

City of Memphis Retirement System

Analysis of Investment Performance

Quarter Ending September 30, 2024

Rosemary E. Guillette
Senior Vice President

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Financial Market Conditions

Quarter in Review: Global Equity Overview

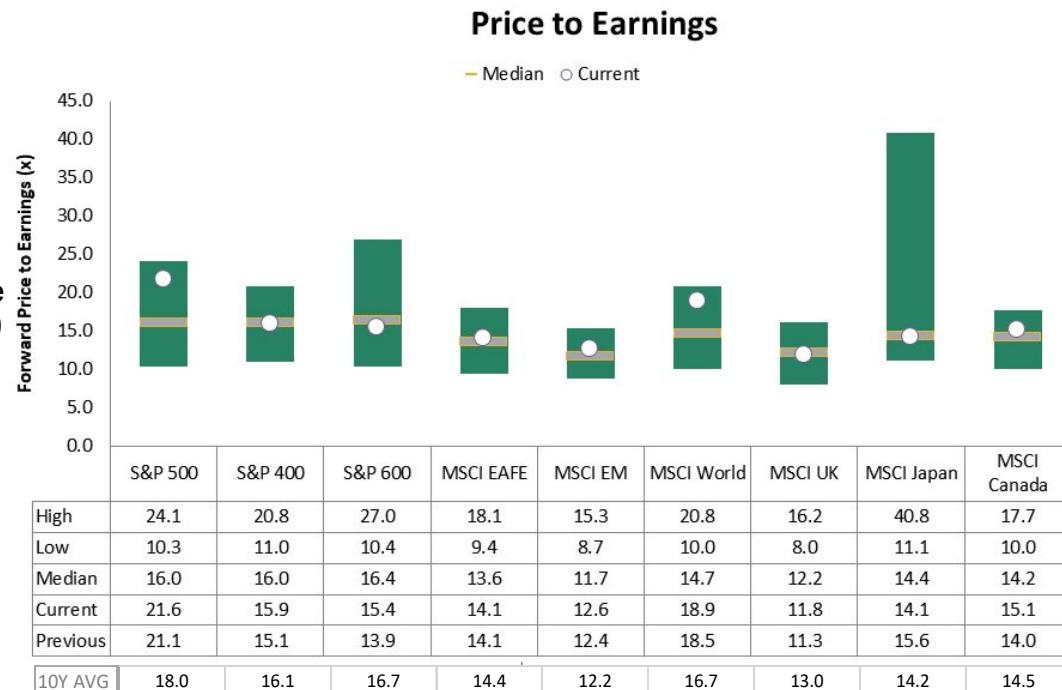
Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
S&P 500	5.89	22.08	36.35	11.91	15.98	13.38
MSCI Europe, Australasia and Far East (EAFE)*	7.26	12.99	24.77	5.48	8.20	5.71
MSCI Emerging Markets (EM)*	8.72	16.86	26.05	0.40	5.75	4.02

All data in the table are percentages.

* Net dividends reinvested

Global Equity Performance and Valuations

- Positive returns were posted for global equities during the third quarter of 2024. Emerging Markets (+8.7%) led the global equities for the second consecutive quarter, followed by International Developed (+7.3%) and U.S. (+5.9%) markets.
- U.S. large cap stocks are trading at slightly higher valuations as the S&P 500's [12 month] forward P/E ratio was 21.6 compared to 21.0 during the first and second quarters of 2024, which was also above the 10-year average of 18.0.
- International Developed large cap stocks, per the MSCI EAFE Index continue to trade at lower valuations than the U.S. The [12 month] forward P/E ratio was up during the third quarter at 14.1, compared to 13.6 at the end of the second quarter, but still below the 10-year average of 14.4.
- Emerging Market stock valuations, per the MSCI EM Index, continue to rise. Current valuations, at 12.6, are 40 basis points above the most recent quarter (12.2) and the 10-year average (12.2).



Data range is from 3/31/00 - 9/30/24. P/E ratios are forward 12 months.

Quarter In Review: U.S. Equity

U.S. Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
S&P 500	5.89	22.08	36.35	11.91	15.98	13.38
Russell 1000	6.08	21.18	35.68	10.83	15.64	13.10
Russell 1000 Growth	3.19	24.55	42.19	12.02	19.74	16.52
Russell 1000 Value	9.43	16.68	27.76	9.03	10.69	9.23
Russell 2000	9.27	11.17	26.76	1.84	9.39	8.78
Russell 2000 Growth	8.41	13.22	27.66	-0.35	8.82	8.95
Russell 2000 Value	10.15	9.22	25.88	3.77	9.29	8.22
Russell Midcap	9.21	14.63	29.33	5.75	11.30	10.19
Russell 3000	6.23	20.63	35.19	10.29	15.26	12.83

All data in the tables are percentages.

Performance

- The U.S. market (+5.9%) continues to demonstrate strength through positive returns but trailed the International Developed and Emerging Markets during the quarter.
- Small cap stocks (+9.3%) rallied over the third quarter, bouncing back from negative returns during the second quarter, and led the U.S. market over mid cap (+9.2%) and large cap (+6.1%) stocks. Investor sentiment shifted as expectations for interest rate cuts changed over the quarter and the Fed announced a 50-basis point reduction, creating a strong environment for small cap stocks.
- Value outperformed growth in both large caps and small caps, a reversion from growth's outperformance over recent quarters. The Russell 1000 Value Index was up +9.4% compared to the growth index at +3.2%. Similarly, the Russell 2000 Value Index was up +10.2% versus the growth index at +8.4%.
- All sectors in the S&P 500 Index posted positive returns except for Energy (-2.3%), as oil prices dropped during the quarter. Utilities (+19.4%) led the index, followed by Real Estate (+17.2%) and Industrials (+11.6%).

S&P 500 Sector Returns	QTD	1-Year
Communication Services	1.68	42.91
Consumer Discretionary	7.80	28.06
Consumer Staples	8.96	25.32
Energy	-2.32	0.85
Financials	10.66	39.01
Healthcare	6.07	21.69
Industrials	11.55	35.89
Information Technology	1.61	52.68
Materials	9.70	25.20
Real Estate	17.17	35.83
Utilities	19.37	41.82

Quarter in Review: International Equity

MSCI International Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
World ex. U.S.	7.76	13.10	24.98	5.65	8.36	5.68
EAFE	7.26	12.99	24.77	5.48	8.20	5.71
EAFE Local Currency	0.82	11.97	17.53	7.92	8.78	7.39
Europe	6.58	12.77	25.23	6.66	8.90	5.59
Europe ex U.K.	6.18	12.01	25.83	5.72	9.24	6.17
U.K.	7.94	15.41	23.32	9.79	7.89	4.10
Japan	5.72	12.35	21.55	2.67	7.15	6.38
Pacific ex Japan	14.29	15.09	28.20	4.80	6.33	5.26

All data in the tables are percentages and net dividends reinvested.

Performance

- International developed markets (+7.3%) were positive for the third quarter, recovering from negative returns during the second quarter, and outperforming the U.S. for the first time since the first quarter of 2023.
- The U.K. (+7.9%) demonstrates continued strength, posting the strongest returns for the third quarter, with the recovery in their domestic economy, the Labour general election win in July and the Bank of England delivering the first interest rate cuts in four years.
- Despite Japan (+5.7%) posting the weakest returns in the quarter, the market showed resilience from the negative returns posted during the second quarter. High volatility continues throughout the Japanese stock market, with significant dislocation in August due to weaker economic data and the Bank of Japan's action in raising interest rates. The yen has strengthened against the US dollar, with impact on sector performance.
- Real Estate (+17.3%), Utilities (+14.9%), and Communication Services (+11.5%) led the international markets during the quarter. Energy (-5.8%) and Information Technology (-2.4%) were the only sectors to post negative returns.

MSCI EAFE Sector Returns	QTD	1-Year
Communication Services	11.50	27.07
Consumer Discretionary	4.84	14.43
Consumer Staples	10.58	10.89
Energy	-5.77	-2.14
Financials	10.38	36.03
Healthcare	4.61	20.35
Industrials	9.38	33.84
Information Technology	-2.43	35.61
Materials	10.69	24.04
Real Estate	17.28	27.57
Utilities	14.93	25.37

Quarter in Review: Emerging Market Equity

MSCI EM Equity Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
Emerging Markets	8.72	16.86	26.05	0.40	5.75	4.02
EM Local Currency	6.62	18.35	24.95	2.85	7.42	6.46
Asia	9.47	21.55	29.71	0.77	7.22	5.64
EMEA	7.14	9.99	19.19	-5.91	0.59	-0.25
Latin America	3.75	-12.52	2.83	7.16	2.05	0.62

All data in the tables are percentages and net dividends reinvested.

Performance

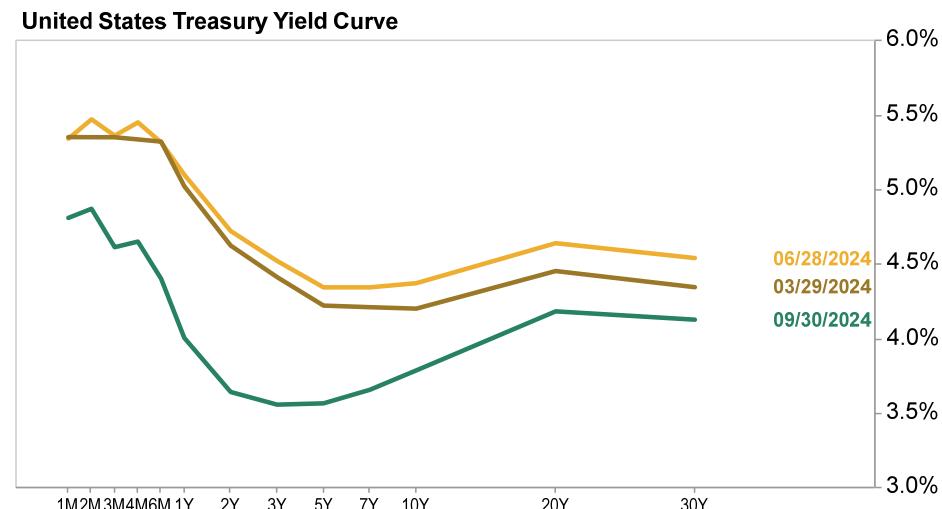
- Emerging Markets (+8.7%) outperformed the U.S. (+5.9%) and International Developed (+7.3%) markets for the second consecutive quarter.
- Asia (+9.5%) posted the strongest returns during the quarter, as Thailand returns were supported by currency strength and delivery of the first phase of a new government stimulus. Given the monetary stimulus measures announced in September and anticipation for further measures, China posted positive returns as well.
- South Korea was the only index with negative returns during the quarter, due to sell-off in technology stocks as investor sentiment questioned revenue growth through artificial intelligence expansion. Brazil also underperformed, negatively affected by the central bank raising rates to contain inflation and the government loosening fiscal spending.
- Consumer Discretionary (+25.0%), Healthcare (+22.9%), and Communication Services (+15.6%) led the market during the quarter. Information Technology (-2.6%) and Energy (-0.4%) were the only sectors to post negative returns.

MSCI EM Sector Returns	QTD	1-Year
Communication Services	15.63	26.17
Consumer Discretionary	24.99	31.85
Consumer Staples	11.12	9.55
Energy	-0.36	17.38
Financials	10.44	26.54
Healthcare	22.89	20.45
Industrials	7.00	19.88
Information Technology	-2.57	40.32
Materials	5.51	5.52
Real Estate	14.83	10.77
Utilities	9.27	35.52

Quarter In Review: Fixed Income Overview

Yield Curve

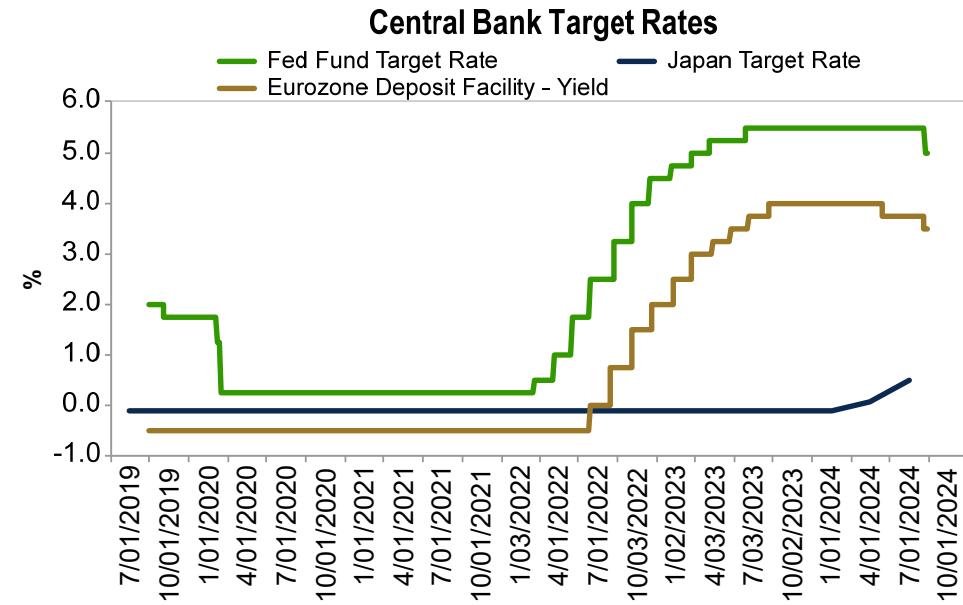
- US Treasury Yield Curve normalized in Q3 2024 as short-term rates fell more than longer-term rates. The Fed lowered interest rates by 50 bps, marking the first cut in four years. Current probabilities are for the Fed to have up to another 200 basis points (bps) in rate cuts by the end of 2026.
- The end to the U.S. yield curve inversion is being driven by a “bull steepening” which means that both 2- and 10-year yields have fallen but the decline was sharper at the short end of the curve.
- 6-month, 2- and 3-year Treasury yields decreased the most by 92 bps, 108 bps and 96 bps respectively, ending the quarter at 4.40%, 3.64% and 3.56%.



Monetary Policies/Global Interest Rates

- The Bank of Japan increased its policy rate in July of 2024 by 15 bps to 0.25%. The European Central Bank (ECB) cut its interest rate by 0.25% both in June and September of 2024, citing a significant improvement in inflation. The ECB interest rate is currently set at 3.65%. The Bank of England decreased its policy rate by 25 bps in August of 2024 to 5.00%.
- The U.S. policy rate is above those of the Eurozone and Japan, but equal to the policy rate in the United Kingdom at 5.00%.

Interest Rates	Fed Funds Rate	EZ Deposit Facility Rate
Average	4.96	1.01
Max	20.00	4.00
Min	0.25	-0.50



Quarter In Review: U.S. Fixed Income

U.S. Fixed Income Indices*	QTD	YTD	1-Year	3-Year	5-Year	10-Year
U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.84
Government/Credit	5.10	4.39	11.31	-1.50	0.41	2.00
Government	4.71	3.85	9.68	-1.72	-0.16	1.36
Investment Grade Credit	5.84	5.32	14.28	-1.18	1.16	2.93
Investment Grade CMBS	4.64	6.47	12.05	-0.27	1.20	2.48
U.S. Corporate High Yield	5.28	8.00	15.74	3.10	4.72	5.04
FTSE** 3-Month T-Bill	1.37	4.17	5.63	3.63	2.38	1.67

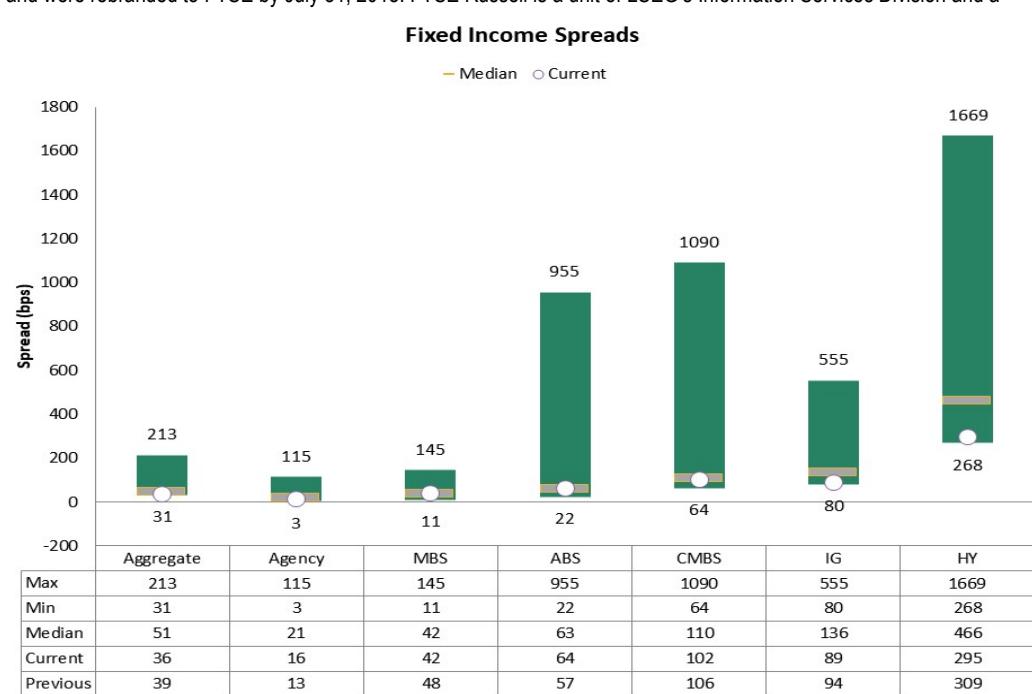
* Bloomberg Indices, unless otherwise noted.

** Formerly Citigroup. Citigroup's fixed income indices were purchased by London Stock Exchange Group (LSEG) and were rebranded to FTSE by July 31, 2018. FTSE Russell is a unit of LSEG's Information Services Division and a wholly owned subsidiary of LSEG.

All data in the table are percentages.

Performance and Spreads

- The U.S. Aggregate Index was positive during the third quarter. All U.S. Aggregate Index sectors generated positive returns for the quarter.
- The Investment Grade (IG) Credit sector had the strongest performance at +5.84% for the quarter. 3-Month T-Bills experienced the weakest performance (+1.37%) in the quarter ended September 30.
- For the quarter, the US Aggregate Index, MBS, CMBS, IG Credit and High Yield spreads narrowed further while the spreads on Agency and ABS widened. The largest change was in the High Yield sector with spreads narrowing by 14 basis points.



Data range is from 9/30/00-9/30/24

Quarter In Review: International Fixed Income

Global Fixed Income Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
Bloomberg Global Aggregate	6.98	3.60	11.99	-3.06	-0.83	0.57
Bloomberg Global Aggregate (Hgd)	4.24	4.38	10.63	-0.22	0.57	2.33
FTSE Non-U.S. WGBI*	8.61	1.92	12.02	-6.25	-3.42	-1.09
FTSE Non-U.S. WGBI (Hgd)	3.65	3.23	9.38	-1.06	-0.56	2.20
JPM EMBI Global Diversified**	6.15	8.64	18.60	-0.40	0.87	3.28
JPM GBI-EM Global Diversified***	8.99	4.95	13.42	0.60	0.59	0.57

All data in the table are percentages.

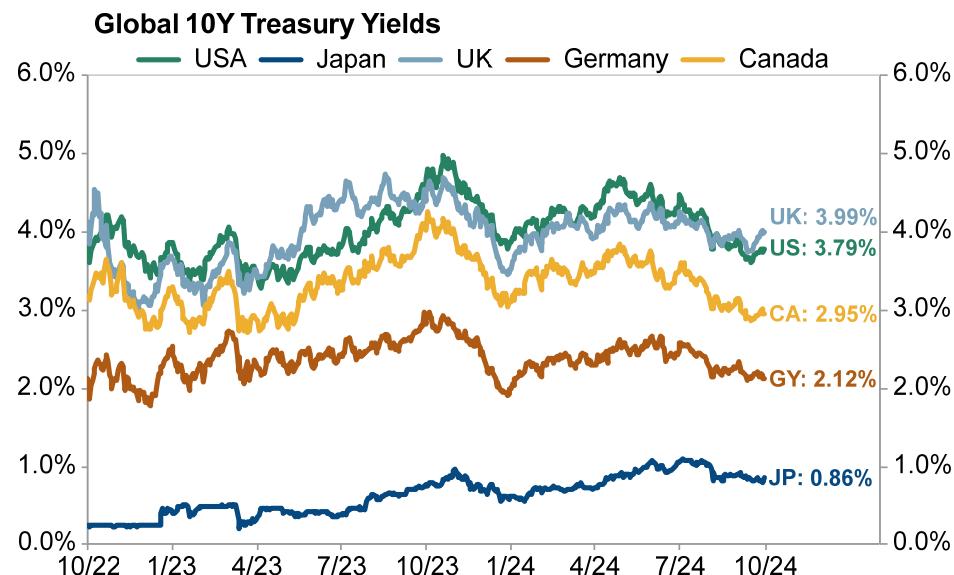
* Formerly Citigroup. The FTSE Non-U.S. World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment grade sovereign bonds excluding the U.S.

** The JP Morgan Emerging Market Bond Index (EMBI) Global Diversified index measures government bonds in hard currencies.

*** The JP Morgan Government Bond Index – Emerging Markets (GBI-EM) Global Diversified index measures government bonds in local currencies.

Global Performance and Yields

- Yields declined in most developed markets during the quarter. Except for the Bank of Japan, all other developed country central banks cut interest rates during the third quarter.
- The U.S. dollar depreciated relative to the Yen, Euro, and British Pound.
- Global government bond returns were positive for the quarter ended September 30, with Emerging Markets bonds exhibiting the strongest performance.



