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PERIOD ENDING: JUNE 30, 2022

Investment Performance Review for

Illinois Police Officers' Pension Investment Fund

Illinois Police Officers' Pension Investment Fund

Investment Performance Review
Period Ending: June 30, 2022

Verus⁷⁷⁷®

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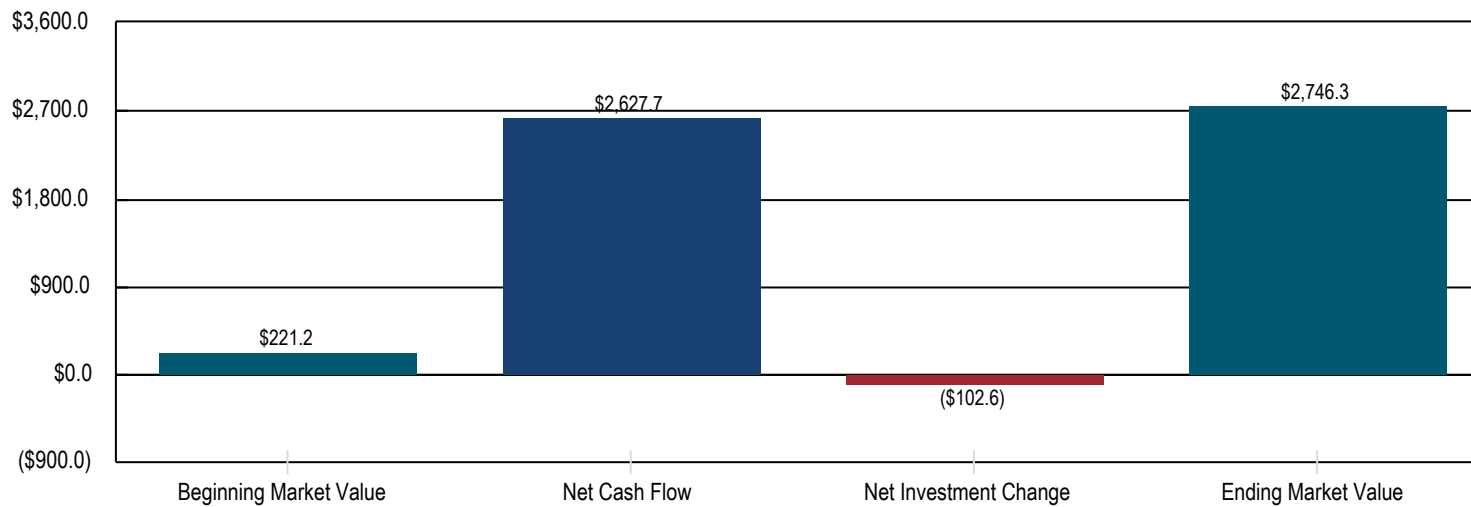


Illinois Police Officers'
PENSION INVESTMENT FUND

Portfolio Reconciliation

Total Fund with Member Funds and Transition Accounts		Quarter-To-Date
Beginning Market Value		\$221,208,260
Net Cash Flow		\$2,627,709,494
Net Investment Change		-\$102,609,301
Ending Market Value		\$2,746,308,452

Change in Market Value
Last Three Months

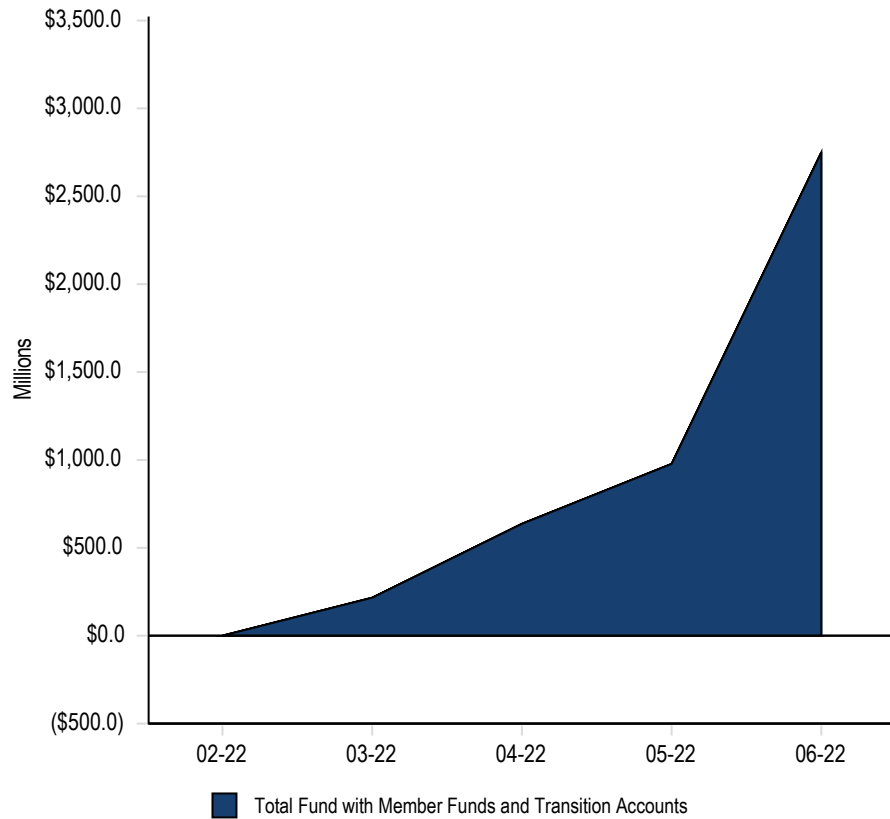


The portfolio reconciliation includes the Member Funds and Transition Account.

