

SWIB Update

Joint Meeting of Retirement Boards

March 23, 2023

Edwin Denson

Executive Director/Chief Investment Officer

Rochelle Klaskin

Deputy Executive Director/Chief Administrative Officer

Todd Mattina

Head Economist & Asset and Risk Allocation Chief Investment Officer



Agenda



Performance



Cost Effectiveness



Asset Allocation



Economic Outlook



SWIB News



Questions

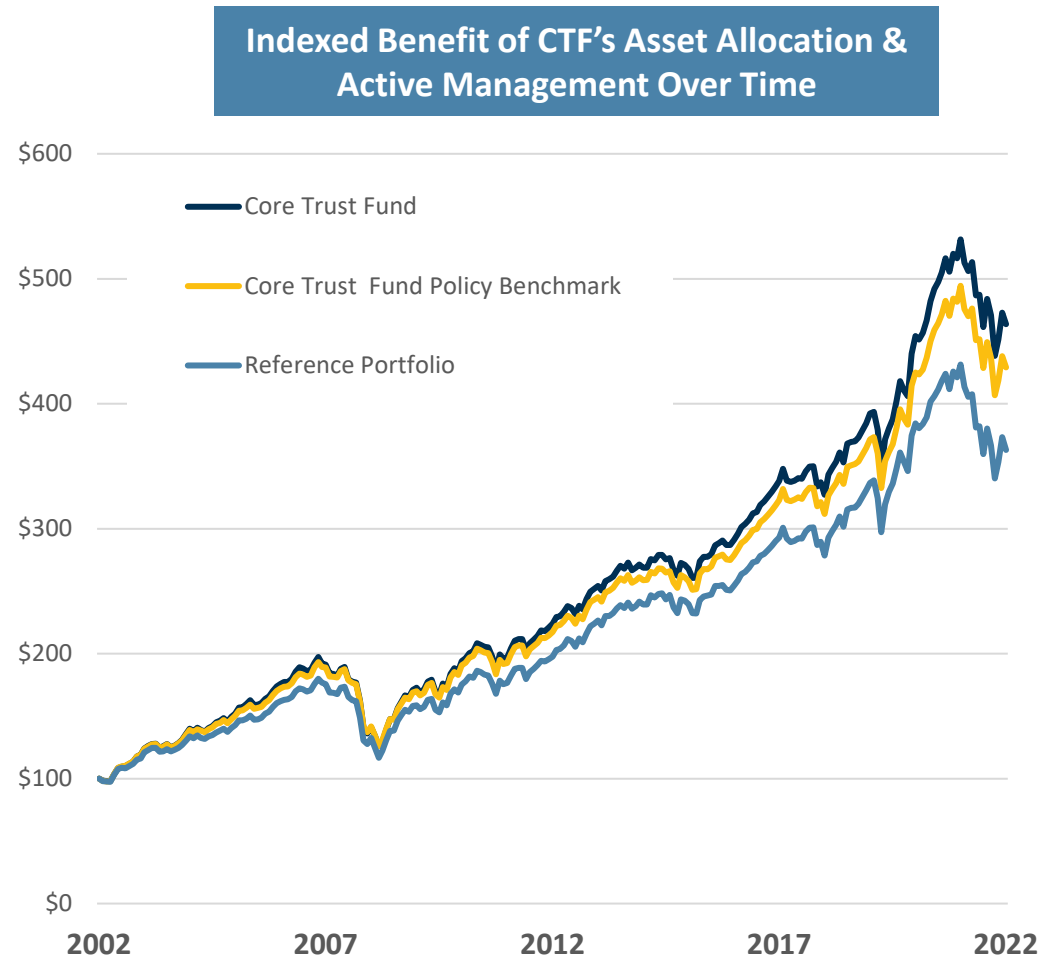


Performance



CTF Performance vs. 60/40 Reference Portfolio

20-year cumulative return¹: January 1, 2003, to December 31, 2022



Portfolio / Benchmark	Annualized Gross Return	Cumulative Gross Return	Cumulative \$ Value Added
Reference Portfolio ² (60% equity/40% bonds)	6.7%	263.2%	= Passive Market Return
Benefit of CTF Asset Allocation			
CTF Policy Benchmark	7.6%	329.1%	+\$22.9B
Benefit of CTF Active Management			
CTF Actual Results	8.0%	363.6%	+\$11.4B
CTF Excess Return vs. Reference Portfolio	+1.3%	+100.4%	+\$34.3B

¹ Core Trust Fund beginning market value, as of January 1, 2003, was \$46.3B and ending market value, as of December 31, 2022, was \$114.5B

