Fiscal 2025
Investment Plan

June 20, 2024

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1. Purpose

The Investment Plan provides the fiscal 2025 outlook and strategy for the asset classes and total fund based on the State Teachers Retirement Board's long-term objectives and the forecasted capital market environment. Because the staff forecast is based on estimates of future economic conditions and returns, updates or modifications to the plan may be necessary. This will be communicated to the Retirement Board during the upcoming fiscal year as appropriate.

2. Fiscal 2025 Investment Plan Overview

FORECAST IN BRIEF		
	Fiscal 2025 Projected Ranges	Fiscal 2024 Forecast
Real Gross Domestic Product	1.5%–3.5%	3.2%
Real Personal Consumption	1.0%–3.5%	2.9%
Real Business Fixed Investment	(2.5%)–7.5%	2.8%
Housing Starts (millions)	1.20–1.65	1.43
Real Net Exports (billions)	($1400)–($800)	($948.5)
Consumer Price Index Ex Food & Energy	2.0%–5.0%	3.4%
S&P 500 Earnings	$255 15.9%	$220 5.8%
	Fiscal 2025 Projected Ranges	End of April 2024
Federal Funds Target Rate	3.50%–6.50%	5.375%
10-Year Treasury Note Yield	3.00%–6.00%	4.680%

ECONOMIC OVERVIEW

As global inflation declines further in fiscal 2025, most major central banks may cut policy interest rates. That will improve financial conditions and support global economic activity.

For the United States and elsewhere, some of the key points to the STRS Ohio economic forecast are:

- After growing 2.4% in fiscal 2023 and 3.2% in fiscal 2024, real (inflation-adjusted) gross domestic product (GDP) will advance at a 2.8% rate in fiscal 2025 — the third consecutive year of above-trend economic activity. Besides helping lift economic potential, an increase in the labor force will gradually align labor supply with labor demand and ease wage pressures. That, in turn, may allow inflation to approach the Federal Reserve's 2.0% policy goal. However, until the Federal Reserve is confident that inflation is progressing toward 2.0% in a sustained way, it will maintain the current 5.25%–5.50% policy interest rate range while retaining an easing bias as inflation slows. The Federal Reserve may also cut interest rates if any weakness in the labor market undermines its goal of maximum employment. Consequently, the Federal Reserve's policy may be a source of uncertainty for investors as the policy becomes increasingly dependent on inflation and unemployment data ahead.
- More broadly, economic activity in major developed countries will improve toward long-term trend. Real GDP is expected to grow 1.3% in the eurozone, 1.2% in the United Kingdom and 1.5% in Japan. Declining wage and inflation pressures will allow the European Central Bank and the Bank of England to cut policy interest rates. The Bank of Japan may continue to tweak its policy and move gradually toward a conventional policy framework. Fiscal policy in most countries will support demand and that may help manufacturing activity emerge from its slump.
- Among emerging countries, real GDP is expected to grow by 8.0% in India and a near-trend 4.1% in China. Deflationary pressures may persist in China until its real estate problems subside and private consumption demand improves. As inflation declines further in emerging countries, their central banks may continue to reduce interest rates. However, interest rate reductions may be uneven as exchange rates of some currencies may fluctuate due to uncertainty about the Federal Reserve's monetary policy.

- Considering the improved potential for U.S. growth in fiscal 2025, the baseline 1.5%–3.5% range for growth is higher than the 0.5%–3.0% range contained in fiscal 2024's midyear update. Growth in the 1.5%–3.5% baseline range has about a 60% chance of occurring, while more robust economic growth than the baseline carries a 15% chance. Growth slower than the baseline carries a 25% chance. The probability of a recession over the next twelve months is 10%. The baseline U.S. real GDP growth forecast of 2.8% is higher than the median 1.6% growth in the April Blue Chip Economic Indicators. The baseline 2.3% forecast for the GDP deflator is above the Blue Chip's 2.2% median forecast.

TOTAL FUND OUTLOOK

STRS Ohio investment assets are currently estimated at $92.6 billion as of the end of April 2024. Investment staff projects a base case scenario with a positive total fund return at the Retirement Board's policy return of 7.04% based upon the board's investment consultant's updated 10-year capital market return assumptions. The positive return and market environment we forecast should roughly offset the approximately $4 billion of net benefit payments (benefits and operating expenses less contributions) anticipated for fiscal 2025, resulting in a minimal change for total investment assets.

The table below illustrates the expected annual market forecast for each asset class for fiscal 2025 relative to the Retirement Board's policy for expected average annual returns. The current fiscal 2024 total fund return will likely end the year with a return that is above the policy return, following an above average return for fiscal 2023. More importantly, the total fund return will likely finish with an above-average five-year return ending fiscal 2024.

ANTICIPATED MARKET RETURNS

	Board Policy Expected Average Annual Benchmark Returns	Benchmark Annualized Return Expectation for Fiscal 2025
Liquidity Reserves	2.40%	Above Normal
Fixed Income	4.50%	Above Normal
Domestic Equities	6.90%	At Normal
International	7.70%	At Normal
Real Estate	5.10%	Below Normal
Alternative Investments	9.10%	At-to-Slightly Below Normal
Total Fund	**7.04%**	**At Normal**

Based upon market levels during mid-May 2024. Should market levels change significantly by late June 2024, an updated projection will be issued.

INVESTMENT PLAN THEMES

- *The U.S. economy is forecasted to grow at a real rate of 2.8% with inflation progressing toward the Federal Reserve's target range. The baseline forecast of nominal GDP growth of 5.3% represents three years of above trend growth and reflects the restrictive monetary policy we expect to remain in place until inflation is within the Federal Reserve's 2% target area. The forecast incorporates a range of economic outcomes, including above-trend economic growth, an upside of stronger growth and a downside of slower growth or recession, while incorporating ongoing geopolitical risks.*
- *Asset prices reflect transitioning monetary policy, the likely impacts of resilient economic growth, and a small risk of a mild recession during the fiscal year. Furthermore, asset prices are incorporating higher interest rates and the expectation that inflation moderates over the next 12 months. The fiscal 2024 total fund return is above average, with global equity markets incorporating earnings growth and relatively stable interest rates over the past year. Overall, we expect volatility as inflation concerns and geopolitical risk lead to buying opportunities in the upcoming fiscal year. We expect a fiscal 2025 return that is at the board's long-term policy return of 7.04%.*
- *There is one change in the factors for the investment ERM matrix on Page 8. We are classifying "Recession" as a low probability scenario. We are forecasting above trend economic growth during fiscal 2025 and assign a low probability of recession. If a recession were to occur during the fiscal year and returns become negative, then this would have a more negative impact on the funded status of the plan and require moving this risk factor to the high financial impact category. We expect inflation to moderate over the year.*
- *The board's general investment consultant will conduct an asset-liability study to conclude late in fiscal 2025. The asset-liability study will include a comprehensive review of capital market expectations, risk and liquidity and ultimately result in a target asset mix. The study will not only include a comprehensive review of investment benchmarks and implementation but also the introduction of a reference benchmark.*
- *The investment staff will review the fiduciary audit investment recommendations and present a summary of responses, proposed actions and periodic progress updates to the board.*
- *The alternative investment team is continuing its efforts to pursue direct and co-investments, consistent with the board's strategic initiative resulting in nearly 200 direct- and co-investments since inception. Staff will continue to collaborate with the alternative investments-related external service providers, including a new board-level alternative investment consultant, new third-party administrator and new fee validation service provider.*
- *Meaningful progress on the strategic initiative to improve domestic equity performance continues. The asset class is on target to have value-added performance on a one-, five- and 10-year basis at the end of fiscal 2024. This continues an improving trend for the asset class. We will continue efforts to enhance the structure and performance of the asset class to sustain these positive results over future moving five-year periods. Staff will provide an update to the board in early fiscal 2025 to discuss trends in performance and provide an update on ongoing efforts within the asset class.*
- *Investment staff from all asset classes will continue to conduct ongoing research on various new potential strategies and refine and improve existing strategies as outlined in some of the following asset class sections of this plan. This is consistent with the board's strategic goal initiative for the investment program to develop strategies and tools that can increase returns, diversification or the flexibility to manage the assets.*

3. Asset Allocation/Risk/ERM Matrix

AVERAGE LONG-TERM POLICY WEIGHT, CURRENT ASSET WEIGHT AND STRATEGY FOR FISCAL 2025 (as a percentage of total assets at market)	July 1, 2024 Neutral Weight	Preliminary April 30, 2024 Weight	General Strategy for Fiscal 2025*
Liquidity Reserves	1%	1.1%	We expect short-term interest rates to remain elevated but decreasing in fiscal 2025. We believe the Federal Reserve will begin gradually easing monetary conditions, as inflation is slowly converging toward the Fed's long-term policy goal of 2%. With short-term market rates currently trading near 5.4%, we expect to earn a return above the policy return.
Fixed Income	22%	21.7%	Valuations reflect a restrictive monetary policy stance and the expectation that higher short-term rates are necessary to reduce inflation to acceptable levels. With a beginning yield on the benchmark near 5%, we project the asset class to generate returns above the policy rate of return. The asset class received allocations during the fiscal year driven by rebalancing activity and higher expected returns.
Equities			Moderate global earnings growth is expected for fiscal 2025, in the context of an evolving macroeconomic picture characterized by restrictive U.S. monetary policy and positive economic growth. Valuation multiples may remain elevated, sustained by expectations of loosening policy conditions. The U.S. dollar appreciation may reverse as inflation is expected to continue converging to its policy target. For fiscal 2025, we anticipate a moderately positive outlook for the domestic equity market, resulting in total returns that will be at policy expectations. The domestic asset class weighting is expected to be held close to the 26.0% policy weight. The total return expectation for international equities is at the policy return. The international asset class weighting is expected to be held near the 22% policy weight.
Domestic	26%	26.0%	
International	22%	22.1%	
Total Equities	48%	48.1%	
Real Estate	10%	8.7%	The real estate asset class is projected to record returns below the long-term policy level, with valuations expected to stabilize and the fundamental picture to improve. Real estate currently has an allocation below neutral target weight. Staff will continue to pursue potential acquisitions and dispositions of assets in line with the objectives of return/risk maximization and targeting of policy weight.
Alternative Investments			We project returns in fiscal 2025 for the alternative investments asset class to be at-to-slightly-below the long-term policy return. A resilient economy paired with expectations of falling short-term interest rates should translate into a positive outlook for valuations and transaction activity. Relatively high interest rates will continue to support strong gross returns in credit-oriented assets within the opportunistic/diversified portfolio. The opportunistic/diversified portfolio stood at policy weight as of April 30, 2024, while the private equity weight was above the policy weight. Staff will maintain a private equity and opportunistic/diversified commitment pace in line with the current long-term targeted neutral asset allocation.
Private Equity	9%	10.4%	
Opportunistic/Diversified	10%	10.0%	
Total Alternatives	19%	20.4%	
Total	**100%**	**100.0%**	

*More detailed asset weightings and projections are provided to the Retirement Board at its monthly meetings, which provides the Retirement Board more current updates to the overall strategy.

RISK BUDGET

Investment Portfolio Risk

Introduction

There are three primary types of investment risk that the Retirement Board and staff need to manage: capital market risk, active management risk and liquidity risk. The first type describes the volatility of the policy returns and is a result of the plan assets being invested in the selected asset classes. The fiscal 2022 asset-liability study established appropriate allocations, based on the board's investment consultant's update of the capital market risk (11.76%).

STRS Ohio actively manages most of its investments; therefore, the fund will have active management risk. This risk refers to the return fluctuations around the benchmark return that result from active management decisions. The amount of active management risk indicates how closely the portfolio returns will match the benchmark returns. The policy range of active management risk for the total fund is 20–160 basis points. Staff uses the risk budget to manage this risk. Although active management is a source of volatility, it is much lower than and uncorrelated with the capital market risk. This means that adding active management risk to the fund will not cause a large increase in total fund volatility. Thus, over the long run, the actions of the staff are not expected to change the total volatility of the fund materially.

Liquidity risk refers to the ability to meet short-term funding requirements without incurring a loss of capital in the process. For STRS Ohio, the most important consideration is the payment of the monthly benefits in a timely manner. Examples of other important secondary needs for liquidity include rebalancing the asset allocation to the policy target weights and funding contractual capital commitments to alternative investment managers. STRS Ohio is a mature pension plan with more than $4 billion in net benefit payments per year (benefits and operating expenses less contributions). This can create challenges for managing the assets during extended periods of market volatility. Therefore, the asset allocation and its implementation are key to ensuring there is sufficient liquidity at the total fund to efficiently meet all short-term funding requirements.

Asset Allocation and Capital Market Risk

The appropriate amount of capital market risk for the STRS Ohio portfolio is determined in an asset-liability study. The 2022 study established an optimal target weight for each asset class. This means there is no other combination of asset classes that has lower risk while achieving the same expected return. Over a 10-year period, the board's investment consultant indicates that the accepted asset mix should generate a return of 7.04% (without value added). The following table contains the current and target allocations for each asset class and the expected geometric return and capital market risk.

