illiquid strategies over the plan period.

At year-end 2011, about 34% of the SERS Fund was not liquid; it was locked-up for as long as ten to twelve years (Figure 4). Approximately 20% of the Fund offered liquidity between one and three years. Less than half of the Fund was liquid.

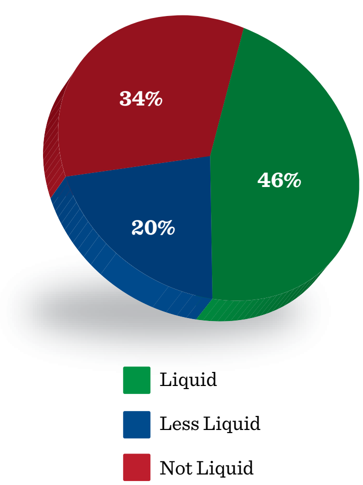
Figure 4

Year End 2011 Asset Allocation Profile

Asset Allocation by Themes



Asset Allocation by Liquidity



RKV Liquidity Rating 56

F. FUND BENCHMARK

The Fund benchmark is the proportional composite of the asset class benchmarks.

The asset allocation policy establishes performance benchmarks for the asset classes to measure and evaluate returns against their investment universes and to compare risk-adjusted returns across asset classes. Every sub-asset class and every investment manager will have performance benchmarks that are components of their asset class benchmarks and are developed jointly by SERS' investment professionals and consultants.

G. REBALANCING

Recognizing that capital markets are volatile and that dramatic swings in asset valuations are common, *a key component of this plan is to implement the allocation policy which provides a range for each asset class, proportionate to its volatility.*

Actual allocations may vary from their targets within permitted ranges and remain compliant with the policy. Consistent with authority granted under Section VI of the *SERS Statement of Investment Policy*, when allocations exceed permitted ranges, the CIO—in consultation with the Chairman—will act to bring allocation levels back into compliance.

H. LONG-TERM COMMITMENT BUDGET

To increase vintage year diversification, improve investment returns, and reduce cash flow volatility, this plan establishes a $500 million per year commitment limit to all commingled investment funds - including Non-core Real Estate funds - that requires capital commitments that extend beyond five years (Figure 5). Carry-forwards and carry-backs of unallocated commitment capacity are only permissable upon affirmative action by the Board.

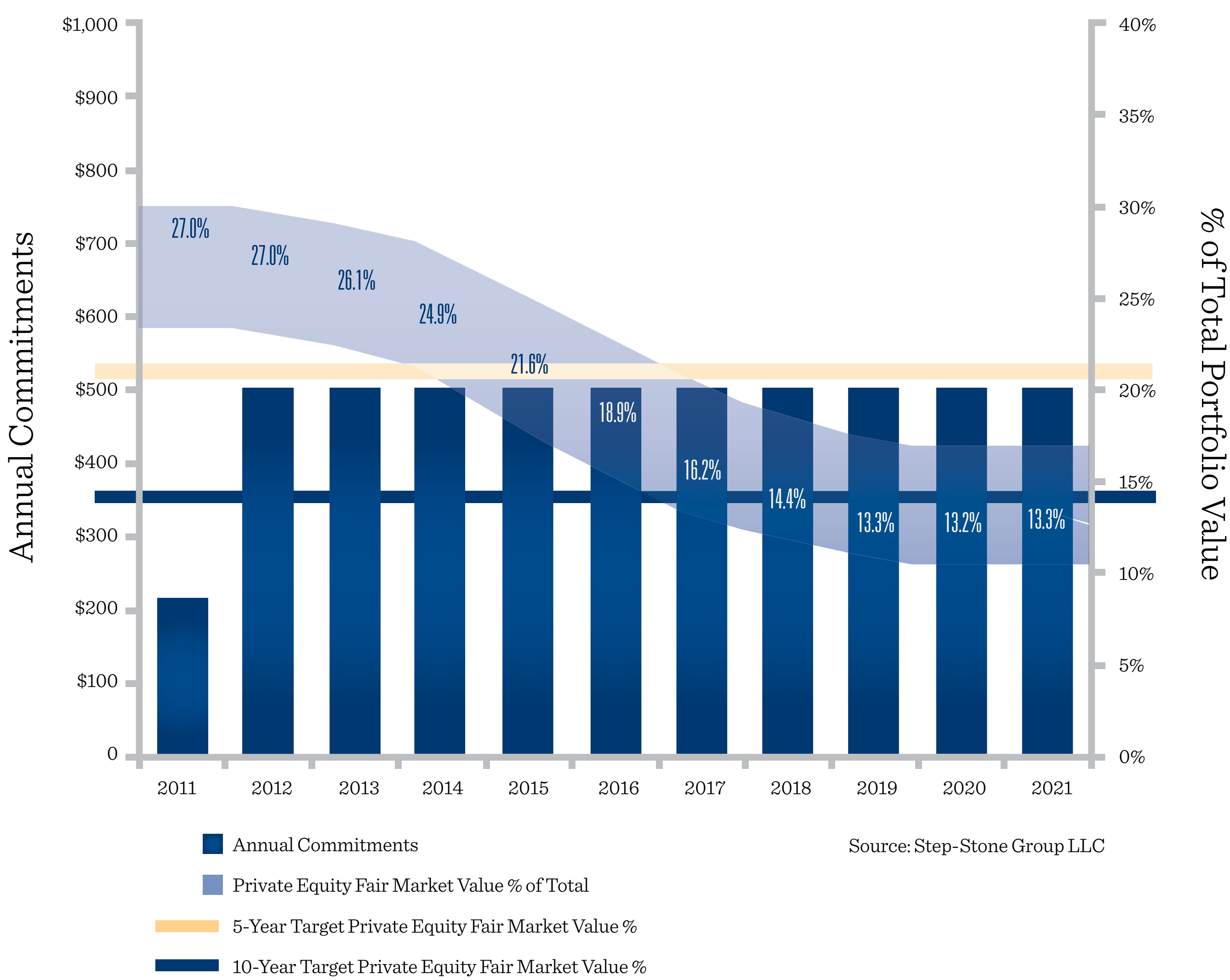
This pacing reflects the investment rate projected to achieve the long-term, ten-year and interim, five-year allocation targets for Alternative Investments. It assumes 100% of scheduled employer contributions pursuant to Act 2010-120 and an actuarial rate-of-return of 7.5% for the Fund.

