# Plymouth County Retirement Association

## January 30, 2024

## Meeting Materials

# Agenda

1. Economic Market Update As of December 31, 2023
2. Meketa White Paper: The Magnificent Seven
3. Estimated Retirement Association Performance As of December 31, 2023
4. Performance Update As of November 30, 2023
5. Appendices
    - Corporate Update
    - Disclaimer, Glossary, and Notes

# Economic and Market Update

## Data As of December 31, 2023

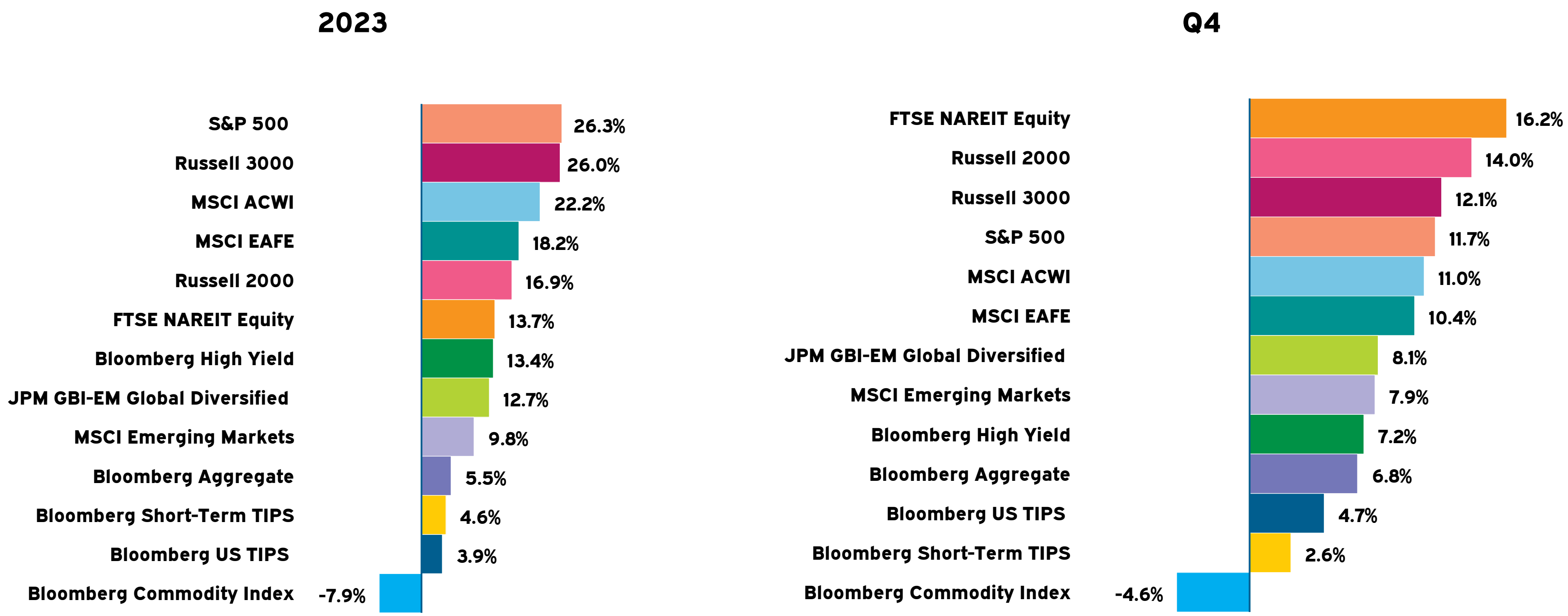
## Commentary

→ Most markets rallied in the fourth quarter in anticipation that policy rates cuts were ahead in 2024.

- Major central banks have largely paused interest rates hikes. Markets are now largely expecting the FOMC to maintain interest rates at the current levels and begin cutting rates as soon as Q1 2024.
- Inflation rose in December in the US and Europe, but both finished the year much lower than where they started. China remained in deflationary territory (-0.3%) at year-end.
- US equity markets (Russell 3000 index) posted strong gains for the quarter (12.1%), raising full year results to +26.0%. Most sectors rallied, with more defensive sectors lagging.
- Non-US developed equity markets also rallied in the fourth quarter (MSCI EAFE 10.4%), with the weakening of the US dollar contributing meaningfully (10.4% versus 5.0% ex.-US dollar influence). The performance difference between US and international developed equities for the year remained wide (26.0% versus 18.2%).
- Emerging market equities were up 7.9% in the fourth quarter and 9.8% for calendar 2023 but trailed developed markets due to lagging returns in China (-4.2% Q4/-11.2% one-year). Emerging market equities ex.-China returned 20% in 2023.
- Interest rates generally fell in the fourth quarter, particularly for longer-dated maturities. The broad US bond market rallied (6.8%) for the quarter, lifting 2023 returns into positive territory (5.5%).

→ Looking to 2024, the paths of inflation and monetary policy, China's economic disorder and slowing economic growth, and the wars in Ukraine and Israel, will be key.

## Index Returns[1]




→ After a tough start to the quarter on lingering fears that the Federal Reserve might keep interest rates "higher for longer", markets rallied in November and December. Economic data generally coming in below expectations sparked expectations that the Federal Reserve might really be done raising policy rates for this cycle.

→ Strong results for the quarter built on gains for the year with all asset classes finishing in positive territory in 2023, except commodities.

[1] Source: Bloomberg. Data is as of December 31, 2023.

## Domestic Equity Returns[1]

| Domestic Equity | December (%) | Q4 (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|
| S&P 500 | 4.5 | 11.7 | 26.3 | 10.0 | 15.7 | 12.0 |
| Russell 3000 | 5.3 | 12.1 | 26.0 | 8.6 | 15.2 | 11.5 |
| Russell 1000 | 4.9 | 12.0 | 26.5 | 9.0 | 15.5 | 11.8 |
| Russell 1000 Growth | 4.4 | 14.2 | 42.7 | 8.9 | 19.5 | 14.9 |
| Russell 1000 Value | 5.5 | 9.5 | 11.5 | 8.9 | 10.9 | 8.4 |
| Russell MidCap | 7.7 | 12.8 | 17.2 | 5.9 | 12.7 | 9.4 |
| Russell MidCap Growth | 7.6 | 14.5 | 25.9 | 1.3 | 13.8 | 10.6 |
| Russell MidCap Value | 7.8 | 12.1 | 12.7 | 8.4 | 11.2 | 8.3 |
| Russell 2000 | 12.2 | 14.0 | 16.9 | 2.2 | 10.0 | 7.2 |
| Russell 2000 Growth | 12.0 | 12.7 | 18.7 | -3.5 | 9.2 | 7.2 |
| Russell 2000 Value | 12.4 | 15.3 | 14.6 | 8.0 | 10.0 | 6.8 |

### US Equities: The Russell 3000 rallied 5.3% in December, bringing fourth quarter results to +12.1%. US stocks were up 26.0% in 2023.

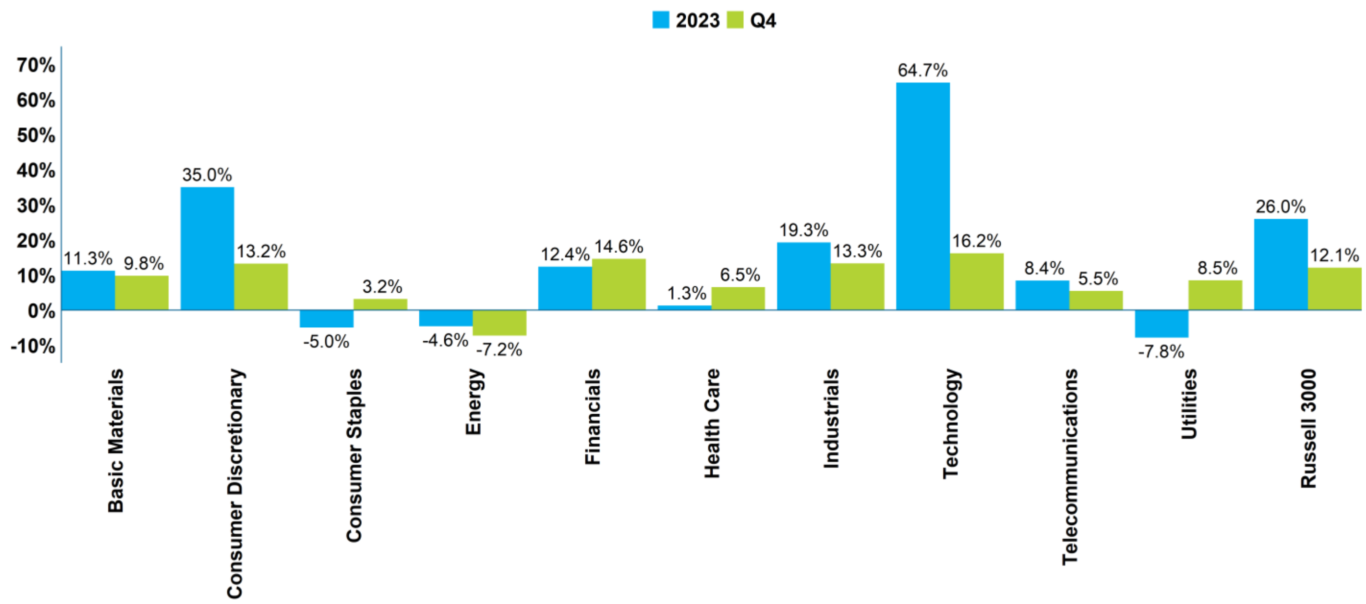
→ US equities had a strong final quarter of the year, driven by expectations that rate cuts may be ahead in 2024.

