SWIB Update

UW-Madison Retirement Association

April 11, 2024

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STATE OF WISCONSIN INVESTMENT BOARD

Agenda

- Performance
- Asset Allocation
- Cost Effectiveness
- Economic Outlook
- SWIB News
- Questions

Performance

WRS Core Fund Performance

As of December 31, 2023

Calendar Year-to-Date

11.40%

Benchmark: 11.00%

5-Year	**10-Year**
9.29%	7.09%
Benchmark: 8.72%	Benchmark: 6.69%

The investment objective of the Core Fund is to meet or exceed an average nominal return of **6.8% over the long-term**.

Note: Calendar year-to-date and 5-year returns are net of fees, and 10-year returns are net of external manager fees.

Net Performance – WRS Variable Fund

As of December 31, 2023

- The Variable Trust Fund is an optional all-stock fund as required by state statute.
- Approximately 7% of WRS assets are in the Variable Trust Fund.

Calendar Year-to-Date

22.24%

Benchmark: 23.14%

5-Year

12.71%

Benchmark: 12.90%

10-Year

9.25%

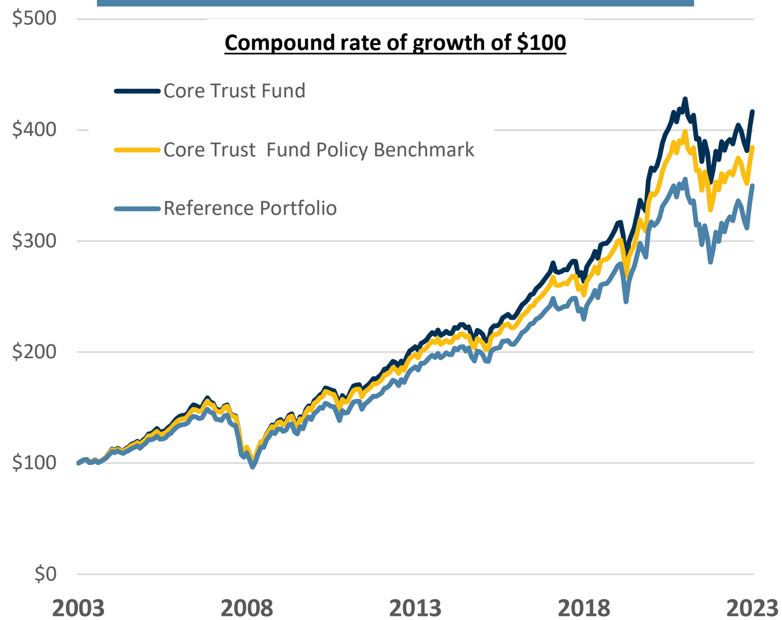
Benchmark: 9.32%

Note: Five-year returns are net of fees, and 10-year returns are net of external manager fees.

CTF Performance vs. 60/40 Reference Portfolio

20-year cumulative return[1]: January 1, 2004, to December 31, 2023

Indexed Benefit of CTF's Asset Allocation & Active Management Over Time



Portfolio / Benchmark	Annualized Gross Return	Cumulative Gross Return	Cumulative $ Excess Value Added
Reference Portfolio[2] (60% equity/40% bonds)	6.5%	249.7%	= Passive Market Return
Benefit of CTF Asset Allocation			
CTF Policy Benchmark	7.0%	284.4%	+$16.6B
Benefit of CTF Active Management			
CTF Actual Results	7.4%	316.5%	+$12.9B
CTF Excess Return vs. Reference Portfolio	+0.9% pts	+66.8% pts	+$29.5B

[1] Core Trust Fund beginning market value, as of January 1, 2004, was $56.9B and ending market value, as of December 31, 2023, was $122.6B

[2] Reference Portfolio is composed of 60% MSCI World and 40% Bloomberg US Gov't / Credit (rebalanced monthly)

