School Employees Retirement System of Ohio

2025
ANNUAL INVESTMENT PLAN

For the Year Ended June 30, 2025

Serving the People Who Serve Our Schools®

SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO
ANNUAL INVESTMENT PLAN

For the year ended June 30, 2025

Prepared by SERS Investment Staff
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Serving the People Who Serve Our Schools®

TABLE OF CONTENTS

Executive Summary

EXECUTIVE SUMMARY

The Board's Statement of Investment Policy (SIP) requires the Chief Investment Officer to prepare and present to the Board for its approval an Annual Investment Plan (Plan). The following document outlines the recommended Plan for Fiscal Year (FY) 2025.

As in prior years, the Plan reviews the economic environment based upon consensus reports from leading sources, SERS' asset allocation target and long-term performance objective for each portfolio, last year's objectives and accomplishments, a review of the market conditions over the last year and objectives for FY2024. Implementation Guidelines for each asset class portfolio are included to provide further details on how each portfolio will be managed in the coming year relative to portfolio construction parameters and risk limits. **This Plan is meant to be a living document subject to adjustment during the year.** If circumstances change or opportunities arise during the year, items will be discussed with the Board which may lead to intra-year changes to the Plan or Strategy Statements.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The general objectives of the Investment Department for FY2024 were as follows:

• *Our major strategic goals remain unchanged. The focus will continue to be value added performance, risk management, cost effectiveness and maintenance of an investment program that meets or exceeds investment objectives over the long-term.*

Total Fund returns exceeded the policy benchmark for all periods over ten years. For FYTD, Total Fund return of 7.77% as of March 2024 exceeded the benchmark by 0.69% and longer-term excess returns have added significant value to the Total Fund. For three years the annualized return of 6.70% exceeded the benchmark by 1.53%, and for five years the annualized return was 9.16% with 1.18% excess return. Over ten years the Total Fund generated a return of 8.04%, exceeding the benchmark by 0.88% on an annualized basis. Over twenty years the Total Fund generated a return of 7.17%, exceeding the benchmark by 0.21% on an annualized basis. The excess returns have been generated with active risk remaining well within the limits approved by the Board.

• *Implement the asset allocation framework and targets approved by the Board in April 2023.*

Private Equity allocation was 12.9% as of March 2024. In October 2023 the Board approved interim allocation targets effective from October 1, 2023 to December 31, 2024 for Global Equity at 41% and Private Equity at 13% to allow the Private Equity portfolio time to transition to its 14% target effective 1/1/2025. All asset classes remain within Board approved ranges.

• *Continue to develop and engage the Investment team, including adding a new Associate Risk Officer due to a promotion and adding a new Investment Analyst to the team if approved by the Board in the FY24 budget.*

A new Associate Risk Officer was hired in July 2023 and a new Associate Investment Officer in October 2023. The team is complete with well-qualified investment professionals.

FY2025 OBJECTIVES

• Our major strategic goals remain unchanged. The focus will continue to be value added performance, risk management, cost effectiveness and maintenance of an investment program that meets or exceeds investment objectives over the long-term.

• Implement the asset allocation framework and targets approved by the Board in December 2023.

• Continue to develop and engage the Investment team, including adding a new Administrative Assistant due to the retirement of the Operations Manager.

CONCLUSION

Total Fund net returns of 9.16% over five years and 8.04% over ten years exceed the actuarial rate of 7.00% by a good margin thus improving the funded ratio of the plan. Staff will remain focused on adding value relative to policy benchmarks and managing risks and costs.

EXECUTIVE SUMMARY

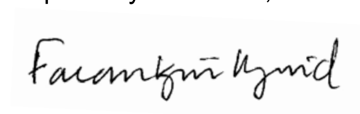
Staff appreciates the support and guidance received from the Board in FY2024 and looks forward to working with the Board in FY2025 for another successful year.

ACKNOWLEDGEMENTS
SERS is very fortunate to have an experienced and deep Investment Staff. The following individuals contributed to this report.

- Economic Outlook – Farouki Majeed and Hai Yen Le
- Total Fund Asset Allocation – Farouki Majeed
- Global Equities – Judi Masri and Hai Yen Le
- Global Private Equity – Steve Price and Phil Sisson
- Global Fixed Income – Jason Naber and Judi Masri
- Global Private Credit – Adam Messerschmitt and Brad Carr
- Global Real Assets – Paul Cheng and Michael Browning
- Cash Equivalents & Securities Lending – Jason Naber
- Opportunistic and Tactical – Farouki Majeed, Adam Messerschmitt and Brad Carr
- Overlay Program – Farouki Majeed, Jason Naber, and Judi Masri
- Investment Risk Management and Analytics – Chris Hyland and Hai Yen Le
- Investment Operations – Terri Martin and Katie Swank

We would appreciate the opportunity to review the Annual Investment Plan with you at the June 2024 Board meeting. If you have any questions or comments before then, please let me know.

Respectfully submitted,



Farouki A. Majeed
Chief Investment Officer

Global Economic Outlook

GLOBAL ECONOMIC OUTLOOK

After a slowdown in 2022, the US economic growth rate improved to 2.5% in 2023 despite high inflation and high interest rates. While those factors hindered the growth, the resilience of the consumer and government spending fueled the 2023 strong growth. The global economy achieved a 3.1% growth in 2023 as inflation was falling in most regions. Sticky inflation and prolonged restrictive monetary policy remain the biggest challenges to US growth which is expected to trend down in 2024 and 2025 though still remaining positive.

Global inflation declined significantly from 8.8% in 2022 to 6.8% in 2023 and is expected to fall further to 5.8% in 2024 and 4.4% in 2025 according to the International Monetary Fund (IMF). US headline inflation declined from its 9.1% peak in June 2022 to 3.0% in June 2023 then picked up slightly and stayed above 3.0% as of March 2024. Global supply chain improvement and tight monetary policy are the main factors helping ease inflation.

The US labor market remained strong, adding 3.0 million jobs in 2023 and 807,000 jobs in Q1 2024. The tightness of the labor market eased somewhat in 2023 as the unemployment rate increased from the historically low 3.4% in January 2023 to 3.8% in March 2024. US consumer sentiment improved significantly in 2023 thanks to easing inflation, resilient labor market, and better than expected economic growth.

The Fed conducted eleven interest rate hikes during March 2022 - July 2023, raising the federal funds rate from 0 - 0.25% to 5.25 - 5.50% and kept this high level as of March 2024. Market expectations for several rate cuts in 2024 are now doubtful as growth is strong, labor market is tight, and inflation is sticky in the 3% range, and federal spending continues at a brisk pace. Interest rate volatility has been unusually high in the 2021-2023 period. The 10-year rate stayed range-bounded in 2023; it was 3.88% in December 2022, surpassed 4.0% from August to middle December and then came back to 3.88% by December 30, 2023. The yield curve has been inverted since October 2022. The inverted yield curve continued to have negative impacts on the banking sector's earnings and bank loan growth, impeding the economy.

Economic forecasts from the Blue Chip Consensus (US) and the IMF are presented below:

US ECONOMY

Resilient growth in 2023 boosted the Blue Chip consensus confidence in an economic soft landing with solid growth and inflation falling to the Fed's 2.0% target in the next two years. The consensus expects the US economy to maintain an above-trend 2.3% growth rate in 2024, although slowing modestly by 0.2% from 2023, then moderating to 1.8% in 2025, a level that is slightly below the 2.1% that is the10-year average from 2021 to 2031 projected by the Bureau of Labor Statistics. Inflation is expected to decline to 2.7% in 2024 and 2.1% in 2025 (Table 1).

According to the Blue Chip Economic forecasts, the unemployment rate is expected to increase from a historically low level of 3.6%, dominant in 2022 in 2023, to 3.9% in 2024 and 4.1% in 2025. The yield on 10-year US Treasuries is expected to be 4.0%, lower than the 3-Month T-Bill yield at 4.95% thus maintaining an inverted yield curve through 2024. The yield curve is expected to normalize in 2025 with the 3-Month T-Bill at 3.6%, slightly lower than 10-Year Treasury note at 3.7%. US corporate profits are expected to be $3.5 trillion in 2024 and $3.2 trillion in 2025.

Table 1

Period	Real GDP Growth Rate (%)	Unemployment Rate (%)	Inflation Rate CPI (%)	T-Bill 3-Mo. (%)	T-Note 10-Yr. (%)	Corporate Profits (Cur. $)
2021	5.8	5.4	4.7	0.0	1.4	22.6
2022	1.9	3.6	8.0	2.0	3.0	9.8
2023 Forecast	2.5	3.6	4.1	5.1	4.0	n/a
2024 Consensus	2.3	3.9	2.7	4.9	4.0	3.5
2025 Consensus	1.8	4.1	2.1	3.6	3.7	3.2

Source: Blue Chip Economic Indicators, March 2024

GLOBAL ECONOMY

The IMF forecasted global GDP growth to be steady at 3.2% in 2024 and in 2025 (Table 2). For 2024, emerging and developing economies are expected to grow faster than advanced economies as the former's expected growth rate is 4.2% while the latter's is 1.7%. For 2025, growth rates in emerging and developing economies are projected to stay at 4.2%, maintaining their growth advantage versus the advanced economies which are expected to grow 1.8%.

Table 2

Annual GDP Growth (in percent)	2023	2024 (projected)	2025 (projected)
World	3.2	3.2	3.2
US	2.5	2.7	1.9
Advanced Economies (including US)	1.6	1.7	1.8
Emerging and Developing Economies	4.3	4.2	4.2

Source: International Monetary Fund World Economic Outlook, April 2024

Portfolio Strategy

PORTFOLIO STRATEGY – Total Fund Asset Allocation

Actual asset allocation relative to policy target is shown in the table below:

	Target	Range	Actual as of 3/31/2024
Global Equities	40%*	35 – 45%	43.7%
Global Private Equity	14%**	11 – 17%	13.1%
Global Fixed Income	18%	13 – 23%	13.1%
Global Real Assets	20%	17 – 22%	18.4%
Global Real Estate	*13%*	*10 – 15%*	*12.0%*
Global Infrastructure	*7%*	*5 – 10%*	*6.4%*
Global Private Credit	5%	3 – 7%	6.2%
Opportunistic	0%	0 – 5%	2.9%
Cash	3%	1 – 5%	2.6%
Total Fund	**100%**		**100%**
Leverage	N/A	0 – 10%	0%
Total Notional Exposure (Including Leverage)	100%	100 – 110%	100%

**Interim Target 41% from October 1, 2023, to December 31, 2024.*
***Interim Target 13% from October 1, 2023, to December 31, 2024.*

In October 2023 the Board approved interim allocation targets effective from October 1, 2023 to December 31, 2024 for Global Equity at 41% and Private Equity at 13% to allow the Private Equity portfolio time to transition to its 14% target effective 1/1/2025.

In December 2023, the Board approved the segregation of Global Real Estate and Global Infrastructure from Global Real Assets effective January 1, 2024. The Board approved the new benchmark CPI +5% for Global Infrastructure while keeping the NCREIF Property Index ("NPI") as the benchmark for Global Real Estate.

Staff has maintained an overweight in Global Equities, Global Private Credit and Opportunistic relative to the FY24 interim policy targets, and an underweight in Global Real Estate, Global Infrastructure and Global Fixed Income. The Total Fund returned 7.77% FYTD through March 2024, exceeding the benchmark with 69 bps of excess return, mostly due to positive selection effects in Global Equities, Global Fixed Income, Global Private Credit, Global Private Equity, and Opportunistic as these asset classes exceeded their respective benchmarks.

Global Real Estate, which accounts for 12% of the Total Fund, had negative FYTD returns as of March 2024 as property prices broadly declined, particularly in the office sector, weighed down by higher interest rates and diminished demand for office space. Despite interest rates remaining elevated, the U.S. economy has remained resilient and expectations for a recession in 2024 have receded. Inflation remains above the Federal Reserve's 2% target, which has further pushed back expectations for the start of the Fed's next rate-cutting cycle. Staff believe it is appropriate to maintain the underweight in Fixed Income in the current environment but are prepared to increase the allocation to Fixed Income when the rate outlook changes.

PORTFOLIO STRATEGY - Global Equities

INVESTMENT STRATEGY
SERS invests in equity securities to earn a premium over government treasury bonds due to higher compensation for assuming the higher risk inherent in public equity securities. A sizeable allocation to Global Equities is warranted to meet the long-term return goal of the Total Fund.

SERS' Statement of Investment Policy sets the Global Equities policy target allocation as follows:

	Target*	Permissible Range
Global Equities	40%	35-45%

**Interim Target 41% from October 1, 2023, to December 31, 2024*

The performance objective of the Global Equity portfolio is to exceed the return of the MSCI All Country World Net Total Return Index (USD) by 40 basis points net of management fees.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION
FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Monitor the portfolio for possible performance enhancement, completing searches, as necessary.*

Global Equities underperformed by 93bps for FY23 and by 170bps for CY23 due to US and emerging market (EM) underperformance. US equity was negatively impacted by the portfolio being structurally tilted to low beta, value, and small cap along with the Magnificent Seven narrow market rally. In EM, the portfolio's growth tilt and manager underperformance detracted from benchmark relative returns.

Staff focused on hiring core, broad based mandates with a benchmark aware focus in both the US and EM portfolios, making the following changes in CY23:

- Connor, Clark & Lunn EM Core was funded March 1, 2023.
- Arrowstreet EM Core was funded June 1, 2023.
- Genesis EM Growth was terminated in August 2023.
- Axiom EM Growth was terminated in December 2023.
- Coho US Core was terminated in December 2023.
- JP Morgan US Core was funded January 1, 2024.
- T. Rowe Price US Core was funded January 1, 2024.
- Lazard EM Core was funded as of January 1, 2024.

