



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: December 31, 2024

Investment Performance Review for

Illinois Police Officer's Pension Investment Fund

Table of Contents



[VERUSINVESTMENTS.COM](https://www.verusinvestments.com)

SEATTLE 206.622.3700

CHICAGO 312.815.5228

PITTSBURGH 412.784.6678

LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

Executive Summary **Page 3**

Investment Landscape **Page 5**

Performance Review **Page 14**

Executive Summary

Executive Summary

- Total assets increased by over \$1.4 billion to \$12.6 billion over the quarter, driven by asset transfers into the portfolio.
- Public equity markets delivered mixed results during the quarter. The U.S. equity market generated positive results while non-U.S. equity markets lagged. International developed and emerging markets equities both delivered sharp losses during the quarter, though most of the losses were caused by currency movements rather than equity weakness.
- The IPOPIF Investment Portfolio returned -1.9% for the quarter, which modestly outperformed the Policy Index return of -2.1%, as well as the Broad-Based Policy Index of -2.4%, which reflects a higher equity allocation.
- Since inception in April 2022, the IPOPIF Portfolio has returned 4.7% on an average annualized basis through the end of the fourth quarter, compared to the Policy Index of 4.8% and the Broad-Based Policy Index of 4.6%.
- The IPOPIF Portfolio performed better than its median peer and ranked in the 33rd percentile for the calendar year 2024 in a representative universe of Public Pensions with assets greater than \$1 billion.
- The IPOPIF investment team actively monitors current asset allocations vs. policy targets and conducts rebalancing trades as appropriate. As of December 31, 2024, all asset classes were within policy target ranges.

Notes:

The broad-Based Policy Index represents a passively invested 70/30 global stock / U.S. bond portfolio.

Investment Landscape

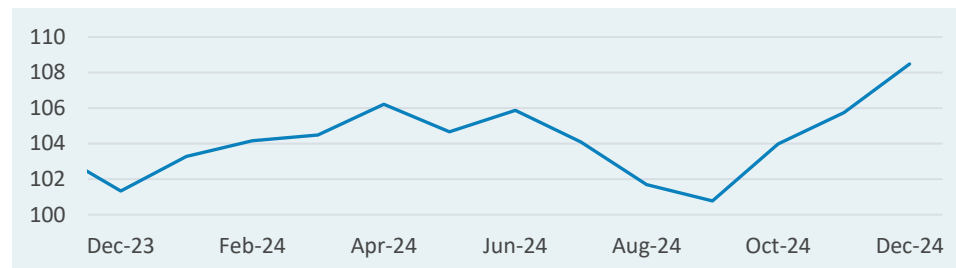
What drove the market in Q4?

Donald Trump won re-election to the U.S. presidency, which had substantial impacts on market pricing, and increased expectations for both economic growth and inflation. The U.S. dollar soared in value following the election, hurting the portfolio performance of investors with unhedged international asset exposure. Higher interest rate and inflation expectations, as well as potential shifts in trade policy, likely contributed to dollar strength.

U.S. inflation drifted upward during Q4, from 2.4% year-over-year in September to 2.9% in December, casting doubts on the Fed's ability to achieve a 2% inflation target. Based on recent gains in consumer sentiment and very large gains in business sentiment, as well as positivity around President Trump's upcoming initiatives, we are not optimistic that inflation will move materially lower from this point. Instead, inflation appears to have stabilized around 3%, with more risks to the upside than to the downside.

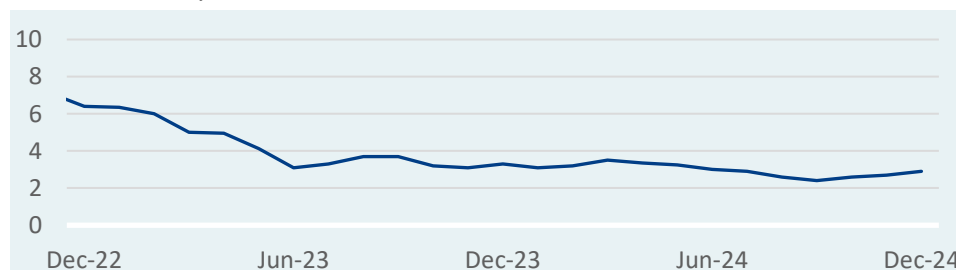
The Federal Reserve cut interest rates once in November and again in December – each time by a quarter point. This brought the Fed's target rate from 4.75%-5.00% down to 4.25%-4.50%. Following the new growth and inflation expectations post-election, investors now expect the Fed to cut rates just two times in 2025, which compares to expectations for 5 cuts at the beginning of the quarter.

ICE U.S. DOLLAR INDEX



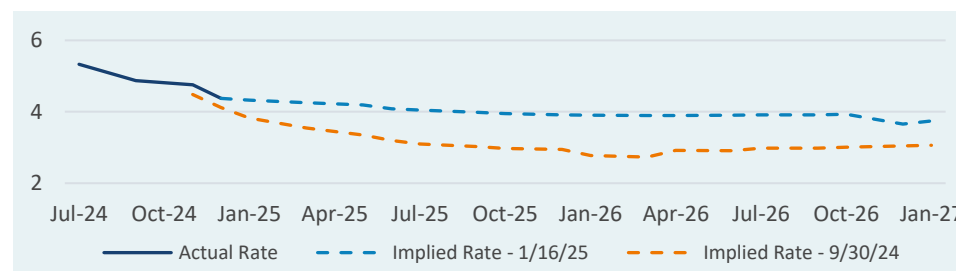
Source: ICE, as of 12/31/24

CPI INFLATION, YEAR-OVER-YEAR



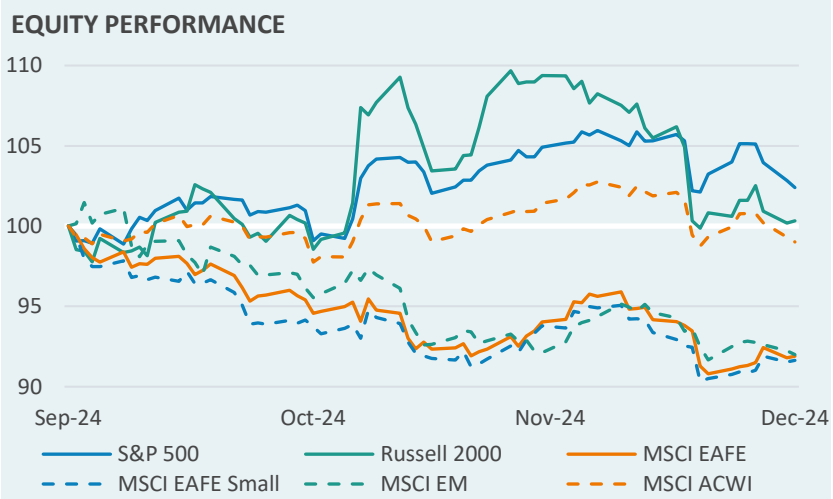
Source: BLS, as of 11/30/24

U.S. MARKET IMPLIED FUTURE INTEREST RATES

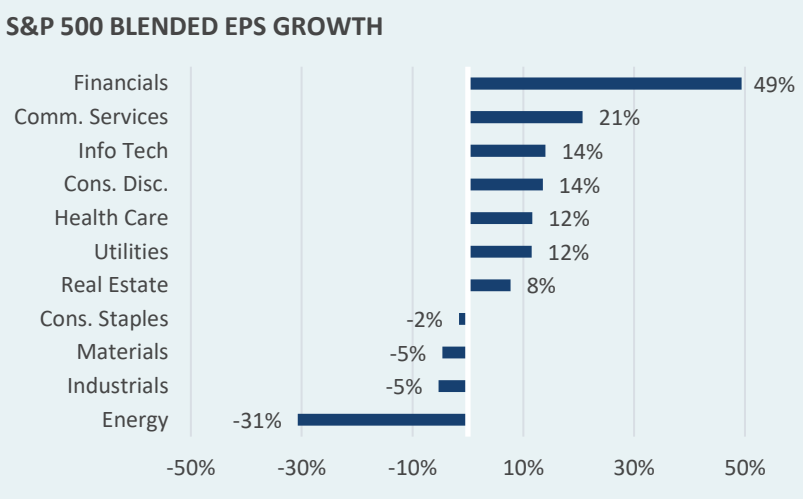


Source: CME Group, as of 1/16/25

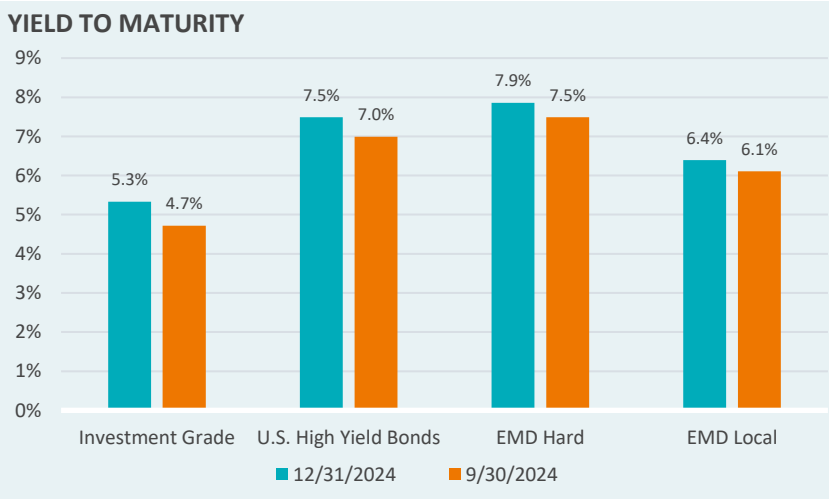
What happened?



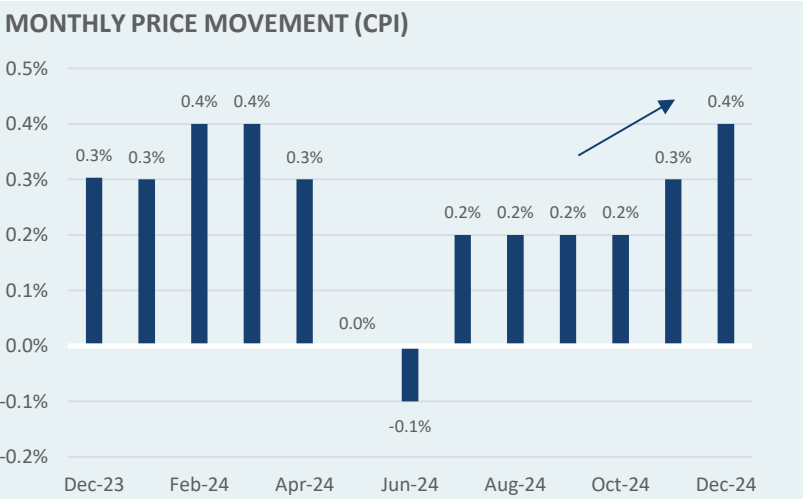
Source: S&P, FTSE Russell, Bloomberg, ICE, as of 12/31/24



Source: Factset, as of 12/31/24



Source: Bloomberg, J.P. Morgan, as of 12/31/24



Source: BLS, as of 12/31/24

U.S. equity markets outperformed international markets, while yields rose and inflation has started to pick up

Following the election, markets are expecting higher growth and inflation

GDP growth

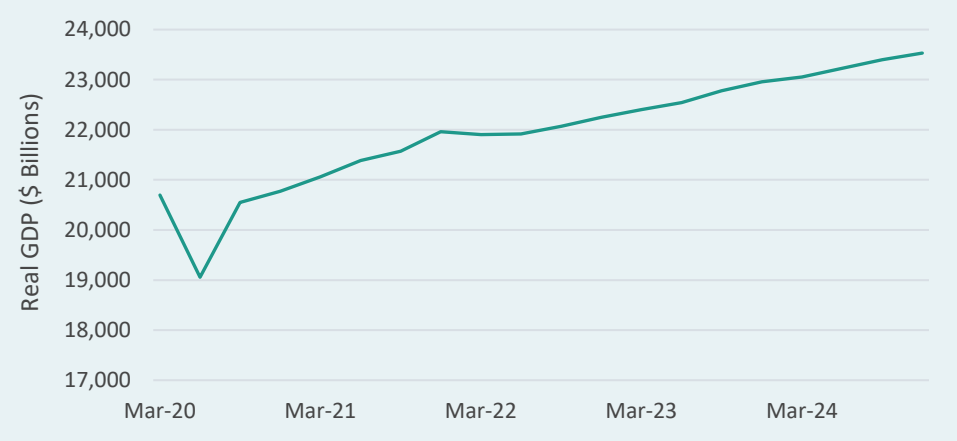
Real GDP growth slowed during Q4, from 3.1% to 2.3% quarter-over-quarter annualized (2.5% year-over-year), but remained fairly robust. Economic growth continues to be supported largely by consumer spending, with increases in government expenditures also providing notable support. Investment fell, and was the largest drag on the economy, followed by fewer imports. Spending gains were broad across goods and services—increases in healthcare spending acted as the largest change. Goods spending was boosted most notably by recreational goods and vehicles. The acceleration of government expenditures was fueled by employee compensation increases.