→ Small cap stocks outperformed their large cap peers for the quarter while growth outpaced value with the exception of small cap. Large cap stocks outperformed small cap stocks by a wide margin for the calendar year and growth outpaced value across market caps.

→ Calendar year results were clearly driven by large cap technology stocks. Within the S&P 500 index, the "Magnificent 7" stocks generated more than 50% of the total gains.

[1] Source: Bloomberg. Data is as of December 31, 2023. Magnificent Seven stocks include: Apple, Microsoft, Alphabet, Amazon, Nvidia, Tesla, and Meta.

## Russell 3000 Sector Returns[1]




→ All sectors posted gains for the fourth quarter, except for energy (-7.2%) given oil's recent declines. Technology (+16.2%) led the way for the quarter followed by financials (+14.6%).

→ In 2023, technology (+64.7%) and consumer discretionary (+35.0%) sectors had the best results, helped respectively by artificial intelligence optimism and a healthy US consumer. Traditionally defensive sectors like utilities (-7.8%) and consumer staples (-5.0%) trailed.

[1] Source: Bloomberg. Data is as of December 31, 2023.

## Foreign Equity Returns[1]

| Foreign Equity | December (%) | Q4 (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|
| MSCI ACWI ex. US | 5.0 | 9.8 | 15.6 | 1.5 | 7.1 | 3.8 |
| MSCI EAFE | 5.3 | 10.4 | 18.2 | 4.0 | 8.2 | 4.3 |
| MSCI EAFE (Local Currency) | 2.9 | 5.0 | 16.2 | 8.7 | 9.5 | 6.6 |
| MSCI EAFE Small Cap | 7.3 | 11.1 | 13.2 | -0.7 | 6.6 | 4.8 |
| MSCI Emerging Markets | 3.9 | 7.9 | 9.8 | -5.1 | 3.7 | 2.7 |
| MSCI Emerging Markets (Local Currency) | 3.1 | 5.6 | 9.9 | -2.5 | 5.4 | 5.2 |
| MSCI China | -2.4 | -4.2 | -11.2 | -18.5 | -2.8 | 0.9 |

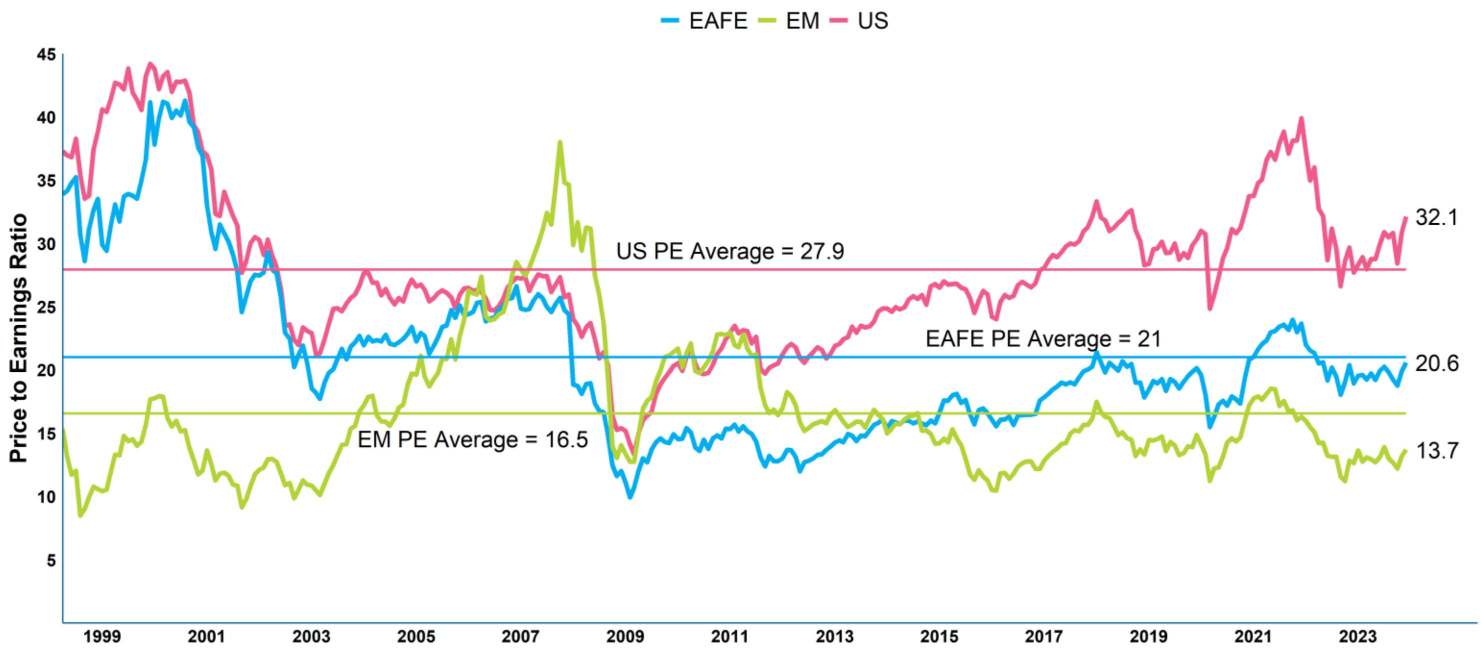
**Foreign Equity: Developed international equities (MSCI EAFE) gained 5.3% in December and 10.4% in the fourth bringing calendar year results to 18.2%. Emerging market equities (MSCI EM) rose 3.9% in December, 7.9% for the quarter, and 9.8% for the year.**

→ Optimism around lower inflation and potentially peaking and declining policy rates drove gains in the UK and Europe. Japan had weaker results for the quarter as concerns over a strengthening yen weighed on returns in December. Overall weakness in the US dollar also contributed to quarterly and full year results across developed markets.

→ Emerging markets also experienced strong performance in the fourth quarter but trailed developed markets. China weighed on relative results for the quarter and year, declining 4.2% and 11.2%, respectively. Slowing growth, issues in the property sector, and on-going tensions with the US all weighed on results.

[1] Source: Bloomberg. Data is as of December 31, 2023.

## Equity Cyclically Adjusted P/E Ratios[1]




→ Given the strong technology-driven rally last year, the US equity price-to-earnings ratio increased above its 21st century average. Fourth quarter gains brought valuations to their highest level for the year.

→ International market valuations also increased in the fourth quarter, but remain below the US. In the case of developed markets, valuations finished the year close to the their long-term average, while emerging markets remained well below their average.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of December 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.

## Fixed Income Returns[1]

| Fixed Income | December (%) | Q4 (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) | Current Yield (%) | Duration (Years) |
|---|---|---|---|---|---|---|---|---|
| Bloomberg Universal | 3.8 | 6.8 | 6.2 | -3.0 | 1.4 | 2.1 | 4.8 | 6.1 |
| Bloomberg Aggregate | 3.8 | 6.8 | 5.5 | -3.3 | 1.1 | 1.8 | 4.5 | 6.3 |
| Bloomberg US TIPS | 2.7 | 4.7 | 3.9 | -1.0 | 3.2 | 2.4 | 4.2 | 6.7 |
| Bloomberg Short-term TIPS | 1.1 | 2.6 | 4.6 | 2.3 | 3.4 | 2.0 | 4.5 | 2.4 |
| Bloomberg High Yield | 3.7 | 7.2 | 13.4 | 2.0 | 5.4 | 4.6 | 7.6 | 3.8 |
| JPM GBI-EM Global Diversified (USD) | 3.2 | 8.1 | 12.7 | -3.2 | 1.1 | 0.1 | 6.5 | 5.0 |

### Fixed Income: The Bloomberg Universal index rose 3.8% in December, 6.8% for the quarter, and 6.2% for the year.

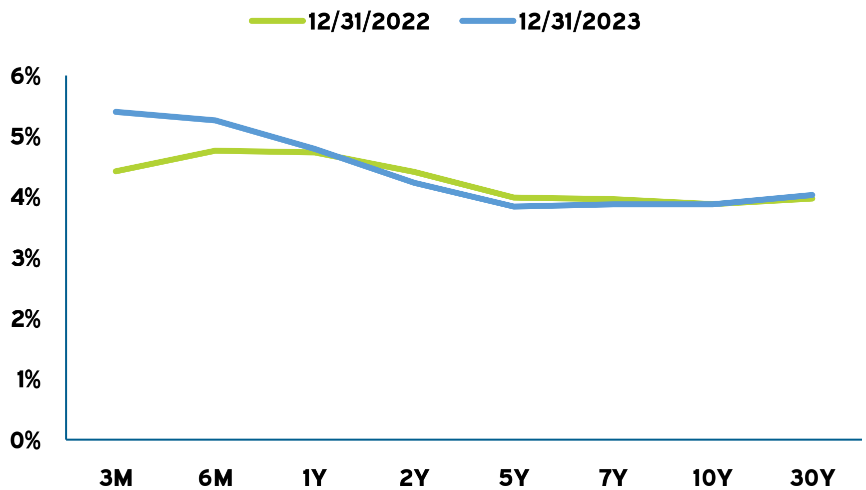
→ Policy rate expectations swung from pessimism to optimism in November and December. Signs of the labor market cooling and improving inflation led investors to bring forward expectations for interest rate cuts to early 2024, leading to one of the best quarterly results in over twenty years.

→ The broad US bond market (Bloomberg Aggregate) rallied 6.8% for the quarter, lifting full-year performance into positive territory (+5.5%). The broader TIPS index rose 4.7% for the quarter and 3.9% for the year, while the less interest-rate-sensitive short-term TIPS index rose 2.6% and 4.6% over the same periods.

