

From: [Frank Wolff](#)
To: [ETF SMB Board Feedback](#)
Subject: 2023 WRS Investment Report
Date: Wednesday, February 14, 2024 10:59:08 AM
Attachments: [2023 wrs investment returns.pdf](#)

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To: Secretary Voelker, Secretary Wilding, Secretary Wathke, Secretary Ancel, Secretary Thompson

All,

Attached is a summary report which I have prepared to provide context and historical data regarding the posted 2023 preliminary returns for the WRS investment funds.

This report is meant to be for the benefit of the WRS annuitants, participants, and those providing oversight to the WRS system.

I have made every effort to ensure that the returns and other data in this report accurately reflect data published online and/or are publicly available.

I would welcome any feedback regarding this report, or if there is any opportunity for me to join a board or the ETF and contribute to the WRS on an official basis.

Thank you!

Frank Wolff
Lake Geneva, WI



Pension Watch: 2023 WRS Investment Returns

Core Fund 1 Year ROR Ending December 31, 2023				
WRS Core Fund	v 6040 Passive Index	v 7030 Passive Index	v Long Term Target	Core v Ref Port (Est)
11.40%	-6.59%	-8.66%	4.60%	-4.13%
Actual Posted	Benchmark	17.99%	20.06%	6.80%
				15.53%

The Core Fund ROR for 2023 was 11.4% which is above the long-term objective of 6.8% however it is below returns generated by passive portfolios and its own Reference Portfolio. In 2023, with beginning AUM of \$134.7 billion in the Core Fund, the SWIB generated \$8.9 billion less than a passive portfolio with 60% US Equities and 40% US Bonds.

The SWIB uses an internal 'Reference Portfolio' to measure its long-term performance against 'the market'. The Reference Portfolio is 60% global equities and 40% US Bonds. The Core Fund earned \$5.6 billion less than the Reference Portfolio would have in 2023. The SWIB reports that it earned \$29 billion more than the simple passive Reference portfolio over the last 20 years, attributed to 'active management and diversification'.

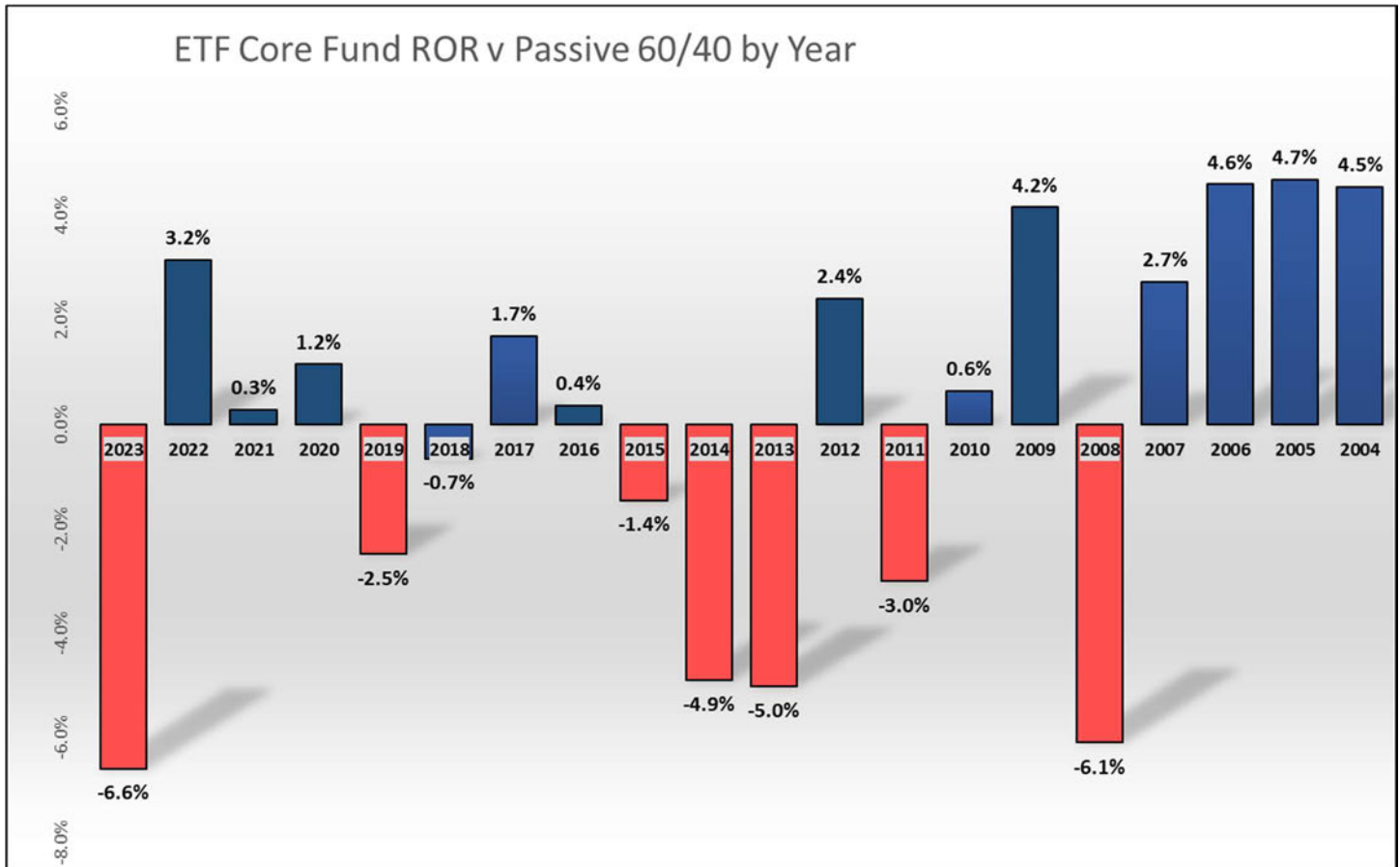
Although no detail is yet available, it is reasonable to assume that if the SWIB public equities returned 22% and the public fixed income returned 5.5%, that implies that the private equity, real estate, and inflation sensitive assets combined earned -2.0%. At this time, no detail has been published regarding individual asset class rate of returns for 2023.