Asset Class	Expected Return	Capital Market Risk	Target Allocation	Rebalancing Range	Approximate April 30, 2024 Weight
Liquidity Reserves	2.40%	1.00%	1%	0%–5%	1.1%
Fixed Income	4.50%	3.69%	22%	13%–29%	21.7%
Domestic Equities	6.90%	17.00%	26%	21%–31%	26.0%
International Equities	7.70%	16.73%	22%	17%–27%	22.1%
Real Estate	5.10%	12.98%	10%	6%–13%	8.7%
Private Equity	9.90%	25.00%	9%	6%–14%[2]	10.4%
Opportunistic/Diversified	7.90%	12.14%	10%	6%–14%[2]	10.0%
Total Fund	**7.04%**[1]				

[1] Does not include active management returns.

[2] The Private Equity and Opportunistic/Diversified target weights and rebalancing ranges are only meant to be general guidelines; the official target weight and rebalancing range is at the total alternative investment asset class level. The board approved rebalancing range for the total alternative investments asset class is 12%–25%.

There are multiple ways to quantify capital market risk for an asset mix:

- The expected capital market risk for the total fund benchmark is 11.76%, which means there is a 95% probability that the investment portfolio returns will be in an annual range of –16% to 30%.
- Another risk concept we utilize is the "value-at-risk." According to this measure, there is on average a 5% chance under the target allocation that the fund could lose $11.4 billion or more in a single year.

As of April 30, 2024, the total fund portfolio is near the policy weight in domestic equities, international equities, and fixed income. The total fund portfolio is underweight real estate, while the portfolio is overweight private equity within the alternatives asset class. Through our pacing programs, we expect the allocation to private equity to move closer to the policy target during fiscal 2025, while we anticipate capital allocations to real estate. Positions across other assets will likely be near policy target unless the prospect of attractive return-to-risk ratios encourages a different approach. Through our monthly rebalancing activities, we will continue to pursue the objectives of managing active risk and meeting the cash flow needs of the fund.

Risk Budgeting and Active Management Risk

Active management risk refers to portfolio return fluctuations around the benchmark return that result from active management decisions. Risk budgeting is a tool used by staff to efficiently allocate active management risk among the asset classes by assigning active management risk ranges. The goal of a risk budget is to maximize the active management returns earned within a board-approved active management risk range for the total fund. Empirical evidence shows that less efficient markets such as real estate and emerging markets offer greater opportunities for active management returns compared to more efficient markets such as domestic equities and domestic fixed income.

Based upon quantitative work developed by staff, we estimate that the total fund level of active management risk is 57 basis points as of April 30, 2024. The STRS Ohio total fund return should track within plus or minus two times the expected active management risk level relative to the total fund composite benchmark. Thus, if the total fund composite benchmark earns 7.04% for the year, the STRS Ohio return is expected to be within 1.14% (two times 0.57%) of this return 95% of the time (i.e., between 5.90% and 8.18%). Similarly, in a year when the benchmark return is –3%, the STRS Ohio return is expected to be between –4.14% and –1.86%.

The policy range of active management risk for the total fund is established to achieve the net active management return goal of 40 basis points as specified in the Statement of Investment Objectives & Policy. This policy range is the basis for the policy ranges of the individual asset classes. Expected operating ranges for the asset classes are created by staff each year to efficiently achieve the desired level of active management risk for the total fund. Operating ranges must fall within the policy ranges for each asset class and for the total fund.

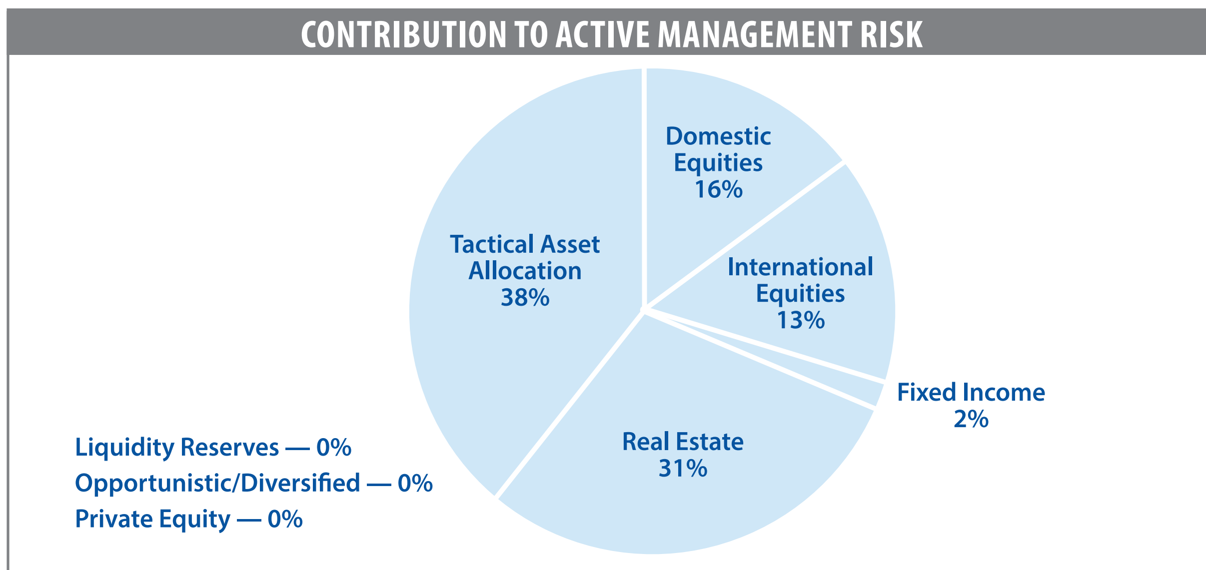
FISCAL 2024 ACTIVE MANAGEMENT RISK

Asset Class	April 30, 2024 Active Management Risk (basis points)	Expected Fiscal 2025 Operating Range (basis points)	Policy Range (basis points)
Liquidity Reserves	N/A	N/A	N/A
Core Fixed Income	24	20–120	10–150
Domestic Equities	76	50–150	20–150
International Equities	94	70–125	60–250
Real Estate	350	350*	200–700
Alternative Investments	N/A	N/A	N/A
Tactical Asset Allocation	32	20–140	N/A
Total Fund	**57**	**30–160**	**20–160**

*As explained in the paragraph that follows, this estimate is static unless a significant portfolio adjustment occurs.

The previous table shows the April 30, 2024, active management risk, and the fiscal 2025 expected operating range of active management risk for each asset class. These measures are expected to fluctuate during the fiscal year; however, no material deviations from these measures are anticipated. The active management risk of the total fund is expected to fall in the range of 30–160 basis points during fiscal 2025. This range includes tactical risk (due to asset allocation decisions) that is not included within the individual asset class active management risk estimates. These asset allocation decisions are likely to vary throughout the year, so this will result in various amounts of tactical risk.

Unlike other asset classes, real estate does not have a model that can be used to accurately estimate active management risk. Instead, the estimate is based on historical active management returns, the amount of leverage in the portfolio, and past real estate market volatility. These factors are unlikely to change much over time without a significant change to the portfolio; therefore, the estimated active management risk for real estate will be static most years. The next chart explains where the active management risk for the total fund is generated as of April 30, 2024.



IMPACT AND PROBABILITY ANALYSIS FOR INVESTMENTS

FINANCIAL IMPACT ↓ / PROBABILITY →	HIGH	MEDIUM	LOW
HIGH	• Not earning the actuarial assumed rate of return over the 10-year period	• Long-term sovereign deficit and debt issues	• Diversification ineffective • Significant negative investment return in any one year • Extended period of elevated inflation
MEDIUM		• Global financial stress related to low economic growth	• Deflation • Recession
LOW	• Not earning the actuarial assumed rate of return in a fiscal year	• Corporate fraud (securities litigation) • Buy Ohio	• Poor investment • Divestment • Investment operations failures

4. Fiscal 2025 Economic Outlook

U.S. ECONOMIC GROWTH AND INFLATION OUTLOOK

During fiscal 2024, real (inflation-adjusted) gross domestic product (GDP) grew at an above-trend rate, while inflation declined rapidly toward the Federal Reserve's 2.0% long-term policy goal. The combination of strong growth and slower inflation indicates that the U.S. is increasing its capacity to meet the solid demand for labor, goods and services. As capacity expands further, an above-trend growth and lower inflation may recur in fiscal 2025. That may help monetary policy evolve toward a neutral stance, one that considers the risks to both price stability and maximum employment.

ECONOMIC ACTIVITY TO GROW AT AN ABOVE-TREND RATE

Note: Shaded areas denote recession.

Over the past two years, real GDP growth has accelerated (solid red line in the chart above). After 2.4% growth in fiscal 2023 and 3.2% growth in fiscal 2024, we expect real GDP to advance by 2.8% in fiscal 2025 — the third consecutive year of above-trend growth. Exemplifying that strength, real GDP grew an annualized 4.1% in the first half of fiscal 2024 supported by a robust 3.2% growth in private domestic final sales (GDP less volatile inventory changes, government spending and foreign trade). Though growth slowed to an annualized 1.6% in the third quarter, that slower pace masked a solid 3.1% growth in private domestic final sales as non-farm payrolls expanded by about 800 thousand jobs in that quarter alone.

Robust employment gains contributed to the acceleration in economic activity. After adding about 3.9 million jobs to non-farm payrolls in fiscal 2023, the economy added another 2.3 million jobs in the first ten months of fiscal 2024. Consequently, unemployment has remained below 4.0% for nearly two years, the longest period of a sub-4.0% rate in decades. Meanwhile, the labor supply continues to respond to the solid labor demand as the labor force grew by 2.9 million in fiscal 2023 and by about 0.9 million in

the first 10 months of fiscal 2024. According to the Congressional Budget Office, in fiscal 2025, the labor force may increase by roughly 2.1 million workers. Further labor force growth is expected to ease wage pressures in the services sector where the demand for labor still exceeds the labor supply. As more people are hired, however, job vacancies may also close. A longer job search duration should gradually increase the unemployment rate from 3.9% currently to about 4.0%–4.5%.

The gains in employment may support consumer spending through fiscal 2025. In the first half of fiscal 2024, as nominal incomes outpaced slowing inflation, real disposable personal income grew at an average annual 4.1% rate. A strong household net worth at about 760% of disposable personal income may also continue to provide a secure base for consumer demand. However, higher interest rates are impeding the purchasing power of consumers in the lower tiers of the income distribution. A decrease in the interest rates in fiscal 2025 may alleviate that pressure and help personal consumption grow at a 2.6% annual rate.

Despite higher interest rates in the first half of fiscal 2024, non-residential investment grew at an annualized rate of 2.6%. In the third quarter, it increased at an annualized rate of 2.9%. Bank lending standards and overall financial conditions are easing, which could contribute to non-residential investments advancing by an estimated 8.3% in fiscal 2024. Additionally, the expectations of lower interest rates and the adoption of new technologies may help boost these investments by 7.2% in fiscal 2025. Meanwhile, after an estimated 8.3% growth in fiscal 2024, residential investment may rise by a solid 7.2% in fiscal 2025. Single-family housing starts are beginning to catch up with the demand for housing. An increase in the supply of homes may also reduce home price inflation that has persisted because of a limited supply of existing homes for sale.

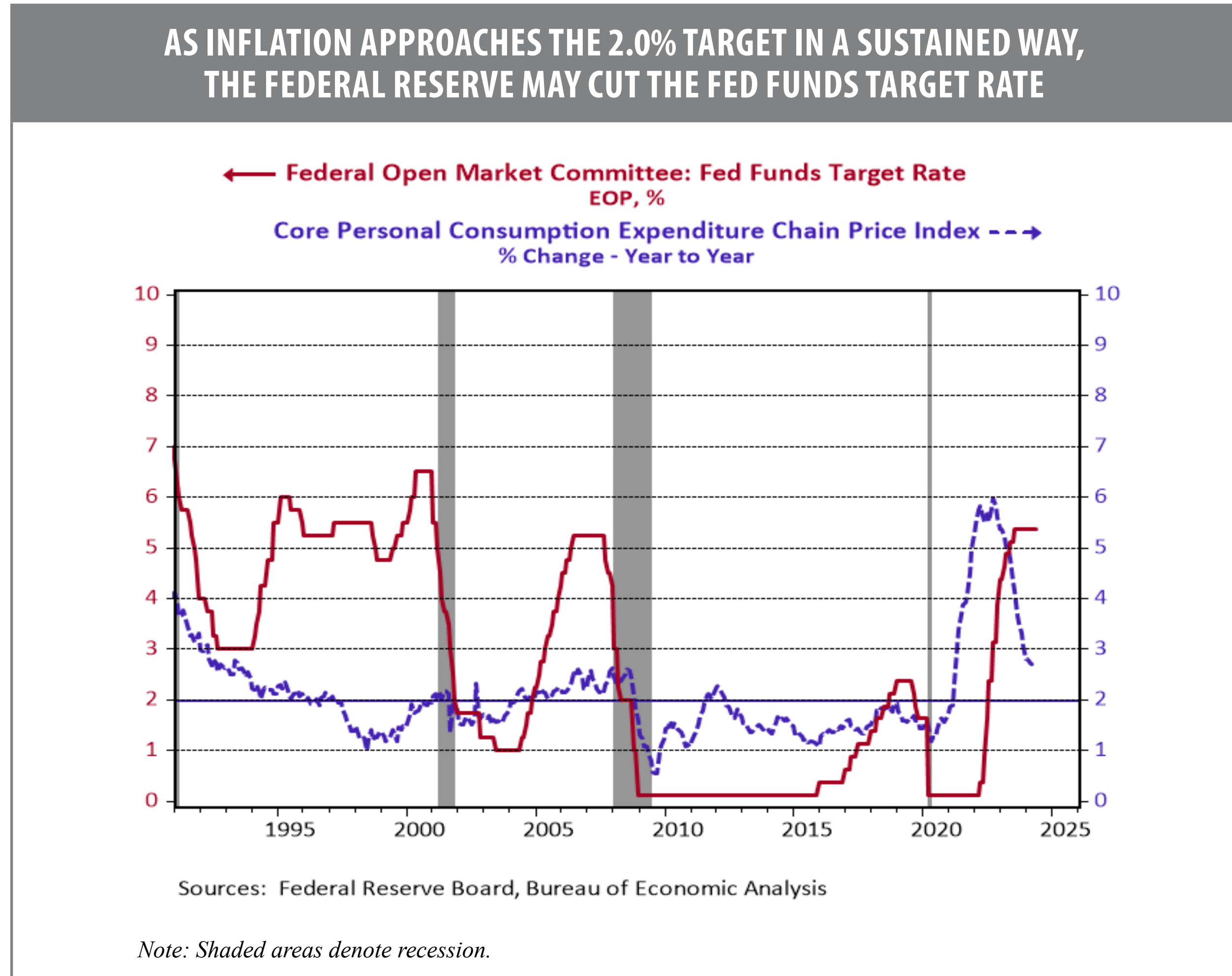
Furthermore, the CHIPs and Science Act, along with the Inflation Reduction Act, have spurred the construction of manufacturing facilities. Businesses are relocating within U.S. borders to mitigate the supply challenges they encountered during the pandemic. These longer-term investments may continue to defy the dampening effect that higher interest rates typically have on non-residential structures expenditures. To support such long-term investments, state and local government infrastructure expenditures may continue.