→ High yield bonds rallied on better risk sentiment (+7.2%), as did emerging market bonds (+8.1%). Both asset classes produced double-digit results last year.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of December 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

## US Yield Curve[1]




→ The more policy sensitive short-term maturities were higher this year while longer-term maturities finished the year where they started.

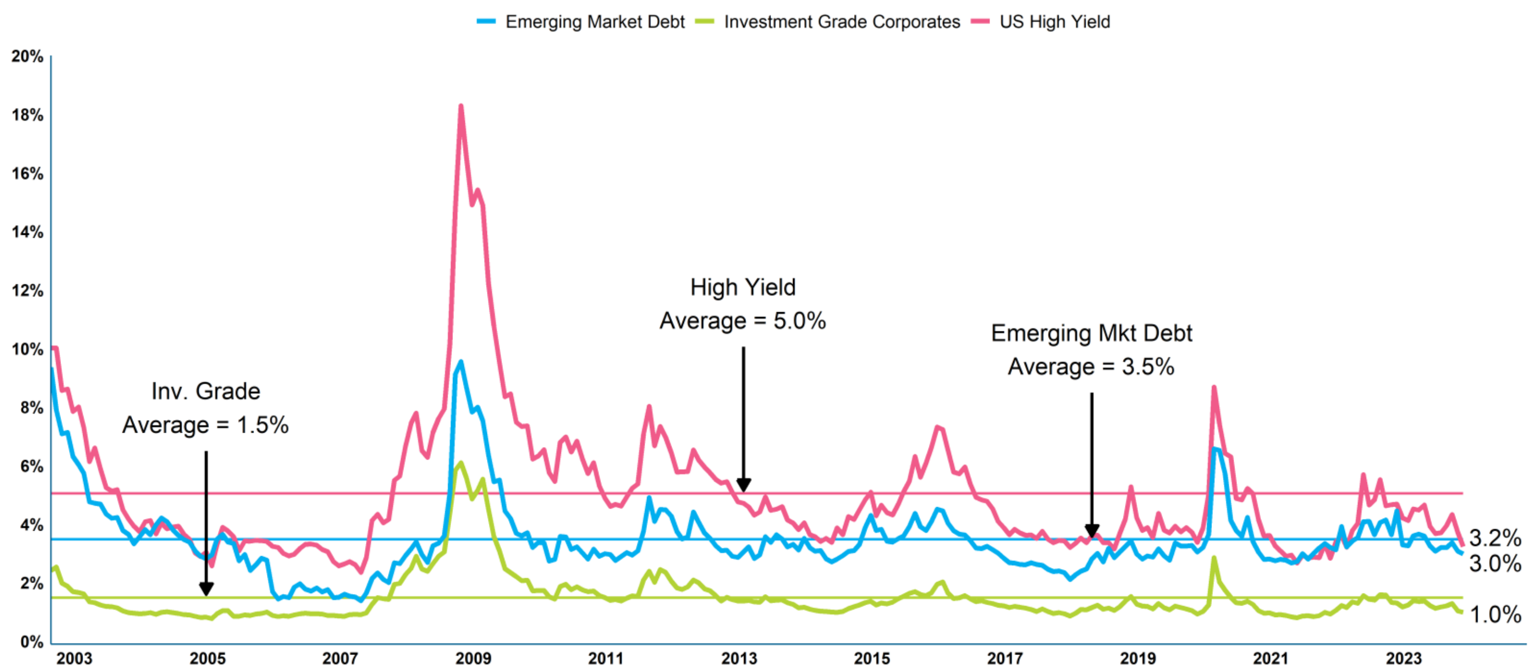
→ Still, rates declined sharply over the quarter, particularly at the longer end of the yield curve on continued easing of inflation-related risks and speculation that the Federal Reserve is done with their policy rate increases for this cycle.

→ For the quarter, two-year Treasury yields fell from 5.05% to 4.24% while ten-year Treasury yields declined from 4.56% to 3.88%.

→ The yield curve remained inverted at year-end despite a recent flattening trend. The spread between the 2-year and 10-year Treasury was -0.37% at the end of December.

[1] Source: Bloomberg. Data is as of December 31, 2023.

## Credit Spreads vs. US Treasury Bonds[1]

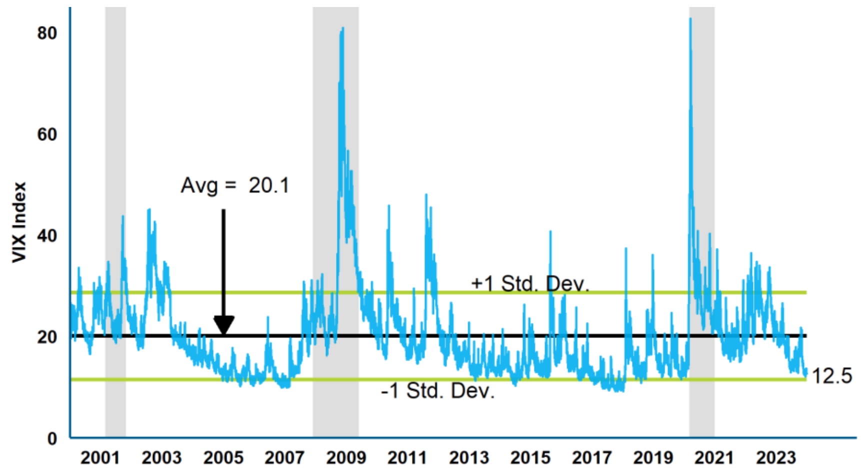


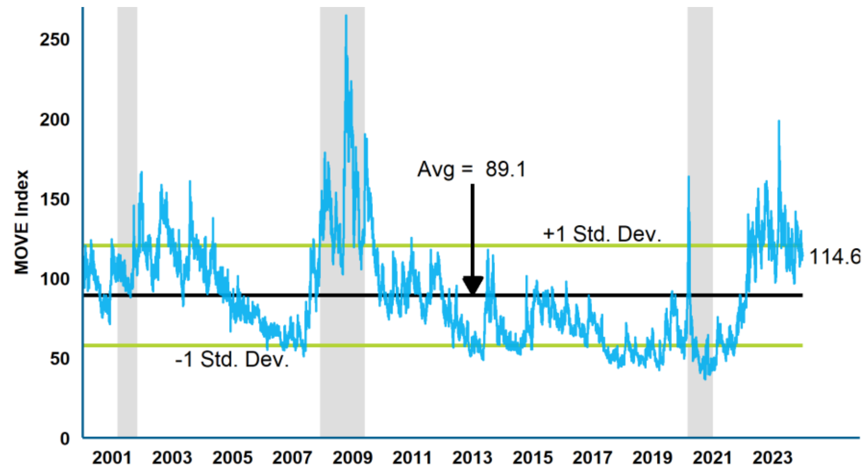

→ Expectations of peaking policy rates and the corresponding increase in risk appetite benefited credit in the fourth quarter with spreads (the added yield above a comparable maturity Treasury) narrowing. All spreads remain below their respective long run averages.

→ High yield spreads continue to be the furthest below their long-term average given the overall risk appetite last year and lower duration. Investment-grade corporate and emerging market spreads are also below their respective long-term averages, but by smaller margins.

[1] Sources: Bloomberg. Data is as of December 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

## Equity and Fixed Income Volatility[1]



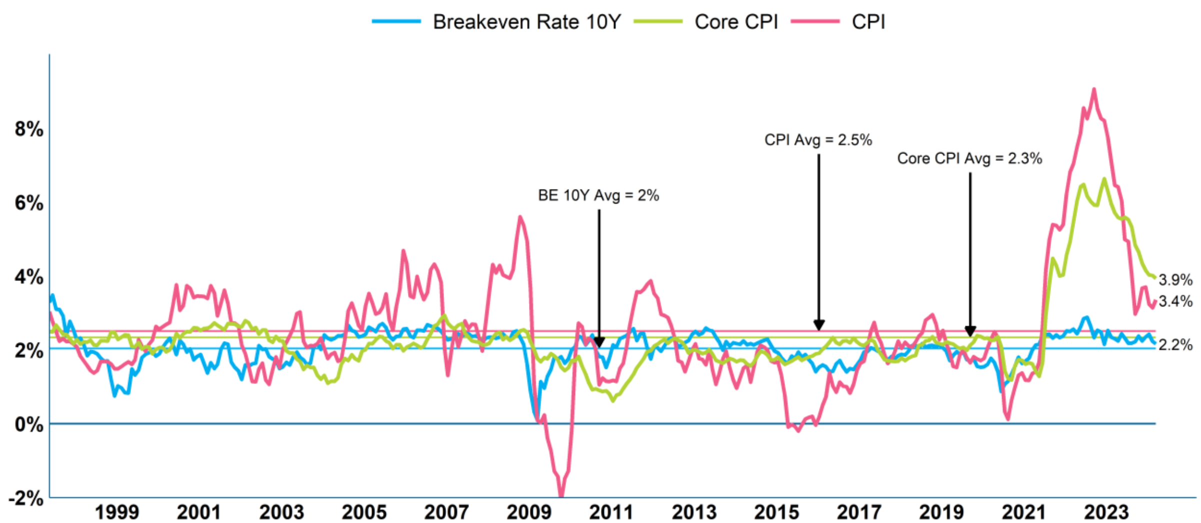




→ Volatility in equities (VIX) finished the year close to its lows, remaining well below the long-term average as the focus shifted to peaking policy rates and the potential for a soft landing.

→ Volatility in the bond market (MOVE) remained elevated to close out 2023 and is well above its long-run average (89.1). The bond market remained on edge for most of 2024 largely driven by uncertainty about the ultimate path of monetary policy.

