



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: MARCH 31, 2023**

Investment Performance Review for

**San Mateo County Employees' Retirement Association**

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Market Environment

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Alternatives

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Total Fund

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Inflation Hedge

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US Equity

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International Equity

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Fixed Income

TAB V

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

## THE ECONOMIC CLIMATE

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

## PORTFOLIO IMPACTS

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

## THE INVESTMENT CLIMATE

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

## ASSET ALLOCATION ISSUES

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

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

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

# U.S. economics summary

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

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



# International economics summary

- Developed economies have experienced a sharp slowdown in growth. The IMF forecasts developed economy GDP to fall from 2.7% in 2022 to 1.3% in 2023. The deteriorating outlook was attributed to monetary tightening by central banks, as well as Russia's invasion of Ukraine. Meanwhile, emerging market economic growth is expected to accelerate in 2023, rising from 3.9% to 4.0%.
- Inflation trends varied by country during the quarter but seem to suggest broad moderation. European nations continue to cope with very high inflation rates—much of which have been driven by surging energy costs. In many countries, higher energy prices are contributing to half of official inflation figures.
- Developed central banks, in response to inflation, have carried on with their tightening cycles. Both the European Central Bank and Bank of England raised rates in March, with the ECB increasing their Deposit Facility Rate by 50 bps to 3.00%, while the BOE implemented a 25 bps hike, bringing their policy rate to 4.25%.
- February 24<sup>th</sup> marked the one-year anniversary of Russia's invasion of Ukraine. The war has created much uncertainty around Europe's economic outlook, and led Finland to apply, and to be accepted as, a NATO member.
- China made progress on its reopening in Q1, as the country aims to ramp up economic activity following nearly three-years of lockdowns. Mobility data has picked up, while gauges of manufacturing and non-manufacturing activity have moved into expansionary territory. March non-manufacturing PMIs came in at 58.2—the highest level since 2011.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	0.9% 12/31/22	5.0% 3/31/23	3.5% 3/31/23
Eurozone	1.8% 12/31/22	6.9% 3/31/23	6.6% 2/28/23
Japan	0.4% 12/31/22	3.3% 3/31/23	2.5% 2/28/23
BRICS Nations	2.5% 12/31/22	2.9% 3/31/23	5.2% 12/31/21
Brazil	1.9% 12/31/22	4.7% 3/31/23	8.5% 3/31/23
Russia	(2.7%) 12/31/22	3.5% 3/31/23	3.5% 2/28/23
India	4.4% 12/31/22	5.7% 3/31/23	7.8% 3/31/23
China	2.9% 12/31/22	0.7% 3/31/23	5.6% 2/28/23

*NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.*

# Equity environment

— Global equities delivered another strong quarter in Q1 (MSCI ACWI +7.3%). A variety of risks are stacking up that could weigh on additional gains, including potential recession in many markets, persistent inflation problems, and tightening credit conditions.

— The outlook for domestic stocks remains challenged, especially against the backdrop of high inflation and expectations for slowing economic growth. Earnings growth has started to decline, with year-over-year S&P 500 earnings falling -4.9% in Q4 2022, the first decline seen since Q2 2020.

— The effects of currency volatility on portfolio performance was mixed during the first quarter. Over the past full year, currency movement led to a -8.5% loss for investors with unhedged exposure to international developed equity (MSCI EAFE unhedged -1.4%, MSCI

EAFE hedged +7.1%), led by a -12.6% loss in Japanese equities (TOPIX unhedged -3.1%, TOPIX hedged +9.5%). We continue to believe that a thoughtful currency program may allow investors to reduce their total portfolio risk while also increasing long-term expected returns.

— Growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing value's rally in Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns.

— The Cboe VIX implied volatility index surged in March on the news of Silicon Valley Bank's failure, and the possibility of contagion across the financial sector, but ended the quarter at 18.7%—near the longer-term average.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	7.5%		(7.7%)	
U.S. Small Cap (Russell 2000)	2.7%		(11.6%)	
U.S. Equity (Russell 3000)	7.2%		(8.6%)	
U.S. Large Value (Russell 1000 Value)	1.0%		(5.9%)	
US Large Growth (Russell 1000 Growth)	14.4%		(10.9%)	
Global Equity (MSCI ACWI)	7.3%	7.3%	(7.4%)	(4.8%)
International Large (MSCI EAFE)	8.5%	8.3%	(1.4%)	7.1%
Eurozone (EURO STOXX 50)	16.2%	15.0%	10.8%	17.1%
U.K. (FTSE 100)	6.4%	3.8%	(1.1%)	6.9%
Japan (TOPIX)	5.8%	8.5%	(3.1%)	9.5%
Emerging Markets (MSCI Emerging Markets)	4.0%	3.8%	(10.7%)	(6.6%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/23

# Domestic equity

U.S. equities finished the first quarter up 7.5%, marking another positive quarter as the S&P 500 recovers from the losses of 2022. Much volatility persisted through recent months, with shares moving higher in January, before falling sharply in line with expectations for a more hawkish Federal Reserve. The fallout in the banking system challenged the financial sector, but ultimately proved to be a significant tailwind to the broader index, as investor expectations for the Federal Reserve's rate path were significantly cut down. This boosts equity market valuations because lower interest rates increase the present value of equities through the discounting of cash flows. Growth stocks tend to benefit the most from this effect, as businesses with larger earnings expected further into the future are more sensitive to interest rate changes.

Despite recent gains, the outlook for domestic stocks remains challenged, given the backdrop of high inflation and expectations for slowing economic growth. Corporate earnings have been weakening, with year-over-year S&P 500 earnings falling -4.9% in Q4 2022—the first decline seen since Q2 2020. Analysts believe this trend will continue—FactSet expects Q1 2023 earnings to slide -6.6%.

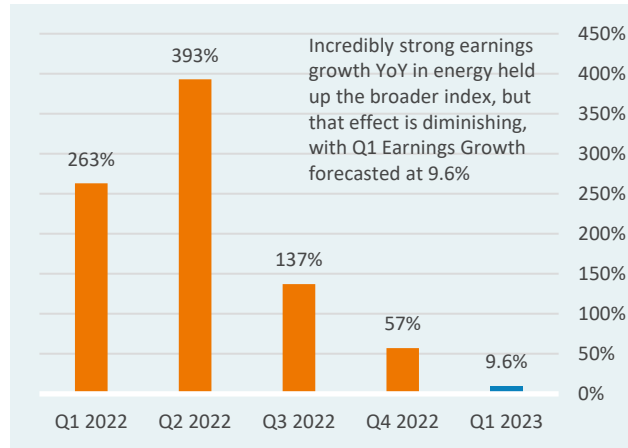
Domestic companies continue to face margin compression due to higher input prices and wages, although many companies are now implementing cost cutting measures—most visibly within the technology and financial sectors—to help retain earnings. The normalization of earnings growth within the energy sector, which had previously provided a large tailwind to broad earnings, has also been a drag.

**S&P 500 PRICE INDEX**



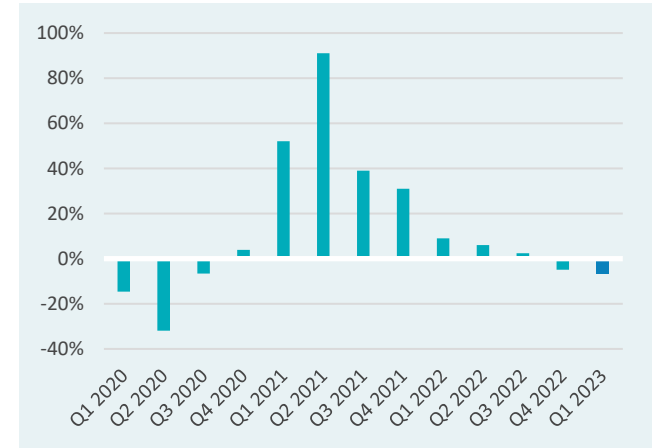
Source: Standard & Poor's, as of 3/31/23

**ENERGY EARNINGS GROWTH (YEAR-OVER-YEAR)**



Source: FactSet, as of 3/31/23

**S&P 500 EARNINGS GROWTH (YEAR-OVER-YEAR)**



Source: FactSet, as of 3/31/23

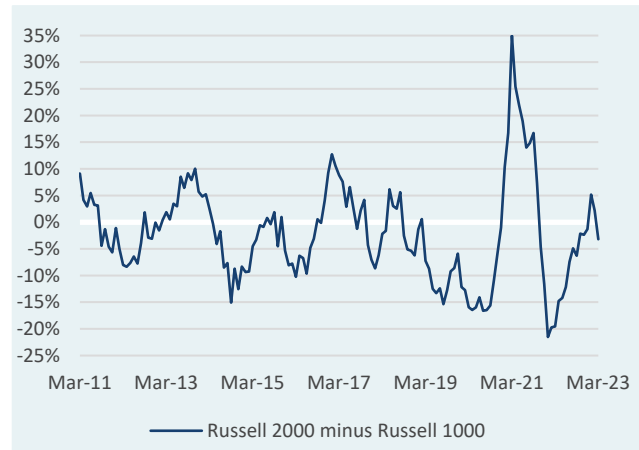
# Domestic equity size & style

Growth stocks delivered strong outperformance in the first quarter (Russell 1000 Growth +14.4% vs. Russell 1000 Value +1.0%), effectively reversing the value rally of Q4 2022. This divergence in style behavior appears to be, once again, mostly a result of relative sector returns. Information technology led the index at +21.8% over the quarter, while energy (-4.7%) and financials (-5.6%) were laggards.

Small capitalization stocks underperformed large capitalization stocks during Q1 (Russell 2000 +2.7%, Russell 1000 +7.5%) and have also lagged over the past year (Russell 2000 -11.6%, Russell 1000 -8.4%).

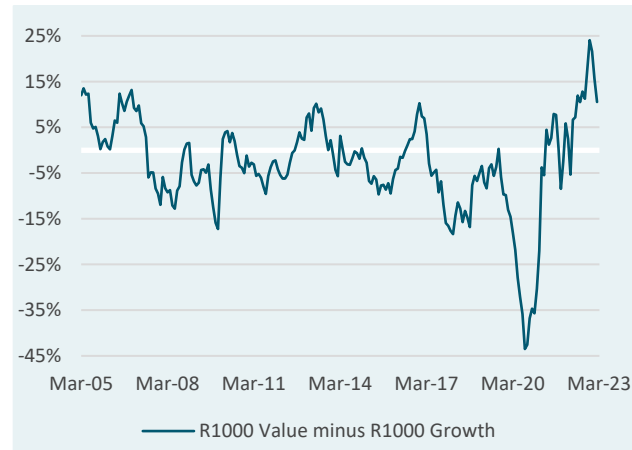
Large disparities in sector performance and the significant impact of this ongoing volatility on style factors supports our view that factor timing should rarely be pursued for most investors. There are occasions when market mispricing offers a compelling case to tilt into a style factor, though these occasions come along perhaps every few decades rather than every few years. We believe that style investing is most appropriately pursued in a strategic manner based on each individual investor's market beliefs and long-term goals.

**SMALL CAP VS LARGE CAP (YOY)**



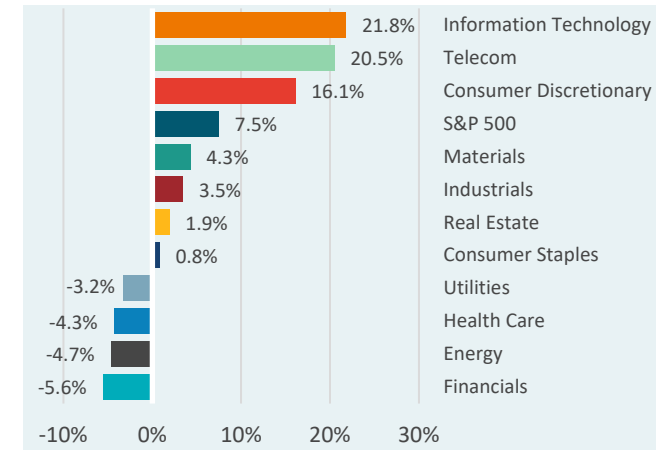
Source: FTSE, as of 3/31/23

**VALUE VS GROWTH (YOY)**



Source: FTSE, as of 3/31/23

**Q1 2023 SECTOR PERFORMANCE**



Source: Morningstar, as of 3/31/23

# International developed equity

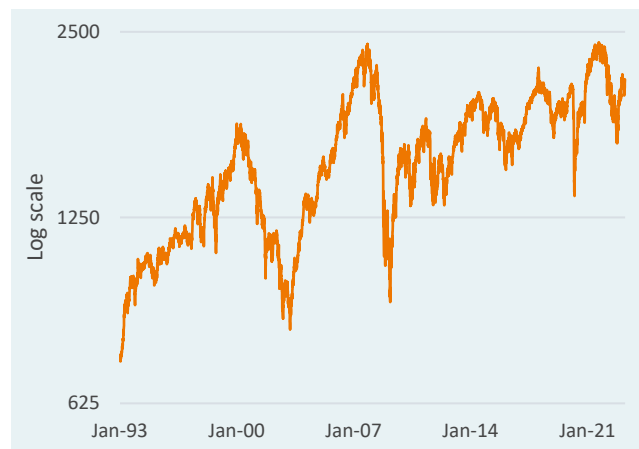
International developed equities outperformed global peers for a consecutive quarter, with the MSCI EAFE Index finishing up 8.3% in unhedged currency terms. Currency market movement was more muted, leading to a smaller 0.2% difference between currency hedged and unhedged index returns. This was likely a welcome change, given large and painful currency movements of the past year as the U.S. dollar appreciated.

European shares outperformed, due to larger European companies delivering positive earnings despite much economic uncertainty. The larger capitalization STOXX 50

Index returned 16.2%, compared to the broader STOXX 600 Index which finished the quarter up 10.3%. Japanese equities lagged most other markets in Q1.

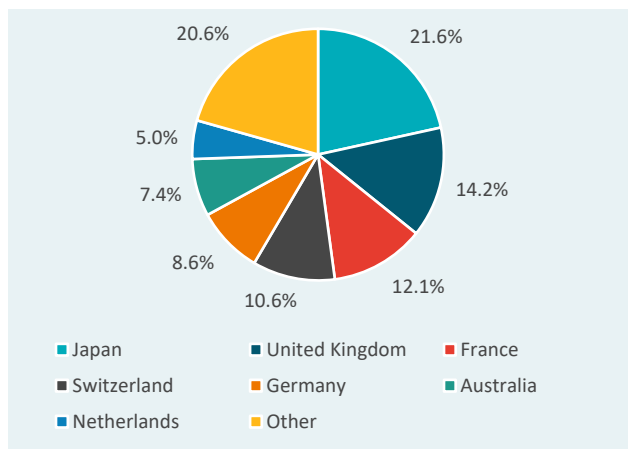
Inflation uncertainty has likely been a key contributor to the cheaper valuations of international developed equities, although inflation pressures have started to show some relief in the Eurozone, driven primarily by moderating energy prices. Despite these positive signs, both the European Central Bank and Bank of England have signaled that additional rate hikes are ahead. The drag presented by central bank hawkishness may be an ongoing theme of 2023.

## INTERNATIONAL DEVELOPED EQUITY



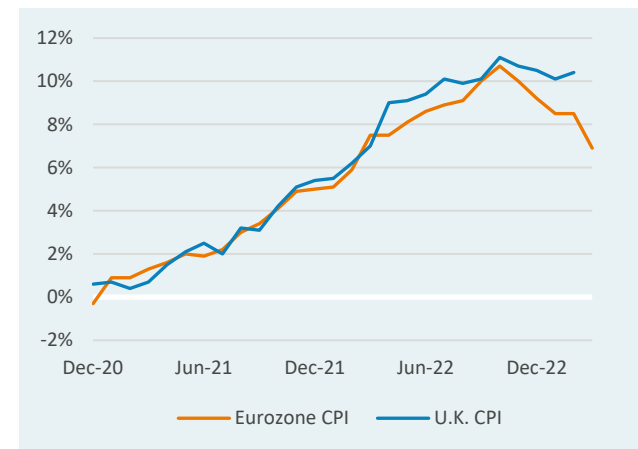
Source: MSCI, as of 3/31/23

## MSCI EAFE INDEX COUNTRY DECOMPOSITION



Source: MSCI, as of 3/31/23

## EUROPEAN INFLATION



Source: Bloomberg, as of 3/31/23. U.K. CPI as of 2/28/23

# Emerging market equity

Emerging market equities lagged the global opportunity set during the quarter. The MSCI EM Index finished up 4.0%, relative to 8.5% from the MSCI EAFE Index and 7.5% from the S&P 500.

Chinese equities—the largest country weight in the index at thirty percent—saw a slowdown in economic momentum from the COVID-19 reopening, yet still finished the quarter +4.7%. China generated a drag on the overall emerging market index despite large gains from markets in Mexico, Taiwan, and South Korea.

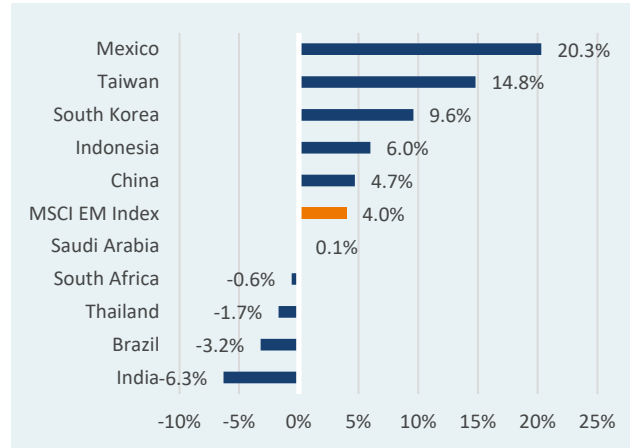
While slowing economic growth amongst developed economies provides a headwind to emerging markets, a lack of inflationary pressures amongst most emerging countries helps paint a more optimistic picture. Fewer inflation problems allows for looser central bank policies, which combined with a continuation of pandemic reopening in China, could allow for higher economic growth in the near-term. The IMF's World Economic Outlook sees emerging & developing economy growth at 3.9% in 2023—much higher than the expected 1.3% for advanced economies.

## EMERGING MARKET EQUITY



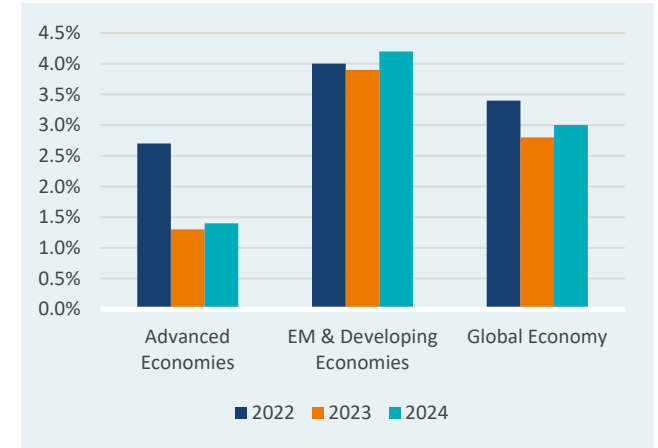
Source: MSCI, as of 3/31/23

## Q1 2023 MSCI COUNTRY RETURNS (USD)



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

## IMF'S APRIL REAL GDP GROWTH FORECASTS



Source: IMF April World Economic Outlook



# Fixed income environment

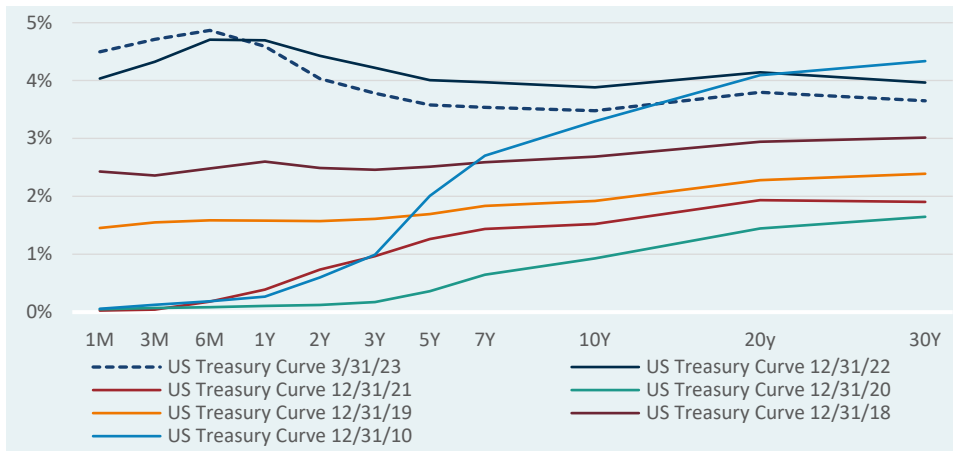
- The 10-year U.S. Treasury yield fell during the quarter from 3.88% to 3.47%. It appears increasingly likely that the U.S. has already reached, and is beyond, *peak interest rates*. The looming possibility of recession, effects of banking stress, and implications from the Federal Reserve that only one interest rate hike may remain, suggests that bond yields may have more room to fall than to rise.
- Silicon Valley Bank (SVB) failed and was transitioned to government ownership on March 10<sup>th</sup>. SVB is among the top 20 largest banks in the United States, with approximately 1% of all U.S. domestic bank deposits. New York regulators closed Signature Bank shortly thereafter, and more failures may follow. Banking stress has implications for the future actions of the Federal Reserve and for the economy.
- During the first quarter, fixed income markets delivered strong positive returns despite concerns related to the banking sector and the potential for additional Fed rate hikes. High yield credit performance led the way at 3.6%, followed by 3.5% from investment grade credit and 3.3% from bank loans.
- U.S. yield curve inversion reached even more extreme levels during Q1. The 10-year 2-year yield spread (short-term interest rates being higher than long-term interest rates) reached ~107 bps on March 8<sup>th</sup>, suggesting an incoming recession.
- Uncertainty around the path of Federal Reserve rate hikes and whether inflation is under control has contributed to considerable volatility in bond markets. As indicated by the ICE BofA “MOVE” Index, which measures the volatility priced into U.S. Treasury bonds, domestic and international banking stress further added to fixed income market choppiness in the first quarter.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	3.0%	(4.8%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	2.9%	(4.6%)
U.S. Treasuries (Bloomberg U.S. Treasury)	3.0%	(4.5%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	3.6%	(3.3%)
Bank Loans (S&P/LSTA Leveraged Loan)	3.3%	2.5%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	5.2%	(0.7%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	1.9%	(6.9%)
Mortgage-Backed Securities (Bloomberg MBS)	2.5%	(4.9%)