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

WRS Core Fund Long-Term Performance

As of December 31, 2022

5-Year

6.16%

Benchmark: 5.68%

10-Year

7.25%

Benchmark: 6.84%

20-Year

7.68%

Benchmark: 7.38%

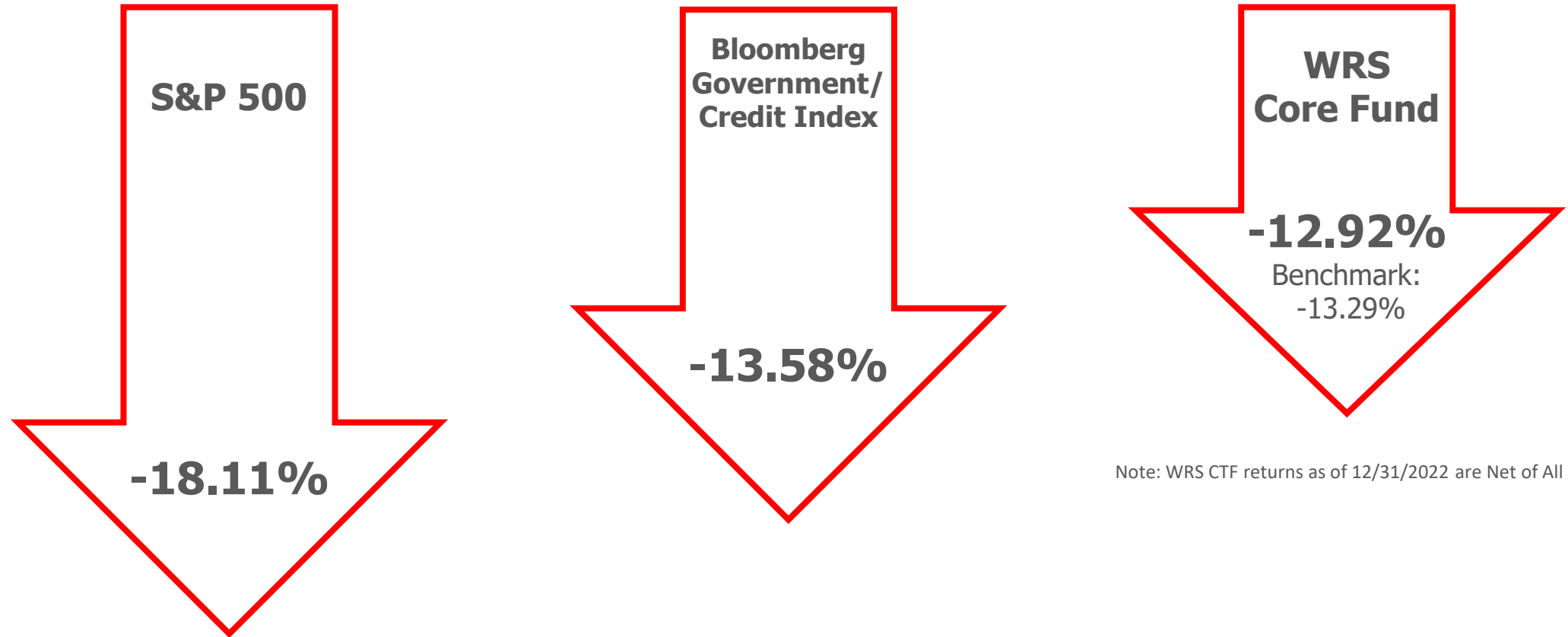
The investment objective of the Core Fund is to meet or exceed an average nominal return of **6.8% over the long-term.**

Note: Five-year returns are net of fees, and 10- and 20-year returns are net of external manager fees.



Performance – WRS Core Fund

Year-to-Date as of December 31, 2022



Note: WRS CTF returns as of 12/31/2022 are Net of All Fees



Net Performance – WRS Variable Fund

As of December 31, 2022

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

Calendar Year-to-Date

-17.83%¹

Benchmark: -18.06%

5-Year

6.48%²

Benchmark: 6.55%

10-Year

9.82%²

Benchmark: 9.75%

¹ YTD returns are net of fees.

² Five-year performance is net of all fees and 10-year performance is net of external manager fees.