Figure 5

Alternative Investment Program

Annual Commitment Target

($ Millions)



I. RISK MANAGEMENT

The assumption of investment risk is necessary to achieve the objectives of the SERS investment program. Such risk must be—and is—actively managed to ensure that returns are proportional to risk taken.

The Fund invests in a broadly diversified portfolio of asset classes, strategies, and managers to greatly mitigate non-systematic risk (i.e., security-specific risk). The Fund's systematic risk (i.e., Market Risk) cannot be eliminated by diversification and must be managed actively to maximize risk-adjusted returns.

A key component of this plan is SERS' acquisition, operation, and maintenance of a best-in-class risk analytics system to measure, monitor, and manage investment risk of the Fund in a timely manner.

The most significant risks facing the Fund are liquidity and capital impairment risk. With significant restrictions on nearly half the Fund's assets and a market value funding level of 58%, Fund liquidity could rapidly deplete during any period of severe market stress because the Fund's payout rate will increase due to asset devaluation and fixed payment obligations.

To manage capital impairment risk, a key component of this plan is to establish a liquidity reserve that is dynamically sized to reflect prevailing market conditions and expected payment obligations.

J. PERFORMANCE MONITORING & REPORTING

Timely, comprehensive monitoring and reporting of investment and manager performance across all asset classes is critical for effective management of the SERS investment program.

Nearly half of the Fund's assets are currently valued and reported on a lagged basis. Market volatility and stale pricing on half of the Fund significantly diminishes the visibility of the Fund's actual exposures. Effective program monitoring and evaluation is difficult under such conditions.

A major initiative of this plan is to identify, acquire, and operate a best-in-class performance reporting system to become integral in the daily operation of SERS' Investment Office.

K. PLAN INITIATIVES

Key strategic, Fund-wide activities include:

1. reorganizing current investments into new themes and by risk/return profile;

2. establishing new target asset allocation ranges by theme and asset class;

3. managing asset allocation efficiently by various means, including physical transactions, overlay strategies, and completion mandates;

4. reducing investment fees;

5. establishing and dynamically managing a liquidity reserve;

6. emphasizing separate—not commingled—investment mandates;

7. limiting total new commitments to Alternative Investments at $500 million per annum;

8. identifying, acquiring, and operating a best-in-class performance reporting and risk management system; and,

9. instituting an investment internship program.

Initiatives specific to asset classes follow in subsequent sections of this plan.

III. ASSET CLASS INVESTMENT PLANS

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A. ALTERNATIVE INVESTMENTS

ASSET CLASS DESCRIPTION

Alternative Investments (AI) include all Fund assets held in commingled limited partnerships that pursue an array of private market investment strategies, including Private Equity, Special Situations, and Venture Capital. Non-core Real Estate, Private Energy, and other real assets with similar structures and terms are combined with Alternative Investments for liquidity measurement reporting, but are managed by the Real Assets unit. All these strategies require capital commitments greater than five years, offer premium returns to compensate for the illiquidity of these assets, and are subject to the funding limitation on illiquid investments established by this plan.

ROLE IN THE SERS FUND

AI seeks high, long-term capital appreciation to enhance total Fund returns. The program's investment horizon is longer than most public investments, often targeting seven- to ten-year investment periods.

The program is constructed to increase Fund diversification and participate in opportunities not available to other investors or from public markets.

The program includes both pro-cyclical and counter-cyclical positions across a broad range of industries, countries, and securities to generate returns in all economic environments.

PROGRAM OBJECTIVES

The 2012-2013 objectives of the AI program are to:

- generate investment returns that exceed the total return of public equity markets by 3% and the mean return for the asset class over a market cycle;
- reduce the overall Fund exposure to this asset class (excluding Non-core Real Estate) to 21% within five years and 14% within ten years;
- increase liquidity of the AI portfolio;
- decrease cash-flow volatility; and
- reduce program complexity and overhead.

ASSET CLASS BENCHMARKS

AI performance is measured and evaluated over a seven- to ten-year period based on the following benchmarks:

- Public Market Benchmark – Russell 3000 + 300 basis points (illiquidity premium)
- Private Market Benchmark – ThomsonONE, Private Equity and Venture Capital benchmark

PROGRAM STRUCTURE

At year-end 2011, the AI program had positions in 388 fund partnerships managed by 149 general partners. Table 3 shows SERS' current AI portfolio by sector and strategy exposure as well as the interim and long-term target allocation for the program.

Table 3

Alternative Investment Allocation Targets

Item	Legend	12/31/11 Allocation	Interim 5-Year Target	Long-term 10-Year Target
GP Relationships	**Number**	**149**	**60-80**	**40-50**
Sub-asset Class				
Private Equity[1]	% of AI	63%	65%	65%
Special Situations	% of AI	19%	25%	25%
Venture Capital	% of AI	18%	10%	10%
Total Alternative Investment Allocation	**% of Fund**	**27%**	**21%**	**14%**
Non-core Real Estate	% of Fund	3%	3%	2%
Total Allocation to Long-Term Funds	**% of Fund**	**30%**	**24%**	**16%**

[1]Includes Private Energy and Emerging Markets Private Equity funds.

STRATEGIC INITIATIVES

Strategic initiatives to improve the quality and efficiency of the AI program and achieve its 2012-2013 performance objectives include:

- limiting annual new commitments to Alternative Investment to $500 million;
- increasing exposure to top-tier strategic investment advisors to increase net performance and improve depth and breadth of investment exposure;
- reducing the Fund's overall AI allocation (excluding Non-core Real Estate) to 21% within five years and 14% within ten years;
- reducing administrative burden and eliminating relationships with non-strategic investment advisors; and
- increasing liquidity and reducing the risk level of AI portfolio.