Besides solid economic growth, a rapid decline of inflation has been a key development over the past 18 months. Inflation is now gradually approaching its pre-pandemic norm and investors anticipate that it will continue to remain within the ranges during that time. Inflation declined due to a restrictive monetary policy that restrained demand and due to the rising capacity of the U.S. economy to supply goods and services. In fiscal 2025, as the supply of labor more closely aligns with the demand for labor, wage pressures may diminish further and reduce inflation in the services sector. The increase in the supply of housing may also contribute to a lower inflation rate by slowing the rise in home prices.

The inflation trends will continue to influence the Federal Reserve's monetary policy in fiscal 2025. The Federal Reserve has expressed uncertainty about whether inflation has made sufficient progress towards it 2.0% policy goal in a sustained manner. Core Personal Consumption Expenditure (PCE) inflation, which excludes volatile food and energy prices, slowed from an annual rate of about 4.2% at the beginning fiscal 2024 to 2.8% in March 2024 (as shown by the dashed blue line in the chart on next page). Although short-term inflation measures were slowing in the first half of fiscal 2024, inflation exceeded expectations in the third quarter of the year. The Federal Reserve now seeks more sustained progress, where both short-term and long-term inflation measures are achieving progress toward 2.0% inflation target. The baseline outlook for fiscal 2025 anticipates a gradual adherence to this pattern, which could potentially allow the Federal Reserve to cut the federal funds rate (indicated by the solid red line in the chart) later in the fiscal year.

The Federal Reserve has indicated that the federal funds rate has likely peaked at the current 5.25%–5.5% range (represented by the solid red line in the chart). The baseline economic forecast expects that the Federal Reserve will maintain the federal funds rate near the current level, with a bias toward lowering it in fiscal 2025; however, the timing of interest rate cuts remains uncertain. If the PCE inflation grows near the projected pace of 2.3% by the end of fiscal 2025, the Federal Reserve will likely cut interest rates. Conversely, if inflation remains close to 3.0%, it could delay a monetary easing and potentially prompt

the Federal Reserve to raise the policy interest rate. Additionally, labor market dynamics may influence the Federal Reserve's policy outlook. An unexpected rise in unemployment poses a risk to the Federal Reserve's mandate of maximum employment. Higher unemployment that results from layoffs may dampen demand and subdue future inflation. In response, the Federal Reserve may cut its policy interest rate to shore up demand. By considering both price stability and maximum employment, policy may evolve toward a neutral stance.



Note: Shaded areas denote recession.

Reflecting the range of the potential paths for interest rates in fiscal 2025, the ranges for the federal funds rate and 10-year Treasury yield are listed in the table below.

Period	Federal Funds Rate	10-Year Treasury Yield
Fiscal 2025 Ranges	3.5%–6.5%	3.0%–6.0%

Note: The ranges listed anticipate capturing 90% of the daily closes during the period described. Brief excursions above or below these ranges that are quickly reversed should not be considered violations of the forecast.

Considering the improved potential for U.S. growth in fiscal 2025, the baseline 1.5%–3.5% range for growth is higher than the 0.5%–3.0% range at the time of the fiscal 2024's midyear update. Growth in that 1.5%–3.5% baseline range has about a 60% probability of occurring, while more robust economic growth than the baseline carries a 15% probability. Growth slower than the baseline carries a 25% probability. The probability of a recession over the next 12 months is 10%. The baseline U.S. forecast of 2.8% real GDP growth is higher than the median 1.6% growth in the April Blue Chip Economic Indicators. The baseline 2.3% forecast for the GDP deflator is above the Blue Chip's 2.2% median forecast.

U.S. ECONOMIC FORECAST SUMMARY

Composition of Real GDP	Fiscal Year Ranges	FY 2025	FY 2025 H1	FY 2025 H2	FY 2024	FY 2024 H1	FY 2024 H2	FY 2023
Gross Domestic Product	1.5%–3.5%	2.8%	2.7%	2.9%	3.2%	4.1%	2.2%	2.4%
Personal Consumption	1.0%–3.5%	2.6%	2.6%	2.5%	2.9%	3.2%	2.6%	1.8%
Nonresidential Investment	(2.5%)–7.5%	3.3%	3.0%	3.5%	2.8%	2.6%	2.9%	4.9%
Residential Investment		7.2%	7.0%	7.5%	8.3%	4.7%	11.9%	(15.4%)
Exports of Goods & Services		3.2%	3.5%	3.0%	3.8%	5.2%	2.4%	2.1%
Imports of Goods & Services		2.8%	2.7%	2.8%	4.1%	3.2%	4.9%	(3.9%)
Federal Consumption & Investment		2.9%	3.2%	3.0%	3.3%	4.7%	1.9%	4.3%
State & Local Consumption & Investment		2.7%	3.0%	2.5%	4.1%	5.5%	2.8%	4.0%
Final Sales		2.5%	2.3%	2.8%	3.2%	3.7%	2.6%	2.7%
Domestic Final Sales		2.5%	2.3%	2.7%	3.2%	3.5%	2.9%	1.8%
Private Domestic Final Sales		2.5%	2.3%	2.6%	3.1%	3.2%	2.9%	1.3%
Incomes								
Real Disposable Personal Income		2.6%	2.5%	2.6%	1.5%	1.3%	1.7%	4.9%
Nominal GDP Corporate Profits, After Tax	(2.5%)–12.5%	8.5%	8.0%	9.0%	12.7%	16.1%	9.5%	(4.1%)
Prices								
Consumer Price Index		2.5%	2.5%	2.4%	3.0%	3.1%	2.9%	4.0%
Consumer Price Index Ex Food & Energy	2.0%–5.0%	2.6%	2.6%	2.5%	3.4%	3.2%	3.6%	5.2%
Personal Consumption Expenditures Price Index		2.3%	2.3%	2.2%	2.6%	2.2%	3.0%	3.9%
GDP Price Index		2.3%	2.4%	2.2%	2.7%	2.5%	2.9%	3.5%
Other Key Measures								
Real Net Exports ($B)	($1400)–($800)	($978.7)	($974.5)	($982.9)	($948.5)	($924.6)	($972.4)	($952.5)
Real Change in Business Inventories ($B)		$22.5	$25.0	$20.0	$49.5	66.35	32.70	$66.2
Light Vehicle Sales (M)		15.94	15.88	16.00	15.68	15.77	15.59	14.72
New Housing Starts (M)	1.200–1.650	1.445	1.440	1.450	1.430	1.428	1.433	1.422
Industrial Production		1.4%	1.4%	1.5%	(0.1%)	(0.2%)	0.9%	0.5%
Unemployment Rate		4.0%	3.9%	4.0%	3.8%	3.7%	3.8%	3.5%

INTERNATIONAL ECONOMIC GROWTH AND INFLATION OUTLOOK

Inflation in most countries has rapidly declined towards the policy targets of their central banks. As most major central banks begin reducing policy interest rates, global monetary conditions may ease through fiscal 2025, improving global economic activity.

Economic activity has been nearly stagnant in the eurozone since the European Central Bank (ECB) began raising policy interest rates in the second quarter of calendar 2022. Through the fourth quarter in 2023, the eurozone's real GDP decreased by 0.1%, while domestic demand — comprising final consumption expenditure and gross capital formation — rose by only 0.1%. This suggests that a tight monetary policy has curbed demand-side inflationary pressures. As inflation has declined substantially, the ECB may now ease monetary conditions to rekindle demand and boost economic activity. By the end of fiscal 2025, the ECB may reduce the policy interest rate by about 200 basis points, lowering it from 4.5% currently to about 2.5%. As the smaller countries of the region grow faster than the larger ones, economic activity is expected to improve toward trend.

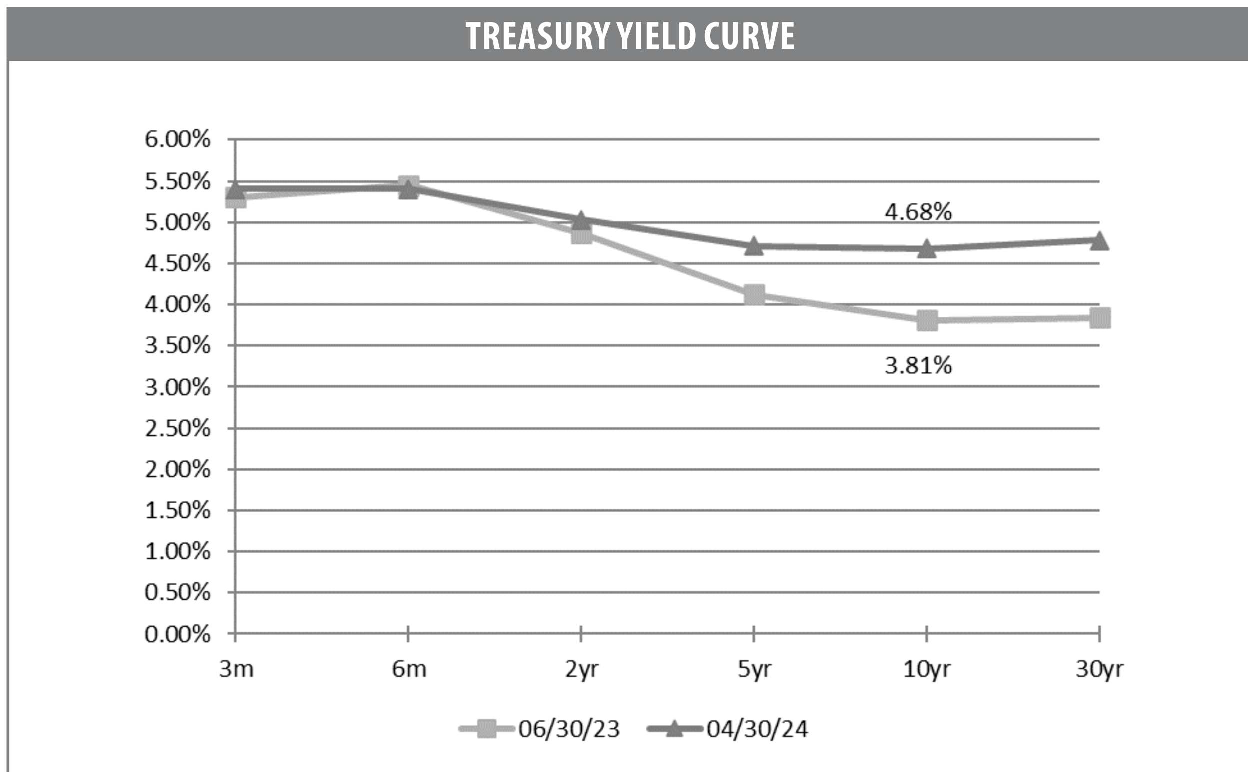
In the United Kingdom, as inflation progresses toward the pre-pandemic norm, the Bank of England, too, may cut policy interest rates by up to 150 basis points, lowering it from 5.25% to 3.75%. Among developed countries, the Bank of Japan (BoJ) stands apart for its goal to ensure that inflation gains traction. Inflation is above the 2.0% target and a goal of its monetary policy is to ensure that persists. To achieve the goal, the BoJ may tweak its current monetary policy and will gradually shift toward a conventional policy framework. The supportive monetary and fiscal policies in most developed countries will help global manufacturing activity emerge from its slump.

Among emerging countries, India's real GDP is expected to grow by 8.0%. However, China's real GDP may advance only at a near-trend 4.1% as deflationary pressures may persist until the real estate sector's problems subside and private consumption improves. Economic growth in Brazil is expected to advance at a healthy pace. Its central bank has already cut the policy interest rate from 13.75% to 10.5% and more monetary easing is expected in fiscal 2025. Mexico's central bank has also begun lowering its policy interest rate, cutting it from 11.25% to 11% recently.