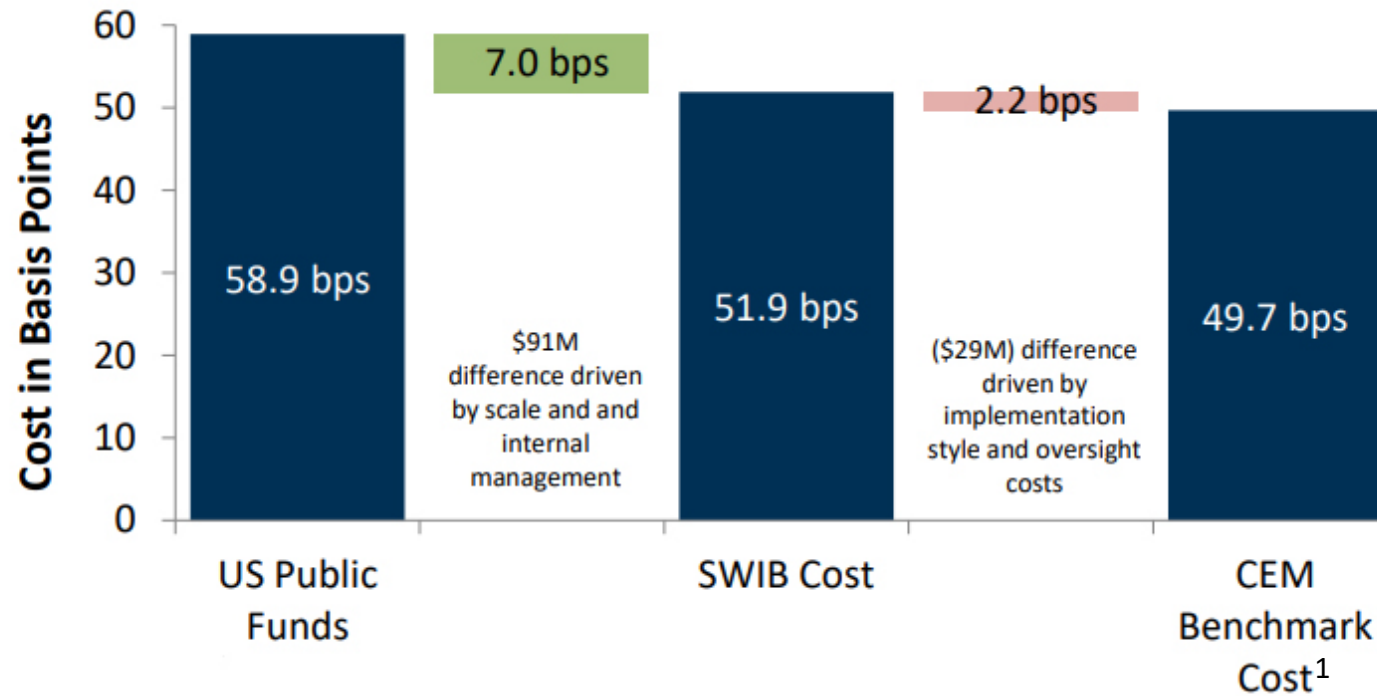


Cost Effectiveness



Total Costs Compared to U.S. Public Funds & CEM Benchmark

SWIB's costs are 7.0 bps (\$91 million) lower than U.S. public fund average and 2.2 bps (\$29 million) higher than the CEM Benchmark, which is adjusted for asset mix.

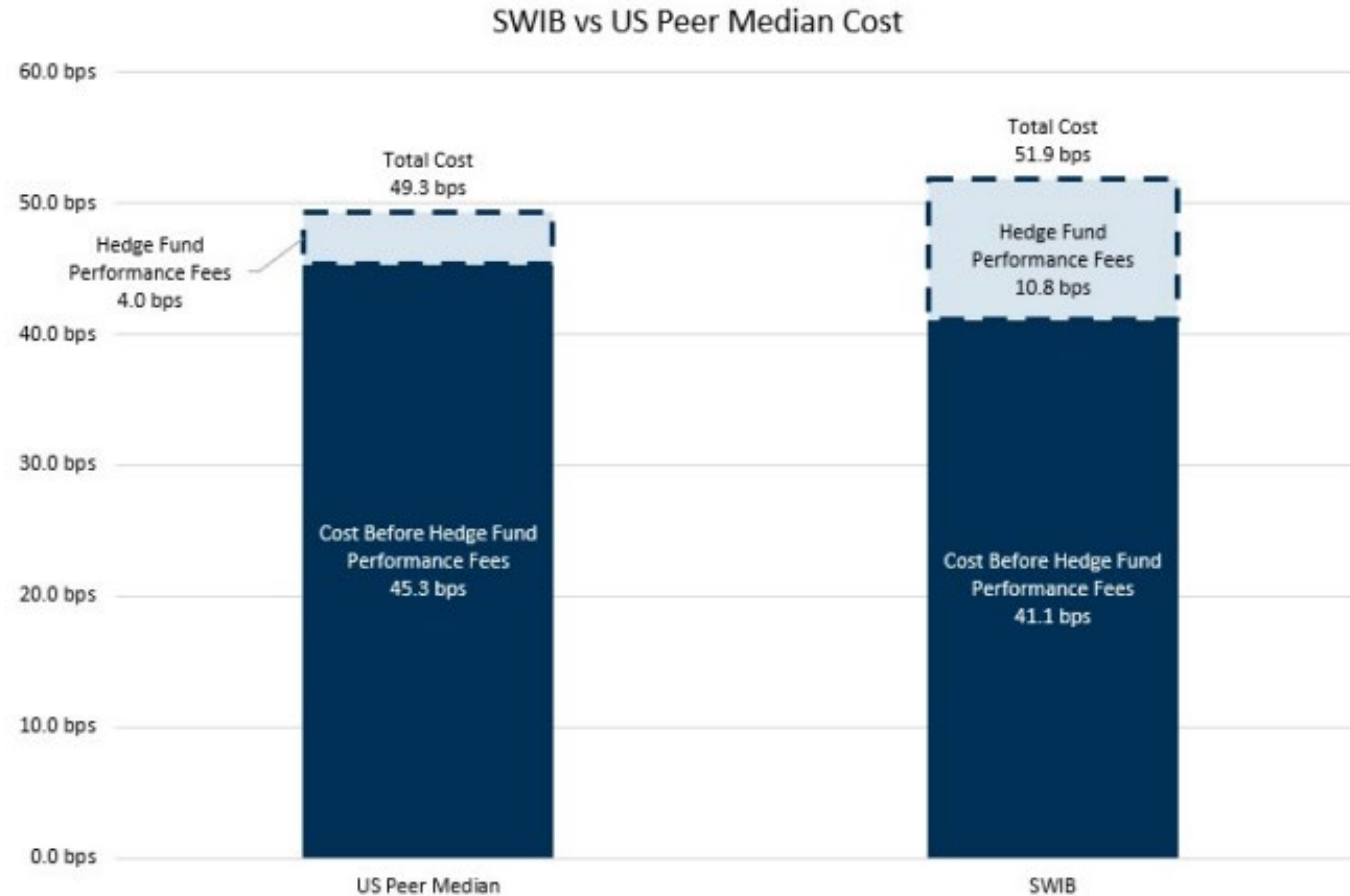


Data Source: CEM Benchmarking, Inc. 2022 Report

¹The CEM Benchmark is a hypothetical measure using peer group average costs by asset type to form an estimate of the average peer group cost to manage a portfolio with the same asset class mix as SWIB's. This measure does not consider how the exposures are achieved (e.g. active vs. passive, internal vs. external). Due to this, the costs from SWIB's relatively higher share of active investing outpace the benefits derived from a relatively higher mix of internal investment management.