The changes positively impacted Global Equity which outperformed 86bps FYTD through March 31, 2024.

- *Manage the Global Equity portfolio structure relative to benchmark exposures to achieve appropriate risk and return characteristics.*

US Equity experienced several significant changes to improve risk and return. The large cap active composite transitioned from benchmark agnostic, low beta, value tilt managers to institutional, benchmark aware, core managers. These changes increased the large cap active beta from 0.88 to 0.96 and should also reduce the large cap active tracking error to produce a more consistent excess return stream. Finally, Staff redeemed $75 million from small cap during CY23 to reduce the small cap overweight.

Non-US Equity remains tilted slightly towards value, which helped excess returns in both CY23 and CY22. The Non-US Equity allocation also maintains a small cap bias, which helped long-term returns with Non-US small cap outperforming large cap by 1.1% over the previous decade ending December 31, 2023. Staff reduced the EM growth tilt, pointing the portfolio to core via the new core mandate hires to produce more consistent returns.

Global Composite's characteristics were stable with slight value tilts, generating positive excess return. Staff added $50 million to global in CY 2023 to increase active return.

- *Review IMAs and Investment Guidelines to make any necessary adjustments.*

One IMA amendment was negotiated in FY24 with Neumeier Poma.

PORTFOLIO STRATEGY - Global Equities

CURRENT MARKET CONDITIONS AND OUTLOOK

Cumulative Periods through March 31, 2024		Annualized Returns (in percent)			
	FYTD	1 Year	3 Year	5 Year	10 Year
Russell – 3000 Index	19.29	29.29	9.78	14.34	12.33
Russell – 3000 Growth Index	22.66	37.95	11.54	17.82	15.43
Russell – 3000 Value Index	15.53	20.18	7.74	10.18	8.86
Russell – 1000 Index	19.61	29.87	10.45	14.76	12.68
Russell – 2000 Index	13.79	19.71	(0.10)	8.11	7.58
MSCI – AC World Index ($Net)	16.05	23.22	6.96	10.90	8.66
MSCI – AC World Ex-USA Index ($Net)	10.56	13.26	1.94	5.96	4.25
MSCI – World Ex USA Index ($Net)	11.90	15.29	4.93	7.48	4.81
MSCI – Emerging Markets Index ($Net)	7.19	8.15	(5.05)	2.22	2.95

Source: Wilshire Compass — Fiscal years begin July 1 and end on June 30

After declining 18.0% in CY22, global equity markets (MSCI ACWI) rallied 22.2% in CY23 as the global economy maintained steady growth and the US economy surprisingly accelerated. For CY23, US equity (Russell 3000) led with a 26.0% return. Non-US equity markets (MSCI All Country World ex USA) followed with a 15.6% return. All major indices continued the rally in Q1, 2024. Global equity markets had a gain of 16.1% for FYTD through March 2024.

The US equity market was positive in CY23 thanks to broad-based healthy earnings and strong gains of Artificial Intelligence related companies. The growth index (Russell 3000 Growth) generated an outsized return of 41.2%, significantly outperforming a 11.7% return by the value stock index (Russell 3000 Value). The Russell 3000 Growth return was driven by the “Magnificent Seven” stocks (Apple Inc., Alphabet Inc., Amazon.com Inc., Meta Platform Inc., Microsoft Corp., Nvidia Corp., and Tesla Inc.) that benefited from AI gains. The “Magnificent Seven” concentration also had a great impact on the outperformance of the large cap stock index (Russell 1000) versus the small cap index (Russell 2000) as the former included the seven stocks and the latter did not. The Large Cap Russell 1000 delivered 26.5%, outperforming a 16.9% return of the Small Cap 2000 Index by a significant margin of 9.6%. For FYTD as of March 31, the US equity market gained 19.3%.

Non-US Equity Developed Markets (MSCI World ex US Index) posted a 17.9% return for CY23. MSCI World ex US also underperformed the US market for FYTD through March with a 11.9% return.

Emerging Markets (MSCI EM) returned 9.8%, lagging developed markets in CY23. China’s economic issues lead to its negative equity market’s performance and contributed to the emerging market’s underperformance versus the developed markets. Emerging Markets delivered 7.2% for FYTD as of March 2024.

Equity market volatility is expected to be elevated due to high interest rates, high inflation, and slower growth. Market valuations moved higher through 2023 across the board. The S&P 500 index was trading at 26 times earnings, significantly higher than the non-US market as well as its own historical average. The developed ex-US and emerging markets were trading at 16 times earnings; while the former was moderately below its historical average, the latter was close to its long-term average.

PORTFOLIO STRUCTURE

At the end of March, Global Equity was overweight the 41% target allocation by 3.0%. The regional composite has the following exposures:

- The US portfolio was 7bps overweight relative to its 63.79% MSCI ACWI benchmark target allocation,

- The Non-US Developed Market portfolio was overweight by 0.46% relative to its 26.20% MSCI ACWI benchmark target allocation, and

- The Non-US Emerging portfolio was underweight by 53bps relative to its 10.01% MSCI ACWI benchmark target allocation.

PORTFOLIO STRATEGY - Global Equities

The US portfolio's CY23 value tilt has moved to a slight growth tilt as Coho was terminated in December 2023 to fund two new large cap core mandates. Staff continues to reduce the small to SMID cap overweight in US. The US portfolio is currently 74.3% passively managed, which increased 3% over the prior year as active management was not successful in CY23.

The Non-US portfolio maintains a small capitalization bias and a marginal value style tilt. The value tilt was additive to returns the last two calendar years. The portfolio will remain overweight to small capitalization stocks, as small caps are undervalued relative to large cap, and the small cap overweight added to returns longer-term. The Non-US portfolio is 83.1% active in Developed Markets (DM). Staff increased active DM exposure by 12% in CY23 to improve excess returns. The active allocation range is expected to be 80-85% in DM. Emerging markets will remain 100% active management due to greater inefficiency.

FY2025 OBJECTIVES

Staff will focus on the following objectives during FY2025:

- Monitor the portfolio for possible performance enhancement, completing searches, as necessary.
- Manage the Global Equities portfolio structure relative to benchmark exposures to achieve appropriate risk and return characteristics.
- Review IMAs and Investment Guidelines to make any necessary adjustments.

PORTFOLIO STRATEGY – Global Private Equity

INVESTMENT STRATEGY

SERS invests in private equity to provide risk adjusted returns in excess of those provided by publicly traded equities.

SERS' Statement of Investment Policy sets the Private Equity target allocation as follows:

	Target*	Permissible Range
Global Private Equity	14%	11% - 17%

**Interim Target 13% from October 1, 2023, to December 31, 2024*

The performance objective for Private Equity is to provide returns in excess of the Burgiss All Private Equity Benchmark, one quarter in arrears.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Manage the Private Equity portfolio and fiscal year commitments to reflect the investment allocation of 14%, subject to identifying opportunities that meet SERS' investment criteria.*

The Private Equity allocation is 13.1% as of March 31, 2024. This is slightly above the interim target allocation of 13% but well within the upper range of 17%. To date, $350 million has been committed to four funds, and five co-investments.

- *Review the Private Equity portfolio strategy and structure and develop a plan to improve risk and return characteristics of the portfolio, achieve fee reductions and optimize manager counts as appropriate.*

To date, four commitments have been made to private equity funds with an average management fee of 1.63%. Additionally, five commitments were made to co-investments that have no management fees or carried interest. Together the average management fee on all approved commitments is 0.72%. These private equity commitments are diversified by investment strategy, sector focus and geography.

- *Actively seek co-investment opportunities where appropriate with current SERS' private equity general partners who meet co-investment criteria, as outlined in the Private Equity co-investment guidelines.*

Staff reviewed several co-investment opportunities throughout the fiscal year. Five opportunities met SERS criteria and were approved in fiscal year 2024. The Private Equity portfolio has a total of 18 approved co-investments totaling $245 million. The co-investments are in various stages of their life cycle and are generating an IRR of 18% and a 1.8x multiple of invested capital as of December 31, 2023.

- *Research and identify new and innovative investment opportunities with managers who offer compelling return expectations. These new opportunities may be used for a combination of purposes to replace current managers who no longer meet SERS' investment criteria or to target strategies that are not currently a directly invested component of the Private Equity portfolio.*

Staff reviewed over 100 investment offerings during fiscal year 2024. One offering met the investment criteria. The new manager implements an opportunistically focused US middle market buyout strategy. In addition, a few compelling prospects were identified, and staff will continue to track these opportunities for future review and consideration.

PORTFOLIO COMPOSITION

	Allocations as of March 31, 2024	Target Ranges
Buyout	81%	55% - 95%
Venture Capital	5%	0% - 10%
Special Situations	9%	5% - 25%
Co-Investments	5%	0% - 25%
Domestic	78%	55% - 95%
International	22%	5% - 45%

PORTFOLIO STRATEGY – Global Private Equity

CURRENT MARKET CONDITIONS AND OUTLOOK

The private equity market faced several complex challenges in 2023 as conditions proved more perplexing than predictable. Interest rates rose more quickly than any time since the 1980s and uncertainty remains as to when the US Federal Reserve will reverse course. Additionally, concerns about a long-anticipated recession that has yet to occur remained present. At the same time the economy provided positive signs that hint at a possible soft landing including record low unemployment, sufficient growth and rallying public markets. These mixed signals put downward pressure on private equity deal value, exits and fundraising. Economic uncertainty combined with elevated purchase valuations and a steady flow of dry powder once again underscores the importance of identifying and backing high quality private equity managers that remain disciplined in their process, due diligence, and selection criteria throughout investment cycles.

Nonetheless, as illustrated in the below table, Private Equity continues to generate solid performance over all periods.

Annualized Returns (in percent) for Periods Ended March 31, 2024				
Fund Type	**1-Year**	**3-Years**	**5-Years**	**10-Years**
SERS Private Equity	10.55	16.91	18.12	17.30
Burgiss Benchmark	5.56	10.72	14.44	12.82

Source: Burgiss All Private Equity Index

The long-term outlook for private equity remains positive. Top quartile private equity managers find ways to overcome problems, generate returns for their limited partners and earn the capability to raise additional funds. With this in mind, the outlook for the SERS Private Equity portfolio is favorable. Current market conditions reflect positively on the style of investing employed by the general partners that make up the core of the SERS Private Equity portfolio. SERS' Private Equity portfolio is comprised primarily of general partners who have demonstrated their ability to identify, create value and exit companies in all market environments.

In an effort to ensure the portfolio is properly positioned for future uncertainty, our goals for the fiscal year include: continuing to identify and invest with operationally focused managers who primarily target the middle market and avoid the competition in the large and mega space; increasing exposure to attractive investments that meet our criteria and offer lower costs through co-investments; and ensuring that we stay on top of market trends and opportunities by continuing to research and seek out managers offering investment strategies that deliver private equity like returns with differentiated and unique strategies. Additionally, as the Total Fund moves into what many believe will be a low return environment, we will seek to maintain the allocation level of Private Equity to slightly above its target of 14% to obtain the benefit of this higher returning asset class to the Total Fund. This will take time as Private Equity is a long-term asset class where manager selection is critical and additional capital takes more time to deploy.

FY2025 OBJECTIVES

Staff will focus on the following objectives during FY2025:

- Manage the Private Equity portfolio and fiscal year commitments to reflect the investment allocation of 14%, subject to identifying opportunities that meet SERS' investment criteria.

- Review the Private Equity portfolio strategy and structure and develop a plan to improve risk and return characteristics of the portfolio, achieve fee reductions, and optimize manager counts as appropriate.

- Actively seek co-investment opportunities where appropriate with current SERS' private equity general partners who meet co-investment criteria, as outlined in the Private Equity co-investment guidelines.

- Research and identify new and innovative investment opportunities with managers who offer compelling return expectations. These new opportunities may be used for a combination of purposes to replace current managers who no longer meet SERS' investment criteria or to target strategies that are not currently a directly invested component of the Private Equity portfolio.

PORTFOLIO STRATEGY - Global Fixed Income

INVESTMENT STRATEGY

SERS invests in fixed income assets for the primary purpose of risk diversification and decreasing the overall risk of the investment plan. Fixed income assets may include sovereign debt securities, global corporates, securitized securities, private placements, convertibles, derivatives, and currency.

SERS' Statement of Investment Policy sets the Fixed Income target allocation as follows:

	Target	Permissible Range
Global Fixed Income	18%	13% - 23%

The performance objective for the Fixed Income portfolio is to exceed the Bloomberg US Universal Bond Index, net of manager fees, by 60 basis points.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Manage the portfolio structure and risk relative to the benchmark as central banks globally reach peak interest rates and the potential for a US recession grows.*

As of March 31, the portfolio outperformed the benchmark by 129 bps, net of fees, with a return of 3.85%. The primary driver of the outperformance was spread tightening in investment grade corporates, securitized, high yield and emerging market debt sectors as the market has become more optimistic about the prospect of a soft landing. Portfolio duration has been kept close to the US Aggregate duration since last summer when the Federal Reserve ended its rate hiking cycle. The opportunistic securitized credit strategy also contributed to the outperformance as the top performing strategy fiscal year-to-date.

- *Explore ways to increase the fixed income allocation to reduce the current underweight using cash securities or derivatives as the outlook for fixed income assets is attractive going forward.*

During the fiscal year Staff explored implementing a synthetic US Aggregate Index using derivatives as a way to increase the fixed income allocation without additional cash contributions. The strategy was not implemented due to the high tracking error of the credit exposure and the high cost of leverage.