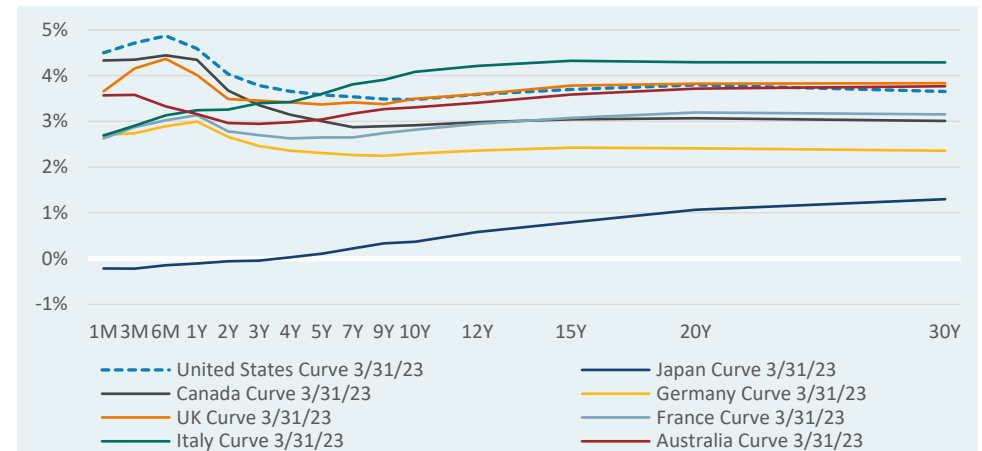
Source: Bloomberg, as of 3/31/23

# Yield environment

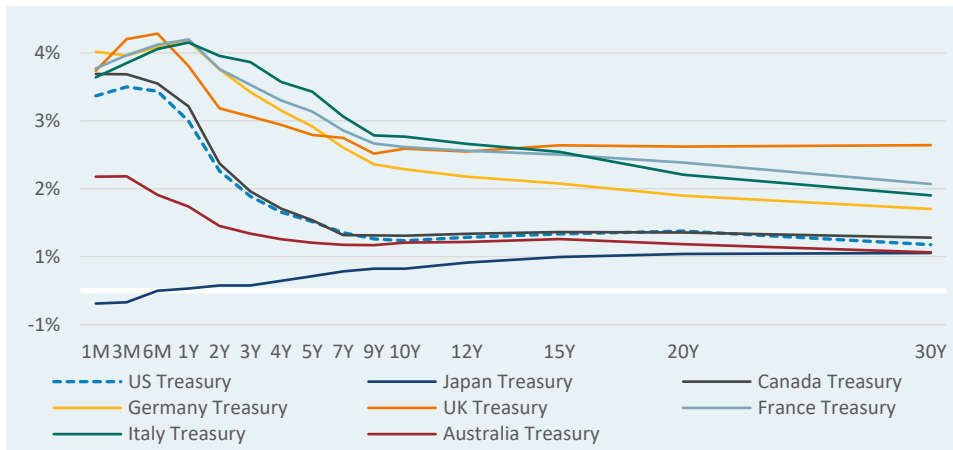
U.S. YIELD CURVE



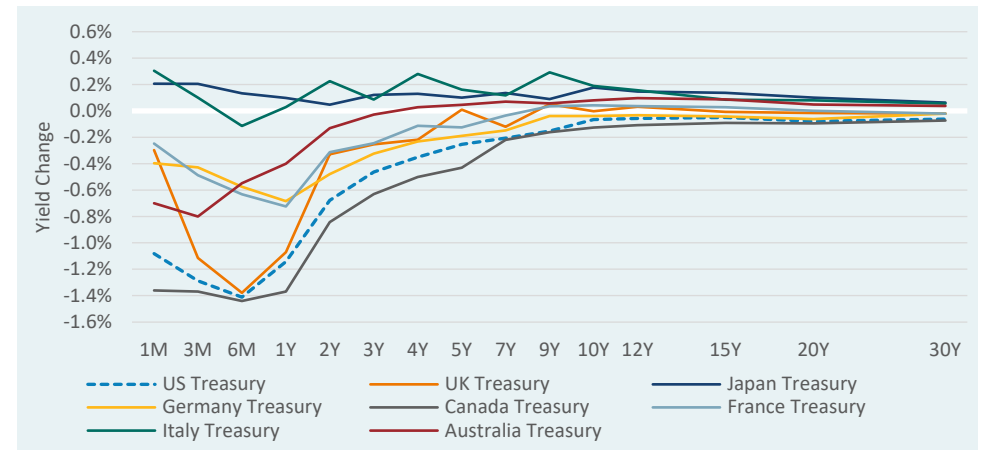
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/23

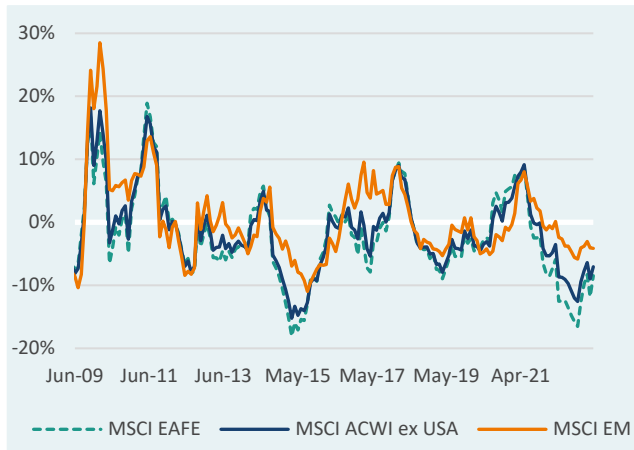
# Currency

The effects of currency volatility on portfolio performance was mixed during the first quarter. Over the past full year, currency movement led to a -8.5% loss for investors with unhedged exposure to international developed equity (MSCI EAFE unhedged -1.4%, MSCI EAFE hedged +7.1%), fueled by a -12.6% currency loss from Japanese equities (TOPIX unhedged -3.1%, TOPIX hedged +9.5%). The U.S. dollar depreciated -1.6% during the quarter, according to the U.S. Trade Weighted Dollar Index, providing a tailwind to most unhedged international investments.

A thoughtful currency program may allow investors to reduce their total portfolio risk while also increasing long-term expected returns. The MSCI

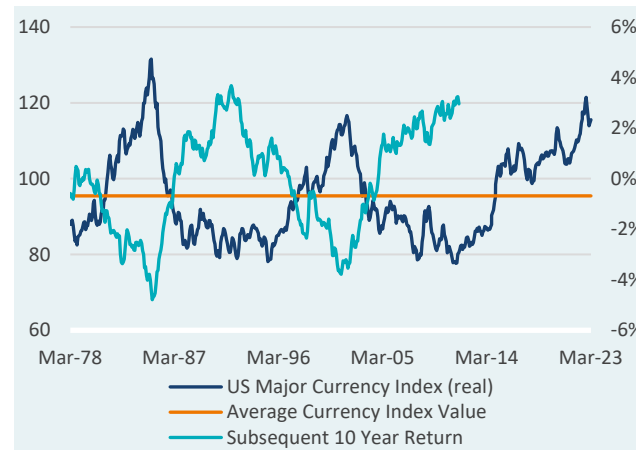
Currency Factor Mix Index—a representation of a passive investment in the currency market—has shown a positive one-year rolling return over most periods with very low volatility. This contrasts to the unhedged currency exposure (what we refer to as “embedded currency”) that most investors own, which has demonstrated high volatility and frequent losses. This currency program would have delivered cumulative outperformance of +22.5% over the past five years for an international developed equity portfolio, and +52.0% cumulative outperformance over the past ten years, while also reducing total risk in the portfolio.

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



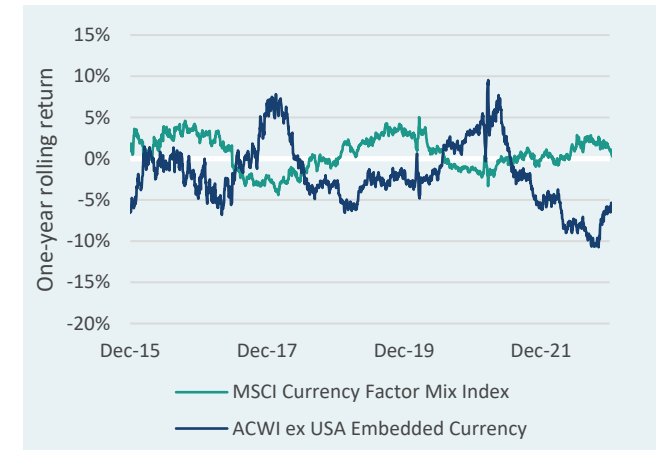
Source: MSCI, as of 3/31/23

**BLOOMBERG DOLLAR SPOT INDEX**



Source: Federal Reserve, as of 3/31/23

**EMBEDDED CURRENCY VS CURRENCY FACTORS**



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

- The Total Fund, net of manager fees, returned 2.9% in the first quarter of 2023 and in the ranked 88<sup>th</sup> percentile among other public plans greater than \$1 billion (median of 3.7%). It lagged the policy index return of 4.5%. The Total Fund ex Overlay returned 2.8% for the quarter. The Total Fund one-year return of -3.5% beat the policy index return of -3.9% and ranked in the 32<sup>nd</sup> percentile of its peer universe. The three-year return of 9.9% (88<sup>th</sup> percentile) lagged the median large public plan (11.1%) and beat the policy index (9.7%).
  
- First quarter results were enhanced by the following factors:
  1. Baillie Gifford gained 10% for the quarter as investors favored growth stocks during the quarter. For the 1-year time period Baillie Gifford is trailing the MSCI ACWI ex US Growth by 1.5%.
  2. Mondrian gained 8.7% beating the MSCI ACWI ex US Value which rose 5.3%. Mondrian's outperformance was due to the underweight in the Financials sector which was defensively positioned towards more stable retail banks.
  
- First quarter results were hindered by the following factors:
  1. In the first quarter growth outperformed value. Both PanAgora and Acadian underperformed gaining 0.0% and 2.8% respectively. Specifically, the structural underweight to the Technology sector hurt as IT came back in Q1.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fund**</b>	<b>5,859,364,934</b>	<b>100.0</b>	<b>2.9</b>	<b>88</b>	<b>3.0</b>	<b>97</b>	<b>-3.4</b>	<b>32</b>	<b>1.7</b>	<b>48</b>	<b>9.9</b>	<b>88</b>	<b>5.3</b>	<b>81</b>	<b>6.6</b>	<b>67</b>
<i>Policy Index<sup>1</sup></i>			4.5	13	3.5	83	-3.9	48	1.8	46	9.7	91	6.0	61	7.0	54
<i>InvMetrics Public DB &gt; \$1B Net Median</i>			3.7		4.7		-4.2		1.6		11.1		6.3		7.2	
<b>Total Fund ex Overlay</b>	<b>5,842,407,382</b>	<b>99.7</b>	<b>2.8</b>	<b>94</b>	<b>2.7</b>	<b>97</b>	<b>-3.5</b>	<b>33</b>	<b>1.7</b>	<b>48</b>	<b>9.8</b>	<b>90</b>	<b>5.3</b>	<b>83</b>	<b>6.5</b>	<b>75</b>
<i>Policy Index</i>			4.5	13	3.5	83	-3.9	48	1.8	46	9.7	91	6.0	61	7.0	54
<i>InvMetrics Public DB &gt; \$1B Net Median</i>			3.7		4.7		-4.2		1.6		11.1		6.3		7.2	
<b>Public Equity</b>	<b>2,338,064,074</b>	<b>39.9</b>	<b>6.2</b>	<b>60</b>	<b>9.9</b>	<b>45</b>	<b>-4.1</b>	<b>2</b>	<b>0.1</b>	<b>42</b>	<b>15.5</b>	<b>76</b>	<b>6.7</b>	<b>73</b>	<b>8.5</b>	<b>71</b>
<i>Blended Public Equity Index<sup>1</sup></i>			6.9	38	10.1	35	-5.5	16	0.3	35	16.2	52	7.3	53	8.9	57
<i>InvMetrics All DB Total Eq Net Median</i>			6.6		9.8		-6.6		-0.1		16.2		7.4		9.2	
<b>US Equity</b>	<b>1,228,597,523</b>	<b>21.0</b>	<b>4.5</b>	<b>92</b>	<b>8.9</b>	<b>82</b>	<b>-5.9</b>	<b>6</b>	<b>2.9</b>	<b>10</b>	<b>17.9</b>	<b>75</b>	<b>9.4</b>	<b>59</b>	<b>10.9</b>	<b>50</b>
<i>Blended US Equity Index</i>			7.2	17	9.7	39	-8.6	69	1.2	44	18.5	55	10.4	15	11.6	20
<i>Russell 3000</i>			7.2	17	9.7	39	-8.6	69	1.2	44	18.5	55	10.4	15	11.7	15
<i>InvMetrics All DB US Eq Net Median</i>			6.3		9.7		-8.1		1.0		18.6		9.6		10.9	
<b>Large Cap Equity</b>	<b>1,120,397,947</b>	<b>19.1</b>	<b>4.6</b>	<b>52</b>	<b>8.5</b>	<b>54</b>	<b>-6.2</b>	<b>44</b>	<b>3.1</b>	<b>40</b>	<b>17.4</b>	<b>52</b>	<b>9.9</b>	<b>46</b>	<b>11.7</b>	<b>35</b>
<i>Russell 1000</i>			7.5	32	9.9	37	-8.4	66	1.9	58	18.6	37	10.9	31	12.0	29
<i>eV US Large Cap Equity Net Median</i>			4.9		8.7		-6.8		2.5		17.5		9.6		11.0	
Acadian US MGD V	206,534,809	3.5	2.8	81	7.8	64	-3.9	18	3.8	29	13.6	90	--	--	--	--
BlackRock Russell 1000	482,096,265	8.2	7.5	21	9.9	31	-8.4	72	1.9	63	18.5	34	10.9	31	--	--
DE Shaw	204,468,083	3.5	6.1	45	9.9	32	-8.8	77	2.2	59	18.0	44	9.6	55	12.0	20
PanAgora Defuseq	227,298,790	3.9	0.0	95	5.3	89	-1.7	7	5.6	11	16.0	75	--	--	--	--
<i>Russell 1000</i>			7.5	22	9.9	31	-8.4	72	1.9	63	18.6	34	10.9	31	12.0	21
<i>eV US Large Cap Core Equity Net Median</i>			5.6		8.7		-6.9		2.7		17.5		9.9		11.2	

\* Total Fund and asset class aggregates are ranked in InvMetrics universes. Managers are ranked in eVest (eA) manager universes.

\*\* Includes Parametric Minneapolis manager funded in August 2013.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Small Cap Equity</b>	<b>108,199,576</b>	<b>1.8</b>	<b>3.0</b>	<b>61</b>	<b>10.3</b>	<b>38</b>	<b>-6.4</b>	<b>38</b>	<b>-1.4</b>	<b>34</b>	<b>22.5</b>	<b>40</b>	<b>4.5</b>	<b>83</b>	<b>6.9</b>	<b>91</b>
<i>Russell 2000</i>			2.7	64	6.7	69	-11.6	74	-8.7	80	17.5	73	4.7	80	8.0	71
<i>eV US Small Cap Equity Net Median</i>			3.8		8.9		-8.1		-3.0		21.1		6.7		9.2	
<b>PGIM Quant Solutions</b>	<b>108,199,576</b>	<b>1.8</b>	<b>3.0</b>	<b>64</b>	<b>10.3</b>	<b>37</b>	<b>-6.4</b>	<b>40</b>	<b>-1.4</b>	<b>36</b>	<b>22.5</b>	<b>37</b>	<b>4.5</b>	<b>88</b>	<b>--</b>	<b>--</b>
<i>Russell 2000</i>			2.7	69	6.7	74	-11.6	83	-8.7	92	17.5	84	4.7	86	8.0	80
<i>eV US Small Cap Core Equity Net Median</i>			3.7		9.1		-7.6		-3.0		21.1		7.0		9.5	
Domestic Equity Overlay	0	0.0	8.3	--	25.0	--	8.9	--	45.4	--	--	--	--	--	--	--
<b>International Equity with Record</b>	<b>1,109,466,551</b>	<b>18.9</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended International Equity Index<sup>1</sup></i>			6.5	79	10.3	78	-2.2	49	-0.9	45	13.3	54	3.5	55	5.1	76
<i>Global xUS Equity Median</i>			8.3		13.6		-2.4		-1.4		13.5		3.7		5.9	
<b>International Equity</b>	<b>1,109,466,551</b>	<b>18.9</b>	<b>8.4</b>	<b>18</b>	<b>11.1</b>	<b>43</b>	<b>-1.9</b>	<b>16</b>	<b>-2.9</b>	<b>33</b>	<b>12.7</b>	<b>53</b>	<b>3.7</b>	<b>13</b>	<b>5.0</b>	<b>23</b>
<i>Blended International Equity Index<sup>1</sup></i>			6.5	78	10.3	53	-2.2	21	-0.9	10	13.3	33	3.5	14	5.1	22
<i>MSCI EAFE Gross</i>			8.6	12	15.7	1	-0.9	6	0.4	5	13.5	31	4.0	8	5.5	14
<i>InvMetrics All DB ex-US Eq Net Median</i>			7.3		10.5		-4.4		-3.7		12.7		2.4		4.4	
<b>Baillie Gifford</b>	<b>345,383,862</b>	<b>5.9</b>	<b>10.0</b>	<b>39</b>	<b>13.9</b>	<b>43</b>	<b>-7.5</b>	<b>50</b>	<b>-11.5</b>	<b>86</b>	<b>9.4</b>	<b>79</b>	<b>3.3</b>	<b>61</b>	<b>5.7</b>	<b>60</b>
<i>MSCI ACWI ex US<sup>1</sup></i>			7.0	78	10.4	69	-4.6	37	-2.8	21	12.3	43	3.0	65	5.1	87
<i>MSCI ACWI ex US Growth<sup>1</sup></i>			8.7	57	11.3	63	-6.0	45	-6.0	41	9.8	78	3.7	53	5.8	57
<i>eV ACWI ex-US Growth Equity Net Median</i>			9.3		13.2		-7.6		-6.7		11.9		3.8		6.4	
<b>Mondrian</b>	<b>363,337,580</b>	<b>6.2</b>	<b>8.7</b>	<b>34</b>	<b>8.4</b>	<b>86</b>	<b>-2.2</b>	<b>67</b>	<b>-2.0</b>	<b>80</b>	<b>11.8</b>	<b>92</b>	<b>1.6</b>	<b>64</b>	<b>3.6</b>	<b>75</b>
<i>MSCI ACWI ex USA Value Gross</i>			5.3	83	9.4	81	-3.3	78	0.3	44	14.5	66	1.9	55	3.7	75
<i>MSCI ACWI ex USA Gross</i>			7.0	54	10.4	70	-4.6	83	-2.8	88	12.3	87	3.0	44	4.7	40
<i>eV ACWI ex-US Value Equity Net Median</i>			8.1		11.9		-1.0		0.0		16.3		2.1		4.3	

1. See Appendix for Benchmark History.



Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
BlackRock MSCI ACWI EX-US IMI	358,291,919	6.1	6.7	73	10.0	76	-5.5	68	-3.3	62	--	--	--	--	--	--
<i>MSCI ACWI ex USA IMI</i>			6.6	75	9.9	76	-5.8	70	-3.6	65	12.2	67	2.4	81	4.3	88
<i>eV ACWI ex-US All Cap Core Eq Net Median</i>			7.7		11.7		-4.5		-2.7		13.7		3.4		5.3	
Int'l Equity Currency Overlay	0	0.0														
International Equity Overlay	42,453,189	0.7	6.2	--	7.7	--	-5.4	--	-7.1	--	--	--	--	--	--	--
<b>Fixed Income</b>	<b>1,317,752,739</b>	<b>22.5</b>	<b>2.5</b>	<b>80</b>	<b>0.7</b>	<b>63</b>	<b>-4.3</b>	<b>59</b>	<b>-3.1</b>	<b>39</b>	<b>0.7</b>	<b>32</b>	<b>1.6</b>	<b>28</b>	<b>2.4</b>	<b>21</b>
<i>Blended Fixed Income Index<sup>1</sup></i>			3.1	39	2.8	16	-3.2	38	-3.2	45	0.0	43	1.8	19	1.9	45
<i>InvMetrics All DB Total Fix Inc Net Median</i>			3.0		1.1		-3.9		-3.5		-0.5		1.3		1.8	
<b>Core Fixed</b>	<b>721,198,795</b>	<b>12.3</b>	<b>3.2</b>	<b>--</b>	<b>0.1</b>	<b>--</b>	<b>-4.7</b>	<b>--</b>	<b>-4.6</b>	<b>--</b>	<b>-1.9</b>	<b>--</b>	<b>0.7</b>	<b>--</b>	<b>1.6</b>	<b>--</b>
<i>Bloomberg US Aggregate TR</i>			3.0	--	-0.1	--	-4.8	--	-4.5	--	-2.8	--	0.9	--	1.4	--
DoubleLine	232,285,268	4.0	4.0	4	-0.1	38	-5.3	80	-4.8	69	-2.5	65	--	--	--	--
<i>Bloomberg US Aggregate TR</i>			3.0	22	-0.1	38	-4.8	65	-4.5	59	-2.8	74	0.9	47	1.4	55
<i>eV US Securitized Fixed Inc Net Median</i>			2.5		-0.6		-4.2		-3.9		-1.0		0.7		1.5	
FIAM Bond	263,295,617	4.5	2.9	77	0.2	44	-5.0	69	-4.2	33	-1.1	15	1.6	8	2.0	8
NISA Core Bond	225,617,910	3.9	3.0	53	0.3	39	-4.4	28	-4.1	27	--	--	--	--	--	--
<i>Bloomberg US Aggregate TR</i>			3.0	65	-0.1	73	-4.8	53	-4.5	58	-2.8	89	0.9	76	1.4	74
<i>eV US Core Fixed Inc Net Median</i>			3.1		0.2		-4.7		-4.4		-2.0		1.1		1.6	
Core Fixed Income Overlay	0	0.0	2.2	--	-1.9	--	-5.9	--	-1.6	--	--	--	--	--	--	--
<b>Opportunistic Credit</b>	<b>596,553,944</b>	<b>10.2</b>	<b>1.6</b>	<b>--</b>	<b>1.9</b>	<b>--</b>	<b>-3.7</b>	<b>--</b>	<b>-0.3</b>	<b>--</b>	<b>5.8</b>	<b>--</b>	<b>3.3</b>	<b>--</b>	<b>5.0</b>	<b>--</b>
<i>Bloomberg BA Intermediate HY</i>			3.4	--	7.2	--	-1.2	--	-1.4	--	5.3	--	3.7	--	3.6	--
AG CSF ADF II*	3,889,506	0.1	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>			3.4	--	7.2	--	-1.2	--	-1.4	--	5.3	--	3.7	--	3.6	--
AG CSF II*	15,216,839	0.3	2.3	--	-2.8	--	-8.6	--	--	--	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>			3.4	--	7.2	--	-1.2	--	-1.4	--	5.3	--	3.7	--	3.6	--

\* Preliminary return as of 3/31/2023.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Angelo Gordon Opportunistic*	88,267	0.0	0.0	--	3.3	--	6.7	--	9.4	--	17.2	--	9.5	--	--	--
<i>Bloomberg US Aggregate TR</i>			3.0	--	-0.1	--	-4.8	--	-4.5	--	-2.8	--	0.9	--	1.4	--
Angelo Gordon Credit Solutions*	14,402,310	0.2	2.0	94	0.2	99	-4.5	79	4.3	1	14.7	1	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>			3.4	43	7.2	37	-1.2	23	-1.4	44	5.3	62	3.7	16	3.6	60
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
Beach Point Select	108,853,139	1.9	2.3	93	1.0	99	-4.9	87	2.0	4	11.6	2	6.4	1	--	--
<i>Bloomberg BA Intermediate HY</i>			3.4	43	7.2	37	-1.2	23	-1.4	44	5.3	62	3.7	16	3.6	60
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
Brigade Capital	106,814,579	1.8	2.6	86	-1.5	99	-8.0	99	-1.2	39	9.8	5	2.9	57	3.7	59
<i>Bloomberg BA Intermediate HY</i>			3.4	43	7.2	37	-1.2	23	-1.4	44	5.3	62	3.7	16	3.6	60
<i>50% Barclays HY/ 50% Bank Loan</i>			3.3	46	7.0	44	-0.5	17	0.4	16	7.2	18	3.4	31	4.0	34
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
PIMCO Diversified	129,367,276	2.2	2.6	85	4.7	91	-4.8	86	-4.6	99	0.7	99	1.2	99	--	--
<i>Blended PIMCO Diversified Index<sup>1</sup></i>			2.9	69	4.7	91	-4.5	79	-4.1	99	1.7	99	1.5	99	2.8	95
<i>Bloomberg BA Intermediate HY</i>			3.4	43	7.2	37	-1.2	23	-1.4	44	5.3	62	3.7	16	3.6	60
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
Franklin Templeton	54,810,404	0.9	0.7	95	4.0	34	-8.4	76	-5.1	54	-4.3	93	-3.9	98	-1.0	94
<i>Bloomberg Multiverse TR</i>			3.0	49	0.6	78	-7.9	73	-7.1	74	-3.1	88	-1.2	79	0.2	76
<i>eV All Global Fixed Inc Net Median</i>			3.0		2.3		-5.5		-4.7		1.3		1.0		1.8	
<b>Private Credit</b>	<b>163,111,625</b>	<b>2.8</b>	<b>0.1</b>	<b>--</b>	<b>2.4</b>	<b>--</b>	<b>2.6</b>	<b>--</b>	<b>4.4</b>	<b>--</b>	<b>7.4</b>	<b>--</b>	<b>6.4</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Cliffwater Direct Lending Index</i>			2.0	--	6.0	--	6.6	--	8.8	--	10.7	--	8.3	--	8.8	--
Blackrock DL Feeder IX-U	37,884,295	0.6	0.1	99	2.9	96	3.5	1	4.9	1	8.4	9	--	--	--	--
<i>Cliffwater Direct Lending Index</i>			2.0	93	6.0	76	6.6	1	8.8	1	10.7	3	8.3	1	8.8	1
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	