2021 SWIB Cost Compared to U.S. Peer Median

SWIB's cost of 51.9 bps is higher than the peer median of 49.3 bps. However, when adjusted for performance fees, SWIB's costs are lower than the peer median by 4.2 bps.



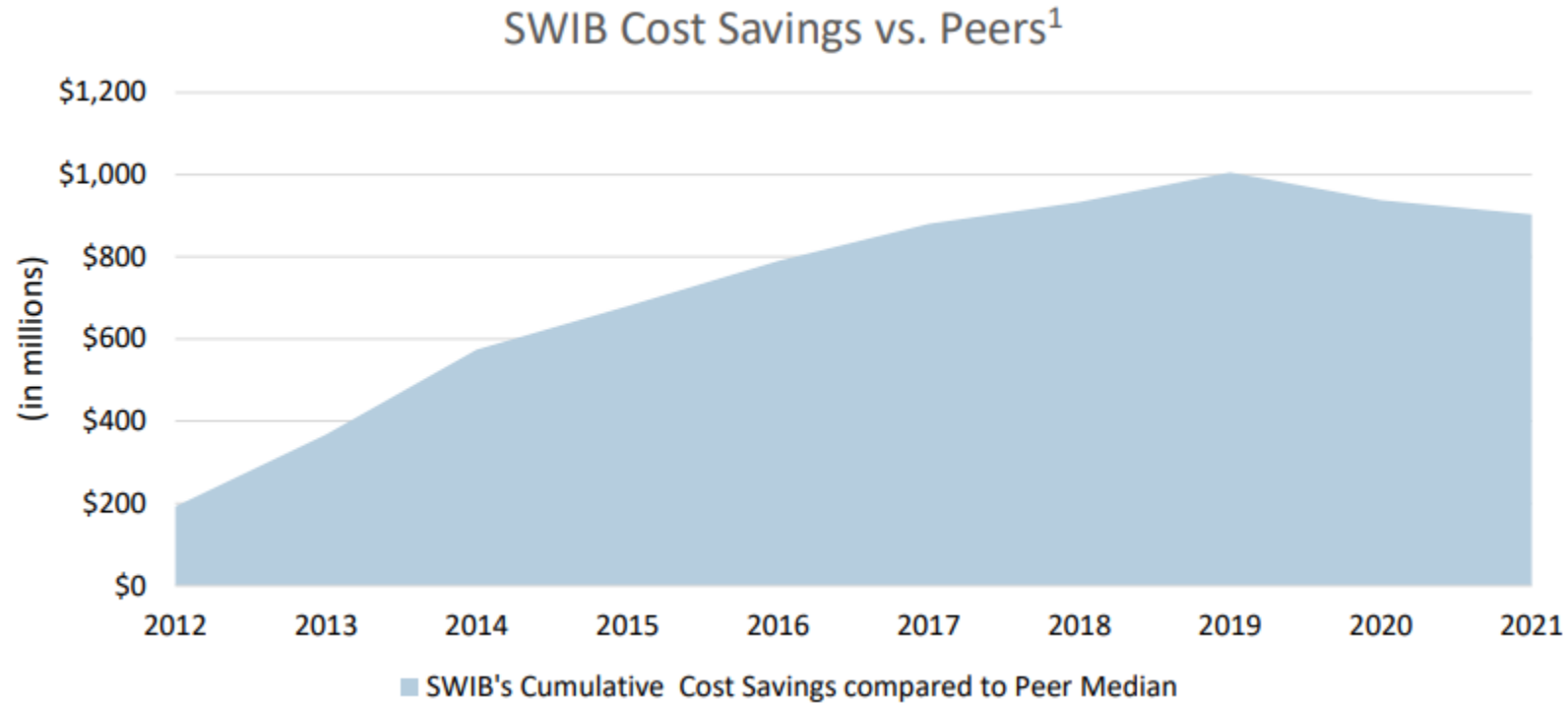
Internal Management Is More Cost Effective

SWIB's costs for internal active management remains considerably lower than the cost for external active management.

Public Market Asset Type (Active Strategies)	Internal Management Cost (bps)	External Management Cost (bps) ¹
Global Large Cap Equity	11.2	40.8
Small Cap Equity	13.5	66.5
Domestic Fixed Income	8.7	11.3
High Yield Fixed Income	7.4	31.3

¹External management costs represent the median cost for SWIB's CEM public fund peers for each asset class. SWIB engages external managers for Global Large Cap Equity at a cost of 34.1 bps and Domestic Fixed Income at a cost of 13.3 bps.

SWIB Saved \$903 Million vs. Peers from 2012-2021



¹This analysis compares SWIB's savings vs. the peer group median costs for every \$100 under management and multiplies that average savings by SWIB's median assets under management.