Economists and investors expect U.S. economic growth to slow

during 2025, reflecting more modest consumer spending as households face higher costs and lower savings rates. The U.S. economy is likely headed towards a more moderate growth phase after many quarters of surprisingly hot growth and spending. Unlike past periods of economic weakening, many trends today could reasonably be summarized as a return to normalcy. For example, following the pandemic, the domestic labor market was experiencing a historic mismatch between the number of jobs available and the number of workers available. Resolving that mismatch required a material weakening of the labor market from extreme tightness to relatively strong, but not a move towards something that suggests recession.

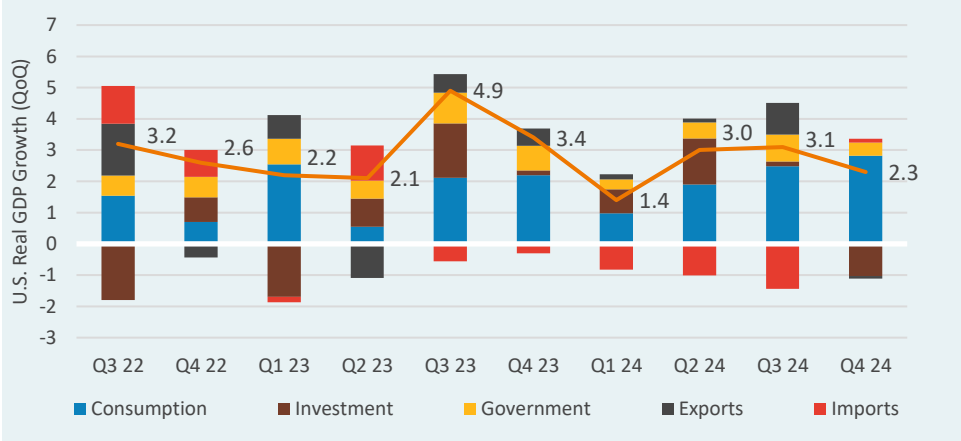
U.S. real GDP growth slowed during Q4, reflecting strong consumer spending but lower levels of private investment

U.S. REAL GROSS DOMESTIC PRODUCT



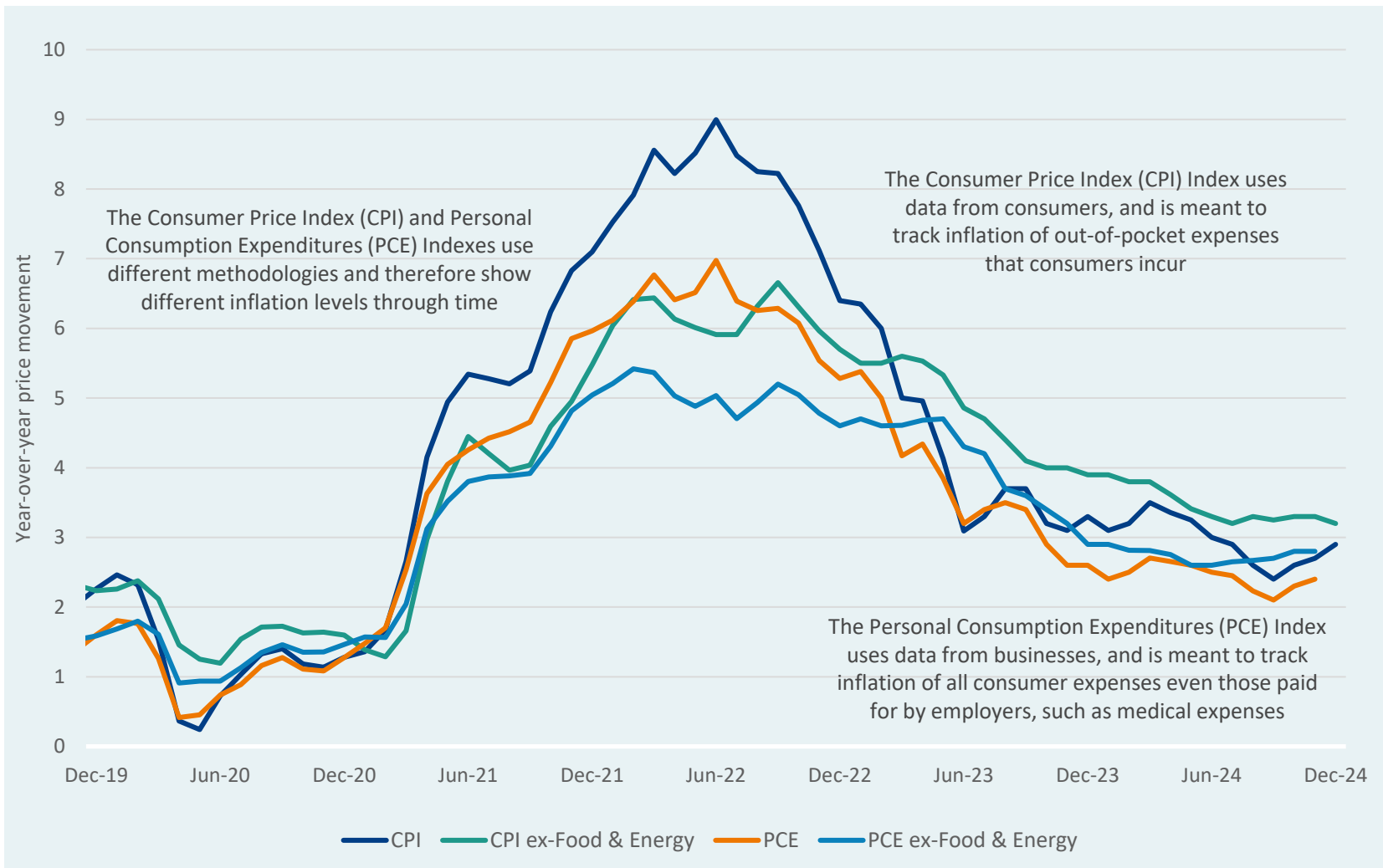
Source: FRED, as of 12/31/24

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 12/31/24

Inflation stabilizing above Fed's target



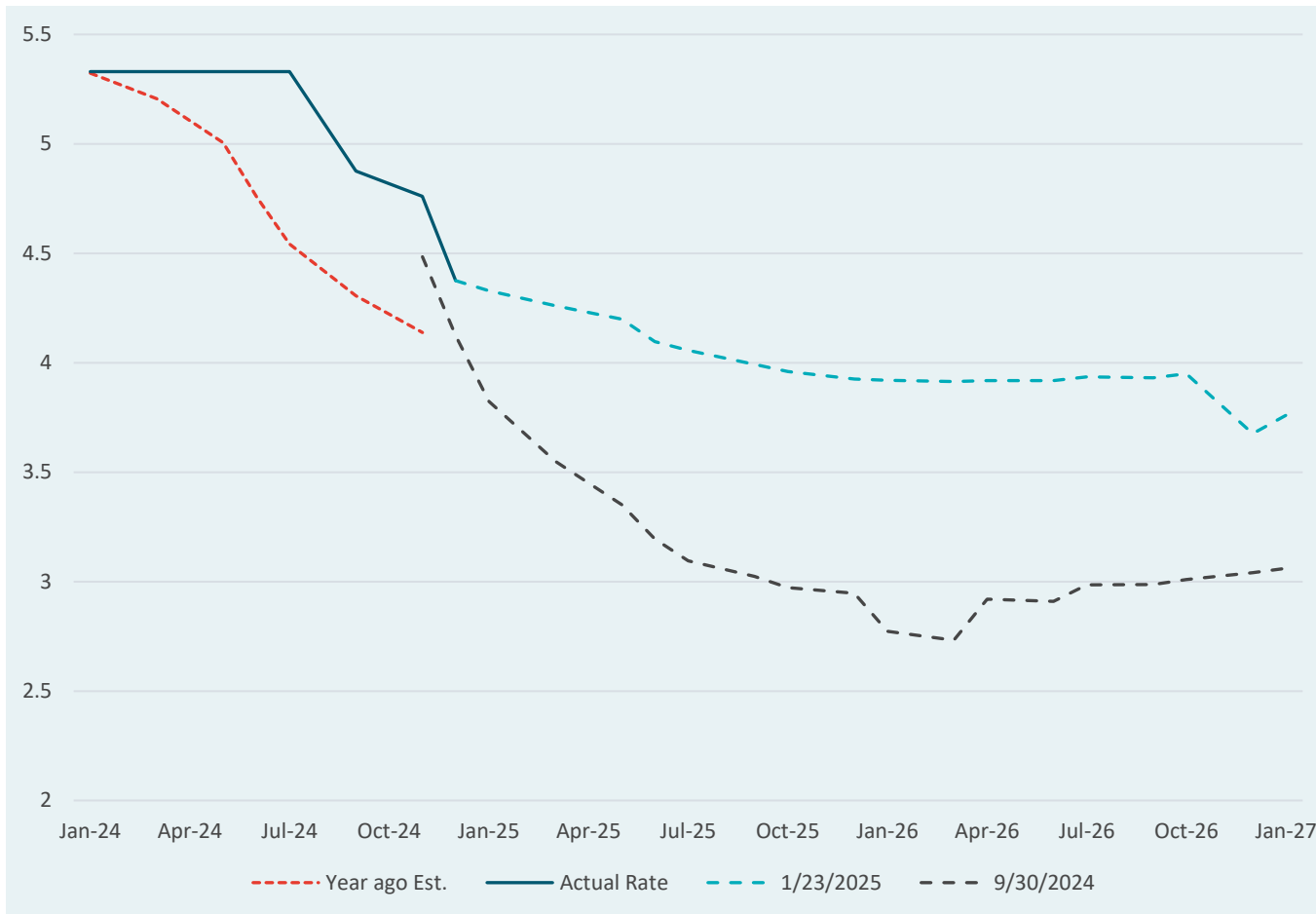
The rate of inflation appears to be stabilizing *above* the Fed's target of 2%

A surprisingly strong economy and ongoing price pressures have led investors to expect fewer interest rate cuts in 2025

Source: FRED, Verus, as of 12/31/24 – or most recent release

Interest rate path expectations

FUTURES IMPLIED FED FUNDS RATE



Source: CME Group, as of 1/23/25

Rate cuts took a lot longer to commence than markets were originally expecting, and now appear to also be slowing down.

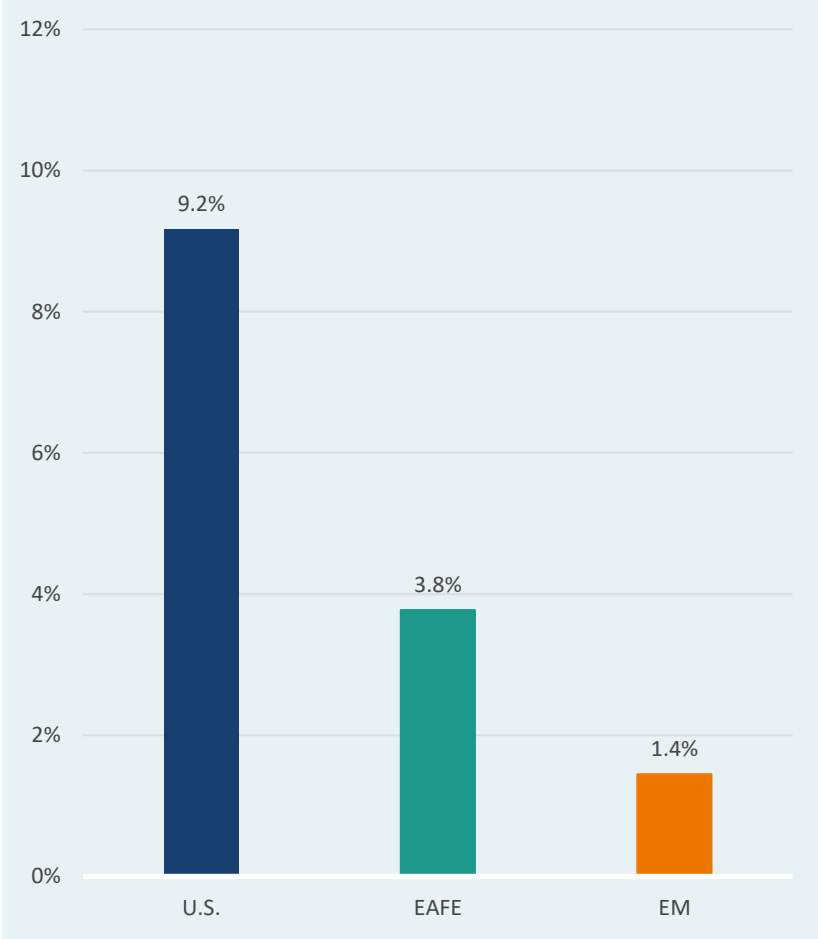
Slowly and carefully has been the Verus view for the path of interest rate cuts, and that appears to be what the Fed is opting for.