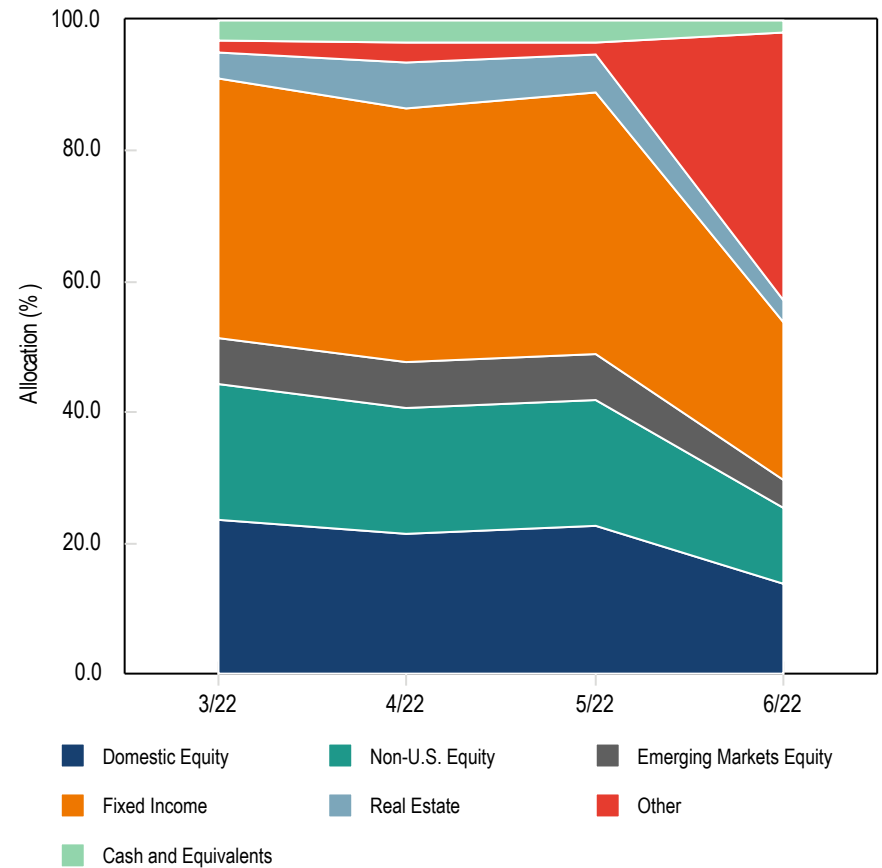
Total Fund
Asset Allocation History

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

Market Value History



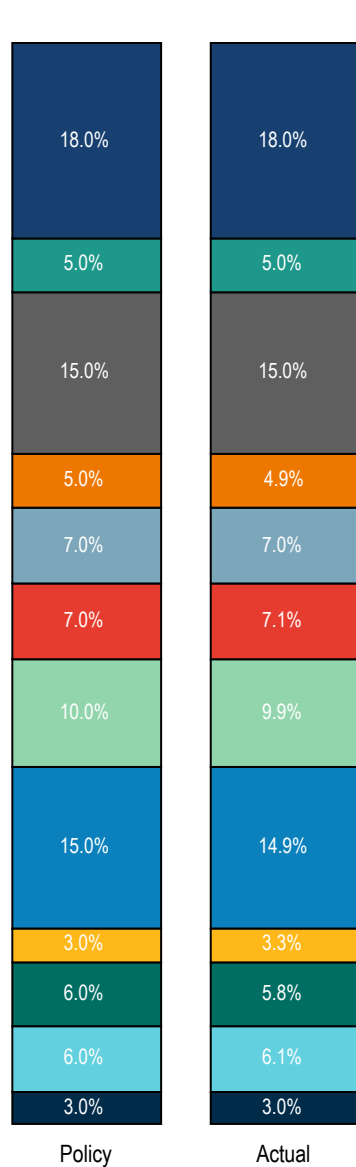
Asset Allocation History



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 Other category reflects the June 24th transfers into the Members Funds account.

Total Fund
Asset Allocation vs. Policy

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022



	Current Balance (\$)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Excess Allocation (\$)	Policy Range (%)	Within IPS Range?
Domestic Equity Large Cap	292,655,482	18.0	18.0	0.0	748,894	16.0 - 20.0	Yes
Domestic Equity Small Cap	81,519,822	5.0	5.0	0.0	434,659	4.0 - 6.0	Yes
International Equity Large Cap	242,594,658	15.0	15.0	0.0	-660,833	13.0 - 17.0	Yes
International Equity Small Cap	80,126,765	4.9	5.0	-0.1	-958,399	4.0 - 6.0	Yes
Emerging Markets Equity	114,019,550	7.0	7.0	0.0	500,321	6.0 - 8.0	Yes
Domestic Fixed Income Core	114,534,269	7.1	7.0	0.1	1,015,040	6.0 - 8.0	Yes
Domestic Fixed Income High Yield	160,280,906	9.9	10.0	-0.1	-1,889,421	9.0 - 11.0	Yes
Domestic Fixed Income Short Term	241,483,090	14.9	15.0	-0.1	-1,772,401	14.0 - 16.0	Yes
Domestic Fixed Income Real Return	53,293,955	3.3	3.0	0.3	4,642,857	2.5 - 3.5	Yes
Emerging Markets Fixed Income	94,771,046	5.8	6.0	-0.2	-2,531,150	5.0 - 7.0	Yes
Real Estate	98,445,205	6.1	6.0	0.1	1,143,009	5.0 - 7.0	Yes
Cash and Equivalents	47,978,523	3.0	3.0	0.0	-672,575	0.0 - 5.0	Yes
Total	1,621,703,271	100.0	100.0	0.0			

Asset Allocation reflects short-term policy targets and excludes the Transition Account and Member Funds.

Total Fund
Executive Summary (Gross of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

	Market Value	% of Portfolio	3 Mo	Inception	Inception Date
Total Fund with Member Funds and Transition Accounts	2,746,308,452	100.0	-9.7	-9.2	Mar-22
<i>Policy Index</i>			-10.4	-10.0	
<i>Policy Index- Broad Based</i>			-13.6	-13.2	
IPOPIF Investment Portfolio	1,621,703,271	59.1	-10.4	-10.4	Apr-22
<i>Policy Index</i>			-10.4	-10.4	
<i>Policy Index- Broad Based</i>			-13.6	-13.6	
Growth	810,916,277	29.5	-15.4	-15.4	Apr-22
<i>Growth Benchmark</i>			-15.1	-15.1	
Income	255,051,952	9.3	-11.8	-11.8	Apr-22
<i>Income Benchmark</i>			-9.9	-9.9	
Inflation Protection	151,739,160	5.5	-5.0	-5.0	Apr-22
<i>Inflation Protection Benchmark</i>			-8.2	-8.2	
Risk Mitigation	403,995,882	14.7	-1.8	-1.8	Apr-22
<i>Risk Mitigation Benchmark</i>			-1.7	-1.7	
Transition Accounts	429,305,077	15.6			
Member Accounts	695,300,104	25.3			