Disclaimer

The information and opinions herein provided by third parties have been obtained from sources believed to be reliable, but accuracy and completeness cannot be guaranteed. This article and the data and analysis herein is intended for general education only and not as investment advice. It is not intended for use as a basis for investment decisions, nor should it be construed as advice designed to meet the needs of any particular investor. Please contact Segal Marco Advisors or another qualified investment professional for advice regarding the evaluation of any specific information, opinion, advice, or other content. On all matters involving legal interpretations and regulatory issues, investors should consult legal counsel.

Total Fund Composite

City of Memphis

Asset Allocation Comparison as of September 30, 2024

\$2,663,712							
Target Allocations		Current Managers & Allocations			Difference		Range
Equity							
Large Cap Equity	20.00%	\$532,742 (000)	Barrow, Hanley (large cap value) Rhumbline Russell 1000 Growth (large cap growth) Winslow (large cap growth) Rhumbline S&P 500 (large cap core)	6.66% 3.36% 3.42% 8.78%	\$177,307 \$89,608 \$91,133 \$233,799 (000)	2.22%	15%-25%
Mid/SMID Cap Equity	4.00%	\$106,548	Northern Trust (mid cap core) Attucks SMID Cap*	2.07% 2.33%	\$55,200 \$61,998	0.40%	0%-7%
Small Cap Equity	4.00%	\$106,548	Attucks Small Cap Value* Conestoga (small cap growth) Nicholas (small cap growth)	2.74% 1.08% 1.20%	\$72,918 \$28,676 \$31,917	1.01%	0%-7%
Domestic Equity	28.00%	\$745,839	Domestic Equity	31.63%	\$842,554	3.63%	18%-38%
Developed International	15.00%	\$399,557	1607 Capital Partners Channing International* Frontier International* Marathon Asset Mgmt Principal Global Investors Strategic Global Advisors	4.00% 0.61% 0.62% 3.96% 3.95% 3.03%	\$106,450 \$16,369 \$16,398 \$105,588 \$105,349 \$80,706	1.18%	10%-20%
Emerging Markets	7.00%	\$186,460	Acadian JPMorgan	4.19% 3.44%	\$111,486 \$91,748	0.63%	5%-12%
International	22.00%	\$586,017	International	23.80%	\$634,093	1.80%	15%-30%
Equity Total	50.00%	\$1,331,856	Equity Total	55.44%	\$1,476,648	5.44%	
Fixed Income							
Core Fixed Income	13.00%	\$346,283	Barrow Hanley High Quality Core Garcia Hamilton Aggregate PIMCO Prudential Core Consrv. Bond	1.29% 2.99% 3.85% 3.68%	\$34,447 \$79,688 \$102,486 \$97,949	-1.19%	8%-18%
Global Fixed Income	8.00%	\$213,097	Brandywine	7.75%	\$206,341	-0.25%	3%-13%
Global High Yield	5.00%	\$133,186	Mackay Shields	5.28%	\$140,567	0.28%	2%-10%
Fixed Income Total	26.00%	\$692,565	Fixed Income Total	24.83%	\$661,478	-1.17%	18%-34%

<u>Target Allocations</u>	<u>Current Managers & Allocations</u>				<u>Difference</u>	<u>Range</u>
Real Estate						
Core/Value Add/REITs	10.00%	\$266,371	BlackRock US Core Property Fund RREEF REIT II TA Realty Core Property Fund Vanguard REIT Index	2.15% 0.61% 1.07% 0.15%	\$57,173 \$16,166 \$28,631 \$4,081	
			Cornerstone (Barings) Real Estate Fund X Dune Real Estate Partners Fund IV Green Cities III Green Cities IV Green Cities V Long Wharf Real Estate Partners IV Long Wharf Real Estate Partners Fund V Long Wharf Real Estate Partners Fund VI Long Wharf Real Estate Partners Fund VII Mesirov Financial Real Estate Value Fund III TA Realty Fund XI TA Realty Fund XIII	0.00% 1.08% 0.20% 0.48% 0.00% 0.00% 0.36% 0.50% 0.31% 0.99% 0.00% 0.62%	\$18 (Total Commitment \$10M, Total Drawn \$8.4M, Total Distributed \$11.6M) \$28,873 (Total Commitment \$30M, Total Drawn \$28.6M, Total Distributed \$1.5M) \$5,378 (Total Commitment \$20M, Total Drawn \$24.1M, Total Distributed \$10.7M) \$12,718 (Total Commitment \$20M, Total Drawn \$20.1, Total Distributed \$1.1M) \$18 (Total Commitment \$20M, Total Drawn \$0.4, Total Distributed \$0.0M) \$83 (Total Commitment \$20M, Total Drawn \$21.5M, Total Distributed \$29.6M) \$9,531 (Total Commitment \$20M, Total Drawn \$20.0M, Total Distributed \$15.1M) \$13,438 (Total Commitment \$20M, Total Drawn \$21.0M, Total Distributed \$12.2M) \$8,161 (Total Commitment \$20M, Total Drawn \$8.5M, Total Distributed \$0.0M) \$26,255 (Total Commitment \$20M, Total Drawn \$22.7M, Total Distributed \$8.5M) \$61 (Total Commitment \$20M, Total Drawn \$20.0M, Total Distributed \$31.9M) \$16,386 (Total Commitment \$30M, Total Drawn \$16.5M, Total Distributed \$2.4M)	
			<i>LaFayette Square Grocery Anchored Impact Fund - \$5M Commitment*</i>			
Real Estate Total	10.00%	\$266,371	Real Estate Total	8.52%	\$226,972	-1.48%
						5%-15%
Private Equity						
Private Equity	5.00%	\$133,186	GSAM Black Equity Opportunities Fund* Neuberger Berman Crossroads XXI Neuberger Berman Crossroads XXIV Pantheon Global Secondary Fund V RPS Ventures II* Siguler Guff Small Buyout Opportunities Fund V SSM Growth Equity Fund II* SSM Growth Equity Fund III*	0.07% 1.74% 0.47% 0.82% 0.12% 0.41% 0.30% 0.63%	\$1,916 (Total Commitment \$15M, Total Drawn \$2.3M, Total Distributed \$0.0M) \$46,251 (Total Commitment \$50M, Total Drawn \$36.5M, Total Distributed \$39.1M) \$12,599 (Total Commitment \$40M, Total Drawn \$11.6, Total Distributed \$0.0M) \$21,891 (Total Commitment \$50M, Total Drawn \$39.7M, Total Distributed \$39.6M) \$3,097 (Total Commitment \$15M, Total Drawn \$3.75M, Total Distributed \$0.0M) \$10,823 (Total Commitment \$20M, Total Drawn \$10.1M, Total Distributed \$1.0M) \$8,088 (Total Commitment \$10M, Total Drawn \$9.5, Total Distributed \$6.0M) \$16,672 (Total Commitment \$10M, Total Drawn \$14.7, Total Distributed \$5.3M)	
Private Equity Total	5.00%	\$133,186		4.56%	\$121,336	-0.44%
						3%-7%
Private Credit						
	5.00%		Brightwood Capital Fund V* Churchill Middle Market Senior Loan Fund III Neuberger Berman Private Debt Fund IV	0.23% 0.31% 1.00%	\$6,234 (Total Commitment \$10M, Total Drawn \$6.0, Total Distributed \$1.1M) \$8,306 (Total Commitment \$10M, Total Drawn \$13.6, Total Distributed \$7.3M) \$26,558 (Total Commitment \$30M, Total Drawn \$26.6, Total Distributed \$6.2M)	
Private Credit Total	5.00%	\$133,186		1.54%	\$41,098	-3.46%
						3%-7%
Hedge Fund of Funds						
	4.00%		Aetos Grosvenor	1.97% 2.03%	\$52,397 \$54,178	
Hedge Fund of Funds Total	4.00%	\$106,548		4.00%	\$106,575	0.00%
						2%-6%
Internal Account	0.00%	\$0	Internal Account	1.11%	\$29,604	
Cash	0.00%	\$0	Cash	1.11%	\$29,604	1.11%
						0%-5%
Total	100%	\$2,663,712	Total	100.00%	\$2,663,712	

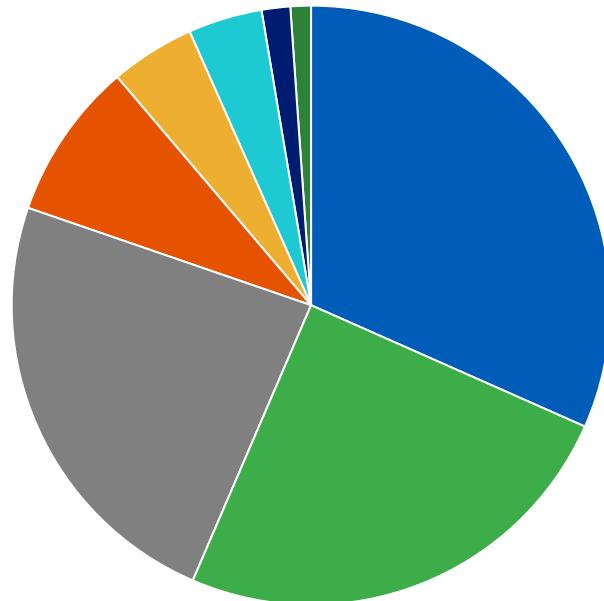
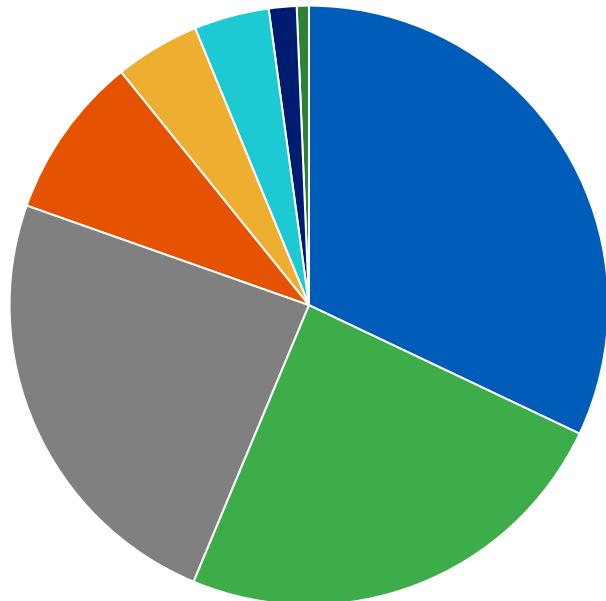
City of Memphis Retirement System

Asset Allocation Chart

As of September 30, 2024

June 30, 2024 : \$2,576,806,985.8

September 30, 2024 : \$2,663,712,406.0



	Market Value (\$)	Allocation (%)
Domestic Equity Composite	825,825,966	32.0
Fixed Income Composite	624,988,134	24.3
International Equity Composite	620,918,253	24.1
Total Real Estate Composite	226,829,800	8.8
Private Equity Composite	118,042,718	4.6
Hedge Fund Composite	104,565,697	4.1
Private Debt Composite	38,578,781	1.5
In House Cash	17,057,638	0.7

	Market Value (\$)	Allocation (%)
Domestic Equity Composite	842,554,225	31.6
Fixed Income Composite	661,478,380	24.8
International Equity Composite	634,093,361	23.8
Total Real Estate Composite	226,971,986	8.5
Private Equity Composite	121,336,344	4.6
Hedge Fund Composite	106,575,445	4.0
Private Debt Composite	41,098,351	1.5
In House Cash	29,604,315	1.1

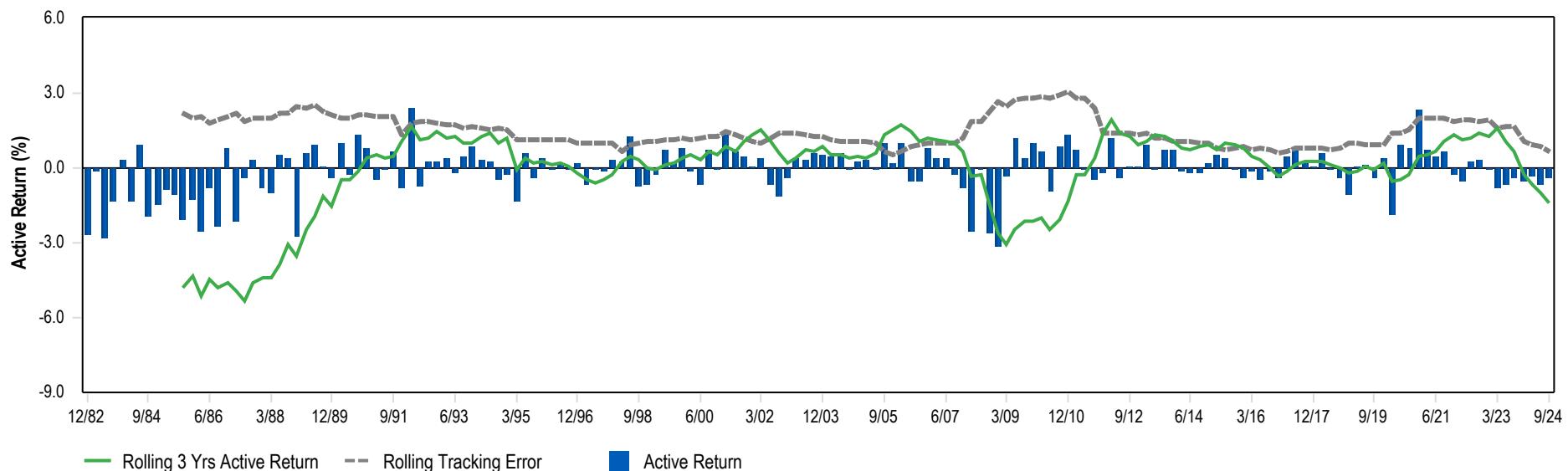
City of Memphis

Total Fund Composite

As of September 30, 2024

	Gain / Loss							
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	
Total Fund Composite								
Beginning Market Value	2,576,806,986	2,520,018,360	2,359,293,210	2,778,541,274	2,312,493,444	2,314,614,939	2,174,067,310	
Net Cash Flows	-47,715,693	-121,372,843	-139,881,874	-409,709,651	-665,108,346	-892,706,583	-1,229,529,815	
Income	8,895,169	28,448,374	37,766,257	102,366,443	168,390,922	241,129,597	352,896,568	
Gain/Loss	125,725,945	236,618,514	406,534,813	192,514,341	847,936,386	1,000,674,453	1,366,278,343	
Ending Market Value	2,663,712,406	2,663,712,406	2,663,712,406	2,663,712,406	2,663,712,406	2,663,712,406	2,663,712,406	

Rolling Return and Tracking Error

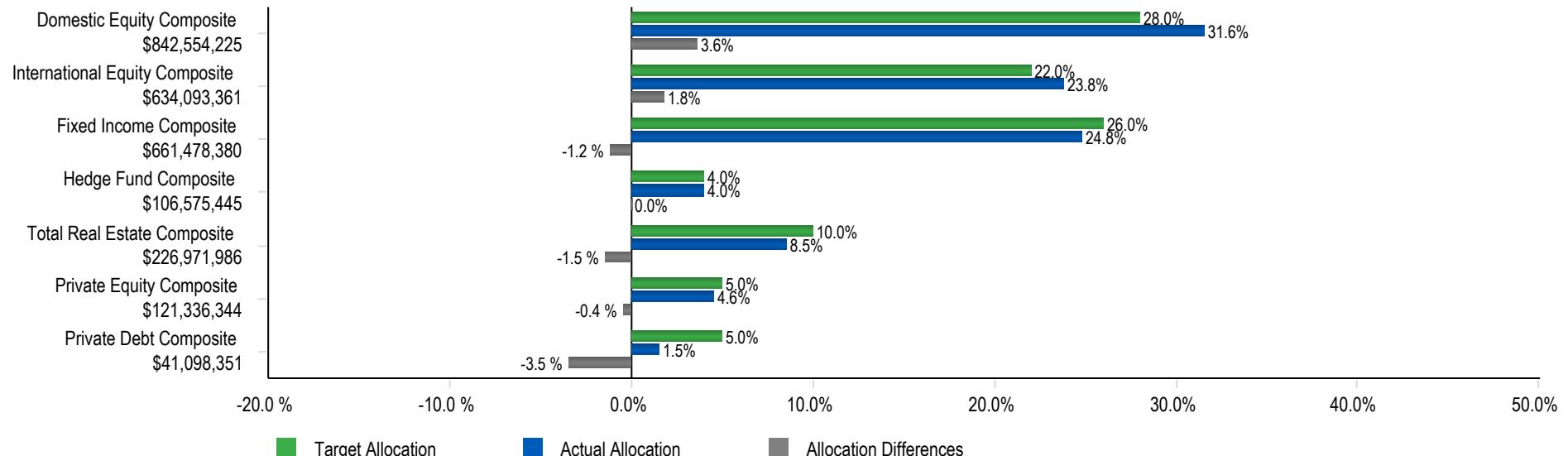


	Performance							
	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	
Total Fund Composite	5.3	10.8	19.3	3.9	8.4	7.4	7.4	
Policy Index	5.7	12.3	21.5	5.3	8.4	7.6	7.5	
Difference	-0.4	-1.5	-2.2	-1.4	0.0	-0.2	-0.1	

City of Memphis

Total Fund Composite

As of September 30, 2024



	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total Fund Composite	2,663,712,406	100.00	100.00	0.00	-	-
Domestic Equity Composite	842,554,225	31.63	28.00	3.63	18.00	38.00
International Equity Composite	634,093,361	23.80	22.00	1.80	15.00	30.00
Fixed Income Composite	661,478,380	24.83	26.00	-1.17	18.00	34.00
Hedge Fund Composite	106,575,445	4.00	4.00	0.00	2.00	6.00
Total Real Estate Composite	226,971,986	8.52	10.00	-1.48	5.00	15.00
Private Equity Composite	121,336,344	4.56	5.00	-0.44	3.00	7.00
Private Debt Composite	41,098,351	1.54	5.00	-3.46	3.00	7.00

**City of Memphis
Asset Allocation**

As of September 30, 2024

	Total Fund (\$)	%
Total Fund Composite	2,663,712,406	100.0
In House Cash	29,604,315	1.1
Domestic Equity Composite	842,554,225	31.6
Barrow, Hanley	177,306,751	6.7
Rhumbline Russell 1000 Growth	89,607,869	3.4
Winslow Capital Management	91,133,419	3.4
Rhumbline S&P 500	233,798,528	8.8
NTGI S&P 400	55,199,868	2.1
Attucks SMID	61,997,878	2.3
Attucks Small Cap Value	72,917,560	2.7
Conestoga Capital Advisors	28,675,507	1.1
Nicholas Investment Partners	31,916,845	1.2
International Equity Composite	634,093,361	23.8
1607 Capital Partners	106,449,804	4.0
Channing Int'l Developed	16,369,220	0.6
Frontier International	16,398,255	0.6
Marathon Asset Mgmt	105,587,995	4.0
Principal Global Investors	105,348,559	4.0
Strategic Global Advisors	80,705,622	3.0
Acadian EM Equity II	111,485,796	4.2
J.P. Morgan Global Emerging Markets Discovery Fund	91,748,110	3.4
Fixed Income Composite	661,478,380	24.8
Barrow Hanley High Quality Core	34,447,313	1.3
Garcia Hamilton Aggregate	79,687,921	3.0
PIMCO	102,485,655	3.8
Prudential Core Conserv Bond	97,949,436	3.7
Brandywine	206,341,426	7.7
Mackay Shields	140,566,629	5.3
Hedge Fund Composite	106,575,445	4.0
Aetos	52,396,964	2.0
Grosvenor Institutional Partners, L.P.	54,178,481	2.0

	Total Fund (\$)	%
Total Real Estate Composite	226,971,986	8.5
Core Private Real Estate Composite	106,051,189	4.0
BlackRock US Core Property Fund	57,172,843	2.1
RREEF REIT II	16,166,489	0.6
TA Realty Core Property Fund	28,631,050	1.1
Vanguard REIT Index Inv	4,080,807	0.2
Private Real Estate Composite	120,920,798	4.5
Cornerstone (Barings) Real Estate Advisers Fund X	17,869	0.0
Dune Real Estate Fund IV	28,872,895	1.1
Green Cities III, L.P.	5,377,625	0.2
Green Cities IV, L.P.	12,717,722	0.5
Green Cities V, L.P.	18,230	0.0
Long Wharf Real Estate Partners IV, L.P.	82,929	0.0
Long Wharf RE Partners V, L.P.	9,531,364	0.4
Long Wharf RE Partners VI, L.P.	13,438,382	0.5
Long Wharf RE Partners VII, L.P.	8,161,262	0.3
Mesirow Real Estate Value Fund III, L.P.	26,255,074	1.0
TA Realty Fund XI	60,978	0.0
TA Realty Fund XIII	16,386,468	0.6
Private Equity Composite	121,336,344	4.6
Goldman Sachs Black Equity Opportunities LLC	1,915,968	0.1
Neuberger Berman Crossroads Fund XXI	46,250,826	1.7
Neuberger Berman Crossroads Fund XXIV	12,599,306	0.5
Pantheon Global Secondary Fund V	21,891,059	0.8
RPS Ventures II	3,096,884	0.1
Siguler Guff Small Buyout Opportunities Fund V	10,822,652	0.4
SSM Partners Growth Equity II L.P.	8,088,139	0.3
SSM Partners Growth Equity III, LP	16,671,510	0.6
Private Debt Composite	41,098,351	1.5
Brightwood Capital Fund V	6,234,354	0.2
Churchill Middle Market Senior Loan Fund III	8,306,307	0.3

