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ENTERPRISE  
SUCCESS**



**PERIOD ENDING: March 31, 2023**

Investment Performance Review for

**Illinois Police Officers' Pension Investment Fund**

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# Executive Summary

## Executive Summary

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- Total assets grew from \$8.4 billion to \$9.0 billion over the quarter, including asset transfers of \$215 million and investment gains of \$293 million.
- The market recovery that began in late 2022 persisted through the first quarter of 2023, as the S&P 500 returned 7.5% through 3/31/23. In this continuing risk-on environment, the IPOPIF Investment Portfolio<sup>1</sup> returned 4.3% for the quarter, which was slightly below the Policy Index return of 4.4%. The Broad-Based Index performed even better with a return of 5.8% for the period, reflecting higher equity exposure in a risk-on environment.
- The trailing 1-year return remained negative at -5.1%, resulting from the difficult market environment in the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of last year.
- The market recovery was felt across the portfolio during the quarter with all sub-portfolios experiencing positive returns. As would be expected in a risk-on environment, the strongest performance occurred in the Growth portion of the portfolio with a return of 6.5% through the end of the first quarter. The Income sleeve also performed well with a return of 3.0%, as last year's rising rates has translated into more portfolio income this year. Rising rates also provided support for the Risk Mitigation sleeve, which returned 2.0% for the quarter. The Inflation Protection sleeve was the laggard with a modest quarterly return of 1.1%, as declining valuations in commercial real estate impacted the Principal investment strategy.
- Excepting the Principal strategy noted above, the IPOPIF Investment Portfolio is currently invested entirely passively. As such and as expected, individual manager performance was closely aligned with their strategy-specific benchmarks during the quarter.
- The IPOPIF investment staff actively monitors current asset allocations vs. policy targets and conducts rebalancing trades as appropriate. As of 3/31/23, all asset allocation values were in line with policy targets.

### Notes

<sup>1</sup>The IPOPIF Investment Portfolio does not include Member Fund and Transition Account assets that totaled \$31.1 million at quarter-end, which had not yet been invested in the IPOPIF Investment Portfolio.

<sup>2</sup>The Broad-Based Policy Index represents a passively invested 70/30 global stock/bond portfolio.

<sup>3</sup>IPOPIF has implemented a short-term asset allocation, which is primarily passively invested in public markets. IPOPIF is currently in the process of moving toward its long-term asset allocation, including active management and private market assets. The private markets program will take several years to implement, given the deliberate pace with which private markets investments are funded.

# Investment Landscape

# 1<sup>st</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP increased at a 2.7% rate in the fourth quarter (0.9% growth year-over-year). The U.S. economy was supported by mild but positive growth across most aspects of activity.
- Unemployment continued to suggest a strong labor market, unchanged at 3.5% in March. Widespread layoffs in the technology sector have captured headlines, though the sector makes up a rather small segment of overall jobs. The labor participation rate is showing positive signs as workers who had left the job market during the pandemic are once again seeking employment.

## PORTFOLIO IMPACTS

- The U.S. inflation picture continued to improve. March headline CPI came in at 5.0% year-over-year—the lowest since Q2 2021. Core inflation remained stubbornly high at 5.6% year-over-year. Many of the goods and services that initially contributed to high inflation, such as used cars, food, and energy, have moderated in price.
- U.S. real (inflation-adjusted) personal consumption expenditures were modest in February at 2.5% growth year-over-year. Household purchases of services continued to climb, while goods purchases remained flat. During the pandemic, an unprecedented surge in spending on goods occurred to the detriment of services. It appears that trend has now normalized.

## THE INVESTMENT CLIMATE

- U.S. yield curve inversion reached even more extreme levels during Q1. The 10-year 2-year yield spread (short-term interest rates being higher than long-term interest rates) reached ~107 bps on March 8<sup>th</sup>. Inversion has historically preceded recession.
- Silicon Valley Bank (SVB) failed and was transitioned to government ownership on March 10<sup>th</sup>. SVB is among the top 20 largest banks in the United States with approximately 1% of all U.S. domestic bank deposits. In the near-term, sentiment seems to have been shored up by backstops from the Federal Reserve, Treasury, and FDIC, though we are watching conditions closely.

## ASSET ALLOCATION ISSUES

- Global equities delivered another strong quarter in Q1 (MSCI ACWI +7.3%). A variety of risks are stacking up that could weigh on additional gains, including potential recession in many markets, persistent inflation problems, and tightening credit conditions.
- U.S. growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing value's rally in Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns. Information technology led the index +21.8% over the quarter, while energy (-4.7%) and financials (-5.6%) were laggards.

Markets performed well in Q1, further recovering from the losses of 2022

Recession risk, banking stress, and stubborn inflation may create difficulties going forward

# What drove the market in Q1?

## “U.S. Inflation Eases but Stays High, Putting Fed in a Tough Spot”

### HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

| Oct  | Nov  | Dec  | Jan  | Feb  | Mar  |
|------|------|------|------|------|------|
| 7.7% | 7.1% | 6.5% | 6.4% | 6.0% | 5.0% |

Article Source: AP, March 14<sup>th</sup>, 2023

## “U.S. Bank Failures Pose Risk to Global Growth”

### FDIC UNREALIZED GAINS (LOSSES) ON BANK'S INVESTMENT SECURITIES

| Q3 21   | Q4 21    | Q1 22      | Q2 22      | Q3 22      | Q4 22      |
|---------|----------|------------|------------|------------|------------|
| \$29.4B | (\$7.9B) | (\$293.7B) | (\$469.7B) | (\$689.9B) | (\$620.4B) |

Article Source: Wall Street Journal, March 26<sup>th</sup>, 2023

## “Federal Reserve’s Path is Murkier After Bank Blowup”

### FED FUNDS FUTURES PEAK IMPLIED RATE (MONTH END)

| Oct   | Nov   | Dec   | Jan   | Feb   | Mar   |
|-------|-------|-------|-------|-------|-------|
| 4.98% | 4.92% | 4.97% | 4.92% | 5.42% | 4.95% |

Article Source: The New York Times, March 13<sup>th</sup>, 2023

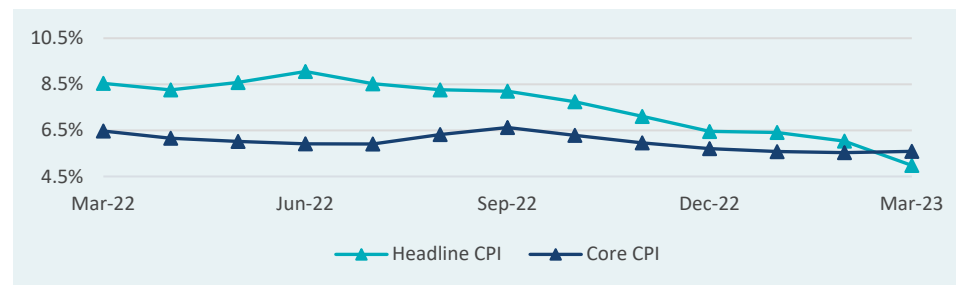
## “Fed Hikes Interest Rates 25 Basis Points in March 2023”

### FED FUNDS TARGET RATE – UPPER BOUND

| Q4 21 | Q1 22 | Q2 22 | Q3 22 | Q4 22 | Q1 23 |
|-------|-------|-------|-------|-------|-------|
| 0.25% | 0.50% | 1.75% | 3.25% | 4.50% | 5.00% |

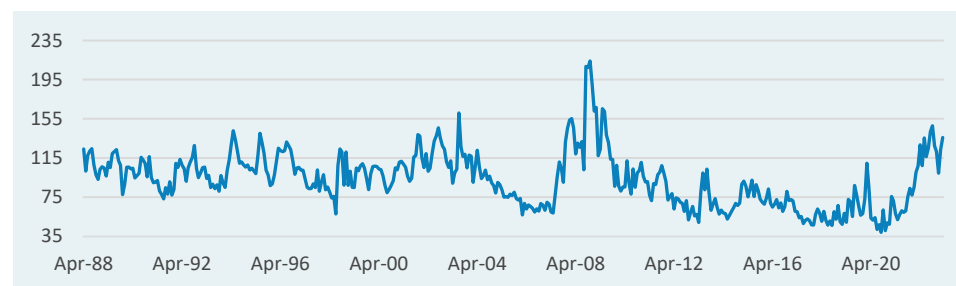
Article Source: Bloomberg, March 22<sup>nd</sup>, 2023

## U.S. HEADLINE VS. CORE INFLATION (YEAR-OVER-YEAR)



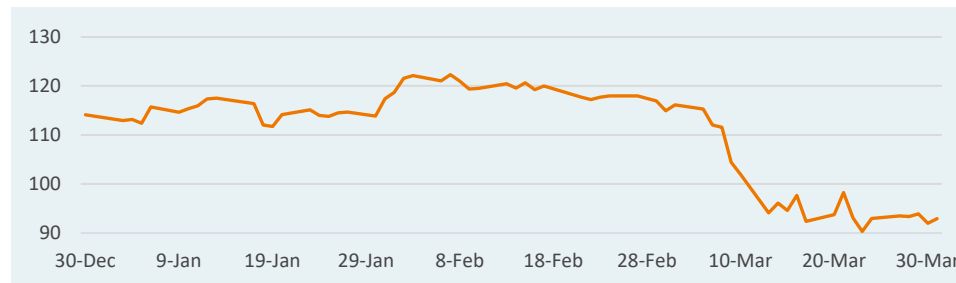
Source: BLS, as of 3/31/23

## U.S. TREASURIES IMPLIED VOLATILITY (ICE BOFA MOVE INDEX)



Source: Bloomberg, as of 3/31/23

## KBW REGIONAL BANKING INDEX



Source: Bloomberg, as of 3/31/23

# U.S. economics summary

- Real GDP increased at a 2.7% rate in the fourth quarter (0.9% year-over-year). The U.S. economy in Q4 was supported by mild but positive growth across most aspects of activity. First quarter GDP is expected to come in at 2.2%, according to the Atlanta Fed GDPNow forecast, as of April 10<sup>th</sup>.
- The inflation picture improved further. March headline inflation came in at 5.0% year-over-year—the lowest since Q2 2021. Core inflation has remained stubbornly high at 5.6% year-over-year. Many of the goods and services prices that initially contributed to high inflation have moderated or fallen.
- U.S. real personal consumption expenditures were modest in February at 2.5% year-over-year. Household purchases of services continued to climb, while goods purchases were flat. Purchasing trends around goods and services appear to have normalized for the first time since the pandemic.
- Although hiring activity may be slowing and layoffs are occurring in places, the labor participation rate is rebounding as workers who had left the job market during the pandemic are once again seeking employment.
- Consumer sentiment remained weak in Q1. According to the University of Michigan, households increasingly expect a recession in the near-term, especially lower income and younger Americans. Inflation fears have reportedly subsided, with expectations for 3.6% inflation over the next year.
- The U.S. housing market has faced a harsh winter season, as high prices and a significant jump in mortgage interest rates severely crimped demand. Existing home sales are as weak as during the lows of 2009-2011 following the U.S. housing bubble.

|   | Most Recent              | 12 Months Prior          |
|---|--------------------------|--------------------------|
| Real GDP (YoY)                          | 0.9%<br>12/31/22         | 5.7%<br>12/31/21         |
| Inflation<br>(CPI YoY, Core)            | 5.6%<br>3/31/23          | 8.5%<br>3/31/22          |
| Expected Inflation<br>(5yr-5yr forward) | 2.2%<br>3/31/23          | 2.4%<br>3/31/22          |
| Fed Funds Target<br>Range               | 4.75% – 5.00%<br>3/31/23 | 0.25% – 0.50%<br>3/31/22 |
| 10-Year Rate                            | 3.47%<br>3/31/23         | 2.34%<br>3/31/22         |
| U-3 Unemployment                        | 3.5%<br>3/31/23          | 3.6%<br>3/31/22          |
| U-6 Unemployment                        | 6.7%<br>3/31/23          | 6.9%<br>3/31/22          |



# Inflation

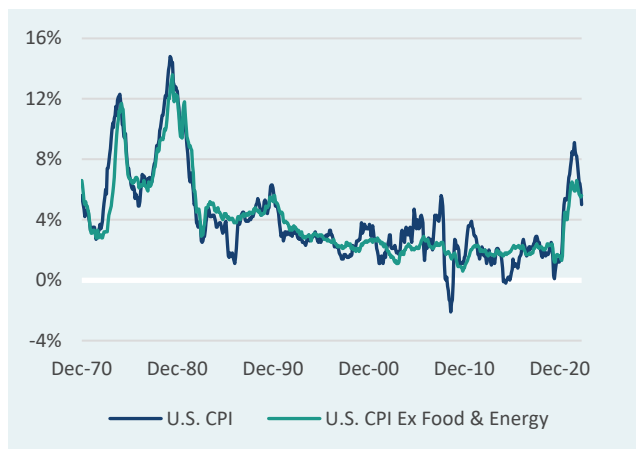
The inflation picture further improved in the United States, as both headline and core inflation figures declined further. March headline inflation came in at 5.0% year-over-year—the lowest since Q2 of 2021. Core inflation has remained stubbornly high at 5.6% year-over-year in March. Many of the goods and services that initially contributed to high inflation, such as used cars, food, and energy, have moderated or are falling in price. Shelter costs remain the largest single driver of inflation. Recent output cuts in oil production by OPEC+ members could reignite some inflation in energy and transportation costs—these effects will be important to watch in the coming months.