\* Market value as of 12/31/2022.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
PIMCO Private Income**	50,228,788	0.9	0.0	99	-1.0	99	-1.5	27	3.6	2	9.9	4	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>			3.4	43	7.2	37	-1.2	23	-1.4	44	5.3	62	3.7	16	3.6	60
<i>Cliffwater Direct Lending Index</i>			2.0	93	6.0	76	6.6	1	8.8	1	10.7	3	8.3	1	8.8	1
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
TCP Direct Lending VIII*	14,533,963	0.2	1.1	97	3.1	96	2.3	1	3.8	2	6.2	33	5.9	1	--	--
White Oak Yield**	29,924,349	0.5	0.0	99	0.1	99	1.5	3	3.6	2	4.9	72	5.3	2	--	--
White Oak YSF V**	30,540,230	0.5	0.0	99	10.4	1	10.6	1	6.8	1	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>			2.0	93	6.0	76	6.6	1	8.8	1	10.7	3	8.3	1	8.8	1
<i>eV US High Yield Fixed Inc Net Median</i>			3.3		6.8		-2.8		-1.5		5.7		3.0		3.8	
<b>Alternatives</b>	<b>722,655,893</b>	<b>12.3</b>	<b>-0.2</b>	<b>--</b>	<b>-5.5</b>	<b>--</b>	<b>-4.0</b>	<b>--</b>	<b>5.2</b>	<b>--</b>	<b>14.5</b>	<b>--</b>	<b>10.0</b>	<b>--</b>	<b>8.1</b>	<b>--</b>
<i>Blended Alternatives Index<sup>1</sup></i>			5.1	--	-3.3	--	-4.6	--	4.7	--	7.7	--	8.8	--	8.4	--
<b>Private Equity**+++</b>	<b>376,695,218</b>	<b>6.4</b>	<b>0.9</b>	<b>44</b>	<b>-8.7</b>	<b>88</b>	<b>-11.8</b>	<b>88</b>	<b>5.6</b>	<b>75</b>	<b>21.6</b>	<b>23</b>	<b>20.5</b>	<b>7</b>	<b>18.5</b>	<b>4</b>
<i>Blended Private Equity Index<sup>1</sup></i>			8.0	2	-12.5	94	-16.2	94	3.8	79	10.1	74	11.8	64	13.9	43
<i>InvMetrics All DB Private Eq Net Median</i>			0.5		-0.8		-1.3		10.3		17.2		13.6		13.3	
<b>Hedge Fund/Absolute Return</b>	<b>345,960,676</b>	<b>5.9</b>	<b>-1.3</b>	<b>95</b>	<b>-3.2</b>	<b>97</b>	<b>3.4</b>	<b>10</b>	<b>3.9</b>	<b>26</b>	<b>4.7</b>	<b>87</b>	<b>-2.3</b>	<b>89</b>	<b>1.6</b>	<b>80</b>
<i>Absolute Return Custom Index</i>			2.1	53	5.7	42	6.8	5	5.4	8	5.0	86	5.5	27	5.0	34
<i>InvMetrics All DB Hedge Funds Net Median</i>			2.4		5.2		-1.6		2.1		9.8		4.5		4.3	
Acadian MAAR Fund LLC	81,364,729	1.4	-0.9	74	-1.5	75	1.5	40	0.3	56	--	--	--	--	--	--
CFM Systematic Global Macro	85,894,175	1.5	-2.5	83	-1.6	76	10.5	7	7.3	23	--	--	--	--	--	--
Graham Quant Macro	90,104,309	1.5	0.4	61	-5.3	88	3.0	30	7.4	23	7.8	52	--	--	--	--
PIMCO MAARS Fund LP	88,597,463	1.5	-2.3	81	-1.4	74	6.8	15	9.5	17	--	--	--	--	--	--
<i>Absolute Return Custom Index</i>			2.1	38	5.7	28	6.8	15	5.4	27	5.0	73	5.5	38	5.0	52
<i>eV Alt All Multi-Strategy Median</i>			1.0		1.7		-1.0		1.4		8.4		4.3		5.4	

\* Preliminary return as of 3/31/2023.

\*\* Market value as of 12/31/2022.

\*\* Returns are one-quarter lag.

+++ Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Inflation Hedge</b>	<b>1,009,802,051</b>	<b>17.2</b>	<b>-1.1</b>	<b>--</b>	<b>-1.7</b>	<b>--</b>	<b>-1.7</b>	<b>--</b>	<b>9.8</b>	<b>--</b>	<b>10.3</b>	<b>--</b>	<b>4.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Inflation Hedge Index<sup>1</sup></i>			<i>1.1</i>	<i>--</i>	<i>-4.6</i>	<i>--</i>	<i>-1.6</i>	<i>--</i>	<i>11.0</i>	<i>--</i>	<i>12.3</i>	<i>--</i>	<i>7.2</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Real Estate</b>	<b>531,551,893</b>	<b>9.1</b>	<b>-2.0</b>	<b>47</b>	<b>-3.7</b>	<b>26</b>	<b>0.3</b>	<b>26</b>	<b>9.8</b>	<b>45</b>	<b>6.6</b>	<b>76</b>	<b>6.9</b>	<b>38</b>	<b>9.1</b>	<b>13</b>
<i>NCREIF ODCE</i>			<i>-3.2</i>	<i>79</i>	<i>-7.5</i>	<i>81</i>	<i>-3.1</i>	<i>71</i>	<i>11.6</i>	<i>16</i>	<i>8.4</i>	<i>24</i>	<i>7.5</i>	<i>16</i>	<i>9.5</i>	<i>8</i>
<i>InvMetrics All DB Real Estate Pub Net Median</i>			<i>-2.2</i>		<i>-4.9</i>		<i>-1.4</i>		<i>9.6</i>		<i>7.4</i>		<i>6.7</i>		<i>8.3</i>	
Harrison Street Core Property	96,895,435	1.7	-0.5	--	0.9	--	7.1	--	9.0	--	7.1	--	--	--	--	--
Invesco*	285,382,497	4.9	-4.1	--	-7.6	--	-3.2	--	10.8	--	6.4	--	6.7	--	8.9	--
<i>NCREIF ODCE</i>			<i>-3.2</i>	<i>--</i>	<i>-7.5</i>	<i>--</i>	<i>-3.1</i>	<i>--</i>	<i>11.6</i>	<i>--</i>	<i>8.4</i>	<i>--</i>	<i>7.5</i>	<i>--</i>	<i>9.5</i>	<i>--</i>
Invesco US Val IV**	877,087	0.0	0.0	--	-39.1	--	-42.5	--	-19.5	--	-13.0	--	-3.9	--	--	--
Invesco US Val V	29,419,076	0.5	1.1	--	-5.0	--	-4.4	--	8.6	--	9.0	--	--	--	--	--
<i>NCREIF ODCE</i>			<i>-3.2</i>	<i>--</i>	<i>-7.5</i>	<i>--</i>	<i>-3.1</i>	<i>--</i>	<i>11.6</i>	<i>--</i>	<i>8.4</i>	<i>--</i>	<i>7.5</i>	<i>--</i>	<i>9.5</i>	<i>--</i>
<i>NCREIF ODCE + 2%</i>			<i>-2.7</i>	<i>--</i>	<i>-6.1</i>	<i>--</i>	<i>-1.1</i>	<i>--</i>	<i>13.8</i>	<i>--</i>	<i>10.6</i>	<i>--</i>	<i>9.7</i>	<i>--</i>	<i>11.6</i>	<i>--</i>
Invesco US Val VI**	18,234,450	0.3	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>			<i>-3.2</i>	<i>--</i>	<i>-7.5</i>	<i>--</i>	<i>-3.1</i>	<i>--</i>	<i>11.6</i>	<i>--</i>	<i>8.4</i>	<i>--</i>	<i>7.5</i>	<i>--</i>	<i>9.5</i>	<i>--</i>
PGIM RE US Debt Fund	75,441,317	1.3	1.7	--	5.0	--	6.2	--	5.8	--	5.5	--	5.7	--	--	--
Stockbridge Value IV**	25,302,031	0.4	0.0	--	5.6	--	15.1	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>			<i>-3.2</i>	<i>--</i>	<i>-7.5</i>	<i>--</i>	<i>-3.1</i>	<i>--</i>	<i>11.6</i>	<i>--</i>	<i>8.4</i>	<i>--</i>	<i>7.5</i>	<i>--</i>	<i>9.5</i>	<i>--</i>
<b>Private Real Asset**</b>	<b>249,408,623</b>	<b>4.3</b>	<b>-0.4</b>	<b>--</b>	<b>-0.1</b>	<b>--</b>	<b>5.9</b>	<b>--</b>	<b>14.1</b>	<b>--</b>	<b>13.4</b>	<b>--</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Private Real Asset Index<sup>1</sup></i>			<i>11.9</i>	<i>--</i>	<i>-5.6</i>	<i>--</i>	<i>4.9</i>	<i>--</i>	<i>10.7</i>	<i>--</i>	<i>6.5</i>	<i>--</i>	<i>6.5</i>	<i>--</i>	<i>--</i>	<i>--</i>
<i>Blended Secondary CA Private RA Index<sup>1</sup></i>			<i>3.3</i>	<i>--</i>	<i>6.0</i>	<i>--</i>	<i>13.9</i>	<i>--</i>	<i>17.8</i>	<i>--</i>	<i>10.8</i>	<i>--</i>	<i>7.4</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Public Real Assets</b>	<b>228,841,535</b>	<b>3.9</b>	<b>0.2</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>-7.0</b>	<b>--</b>	<b>8.2</b>	<b>--</b>	<b>16.8</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Public Real Asset Index<sup>1</sup></i>			<i>0.1</i>	<i>--</i>	<i>1.7</i>	<i>--</i>	<i>-6.9</i>	<i>--</i>	<i>8.1</i>	<i>--</i>	<i>17.1</i>	<i>--</i>	<i>4.6</i>	<i>--</i>	<i>--</i>	<i>--</i>
SSgA Custom Real Asset	228,841,535	3.9	0.2	--	1.6	--	-7.0	--	8.2	--	16.8	--	4.6	--	--	--
<i>SSgA Custom Real Asset Index<sup>1</sup></i>			<i>0.1</i>	<i>--</i>	<i>1.7</i>	<i>--</i>	<i>-6.9</i>	<i>--</i>	<i>8.1</i>	<i>--</i>	<i>17.1</i>	<i>--</i>	<i>4.6</i>	<i>--</i>	<i>--</i>	<i>--</i>

\* Preliminary return as of 3/31/2023.

\*\* Market value as of 12/31/2023.

\*\* Returns are one-quarter lag.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2023

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Liquidity</b>	<b>513,543,366</b>	<b>8.8</b>	<b>1.2</b>	<b>--</b>	<b>2.2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Liquidity Index<sup>1</sup></i>			<i>1.4</i>	<i>--</i>	<i>1.6</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Cash Flow-Matched Liquidity</b>	<b>363,937,717</b>	<b>6.2</b>	<b>1.2</b>	<b>--</b>	<b>1.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Bloomberg US Govt/Credit 1-3 Yr. TR</i>			<i>1.5</i>	<i>--</i>	<i>0.9</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>-1.3</i>	<i>--</i>	<i>-0.4</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>1.0</i>	<i>--</i>
<i>Bloomberg US Credit 1-3 Yr TR</i>			<i>1.3</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>-1.1</i>	<i>--</i>	<i>0.7</i>	<i>--</i>	<i>1.6</i>	<i>--</i>	<i>1.5</i>	<i>--</i>
<b>Insight Investment*</b>	<b>356,215,466</b>	<b>6.1</b>	<b>1.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Bloomberg US Credit 1-3 Yr TR</i>			<i>1.3</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.3</i>	<i>--</i>	<i>-1.1</i>	<i>--</i>	<i>0.7</i>	<i>--</i>	<i>1.6</i>	<i>--</i>	<i>1.5</i>	<i>--</i>
<b>County Treasury Pool*</b>	<b>7,722,251</b>	<b>0.1</b>	<b>0.3</b>	<b>--</b>	<b>0.8</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.1</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.9</b>	<b>--</b>	<b>1.6</b>	<b>--</b>
<i>91 Day T-Bills</i>			<i>1.1</i>	<i>--</i>	<i>2.4</i>	<i>--</i>	<i>2.5</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.9</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.8</i>	<i>--</i>
<b>Cash &amp; Cash Overlay</b>	<b>149,605,649</b>	<b>2.6</b>	<b>1.1</b>	<b>--</b>	<b>2.7</b>	<b>--</b>	<b>2.9</b>	<b>--</b>	<b>1.6</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.2</b>	<b>--</b>	<b>1.0</b>	<b>--</b>
<i>91 Day T-Bills</i>			<i>1.1</i>	<i>--</i>	<i>2.4</i>	<i>--</i>	<i>2.5</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.9</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.8</i>	<i>--</i>
<b>General Account</b>	<b>132,648,111</b>	<b>2.3</b>	<b>1.2</b>	<b>--</b>	<b>2.9</b>	<b>--</b>	<b>3.1</b>	<b>--</b>	<b>1.7</b>	<b>--</b>	<b>1.4</b>	<b>--</b>	<b>2.4</b>	<b>--</b>	<b>1.8</b>	<b>--</b>
<i>91 Day T-Bills</i>			<i>1.1</i>	<i>--</i>	<i>2.4</i>	<i>--</i>	<i>2.5</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.9</i>	<i>--</i>	<i>1.3</i>	<i>--</i>	<i>0.8</i>	<i>--</i>
<b>Currency Hedge Cash Overlay</b>	<b>-13</b>	<b>0.0</b>	<b>0.7</b>	<b>--</b>	<b>1.9</b>	<b>--</b>	<b>2.0</b>	<b>--</b>	<b>0.9</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

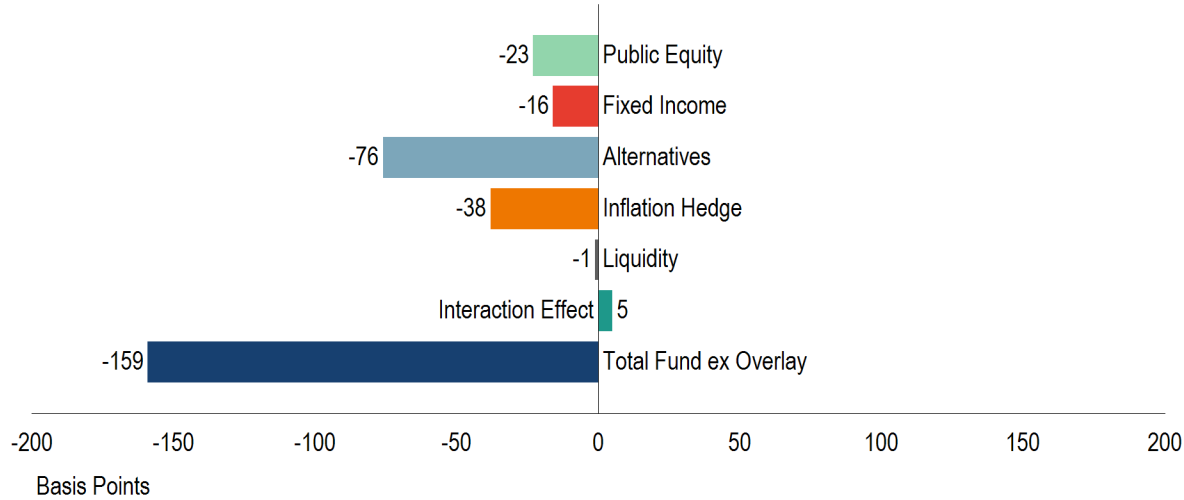
\* Funded July 2022.

+ Moved from Cash & Cash Overlay to Cash Flow-Matched Liquidity in July 2022. Reflects linked historical returns up to June 2022.

1. See Appendix for Benchmark History.

Total Fund ex Overlay  
Performance Attribution

Period Ending: March 31, 2023



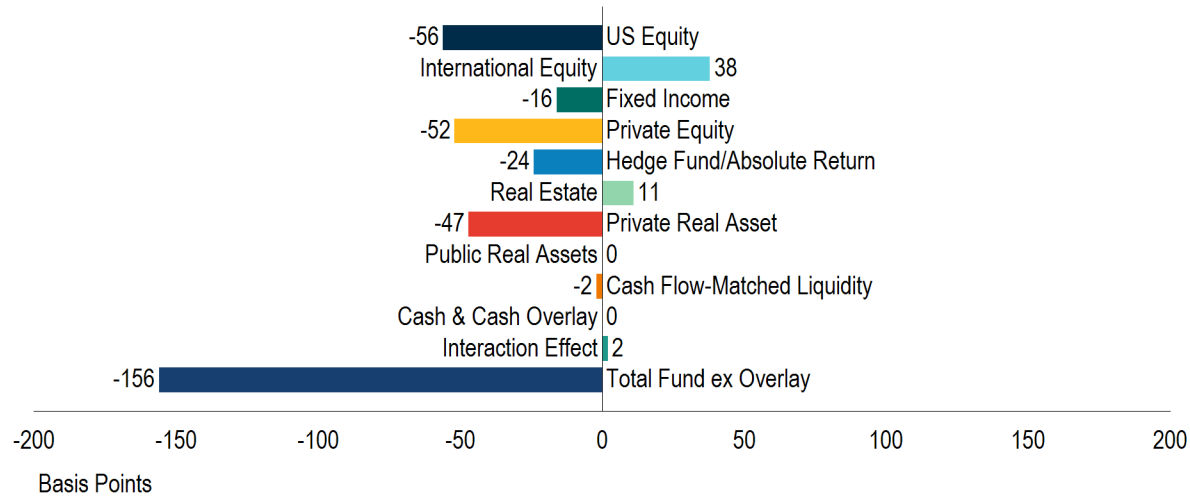
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Public Equity	6.24%	6.87%	-0.63%	-0.23%	-0.04%	0.00%	-0.27%
Fixed Income	2.48%	3.15%	-0.67%	-0.16%	0.03%	0.00%	-0.13%
Alternatives	-0.20%	5.14%	-5.35%	-0.76%	-0.03%	0.08%	-0.71%
Inflation Hedge	-1.12%	1.09%	-2.21%	-0.38%	-0.01%	-0.03%	-0.42%
Liquidity	1.21%	1.43%	-0.22%	-0.01%	-0.05%	-0.01%	-0.07%
<b>Total</b>	<b>2.87%</b>	<b>4.46%</b>	<b>-1.59%</b>	<b>-1.54%</b>	<b>-0.10%</b>	<b>0.05%</b>	<b>-1.59%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.



Total Fund ex Overlay  
Performance Attribution

Period Ending: March 31, 2023

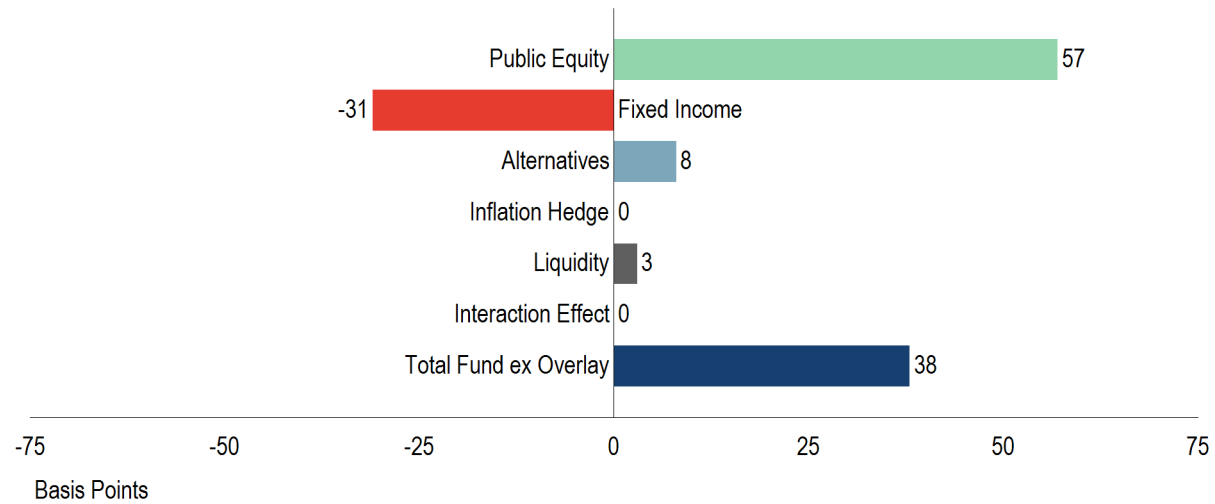


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
US Equity	4.53%	7.18%	-2.65%	-0.56%	-0.01%	0.00%	-0.56%
International Equity	8.42%	6.52%	1.90%	0.38%	-0.03%	-0.02%	0.32%
Fixed Income	2.48%	3.15%	-0.67%	-0.16%	0.03%	0.00%	-0.13%
Private Equity	0.86%	7.96%	-7.10%	-0.52%	-0.03%	0.05%	-0.51%
Hedge Fund/Absolute Return	-1.33%	2.12%	-3.45%	-0.24%	0.01%	0.03%	-0.20%
Real Estate	-2.03%	-3.17%	1.14%	0.11%	-0.02%	0.00%	0.09%
Private Real Asset	-0.42%	11.91%	-12.33%	-0.47%	0.03%	-0.04%	-0.47%
Public Real Assets	0.20%	0.13%	0.07%	0.00%	-0.02%	0.00%	-0.02%
Cash Flow-Matched Liquidity	1.18%	1.51%	-0.33%	-0.02%	0.00%	0.00%	-0.02%
Cash & Cash Overlay	1.15%	1.07%	0.07%	0.00%	-0.05%	0.00%	-0.05%
<b>Total</b>	<b>2.90%</b>	<b>4.46%</b>	<b>-1.56%</b>	<b>-1.48%</b>	<b>-0.10%</b>	<b>0.02%</b>	<b>-1.56%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

Total Fund ex Overlay  
Performance Attribution (1 Year)