- *Tactically manage the allocations to core, core plus and tactical and diversifying strategies to enhance the risk and return tradeoff. Continue to research new and innovative investment opportunities to position the portfolio for a potential recession, falling interest rates and to diversify sources of return.*

Staff began making additional allocations to the portfolio in Q4 as it became evident the Federal Reserve was finished raising interest rates. Additional allocations totaling $110 million were contributed to core strategies and $30 million was contributed to core plus strategies. As part of the $110 million allocated to core, a new Staff directed ETF account was opened to purchase US Treasury ETFs to decrease the underweight and increase the duration of the portfolio without taking credit risk in anticipation of the Federal Reserve cutting interest rates in 2024. In addition, Staff reviewed and got approved for $50 million each to two opportunistic strategies, one focused on global corporate credit and another on securitized credit, that will invest opportunistically as these markets dislocate in the future. Staff is also proposing to change the portfolio benchmark to the Bloomberg US Universal Bond Index to increase exposure to credit to increase return, maintain the portfolio's diversification role within the Total Fund and better reflects the current portfolio exposures.

- *Engage with Wilshire on a Fixed Income portfolio structure review focusing on strategy allocations, manager and sector weights and consider new strategies. Make portfolio changes as appropriate.*

A review of the portfolio's current structure was conducted by Wilshire in the fall of 2023. The analysis showed the portfolio could increase exposure to core plus allocations like emerging market debt and high yield, which are an 11% allocation in the proposed US Universal benchmark if approved by the Board. . The analysis also showed different manager allocation mixes improve portfolio diversification without a material change in sector exposures or characteristics.

PORTFOLIO STRATEGY - Global Fixed Income

- *Review IMAs and Investment Guidelines to make any necessary adjustments.*

The investment guidelines of four strategies were updated during the year including two IMAs that were fully renegotiated.

CURRENT MARKET CONDITIONS AND OUTLOOK

The Bloomberg US Aggregate Bond Index returned 2.56% for FY2024 through March 2024. All sectors of the index had positive performance with investment grade corporates outperforming by 2.17% with a 4.73% return as spreads have compressed and the sector has an attractive yield of 5.30%. The largest sector in the index, US agency mortgages, returned 2.05%, which underperformed due to lower demand from banks and the Federal Reserve ceasing to reinvest in mortgages as part of its quantitative tightening program. US Treasuries have also underperformed with a 1.45% return as the yield curve flattened and investors continue to fear a resumption in rising inflation and slowing growth. Another notable sector with a small exposure in the benchmark was commercial mortgage-backed securities, which had a 5.05% return as fundamentals are now improving in all subsectors except office. US high yield debt was the best performing non-benchmark sector during the fiscal year with 9.24% return due to strong fundamentals, low default rates and a yield of almost 8%. The emerging market debt blended currency index also posted a strong return of 5.6% as USD debt continued to benefit from a strong USD and yield of 8-9%.

The Federal Reserve last hiked interest rates in July 2023 and unless inflation reaccelerates is probably done hiking for the cycle. Inflation is expected to continue its downward trend toward 2% and the yield curve could steepen should rate cuts result in short interest rates declining relative to longer term rates. As short-end rates fall, short and intermediate maturity US Treasurys should experience a positive performance tailwind from duration. Investors want to remain in less risky credit assets as credit spreads would widen if a market dislocation does occur. Investment grade credit spreads are fairly valued now and could remain at these levels for a while as fundamentals are good with high profit margins, low debt growth and strong foreign demand. Agency mortgage fundamentals are also attractive with low prepayment and credit risk. The ongoing disinflation trend should result in lower interest rate volatility and low new issuance should create higher demand from banks and investors for mortgages going forward. High yield fundamentals remain close to their healthiest levels in 15 years while defaults have picked up in 2024, but still remain below average. Emerging market debt looks attractive going forward and local currency debt will benefit if the USD weakens when the Federal Reserve starts cutting interest rates.

The Federal Reserve conducted the third interest rate hike of 0.25% in 2023, after seven hikes in 2022, in an attempt to curb inflation. Labor markets have been resilient leading to wage gains, ongoing spending and inflationary pressures that may be difficult to curb; as such, the central bank will remain focused on economic data releases. Markets are anticipating the US to enter a recession at some point in the next 12 months. A neutral to long duration stance will have a positive performance impact if the central bank cuts interest rates to address slowing growth or market dislocation. A focus on high quality fixed income sectors like US government, agency mortgage back securities and investment grade corporates will limit losses if credit spreads start widening.

PORTFOLIO STRUCTURE

The Fixed Income portfolio is currently weighted 49% core, 40% core plus and 11% to tactical and diversifying strategies. Due to the additional cash contributions being made primarily to the more conservative core strategies, the yield of the portfolio has decreased by 0.16% to 5.49% since June 2023. The portfolio continues to have an average investment grade credit rating of A+, which is two grades lower than the benchmark rating of AA. The average portfolio duration of the core and core plus strategies is 6.3 years, 0.1 year longer than the benchmark.

The portfolio is underweight US government assets and overweight credit sectors to earn additional yield and price appreciation over the benchmark. The allocation to US Treasuries was increased by 4% during the year with the addition of the US Treasury ETF account, while the allocations to US agencies, mortgages and investment grade corporate securities were reduced by 4% as a result. The asset-backed, high yield and emerging market debt exposures continue to be the largest overweight sectors in the portfolio while the commercial mortgage-backed exposure continues to be close to the benchmark weight.

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Manage the portfolio structure and risk relative to the benchmark as central banks globally reach peak interest rates and the potential for a US recession grows.

- Tactically manage the allocations to core, core plus and tactical and diversifying strategies to enhance the risk and return tradeoff. Continue to research new and innovative investment opportunities to position the portfolio for a potential recession, falling interest rates and to diversify sources of return.

- Implement the new portfolio benchmark change, if the Board approves, to the Bloomberg US Universal Bond Index, which includes allocations to high yield and emerging market debt and more accurately reflects the portfolio holdings and risk exposures and result in lower tracking error.

- Review IMAs and Investment Guidelines to make any necessary adjustments.

PORTFOLIO STRATEGY – Global Private Credit

INVESTMENT STRATEGY

SERS invests in private credit to provide risk adjusted returns in excess of those offered by publicly traded fixed income securities and to generate a consistent cash yield.

SERS' Statement of Investment Policy sets the Global Private Credit target allocation as follows:

	Target	Permissible Range
Global Private Credit	5%	3% – 7%

The performance objective for the Global Private Credit portfolio is to provide net of fee returns of 100 basis points above the 90-day Treasury bill rate + 4.5%, one quarter in arrears.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Manage the Private Credit allocation within the target allocation range while considering the pace of drawdowns for new investments and re-evaluate existing manager performance as new capital is raised.*

Staff slowed deployment during the course of the fiscal year since the Global Private Credit portfolio is over the 5% of Total Fund target allocation, but within the permissible range of 3% - 7%. In an effort to maintain the target allocation within the permissible range, Staff also reduced commitment sizes for new investments. In addition, as new managers returned to raise capital for the next vintage of a drawdown vehicle, Staff re-evaluated performance and declined to continue investing in drawdown vehicles that did not meet underwriting expectations, as well exited one commingled investment that was not performing as expected.

- *Build the Private Credit allocation in line with the implementation guidelines and ensure appropriate risk and return characteristics are present within the target allocation.*

Staff executed $75 million in capital commitments to investments that fall within the Direct Lending sub-asset class. The portfolio weight exceeded the target allocation of 5% by 1.2% at the end of 2023, but all sub-asset classes fell within the ranges stated in the implementation guidelines. The new investment was made within the Direct Lending sub-asset class, which is primarily comprised of investments that are senior in the capital structure of a company, contain a contractual income component, are structured with robust covenants to protect investors, and have priority over a company's cash flows or other assets in the event of a default.

- *Evaluate new investments with a cautious approach given the economic outlook and the rising interest rate environment, while focusing on increasing the cash yield of the portfolio and income distribution to the Total Fund.*

The investment that was executed and the new investments considered for the Global Private Credit portfolio all include an income component, which is expected to comprise the largest part of the investment return. Most of the underlying investments within private credit funds include a contractual cash payment that is distributed to investors in the form of income on a quarterly basis. As base rates increased during the fiscal year, the income generated from the underlying loans also increased. During the fiscal year, Staff remained focused on investing with managers that have robust due diligence processes and closely monitored the ability of portfolio companies to withstand the higher interest rate environment and the potential for a slowing economy. In addition, Staff remained focused on reviewing new investments in strategies that would help diversify the Direct Lending portion of the Global Private Credit portfolio.

- *Consider adding differentiated strategies to the portfolio if capacity permits that could add further diversification to the portfolio, while also contributing to the portfolio's return and cash yield.*

During the fiscal year, Staff reviewed numerous differentiated strategies that could provide additional diversification benefits to the portfolio, which is primarily comprised of corporate cash flow lending strategies. Overall, capital deployment has slowed given the target allocation for Private Credit has been exceeded. As capital becomes available, Staff will consider adding new strategies to the portfolio with a focus on increasing the allocation for the Asset Based Lending / Specialty Finance sub asset class.

- *Review the appropriateness of the benchmark and recommend changes if necessary.*

Staff continue to review the appropriateness of the Global Private Credit policy benchmark and do not recommend any changes at this time.

PORTFOLIO STRATEGY – Global Private Credit

CURRENT MARKET CONDITIONS AND OUTLOOK

The private credit market continued to grow in 2023 and reached an estimated $1.7 trillion in assets under management at the end of the year, which was higher than earlier forecasts. The private credit market is forecast to surpass $2.7 trillion in the next several years. During 2023, fundraising activity slowed given the economic uncertainty and higher interest rate environment. Many investors paused on new investments within the private credit space given the uncertainty of corporate earnings growth and the ability of companies to service debt obligations. Nonetheless, over $200 billion was raised within private credit funds during 2023. The direct lending strategy raised approximately $100 billion during the year, which was a decrease from 2022. The leveraged loan market continued to see a slowdown in new issuances throughout most of the year as traditional banks pulled back from lending to companies, but activity began to pick up towards the end of 2023. Larger companies, including public companies, continued to turn to the private credit market for financing needs given the lack of readily available capital. Loan defaults continued to increase, but not as drastically as originally expected since many companies were able to continue servicing debt.

The outlook for the private credit market is positive with considerable growth still expected despite the slowdown in private equity deal activity. The deal activity within the private credit market remained strong since many companies had no alternative source of financing, which led to a lender-friendly market with tighter covenants and better pricing terms for investors. The cash yields on debt instruments continued to provide an attractive return for investors. In particular, the income focused direct lending strategy delivered an estimated 11.6% yield to investors, which was an attractive premium over the U.S. non-investment grade, U.S. investment grade, and 10-year U.S. Treasury yields of 7.9%, 5.4%, and 4.3%, respectively.

The general expectation is that the Federal Reserve will begin to decrease interest rates but at a slower pace than originally expected and that interest rates will remain elevated for a longer period of time. While rising rates may negatively impact other assets classes, it can add to returns within the private credit asset class since many loans are structured with a floating interest rate. But the likelihood of higher default rates also increases given the uncertainty around whether the borrowers will be able to withstand higher interest rates for an extended period. Therefore, it is important for private lenders to conduct a rigorous underwriting process on portfolio companies to ensure borrowers can withstand the impacts of further interest rate increases. Since the pipeline of opportunities is expected to be robust, private lenders can be even more disciplined when selecting borrowers. Thus, resulting in the ability to originate loans with better protections in place for the lender, while providing downside protection and an attractive cash yield for investors.

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Manage the Private Credit allocation within the target allocation range while considering the pace of drawdowns for new investments and re-evaluate existing manager performance as new capital is raised.
- Build the Private Credit allocation in line with the implementation guidelines and ensure appropriate risk and return characteristics are present within the target allocation.
- Evaluate new investments with a cautious approach given the economic outlook and higher interest rate environment, while focusing on increasing the cash yield of the portfolio and income distribution to the Total Fund.
- Evaluate new investment ideas within Asset Based Lending/Other to build the sub-asset class towards the target allocation.
- Review the appropriateness of the benchmark and recommend changes if necessary.

PORTFOLIO STRATEGY - Global Real Assets

INVESTMENT STRATEGY

The role of SERS' Global Real Assets portfolio is to provide a stable income return from tangible assets, to be a partial inflation hedge over the long term and to provide low correlation to equities.

SERS' Statement of Investment Policy sets the Global Real Assets target allocation as follows:

	Target	Permissible Range
Global Real Assets	20%	17-22%
Global Real Estate	*13%*	*10-15%*
Global Infrastructure	*7%*	*5-10%*

The performance objective for Global Real Estate is to produce net of fee returns in excess of the NCREIF Property Index ("NPI"), one quarter in arrears. The performance objective for Global Infrastructure is to produce net of fee returns in excess of the Consumer Price Index (CPI) on a smoothed quarterly (4 qtrs.) basis + 1.2% per quarter (or approximately CPI + 5% on an annual basis). The goal is to exceed the blended 50/50 NPI and CPI + 5% benchmark by 100 bps. Both performance objectives are intended to be accomplished over a market cycle, with the income component of the return comprising a significant portion of the total return.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Formulate and implement a one-year plan to remain within the 17-22% allocation range to Real Assets.*

The portfolio NAV has stayed within the 17-22% allocation range. Real Estate and Infrastructure have been assigned separate allocations and new benchmarks and the separate sub-asset classes have been near their target allocations of 13% and 7%, respectively.