U.S. hourly wage gains continued to decelerate during the quarter—now at only a 4.2% year-over-year growth rate. The possibility of persistently high wage increases has been a risk to the inflation story, as accelerating wages can sustain higher spending and therefore higher ongoing inflation. Now that wage growth has slowed, this risk is subsiding.

Overall, inflation (CPI) is very likely to fall to around 4% in Q2, for the technical reasons illustrated below. However, certain persistent monthly price pressures suggest that inflation may stabilize at this level rather than at the 1-2% inflation experienced throughout much of the 2010s.

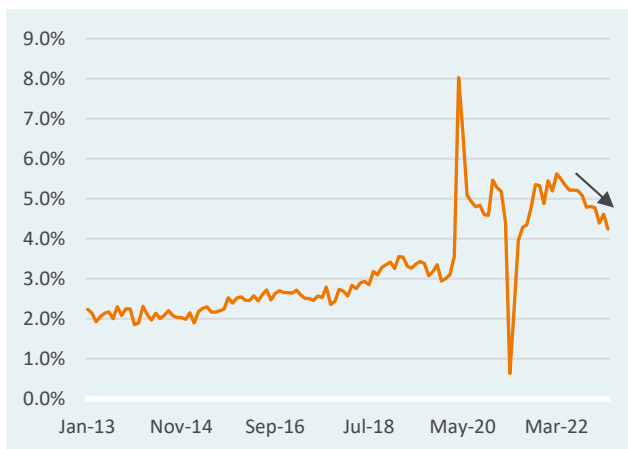
Persistent monthly Core CPI figures suggest inflation may stabilize at a level higher than the Fed's target

U.S. CPI (YOY)



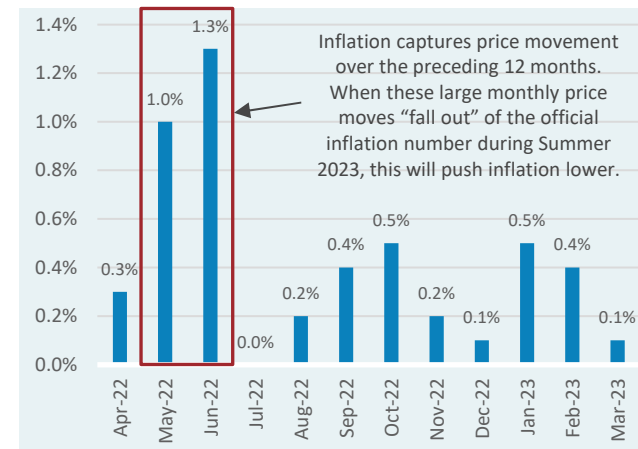
Source: BLS, as of 3/31/23

AVERAGE HOURLY EARNINGS



Source: BLS, as of 3/31/23

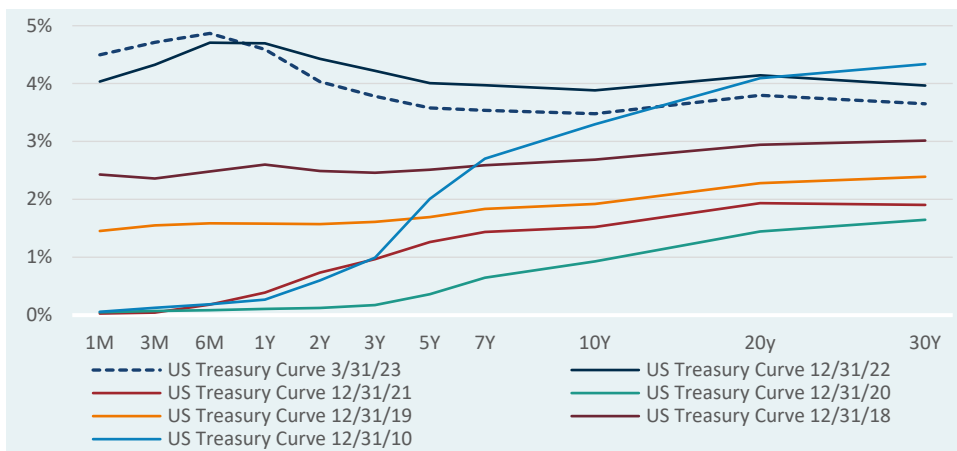
MONTHLY PRICE MOVEMENT



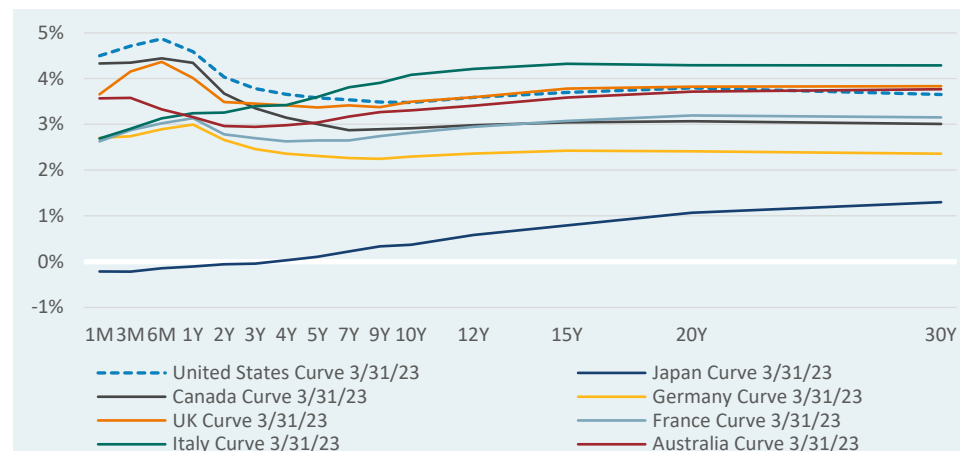
Source: BLS, as of 3/31/23

# Yield environment

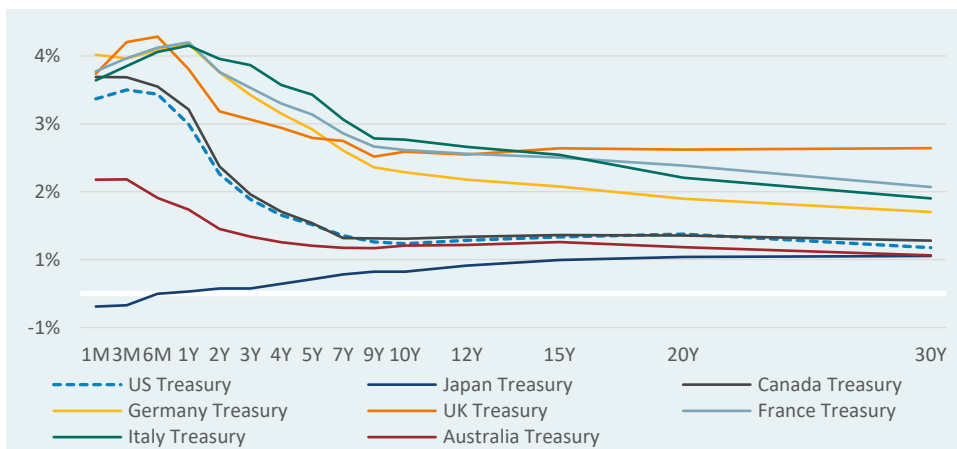
U.S. YIELD CURVE



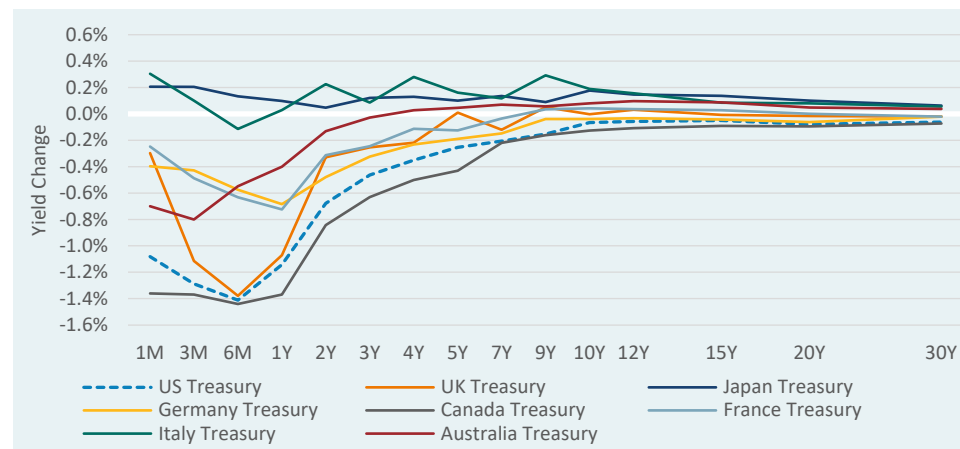
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/23

# Credit environment

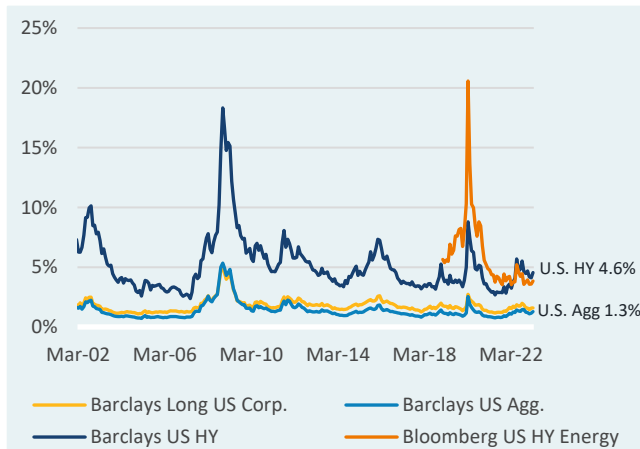
During the first quarter, fixed income markets delivered strong, positive returns despite concerns related to the banking sector and the potential for additional Fed rate hikes. High yield credit returns led the way with 3.6%, followed by 3.5% from investment grade credit and 3.3% from bank loans.

Within high yield bonds, unlike the performance witnessed during the fourth quarter where higher quality credit outperformed, performance was driven primarily by lower quality CCC-rated bonds. These bonds returned 5.1% during the quarter compared to 3.4% and 3.8% for B-rated and BB-rated bonds, respectively. Bank loan performance was

driven primarily by continued strong demand from CLOs.