As the central banks of most emerging countries ease monetary conditions, they may also consider the exchange rates of their currencies in future policy decisions because exchange rates tend to influence inflation trends. Since the exchange rates depend partly on the U.S. Fed's monetary policy, the interest rate reductions in emerging countries may be uneven depending on how the exchange rates and inflation respond to the Federal Reserve's policy. An inflation risk may also emerge from an upside growth scenario, where a strong global demand may impede the progress of inflation. Both sources of inflation risk can result in slower monetary easing, especially if inflation expectations rise.

INTERNATIONAL FORECASTS				
	Real Gross Domestic Product		Inflation	
Country/Region	FY 2025	FY 2024	FY 2025	FY 2024
Canada	2.0%	0.8%	2.2%	2.7%
United Kingdom	1.2%	0.2%	1.9%	1.7%
Eurozone	1.3%	0.4%	1.8%	2.3%
Germany	1.1%	(0.1%)	1.7%	2.4%
France	1.2%	0.4%	1.8%	2.5%
Italy	1.3%	0.8%	1.9%	1.7%
Asia–Pacific				
Japan	1.5%	0.1%	1.7%	2.6%
China	4.1%	4.2%	0.6%	0.2%
India	8.0%	7.9%	4.1%	4.9%
Australia	2.1%	1.2%	2.5%	3.5%
South Korea	2.2%	2.5%	2.1%	2.6%
Latin America				
Brazil	2.6%	1.0%	3.4%	3.6%
Mexico	2.2%	2.6%	3.6%	4.7%

5. Fixed Income Investments



OUTLOOK

Bond Market Returns

We forecast the total return of the fixed income market to be above the STRS Ohio policy return of 4.50% in fiscal year 2025. The fixed income benchmark yield begins the fiscal year above the policy return at 5.58%. Since the benchmark yield is above the policy return, and we forecast prices in the benchmark to be little changed, we expect the benchmark to finish fiscal year 2025 above the policy total return.

Federal Reserve

The Federal Reserve raised the federal funds rate to a range of 5.25% to 5.50% from 5.00% to 5.25% during fiscal year 2024. Inflation has slowed but is still above the Federal Reserve's 2% target, leading the Federal Reserve to maintain a restrictive monetary policy.

The Federal Reserve is trying to balance two risks. If the committee moves too slowly to ease monetary policy, the economy may weaken under the weight of higher interest rates. If they ease monetary policy prematurely, they may allow inflation to become entrenched at a level well above their 2% goal. Given these circumstances, we are forecasting a range of 3.50% to 6.50% on the federal funds rate. This forecast reflects our expectation that the Federal Reserve will maintain a restrictive monetary policy until inflation slows and becomes more consistent with its 2% target. If inflation falls toward the Federal Reserve's 2% target and the Federal Reserve gains greater confidence inflation will remain low, we expect the Federal Reserve will begin to cut interest rates. However, if inflation remains well above target, the Federal Reserve could resume raising short-term interest rates closer to the high end of our forecasted range.

The Federal Reserve has been reducing the size of its balance sheet through a process known as quantitative tightening (QT), reversing the large growth of the Federal Reserve's balance sheet during

the COVID-19 period. It has stopped reinvesting principal payments from U.S. Treasuries and agency mortgage-backed securities subject to monthly caps. The Federal Reserve recently announced that it will slow the pace of QT by allowing U.S. Treasuries to decline up to $25 billion per month and agency mortgage-backed securities to decline by up to $35 billion per month. Slowing the pace will allow the Fed to maintain ample reserves in the banking system and avoid disruption to short-term money markets. The Federal Reserve expects this balance sheet reduction will work in concert with higher short-term interest rates to slow down the economy with the goal of reducing inflation.

Market Interest Rates

Our forecasted 10-year U.S. Treasury interest rate range is 3.00% to 6.00%. The expected 10-year U.S. Treasury interest rate range is based on the STRS Ohio economic forecast of above-trend economic growth, a reduction in inflation, and the Federal Reserve conducting monetary policy in a way that appropriately balances their goals of maximum employment and price stability.

Interest rates rose during fiscal year 2024 as the Federal Reserve maintained a restrictive monetary policy aimed at reducing inflation. Inflation cooled during the year but not enough to give the Fed confidence that inflation would remain sustainably near its 2% target. Restrictive monetary policy expressed through higher short-term interest rates resulted in an inverted yield curve throughout the year with short-term interest rates remaining higher than long-term interest rates. The yield curve is now pricing in an expectation that the Federal Reserve is finished raising short-term interest rates and will begin to lower short-term interest rates during the fiscal year. The 10-year U.S. Treasury yield is trading close to the middle of our interest rate range, which we view as fair value.

Stronger economic growth and higher than expected inflation may lead the Federal Reserve to consider a more restrictive monetary policy and could lead to interest rates trading near the upper end of the interest rate range. On the other hand, a weaker economic growth environment coupled with falling inflation may result in interest rates trading near the lower end of our range. In addition, we will continue to closely monitor the conflicts in the Middle East and in Russia/Ukraine that could put downward pressure on interest rates if significant escalation occurs.

Credit Quality

Corporations enter the next fiscal year with healthy balance sheets, stable profit margins and low leverage. Nonetheless, corporate credit quality is expected to face headwinds in the coming fiscal year, including continued high interest rates and above-target inflation. Monetary policy is expected to be less restrictive but the number and timing of potential interest rate cuts by the Federal Reserve is uncertain. Bank lending standards indicate restrictive financial and credit conditions, and although the cost of funding has increased, corporations are still able to access the financing they need. Lower merger and acquisition volumes should lead to less speculative activity and lower leverage.

Most banks continue to enjoy high levels of capital, liquidity, and strong balance sheets; however, higher short-term interest rates are expected to pressure net interest margins and erode profitability. Bank management teams are preparing for asset quality declines in lower credit quality consumers and commercial real estate loan categories by increasing loan loss reserves which we expect to continue throughout fiscal year 2025. Bank management teams will be more focused on liquidity sources as increasing interest rates provide depositors with higher yielding alternatives to traditional deposits. Additionally, more stringent regulations are expected to be enacted in fiscal year 2025 which will impact regional banks.

High yield corporate credit fundamentals remain strong and should continue to benefit from above-trend economic growth. Default rates are expected to remain in the low/mid-single digit range in fiscal year 2025 after a period of very low defaults during the COVID-19 economic recovery. Corporate leverage is relatively low and interest coverage is still high as companies have benefitted from improved cash flow and balance sheet deleveraging over the last couple of years.

Emerging market (EM) countries continue to experience faster economic growth than developed market countries. Inflation has fallen in many EM countries and central banks have begun to cut interest rates. We expect to see additional monetary policy easing during the fiscal year if inflation continues its downward path. EM countries' credit quality continues to benefit from relatively low public sector leverage and flexible exchange rates.

STRATEGY

Overview

The core fixed income portfolio will begin with an active management risk of 24 basis points and will operate in the range of 20 to 120 basis points. The liquid treasury portfolio will have an active management risk operating range of 0 to 25 basis points. The following points summarize our outlook and portfolio strategy for fiscal year 2025.

- The STRS Ohio economic forecast predicts an above-trend economic growth environment, a reduction in inflation, and continuing restrictive monetary policy from the Federal Reserve.
- We have positioned the core portfolio with a current relative duration of 101%. Our strategy reflects the STRS Ohio economic outlook, above-trend economic growth, and interest rates that appear fair relative to economic fundamentals.
- Regarding sector allocation of the core portfolio, we are maintaining an underweight position in U.S. Treasuries. We begin the year with an overweight position in agency mortgage-backed securities, agency and non-agency commercial mortgage-backed securities, asset-backed securities, investment grade corporates, high yield corporates, and emerging market debt but may adjust those positions as fundamentals and valuations evolve during the fiscal year.
- We reserve an ample amount of active management risk capacity as we expect that as the economy evolves and the Federal Reserve responds to changes in growth and inflation, the market may present opportunities that lead to significant valuation changes and would prompt us to increase or decrease active management risk.
- The fixed income asset class has had $2.39 billion in net contributions fiscal year-to-date through April, with the core portfolio receiving a net contribution of $2.45 billion and the liquid treasury portfolio experiencing net redemptions of $60 million.
- The total fixed income allocation is 21.7%, versus a neutral target weight of 22%.

Strategic Initiatives

- We continue to implement and review tactical and strategic opportunities including non-agency mortgage-backed securities, which is a non-index sector. We maintain a tactical position in non-index treasury inflation protected securities (TIPS) should inflation rise above expectations.
- The liquid treasury portfolio is positioned to provide funds for portfolio rebalancing and monthly cash flow needs of the total fund, especially during extreme events such as the market volatility associated with the COVID-19 pandemic in March and April 2020.
- The core fixed income portfolio will continue to review less liquid sectors and opportunistically provide liquidity in risk-off markets to earn an additional return premium.

Sectors

Treasuries

- During fiscal year 2024, we maintained an underweight to Treasuries to take advantage of relative value opportunities in spread sectors. We expect to begin fiscal year 2025 underweight and will adjust the weight as opportunities in spread sectors develop.
- We have a tactical position in TIPS should inflation rise above expectations.
- The liquid treasury portfolio (LTP) consists of high quality, liquid securities and has a market value of $4.4 billion, representing 4.8% of total fund assets
  - The LTP neutral target allocation is 5% of total fund assets.
  - The marketability of the portfolio will remain high to maintain substantial flexibility in meeting the liquidity needs of the total fund — including benefit payments, asset allocation rebalancing and diversification.
  - We will focus on U.S. Treasury security selection, emphasizing relative value and efficient trade execution.

Government Related

- We begin this fiscal year underweight to the government related sector. Historically, we have been underweight this sector due to tight yield spreads; however, over the past year we have found opportunities to add positions with attractive relative value and increase our weight.
- We will monitor the sector and continue to add to this sector opportunistically with an emphasis on local authorities, government-guaranteed, and government-owned securities.
- We believe investors can continue to earn an attractive risk-adjusted return through security selection in the government-related sector.

CMBS (Commercial Mortgage-Backed Securities) and ABS (Asset-Backed Securities)

- We started fiscal year 2024 underweight non-agency CMBS as certain sectors within the commercial real estate were exhibiting deteriorating fundamentals. We made additional investments throughout the year and finished with an overweight position.
- We have primarily targeted newer origination securitizations including conduit and Single-Asset Single-Borrower (SASB) deals with a focus on the safest bonds in the capital structure. In general, office fundamentals (office vacancies, access to credit) continue to be weak especially in Class B and Class C office properties whereas some recovery has been seen in areas where return to office policies are being implemented. Trophy properties and Class A New York office are examples.
- We expect the fundamentals of some non-agency CMBS property sectors such as industrial and hospitality, to remain stable or improve over time. We will continue to monitor non-agency CMBS for select opportunities.
- We begin the fiscal year overweight agency CMBS as multifamily fundamentals are favorable relative to other commercial real estate sectors. We expect to maintain exposure and potentially increase exposure if yield spreads widen.
- We begin the fiscal year overweight ABS. Consumer credit fundamentals are forecasted to be stable to moderately weaker. Consumer incomes are supported by a strong labor market; however, consumers are faced with higher inflation. We are closely monitoring increased delinquency rates in credit card and auto loans. Used car prices have declined and will likely continue to normalize, however residual value gains have still been positive. We will continue to monitor the sector for opportunities with an emphasis on strong issuers, structural credit enhancements, and high-quality collateral.

Mortgages

- We begin the fiscal year overweight agency mortgage-backed securities (MBS). We expect prepayments to be low but increasing during the fiscal year as the Fed is expected to start cutting interest rates.
- Interest rate volatility should decline overall during the fiscal year as the market gains more clarity about the Fed's plans for interest rate cuts.
- The Federal Reserve will continue to allow its MBS holdings to decline under its quantitative tightening (QT) program in which mortgage paydowns have been consistently less than the $35 billion monthly maximum allowed.
- We plan to selectively add agency MBS bonds on a relative value basis as the year progresses. Our security selection process will continue to focus on agency MBS bonds that are likely to provide stable cash flows at a reasonable valuation and a higher relative return.
- We had minimal exposure to non-agency RMBS (a non-index sector) to start fiscal year 2024. We have increased our allocations to the sector due to attractive relative value. Residential mortgage credit fundamentals continue to be stable as a direct result of home price appreciation, conservative underwriting guidelines, and structural enhancements that were implemented after the Great Financial Crisis (GFC). So far, we have focused on prime jumbo securitizations which are transactions backed generally by residential mortgage loans to prime borrowers with loan sizes above the maximum agency conforming loan size limits. We will continue to monitor the non-agency RMBS sector for suitable opportunities.

Investment Grade Corporates

- We begin the fiscal year with a small overweight to investment grade corporates. Yield spreads are at a multi-year tight level relative to Treasuries reflecting the resilience of corporate balance sheets and robust economic growth. We believe investment grade corporate yield spreads have a small capacity to tighten given these valuations.
- We expect to maintain the overweight in investment grade corporates during fiscal year 2025 and retain the ability to increase the overweight should yield spreads widen throughout the fiscal year.
- Our credit selection will be focused on companies with strong credit characteristics that will be able to maintain margins and profits amid higher borrowing and input costs.