Period Ending: March 31, 2023

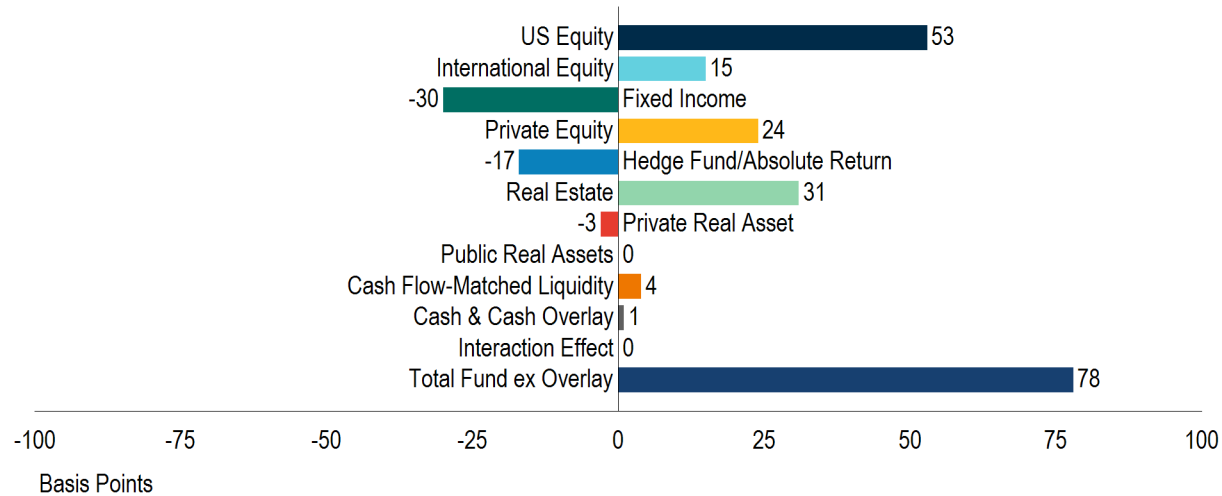


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Public Equity	-4.13%	-5.55%	1.41%	0.57%	0.00%	0.00%	0.57%
Fixed Income	-4.35%	-3.21%	-1.14%	-0.31%	0.00%	0.00%	-0.31%
Alternatives	-4.04%	-4.59%	0.55%	0.08%	0.00%	0.00%	0.08%
Inflation Hedge	-1.71%	-1.62%	-0.08%	0.00%	0.00%	0.00%	0.00%
Liquidity	2.25%	--	--	0.03%	0.00%	0.00%	0.03%
<b>Total</b>	<b>-3.35%</b>	<b>-3.73%</b>	<b>0.39%</b>	<b>0.38%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.38%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

Total Fund ex Overlay  
Performance Attribution (1 Year)

Period Ending: March 31, 2023



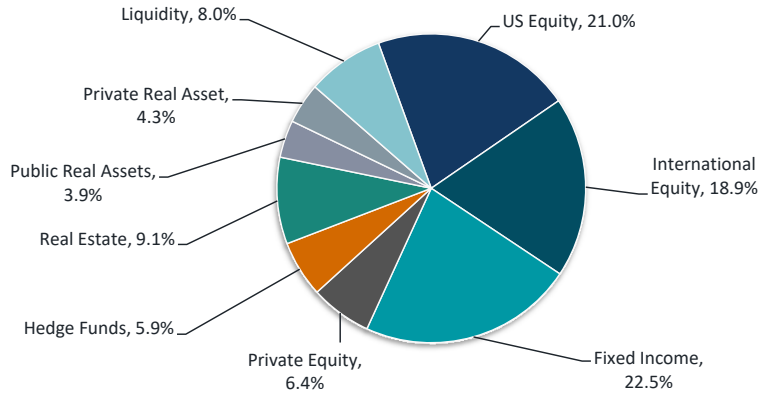
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
US Equity	-5.94%	-8.58%	2.64%	0.53%	0.00%	0.00%	0.53%
International Equity	-1.90%	-2.23%	0.33%	0.15%	0.00%	0.00%	0.15%
Fixed Income	-4.35%	-3.21%	-1.14%	-0.30%	0.00%	0.00%	-0.30%
Private Equity	-11.84%	-16.21%	4.37%	0.24%	0.00%	0.00%	0.24%
Hedge Fund/Absolute Return	3.37%	6.81%	-3.44%	-0.17%	0.00%	0.00%	-0.17%
Real Estate	0.30%	-3.09%	3.39%	0.31%	0.00%	0.00%	0.31%
Private Real Asset	5.93%	4.91%	1.02%	-0.03%	0.00%	0.00%	-0.03%
Public Real Assets	-6.97%	-6.90%	-0.07%	0.00%	0.00%	0.00%	0.00%
Cash Flow-Matched Liquidity	--	0.90%	--	0.04%	0.00%	0.00%	0.04%
Cash & Cash Overlay	2.94%	2.50%	0.44%	0.01%	0.00%	0.00%	0.01%
<b>Total</b>	<b>-3.36%</b>	<b>-4.14%</b>	<b>0.78%</b>	<b>0.78%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.78%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

# Total Fund Asset Allocation Analysis

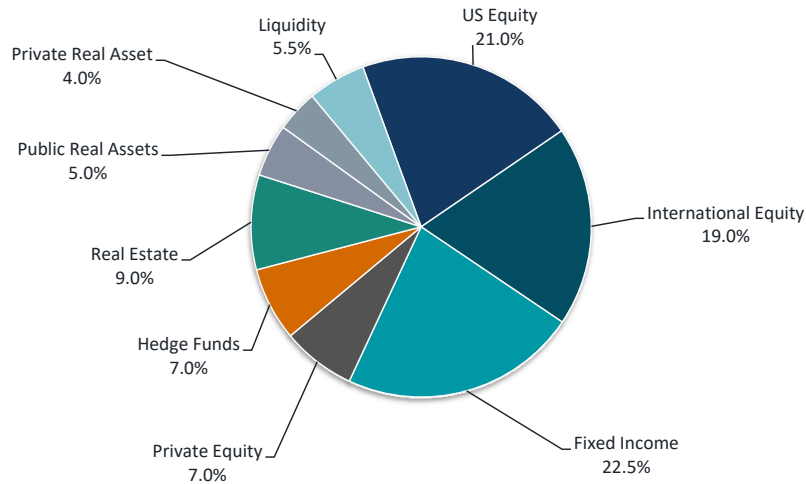
Period Ending: March 31, 2023

Current w/ Overlay



ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,228,597,523	21.0%	21.0%
International Equity	1,109,466,551	18.9%	18.2%
Fixed Income	1,317,752,739	22.5%	22.5%
Private Equity	376,695,218	6.4%	6.4%
Hedge Funds	345,960,676	5.9%	5.9%
Real Estate	531,551,893	9.1%	9.1%
Public Real Assets	228,841,535	3.9%	3.9%
Private Real Asset	249,408,623	4.3%	4.3%
Liquidity	471,090,177	8.0%	8.8%
<b>TOTAL</b>	<b>5,859,364,934</b>	<b>100.0%</b>	<b>100.0%</b>

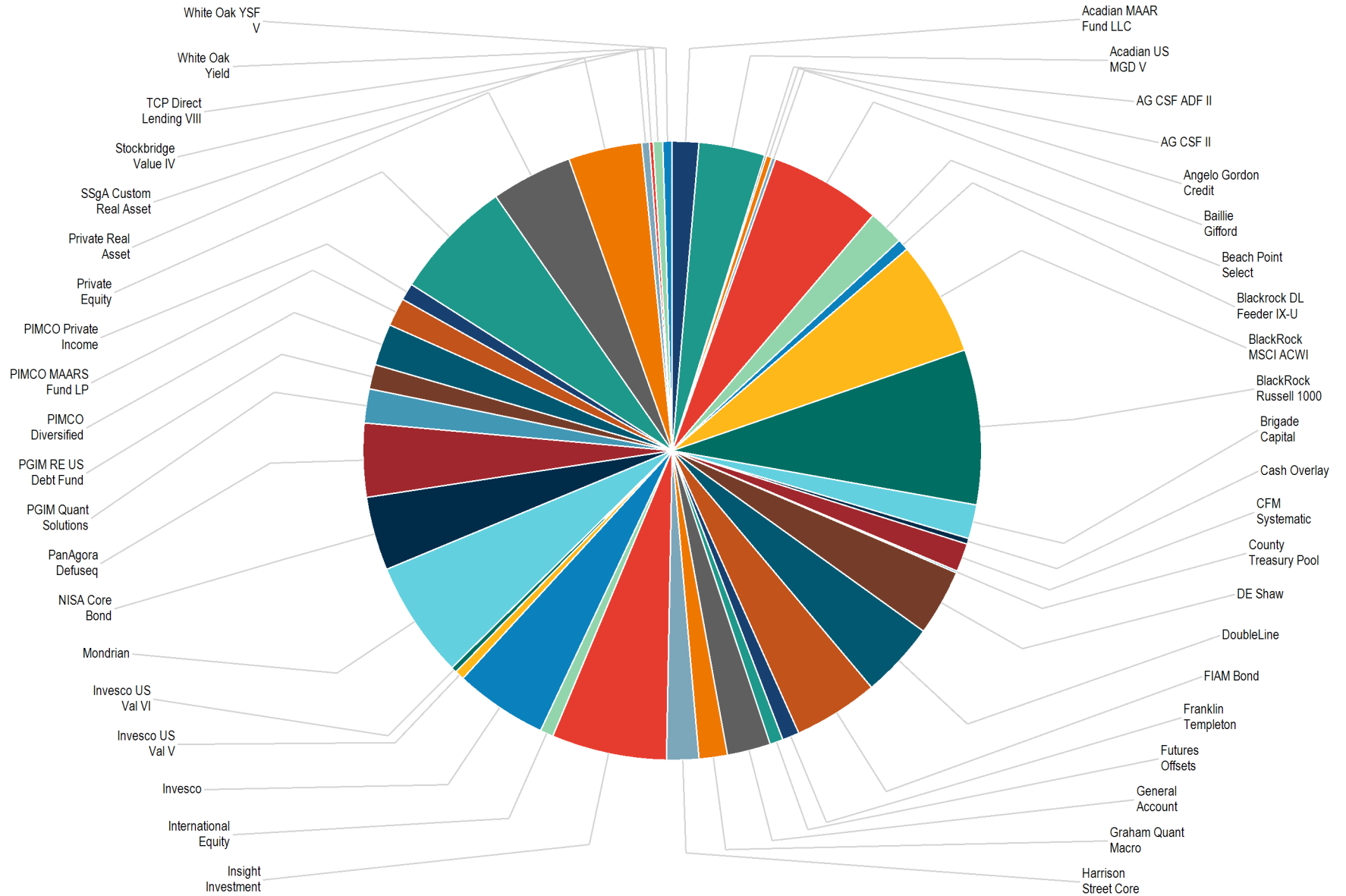
Target



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	21.0%	21.0%	0.0%
International Equity	18.9%	19.0%	-0.1%
Fixed Income	22.5%	22.5%	0.0%
Private Equity	6.4%	7.0%	-0.6%
Hedge Funds	5.9%	7.0%	-1.1%
Real Estate	9.1%	9.0%	0.1%
Public Real Assets	3.9%	5.0%	-1.1%
Private Real Asset	4.3%	4.0%	0.3%
Liquidity	8.0%	5.5%	2.5%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

# Total Fund Manager Allocation Analysis

Period Ending: March 31, 2023



# Total Fund Manager Allocation Analysis

Period Ending: March 31, 2023

Name	Market Value	% of Portfolio
Acadian US MGD V	\$206,534,809	3.5%
BlackRock Russell 1000	\$482,096,265	8.2%
DE Shaw	\$204,468,083	3.5%
PanAgora Defuseq	\$227,298,790	3.9%
PGIM Quant Solutions	\$108,199,576	1.8%
Domestic Equity Overlay	\$0	0.0%
Baillie Gifford	\$345,383,862	5.9%
Mondrian	\$363,337,580	6.2%
BlackRock MSCI ACWI EX-US IMI	\$358,291,919	6.1%
International Equity Overlay	\$42,453,189	0.7%
DoubleLine	\$232,285,268	4.0%
FIAM Bond	\$263,295,617	4.5%
NISA Core Bond	\$225,617,910	3.9%
Core Fixed Income Overlay	\$0	0.0%
AG CSF ADF II	\$3,889,506	0.1%
AG CSF II	\$15,216,839	0.3%
Angelo Gordon Opportunistic	\$88,267	0.0%
Angelo Gordon Credit Solutions	\$14,402,310	0.2%
Beach Point Select	\$108,853,139	1.9%
Brigade Capital	\$106,814,579	1.8%
PIMCO Diversified	\$129,367,276	2.2%
Franklin Templeton	\$54,810,404	0.9%
Blackrock DL Feeder IX-U	\$37,884,295	0.6%
PIMCO Private Income	\$50,228,788	0.9%
TCP Direct Lending VIII	\$14,533,963	0.2%
White Oak Yield	\$29,924,349	0.5%
White Oak YSF V	\$30,540,230	0.5%
Private Equity	\$376,695,218	6.4%



# Total Fund Manager Allocation Analysis

Period Ending: March 31, 2023

Name	Market Value	% of Portfolio
Acadian MAAR Fund LLC	\$81,364,729	1.4%
CFM Systematic Global Macro	\$85,894,175	1.5%
Graham Quant Macro	\$90,104,309	1.5%
PIMCO MAARS Fund LP	\$88,597,463	1.5%
Harrison Street Core Property	\$96,895,435	1.7%
Invesco	\$285,382,497	4.9%
Invesco US Val IV	\$877,087	0.0%
Invesco US Val V	\$29,419,076	0.5%
Invesco US Val VI	\$18,234,450	0.3%
PGIM RE US Debt Fund	\$75,441,317	1.3%
Stockbridge Value IV	\$25,302,031	0.4%
Private Real Asset	\$249,408,623	4.3%
SSgA Custom Real Asset	\$228,841,535	3.9%
Insight Investment	\$356,215,466	6.1%
County Treasury Pool	\$7,722,251	0.1%
General Account	\$132,648,111	2.3%
Currency Hedge Cash Overlay	-\$13	0.0%
Cash Overlay	\$16,957,551	0.3%
Transition Account	\$0	0.0%
Futures Offsets (SMCE02001)	-\$42,453,189	-0.7%
<b>Total</b>	<b>\$5,859,364,934</b>	<b>100.0%</b>

**Statistics Summary**

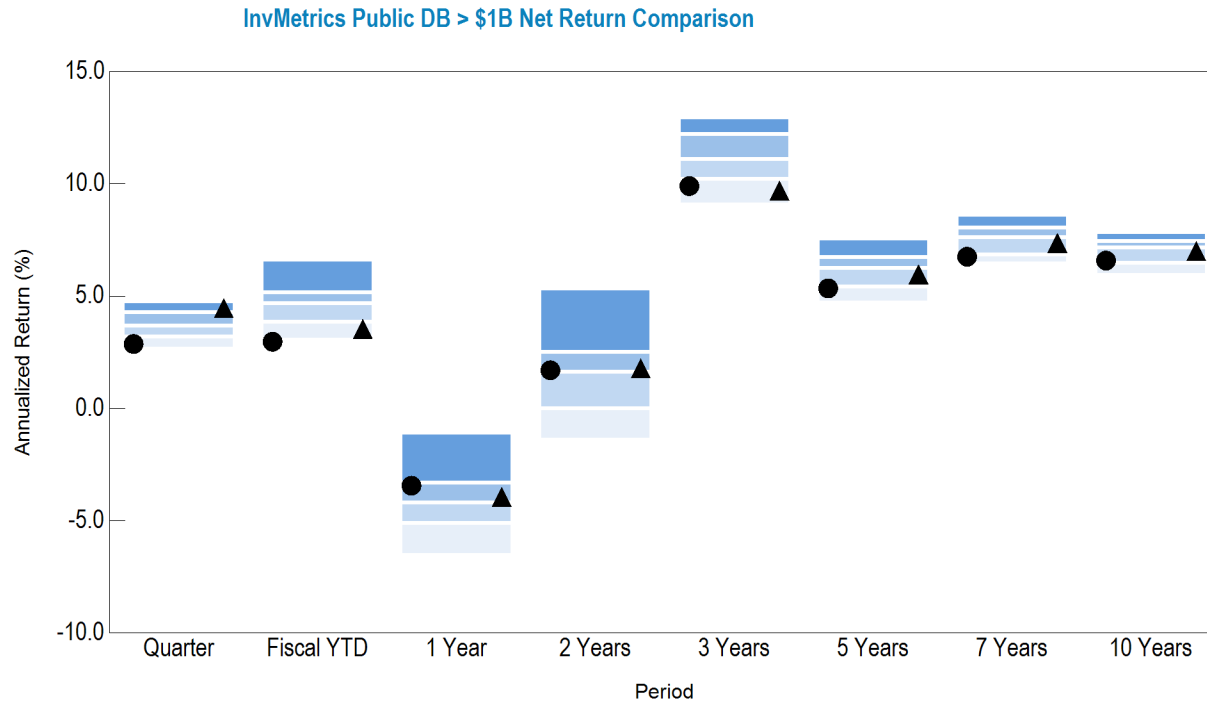
**3 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	9.9%	88	8.1%	12	1.1	33	0.1	71	2.6%	60
Policy Index	9.7%	91	9.3%	31	0.9	68	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	11.1%	--	10.0%	--	1.0	--	0.4	--	2.0%	--

**Statistics Summary**

**5 Years**

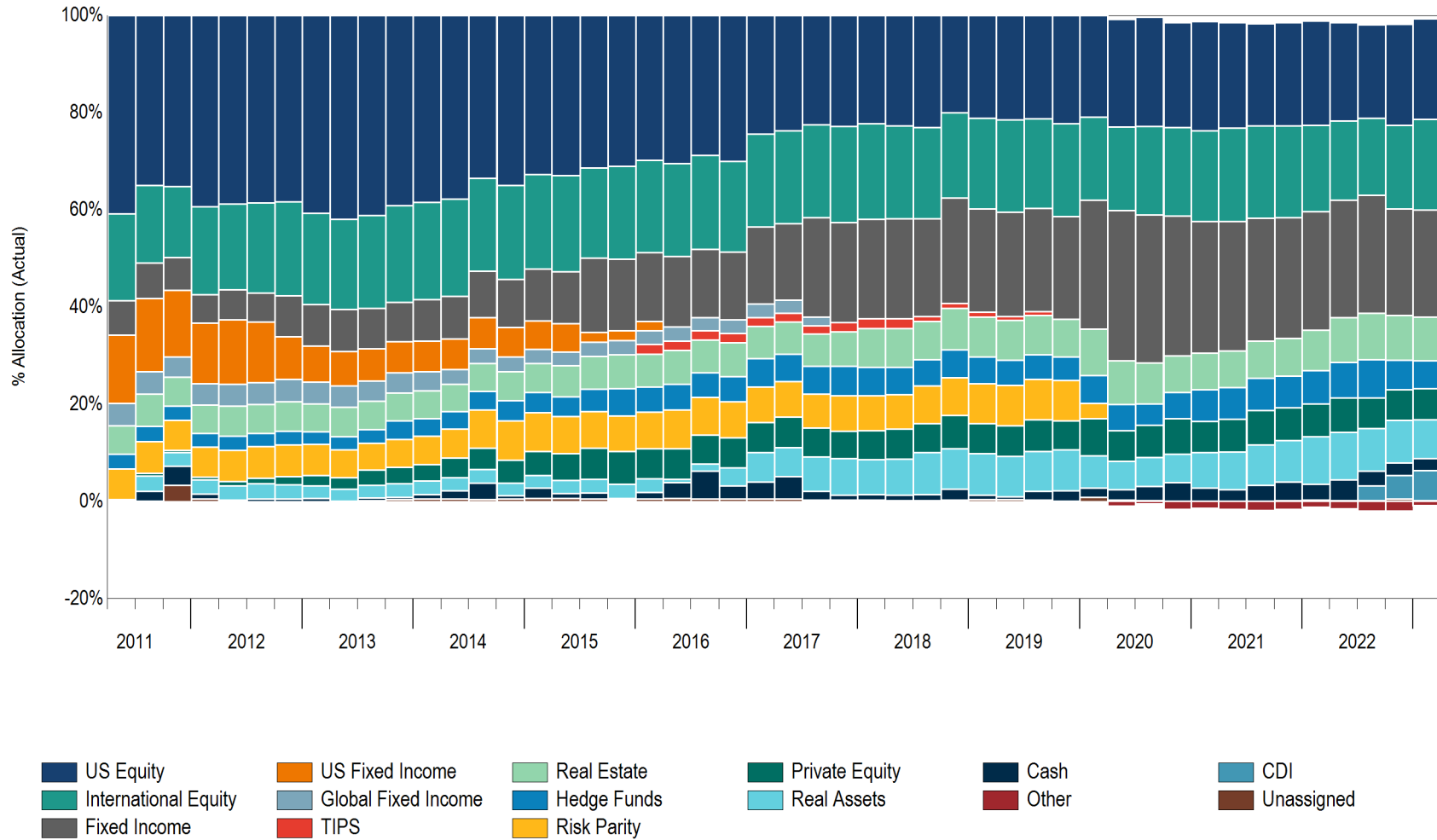
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	5.3%	81	8.8%	20	0.5	52	-0.3	87	2.2%	60
Policy Index	6.0%	61	9.2%	25	0.5	36	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	6.3%	--	10.2%	--	0.5	--	0.0	--	1.8%	--



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
<b>Return (Rank)</b>								
5th Percentile	4.8	6.6	-1.1	5.3	13.0	7.6	8.6	7.9
25th Percentile	4.3	5.2	-3.3	2.5	12.2	6.8	8.1	7.5
Median	3.7	4.7	-4.2	1.6	11.1	6.3	7.6	7.2
75th Percentile	3.2	3.9	-5.1	0.0	10.2	5.4	6.9	6.5
95th Percentile	2.7	3.1	-6.5	-1.4	9.1	4.7	6.5	6.0
# of Portfolios	58	58	58	58	58	58	58	55
● Total Fund	2.9 (88)	3.0 (97)	-3.4 (32)	1.7 (48)	9.9 (88)	5.3 (81)	6.8 (83)	6.6 (67)
▲ Policy Index	4.5 (13)	3.5 (83)	-3.9 (48)	1.8 (46)	9.7 (91)	6.0 (61)	7.4 (60)	7.0 (54)

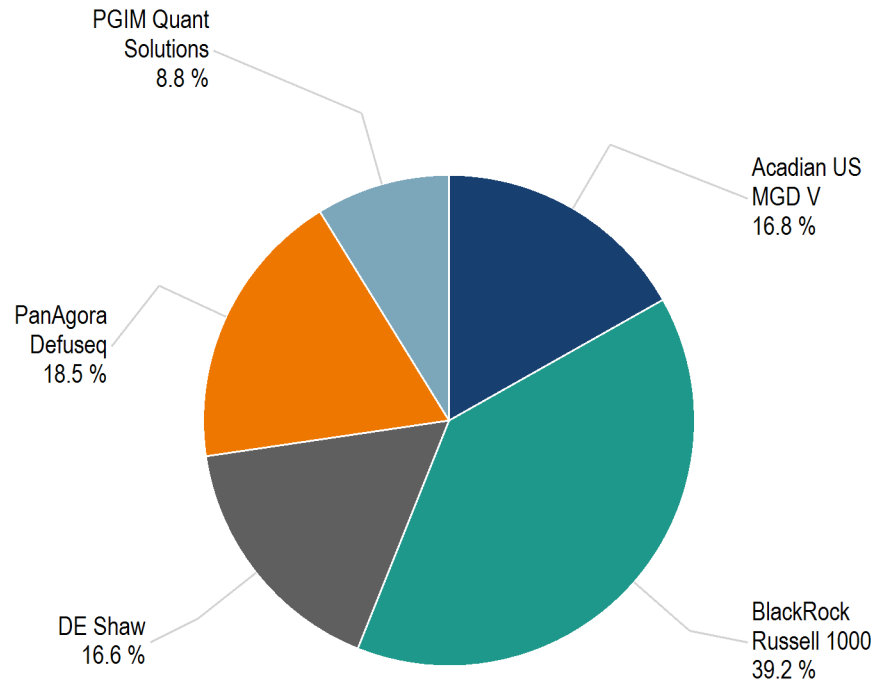
Total Fund  
Asset Allocation History

Period Ending: March 31, 2023



US Equity  
 Manager Allocation Analysis

Period Ending: March 31, 2023



	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$206,534,809	16.8%	-0.8%
BlackRock Russell 1000	\$482,096,265	39.2%	0.0%
DE Shaw	\$204,468,083	16.6%	-0.2%
PanAgora Defuseq	\$227,298,790	18.5%	-1.5%
PGIM Quant Solutions	\$108,199,576	8.8%	0.0%
Domestic Equity Overlay	\$0	0.0%	0.0%
Actual vs. Policy Weight Difference			-0.2%
<b>Total</b>	<b>\$1,228,597,524</b>	<b>100.0%</b>	<b>-2.7%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	17.9%	17.9%	1.0	-0.2	2.8%
Blended US Equity Index	18.5%	19.6%	0.9	--	0.0%
Russell 3000	18.5%	19.6%	0.9	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	17.4%	17.8%	0.9	-0.4	2.8%
Russell 1000	18.6%	19.6%	0.9	--	0.0%
Acadian US MGD V	13.6%	16.2%	0.8	-0.7	6.7%
Russell 1000	18.6%	19.6%	0.9	--	0.0%
BlackRock Russell 1000	18.5%	19.6%	0.9	-0.3	0.0%
Russell 1000	18.6%	19.6%	0.9	--	0.0%
DE Shaw	18.0%	19.5%	0.9	-0.2	3.3%
Russell 1000	18.6%	19.6%	0.9	--	0.0%
PanAgora Defuseq	16.0%	15.5%	1.0	-0.3	8.3%
Russell 1000	18.6%	19.6%	0.9	--	0.0%
Small Cap Equity	22.5%	22.7%	0.9	0.9	5.4%
Russell 2000	17.5%	22.8%	0.7	--	0.0%
PGIM Quant Solutions	22.5%	22.7%	0.9	0.9	5.4%
Russell 2000	17.5%	22.8%	0.7	--	0.0%