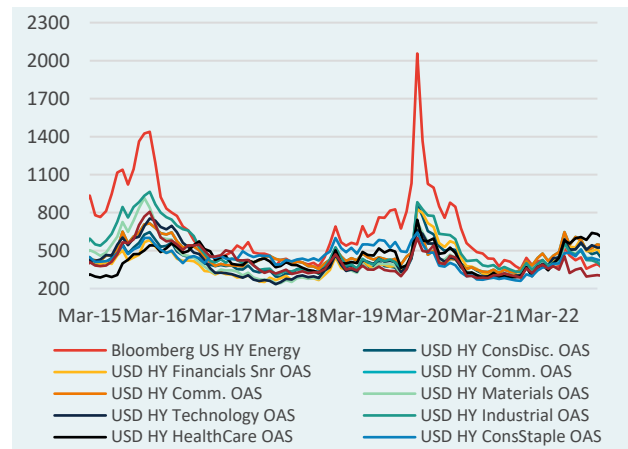
Credit spreads widened with investment grade spreads rising 0.10% to 1.4% while high yield spreads rose by 0.30% to 4.6%. Despite the jump, credit spreads remain below their long-term averages, which suggests that investors remain positive on the health of the market. However, should the economy begin to slow, credit spreads could move wider from here.

## SPREADS



Source: Barclays, Bloomberg, as of 3/31/23

## HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/23

| Market              | Credit Spread (OAS) |         |
|---------------------|---------------------|---------|
|                     | 3/31/23             | 3/31/22 |
| Long U.S. Corp      | 1.6%                | 1.6%    |
| U.S. Inv Grade Corp | 1.4%                | 1.2%    |
| U.S. High Yield     | 4.6%                | 3.3%    |
| U.S. Bank Loans*    | 5.6%                | 4.3%    |

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/23

\*Discount margin (4-year life)

# GDP growth

Real GDP increased at a 2.7% rate in the fourth quarter (0.9% growth year-over-year). The U.S. economy was supported by mild but positive growth across most aspects of activity. First quarter GDP is expected to come in at 2.2%, according to the Atlanta Fed GDPNow forecast, as of April 10<sup>th</sup>.

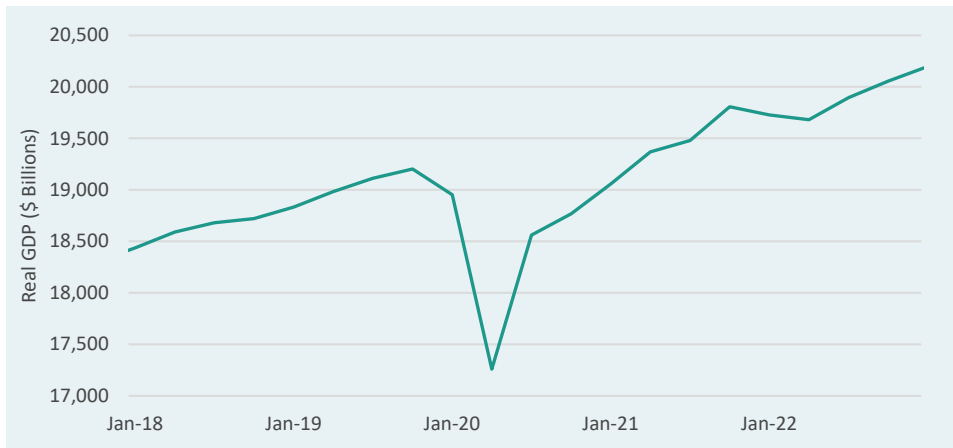
Consumer spending increased at a 2.1% annualized rate, boosted by spending on services but dragged lower by fewer goods purchases. Within services, healthcare and housing saw the largest gains. Private investment spending was fueled by manufacturing—primarily in traditional energy products, mining, utilities, and construction. With regard to government spending, increases were reportedly due to higher compensation of government employees

rather than on new projects or initiatives.

Investors remain undecided regarding whether the U.S. economy will enter recession in 2023. Economist forecasts suggest near-zero growth for most quarters this year, but with no recession. Either way, it is reasonable to assume very weak economic growth for the near-term. Furthermore, the failure of Silicon Valley Bank and ensuing stress on the financial sector has created new risks, as this stress will likely lead to a slowdown in traditional bank lending activity. If many banks reduce lending activity and increase lending standards, this may result in a material tightening of economic activity that compounds the existing effects of higher interest rates.

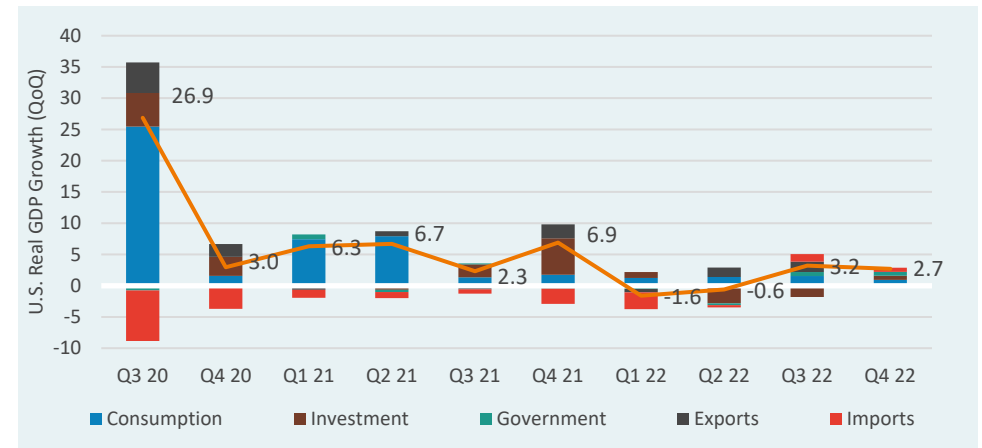
A tightening of bank lending raises the risks of an economic slowdown

**U.S. REAL GROSS DOMESTIC PRODUCT**



Source: FRED, as of 12/31/22

**U.S. REAL GDP COMPONENTS (QOQ)**



Source: FRED, as of 12/31/22

# Banking stress

Markets saw significant volatility in March, largely driven by failures within the banking system. We believe these bank failures were widely due to two factors:

First, the bank depositor base was very concentrated in certain lines of business. Silvergate and Signature Bank were both involved in the crypto-currency space (although neither of these banks held crypto-currency directly on their balance sheet). This space came under significant pressure after the crypto-currency exchange FTX and some other smaller firms declared bankruptcy. Silicon Valley Bank had a large exposure to the technology and U.S. venture space, where clients had a greater need to withdraw their cash deposits due to slowing

venture capital deployment and tighter economic conditions.

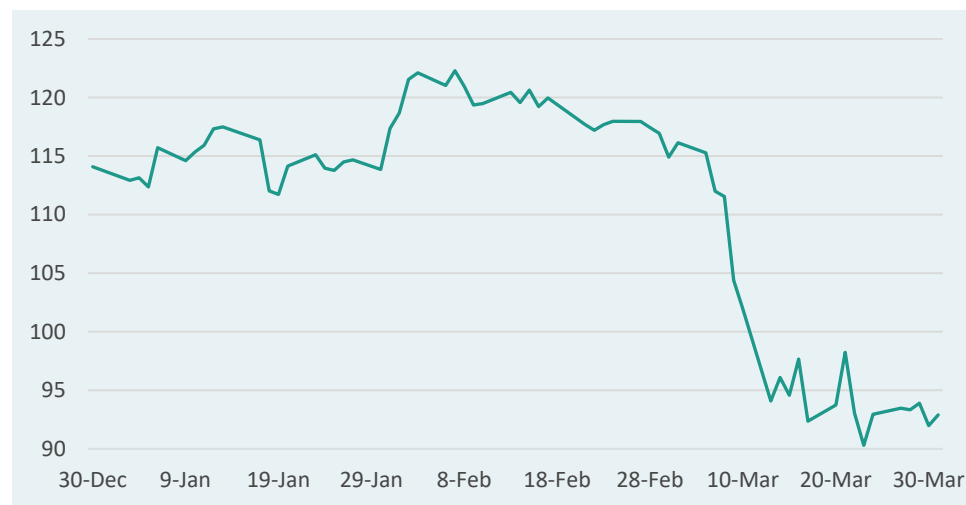
Second, bank assets were sharply devalued as interest rates rose quickly. The rapid rise in interest rates impacted assets such as Treasuries and mortgage-backed securities. In many cases, interest rate duration mismatch between bank assets and liabilities could arguably be attributed to a lack of risk management oversight. It is important to note that although these assets lost value very quickly, most assets are high quality with low default risk. This is a key differentiator from banking stress that occurred during the 2008-2009 Global Financial Crisis when banks held complex securitized assets—many of which turned out to be very low quality with high default risk.

## TIMELINE

| Date                   | Event  |
|------------------------|--|
| March 8 <sup>th</sup>  | Silvergate Bank announces it will be winding down operations   |
| March 10 <sup>th</sup> | Silicon Valley Bank falls into FDIC receivership after a failed attempt to raise equity following large losses associated with a substantial sale of its Available-For-Sale securities portfolio         |
| March 12 <sup>th</sup> | Signature Bank fails. The bank had a similar deposit base to Silvergate Bank, who rapidly pulled cash after previous failures  |
| March 16 <sup>th</sup> | Eleven large banks deposit \$30B at First Republic Bank to shore up liquidity and improve confidence. First Republic's shares had tanked as investors feared contagion risks spreading to First Republic |
| March 19 <sup>th</sup> | The Swiss government announced the acquisition of Credit Suisse by rival UBS. The acquisition was in order to prevent CS from collapsing   |

Source: Verus, Bloomberg, as of 3/31/23

## KBW REGIONAL BANKING INDEX



# Detailed index returns

## DOMESTIC EQUITY

|                        | Month | QTD   | YTD   | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-------|-------|--------|--------|--------|---------|
| <b>Core Index</b>      |       |       |       |        |        |        |         |
| S&P 500                | 3.7   | 7.5   | 7.5   | (7.7)  | 18.6   | 11.2   | 12.2    |
| S&P 500 Equal Weighted | (0.9) | 2.9   | 2.9   | (6.3)  | 22.1   | 10.0   | 11.4    |
| DJ Industrial Average  | 2.1   | 0.9   | 0.9   | (2.0)  | 17.3   | 9.0    | 11.1    |
| Russell Top 200        | 4.9   | 8.7   | 8.7   | (8.3)  | 18.4   | 11.9   | 12.8    |
| Russell 1000           | 3.2   | 7.5   | 7.5   | (8.4)  | 18.6   | 10.9   | 12.0    |
| Russell 2000           | (4.8) | 2.7   | 2.7   | (11.6) | 17.5   | 4.7    | 8.0     |
| Russell 3000           | 2.7   | 7.2   | 7.2   | (8.6)  | 18.5   | 10.5   | 11.7    |
| Russell Mid Cap        | (1.5) | 4.1   | 4.1   | (8.8)  | 19.2   | 8.1    | 10.1    |
| <b>Style Index</b>     |       |       |       |        |        |        |         |
| Russell 1000 Growth    | 6.8   | 14.4  | 14.4  | (10.9) | 18.6   | 13.7   | 14.6    |
| Russell 1000 Value     | (0.5) | 1.0   | 1.0   | (5.9)  | 17.9   | 7.5    | 9.1     |
| Russell 2000 Growth    | (2.5) | 6.1   | 6.1   | (10.6) | 13.4   | 4.3    | 8.5     |
| Russell 2000 Value     | (7.2) | (0.7) | (0.7) | (13.0) | 21.0   | 4.5    | 7.2     |