Asset Allocation

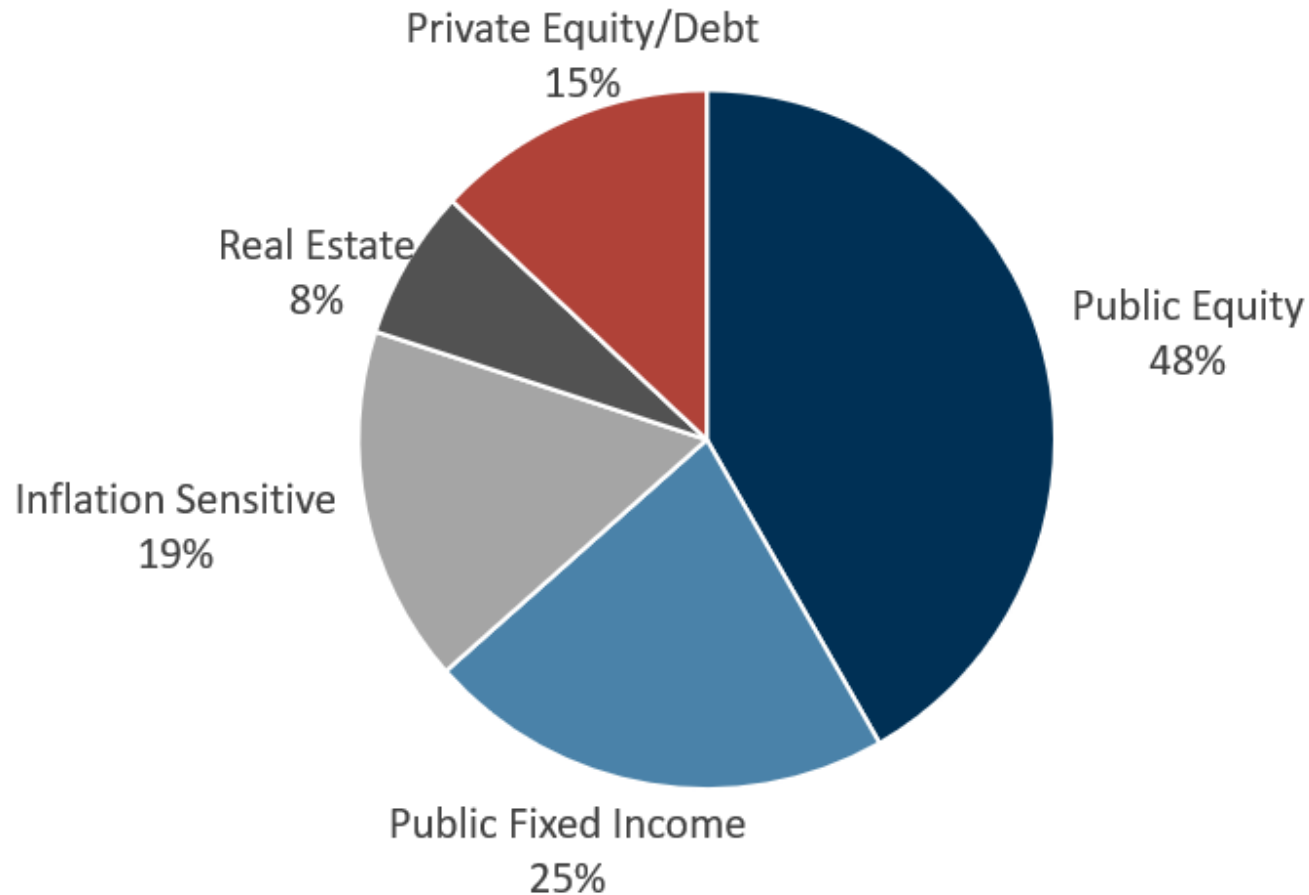


Summary of Asset Allocation Changes

- Increase in private markets to recognize part of the increase in actual exposures.
 - Private Equity/Debt from 12% to 15%
 - Real Estate from 7% to 8%
- Reduce public equity from 52% to 48% to fund private market increases.
- Expand the range around private markets given growth as well as liquidity and modeling analysis.
- No material changes to sub-asset class allocations.



2023 Asset Allocation Targets



Asset allocation target totals exceed 100% due to SWIB's overall leverage of Core Fund assets.

Long Term Target Returns and Risk		
	2022 Policy Portfolio	2023 Policy Portfolio
10-Year Expected Return	6.7%	6.7%
30-Year Expected Return	7.3%	7.4%
Standard Deviation	12.8%	12.7%
Sharpe Ratio 10 Yr.	0.298	0.302
Target Active Risk	1.2%	1.2%