Equity valuations still elevated in the U.S.

FORWARD P/E RATIOS



1 YEAR CHANGE IN FORWARD P/E RATIO



U.S. equity valuations remain extraordinarily high in the United States, especially compared to EAFE and EM, which are not expensive relative to history

Source: MSCI, as of 12/31/24

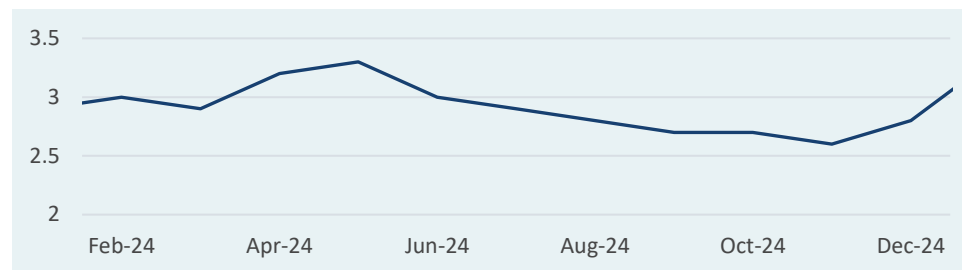
What to watch for in Q1

Improved growth expectations following the election of Donald Trump coincided with expectations for higher inflation. A fear of tariffs, and possible price impacts on goods and services, have also likely impacted these expectations. However, we believe tariffs will generally be used as a negotiating tool of the administration and are not necessarily an end goal. As demonstrated during the first administration, permanently higher tariffs were not put in place except in targeted instances to protect American industry.

Last quarter, longer-term interest rates rose notably following the Fed's 50 basis point rate cut. Since then, the economy has been moving along steadily, and the long end of the curve has continued to rise, despite a couple more rate cuts since the initial 50 bps cut. Some of the rise in 10-year yields followed the re-election of Donald Trump, as markets are pricing in higher long-term growth and inflation.

While the U.S. equity market dramatically outperformed international developed, a large portion of this was due to currency market movements, which accelerated during Q4. Investors who hedge their currency exposure would have outperformed significantly during this time. Currency movements can be volatile and difficult to predict and hedging this uncompensated risk may be an attractive opportunity for many institutional investors.

1 YEAR EXPECTED INFLATION, U OF MICH SURVEY OF CONSUMERS



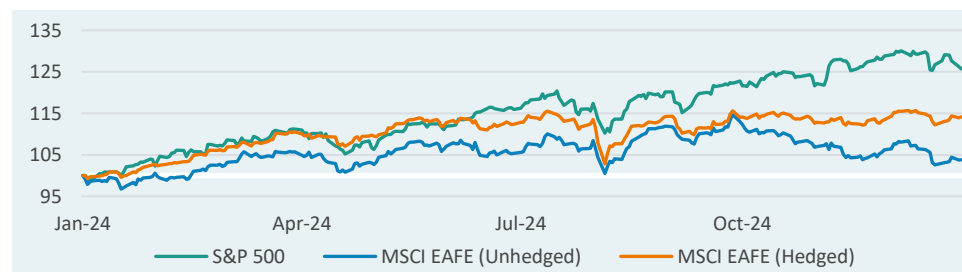
Source: University of Michigan, as of 12/31/24

10 YEAR TREASURY YIELD



Source: Department of the Treasury, as of 12/31/24

MSCI EAFE HEDGED VS. UNHEDGED VS. U.S.



Source: MSCI, S&P, as of 12/31/24

Notices & disclosures

Past performance is no guarantee of future results. This document is provided for informational purposes only and is directed to institutional clients and eligible institutional counterparties only and is not intended for retail investors. Nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security or pursue a particular investment vehicle or any trading strategy. This document may include or imply estimates, outlooks, projections and other “forward-looking statements.” No assurance can be given that future results described or implied by any forward looking information will be achieved. Investing entails risks, including possible loss of principal. Additional information about Verus Advisory, Inc. is available on the SEC’s website at www.adviserinfo.sec.gov.

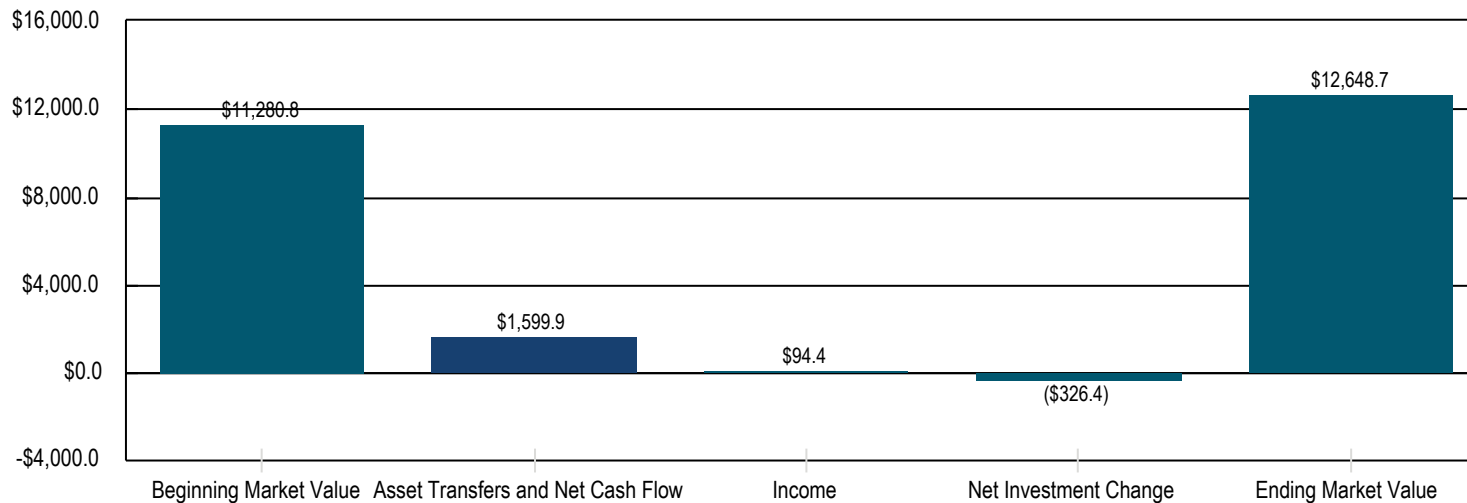
Verus – also known as Verus Advisory™.

Performance Review

Portfolio Reconciliation

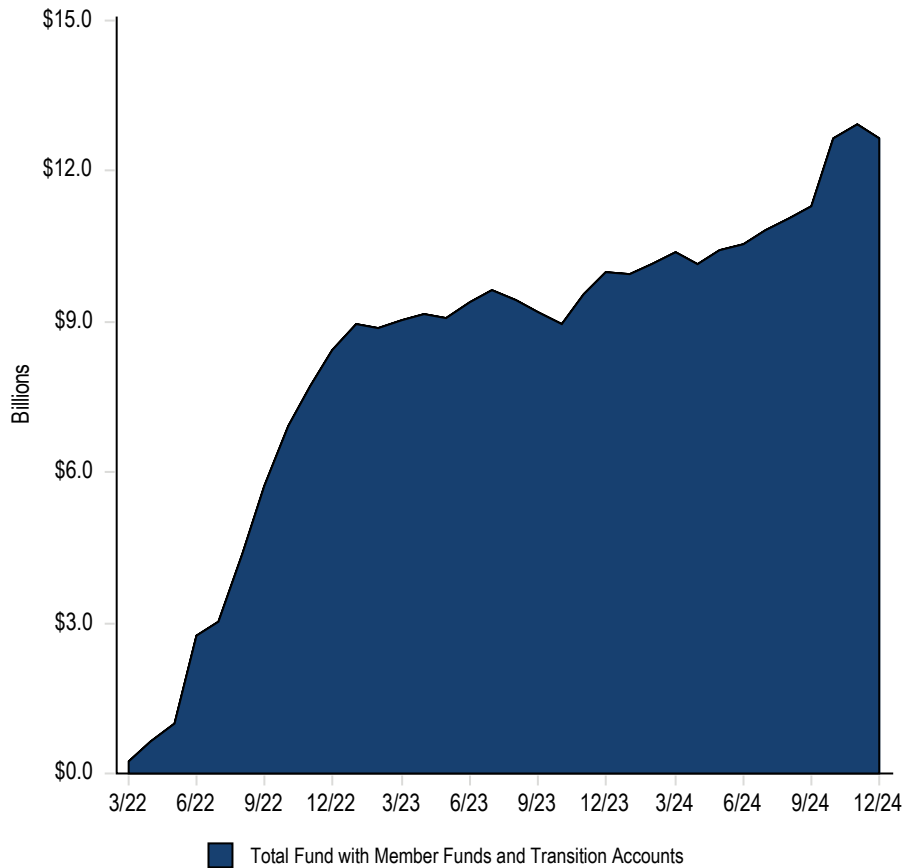
	Quarter-To-Date	Fiscal Year-To-Date
Beginning Market Value	\$11,280,824,565	\$10,539,769,594
Asset Transfers and Net Cash	\$1,599,887,894	\$1,701,412,922
Income	\$94,357,266	\$175,761,288
Net Investment Change	-\$326,390,966	\$231,734,954
Ending Market Value	\$12,648,678,759	\$12,648,678,759

Change in Market Value
Last Three Months

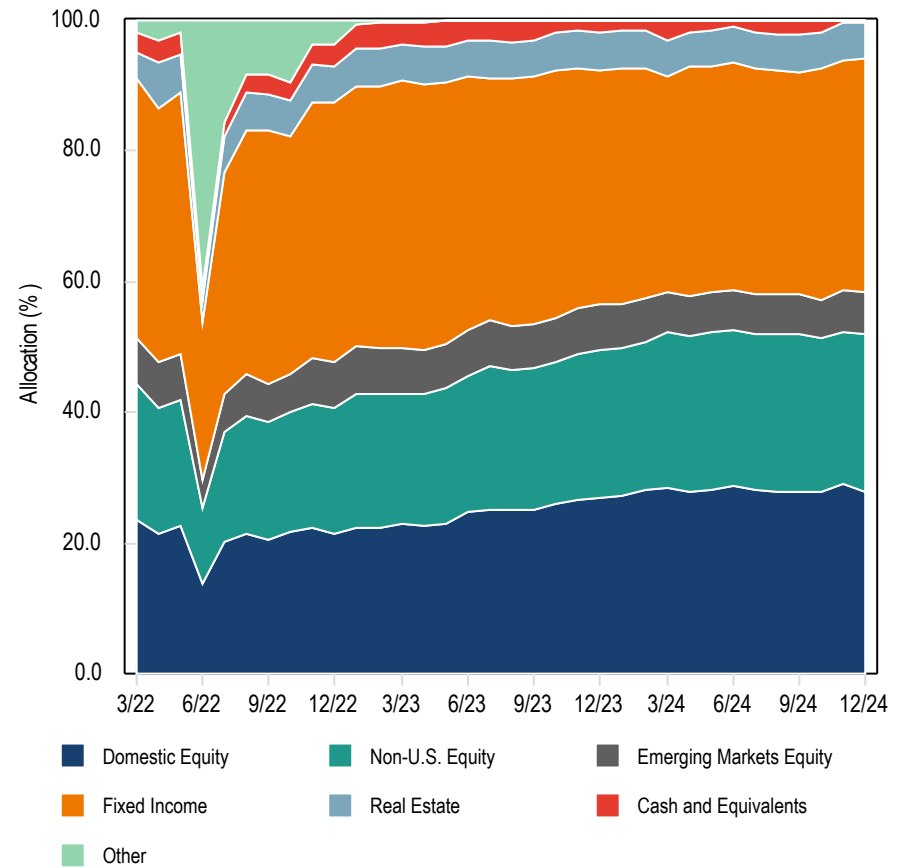


The portfolio reconciliation includes the Member Funds and Transition Account. Income excludes Member Funds and Transition Account. Income is calculated using the actual dividend and income received from separate accounts and estimated income and dividends for commingled funds. The income and dividends for RhumbLine Russell 1000 Index, RhumbLine Russell 2000 Index, SSgA US TIPS Index and Cash are sourced from State Street custodial reports. The income and dividends for the SSgA commingled funds, Acadian and Ares are an estimate based on the current yield for bond funds and the dividend yield for equity funds. SSgA can use dividend and income to cover fund expenses, so the actual income that flows to the IPOPIF may be different than reported. Income for the Principal RE fund is based on a monthly income spreadsheet received from Principal via email. Income for Aristotle, LSV and WCM are sourced monthly from manager statements.