## INTERNATIONAL EQUITY

|                        | Month | QTD  | YTD  | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|------|------|--------|--------|--------|---------|
| <b>Broad Index</b>     |       |      |      |        |        |        |         |
| MSCI ACWI              | 3.1   | 7.3  | 7.3  | (7.4)  | 15.4   | 6.9    | 8.1     |
| MSCI ACWI ex US        | 2.4   | 6.9  | 6.9  | (5.1)  | 11.8   | 2.5    | 4.2     |
| MSCI EAFE              | 2.5   | 8.5  | 8.5  | (1.4)  | 13.0   | 3.5    | 5.0     |
| MSCI EM                | 3.0   | 4.0  | 4.0  | (10.7) | 7.8    | (0.9)  | 2.0     |
| MSCI EAFE Small Cap    | (0.2) | 4.9  | 4.9  | (9.8)  | 12.1   | 0.9    | 5.9     |
| <b>Style Index</b>     |       |      |      |        |        |        |         |
| MSCI EAFE Growth       | 5.3   | 11.1 | 11.1 | (2.8)  | 10.9   | 4.9    | 6.0     |
| MSCI EAFE Value        | (0.3) | 5.9  | 5.9  | (0.3)  | 14.6   | 1.7    | 3.7     |
| <b>Regional Index</b>  |       |      |      |        |        |        |         |
| MSCI UK                | (0.6) | 6.1  | 6.1  | (0.8)  | 14.6   | 3.0    | 3.4     |
| MSCI Japan             | 4.0   | 6.2  | 6.2  | (5.2)  | 7.4    | 1.3    | 5.0     |
| MSCI Euro              | 4.1   | 15.6 | 15.6 | 7.7    | 17.1   | 3.9    | 6.0     |
| MSCI EM Asia           | 3.6   | 4.8  | 4.8  | (9.4)  | 7.1    | 0.1    | 4.2     |
| MSCI EM Latin American | 0.8   | 3.9  | 3.9  | (11.1) | 18.1   | (1.8)  | (1.9)   |

## FIXED INCOME

|                               | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|-------------------------------|-------|-----|-----|--------|--------|--------|---------|
| <b>Broad Index</b>            |       |     |     |        |        |        |         |
| Bloomberg US TIPS             | 2.9   | 3.3 | 3.3 | (6.1)  | 1.8    | 2.9    | 1.5     |
| Bloomberg US Treasury Bills   | 0.4   | 1.1 | 1.1 | 2.5    | 0.8    | 1.4    | 0.9     |
| Bloomberg US Agg Bond         | 2.5   | 3.0 | 3.0 | (4.8)  | (2.8)  | 0.9    | 1.4     |
| Bloomberg US Universal        | 2.3   | 2.9 | 2.9 | (4.6)  | (2.0)  | 1.0    | 1.6     |
| <b>Duration</b>               |       |     |     |        |        |        |         |
| Bloomberg US Treasury 1-3 Yr  | 1.6   | 1.6 | 1.6 | 0.2    | (0.8)  | 1.1    | 0.8     |
| Bloomberg US Treasury Long    | 4.7   | 6.2 | 6.2 | (16.0) | (11.3) | (0.4)  | 1.5     |
| Bloomberg US Treasury         | 2.9   | 3.0 | 3.0 | (4.5)  | (4.2)  | 0.7    | 0.9     |
| <b>Issuer</b>                 |       |     |     |        |        |        |         |
| Bloomberg US MBS              | 1.9   | 2.5 | 2.5 | (4.9)  | (3.3)  | 0.2    | 1.0     |
| Bloomberg US Corp. High Yield | 1.1   | 3.6 | 3.6 | (3.3)  | 5.9    | 3.2    | 4.1     |
| Bloomberg US Agency Interm    | 1.8   | 1.9 | 1.9 | (1.1)  | (1.6)  | 0.9    | 0.9     |
| Bloomberg US Credit           | 2.7   | 3.5 | 3.5 | (5.3)  | (0.7)  | 1.5    | 2.2     |

## OTHER

|                           | Month | QTD   | YTD   | 1 Year | 3 Year | 5 Year | 10 Year |
|---------------------------|-------|-------|-------|--------|--------|--------|---------|
| <b>Index</b>              |       |       |       |        |        |        |         |
| Bloomberg Commodity       | (0.2) | (5.4) | (5.4) | (12.5) | 20.8   | 5.4    | (1.7)   |
| Wilshire US REIT          | (2.6) | 3.2   | 3.2   | (21.3) | 11.0   | 5.7    | 5.9     |
| CS Leveraged Loans        | (0.1) | 3.1   | 3.1   | 2.1    | 8.4    | 3.5    | 3.9     |
| S&P Global Infrastructure | 2.4   | 3.9   | 3.9   | (3.5)  | 15.6   | 5.9    | 6.4     |
| Alerian MLP               | (0.7) | 3.4   | 3.4   | 13.9   | 46.3   | 6.9    | 0.6     |
| <b>Regional Index</b>     |       |       |       |        |        |        |         |
| JPM EMBI Global Div       | 1.0   | 1.9   | 1.9   | (6.9)  | (0.0)  | (0.6)  | 2.0     |
| JPM GBI-EM Global Div     | 4.1   | 5.2   | 5.2   | (0.7)  | 0.9    | (2.4)  | (1.5)   |
| <b>Hedge Funds</b>        |       |       |       |        |        |        |         |
| HFRI Composite            | (0.8) | 1.2   | 1.2   | (2.1)  | 10.5   | 4.7    | 4.4     |
| HFRI FOF Composite        | 0.1   | 1.6   | 1.6   | (1.1)  | 7.5    | 3.3    | 3.3     |
| <b>Currency (Spot)</b>    |       |       |       |        |        |        |         |
| Euro                      | 2.5   | 1.8   | 1.8   | (2.4)  | (0.3)  | (2.5)  | (1.7)   |
| Pound Sterling            | 2.1   | 2.8   | 2.8   | (6.1)  | (0.1)  | (2.5)  | (2.0)   |
| Yen                       | 2.4   | (0.9) | (0.9) | (8.8)  | (6.7)  | (4.4)  | (3.4)   |

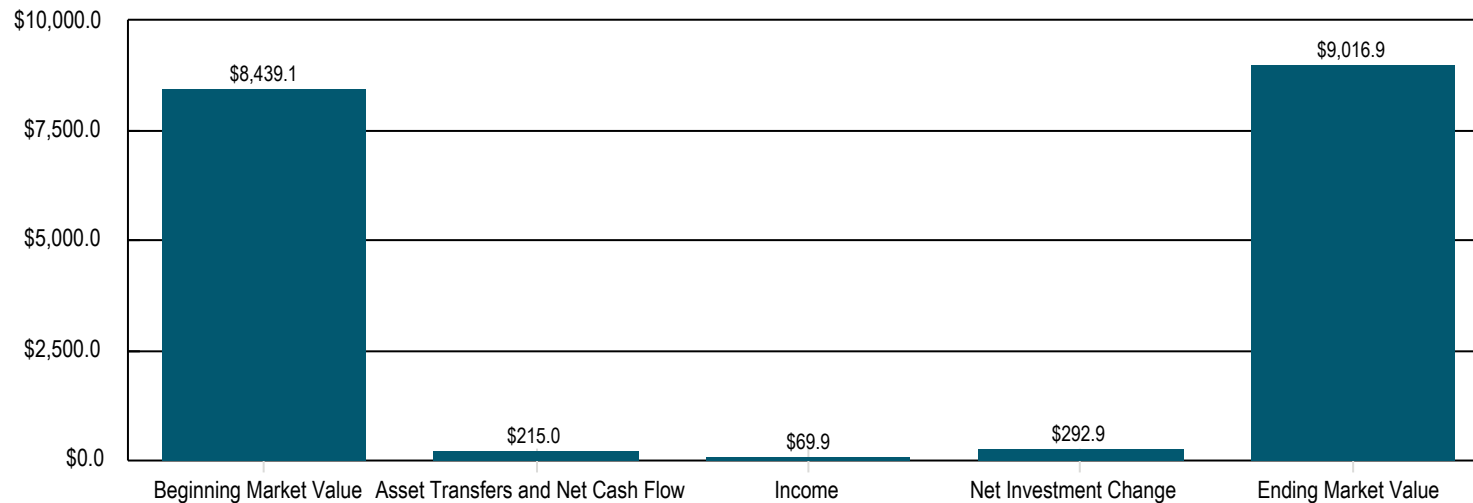
Source: Morningstar, HFRI, as of 3/31/23.

# Investment Performance

Portfolio Reconciliation

|                                   | Quarter-To-Date | Fiscal Year-To-Date |
|-----------------------------------|-----------------|---------------------|
| Beginning Market Value            | \$8,439,123,835 | \$2,746,308,452     |
| Asset Transfers and Net Cash Flow | \$215,044,516   | \$5,877,398,131     |
| Income                            | \$69,928,844    | \$145,862,273       |
| Net Investment Change             | \$292,851,647   | \$247,379,985       |
| Ending Market Value               | \$9,016,924,151 | \$9,016,924,151     |

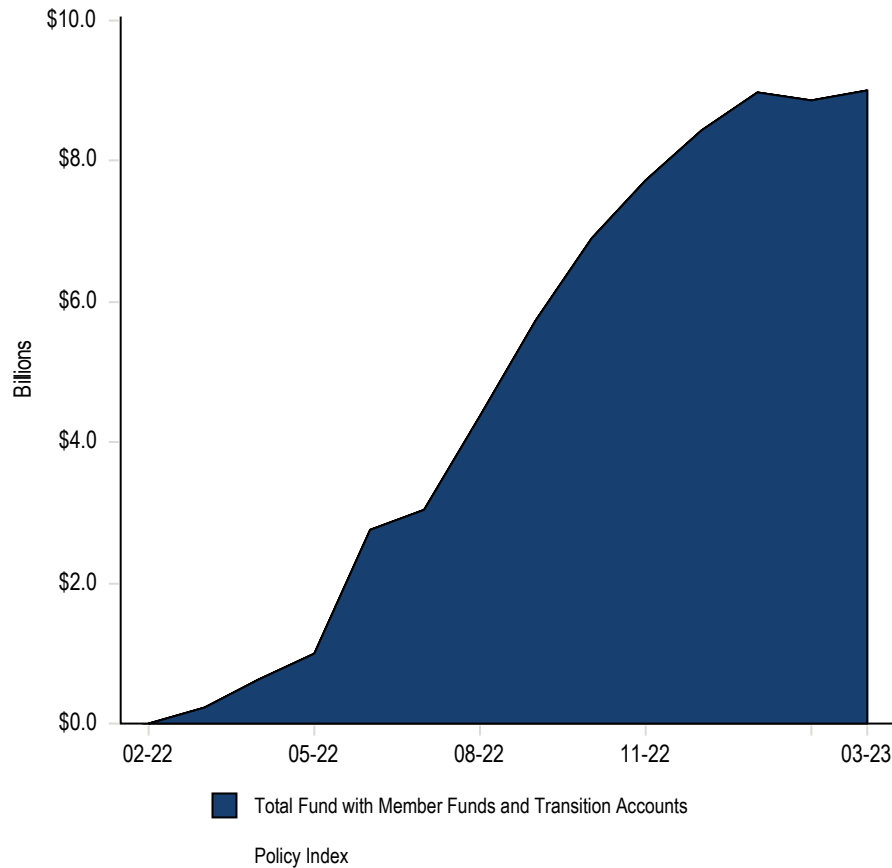
Change in Market Value  
Last Three Months