IMPLEMENTATION

SERS current AI portfolio includes a number of "legacy funds" that will not remain in the Fund going forward. In the future, SERS will emphasize relationships with the top performers in the current portfolio.

The program will seek to broaden geographic diversification by increasing exposure to international buyouts and growth equity funds while de-emphasizing investments in the North American market.

Special Situations will grow modestly in the portfolio and include mezzanine credit strategies, distressed debt, and secondary opportunities.

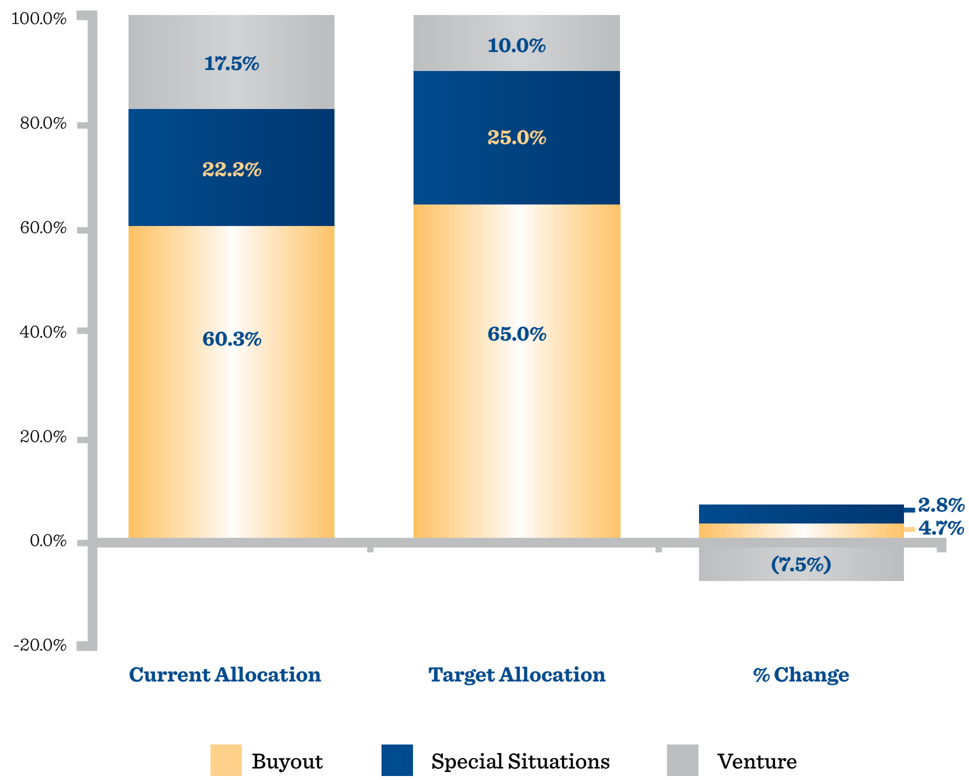
Venture Capital—which presents the largest challenge for AI rebalancing—will be actively managed to reduce exposure and reallocate capital from inferior funds and to higher quality managers.

Figure 6 illustrates the focus of the portfolio restructuring actions.

Figure 6

SERS Exposure by Sector[1]

As of 9/30/11



[1]For Illustrative purposes only. Current allocations based on SERS portfolio targets; not representative of actual portfolio exposures. SERS Private Equity and Venture Capital results as of 9/30/11. Exposure equal FMV + Unfunded as of 9/30/11.

Other initiatives to improve the quality, efficiency, and performance of the AI program include:

- making larger commitments to fewer, strategic relationships;
- maintaining uniform investment pacing to improve vintage year diversification and reduce cash flow volatility;
- employing custom investment vehicles to gain access to new markets, improve market intelligence, or reduce operational complexity; and,
- exploring structural options for active portfolio management, including, but not limited to, special purpose vehicles, strategic partnerships, and funds-of-one.

B. GLOBAL PUBLIC EQUITY

ASSET CLASS DESCRIPTION

Global Public Equity (Global Equity) comprises Fund assets held in publically traded equity securities of companies located throughout the developed world and emerging markets. These companies have a wide range of market capitalizations in different industries and sectors that offer vastly different return opportunities.

ROLE IN THE SERS FUND

Global Equity provides the Fund with high total return—but with high volatility. This asset class offers immediate liquidity in normal capital market conditions and can provide moderate inflation protection.

Investing in public equity securities globally—rather than in limited regions—offers the best risk-adjusted return and diversification benefits for the Fund.

PROGRAM OBJECTIVE

The 2012-2013 objective of the Global Equity program is to:

- Generate annualized total net return that exceeds the Global Equity benchmark return by 100 to 200 basis points per annum, accomplished through active and passive ownership of large, mid, and small capitalization stocks worldwide.

ASSET CLASS BENCHMARK

Global Equity performance is measured and evaluated over a three to five year period relative to the following benchmark:

- MSCI All-Country World Investable Market Index (ACWI-IMI).

PROGRAM STRUCTURE

The Global Equity program will maintain a neutral profile compared to the composition of the program's benchmark. Regional and capitalization exposures will emulate the benchmark. This neutral structure will reduce uncompensated risk and make security selection the primary determinant of excess return performance. The actual structure of the portfolio will be determined with the aid of a quantitative structure study conducted by SERS' general consultant. The study will provide guidance on the appropriate allocation to passive management and active management as well as establish the appropriate level of tracking error relative to the program's benchmark.

Within the context of benchmark neutrality, the Global Equity portfolio will be organized into a "core-satellite" structure.

In developed markets, "core" investments will include low-cost index funds which provide market (i.e., Beta) exposure. The goal of the core portion within developed markets is to provide low-cost exposure in the most efficient regions of the global equity market.