- *Reallocate capital to lower the allocation to the target 20%.*

The Real Asset allocation has been lowered to the target of 20%; the Real Estate and Infrastructure allocations have approximate targets of 13% and 7%, respectively.

- *Tactically manage the existing real estate and infrastructure allocations to improve portfolio structure and achieve favorable risk-adjusted returns by incrementally reallocating capital from real estate to infrastructure until the latter reaches the target of 7%.*

Staff redeemed capital from Real Estate funds with less attractive portfolio construction and invested in strategies that can take advantage of the current downturn to acquire attractive assets at favorable valuations. The Infrastructure portfolio is near its 7% target, and with capital calls from existing commitments and new investments, it could reach parity with Real Estate (~10% each) in coming years.

- *Evaluate new investment strategies for the Real Assets portfolio such as real estate secondaries, real estate debt, sector specific real estate, niche real estate property types, ex-US real estate, energy transition, digital infrastructure, and listed infrastructure funds.*

Staff committed to a real estate secondary fund and additional positions in three real estate funds currently in the portfolio at favorable discounts in 2H-2023. Staff received approval to invest up to $100 million in listed real assets ETFs.

- *Actively pursue co-investment opportunities with existing Real Assets managers.*

Staff invested in a US-based data center, a European cell tower platform, and a US-based power plant debt co-investments in 2023. Staff received approval to invest up to $20 million in a co-investment sidecar alongside an existing core infrastructure fund.

CURRENT MARKET CONDITIONS AND OUTLOOK

Across most property types, real estate returns depreciated in 2023, giving up above long-term trend returns of approximately 17% and 26% in each of 2021 and 2022, respectively. SERS' Real Assets portfolio returned (4.94%) net of fees in 2023 versus a benchmark NPI return of (8.39%) gross of fees, producing an excess return of 3.46%. The income return gross of fees during 2023 was 2.13%.

PORTFOLIO STRATEGY - Global Real Assets

Though the Global Real Assets portfolio outperformed the policy benchmark, the real estate portfolio performance in 2023 was disappointing, consistent with the broader market downturn. In the most aggressive interest rate hikes cycle since the 1970s, the U.S. Federal Reserve increased interest rates nine times from 0.25% to 5.25% over an 18-month period. Consequently, capitalization (cap) and discount rates used to value real estate assets increased dramatically, resulting in lower asset values. Meanwhile, fundamentals for Industrial, Multifamily, and Retail properties remained relatively positive, with vacancy rates below 8% and net operating income growth rates in the 3-10%, reflective of strong demand. Because lending standards leading up to the downturn have been stringent and supply has been either flat or grown moderately, the conditions that led to significant drawdowns as seen during the Global Financial Crisis are not present. Asset markdowns have been primarily driven by the aforementioned higher cap and discount rates.

The one property type that is facing significant challenges is the Office sector due to work from home trends and changing tenant preferences. Many informed real estate participants believe that the supply-demand imbalance in Office is expected to persist for several years as values need to reset further downward to attract buyers or policy makers need to provide tax incentives and ease rezoning and building requirements to allow outdated Office buildings to be repositioned or razed to allow for better and higher use.

Despite the current negative sentiment, 2024-2025 could be attractive vintages to allocate new capital as values reset and provide attractive entry points. The Fed has paused interest rate hikes and suggested it could lower rates in 2024. With sellers becoming more realistic, 2024 could see an uptick in transactions after significant slowdowns in 2H-2022 and 2023.

The infrastructure portfolio once again proved to be a safe harbor in a volatile year. The core, essential, and monopolistic characteristics of many infrastructure assets demonstrated their resilience. All of SERS infrastructure funds performed well in 2023, providing downside protection and cash yield. Most of SERS' infrastructure funds are still in early life cycle but are beginning to perform as expected, overcoming slow starts related to the pandemic. Most new commitments have overcome the J-curve effect and are showing positive returns. The infrastructure program added two additional co-investments, totaling four at the end of 2023.

Going forward, the infrastructure program will continue to focus on attractive assets that provide inflation protection, diversification, and cash yield. Due to infrastructure having its own allocation target and range, it will now have its own benchmark. As CPI moderates and stabilizes to longer term trends, that will provide a new hurdle for the infrastructure portfolio to meet.

Two sectors that will remain priorities are energy security / transition because of strong global policy support and investment demand, and digital infrastructure, which continues to benefit from the global mega-trend of digitalization. However, sectors like utilities that provide consistent income returns while benefiting from the energy transition theme and assets that meet the inflation protection, income return, and diversification requirements for infrastructure will also be considered.

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Real Estate: Formulate a one-year plan to keep the allocation within the 10-15% range.
- Infrastructure: Formulate a one-year plan to keep the allocation within the 5-10% allocation.
- Real Estate: Evaluate new investment strategies such as real estate debt and secondaries that could take advantage of the current market correction, and niche property types that have secular growth drivers.
- Infrastructure: Evaluate new investment strategies such as energy security and transition, digital infrastructure, and other strategies that provide inflation protection and income return.
- Actively pursue co-investment opportunities with existing and high-quality non-current Real Estate and Infrastructure managers.

PORTFOLIO STRATEGY - Cash Equivalents & Securities Lending

INVESTMENT STRATEGY

SERS invests in cash equivalents for the purpose of earning market returns on cash held for benefits and expenses and to provide short-term cash needed to fund other asset classes. Cash Equivalents are fixed income assets with maturities of less than 270 days and may include US government, asset-backed, corporate, and high-quality money market-type securities.

SERS' Statement of Investment Policy sets the Cash Equivalent target allocation as follows:

	Target	Permissible Range
Cash Equivalents	3%	1% - 5%

The performance objective for Cash Equivalents is to exceed the return as measured by the FTSE 30-day US Treasury Bill Index.

The Securities Lending program is designed to be a low risk, intrinsic value focused strategy that generates additional income for the plan by temporarily lending equity and fixed income securities. All loans are collateralized with cash at 102-105% of security market value and reinvested in government money markets and repurchase agreements. Loans to approved borrowers are limited to 25% of the average monthly market value of the loan from the prior year. Fixed income security loans require a ten-basis point minimum spread at loan initiation. The program is implemented through a third-party lending agent and collateral reinvestment manager.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

• *Research and monitor money market funds for opportunities to earn additional yield over the portfolio benchmark.*

Researched and moving forward with transitioning the cash equivalent portfolio over to BNY Mellon's new short-term cash management portal, Liquidity Direct. Liquidity Direct will allow Staff to research and compare the yields of multiple money providers to enhance the yield, diversify the holdings and potentially invest in other short-term investment options.

• *Evaluate opportunities to improve the Cash Management process to include a forecast of expected private market income payments and maintain liquidity needs for the portfolio.*

A three-year cash forecast was created to analyze the long-term cash needs based on projections of private and public market cash activity of the Total Fund. The current forecast projects $45 million will need to be raised every quarter in excess of the expected income and capital cash flows.

• *Forecast and analyze expected asset class cash flows and pension payments quarterly to ensure cash flow needs can be anticipated and planned for in advance.*

On a quarterly basis, a cash variance report is created to compare the forecasted versus actual cash flows. The report gives Staff insights into where the accuracy of the cash forecast can be improved by adjusting estimates going forward.

• *Monitor the Securities Lending program for opportunities to generate incremental income and ensure it is operating within the program implementation guidelines.*

Securities lending income was lower than for the same period last year as higher average spreads and higher demand for the bonds were more than offset by lower demand for the US equities.

CURRENT MARKET CONDITIONS AND OUTLOOK

Cash continues to offer an attractive return with the prime money market fund daily yield ranging from 5.20%-5.46% fiscal year to date. The Federal Reserve has held interest rates steady since the last 0.25% rate hike in July 2023. If the Fed starts cutting interest rates later this year, then money market yields should start falling, but at a slower pace due to their ability to extend the weighted average maturity of the investments.

New money market fund reforms will become effective June 11, 2024, and funds will have six months to comply with the new amendments. The reforms will increase the minimum daily and weekly liquidity requirements, remove the redemption gates but impose a liquidity fee requirement in certain circumstances. The amendments are intended to address concerns about stress in short-term funding markets experienced during the pandemic.

PORTFOLIO STRATEGY - Cash Equivalents & Securities Lending

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Research and monitor money market funds for opportunities to earn additional yield over the portfolio benchmark.
- Migrate the cash portfolio to BNY Mellon's Liquidity Direct platform, which will improve the breadth of options available to invest the short-term cash going forward.
- Continue to forecast and analyze expected asset class cash flows and pension payments quarterly to ensure cash flow needs can be anticipated and planned for in advance.
- Monitor the Securities Lending program for opportunities to generate incremental income and ensure it is operating within the program implementation guidelines.

PORTFOLIO STRATEGY – Opportunistic & Tactical

INVESTMENT STRATEGY

SERS invests in opportunistic investments for the purpose of earning returns greater than the Bloomberg US Aggregate Bond Index + 2% for investments that do not fit within the existing asset classes. The investments are defined as tactical or non-traditional investment opportunities. Such investments may involve capitalizing on short-term market dislocations or other unique situations or innovative strategies including tactical allocation.

SERS' Statement of Investment Policy sets the Opportunistic investments target allocation as follows:

	Target	Permissible Range
Opportunistic Investments	0%	0% - 5%

The performance objective for Opportunistic investments is to provide net of fee returns of 100 basis points above the Bloomberg US Aggregate Bond Index + 2%.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Search for possible Opportunistic investments for the Fund that are expected to exceed the portfolio benchmark. This will be accomplished through the evaluation of markets, strategies and specific funds that offer compelling risk adjusted returns. Specific investments under consideration include strategies that provide diversification, downside protection, and inflation protection. Investments that pass initial screening will undergo detailed due diligence prior to Staff recommendation.*

Staff added three new investments totaling $125 million to the portfolio this fiscal year. The first investment is a global long/short commodity trading strategy that seeks to generate positive absolute returns in both up and down market environments. The second investment is a CLO equity fund investing in the equity tranche of CLOs issued by the underlying manager. The final and most recent investment is a long/short equity strategy focused on the energy sector, primarily in the United States and Canada. In addition, Staff received approval to invest up to 10% of the portfolio in exchange traded funds that do not fit within existing asset class risk/return profiles or objectives.

- *Actively manage the Opportunistic allocation to improve portfolio structure and returns without increasing risk.*

Staff continues to closely monitor and manage the liquid portion of the portfolio. The portfolio is comprised of six funds that offer liquidity on a regular basis. These funds represent approximately 45% of the Opportunistic allocation.

CURRENT MARKET CONDITIONS AND OUTLOOK

The Opportunistic portfolio consists of funds that seek to take advantage of market dislocations, or which do not fit within the risk and return objectives of other asset classes. The return objective of the portfolio is to outperform the Bloomberg US Aggregate Bond Index + 2%. The portfolio is positioned to take advantage of an environment consisting of high interest rates, high inflation, and a slowing economy. Current strategies include investments that provide inflation protection as well as investments that are uncorrelated to public equities and fixed income, such as distressed assets, structured credit, long/short commodity and equity funds and risk parity strategies.

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Search for possible Opportunistic investments for the Fund that are expected to exceed the portfolio benchmark. This will be accomplished through the evaluation of markets, strategies and specific funds that offer compelling risk adjusted returns. Specific investments under consideration include strategies that provide diversification, downside protection, and exposure to themes not suitable for other asset classes. Investments that pass initial screening will undergo detailed due diligence prior to Staff recommendation.

- Actively manage the Opportunistic allocation to improve portfolio structure and returns without increasing risk.

PORTFOLIO STRATEGY – Overlay Program

INVESTMENT STRATEGY

SERS invests in overlay strategies that trade derivatives of the Total Fund's underlying assets and currency exchange rates to enhance the Total Fund portfolio efficiency. The overlay program includes tactical asset allocation and active currency strategies.

The tactical asset allocation strategy aims to add value to the Total Fund performance through active allocations (long/short) across stocks and bonds thereby exploiting short-term macro market dislocations. The active currency strategies aim to add value and risk diversification to the Total Fund, as well as help manage currency risk by utilizing short-term inefficiency in the foreign exchange markets and low correlation of the strategies to the major asset classes such as US equity and fixed income.

The program is fully tactical; exposures to any overlay strategies in this program are not required by the Statement of Investment Policy.

The overlay program is targeted to add 10 to 20 bps excess return to the Total Fund's performance on a three-to five-year horizon. Tracking errors of the tactical rebalancing strategy and the currency program are expected in the ranges of 5 to 15 basis points and 5 to 8%, respectively.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Actively monitor the Tactical Asset Allocation Strategy to enhance the impacts of the strategy on the Total Fund performance.*

The tactical asset allocation strategy initiated a new market-neutral short US equity, long fixed income trade in June 2023. As the manager's conviction in the trade grew during the fiscal year, the size of the trade was increased twice and is currently 2.8% of Total Fund assets. Staff has conviction in the trade and added an additional 0.80% to bring the total exposure to 3.6% The total realized losses are $84.2 million through March 2024, while the strategy's inception-to-date losses are $5.6 million.

- *Actively monitor the Active Currency Strategy to improve the program's risk and return characteristics.*

The strategy continues to actively manage the USD exposure relative to other major developed market currencies during the fiscal year. The strategy has realized fiscal year to date gains of $15.4 million and inception-to-date gains $77.5 million including gains from the small gold allocation.

FY2025 OBJECTIVES

Staff will focus on the following objectives in FY2025:

- Actively monitor the Tactical Asset Allocation Strategy to enhance the impacts of the strategy on the Total Fund performance.