Total Fund
Executive Summary (Gross of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

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<i>Policy Index</i>			-10.4	-10.0	
<i>Policy Index- Broad Based</i>			-13.6	-13.2	
<i>All Public Plans > \$1B-Total Fund Rank</i>			68	73	
IPOPIF Investment Portfolio	1,621,703,271	59.1	-10.4	-10.4	Apr-22
<i>Policy Index</i>			-10.4	-10.4	
<i>Policy Index- Broad Based</i>			-13.6	-13.6	
<i>All Public Plans > \$1B-Total Fund Rank</i>			83	83	
Growth	810,916,277	29.5	-15.4	-15.4	Apr-22
RhumbLine Russell 1000 Index	292,655,482	10.7	-16.8	-9.4	Mar-22
<i>Russell 1000 Index</i>			-16.7	-9.3	
<i>eV US Large Cap Core Equity Rank</i>			86	24	
RhumbLine Russell 2000 Index	81,519,822	3.0	-17.4	-12.1	Mar-22
<i>Russell 2000 Index</i>			-17.2	-11.6	
<i>eV US Small Cap Core Equity Rank</i>			82	13	
SSgA Non-US Developed Index	242,594,658	8.8	-14.4	-9.0	Mar-22
<i>MSCI World ex U.S. (Net)</i>			-14.7	-9.3	
<i>eV EAFE Core Equity Rank</i>			47	5	
SSgA Non-US Developed SC Index	80,126,765	2.9	-17.8	-13.1	Mar-22
<i>MSCI World ex U.S. Small Cap Index (Net)</i>			-17.9	-13.1	
<i>eV EAFE Small Cap Core Rank</i>			73	4	
SSgA Emerging Markets Equity Index	114,019,550	4.2	-10.5	-8.4	Mar-22
<i>MSCI Emerging Markets (Net)</i>			-11.4	-7.1	
<i>eV Emg Mkts Equity Rank</i>			20	6	
Income	255,051,952	9.3	-11.8	-11.8	Apr-22
SSgA High Yield Corporate Credit	160,280,906	5.8	-10.6	-10.0	Mar-22
<i>Bloomberg U.S. High Yield Very Liquid Ind</i>			-10.5	-10.9	
<i>eV US High Yield Fixed Inc Rank</i>			88	54	
iShares JPM Emerging Market Bond Index ETF	94,771,046	3.5	-13.0	-10.3	Mar-22
<i>JPM EMBI Global Core Index</i>			-12.1	-12.5	
<i>Emerging Markets Bond Rank</i>			89	27	

Policy Index constituents include 3% 90 day T-bill, 15% Bloomberg 1-3 Year Gov/Credit Index, 7% Bloomberg U.S. Aggregate Index, 3% Bloomberg U.S. TIPS 0-5 Year, 10% Bloomberg U.S. Corporate High Yield Index, 6% 50/50 JPM EMBI/GBI EM Global Diversified, 23% Russell 3000, 20% MSCI AC World Ex USA IMI (Net), 7% MSCI Emerging Markets IMI (Net), 4% Wilshire US REIT Index and 2% NCREIF Property Index. Broad Based Policy Index constituents: 70% MSCI ACWI IMI (Net), 30% Bloomberg Global Multiverse.
*IPOPIF Investment Portfolio and underlying asset class composites inceptioned on April 1, 2022.

Total Fund
Executive Summary (Gross of Fees)

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

	Market Value	% of Portfolio	3 Mo	Inception	Inception Date
Inflation Protection	151,739,160	5.5	-5.0	-5.0	Apr-22
SSgA US TIPS Index	53,293,955	1.9	-1.4	-2.5	Mar-22
<i>Blmbg. U.S. TIPS 0-5 Year</i>			-1.1	-1.7	
<i>eV US TIPS / Inflation Fixed Inc Rank</i>			3	1	
Principal USPA	70,492,447	2.6	-	3.1	Apr-22
<i>NCREIF ODCE</i>			4.5	4.5	
SSgA REITs Index	27,952,758	1.0	-18.1	-14.0	Mar-22
<i>Dow Jones U.S. Select REIT</i>			-18.1	-14.4	
<i>eV US REIT Rank</i>			77	87	
Risk Mitigation	403,995,882	14.7	-1.8	-1.8	Apr-22
SSgA Core Fixed Income Index	114,534,269	4.2	-4.8	-5.2	Mar-22
<i>Blmbg. U.S. Aggregate Index</i>			-4.7	-5.1	
<i>eV US Core Fixed Inc Rank</i>			45	6	
SSgA Short-Term Gov't/Credit Index	241,483,090	8.8	-0.7	-1.1	Mar-22
<i>Blmbg. 1-3 Year Gov/Credit index</i>			-0.6	-1.1	
<i>eV US Short Duration Fixed Inc Rank</i>			22	5	
Cash	47,978,523	1.7	0.0	0.0	Mar-22
<i>90 Day U.S. Treasury Bill</i>			0.1	0.1	
Transition Account	429,305,077	15.6			
Member Accounts	695,300,104	25.3			

Policy Index constituents include 3% 90 day T-bill, 15% Bloomberg 1-3 Year Gov/Credit Index, 7% Bloomberg U.S. Aggregate Index, 3% Bloomberg U.S. TIPS 0-5 Year, 10% Bloomberg U.S. Corporate High Yield Index, 6% 50/50 JPM EMBI/GBI EM Global Diversified, 23% Russell 3000, 20% MSCI AC World Ex USA IMI (Net), 7% MSCI Emerging Markets IMI (Net), 4% Wilshire US REIT Index and 2% NCREIF Property Index. Broad Based Policy Index constituents: 70% MSCI ACWI IMI (Net), 30% Bloomberg Global Multiverse.
*IPOPIF Investment Portfolio and underlying asset class composites inceptioned on April 1, 2022.