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Asset Allocation

Summary of Asset Allocation Changes

Public Markets Allocation

- Reduce Public Equity from 48% to 40%
- Increase Fixed Income from 25% to 27%

Private Markets Allocation

- Increase Private Equity & Debt from 15% to 18%

Leverage Level

- Reduce Leverage Level from 15% to 12%

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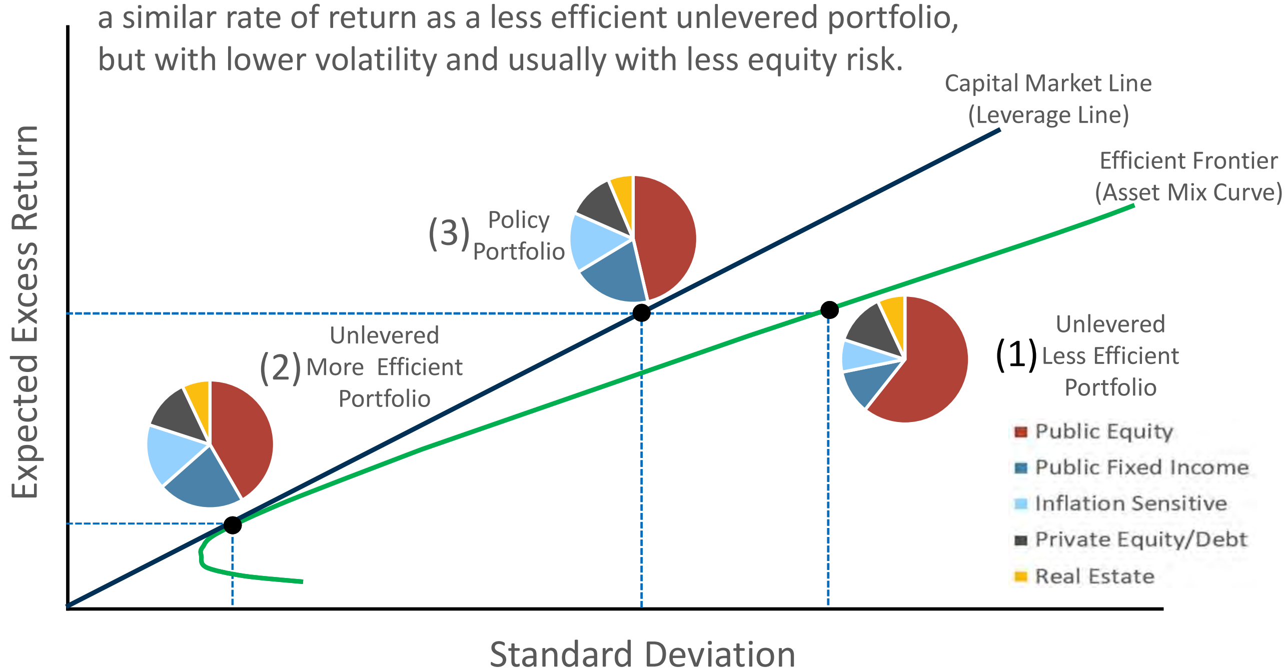
Use of Policy Leverage

By levering a more efficient portfolio an investor can achieve a similar rate of return as a less efficient unlevered portfolio, but with lower volatility and usually with less equity risk.



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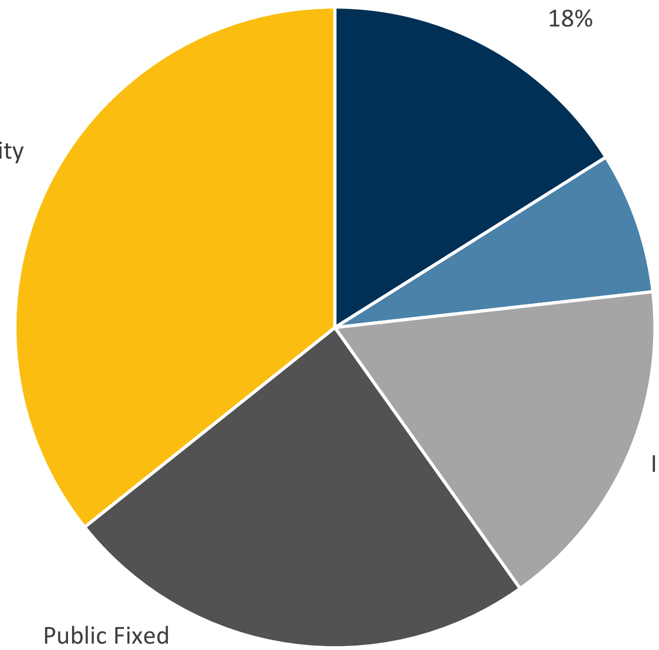
2024 Asset Allocation Targets