**City of Memphis
Asset Allocation**

As of September 30, 2024

	Total Fund (\$)	%
Neuberger Berman Private Debt Fund IV	26,557,690	1.0

City of Memphis

Comparative Performance

As of September 30, 2024

	<u>Performance (%)</u>								
	<u>1 Quarter</u>	<u>Year To Date</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>7 Years</u>	<u>10 Years</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Fund Composite	5.26	10.78	19.26	3.93	8.39	7.38	7.40	9.29	10/01/1982
Policy Index	5.66	12.29	21.51	5.30	8.44	7.60	7.47	9.69	
Policy Index 2	5.50	10.53	19.12	3.93	7.75	6.95	7.00	9.58	
In House Cash	1.36	4.07	5.50	3.54	2.25	2.16	1.62	3.90	10/01/1982
90 Day U.S. Treasury Bill	1.37	4.03	5.46	3.49	2.32	2.22	1.64	3.69	
Domestic Equity Composite	6.55	19.15	34.27	10.04	15.40	13.67	12.33	12.23	10/01/1982
Russell 3000 Index	6.23	20.63	35.19	10.29	15.26	13.74	12.83	12.05	
Domestic Equity Index	6.90	18.48	32.93	8.70	13.96	12.43	12.01	N/A	
Fixed Income Composite	5.84	4.04	13.03	-0.51	1.85	2.32	2.86	6.79	10/01/1982
Fixed Income Index	5.66	4.78	12.34	-1.07	0.79	1.68	2.14	6.60	
International Equity Composite	7.22	14.39	25.86	2.68	8.66	6.23	6.83	5.65	01/01/1990
International Equity Index	7.77	14.37	25.35	3.97	7.56	5.36	5.33	5.35	
Hedge Fund Composite	1.92	7.86	10.81	4.27	6.76	5.51	N/A	5.91	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
HFRI FOF: Conservative Index	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Core Private Real Estate Composite	-0.26	-3.76	-9.70	-1.96	2.37	3.89	6.00	7.17	09/01/1999
NCREIF Property Index	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.76	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Fund Composite	11.74	-12.92	13.57	15.06	18.86	-5.39	18.36	6.76	0.24	5.49
Policy Index	14.42	-12.95	11.80	13.33	18.76	-4.45	16.72	8.00	-0.19	5.86
Policy Index 2	12.40	-12.93	11.69	13.77	17.85	-4.67	16.20	8.17	-0.19	5.86
In House Cash	5.08	1.50	0.04	0.26	2.12	1.93	0.67	0.35	0.18	0.11
90 Day U.S. Treasury Bill	5.02	1.46	0.05	0.67	2.28	1.87	0.86	0.25	0.03	0.04
Domestic Equity Composite	24.76	-17.48	25.47	22.41	30.07	-5.88	22.62	10.04	-1.26	8.80
Russell 3000 Index	25.96	-19.21	25.66	20.89	31.02	-5.24	21.13	12.74	0.48	12.56
Domestic Equity Index	23.55	-18.82	23.52	20.08	29.94	-6.47	20.20	13.76	0.19	11.60
Fixed Income Composite	7.29	-11.71	-0.36	9.51	9.88	-0.98	6.94	5.14	-0.23	4.70
Fixed Income Index	7.08	-13.63	-1.25	7.78	9.24	-0.91	5.50	4.83	-0.86	4.89
International Equity Composite	17.14	-20.51	9.15	17.83	24.67	-15.52	33.29	3.30	-0.50	-1.08
International Equity Index	15.56	-16.14	6.88	11.18	20.94	-13.98	28.77	3.16	-4.06	-4.13
Hedge Fund Composite	8.10	-3.41	7.59	11.20	7.95	-1.55	6.72	N/A	N/A	N/A
90-Day T-Bill+ 5%	10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index	5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14
Core Private Real Estate Composite	-14.75	5.06	25.04	2.55	10.16	4.91	7.75	8.50	11.92	20.06
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Total Fund Composite	5.26	10.78	19.26	3.93	8.39	7.38	7.40	9.29	10/01/1982
Policy Index	5.66	12.29	21.51	5.30	8.44	7.60	7.47	9.69	
Policy Index 2	5.50	10.53	19.12	3.93	7.75	6.95	7.00	9.58	
In House Cash	1.36	4.07	5.50	3.54	2.25	2.16	1.62	3.90	10/01/1982
90 Day U.S. Treasury Bill	1.37	4.03	5.46	3.49	2.32	2.22	1.64	3.69	
Domestic Equity Composite	6.55	19.15	34.27	10.04	15.40	13.67	12.33	12.23	10/01/1982
Russell 3000 Index	6.23	20.63	35.19	10.29	15.26	13.74	12.83	12.05	
Domestic Equity Index	6.90	18.48	32.93	8.70	13.96	12.43	12.01	N/A	
IM U.S. Equity (SA+CF) Median	7.20	15.99	29.09	8.61	12.91	11.44	11.20	12.86	
Domestic Equity Composite Rank	59	33	30	37	28	30	37	76	
Barrow, Hanley	9.69	20.73	32.83	12.74	13.41	12.06	11.16	12.94	10/01/1982
Russell 1000 Value Index	9.43	16.68	27.76	9.03	10.69	9.53	9.23	11.67	
IM U.S. Large Cap Value Equity (SA+CF) Median	7.77	17.03	28.86	10.75	12.90	11.16	10.51	12.73	
Barrow, Hanley Rank	17	11	18	19	37	31	31	31	
Winslow Capital Management	2.27	25.35	47.99	10.40	18.87	18.19	16.27	16.61	11/01/2011
Russell 1000 Growth Index	3.19	24.55	42.19	12.02	19.74	18.20	16.52	17.04	
IM U.S. Large Cap Growth Equity (SA+CF) Median	3.46	23.29	40.93	9.72	17.49	16.48	15.32	15.86	
Winslow Capital Management Rank	76	31	6	43	27	17	23	30	
Rhumbline Russell 1000 Growth	3.18	24.52	42.15	12.02	19.73	18.19	N/A	18.19	10/01/2017
Russell 1000 Growth Index	3.19	24.55	42.19	12.02	19.74	18.20	16.52	18.20	
IM U.S. Large Cap Growth Equity (SA+CF) Median	3.46	23.29	40.93	9.72	17.49	16.48	15.32	16.48	
Rhumbline Russell 1000 Growth Rank	56	37	43	23	17	17	N/A	17	
Rhumbline S&P 500	5.88	22.04	36.27	11.89	15.97	14.47	13.35	10.41	01/01/2004
S&P 500	5.89	22.08	36.35	11.91	15.98	14.50	13.38	10.38	
IM U.S. Large Cap Core Equity (SA+CF) Median	5.88	21.07	35.27	11.09	15.53	13.83	13.18	10.73	
Rhumbline S&P 500 Rank	51	42	41	40	36	38	44	76	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

					Performance (%)				
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
NTGI S&P 400	6.94	13.54	26.79	7.47	11.79	9.96	10.33	10.60	04/01/2011
S&P MidCap 400	6.94	13.54	26.79	7.47	11.78	9.96	10.32	10.60	
IM U.S. Mid Cap Core Equity (SA+CF) Median	7.54	13.55	26.89	7.50	11.81	10.23	10.38	11.12	
NTGI S&P 400 Rank	69	54	66	57	54	66	65	81	
Attucks SMID	6.90	10.90	24.09	2.42	11.07	10.37	N/A	12.89	02/01/2016
Russell 2500 Index	8.75	11.30	26.17	3.47	10.43	9.02	9.50	11.64	
IM U.S. SMID Cap Equity (SA+CF) Median	8.28	12.46	25.62	5.05	11.88	10.44	10.44	12.54	
Attucks SMID Rank	71	66	64	70	62	53	N/A	47	
Attucks Small Cap Value	8.52	8.59	25.06	10.68	14.21	N/A	N/A	13.01	04/01/2019
Russell 2000 Value Index	10.15	9.22	25.88	3.77	9.29	6.60	8.22	8.57	
IM U.S. Small Cap Value Equity (SA+CF) Median	8.32	10.97	25.06	7.29	11.56	8.84	9.71	11.06	
Attucks Small Cap Value Rank	48	72	51	20	21	N/A	N/A	24	
Nicholas Investment Partners	7.45	21.69	37.89	0.61	16.46	13.66	12.36	13.96	07/01/2012
Russell 2000 Growth Index	8.41	13.22	27.66	-0.35	8.82	7.59	8.95	10.54	
IM U.S. Small Cap Growth Equity (SA+CF) Median	7.62	13.39	27.49	0.06	11.29	11.44	11.65	12.90	
Nicholas Investment Partners Rank	54	15	11	48	10	22	34	30	
Conestoga Capital Advisors	10.23	8.31	20.60	0.86	9.93	N/A	N/A	8.59	08/01/2018
Russell 2000 Growth Index	8.41	13.22	27.66	-0.35	8.82	7.59	8.95	5.98	
IM U.S. Small Cap Growth Equity (SA+CF) Median	7.62	13.39	27.49	0.06	11.29	11.44	11.65	9.32	
Conestoga Capital Advisors Rank	19	79	76	47	71	N/A	N/A	63	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	1 Quarter	Year To Date	1 Year	3 Years	Performance (%)				
					5 Years	7 Years	10 Years	Since Inception	Inception Date
International Equity Composite	7.22	14.39	25.86	2.68	8.66	6.23	6.83	5.65	01/01/1990
<i>International Equity Index</i>	7.77	14.37	25.35	3.97	7.56	5.36	5.33	5.35	
IM International Equity (SA+CF) Median	7.82	13.59	25.18	4.56	8.76	6.39	6.65	7.58	
International Equity Composite Rank	62	41	42	68	53	55	46	90	
1607 Capital Partners	7.41	11.87	23.69	2.29	8.64	6.40	6.91	5.77	06/01/2008
<i>MSCI EAFE (Net)</i>	7.26	12.99	24.77	5.48	8.20	6.00	5.71	3.67	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	4.77	
1607 Capital Partners Rank	42	88	86	88	61	58	37	20	
Channing Int'l Developed	11.97	N/A	N/A	N/A	N/A	N/A	N/A	8.90	06/01/2024
<i>MSCI EAFE (Net)</i>	7.26	12.99	24.77	5.48	8.20	6.00	5.71	5.53	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	5.77	
Channing Int'l Developed Rank	3	N/A	N/A	N/A	N/A	N/A	N/A	7	
Frontier International	9.90	N/A	N/A	N/A	N/A	N/A	N/A	7.24	06/01/2024
<i>MSCI AC World ex USA (Net)</i>	8.06	14.21	25.35	4.14	7.59	5.44	5.22	7.96	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	5.77	
Frontier International Rank	7	N/A	N/A	N/A	N/A	N/A	N/A	25	
Marathon Asset Mgmt	8.39	14.20	24.63	4.88	8.92	6.51	6.74	8.28	04/01/2004
<i>MSCI AC World ex USA (Net)</i>	8.06	14.21	25.35	4.14	7.59	5.44	5.22	5.98	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	7.06	
Marathon Asset Mgmt Rank	26	49	71	58	53	50	40	12	
Principal Global Investors	5.50	13.04	25.73	2.48	8.92	6.32	6.81	4.10	07/01/2007
<i>MSCI World ex U.S. Growth (Net)</i>	5.87	12.14	26.18	2.02	7.78	6.66	6.41	4.04	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	4.44	
Principal Global Investors Rank	88	68	50	87	53	61	40	77	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Strategic Global Advisors	8.97	17.50	29.27	7.10	10.26	6.97	7.52	9.54	07/01/2012
MSCI World ex-U.S. (Net)	7.76	13.10	24.98	5.65	8.36	6.16	5.68	7.31	
IM International Core Equity (SA+CF) Median	7.60	13.83	25.58	4.61	8.85	6.40	6.65	8.46	
Strategic Global Advisors Rank	25	15	16	21	19	31	26	23	
Acadian EM Equity II	7.05	21.88	32.67	6.56	10.41	5.98	5.98	4.42	05/01/2011
MSCI EM (net)	8.72	16.86	26.05	0.40	5.75	3.65	4.02	2.30	
IM Emerging Markets Equity (SA+CF) Median	7.34	16.20	25.19	1.02	7.31	4.82	5.26	3.66	
Acadian EM Equity II Rank	55	10	8	22	25	32	32	30	
J.P. Morgan Global Emerging Markets Discovery Fund	4.74	8.76	19.91	-6.55	4.16	4.27	N/A	7.73	12/01/2016
MSCI EM (net)	8.72	16.86	26.05	0.40	5.75	3.65	4.02	6.57	
IM Emerging Markets Equity (SA+CF) Median	7.34	16.20	25.19	1.02	7.31	4.82	5.26	7.76	
J.P. Morgan Global Emerging Markets Discovery Fund Rank	80	91	81	94	87	61	N/A	51	
Fixed Income Composite	5.84	4.04	13.03	-0.51	1.85	2.32	2.86	6.79	10/01/1982
Fixed Income Index	5.66	4.78	12.34	-1.07	0.79	1.68	2.14	6.60	
Mackay Shields	3.96	7.56	14.04	4.31	5.55	5.56	6.08	7.82	01/01/1999
Credit Suisse High Yield Index	4.74	7.61	14.92	3.22	4.53	4.50	4.83	6.49	
IM U.S. High Yield Bonds (SA+CF) Median	4.55	7.64	14.75	3.42	4.75	4.73	5.07	6.63	
Mackay Shields Rank	72	54	71	16	17	13	5	5	
PIMCO	5.05	5.01	12.36	-0.66	1.27	2.34	2.62	3.54	04/01/2009
Bloomberg. U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	2.87	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.24	4.96	12.30	-0.96	0.89	2.00	2.34	3.74	
PIMCO Rank	88	46	43	18	23	18	20	64	
Prudential Core Conserv Bond	5.28	4.77	12.20	-1.16	0.53	1.62	2.01	2.83	09/01/2009
Bloomberg. U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	2.65	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.24	4.96	12.30	-0.96	0.89	2.00	2.34	3.29	
Prudential Core Conserv Bond Rank	43	75	57	66	83	83	81	82	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	<u>1 Quarter</u>	<u>Year To Date</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>7 Years</u>	<u>10 Years</u>	<u>Since Inception</u>	<u>Inception Date</u>
<u>Performance (%)</u>									
Barrow Hanley High Quality Core	5.35	5.15	12.96	N/A	N/A	N/A	N/A	7.77	11/01/2022
<i>Blmbg. U.S. Aggregate</i>	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	6.96	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.19	4.76	12.00	-1.22	0.59	1.71	2.05	7.34	
Barrow Hanley High Quality Core Rank	18	26	9	N/A	N/A	N/A	N/A	20	
Garcia Hamilton Aggregate	6.36	5.02	13.24	N/A	N/A	N/A	N/A	7.43	11/01/2022
<i>Blmbg. U.S. Aggregate</i>	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	6.96	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.19	4.76	12.00	-1.22	0.59	1.71	2.05	7.34	
Garcia Hamilton Aggregate Rank	1	35	7	N/A	N/A	N/A	N/A	43	
Brandywine	7.87	0.60	12.98	-2.79	0.56	0.63	N/A	1.41	08/01/2015
<i>Blmbg. Global Aggregate</i>	6.98	3.60	11.99	-3.06	-0.83	0.26	0.57	1.06	
<i>FTSE World Government Bond Index</i>	6.95	2.72	11.02	-4.41	-2.05	-0.59	-0.15	0.40	
IM Global Fixed Income (SA+CF) Median	4.99	5.71	13.45	0.56	2.49	2.84	2.90	3.44	
Brandywine Rank	11	100	60	85	74	86	N/A	87	
Hedge Fund Composite	1.92	7.86	10.81	4.27	6.76	5.51	N/A	5.91	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
<i>HFRI FOF: Conservative Index</i>	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Grosvenor Institutional Partners, L.P.	1.62	7.80	10.65	3.28	7.37	5.77	N/A	5.99	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
<i>HFRI FOF: Conservative Index</i>	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Aetos	2.23	8.00	11.09	5.26	6.40	5.31	N/A	5.72	05/01/2016
90-Day T-Bill + 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.03	
<i>HFRI FOF: Conservative Index</i>	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.46	
Total Real Estate Composite	-0.24	-0.89	-8.76	-2.43	2.31	4.15	6.42	8.76	07/01/1996
<i>NCREIF Property Index</i>	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	8.33	
Core Private Real Estate Composite	-0.26	-3.76	-9.70	-1.96	2.37	3.89	6.00	7.17	09/01/1999
<i>NCREIF Property Index</i>	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.76	

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

					Performance (%)						
					1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
BlackRock US Core Property Fund		-1.43	-7.02	-14.05	-3.50	0.89	2.71	5.30	3.13		10/01/2006
<i>NCREIF Property Index</i>		0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	6.03		
RREEF REIT II		-0.31	-0.07	-5.97	0.93	3.56	4.69	6.62	7.31		07/01/1999
<i>NCREIF Property Index</i>		0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.71		
Vanguard REIT Index Inv		17.19	12.25	34.21	2.53	4.79	6.40	N/A	6.23		01/01/2017
<i>Vanguard REIT Spliced Index</i>		17.23	13.71	34.38	2.63	4.90	6.50	7.44	6.34		
IM Real Estate Sector (MF) Median		15.84	13.62	32.43	2.82	4.80	6.46	7.16	6.21		
Vanguard REIT Index Inv Rank		13	78	25	58	52	53	N/A	49		
TA Realty Core Property Fund		0.02	-0.90	-6.27	2.43	6.93	N/A	N/A	7.20		04/01/2019
<i>NCREIF ODCE Equal Weighted</i>		0.25	-2.57	-7.27	-0.26	3.10	4.33	6.30	3.32		

Gross of Fees.

City of Memphis Retirement System
Comparative Performance - IRR

As of September 30, 2024

	Market Value (\$)	%	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
Real Estate										
Private Real Estate Composite	120,920,798	4.5	-0.3	1.8	-7.9	-3.3	2.0	3.9	8.8	09/30/2009
Dune Real Estate Fund IV	28,872,895	1.1	0.0	-1.4	-3.0	6.0	3.3		2.5	08/22/2019
Green Cities III, L.P.	5,377,625	0.2	0.0	-0.1	-32.3	-33.2	-19.6	-11.9	-9.1	11/13/2015
Green Cities IV, L.P.	12,717,722	0.5	0.0	-3.5	-30.3	-14.9	-12.6		-12.9	06/27/2019
Long Wharf RE Partners V, L.P.	9,531,364	0.4	-4.9	-15.6	-16.9	-4.3	0.8	5.7	5.0	11/20/2015
Long Wharf RE Partners VI, L.P.	13,438,382	0.5	0.5	0.8	1.4	9.8	14.1		12.9	06/27/2019
Long Wharf RE Partners VII, L.P.	8,161,262	0.3	3.1	3.3	2.3				-6.5	03/30/2023
Mesirow Real Estate Value Fund III, L.P.	26,255,074	1.0	-0.2	2.1	-3.4	4.8	11.6		10.4	05/07/2018
TA Realty Fund XI	60,978	0.0	0.0	12.1	5.6	-4.2	11.5	11.2	10.6	05/25/2016
TA Realty Fund XIII	16,386,468	0.6	0.0	45.8					22.0	11/17/2023
Private Equity										
Private Equity Composite	121,336,344	4.6	0.0	2.6	3.5	4.3	12.5	12.0	13.0	12/15/2015
Goldman Sachs Black Equity Opportunities LLC	1,915,968	0.1	0.0	-7.9					-22.7	11/02/2023
Neuberger Berman Crossroads Fund XXI	46,250,826	1.7	0.0	1.4	2.6	5.0	16.6	16.2	15.4	04/27/2016
Neuberger Berman Crossroads Fund XXIV	12,599,306	0.5	0.0	9.2	13.9				10.9	07/11/2022
Pantheon Global Secondary Fund V	21,891,059	0.8	0.0	-1.7	-5.8	-2.4	6.9	7.1	10.6	12/22/2015
RPS Ventures II	3,096,884	0.1	0.0	-6.0	-9.8				-21.1	07/21/2023
Siguler Guff Small Buyout Opportunities Fund V	10,822,652	0.4	0.0	6.0	10.4				16.8	08/05/2022
SSM Partners Growth Equity II L.P.	8,088,139	0.3	0.0	6.7	10.8	8.6	7.9	7.7	8.4	12/15/2015
SSM Partners Growth Equity III, LP	16,671,510	0.6	0.0	7.8	15.0	12.8			16.3	12/02/2019
Private Debt										
Private Debt Composite	41,098,351	1.5	0.0	6.5	9.9	11.5			11.5	07/30/2021
Churchill Middle Market Senior Loan Fund III	8,306,307	0.3	0.0	7.1	11.9	10.0			10.0	10/07/2021
Brightwood Capital Fund V	6,234,354	0.2	0.0	7.5	6.9	10.7			10.7	07/30/2021
Neuberger Berman Private Debt Fund IV	26,557,690	1.0	0.0	6.1	9.9	12.3			12.3	10/21/2021