Total Fund
Investment Fund Fee Analysis

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

Name	Asset Class	Vehicle Type	Market Value	% of Portfolio	Estimated Fee Value	Expense Fee (%)
RhumbLine Russell 1000 Index	Domestic Equity	Separate Account	\$292,655,482	18.05	\$14,633	0.005
RhumbLine Russell 2000 Index	Domestic Equity	Separate Account	\$81,519,822	5.03	\$4,076	0.005
SSgA Non-US Developed Index	Non-U.S. Equity	Commingled Fund	\$242,594,658	14.96	\$36,389	0.015
SSgA Non-US Developed SC Index	Non-U.S. Equity	Commingled Fund	\$80,126,765	4.94	\$12,019	0.015
SSgA Emerging Markets Equity Index	Emerging Markets Equity	Commingled Fund	\$114,019,550	7.03	\$17,103	0.015
SSgA High Yield Corporate Credit	Fixed Income	Commingled Fund	\$160,280,906	9.88	\$24,042	0.015
iShares JPM Emerging Market Bond Index ETF	Fixed Income	Commingled Fund	\$94,771,046	5.84	\$369,607	0.390
SSgA US TIPS Index	Fixed Income	Separate Account	\$53,293,955	3.29	\$7,994	0.015
Principal USPA	Real Estate	Commingled Fund	\$70,492,447	4.35	\$563,940	0.800
SSgA REITs Index	Real Estate	Commingled Fund	\$27,952,758	1.72	\$4,193	0.015
SSgA Core Fixed Income Index	Fixed Income	Commingled Fund	\$114,534,269	7.06	\$17,180	0.015
SSgA Short-Term Gov't/Credit Index	Fixed Income	Commingled Fund	\$241,483,090	14.89	\$36,222	0.015
Cash	Cash and Equivalents	Commingled Fund	\$47,978,523	2.96		
IPOPIF Investment Portfolio			\$1,621,703,271	100.00	\$1,107,398	0.068

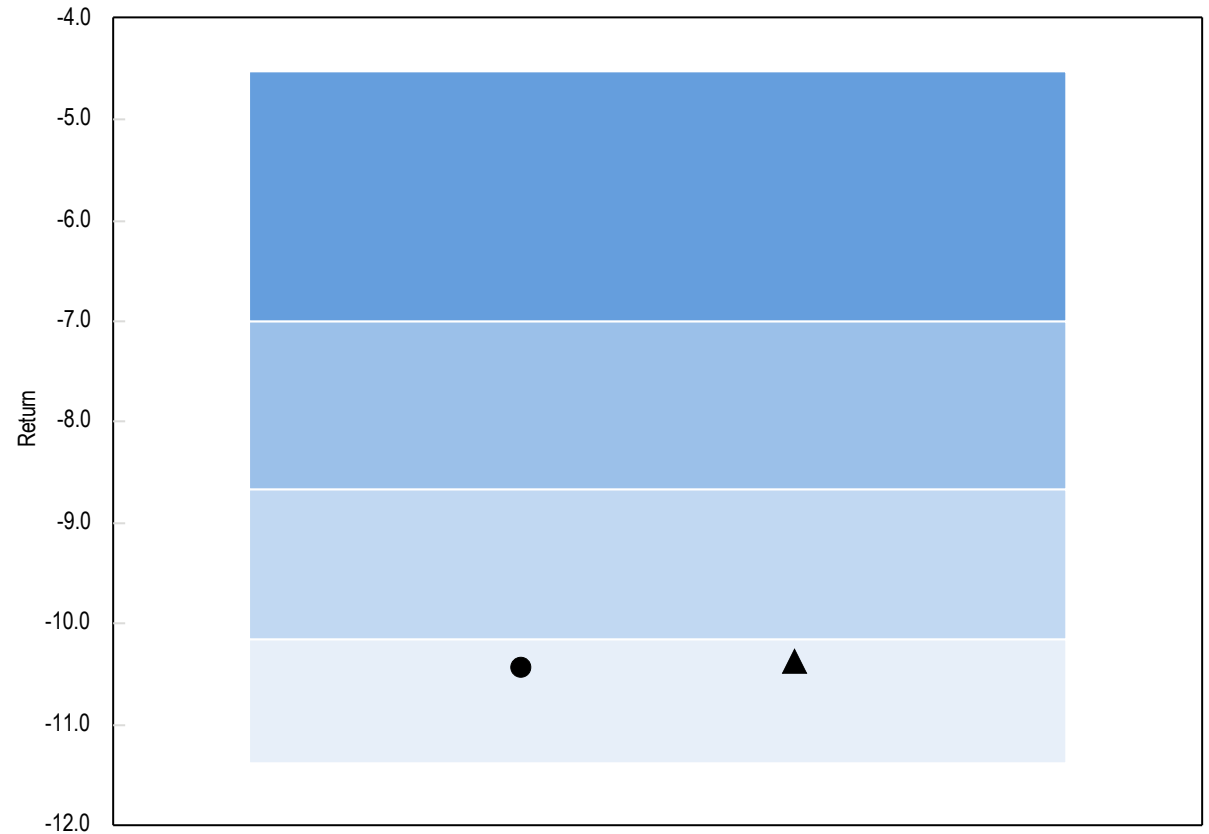
SSGA charges a flat 0.0155% fee through 2022 and an aggregate asset-based fee thereafter.