In emerging markets, "core" investments will include diverse, actively managed strategies that provide moderate excess return expectations. The goal of the core portion in less-efficient emerging markets is to capture all available excess returns while controlling risk.

Regardless of region, "satellite" investments will constitute aggressive investment strategies with moderate-to-high excess return targets. Such investments will generally have concentrated exposures. When combined, however, these investments will complement and diversify each other, providing opportunity for more-stable, high risk-adjusted returns.

STRATEGIC INITIATIVES

Strategic initiatives to improve the quality and efficiency of the Global Equity program and achieve its 2012-2013 performance objective include:

- constructing the portfolio to achieve neutral weighting compared to the benchmark index, including neutral regional and capitalization exposure; and
- achieving an optimal mix between active and passive allocations, and rebalancing the portfolio when appropriate.

Table 4 shows SERS current Global Equity allocation and compares it to the benchmark.

Table 4
Global Equity Allocation vs. Benchmark Weights

Item	Legend	12/31/11 SERS Allocation	12/31/11 Global Equity Benchmark	Current vs. Benchmark
Global Public Equity				
Sub-asset Class				
U.S. Equity	**% of Global Equity**	**52%**	**46%**	**6%**
Large/Mid-Caps	*% of U.S. Equity*	*92%*	*93%*	*(1%)*
Small-Caps	*% of U.S. Equity*	*8%*	*7%*	*1%*
Non-U.S. Developed Equity	**% of Global Equity**	**33%**	**40%**	**(7%)**
Large/Mid-Caps	*% of Non-U.S. Equity*	*88%*	*89%*	*(1%)*
Small-Caps	*% of Non-U.S. Equity*	*12%*	*11%*	*1%*
Emerging Markets Equity	**% of Global Equity**	**15%**	**14%**	**1%**
Large/Mid-Caps	*% of EM Equity*	*97%*	*96%*	*1%*
Small-Caps	*% of EM Equity*	*3%*	*4%*	*(1%)*
Total Global Public Equity	**% of Global Equity**	**100%**	**100%**	
Large/Mid-Caps	*% of Global Equity*	*92%*	*91%*	*1%*
Small-Caps	*% of Global Equity*	*8%*	*9%*	*(1%)*

IMPLEMENTATION

"Core" investments in developed markets were transitioned gradually and strategically into low-cost, passive index vehicles in 2011.

For the U.S. market, SERS professionals and consultants will research and recommend approximately six to seven "satellite" managers to complete the core-satellite build out.

For non-U.S. developed markets, "satellite" managers already exist so the focus will be on evaluating these managers to determine if they constitute the best structure within the region to achieve the portfolio's total return objective.

Emerging markets currently lack acceptable "core" and "satellite" options—assets are passively invested. SERS professionals and consultants will research and identify best-in-class Emerging Markets managers within the next 12 to 18 months for further consideration.

C. REAL ASSETS

ASSET CLASS DESCRIPTION

Real Assets (RA) include the Fund's investments that predominantly own or develop physical assets and that are highly correlated to inflation. Two categories of investments make up SERS' RA asset class:

- **Real Estate**

  Core Real Estate through separate account relationships with reasonable levels of liquidity over 12- to 18-month period.

  Non-core Real Estate through private real estate limited partnerships requiring long-term capital commitments and offering limited liquidity.

  REITS which are publically traded real estate investment trusts.

- **Inflation Protection**

  Public Energy through commodities exposure, master limited partnerships, or other publically traded securities with exposure to the energy markets.

  Private Energy through investments in limited partnerships requiring long-term capital commitments and offering limited liquidity.

  Commodities through both passive and active investment strategies which provide exposure to oil and gas, metals, livestock, and agricultural products.

  Natural Resources through investment in publically traded companies that generate a large portion of their revenues from natural resources.

  Timberland and Farmland through direct and indirect investment in real estate whose value is determined by timber and farming operations.

  Infrastructure through indirect investments in large-scale infrastructure projects such as toll roads, airports and ports, and pipelines.

ROLE IN THE SERS FUND

RA provides positive real return during periods of high or rising inflation and thereby helps preserve the purchasing power of the Fund. The RA portfolio is also expected to generate attractive, long-term return with lower volatility than the broad equity markets.

RA provides significant diversification benefits to the Fund due to its relatively low correlation to economic-sensitive assets such as stocks and bonds.

Finally, energy investments, in particular, offer high total return opportunity, provide inflation protection, and are effective U.S. dollar hedges (because crude oil worldwide is denominated in U.S. Dollars). These attributes are particularly attractive because SERS' liabilities are not indexed to inflation and are denominated in U.S. dollars.

PROGRAM OBJECTIVES

The 2012-2013 objectives of the RA program are to:

- primarily, generate real total return that exceeds inflation; and,
- secondarily, provide competitive total return over the long-term through capital appreciation and income generation.

ASSET CLASS BENCHMARKS

RA performance is measured and evaluated over a three- to five-year period relative to the following benchmarks:

- Total RA Portfolio Benchmark – CPI + 3%
- Real Estate Sub-asset Class Benchmark – Townsend Custom Stylized Index

PROGRAM STRUCTURE

The RA portfolio is unique in that it contains both public and private market investments, direct and indirect investments, and investments across a wide variety of asset classes.

Given that it is difficult to forecast how changing macro conditions will influence inflationary trends, it is important to optimize the diversification of the sub-asset classes contained in the portfolio.

Table 5 shows the current and target RA allocations.

Table 5

Real Assets Allocation Targets

	12/31/11 Allocation ($ million)	% of Real Assets	% of Total Fund	Interim 5-Year Target	Long-term 10-Year Target
Real Estate					
Non-core Real Estate[1]	728	19.1%	3.0%	3.0%	2.0%
Core Real Estate	1,641	43.2%	6.8%		
Total Real Estate	**2,368**	**62.3%**	**9.8%**		
Inflation Protection					
Commodities	560	14.7%	2.3%		
Timberland	193	5.1%	0.8%		
Energy	213	5.6%	0.9%		
Natural Resource Equities	465	12.2%	1.9%		
Total Inflation Protection	**1,432**	**37.7%**	**5.9%**		
TOTAL REAL ASSETS[1]	**3,800**	**100.0%**	**15.7%**	**15.0%**	**15.0%**
TOTAL FUND	24,165				

[1]Non-core Real Estate is reported under Alternative Investments with a 3% allocation target.