Market Value History



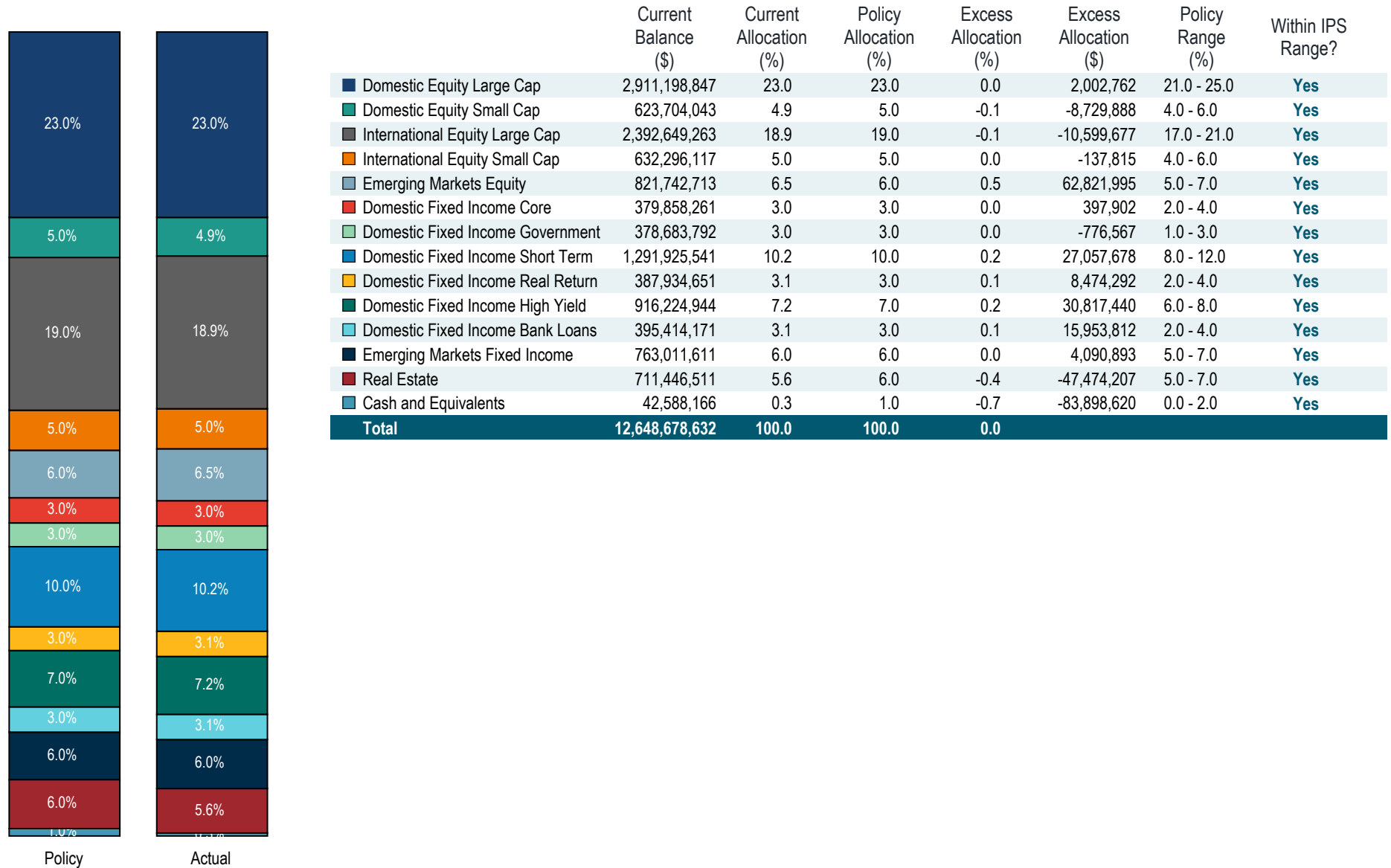
Asset Allocation History



*Market value and asset class history includes Transition Accounts and Member Funds as represented by the Other category in the asset allocation history chart. The large allocation to the Other Category for 6/22 reflects assets in transition associated with the 6/24/22 Transfer Date.

IPOPIF Investment Portfolio
Asset Allocation vs. Policy

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024



Asset Allocation reflects interim policy targets and excludes the Transition Account and Member Funds. On 12/30/2024, \$95,000,000 (0.75% of the Total Fund) was transferred from cash to Emerging Market Equities for the 1/2/2025 funding of ARGA. The cash balance was replenished on 1/2/2025 with a \$95,000,000 sale of SSgA Emerging Markets ex China Equity.

Total Fund
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	Since Inception	Inception Date
Total Fund with Member and Transition Accounts	12,648,678,759	100.0	-1.8	9.8	4.1	9.8	4.9	03/01/22
<i>Policy Index</i>			-2.1	9.7	4.1	9.7	4.8	
<i>Policy Index- Broad Based</i>			-2.4	10.8	4.4	10.8	4.6	
IPOPIF Investment Portfolio	12,648,678,632	100.0	-1.9	9.6	4.0	9.6	4.7	04/01/22
<i>Policy Index</i>			-2.1	9.7	4.1	9.7	4.8	
<i>Policy Index- Broad Based</i>			-2.4	10.8	4.4	10.8	4.6	
Growth	7,381,590,984	58.4	-2.5	12.8	4.1	12.8	6.0	04/01/22
<i>Growth Benchmark</i>			-2.9	12.8	4.1	12.8	5.9	
Income	2,074,650,726	16.4	-0.3	7.6	4.8	7.6	3.7	04/01/22
<i>Income Benchmark</i>			-0.2	7.5	4.8	7.5	4.5	
Real Assets	711,446,511	5.6	-3.9	5.7	7.0	5.7	0.0	04/01/22
<i>Real Assets Benchmark</i>			-3.6	4.8	6.2	4.8	-2.9	
Risk Mitigation	2,480,620,715	19.6	-0.9	3.8	2.5	3.8	2.2	04/01/22
<i>Risk Mitigation Benchmark</i>			-0.9	3.9	2.5	3.9	2.2	
IPOPIF Pool Fixed Income Transition	369,696	0.0						
Member Accounts	40	0.0						
Transition Account	87	0.0						

The composition of blended benchmarks are located on the Data Sources and Methodology page.

Total Fund
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	2023	Since Inception	Inception Date
Total Fund with Member and Transition Accounts	12,648,678,759	100.0	-1.8	9.8	4.1	9.8	13.7	4.9	03/01/22
<i>Policy Index</i>			-2.1	9.7	4.1	9.7	14.2	4.8	
<i>Policy Index- Broad Based</i>			-2.4	10.8	4.4	10.8	16.8	4.6	
<i>All Public Plans > \$1B-Total Fund Rank</i>			93	31	33	31	11	34	
IPOPIF Investment Portfolio	12,648,678,632	100.0	-1.9	9.6	4.0	9.6	13.7	4.7	04/01/22
<i>Policy Index</i>			-2.1	9.7	4.1	9.7	14.2	4.8	
<i>Policy Index- Broad Based</i>			-2.4	10.8	4.4	10.8	16.8	4.6	
<i>All Public Plans > \$1B-Total Fund Rank</i>			95	33	35	33	11	33	
Growth	7,381,590,984	58.4	-2.5	12.8	4.1	12.8	19.4	6.0	04/01/22
<i>Growth Benchmark</i>			-2.9	12.8	4.1	12.8	19.5	5.9	
RhumbLine Russell 1000 Index	2,911,198,847	23.0	2.8	24.5	9.0	24.5	26.5	14.4	03/15/22
<i>Russell 1000 Index</i>			2.7	24.5	9.0	24.5	26.5	14.5	
<i>eV US Large Cap Core Equity Rank</i>			22	35	16	35	25		
RhumbLine Russell 2000 Index	623,704,043	4.9	0.3	11.6	9.6	11.6	16.8	6.4	03/15/22
<i>Russell 2000 Index</i>			0.3	11.5	9.6	11.5	16.9	6.6	
<i>eV US Small Cap Core Equity Rank</i>			49	52	40	52	56		
SSgA Non-US Developed Index	2,392,649,263	18.9	-7.4	5.0	-0.2	5.0	18.3	6.5	03/10/22
<i>MSCI World ex U.S. (Net)</i>			-7.4	4.7	-0.2	4.7	17.9	6.1	
<i>eV EAFE Core Equity Rank</i>			49	44	47	44	36		
International Developed Small Cap Equity	632,296,117	5.0	-4.2	6.1	3.0	6.1	12.9	1.0	04/01/22
<i>MSCI World ex U.S. Small Cap Index (Net)</i>			-7.9	2.8	1.8	2.8	12.6	-0.3	
Acadian ACWI ex US Small-Cap Fund	316,534,261	2.5	-4.4	-	3.3	-	-	11.8	01/30/24
<i>MSCI AC World ex USA Small Cap (Net)</i>			-7.7	-	0.6	-	-	5.9	
<i>eV ACWI ex-US Small Cap Equity Rank</i>			23	-	24	-	-		
WCM International Small Cap Growth Fund	160,180,446	1.3	-1.4	-	4.2	-	-	2.8	03/01/24
<i>MSCI AC World ex USA Small Cap (Net)</i>			-7.7	-	0.6	-	-	4.1	
<i>eV ACWI ex-US Small Cap Equity Rank</i>			5	-	14	-	-	53	
LSV International Small Cap Value Equity Fund	155,581,410	1.2	-6.5	-	1.0	-	-	4.3	03/01/24
<i>S&P Developed Ex-U.S. SmallCap (Net)</i>			-8.9	-	-1.1	-	-	1.9	
<i>eV EAFE Small Cap Value Rank</i>			44	-	50	-	-	71	

The composition of blended benchmarks are located on the Data Sources and Methodology page. Principal USPA does not show a Since 4/1/2022 return because the fund was inception on 4/6/2022.