- Actively monitor the Active Currency Strategy to improve the program's risk and return characteristics.

PORTFOLIO STRATEGY - Investment Risk Management & Analytics

Investment Risk Management and Analytics is responsible for the provision and communication of diligent, thorough, timely and forward-looking investment risk analytics and other investment analytics to the Board and Investment Staff.

Total Fund forecast risk decreased from 13.4% in March 2023 to 10.9% in March 2024, primarily due to reduced volatility in equity markets and impact of the overlay programs. Total Fund realized risk for the 3-year period ending March 2024 was 7.5%.

Forecast risk is a forward-looking risk estimate based on the Fund's holdings at a point of time, while realized risk measures the volatility of reported monthly returns over a period of time. The former corrects for the smoothing effect of infrequent valuation of private investments that is inherent in the latter. Hence, forecast risk tends to be higher than realized risk for a fund that includes private investments. Forecast risk more accurately reflects the risk-return profile of an investment and is preferable for informing allocation decisions.

The composition of Total Fund risk changed slightly over the year, with Global Equities and Fixed Income contributing 418 bps and 103 bps more risk, respectively, as of March 2024 compared to a year prior and the Overlay program reducing risk by an additional 455 bps compared to a year prior. These changes reflect a combination of changes in allocation, standalone risk, and correlation among asset classes. As of March 2024, 73.3% of the Total Fund's risk was attributable to equity factors, while real estate, fixed income, currency, private equity, and other factors accounted for the remaining 26.7%. The Total Fund's active risk stayed under the 3% limit stipulated in the Statement of Investment Policy as 3-year realized active risk was 1.63% and forecast active risk was 1.41% as of March 2024.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION

The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Provide risk forecasts and analyses of the Total Fund and asset class portfolios.*

Staff utilized the Barra risk system to generate risk analyses of the Total Fund and asset classes. The risk analyses based on SERS' investment holdings provide forecasted volatility of returns of portfolios. The analyses also provide portfolio risk decomposition by strategies, as well as by factors.

- *Report risk of the Total Fund to the Board on a quarterly basis.*

Staff provided quarterly risk reports on the Total Fund to the Board showing forecast total risk and active contribution by asset class as well as by factor risks across the portfolio. The total risk decomposition by asset class focused on their role in the Total Fund. Total risk decomposition by factors focused on cross factor exposures, especially equity factors among the asset class portfolios as equity factors are the main risk drivers of the Total Fund. Active risk decomposition showed risk contribution from investment implementation, which is comprised of active allocation among the asset classes and active selection of strategies and securities.

- *Communicate asset class portfolios' risk with asset class investment officer(s) and discuss any potential changes of the portfolio structure on a quarterly basis.*

Staff discussed the risk profile of asset class portfolios with each asset class team. The discussion was focused on i) trend and level of forecast risks, ii) the portfolio's risk structure in terms of manager line-up and factor tilts, and iii) the portfolio's sensitivity to market movements. The discussions assisted each asset class team in monitoring their portfolio's structure and risks and uncovering unintended risk tilts to be mitigated.

- *Provide return attribution analyses of the Total Fund and asset classes of the Fund to the Investment Strategy Team.*

Staff reported monthly return attribution analyses of the Total Fund, analyzing effects of active weights and active performance of each asset class on the Total Fund's alpha generation. The analyses were presented to the Investment Strategy Team. Staff also delivered to the Investment Strategy Team attribution reports of each asset class portfolio analyzing the contribution of each account within an asset class.

- *Perform other portfolio and market analyses and research as needed.*

PORTFOLIO STRATEGY - Investment Risk Management & Analytics

Staff conducted analyses of Total Fund liquidity. Staff also conducted portfolio and market analyses as needed or upon request.

FY2025 OBJECTIVES
Staff will focus on the following objectives in FY2025:

- Provide risk forecasts and analyses of the Total Fund and asset class portfolios.
- Report risk of the Total Fund to the Board on a quarterly basis.
- Communicate asset class portfolios' risk with asset class investment officer(s) and discuss any potential changes of the portfolio structure on a quarterly basis.
- Provide return attribution analyses of the Total Fund and asset classes of the Fund to the Investment Strategy Team.
- Continue to develop expertise in investment risk analytics and understanding of all asset classes.
- Perform other portfolio and market analyses and research as needed.

Investment Operations

The Investment Operations area is responsible for managing administrative activities for the Investment department, assisting the CIO and investment officers, and providing reports and information to Staff and the Board. The objectives for FY2025 remain consistent with those of FY2024 as these broad categories reflect the primary duties of Investment Operations.

REVIEW OF FY2024 OBJECTIVES AND IMPLEMENTATION
The FY2024 Annual Investment Plan objectives and related activities are as follows:

- *Coordinate, assist, and participate in organizational initiatives including annual Policy review; Information Governance project; fiscal budget; Subject Matter Experts (SMEs); and Emergency Response Program (ERP).*

Investment Operations assisted with the annual review and revisions to the Investment Department Policies and participated in the system-wide Information Governance Project to create a new SharePoint 365 Investments library, migrate existing electronic files, assign retention schedules and reclassify electronic fund manager agreements to ensure they were properly stored per SERS' retention schedules. Staff prepared and analyzed the fiscal budget for executive approval as well as participated in and provided feedback in relation to SME Communications and ERP activities.

- *Perform administrative duties and attend meetings for the Investment Committee, Strategy Team and Board meetings including establishing meeting dates and agendas, organizing, and distributing documents to team members, producing reports, and taking minutes.*

Operations attended all Investment Committee, Strategy Team, and Board meetings. Agendas and documents were prepared and distributed, minutes taken and distributed in a timely manner. Staff assisted with processing documents associated with hiring, termination, and redemption of managers.

- *Assist with projects for the CIO and Investment officers including revising the Annual Investment Plan, updating the Statement of Investment Policy as needed, searches for Investment managers, and aiding with special projects for Staff.*

Operations coordinated revisions and produced the FY2024 Annual Investment Plan, the amended Statement of Investment Policy, and assisted with manager searches throughout the fiscal year.

FY2025 OBJECTIVES
Staff will focus on the following objectives in FY2025:

- Hire and train a new Administrative Assistant to fill a vacancy created by the retirement of the Investment Operations Manager and promotion of the Sr. Administrative Assistant.

- Coordinate, assist, and participate in organizational initiatives including annual Policy review; Information Governance project; fiscal budget; Subject Matter Experts (SMEs); and Emergency Response Program (ERP).

- Perform administrative duties and attend meetings for the Investment Committee, Strategy Team and Board meetings including establishing meeting dates and agendas, organizing, and distributing documents to team members, producing reports, and taking minutes.

- Assist with projects for the CIO and Investment officers including revising the Annual Investment Plan, updating the Statement of Investment Policy as needed, searches for Investment managers, and aid with special projects for Staff.

Implementation Guidelines

IMPLEMENTATION GUIDELINES - Global Equities

I. ROLE

The role of Global Equities is to earn the equity risk premium over US Treasury bonds by investing in common stock of publicly listed companies.

II. ASSET ALLOCATION

	Total Fund Target	Range	
		Minimum	Maximum
Global Equities	40%*	35%	45%

**Interim Target 41% from October 1, 2023, to December 31, 2024*

Global Equities is divided into two portfolios as follows:

Global Equities – Global Composite: Managers invest in securities from across all regional markets of the world including US, Non-US Developed Markets and Emerging Markets. This composite is benchmarked to the MSCI All Country World Net Total Return Index (MSCI ACWI).

Global Equities – Regional Composite: Managers invest in securities of assigned regional markets only. Staff manages the regional market allocation versus the MSCI ACWI. This composite is benchmarked to the MSCI ACWI. Typical benchmarks utilized within the regional market mandates are:

- US Equity: Russell 3000 Index
- Non-US Equity Developed Market: MSCI World ex-USA Net Total Return Index (USD)
- Non-US Equity Emerging Market: MSCI Emerging Markets Net Total Return Index (USD)

III. BENCHMARK:

The Global Equities benchmark is the MSCI All Country World Net Total Return Index (USD).

IV. PERFORMANCE OBJECTIVE

The annualized return objective, net of management fees, for the Global Equities portfolio is 40 basis points over the MSCI ACWI.

V. PORTFOLIO DESIGN AND CONSTRUCTION:

The *Global Composite* portfolio is constructed with global mandates which select securities from across the world, making discretionary decisions between US, Non-US Developed Markets and Emerging Markets. This is a 100% active portfolio.
The *Regional Composite* portfolio is constructed using a multi-manager line-up of US, Non-US Developed and Emerging Market mandates and a combination of active and passive strategies to deliver risk-adjusted performance relative to respective benchmarks. Portfolio design will consider risk/return characteristics, manager count and investment management fees.

The Global Equities portfolio may employ economic leverage via portfolio alpha overlay strategies where the equity market beta is derived from invested derivatives and the alpha is derived from an active market neutral strategy or an uncorrelated active manager. The leverage employed will be within the allowed Total Fund leverage parameters and portfolio tracking error will be maintained within stated ranges in Section VII. Risk Management.

PERMISSIBLE INVESTMENTS

Security Type	US Equity Portfolio	Non-US Equity Portfolio
Common Stock	Y	Y
Stock Treated as Common Stock	Y	Y

Cash / Treasuries	Y	Y
Preferred Stock	Y	Y
Convertible Rights	Y	Y
Warrants	Y	Y
Depository Receipts	Y	Y
REITS	Y	Y
Rule 144a Issues	Y	Y
Private Placement	Y	Y
IPOs	Y	Y
Commingled Funds	Y	Y
Exchange Traded Funds	Y	Y
Derivatives	Y	Y
Currency	N	Y
Country Funds	N	Y

VI. RISK MANAGEMENT

	Active Risk Target
Global Equity – Global Composite	Tracking Error of 3.0% with a range of 3.0% to 7.0%
Global Equity – Regional Composite	Tracking Error of 1.5% within a range of 0.50% to 2.5%

Below are the guidelines for the *Global Equity – Regional Composite* Portfolio:

US Equity Implementation Guidelines			
	Investment Benchmark	**Global Equity Target Allocation**	**Permissible Range**
US Equity Allocation	Russell 3000 Index	MSCI ACWI US Allocation	+/- 10%
Portfolio Structure			
Capitalization			
Large Cap Equity	Russell 1000 Index	Neutral to BM	+/- 5%
Large Cap Active	Manager Specific	-	0% - 30%
Large Cap Passive	Russell 1000 Index	-	70% - 100%
Small Cap Equity	Russell 2000 Index	Neutral to BM	+/- 10%
Small Cap Active	Manager Specific	100%	N/A
Style			
Growth	Manager Specific	Neutral to BM	+/- 5%
Value	Manager Specific	Neutral to BM	+/- 5%

Factors such as currency, sector and country limits are manager specific and outlined in each manager's Investment Guidelines. Aggregate portfolio characteristics such as P/E, B/P, yield, size, etc., shall be within a reasonable range of the US equity benchmark.

IMPLEMENTATION GUIDELINES - Global Equities

Non-US Equity Implementation Guidelines			
	Investment Benchmark	**Global Equity Target Allocation**	**Permissible Range**
Non-US Equity Developed Markets	MSCI World ex-USA Net Total Return Index (USD)	MSCI ACWI Non-US Developed Market Allocation	+/- 7%
Non-US Equity Emerging Markets	MSCI Emerging Markets Net Total Return Index (USD)	MSCI ACWI Emerging Market Allocation	+/- 7%
Broad Market Exposure			
Developed Markets Active	Manager Specific	--	75-100%
Developed Markets Passive	MSCI World ex US Index ($net)	--	0-25%
Emerging Markets Active	Manager Specific	100%	+/- 5%
Portfolio Structure			
Capitalization			
Large Cap Equity	Manager Specific	BM Weight	+/- 10%
Small to Mid-Cap Equity	Manager Specific	BM Weight	+/- 10%
Small Cap Equity	Manager Specific	BM Weight	+/- 10%
Micro Cap Equity	Manager Specific	BM Weight	+/- 5%
Style			
Growth	Manager Specific	Neutral to BM	+/- 10%
Value	Manager Specific	Neutral to BM	+/- 10%

Factors such as currency, sector and country limits are manager specific and outlined in each manager's Investment Guidelines. Aggregate portfolio characteristics such as P/E, B/P, yield, size, etc., shall be within a reasonable range of the Non-US developed and emerging market equity benchmarks.

IMPLEMENTATION GUIDELINES – Global Private Equity

I. ROLE

SERS invests in Private Equity to provide returns in excess of those provided by publicly-traded equities to compensate for private equity's liquidity and concentration risk.

II. ASSET ALLOCATION

The Private Equity target asset allocation is established with periodic asset allocation studies. The most recent asset allocation study authorized a 14% allocation target to Private Equity with a range of 11%-17%.

III. BENCHMARK

Private Equity performance is benchmarked to the Burgiss All Private Equity benchmark, one quarter in arrears.

IV. PERFORMANCE OBJECTIVE

The performance objective for Private Equity is to provide net returns in excess of the Burgiss All Private Equity Benchmark by 150 basis points. Over time periods of five years and longer Private Equity net returns are expected to exceed SERS Global Equity portfolio by 2%.

V. PORTFOLIO DESIGN AND CONSTRUCTION

Capital allocation among the various market segments is a critical driver for the long- term success of the Private Equity portfolio. Capital allocation risk is controlled in a portfolio structure incorporating long-term sub asset target allocations.