[1] Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of December 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and December 2023.

## US Ten-Year Breakeven Inflation and CPI[1]



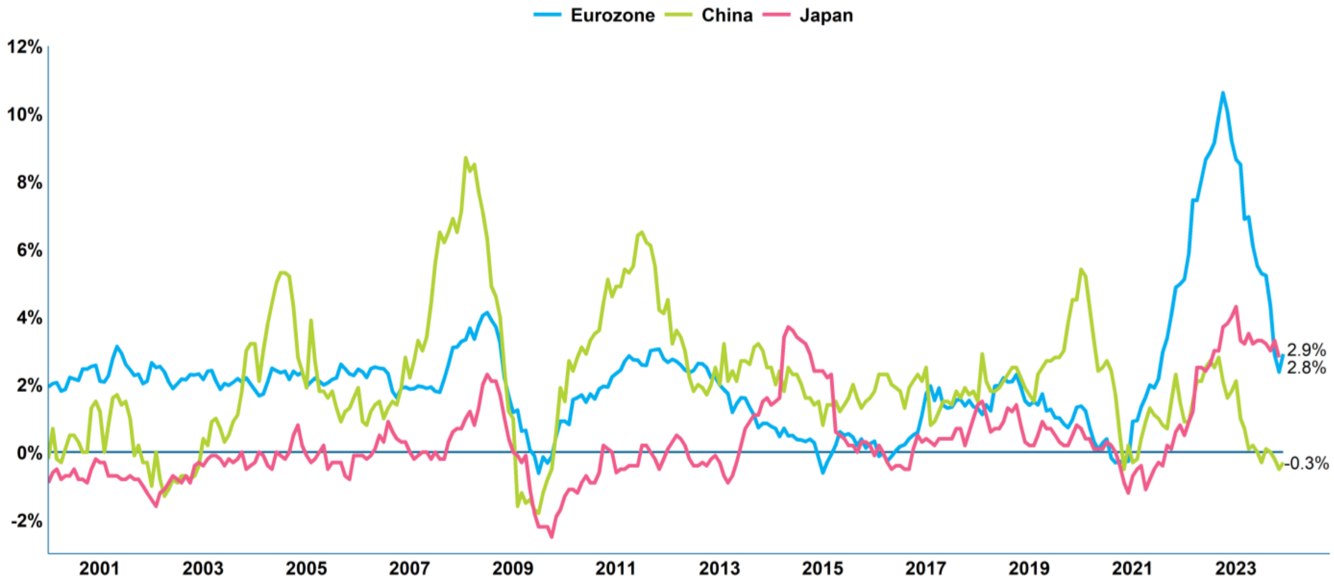

→ Year-over-year headline inflation rose from 3.1% to 3.4% in December, coming in above expectations of 3.2%. An increase in shelter (+6.2%) drove results, with food also increasing from a year prior (+2.7%) and energy prices falling (-2.0%). Month-over-month inflation came in at 0.3%, above expectations of 0.2% and the prior reading of 0.1%.

→ Core inflation - excluding food and energy – declined in December (3.9% versus 4.0%) year-over-year, with shelter costs again driving the total core index increase.

→ Inflation expectations (breakevens) have remained relatively stable despite the recent significant volatility in inflation.

[1] Source: FRED. Data is as December 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

## Global Inflation (CPI Trailing Twelve Months)[1]



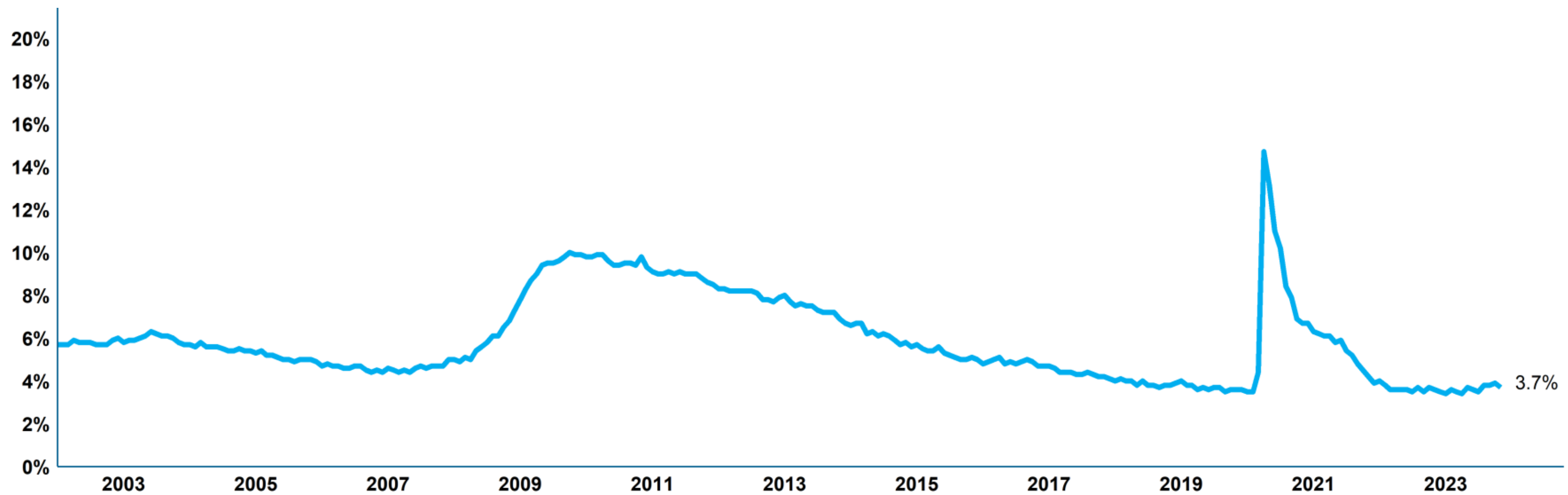

→ Outside the US, inflation is also falling across major economies with China slipping into deflation.

→ In the eurozone, inflation experienced a dramatic decline last year. Despite a small increase in December (2.9% versus 2.4%) it finished the year below the 3.4% year-over-year reading in the US.

→ Inflation in Japan remains near levels not seen in almost a decade, driven by food and home related items.

[1] Source: FRED for United States CPI and Eurozone CPI. Source: Bloomberg for Japan CPI, China CPI, and Eurozone December flash estimate. Data is as December 31, 2023, except Japan which is as of November 30, 2023.

## US Unemployment[1]

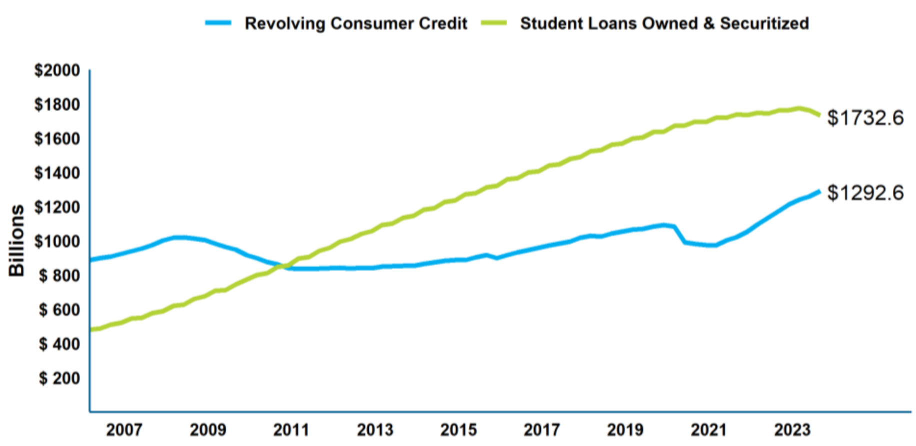



- → Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued.
- → In December, US unemployment remained unchanged (3.7%) and came in slightly below expectations of an increase to 3.8%. The number of jobs added did come in above expectations (216k versus 175k) though with the most jobs added in the government, leisure and hospitality, and health care sectors.
- → The labor force participation remained relatively stable at 62.5%, well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%).
- → The pace of hourly wage growth has declined from its peak of close to 6.0% finishing 2023 at 4.1% yoy. Wage growth remains positive in real terms though.

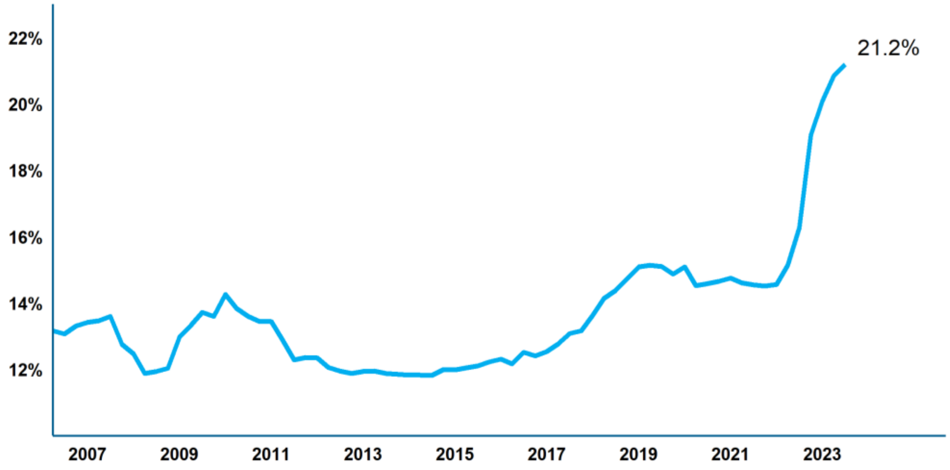
Source: FRED. Data is as December 31, 2023.