Total Fund
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	2023	Since Inception	Inception Date
Emerging Market Equities	821,742,713	6.5	-8.1	2.9	-4.4	2.9	9.7	-0.8	04/01/22
<i>Emerging Markets Equity Benchmark</i>			-8.2	4.2	-3.6	4.2	9.8	-0.6	
SSgA Emerging Markets ex China Equity	542,611,033	4.3	-7.6	-	-4.7	-	-	0.5	05/01/24
<i>MSCI Emerging Markets ex China (Net)</i>			-8.1	-	-4.5	-	-	1.2	
<i>eV Emg Mkts Equity Rank</i>			65	-	94	-	-	83	
William Blair Emerging Markets ex China Growth Fund	92,592,700	0.7	-	-	-	-	-	-2.5	12/09/24
<i>MSCI Emerging Markets ex China IMI (Net)</i>			-	-	-	-	-	-3.4	
<i>eV Emg Mkts Equity Rank</i>			-	-	-	-	-	-	
ARGA Emerging Markets Ex China Equity	186,538,980	1.5	-	-	-	-	-	-3.6	12/01/24
<i>MSCI Emerging Markets ex China (Net)</i>			-	-	-	-	-	-1.2	
<i>eV Emg Mkts Equity Rank</i>			-	-	-	-	-	98	
Income	2,074,650,726	16.4	-0.3	7.6	4.8	7.6	12.8	3.7	04/01/22
<i>Income Benchmark</i>			-0.2	7.5	4.8	7.5	12.6	4.5	
SSgA High Yield Corporate Credit	916,224,944	7.2	0.2	8.4	5.6	8.4	13.8	5.0	03/18/22
<i>Spliced SSgA U.S. High Yield Index</i>			0.2	8.2	5.4	8.2	13.5	4.9	
<i>eV US High Yield Fixed Inc Rank</i>			51	26	13	26	13		
Emerging Market Debt	763,011,611	6.0	-2.1	6.5	4.0	6.5	11.2	2.1	04/01/22
<i>Emerging Markets Debt Benchmark</i>			-1.9	6.5	4.1	6.5	11.1	3.5	
SSgA EMD Hard Index Fund	573,168,613	4.5	-1.7	6.9	4.4	6.9	11.2	3.3	03/14/22
<i>Spliced SSgA EMD Hard Index</i>			-1.9	6.5	4.1	6.5	11.1	3.3	
<i>Emerging Markets Bond Rank</i>			61	54	41	54	51		
Capital Group Emerging Markets Debt	189,842,998	1.5	-	-	-	-	-	-2.9	10/21/24
<i>Capital Group Spliced Benchmark</i>			-	-	-	-	-	-2.6	
<i>Emerging Markets Bond Rank</i>			-	-	-	-	-		
Bank Loans	395,414,171	3.1	2.2	-	4.3	-	-	7.2	03/01/24
<i>Credit Suisse Leveraged Loan Index</i>			2.3	-	4.4	-	-	7.2	
Ares Institutional Loan Fund	131,779,698	1.0	2.5	-	4.7	-	-	7.8	03/01/24
<i>Credit Suisse Leveraged Loan Index</i>			2.3	-	4.4	-	-	7.2	
<i>eV US Float-Rate Bank Loan Fixed Inc Rank</i>			34	-	24	-	-	15	
Aristotle Institutional Loan Fund	263,634,472	2.1	2.1	-	4.1	-	-	6.9	03/01/24
<i>Credit Suisse Leveraged Loan Index</i>			2.3	-	4.4	-	-	7.2	
<i>eV US Float-Rate Bank Loan Fixed Inc Rank</i>			77	-	69	-	-	67	

The composition of blended benchmarks are located on the Data Sources and Methodology page. Principal USPA does not show a Since 4/1/2022 return because the fund was inception on 4/6/2022. On 12/30/2024, \$95,000,000 (0.75% of the Total Fund) was transferred from cash to Emerging Market Equities for the 1/2/2025 funding of ARGA. The cash balance was replenished on 1/2/2025 with a \$95,000,000 sale of SSgA Emerging Markets ex China Equity.

Total Fund
Executive Summary (Net of Fees)

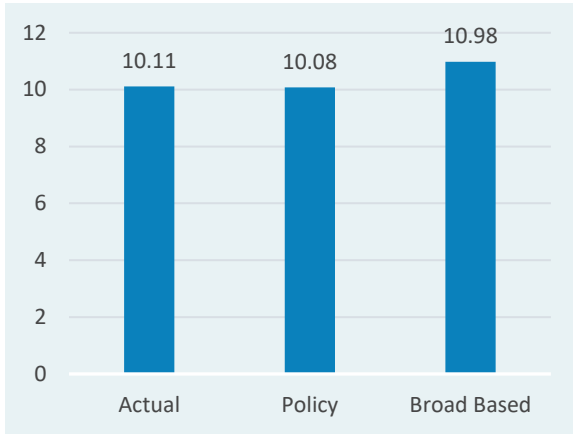
Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	2023	Since Inception	Inception Date
Real Assets	711,446,511	5.6	-3.9	5.7	7.0	5.7	5.6	0.0	04/01/22
<i>Real Assets Benchmark</i>			-3.6	4.8	6.2	4.8	4.7	-2.9	
SSgA REITs Index	497,654,729	3.9	-5.9	8.0	8.7	8.0	13.9	-0.2	03/16/22
<i>Dow Jones U.S. Select REIT Total Return Index</i>			-5.9	8.1	8.7	8.1	14.0	-0.1	
<i>eV US REIT Rank</i>			26	33	40	33	35		
Principal USPA	213,791,783	1.7	1.1	-1.9	0.9	-1.9	-10.7	-5.8	04/06/22
<i>NFI-ODCE Equal-Weighted Index</i>			0.8	-2.4	0.8	-2.4	-13.3	-6.0	
Risk Mitigation	2,480,620,715	19.6	-0.9	3.8	2.5	3.8	5.0	2.2	04/01/22
<i>Risk Mitigation Benchmark</i>			-0.9	3.9	2.5	3.9	4.9	2.2	
SSgA US Treasury Index	378,683,792	3.0	-3.1	-	1.5	-	-	4.0	05/01/24
<i>Blmbg. U.S. Treasury Index</i>			-3.1	-	1.5	-	-	4.0	
<i>eV US Government Fixed Inc Rank</i>			45	-	78	-	-	73	
SSgA Core Fixed Income Index	379,858,261	3.0	-3.0	1.4	2.0	1.4	5.6	-0.6	03/17/22
<i>Blmbg. U.S. Aggregate Index</i>			-3.1	1.3	2.0	1.3	5.5	-0.6	
<i>eV US Core Fixed Inc Rank</i>			59	76	54	76	64		
SSgA Short-Term Gov't/Credit Index	1,291,555,845	10.2	0.0	4.4	3.0	4.4	4.6	2.6	03/17/22
<i>Bloomberg U.S. Gov/Credit 1-3 Year Index</i>			0.0	4.4	2.9	4.4	4.6	2.5	
<i>eV US Short Duration Fixed Inc Rank</i>			56	65	46	65	82		
SSgA US TIPS Index	387,934,651	3.1	0.0	4.8	2.4	4.8	4.6	1.8	03/17/22
<i>Blmbg. U.S. TIPS 0-5 Year</i>			-0.1	4.7	2.4	4.7	4.6	1.9	
<i>eV US TIPS / Inflation Fixed Inc Rank</i>			5	6	7	6	19		
Cash	42,588,166	0.3	1.1	5.0	2.4	5.0	5.0	3.9	03/22/22
<i>90 Day U.S. Treasury Bill</i>			1.2	5.3	2.6	5.3	5.0	4.2	
IPOPIF Pool Fixed Income Transition	369,696	0.0							
Member Accounts	40	0.0							
Transition Account	87	0.0							

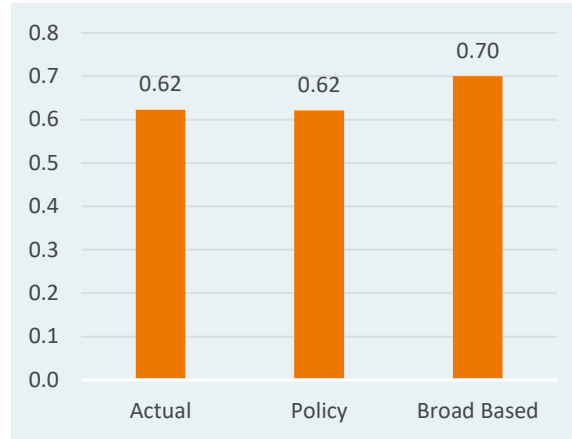
The composition of blended benchmarks are located on the Data Sources and Methodology page. Principal USPA does not show a Since 4/1/2022 return because the fund was inception on 4/6/2022. On 12/30/2024, \$95,000,000 (0.75% of the Total Fund) was transferred from cash to Emerging Market Equities for the 1/2/2025 funding of ARG. The cash balance was replenished on 1/2/2025 with a \$95,000,000 sale of SSgA Emerging Markets ex China Equity.

Portfolio Characteristics

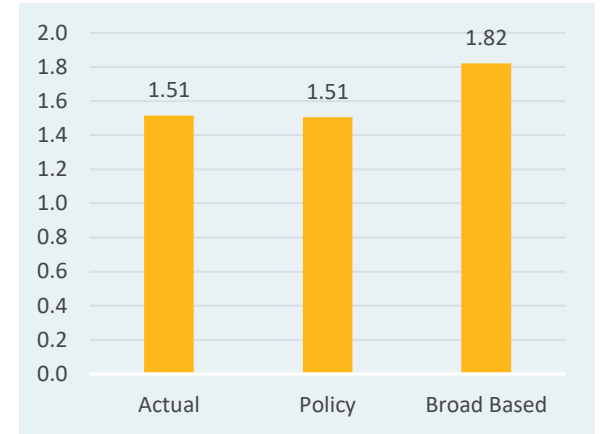
TOTAL PLAN RISK (EXPECTED VOLATILITY)



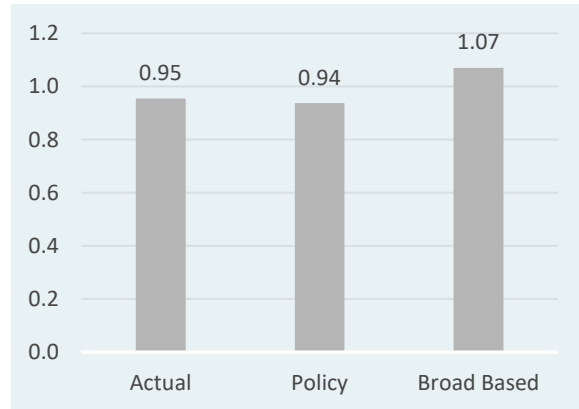
EQUITY BETA (ACWI IMI)



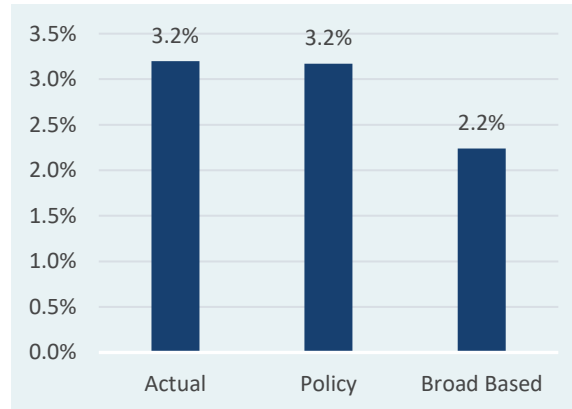
EFFECTIVE DURATION



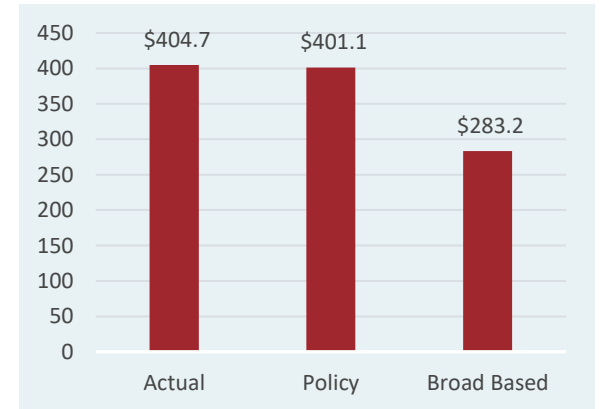
CREDIT SPREAD DURATION



ESTIMATED PORTFOLIO INCOME YIELD*



ESTIMATED PORTFOLIO INCOME (\$ MILLIONS)*



*Income Yield and Income are estimated based on dividend yields and coupon rates applied to benchmark weights and does not include factors such as dividend re-investment rates.