Long Term Target Returns and Risk	
	2024 Policy Portfolio
10-Year Expected Return	6.5%
30-Year Expected Return	7.4%
Standard Deviation	12.4%
Sharpe Ratio 10 Yr.	0.20
Target Active Risk	120 bps +/- 60bps

Note: Asset allocation target totals exceed 100% due to SWIB's overall leverage of CTF assets.

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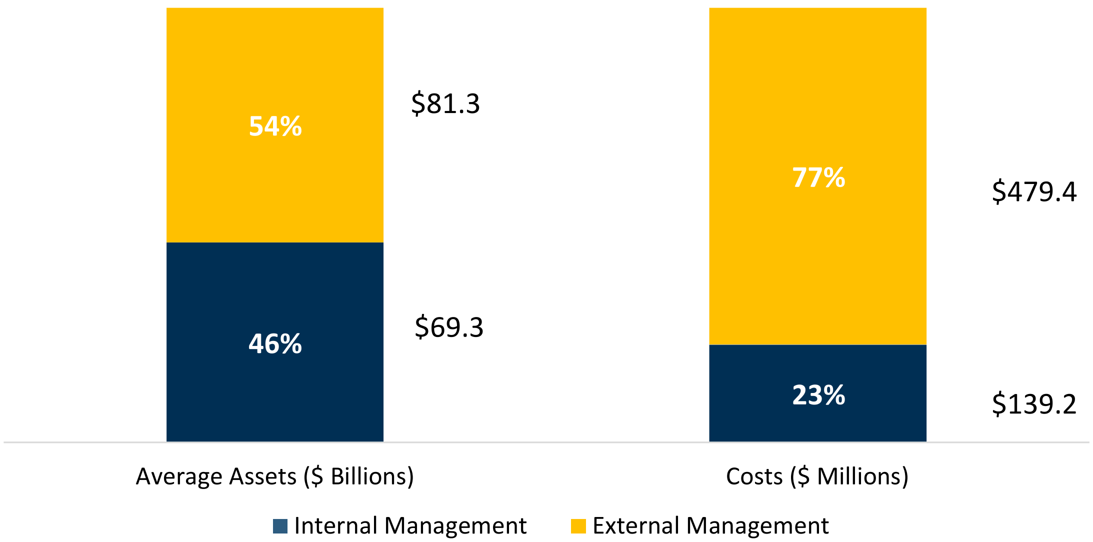
Cost Effectiveness