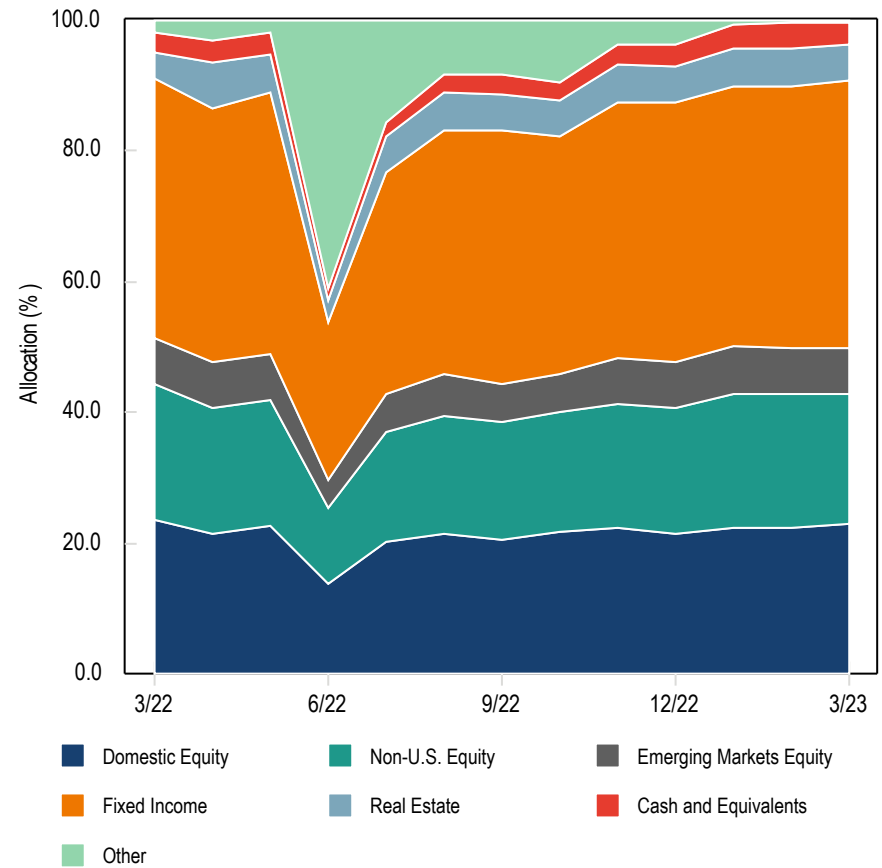
The portfolio reconciliation includes the Member Funds and Transition Account. Income excludes Member Funds and Transition Account. Income is calculated using the actual dividend and income received from separate accounts and estimated income and dividends for commingled funds. The income and dividends 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 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.



Market Value History



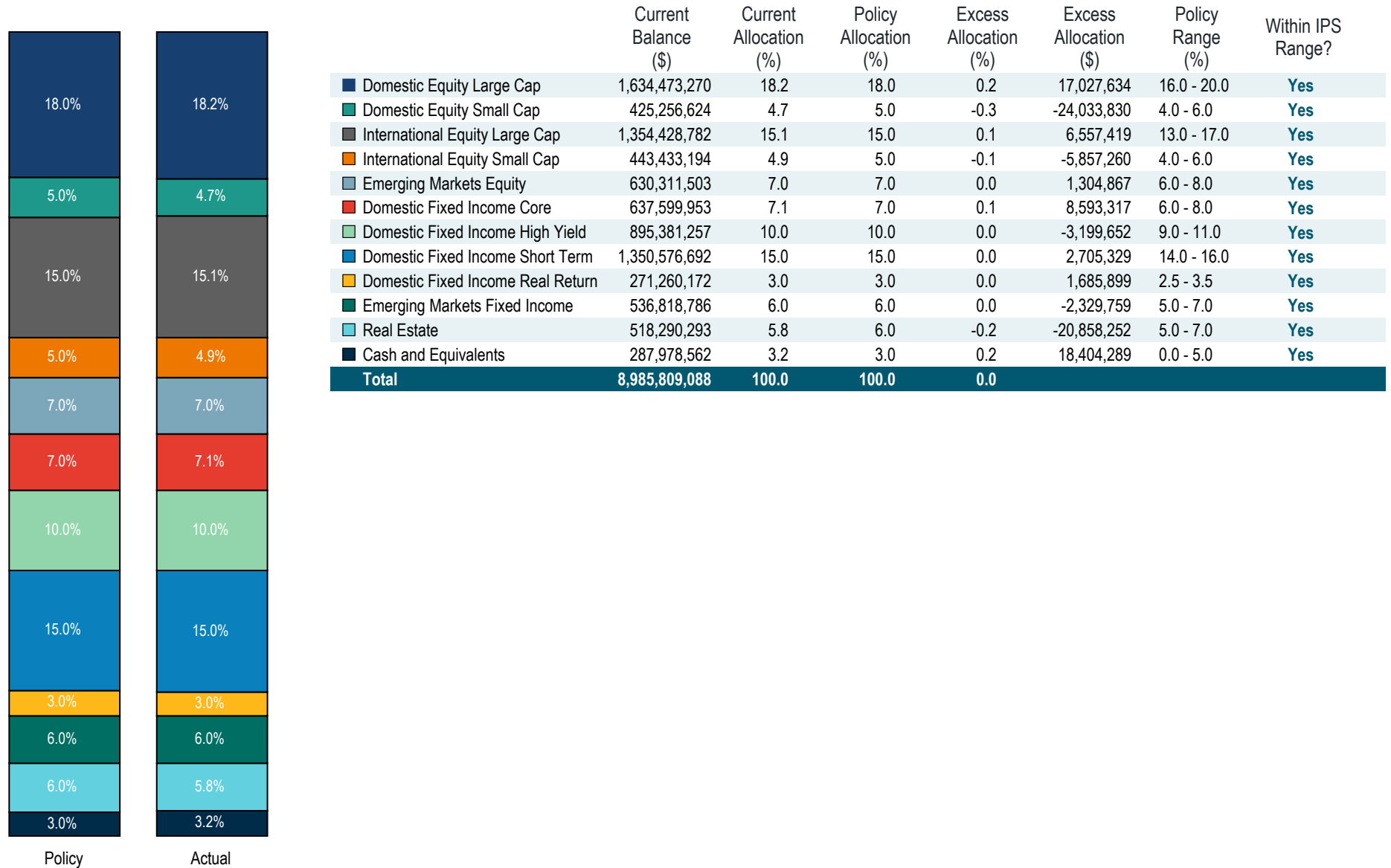
Asset Allocation History



\*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: March 31, 2023



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

Total Fund  
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund  
Period Ending: March 31, 2023

|   | Market Value         | % of Portfolio | 3 Mo       | Fiscal YTD  | 1 Yr        |
|---|----------------------|----------------|------------|-------------|-------------|
| <b>Total Fund with Member Funds and Transition Accounts</b> | <b>9,016,924,151</b> | <b>100.0</b>   | <b>4.3</b> | <b>5.3</b>  | <b>-4.9</b> |
| <i>Policy Index</i>   |                      |                | 4.3        | 5.6         | -5.3        |
| <i>Policy Index- Broad Based</i>                            |                      |                | 5.8        | 7.0         | -7.6        |
| <b>IPOPIF Investment Portfolio</b>                          | <b>8,985,809,088</b> | <b>99.7</b>    | <b>4.3</b> | <b>6.0</b>  | <b>-5.1</b> |
| <i>Policy Index</i>   |                      |                | 4.3        | 5.6         | -5.3        |
| <i>Policy Index- Broad Based</i>                            |                      |                | 5.8        | 7.0         | -7.6        |
| <b>Growth</b>   | <b>4,487,903,373</b> | <b>49.8</b>    | <b>6.5</b> | <b>9.7</b>  | <b>-7.2</b> |
| <i>Growth Benchmark</i>                                     |                      |                | 6.4        | 8.8         | -7.6        |
| <b>Income</b>   | <b>1,432,200,043</b> | <b>15.9</b>    | <b>3.0</b> | <b>6.2</b>  | <b>-6.3</b> |
| <i>Income Benchmark</i>                                     |                      |                | 2.9        | 6.5         | -4.0        |
| <b>Inflation Protection</b>                                 | <b>789,550,465</b>   | <b>8.8</b>     | <b>1.1</b> | <b>-3.2</b> | <b>-8.1</b> |
| <i>Inflation Protection Benchmark</i>                       |                      |                | 1.5        | -2.2        | -10.2       |
| <b>Risk Mitigation</b>                                      | <b>2,276,155,207</b> | <b>25.2</b>    | <b>2.0</b> | <b>0.9</b>  | <b>-0.9</b> |
| <i>Risk Mitigation Benchmark</i>                            |                      |                | 1.9        | 0.8         | -0.9        |
| Transition Accounts   | 31,110,292           | 0.3            |            |             |             |
| Member Accounts   | 4,771                | 0.0            |            |             |             |

*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% JPM EMBI Global Diversified, 18% Russell 1000, 5% Russell 2000, 15% MSCI World Ex US (Net), 5% MSCI World Ex US Small Cap (Net), 7% MSCI Emerging Markets (Net), 4% Wilshire US REIT Index and 2% NFI-ODCE Equal Weight. Broad Based Policy Index constituents: 70% MSCI ACWI IMI (Net), 30% Bloomberg Global Multiverse. The growth, income, inflation protection and risk mitigation benchmarks are underlying asset class benchmarks normalized for composite weights.*

Total Fund  
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund  
Period Ending: March 31, 2023

|   | Market Value         | % of Portfolio | 3 Mo       | Fiscal YTD | 1 Yr        |
|---|----------------------|----------------|------------|------------|-------------|
| <b>Total Fund with Member Funds and Transition Accounts</b> | <b>9,016,924,151</b> | <b>100.0</b>   | <b>4.3</b> | <b>5.3</b> | <b>-4.9</b> |
| <i>Policy Index</i>   |                      |                | 4.3        | 5.6        | -5.3        |
| <i>Policy Index- Broad Based</i>                            |                      |                | 5.8        | 7.0        | -7.6        |
| <i>All Public Plans &gt; \$1B-Total Fund Rank</i>           |                      |                | 25         | 28         | 64          |
| <b>IPOPIF Investment Portfolio</b>                          | <b>8,985,809,088</b> | <b>99.7</b>    | <b>4.3</b> | <b>6.0</b> | <b>-5.1</b> |
| <i>Policy Index</i>   |                      |                | 4.3        | 5.6        | -5.3        |
| <i>Policy Index- Broad Based</i>                            |                      |                | 5.8        | 7.0        | -7.6        |
| <i>All Public Plans &gt; \$1B-Total Fund Rank</i>           |                      |                | 24         | 15         | 71          |
| <b>Growth</b>   | <b>4,487,903,373</b> | <b>49.8</b>    | <b>6.5</b> | <b>9.7</b> | <b>-7.2</b> |
| <i>Growth Benchmark</i>                                     |                      |                | 6.4        | 8.8        | -7.6        |
| RhumbLine Russell 1000 Index                                | 1,634,473,270        | 18.1           | 7.5        | 9.9        | -8.6        |
| <i>Russell 1000 Index</i>                                   |                      |                | 7.5        | 9.9        | -8.4        |
| <i>eV US Large Cap Core Equity Rank</i>                     |                      |                | 22         | 33         | 74          |
| RhumbLine Russell 2000 Index                                | 425,256,624          | 4.7            | 2.7        | 6.7        | -11.9       |
| <i>Russell 2000 Index</i>                                   |                      |                | 2.7        | 6.8        | -11.6       |
| <i>eV US Small Cap Core Equity Rank</i>                     |                      |                | 73         | 74         | 86          |
| SSgA Non-US Developed Index                                 | 1,354,428,782        | 15.0           | 8.1        | 14.2       | -2.3        |
| <i>MSCI World ex U.S. (Net)</i>                             |                      |                | 8.0        | 14.0       | -2.7        |
| <i>eV EAFE Core Equity Rank</i>                             |                      |                | 42         | 34         | 42          |
| SSgA Non-US Developed SC Index                              | 443,433,194          | 4.9            | 5.0        | 9.7        | -9.8        |
| <i>MSCI World ex U.S. Small Cap Index (Net)</i>             |                      |                | 5.0        | 9.5        | -10.1       |
| <i>eV EAFE Small Cap Core Rank</i>                          |                      |                | 78         | 67         | 77          |
| SSgA Emerging Markets Equity Index                          | 630,311,503          | 7.0            | 4.1        | 0.9        | -9.7        |
| <i>MSCI Emerging Markets (Net)</i>                          |                      |                | 4.0        | 0.8        | -10.7       |
| <i>eV Emg Mkts Equity Rank</i>                              |                      |                | 66         | 78         | 55          |
| <b>Income</b>   | <b>1,432,200,043</b> | <b>15.9</b>    | <b>3.0</b> | <b>6.2</b> | <b>-6.3</b> |
| <i>Income Benchmark</i>                                     |                      |                | 2.9        | 6.5        | -4.0        |
| SSgA High Yield Corporate Credit                            | 895,381,257          | 9.9            | 3.7        | 7.0        | -4.3        |
| <i>Bloomberg U.S. High Yield Very Liquid Ind</i>            |                      |                | 3.8        | 7.4        | -3.9        |
| <i>eV US High Yield Fixed Inc Rank</i>                      |                      |                | 25         | 43         | 77          |
| SSgA EMD Hard Index Fund                                    | 536,818,786          | 6.0            | 1.9        | 4.6        | -9.0        |
| <i>JPM EMBI Global Diversified Index</i>                    |                      |                | 1.9        | 5.1        | -7.6        |
| <i>Emerging Markets Bond Rank</i>                           |                      |                | 50         | 77         | 91          |