STRATEGIC INITIATIVES

Strategic initiatives to improve the quality and efficiency of the RA program and achieve its 2012-2013 performance objectives include:

- increasing liquidity of the private real estate sub-asset class, continuing the trend of limiting SERS' investments in real estate limited partnerships to unique and/or global strategies that cannot be accessed through separate account investments;
- focusing new investments in the separate account real estate portfolio to increase SERS' control and liquidity options and reduce fees;
- increasing liquidity of real estate separate accounts by limiting investments in joint venture operating partners and focusing on wholly-owned, operating properties;
- reducing the size of the real estate sub-asset class from its current 10% of Fund assets to 6% of the Fund, or approximately $900 million; and
- sourcing new public energy investment options (versus private limited partnerships) to increase SERS' overall energy exposure, gain faster exposure to the energy markets, reduce fees, and increase liquidity.

IMPLEMENTATION

SERS will reduce the pace of new real estate opportunity fund investments which have high fees, lock-up capital for extended periods, and duplicate strategies in other SERS direct, separate accounts.

The RA portfolio will strategically and prudently sell selected separate account investments and slow the pace of new separate account investments to reduce exposure to separate accounts while continuing to invest in strategies that offer superior expected returns.

SERS will also consider making investment commitments to energy private equity funds that pursue attractive strategies and complement SERS' existing energy portfolio. These mandates would be classified under Alternative Investments consistent with their long-term commitment requirements.

D. DIVERSIFYING ASSETS

ASSET CLASS DESCRIPTION

Diversifying Assets (DA) replaces SERS' Absolute Return Strategies (ARS) program, which included six fund-of-hedge funds structured with a low risk, low return benchmark of LIBOR plus 300 basis points (3-4% annual total return). These funds were structured to serve as collateral for equity exposure derivatives to implement a "portable alpha" strategy. Extreme volatility in 2008-2009 prompted SERS to wind down its portable alpha program, leaving legacy assets in strategies with return objectives materially below the Fund's target rate of return.

To initiate rebalancing the former ARS return targets and liquidity profiles, the Board approved mandates with Tiger Management and Entrust Capital in 2011. Transitioning the remaining assets in ARS mandates into the DA program will bring the asset class to approximately 9% of Fund assets. The DA long-term target allocation in this plan is 12%.

The assets that comprise the DA portfolio include:

- **Fund-of-One** mandates with SERS as sole limited partner, with discretion given to General Partners to build customized programs in which SERS benefits from greater transparency, increased oversight, and better liquidity; and,

- **Fund-of-Hedge Funds** which include customized separate accounts and commingled funds that invests in hedge funds.

ROLE IN THE SERS FUND

DA seeks to generate a return equal to or greater than the Fund's total return target with lower volatility than that of public equities. DA targets a liquidity profile between public equity markets and private equity buyouts, with a three-year investment horizon.

The portfolio will provide significant Fund diversification due to the low correlation of the underlying strategies to public capital markets. Diversification is achieved through long/short equity, global macro, managed futures, long/short credit, and event driven strategies—all with long-term histories of attractive risk-adjusted returns.

PROGRAM OBJECTIVES

The 2012-2013 objectives of the DA program are to:

- produce annualized total returns of 8-12%, net of fees, with volatility (standard deviation of returns) below that of public equities;
- provide competitive total returns in bull markets and preserve capital in bear markets; and,
- increase Fund diversification.

ASSET CLASS BENCHMARKS

Performance of the DA program will be measured and evaluated over a five to seven year period based on the following benchmarks:

- Public Market Benchmark – Russell 3000
- Diversifying Assets Program Benchmark – Custom Index (to be developed)

PROGRAM STRUCTURE

At year-end 2011, DA had a net asset value of $1,980 million. Table 6 shows the current allocation by strategy type as well as the interim five-year and long-term ten-year target allocations for the program.

Table 6

Diversifying Assets Allocation Targets

Item	Benchmark	Legend	12/31/11 Allocation	Interim 5-Year Target	Long-term 10-Year Target
DA Relationships[1]		**Number**	**7**	**10**	**10**
Strategy Type					
Fund-of-Hedge Funds	LIBOR +3%	% of DA	100%	0%	0%
Fund-of-One	R3000/Custom	% of DA	0%	100%	100%
Total Allocation		**% of Fund**	**8%**	**12%**	**12%**

[1]Six relationships are in liquidation as of 12/31/11.

STRATEGIC INITIATIVES

Strategic initiatives to improve the quality and efficiency of the DA program and achieve its 2012-2013 performance objectives include:

- reallocating former ARS assets with LIBOR plus 300 basis point return targets to equity-like return targets;
- sourcing fund-of-one managers to increase SERS' overall DA allocation from approximately 8% to 12% of the Fund;
- creating a proprietary limited partnership agreement to serve as the governing document for all of the new fund-of-one relationships and negotiating strong liquidity rights in the fund-of-one structures;
- increasing oversight of fund-of-one structures by working with managers to gain insight into their investment decisions and the markets;
- identifying a risk monitoring program to allow for enhanced monitoring of strategies and geographic risks in the DA portfolio; and,
- evaluating direct hedge fund investments, taking into consideration the internal resource/capability requirements to identify, evaluate, and oversee such investments as well as the associated underwriting risk to the Board.

IMPLEMENTATION

To meet DA objectives and safeguard assets, SERS will structure mandates as fund-of-one limited partnerships in which investment managers are the general partners, SERS is the sole limited partner, and the partnerships are the legal owners of the assets.