City of Memphis

Comparative Performance

As of September 30, 2024

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
In House Cash	5.08	1.50	0.04	0.26	2.12	1.93	0.67	0.35	0.18	0.11
90 Day U.S. Treasury Bill	5.02	1.46	0.05	0.67	2.28	1.87	0.86	0.25	0.03	0.04
Domestic Equity Composite	24.76	-17.48	25.47	22.41	30.07	-5.88	22.62	10.04	-1.26	8.80
Russell 3000 Index	25.96	-19.21	25.66	20.89	31.02	-5.24	21.13	12.74	0.48	12.56
Domestic Equity Index	23.55	-18.82	23.52	20.08	29.94	-6.47	20.20	13.76	0.19	11.60
IM U.S. Equity (SA+CF) Median	19.39	-16.41	26.12	16.74	28.64	-7.07	19.44	13.16	-0.49	9.99
Domestic Equity Composite Rank	32	55	55	35	42	43	32	68	56	58
Barrow, Hanley	12.82	-2.54	26.34	4.53	26.10	-5.94	16.37	14.95	-1.57	13.68
Russell 1000 Value Index	11.46	-7.54	25.16	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45
IM U.S. Large Cap Value Equity (SA+CF) Median	14.00	-5.41	28.03	4.55	27.52	-8.39	17.16	14.79	-2.34	12.04
Barrow, Hanley Rank	59	28	67	51	63	28	64	48	43	28
Winslow Capital Management	44.11	-30.74	24.86	38.77	34.63	4.19	33.24	-1.53	7.17	11.14
Russell 1000 Growth Index	42.68	-29.14	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05
IM U.S. Large Cap Growth Equity (SA+CF) Median	39.65	-29.03	24.98	35.35	34.01	-0.54	28.47	4.63	5.43	11.87
Winslow Capital Management Rank	27	61	52	35	45	11	20	93	35	59
Rhumbline Russell 1000 Growth	42.61	-29.11	27.58	38.51	36.35	-1.51	N/A	N/A	N/A	N/A
Russell 1000 Growth Index	42.68	-29.14	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05
IM U.S. Large Cap Growth Equity (SA+CF) Median	39.65	-29.03	24.98	35.35	34.01	-0.54	28.47	4.63	5.43	11.87
Rhumbline Russell 1000 Growth Rank	33	51	32	35	28	58	N/A	N/A	N/A	N/A
Rhumbline S&P 500	26.25	-18.09	28.72	18.40	31.39	-4.41	21.78	11.94	1.38	13.58
S&P 500	26.29	-18.11	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69
IM U.S. Large Cap Core Equity (SA+CF) Median	24.70	-16.54	27.75	17.69	30.13	-5.02	22.12	10.51	1.47	13.41
Rhumbline S&P 500 Rank	39	65	37	46	36	42	56	32	54	47
NTGI S&P 400	16.44	-13.06	24.84	13.64	26.22	-11.10	16.22	20.74	-2.17	9.75
S&P MidCap 400	16.44	-13.06	24.76	13.66	26.20	-11.08	16.24	20.74	-2.18	9.77
IM U.S. Mid Cap Core Equity (SA+CF) Median	16.50	-13.10	24.80	13.76	27.08	-11.02	17.47	16.61	-1.33	10.09
NTGI S&P 400 Rank	60	39	49	62	71	60	76	22	69	63

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Attucks SMID	16.14	-20.88	23.82	21.47	27.70	-4.36	23.75	N/A	N/A	N/A
Russell 2500 Index	17.42	-18.37	18.18	19.99	27.77	-10.00	16.81	17.59	-2.90	7.07
IM U.S. SMID Cap Equity (SA+CF) Median	17.39	-16.86	23.26	17.66	28.93	-9.84	18.00	16.30	-1.41	6.67
Attucks SMID Rank	56	67	46	43	60	22	24	N/A	N/A	N/A
Attucks Small Cap Value	25.51	-8.69	38.00	3.48	N/A	N/A	N/A	N/A	N/A	N/A
Russell 2000 Value Index	14.65	-14.48	28.27	4.63	22.39	-12.86	7.84	31.74	-7.47	4.22
IM U.S. Small Cap Value Equity (SA+CF) Median	17.24	-10.59	30.09	5.18	24.99	-14.08	11.56	27.12	-4.29	5.72
Attucks Small Cap Value Rank	11	33	17	57	N/A	N/A	N/A	N/A	N/A	N/A
Nicholas Investment Partners	21.32	-31.08	9.62	69.08	36.26	-10.37	27.38	3.01	-1.36	-0.13
Russell 2000 Growth Index	18.66	-26.36	2.83	34.63	28.48	-9.31	22.17	11.32	-1.38	5.60
IM U.S. Small Cap Growth Equity (SA+CF) Median	19.07	-27.32	12.12	43.32	29.54	-3.83	24.51	10.60	-0.72	3.90
Nicholas Investment Partners Rank	33	74	61	14	28	87	37	89	55	75
Conestoga Capital Advisors	23.11	-27.05	17.47	32.97	26.95	N/A	N/A	N/A	N/A	N/A
Russell 2000 Growth Index	18.66	-26.36	2.83	34.63	28.48	-9.31	22.17	11.32	-1.38	5.60
IM U.S. Small Cap Growth Equity (SA+CF) Median	19.07	-27.32	12.12	43.32	29.54	-3.83	24.51	10.60	-0.72	3.90
Conestoga Capital Advisors Rank	18	48	32	72	64	N/A	N/A	N/A	N/A	N/A
International Equity Composite	17.14	-20.51	9.15	17.83	24.67	-15.52	33.29	3.30	-0.50	-1.08
International Equity Index	15.56	-16.14	6.88	11.18	20.94	-13.98	28.77	3.16	-4.06	-4.13
IM International Equity (SA+CF) Median	17.65	-16.30	11.77	11.60	23.52	-14.54	28.65	2.43	1.15	-3.37
International Equity Composite Rank	54	72	66	31	44	60	27	44	61	30
1607 Capital Partners	15.28	-19.27	12.25	16.08	25.34	-14.21	32.93	2.69	-0.08	-1.55
MSCI EAFE (Net)	18.24	-14.45	11.26	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90
IM International Large Cap Core Equity (SA+CF) Median	17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
1607 Capital Partners Rank	83	78	46	30	37	50	11	40	56	22

Gross of Fees

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Channing Int'l Developed	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI EAFE (Net)	18.24	-14.45	11.26	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90
IM International Large Cap Core Equity (SA+CF) Median	17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Channing Int'l Developed Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Frontier International	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA (Net)	15.62	-16.00	7.82	10.65	21.51	-14.20	27.19	4.50	-5.66	-3.87
IM International Large Cap Core Equity (SA+CF) Median	17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Frontier International Rank	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Marathon Asset Mgmt	16.55	-13.54	10.00	9.94	23.94	-13.22	24.34	-1.17	7.15	-3.95
MSCI AC World ex USA (Net)	15.62	-16.00	7.82	10.65	21.51	-14.20	27.19	4.50	-5.66	-3.87
IM International Large Cap Core Equity (SA+CF) Median	17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Marathon Asset Mgmt Rank	68	25	67	59	48	35	81	82	6	55
Principal Global Investors	19.51	-24.40	12.61	22.60	26.96	-17.31	26.47	-0.37	4.95	-1.10
MSCI World ex U.S. Growth (Net)	17.45	-22.68	11.57	18.41	27.92	-13.14	27.61	-1.87	1.65	-3.26
IM International Large Cap Core Equity (SA+CF) Median	17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Principal Global Investors Rank	35	96	41	12	28	87	60	75	12	18
Strategic Global Advisors	20.20	-16.24	17.09	8.22	22.95	-16.55	30.04	0.01	3.84	1.30
MSCI World ex-U.S. (Net)	17.94	-14.29	12.62	7.59	22.49	-14.09	24.21	2.75	-3.04	-4.32
IM International Core Equity (SA+CF) Median	17.28	-16.74	12.32	12.18	23.97	-15.01	29.38	1.74	1.46	-3.43
Strategic Global Advisors Rank	21	44	16	72	59	66	45	72	31	9
Acadian EM Equity II	22.79	-19.83	8.59	12.47	17.83	-18.46	38.83	13.85	-17.49	2.28
MSCI EM (net)	9.83	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19
IM Emerging Markets Equity (SA+CF) Median	12.91	-19.69	1.11	18.31	20.15	-15.23	36.92	10.03	-12.06	0.13
Acadian EM Equity II Rank	19	53	26	75	67	80	39	23	90	34

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
J.P. Morgan Global Emerging Markets Discovery Fund	8.43	-28.06	-3.29	34.80	30.36	-15.05	46.95	N/A	N/A	N/A
MSCI EM (net)	9.83	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19
IM Emerging Markets Equity (SA+CF) Median	12.91	-19.69	1.11	18.31	20.15	-15.23	36.92	10.03	-12.06	0.13
J.P. Morgan Global Emerging Markets Discovery Fund Rank	75	91	70	14	11	49	12	N/A	N/A	N/A
Fixed Income Composite	7.29	-11.71	-0.36	9.51	9.88	-0.98	6.94	5.14	-0.23	4.70
Fixed Income Index	7.08	-13.63	-1.25	7.78	9.24	-0.91	5.50	4.83	-0.86	4.89
Mackay Shields	12.82	-6.92	6.26	6.25	14.24	-0.61	7.77	17.63	-0.68	2.55
Credit Suisse High Yield Index	13.55	-10.55	5.50	5.48	14.00	-2.37	7.03	18.26	-4.93	1.86
IM U.S. High Yield Bonds (SA+CF) Median	12.64	-9.37	5.31	6.58	14.25	-1.64	7.50	14.07	-2.04	2.61
Mackay Shields Rank	47	24	28	58	51	31	38	13	27	51
PIMCO	6.57	-12.46	-0.41	8.78	9.11	0.82	5.49	3.58	0.17	4.46
Blmbg. U.S. Aggregate	5.53	-13.01	-1.55	7.51	8.72	0.01	3.54	2.65	0.55	5.97
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.98	-12.95	-1.24	8.34	9.17	0.06	3.99	3.07	0.81	6.13
PIMCO Rank	21	27	21	38	54	9	5	34	89	96
Prudential Core Conserv Bond	6.04	-13.02	-1.54	7.75	8.82	-0.09	3.69	2.86	0.83	6.19
Blmbg. U.S. Aggregate	5.53	-13.01	-1.55	7.51	8.72	0.01	3.54	2.65	0.55	5.97
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.98	-12.95	-1.24	8.34	9.17	0.06	3.99	3.07	0.81	6.13
Prudential Core Conserv Bond Rank	49	56	66	69	68	72	69	61	49	45
Brandywine	5.69	-13.45	-3.50	11.98	8.14	-2.74	11.09	1.05	N/A	N/A
Blmbg. Global Aggregate	5.72	-16.25	-4.71	9.20	6.84	-1.19	7.39	2.09	-3.15	0.59
FTSE World Government Bond Index	5.18	-18.26	-6.97	10.11	5.90	-0.84	7.49	1.60	-3.57	-0.48
IM Global Fixed Income (SA+CF) Median	9.02	-12.13	0.51	8.45	9.72	-1.80	7.79	6.20	-2.39	2.61
Brandywine Rank	81	59	75	18	76	66	14	93	N/A	N/A
Hedge Fund Composite	8.10	-3.41	7.59	11.20	7.95	-1.55	6.72	N/A	N/A	N/A
90-Day T-Bill+ 5%	10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index	5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14

Gross of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)										
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	
Grosvenor Institutional Partners, L.P.	8.11	-5.86	7.78	17.17	6.06	-1.49	6.14	N/A	N/A	N/A	
90-Day T-Bill+ 5%	10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04	
HFRI FOF: Conservative Index	5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14	
Aetos	8.27	-0.68	6.46	6.99	9.26	-1.61	7.30	N/A	N/A	N/A	
90-Day T-Bill + 5%	10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04	
HFRI FOF: Conservative Index	5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14	
Total Real Estate Composite	-15.87	2.66	24.73	2.36	9.80	8.23	6.97	9.06	15.74	20.84	
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	
Core Private Real Estate Composite	-14.75	5.06	25.04	2.55	10.16	4.91	7.75	8.50	11.92	20.06	
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	
BlackRock US Core Property Fund	-18.23	9.61	19.62	2.86	6.39	7.76	8.87	10.95	15.25	11.63	
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	
RREEF REIT II	-14.49	8.60	24.92	1.32	6.28	7.99	7.44	9.14	16.70	13.00	
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82	
Vanguard REIT Index Inv	13.17	-26.19	40.47	-4.67	28.95	-5.93	4.86	N/A	N/A	N/A	
Vanguard REIT Spliced Index	11.96	-26.12	40.56	-4.55	29.03	-5.86	5.07	8.60	2.52	30.38	
IM Real Estate Sector (MF) Median	11.91	-26.17	41.32	-4.31	27.32	-5.71	5.32	6.34	2.91	29.47	
Vanguard REIT Index Inv Rank	27	51	61	54	34	54	59	N/A	N/A	N/A	
TA Realty Core Property Fund	-8.83	9.59	30.41	6.23	N/A	N/A	N/A	N/A	N/A	N/A	
NCREIF ODCE Equal Weighted	-12.01	7.46	22.62	1.57	6.08	8.25	7.80	9.27	15.17	12.38	

Gross of Fees

City of Memphis

Comparative Performance

As of September 30, 2024

	<u>Performance (%)</u>								
	<u>1 Quarter</u>	<u>Year To Date</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>7 Years</u>	<u>10 Years</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Fund Composite	5.17	10.49	18.84	3.56	7.97	6.96	6.97	7.32	07/01/1996
Policy Index	5.66	12.29	21.51	5.30	8.44	7.60	7.47	7.43	
Policy Index 2	5.50	10.53	19.12	3.93	7.75	6.95	7.00	7.27	
In House Cash	1.36	4.07	5.50	3.54	2.25	2.16	1.62	3.90	10/01/1982
90 Day U.S. Treasury Bill	1.37	4.03	5.46	3.49	2.32	2.22	1.64	3.69	
Domestic Equity Composite	6.48	18.91	33.90	9.75	15.08	13.34	11.98	13.20	10/01/2009
Russell 3000 Index	6.23	20.63	35.19	10.29	15.26	13.74	12.83	13.80	
Domestic Equity Index	6.90	18.48	32.93	8.70	13.96	12.43	12.01	13.16	
Fixed Income Composite	5.77	3.81	12.70	-0.81	1.53	2.00	2.54	3.55	10/01/2009
Fixed Income Index	5.66	4.78	12.34	-1.07	0.79	1.68	2.14	3.03	
International Equity Composite	7.04	13.84	25.04	2.02	7.94	5.52	6.12	6.69	10/01/2009
International Equity Index	7.77	14.37	25.35	3.97	7.56	5.36	5.33	5.74	
Hedge Fund Composite	1.92	7.86	10.81	4.27	6.76	5.51	N/A	5.91	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
HFRI FOF: Conservative Index	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Core Private Real Estate Composite	-0.26	-3.76	-9.70	-1.96	2.37	3.89	6.00	7.17	09/01/1999
NCREIF Property Index	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.76	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
In House Cash	1.36	4.07	5.50	3.54	2.25	2.16	1.62	3.90	10/01/1982
90 Day U.S. Treasury Bill	1.37	4.03	5.46	3.49	2.32	2.22	1.64	3.69	
Domestic Equity Composite	6.48	18.91	33.90	9.75	15.08	13.34	11.98	13.20	10/01/2009
Russell 3000 Index	6.23	20.63	35.19	10.29	15.26	13.74	12.83	13.80	
Domestic Equity Index	6.90	18.48	32.93	8.70	13.96	12.43	12.01	13.16	
IM U.S. Equity (SA+CF) Median	7.20	15.99	29.09	8.61	12.91	11.44	11.20	13.05	
Domestic Equity Composite Rank	60	34	31	39	32	33	41	48	
Barrow, Hanley	9.61	20.46	32.42	12.40	13.07	11.70	10.78	12.70	10/01/1982
Russell 1000 Value Index	9.43	16.68	27.76	9.03	10.69	9.53	9.23	11.67	
IM U.S. Large Cap Value Equity (SA+CF) Median	7.77	17.03	28.86	10.75	12.90	11.16	10.51	12.73	
Barrow, Hanley Rank	18	13	21	21	44	39	39	56	
Winslow Capital Management	2.12	24.81	47.13	9.77	18.19	17.50	15.59	15.96	11/01/2011
Russell 1000 Growth Index	3.19	24.55	42.19	12.02	19.74	18.20	16.52	17.04	
IM U.S. Large Cap Growth Equity (SA+CF) Median	3.46	23.29	40.93	9.72	17.49	16.48	15.32	15.86	
Winslow Capital Management Rank	78	35	10	49	38	26	42	48	
Rhumbline Russell 1000 Growth	3.18	24.50	42.12	11.99	19.71	18.16	N/A	18.09	09/01/2017
Russell 1000 Growth Index	3.19	24.55	42.19	12.02	19.74	18.20	16.52	18.19	
IM U.S. Large Cap Growth Equity (SA+CF) Median	3.46	23.29	40.93	9.72	17.49	16.48	15.32	16.51	
Rhumbline Russell 1000 Growth Rank	56	38	43	23	17	18	N/A	17	
Rhumbline S&P 500	5.87	22.02	36.24	11.87	15.94	14.45	13.32	10.38	01/01/2004
S&P 500	5.89	22.08	36.35	11.91	15.98	14.50	13.38	10.38	
IM U.S. Large Cap Core Equity (SA+CF) Median	5.88	21.07	35.27	11.09	15.53	13.83	13.18	10.73	
Rhumbline S&P 500 Rank	51	43	42	41	38	40	46	79	
NTGI S&P 400	6.93	13.50	26.72	7.42	11.74	9.91	10.27	10.55	04/01/2011
S&P MidCap 400	6.94	13.54	26.79	7.47	11.78	9.96	10.32	10.60	
IM U.S. Mid Cap Core Equity (SA+CF) Median	7.54	13.55	26.89	7.50	11.81	10.23	10.38	11.12	
NTGI S&P 400 Rank	77	61	72	65	61	72	74	87	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Attucks SMID	6.77	10.51	23.50	1.93	10.54	9.84	N/A	12.35	02/01/2016
Russell 2500 Index	8.75	11.30	26.17	3.47	10.43	9.02	9.50	11.64	
IM U.S. SMID Cap Equity (SA+CF) Median	8.28	12.46	25.62	5.05	11.88	10.44	10.44	12.54	
Attucks SMID Rank	75	69	68	74	67	62	N/A	57	
Attucks Small Cap Value	8.40	8.24	24.52	10.20	13.70	N/A	N/A	12.52	04/01/2019
Russell 2000 Value Index	10.15	9.22	25.88	3.77	9.29	6.60	8.22	8.57	
IM U.S. Small Cap Value Equity (SA+CF) Median	8.32	10.97	25.06	7.29	11.56	8.84	9.71	11.06	
Attucks Small Cap Value Rank	49	76	59	25	25	N/A	N/A	29	
Nicholas Investment Partners	7.18	20.78	36.52	-0.31	15.36	12.57	11.27	13.22	06/01/2012
Russell 2000 Growth Index	8.41	13.22	27.66	-0.35	8.82	7.59	8.95	10.91	
IM U.S. Small Cap Growth Equity (SA+CF) Median	7.62	13.39	27.49	0.06	11.29	11.44	11.65	13.20	
Nicholas Investment Partners Rank	56	17	12	54	15	31	58	49	
Conestoga Capital Advisors	10.01	7.65	19.60	0.04	9.04	N/A	N/A	7.72	08/01/2018
Russell 2000 Growth Index	8.41	13.22	27.66	-0.35	8.82	7.59	8.95	5.98	
IM U.S. Small Cap Growth Equity (SA+CF) Median	7.62	13.39	27.49	0.06	11.29	11.44	11.65	9.32	
Conestoga Capital Advisors Rank	19	83	80	51	83	N/A	N/A	77	
International Equity Composite	7.04	13.84	25.04	2.02	7.94	5.52	6.12	6.69	10/01/2009
International Equity Index	7.77	14.37	25.35	3.97	7.56	5.36	5.33	5.74	
IM International Equity (SA+CF) Median	7.82	13.59	25.18	4.56	8.76	6.39	6.65	7.52	
International Equity Composite Rank	63	48	53	72	68	73	68	75	
1607 Capital Partners	7.21	11.27	22.83	1.43	7.80	5.60	6.13	5.02	06/01/2008
MSCI EAFE (Net)	7.26	12.99	24.77	5.48	8.20	6.00	5.71	3.67	
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	4.77	
1607 Capital Partners Rank	45	91	90	90	84	81	69	36	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date	
Channing Int'l Developed	11.97	N/A	N/A	N/A	N/A	N/A	N/A	8.90	06/01/2024	
MSCI EAFE (Net)	7.26	12.99	24.77	5.48	8.20	6.00	5.71	5.53		
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	5.77		
Channing Int'l Developed Rank	3	N/A	N/A	N/A	N/A	N/A	N/A	7		
Frontier International	9.90	N/A	N/A	N/A	N/A	N/A	N/A	7.24	06/01/2024	
MSCI AC World ex USA (Net)	8.06	14.21	25.35	4.14	7.59	5.44	5.22	7.96		
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	5.77		
Frontier International Rank	7	N/A	N/A	N/A	N/A	N/A	N/A	25		
Marathon Asset Mgmt	8.22	13.66	23.84	4.21	8.23	5.83	6.06	7.55	04/01/2004	
MSCI AC World ex USA (Net)	8.06	14.21	25.35	4.14	7.59	5.44	5.22	5.98		
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	7.06		
Marathon Asset Mgmt Rank	29	58	83	68	73	78	70	31		
Principal Global Investors	5.36	12.60	25.08	2.07	8.41	5.79	6.25	3.53	07/01/2007	
MSCI World ex U.S. Growth (Net)	5.87	12.14	26.18	2.02	7.78	6.66	6.41	4.04		
IM International Large Cap Core Equity (SA+CF) Median	6.97	14.13	25.71	5.22	9.00	6.50	6.56	4.44		
Principal Global Investors Rank	89	75	64	88	68	78	64	94		
Strategic Global Advisors	8.78	16.87	28.35	6.32	9.44	6.20	6.74	8.85	06/01/2012	
MSCI World ex-U.S. (Net)	7.76	13.10	24.98	5.65	8.36	6.16	5.68	7.81		
IM International Core Equity (SA+CF) Median	7.60	13.83	25.58	4.61	8.85	6.40	6.65	8.94		
Strategic Global Advisors Rank	28	18	22	29	36	57	47	54		
Acadian EM Equity II	6.87	21.26	31.78	5.81	9.64	5.24	5.25	3.79	05/01/2011	
MSCI EM (net)	8.72	16.86	26.05	0.40	5.75	3.65	4.02	2.30		
IM Emerging Markets Equity (SA+CF) Median	7.34	16.20	25.19	1.02	7.31	4.82	5.26	3.66		
Acadian EM Equity II Rank	57	13	11	25	29	43	51	42		