Internal Costs vs. External Base Fees

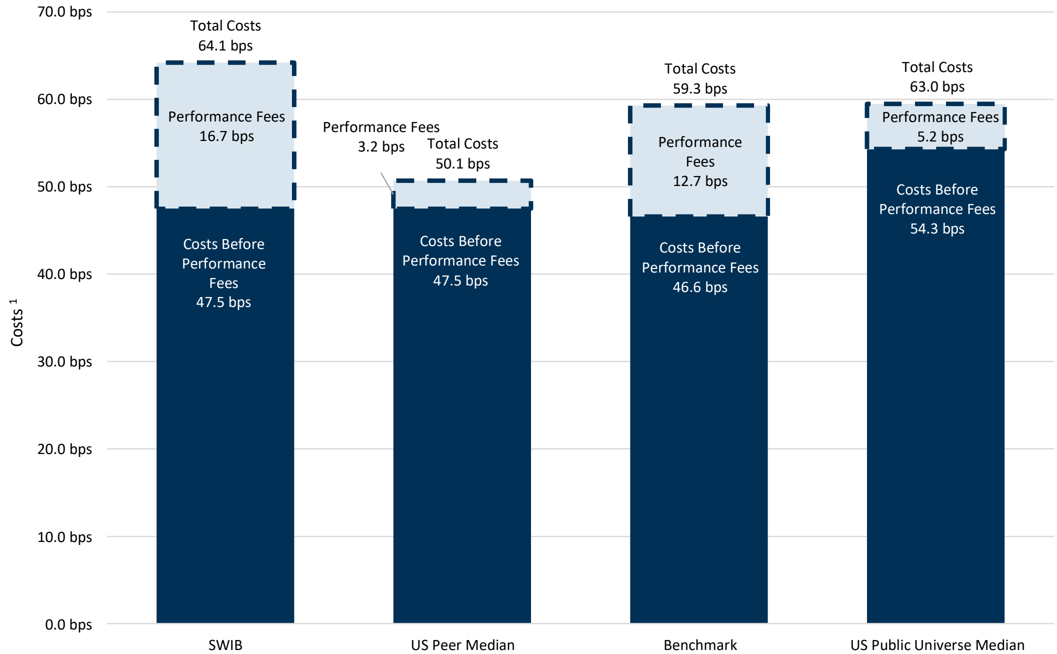
Internal management costs significantly less

SWIB saved **$536 million** vs. peers from 2013-2022.



CY 2023 Internal + External Manager Base Fees = $618.6 million

Median Costs Including Performance Fees



[1] Costs for US Peer Median and US Public Universe Median represent the median of each data point, resulting in the sum of the median cost before performance fees and the median performance fees not equaling the median total costs for each category. As a result, the above total median figures vary modestly from the sum of the individual median inputs.

When adjusted for performance fees, SWIB's costs are equal to the peer median, slighter higher than the CEM Benchmark, and lower than the U.S. Public Universe.

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Economic Outlook

Summary

Cyclical Outlook:

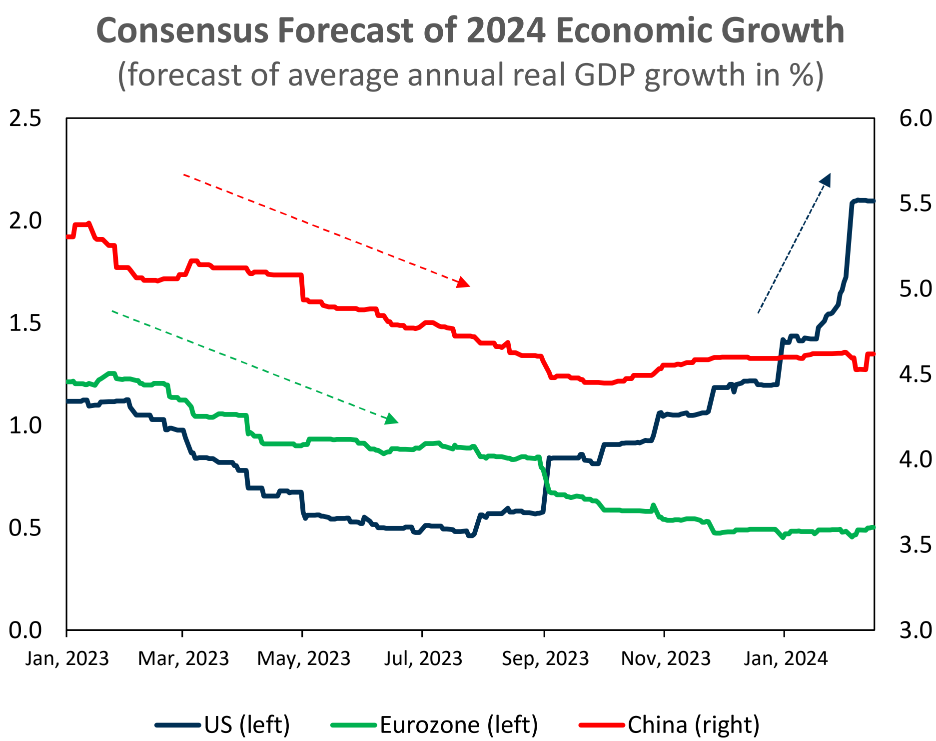
- Leading economic forecasters expect continuing disinflation as supply chains normalize.
- Expected economic growth remains strong in 2024, gradually moderating by year-end due to restrictive financial conditions and the running down of pandemic-era excess savings.
- Macro risks this year include the potential lagged effects of high interest rates on growth, negative leading economic indicators, credit losses in commercial real estate loans held disproportionately by smaller banks and geopolitical shocks.