High Yield Corporates

- We begin the fiscal year overweight high yield corporates. Yield spreads are fair and reflect a credit environment with default rates in the low/mid-single digits.
- We will adjust our high yield position as fundamentals and valuations evolve during fiscal 2025. We may reduce the overweight if the fundamental outlook deteriorates and yield spreads remain tight. On the other hand, we may make additional allocations to the sector if yield spreads become more attractive.

Emerging Market Debt

- We begin the fiscal year overweight emerging market debt. Yield spreads are fair and reflect the benefits of solid economic growth and decelerating inflation rates in emerging market countries.
- We expect to maintain the emerging market overweight during fiscal 2025 and may make additional allocations during the fiscal year.

BOND STRUCTURE REPORT

(as of April 2024)

Portfolio	Market Value* ($ millions)	% of Asset Class	Portfolio Annualized Active Management Risk[1]	Portfolio Duration[2]	Targeted Relative Duration
Core Fixed Income	**$ 15,709**	**78%**	**24 bps**	**5.92 yrs**	**101.0%**
Liquid Treasury Portfolio	**$ 4,407**	**22%**	**2 bps**	**3.63 yrs**	**100.0%**
Total Fixed Income	**$ 20,116**	**100%**			

Core Fixed Income	Market Value* ($ millions)	Percent of Portfolio*	Yield	Relative to Index[3]
Treasuries	**$ 4,121**	26%	4.9%	0.83x
Government Related[4]	**$ 173**	1%	5.2%	0.46x
Mortgages[5]	**$ 4,107**	26%	5.6%	1.13x
CMBS & ABS[6]	**$ 1,251**	8%	5.5%	3.38x
Investment Grade Corporates[7]	**$ 4,259**	27%	5.6%	1.08x
High Yield Corporates[8]	**$ 751**	5%	7.9%	1.17x
Emerging Market Debt[9]	**$ 1,046**	7%	7.8%	1.05x
Total Core Fixed Income	**$ 15,709**	**100%**	**5.7%**	

Liquid Treasury Portfolio	Market Value* ($ millions)	Percent of Portfolio*	Yield
Treasuries	**$ 4,407**	100%	4.9%
Total Liquid Treasury	**$ 4,407**	**100%**	**4.9%**

Market Values for April 30, 2024, are preliminary.

***Market Value and Percent of Portfolio columns may not add due to rounding.**

[1] A statistical model is used to generate annualized active management risk, which is an estimate of the expected difference in annual performance between the portfolio and the index. The Core Fixed Income Portfolio currently has an annualized active management risk of 24 basis points, meaning the performance of the portfolio relative to the index is expected to be within 24 basis points for 68% (one standard deviation) of all market outcomes.

[2] A measure of the sensitivity of the price of the fixed income portfolio to a change in interest rates, expressed in years. The current Core Fixed Income Portfolio duration of 5.92 years implies the average price of the portfolio is expected to rise by 5.92% for a 1% (100 basis point) decline in interest rates and is expected to fall by 5.92% for a 1% (100 basis point) increase in interest rates. The portfolio duration relative to the index, currently at 101.0%, is the portfolio's duration divided by the duration of the index. A number less than 100% implies the portfolio has a duration less than that of the index and reflects an expectation of rising rates.

[3] The relative exposure to each sector versus the index, based upon market value and duration. A number greater than 1.00x indicates an overweight and reflects a sector that we believe is undervalued. A number less than 1.00x indicates an underweight, and a sector we believe is overvalued.

[4] Consists of U.S. Government Sponsored Enterprise debt and other highly rated non-corporate debt.

[5] Mortgages are secured by a diversified pool of loans on residential properties.

[6] Commercial Mortgage-Backed Securities (CMBS) are secured by a diversified pool of loans on commercial property such as office buildings, industrial complexes, retail centers, hotels and multifamily developments. Asset-Backed Securities (ABS) are secured by diversified pools of consumer loans, including credit card receivables and auto loans.

[7] Consists of debt from industrial, utility and financial institution issuers that is rated investment grade, which is Baa and above.

[8] Consists of debt from industrial, utility and financial institution issuers that is rated non-investment grade, which is Ba and below.

[9] Consists of bonds issued by sovereign, quasi-sovereign, and corporate emerging market issuers. Country eligibility and classification as Emerging Markets is rules-based and reviewed annually using World Bank income group and International Monetary Fund (IMF) country classifications.

6. Domestic Equities Investments

OUTLOOK

Equity Market Return Expectations

For fiscal 2025 we forecast total returns to be in a range of –9% to +12%, with a central S&P 500 target of 5350, up 7.6% on a total return basis (including dividends), in-line with the STRS Ohio policy return of 6.9%. Key factors behind this forecast are:

- Improved earnings growth
  - Continued economic growth
  - Several one-time charges included in fiscal 2024 earnings will not repeat
- Price to earnings (P/E) multiples are likely to compress
  - P/E multiples are well above the normal range
  - Higher-for-longer interest rates could put pressure on valuations
- Potential risks
  - A Federal Reserve policy mistake
  - Banking/credit crisis
  - Global unrest
  - U.S. Policy changes due to election
  - Weaker lower income consumer

Summary of 2024

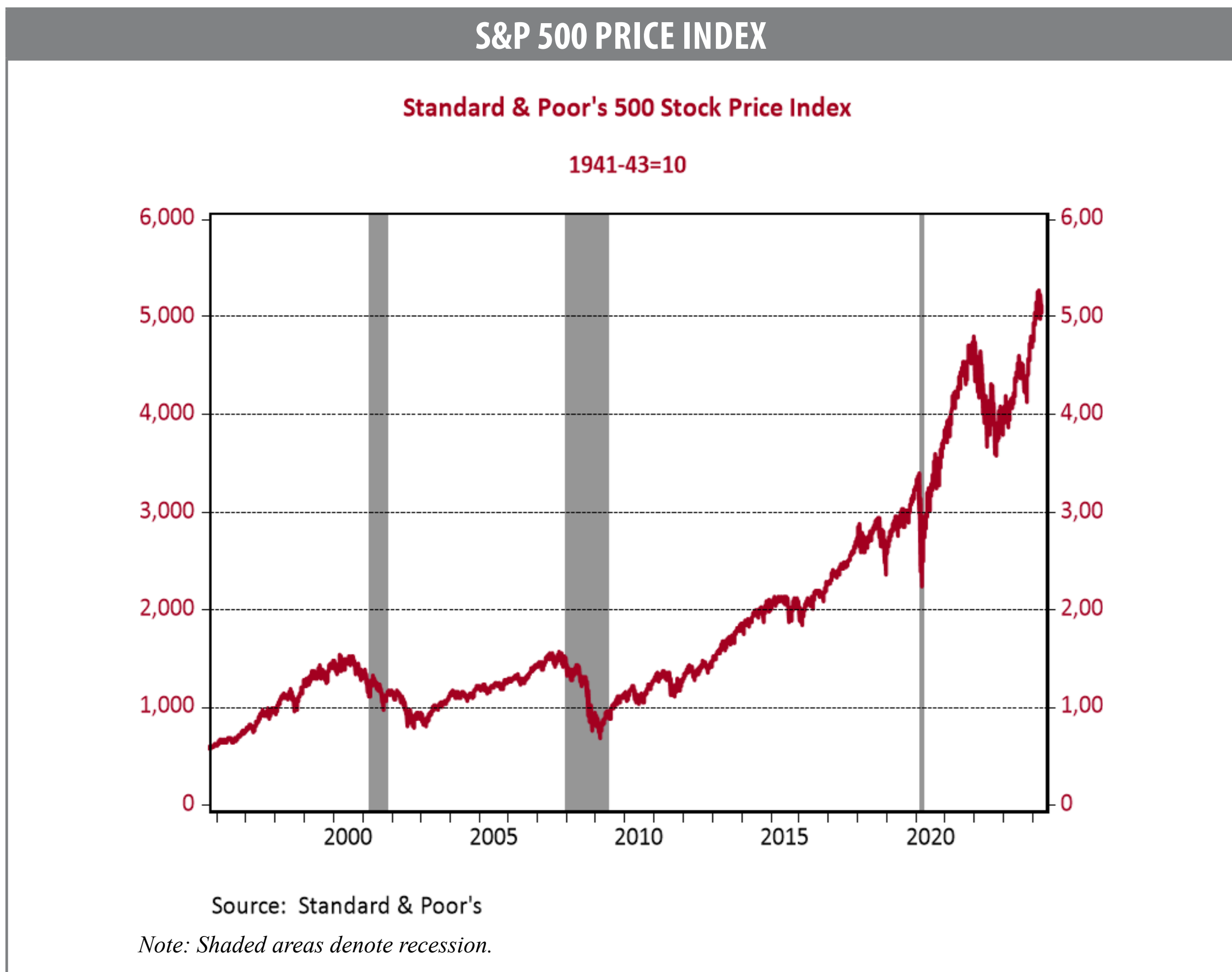
The U.S. equity market rose for the second consecutive year. As of the end of April, the S&P 500 closed at 5035.69, up 14.5% on a total return basis. After steep rate increases in fiscal year 2023, the Federal Reserve implemented only one 25 basis point increase in fiscal year 2024 before pausing. Inflation slowed somewhat; however, it has remained above the Fed's stated target rate, thus keeping rates higher for a longer period-of-time than the market originally anticipated. While higher rates typically result in valuation ratios compressing, the P/E multiple of the S&P 500 expanded during the year in anticipation of better earnings growth in 2025.

While S&P 500 earnings grew roughly 6% in 2024, much of the growth was attributed to a select few mega-cap companies, some of which were beneficiaries of the spending boom in artificial intelligence (AI); however, for most constituents of the S&P 500 earnings growth was muted during the year.

Large capitalization stocks continued to outperform small caps in fiscal 2024, and growth stocks outperformed value stocks over the period. While the market indices rose throughout the year, the breadth of the market narrowed, as investors continued to flock to mega-cap growth stocks and AI beneficiaries.

Despite the Federal Reserve's efforts to slow the economy and inflation, the economically cyclical stocks performed the best. The communication services sector (+29.7%) was the best performing group, followed by the financial sector (+21.4%), information technology (+17.8%), and energy (+17.8%). The interest rate sensitive real estate sector was the worst performing group (–1.5%). Defensive sectors also underperformed with utilities (+4.7%), consumer staples (+5.8%), and healthcare (+7.0%) underperforming the S&P 500.

S&P 500 PRICE INDEX



Note: Shaded areas denote recession.

Earnings

Earnings uncertainty is high for fiscal 2025 as revenues likely slow due to high interest rates and a slowing economy. Also, much of the earnings growth over the past year can be attributed to a few large capitalization growth companies. Using our central economic forecast as a guide, earnings per share for the S&P 500 is expected to increase 15.9% in 2025, to $255.

S&P Operating EPS	FY 2023	FY 2024 (est.)	FY 2025 (est.)
STRS Ohio Forecast	$208	$220	$255
EPS Growth (YoY)		+5.8%	+15.9%
Consensus Forecast	$208	$221	$258
EPS Growth (YoY)		+6.3%	+16.7%

Revenue headwinds may come from a slowing economy and a weaker consumer, particularly at the lower income strata, especially those most negatively affected by inflation and higher rates. Higher-for-longer rates and lower wage growth could also slow top-line growth. Close to record high operating margins may not see much improvement as companies are forced to deal with higher labor and interest costs, coupled with less ability to raise prices. However, several one-time acquisition and COVID-related charges in the healthcare sector will not repeat and will provide support to earnings growth in 2025.