## US Consumer Under Stress?[1]

**Revolving Consumer Credit & Student Loans ($B)**




**Consumer Credit Card Interest Rates (%)**




→ Despite the strong labor market and higher wages, pressures have started to build on the US consumer. This is an important consideration as consumer spending has been a key driver of economic growth.

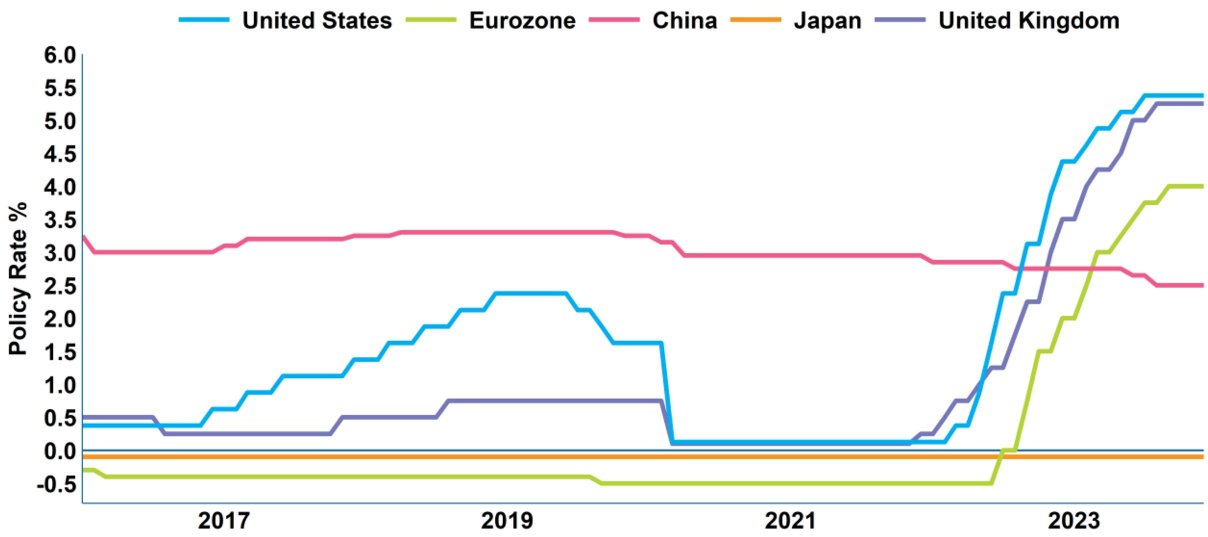
→ Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s).

→ The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially mitigated by recently initiated repayment and forgiveness programs.

→ As we look ahead, the strength of the US consumer will remain key as this sector makes up most of the domestic economy (GDP).

[1] Source: FRED. Data is as of September 30, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season.

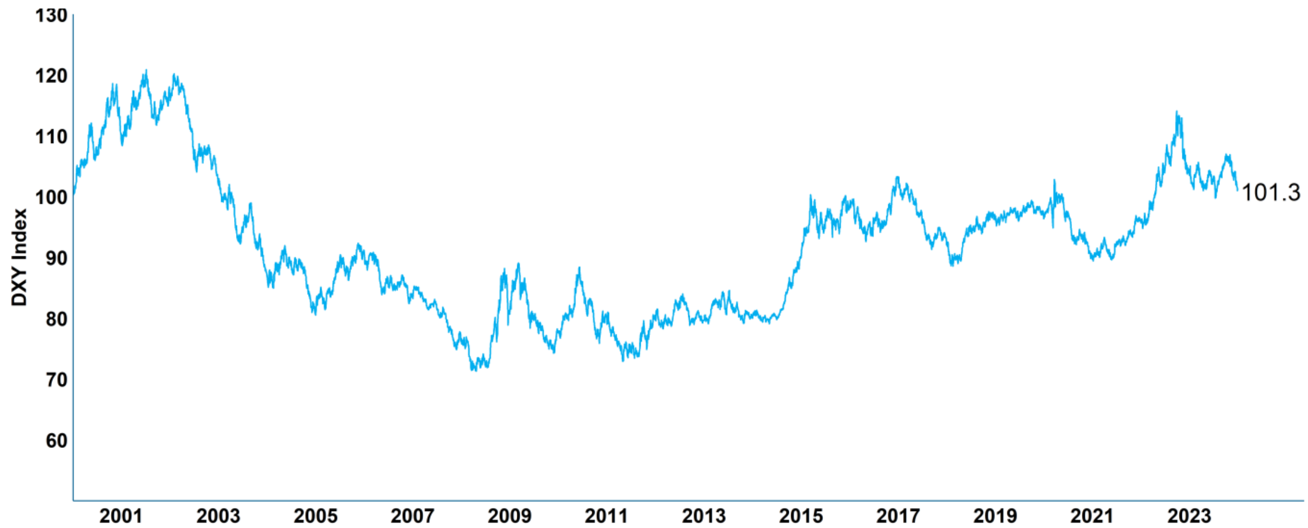
## Policy Rates[1]




- → Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- → The Fed has been on hold since July 2023 when it raised rates to a range of 5.25%-5.50%. Markets are pricing in six rate cuts next year given the track of economic data and recent comments from the Fed, while the Fed itself is only predicting three. How this discrepancy is resolved will be key this year.
- → The European and UK central banks also recently paused their rate increases on slowing inflation. In Japan, the BoJ has further relaxed its yield curve control on the 10-year bond, and expectations for further policy normalization are rising.
- → The central bank in China has maintained interest rates at record low levels and continues to inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.

[1] Source: Bloomberg. Data is as of December 2023.

## US Dollar vs. Broad Currencies[1]




→ The US dollar declined around 5% in the fourth quarter as generally weaker economic data led investors to anticipate the end of FOMC tightening and interest rate cuts in 2024.

→ Overall, the dollar finished the year only slightly below where it started but it was a volatile year for the US currency as expectations related to monetary policy evolved.

[1] Source: Bloomberg. Data as of December 31, 2023.

## Summary

### Key Trends:

→ The impact of inflation still above policy targets will remain important, with bond market volatility likely to stay high.

→ Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to further reduce inflation toward targets while not tipping their economies into recession. In the case of the US the resolution of the disparity between market expectations for the path of interest rates versus the Fed's dot plot will be key.

→ Global growth is expected to slow next year, with some economies forecasted to tip into recession. However, optimism has been building that certain economies could experience soft landings. Inflation, monetary policy, and geopolitical issues will remain key in 2024.

→ US consumers could feel pressure as certain components of inflation (e.g., shelter), remain high, borrowing costs are elevated, and the job market may weaken.

→ A focus for US equities going forward, will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.

→ Equity valuations remain lower in emerging and developed markets, but risks remain, including the potential for China's economic slowdown and on-going weakness in the real estate sector could spill over into key trading partners' economies. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

→ Recent, heightened tensions in Israel could add to overall uncertainty and drive safe haven flows.

# Meketa White Paper:
# The Magnificent Seven

## What are the Magnificent Seven?

→ The Magnificent Seven are a basket of mega-cap stocks that currently dominate the equity market.

- Five of the seven companies are considered leaders in the technology industry.
- The other two (Amazon and Tesla) are heavily intertwined with technology and generally considered leaders in the industry.

→ They include:

- Alphabet (Google)
- Amazon
- Apple
- Meta (Facebook)
- Microsoft
- Nvidia
- Tesla

## A Brief History of the Acronyms

→ FAANG, originally FANG, was a term used to describe some of the highest-growth tech stocks of the 2000's.

- It included Facebook (now Meta), Amazon, Apple (added later), Netflix, and Google (now Alphabet).

→ A changing market environment and re-branding of several companies prompted a shift in acronyms in 2021.

- Netflix was dropped and Microsoft was added, changing the acronym to MAMAA.[1]

→ In 2023, this group of MAMAA stocks was expanded to include Nvidia and Tesla, which together became The Magnificent Seven.

### Timeline of Tech Stock Acronyms

**2013**

→ The term FANG is coined.
- Facebook (now Meta)
- Amazon
- Netflix
- Google (now Alphabet)

**2017**

→ Apple is added to FANG, expanding it to FAANG.

**2021**

→ FAANG drops Netflix, adds Microsoft, and rebrands to MAMAA.
- Meta
- Amazon
- Microsoft
- Alphabet
- Apple

**2023**

→ The Magnificent Seven term emerges. (also known as MAMA ANT)
- Alphabet
- Amazon
- Apple
- Meta
- Microsoft
- Nvidia
- Tesla