Total Fund
Cash Flow by Manager - Last Three Months

Illinois Police Officers' Pension Investment Fund
Period Ending: June 30, 2022

	Beginning Market Value	Contributions	Withdrawals	Transfer In	Transfer Out	Net Cash Flows	Net Investment Change	Ending Market Value
RhumbLine Russell 1000 Index	\$40,987,906	-	-	\$273,389,480	-	\$273,389,480	-\$21,721,904	\$292,655,482
RhumbLine Russell 2000 Index	\$11,216,523	-	-	\$76,497,933	-	\$76,497,933	-\$6,194,634	\$81,519,822
SSgA Non-US Developed Index	\$34,575,995	-	-	\$225,355,541	-	\$225,355,541	-\$17,336,878	\$242,594,658
SSgA Non-US Developed SC Index	\$11,467,555	-	-	\$76,058,102	-	\$76,058,102	-\$7,398,892	\$80,126,765
SSgA Emerging Markets Equity Index	\$15,513,910	-	-	\$102,979,480	-	\$102,979,480	-\$4,473,841	\$114,019,550
SSgA High Yield Corporate Credit	\$21,896,003	-	-	\$147,365,422	-	\$147,365,422	-\$8,980,520	\$160,280,906
iShares JPM Emerging Market Bond Index ETF	\$13,442,000	-	-	\$88,123,069	-	\$88,123,069	-\$6,794,022	\$94,771,046
SSgA US TIPS Index	\$6,440,268	-	-	\$47,244,632	-	\$47,244,632	-\$390,946	\$53,293,955
Principal USPA	-	-	-	\$69,765,128	-	\$69,765,128	\$727,319	\$70,492,447
SSgA REITs Index	\$9,020,703	-	-	\$54,556,537	-\$31,300,000	\$23,256,537	-\$4,324,481	\$27,952,758
SSgA Core Fixed Income Index	\$13,773,101	-	-	\$102,074,681	-	\$102,074,681	-\$1,313,512	\$114,534,269
SSgA Short-Term Gov't/Credit Index	\$32,000,028	-	-	\$216,045,587	-\$5,900,000	\$210,145,587	-\$662,525	\$241,483,090
Cash	\$6,616,038	\$2,026,141	-	\$44,350,000	-\$5,023,957	\$41,352,185	\$10,301	\$47,978,523
Transition Account	\$3,858,196	-	-	\$1,850,140,292	-\$1,386,757,111	\$463,383,180	-\$37,936,299	\$429,305,077
Member Accounts	\$400,034	\$2,609,650,207	-	\$16,471	-\$1,928,948,142	\$680,718,536	\$14,181,534	\$695,300,104
Total Fund with Member Funds and Transition Accounts	\$221,208,260	\$2,611,676,348	-	\$3,373,962,356	-\$3,357,929,210	\$2,627,709,494	-\$102,609,301	\$2,746,308,452

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



● IPOPIF Investment Portfolio

▲ Policy Index

5th Percentile

1st Quartile

Median

3rd Quartile

95th Percentile

Population

Quarter

-10.4 (83)

-10.4 (82)

-4.5

-7.0

-8.7

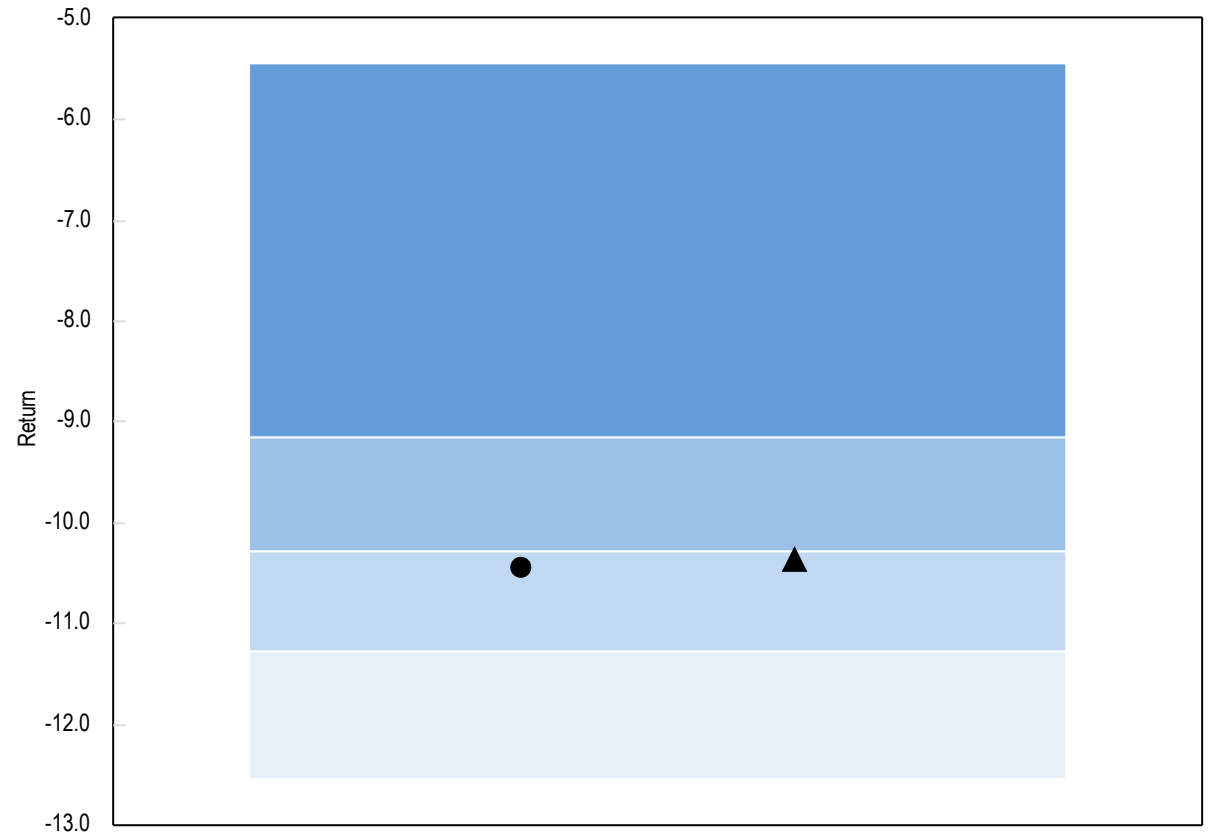
-10.1

-11.4

132

Performance shown for IPOPIF Investment Fund which excludes the Transition Account and Member Funds.