Long-term sub-asset target exposure is detailed below:

	Range	
	Minimum	**Maximum**
Buyout		
Small/Middle	50%	70%
Large/Mega	5%	25%
Total Buyout	55%	95%
Venture Capital	0%	10%
Special Situations	5%	25%
Total		
Domestic	55%	95%
International	5%	45%
Total		
Primary Commitments	75%	100%
Fund of Funds	0%	15%
Co-Investments	0%	25%
Total		

The portfolio is tilted toward buyout investments. There is no target allocation to venture capital due to higher risk and manager selection issues, however, there may be opportunistic allocations to venture capital up to 10% of the portfolio as shown in the accompanying table. Within buyouts, the preference is for small and middle market managers with a significant value creation approach and de-emphasizes larger firms with a financial engineering approach.

IMPLEMENTATION GUIDELINES – Global Private Equity

VI. PERMISSIBLE INVESTMENTS

Investment Structure	
Limited Partnership Interests	Y
Discretionary Managers investing in Private Equity Partnerships	Y
Co-Investments	Y
Separate Accounts	Y

Investment Type	
Buyouts	Y
Venture Capital	Y
Special Situations (secondary interests, distressed debt or equity, mezzanine, co-investments, energy, etc.)	Y

Buyout
<u>Net Expected Return 10-15%, Moderate Risk</u>
Capital is typically invested in more established companies, those further along the business life cycle having relatively predictable cash flows and the ability to raise capital along the entire capital structure, including secured and unsecured debt. Buyouts are targeted to represent 75% of the Private Equity portfolio.

Venture Capital
<u>Net Expected Return: 15-25%, High Risk</u>
Venture capital equity is targeted at companies in the earliest phases of a business life cycle. Companies may be classified as seed, early, middle and late stage and are characterized by their inability to access public equity and other forms of capital such as secured and unsecured debt. These companies have uncertain revenues and a need for cash to build their businesses and are subject to high failure rates. Venture capital is targeted to represent 0% of the portfolio.

Special Situations
<u>Net Expected Return: 10-20%, Moderate Risk</u>
Many private equity opportunities have characteristics of buyout or venture capital but have enough differences as to require separate classification. These investments include energy, distressed debt, mezzanine, opportunity, and secondary funds. Special situations is targeted to represent 25% of the portfolio.

Co-Investments
<u>Net Expected Return: 15-20%, Moderate Risk</u>
Co-Investments are direct investments in a single asset of a multi-asset fund, made alongside the Fund's investment in the asset. Typically, co-investments are offered on more attractive economic terms and shorter time frames than those of the Fund. Co-Investments are targeted to represent up to 10% of the portfolio.

VII. RISK MANAGEMENT

The primary risk management tool in private equity is industry diversification as well as extensive due diligence of prospective investments. Monitoring is managed through a combination of quantitative and qualitative constraints. The following sections identify the most significant risks with private equity investments and the method of control.

Liquidity Risk
Private equity investments are illiquid and typically have expected holding periods of 10-12 years. Investments are typically held until maturity and selling prior to maturity typically results in a discount to fair market value. Liquidity risk is managed by minimizing the possibility of forced sales that may arise from exceeding maximum exposure limits or lowering asset allocation exposure limits.

Geographic Risk
Geographic risk is controlled through a long-term international target exposure of 25% by market value.

IMPLEMENTATION GUIDELINES – Global Private Equity

Vintage Risk
Vintage reflects the year of first capital draw and vintage risk refers to the variability of private equity commitments over time. The investment-pacing model controls the short and long-term private equity commitment amounts and attempts to minimize vintage risk while achieving targeted exposure. Commitments will be dependent on the availability of investments that meet SERS' investment criteria and will not be driven by the target investment pace in any given year.

Manager Risk
Manager risk consists of two elements, managing the exposure within a partnership and controlling the number of general partners in our private equity portfolio. Partnership exposure is controlled by limiting the commitment size within a partnership and the maximum commitment to a partnership will be 25% of a fund's size. The 25% limit does not apply to funds committed to a discretionary manager or a separate account. The maximum market value exposure to a single manager is targeted to be less than 20% of the portfolio. The optimum number of general partners in the portfolio varies with time.

Firm Risk
Firm risk is the exposure to a private equity general partner and is controlled by limiting the maximum commitment to funds operated by a general partner and its affiliates.

Currency Risk
The Private Equity program accepts the currency risks consistent with the geographic constraints. Private equity partnerships generally do not hedge currency risk and the private equity program will not implement currency hedges.

Industry Risk
Typically, private equity partnerships are permitted to invest in a wide variety of industries. Industry risk is controlled primarily through appropriate diversification across classes and subclasses.

Leverage Risk
General partners invest capital from private equity partnerships throughout the capital structure of firms. The capital markets control the maximum leverage available to the general partners and limited partners control leverage exposure through partnership selection and portfolio construction.

IMPLEMENTATION GUIDELINES – Global Fixed Income

I. ROLE

The primary role of diversified fixed income is to reduce the overall risk of the investment plan. Fixed income securities should provide stable income returns through yield-oriented assets. Fixed income provides risk reduction through lower correlations to the investment program.

II. ASSET ALLOCATION

The Global Fixed Income allocation is established with periodic asset allocation studies. The most recent asset allocation study authorized an 18% market value exposure to Global Fixed Income with a range of 13%-23%.

III. BENCHMARK

Global Fixed Income performance is benchmarked to the Bloomberg US Universal Bond Index.

IV. PERFORMANCE OBJECTIVE

The annualized return objective for the Global Fixed Income portfolio is 60 basis points net of fees above the benchmark and is comprised of the following strategies:

Strategy	Expected Excess Return	Tracking Error	Benchmark
Core	20 basis points	N/A	Bloomberg US Aggregate Bond Index
Core Plus	60 basis points	N/A	Bloomberg US Universal Bond Index
Tactical & Diversifying	200 basis points	N/A	Bloomberg US Universal Bond Index
Total Portfolio	60 basis points	0 – 5%	Bloomberg US Universal Bond Index

V. PORTFOLIO DESIGN AND CONSTRUCTION

SERS seeks to obtain broad fixed income market exposure to gain diversification while receiving income. The portfolio is 100% externally managed in active strategies, in broad mandates of core, core plus, and Tactical & Diversifying strategies. Core mandates invest primarily in benchmark type securities and exposures. Core sector weightings can deviate from the benchmark, depending on the external manager’s market views and strategies. Core plus mandates allow investments in all sectors of the Bloomberg US Aggregate Bond Index with additional allocations to the extended sectors of high yield, Non-US debt and emerging market debt. The Tactical & Diversifying sector invests in return seeking or diversification enhancing strategies and can provide high excess returns. The strategy invests in all sectors of the index in addition to emerging market debt, high yield, and long/short credit.

The portfolio may employ economic leverage to obtain benchmark or sector exposure to enhance the excess return of the portfolio. The leverage employed will be within the parameters of the Total Fund leverage policy and portfolio tracking error will be maintained within the range stated in Section IV.

Below are the current sector exposure limits:

Strategy	Range	
	Minimum	Maximum
Core	30%	70%
Core Plus	25%	50%
Tactical & Diversifying	0%	20%

VI. PERMISSIBLE INVESTMENTS

Security Type	Core	Core Plus	Tactical & Diversifying
Governments			
US Treasuries, TIPS and Agencies	Y	Y	Y
Sovereigns/Quasi-Sov. In US $	Y	Y	Y
Sovereigns/Quasi-Sov. In local currency	N	Y	Y
Corporates			
US Corporates	Y	Y	Y
Non-US Corporates in US $	Y	Y	Y
Non-US Corporates in local currency	N	Y	Y
High Yield	N	Y	Y
Bank Loans	N	Y	Y
Structured Credit			
Mortgages	Y	Y	Y
Asset Backed	Y	Y	Y
Collateralized Loan Obligations	N	Y	Y
Other			
144 (A)s	Y	Y	Y
Commingled Funds	Y	Y	Y
Convertibles	N	Y	Y
Currency	N	Y	Y
Derivatives	Y	Y	Y
Equity	N	Y	Y
Exchange Traded Funds	Y	Y	Y
Money Markets	Y	Y	Y
Municipals	Y	Y	Y
Repurchase Agreements	Y	Y	Y

VII. RISK MANAGEMENT

For strategies held in separate accounts, the following risk factors are controlled through limits specified in each manager's Investment Manager Agreement (IMA) and Investment Guidelines. Duration, sector, and credit risk are reviewed on a total portfolio basis quarterly by SERS:

Interest Rate
Controlled by duration band limits around the benchmark duration.

Yield Curve Risk
Controlled by duration band limits around the benchmark duration.

Sector Risk
Riskier sectors like high yield, non-US, non-agency mortgages and CMBS are controlled around set limits with each individual manager. Portfolios are allowed 25% maximum exposure to any one industry.

Credit Risk
Portfolios must maintain a minimum exposure to investment grade securities. In addition, each manager of individual portfolios has an established average weighted credit quality that must be maintained at all times.

IMPLEMENTATION GUIDELINES – Global Fixed Income

Currency Risk
Currency is not hedged at the overall portfolio level. Managers who demonstrate skill are allowed to purchase non-US securities on a hedged or unhedged basis or take direct currency positions without owning securities.

Issuer Risk
Issuer limits are specified in each IMA investment guidelines.

Liquidity Risk
Accounts have a maximum 144(A) limit without registration rights.

Active Risk
Normal tracking error is expected to be 2-4% over any rolling three-year time horizon. During periods of increased volatility, tracking error should not exceed 5% over any rolling three-year time horizon.

IMPLEMENTATION GUIDELINES – Global Private Credit

I. ROLE

The role of SERS' Private Credit portfolio is to provide risk adjusted returns in excess of those provided by publicly traded fixed income securities and to generate a consistent cash yield.

II. ASSET ALLOCATION

SERS' Statement of Investment Policy sets the private credit target allocation at 5%, with a range of 3% to 7%.

III. BENCHMARK

The private credit benchmark is the 90-day Treasury bill rate + 4.5%, one quarter in arrears.

IV. PERFORMANCE OBJECTIVE

The performance objective of the Private Credit portfolio is to provide net returns of 100 basis points above the policy benchmark and to outperform the SERS Global Fixed Income portfolio over time periods five years and longer, with the income component of the return comprising a significant portion of the total return.

V. PORTFOLIO DESIGN AND CONSTRUCTION

The Private Credit portfolio is designed to gain exposure to various aspects of the private credit market with a focus on consistent income generation. It is expected that a greater portion of the Private Credit portfolio will be allocated to direct lending investments with higher expected cash yields.

Long-term sub asset target exposure is detailed below:

		Range	
	Target	**Minimum**	**Maximum**
Direct Lending	80%	60%	100%
Mezzanine	0%	0%	10%
Stressed/Distressed	10%	0%	15%
Asset Based Lending/Other	10%	0%	15%
Total	100%		
Domestic	60%	40%	85%
International	40%	15%	60%
Total	100%		
Primary Commitments	100%	80%	100%
Secondaries	0%	0%	10%
Co-Investments	0%	0%	10%
Total	100%		

The portfolio is tilted toward direct lending investments and does not have a target allocation to mezzanine due to the structure of investments typically containing a less predictable cash income component than direct lending.

VI. PERMISSIBLE INVESTMENTS

Investment Structure	
Limited Partnership Interests	Y
Co-Investments	Y
Separate Accounts	Y

Investment Type	
Direct Lending	Y
Mezzanine	Y
Stressed/Distressed	Y
Asset Based Lending/Other	Y

Direct Lending
Net Expected Return: 8-12%, Moderate Risk
Direct Lending represents loans made directly to small to medium size companies; secured by assets/cash flows/contracts, etc. depending on the type of loan. Direct Lending is targeted to represent 80% of the Global Private Credit portfolio.

Mezzanine
Net Expected Return: 10-15%, High Risk
Mezzanine debt is subordinated to senior loans and typically is structured as an unsecured fixed or floating rate loan with an equity component. Mezzanine is targeted to represent 0% of the Global Private Credit portfolio.

Stressed/Distressed
Net Expected Return: 12-25%, High Risk
Stressed/Distressed debt represents loans made to companies that are financially stressed and/or are likely to go through restructuring/bankruptcy. These investments typically have longer holding periods where the lender sometimes is seeking to take control of the company. Stressed/Distressed is targeted to represent 10% of the Global Private Credit portfolio.

Asset Based Lending/Other
Net Expected Return: 10-15%, Moderate Risk
Asset Based Lending/Other includes investments collateralized by financial and hard assets, as well as cash flows generated from differentiated sources other than traditional corporate lending backed by cash flows. These types of investments are typically shorter in duration and may include auto loans, real estate loans, consumer loans, litigation finance, leasing, royalties, portfolio finance, and various other types. Asset Based Lending/Other is targeted to represent 10% of the Global Private Credit portfolio.

VII. RISK MANAGEMENT

The primary risk management tool in private credit is extensive due diligence of prospective investments and diversification. The following sections identify the most significant risks of private credit investments and the method of control.

Credit Risk
Credit risk is the primary risk associated with the asset class. Thorough due diligence of investments will be completed to ensure the general partners have sufficient measures in place to monitor and assess the risks involved with underlying investments, as well as the capabilities to structure loans with adequate covenants to protect the lender.

Interest Rate Risk
Interest rate risk is inherent within the Private Credit portfolio since investments are typically structured as floating rate credit instruments and interest rates will fluctuate over time. The risk is managed by the general partners through the structuring process to ensure appropriate interest rate floors and other measures are in place to manage an acceptable level of interest income.