To achieve DA's higher expected return objective, SERS will continue redemptions from existing managers and, as funding permits, reallocate those assets to the DA portfolio. DA will construct a more-concentrated portfolio by targeting larger investments to the best funds in the industry. This structure will provide SERS with leverage to obtain the best terms including priority liquidity arrangements, lower fees, and—possibly—revenue sharing arrangements.

To bring the DA program in-line with the interim five-year and long-term ten-year targets, assets in legacy absolute return mandates would be redeemed, redirected, or reallocated to new fund-of-one structures that target the DA return objective.

E. FIXED INCOME

ASSET CLASS DESCRIPTION

Fixed Income includes the Fund's investments in publicly-traded debt obligations of sovereign, quasi-sovereign, and corporate entities. Fixed Income generates income from the periodic payment of interest as well as the eventual repayment of principal at maturity. Debt obligations are contractual in nature and, thus, are senior to equity securities. The legal protection afforded to debt and the shorter duration of debt compared to equities result in lower volatility (i.e., investment risk) than equities.

ROLE IN THE SERS FUND

Historically the SERS' Fixed Income portfolio was managed for excess return. Changing financial and capital market conditions, threats from deflation and inflation, and increasing liquidity requirements of the Fund necessitate change in the role and strategy of the program.

Going forward, Fixed Income will be structured to generate current income to pay benefits, provide liquidity sufficient to preserve capital and satisfy liabilities, and protect the Fund against inflation and deflation. Secondarily, when market conditions are favorable, the program will seek to enhance the total return of the Fund.

PROGRAM OBJECTIVE

The 2012-2013 objectived of the Fixed Income allocation are to:

- provide income and liquidity with a relatively low risk;
- protect the Fund against inflation and deflation; and,
- contribute excess total return to the Fund when market conditions permit.

ASSET CLASS BENCHMARKS

Fixed Income performance will be evaluated over a three to five year period related to the following benchmarks:

- Fixed Income – Barclay's Capital Aggregate Index
- Cash Equivalents – Barclay's Capital U.S. Government/Credit 1-3 Year Index

PROGRAM STRUCTURE

Table 7 shows the current and proposed Fixed Income structure. The actual structure of the portfolio will be determined with the aid of a quantitative structure study that will provide guidance on the appropriate allocation to passive and active management as well as establish the appropriate level of tracking error relative to the program's benchmark.

Table 7

Fixed Income Allocation Targets

Item	Legend	12/31/11 Allocation	Interim 5-Year Target	Long-term 10-Year Target
FIXED INCOME				
Core Plus Fixed Income	% of FI	38%	20-30%	15-25%
Core Fixed Income	% of FI	18%	20-25%	20-25%
TIPS	% of FI	29%	15-25%	15-25%
Nominal U.S. Treasuries	% of FI	6%	8-15%	10-20%
Liquidity Reserve	% of FI	9%	2-5%	2-5%
Total Allocation	**% of Fund**	**22%**	**20%**	**22%**

The components of the Fixed Income program and their features include:

- **Core Plus Fixed Income**

  - Provides excess return when performance conditions are favorable.
  - Offer greater potential return with a higher degree of expected risk.
  - Includes high yield debt, emerging market debt, and asset-backed securities.

- **Core Fixed Income**

  - Provides capital protection in difficult market conditions.
  - Close proxy to the Barclay's Capital Aggregate Index.
  - Includes investment-grade corporate securities, government-sponsored mortgages, and developed market sovereign credits.

- **Treasury Inflation-Protection Securities (TIPS)**

  - Preserves purchasing power due to high positive correlation to inflation.
  - Includes U.S. and foreign Treasury Inflation-Protection Securities.

- **U.S. Treasuries**

  - Provides deflation protection due to inverse correlation to public equities.
  - Exclusively nominal debt obligations of the U.S. government or its affiliates.

- **Liquidity Reserve**

  - Primary source of short-term liquidity for the Fund.
  - Cash equivalents are instruments readily convertible into cash.

Each segment of Fixed Income will fulfill one or more roles of the asset class, including liquidity, capital preservation, and inflation/deflation hedging. The sizing of each segment is a function of the Fund's liabilities and expected cash flows, general liquidity conditions in the capital markets, inflation and economic growth expectations, the risk level of the overall Fund, and current valuations of the various fixed income strategies. The size of each bucket would change as these conditions change.

STRATEGIC INITIATIVES

Fixed Income program initiatives over the plan period include:

- **Establish a liquidity reserve:** U.S. Treasuries and Treasury Inflation-Protection Securities (TIPS) will serve as liquidity reserves sufficient to satisfy the Fund's cash outflow obligations under all market conditions. In periods of market distress, liquid reserves will reduce capital impairment risk (i.e., selling assets below intrinsic value) and enhance Fund returns by enabling purchase of mispriced securities from distressed sellers.

- **Dynamically manage liquidity reserve:** Research, measure, monitor and analyze appropriate fixed income metrics to better understand and proactively respond to overall liquidity conditions in the capital markets and size liquidity reserves appropriately.

- **Establish high quality, short-duration fixed income mandate:** Enhance total return over cash and U.S. Treasuries with high credit quality, short-duration securities to meet future liquidity and income needs with low risk.

- **Reallocate assets, as appropriate, with best managers on better terms:** Evaluate each investment manager for its fit in the new Fixed Income program structure. Eliminate mandates that do not fit the new structure. Reallocate assets as appropriate to achieve Fixed Income program objectives. Ensure manager mandates and guidelines contribute to program objectives. Identify and eliminate portfolio conflicts. Renegotiate fee schedules whenever possible, particularly when more assets are added to an existing manager.

IMPLEMENTATION

The first priority is to size the sub-asset classes of the Fixed Income program appropriately.

The next priority is to review existing managers and decide what changes, if any, are needed to implement the Fixed Income investment plan. This effort should be completed in 2012.

The final priority is to improve the liquid core fixed income segment. Researching, evaluating, and recommending appropriate candidates will be done before the end of 2012.