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

					Performance (%)				
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
J.P. Morgan Global Emerging Markets Discovery Fund	4.54	8.12	18.98	-7.32	3.35	3.45	N/A	6.89	12/01/2016
MSCI EM (net)	8.72	16.86	26.05	0.40	5.75	3.65	4.02	6.57	
IM Emerging Markets Equity (SA+CF) Median	7.34	16.20	25.19	1.02	7.31	4.82	5.26	7.76	
J.P. Morgan Global Emerging Markets Discovery Fund Rank	82	91	84	95	93	78	N/A	69	
Channing Int'l Developed	11.97	N/A	N/A	N/A	N/A	N/A	N/A	8.94	05/01/2024
MSCI EAFE (Net)	7.26	12.99	24.77	5.48	8.20	6.00	5.71	9.62	
IM International Large Cap Core Equity (SA+CF) Median	6.73	13.49	24.86	4.27	8.12	5.79	5.88	9.90	
Channing Int'l Developed Rank	3	N/A	N/A	N/A	N/A	N/A	N/A	64	
Frontier International	9.90	N/A	N/A	N/A	N/A	N/A	N/A	9.33	05/01/2024
MSCI AC World ex USA (Net)	8.06	14.21	25.35	4.14	7.59	5.44	5.22	11.09	
IM International Large Cap Core Equity (SA+CF) Median	6.73	13.49	24.86	4.27	8.12	5.79	5.88	9.90	
Frontier International Rank	7	N/A	N/A	N/A	N/A	N/A	N/A	57	
Fixed Income Composite	5.77	3.81	12.70	-0.81	1.53	2.00	2.54	3.55	10/01/2009
Fixed Income Index	5.66	4.78	12.34	-1.07	0.79	1.68	2.14	3.03	
IM U.S. Fixed Income (SA+CF) Median	4.49	5.18	11.68	0.60	1.87	2.46	2.59	3.36	
Fixed Income Composite Rank	14	88	38	75	62	78	53	46	
Mackay Shields	3.83	7.18	13.49	3.85	5.10	5.12	5.64	7.36	01/01/1999
Credit Suisse High Yield Index	4.74	7.61	14.92	3.22	4.53	4.50	4.83	6.49	
IM U.S. High Yield Bonds (SA+CF) Median	4.55	7.64	14.75	3.42	4.75	4.73	5.07	6.63	
Mackay Shields Rank	76	69	78	31	33	28	16	12	
PIMCO	4.97	4.75	11.93	-1.01	0.90	1.97	2.27	3.20	04/01/2009
Bloomberg U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	2.87	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.24	4.96	12.30	-0.96	0.89	2.00	2.34	3.74	
PIMCO Rank	91	79	69	57	48	56	59	81	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Prudential Core Conserv Bond	5.28	4.77	12.20	-1.19	0.47	1.53	1.92	2.72	09/01/2009
Blmbg. U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	2.65	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.24	4.96	12.30	-0.96	0.89	2.00	2.34	3.29	
Prudential Core Conserv Bond Rank	43	75	57	67	85	89	89	89	
Barrow Hanley High Quality Core	5.28	4.95	12.67	N/A	N/A	N/A	N/A	7.50	11/01/2022
Blmbg. U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	6.96	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.19	4.76	12.00	-1.22	0.59	1.71	2.05	7.34	
Barrow Hanley High Quality Core Rank	28	39	16	N/A	N/A	N/A	N/A	33	
Garcia Hamilton Aggregate	6.36	4.96	13.13	N/A	N/A	N/A	N/A	7.29	11/01/2022
Blmbg. U.S. Aggregate	5.20	4.45	11.57	-1.39	0.33	1.47	1.84	6.96	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	5.19	4.76	12.00	-1.22	0.59	1.71	2.05	7.34	
Garcia Hamilton Aggregate Rank	1	39	8	N/A	N/A	N/A	N/A	54	
Brandywine	7.77	0.32	12.56	-3.15	0.19	0.26	N/A	1.03	08/01/2015
Blmbg. Global Aggregate	6.98	3.60	11.99	-3.06	-0.83	0.26	0.57	1.06	
FTSE World Government Bond Index	6.95	2.72	11.02	-4.41	-2.05	-0.59	-0.15	0.40	
IM Global Fixed Income (SA+CF) Median	4.99	5.71	13.45	0.56	2.49	2.84	2.90	3.44	
Brandywine Rank	11	100	66	89	80	90	N/A	94	
Hedge Fund Composite	1.92	7.86	10.81	4.27	6.76	5.51	N/A	5.91	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
HFRI FOF: Conservative Index	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Grosvenor Institutional Partners, L.P.	1.62	7.80	10.65	3.28	7.37	5.77	N/A	5.99	04/01/2016
90-Day T-Bill+ 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.02	
HFRI FOF: Conservative Index	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.47	
Aetos	2.23	8.00	11.09	5.26	6.40	5.31	N/A	5.72	05/01/2016
90-Day T-Bill + 5%	2.61	7.91	10.73	8.67	7.44	7.34	6.72	7.03	
HFRI FOF: Conservative Index	1.55	5.01	7.04	3.74	5.24	4.43	3.63	4.46	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Total Real Estate Composite	-0.35	-1.25	-9.22	-2.92	1.78	3.55	5.74	8.57	10/01/2009
NCREIF Property Index	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.56	
BlackRock US Core Property Fund	-1.62	-7.57	-14.73	-4.27	0.10	1.95	4.53	2.35	10/01/2006
NCREIF Property Index	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	6.03	
RREEF REIT II	-0.55	-0.78	-6.93	-0.04	2.58	3.70	5.62	6.44	07/01/1999
NCREIF Property Index	0.78	-0.46	-3.47	0.87	3.26	4.23	5.88	7.71	
Vanguard REIT Index Inv	17.19	12.25	34.21	2.53	4.79	6.40	N/A	6.23	01/01/2017
Vanguard REIT Spliced Index	17.23	13.71	34.38	2.63	4.90	6.50	7.44	6.34	
IM Real Estate Sector (MF) Median	15.84	13.62	32.43	2.82	4.80	6.46	7.16	6.21	
Vanguard REIT Index Inv Rank	13	78	25	58	52	53	N/A	49	
TA Realty Core Property Fund	0.02	-0.90	-6.27	2.43	6.93	N/A	N/A	7.20	04/01/2019
NCREIF ODCE Equal Weighted	0.25	-2.57	-7.27	-0.26	3.10	4.33	6.30	3.32	

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Performance (%)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Fund Composite	11.33	-13.24	13.13	14.58	18.36	-5.79	17.86	6.33	-0.17	5.09
Policy Index	14.42	-12.95	11.80	13.33	18.76	-4.45	16.72	8.00	-0.19	5.86
Policy Index 2	12.40	-12.93	11.69	13.77	17.85	-4.67	16.20	8.17	-0.19	5.86
In House Cash	5.08	1.50	0.04	0.26	2.12	1.93	0.67	0.35	0.18	0.11
90 Day U.S. Treasury Bill	5.02	1.46	0.05	0.67	2.28	1.87	0.86	0.25	0.03	0.04
Domestic Equity Composite	24.42	-17.70	25.11	22.02	29.67	-6.17	22.22	9.62	-1.61	8.44
Russell 3000 Index	25.96	-19.21	25.66	20.89	31.02	-5.24	21.13	12.74	0.48	12.56
Domestic Equity Index	23.55	-18.82	23.52	20.08	29.94	-6.47	20.20	13.76	0.19	11.60
Fixed Income Composite	6.96	-11.98	-0.70	9.17	9.51	-1.28	6.58	4.83	-0.53	4.42
Fixed Income Index	7.08	-13.63	-1.25	7.78	9.24	-0.91	5.50	4.83	-0.86	4.89
International Equity Composite	16.36	-21.01	8.44	17.01	23.83	-16.10	32.40	2.64	-1.18	-1.73
International Equity Index	15.56	-16.14	6.88	11.18	20.94	-13.98	28.77	3.16	-4.06	-4.13
Hedge Fund Composite	8.10	-3.41	7.59	11.20	7.95	-1.55	6.72	N/A	N/A	N/A
90-Day T-Bill+ 5%	10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index	5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14
Total Real Estate Composite	-16.27	2.12	24.06	1.81	9.01	7.46	6.29	8.20	14.65	20.16
NCREIF Property Index	-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Market Value (\$000)	Performance (%)									
		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
In House Cash	29,604	5.08	1.50	0.04	0.26	2.12	1.93	0.67	0.35	0.18	0.11
90 Day U.S. Treasury Bill		5.02	1.46	0.05	0.67	2.28	1.87	0.86	0.25	0.03	0.04
Domestic Equity Composite	842,554	24.42	-17.70	25.11	22.02	29.67	-6.17	22.22	9.62	-1.61	8.44
Russell 3000 Index		25.96	-19.21	25.66	20.89	31.02	-5.24	21.13	12.74	0.48	12.56
Domestic Equity Index		23.55	-18.82	23.52	20.08	29.94	-6.47	20.20	13.76	0.19	11.60
IM U.S. Equity (SA+CF) Median		19.39	-16.41	26.12	16.74	28.64	-7.07	19.44	13.16	-0.49	9.99
Domestic Equity Composite Rank		33	56	57	35	44	45	34	70	58	61
Barrow, Hanley	177,307	12.48	-2.83	25.97	4.19	25.67	-6.30	15.92	14.50	-1.92	13.29
Russell 1000 Value Index		11.46	-7.54	25.16	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45
IM U.S. Large Cap Value Equity (SA+CF) Median		14.00	-5.41	28.03	4.55	27.52	-8.39	17.16	14.79	-2.34	12.04
Barrow, Hanley Rank		61	31	69	54	67	31	69	55	45	34
Winslow Capital Management	91,133	43.28	-31.14	24.15	37.97	33.81	3.57	32.46	-2.13	6.55	10.67
Russell 1000 Growth Index		42.68	-29.14	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05
IM U.S. Large Cap Growth Equity (SA+CF) Median		39.65	-29.03	24.98	35.35	34.01	-0.54	28.47	4.63	5.43	11.87
Winslow Capital Management Rank		32	65	57	38	53	13	26	95	41	63
Rhumbline Russell 1000 Growth	89,608	42.61	-29.11	27.58	38.51	36.35	-1.51	N/A	N/A	N/A	N/A
Russell 1000 Growth Index		42.68	-29.14	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05
IM U.S. Large Cap Growth Equity (SA+CF) Median		39.65	-29.03	24.98	35.35	34.01	-0.54	28.47	4.63	5.43	11.87
Rhumbline Russell 1000 Growth Rank		33	51	32	35	28	58	N/A	N/A	N/A	N/A
Rhumbline S&P 500	233,799	26.22	-18.11	28.69	18.37	31.36	-4.43	21.75	11.89	1.35	13.55
S&P 500		26.29	-18.11	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69
IM U.S. Large Cap Core Equity (SA+CF) Median		24.70	-16.54	27.75	17.69	30.13	-5.02	22.12	10.51	1.47	13.41
Rhumbline S&P 500 Rank		39	67	37	46	36	43	57	33	55	48
NTGI S&P 400	55,200	16.39	-13.10	24.79	13.59	26.16	-11.14	16.17	20.68	-2.22	9.70
S&P MidCap 400		16.44	-13.06	24.76	13.66	26.20	-11.08	16.24	20.74	-2.18	9.77
IM U.S. Mid Cap Core Equity (SA+CF) Median		16.50	-13.10	24.80	13.76	27.08	-11.02	17.47	16.61	-1.33	10.09
NTGI S&P 400 Rank		64	50	56	66	73	62	79	26	74	66

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Market Value (\$000)	Performance (%)									
		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Attucks SMID	61,998	15.60	-21.26	23.27	20.87	27.08	-4.83	23.15	N/A	N/A	N/A
Russell 2500 Index		17.42	-18.37	18.18	19.99	27.77	-10.00	16.81	17.59	-2.90	7.07
IM U.S. SMID Cap Equity (SA+CF) Median		17.39	-16.86	23.26	17.66	28.93	-9.84	18.00	16.30	-1.41	6.67
Attucks SMID Rank		61	68	50	44	66	24	25	N/A	N/A	N/A
Attucks Small Cap Value	72,918	24.97	-9.09	37.37	2.98	N/A	N/A	N/A	N/A	N/A	N/A
Russell 2000 Value Index		14.65	-14.48	28.27	4.63	22.39	-12.86	7.84	31.74	-7.47	4.22
IM U.S. Small Cap Value Equity (SA+CF) Median		17.24	-10.59	30.09	5.18	24.99	-14.08	11.56	27.12	-4.29	5.72
Attucks Small Cap Value Rank		11	38	20	61	N/A	N/A	N/A	N/A	N/A	N/A
Nicholas Investment Partners	31,917	20.11	-31.60	8.52	67.40	34.93	-11.26	26.11	1.98	-2.34	-1.12
Russell 2000 Growth Index		18.66	-26.36	2.83	34.63	28.48	-9.31	22.17	11.32	-1.38	5.60
IM U.S. Small Cap Growth Equity (SA+CF) Median		19.07	-27.32	12.12	43.32	29.54	-3.83	24.51	10.60	-0.72	3.90
Nicholas Investment Partners Rank		38	77	65	17	31	90	42	91	65	82
Conestoga Capital Advisors	28,676	22.11	-27.66	16.41	32.04	26.02	N/A	N/A	N/A	N/A	N/A
Russell 2000 Growth Index		18.66	-26.36	2.83	34.63	28.48	-9.31	22.17	11.32	-1.38	5.60
IM U.S. Small Cap Growth Equity (SA+CF) Median		19.07	-27.32	12.12	43.32	29.54	-3.83	24.51	10.60	-0.72	3.90
Conestoga Capital Advisors Rank		25	54	37	74	69	N/A	N/A	N/A	N/A	N/A
International Equity Composite	634,093	16.36	-21.01	8.44	17.01	23.83	-16.10	32.40	2.64	-1.18	-1.73
International Equity Index		15.56	-16.14	6.88	11.18	20.94	-13.98	28.77	3.16	-4.06	-4.13
IM International Equity (SA+CF) Median		17.65	-16.30	11.77	11.60	23.52	-14.54	28.65	2.43	1.15	-3.37
International Equity Composite Rank		60	74	71	33	49	65	31	49	66	35
1607 Capital Partners	106,450	14.50	-20.18	11.46	15.28	24.50	-14.82	32.05	1.97	-0.82	-2.22
MSCI EAFE (Net)		18.24	-14.45	11.26	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90
IM International Large Cap Core Equity (SA+CF) Median		17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
1607 Capital Partners Rank		88	84	54	33	44	60	15	47	62	30

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Market Value (\$000)	Performance (%)									
		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Channing Int'l Developed	16,369	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI EAFE (Net)		18.24	-14.45	11.26	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90
IM International Large Cap Core Equity (SA+CF) Median		17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Channing Int'l Developed Rank		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Frontier International	16,398	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA (Net)		15.62	-16.00	7.82	10.65	21.51	-14.20	27.19	4.50	-5.66	-3.87
IM International Large Cap Core Equity (SA+CF) Median		17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Frontier International Rank		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Marathon Asset Mgmt	105,588	15.81	-14.09	9.29	9.30	23.13	-13.78	23.53	-1.82	6.45	-4.59
MSCI AC World ex USA (Net)		15.62	-16.00	7.82	10.65	21.51	-14.20	27.19	4.50	-5.66	-3.87
IM International Large Cap Core Equity (SA+CF) Median		17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Marathon Asset Mgmt Rank		75	33	71	65	54	43	89	86	9	62
Principal Global Investors	105,349	18.89	-24.52	11.97	21.89	26.23	-17.79	25.75	-0.95	4.34	-1.67
MSCI World ex U.S. Growth (Net)		17.45	-22.68	11.57	18.41	27.92	-13.14	27.61	-1.87	1.65	-3.26
IM International Large Cap Core Equity (SA+CF) Median		17.94	-15.93	11.88	11.78	23.63	-14.32	27.86	1.71	0.50	-3.67
Principal Global Investors Rank		41	96	50	13	32	90	68	79	13	23
Strategic Global Advisors	80,706	19.33	-16.85	16.18	7.36	22.09	-17.09	29.13	-0.74	3.08	0.54
MSCI World ex-U.S. (Net)		17.94	-14.29	12.62	7.59	22.49	-14.09	24.21	2.75	-3.04	-4.32
IM International Core Equity (SA+CF) Median		17.28	-16.74	12.32	12.18	23.97	-15.01	29.38	1.74	1.46	-3.43
Strategic Global Advisors Rank		32	51	20	76	66	71	52	77	38	13
Acadian EM Equity II	111,486	21.93	-20.42	7.84	11.67	17.03	-19.04	37.87	13.08	-18.07	1.60
MSCI EM (net)		9.83	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19
IM Emerging Markets Equity (SA+CF) Median		12.91	-19.69	1.11	18.31	20.15	-15.23	36.92	10.03	-12.06	0.13
Acadian EM Equity II Rank		21	57	27	78	70	84	43	30	92	38

Net of Fees.

City of Memphis

Comparative Performance

As of September 30, 2024

	Market Value (\$000)	Performance (%)									
		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
J.P. Morgan Global Emerging Markets Discovery Fund	91,748	7.56	-28.67	-3.87	33.64	29.38	-15.74	45.78	N/A	N/A	N/A
MSCI EM (net)		9.83	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19
IM Emerging Markets Equity (SA+CF) Median		12.91	-19.69	1.11	18.31	20.15	-15.23	36.92	10.03	-12.06	0.13
J.P. Morgan Global Emerging Markets Discovery Fund Rank		79	91	73	16	14	57	13	N/A	N/A	N/A
Fixed Income Composite	661,478	6.96	-11.98	-0.70	9.17	9.51	-1.28	6.58	4.83	-0.53	4.42
Fixed Income Index		7.08	-13.63	-1.25	7.78	9.24	-0.91	5.50	4.83	-0.86	4.89
IM U.S. Fixed Income (SA+CF) Median		6.32	-9.19	0.02	6.92	8.71	0.48	4.15	3.59	0.75	4.41
Fixed Income Composite Rank		41	66	69	27	39	77	27	39	74	50
Mackay Shields	140,567	12.40	-7.36	5.77	5.87	13.72	-0.96	7.27	17.20	-1.13	2.09
Credit Suisse High Yield Index		13.55	-10.55	5.50	5.48	14.00	-2.37	7.03	18.26	-4.93	1.86
IM U.S. High Yield Bonds (SA+CF) Median		12.64	-9.37	5.31	6.58	14.25	-1.64	7.50	14.07	-2.04	2.61
Mackay Shields Rank		57	25	39	66	56	35	55	17	34	62
PIMCO	102,486	6.15	-12.74	-0.80	8.36	8.73	0.49	5.14	3.24	-0.15	4.15
Blmbg. U.S. Aggregate		5.53	-13.01	-1.55	7.51	8.72	0.01	3.54	2.65	0.55	5.97
IM U.S. Broad Market Core Fixed Income (SA+CF) Median		5.98	-12.95	-1.24	8.34	9.17	0.06	3.99	3.07	0.81	6.13
PIMCO Rank		42	38	33	50	77	17	7	45	97	98
Prudential Core Conserv Bond	97,949	6.04	-13.06	-1.65	7.59	8.66	-0.21	3.56	2.75	0.73	6.09
Blmbg. U.S. Aggregate		5.53	-13.01	-1.55	7.51	8.72	0.01	3.54	2.65	0.55	5.97
IM U.S. Broad Market Core Fixed Income (SA+CF) Median		5.98	-12.95	-1.24	8.34	9.17	0.06	3.99	3.07	0.81	6.13
Prudential Core Conserv Bond Rank		49	61	83	81	82	81	81	66	60	55
Brandywine	206,341	5.29	-13.77	-3.86	11.57	7.74	-3.10	10.67	0.67	N/A	N/A
Blmbg. Global Aggregate		5.72	-16.25	-4.71	9.20	6.84	-1.19	7.39	2.09	-3.15	0.59
FTSE World Government Bond Index		5.18	-18.26	-6.97	10.11	5.90	-0.84	7.49	1.60	-3.57	-0.48
IM Global Fixed Income (SA+CF) Median		9.02	-12.13	0.51	8.45	9.72	-1.80	7.79	6.20	-2.39	2.61
Brandywine Rank		84	61	78	22	80	71	16	93	N/A	N/A

Net of Fees.