Core Fund 5 Year ROR Ending December 31, 2023				
WRS Core Fund	v 6040 Passive Index	v 7030 Passive Index	v Long Term Target	Core v Ref Port (Est)
9.39%	-0.47%	-1.92%	2.59%	1.92%
Actual Posted	Benchmark	9.85%	11.31%	6.80%
				7.47%

The five-year return of 9.29%(as published), also beat the long-term target of 6.8% and its Reference Portfolio benchmark of 7.47%. However, it was less than a passive 6040 portfolio of US Equities and US Bonds and almost 2% less than a 7030 passive portfolio.

Core Fund 10 Year ROR Ending December 31, 2023				
WRS Core Fund	v 6040 Passive Index	v 7030 Passive Index	v Long Term Target	Core v Ref Port (Est)
7.24%	-0.70%	-1.72%	0.44%	1.76%
Actual Posted	Benchmark	7.94%	8.96%	6.80%
				5.48%

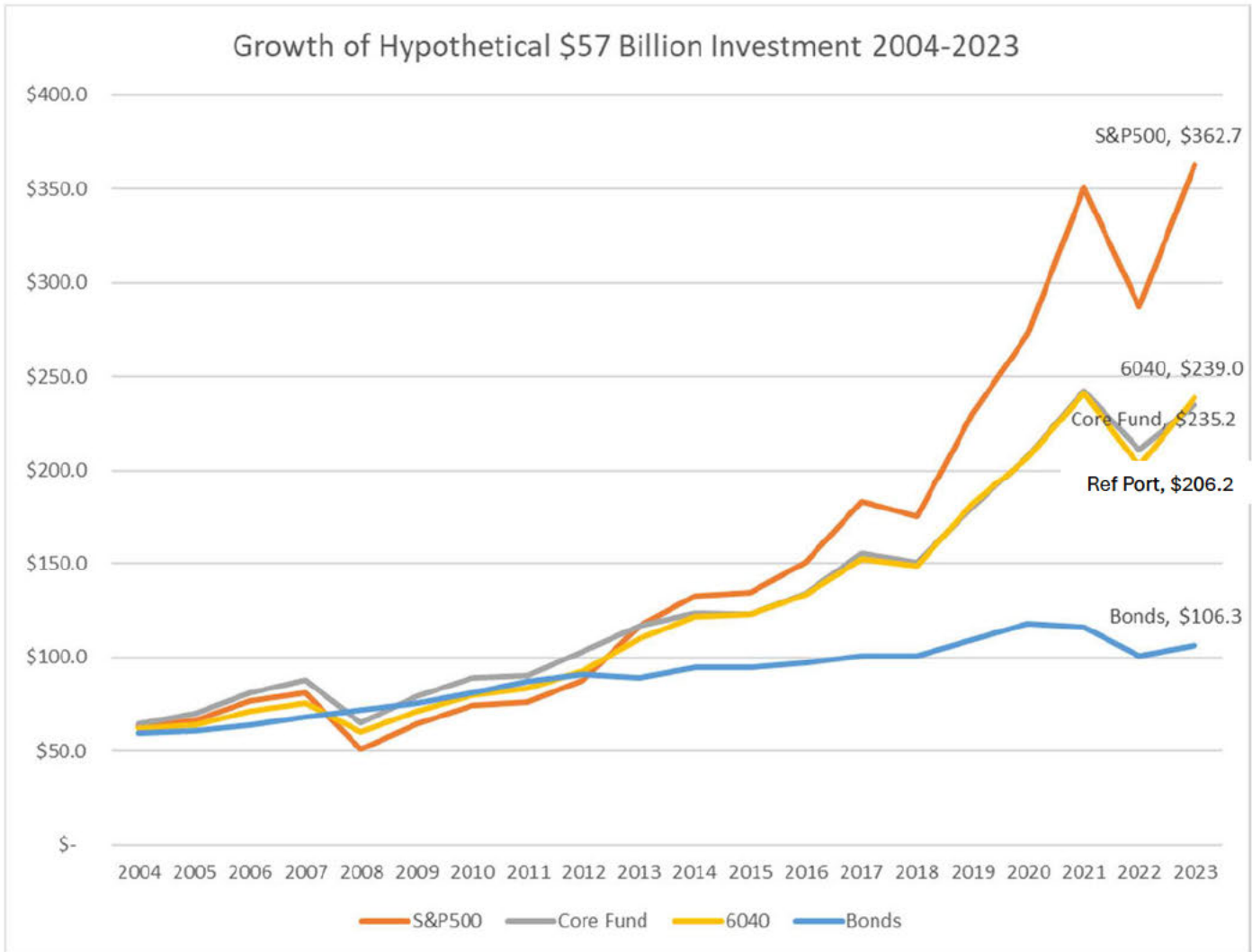
The Core Fund ten-year ROR of 7.09%(as published) also beat the long-term objective of 6.8% but underperformed the US 6040 and US 7030 Passive Portfolios. The SWIB posted returns for the ten-year period are net of external manager fees but do not reflect internal investment management fees. The Core Fund ten-year ROR of 7.09% is 29 basis points better than the objective, but if the SWIB internal management fees exceed 29 basis points, then the return fell short of the net 6.8% objective to maintain current annuity contribution and distribution levels.



The above chart depicts the annual SWIB Core Fund ROR against a passive 60/40 portfolio comprised of 60% US Equities and 40% US Bonds. The equity index of the passive portfolio is the S&P 500 Index.

From 2004 thru 2007 the Core Fund materially outperformed the passive portfolio but beginning in 2008 the Core Fund generally underperformed the passive portfolio.

Over the past 20 years, the Core Fund ROR (gross of internal management fees) of 7.3% was just under the passive portfolio of 60% US Equities and 40% US Bonds which earned 7.4%.