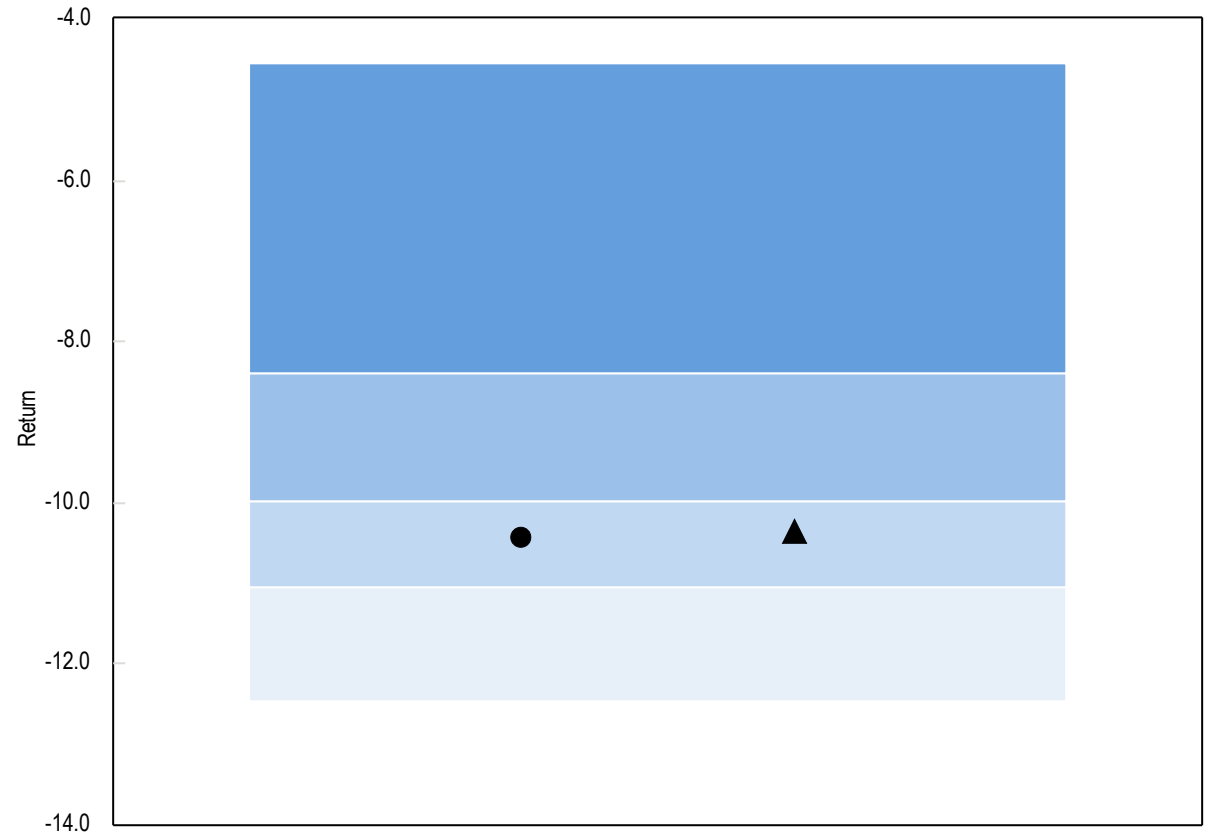
IPOPIF Investment Portfolio vs. All Public Plans < \$1B-Total Fund



● IPOPIF Investment Portfolio	Quarter
▲ Policy Index	-10.4 (55)
	-10.4 (52)
5th Percentile	-5.4
1st Quartile	-9.1
Median	-10.3
3rd Quartile	-11.3
95th Percentile	-12.5
Population	333

Performance shown for IPOPIF Investment Fund which excludes the Transition Account and Member Funds.

IPOPIF Investment Portfolio vs. All Public Plans-Total Fund



● IPOPIF Investment Portfolio

▲ Policy Index

5th Percentile

1st Quartile

Median

3rd Quartile

95th Percentile

Population

Quarter

-10.4 (63)

-10.4 (60)

-4.5

-8.4

-10.0

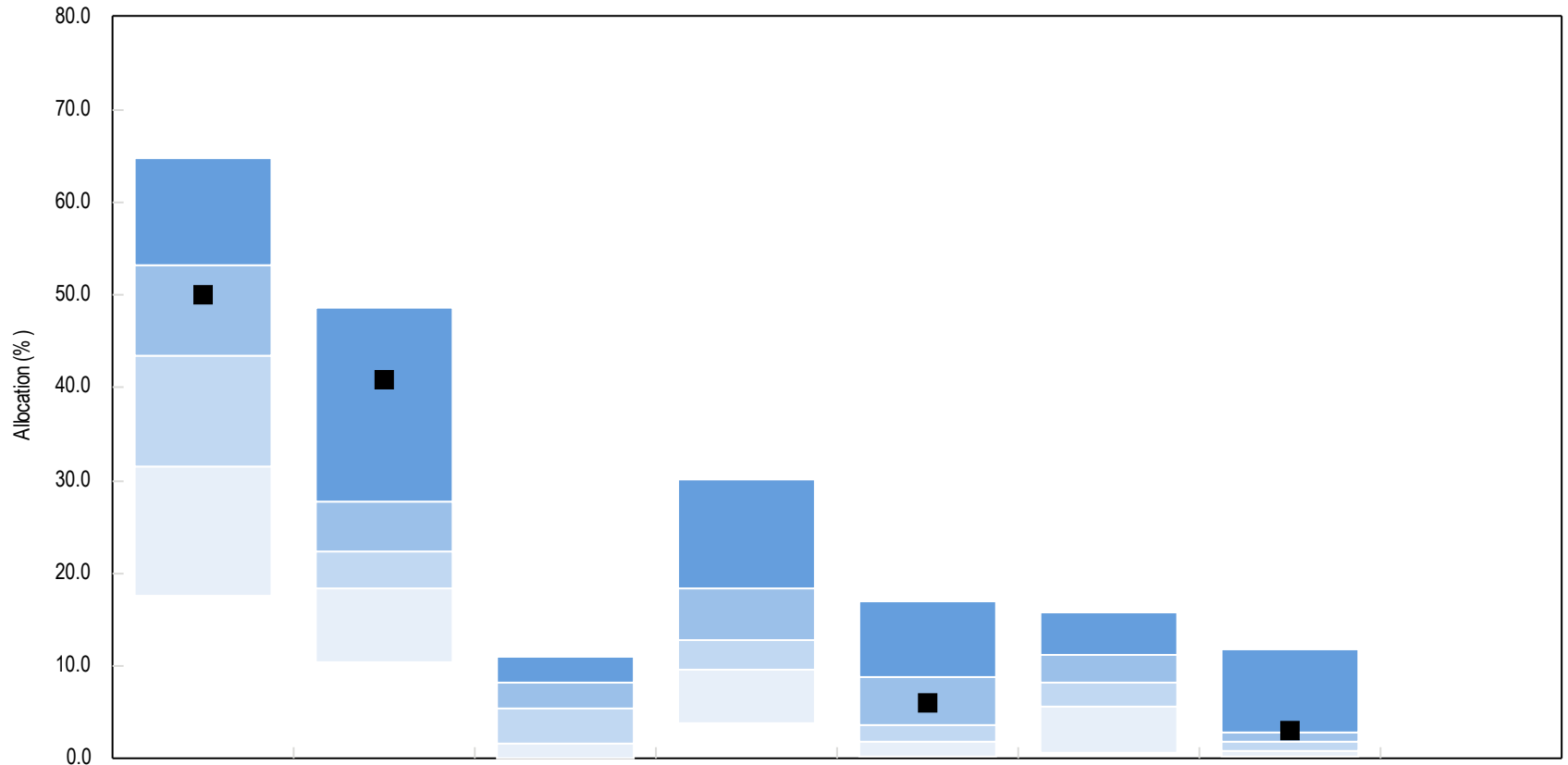
-11.0

-12.5

465

Performance shown for IPOPIF Investment Fund which excludes the Transition Account and Member Funds.