Liquidity Risk
Private credit investments are illiquid but have shorter holding periods than other private security types, with 3 – 5 years being a typical holding period. Investments are typically held until maturity and selling prior to maturity typically results in a discount to fair market value. Liquidity risk is managed through the portfolio construction process by limiting the amount of exposure to more illiquid areas of private credit, such as distressed debt.

Geographic Risk
International exposure refers to non-US investments and is limited to 60% of the portfolio.

Vintage Risk
Vintage reflects the year of first capital draw and vintage risk refers to the variability of private credit commitments over time. The investment-pacing model controls the short and long-term private credit commitment amounts and attempts to minimize vintage risk while achieving targeted exposure. Commitments will be dependent on the availability of investments that meet SERS' investment criteria and will not be driven by the target investment pace in any given year.

Manager Risk
Manager risk consists of two elements, managing the exposure within a partnership and controlling the number of general partners in the Global Private Credit portfolio. Partnership exposure is controlled by limiting the commitment size to 25% of the aggregate commitments to the partnership or master fund if more than one feeder vehicle exists. The 25% limit does not apply to funds committed to a discretionary manager or a separate account. The maximum market value exposure to a single manager is targeted to be less than 35% of the portfolio. The optimum number of general partners in the portfolio varies with time.

Firm Risk
Firm risk is the exposure to a private credit general partner and is controlled by limiting the maximum commitment to funds operated by a general partner and its affiliates.

Currency Risk
The Private Credit program does not hedge currency risk and relies upon its external managers to determine if such hedges are appropriate. Currency risk will be managed through geographic exposure limits, as shown above under geographic risks.

Industry/Sector Risk
Typically, private credit partnerships are permitted to invest in a wide variety of industries and sectors. Industry/Sector risk is controlled primarily through appropriate diversification across classes and subclasses.

Leverage Risk
The capital markets control the maximum leverage available to the general partners and limited partners control leverage exposure through partnership selection and portfolio construction. Leverage at an individual fund level is managed through the portfolio construction process.

Valuation Risk
The valuation frequency for private credit is dependent upon the external managers' internal and external valuation policies, which are reviewed during the operational due diligence process.

IMPLEMENTATION GUIDELINES – Global Real Assets

I. ROLE

The role of SERS' Global Real Assets portfolio is to provide a stable income return from tangible assets, to be a partial inflation hedge over the long term and to provide low correlation to equities.

II. ASSET ALLOCATION

SERS' Statement of Investment Policy sets the global real estate target allocation at 13%, with a permissible range of 10-15%, and the global infrastructure target allocation at 7%, with a permissible range of 5-10%.

III. BENCHMARK

The global real estate benchmark is the NCREIF Property Index (NPI), one quarter in arrears. The global infrastructure benchmark is quarterly (4 qtrs.) smoothed CPI + 1.2% (approximately CPI + 5%).

IV. PERFORMANCE OBJECTIVE

The performance objective for Global Real Assets is to produce net of fee returns that are 100 bps in excess of the benchmark over a market cycle, with the income component of the return comprising a significant portion of the total return. The benchmark is a 50/50 blend of NPI and CPI + 5%.

V. PORTFOLIO DESIGN AND CONSTRUCTION

Effective January 1, 2024, the Global Real Assets portfolio is segregated into real estate and infrastructure, with the small farmland investment combined with the real estate allocation. The Global Real Assets portfolio is designed to achieve the performance objective, to manage risks and to focus on the overall role of global real assets within the Total Fund. SERS' Global Real Assets Implementation Guidelines set the private market, public market and asset type exposures for Global Real Assets, as shown in the table below.

Strategy	Target	Range	
		Minimum	Maximum
Total Real Estate*	**13%**	**10%**	**15%**
Private Core Real Estate	*85%*	*70%*	*95%*
Private Non-Core Real Estate	*10%*	*0%*	*20%*
Listed REITs / ETFs	*3%*	*0%*	*10%*
Farmland	*2%*	*0%*	*5%*
Total Infrastructure*	**7%**	**5%**	**10%**
Private Core Infra	*80%*	*60%*	*90%*
Private Non-Core Infra	*20%*	*10%*	*30%*
Listed Infra ETFs	*0%*	*0%*	*5%*

**The rows below each asset class are meant to represent % of the Total.*
Example: Private Core Real Estate Target of 85% would represent 85% of the Total Real Estate target of 13%.

Core real estate investments include substantially leased or fully operational institutional quality properties or projects located in developed markets. The revenue streams from core real estate are generally long duration and comprise a majority of the asset's total return. Core real estate strategies are typically implemented through open-end commingled funds.

Non-core real estate investments include value-added and opportunistic strategies in which properties or projects are re-leased, re-developed, or newly constructed, particularly in developing or transitional markets. This strategy has a higher return expectation but has higher reliance on capital appreciation (vs income return). Non-core real estate strategies are typically implemented through closed-end commingled funds.

Private infrastructure typically involves the movement (and storage or housing) of goods, people, water, energy, and communication signals. The sectors include, but are not limited to, power (including renewables), energy, utilities, transportation, communication, and social infrastructure sectors. Infrastructure revenue streams are typically long-dated, contractual and inflation linked. Private infrastructure is implemented through both open and closed end commingled funds, as well as co-investments.

Public market real assets are securities of companies whose primary source of revenue comes from the operation of tangible assets, including, but not limited to, real estate (REITs), listed infrastructure, natural resources, and master limited partnerships. While more liquid in nature, public market real assets exhibit greater volatility than privately held real assets. Master limited partnerships, or MLPs, are publicly traded limited partnerships that derive most of the partnership's cash flows from infrastructure and natural resource assets. The advantage of an MLP is that it combines the tax benefits of a limited partnership with the liquidity of a publicly traded company.

Private Farmland investments include annual row and permanent crops located throughout the United States. Core farmland will be substantially leased on long term contracts to top quality growers. Core farmland provides a strong income stream that will comprise the majority of the total return. Core farmland strategies are typically implemented through open-end funds.

Over time, Staff intends to judiciously increase exposure to co-investments in infrastructure and real estate through underwriting of individual assets as well via programmatic sidecar vehicles.

VI. PERMISSIBLE INVESTMENTS

The underlying investments included in the Global Real Assets portfolio generally are tangible assets, have long term investment horizons or holding periods, produce attractive income returns and cash yields and provide a partial inflation hedge over the long term. Permissible investment structures and types are as follows.

Investment Structure and Type	
Limited Partnership Interests	Y
Co-Investments	Y
Separate Accounts	Y
Commingled Funds	Y
Secondaries Vehicles	Y
Secondary Transaction of Real Assets Funds	Y
Joint Ventures	Y
Real Estate Operating Companies (REOCs)	Y
Private Real Estate Equity and Debt	Y
Real Estate Investment Trusts (REITs)	Y
Exchange Traded Funds	Y
Private Infrastructure Equity and Debt	Y
Public Infrastructure Securities and MLPs	Y
Natural Resources and Commodities	Y

VII. RISK MANAGEMENT

Qualitative constraints and quantitative measures are used to manage risk in the Global Real Assets portfolio. The following sections identify the most significant risks with real asset investments and the method of control.

Real Estate Life Cycle Risk
Life cycle risk refers to the stage of an investment's life and generally falls into two categories, operating and non-operating investments. Operating investments are those that are leased or functioning at a level in which the contractual cash payments are supporting operations. Non-operating investments are those in pre-development, construction, conversion, or in a stage of major releasing. A significant portion of the private market real assets portfolio will be in operating investments in order to achieve Global Real Assets' role of providing income.

	Operating	Non-Operating
Target Exposure	≥85%	≤15%

Real Estate Property Type Risk
Property type risk refers to the level of exposure of the major property type categories in the private market real estate portfolio relative to the NCREIF Property Index. Property type risk will be managed through portfolio design and the use of commingled funds. At least 80% of the private market real estate portfolio will be invested in the four primary property type categories including apartment, industrial, office and retail.

(as of December 31, 2023)	NCREIF Property Index	Range
Apartment	28%	15% - 45%
Industrial	35%	15% - 50%
Office	22%	5% - 30%
Retail	14%	5% - 25%
Subtotal	*99%*	*80% - 100%*
Niche/Other	<1%	5% - 25%
Total	100%	

Real Estate Geographic Risk
Geographic risk can be broken down into two segments: US regional exposure and non-US exposure. US regional exposure refers to the level of exposure in the four US regions in the private market real estate portfolio relative to the NCREIF Property Index.

(as of December 31, 2023)	NCREIF Property Index	Range
West	40%	20% - 50%
East	30%	20% - 45%
Midwest	6%	5% - 20%
South	24%	10% - 35%
Total	100%	

Infrastructure Sector Risk
Infrastructure sector risks refers to the level of exposure to the major infrastructure sectors in the private markets infrastructure portfolio. Sector risk will be managed through portfolio design and the use of commingled funds and co-investments.

(as of December 31, 2023)	Current Portfolio*	Range
Communications	13%	5% - 25%
Energy	26%	15% - 35%
Renewables / Sustainability	6%	0% - 15%
Social	5%	0% - 10%
Transportation	47%	25% - 60%
Utilities	3%	0% - 15%
Total	100%	

Infrastructure Geographic Risk
Infrastructure geographic risks is broken into the regional exposure of the private markets infrastructure portfolio. Geographic risks will be managed through portfolio design and the use of commingled funds and co-investments.

IMPLEMENTATION GUIDELINES – Global Real Assets

(as of December 31, 2023)	Current Portfolio*	Range
Asia-Pacific	8%	5% - 20%
Europe/U.K.*	35%	25% - 50%
Latin America	11%	5% - 20%
North America	44%	40% - 60%
Other	2%	0% - 5%
Total	100%	

*Approximately 1% in Eastern Europe

Global Real Assets Geographic Risk
Non-US exposure refers to the level of exposure of non-US investments in the total Global Real Assets portfolio. Non-US exposure will be limited to 35% of the private market portfolio.

Liquidity Risk
Private market real asset investments are illiquid, with both holding periods and commingled fund terms ranging from 7-10 years or longer. Liquidity risk will be managed through target allocations to private and public market real assets as well as vintage year diversification.

Leverage Risk
Private market real asset investments typically are acquired with a combination of equity capital and mortgage financing. The amount of leverage per asset or pool of assets depends on debt availability, property type, tenant quality, and asset life cycle. The amount of leverage and financing terms ultimately are the responsibility of SERS' external real asset managers and are governed and constrained by partnership agreements. The leverage maximum for the total private market real assets portfolio is 50% of the gross asset value of the private market real assets portfolio. Leverage risk will be managed through target allocations and portfolio design.

Currency Risk
The Global Real Assets program does not hedge currency risk and relies upon its external managers to determine if such hedges are appropriate. Currency risk will be managed through geographic exposure limits, as shown above under geographic risks.

Valuation Risk
The valuation frequency for private market real assets is dependent upon the external managers' internal and external valuation policies, which are reviewed during the operational due diligence process.

Manager Concentration Risk
A single manager utilizing core strategies shall not constitute more than 25% of the net assets of the Global Real Assets program. For non-core strategies, a single fund commitment shall not constitute more than 10% of the net assets of the Global Real Assets program and a single manager with multiple fund commitments, including co-investments, shall not constitute more than 20% of the net assets of the Global Real Assets program.

IMPLEMENTATION GUIDELINES – Cash Equivalents & Securities Lending

I. ROLE

Short-Term Cash should provide liquidity for funding investment capital calls and operational expenses. Cash should be invested in conservative, low risk securities/funds to preserve capital for future expenditures and investments.

II. ASSET ALLOCATION

The Cash allocation is established with periodic asset allocation studies. The most recent asset allocation study authorized a 3% exposure to cash with a range of 1%-5%.

III. BENCHMARK

The Short-Term cash benchmark is the FTSE 30 Day Treasury Bill.

IV. PERFORMANCE OBJECTIVE

The annualized return objective for the Short-Term portfolio is five basis points net of fees over the benchmark.

V. PORTFOLIO DESIGN AND CONSTRUCTION

The Cash portfolio is designed with preservation of capital in mind. A cash balance of one to three months of expenditures is usually maintained. A higher allocation to cash may also be used to preserve capital in volatile markets. The average weighted maturity of the portfolio will not exceed 20 days.

Risk is constantly assessed before investment purchases are made in the portfolio. Only top tier commercial paper is purchased. Money market holdings are also reviewed on a regular basis along with choosing a top tier money market provider with a deep credit analyst team and whose short-term investments are important to the organization.

The Securities Lending program is designed to be a low risk, intrinsic value focused strategy that can generate additional income for the system. The program is implemented through a third-party lending agent and collateral reinvestment manager. Separately, additional securities lending income is earned by the commingled passive global equity accounts.

VI. PERMISSIBLE INVESTMENTS

Security Type	
US Treasury Bills	Y
Commercial Paper rated A-1/P-1 or higher	Y
Money Market Funds rated at least A-1/P-1	Y
Unrated Market Funds comparable to an A-1/P-1 equivalent fund	Y
Tri-Party Repurchase Agreements	Y

VII. RISK MANAGEMENT

Liquidity Risk
The weighted average maturity shall not exceed 20 days. All money market funds must provide daily liquidity.

Credit Risk
A commercial paper issuer must be on the approved credit list or approved by the Chief Investment Officer before purchasing. Market and issuer news are reviewed daily by the Senior Investment Officer – Global Fixed Income. Money market funds must regularly send a holdings report to SERS, where it is reviewed on a regular basis.

Issuer Risk
Single issuer commercial paper investments are limited to $20 million. Related entity commercial paper investments are limited to the lower of 30% of the short-term account or $40 million. Overnight commercial paper issuer maturities are limited to $50 million.