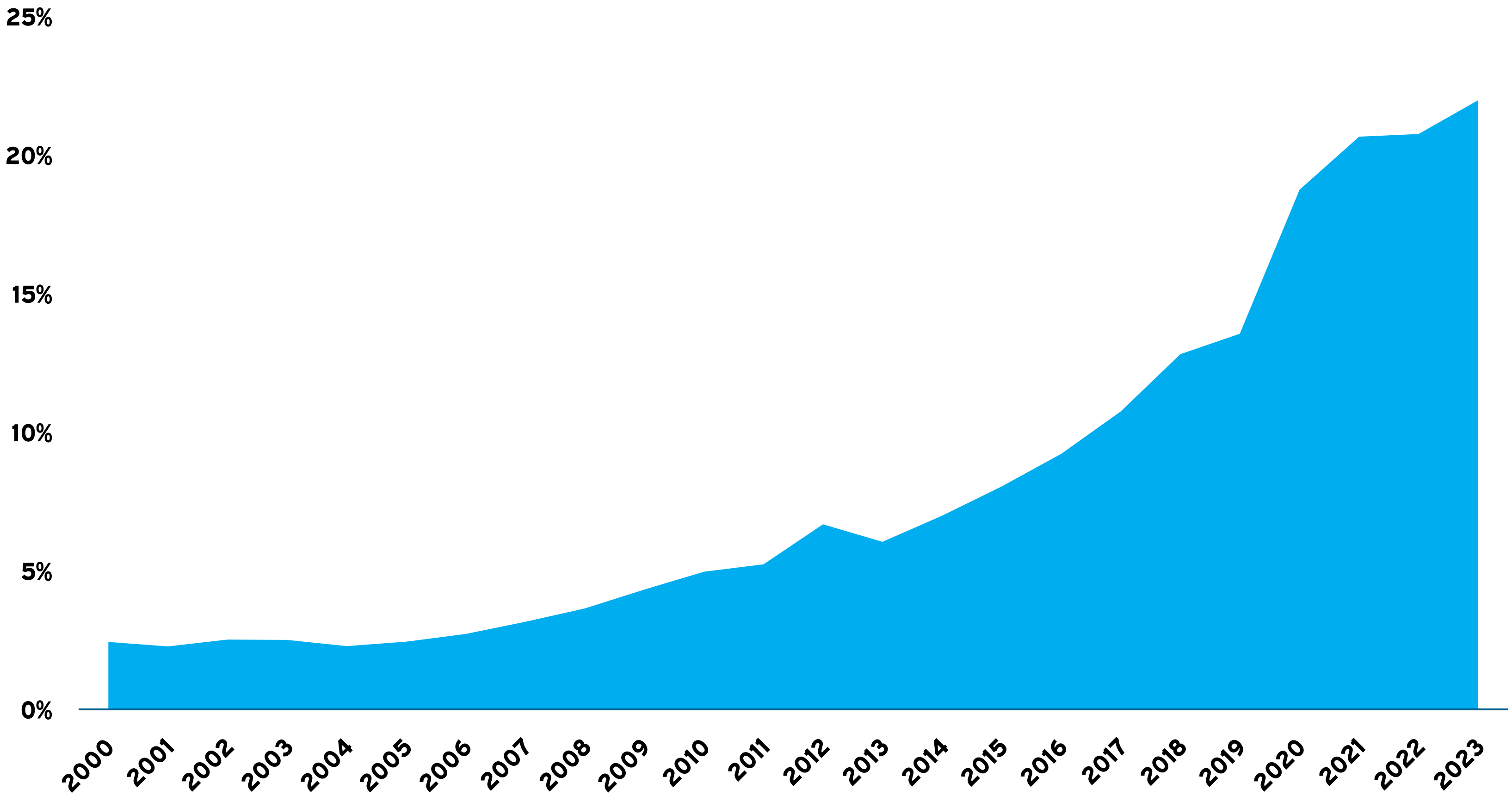
[1] Source: Forbes, "What Happened to FAANG Stocks? They Became MAMAA Stocks," November 2023.

## What is the Magnificent Seven's Relative Weight?

→ As of December 31, 2023, the Magnificent Seven cumulatively represented 22% of the Russell 3000 index.

→ However, these seven stocks were not always as dominant as they are today.

## The Magnificent Seven's Index Weight in the Russell 3000[1]




[1] Source: FactSet, as of December 31, 2023. Note that Alphabet Class A and C were combined into one category for this analysis. Includes all seven stocks at their weight in the index at that time; note that not all seven companies were publicly listed for the full period shown.

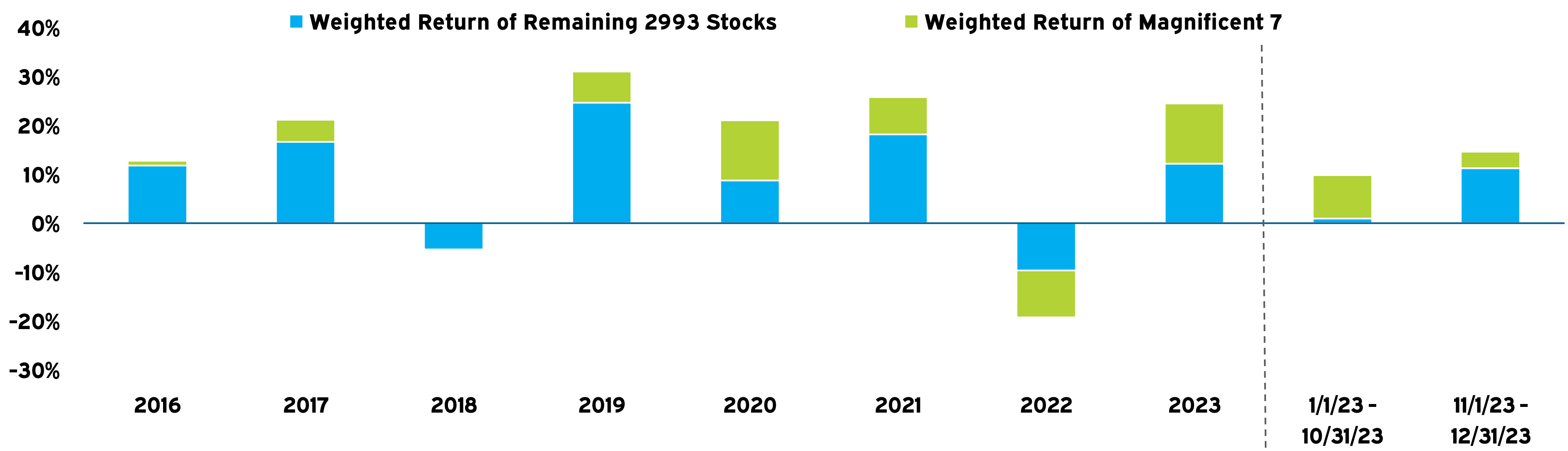
## Is the Magnificent Seven Driving the Stock Market?

→ It is not unusual for the largest stocks in the market to represent an outsized share of performance.

→ The Magnificent Seven represented nearly all the Russell 3000's return from January to October 2023.

- This was somewhat atypical and has led to concerns about market concentration.
- However, in the rally at the end of 2023 (November through December), their influence declined.

**The Magnificent Seven's Contribution to Russell 3000's Return[1]**




[1] Source: FactSet, as of December 31, 2023. Alphabet Class A and C were combined into one category for this analysis. In 2018, the Russell 3000 returned -5.21% while the Magnificent Seven returned 0.16%.

## Stock Market Concentration

→ The Magnificent Seven have not always been such a dominant force.

- Several of them were not even founded until the early 2000's.

→ This limited history makes it difficult to conduct a thorough analysis.

→ To gain a longer-term historical context, it would be helpful to evaluate market concentration.

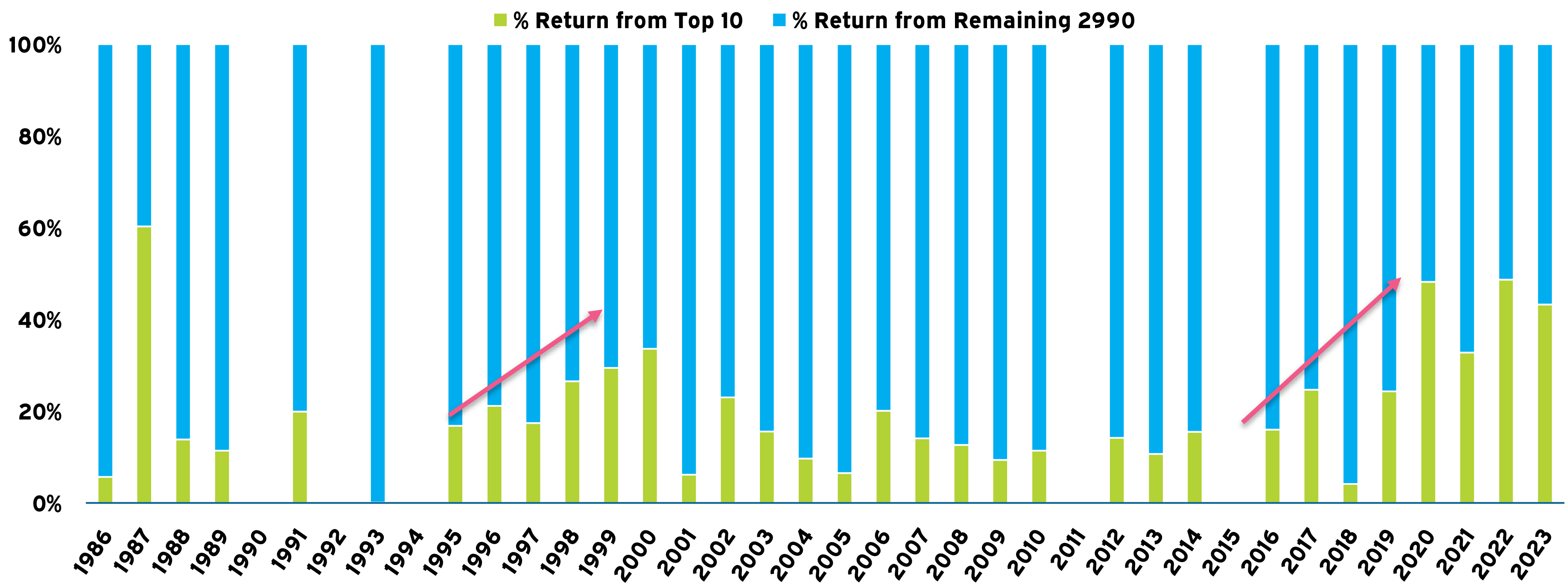
- For example, look at the index's ten largest stocks.
- This would, by default, include the Magnificent Seven stocks in recent years.