**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	9.4%	18.2%	0.4	-0.5	2.3%
Blended US Equity Index	10.4%	19.2%	0.5	--	0.0%
Russell 3000	10.4%	19.2%	0.5	--	0.0%

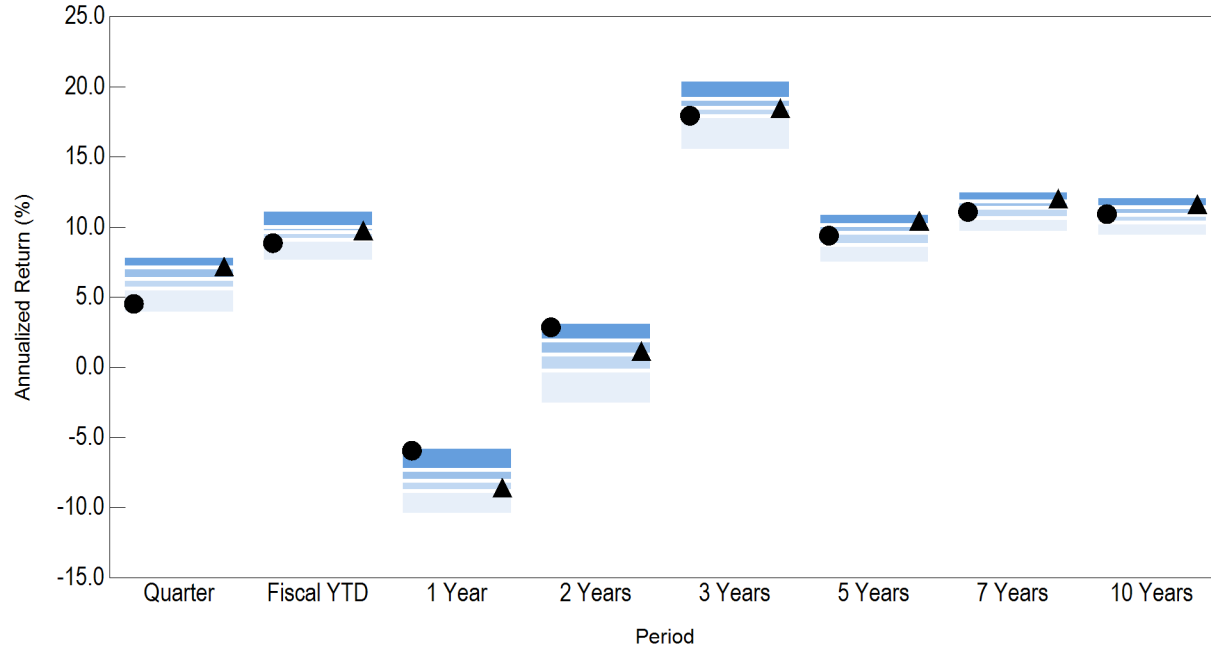


**Statistics Summary**

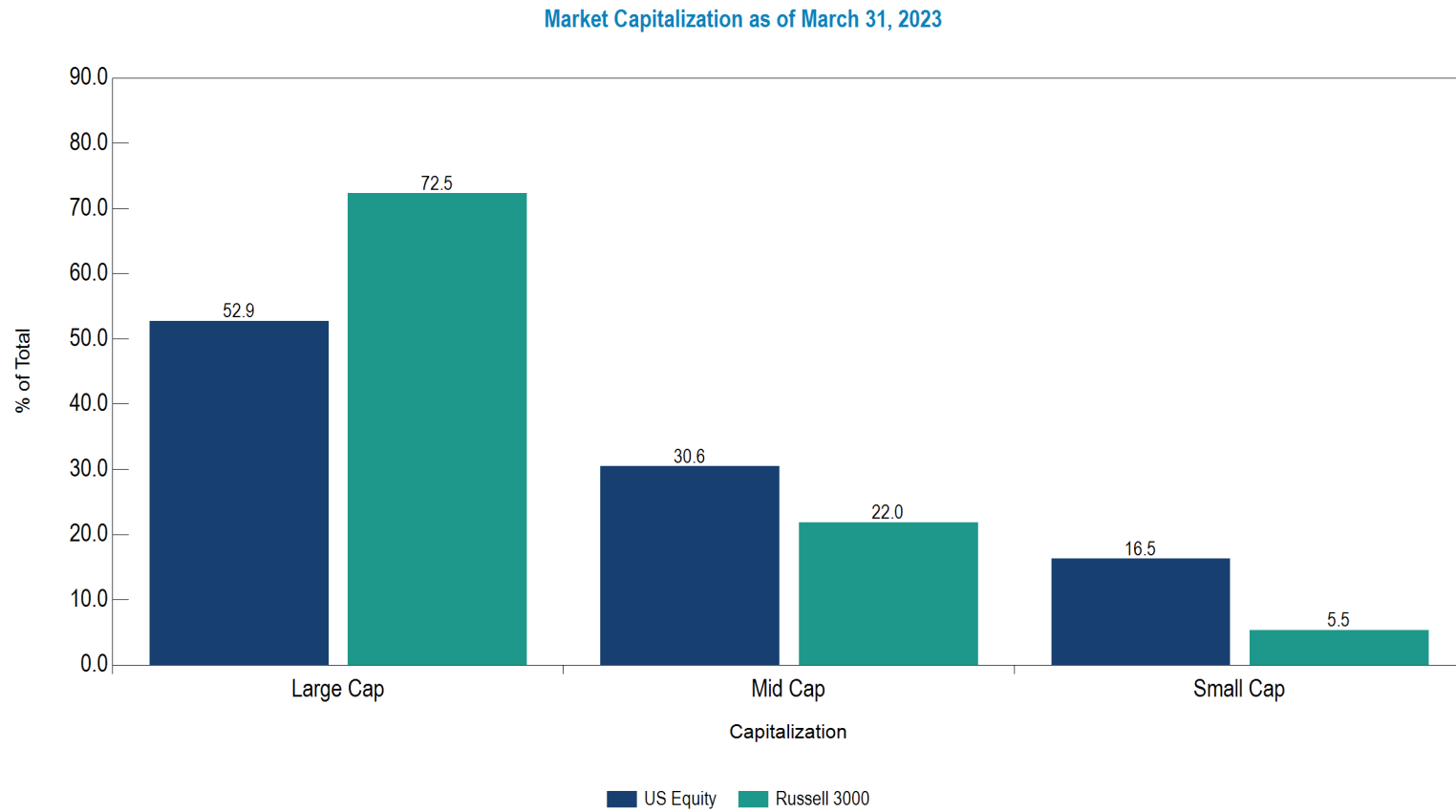
**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	9.9%	17.7%	0.5	-0.4	2.3%
Russell 1000	10.9%	19.0%	0.5	--	0.0%
BlackRock Russell 1000	10.9%	19.0%	0.5	0.3	0.0%
Russell 1000	10.9%	19.0%	0.5	--	0.0%
DE Shaw	9.6%	19.0%	0.4	-0.4	2.9%
Russell 1000	10.9%	19.0%	0.5	--	0.0%
Small Cap Equity	4.5%	25.1%	0.1	0.0	5.2%
Russell 2000	4.7%	23.9%	0.1	--	0.0%
PGIM Quant Solutions	4.5%	25.1%	0.1	0.0	5.2%
Russell 2000	4.7%	23.9%	0.1	--	0.0%

InvMetrics All DB US Eq Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.9	11.2	-5.7	3.2	20.5	11.0	12.6	12.2
25th Percentile	7.1	10.1	-7.3	2.0	19.2	10.2	11.9	11.5
Median	6.3	9.7	-8.1	1.0	18.6	9.6	11.4	10.9
75th Percentile	5.6	9.1	-8.8	-0.2	17.9	8.8	10.7	10.4
95th Percentile	3.9	7.5	-10.5	-2.6	15.5	7.4	9.6	9.4
# of Portfolios	432	417	404	384	380	364	330	255
● US Equity	4.5 (92)	8.9 (82)	-5.9 (6)	2.9 (10)	17.9 (75)	9.4 (59)	11.1 (62)	10.9 (50)
▲ Blended US Equity Index	7.2 (17)	9.7 (39)	-8.6 (69)	1.2 (44)	18.5 (55)	10.4 (15)	12.0 (14)	11.6 (20)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,516	2,923
Weighted Avg. Market Cap. (\$B)	278.8	470.5
Median Market Cap. (\$B)	5.5	2.5
Price To Earnings	18.1	20.2
Price To Book	3.3	3.9
Price To Sales	1.6	2.2
Return on Equity (%)	19.4	22.4
Yield (%)	1.9	1.6

Top Holdings

APPLE INC	3.3%
MICROSOFT CORP	2.8%
ARCONIC CORP	1.4%
AMAZON.COM INC	1.3%
ALPHABET INC	1.2%
MISTER CAR WASH INC COM	1.0%
BERKSHIRE HATHAWAY INC	0.9%
JOHNSON & JOHNSON	0.8%
VERIZON COMMUNICATIONS INC	0.7%
MCDONALD'S CORP	0.7%

Best Performers

	Return %
SELECTQUOTE INC (SLQT)	223.0%
OSCAR HEALTH INC	165.9%
RED ROBIN GOURMET BURGERS INC (RRGB)	156.6%
REATA PHARMACEUTICALS INC (RETA)	139.3%
VERRICA PHARMACEUTICALS INC (VRCA)	136.4%
PROVENTION BIO INC (PRVB)	128.0%
BRIDGEBIO PHARMA INC (BBIO)	117.6%
FASTLY INC (FSLY)	116.9%
SOTERA HEALTH CO (SHC)	115.0%
REDFIN CORP (RDFN)	113.7%

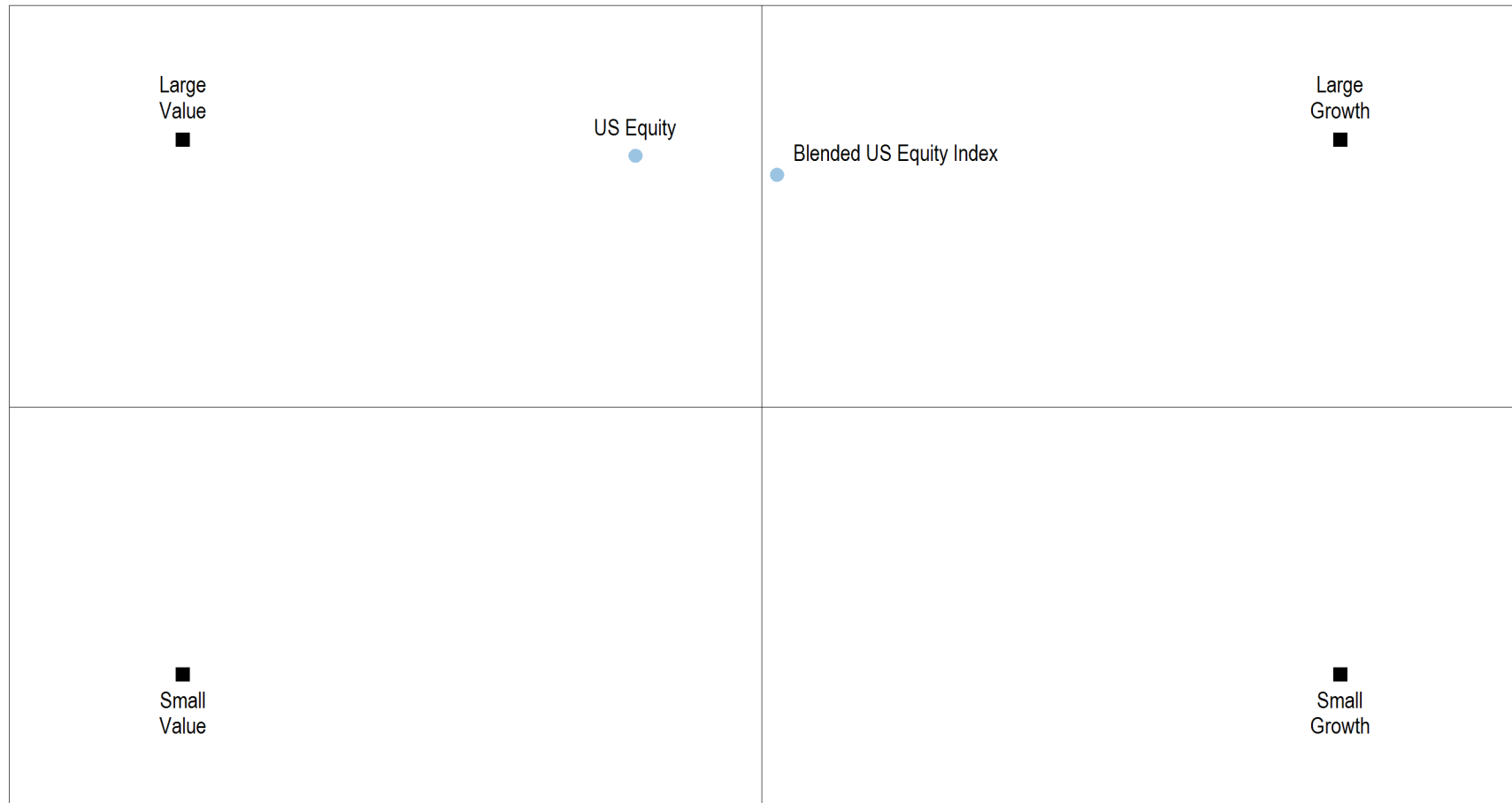
Worst Performers

	Return %
SIGNATURE BANK (SBNY)	-99.8%
SVB FINANCIAL GROUP (SIVBQ)	-99.6%
INVACARE CORP (IVCRQ)	-96.0%
FIRST REPUBLIC BANK (FRCB)	-88.5%
ORAMED PHARMACEUTICALS INC (ORMP)	-81.9%
VERU INC (VERU)	-78.0%
ESPERION THERAPEUTICS INC (ESPR)	-74.5%
ALTIMMUNE INC (ALT)	-74.3%
NEKTAR THERAPEUTICS (NKTR)	-68.9%
Vintage Wine Estates Inc (VWE)	-67.2%

US Equity Performance Attribution vs. Russell 3000

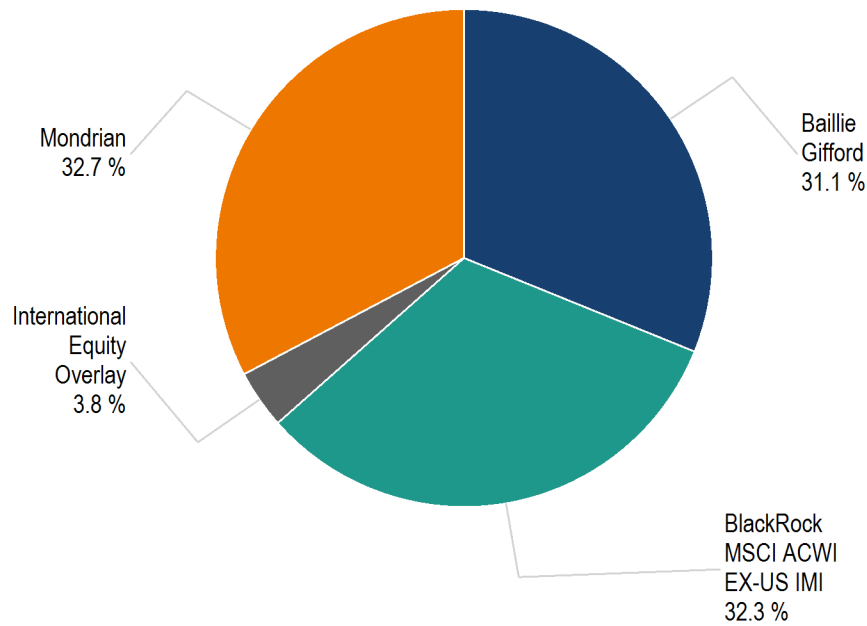
	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	-0.1%	0.0%	-6.6%	-4.0%	5.3%	4.7%			
Materials	0.0%	0.0%	0.0%	0.0%	4.6%	5.0%	4.3%	3.0%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	3.6%	4.9%	10.4%	9.8%			
Consumer Discretionary	-0.4%	-0.4%	0.0%	0.0%	11.6%	15.2%	9.3%	9.9%			
Consumer Staples	-0.3%	0.0%	-0.2%	0.0%	0.8%	1.2%	10.1%	6.6%			
Health Care	0.1%	0.1%	0.0%	0.0%	-3.2%	-3.8%	15.3%	15.7%			
Financials	0.2%	0.0%	0.2%	0.0%	-5.2%	-5.1%	10.7%	12.4%			
Information Technology	-1.3%	-0.9%	-0.5%	0.1%	17.4%	20.9%	20.6%	24.6%			
Communication Services	-0.6%	-0.6%	0.0%	0.0%	11.8%	20.0%	6.8%	6.8%			
Utilities	-0.1%	0.0%	-0.1%	0.0%	-2.3%	-2.9%	4.2%	3.1%			
Real Estate	0.0%	-0.1%	0.0%	0.0%	0.3%	1.9%	2.8%	3.3%			
Cash	0.0%	0.0%	0.0%	0.0%	1.1%	--	0.0%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	7.1%	--	0.1%	0.0%			
<b>Portfolio</b>	<b>-2.6%</b>	<b>=</b>	<b>-2.0%</b>	<b>+</b>	<b>-0.7%</b>	<b>+</b>	<b>0.1%</b>	<b>4.7%</b>	<b>7.3%</b>	<b>100.0%</b>	<b>100.0%</b>

U.S. Effective Style Map



International Equity  
 Manager Allocation Analysis

Period Ending: March 31, 2023



	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$345,383,862	31.1%	0.8%
Mondrian	\$363,337,580	32.7%	1.1%
BlackRock MSCI ACWI EX-US IMI	\$358,291,919	32.3%	0.0%
International Equity Overlay	\$42,453,189	3.8%	0.0%
Actual vs. Policy Weight Difference			-0.1%
<b>Total</b>	<b>\$1,109,466,551</b>	<b>100.0%</b>	<b>1.9%</b>

**Statistics Summary**

**3 Years**

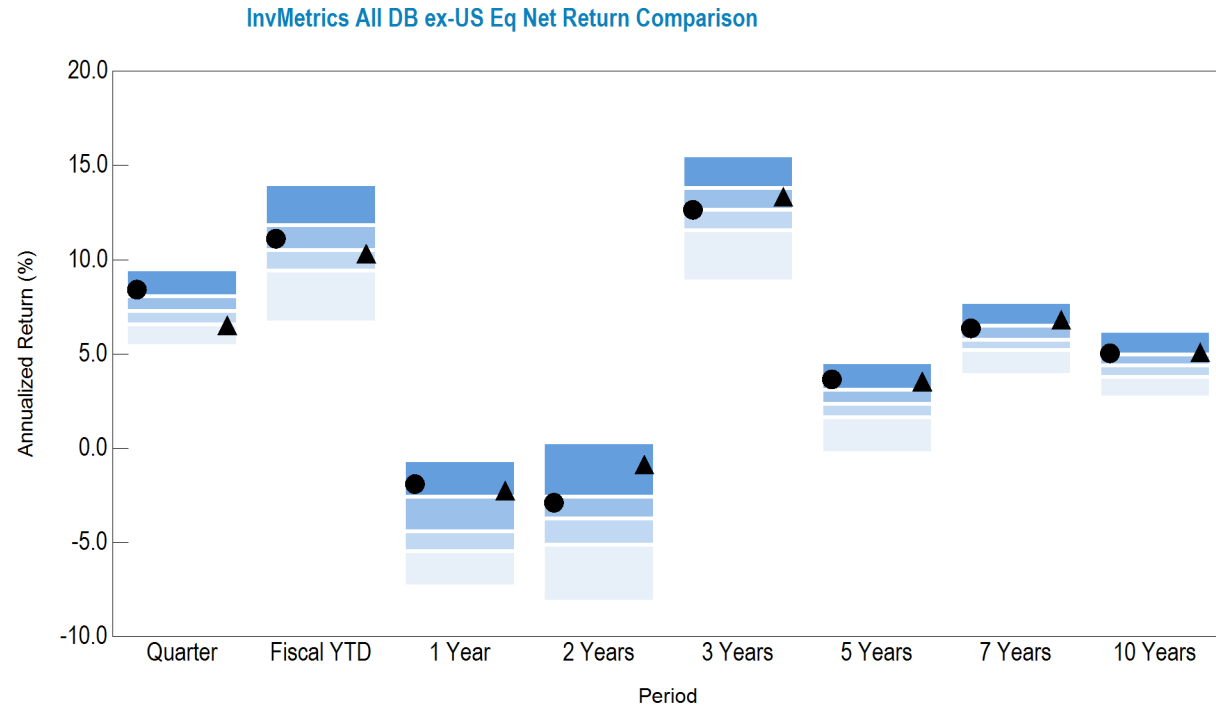
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	12.7%	16.8%	0.7	-0.2	3.1%
Blended International Equity Index	13.3%	15.1%	0.8	--	0.0%
Baillie Gifford	9.4%	22.8%	0.4	-0.3	9.6%
MSCI ACWI ex US	12.3%	17.3%	0.7	--	0.0%
Mondrian	11.8%	17.5%	0.6	-0.8	3.4%
MSCI ACWI ex USA Value Gross	14.5%	17.7%	0.8	--	0.0%