Source: Barra One using index holdings as representative proxies

IPOPIF Investment Portfolio
Investment Fund Fee Analysis

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

Name	Asset Class	Vehicle Type	Market Value	% of Portfolio	Estimated Fee Value	Expense Fee (%)
RhumbLine Russell 1000 Index	Domestic Equity	Separate Account	\$2,911,198,847	23.0158	\$145,560	0.005
RhumbLine Russell 2000 Index	Domestic Equity	Separate Account	\$623,704,043	4.9310	\$31,185	0.005
SSgA Non-US Developed Index	Non-U.S. Equity	Commingled Fund	\$2,392,649,263	18.9162	\$191,412	0.008
Acadian ACWI ex US Small-Cap Fund	Non-U.S. Equity	Commingled Fund	\$316,534,261	2.5025	\$1,890,938	0.597
WCM International Small Cap Growth Fund	Non-U.S. Equity	Commingled Fund	\$160,180,446	1.2664	\$1,100,902	0.687
LSV International Small Cap Value Equity Fund	Non-U.S. Equity	Commingled Fund	\$155,581,410	1.2300	\$1,319,651	0.848
SSgA Emerging Markets ex China Equity	Emerging Markets Equity	Commingled Fund	\$542,611,033	4.2899	\$184,488	0.034
William Blair Emerging Markets ex China Growth Fund	Emerging Markets Equity	Commingled Fund	\$92,592,700	0.7320	\$588,519	0.636
ARGA Emerging Markets Ex China Equity	Emerging Markets Equity	Commingled Fund	\$186,538,980	1.4748	\$1,305,773	0.700
SSgA High Yield Corporate Credit	Fixed Income	Commingled Fund	\$916,224,944	7.2436	\$311,516	0.034
SSgA EMD Hard Index Fund	Fixed Income	Commingled Fund	\$573,168,613	4.5315	\$194,877	0.034
Capital Group Emerging Markets Debt	Fixed Income	Commingled Fund	\$189,842,998	1.5009	\$616,990	0.325
Ares Institutional Loan Fund	Fixed Income	Commingled Fund	\$131,779,698	1.0418	\$329,449	0.250
Aristotle Institutional Loan Fund	Fixed Income	Commingled Fund	\$263,634,472	2.0843	\$809,358	0.307
SSgA REITs Index	Real Estate	Commingled Fund	\$497,654,729	3.9344	\$39,812	0.008
Principal USPA	Real Estate	Commingled Fund	\$213,791,783	1.6902	\$1,710,334	0.800
SSgA US Treasury Index	Fixed Income	Commingled Fund	\$378,683,792	2.9939	\$30,295	0.008
SSgA Core Fixed Income Index	Fixed Income	Commingled Fund	\$379,858,261	3.0031	\$30,389	0.008
SSgA Short-Term Gov't/Credit Index	Fixed Income	Commingled Fund	\$1,291,555,845	10.2110	\$103,324	0.008
SSgA US TIPS Index	Fixed Income	Separate Account	\$387,934,651	3.0670	\$31,035	0.008
Cash	Cash and Equivalents	Commingled Fund	\$42,588,166	0.3367		
IPOPIF Investment Portfolio			\$12,648,678,632	100.0000	\$10,965,809	0.087

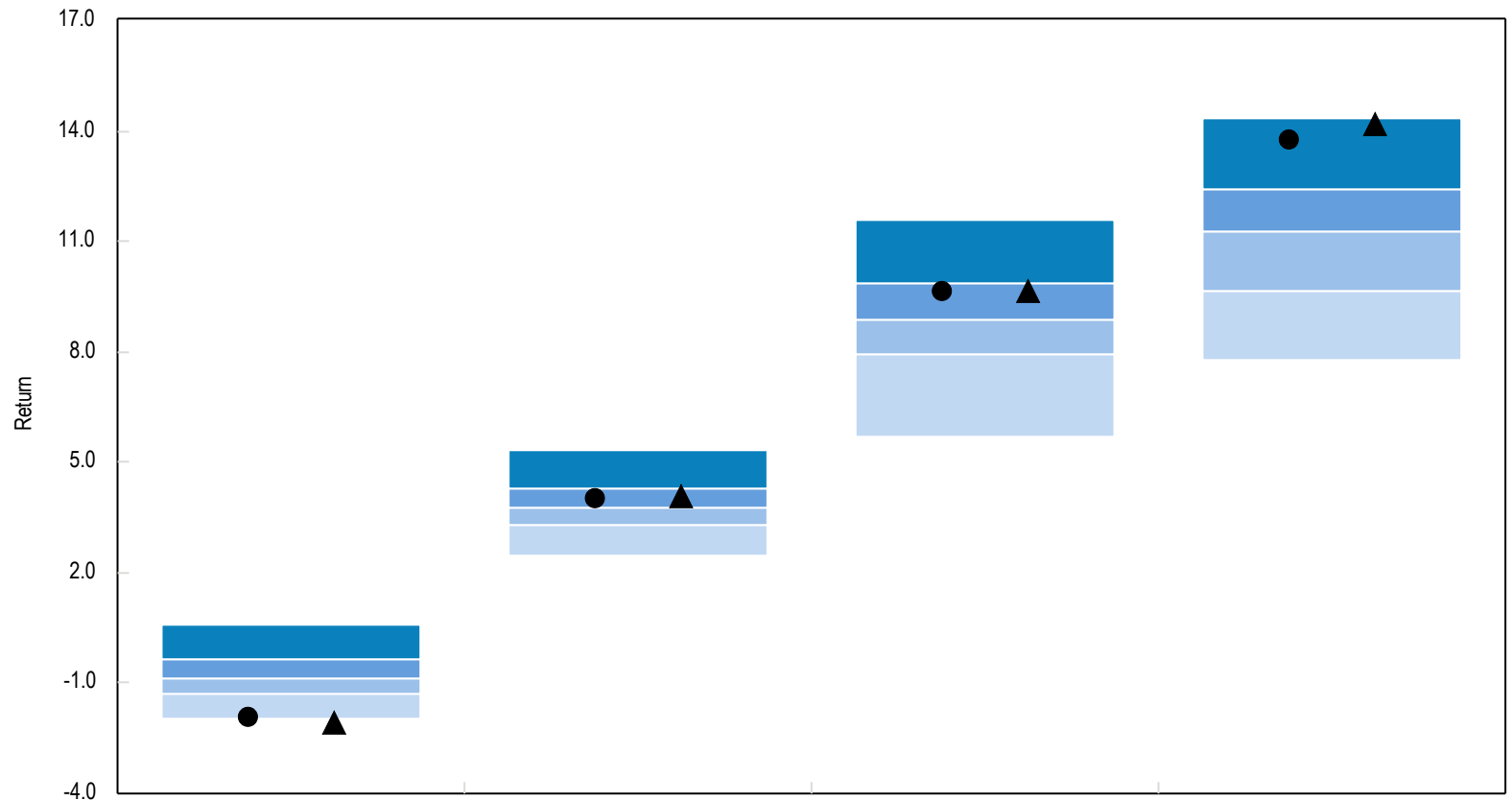
SSGA charges a flat 0.0155% fee through 2Q 2023 and an aggregate asset-based fee thereafter.

Total Fund
Cash Flow by Manager - Last Three Months

Illinois Police Officers' Pension Investment Fund
Period Ending: December 31, 2024

Name	Beginning Market Value	Contributions	Distributions	Net Cash Flows	Income	Fees	Net Investment Change	Ending Market Value
RhumbLine Russell 1000 Index	\$2,569,651,965	\$354,720,181	-\$91,000,000	\$263,720,181	\$9,323,366	-\$31,431	\$68,534,767	\$2,911,198,847
RhumbLine Russell 2000 Index	\$570,924,752	\$51,148,016	-	\$51,148,016	\$2,462,148	-\$7,139	-\$823,734	\$623,704,043
SSgA Non-US Developed Index	\$2,158,046,335	\$407,961,435	-	\$407,961,435	\$17,392,855	-\$43,878	-\$190,707,484	\$2,392,649,263
Acadian ACWI ex US Small-Cap Fund	\$289,188,093	\$40,781,210	-	\$40,781,210	\$2,461,214	-\$417,669	-\$15,478,588	\$316,534,261
WCM International Small Cap Growth Fund	\$150,132,217	\$12,000,000	-	\$12,000,000	\$349,586	-\$276,731	-\$2,024,625	\$160,180,446
LSV International Small Cap Value Equity Fund	\$137,177,073	\$28,288,147	-	\$28,288,147	\$876,115	-\$288,147	-\$10,471,778	\$155,581,410
SSgA Emerging Markets Equity Index	\$88,693,335	\$37,877	-\$82,604,733	-\$82,566,856	\$385,746	-\$37,877	-\$6,474,348	-
SSgA Emerging Markets ex China Equity	\$586,542,623	\$98,974,078	-\$95,000,000	\$3,974,078	\$4,153,498	-\$9,558	-\$52,049,607	\$542,611,033
William Blair Emerging Markets ex China Growth Fund	-	\$95,000,000	-	\$95,000,000	\$1,151,577	-	-\$3,558,877	\$92,592,700
ARGA Emerging Markets Ex China Equity	-	\$190,000,000	-	\$190,000,000	\$905,676	-\$53,429	-\$4,313,267	\$186,538,980
SSgA High Yield Corporate Credit	\$766,156,280	\$147,382,018	-	\$147,382,018	\$15,001,609	-\$59,568	-\$12,255,396	\$916,224,944
SSgA EMD Hard Index Fund	\$664,305,653	\$51,582	-\$80,000,000	-\$79,948,418	\$8,774,536	-\$51,582	-\$19,911,576	\$573,168,613
Capital Group Emerging Markets Debt	-	\$195,593,590	-	\$195,593,590	\$183,157	-	-\$5,933,748	\$189,842,998
Ares Institutional Loan Fund	\$104,689,809	\$24,000,000	-	\$24,000,000	\$218,525	-\$79,635	\$2,950,999	\$131,779,698
Aristotle Institutional Loan Fund	\$218,257,793	\$40,000,000	-	\$40,000,000	\$5,573,659	-\$196,979	-	\$263,634,472
SSgA REITs Index	\$491,584,996	\$37,257,694	-	\$37,257,694	\$4,667,333	-\$9,175	-\$35,846,119	\$497,654,729
Principal USPA	\$157,619,390	\$53,844,472	-	\$53,844,472	\$2,311,375	-\$427,126	\$443,672	\$213,791,783
SSgA US Treasury Index	\$327,603,286	\$62,321,113	-	\$62,321,113	\$1,963,880	-\$2,561	-\$13,201,927	\$378,683,792
SSgA Core Fixed Income Index	\$358,365,182	\$32,844,208	-	\$32,844,208	\$3,580,503	-\$7,502	-\$14,924,130	\$379,858,261
SSgA Short-Term Gov't/Credit Index	\$1,080,042,418	\$210,570,739	-	\$210,570,739	\$10,005,351	-\$26,070	-\$9,036,593	\$1,291,555,845
SSgA US TIPS Index	\$323,115,321	\$64,836,724	-	\$64,836,724	\$917,490	-\$6,538	-\$928,346	\$387,934,651
Cash	\$238,623,794	\$631,395,944	-\$829,139,982	-\$197,744,038	\$1,697,799	-	\$10,612	\$42,588,166
IPOPIF Pool Fixed Income Transition	\$104,252	\$267,833	-	\$267,833	\$270	-	-\$2,659	\$369,696
Member Accounts	-	\$1,577,295,694	-\$1,582,639,454	-\$5,343,760	-	-	\$5,343,800	\$40
Transition Account	-	\$1,615,111,950	-\$1,609,379,849	\$5,732,101	-	-	-\$5,732,013	\$87
Total Fund with Member Funds and Transition Accounts	\$11,280,824,565	\$5,971,684,507	-\$4,369,764,019	\$1,601,920,489	\$94,357,266	-\$2,032,594	-\$326,390,966	\$12,648,678,759

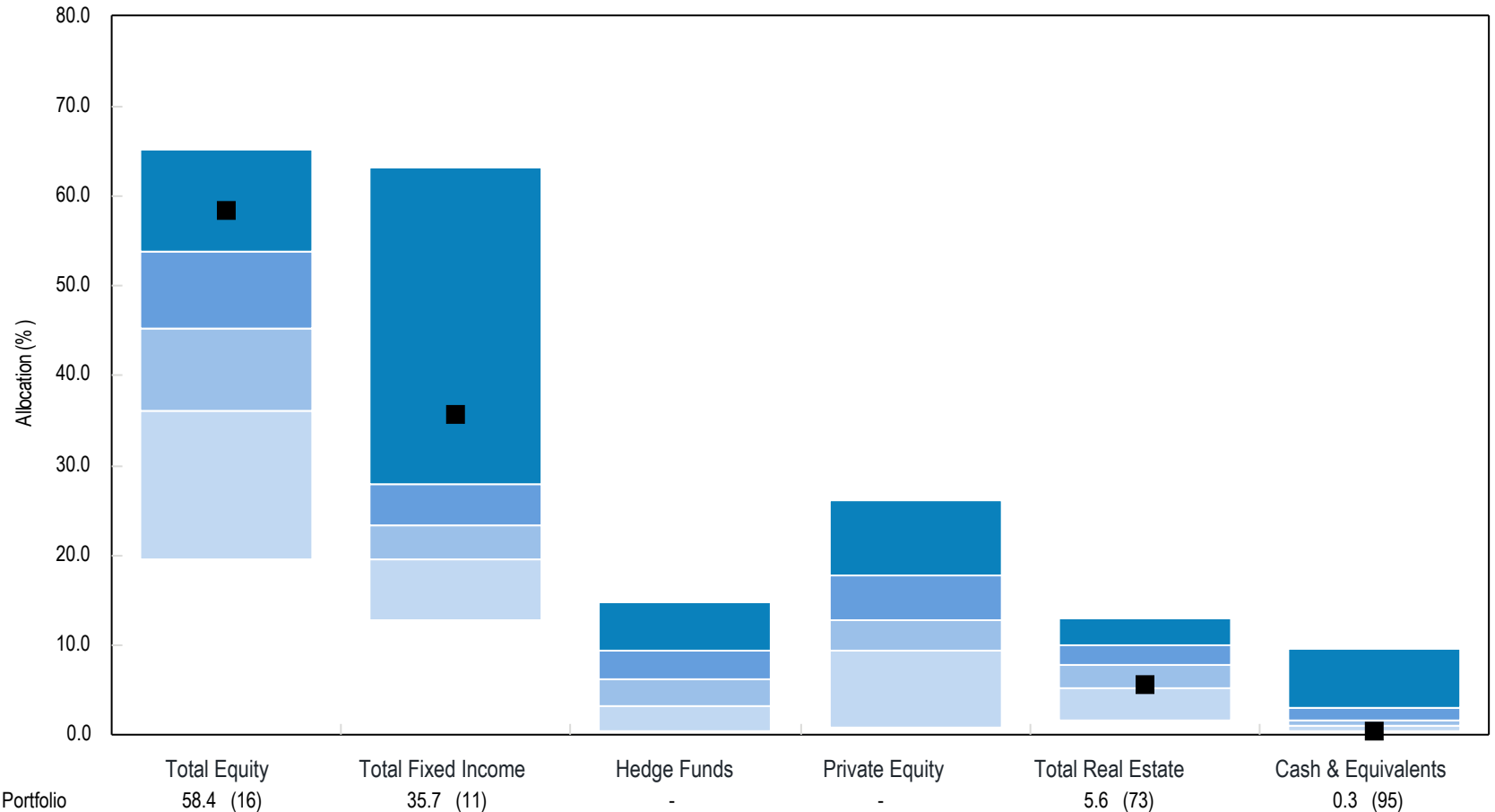
IPOPIF Investment Portfolio vs. All Public Plans > \$1B-Total Fund