Long-term Outlook:

- The WRS has a long-term investment horizon, matching the plan's long-term pension liabilities. The plan's objective is to generate a sufficient average investment return over time to keep the system stable while balancing downside risks.
- The risk-return frontier has flattened at a 10-year horizon, owing to higher risk-free interest rates and richer starting valuations in key return-generating asset classes like US equities and credit. The outlook improves at longer horizons.
- The long-term Policy Portfolio will shift this year with an increase in fixed income, reduced policy leverage and higher private market allocations funded from a reduction in public equity.

Cyclical Outlook: Growth

U.S. expected growth remains resilient in 2024 while other major economies expected to slow



- Survey of leading economic forecasters have consistently downgraded their projections of 2024 economic growth in China and the Eurozone.
- China's Covid recovery has been stifled by regulatory mis-steps, declining investment, a weak job market and continued stress in property markets.
- The Eurozone has been weighed down by uncertainty in Ukraine, higher energy prices, weak manufacturing in Germany and the impact of higher ECB rates.
- By contrast, expected US economic growth remains resilient in 2024 at about 2%, although slowing by year-end.

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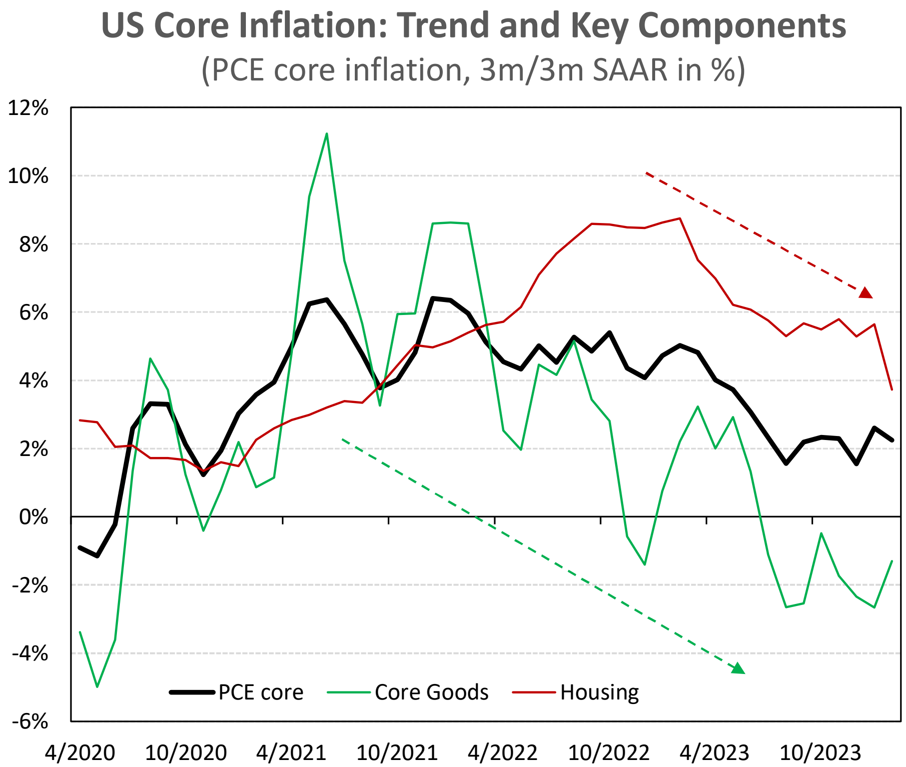
Source: Consensus Economics forecast as of February 26, 2024.