IV. APPENDIX

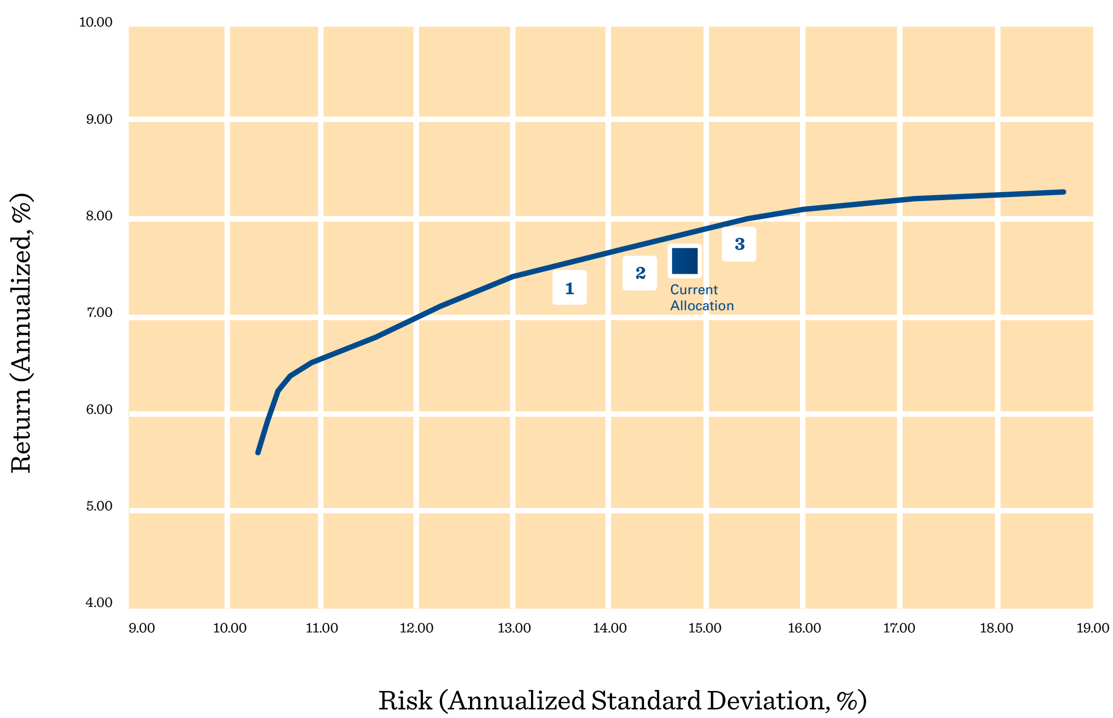
APPENDIX: INTERIM, FIVE-YEAR ASSET ALLOCATION ANALYSIS

Potential Portfolio Allocations

	Min	Max	Current Allocation	Porfolio 1	Porfolio 2	Porfolio 3
Alternative Investments	25	30	30	24	24	24
Global Equity	20	100	29	28	32	36
Diversified Assets	0	15	8	14	12	12
Real Assets	0	15	12	12	12	14
Core Fixed Income	10	100	19	20	18	12
Low Duration Fixed Income	2	100	3	2	2	2
Total			100	100	100	100
Capital Appreciation			58	52	56	60
Capital Preservation			22	22	20	14
Alpha			8	14	12	12
Inflation			12	12	12	14
Expected Return			7.67	7.45	7.55	7.79
Risk (Standard Deviation)			14.89	13.80	14.38	15.31
Return (Compound)			6.65	6.57	6.60	6.72
Return/Risk Ratio			0.52	0.54	0.53	0.51
RVK Exp. Eq Beta (LC US Eq = 1)			0.68	0.64	0.67	0.71
RVK Liquidity (T-Bills = 100)			56	58	59	59

The minimum 2% allocation to low duration fixed income reflects approximately three months of expected benefits payments. All asset class return assumptions have been brought down by 50 basis points. The Current Allocation is as of December 31, 2011.