*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% JPM EMBI Global Diversified, 18% Russell 1000, 5% Russell 2000, 15% MSCI World Ex US (Net), 5% MSCI World Ex US Small Cap (Net), 7% MSCI Emerging Markets (Net), 4% Wilshire US REIT Index and 2% NFI-ODCE Equal Weight. Broad Based Policy Index constituents: 70% MSCI ACWI IMI (Net), 30% Bloomberg Global Multiverse. Principal USPA does not show a Since 4/1/2022 return because the fund was inception on 4/6/2022.*

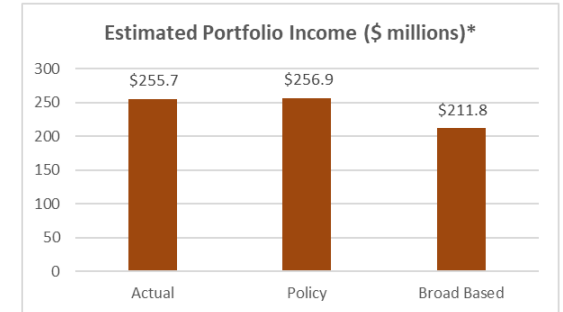
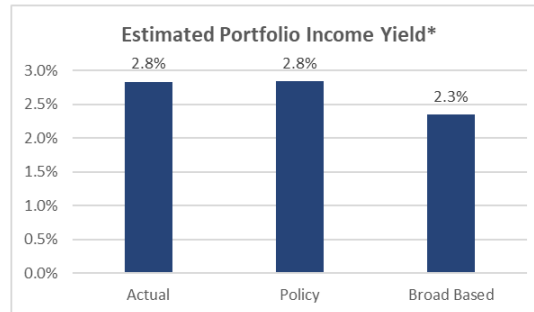
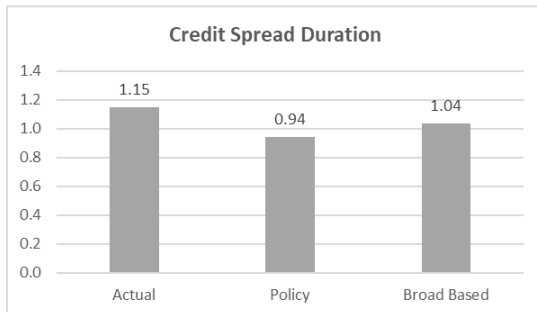
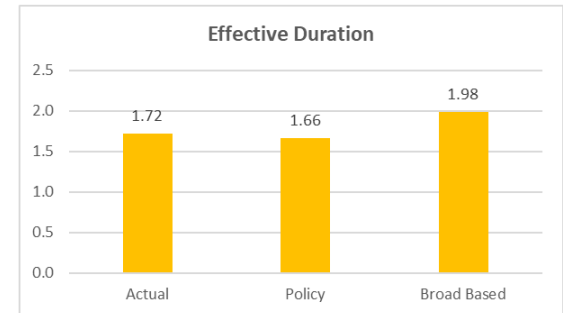
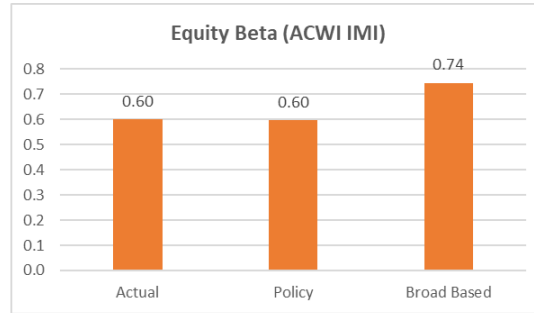
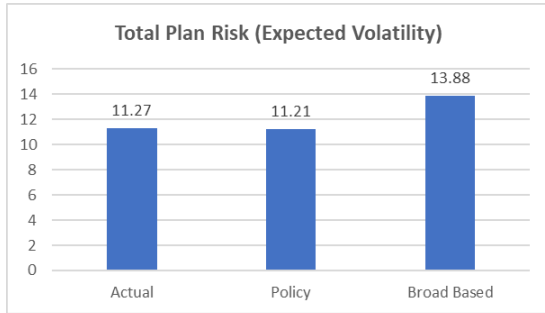
Total Fund  
Executive Summary (Net of Fees)

Illinois Police Officers' Pension Investment Fund  
Period Ending: March 31, 2023

|  | Market Value         | % of Portfolio | 3 Mo       | Fiscal YTD  | 1 Yr        |
|--|----------------------|----------------|------------|-------------|-------------|
| <b>Inflation Protection</b>                  | <b>789,550,465</b>   | <b>8.8</b>     | <b>1.1</b> | <b>-3.2</b> | <b>-8.1</b> |
| <i>Inflation Protection Benchmark</i>        |                      |                | 1.5        | -2.2        | -10.2       |
| SSgA US TIPS Index                           | 271,260,172          | 3.0            | 2.2        | 0.6         | -0.8        |
| <i>Blmbg. U.S. TIPS 0-5 Year</i>             |                      |                | 2.2        | 0.8         | -0.3        |
| <i>eV US TIPS / Inflation Fixed Inc Rank</i> |                      |                | 92         | 27          | 1           |
| SSgA REITs Index                             | 342,064,940          | 3.8            | 2.8        | -3.5        | -21.0       |
| <i>Dow Jones U.S. Select REIT</i>            |                      |                | 2.8        | -3.5        | -21.0       |
| <i>eV US REIT Rank</i>                       |                      |                | 53         | 36          | 75          |
| Principal USPA                               | 176,225,353          | 2.0            | -3.2       | -8.8        | -           |
| <i>NCREIF ODCE</i>                           |                      |                | -3.4       | -8.1        | -3.9        |
| <b>Risk Mitigation</b>                       | <b>2,276,155,207</b> | <b>25.2</b>    | <b>2.0</b> | <b>0.9</b>  | <b>-0.9</b> |
| <i>Risk Mitigation Benchmark</i>             |                      |                | 1.9        | 0.8         | -0.9        |
| SSgA Core Fixed Income Index                 | 637,599,953          | 7.1            | 3.2        | -0.1        | -4.9        |
| <i>Blmbg. U.S. Aggregate Index</i>           |                      |                | 3.0        | -0.1        | -4.8        |
| <i>eV US Core Fixed Inc Rank</i>             |                      |                | 36         | 70          | 55          |
| SSgA Short-Term Gov't/Credit Index           | 1,350,576,692        | 15.0           | 1.6        | 1.0         | 0.3         |
| <i>Blmbg. 1-3 Year Gov/Credit index</i>      |                      |                | 1.5        | 0.9         | 0.3         |
| <i>eV US Short Duration Fixed Inc Rank</i>   |                      |                | 50         | 67          | 40          |
| Cash   | 287,978,562          | 3.2            | 0.8        | 1.6         | 1.6         |
| <i>90 Day U.S. Treasury Bill</i>             |                      |                | 1.1        | 2.4         | 2.5         |
| Transition Account                           | 31,110,292           | 0.3            |            |             |             |
| Member Accounts                              | 4,771                | 0.0            |            |             |             |

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% JPM EMBI Global Diversified, 18% Russell 1000, 5% Russell 2000, 15% MSCI World Ex US (Net), 5% MSCI World Ex US Small Cap (Net), 7% MSCI Emerging Markets (Net), 4% Wilshire US REIT Index and 2% NFI-ODCE Equal Weight. Broad Based Policy Index constituents: 70% MSCI ACWI IMI (Net), 30% Bloomberg Global Multiverse. Principal USPA does not show a Since 4/1/2022 return because the fund was inception on 4/6/2022.

Portfolio Characteristics



\*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: March 31, 2023

| Name                               | Asset Class             | Vehicle Type     | Market Value           | % of Portfolio  | Estimated Fee Value | Expense Fee (%) |
|------------------------------------|-------------------------|------------------|------------------------|-----------------|---------------------|-----------------|
| RhumbLine Russell 1000 Index       | Domestic Equity         | Separate Account | \$1,634,473,270        | 18.1895         | \$81,724            | 0.005           |
| RhumbLine Russell 2000 Index       | Domestic Equity         | Separate Account | \$425,256,624          | 4.7325          | \$21,263            | 0.005           |
| SSgA Non-US Developed Index        | Non-U.S. Equity         | Commingled Fund  | \$1,354,428,782        | 15.0730         | \$216,709           | 0.016           |
| SSgA Non-US Developed SC Index     | Non-U.S. Equity         | Commingled Fund  | \$443,433,194          | 4.9348          | \$70,949            | 0.016           |
| SSgA Emerging Markets Equity Index | Emerging Markets Equity | Commingled Fund  | \$630,311,503          | 7.0145          | \$100,850           | 0.016           |
| SSgA High Yield Corporate Credit   | Fixed Income            | Commingled Fund  | \$895,381,257          | 9.9644          | \$143,261           | 0.016           |
| SSgA EMD Hard Index Fund           | Fixed Income            | Commingled Fund  | \$536,818,786          | 5.9741          | \$85,891            | 0.016           |
| SSgA US TIPS Index                 | Fixed Income            | Separate Account | \$271,260,172          | 3.0188          | \$43,402            | 0.016           |
| Principal USPA                     | Real Estate             | Commingled Fund  | \$176,225,353          | 1.9612          | \$1,409,803         | 0.800           |
| SSgA REITs Index                   | Real Estate             | Commingled Fund  | \$342,064,940          | 3.8067          | \$54,730            | 0.016           |
| SSgA Core Fixed Income Index       | Fixed Income            | Commingled Fund  | \$637,599,953          | 7.0956          | \$102,016           | 0.016           |
| SSgA Short-Term Gov't/Credit Index | Fixed Income            | Commingled Fund  | \$1,350,576,692        | 15.0301         | \$216,092           | 0.016           |
| Cash                               | Cash and Equivalents    | Commingled Fund  | \$287,978,562          | 3.2048          |                     |                 |
| <b>IPOPIF Investment Portfolio</b> |                         |                  | <b>\$8,985,809,088</b> | <b>100.0000</b> | <b>\$2,546,689</b>  | <b>0.028</b>    |