IMPLEMENTATION GUIDELINES – Cash Equivalents & Securities Lending

Securities Lending Risk

All loans will be collateralized with cash at 102% for US securities and 105% for non-US securities and marked-to-market daily. Collateral will be reinvested in government money market funds and/or repurchase agreements. Loans on fixed income securities will be subject to a ten-basis point minimum spread requirement at loan initiation. Loans to approved borrowers will be limited to 25% of the average monthly market value on loan for the prior calendar year.

IMPLEMENTATION GUIDELINES – Opportunistic & Tactical

I. ROLE

The role of SERS' Opportunistic portfolio is to provide net of fee returns of 100 basis points above the Bloomberg US Aggregate Bond Index + 2% by investing in assets and strategies that do not fit within the existing asset classes. The investments are defined as tactical or non-traditional investment opportunities.

II. ASSET ALLOCATION

SERS' Statement of Investment Policy sets the opportunistic target allocation at 0%, with a range of 0%-5%.

III. BENCHMARK

The Opportunistic benchmark is the Bloomberg US Aggregate Bond Index + 2%.

IV. PERFORMANCE OBJECTIVE

The performance objective of the Opportunistic portfolio is to provide net of fee returns of 100 basis points above the benchmark, with a meaningful component of the total return coming from current income.

V. PORTFOLIO DESIGN AND CONSTRUCTION

The Opportunistic portfolio may consist of a wide variety of investment types, structures and strategies targeting cash yield as well as price appreciation. Investment strategies include separate accounts, commingled funds, ETFs, co-investments, and derivatives.

VI. PERMISSIBLE INVESTMENTS

Permissible investments include, but are not limited to, common stock, preferred stock, debt securities, currencies, commodities, exchange traded funds, etc.

VII. RISK MANAGEMENT

Leverage Risk
Leverage will be prudent for the given strategy and consistent with the fund's offering memorandum.

Liquidity Risk
Liquidity will be monitored regularly to ensure the portfolio can be traded or rebalanced within a reasonable timeframe. Liquidity risk will be managed through target allocations to private and public market assets as well as through portfolio design.

Currency Risk
The Opportunistic portfolio does not directly hedge foreign currency risk and relies upon its external managers to determine if such hedges are appropriate.

Valuation Risk
The valuation frequency for private market assets is dependent upon the external managers' internal and external valuation policies, which are reviewed during the operational due diligence process.

IMPLEMENTATION GUIDELINES – Overlay Program

I. ROLE

SERS invests in Overlay strategies that trade derivatives of the Total Fund's underlying asset exposures and currency exchange rates to enhance the Total Fund portfolio's efficiency. The Overlay program includes i) tactical asset allocation, and ii) active currency strategies.

The tactical asset allocation strategy aims to add value to the Total Fund performance through long and short positions based on short-term relative attractiveness of assets.

The active currency strategies aim to add value to the Total Fund on a risk-adjusted basis by employing long and short positions in various currency pairs based on relative attractiveness of the currencies. The strategies are expected to have low correlation to the major asset classes such as US equity and fixed income.

II. ASSET ALLOCATION

The target allocation of the tactical asset allocation and Currency program is 0% since long and short positions net out.

The tactical asset allocation program's notional exposure limit is +/-7% of the Total Fund to each of the following assets: US fixed income, US equity and Non-US equity. Since the tactical asset allocation positions are employed for short periods, the notional exposures are not subject to the policy asset allocation ranges set forth in the Statement of Investment Policy; however, the active risk contribution by the overlay program as a whole is subjected to the overall guideline on active risk for the management of the Total Fund specified in the Risk Management Policy.

The notional value of the active currency program is capped at 50% of the Non-US Equity portfolio's value.

III. BENCHMARK

The benchmark for the tactical asset allocation and Currency Overlay program is 0% since net exposure is 0%.

IV. PERFORMANCE OBJECTIVE

The Overlay program is expected to add 5 to 10 bps of excess return to the Total Fund's performance on a three to five year horizon.

V. PORTFOLIO DESIGN AND CONSTRUCTION

The mandates are unfunded. The Overlay strategies buy (long) or sell (short) futures or forwards contacts to get exposures to desired markets in order to exploit shifts in relative valuation of assets and currencies.

The tactical rebalancing strategy's net exposures, sum of long and short positions, are valued at zero on the initiating position time. Active currency strategies can go either net long or net short US dollar. Both tactical rebalancing and active currency aggregate portfolios are constructed to have no dependency on any single risk factor.

VI. PERMISSIBLE INVESTMENTS

Tactical asset allocation: equity, fixed income, commodity and precious metals futures and options on futures.

Currency Overlay: currency forwards, currency futures, gold forwards, gold futures, and limited currency options.

IMPLEMENTATION GUIDELINES – Overlay Program

VII. RISK MANAGEMENT

Counter-party risk management

- Futures and exchange traded options are traded at exchanges thus having default risk only to the clearinghouse while having no credit risk to trade counterparties.
- Forward contacts and over-the-counter options entail default risk of the counterparties. Counterparty risk of these contracts is managed through ISDA (International Swaps and Derivatives Association) and EMIR (European Market Infrastructure Regulation) umbrella agreements with managers.

Volatility management

- The tactical asset allocation program's tracking error range is 5 to 15 bps.
- All active currency strategies have targeted tracking error equal to or less than 8%; the aggregate active currency program's tracking error is expected to be in the range of 5 to 8%.

Liquidity

- The use of derivatives requires initial margin as well as daily variation margin for futures. Liquidity risk will be managed by ensuring that an adequate reserve of cash is available to meet margin requirements at all times.

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Glossary

GLOSSARY

Active Risk – see Tracking Error.

Alpha – the premium an investment portfolio earns above a certain benchmark (such as the Standard & Poor's 500 Index). A positive alpha indicates the investor earned a return in excess of the index return.

Asset Allocation – the practice of allocating a certain percentage of a portfolio between different types of investment assets, such as stocks, bonds, real estate, cash, etc. By diversifying among asset classes, it is expected to create a favorable risk/reward ratio for the portfolio.

Basis Point – one hundredth of one percent. For example, an addition of 40 basis points to a yield of 7.50 percent would increase the yield to 7.90 percent. Basis points are normally used when quoting yields or returns, alpha, or fees paid to investment managers.

Benchmark – a measurement or standard that serves as a point of reference by which portfolio performance is measured. Benchmarks must meet standard criteria.

Bloomberg US Aggregate Bond Index – a market capitalization weighted US bond index published by Bloomberg LLC. Most US traded investment grade bonds are represented in the index. The Bloomberg US Aggregate Bond Index was SERS' global fixed income policy benchmark through June 30, 2024.

Bloomberg US Universal Bond Index – a market capitalization index that consists of USD-denominated securities only. The index includes debt issued by the U.S. government and other government-related entities, residential and commercial mortgage-backed securities, investment grade and high yield bonds as well as debt from emerging market countries and other foreign issuers. The policy benchmark for the global fixed income portfolio switched from the US Aggregate index to the US Universal index on July 1, 2024.

Burgiss All Private Equity (BAPE) – BAPE is comprised of data from more than 5,000 private equity funds contributed by limited partners that are Burgiss clients and use Burgiss' web-based institutional portfolio management platform Private i. The benchmark data is sourced from Burgiss' limited partner clients and includes complete transactional and valuation history between the limited partner and their fund investments. Burgiss publishes a detailed breakdown of the dataset every quarter allowing for increased transparency.

Co-investment – a direct investment in a single asset of a multi-asset Fund, made alongside the Fund's investment in the asset; typically involves terms that are more attractive and with shorter time frames than those of the Fund.

Derivatives (Derivative Instruments) – financial instruments (securities or contracts) whose values are derived from underlying financial assets, indices, or other instruments. Derivative performance is based on the performance of assets, interest rates, currency exchange rates and various domestic and foreign indices underlying the instruments. The common forms of derivatives are forward, futures, swap, and options contracts.

Diversification – the method of reducing risk by distributing investment assets among a variety of investment securities which have different risk/ reward ratios.

Due Diligence – an investigation or audit of a potential or existing investment.

Equity Investment – claims held by the residual owners of a firm. May also be referred to as common stock. Investments in Real Estate and certain Private Markets classifications may also be considered equity.

Exchange Traded Funds (ETF) – publicly traded investment security that provides exposure to a basket of securities.

Fixed Income Investment – a security issued by a borrower that obligates the issuer to make specified payments to the holder over a specific period. May also be referred to as "debt" or "bonds."

FTSE 30 Day Treasury Bill – an index that measures the rate of return for 30-day US Treasury Bills, which are considered representative of the performance of Short-Term money market instruments. The FTSE 30 Day Treasury Bill is SERS' policy benchmark for Cash Equivalents.

GLOSSARY

Fund – fund means a limited partnership, trust or commingled investment vehicle in which SERS invests or may invest (e.g., private credit fund, private equity fund, or real estate fund).

Global Equities – reflects the consolidation of what had been treated by SERS as US Equity and Non-US Equity asset classes; includes equities of US and non-US origin, equities of various capitalizations (e.g., large cap, small cap, mid cap, etc.), equities from developed, emerging and frontier markets, growth and value equities and passive and active strategies. Investments in Global Equities strategies are made in accordance with established investment guidelines, and amended as necessary, by mutual agreement between the Chief Investment Officer and the Investment Consultant.

Guidelines – refers to an Investment Manager's "Investment Guidelines," established between the Investment Manager and Staff as part in an investment management agreement. Guidelines may be general or specific.

Investment Committee – a committee comprised of the Chief investment Officer and Investment Officers from SERS' Investment Department who possess the Ohio State Retirement System Investment Officer (SRSIO) license, with clearly defined structure, rules, and procedures for reviewing and approving investments in a timely and prudent fashion.

Investment Consultant – any consultant hired by the Board or by Staff to advise or assist with the Investment Program in accordance with the Statement of Investment Policy. Board investment consultants must be approved by the Board. Staff investment consultants shall be approved by the Executive Director.

Investment Manager – a manager or potential manager of SERS assets, both public market and private market. Includes, but is not limited to managers of equity, fixed income, private credit, private equity, real estate, commodities, and cash.

Investment Staff – members of the investment department of SERS, including the Chief Investment Officer, Investment Officers, and other department personnel.

Leverage – in investments, this is the control of a large amount of money by a smaller amount of money, such as buying on margin. In finance, this is the relationship of debt to equity on a company's balance sheet in the form of the debt/equity ratio.

Long a futures contract or a forward contract – buying exposure to the underlying assets of the contract without actually owing those assets. When the underlying assets deliver a positive return, the long position gains; when the underlying assets deliver a negative return, the reverse is true.

Morgan Stanley Capital International – All Country World Free ex-USA Index ($Net) – an equity index representing 44 developed and emerging countries. "Free" indicates the index reflects actual investable opportunities for global investors by taking into account local market restrictions on share ownership by foreigners. "Net" indicates that dividends are reinvested after the deduction of withholding taxes applicable to non-resident institutional investors. The MSCI-ACWI ex-USA Index, net of dividends reinvested is SERS' policy benchmark for Non-US Equities.

NCREIF Property Index (NPI) – a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. The NCREIF Property Index is a component of SERS' Global Real Estate Policy Benchmark.

Opportunistic and Tactical Investments – global opportunistic investments are tactical or non-traditional investment opportunities that may be short-term or may not fit within the generally accepted risk/return parameters of specific asset classes or strategy groupings. Such opportunities may involve capitalizing on short-term market dislocations or other such unique situations. Tactical investments may include strategies with dynamic allocations to single assets or across multiple asset types or other innovative approaches.

Options contract – a form of financial derivatives. In an options contract, two parties (buyer and seller) agree that the buyer, who pays an option premium to the seller, has the right to exercise an option whether to buy or sell a particular asset at a specified price at a specified future date.

Portfolio – a collection of investments owned, managed, or overseen by an individual or investment manager, a board, or an organization. Portfolio can mean a manager account or subset thereof (e.g., Goldman Sachs Core Plus account), an asset class (e.g., US Equity), or the entire fund (e.g., SERS' Total Fund).

Rebalancing – adjusting asset class or portfolio allocations relative to their targets or ranges to adjust for actual or anticipated market movements.

Russell 3000 Index – a market-value weighted equity index published by FTSE Russell. The index measures the performance of the 3,000 largest US companies in terms of market capitalization. The Russell 3000 Index is SERS' Domestic Equity Policy Benchmark.

Secondaries – pre-existing investor capital commitments to private funds that are purchased in the secondary market.

Securities Lending – the temporary loan of a security from an institutional investor's portfolio to a broker/dealer to support the firm's trading activities. Loaned securities are collateralized with cash at 102-105% of the loan exposure. The lender retains the entitlement to all the benefits of the loaned security, including dividends and interest, except the right to vote proxies. The lender has a right to recall the loan at any time.

Short a futures contract or forward contract – selling exposure to the underlying assets of the contract without transferring the ownership of those assets to the buyers. When the underlying assets deliver a positive return, the short position experiences losses; when the underlying assets deliver a negative return, the reverse is true.

Style – style refers to an investment product, strategy or style offered by an Investment Management Firm and reflects how the assets are invested. For example, value versus growth; core versus value added; quantitative versus fundamental; etc.

T-bill – refers to Treasury Bill. Staff utilizes the 90-day T-bill rate as a reference benchmark.

Total Fund – refers to SERS' total investment assets.

Tracking Error – standard deviation of the excess return of the portfolio relative to the Benchmark, often measured over rolling three-year periods.

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