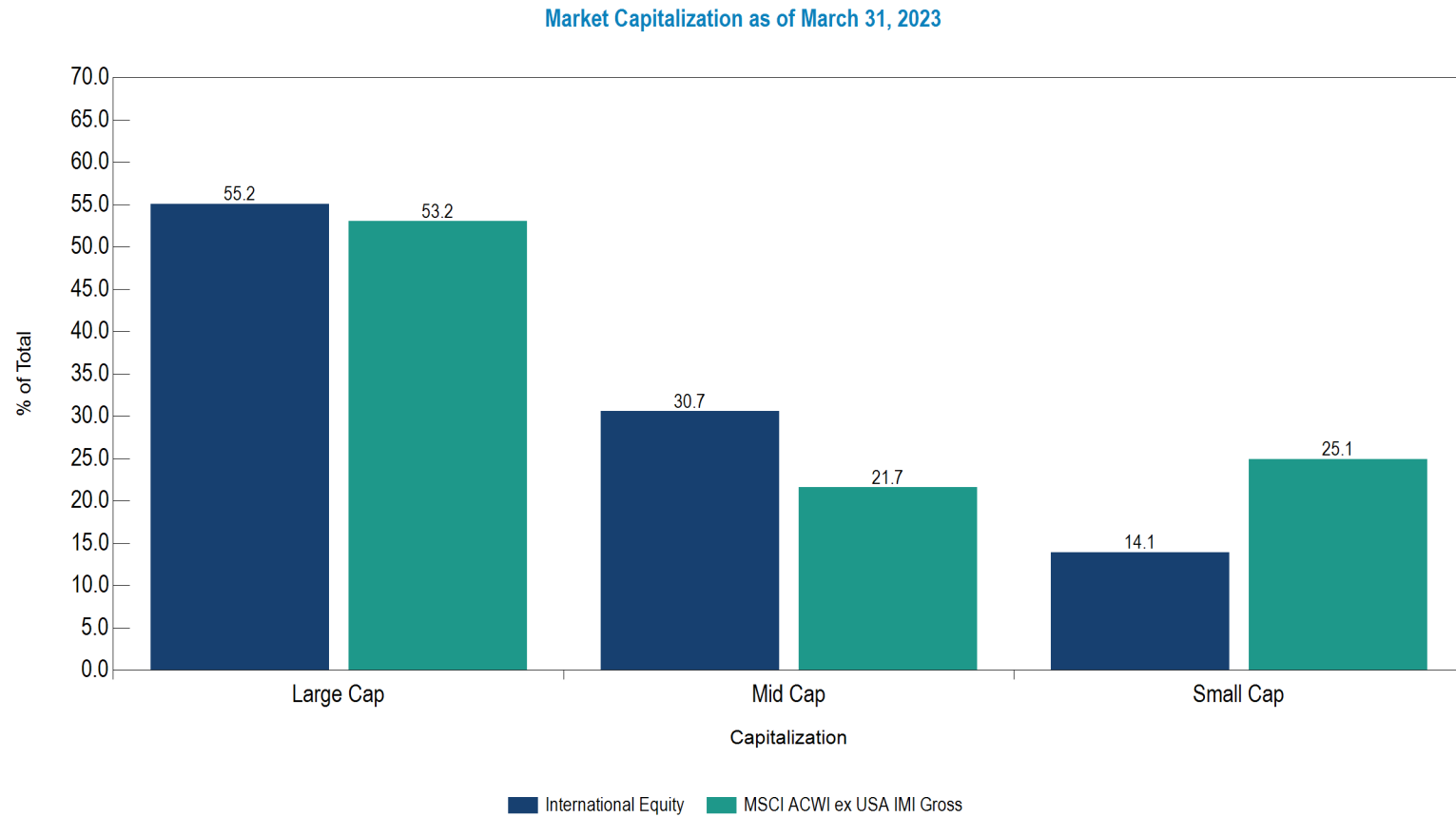
**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	3.7%	16.7%	0.1	0.0	2.5%
Blended International Equity Index	3.5%	15.8%	0.1	--	0.0%
Baillie Gifford	3.3%	20.8%	0.1	0.0	8.2%
MSCI ACWI ex US	3.0%	17.4%	0.1	--	0.0%
Mondrian	1.6%	18.2%	0.0	-0.1	3.1%
MSCI ACWI ex USA Value Gross	1.9%	18.6%	0.0	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
<b>5th Percentile</b>	9.5	14.0	-0.7	0.3	15.5	4.6	7.7	6.2
<b>25th Percentile</b>	8.1	11.9	-2.6	-2.6	13.8	3.1	6.5	5.0
<b>Median</b>	7.3	10.5	-4.4	-3.7	12.7	2.4	5.8	4.4
<b>75th Percentile</b>	6.6	9.5	-5.4	-5.1	11.6	1.7	5.2	3.8
<b>95th Percentile</b>	5.4	6.7	-7.3	-8.1	8.9	-0.2	3.9	2.7
<b># of Portfolios</b>	272	262	255	243	239	230	213	159
<b>● International Equity</b>	8.4 (18)	11.1 (43)	-1.9 (16)	-2.9 (33)	12.7 (53)	3.7 (13)	6.4 (29)	5.0 (23)
<b>▲ Blended International Equity Index</b>	6.5 (78)	10.3 (53)	-2.2 (21)	-0.9 (10)	13.3 (33)	3.5 (14)	6.8 (18)	5.1 (22)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,672	6,584
Weighted Avg. Market Cap. (\$B)	75.4	78.0
Median Market Cap. (\$B)	1.7	1.7
Price To Earnings	14.7	13.4
Price To Book	2.5	2.4
Price To Sales	1.2	1.1
Return on Equity (%)	13.8	14.1
Yield (%)	3.0	3.3

Top Holdings

UNITED OVERSEAS BANK LTD	1.6%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.3%
ALIBABA GROUP HOLDING LTD	1.3%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.2%
HOUSING DEVELOPMENT FINANCE CORP LTD	1.2%
ASML HOLDING NV	1.2%
SANOFI	1.0%
CIE FINANCIERE RICHEMONT AG, ZUG	1.0%
BANCO SANTANDER SA	1.0%
ENEL ENTE NAZIONALE PER L'ENERGIA ELETTRICA SPA, ROMA	1.0%

Best Performers

	Return %
ECOPRO CO LTD	366.8%
KUM YANG CO LTD	216.8%
COSMO AM&T CO LTD	186.6%
HYUNDAI FEED INC	183.1%
360 SECURITY TECHNOLOGY INC	167.9%
ISU CHEMICAL CO LTD	153.0%
ECOPRO BM CO LTD	135.1%
COSMO CHEMICAL CO LTD	134.0%
ZHONGJI INNOLIGHT CO LTD	118.8%
HUT 8 MINING CORP (HUT.)	112.1%

Worst Performers

	Return %
AMERICANAS S A	-88.9%
DIFFER GROUP AUTO LIMITED	-87.9%
MIRZA INTERNATIONAL LTD	-85.8%
JERVOIS GLOBAL LIMITED	-76.3%
ADANI TOTAL GAS LTD	-76.3%
CREDIT SUISSE GROUP	-69.8%
Penta Teknoloji Urunleri Dagitim Ticaret A.S.	-68.8%
PC JEWELLER LIMITED	-67.7%
ORPEA SA	-67.6%
CINT GROUP AB COMMON STOCK SEK.1	-66.1%

International Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	0.1%	0.0%	1.6%	-0.2%	5.0%	5.8%			
Materials	0.1%	0.1%	0.0%	-0.1%	8.1%	6.5%	5.8%	8.8%			
Industrials	-0.2%	-0.2%	0.0%	0.0%	8.1%	9.7%	13.7%	13.4%			
Consumer Discretionary	0.6%	0.3%	0.1%	0.1%	13.7%	10.4%	14.3%	11.4%			
Consumer Staples	-0.1%	-0.1%	0.0%	0.0%	5.5%	6.2%	10.0%	8.5%			
Health Care	0.3%	0.3%	0.0%	0.0%	6.7%	4.0%	10.6%	9.5%			
Financials	0.3%	0.0%	0.2%	0.0%	1.8%	1.3%	16.1%	19.6%			
Information Technology	0.1%	0.0%	0.2%	0.0%	15.9%	16.6%	12.2%	10.7%			
Communication Services	0.3%	0.2%	0.1%	0.1%	14.7%	11.2%	6.7%	5.6%			
Utilities	0.2%	0.2%	0.0%	0.0%	9.9%	3.0%	3.5%	3.4%			
Real Estate	0.2%	0.0%	0.2%	0.0%	-1.4%	-1.6%	1.2%	3.3%			
Cash	0.0%	0.0%	0.0%	0.0%	1.1%	--	0.9%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	15.5%	--	0.0%	0.0%			
<b>Portfolio</b>	<b>1.8%</b>	<b>=</b>	<b>1.0%</b>	<b>+</b>	<b>0.7%</b>	<b>+</b>	<b>0.2%</b>	<b>8.4%</b>	<b>6.6%</b>	<b>100.0%</b>	<b>100.0%</b>

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>Europe</b>									
Austria	5.6%	5.3%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	9.3%	6.2%	0.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	32.9%	31.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	14.3%	12.1%	0.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	2.9%	1.9%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	15.1%	14.3%	6.1%	6.9%	0.1%	-0.1%	0.0%	0.0%	0.0%
Germany	18.3%	14.4%	3.1%	4.9%	0.2%	-0.1%	0.0%	-0.1%	0.0%
Greece*	15.5%	15.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	4.0%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	4.1%	20.9%	0.6%	0.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Italy	13.1%	14.6%	2.5%	1.6%	0.0%	0.1%	0.0%	0.0%	0.0%
Luxembourg	54.5%	6.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
Netherlands	14.9%	16.0%	4.9%	2.5%	0.0%	0.2%	0.1%	0.0%	0.2%
Norway	-5.4%	-4.5%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	-1.0%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	8.6%	4.9%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	20.5%	14.4%	1.5%	1.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Sweden	8.5%	10.3%	1.5%	2.4%	0.0%	0.0%	0.0%	0.0%	-0.1%
Switzerland	10.9%	7.4%	4.1%	6.0%	0.2%	0.0%	0.0%	-0.1%	0.1%
United Kingdom	10.5%	5.8%	12.3%	9.8%	0.5%	-0.1%	0.1%	0.1%	0.6%

**Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross**

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>AsiaPacific</b>									
Australia	2.5%	2.0%	2.7%	5.3%	0.0%	0.1%	0.0%	0.0%	0.1%
China*	4.0%	4.5%	7.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Hong Kong	4.2%	-1.9%	4.7%	1.9%	0.1%	-0.2%	0.0%	0.2%	0.1%
India*	-4.6%	-5.7%	4.6%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Indonesia*	5.8%	5.7%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	6.6%	5.9%	19.7%	15.0%	0.1%	0.0%	0.0%	0.0%	0.1%
Korea*	8.1%	9.4%	2.7%	3.3%	0.0%	0.0%	0.0%	0.0%	-0.1%
Malaysia*	-3.0%	-2.5%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	21.0%	4.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%
Philippines*	3.5%	3.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	-0.8%	5.5%	2.2%	1.0%	-0.1%	0.0%	0.0%	-0.1%	-0.1%
Taiwan*	17.5%	14.7%	4.1%	4.1%	0.1%	0.0%	0.0%	0.0%	0.1%
Thailand*	-2.5%	-1.5%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Americas</b>									
Argentina*	55.8%	4.7%	0.5%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
Brazil*	0.3%	-0.6%	1.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Canada	7.3%	4.6%	4.0%	7.7%	0.2%	0.1%	0.0%	-0.1%	0.2%
Chile*	5.9%	5.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	-11.1%	-11.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	18.2%	21.8%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	-2.3%	8.3%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	8.1%	7.6%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

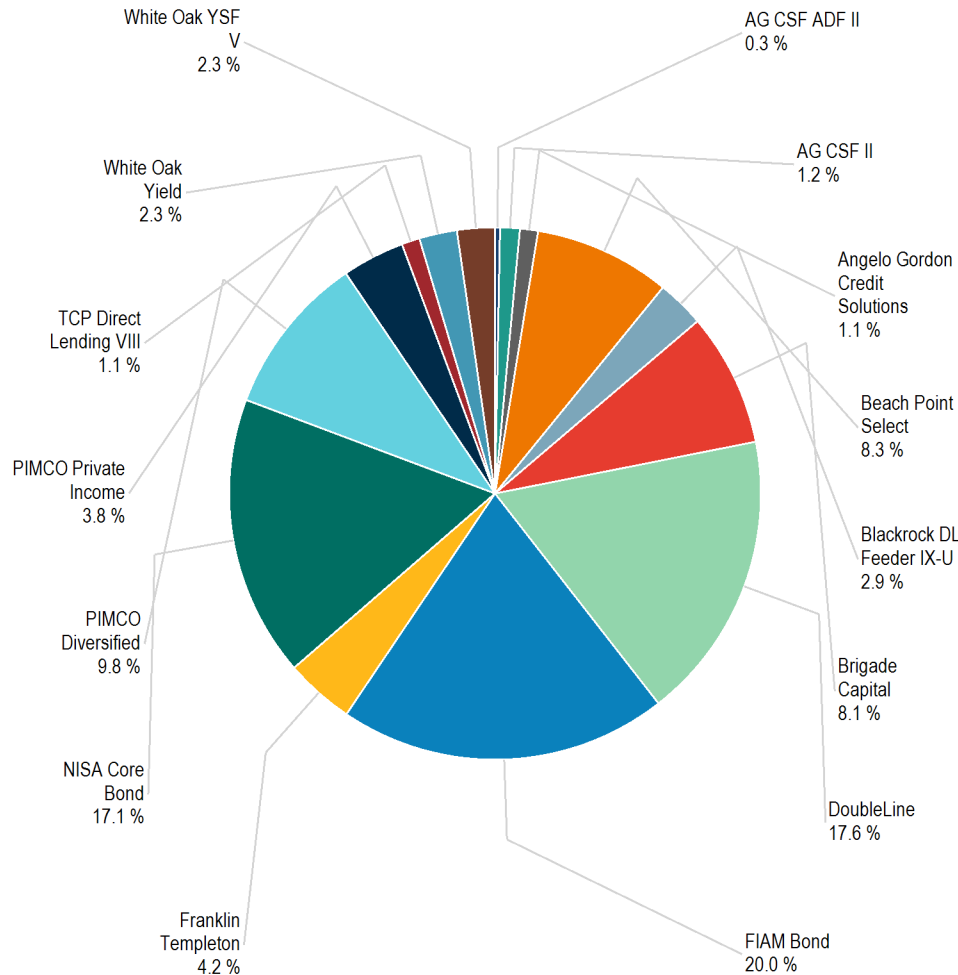
Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>Other</b>									
Egypt*	-7.4%	-8.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	-2.7%	-2.7%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait*	-3.3%	-3.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-1.3%	-1.3%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	1.3%	1.4%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-1.6%	-1.4%	0.4%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	-12.2%	-12.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	-7.0%	-7.1%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Totals</b>									
Americas	9.0%	4.9%	8.9%	10.0%	0.4%	0.0%	0.0%	0.0%	0.4%
Europe	12.9%	10.3%	39.4%	40.6%	1.0%	0.0%	0.1%	0.0%	1.0%
Asia/Pacific	5.4%	4.5%	49.4%	45.4%	0.4%	0.0%	0.0%	0.0%	0.3%
Other	-2.3%	-2.1%	1.5%	4.0%	0.0%	0.2%	0.0%	0.0%	0.2%
Cash	1.1%	--	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	--	--	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
<b>Total</b>	<b>8.5%</b>	<b>6.6%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1.7%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>1.9%</b>
<b>Totals</b>									
Developed	9.5%	7.6%	74.7%	71.9%	1.3%	0.0%	0.1%	0.1%	1.5%
Emerging*	5.7%	4.1%	24.4%	28.1%	0.4%	0.1%	0.0%	-0.1%	0.5%
Cash	1.1%	--	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



# Fixed Income Manager Allocation Analysis

Period Ending: March 31, 2023



	Actual \$	Actual %	Manager Contribution to Excess Return %
AG CSF ADF II	\$3,889,506	0.3%	0.0%
AG CSF II	\$15,216,839	1.2%	-0.1%
Angelo Gordon Credit Solutions	\$14,402,310	1.1%	0.0%
Angelo Gordon Opportunistic	\$88,267	0.0%	0.0%
Beach Point Select	\$108,853,139	8.3%	-0.1%
Blackrock DL Feeder IX-U	\$37,884,295	2.9%	-0.1%
Brigade Capital	\$106,814,579	8.1%	-0.1%
DoubleLine	\$232,285,268	17.6%	0.2%
FIAM Bond	\$263,295,617	20.0%	0.0%
Franklin Templeton	\$54,810,404	4.2%	-0.1%
NISA Core Bond	\$225,617,910	17.1%	0.0%
PIMCO Diversified	\$129,367,276	9.8%	0.0%
PIMCO Private Income	\$50,228,788	3.8%	-0.1%
TCP Direct Lending VIII	\$14,533,963	1.1%	0.0%
White Oak Yield	\$29,924,349	2.3%	0.0%
White Oak YSF V	\$30,540,230	2.3%	0.0%
Core Fixed Income Overlay	\$0	0.0%	0.0%
Actual vs. Policy Weight Difference			-0.3%
<b>Total</b>	<b>\$1,317,752,739</b>	<b>100.0%</b>	<b>-0.7%</b>

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	0.7%	5.1%	0.0	0.3	2.5%
Blended Fixed Income Index	0.0%	6.7%	-0.1	--	0.0%
Core Fixed	-1.9%	6.0%	-0.5	0.8	1.1%
Bloomberg US Aggregate TR	-2.8%	6.3%	-0.6	--	0.0%
FIAM Bond	-1.1%	6.5%	-0.3	1.6	1.1%
Bloomberg US Aggregate TR	-2.8%	6.3%	-0.6	--	0.0%
Opportunistic Credit	5.8%	4.8%	1.0	0.1	5.8%
Bloomberg BA Intermediate HY	5.3%	8.8%	0.5	--	0.0%
Angelo Gordon Opportunistic	17.2%	13.7%	1.2	1.3	15.0%
Bloomberg US Aggregate TR	-2.8%	6.3%	-0.6	--	0.0%
Beach Point Select	11.6%	6.3%	1.7	0.9	6.8%
Bloomberg BA Intermediate HY	5.3%	8.8%	0.5	--	0.0%
Brigade Capital	9.8%	7.0%	1.3	0.7	6.9%
Bloomberg BA Intermediate HY	5.3%	8.8%	0.5	--	0.0%
PIMCO Diversified	0.7%	8.3%	0.0	-1.0	1.0%
Blended PIMCO Diversified Index	1.7%	8.3%	0.1	--	0.0%
Franklin Templeton	-4.3%	10.2%	-0.5	-0.2	6.6%
Bloomberg Multiverse TR	-3.1%	8.1%	-0.5	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	7.4%	3.3%	1.9	-1.4	2.4%
Cliffwater Direct Lending Index	10.7%	4.7%	2.1	--	0.0%
PIMCO Private Income	9.9%	6.7%	1.4	0.4	11.1%
Bloomberg BA Intermediate HY	5.3%	8.8%	0.5	--	0.0%
TCP Direct Lending VIII	6.2%	2.1%	2.5	-1.0	4.5%
Cliffwater Direct Lending Index	10.7%	4.7%	2.1	--	0.0%
White Oak Yield	4.9%	2.7%	1.5	-1.8	3.1%
Cliffwater Direct Lending Index	10.7%	4.7%	2.1	--	0.0%

Statistics Summary

5 Years

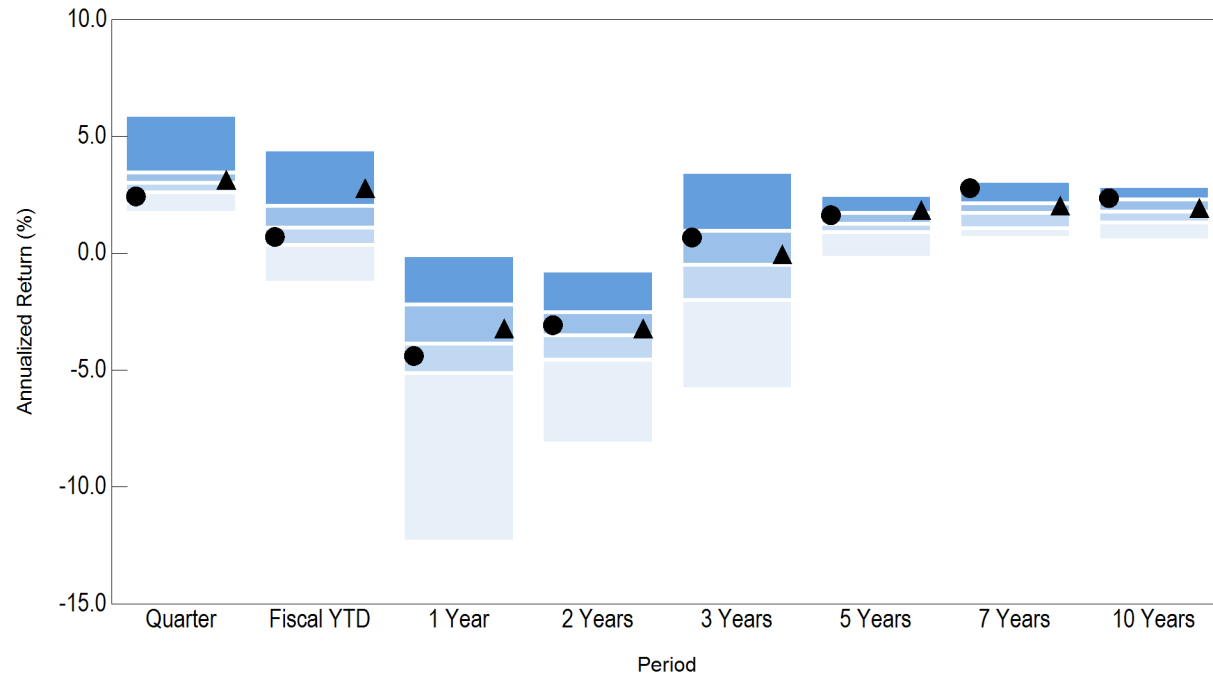
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	1.6%	4.6%	0.1	-0.1	2.2%
Blended Fixed Income Index	1.8%	5.8%	0.1	--	0.0%
Core Fixed	0.7%	5.0%	-0.1	-0.1	1.4%
Bloomberg US Aggregate TR	0.9%	5.5%	-0.1	--	0.0%
FIAM Bond	1.6%	5.6%	0.1	0.6	1.3%
Bloomberg US Aggregate TR	0.9%	5.5%	-0.1	--	0.0%
Opportunistic Credit	3.3%	6.1%	0.3	-0.1	4.8%
Bloomberg BA Intermediate HY	3.7%	8.4%	0.3	--	0.0%
Angelo Gordon Opportunistic	9.5%	16.4%	0.5	0.5	17.2%
Bloomberg US Aggregate TR	0.9%	5.5%	-0.1	--	0.0%
Beach Point Select	6.4%	7.8%	0.7	0.5	5.7%
Bloomberg BA Intermediate HY	3.7%	8.4%	0.3	--	0.0%
Brigade Capital	2.9%	10.1%	0.2	-0.1	7.0%
Bloomberg BA Intermediate HY	3.7%	8.4%	0.3	--	0.0%
PIMCO Diversified	1.2%	7.8%	0.0	-0.2	1.1%
Blended PIMCO Diversified Index	1.5%	8.2%	0.0	--	0.0%
Franklin Templeton	-3.9%	9.4%	-0.6	-0.4	7.6%
Bloomberg Multiverse TR	-1.2%	6.8%	-0.4	--	0.0%

Statistics Summary

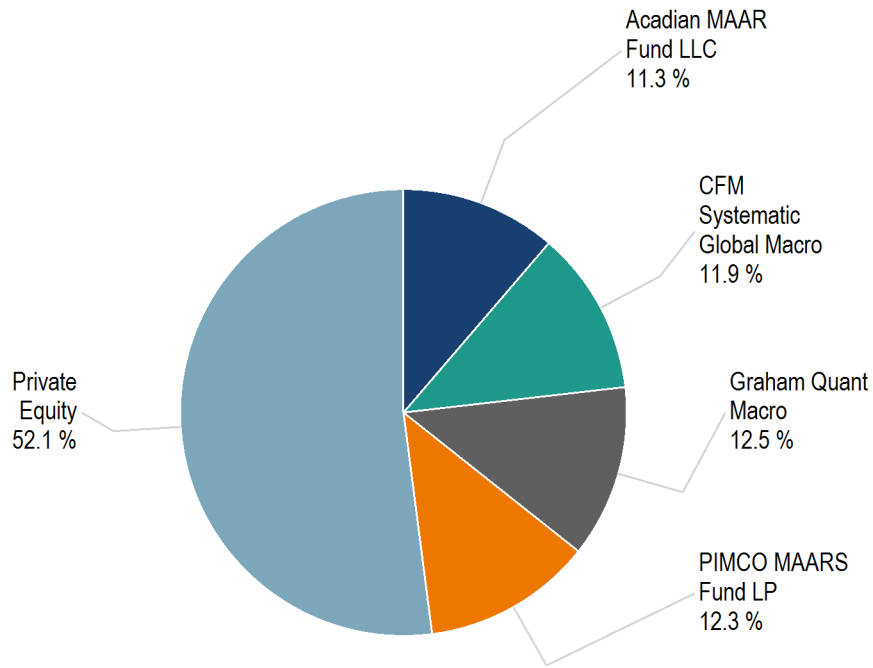
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	6.4%	3.5%	1.4	-0.8	2.3%
Cliffwater Direct Lending Index	8.3%	4.9%	1.4	--	0.0%
TCP Direct Lending VIII	5.9%	2.7%	1.7	-0.6	4.3%
Cliffwater Direct Lending Index	8.3%	4.9%	1.4	--	0.0%
White Oak Yield	5.3%	2.9%	1.4	-0.9	3.2%
Cliffwater Direct Lending Index	8.3%	4.9%	1.4	--	0.0%