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

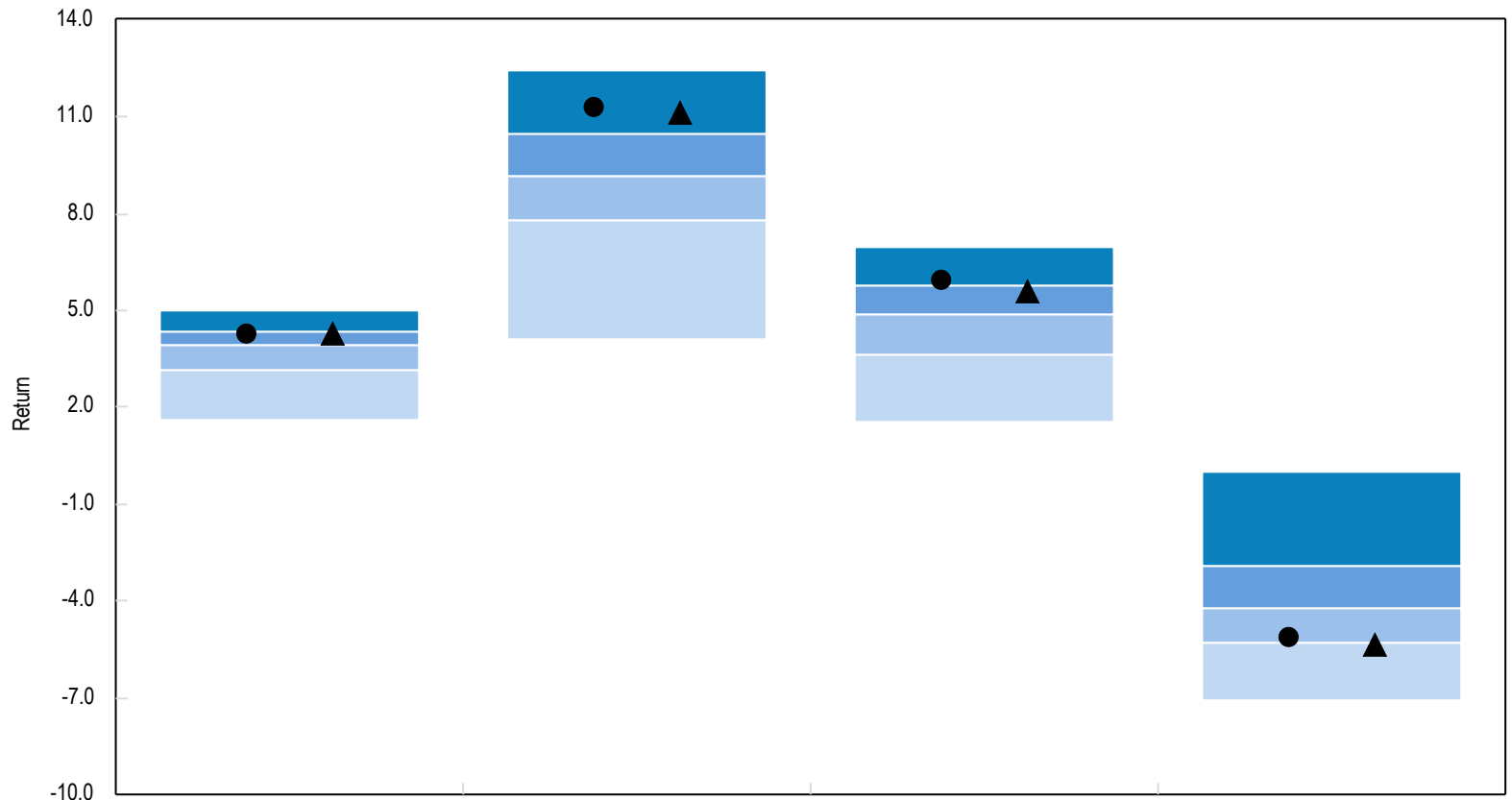
Total Fund  
Cash Flow by Manager - Last Three Months

Illinois Police Officers' Pension Investment Fund  
Period Ending: March 31, 2023

| Name  | Beginning Market Value | Contributions        | Distributions         | Net Cash Flows       | Income              | Net Investment Change | Ending Market Value    |
|---|------------------------|----------------------|-----------------------|----------------------|---------------------|-----------------------|------------------------|
| RhumbLine Russell 1000 Index                                | \$1,419,543,922        | \$105,854,970        | -                     | \$105,854,970        | \$6,723,021         | \$102,362,127         | \$1,634,473,270        |
| RhumbLine Russell 2000 Index                                | \$385,767,696          | \$29,916,281         | -                     | \$29,916,281         | \$1,785,690         | \$7,789,887           | \$425,256,624          |
| SSgA Non-US Developed Index                                 | \$1,227,651,529        | \$60,863,076         | -\$33,000,000         | \$27,863,076         | \$10,333,594        | \$88,581,613          | \$1,354,428,782        |
| SSgA Non-US Developed SC Index                              | \$409,690,499          | \$20,588,897         | -\$7,000,000          | \$13,588,897         | \$3,214,867         | \$16,940,155          | \$443,433,194          |
| SSgA Emerging Markets Equity Index                          | \$579,104,090          | \$28,482,621         | -                     | \$28,482,621         | \$3,880,343         | \$18,846,192          | \$630,311,503          |
| SSgA High Yield Corporate Credit                            | \$814,479,099          | \$50,869,469         | -                     | \$50,869,469         | \$14,245,627        | \$15,787,654          | \$895,381,257          |
| SSgA EMD Hard Index Fund                                    | \$499,100,060          | \$28,693,521         | -                     | \$28,693,521         | \$9,116,937         | -\$91,732             | \$536,818,786          |
| SSgA US TIPS Index  | \$243,800,835          | \$21,805,870         | -                     | \$21,805,870         | \$351,674           | \$5,301,982           | \$271,260,172          |
| Principal USPA  | \$177,550,286          | \$4,452,423          | -                     | \$4,452,423          | \$1,738,053         | -\$7,515,409          | \$176,225,353          |
| SSgA REITs Index  | \$299,184,364          | \$34,962,243         | -                     | \$34,962,243         | \$3,234,504         | \$4,684,670           | \$342,064,940          |
| SSgA Core Fixed Income Index                                | \$573,459,757          | \$45,673,492         | -                     | \$45,673,492         | \$4,692,819         | \$13,775,547          | \$637,599,953          |
| SSgA Short-Term Gov't/Credit Index                          | \$1,227,903,318        | \$102,528,651        | -                     | \$102,528,651        | \$7,880,878         | \$12,267,557          | \$1,350,576,692        |
| Cash  | \$267,346,893          | \$167,388,282        | -\$149,487,451        | \$17,900,831         | \$2,730,838         | -                     | \$287,978,562          |
| Transition Account  | \$280,635,591          | \$142,533,888        | -\$403,992,632        | -\$261,458,744       | -                   | \$11,933,445          | \$31,110,292           |
| Member Accounts   | \$33,905,897           | \$91,614,714         | -\$127,703,798        | -\$36,089,084        | -                   | \$2,187,959           | \$4,771                |
| <b>Total Fund with Member Funds and Transition Accounts</b> | <b>\$8,439,123,835</b> | <b>\$936,228,397</b> | <b>-\$721,183,881</b> | <b>\$215,044,516</b> | <b>\$69,928,844</b> | <b>\$292,851,647</b>  | <b>\$9,016,924,151</b> |



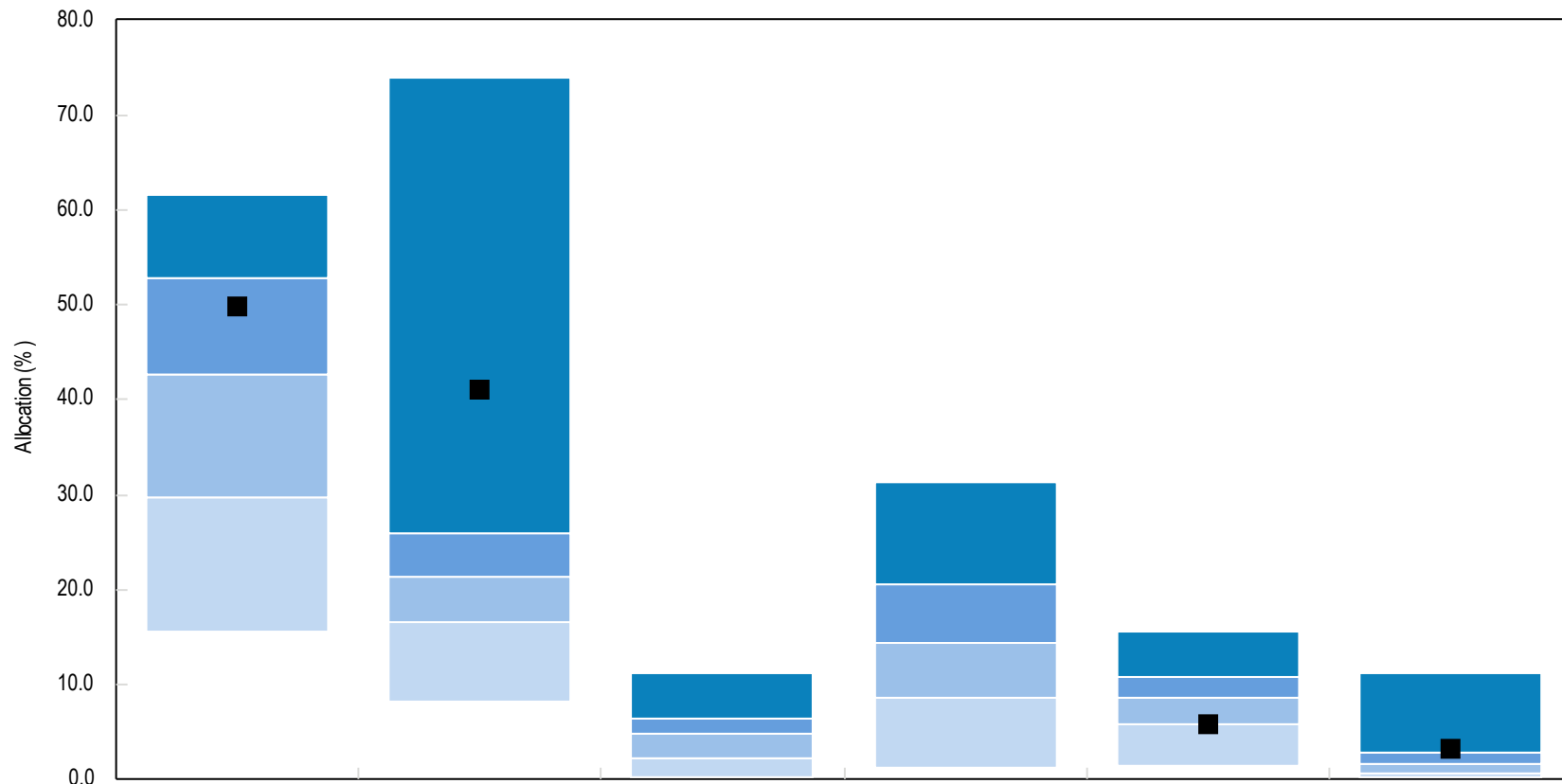
IPOPIF Investment Portfolio vs. All Public Plans > \$1B-Total Fund



|                               | Quarter  | 2 Quarters | 3 Quarters | 1 Year    |
|-------------------------------|----------|------------|------------|-----------|
| ● IPOPIF Investment Portfolio | 4.3 (29) | 11.3 (15)  | 6.0 (24)   | -5.1 (72) |
| ▲ Policy Index                | 4.3 (28) | 11.2 (20)  | 5.6 (33)   | -5.3 (77) |
| 5th Percentile                | 5.0      | 12.4       | 7.0        | 0.0       |
| 1st Quartile                  | 4.4      | 10.5       | 5.8        | -2.9      |
| Median                        | 3.9      | 9.2        | 4.9        | -4.2      |
| 3rd Quartile                  | 3.1      | 7.8        | 3.6        | -5.3      |
| 95th Percentile               | 1.6      | 4.1        | 1.6        | -7.1      |
| Population                    | 129      | 127        | 127        | 122       |