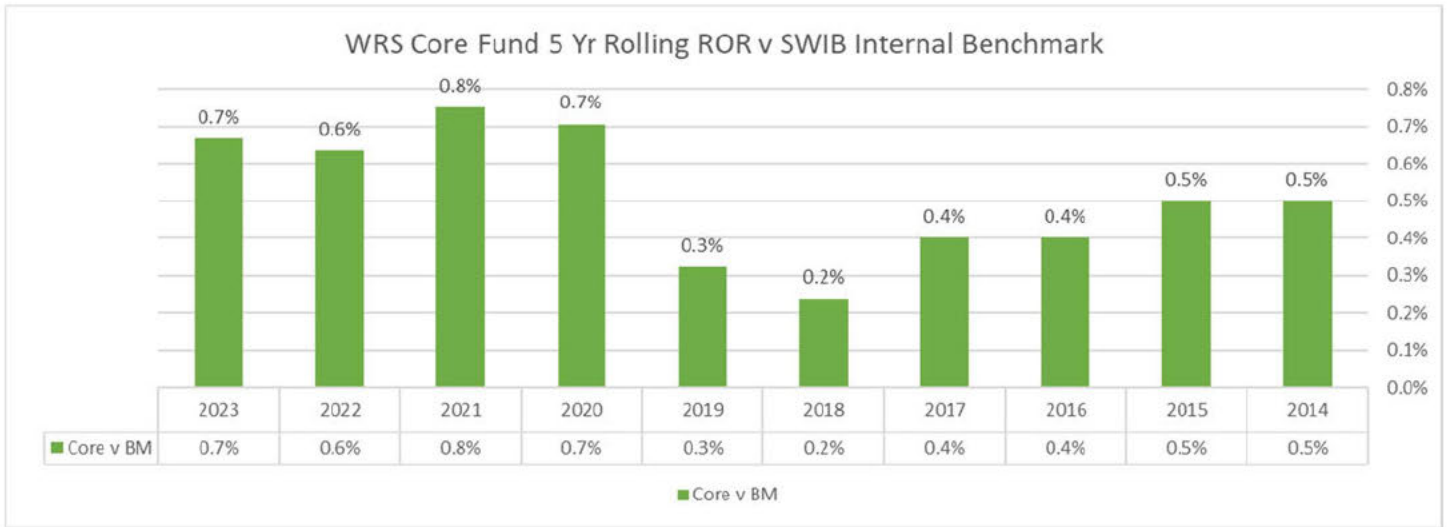


SWIB reported that the Core Fund generated \$29 billion more than a low-cost passive portfolio (“the Reference Portfolio”) consisting of 60% global equities and 40% US bonds. The excess earnings are attributed to ‘SWIB’s active management and diversification”.

The above chart depicts the growth of a hypothetical investment of \$57 billion from January 2004 thru December 2023. (20 years) assuming no deposits or withdrawals.

The Core Fund would grow to \$235.2 billion based upon actual Core Fund RORs which is \$29 billion more than the Reference Portfolio, but \$3.8 billion less than a passive 6040 portfolio with US equities. An all-equity portfolio tracking US Equities would have grown to \$362.7 billion whereas an all-US Bond portfolio would have grown to \$106.3 billion.

The best tracking portfolio for the Core Fund over the past 20 years is the passive portfolio with 60% US Equities and 40% US Bonds.



To focus on long-term results, a key performance metric used by the SWIB is the Core Fund five-year ROR v. its internal benchmark. The SWIB Core Fund internal benchmark is adjusted as needed to better reflect the actual asset allocation of the fund. In other words, it is a ‘moving’ benchmark.

The result is that the Core Fund five-year ROR consistently outperforms its benchmark (for the past ten years), on average by 50 basis points, ranging from a low of 20 basis points in 2018 to a high of 80 basis points in 2021.