	Quarter	Fiscal YTD	2024	2023
● IPOPIF Investment Portfolio	-1.9 (95)	4.0 (35)	9.6 (33)	13.7 (11)
▲ Policy Index	-2.1 (97)	4.1 (34)	9.7 (33)	14.2 (8)
5th Percentile	0.6	5.3	11.6	14.4
1st Quartile	-0.4	4.3	9.9	12.4
Median	-0.9	3.8	8.9	11.3
3rd Quartile	-1.3	3.3	7.9	9.6
95th Percentile	-2.0	2.5	5.7	7.8
Population	108	107	107	194

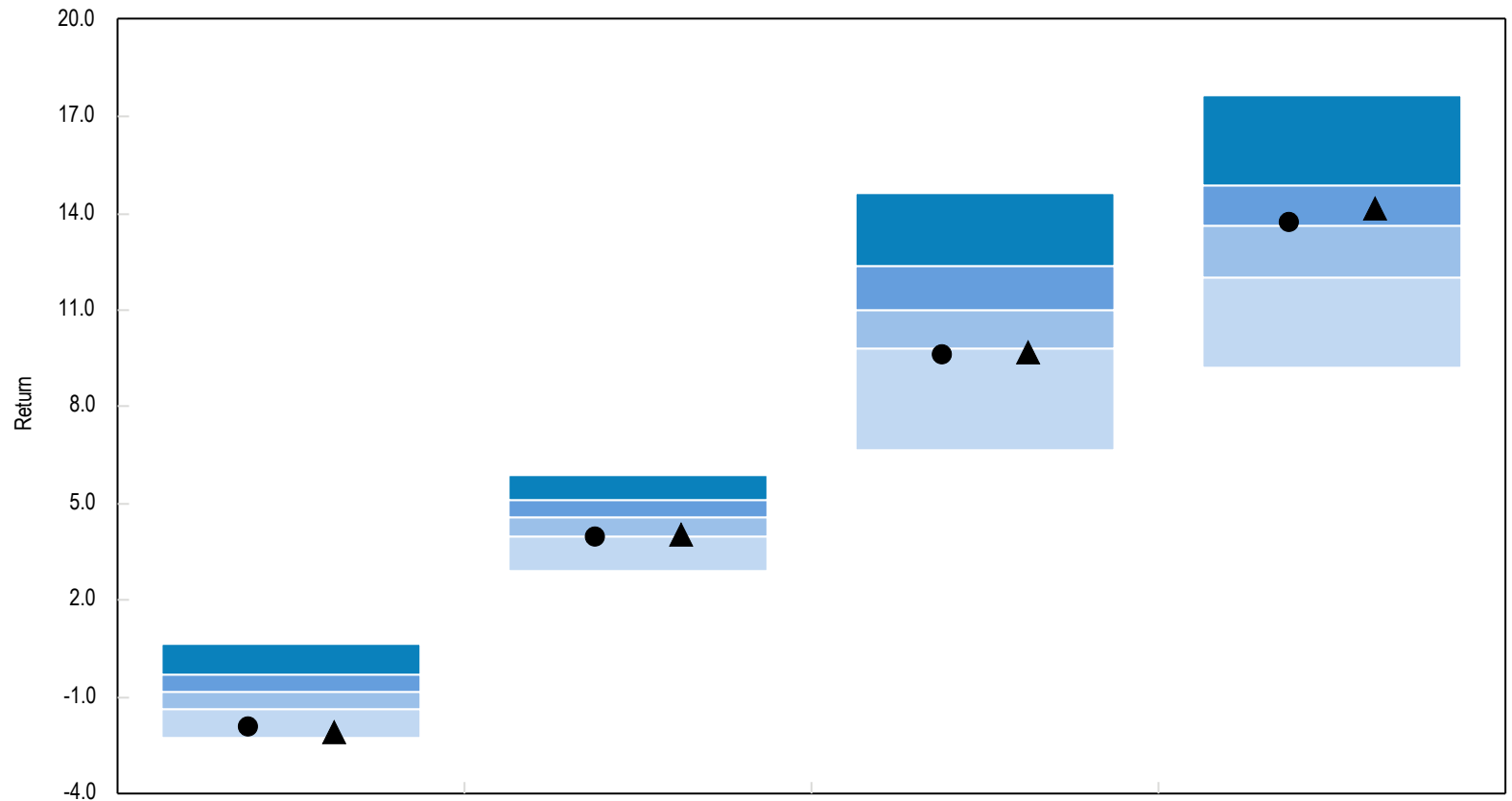
Parentheses contain percentile rankings. Performance shown for IPOPIF Investment Fund which excludes the Transition Account and Member Funds.

Total Plan Allocation vs. All Public Plans > \$1B-Total Fund
As of December 31, 2024



Parenteses contain percentile rankings. Excludes Transition Account and Member Funds. Real Assets contains Core Real Estate and REITs.

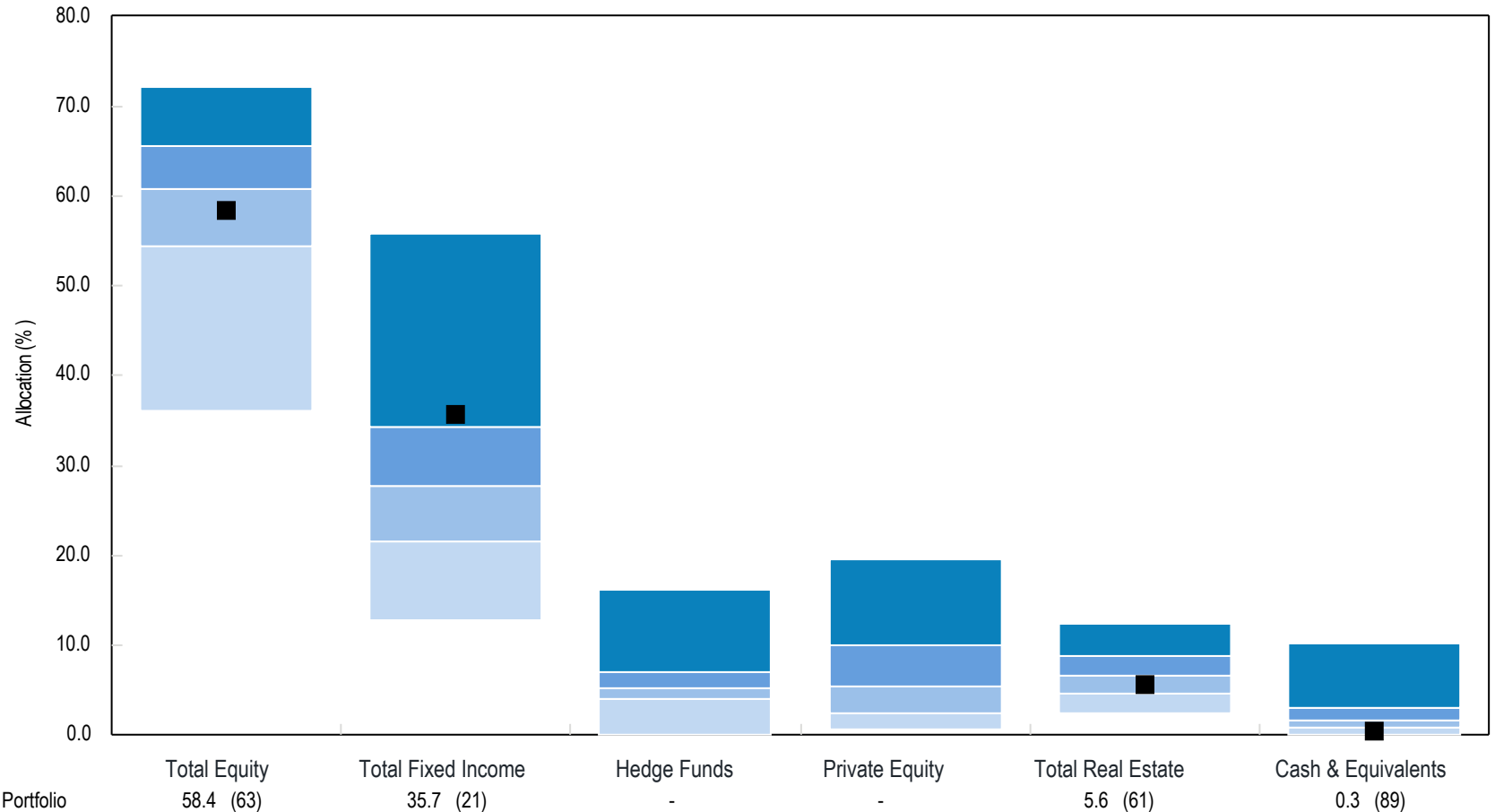
IPOPIF Investment Portfolio vs. All Public Plans < \$1B-Total Fund



	Quarter	Fiscal YTD	2024	2023
● IPOPIF Investment Portfolio	-1.9 (89)	4.0 (75)	9.6 (78)	13.7 (49)
▲ Policy Index	-2.1 (91)	4.1 (72)	9.7 (78)	14.2 (41)
5th Percentile	0.6	5.9	14.7	17.7
1st Quartile	-0.3	5.1	12.4	14.9
Median	-0.8	4.6	11.0	13.6
3rd Quartile	-1.4	4.0	9.8	12.0
95th Percentile	-2.2	2.9	6.7	9.2
Population	587	585	574	970

Parentheses contain percentile rankings. Performance shown for IPOPIF Investment Fund which excludes the Transition Account and Member Funds.

Total Plan Allocation vs. All Public Plans < \$1B-Total Fund
As of December 31, 2024



5th Percentile	72.2	55.8	16.2	19.5	12.3	10.2
1st Quartile	65.7	34.3	7.0	9.9	8.7	3.1
Median	60.8	27.7	5.1	5.4	6.6	1.7
3rd Quartile	54.4	21.6	3.9	2.5	4.6	0.8
95th Percentile	36.2	12.7	0.0	0.5	2.4	0.1
Population	602	625	74	178	406	575

Parenteses contain percentile rankings. Excludes Transition Account and Member Funds. Real Assets contains Core Real Estate and REITs.