Economic Outlook



Welcome, Todd Mattina

Head Economist, Asset & Risk Allocation Chief Investment Officer



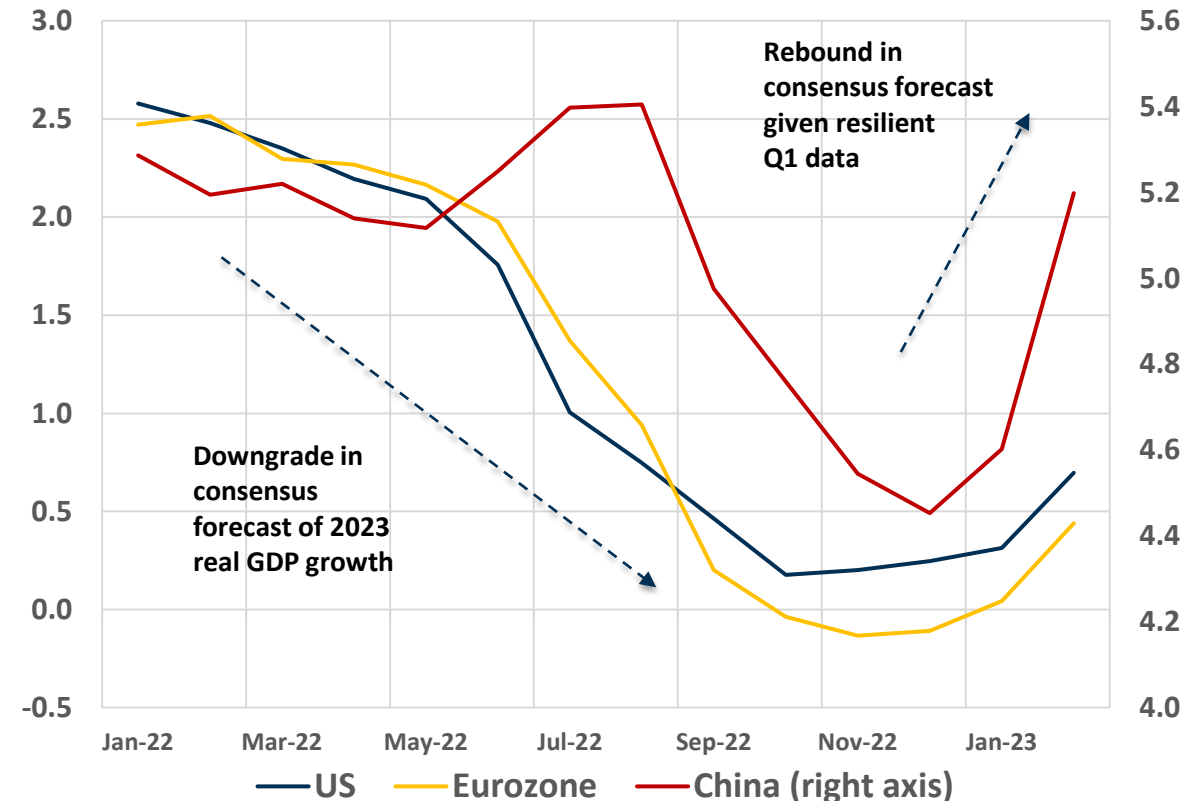
- Joined SWIB in January 2023.
- Responsible for taking a broad view of economic conditions in developing, recommending, and implementing SWIB's asset allocation and other policies for allocating investments.
- Will support the agency's investment decisions and determine how best to leverage economic policy to address opportunities, risks, and challenges.
- Has more than 20 years of experience in economic analysis and investments, including as senior vice president, chief economist, and co-lead of the multi-asset strategies team at Mackenzie Investments in Toronto and as the deputy division chief at the International Monetary Fund (IMF) in Washington D.C.
- PhD in Economics from Queen's University in Ontario.



2023 Economic Outlook: Global Growth

- Global economic growth has been more resilient this quarter than many economists had expected.
- Economists had downgraded the consensus forecast of global growth in 2023 given restrictive central bank rates, high inflation eroding purchasing power, and geopolitical uncertainty.
- Strong U.S. payrolls and consumer spending, lower natural gas prices in Europe, and China's exit from zero-COVID have sustained momentum this quarter.
- However, SWIB expects slower overall growth in 2023, including the potential for a contraction, as central banks keep interest rates in restrictive territory to bring down inflation.

Consensus Forecast of 2023 Real GDP Growth (%)