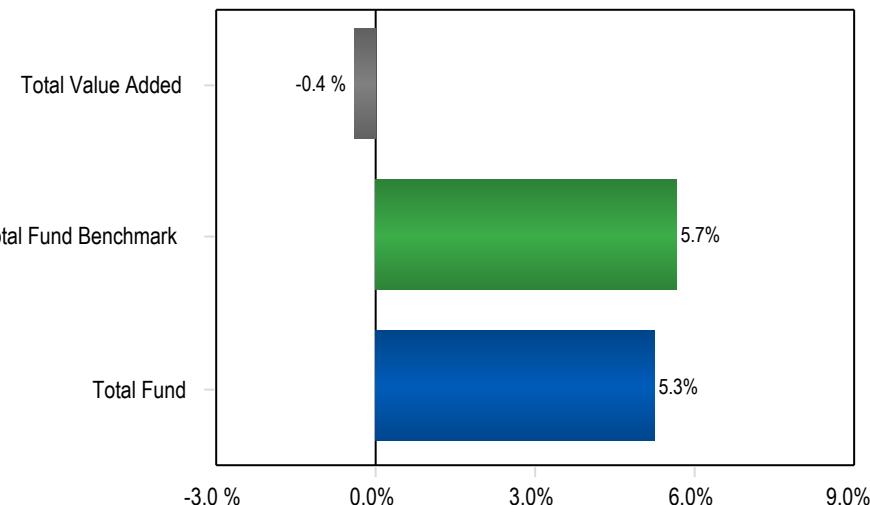
City of Memphis

Comparative Performance

As of September 30, 2024

	Market Value (\$000)	Performance (%)									
		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Hedge Fund Composite	106,575	8.10	-3.41	7.59	11.20	7.95	-1.55	6.72	N/A	N/A	N/A
90-Day T-Bill+ 5%		10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index		5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14
Grosvenor Institutional Partners, L.P.	54,178	8.11	-5.86	7.78	17.17	6.06	-1.49	6.14	N/A	N/A	N/A
90-Day T-Bill+ 5%		10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index		5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14
Aetos	52,397	8.27	-0.68	6.46	6.99	9.26	-1.61	7.30	N/A	N/A	N/A
90-Day T-Bill + 5%		10.27	6.53	5.05	5.70	7.39	6.97	5.90	5.27	5.03	5.04
HFRI FOF: Conservative Index		5.48	0.08	7.62	6.47	6.30	-0.87	4.12	1.89	0.37	3.14
Total Real Estate Composite	226,972	-16.27	2.12	24.06	1.81	9.01	7.46	6.29	8.20	14.65	20.16
NCREIF Property Index		-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82
BlackRock US Core Property Fund	57,173	-18.88	8.74	18.65	2.08	5.58	7.20	8.29	10.10	14.38	10.71
NCREIF Property Index		-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82
RREEF REIT II	16,166	-15.36	7.59	23.79	0.37	5.29	6.98	6.43	8.12	15.63	11.95
NCREIF Property Index		-7.94	5.52	17.70	1.60	6.42	6.72	6.96	7.97	13.33	11.82
Vanguard REIT Index Inv	4,081	13.17	-26.19	40.47	-4.67	28.95	-5.93	4.86	N/A	N/A	N/A
Vanguard REIT Spliced Index		11.96	-26.12	40.56	-4.55	29.03	-5.86	5.07	8.60	2.52	30.38
IM Real Estate Sector (MF) Median		11.91	-26.17	41.32	-4.31	27.32	-5.71	5.32	6.34	2.91	29.47
Vanguard REIT Index Inv Rank		27	51	61	54	34	54	59	N/A	N/A	N/A
TA Realty Core Property Fund	28,631	-8.83	8.84	29.56	5.50	N/A	N/A	N/A	N/A	N/A	N/A
NCREIF ODCE Equal Weighted		-12.01	7.46	22.62	1.57	6.08	8.25	7.80	9.27	15.17	12.38

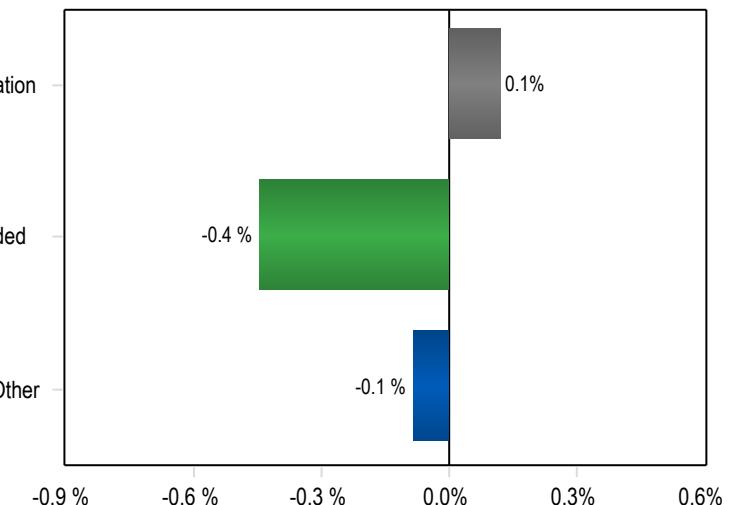
Net of Fees.

Total Fund Performance**Total Value Added:-0.4 %**

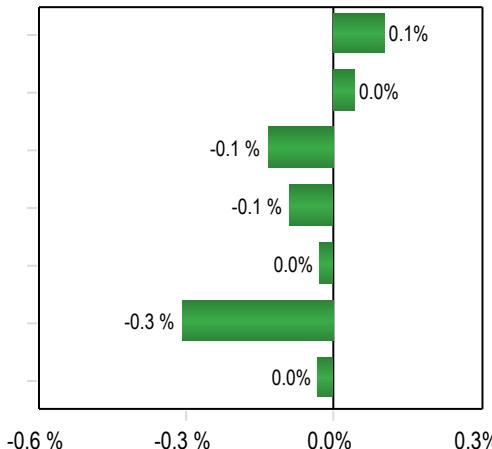
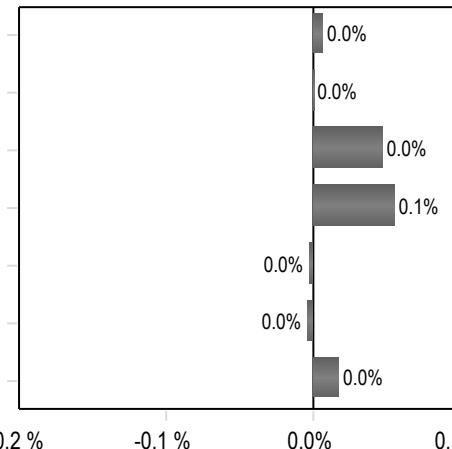
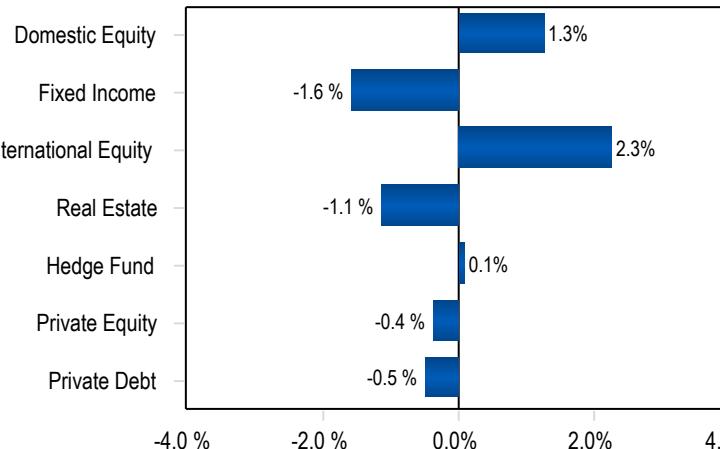
Asset Allocation

Manager Value Added

Other

**Total Asset Allocation:0.1%****Total Manager Value Added:-0.4 %**

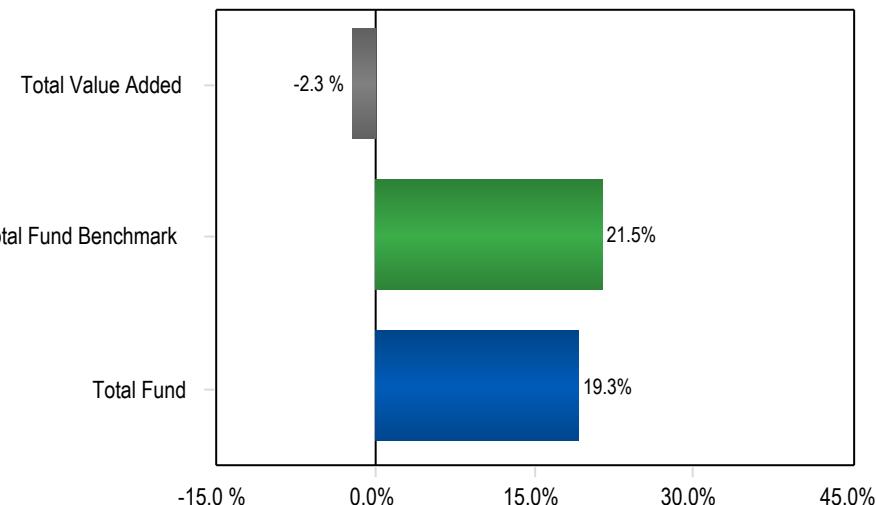
Weight (%)



■ Average Active Weight

■ Asset Allocation Value Added

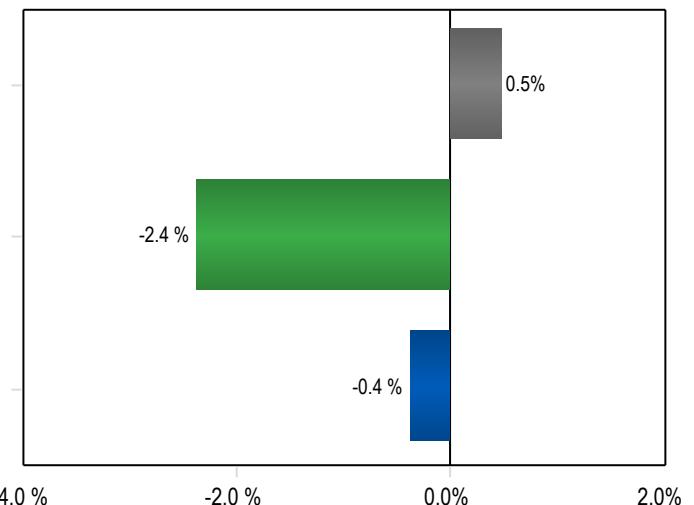
■ Manager Value Added

Total Fund Performance**Total Value Added:-2.3 %**

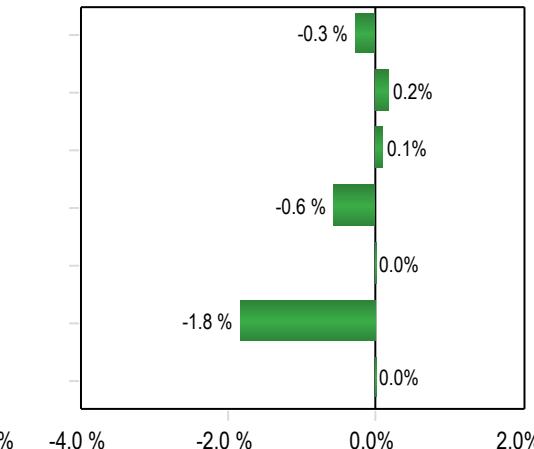
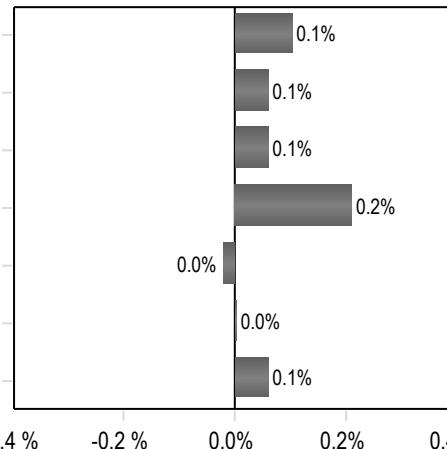
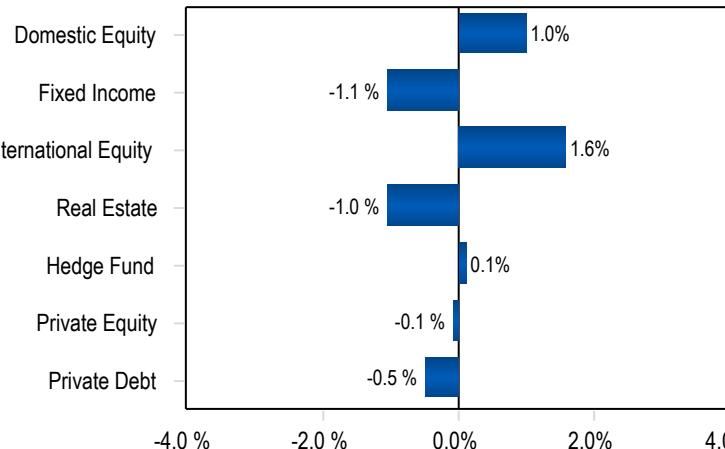
Asset Allocation

Manager Value Added

Other

**Total Asset Allocation:0.5%****Total Manager Value Added:-2.4 %**

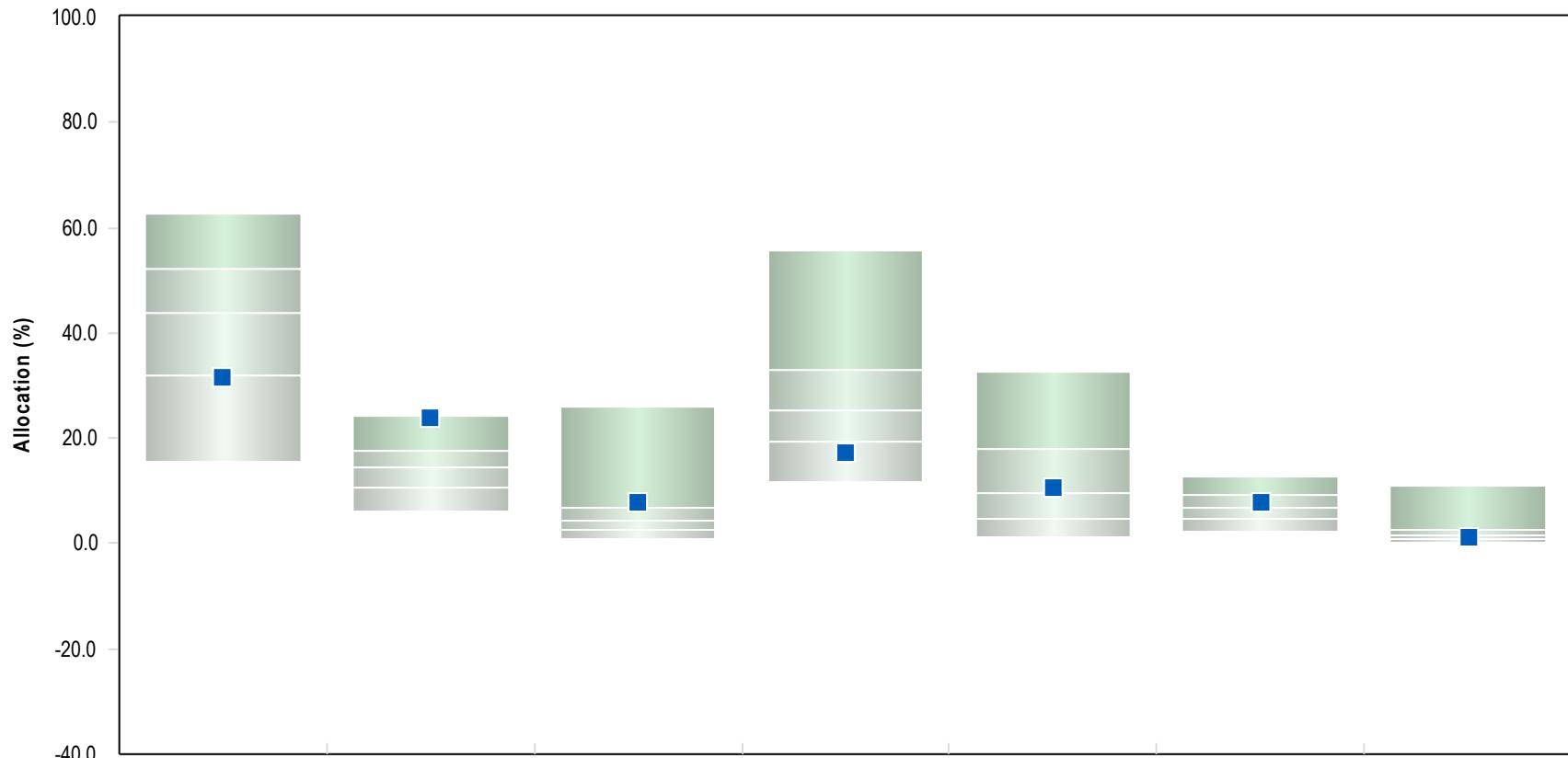
Weight (%)



■ Average Active Weight

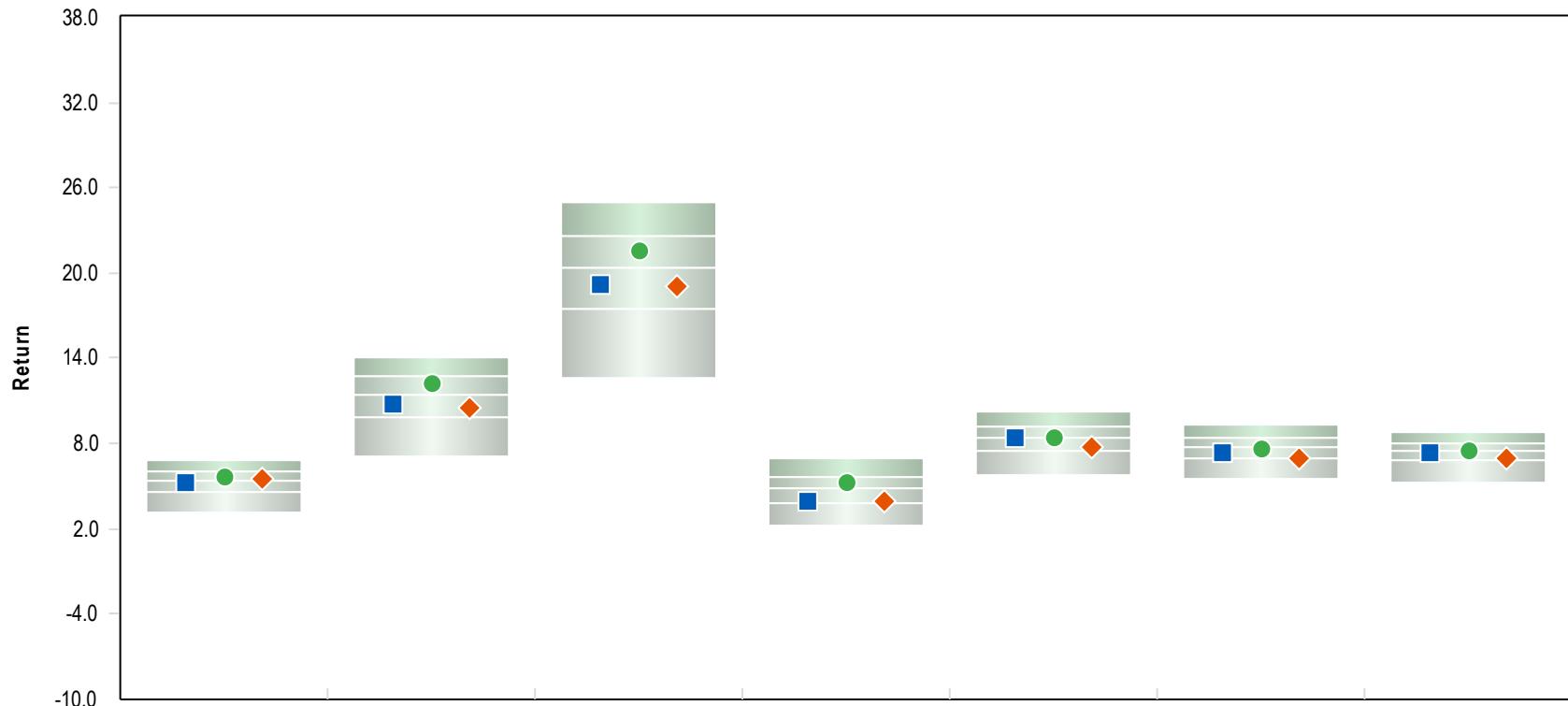
■ Asset Allocation Value Added

■ Manager Value Added



	US Equity	Global ex-US Equity	Global Fixed Income	US Fixed	Alternatives	Total Real Estate	Cash & Equivalents
■ Total Fund Composite	31.6 (76)	23.8 (7)	7.7 (21)	17.1 (84)	10.7 (45)	8.0 (37)	1.1 (63)
5th Percentile	62.8	24.3	25.9	55.8	32.5	12.8	10.9
1st Quartile	52.1	17.7	6.9	33.0	17.9	9.1	2.8
Median	43.7	14.4	4.4	25.2	9.5	6.9	1.5
3rd Quartile	31.8	10.7	2.7	19.2	4.7	4.8	0.8
95th Percentile	15.6	6.2	1.0	11.8	1.4	2.1	0.1
Population	493	453	95	508	273	353	470

Parentheses contain percentile rankings.