ROR by Term and Equity Allocation Ending December 31, 2023									
Equity Allocation	1YR	3YR	5YR	10YR	15YR	17YR	20YR	20YR FV	CF v Model
0%	5.5%	-3.3%	1.1%	1.8%	2.7%	3.1%	3.2%	\$ 106.2	\$ 128.6
10%	7.6%	-1.9%	2.6%	2.9%	3.9%	3.9%	3.9%	\$ 123.3	\$ 111.5
20%	9.7%	-0.5%	4.1%	3.9%	5.0%	4.6%	4.7%	\$ 142.4	\$ 92.4
30%	11.8%	0.9%	5.6%	5.0%	6.2%	5.4%	5.4%	\$ 163.5	\$ 71.3
40%	13.8%	2.3%	7.1%	6.0%	7.3%	6.1%	6.1%	\$ 186.5	\$ 48.2
50%	15.9%	3.6%	8.6%	7.1%	8.5%	6.7%	6.8%	\$ 211.6	\$ 23.2
60%	18.0%	4.9%	10.0%	8.1%	9.6%	7.4%	7.4%	\$ 238.6	\$ (3.9)
70%	20.1%	6.2%	11.5%	9.1%	10.7%	8.0%	8.0%	\$ 267.5	\$ (32.7)
80%	22.1%	7.5%	12.9%	10.1%	11.8%	8.5%	8.6%	\$ 297.9	\$ (63.1)
90%	24.2%	8.8%	14.3%	11.1%	12.9%	9.1%	9.2%	\$ 329.5	\$ (94.8)
100%	26.3%	10.0%	15.7%	12.0%	14.0%	9.6%	9.7%	\$ 362.1	\$ (127.3)
SWIB Core Fund	11.4%	4.3%	9.4%	7.2%	9.0%	6.5%	7.3%	\$ 234.8	\$ -
Core Fund v 6040 Passive	-6.6%	-0.6%	-0.6%	-0.8%	-0.6%	-0.9%	-0.1%		
Beg AUM (Billions)	\$ 135	\$ 130	\$ 101	\$ 83	\$ 55	\$ 75	\$ 57		
EVA by TERM v 6040	\$ (8.9)	\$ (2.7)	\$ (4.6)	\$ (13.4)	\$ (18.3)	\$ (33.1)	\$ (3.9)		

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The above chart shows the ROR matrix for a passive portfolio comprised of US Equities as measured by the S&P500 Index, and US fixed income as measured by the Bloomberg US Aggregate Bond Index for the terms from one-year (2023) thru twenty-years.

At 100% equity, the chart reflects the S&P500 Index and at 0% equity, the chart reflects a portfolio with no equity and reflects the Bloomberg US Aggregate Bond Index.

The blue arrows show on the matrix the SWIB Core Fund ROR for that time period. For example, in 2023, the Core Fund ROR was 11.4%. This lies between the 9.7% earned by a passive portfolio with a 20% equity position, and a 30% passive portfolio which earned 11.8%. With the exception of 2023, the Core Fund returns generally correspond to with that of a 60% equity 40% fixed income portfolio.

Over 20 years, the Core Fund ROR of 7.3% is just under the passive portfolio of 7.4%. Because the SWIB reported returns for ten years or more do not reflect internal investment management expenses, the 7.3% ROR may be overstated. Against the passive 6040 portfolio, the Core Fund earned \$3.9 billion less over 20 years. If you use a 7030 passive portfolio, the Core Fund earned \$32.7 billion less than the passive portfolio.

The SWIB reported added value of \$3 billion above 'benchmark' returns over the five year period ending in 2023. The SWIB attributes this to its 'investment management'. The \$3 billion above benchmark returns refer to the SWIB Core Fund ROR v its internal five year moving benchmark.

The above chart indicates that for the five-year period ending in 2023, that the Core Fund earned 9.4%(9.29% as published), whereas a simple passive 6040 portfolio earned 10.0%. With beginning Core Fund AUM of \$110 billion in 2019, the Core Fund at 9.4% would have generated \$4.6 billion less than the 6040 passive portfolio over the past five years.