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

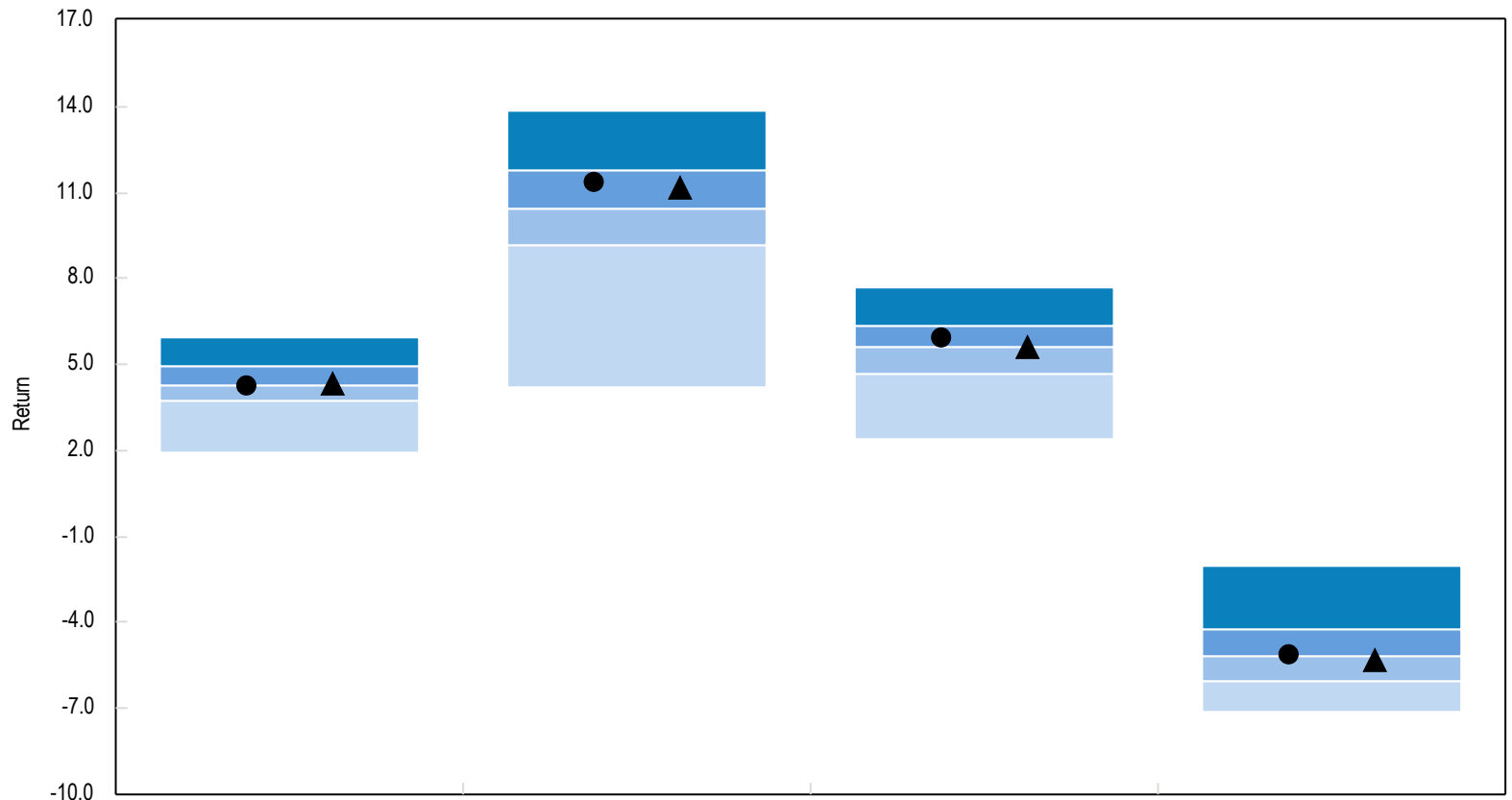
Total Plan Allocation vs. All Public Plans > \$1B-Total Fund  
As of March 31, 2023



|                               | Total Equity<br>49.9 (33) | Total Fixed Income<br>41.1 (8) | Hedge Funds<br>- | Private Equity<br>- | Total Real Estate<br>5.8 (76) | Cash & Equivalents<br>3.2 (22) |
|-------------------------------|---------------------------|--------------------------------|------------------|---------------------|-------------------------------|--------------------------------|
| ■ IPOPIF Investment Portfolio |                           |                                |                  |                     |                               |                                |
| 5th Percentile                | 61.7                      | 73.9                           | 11.2             | 31.3                | 15.6                          | 11.1                           |
| 1st Quartile                  | 52.9                      | 25.8                           | 6.4              | 20.5                | 10.8                          | 2.8                            |
| Median                        | 42.8                      | 21.4                           | 4.7              | 14.3                | 8.5                           | 1.6                            |
| 3rd Quartile                  | 29.7                      | 16.5                           | 2.2              | 8.6                 | 5.8                           | 0.6                            |
| 95th Percentile               | 15.6                      | 8.2                            | 0.3              | 1.3                 | 1.4                           | 0.2                            |
| Population                    | 108                       | 115                            | 25               | 45                  | 86                            | 81                             |

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

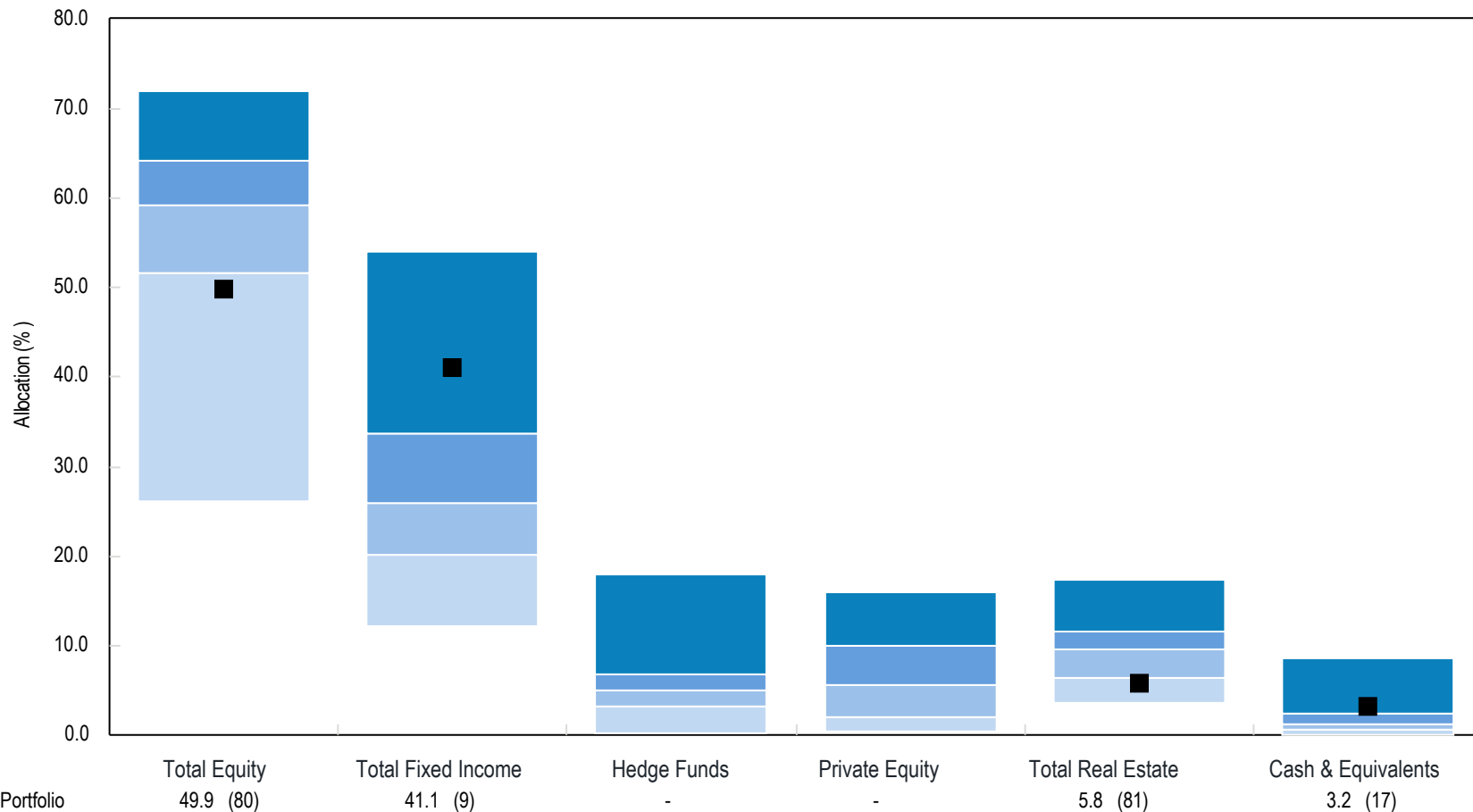
IPOPIF Investment Portfolio vs. All Public Plans < \$1B-Total Fund



|                               | Quarter  | 2 Quarters | 3 Quarters | 1 Year    |
|-------------------------------|----------|------------|------------|-----------|
| ● IPOPIF Investment Portfolio | 4.3 (51) | 11.3 (34)  | 6.0 (40)   | -5.1 (50) |
| ▲ Policy Index                | 4.3 (49) | 11.2 (39)  | 5.6 (51)   | -5.3 (54) |
| 5th Percentile                | 5.9      | 13.8       | 7.7        | -2.0      |
| 1st Quartile                  | 5.0      | 11.8       | 6.4        | -4.2      |
| Median                        | 4.3      | 10.4       | 5.6        | -5.2      |
| 3rd Quartile                  | 3.8      | 9.1        | 4.7        | -6.1      |
| 95th Percentile               | 1.9      | 4.2        | 2.4        | -7.1      |
| Population                    | 324      | 321        | 319        | 313       |

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 March 31, 2023



■ IPOPIF Investment Portfolio

5th Percentile  
1st Quartile  
Median  
3rd Quartile  
95th Percentile

| Category       | Total Equity | Total Fixed Income | Hedge Funds | Private Equity | Total Real Estate | Cash & Equivalents |
|----------------|--------------|--------------------|-------------|----------------|-------------------|--------------------|
| Allocation (%) | 49.9 (80)    | 41.1 (9)           | -           | -              | 5.8 (81)          | 3.2 (17)           |

Population

|            |     |     |    |     |     |     |
|------------|-----|-----|----|-----|-----|-----|
| Population | 515 | 534 | 60 | 123 | 338 | 446 |
|------------|-----|-----|----|-----|-----|-----|

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

Period Ending: March 31, 2023

### 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 1/1/2023                          | Policy Index | Growth | Income | Inflation Protection | Risk Mitigation |
|---|--------------|--------|--------|----------------------|-----------------|
| Russell 1000                            | 18%          | 36.0%  |        |                      |                 |
| Russell 2000                            | 5%           | 10.0%  |        |                      |                 |
| MSCI World ex U.S.                      | 15%          | 30.0%  |        |                      |                 |
| MSCI World ex U.S. Small Cap            | 5%           | 10.0%  |        |                      |                 |
| MSCI Emerging Markets                   | 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%                |                 |
| JPM EMBI Global Diversified Index       | 6%           |        | 37.5%  |                      |                 |
| NFI-ODCE Equal-Weighted Index           | 2%           |        |        |                      |                 |
| Wilshire US REIT Index                  | 4%           |        |        | 44.5%                |                 |
| 90 Day US Treasury Bill Index           | 3%           |        |        |                      | 12.0%           |

| As of 3/31/2022                         | Policy Index | 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

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**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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