## Historical Influence of the Top 10 Constituents on US Equity Returns

→ Since 2018, the top ten constituents' influence on the Russell 3000's returns have grown, coinciding with the rise of The Magnificent Seven.

→ The dot-com bubble was the last time the top ten's influence on returns was this high for a sustained period.

**% Contribution to Annual Return of the Russell 3000**[1,2]



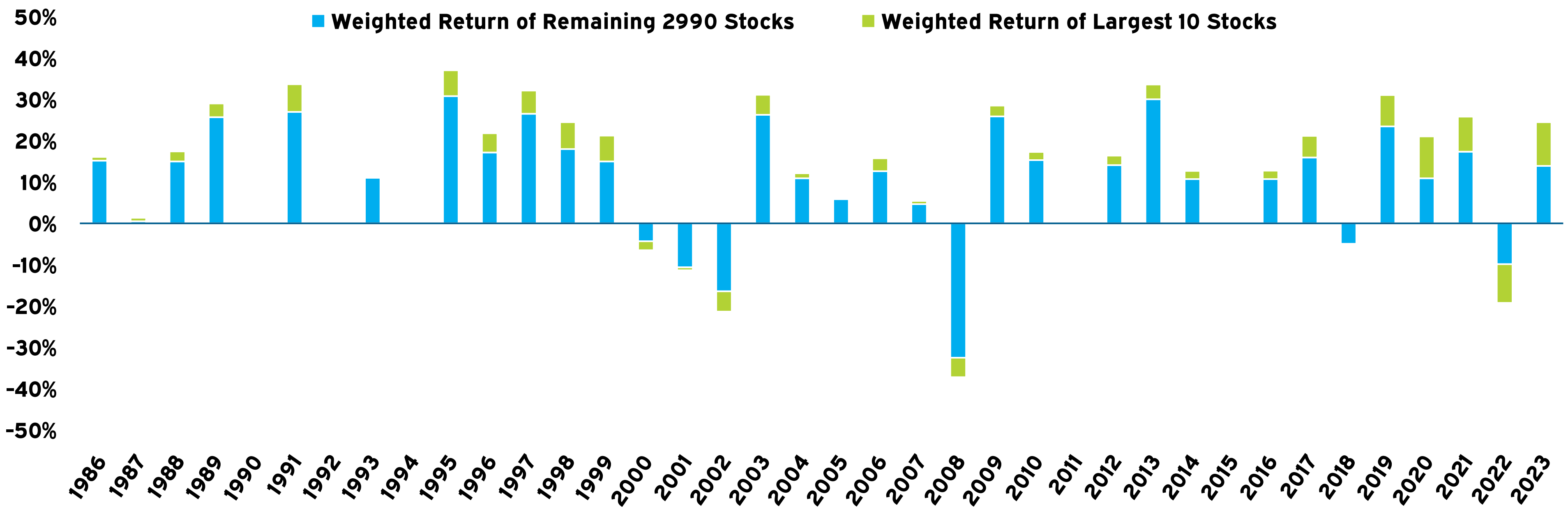

[1] Source: FactSet, as of December 31, 2023. Note that Alphabet Class A and C were combined into one category for this analysis.
[2] In years 1990, 1992, 1994, 2011, and 2015, the top 10 and the rest moved in opposite directions, making the stacked column not meaningful; hence they were excluded from the chart.

## Historical Contribution of the Top 10 Constituents to US Equity Returns

→ While 2023 stands out for the top ten contributing such a large share of returns, it is part of a trend.

- The last five years have all been in the top ten years ranked by absolute contribution to return by the largest ten stocks in the Russell 3000 since 1986.[1]

**Contribution to Annual Return of the Russell 3000**[2,3]




[1] Ranking excludes years 1994, 2011, and 2015 due to the top 10 stocks having higher returns than the Russell 3000.
[2] Source: FactSet, as of December 31, 2023. Note that Alphabet Class A and C were combined into one category for this analysis.
[3] In years 1990, 1992, 1994, 2011, and 2015, the top 10 and the rest moved in opposite directions, making the stacked column not meaningful; hence they were excluded from the chart.

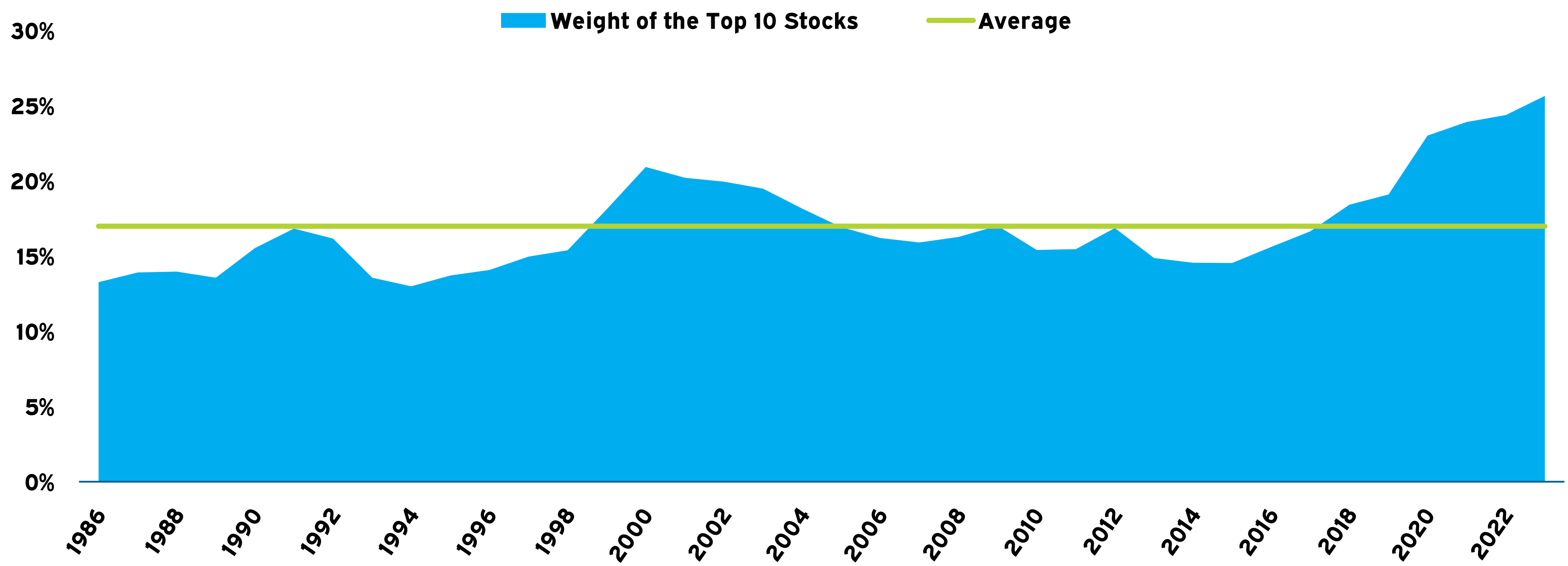
## How Concentrated is the Market in Historical Context?

→ The index weight of the ten largest constituents has been cyclical, with periods of both peaks and troughs.

→ Since 1986, the average combined weight of the ten largest constituents in the Russell 3000 is ~17%.

→ There have only been two periods above this average: 1999 to 2004 and 2018 to 2023.

### Historical Total Weight of the Russell 3000's Top 10 Constituents[1]




[1] Source: FactSet, as of December 31, 2023. Note that Alphabet Class A and C were combined into one category for this analysis.

## What if we Look Back Even Further?

→ In the longer history of the US stock market, there have been many companies at different periods who accumulated a larger than average share of the market cap.

→ But this was often concentrated in just one or two companies, such as US Steel or AT&T (aka, Ma Bell).

- It is unprecedented for the ten largest names to have such a large weight.

→ There have been periods where the market was even more concentrated in a single sector.

- Railroads dominated the US stock market from the Civil War until World War I.

## Top Heavy in Tech

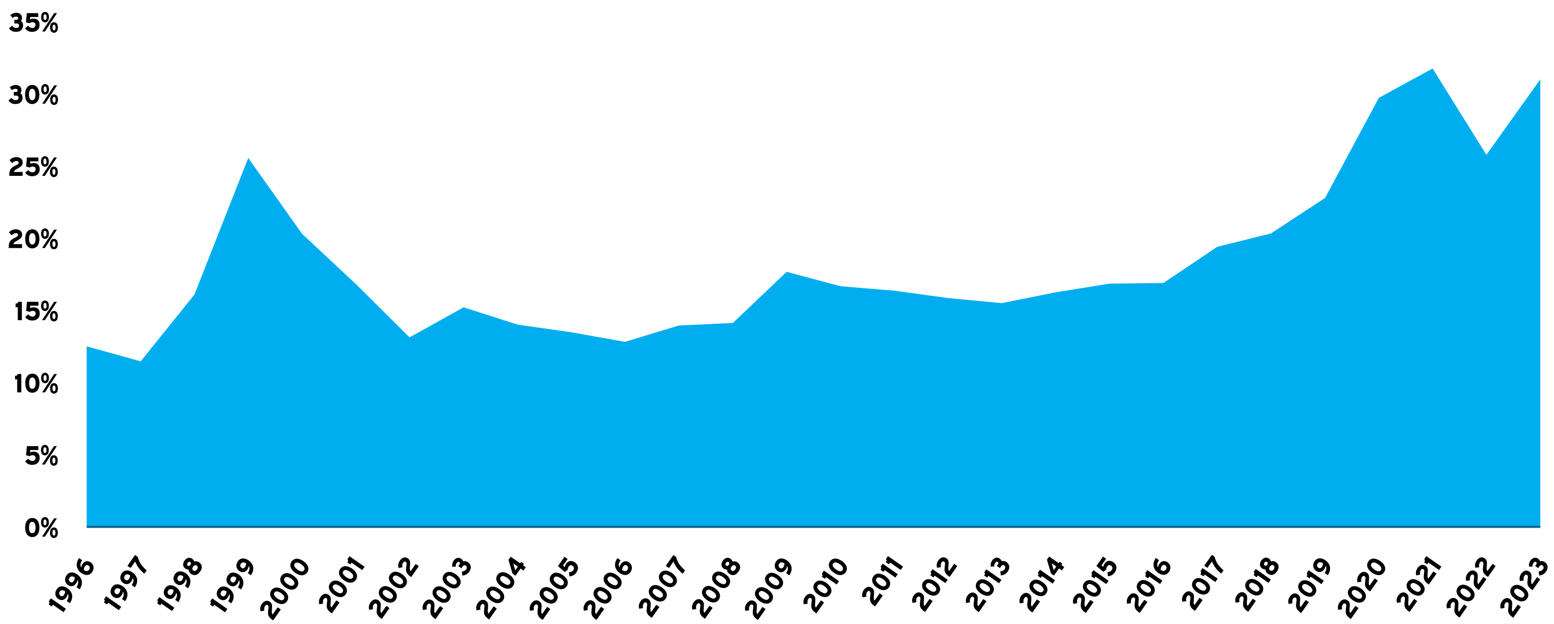
→ The sharpest increases in market concentration coincided with an affinity for stocks in the technology industry.