Cyclical Outlook: Inflation

Disinflation led by lower goods prices and moderating housing prices



- Core inflation using the Fed's preferred index, the PCE Core deflator (black line), has slowed considerably since its peak in 2021.
- The decline has been led by lower goods prices (green line) as supply chains have normalized after the pandemic.
- Housing costs were a major contributor to inflationary pressures (red line) but have decelerated sharply since 2022.
- The Fed would like to see a further deceleration in service price inflation, excluding housing, for greater reassurance that inflationary pressures are sustainably easing.

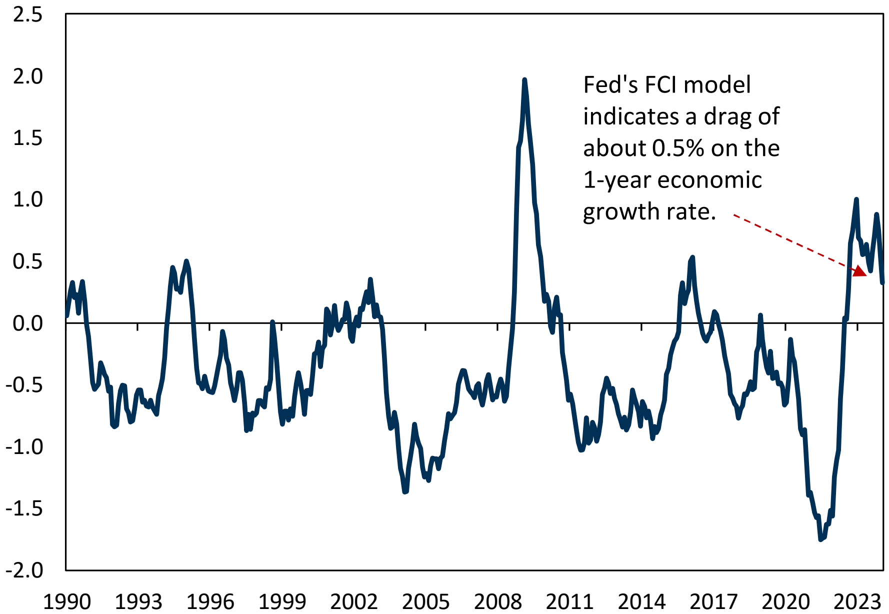
Source: Monthly PCE core deflator data provided via Bloomberg as of February 26, 2024.

Cyclical Outlook: Drivers of Disinflation Without Recession

Financial conditions are moderately restrictive and household excess savings are getting gradually run down

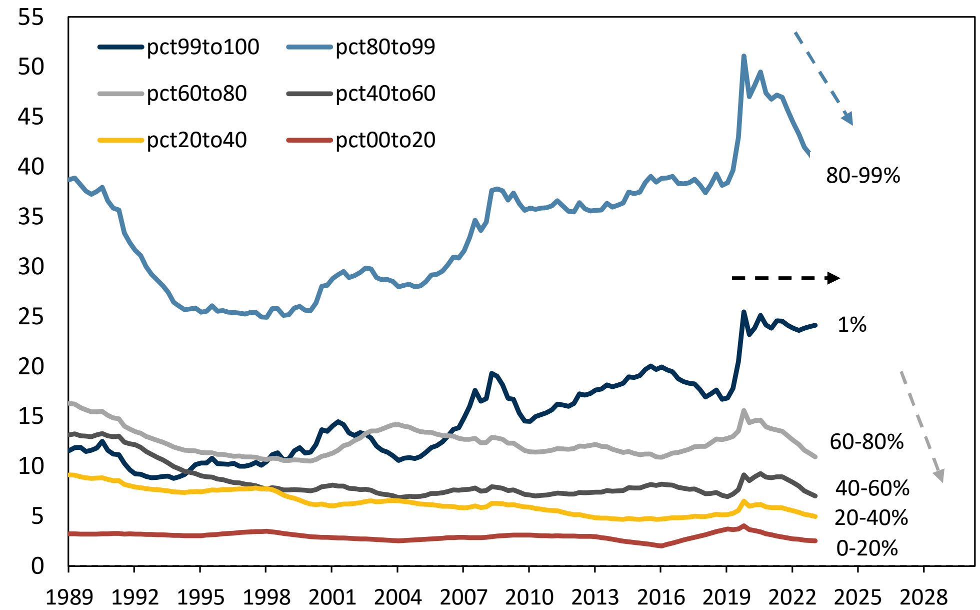
U.S. Financial Conditions: Moderately Restrictive