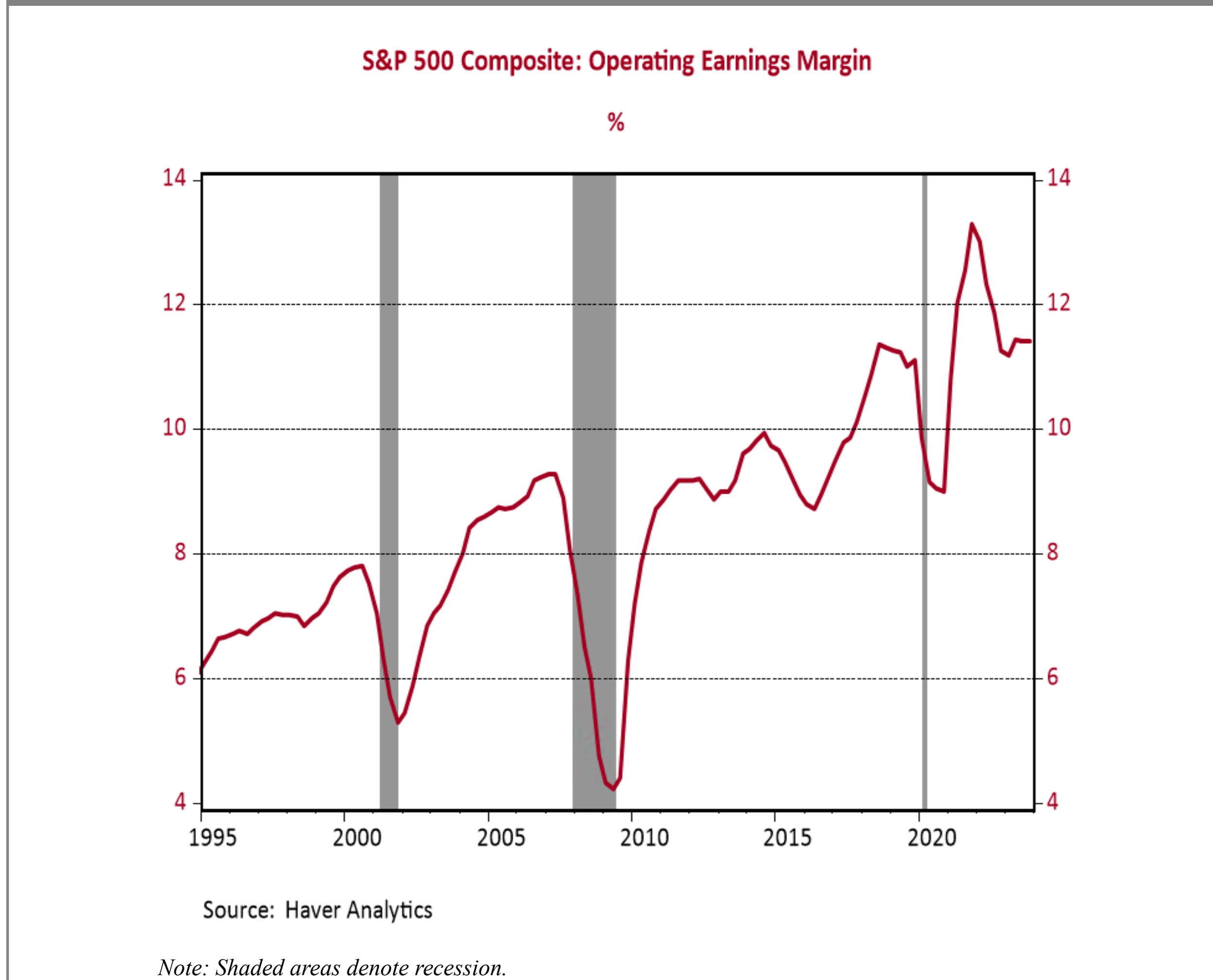
Bank earnings will likely slow due to high interest rates and moderating economic growth. An extended period of high rates could also lead to lower capital markets activity and greater costs to obtain/maintain deposits. The financials could also see increased loan-loss provisioning if the economy and labor market slows. Interest rate-sensitive stocks such as real estate and consumer discretionary stocks could feel the negative effects of higher-for-longer rates and tight lending standards.

If the economy slows, we anticipate defensive stocks may perform the best. Healthcare, consumer staples, and utilities should do well in a weaker economic environment.

We expect the energy sector to continue to perform well in 2025 as the sector has had a decade of consolidation and deferred capital expenditures, both of which capped supply growth, resulting in very low global inventories and elevated oil prices. Additionally, the potential restocking of the Strategic Petroleum Reserve could lift energy prices further.

Note: Shaded areas denote recession.

S&P 500 COMPOSITE: OPERATING EARNINGS MARGIN



Note: Shaded areas denote recession.

With respect to capital allocation, we expect companies to use free cash flow to return capital to shareholders via buybacks and dividends. Capital expenditures and hiring may decrease as corporations attempt to offset margin pressures from rising input costs and interest rates. In addition, higher-for-longer Fed policy and tight lending standards could result in more economic uncertainty. Business should also continue to onshore manufacturing and supply chains from China and other countries to secure the availability of product inputs.

Valuations

The S&P 500 is currently trading at 22.8 times trailing 12-month operating earnings and 19.5 times consensus forward earnings estimates. Valuations are above the historical average of 16 times earnings. Investors will continue to watch the earnings trajectory in 2025 as optimistic expectations are priced into valuations. The P/E ratio is likely to decline in 2025 as earnings rise and expectations normalize. Other possible risks to valuations on the downside would be less corporate-friendly policies from the U.S. government, a financial crisis or possible geopolitical uncertainty. Higher valuations could occur if the global economic activity grows at a more rapid rate than we are forecasting, or inflation and interest rates decline.

Forecast

Due to elevated macro and micro economic uncertainty, the range for our market forecast is wide. Under the central economic forecast, we would expect an operating range for the S&P 500 to be 4500–5600 with a point estimate target of 5350. This target is based on a P/E multiple expectation of 21 times the earnings estimate of $255. Under a more positive scenario, a weakening dollar and robust global economic growth, and Federal Reserve easing could lead to a stronger U.S. economy. A resilient economy, combined with an easing Federal Reserve could drive earnings to $260 or more, and the market to new highs above 5500. Should the U.S. economy experience a recession, earnings could fall to $200 or below — resulting in the S&P 500 at 3400 or lower. The longer monetary policy remains restrictive increases the probability of the downside scenario resulting in a more bifurcated view and a wider expectation of outcomes than is normal. The following table illustrates these scenarios (all estimates are approximate and may be rounded for simplicity).

	Earnings	Multiple	Target	Total Return
Base Forecast	$255	21	5350	7.6%
Operating Range			4500–5600	–9% to +12%
Upside Case	$260	23	6000	21%
Downside Case (recession)	$200	16	3400	–31%

STRATEGY

For fiscal 2025 we have a neutral outlook for the equity markets, resulting in returns that will likely be at the policy return. Currently, domestic equities represent 26.0% of total assets, equal to the current neutral target weight. The domestic equity asset class is likely to remain near a neutral position versus the policy target weight in fiscal 2025 unless risks recede or the economic outlook becomes more favorable. We feel risks are skewed to the downside due to high market valuations, so we are cautiously approaching stock selection focusing on companies with high earnings quality and reasonable valuations.

Our equity allocation is balanced between value and growth factors. As economic uncertainty has increased, investors have sought the perceived safety of mega-cap growth stocks. This has resulted in wider valuation spreads and has led to narrow market breadth. We are slightly overweight small cap due to its cheaper valuations and are positioned towards high-quality in the space.

We expect volatility to remain elevated during this fiscal year, reflecting economic uncertainty as the Fed maintains this level of rates. This elevated volatility could result in opportunities to adjust our weighting to take advantage of market moves.

Strategic Initiatives

We will continue to closely monitor the performance of all of our domestic portfolios — particularly those with weaker longer-term records. We will also continue to examine our external managers to determine if any changes need to be made to improve the domestic equities structure and performance.

Similar to last year, we will continue to look for new equity replacement strategies that can replace some of our passive exposure and/or improve our risk/reward balance.

7. International Investments

OUTLOOK

In fiscal 2024, the international markets are recording positive returns above the policy standard for the asset class. Valuation multiples expanded as the global economy continued to advance, while markets began to anticipate that major central banks in the developed markets, excluding the Bank of Japan, could move earlier than the U.S. Federal Reserve in lowering policy interest rates. The MSCI World ex-US (50% Hedged) Index for developed markets has increased 12.2% through the end of April, while the MSCI EM Index for emerging markets has increased 7.7%. As a result, the International Blended Benchmark — consisting of 80% of the MSCI World ex-US (50% Hedged) Index return and 20% of the MSCI EM Index return — combined represents an increase of 11.3%. At this writing, staff anticipates total returns earning at normal levels in fiscal 2025.

Developed Markets

Throughout fiscal 2024, most central banks in developed economies have maintained policy interest rates at decade-high levels, even as headline inflation eased. Notably, the Bank of Japan diverged from this trend. Contrary to some investors' expectations, the restrictive monetary policies did not lead to either widespread recessions nor sustained market corrections. The developed markets recorded respectable returns through April 2024.

Looking ahead into fiscal 2025, many market observers anticipate further easing of inflation, paving the way for most central banks to consider cutting key interest rates. This shift towards lower interest rates, coupled with expectations of mild economic expansions, sets a favorable backdrop for equity market performance. Modest consensus earnings growth expectations, combined with possible valuation multiple expansion supported by the lower interest rates, may allow markets to climb in local currency terms. The U.S. dollar return for the developed markets may receive an additional boost from foreign currency strength. Most developed market currencies appear undervalued versus the U.S. dollar and could begin to appreciate once the U.S. Federal Reserve starts to cut interest rates. The 3% dividend yield will give additional support to the total return. After considering these factors, the total return forecast in developed markets is for a normal return at policy expectations.

Japan's equity market was boosted in fiscal 2024 by a weak yen that significantly bolstered exporters' earnings. Many of its technology companies benefited from artificial intelligence driven investments. Moreover, Japanese corporates made noticeable strides with their governance, as many increased share buybacks and cancellations, and attempted to reform and streamline corporate structures. Market participants anticipate this positive trend in corporate governance to continue, helping sustain higher valuation multiples. However, consensus forecasts that predict a significant currency appreciation raise doubts about achieving a similar level of earnings growth as the equity market is largely composed of exporters. The Japanese equity market faces heightened uncertainty over fiscal 2025 due to low confidence in corporate earnings growth forecasts and premium valuation multiples compared to 10-year historical averages.

The forecast for yen appreciation hinges on the anticipation of slight interest rate increases by the Bank of Japan (BOJ), coinciding with expected cuts by the U.S. Federal Reserve in fiscal 2025. The BOJ had been reluctant to raise rates, but in March 2024 the central bank announced its first hike in 17 years and put an end to the negative interest rate policy. Despite the initial monetary policy changes, the yen began to weaken again and prompted the BOJ to intervene in the currency markets to fight against further depreciation. Widespread anticipation exists that the BOJ will raise interest rates further in calendar 2024.

The weak yen poses challenges for the general population, who contend with higher price levels due to increased import costs for consumer goods, raw materials, and energy. The persistent inflation has eroded living standards for many and contributed to Prime Minister Fumio Kishida's historically low approval

ratings. Kishida is to face the Liberal Democratic Party's (LDP) leadership election in September 2024, with the winner to become the Prime Minister and lead the party in the next Japanese general election, due by October 2025. The fractured nature of the LDP and lack of dominant contenders mean that Kishida could hold on to power. The upcoming election could be a market neutral event as the other candidates who are likely to be in contention for the LDP leadership are expected to follow similar economic policies to Kishida.

The European countries have faced challenges stemming from the conflict between Russia and Ukraine over the past two years. The region's heavy reliance on Russian gas initially raised concerns about an energy crisis. Fortunately, milder winters and ample storage levels have spared the region from such a crisis for two consecutive years. Declining risk premiums, coupled with expectations of interest rate cuts, have helped to generate a high single-digit overall return in eurozone equity markets during fiscal 2024 through April. Expanding valuation multiples have contributed to market performance despite slow earnings growth rates overall.

Structural issues persist with the European economies, including aging demographics, rigid labor markets, political tensions and substantial public debt burdens. Despite this backdrop, easing inflationary pressures may allow the European Central Bank to lower interest rates as soon as June 2024, providing stimulus for economic growth. Additionally, the European countries are home to numerous world-class companies across various industries, presenting long-term investment opportunities despite broader economic challenges.

In Germany, Chancellor Olaf Scholz's center-left Social Democrats lead a three-party governing coalition troubled by policy clashes and declining popularity ratings. A sluggish economy, higher price levels and lower real wages contribute to the problem. Meanwhile, the far-right's growing influence fueled by anti-immigration sentiment continues to shape political discourse. Substantive fiscal stimulus is unlikely given Germany's adherence to constitutional debt restrictions, with any amendment needing a two-thirds majority in the Bundestag, which is currently politically unattainable. With federal elections more than a year away, constraints outweigh opportunities in German politics. Despite these challenges, the German equity market is populated by world class players in such industries as automotive manufacturing, industrial equipment, and financial services that are still trading at attractive valuations relative to their 10-year history and peers.

French President Macron is confronting low approval ratings, trailing Marine Le Pen, leader of the far-right National Rally party; however, the next presidential election is not scheduled until 2027. The French economy is tempered by headwinds like unemployment, housing market volatility and inflation. An economic acceleration is anticipated toward the latter part of fiscal 2025, supported by structural reforms bolstering investment and employment rates. Its sustained progress depends on ongoing reform efforts that are unfortunately hampered by the Macron government's inability to enact reforms, particularly given the absence of an absolute majority in the National Assembly. Higher earnings growth of French equities is tilted toward the latter part of fiscal year 2025 as well, with much of it reliant on luxury goods firms benefiting from an anticipated Chinese demand recovery. The French equity market appears less attractive given the growth outlook and slightly above 10-year average valuation multiples.

The Italian government currently enjoys a strong majority, favorable polling, and faces a relatively fragmented opposition — a departure from historical norms. Prime Minister Giorgia Meloni's tenure is widely expected to continue in the near term. Amid this relatively stable backdrop, the Italian economy has potential for improvement, with corporate earnings growth anticipated to accelerate in the latter half of fiscal 2025. In contrast, Spain's political landscape has been marked by drama. Prime Minister Pedro Sanchez recently threatened to resign before reaffirming his commitment to stay. Despite this, the Spanish economy has outperformed the region, buoyed by its tourism and export sectors. Both southern European markets are trading at premium multiples compared to 10-year historical averages on asset-based valuations.

In the United Kingdom, Prime Minister Rishi Sunak has called for a national election on July 4, 2024. Opposition leader Kier Starmer and his Labor Party have a sizeable lead in the polls. The ongoing cost of living crisis has spurred the possible change in government. With a sluggish economy and easing inflation, policymakers are likely to cut interest rates early in fiscal 2025. The softening interest rate environment is expected to dampen bank profits, while volatile commodity prices will continue to challenge energy and material company earnings. Nevertheless, the United Kingdom equity market appears attractive based on price-to-earnings and book value multiples.