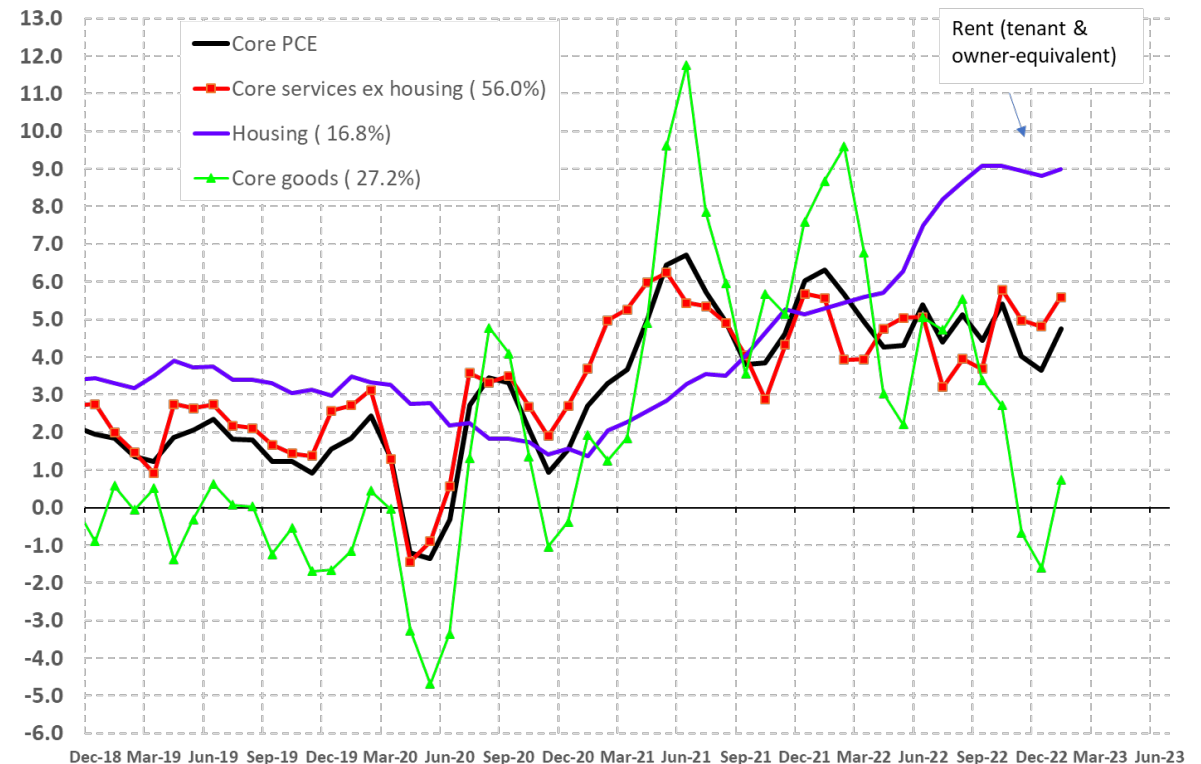


Source: Consensus Economics

2023 Economic Outlook: Inflation

- US inflation has likely peaked but remains well above the Fed's 2% target.
- Outlook is for moderating inflation in 2023, but at a slower pace than the consensus forecast.
- Supply chain pressures and goods price inflation have eased.
- Services inflation, particularly housing (rent), has yet to decelerate.

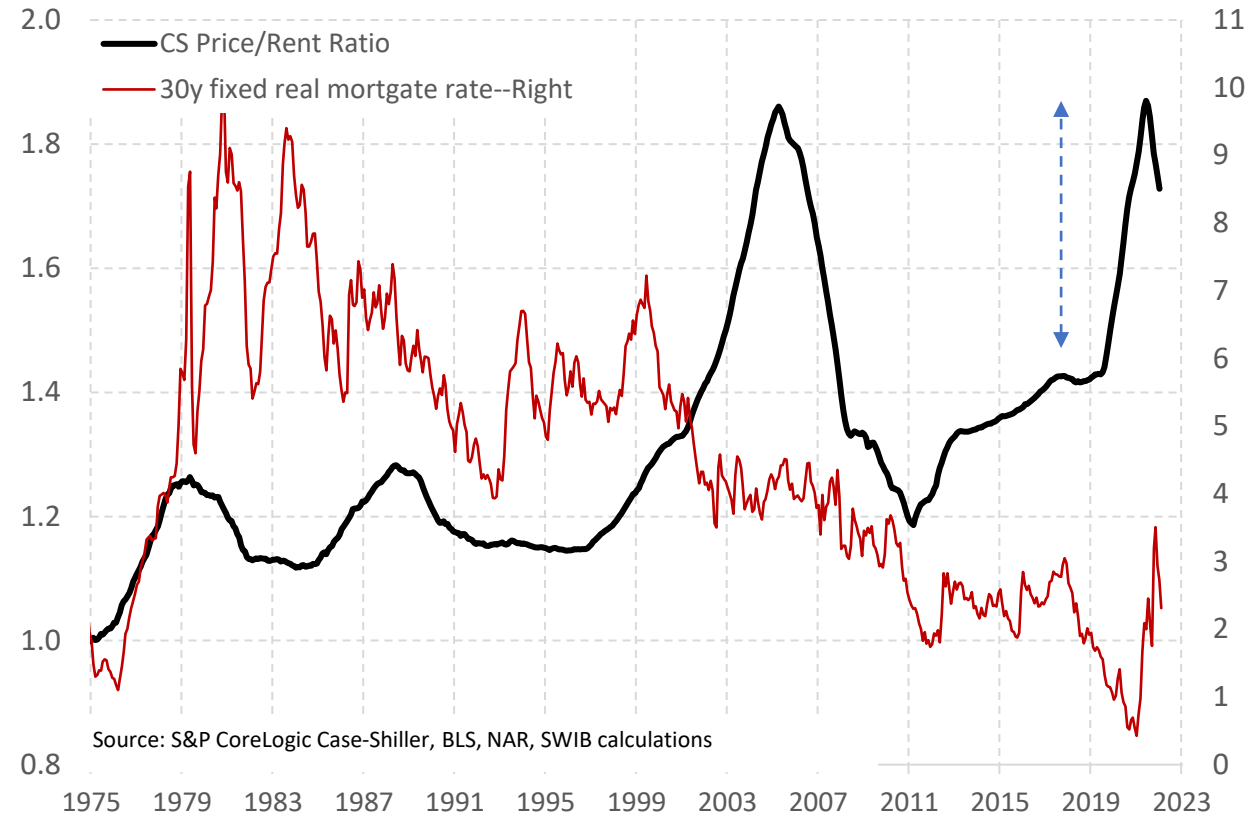
Core US Inflation Peaked and Moderating Gradually
(core PCE index, 3m/3m seasonally adjusted annual rate)