(Fed's Financial Conditions Index in %)



Household Liquid Assets by Income Percentile

(Deposits and Money Market Funds in % of Personal Spending)



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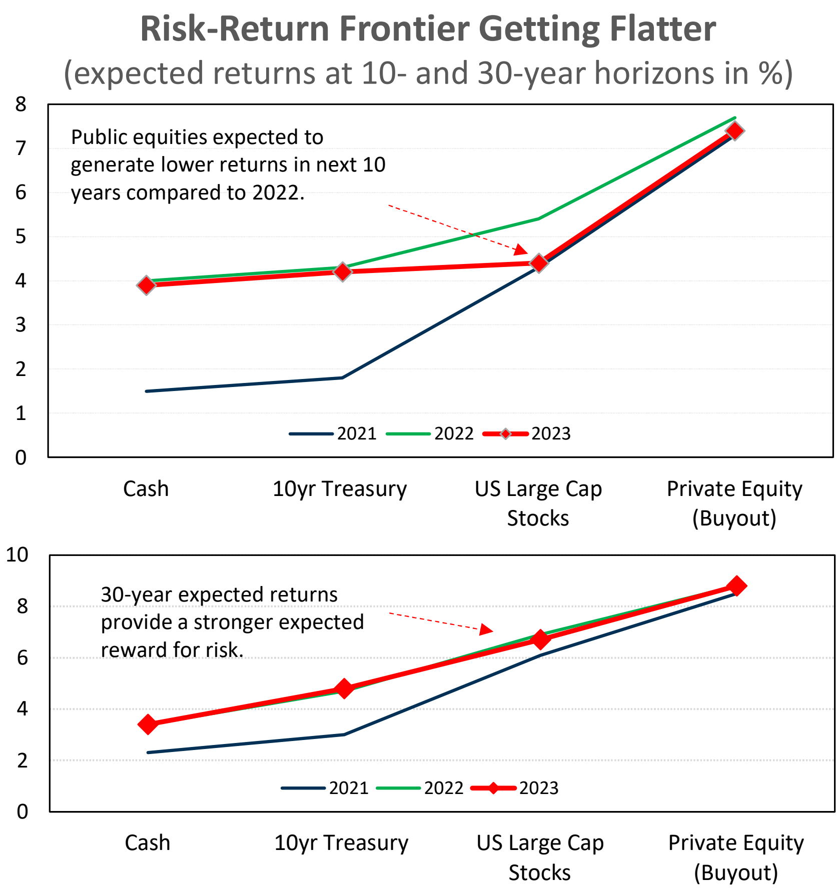
Sources: Fed's FCI-G model provided via Bloomberg as of February 26, 2024. Distribution of household liquid wealth obtained from Federal Reserve and BEA.

Long-term Outlook: Expected Returns

Risk-reward frontier getting flatter compared to recent years



Source: NEPC capital market assumptions as of 12/31 at the end of 2021, 2022 and 2023.

- 10-year expected returns (top panel) suggest that the expected reward for taking additional risk in 2023 (red line) was weaker than in 2021 and 2022 (blue and green lines, respectively).
- Cash yields have increased sharply since 2021, reducing the incremental reward of 10-year Treasuries. The starting valuations of public equities are also richer after the 2021 rally and the recent rise in the "Magnificent 7" implies that just 7 stocks now account for about 30% of the total market value of the S&P500. Private Equity offers higher expected returns, although risk is correspondingly higher.
- 30-year expected returns (bottom panel) illustrate a steady increase in expected reward for increasingly risky asset classes. The upward shift since 2021 reflects a higher average risk-free rate over the next 10 to 30 years.
- Reflecting the shifting long-term market outlook, SWIB increased the CTF's policy allocation to fixed income, reduced costly financial leverage, increased private equity/debt and reduced public equity.