In Australia, Prime Minister Anthony Albanese and his Labor Party government have made significant strides in improving relations with China. However, the leadership's approval ratings remain low, primarily due to the voters experiencing higher living expenses. The Reserve Bank of Australia's aggressive monetary policy has curbed inflation, but increased interest rates have heightened housing-related expenses for consumers. Economists predict below-trend growth, prompting forecasts of interest rate cuts as inflation continues to ease. Expectations of improved trade with China and potential increases in commodity prices are anticipated to marginally strengthen the Australian dollar. At the same time, corporate earnings are expected to be flattish compared to the previous year, driven by uncertain demand for commodities and a tough banking environment. While there may be individual investment opportunities within the Australian equity market, the broader market appears moderately expensive based on both forward earnings and book value multiples.

Rising interest rates in Canada, aimed at curbing inflation, have imposed heavier financial burdens on consumers. Higher housing costs have fueled discontent among Canadians, contributing to the declining popularity of Prime Minister Justin Trudeau and the Liberal Party. Dissatisfaction over the carbon tax hike, coupled with contentious immigration policies, has bolstered support for the opposition Conservative Party. Despite the federal election not being due until October 2025, Trudeau faces significant challenges with his policies and public perception. Market observers anticipate interest rate cuts during fiscal 2025, in line with anticipated actions by the U.S. Federal Reserve. Earnings growth for the Canadian market is expected to accelerate in the latter half of fiscal 2025, while valuation multiples for Canadian equities remain on par with 10-year historical averages.

Emerging Markets

The emerging markets in fiscal 2024 recorded a +7.7% return through April. India and Taiwan, both in the top three largest-weighted countries in the emerging markets benchmark, were among the seven markets that recorded returns of at least +20%. Staff forecasts that the emerging markets in fiscal 2025 will earn a total return that is slightly above normal. This forecast is based on fair valuation multiples and expected earnings growth, coupled with supportive monetary policy and global macroeconomic conditions.

The emerging markets valuation on a trailing price/earnings multiple is modestly higher than the historical average for the past 10 years; however, the forward price/earnings and price/book value multiples are near the 10-year averages. The trailing return on equity has been falling during fiscal 2024 and is now below the 10-year average. The overall valuation appears fair when considering that earnings per share have been declining in fiscal 2024. The emerging markets valuation multiples remain at discounts relative to the current levels in the developed markets. Staff expects the earnings will rebound in fiscal 2025 and the valuation multiples will be supported by a reduction in policy interest rates continuing in some emerging countries; however, the pace of rate cuts may slow if inflation remains above target due to factors such as depreciating currencies. Possible beneficial factors in fiscal 2025 to boost earnings will be the robust demand for artificial intelligence server components supplied by manufacturers in South Korea and Taiwan, along with strong growth expected from companies in India benefiting from the robust domestic economy.

China remains the largest country in the emerging markets benchmark. Although the country's return in fiscal 2024 was slightly negative through April, there are some tentative indicators that performance is improving as more investors find the attractive valuations of certain stocks to be overly discounting the risks and not properly reflecting the fundamental outlook. The economy is being boosted by export growth while the property sector outlook is still problematic and perhaps is the largest downside risk for China in fiscal 2025. China's fiscal authorities are focusing more investment on advancing technological development and independence that is crowding out possibly more effective near-term stimulus measures that might have boosted consumer spending. Although there have been some trade-in subsidies to stimulate purchases of autos and home appliances, consumer confidence remains constrained, and savings rates are elevated.

There are heightened geopolitical risks that may have a higher negative impact on emerging markets compared to the developed markets. Trade tensions between China and the United States are likely to continue and may intensify if there is a change in the U.S. executive branch after the presidential election;

however, new tariffs on goods might not be limited to only China. The continued war due to the Russian invasion of Ukraine, the Middle East conflicts, and the South China Sea tensions are among the risks with a threat of escalation that could lower economic growth and lift inflation in emerging markets.

STRATEGY

As fiscal 2024 draws to a close, the international portfolio at this writing is approximately $20.5 billion or 22.1% of total assets, slightly above the neutral target weight of 22%. The international asset class weighting did not deviate materially from the 22% neutral target throughout fiscal 2024.

As markets climbed, rebalancing activity was initiated to withdraw capital to manage toward the neutral target weight and thus led to a net cumulative flow of funds out of the asset class of $1.5 billion through April 2024. Staff is projecting a normal total return for the International Blended Benchmark for the next 12 months, so the international asset class weighting will likely be held near a neutral position versus the policy target weight in fiscal 2025 unless the risk/reward outlook becomes more favorable.

The overall international portfolio's exposure to the value and growth styles early in fiscal 2025 will be targeted to be roughly in balance with no significant style tilts. Although valuation spreads between value and growth stocks remain wider than normal, growth stocks would likely benefit if the markets became concerned about any global economic weakness or if interest rates decline substantially as inflation subsides. Staff will evaluate the economic conditions and market environment as fiscal 2025 progresses to determine how to position the international portfolio.

The chart on the next page shows the estimated allocations for assets internally managed, externally managed, developed, and emerging markets investments at the end of fiscal 2024. We will be near an 80%/20% split between the developed and emerging markets within the asset class, which matches the 80%/20% neutral points set for each. Despite a higher return forecast for emerging markets relative to developed markets in fiscal 2025, the anticipated higher return is just fair compensation for the higher risks in emerging markets. Staff anticipates that the developed/emerging split will remain near the neutral points in fiscal 2025 unless better opportunities are created as the market cycle evolves. As shown below, the split between internally and externally managed funds is 51% internal and 49% external.

FISCAL YEAR-END 2024 (estimated)		
	$ Invested (at Market)	**Percent of International Assets**
Internal Managers	$10,518 million	51%
External Managers	$ 9,964 million	49%
	$20,482 million	**100%**
Developed Markets	$16,482 million	80%
Emerging Markets	$ 4,000 million	20%
	$20,482 million	**100%**

Strategic Initiatives

Staff will make any necessary changes to the overall international platform that arise from the asset-liability study to be completed in fiscal 2025.

Staff continues to closely monitor the performance of all the international portfolios. Looking at the portfolio from a risk budgeting standpoint, the highest amount of risk continues to come from the external managers. A lower amount of risk is coming from the internal managers, which is partly due to the Structured EAFE portfolio that has a passive core component. The other internal portfolios are being managed actively. Staff will continue to monitor and evaluate the proper allocation of risk across the international portfolio.

8. Real Estate Investments

OUTLOOK

Allocation

The real estate asset class is comprised of three distinct components. The majority includes direct real estate holdings in the four major property types of apartments, industrial, office and retail. These assets currently comprise approximately 67% of the real estate asset class. The remainder of the portfolio consists of real estate funds, which are primarily investments in international real estate markets, and public real estate investments in Real Estate Investment Trusts (REITs).

As of April 30, 2024, the real estate asset class allocation enters fiscal 2025 below the neutral target allocation of 10% and will likely remain below its neutral position in fiscal 2025.

Returns

For fiscal 2025, we forecast the total return for the real estate asset class to be at-to-below the STRS Ohio policy return objective of 5.10% and within a range of 2.0% to 7.0%.

Leverage

As of April 30, 2024, the leverage ratio is approximately 29.0%. Staff will manage the use of leverage in the direct portfolio below the policy limit of 50%.

Direct Real Estate Outlook

The real estate asset class continued its repricing during fiscal year 2024. Valuation declines have been driven by both a higher interest rate environment and fundamental shifts in property type fundamentals, mainly office assets. Real estate capital markets have recently begun to provide indications of pricing stability, with average peak to trough valuation declines of approximately 20% since the fall of 2022. We enter fiscal 2025 with an improved outlook for the asset class and anticipation of pricing stability through the expected impact of lower interest rates and healthy property fundamentals. As a result, we expect direct real estate returns to range from 0% to 5% for fiscal 2025.

The apartment market saw increased development and supply from developers seeking to capitalize on a structural housing imbalance. Overall vacancy rates have increased but remain below long-term trend and rents continue to increase. The Midwest and Northeast continue to see the strongest rent growth as the South and West are lagging due to increased supply. We expect a modest adjustment to national supply growth forecast based on construction trends, with supply moderating in fiscal 2025. This is being facilitated by a combination of weaker fundamentals, higher cap rates, and tighter debt markets. Employment growth will dictate the demand outlook for multifamily fundamentals and rent growth going forward. A fundamental housing shortage provides a favorable investment environment for the asset type.

The U.S. retail market is in one of its tightest fundamental positions on record due to steadily rising demand, a significant reduction in tenant bankruptcies and store closures, and limited new supply. Despite the rise in e-commerce retail sales, many retailers have adapted to omnichannel marketing strategies to raise brand awareness and increase sales through multiple distribution venues. Also, foot traffic at strip center retail locations has improved and is nearly equal to pre-pandemic levels. With occupancy remaining near its 15-year high, it is reasonable to expect rents to grow above inflation over the next year. Institutional investor interest has increased in the retail sector and is expected to continue due to the fundamental strength of the property type.

The outlook for industrial real estate in fiscal 2025 is one of stabilization and adjustment after a period of unprecedented rent and value growth coming out of the pandemic. Tenant demand has slowed from the excessive rate seen the past two years but remains positive. New completions continue to exceed net absorption, causing the overall vacancy rate to trend higher despite being well below long-term trend. Rent growth is decreasing to more sustainable and historical levels because of the increased supply in many markets, primarily in the South and West. Rents should grow, albeit much slower than the 10% and 20% increases seen in 2022 and 2023, respectively. The construction pipeline is decreasing quickly with starts down 50% over 2023, consequently, fundamentals should improve during the fiscal year.

The office sector remains the most challenged property sector in terms of fundamentals and valuations. Return to office trends from businesses continue to promote employees working more days in the office but remain below pre-pandemic levels of utilization. Vacancy rates across primary markets reflect inconsistent levels of tenant renewals and new leasing activity. Office leasing brokerage firms are reporting an increased level of overall activity, but commitments by businesses to date have yet to signal clear trends on fundamentals. Valuations declined as transaction volume remains depressed and lenders remained focused on resolving existing sector exposure. We expect office to remain challenging into fiscal 2025; however, we expect leasing fundamentals to stabilize as businesses solidify their space utilization needs and pursue leasing space.

Public Investment (REITs) Outlook

REITs are poised to benefit from a culmination of factors: a discount to private real estate values, and constrained real estate supply given the restrictive lending environment, to begin fiscal 2025. Total return expectations for fiscal 2025 range from 4% to 18% for a midpoint fiscal 2025 return of 11%. The downside estimate reflects sustained inflation and subsequently market interest rates remain elevated within the United States. The top end of the return range will be achieved if inflation and market interest rates normalize, the Federal Reserve begins the rate cut cycle, and banking liquidity and lending standards continue to improve.

International Real Estate Outlook

For fiscal 2025, we expect the international portfolio total return to be within a range of 2.0% to 6.0% (net of fees). Transaction activity remains slow in Europe at half the level of the 10-year average. However, the second quarter of fiscal 2024 saw a pick-up of 22% in trading volume over the first quarter, and small deals are favored as investors hesitantly wade back into the market. Developed Asia has provided opportunities across property types during fiscal 2024, but investment activity is expected to moderate in the remainder of the year and into early fiscal 2025, particularly in Japan, as the BoJ has indicated incremental increases to long-term interest rates, which may push up targeted cap rates for investors. Real estate managers in Europe are expecting opportunities to materialize in fiscal 2025 due to distress and current owners' liquidity challenges. Despite the expected slowed pace of investments, real estate fundamentals in these regions will allow for acquisitions and will show improving property values.

In Asia, Japan and Korea continue to present attractive real estate opportunities in select property types, including hotels, logistics and retail assets. GDP growth of 1% projected for Japan in each of 2024 and 2025 is significant for this decades-long no-growth economy. The weak yen, corporates' focus on lucrative semiconductor and auto production, and the return of foreign visitors to Japan underpin the country's growth dynamics; but these play off headwinds of shrinking real wages, falling consumer demand and labor shortages businesses face. Cap rates in Japan have remained at record lows (near 3% for office and retail and below 4% for multifamily and industrial), but Asian investors have begun to raise their targeted cap rates for new acquisitions. One promising avenue for investments stems from large corporations that continue to clean up their balance sheets by unloading real estate portfolios, a dynamic that lends to valuable pricing opportunities for real estate investors.

Europe is projected to experience slow growth in GDP in fiscal year 2025, albeit above 2024 levels. The most recent European Central Bank comments indicate rate cuts are on the horizon this year as inflation in the euro zone decreases to the targeted 2% level. Both Europe and the U.K. have experienced a challenging

economic environment on top of liquidity constraints in the capital markets, reducing real estate transaction activity across the continent. The most promising sectors in Europe continue to be industrial and residential properties, with industrial vacancy ranging from 3% to 5% in most of the developed markets. Multifamily rentals remain undersupplied, but caution must be taken where governments are capping rental growth to maintain access to housing. Targeted opportunities in prime locations may be found in office space in need of upgrades to meet amenity needs and regulatory sustainability requirements. Hospitality and alternative sectors such as data centers provide opportunities, with both leisure and business travel having picked up faster in Europe than in the U.S. and integration of AI creating storage space demand.