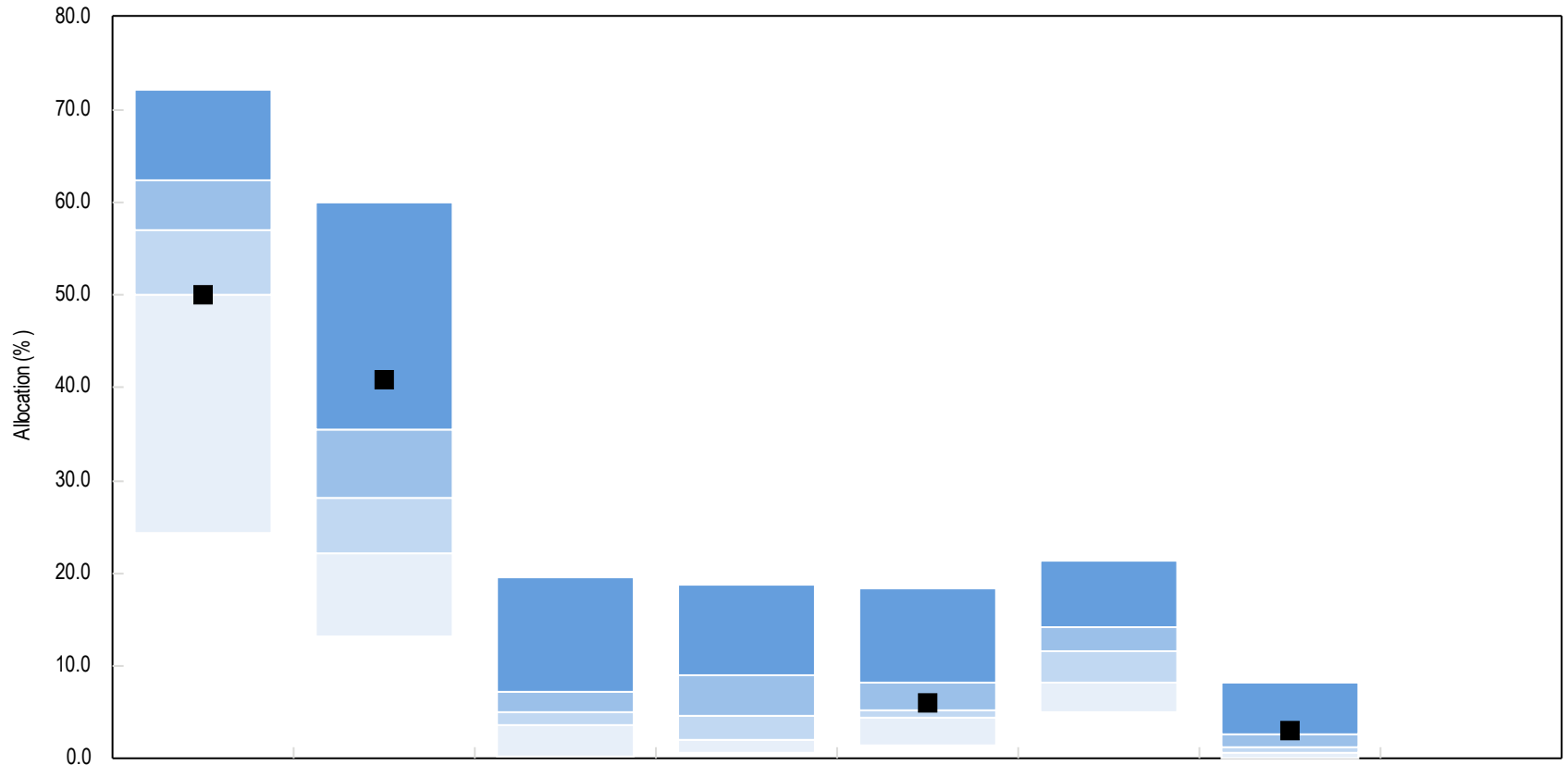
Total Plan Allocation vs. All Public Plans > \$1B-Total Fund
As of June 30, 2022



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ IPOPIF Investment Portfolio	50.0 (35)	41.0 (8)	-	-	6.1 (35)	-	3.0 (24)	-
5th Percentile	64.9	48.6	11.0	30.1	16.9	15.8	11.7	3.7
1st Quartile	53.2	27.7	8.1	18.3	8.8	11.1	2.9	3.7
Median	43.5	22.4	5.4	12.8	3.6	8.2	1.7	3.7
3rd Quartile	31.5	18.5	1.7	9.7	1.8	5.6	0.8	3.7
95th Percentile	17.6	10.4	0.0	3.7	0.1	0.7	0.2	3.7
Population	129	125	26	40	32	38	93	1