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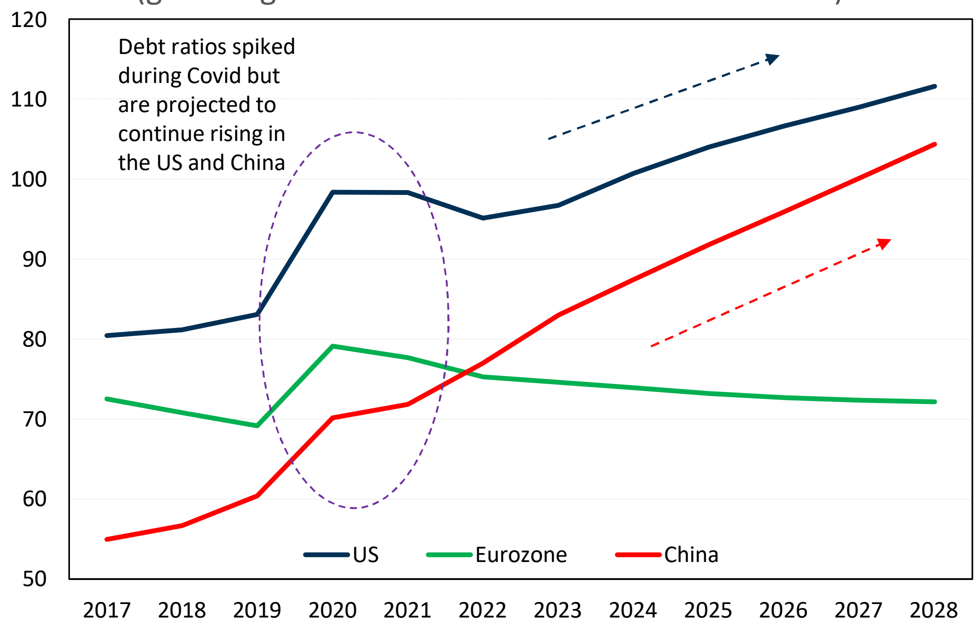
Long-term Outlook: Government Debt

Unsustainable government debt may put pressure on long-term interest rates and leaves less room to fund future spending pressures

Rising Government Debt Ratios
(general government debt as a share of GDP in %)



- The deteriorating health of US public finances has become a growing long-term economic risk.
- Debt surged due to emergency stabilization measures during the pandemic. However, private savings also surged during the pandemic, allowing higher government debt to be easily financed.
- After the economy re-opened, the US budget deficit continued to rise despite strong economic growth and higher borrowing costs. At the same time, the Fed sharply reduced its Treasury holdings.
- China's debt is also growing rapidly while the Eurozone is projected to reduce its debt ratio gradually despite a softer economic outlook in Europe.

Source: US and Eurozone net debt of general government sector as a % of GDP and China gross general government debt as a share of GDP are from the IMF World Economic Outlook database, October 2023 edition.

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SWIB News

Board of Trustees Update

Clyde Tinnen

Tom Merfeld

Barb Bolens

- Gov. Evers appointed Clyde Tinnen as Board Chair and Tom Merfeld as vice chair.
- Trustee Tinnen replaces Barb Nick as Board Chair. Nick stepped down last December after 8 years of service.
- Gov. Evers appointed Barb Bolens to the Board.
- All outstanding Trustee nominations were approved by the Senate this quarter.

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The
SWIB PODCAST
Wisconsin Retirement System Insights

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NEW EPISODE!
Episode 27
How SWIB's Co-Investment Portfolio Benefits the WRS, with Chris Eckerman and Kirk Wolff from SWIB's Private Equity & Co-Investment Team

Some Recent Episodes:
Episode 26
'It Ain't Over Till It's Over' : A Look Back at 2023 and Ahead to 2024 with SWIB Executive Director/Chief Investment Officer Edwin Denson

Episode 25
A Look Into the Housing Market and SWIB's MBS Portfolio with Mike Shearer, head of fixed income strategies, and Leo Kropywiansky, senior portfolio manager

Need More Information?

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Questions

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