Efficient Frontier



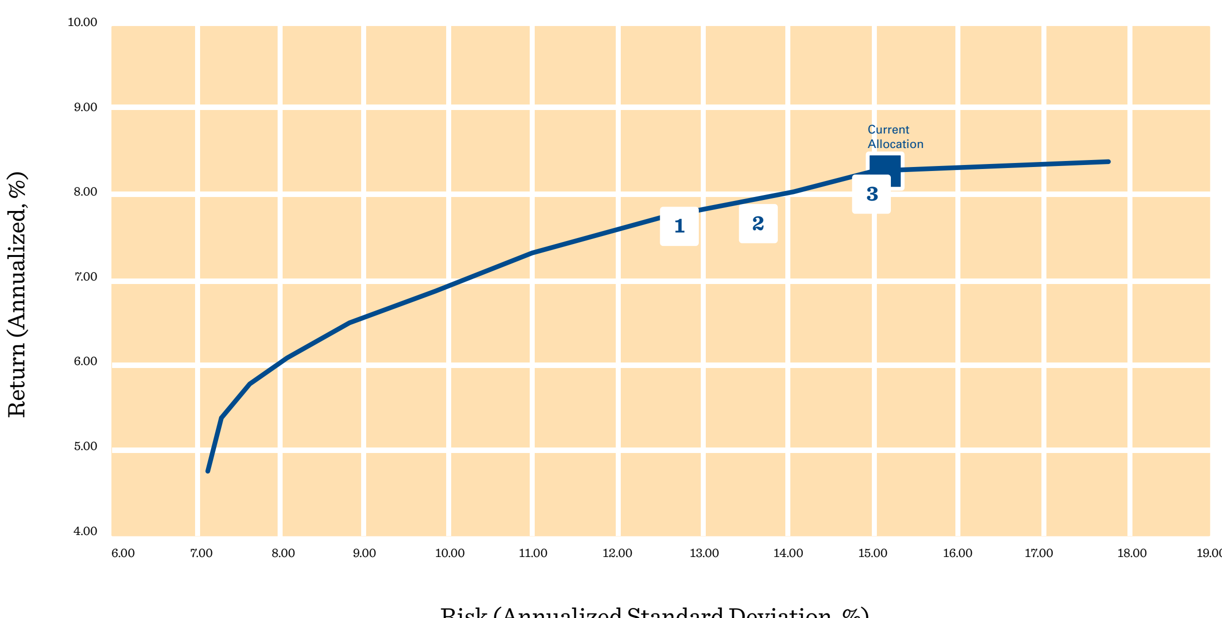
APPENDIX: LONG-TERM, TEN-YEAR ASSET ALLOCATION ANALYSIS

Potential Portfolio Allocations

	Min	Max	Current Allocation	Porfolio 1	Porfolio 2	Porfolio 3
Alternative Investments	12	18	30	16	16	16
Global Equity	20	100	29	30	38	44
Diversified Assets	0	15	8	15	12	12
Real Assets	0	15	12	15	12	14
Core Fixed Income	10	100	19	22	20	12
Low Duration Fixed Income	2	100	3	2	2	2
Total			100	100	100	100
Capital Appreciation			58	46	54	60
Capital Preservation			22	24	22	14
Alpha			8	15	12	12
Inflation			12	15	12	14
Expected Return			8.20	7.66	7.77	8.09
Risk (Standard Deviation)			15.08	12.86	13.71	15.00
Return (Compound)			7.16	6.90	6.91	7.06
Return/Risk Ratio			0.54	0.60	0.57	0.54
RVK Exp. Eq Beta (LC US Eq = 1)			0.69	0.61	0.66	0.72
RVK Liquidity (T-Bills = 100)			56	63	66	65

The minimum 2% allocation to low duration fixed income reflects approximately three months of expected benefit payments. The Current Allocation is as of December 31, 2011.

Efficient Frontier



APPENDIX: ASSET ALLOCATION ASSUMPTIONS

Thematic & Liquidity Map

Asset Class	SERS Thematic Bucket	RVK Thematic Bucket	Liquidity Bucket	RVK Liquidity Metric
Alternative Investments	High Growth	Capital Appreciation	Not Liquid	5
Global Equity	Growth	Capital Appreciation	Liquid	90
Real Assets	Inflation Protection	Inflation	Less Liquid	50
Diversified Assets	Diversifying/Alpha	Alpha	Less Liquid	50
Core Fixed Income	Capital Preservation	Capital Preservation	Liquid	85
Low Duration Fixed Income	Liquidity	Capital Preservation	Liquid	85

2012 Capital Market Assumptions

Interim Horizon vs. Longest Historical Time Frame

Asset Class	Arithmetic Return Assumption	Standard Deviation Assumption	Index	Longest Historical Time Frame	Annualized Arithmetic Return	Annualized Standard Deviation
Alternative Investments	10.90	26.53	Custom Alt Index	Jan 1990 - Dec 2011	9.78	18.21
Global Equity	7.85	18.80	MSCI ACWI-IMI (Gross)	Jun 1994 - Dec 2011	7.16	16.35
Real Assets	7.38	13.47	Custom Real Assets Index	Jan 1991 - Dec 2010	8.35	12.61
Diversified Assets	6.88	9.91	Custom Assets Index	Jan 1983 - Dec 2011	14.15	11.95
Core Fixed Income	3.75	5.75	BC U.S. Agg Bond	Jan 1976 - Dec 2011	8.10	5.62
Low Duration Fixed Income	2.00	3.50	BC U.S. Gov't/Cred 1-3 Yr	Jan 1976 - Dec 2011	6.95	2.81

Long-Term Horizon vs. Longest Historical Time Frame

Asset Class	Arithmetic Return Assumption	Standard Deviation Assumption	Index	Longest Historical Time Frame	Annualized Arithmetic Return	Annualized Standard Deviation
Alternative Investments	11.40	26.53	Custom Alt Index	Jan 1990 - Dec 2011	9.78	18.21
Global Equity	8.35	18.80	MSCI ACW IMI (Gross)	Jun 1994 - Dec 2011	7.16	16.35
Real Assets	7.88	13.47	Custom Real Assets Index	Jan 1991 - Dec 2010	8.35	12.61
Diversified Assets	7.75	12.50	HFN Long/Short Eq (Net)	Jan 1983 - Dec 2011	14.53	10.78
Core Fixed Income	4.25	5.75	BC U.S. Agg Bond	Jan 1976 - Dec 2011	8.10	5.62
Low Duration Fixed Income	2.50	3.50	BC U.S. Gov't/Cred 1-3 Yr	Jan 1976 - Dec 2011	6.95	2.81

APPENDIX: CORRELATION MATRICES

Interim Horizon

	Alternative Investments	Global Equity	Real Assets	Diversified Assets	Core Fixed Income	Low Duration Fixed Income
Alternative Investments	1.00	0.96	0.67	0.74	(0.08)	(0.12)
Global Equity	0.96	1.00	0.69	0.79	0.01	(0.08)
Real Assets	0.67	0.69	1.00	0.57	(0.06)	(0.14)
Diversified Assets	0.74	0.79	0.57	1.00	0.13	0.09
Core Fixed Income	(0.08)	0.01	(0.06)	0.13	1.00	0.89
Low Duration Fixed Income	(0.12)	(0.08)	(0.14)	0.09	0.89	1.00

Long-Term Horizon

	Alternative Investments	Global Equity	Real Assets	Diversified Assets	Core Fixed Income	Low Duration Fixed Income
Alternative Investments	1.00	0.96	0.67	0.78	(0.08)	(0.12)
Global Equity	0.96	1.00	0.69	0.82	0.01	(0.08)
Real Assets	0.67	0.69	1.00	0.50	(0.06)	(0.14)
Diversified Assets	0.78	0.82	0.50	1.00	0.11	0.06
Core Fixed Income	(0.08)	0.01	(0.06)	0.11	1.00	0.89
Low Duration Fixed Income	(0.12)	(0.08)	(0.14)	0.06	0.89	1.00

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