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

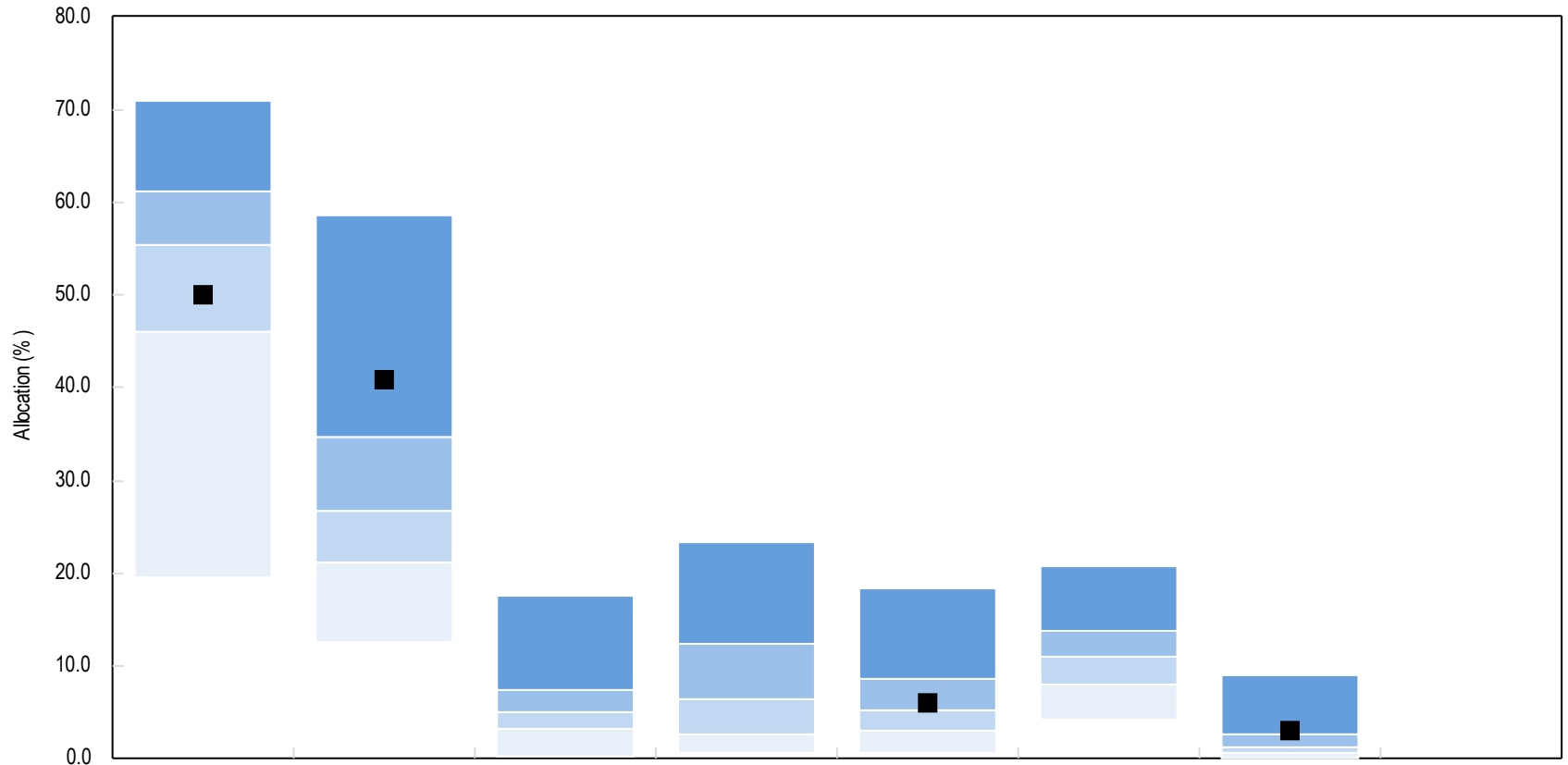
Total Plan Allocation vs. All Public Plans < \$1B-Total Fund
As of June 30, 2022



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ IPOPIF Investment Portfolio	50.0 (76)	41.0 (13)	-	-	6.1 (37)	-	3.0 (21)	-
5th Percentile	72.3	60.0	19.6	18.7	18.4	21.4	8.2	-
1st Quartile	62.4	35.6	7.2	9.1	8.2	14.1	2.6	-
Median	57.2	28.1	4.9	4.5	5.2	11.6	1.2	-
3rd Quartile	50.0	22.1	3.6	1.9	4.3	8.2	0.6	-
95th Percentile	24.3	13.1	0.2	0.7	1.4	5.1	0.1	-
Population	544	527	62	111	70	271	447	0

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

Total Plan Allocation vs. All Public Plans-Total Fund
As of June 30, 2022



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ IPOPIF Investment Portfolio	50.0 (68)	41.0 (12)	-	-	6.1 (37)	-	3.0 (22)	-
5th Percentile	71.0	58.7	17.5	23.3	18.3	20.7	9.1	3.7
1st Quartile	61.2	34.7	7.5	12.5	8.5	13.8	2.7	3.7
Median	55.6	26.8	5.1	6.3	5.1	11.1	1.3	3.7
3rd Quartile	46.1	21.1	3.2	2.6	3.1	8.0	0.6	3.7
95th Percentile	19.6	12.7	0.1	0.7	0.6	4.3	0.1	3.7
Population	673	652	88	151	102	309	540	1

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

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.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Manager	Inception Date	Data Source
RhumbLine Russell 1000 Index Fund	3/15/2022	State Street
RhumbLine Russell 2000 Index Fund	3/15/2022	State Street
SSgA Non-US Developed Index Fund	3/10/2022	State Street
SSgA Non-US Developed SC Index Fund	3/10/2022	State Street
SSgA Emerging Markets Equity Index Fund	3/10/2022	State Street
SSgA High Yield Corporate Credit	3/18/2022	State Street
iShares JPM Emerging Market Bond Index ETF	3/14/2022	State Street

Manager	Inception Date	Data Source
SSgA US TIPS Index Fund	3/17/2022	State Street
Principal USPA	4/6/2022	State Street
SSgA REITs Index Fund	3/10/2022	State Street
SSgA Core Fixed Income Index Fund	3/17/2022	State Street
SSgA Short-Term Gov't/Credit Index Fund	3/17/2022	State Street
Cash	3/22/2022	State Street

Policy Index Composition

As of 3/31/2022	Policy	Growth	Income	Inflation Protection	Risk Mitigation
Russell 3000	23%	46.0%			
MSCI ACWI ex USA IMI	20%	40.0%			
MSCI Emerging Markets IMI	7%	14.0%			
Bloomberg US Aggregate Index	7%				28.0%
Bloomberg 1-3 Year Gov/Credit Index	15%				60.0%
Bloomberg US Corporate High Yield Index	10%		62.5%		
Bloomberg US TIPS 0-5 Year	3%			33.3%	
50% JPM EMBI GD/50% JPM GBI EM GD	6%		37.5%		
NCREIF Property Index	2%			22.2%	
Wilshire US REIT Index	4%			44.5%	
90 Day US Treasury Bill Index	3%				12.0%

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.

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