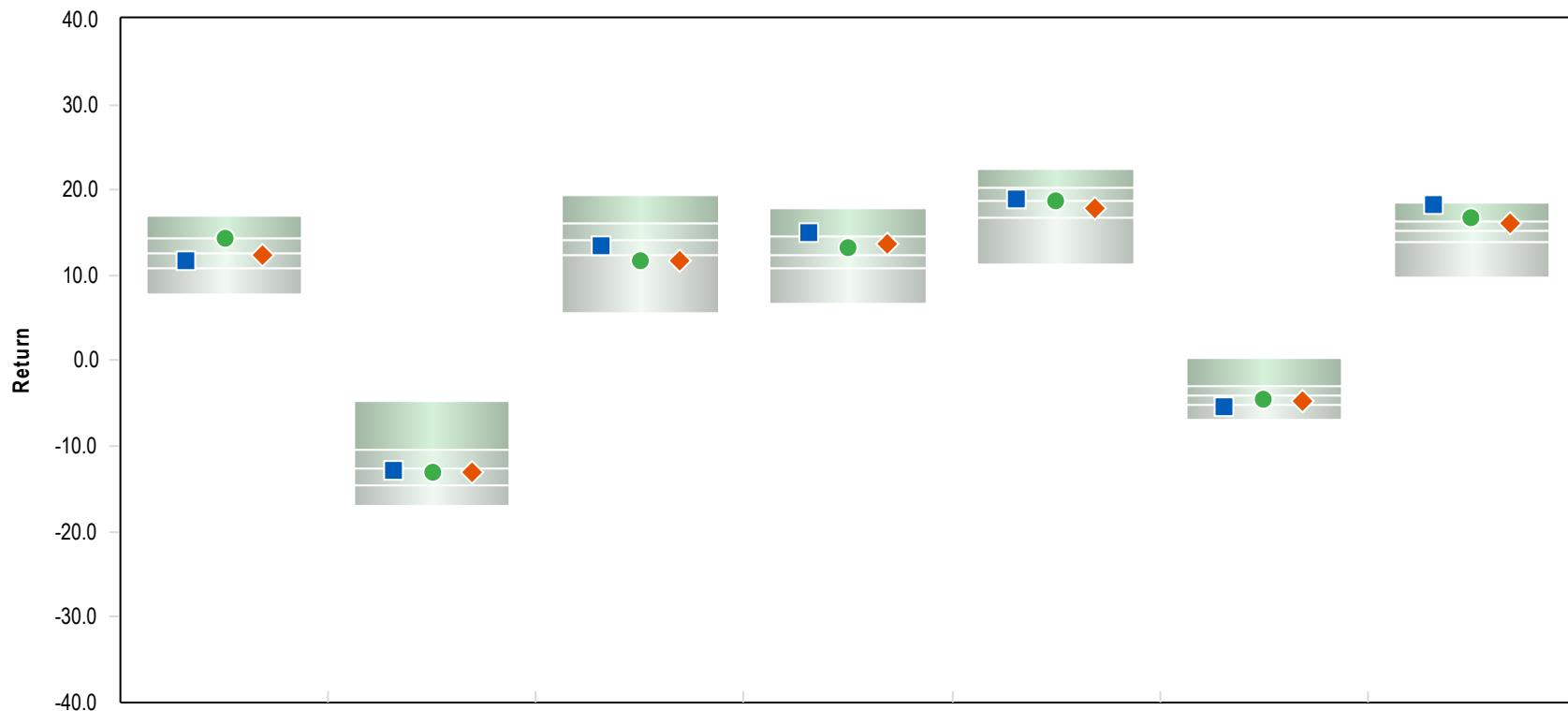


	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Total Fund Composite	5.26 (56)	10.78 (61)	19.26 (58)	3.93 (74)	8.39 (51)	7.38 (63)	7.40 (56)
Policy Index	5.66 (39)	12.29 (35)	21.51 (38)	5.30 (36)	8.44 (51)	7.60 (57)	7.47 (53)
Policy Index 2	5.50 (44)	10.53 (65)	19.12 (60)	3.93 (74)	7.75 (70)	6.95 (76)	7.00 (69)

5th Percentile	6.78	14.08	24.98	6.91	10.24	9.33	8.85
1st Quartile	6.07	12.75	22.67	5.71	9.16	8.38	8.02
Median	5.37	11.48	20.36	4.83	8.44	7.72	7.52
3rd Quartile	4.65	9.90	17.51	3.82	7.51	6.97	6.82
95th Percentile	3.15	7.09	12.57	2.23	5.84	5.55	5.23
Population	362	352	348	331	322	309	290

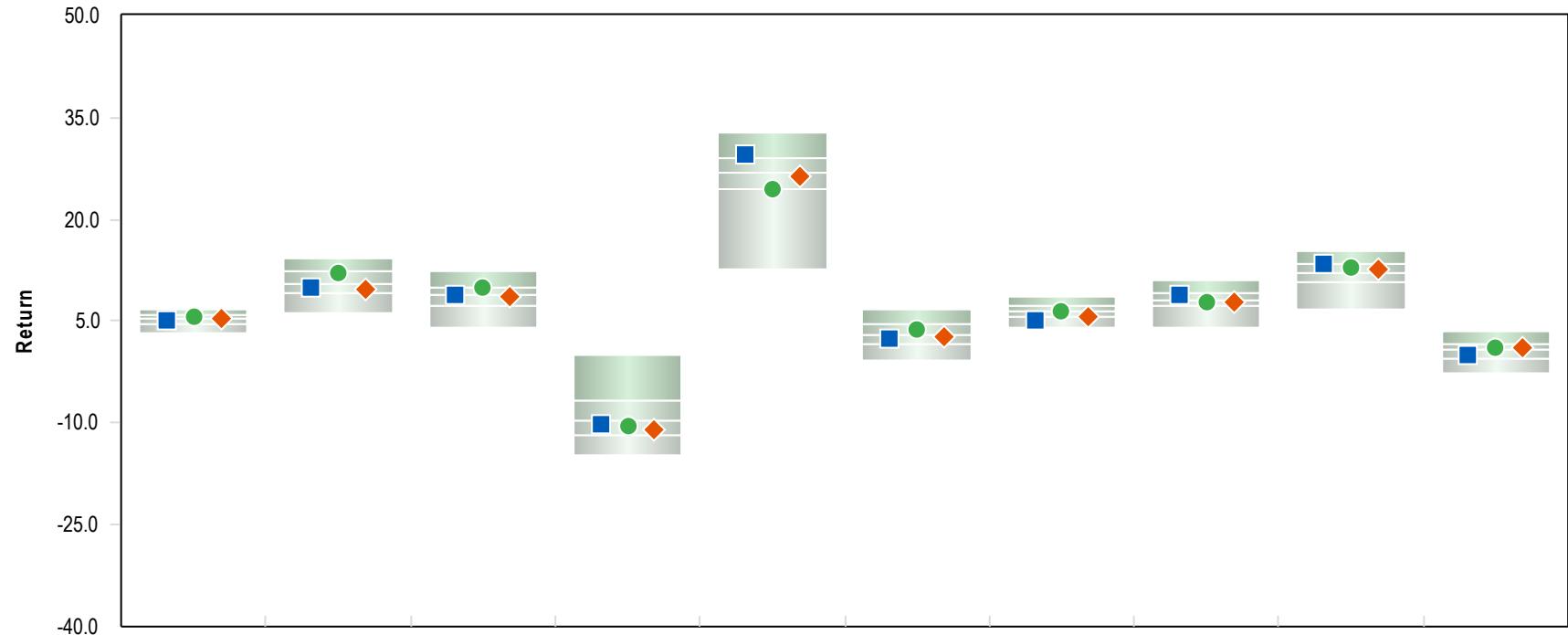
Parentheses contain percentile rankings.

Calculation based on quarterly periodicity.



	2023	2022	2021	2020	2019	2018	2017
Total Fund Composite	11.74 (63)	-12.92 (55)	13.57 (59)	15.06 (20)	18.86 (47)	-5.39 (81)	18.36 (6)
Policy Index	14.42 (25)	-12.95 (56)	11.80 (80)	13.33 (38)	18.76 (48)	-4.45 (59)	16.72 (20)
Policy Index 2	12.40 (54)	-12.93 (56)	11.69 (81)	13.77 (33)	17.85 (61)	-4.67 (64)	16.20 (28)
5th Percentile	17.02	-4.61	19.49	17.95	22.49	0.42	18.55
1st Quartile	14.32	-10.45	16.11	14.49	20.33	-2.90	16.42
Median	12.68	-12.68	14.15	12.48	18.63	-4.05	15.13
3rd Quartile	10.93	-14.55	12.34	10.93	16.70	-5.12	13.82
95th Percentile	7.78	-16.91	5.60	6.66	11.30	-6.86	9.73
Population	749	804	879	939	963	841	839

Parentheses contain percentile rankings.
Calculation based on quarterly periodicity.

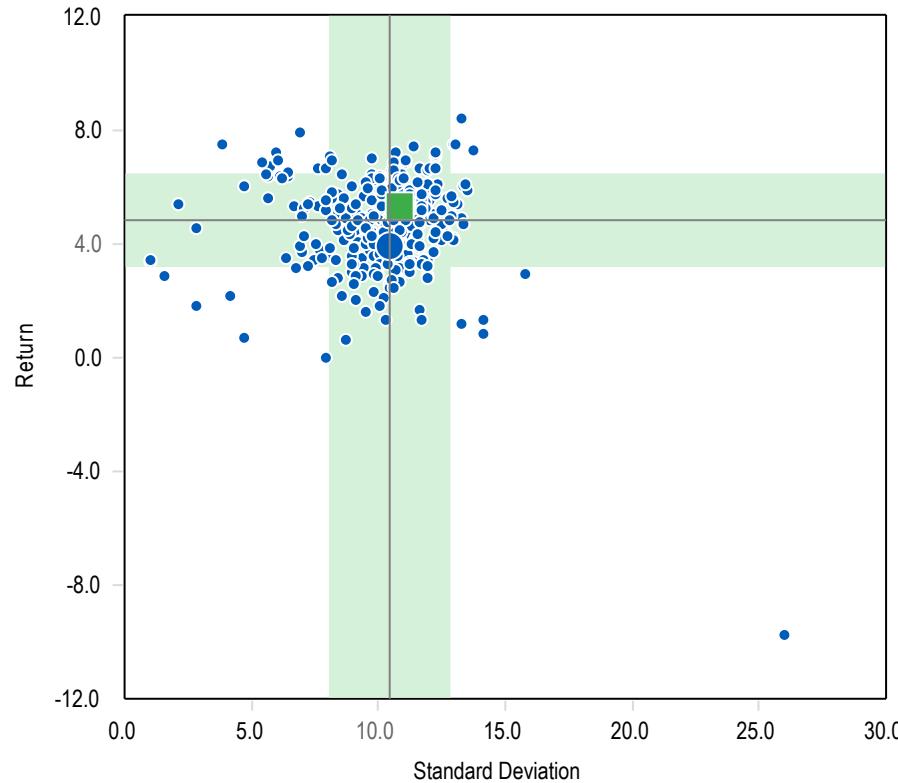


	Jul-2024 To Sep-2024	Jul-2023 To Jun-2024	Jul-2022 To Jun-2023	Jul-2021 To Jun-2022	Jul-2020 To Jun-2021	Jul-2019 To Jun-2020	Jul-2018 To Jun-2019	Jul-2017 To Jun-2018	Jul-2016 To Jun-2017	Jul-2015 To Jun-2016
■ Total Fund Composite	5.26 (56)	9.86 (67)	8.77 (51)	-10.31 (57)	29.46 (21)	2.48 (60)	5.10 (83)	8.78 (35)	13.55 (22)	-0.10 (69)
● Policy Index	5.66 (39)	12.01 (30)	10.00 (24)	-10.48 (59)	24.39 (76)	3.93 (35)	6.59 (44)	7.88 (59)	12.88 (35)	1.02 (43)
◆ Policy Index 2	5.50 (44)	9.80 (68)	8.65 (54)	-11.00 (65)	26.36 (56)	2.73 (55)	5.78 (70)	7.95 (57)	12.77 (37)	1.02 (43)
5th Percentile	6.78	14.29	12.35	0.06	32.89	6.68	8.51	10.92	15.26	3.63
1st Quartile	6.07	12.27	9.92	-6.74	28.94	4.49	7.19	9.24	13.34	1.76
Median	5.37	10.56	8.80	-9.65	26.94	3.03	6.37	8.17	12.18	0.76
3rd Quartile	4.65	9.23	7.31	-11.91	24.46	1.69	5.54	7.30	10.80	-0.47
95th Percentile	3.15	6.09	4.00	-14.83	12.55	-0.85	3.97	4.10	6.78	-2.54
Population	362	695	768	811	908	958	777	615	640	646

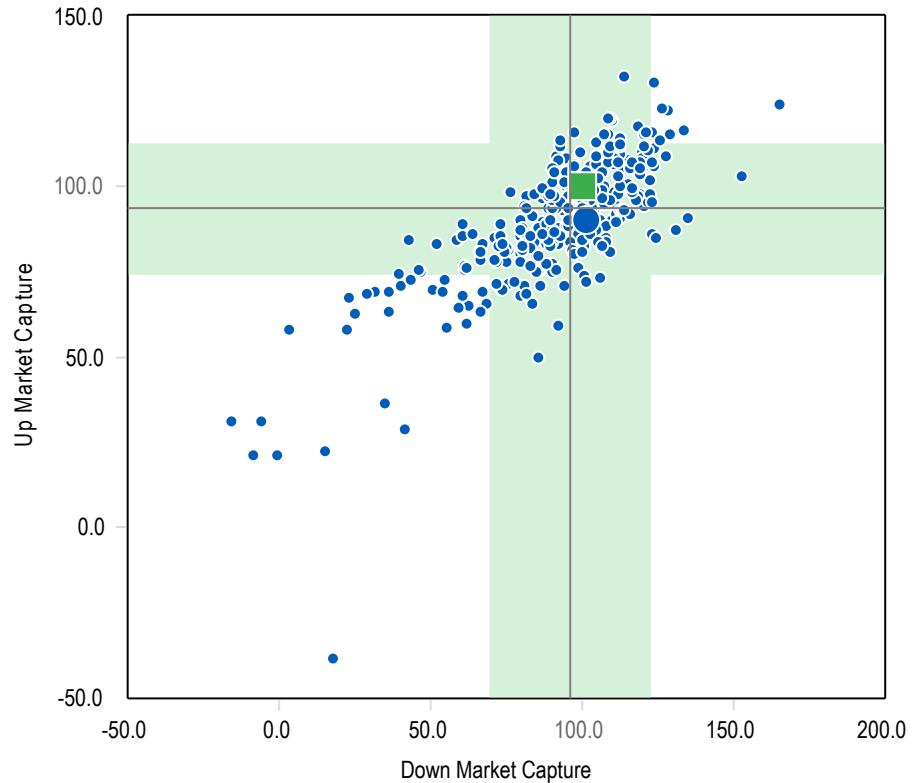
Parentheses contain percentile rankings.

Calculation based on quarterly periodicity.

3 Years Annualized Return vs. Annualized Standard Deviation



3 Years Upside Capture Ratio vs. Downside Capture Ratio

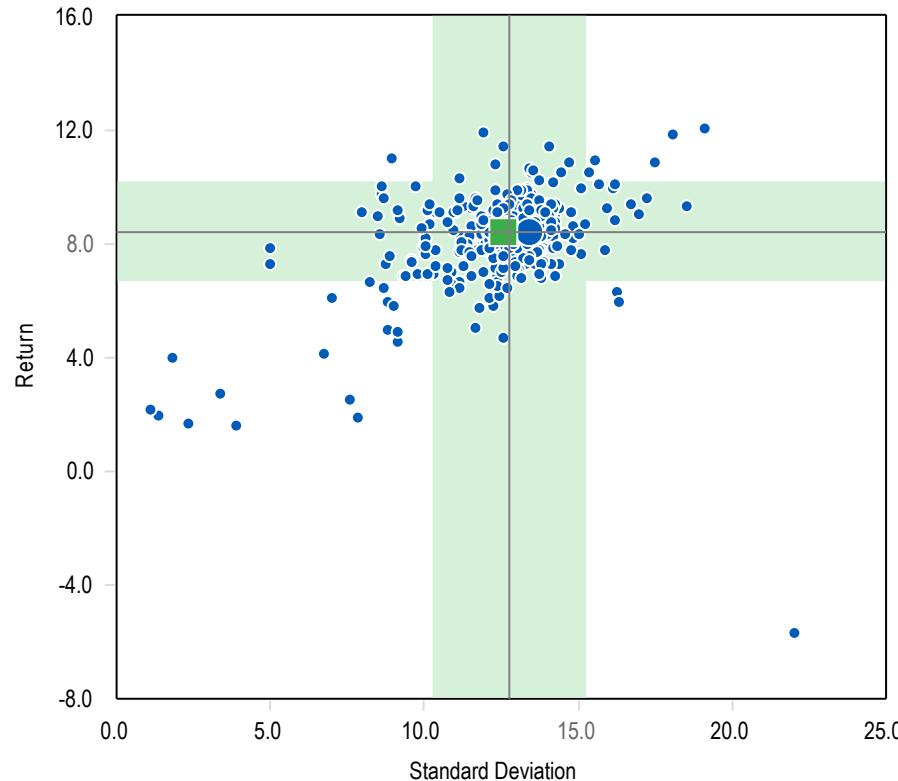


	Return	Standard Deviation
Total Fund Composite	3.9	10.4
Policy Index	5.3	10.8
Median	4.8	10.5
Population	331	331

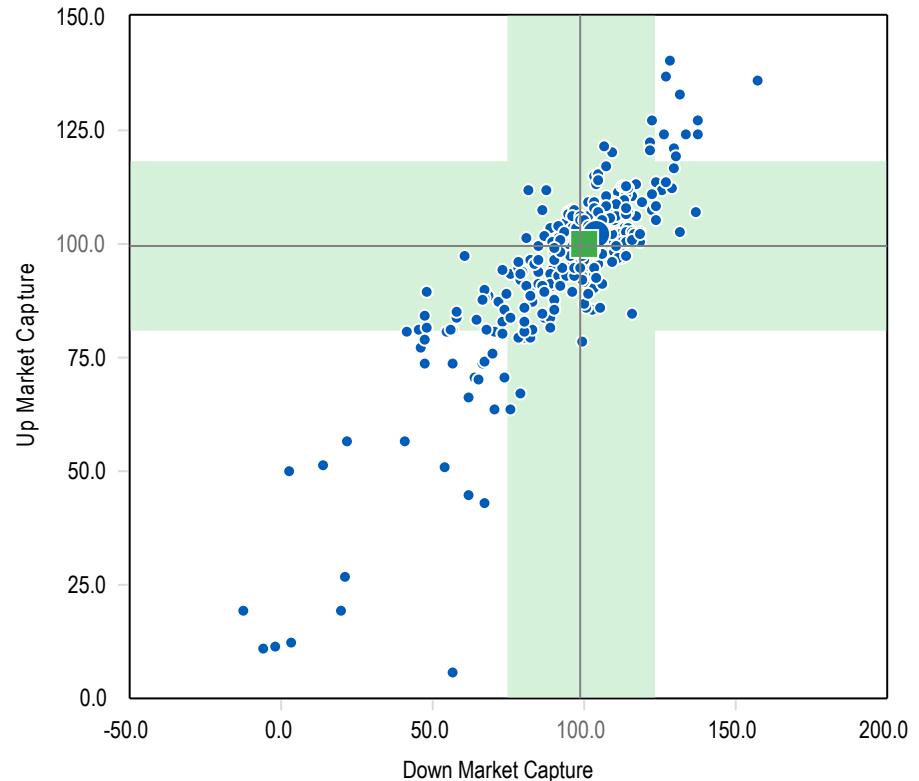
	Up Market Capture	Down Market Capture
Total Fund Composite	90.4	101.5
Policy Index	100.0	100.0
Median	93.6	96.2
Population	331	331

The shaded area is one sigma range from the median.

5 Years Annualized Return vs. Annualized Standard Deviation



5 Years Upside Capture Ratio vs. Downside Capture Ratio



	Return	Standard Deviation
Total Fund Composite	8.4	13.4
Policy Index	8.4	12.6
Median	8.4	12.7
Population	322	322

	Up Market Capture	Down Market Capture
Total Fund Composite	102.3	104.2
Policy Index	100.0	100.0
Median	99.6	98.8
Population	322	322

The shaded area is one sigma range from the median.

City of Memphis Policy Index

As of September 30, 2024

Policy Index	Weight (%)	Policy Index	Weight (%)
Jan-1979		Apr-2011	
Russell 3000 Index	45.0	S&P 500	26.0
Bloomberg U.S. Aggregate	40.0	Russell Midcap Index	4.0
MSCI EAFE (Net)	10.0	Russell 2000 Index	4.0
Wilshire REOC	5.0	MSCI EAFE (Net)	17.0
Apr-1997		MSCI Emerging Markets Index	5.0
Russell 3000 Index	40.0	Bloomberg U.S. Aggregate	29.0
Bloomberg U.S. Aggregate	40.0	Credit Suisse High Yield	10.0
MSCI EAFE (Net)	15.0	NCREIF ODCE Equal Weighted	5.0
Wilshire REOC	5.0	Sep-2016	
Oct-1999		Russell 3000 Index	27.0
Russell 3000 Index	40.0	MSCI EAFE (Net)	18.5
Bloomberg U.S. Aggregate	40.0	MSCI EM (net)	8.5
MSCI AC World ex USA	15.0	Bloomberg U.S. Aggregate	12.0
Wilshire REOC	5.0	NCREIF Property Index	10.0
Jul-2001		Bloomberg Global Aggregate	10.0
Russell 3000 Index	40.0	S&P 500 + 3%	4.0
Bloomberg U.S. Aggregate	40.0	T Bills + 5%	4.0
MSCI AC World ex USA	15.0	Credit Suisse High Yield Index	6.0
NCREIF Property Index	5.0	Dec-2021	
Apr-2007		Russell 3000 Index	32.0
Russell 3000 Index	35.0	MSCI EAFE (Net)	15.0
Bloomberg U.S. Aggregate	40.0	MSCI EM (net)	7.0
MSCI AC World ex USA	20.0	Bloomberg U.S. Aggregate	13.0
NCREIF Property Index	5.0	NCREIF Property Index	10.0
		Bloomberg Global Aggregate	8.0
		S&P 500 + 3%	4.0
		T Bills + 5%	4.0
		Credit Suisse High Yield Index	5.0
		Morningstar LSTA US Leveraged Loan	2.0

Policy Index	Weight (%)
Jan-2023	
Russell 3000 Index	31.0
MSCI EAFE (Net)	15.0
MSCI EM (net)	7.0
Bloomberg U.S. Aggregate	13.0
NCREIF Property Index	10.0
Bloomberg Global Aggregate	8.0
S&P 500 + 3%	5.0
T Bills + 5%	4.0
Credit Suisse High Yield Index	5.0
Morningstar LSTA US Leveraged Loan	2.0