Variable Fund

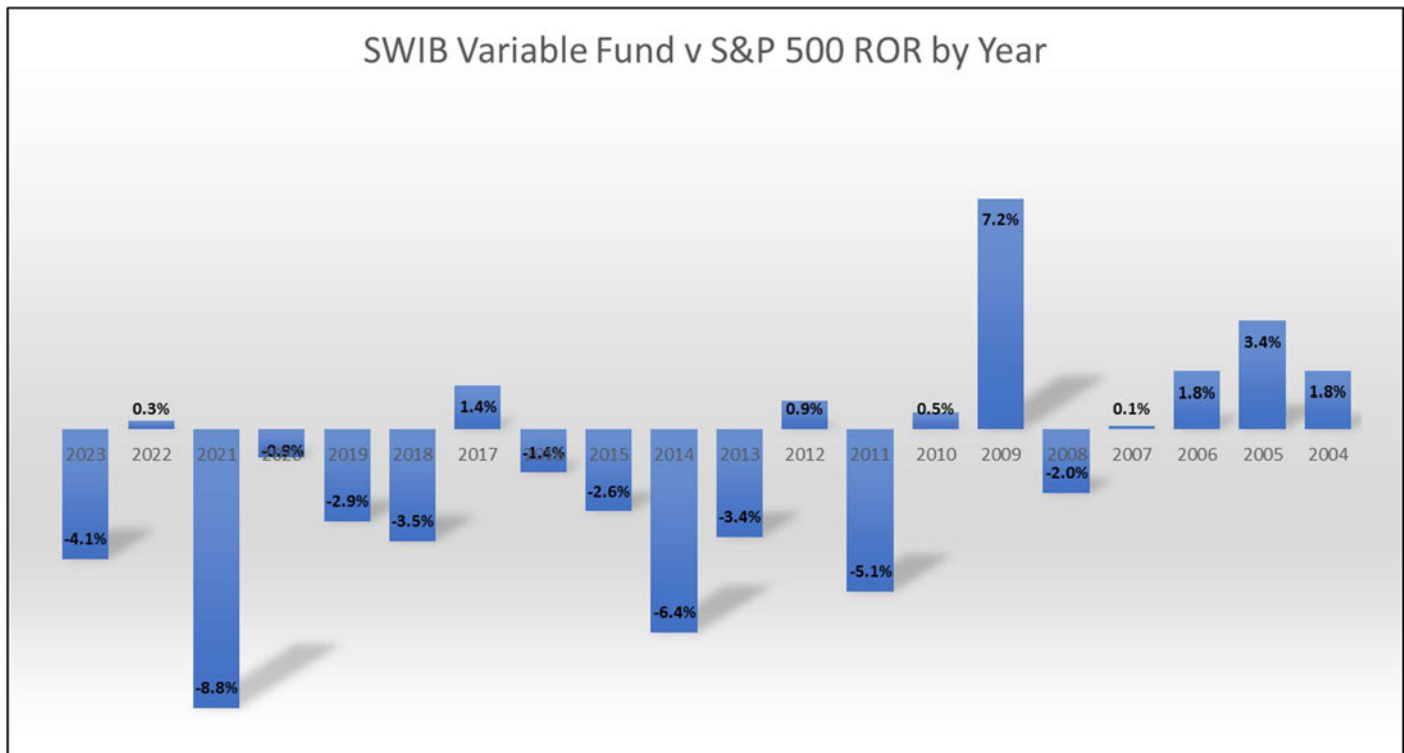
Variable Fund 1 Year ROR Ending December 31, 2023				
WRS Var Fund	v SWIB Benchmark	v S&P 500 Index	v MSCI World Index	Var Fund v Core Fund
22.20%	-0.89%	-4.09%	0.00%	10.80%
Actual Posted	Benchmark			
	23.09%	26.29%	22.20%	11.40%

The Variable Fund 2023 ROR of 22.24%(as published) underperformed its benchmark of 23.14% by 90 basis points. For the year, based upon \$7.8 billion in beginning AUM, this generated about \$70 million less than the benchmark.

The Variable Fund benchmark, which consists of 70% US Equities and 30% non-US Global equities, generally underperforms the US Based S&P 500 Index. In 2023, the Variable Fund ROR of 22.24% underperformed the S&P Index by 4% and generated \$300 million less in earnings for the Variable Fund.

SWIB investment policy is that the Core Fund and the Variable Fund invest in the same equities. As a result, the Variable Fund ROR can be used as a proxy for the public equity return of the Core Fund. In 2023, the Core Fund had about \$65 billion in begging public equity investments.

Using these numbers, the Core Fund public equity investments generated \$600 million less in earnings in 2023 than the Variable Fund benchmark, and \$2.6 billion less than a benchmark portfolio tracking the S&P 500 and US Bonds.



The above chart shows the difference by year between the SWIB Variable Fund ROR and the S&P 500 Index.

For the twenty-year period, the Variable Fund ROR of 8.4% underperformed the S&P500 Index ROR of 9.7% by 1.3%. The reason for this may be attributed to global investments which have underperformed US investments over the past twenty years. Investment policy of the SWIB Board of Trustees is to allocate 70% of Variable Fund investments to US equities and 30% to international equities.

Assuming a Core Fund equity position of \$28.5 billion in 2004, over the past twenty years, the SWIB equities portfolio based upon the Variable Fund ROR, would have generated \$38 billion less than an equity portfolio tracking the S&P 500 index.