2023 Economic Outlook: Housing

- Recent housing overvaluation has matched 2006, driven by the COVID-related surge in second-home buying and low mortgage rates.
- Housing appreciation has slowed sharply, and a period of outright price declines has begun.
- Housing price adjustment is unlikely to look like the 2006-2011 boom-bust cycle:
 - Structural imbalance: Demand has exceeded supply for a decade; underlying shortage remains
 - Household balance sheets are in good shape: Debt service ratios are relatively low
 - Banks have a larger capital cushion than in 2008

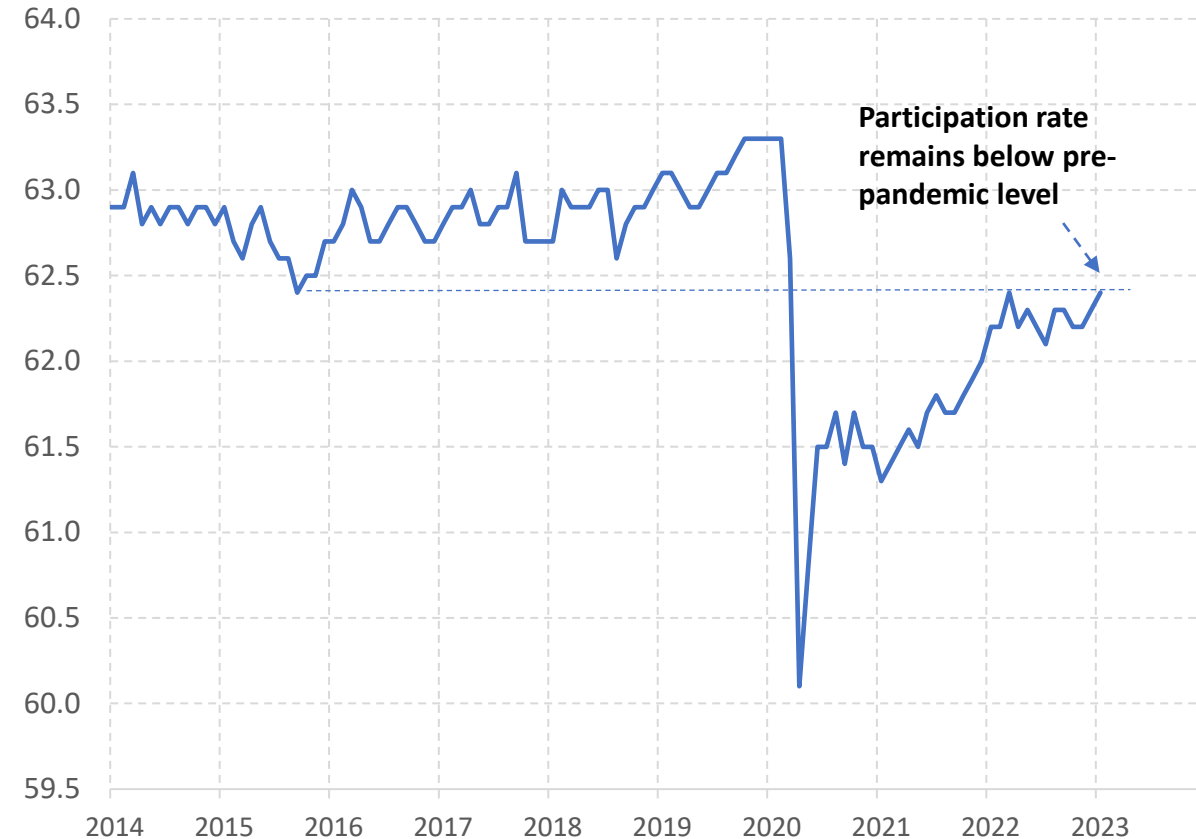
US House Price Valuations Matching 2006 Levels
(index of US house price/rent ratio, Jan. 1975=1.00)



2023 Economic Outlook: Labor

- Labor market remains tight with sizeable employment gains, a persistently low unemployment rate and a large excess of vacancies relative to unemployed workers.
- The recovery in labor force participation has stalled, remaining below pre-pandemic levels.
- Greater participation would help moderate wage gains and ease inflationary pressures.

Stalled Recovery in US Labor Force Participation Rate
(percentage of working age population in the labor force)





SWIB News



Board of Trustees Update



Barbara Nick



Clyde Tinnen



Jeff DeAngelis



David Stein

- Gov. Evers appointed Barbara Nick as Board chair and Clyde Tinnen as vice chair.
- Gov. Evers appointed Jeff DeAngelis to replace Tim Sheehy who stepped down due to another statewide appointment.
- Trustee David Stein's term will end in the second quarter of 2023.





www.swib.state.wi.us/podcasts

Some Recent Episodes:

Episode 14

Pensionomics: How the WRS Provides a Strong Economic Pillar for Wisconsin

Episode 16

An Inside Look at SWIB's Real Estate Portfolio

Episode 18

Peering into the Future to Keep the WRS Positioned for Success with GRS Actuaries

Episode 20

Navigating Volatile Financial Markets: A Look Back at 2022 and Ahead to 2023 with Edwin Denson



Need More Information?



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? Questions