InvMetrics All DB Total Fix Inc Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	5.9	4.4	-0.1	-0.8	3.5	2.5	3.1	2.9
25th Percentile	3.5	2.1	-2.2	-2.5	1.0	1.7	2.2	2.3
Median	3.0	1.1	-3.9	-3.5	-0.5	1.3	1.7	1.8
75th Percentile	2.6	0.4	-5.1	-4.5	-2.0	0.9	1.1	1.3
95th Percentile	1.8	-1.3	-12.3	-8.1	-5.8	-0.2	0.7	0.6
# of Portfolios	239	229	212	202	201	192	176	143
● Fixed Income	2.4 (81)	0.7 (64)	-4.4 (60)	-3.1 (40)	0.7 (32)	1.6 (29)	2.8 (7)	2.4 (21)
▲ Blended Fixed Income Index	3.1 (39)	2.8 (16)	-3.2 (38)	-3.2 (45)	0.0 (43)	1.8 (19)	2.0 (33)	1.9 (45)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$0	0.0%	0.0%
Acadian MAAR Fund LLC	\$81,364,729	11.3%	-0.3%
CFM Systematic Global Macro	\$85,894,175	11.9%	-0.6%
Graham Quant Macro	\$90,104,309	12.5%	-0.2%
PIMCO MAARS Fund LP	\$88,597,463	12.3%	-0.5%
Private Equity	\$376,695,218	52.1%	-3.6%
Actual vs. Policy Weight Difference			0.0%
<b>Total</b>	<b>\$722,655,894</b>	<b>100.0%</b>	<b>-5.3%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	14.5%	14.3%	1.0	0.5	14.3%
Blended Alternatives Index	7.7%	10.4%	0.7	--	0.0%
Private Equity	21.6%	25.1%	0.8	0.4	26.0%
Blended Private Equity Index	10.1%	21.2%	0.4	--	0.0%
Hedge Fund/Absolute Return	4.7%	6.4%	0.6	-0.1	6.6%
Absolute Return Custom Index	5.0%	0.5%	8.9	--	0.0%



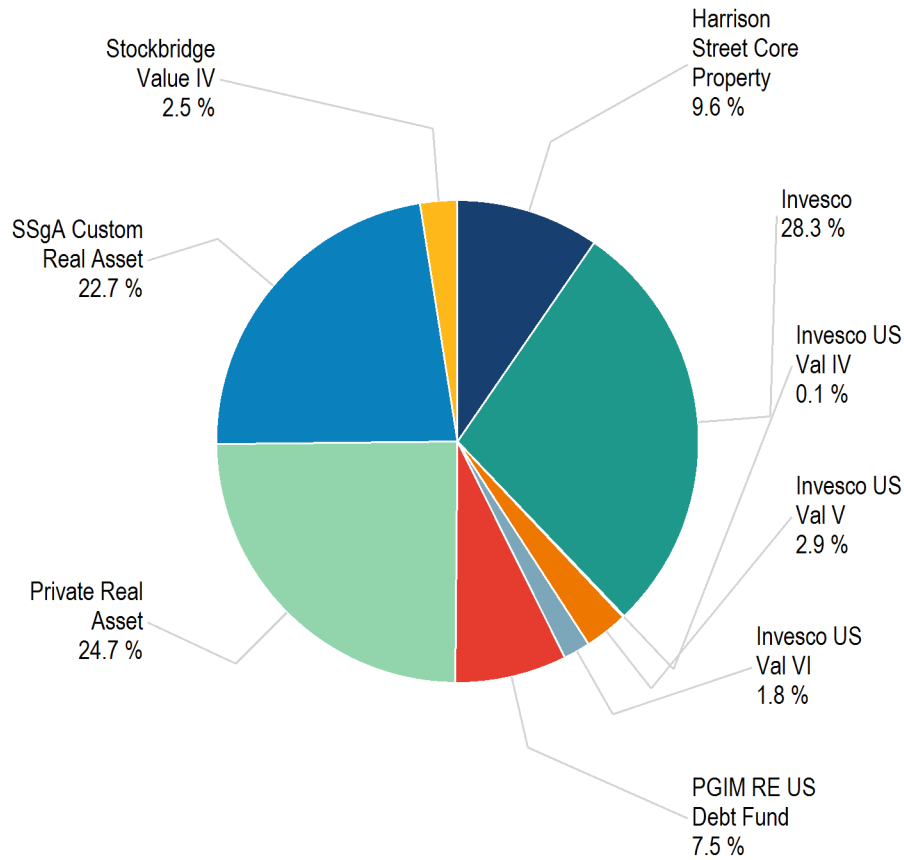
**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	10.0%	12.4%	0.7	0.1	12.8%
Blended Alternatives Index	8.8%	9.2%	0.8	--	0.0%
Private Equity	20.5%	21.2%	0.9	0.4	22.6%
Blended Private Equity Index	11.8%	18.7%	0.6	--	0.0%
Hedge Fund/Absolute Return	-2.3%	7.1%	-0.5	-1.1	7.2%
Absolute Return Custom Index	5.5%	0.4%	10.4	--	0.0%

Inflation Hedge  
 Manager Allocation Analysis

Period Ending: March 31, 2023



	Actual \$	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	\$96,895,435	9.6%	0.2%
Invesco	\$285,382,497	28.3%	-0.3%
Invesco US Val IV	\$877,087	0.1%	0.0%
Invesco US Val V	\$29,419,076	2.9%	0.1%
Invesco US Val VI	\$18,234,450	1.8%	0.0%
PGIM RE US Debt Fund	\$75,441,317	7.5%	0.3%
Stockbridge Value IV	\$25,302,031	2.5%	0.1%
Private Real Asset	\$249,408,623	24.7%	-2.8%
SSgA Custom Real Asset	\$228,841,535	22.7%	0.0%
Actual vs. Policy Weight Difference			0.0%
<b>Total</b>	<b>\$1,009,802,051</b>	<b>100.0%</b>	<b>-2.2%</b>

Statistics Summary

3 Years

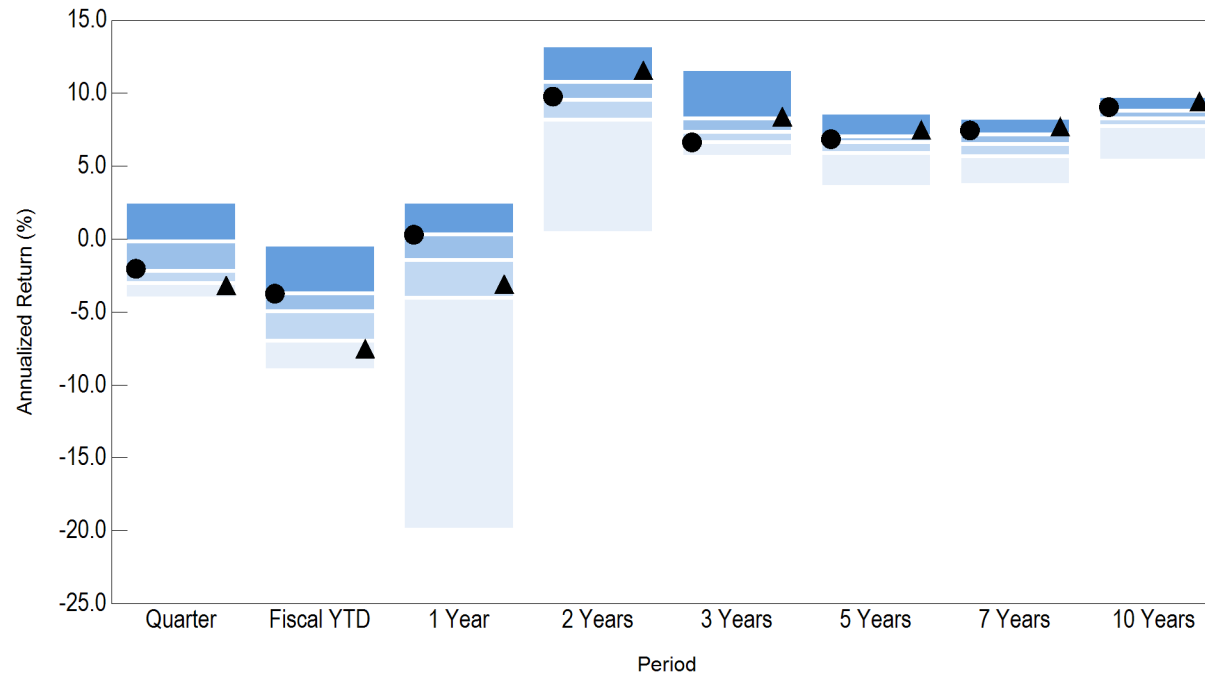
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	10.3%	5.4%	1.7	-0.4	5.0%
Blended Inflation Hedge Index	12.3%	7.9%	1.4	--	0.0%
Real Estate	6.6%	6.5%	0.9	-0.6	3.1%
NCREIF ODCE	8.4%	8.8%	0.9	--	0.0%
Invesco	6.4%	9.0%	0.6	-0.8	2.5%
NCREIF ODCE	8.4%	8.8%	0.9	--	0.0%
Invesco US Val IV	-13.0%	23.1%	-0.6	-0.9	23.6%
NCREIF ODCE	8.4%	8.8%	0.9	--	0.0%
Invesco US Val V	9.0%	10.0%	0.8	0.1	7.2%
NCREIF ODCE	8.4%	8.8%	0.9	--	0.0%
PGIM RE US Debt Fund	5.5%	1.0%	4.6	-0.3	8.8%
NCREIF ODCE	8.4%	8.8%	0.9	--	0.0%
Private Real Asset	13.4%	13.1%	1.0	0.3	23.8%
Blended Private Real Asset Index	6.5%	22.2%	0.3	--	0.0%
Public Real Assets	16.8%	13.3%	1.2	-0.4	0.8%
Blended Public Real Asset Index	17.1%	13.3%	1.2	--	0.0%
SSgA Custom Real Asset	16.8%	13.3%	1.2	-0.4	0.8%
SSgA Custom Real Asset Index	17.1%	13.3%	1.2	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Inflation Hedge	4.6%	6.7%	0.5	-0.6	--
Blended Inflation Hedge Index	7.2%	7.4%	0.8	--	--
Real Estate	6.9%	5.3%	1.0	-0.3	40
NCREIF ODCE	7.5%	7.0%	0.9	--	1
Invesco	6.7%	7.2%	0.7	-0.4	--
NCREIF ODCE	7.5%	7.0%	0.9	--	--
Invesco US Val IV	-3.9%	18.4%	-0.3	-0.6	--
NCREIF ODCE	7.5%	7.0%	0.9	--	--
PGIM RE US Debt Fund	5.7%	1.8%	2.5	-0.3	--
NCREIF ODCE	7.5%	7.0%	0.9	--	--
Private Real Asset	6.9%	11.8%	0.5	0.0	--
Blended Private Real Asset Index	6.5%	18.9%	0.3	--	--
Public Real Assets	1.6%	17.5%	0.0	-0.9	--
Blended Public Real Asset Index	4.6%	15.4%	0.2	--	--
SSgA Custom Real Asset	4.6%	15.2%	0.2	0.0	--
SSgA Custom Real Asset Index	4.6%	15.4%	0.2	--	--

InvMetrics All DB Real Estate Pub Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	2.5	-0.4	2.6	13.3	11.6	8.7	8.3	9.8
25th Percentile	-0.1	-3.7	0.4	10.8	8.3	7.1	7.2	8.8
Median	-2.2	-4.9	-1.4	9.6	7.4	6.7	6.5	8.3
75th Percentile	-3.0	-7.0	-4.0	8.2	6.7	5.9	5.7	7.8
95th Percentile	-4.0	-9.0	-19.9	0.4	5.7	3.6	3.7	5.4
# of Portfolios	76	75	75	73	72	71	67	63
● Real Estate	-2.0 (47)	-3.7 (26)	0.3 (26)	9.8 (45)	6.6 (76)	6.9 (38)	7.5 (15)	9.1 (13)
▲ NCREIF ODCE	-3.2 (79)	-7.5 (81)	-3.1 (71)	11.6 (16)	8.4 (24)	7.5 (16)	7.7 (12)	9.5 (8)

## **Acadian Asset Management – Acadian U.S. Managed Volatility**

Acadian's goal is to build a portfolio focused on absolute return and risk with the aim of achieving an absolute return similar to or better than that of a domestic equity index but with lower volatility over the long term. Acadian targets absolute risk to be 25-35% less than a typical capitalization-weighted benchmark. That said, tracking error is not a major consideration and can appear relatively high due in part to Acadian's comfort with carrying large sector variations versus the benchmark. Acadian seeks to combine the values of all of the security-level factors to determine a peer-relative return forecast for each stock. Separately they make a top-down forecast for the stock's peer group, and then add that forecast to the stock's score. Acadian's managed volatility strategies utilize the same alpha forecasts as Acadian's active equity strategies but with risk being the initial consideration when constructing portfolios. Alpha forecasts play a modest role relative to the importance of risk estimates but are important to the goal of achieving a higher risk-adjusted return. Incorporation of alpha forecasts generally results in higher exposure to value, size and quality.

## **Acadian Asset Management – MAARS Fund**

Acadian Multi-Asset Absolute Return (MAARS) strategy was inceptioned in November 2017. MAARS targets a volatility of 6%-8% and a return of cash plus 5%. This is a multi-factor strategy that aims to exploit behavioral inefficiencies within and across global markets and is designed to be diversifying, dynamic and defensive. It is market neutral, implemented using long and short positions across five primary asset classes (equity, fixed income, currency, commodities, and volatility) and over 100 underlying assets with a focus on liquid instruments. Return forecasts incorporate asset-specific and macroeconomic insights and are utilized to harvest active returns from within and across asset classes through market selection and directional positioning. The strategy integrates risk and return across asset classes. Avoidance of downside events is highlighted in the approach with a greater weighting in their models allocated to down market beneficiaries, such as quality factors, and asymmetric positioning which reduces positions when risk rises. Differentiated attributes of this approach are its approach and weighting to commodities and its volatility sleeve which can incorporate long volatility.

## **Angelo, Gordon & Co. – AG Opportunistic Whole Loan Fund**

The Angelo Gordon Opportunistic Whole Loan (OWL) Fund was established to make investments primarily in a portfolio of non-performing loans (NPLs) and re-performing loans (RPLs). AG sees a lot of operational inefficiency in the market place. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, AG believes it can improve operational efficiency and generate attractive returns. In addition, OWL may also include investments in new residential mortgage loans and excess mortgage servicing rights. Opportunistic investments in commercial mortgage loans and other mortgage related investments may also be included in the Fund's portfolio. OWL is towards the end of its fund life and is continuing to sell down the fund's holdings and distribute proceeds to LPs.

## **Angelo, Gordon & Co. – Credit Solutions**

The Angelo Gordon (AG) Credit Solutions Fund (CSF) expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The Fund is targeting a net 15% IRR with a 5-7% current yield. The Fund should be 70% concentrated in the U.S. with the balance in Europe. Finally, while the opportunities can be sourced from both the public markets and the private markets, AG is finding compelling sources of return at this time through structuring new privately placed secured term loans out of public investments made by the firm. CSF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

## **Angelo, Gordon & Co. – CSF (Annex) Dislocation II**

The Angelo Gordon Annex Dislocation Fund II (ADFII)'s investment aim is to target senior securities of world-class businesses with irreplaceable assets and strong cash flow profiles which, because of market stress, can be purchased at a material discount to what they believe is a company's long-term intrinsic value. ADFII will invest opportunistically in securities or claims of companies in North America and Europe for which prices have, in Angelo Gordon's view, dislocated from long term fundamentals due to situational market volatility and stress.

## **Angelo, Gordon & Co. – Credit Solutions II**

Like its predecessor funds, the Angelo Gordon (AG) Credit Solutions Fund II (CSF II) is an all-weather, solutions-based strategy that targets net returns of 14+% with 5-7% current yield. The Fund will invest in single-name opportunities where price movements and credit documents afford creative financing solutions. This could include companies with upcoming debt maturities, working capital issues, or inefficient capital structures that are inflating financing costs. In these cases, AG will seek to work with management and other creditors to structure a bespoke transaction that avoids bankruptcy and solves the issue for the company in exchange for debt securities with conservative attachment points and healthy yield. While the opportunities are likely to be sourced 75% from the public markets and 25% from the private markets, the "solutions" will likely be private products. During periods of dislocation, the Fund can pivot towards trading-oriented strategies where there is not a need for additional financing, such as sourcing debt in the secondary markets at discounts to intrinsic value. CSF II expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The fund should be 70% concentrated in the U.S. with the balance in Europe.

## **Baillie Gifford – ACWI ex US Focus Equities**

ACWI ex US Focus is a fundamental growth strategy. Research is organized primarily by regional teams, with each member of the ACWI ex US Focus Portfolio Construction Group representing a regional team. Four global sector groups also contribute research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compound growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 60-90 stocks, with country and sector weights +/-10% relative to the index and stock weights +/- 5% relative to the index.

## **Beach Point Capital Management, L.P. - Beach Point Select Fund**

Beach Point Select Fund is a commingled fund vehicle within the firm's Opportunistic Credit strategy. This fund focuses on off-the-run, complex, and less-liquid securities. It is a best ideas portfolio of distressed debt, special situations, private/direct loans, catalyst-driven high yield bonds and bank loans, and credit-informed equities with a North American and European focus. The Select Fund differs from other funds and accounts in the Opportunistic Credit strategy by pursuing a more concentrated portfolio and emphasizing a higher percentage of less-liquid/private investments. Beach Point invests up and down the entire capital structure and it constructs portfolios with a bottom-up, research-driven approach that also takes into account top-down macro considerations. Its investment process includes idea generation, detailed credit analysis, relative value decision making and investment selection, portfolio construction and on-going monitoring. The ultimate goal of its investment process is to produce a well-diversified investment portfolio with limited downside risk and substantial upside potential.

## **BlackRock – MSCI ACWI ex US IMI Index**

The ACWI ex US IMI Index Fund seeks to replicate the return of the MSCI ACWI ex US IMI Index. This index represents the developed equity markets outside of North America, including small cap equity. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

## **BlackRock – Russell 1000 Index**

The Russell 1000 Index Fund tracks large U.S. companies and achieve broad diversification with low costs by fully replicating the Russell 1000 Index. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

## **BlackRock (formerly Tennenbaum Capital Partners) - Direct Lending Funds VIII and IX**

TCP Direct Lending Fund VIII is a private investment fund managed by Tennenbaum Capital Partners ("TCP"). The Fund is designed to continue TCP's successful strategy of investing in privately-originated, performing senior secured debt primarily in North America-based companies with target enterprise values between \$100 million and \$1.5 billion. The Fund will include positions in 1st lien, 2nd lien and unitranche debt, with a preference for floating-rate debt, which TCP believes provides better flexibility to adapt to market conditions. TCP's direct lending strategy has generated attractive investment opportunities across market cycles, as evidenced by the Firm's prior direct lending track record. Fund VIII targets an unlevered annual yield of approximately 9-12%, with its return primarily driven by current income. SamCERA committed \$35 million to DLF VIII in June 2016 in its unlevered fund sleeve and \$35 million to the DLF IX in June 2019.



## **Brigade – Opportunistic Credit**

Opportunistic Credit is a fundamental, bottom-up strategy focused on high yield corporate bonds and bank loans with tactical allocations to structured securities, convertibles, and other sectors of the bond markets as they become attractive on a relative value basis. While performing credits represent the majority, Brigade will invest up to 35% of the portfolio in distressed securities and restructuring situations if these types of opportunities are attractive on a risk-adjusted basis and the timing is right with respect to the credit cycle. The portfolio is comprised of mostly North American issuers, but they are not restricted geographically and expect to have a moderate allocation to Europe over time. Although the portfolio is generally long-only, Brigade has the ability to implement a limited amount of tactical macro hedges.

## **CFM - Systematic Global Macro**

Capital Fund Management (CFM) Systematic Global Macro (SCM) is a directional strategy that takes long and short positions in liquid future and forwards across 130+ markets and across equities, bonds, currencies, and commodities. It is a new strategy that draws on model signals from existing strategies at the firm – Discus (diversified CTA), CFM ISTrends (trend following) and CFM ISTrend Equity Capped (defensive trend following) - and SamCERA is a seed investor with an attractive fee. SGM's objective is to provide absolute returns that are uncorrelated with traditional asset classes over a long time horizon with an annualized volatility target between 8% and 12%. SGM uses a diverse set of trading strategies that are based on factors (momentum, value, carry, macro and sentiment) across asset classes. These technical and fundamental factors operate at different time scales and can have varying degrees of influence on performance depending on market and economic conditions. An additional global macro defensive overlay is combined with these outputs in constructing the final portfolio. CFM uses a form of portfolio construction known as agnostic risk parity to ensure that the SGM portfolio is diversified on an out-of-sample basis. The goal of SGM is to generate consistent returns while limiting drawdowns.

## **DE Shaw – DE Shaw US Broad Market Core Alpha Extension Fund**

The D. E. Shaw group believes that there exist some market inefficiencies that may be identified through quantitative analysis, advanced technology, and the insight of practitioners. Identifying these inefficiencies involves a process of hypothesis formulation, testing, and validation. Importantly, to avoid data-mining, the hypothesis formulation precedes the analysis of the historical data. D.E. Shaw's Structured Equity strategies rely largely on quantitative and computational investment techniques developed by the D. E. Shaw over the last two decades in the course of research conducted for purposes of managing the firm's hedge funds. D.E. Shaw's investment process involves a suite of quantitative models, each designed to capitalize on a distinct and uncorrelated set of market inefficiencies. Some of these models are technical in nature and involve price and volume inputs. Other models rely on fundamental data, such as figures gleaned from corporate balance sheets or income statements. Still others, again quantitative, anticipate or react to a particular corporate event or set of events. These models typically operate with forecast horizons of a few weeks to many months. The ability to trade on shorter-term signals distinguishes D.E. Shaw from many of its long only and 130/30 peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. The portfolio is broadly diversified with several hundred long and short positions. Over- and under-weighting of sectors and industries relative to the benchmark will be quite modest, with the intention that most of the alpha be generated by security selection. The US Broad Market Core Alpha Extension Fund is a 130/30 strategy which maintains a beta that is approximately neutral to the Russell 1000 Index.

## **DoubleLine – Securitized Income**

The DoubleLine Securitized Income strategy is an actively managed, liquid, long only, intermediate-term fixed income product. The primary objective of the strategy is to seek and maximize current income and total return by utilizing a combination of Agency MBS and structured credit. The DoubleLine Structured Products team aims to offer clients investment grade exposure to both interest rate duration and credit spread to provide a more attractive total return profile compared to the benchmark. Securitized Income seeks to maximize income and total return by investing across the structured products universe, focusing on agency mortgage-backed securities (MBS) and investment grade securitized credit. DoubleLine takes a barbelled approach to investing in the securitized market, and they will separate rates from credit and will adjust the allocations to both at the based on the economic cycle and opportunities. Duration positioning is achieved through Agency MBS, Agency CMBS, and treasuries while credit exposure is attained through all areas of structured credit.