Policy Index	Weight (%)	Policy Index	Weight (%)
Jan-1979		Apr-2011	
Russell 3000 Index	45.0	S&P 500	26.0
Bloomberg U.S. Aggregate	40.0	Russell Midcap Index	4.0
MSCI EAFE (Net)	10.0	Russell 2000 Index	4.0
Wilshire REOC	5.0	MSCI EAFE (Net)	17.0
Apr-1997		MSCI Emerging Markets Index	5.0
Russell 3000 Index	40.0	Bloomberg U.S. Aggregate	29.0
Bloomberg U.S. Aggregate	40.0	Credit Suisse High Yield	10.0
MSCI EAFE (Net)	15.0	NCREIF ODCE Equal Weighted	5.0
Wilshire REOC	5.0	Sep-2016	
Oct-1999		Domestic Equity Index	27.0
Russell 3000 Index	40.0	MSCI EAFE (Net)	18.5
Bloomberg U.S. Aggregate	40.0	MSCI EM (net)	8.5
MSCI AC World ex USA	15.0	Bloomberg U.S. Aggregate	12.0
Wilshire REOC	5.0	NCREIF Property Index	10.0
Jul-2001		Bloomberg Global Aggregate	10.0
Russell 3000 Index	40.0	CA US Private Equity Index	4.0
Bloomberg U.S. Aggregate	40.0	HFRI Fund of Funds Composite Index	4.0
MSCI AC World ex USA	15.0	Credit Suisse High Yield Index	6.0
NCREIF Property Index	5.0	Dec-2021	
Apr-2007		Domestic Equity Index	32.0
Russell 3000 Index	35.0	MSCI EAFE (Net)	15.0
Bloomberg U.S. Aggregate	40.0	MSCI EM (net)	7.0
MSCI AC World ex USA	20.0	Bloomberg U.S. Aggregate	13.0
NCREIF Property Index	5.0	NCREIF Property Index	10.0
		Bloomberg Global Aggregate	8.0
		CA US Private Equity Index	4.0
		HFRI Fund of Funds Composite Index	4.0
		Credit Suisse High Yield Index	5.0
		Morningstar LSTA US Leveraged Loan	2.0

**City of Memphis
Policy Index 2**

As of September 30, 2024

Policy Index	Weight (%)
Jan-2023	
Domestic Equity Index	31.0
MSCI EAFE (Net)	15.0
MSCI EM (net)	7.0
Bloomberg U.S. Aggregate	13.0
NCREIF Property Index	10.0
Bloomberg Global Aggregate	8.0
CA US Private Equity Index	5.0
HFRI Fund of Funds Composite Index	4.0
Credit Suisse High Yield Index	5.0
Morningstar LSTA US Leveraged Loan	2.0

City of Memphis

International Equity Index

As of September 30, 2024

Policy Index	Weight (%)
Jan-1970	
MSCI AC World ex USA	100.0
Apr-2011	
MSCI EAFE (Net)	77.0
MSCI Emerging Markets Index	23.0
Sep-2016	
MSCI EAFE (Net)	69.0
MSCI EM (net)	31.0
Dec-2021	
MSCI EAFE (Net)	68.0
MSCI EM (net)	32.0

City of Memphis

Fixed Income Index

As of September 30, 2024

Policy Index	Weight (%)	Policy Index	Weight (%)
Jan-1976		Jan-2021	
Blmbg. U.S. Aggregate	100.0	Blmbg. U.S. Aggregate	43.0
Apr-2011		Credit Suisse High Yield Index	21.0
Blmbg. U.S. Aggregate	74.0	Blmbg. Global Aggregate	36.0
Credit Suisse High Yield	26.0		
Sep-2016		Jan-2023	
Blmbg. U.S. Aggregate	43.0	Blmbg. U.S. Aggregate	50.0
Credit Suisse High Yield	21.0	Credit Suisse High Yield Index	19.0
Blmbg. Global Aggregate	36.0	Blmbg. Global Aggregate	31.0
Jan-2017			
Blmbg. U.S. Aggregate	47.0		
Credit Suisse High Yield	22.0		
Blmbg. Global Aggregate	31.0		
Jan-2018			
Blmbg. U.S. Aggregate	43.0		
Credit Suisse High Yield	22.5		
Blmbg. Global Aggregate	34.5		
Jan-2019			
Blmbg. U.S. Aggregate	43.5		
Credit Suisse High Yield	22.0		
Blmbg. Global Aggregate	34.5		
Jan-2020			
Blmbg. U.S. Aggregate	44.0		
Credit Suisse High Yield Index	23.0		
Blmbg. Global Aggregate	33.0		

City of Memphis

Schedule of Investable Assets

Since Inception Ending September 30, 2024

Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	%Return
From 06/1996	1,291,734,891	-14,742,714	101,140,788	1,378,132,965	7.9
1997	1,378,132,965	-34,096,344	234,250,900	1,578,287,521	17.2
1998	1,578,287,521	-42,268,539	240,063,429	1,776,082,411	15.4
1999	1,776,082,411	-47,808,437	240,291,082	1,968,565,056	13.2
2000	1,968,565,056	-64,387,008	7,639,956	1,911,818,004	0.4
2001	1,911,818,004	-77,481,199	-14,124,868	1,820,211,937	-0.7
2002	1,820,211,937	-81,528,582	-150,191,752	1,588,491,603	-8.4
2003	1,588,491,603	-75,424,638	350,796,286	1,863,863,251	22.6
2004	1,863,863,251	-79,808,593	216,220,232	2,000,274,890	11.9
2005	2,000,274,890	-90,832,853	173,260,464	2,082,702,500	8.5
2006	2,082,702,500	-86,039,647	266,362,298	2,263,025,152	13.6
2007	2,263,025,152	-96,032,638	180,996,824	2,347,989,338	8.3
2008	2,347,989,338	-105,220,477	-662,432,769	1,580,336,092	-28.9
2009	1,580,336,092	-102,169,783	337,471,803	1,815,638,112	22.2
2010	1,815,638,112	-107,265,723	244,019,890	1,952,392,279	14.0
2011	1,952,392,279	-113,653,688	14,703,206	1,853,441,798	0.7
2012	1,853,441,798	-64,856,098	206,277,288	1,994,862,988	13.7
2013	1,994,862,988	-135,949,680	344,705,536	2,203,618,845	17.7
2014	2,203,618,845	-133,361,482	120,224,286	2,190,481,650	5.5
2015	2,190,481,650	-122,787,070	9,420,065	2,077,114,644	0.2
2016	2,077,114,644	-90,342,269	135,585,599	2,122,357,975	6.8
2017	2,122,357,975	-117,949,337	385,214,135	2,389,622,772	18.4
2018	2,389,622,772	-134,023,080	-122,005,142	2,133,594,551	-5.4
2019	2,133,594,551	-109,150,662	398,812,740	2,423,256,628	18.9
2020	2,423,256,628	-136,045,892	343,923,054	2,631,133,790	15.1
2021	2,631,133,790	-96,972,374	343,958,578	2,878,119,994	13.6
2022	2,878,119,994	-155,042,272	-349,373,506	2,373,704,216	-12.9
2023	2,373,704,216	-124,144,634	270,458,779	2,520,018,360	11.7
To 09/2024	2,520,018,360	-121,372,843	265,066,889	2,663,712,406	10.8

Gain/Loss includes income received and change in accrued income for the period.

Appendix

City of Memphis Retirement System

Comparative Performance

As of September 30, 2024

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	Since Inception	Inception Date
Barrow, Hanley	9.7	20.7	32.8	12.7	13.4	12.9	10/01/1982
Russell 1000 Value + 75 bps	9.6	17.3	28.7	9.8	11.5	12.5	10/01/1982
1607 Capital Partners	7.4	11.9	23.7	2.3	8.6	6.4	07/01/2008
MSCI EAFE Net + 400 bps	8.3	16.4	29.8	9.7	12.5	8.4	07/01/2008
Marathon Asset Mgmt	8.4	14.2	24.6	4.9	8.9	8.3	04/01/2004
MSCI ACWI ex. US + 200 bps	8.7	16.4	28.5	6.8	10.3	8.6	04/01/2004
Principal Global Investors	5.5	13.0	25.7	2.5	8.9	4.1	07/01/2007
MSCI EAFE Net + 240 bps	7.9	15.0	27.8	8.0	10.8	5.8	07/01/2007
PIMCO	5.1	5.0	12.4	-0.7	1.3	3.5	04/01/2009
BC Aggregate + 75 bps	5.4	5.0	12.4	-0.6	1.1	3.6	04/01/2009

>Returns for periods greater than one year are annualized.

>Returns are expressed as percentages.

City of Memphis
Manager Roster
As of September 30, 2024

Manager	Date	Assets Under Management	Assignment	Benchmark	Stated Style	Fee Structure	Estimated Annual Fee (\$)	Estimated Annual Fee (bps)	Universe Median Fee (bps)
Barrow Hanley	9/30/2024	\$177,306,751	Equity Only	Russell 1000 Value	Large Cap Value	75 bps on first \$10.0M, 50 bps on next \$15.0M, 25 bps on next \$175M, 20 bps on next \$600M, 15 bps over \$800M	\$530,767	0.30%	0.54%
Rhumbline Russell 1000 Growth Index	9/30/2024	\$89,607,869	Equity Only	Russell 1000 Growth	Large Cap Growth	3 bps on first \$100.0M, 2 bps on next \$200.0M (Assets of Rhumbline S&P 500 combined with Rhumbline Russell 1000 Growth Index for pricing)	\$20,368	0.02%	0.55%
Winslow Capital	9/30/2024	\$91,133,419	Equity Only	Russell 1000 Growth	Large Cap Growth	60 bps for the first \$50M, 55 bps next \$50M, and 50 bps next \$150M	\$526,234	0.58%	0.55%
Rhumbline S&P 500 Index	9/30/2024	\$233,798,528	Equity Only	S&P 500	Large Cap Core	3 bps on first \$100.0M, 2 bps on next \$200.0M (Assets of Rhumbline S&P 500 combined with Rhumbline Russell 1000 Growth Index for pricing)	\$53,144	0.02%	N/A
Northern Trust	9/30/2024	\$55,199,868	Equity Only	S&P 400	Mid Cap Core	5 bps on first \$50.0M, 4 bps thereafter	\$27,080	0.05%	N/A
Capital Prospects SMID	9/30/2024	\$61,997,878	Equity Only	Russell 2500 Index	SMID Cap	75 bps on all assets	\$464,984	0.75%	0.85%
Capital Prospects SCV	9/30/2024	\$72,917,560	Equity Only	Russell 2000 Value	Small Cap Value	100 bps on first \$5.0M, 85 bps on next \$5.0M, 60 bps on the balance	\$546,882	0.75%	0.90%
Nicholas Investment Partners	9/30/2024	\$31,916,845	Equity Only	Russell 2000 Growth	Small Cap Growth	100 bps on all assets	\$319,168	1.00%	0.91%
Conestoga Small Cap Growth	9/30/2024	\$28,675,507	Equity Only	Russell 2000 Growth	Small Cap Growth	90 bps on first \$10.0M, 80 bps on next \$15.0M, 65 bps thereafter	\$233,891	0.82%	0.91%
I607 Capital Partners	9/30/2024	\$106,449,804	Int'l Equity	MSCI EAFE	Int'l Equity	70 bps on all assets	\$745,149	0.70%	0.60%
Channing Int'l Developed	9/30/2024	\$16,369,220	Int'l Equity	MSCI EAFE	Int'l Equity	75 bps on first \$10M 60 bps on next \$40M 54 bps thereafter	\$113,215	0.69%	0.60%
Frontier International	9/30/2024	\$16,398,255	Int'l Equity	MSCI ACWI ex US	Int'l Equity	65 bps on first \$25M 60 bps on next \$25M 55 bps on next \$50M 50 bps thereafter	\$106,589	0.65%	0.60%
Principal Global Investors	9/30/2024	\$105,348,559	Int'l Equity	MSCI World ex US Growth	Int'l Equity	60 bps on first \$50.0M, 55 bps on next \$50.0M, \$50 bps over \$100.0M	\$604,417	0.57%	0.66%
Marathon Asset Management	9/30/2024	\$105,587,995	Int'l Equity	MSCI ACWI ex US	Int'l Equity	95 bps on the first \$25.0M, 75 bps on next \$25.0M, and 52.5 bps thereafter	\$716,837	0.68%	0.60%
Strategic Global Advisors	9/30/2024	\$80,705,622	Int'l Equity	MSCI ACWI ex US	Int'l All Cap	100 bps on first \$5.0M, 70 bps on next \$50.0M, 65 bps on the next \$50.0M, and 50 bps on the remaining balance	\$579,939	0.72%	0.66%
Acadian	9/30/2024	\$111,485,796	Emerging Markets	MSCI EM	Emerging Markets	75 basis points on the first \$50 million and 65 basis points thereafter	\$774,658	0.69%	0.85%
JPMorgan	9/30/2024	\$91,748,110	Emerging Markets	MSCI EM	Emerging Markets	80 bps on first \$100.0M, 75 bps on balance	\$733,985	0.80%	0.85%

City of Memphis
Manager Roster
As of September 30, 2024

Manager	Date	Assets Under Management	Assignment	Benchmark	Stated Style	Fee Structure	Estimated Annual Fee (\$)	Estimated Annual Fee (bps)	Universe Median Fee (bps)
Barrow Hanley	9/30/2024	\$34,447,313	Fixed Income	Barclays US Aggregate	Fixed Income	25 bps on first \$50M	\$86,118	0.25%	0.25%
Garcia Hamilton	9/30/2024	\$79,687,921	Fixed Income	Barclays US Aggregate	Fixed Income	20 bps on first \$50.0M, 16 bps on next \$50.0M, 14 bps thereafter	\$147,501	0.19%	0.25%
PIMCO	9/30/2024	\$102,485,655	Fixed Income	Barclays US Aggregate	Fixed Income	50 bps on first \$25.0M, 37.5 bps on next \$25.0M, 25 bps over \$50.0M: Separate Account min \$75M	\$349,964	0.34%	0.25%
Prudential	9/30/2024	\$97,949,436	Fixed Income	Barclays US Aggregate	Fixed Income	12 bps on first \$100.0M, 7 bps on next \$100.0M, 5 bps thereafter	\$118,565	0.12%	0.25%
Brandywine	9/30/2024	\$206,341,426	Global FI	Barclays Global Aggregate	Global Fixed Income	37 bps on the first \$220.0M; 35 bps thereafter	\$766,195	0.37%	0.35%
Mackay Shields	9/30/2024	\$140,566,629	High Yield FI	Credit Suisse HY	High Yield Fixed Income	50 bps on first \$100.0M, 40 bps over \$100.0M	\$662,267	0.47%	0.48%
BlackRock US Core Property	9/30/2024	\$57,172,843	Real Estate	NCREIF Property Index	Real Estate	66 bps on net capital contributions, 14 bps on reinvested amounts	\$453,721	0.79%	0.75% - 1.50%
RREEF II	9/30/2024	\$16,166,489	Real Estate	NCREIF Property Index	Real Estate	50-55 bps on net asset value + performance fee	\$154,236	0.95%	0.75% - 1.50%
Vanguard REIT Index	9/30/2024	\$4,080,807	Real Estate	Wilshire US REIT	Real Estate	10 bps on all assets	\$4,081	0.10%	N/A
TA Realty Core Property Fund	9/30/2024	\$28,631,050	Real Estate	NCREIF Property Index	Real Estate	70 bps on all assets	\$200,373	0.70%	0.75% - 1.50%
Cornerstone (Barings) Real Estate Fund X	6/30/2024	\$17,869	Real Estate	NCREIF Property Index	Real Estate	1.5% of equity investment	-	0.97%	1.00% - 1.50%
Dune Real Estate Fund IV	6/30/2024	\$28,872,895	Real Estate	NCREIF Property Index	Real Estate	1.5% on committed capital until end of investment period, 1.5% on called capital thereafter	\$361,564	1.25%	1.00 - 1.50%

**City of Memphis
Manager Roster
As of September 30, 2024**

Manager	Date	Assets Under Management	Assignment	Benchmark	Stated Style	Fee Structure	Estimated Annual Fee (\$)	Estimated Annual Fee (bps)	Universe Median Fee (bps)
Green Cities III	6/30/2024	\$5,377,625	Real Estate	NCREIF Property Index	Real Estate	1.5% on committed capital until end of investment period, 1.5% of unreturned capital contributions	\$67,196	0.34%	1.00% - 1.50%
Green Cities IV	6/30/2024	\$12,717,722	Real Estate	NCREIF Property Index	Real Estate	1.5% on committed capital until end of investment period, 1.5% of unreturned capital contributions	\$300,000	1.50%	1.00% - 1.50%
Green Cities V	6/30/2024	\$18,230	Real Estate	NCREIF Property Index	Real Estate	1.5% on committed capital until end of investment period, 1.5% of unreturned capital contributions	\$300,000	1.50%	1.00% - 1.50%
Long Wharf RE Partners IV	9/30/2024	\$82,929	Real Estate	NCREIF Property Index	Real Estate	1.0% of unfunded capital commitments and 1.5% of funded capital commitments during investment period; thereafter 1.5% of contributed capital less capital attributed to investments that have been sold	N/A	N/A	1.00% - 1.50%
Long Wharf RE Partners V	9/30/2024	\$9,531,364	Real Estate	NCREIF Property Index	Real Estate	1.5% of committed capital during investment period; 1.5% of invested capital after investment period	\$144,816	0.72%	1.00% - 1.50%
Long Wharf RE Partners VI	9/30/2024	\$13,438,382	Real Estate	NCREIF Property Index	Real Estate	1.5% of committed capital during investment period; 1.5% of invested capital after investment period	\$193,572	0.97%	1.00% - 1.50%
Long Wharf RE Partners VII	9/30/2024	\$8,161,262	Real Estate	NCREIF Property Index	Real Estate	1.5% of committed capital during investment period; 1.5% of invested capital after investment period	\$300,000	1.50%	1.00% - 1.50%
Mesirow Real Estate Value Fund III	6/30/2024	\$26,255,074	Real Estate	NCREIF Property Index	Real Estate	Commitments < \$25M: 1.5% on invested capital subject to a minimum of 1.1% on committed capital during investment period	\$220,000	1.10%	1.00% - 1.50%
TA Realty Associates Fund XI	6/30/2024	\$60,978	Real Estate	NCREIF Property Index	Real Estate	Years 1-3 on committed capital. Year 1: 0.50%, Year 2: 0.85%, Year 3: 1.15%. Thereafter, based on invested equity. Year 4: 1.20%, Year 5: 1.25%, Year 6: 1.20%, Year 7: 1.00%, and 0.60% thereafter.	\$732	1.20%	1.00% - 1.50%
TA Realty Associates Fund XIII	6/30/2024	\$16,386,468	Real Estate	NCREIF Property Index	Real Estate	Years 1-3 on committed capital. Year 1: 0.50%, Year 2: 0.85%, Year 3: 1.15%. Thereafter, based on invested equity: Year 4: 1.20%, Year 5: 1.25%, Year 6: 1.20%, Year 7: 1.00%, and 0.60% thereafter.	\$345,000	1.15%	1.00% - 1.50%
GSAM Black Equity Opportunities Fund	6/30/2024	\$1,915,968	Private Equity	S&P + 3%	Fund of Funds	45 bps average over 12 year life of fund	\$73,500	0.49%	1.00% - 1.50%
NB Crossroads Fund XXI	6/30/2024	\$46,250,826	Private Equity	S&P + 3%	Fund of Funds	Based on committed capital: Year 1: 20bps, Years 2-4: 40bps, Years 5-8: 40 bps, Years 9-10: 5 bps, Years 11-12: 0 bps	\$200,000	0.40%	1.00% - 2.00%
NB Crossroads Fund XXIV	6/30/2024	\$12,599,306	Private Equity	S&P + 3%	Fund of Funds	Based on committed capital: Average Fee Schedule on Commitments \$50M - \$100M	\$200,000	0.40%	1.00% - 2.00%
Pantheon Global Secondary Fund V	6/30/2024	\$21,891,059	Private Equity	S&P + 3%	Secondaries	1% on committed capital during investment period; 90% annual reduction of prior year	\$293,628	0.59%	1.00% - 2.00%
RPS Ventures II	6/30/2024	\$3,096,884	Private Equity	S&P + 3%	Venture Capital	Year 1-5: 2% on committed; Year 6-10: 0.25% annual step down	\$300,000	2.00%	1.00% - 2.00%
SSM Growth Equity Fund II	6/30/2024	\$8,088,139	Private Equity	S&P + 3%	Growth Equity	2.0% on committed capital during investment period	\$200,000	2.00%	1.00% - 2.00%
SSM Growth Equity Fund III	6/30/2024	\$16,671,510	Private Equity	S&P + 3%	Growth Equity	2.0% on committed capital during investment period	\$200,000	2.00%	1.00% - 2.00%
Siguler Guff Small Buyout Opportunities V	6/30/2024	\$10,822,652	Private Equity	S&P + 3%	Fund of Funds	Reduced Fee Schedule: 82 bps on first \$10M of commitment; 69.7 bps on remaining \$10M of commitment.	\$151,700	0.76%	1.00% - 2.00%
Brightwood Capital Fund V	6/30/2024	\$6,234,354	Private Debt	Barclays US Aggregate	Direct Lending	1.5% on equity capital	\$93,515	1.50%	1.00% - 2.00%
Churchill Middle Market Senior Loan Fund III	6/30/2024	\$8,306,307	Private Debt	Barclays US Aggregate	Direct Lending	0.50% on invested capital	\$41,532	0.50%	1.00% - 2.00%
Neuberger Berman Private Debt Fund IV	6/30/2024	\$26,557,690	Private Debt	Barclays US Aggregate	Direct Lending	0.50% on invested capital through June 2022	\$132,788	0.50%	1.00% - 2.00%
Aetos	9/30/2024	\$52,396,964	Hedge Fund	90 Day T Bills + 5%	Hedge Fund of Funds	75 bps plus a 5% performance fee	\$479,567	0.63%	1.00%-2.00%
Grosvenor	9/30/2024	\$54,178,481	Hedge Fund	90 Day T Bills + 5%	Hedge Fund of Funds	115 bps on the first \$25M, 100 bps on next \$25M, 80 bps on next \$50M, 60 bps thereafter	\$579,285	1.07%	1.00%-2.00%
TOTAL		\$2,634,108,091					\$15,218,721	0.58%	

* Estimated Fee reflects actual Q4 2022 fees multiplied by 4 to estimate annual fee. Figure includes base management fee plus/minus performance fee if achieved.
Total Market Value does not include Cash account.