STRATEGY

Staff expects transaction activity to continue to be low through the first half of fiscal 2025 before picking up in the second half of the fiscal year. The pricing gap between buyers and sellers in the market has narrowed since last year but interest rate stability will be the key driver for increased investor interest, aligned pricing expectations and increased capital activity. There is still significant capital allocated for real estate investment from both private and institutional investors that is patiently awaiting investment opportunities. We continue to expect industrial and apartment assets to generate the greatest investor interest of the main property types; however, interest in retail has increased and office investment is being considered by many investors. Our pricing expectations for fiscal 2025 are reflective of an expected return of investor interest in the first half of the fiscal year.

TRANSACTION MARKET PRICING EXPECTATIONS FOR FISCAL 2025

Property Type	Initial Yield*
Retail	5.50%–7.50%
Apartments	5.00%–6.50%
Industrial	4.75%–6.50%
Office	6.25%–7.75%

*Average annual 10-year holding period returns are expected to range from 1.00%–2.00% higher than the initial yield.

We anticipate a slow acquisition pace in the direct real estate portfolio during the first half of fiscal 2025 that will pick up in the second half of 2025. We continue to seek the highest quality assets available for the direct portfolio. Our investment focus will be on the apartment, industrial and retail asset classes for new investment, and we will seek to reduce our office allocation where appropriate. On a regional basis, we expect to reduce our weighting in the Midwest and East with selective dispositions and increase our weighting in the South and West through acquisitions. New investments will include both stabilized core properties and new development where we are able to capitalize on market opportunities.

We actively managed the REIT portfolio during the entire fiscal year and maintained an overweight allocation to take advantage of pricing opportunities and higher yields than the private real estate portion of the portfolio. We continue to believe that the public real estate market will lead the private real estate market in stronger returns during the first half of fiscal 2025. As a result, we expect to tactically manage REIT allocation to capitalize on this investment opportunity during this period and then reallocating to the direct portfolio once public pricing equilibrates to fundamental values.

In total we expect to make commitments to four to five investment vehicles in fiscal 2025 for the international and opportunity portfolios. New commitments will continue the strategy of focusing on major markets and well-researched selection of property sectors in each region. The niche-type products and managers we identify will build on the established foundation of stable, quality managers in the portfolio. Under consideration will be such property types as data centers, medical office, and industrial properties in gateway markets and infill locations. We are targeting managers who have navigated real estate cycles and have a strong sourcing network to identify mispriced assets in traditionally liquid markets.

9. Alternative Investments

Asset Allocation

The alternative investments asset class is comprised of two portfolios: private equity and opportunistic/diversified. The most recent asset-liability study conducted in fiscal 2022 established a 19% neutral long-term alternative investments allocation target, including 9% private equity and 10% opportunistic/diversified allocation targets. We estimate that the actual allocation to alternative investments will be above this level throughout fiscal 2025, but within the net rebalancing range of the asset class.

Alternative Investments Returns

In February 2024, 10-year policy returns stipulated within the Statement of Investment Objectives (SIOP) were updated to reflect the general investment consultant's capital market assumptions. The alternative investments policy return equals 9.1%, the private equity policy return equals 9.9% and the opportunistic/diversified policy return equals 7.9%.

For fiscal 2025, we forecast the total return for the alternative investments asset class to be at-to-slightly-below the 9.10% STRS Ohio policy return objective, projected within a 6.0%–11.0% range.

Commitment Pace

We anticipate new commitments of $1.7 billion to $3.1 billion across the total alternative investments asset class. This commitment pace is in line with the current long-term targeted neutral asset allocation. The range of projected commitments creates adequate flexibility to address potential changes to allocation targets and long-term return targets.

Underwriting

Our underwriting emphasizes managers that have generated returns in excess of both short-term and long-term benchmark performance and direct and co-investments with attractive projected risk-adjusted returns. Our investment underwriting will take into account the STRS Ohio economic forecast for the fiscal year; therefore, for fiscal 2025 we will incorporate the persistent, but relatively low possibility of a near-term economic slowdown and the impact of potentially reduced, but still higher-for-longer rate environment into our underwriting. We will target managers that have a demonstrated ability to navigate past economic cycles and we will target direct and co-investments with demonstrated low- or non-cyclicality.

Strategic Initiatives

We remain focused on building the direct and co-investment portfolio. Since inception through April 30, 2024, we have executed investments in over 420 total companies, and direct and co-investment net asset value equaled approximately $1.5 billion as of April 30, 2024.

Additionally, we continue to execute on new strategic partnerships that we believe offer better fee economics, better governance and/or provide access to high-quality direct and co-investment deal flow. As of April 30, 2024, there were eight strategic partnerships within the direct and co-investment theme totaling over $500 million in net asset value. As of April 30, 2024, there were 17 total strategic partnerships across alternative investments totaling over $900 million in market value.

We will also continue to refine and improve our processes for measuring, monitoring and reporting portfolio risk and risk-adjusted returns.

Private Equity

For fiscal 2025, we expect the one-year return for the private equity portfolio to be at-to-slightly below the STRS Ohio policy return objective of 9.90% (net of fees), projected within a range of 6%–12% (net of fees).

PRIVATE EQUITY OUTLOOK

We expect our private equity portfolio performance to continue to track the movements of the public markets in the near term. Valuation headwinds caused by rapid interest rate increases in fiscal 2023 and fiscal 2024 persist, but upside is possible if rates expectations stabilize or rates decrease within the fiscal year. We continue to monitor impact of higher rates on the fundamental financial performance within the portfolio.

Consistent with our recent experience, through April 30, 2024, fiscal 2024 year-to-date distributions from private equity exceeded contributions by 149%. Across the industry, the fiscal 2024 time period was marked by slow transaction activity and therefore low cash distribution activity for most investors. However, due to its composition and relative maturity, the STRS Ohio private equity portfolio returned nearly $1.0 billion in gross cash distributions versus approximately $400 million in capital calls. In fiscal 2025 we expect distributions to continue to outpace contributions, though by a lower percentage, and we expect the pace of both contributions and distributions could increase if overall transaction activity increases as presently projected.

PRIVATE EQUITY STRATEGY

In last year's Annual Investment Plan, we forecasted committing $1.0 billion to $1.6 billion to private equity funds during fiscal 2024. Through April 30, 2024, we have made $438 million in total private equity commitments, consisting of (on a dollar-weighted basis) 93% domestic buyout funds and 7% global/international buyout funds. We project that we will make approximately $1.0 billion in total private equity commitments in fiscal 2024, consisting of (on a dollar-weighted basis) 97% domestic buyout funds and 3% global/international buyout funds.

For fiscal 2025, we currently anticipate making new commitments to private equity of $1.0 billion to $1.6 billion. We anticipate focusing new capital commitments on our highest performing private equity managers while selectively adding new managers with compelling track records and high expected net returns. We maintain the flexibility to execute on attractive opportunities as they arise and, as a result, commitments may be below or modestly above this projected range. Factors that will influence our commitment strategy include the current overweight position of private equity relative to its neutral target allocation and potential opportunistic secondary sales or other means of active management, which remain tactical options for private equity portfolio management.

During fiscal 2025, we anticipate that the market value weightings of the portfolio categories in the following table will generally remain within the percentage ranges shown.

PRIVATE EQUITY PORTFOLIO (AS OF APRIL 30, 204)

(in millions)

	Projected % of Total PE Market Value	Market Value	Projected Allocation Ranges for Fiscal 2025
Domestic Private Equity Funds	50%–60%	$ 5,263	75%–95%
Venture Capital Funds	25%–35%	$ 2,755	0%–15%
Global/International Private Equity Funds	10%–20%	$ 1,585	10%–25%
Public Private Equity	0%–2%	$ 0	N/A
Stock Distribution Portfolio	0%–2%	$ 0	N/A
TOTAL		**$ 9,603**	

Opportunistic/Diversified

For fiscal 2025, we forecast the one-year return for the opportunistic/diversified portfolio at the STRS Ohio policy return objective of 7.9% (net of fees), projected in a range of 6%–10% (net of fees).

OPPORTUNISTIC/DIVERSIFIED OUTLOOK

We believe opportunistic and diversified strategies will remain in an attractive investment environment in fiscal year 2025. Private direct lending, which primarily consists of floating-rate debt instruments, has relatively high overall yields compared with recent history due to the rapid rise in the federal funds rate in 2023, which increased Standard Overnight Funding Rates (SOFR), plus wider credit spreads over such base rates. Further, the continued uncertain economic environment should continue to create opportunities in the specialty finance theme.

As a result, we will continue to focus on managers with unique sourcing capabilities and versatility to underwrite complex transactions, direct lending managers with strong origination and credit track records, as well as target attractive risk-adjusted return opportunities for the direct and co-investment portfolio.

Fiscal year-to-date distributions from opportunistic/diversified investments exceeded contributions through April 30, 2024, by approximately 22%, which is a change from the previous several fiscal years. In prior years, opportunistic/diversified commitment activity was robust as the portfolio grew into its neutral weight; however, as projected, the opportunistic/diversified portfolio met its neutral weight in fiscal 2024 and commitment activity slowed last year. This, coupled with slow transaction activity, led to decreased contribution activity. We expect distributions to continue to exceed contributions in fiscal year 2025 due to reduced fiscal year 2023 and 2024 commitment pacing and the overall maturation of the opportunistic/diversified portfolio, though both distributions and contributions could increase with increased private capital markets transaction activity.

OPPORTUNISTIC/DIVERSIFIED STRATEGY

In last year's Investment Plan, we projected new opportunistic/diversified commitments for fiscal 2023 of $400 million to $600 million. Through April 30, 2024, total opportunistic/diversified commitments were $443 million, consisting of (on a dollar-weighted basis) 79% opportunistic funds and 21% direct and co-investments. We anticipate making approximately $1.2 billion in total opportunistic/diversified commitments in fiscal 2024, consisting of (on a dollar-weighted basis) 56% opportunistic funds and 38% direct and co- investments and 6% diversified investments.

For fiscal 2025, we anticipate making new commitments to the opportunistic/diversified portfolio of $700 million to $1.5 billion. We expect such commitments to have a greater relative allocation toward direct lending, specialty finance and direct and co-investments as the opportunity set within these strategies remains attractive. We will continue to utilize diligent underwriting and focus on strategies that offer downside protection, diversification of return sources and attractive relative risk-adjusted expected returns.

- In fiscal 2024 we expect commitments of $300 million to $750 million to less liquid, longer-term opportunistic funds, which call capital over several years. This commitment amount remains lower than historical commitment pacing, as the opportunistic/diversified portfolio is presently at its long-term neutral allocation. We continue to seek attractive opportunities to re-invest distributed capital into new opportunistic commitments.

  Across all opportunistic themes we anticipate allocating capital to our highest conviction managers in the existing portfolio and selectively adding new managers to diversify risk within each theme. We anticipate a keen focus on assets that are projected to generate returns that offer durability or countercyclicality in low macroeconomic growth or recessionary environments, and staff continues to search for strategies with attractive risk-adjusted returns relative to the other themes.

- We anticipate $300 million to $700 million in internally managed opportunistic/diversified commitments during fiscal 2025, including a projected $275 million to $700 million in direct and co-investment commitments and a projected increase in liquid alternatives by a range of $25 to $250 million.

  Within the direct and co-investments theme, commitment pacing will continue to be influenced by asset prices, credit spreads and overall private markets transaction volume. We will continue to take a disciplined approach to building a risk-adjusted portfolio where thematic performance is accretive to the overall opportunistic portfolio performance. We expect a majority of our co-investments will continue to be originated from existing manager relationships and strategic partnerships; however, we will continue to opportunistically invest with new managers that fit opportunistic/diversified strategic criteria and underwriting standards.

In opportunistic/diversified, investment activity falls within the nine separate themes referenced in the Portfolio Summary below, each of which is subject to the market value maximum set forth in the corresponding right-hand column. We expect the market value of each theme to be within its projected range, as set forth in the column immediately next to each theme. The market value of each theme is as of April 30, 2024.

Consistent with our opportunistic/diversified strategy, in fiscal 2025 we are increasing the market value maximum of four themes, including direct and co-investments to $2.75 billion from $2.25 billion; banking, insurance and asset management to $2.25 billion from $2.0 billion; direct lending to $2.75 billion from $2.5 billion; and specialty finance to $5.0 billion from $4.75 billion due to projected capital appreciation within the existing portfolios and the attractive risk-adjusted returns within the near-term potential pipelines. We are not decreasing any market value maximums this year.

OPPORTUNISTIC/DIVERSIFIED PORTFOLIO (AS OF APRIL 30, 2024)

(in millions)

Theme	Projected % of Total OD Market Value	$ Market Value	$ Market Value Maximum
Banking, Insurance and Asset Management	10%–20%	$ 1,425	$ 2,250
Direct and Co-Investments	10%–25%	$ 1,473	$ 2,750
Direct Lending	15%–25%	$ 1,793	$ 2,750
Energy & Natural Resources	0%–5%	$ 234	$ 500
Hedge Funds	0%–2%	$ 114	$ 200
Infrastructure	0%–5%	$ 78	$ 500
Liquid Alternatives	5%–25%	$ 503	$ 2,000
Public-Private Investment Funds	0%–2%	$ 0	$ 50
Specialty Finance	30%–45%	$ 3,721	$ 5,000
Total		**$ 9,341**	**$16,000**