Total Fund

Data Sources and Methodology Page

Illinois Police Officers' Pension Investment Fund

Period Ending: December 31, 2024

Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Manager Line Up

<u>Manager</u>	<u>Inception Date</u>	<u>Data Source</u>	<u>Manager</u>	<u>Inception Date</u>	<u>Data Source</u>
RhumbLine Russell 1000 Index Fund	3/15/2022	State Street	SSgA EMD Hard Index Fund	3/14/2022	State Street
RhumbLine Russell 2000 Index Fund	3/15/2022	State Street	Capital Group Emerging Markets Debt Fund	10/21/2024	State Street
SSgA Non-US Developed Index Fund	3/10/2022	State Street	Ares Institutional Loan Fund	3/1/2024	Ares
SSgA Non-US Developed SC Index Fund	3/10/2022	State Street	Aristotle Institutional Loan Fund	3/1/2024	Aristotle
Acadian ACWI ex US Small-Cap Fund	1/30/2024	State Street	Principal USPA	4/6/2022	State Street
WCM International Small Cap Growth Fund	3/1/2024	WCM	SSgA REITs Index Fund	3/10/2022	State Street
LSV International Small Cap Value Equity Fund	3/1/2024	LSV	SSgA US Treasury Index Fund	5/1/2024	State Street
SSgA Emerging Markets Equity Index Fund	3/1/2022	State Street	SSgA Core Fixed Income Index Fund	3/17/2022	State Street
SSgA Emerging Markets ex China Equity Index Fur	5/1/2024	State Street	SSgA Short-Term Gov't/Credit Index Fund	3/17/2022	State Street
William Blair EM ex China Growth Fund	12/9/2024	William Blair	SSgA US TIPS Index Fund	3/17/2022	State Street
ARGA Emerging Markets Ex China Equity	12/1/2024	State Street	Cash	3/22/2022	State Street
SSgA High Yield Corporate Credit	3/18/2022	State Street			

Custom Benchmark Composition

<u>Benchmark</u>	<u>Time period</u>	<u>Composition</u>
Policy Index -Broad Benchmark	4/1/2022 - Present	70% MSCI ACWI IMI (Net) and 30% Bloomberg Global Multiverse.
Spliced SSgA EMD Hard Benchmark	7/1/2023 - Present	100% JPM EMBI Global Diversified Index
Spliced SSgA EMD Hard Benchmark	3/14/2022 - 6/30/2022	100% JPM EMBI Global Core Index
Spliced SSgA U.S. High Yield Index	12/1/2022 - Present	100% ICE BofA US High yield Master II Constrained
Spliced SSgA U.S. High Yield Index	4/1/2022 - 11/30/2022	100% Bloomberg U.S. High Yield Very Liquid Index

Total Fund

Data Sources and Methodology Page

Illinois Police Officers' Pension Investment Fund

Period Ending: December 31, 2024

Policy Index Composition

As of 12/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23.0%	39.7%			
Russell 2000	5.0%	8.6%			
MSCI World ex U.S.	19.0%	32.8%			
MSCI World ex U.S. Small Cap	5.0%	8.6%			
MSCI Emerging Markets ex China	6.0%	10.3%			
Bloomberg US Corporate High Yield Index	7.0%		43.8%		
JPM EMBI Global Diversified Index	6.0%		37.5%		
Credit Suisse Leveraged Loan Index	3.0%		18.8%		
NFI-ODCE Equal-Weighted Index	2.0%			33.3%	
Dow Jones US Select REIT Index	4.0%			66.7%	
Bloomberg US Aggregate Index	3.0%				15.0%
Bloomberg US Treasury Index	3.0%				15.0%
Bloomberg 1-3 Year Gov/Credit Index	10.0%				50.0%
Bloomberg US TIPS 0-5 Year	3.0%				15.0%
90 Day US Treasury Bill Index	1.0%				5.0%

As of 10/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%			
Russell 2000	5%	8.6%			
MSCI World ex U.S.	19%	32.8%			
MSCI World ex U.S. Small Cap	5%	8.6%			
MSCI Emerging Markets	0.8%	1.4%			
MSCI Emerging Markets ex China	5.2%	9.0%			
Bloomberg US Corporate High Yield Index	7%		43.8%		
JPM EMBI Global Diversified Index	6%		37.5%		
Credit Suisse Leveraged Loan Index	3%		18.8%		
NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%
Bloomberg US Treasury Index	3%				15.0%
Bloomberg 1-3 Year Gov/Credit Index	10%				50.0%
Bloomberg US TIPS 0-5 Year	3%				15.0%
90 Day US Treasury Bill Index	1%				5.0%

As of 8/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%			
Russell 2000	5%	8.6%			
MSCI World ex U.S.	19%	32.8%			
MSCI World ex U.S. Small Cap	5%	8.6%			
MSCI Emerging Markets	2%	3.4%			
MSCI Emerging Markets ex China	4%	6.9%			
Bloomberg US Corporate High Yield Index	7%		43.8%		
JPM EMBI Global Diversified Index	6%		37.5%		
Credit Suisse Leveraged Loan Index	3%		18.8%		
NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%
Bloomberg US Treasury Index	3%				15.0%
Bloomberg 1-3 Year Gov/Credit Index	10%				50.0%
Bloomberg US TIPS 0-5 Year	3%				15.0%
90 Day US Treasury Bill Index	1%				5.0%

As of 7/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%			
Russell 2000	5%	8.6%			
MSCI World ex U.S.	19%	32.8%			
MSCI World ex U.S. Small Cap	5%	8.6%			
MSCI Emerging Markets	3%	5.2%			
MSCI Emerging Markets ex China	3%	5.2%			
Bloomberg US Corporate High Yield Index	7%		43.8%		
JPM EMBI Global Diversified Index	6%		37.5%		
Credit Suisse Leveraged Loan Index	3%		18.8%		
NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%
Bloomberg US Treasury Index	3%				15.0%
Bloomberg 1-3 Year Gov/Credit Index	10%				50.0%
Bloomberg US TIPS 0-5 Year	3%				15.0%
90 Day US Treasury Bill Index	1%				5.0%

Total Fund

Data Sources and Methodology Page

Illinois Police Officers' Pension Investment Fund

Period Ending: December 31, 2024

Policy Index Composition						Policy Index Composition					
As of 6/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation	As of 5/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%				Russell 1000	23%	39.7%			
Russell 2000	5%	8.6%				Russell 2000	5%	8.6%			
MSCI World ex U.S.	19%	32.8%				MSCI World ex U.S.	19%	32.8%			
MSCI World ex U.S. Small Cap	5%	8.6%				MSCI World ex U.S. Small Cap	5%	8.6%			
MSCI Emerging Markets	4%	6.9%				MSCI Emerging Markets	5%	8.6%			
MSCI Emerging Markets ex China	2%	3.4%				MSCI Emerging Markets ex China	1%	1.7%			
Bloomberg US Corporate High Yield Index	7%		43.8%			Bloomberg US Corporate High Yield Index	7%		43.8%		
JPM EMBI Global Diversified Index	6%		37.5%			JPM EMBI Global Diversified Index	6%		37.5%		
Credit Suisse Leveraged Loan Index	3%		18.8%			Credit Suisse Leveraged Loan Index	3%		18.8%		
NFI-ODCE Equal-Weighted Index	2%			33.3%		NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%		Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%	Bloomberg US Aggregate Index	3%				15.0%
Bloomberg US Treasury Index	2%				10.0%	Bloomberg US Treasury Index	1%				5.0%
Bloomberg 1-3 Year Gov/Credit Index	11%				55.0%	Bloomberg 1-3 Year Gov/Credit Index	12%				60.0%
Bloomberg US TIPS 0-5 Year	3%				15.0%	Bloomberg US TIPS 0-5 Year	3%				15.0%
90 Day US Treasury Bill Index	1%				5.0%	90 Day US Treasury Bill Index	1%				5.0%

As of 4/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation	As of 3/1/2024	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%				Russell 1000	23%	39.7%			
Russell 2000	5%	8.6%				Russell 2000	5%	8.6%			
MSCI World ex U.S.	19%	32.8%				MSCI World ex U.S.	18%	31.0%			
MSCI World ex U.S. Small Cap	5%	8.6%				MSCI World ex U.S. Small Cap	5%	8.6%			
MSCI Emerging Markets	6%	10.3%				MSCI Emerging Markets	7%	12.1%			
Bloomberg US Corporate High Yield Index	7%		43.8%			Bloomberg US Corporate High Yield Index	8.5%		53.1%		
JPM EMBI Global Diversified Index	6%		37.5%			JPM EMBI Global Diversified Index	6%		37.5%		
Credit Suisse Leveraged Loan Index	3%		18.8%			Credit Suisse Leveraged Loan Index	1.5%		9.4%		
NFI-ODCE Equal-Weighted Index	2%			33.3%		NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%		Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%	Bloomberg US Aggregate Index	3%				15.0%
Bloomberg 1-3 Year Gov/Credit Index	13%				65.0%	Bloomberg 1-3 Year Gov/Credit Index	13%				65.0%
Bloomberg US TIPS 0-5 Year	3%				15.0%	Bloomberg US TIPS 0-5 Year	3%				15.0%
90 Day US Treasury Bill Index	1%				5.0%	90 Day US Treasury Bill Index	1%				5.0%

As of 5/1/2023	Policy Index	Growth	Income	Real Assets	Risk Mitigation	As of 1/1/2023	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 1000	23%	39.7%				Russell 1000	18%	36.0%			
Russell 2000	5%	8.6%				Russell 2000	5%	10.0%			
MSCI World ex U.S.	18%	31.0%				MSCI World ex U.S.	15%	30.0%			
MSCI World ex U.S. Small Cap	5%	8.6%				MSCI World ex U.S. Small Cap	5%	10.0%			
MSCI Emerging Markets	7%	12.1%				MSCI Emerging Markets	7%	14.0%			
Bloomberg US Corporate High Yield Index	10%		62.5%			Bloomberg US Corporate High Yield Index	10%		62.5%		
JPM EMBI Global Diversified Index	6%		37.5%			JPM EMBI Global Diversified Index	6%		37.5%		
NFI-ODCE Equal-Weighted Index	2%			33.3%		NFI-ODCE Equal-Weighted Index	2%			33.3%	
Dow Jones US Select REIT Index	4%			66.7%		Dow Jones US Select REIT Index	4%			66.7%	
Bloomberg US Aggregate Index	3%				15.0%	Bloomberg US Aggregate Index	7%				25.0%
Bloomberg 1-3 Year Gov/Credit Index	13%				65.0%	Bloomberg 1-3 Year Gov/Credit Index	15%				53.6%
Bloomberg US TIPS 0-5 Year	3%				15.0%	Bloomberg US TIPS 0-5 Year	3%				10.7%
90 Day US Treasury Bill Index	1%				5.0%	90 Day US Treasury Bill Index	3%				10.7%

Policy Index Composition

As of 3/31/2022	Policy Index	Growth	Income	Real Assets	Risk Mitigation
Russell 3000	23%	46.0%			
MSCI ACWI ex USA IMI	20%	40.0%			
MSCI Emerging Markets IMI	7%	14.0%			
Bloomberg US Corporate High Yield Index	10%		62.5%		
50% JPM EMBI GD/50% JPM GBI EM GD	6%		37.5%		
NCREIF Property Index	2%			66.7%	
Dow Jones US Select REIT Index	4%			33.3%	
Bloomberg US Aggregate Index	7%				25.0%
Bloomberg 1-3 Year Gov/Credit Index	15%				53.6%
Bloomberg US TIPS 0-5 Year	3%				10.7%
90 Day US Treasury Bill Index	3%				10.7%

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk free Rate})]$.

Benchmark R squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book to Market: The ratio of book value per share to market price per share. Growth managers typically have low book to market ratios while value managers typically have high book to market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price to Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price to earnings ratios whereas value managers hold stocks with low price to earnings ratios.

R Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Sortino Ratio: Measures the risk adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

Disclosure

This report contains confidential and proprietary information and is subject to the terms and conditions of the Consulting Agreement. It is being provided for use solely by the customer. The report may not be sold or otherwise provided, in whole or in part, to any other person or entity without written permission from Verus Advisory, Inc., (hereinafter Verus) or as required by law or any regulatory authority. The information presented does not constitute a recommendation by Verus and cannot be used for advertising or sales promotion purposes. This does not constitute an offer or a solicitation of an offer to buy or sell securities, commodities or any other financial instruments or products.

The information presented has been prepared using data from third party sources that Verus believes to be reliable. While Verus exercised reasonable professional care in preparing the report, it cannot guarantee the accuracy of the information provided by third party sources. Therefore, Verus makes no representations or warranties as to the accuracy of the information presented. Verus takes no responsibility or liability (including damages) for any error, omission, or inaccuracy in the data supplied by any third party. Nothing contained herein is, or should be relied on as a promise, representation, or guarantee as to future performance or a particular outcome. Even with portfolio diversification, asset allocation, and a long-term approach, investing involves risk of loss that the investor should be prepared to bear.

The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Net-of-Fees Returns mean gross-of-fees returns reduced by fees and expenses charged by third-party investment managers on the products of such managers held by client. Net-of-Fees Returns does not include a reduction of returns for Verus' investment management and consulting fees, or other expenses incurred by the asset owner, fund or plan.

Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.