## **Fidelity (FIAM) – Broad Market Duration Commingled Pool**

Pyramis' Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in US Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all US dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Pyramis uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 40 and 60 basis points per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

## **Franklin Templeton Investments – Global Fixed Income**

Franklin Templeton manages the global bond mandate in an unconstrained fashion using a top-down, fundamental framework. In the short term and on a country-by-country basis there are often inefficiencies in global bond and currency markets, however, over the longer term the market will generally price to fundamentals. Thus, FT focuses on fundamental research to identify long-term opportunities and uses short-term market inefficiencies to build positions in such investments. The investment and portfolio construction process begin with the determination of the Fund's or institutional client's investment objectives, resulting in a set of risk-return parameters and exposure limits within which the portfolio is managed. Next the firm's global economic outlook for the industrialized countries is developed, with a focus on interest rate and exchange rate forecasts. The portfolio's interest rate outlook is a function of global general equilibrium macroeconomic analysis as well as country-specific research. Macroeconomic conditions in the G-3 economies are analyzed first, primarily with respect to how current and projected growth and inflation dynamics are expected to influence monetary policy. This analysis is then extended out to the rest of the industrialized countries (G-13) as well as emerging markets, which results in broad targets for cash, duration, currencies and the developed/emerging market mix. Using the firm's interest rate and exchange rate outlook, probability-weighted horizon returns for bonds of various countries are then calculated. This analysis is used to establish specific country weights and duration targets based on risk-adjusted expected total return measured in the portfolio's base currency. Analysis of emerging markets includes sovereign credit analysis along with greater emphasis on capital flows, inter-market dynamics and trends in the level of risk aversion in the market.

## **Graham – Quant Macro Fund**

Graham Quant Macro ("GQM") is a directional, long and short strategy that utilizes fundamental and price-based indicators to establish return forecasts across global interest rates, foreign exchange, stock indices and commodities. The strategy incorporates a variety of submodels that generate macro fundamental forecasts, assess yield and earnings differentials, compare current valuations relative to historic fair value, and analyze directional price trends across markets. Quantitative risk management and portfolio construction techniques are used to diversify risk across the portfolio and enhance risk-adjusted returns. Historically, the average holding period has been approximately eight to ten weeks, although the sub-models will make daily adjustments to positions. The strategy is designed to have low correlation to traditional markets and other alternative strategies and has the potential to provide significant portfolio diversification benefits.

## **Harrison Street Core Property**

Based in Chicago, Harrison Street's exclusive focus since inception in 2005 has been investing in non-core property sectors of the real estate market. The Harrison Street Core Fund is an open-end fund that invests primarily in stabilized education, healthcare, and self-storage real estate assets in the United States using modest leverage with an emphasis on generating current income. The focus on these alternative property types is intended to concentrate on areas of the real estate market that are less GDP sensitive with demand drivers that are more demographic driven such as aging populations, education growth and healthcare delivery. Each of these areas tend to be less tied to the business cycle, have fragmented ownership and more operationally intensive. The fund acts as a diversifier within real estate portfolios with sector exposures that are not a typical focus of other core ODCE funds.

## **INVESCO Realty Advisors – INVESCO Core Equity, LLC**

SamCERA is a founding member of INVESCO's open-end Core Equity real estate fund and rolled its separate account properties into the fund. INVESCO Core Equity, LLC (the "Fund") is a perpetual life, open-end vehicle which invests in a diversified portfolio of institutional quality office, retail, industrial and multifamily residential real estate assets. The Fund buys core properties that are located within the United States, typically requiring an investment of \$10 million or more. The portfolio cannot be more than 30% leveraged.

## **INVESCO Realty Advisors – INVESCO US Val IV, V, & VI**

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund's looks to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments are limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's). Invesco Value Fund's provide a complement to the more conservative Invesco Core Fund and offers the potential of enhanced returns to the SamCERA Real Estate portfolio.

## **Insight Investments – Cash Flow Matched Liquidity**

Insight is the fixed income sleeve of Mellon Capital. The strategy seeks to invest in short duration fixed income securities that match the negative cash flows of the Plan (similar to an LDI plan). Insight receives estimates of three years of cash flows from the actuarial report. Once a year, if market conditions allow, SamCERA will re-invest "year 3" net cash flows. Insight uses their credit analysis team for analyzing all credits or potential investments to the fund.

## **Mondrian Investment Partners – International Equity**

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give an accurate currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer-based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

## **NISA – Core Bond**

NISA applies a risk-controlled approach to all of its fixed income portfolios. This approach does not permit large bets or positions that generate significant tracking error versus the benchmark. Instead, NISA invests in a large number of small, diversified, active positions which seek tight tracking error to the chosen benchmark. Benchmark weight is a significant consideration when constructing and managing portfolios. The investment strategy is comprised of strategic (top-down) and tactical (bottom-up) decisions. Strategic decisions include sector selection and yield curve positioning while tactical decisions include industry and security selection and trading activity. Review of both strategic and tactical decisions is continual. The amount of portfolio risk budget devoted to one aspect versus the other will change as market conditions warrant. In general, strategic decisions change relatively infrequently, while tactical decisions, especially security selection, will change fairly often as market conditions provide opportunities. Over a typical market cycle, the bottom-up is expected to contribute to 70% of value-added while top-down is roughly 30%.

## **PanAgora Asset Management – Defensive U.S. Equity Low Volatility**

PanAgora's Defensive Equity strategy seeks to harness the 'low-volatility premium' through a systematic, factor-based investment approach focused on achieving market-like returns with less risk. This is accomplished by leveraging PanAgora's proprietary Risk Parity portfolio construction methodology, which seeks to efficiently capture the equity premium associated with low volatility, while taking minimal unintended risks. Since the firm's inception, PanAgora has been using quantitative techniques to integrate fundamental insights with large amounts of dynamic market data. They score individual securities on a factor basis and also on a diversification basis, in the context of a broadly diversified portfolio. The portfolio construction process optimizes the portfolio around the intended factor exposure (volatility) while maintaining equal risk contribution across sectors (ex., overweight utilities and consumer staples, underweight financials and technology). Shorter term volatility and longer term correlation analysis is combined in the approach. The result for the US Defensive Equity strategy is a portfolio expected to have lower volatility (beta around 0.65-0.75), and similar returns relative to the capitalization-weighted benchmark over a full market cycle. PanAgora expects the strategy to participate in approximately 75% of up markets and 55% in down markets.

## **Parametric Overlay – Cash Overlay and Currency Hedge**

Parametric's cash overlay program is an efficient way for SamCERA to maintain its target asset allocation in a systematic fashion through cash securitization at the fund and manager level, transition/reallocation support and asset class rebalancing back to target within defined bands. The cash overlay program is invested synthetically using liquid futures with cash balances reviewed daily. A combination of large and small cap futures implementation is the proxy for private equity. SamCERA's investment guidelines initially allowed only for cash overlay. Rebalancing was added to the SamCERA program in January 2014. Cash overlay and rebalancing is expected to add 10-20 bps to the portfolio over time. An additional currency overlay hedge placed on half of the notional value of developed international equities. The addition of currency hedging started in September 2018 and was fully implemented on 10/1/2019. The purpose of the currency is first and foremost to lower portfolio risk and secondarily to add incremental performance.

## **PIMCO Diversified**

PIMCO's Diversified Income (DI) Fund is a multi-sector strategy that invests across a broad spectrum of global credit market sectors, including investment grade and high yield corporate debt, as well as emerging markets. The allocation among these will vary based on PIMCO's assessment of global trends and relative valuations. This active and dynamic approach allows for increased responsiveness in asset allocation to changing economic and market conditions while remaining anchored by PIMCO's investment process and longer-term orientation. The ability to invest globally helps to improve diversification and may allow investors to benefit from differences in business cycles across regions and credit quality trends across credit sectors. PIMCO's DI investment strategy seeks to provide high yield-like returns with lower volatility against a blended index (1/3 Bloomberg Barclays Global Agg Credit ex-EM; 1/3 BofA Merrill Lynch BB-B rated Developed Markets High Yield; 1/3 JPMorgan EMBI Global). The fund allows for a duration band of 3-8 years. The team focuses its investments into these groups: credit strategies (investment grade, high yield, emerging markets and non-core credits including MBS, municipals and other govt-related sectors); duration strategies (U.S. and non-U.S. duration) and currencies (tactical non-USD exposure).

## **PIMCO – MAARS**

PIMCO MAARS is an alternative risk premia strategy that looks for risks associated with: (1) Supply and Demand Constraints, (2) Behavioral Biases, and (3) Asymmetric Risks (event risk). As reflected in the design of the MAARS strategies, PIMCO believes that alternative risk premia strategies are best implemented using a systematic approach that minimizes the discretionary inputs in day-to-day portfolio management. MAARS places a greater emphasis and weighting on global interest rates, currencies and commodities and a lesser emphasis on equities than many of its Alt Beta peers. Relative to Alt Beta peers, the strategy's rates and currency (FX) models are particularly robust, reflective of PIMCO's core competency and long history managing these asset classes using derivative instruments.

## **PIMCO Private Income Fund**

PIMCO Private Income Fund (PIF) uses an opportunistic and flexible approach to global private credit. PIF provides a total return oriented global credit exposure utilizing both top-down sector relative value and bottom up security selection. The strategy invests across private residential, commercial, corporate and specialty finance markets. PIMCO's Private Income Fund (PIF) is targeting 8-12% net returns with income providing most of the fund's returns. The Private Income Investment Committee (IC) identifies market themes and direction for their relative value framework, and sector specialists provide recommendations to the PM team within that construct. PIF has the ability to invest throughout the capitalization structure. The fund can use a moderate amount of leverage to enhance portfolio returns (1.5 times with a hard cap of 2 times).

## **PGIM RE Debt**

PGIM Real Estate US Debt Fund (PREDS) focuses on a loan origination strategy with a mix of 20% senior long duration loans on stable assets, 60% senior short/medium duration loans on stable and transitional assets, and 20% mezzanine mid/long duration debt. SamCERA was a founding investor in the PREDS strategy which invests in US commercial real estate debt in an open-ended vehicle with a return target of 7-8% (gross) coming from stable current income. The fund makes investments in first lien mortgages and mezzanine debt. First lien mortgages can be floating rate or fixed rate, but only floating rate loans will use leverage. Subordinate investments (mezzanine debt and preferred equity) will be limited by design. The fund can source and invest in secondary loans through a variety of Prudential real estate professionals, but the primary focus will be on direct origination through the real estate finance team.

## **Quantitative Management Associates – QMA Small-Cap Core**

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities to consistently add value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

## **State Street Global Advisors (SSgA) Custom Real Asset**

SSgA Custom Real Asset portfolio uses a portfolio of liquid real assets to proxy private real assets. The portfolio is comprised of equal weightings of the Bloomberg Roll Select Commodity Index, S&P Global Mid-Large Cap Natural Resources Index, S&P Global Infrastructure Index, and Bloomberg Barclays TIPS Index. SSgA provides beta exposure through these underlying liquid components which can be customized to changing client needs (ex., TIPS was added in May 2020 with the other three parts of the portfolio reduced pro-rata). The portfolio is used to fund upcoming private real asset mandates.

## **Stockbridge Value IV**

Stockbridge Value IV will implement a value-added strategy that will seek to own assets that are undervalued, underutilized, and/or not operating to their full potential. The manager will add value with their internal asset management team through active strategies including additional capital investment, leasing, recapitalization, renovation and/or development. The fund will target three to five year holding periods for investments, with disposition taking place after the completion of the value-add strategy. The fund will target 15 to 25 mid-sized investments, diversified by geography and property type. The strategy will target 21 markets in the United States in which the firm has boots on the ground coverage with dedicated acquisitions professionals and asset managers responsible for knowing each market extensively with a vast network of relationships.

## **White Oak - White Oak Yield Spectrum Fund**

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

## **White Oak - White Oak Yield Spectrum Fund V**

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.



# Policy Index and Benchmark History

Period Ending: March 31, 2023

Total Plan Policy Index	As of															
	3/1/23	10/1/22	7/1/22	2/1/21	1/1/21	7/1/20	4/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	4/1/18	10/1/17	2/1/17	
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
91 Day T-Bills	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg US Govt/Credit 1-3 Yr. TR	4.5%	4.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg Aggregate	12.5%	13.5%	16.5%	18.0%	21.0%	21.0%	18.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	12.0%	
Bloomberg BA Intermediate HY	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Blended Public Real Asset	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	0.0%	0.0%	
Blended Private Real Asset	5.0%	4.0%	4.0%	4.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	8.0%	7.0%	
Libor +4% (HF)	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
SOFR +4% (HF)	7.0%	7.0%	7.0%	7.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
MSCI ACWI ex US IMI 100% Hedged (Net)	9.5%	9.5%	9.5%	9.5%	9.0%	9.0%	9.0%	9.0%	7.6%	5.7%	3.8%	1.9%	0.0%	0.0%	0.0%	
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.0%	
MSCI ACWI ex-US IMI (Net)	9.5%	9.5%	9.5%	9.5%	9.0%	9.0%	9.0%	9.0%	11.4%	13.3%	15.2%	17.1%	19.0%	19.0%	0.0%	
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
NCREIF ODCE	9.0%	9.0%	9.0%	9.0%	10.0%	10.0%	9.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.0%	
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Russell 3000	21.0%	21.0%	21.0%	22.0%	21.0%	21.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	21.0%	21.0%	23.0%	
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.0%	
Russell 3000 +3% 1Q Lag (PE)	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	7.0%	0.0%	0.0%	
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	



# Policy Index and Benchmark History

Period Ending: March 31, 2023

Total Plan Policy Index	As of:														
	10/1/16	9/1/16	1/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	1/1/09	5/1/07	6/1/00	3/1/99	9/1/98	7/1/96	
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	10.0%	10.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	8.0%	8.0%	8.0%	8.0%	8.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg US Govt/Credit 1-3 Yr. TR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	10.0%	10.0%	10.0%	10.0%	9.3%	11.0%	11.0%	12.9%	27.0%	27.0%	29.0%	25.0%	21.0%	21.0%	21.0%
Bloomberg BA Intermediate HY	6.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	3.0%	3.0%	3.0%	3.0%	3.8%	4.4%	4.4%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg TIPS	2.0%	2.0%	2.0%	2.0%	2.0%	3.1%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Commodity	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	9.0%	9.0%	9.0%
CPI + 5% (RA)	0.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Libor +4% (HF)	5.0%	5.0%	5.0%	4.0%	4.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOFR +4% (HF)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.0%	18.0%	21.0%	21.0%	15.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	19.0%	20.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%	20.0%
NCREIF ODCE	7.0%	7.0%	7.0%	6.0%	6.0%	5.0%	5.0%	5.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	24.0%	24.0%	24.0%	28.0%	28.0%	28.0%	37.0%	37.0%	40.0%	22.0%	20.0%	20.0%	20.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	5.0%	5.0%
Russell 2000	0.0%	0.0%	4.0%	6.0%	6.0%	7.0%	7.0%	7.0%	9.0%	9.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Russell 3000	28.0%	28.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	7.0%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% 1Q Lag (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: March 31, 2023

Public Equity Benchmark	As of:																			
	7/1/22	2/1/21	7/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	23.8%	23.2%	23.1%	22.5%	18.5%	13.9%	9.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	23.8%	23.2%	23.1%	22.5%	27.8%	32.4%	37.0%	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	52.5%	53.7%	53.9%	55.0%	53.7%	53.7%	53.7%	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Equity Benchmark	As of:						
	9/1/16	1/1/16	6/1/00	3/1/99	9/1/98	7/1/96	1/1/95
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%	69.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%	14.0%
Russell 3000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S & P 500	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark	As of:								
	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	50.0%	40.0%	30.0%	20.0%	10.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	50.0%	60.0%	70.0%	80.0%	90.0%	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fixed Income Benchmark	As of:																			
	3/1/23	10/1/22	7/1/22	2/1/21	7/1/20	4/1/20	10/1/19	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96	
Bloomberg Aggregate	55.6%	57.5%	62.3%	64.3%	67.7%	69.2%	63.6%	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%	
Bloomberg BA Intermediate HY	44.4%	42.6%	37.7%	35.7%	32.3%	30.8%	36.4%	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%	
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%	
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.5%	0.0%	0.0%	0.0%	0.0%	
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%	
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Opportunistic Credit Benchmark	As of:	
	1/1/14	12/1/09
Bloomberg BA Intermediate HY	100.0%	0.0%
Bloomberg Credit BAA	0.0%	100.0%
	100.0%	100.0%

Alternatives Benchmark	As of:									
	7/1/22	2/1/21	1/1/21	10/1/18	4/1/18	2/1/17	4/1/16	1/1/16	1/1/14	1/1/11
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	0.0%	0.0%	0.0%	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
SOFR +4% (HF)	50.0%	53.8%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	50.0%	46.2%	50.0%	50.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: March 31, 2023

Private Equity Benchmark		As of:	
	4/1/18	10/1/10	
Russell 3000 +3% 1Q Lag	100.0%	0.0%	
Russell 3000 +3%	0.0%	100.0%	
	<b>100.0%</b>	<b>100.0%</b>	

Hedge Fund Benchmark		As of:	
	1/1/21	10/1/10	
Libor +4%	0.00%	100.00%	
SOFR +4%	100.0%	0.0%	
	<b>100.0%</b>	<b>0.0%</b>	

Inflation Hedge Benchmark		As of:								
	3/1/23	2/1/21	7/1/20	4/1/20	10/1/19	4/1/18	2/1/17	10/1/16	4/1/16	
Bloomberg TIPS	0.00%	0.00%	0.00%	0.00%	5.88%	11.1%	12.5%	14.3%	14.3%	
Bloomberg Commodity	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	21.4%	
CPI + 5% (RA)	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	14.3%	
Blended Public Real Asset	22.22%	23.53%	23.53%	35.29%	35.29%	33.3%	0.0%	0.0%	0.0%	
Blended Private Real Asset	27.78%	23.53%	17.65%	11.77%	11.77%	11.1%	43.8%	35.7%	0.0%	
NCREIF ODCE	50.00%	52.94%	58.82%	52.94%	47.06%	44.4%	43.8%	50.0%	50.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

Public Real Asset Benchmark		As of:		
	5/1/20	10/1/16	1/1/14	
Bloomberg Roll Select Commodity	25.0%	34.0%	0.0%	
S&P Global Large-MidCap Commodity and Resources	25.0%	33.0%	0.0%	
S&P Global Infrastructure	25.0%	33.0%	0.0%	
CPI + 5%	0.0%	0.0%	100.0%	
Bloomberg TIPS	25.0%	0.0%	0.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

Private Real Asset Benchmark		As of:			
	1/1/21	4/1/18	10/1/16	1/1/14	
Bloomberg Roll Select Commodity	0.00%	0.00%	34.00%	0.0%	
S&P Global Large-MidCap Commodity and Resources	0.00%	0.00%	33.00%	0.0%	
S&P Global Infrastructure	0.00%	0.00%	33.00%	0.0%	
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	0.00%	100.00%	0.00%	0.0%	
75/25 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.00%	0.00%	0.00%	0.0%	
CPI + 5%	0.00%	0.00%	0.00%	100.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

Private RA Secondary Benchmark		As of:
	9/1/14	
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%	
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%	
	<b>100.0%</b>	

Real Estate Benchmark		As of:		
	1/1/09	6/1/00	7/1/96	
10 Year Treasury +2%	0.0%	0.0%	100.0%	
NCREIF ODCE	100.0%	0.0%	0.0%	
NCREIF Property	0.0%	100.0%	0.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

Liquidity Benchmark		As of:	
	10/1/22	7/1/22	
Bloomberg US Govt/Credit 1-3 Yr. TR	81.8%	60.0%	
91 Day T-Bills	18.2%	40.0%	
	<b>100.0%</b>	<b>100.0%</b>	

# Policy Index and Benchmark History

Period Ending: March 31, 2023

Baillie Gifford Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US	100.0%	0.0%
MSCI EAFE	0.0%	100.0%
	<b>100.0%</b>	<b>100.0%</b>

Baillie Gifford Secondary Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US Growth	100.0%	0.0%
MSCI EAFE Growth	0.0%	100.0%
	<b>100.0%</b>	<b>100.0%</b>

Brigade Secondary Benchmark	As of:	
	8/1/10	
Bloomberg High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	<b>100.0%</b>	

PIMCO Diversified	As of:	
	9/1/17	
JPMorgan EMBI Global	33.333%	
BofAMLBB-BRatedDvlpdMktsHYHdgdUSD	33.333%	
Global Agg Credit Ex EM USD hedged	33.334%	
	<b>100.0%</b>	

SSgA Custom Real Asset	As of:	
	5/1/20	11/1/16
Bloomberg Roll Select Commodity	25.00%	33.33%
S&P Global Large-MidCap Commodity and Resources	25.00%	33.33%
S&P Global Infrastructure	25.00%	33.34%
Bloomberg TIPS	25.00%	0.00%
	<b>100.0%</b>	<b>100.0%</b>

# Fee Schedule

Period Ending: March 31, 2023

## Acadian Asset Management

First \$50 million:	0.27% per annum
Next \$50 million:	0.225% per annum
Thereafter:	0.18% per annum

## Baillie Gifford

First \$25 million:	0.60% per annum
Next \$75 million:	0.50% per annum
Next \$300 million:	0.40% per annum
Thereafter:	0.30% per annum

## BlackRock-Russell 1000 Index Fund

On All Assets:	0.01% per annum
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## BlackRock-MSCI ACWI ex US IMI Index Fund

On All Assets:	0.045% per annum
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## DoubleLine

On All Assets:	0.30% per annum
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## NISA

First \$500 million:	0.15% per annum
Next \$1 billion:	0.125% per annum
Next \$1 billion:	0.105% per annum
Next \$1.5 billion:	0.085% per annum
Thereafter:	0.065% per annum

## Franklin Templeton Investment

First \$50 million:	0.40% per annum
Next \$50 million:	0.30% per annum
Thereafter:	0.25% per annum

## FIAM Bond

First \$50 million:	0.25% per annum
Next \$50 million:	0.20% per annum
Next \$100 million:	0.125% per annum
Thereafter:	0.10% per annum

## PanAgora Asset Management

First \$50 million:	0.25% per annum
Next \$50 million:	0.15% per annum
Thereafter:	0.10% per annum

## Parametric Overlay

First \$50 million:	0.12% per annum
Next \$100 million:	0.10% per annum
Thereafter:	0.05% per annum
Plus monthly reporting fee of \$1500	

## Parametric Currency Overlay

First \$250 million:	0.05% per annum
Thereafter:	0.03% per annum

## PIMCO Diversified

On All Assets:	0.75% per annum
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## QMA

First \$100 million:	0.55% per annum
Next \$100 million:	0.53% per annum
Thereafter:	0.49% per annum

## Western Asset Management

On All Assets:	0.25% per annum
Performance Fee:	20.00%

## Mondrian Investment Partners

First \$50 million:	1.00% per annum
Next \$150 million:	0.19% per annum
Thereafter:	0.33% per annum

## Insight Investment

First \$200 million:	0.09% per annum
Next \$300 million:	0.08% per annum
Thereafter:	0.06% per annum

# Manager Compliance (Net)

Period Ending: March 31, 2023

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	R	R
PanAgora Defuseq	Russell 1000	--	--	--
PGIM Quant Solutions	Russell 2000	R	R	R
Baillie Gifford	MSCI ACWI ex US	✓	R	R
Mondrian	MSCI ACWI ex USA Value Gross	R	R	R
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
AG CSF ADF II	Bloomberg BA Intermediate HY	--	--	--
AG CSF II	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	R	R	R
PIMCO Diversified	Blended PIMCO Diversified Index	R	R	R
Franklin Templeton	Bloomberg Multiverse TR	R	R	R
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	R
White Oak Yield	Cliffwater Direct Lending Index	R	✓	✓
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

# Manager Compliance (Gross)

Period Ending: March 31, 2023

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	✓	R
PanAgora Defuseq	Russell 1000	--	--	--
PGIM Quant Solutions	Russell 2000	✓	R	✓
Baillie Gifford	MSCI ACWI ex US	✓	R	✓
Mondrian	MSCI ACWI ex USA Value Gross	✓	R	✓
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
AG CSF ADF II	Bloomberg BA Intermediate HY	--	--	--
AG CSF II	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	R	R	R
PIMCO Diversified	Blended PIMCO Diversified Index	R	R	R
Franklin Templeton	Bloomberg Multiverse TR	R	R	R
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	R
White Oak Yield	Cliffwater Direct Lending Index	R	✓	✓
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive



# Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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