→ The first of these periods - the late 1990s' through early 2000s - was the peak of the dot-com era.

- After the dot-com bubble burst, the weight of the tech industry in the index dropped.

→ In recent years, the technology industry's relative weight has surpassed that of the dot-com era.

**Tech Industry Composition of the Russell 3000**[1]




[1] Source: FactSet, as of December 31, 2023. See the Appendix for more details on the sectors and sub-sectors included in Technology. Note that Alphabet Class A and C were combined into one category for this analysis.

## Why These Stocks? Why Now?

→ The common theme of the FAANG stocks and the Magnificent Seven has been technology.

- These companies are on the leading edge of figuring out how best to use emerging technology to provide services demanded by their customers.
- Importantly, many have built diverse business models and/or shown an ability to adapt to change.

→ The COVID-19 pandemic further boosted the demand for these stocks.

- Many of these companies offered solutions for remote work, e-commerce, entertainment, and communication in a socially distanced world.

→ The release of ChatGPT in late 2022 made generative AI an overnight sensation.

- It has ignited the race for companies to develop and bring their own, unique generative AI products to market.

## Might History be Repeating Itself?

→ Might this period resemble the dot-com period, where many of the most-hyped stocks were ultimately not those who benefitted the most from emergent technology?

→ Or might the Magnificent Seven maintain their growth trajectory, continuing to evolve and learning how to use new technologies?

| Dot-Com Bubble | Today |
|---|---|
| → The unprecedented growth in widespread internet adoption led to exponential demand for online services and products.<br>→ This benefited firms who provided these internet services.<br>→ It also benefited those companies who were building the "infrastructure" needed for the internet, such as Cisco, Intel, IBM, and Microsoft.<br>→ The bubble burst when many of smaller internet-based companies failed to generate profits or revenues, and investors lost confidence in their future. | → Generative AI is a potentially transformative technology, like the internet.<br>→ This benefits firms who make generative AI tools, such as Microsoft, Meta, and Alphabet.<br>→ It also benefits companies who make the components necessary for AI, like Nvidia, the largest US designer of the high-end chips needed to power AI. |

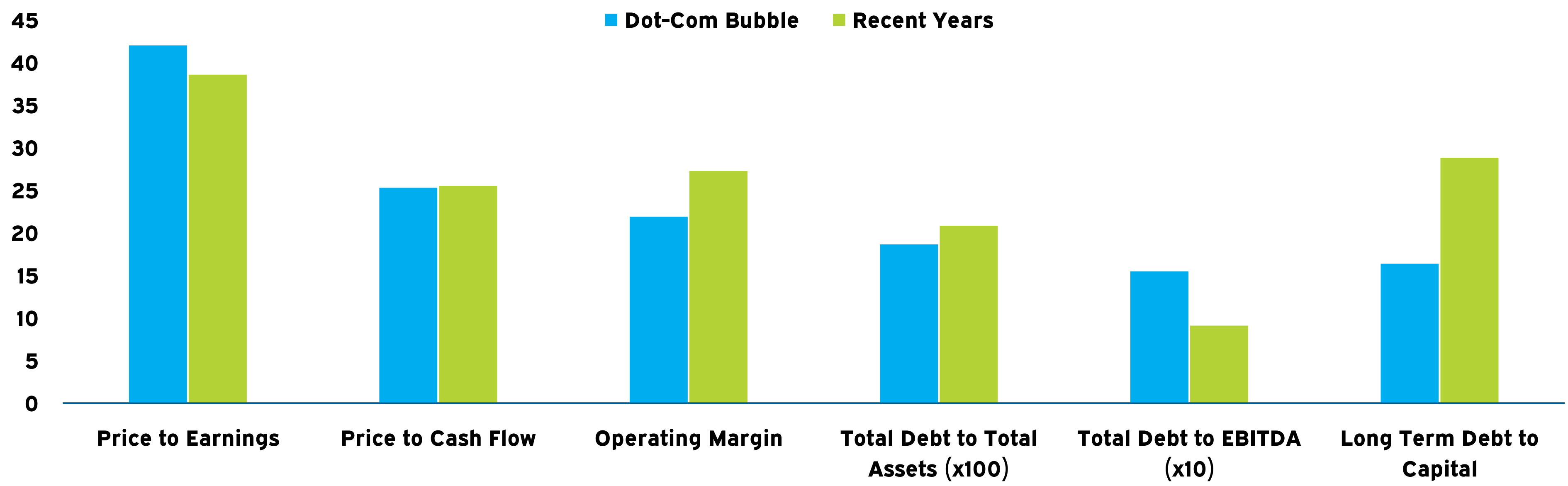
## How do the Financials Match Up?

→ When comparing several key financial ratios of the ten largest stocks during the dot-com bubble to those of recent years, they are relatively in line with each other.

→ One key takeaway is both periods have a similar debt to assets, but recent years have a lower debt to income.

- This may signify that the top ten companies are more financially stable now than during the dot-com bubble.

**Average Financial Metrics of the Top 10 Stocks in the Russell 3000**[1]




[1] Source: FactSet. Period for the Dot-Com Bubble is 1998 to 2002. Period for Recent Years is 2018 to 2023. Total Debt / Total Assets and Total Debt / EBITDA are as of December 31, 2023, and are multiplied by 100 and 10, respectively, for the purposes of viewing this chart. All other ratios are as of September 30, 2023.

## What is the Risk?

→ If history is any guide, only a few of the Magnificent Seven will continue to outperform.

- The inherent "creative destruction" of capitalism has a history of dethroning the largest companies.[1]

→ Some will be among the "winners" who learn how to adapt to and benefit from emerging technological trends.

- Microsoft is worth more than 6x its peak value from the dot-com era.

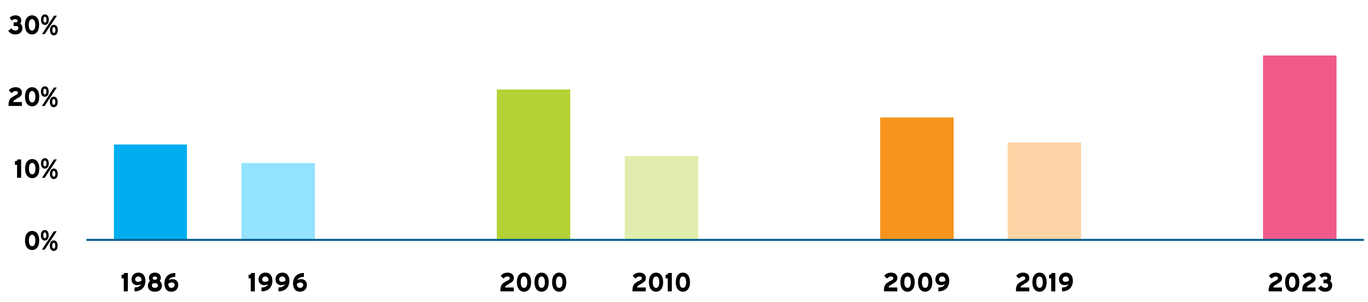
→ Others will fail to evolve or execute, and they will likely fall behind.

- Cisco Systems has never regained its peak value from 2000.

→ With so much of the market concentrated in such a small number of stocks, the decline of even a few would be painful for all investors in the stock market.

→ Yet investors have survived many past cycles of concentration and changes in market leadership.

**Weight of the Top 10 Largest Stocks in the Russell 3000 & Weight of Same 10 Stocks a Decade Later[2]**




[1] According to MSCI, only one-quarter of stocks have historically kept pace with the market after reaching the top ten.
[2] Source: FactSet, as of December 31, 2023. Note that Alphabet Class A and C were combined into one category for this analysis.

## Summary

→ The Magnificent Seven are a group of seven mega-cap stocks generally positioned in the tech sector.

→ Their cumulative weight in the US stock market has been growing.

→ Likewise, the returns of the largest names in the market have been driving the overall market's returns to a greater extent than they have in two decades.

- Notably, the Magnificent Seven accounted for nearly all the index's return from January through October 2023.
  - This high influence of the largest stocks on returns has become the new norm in recent years.

→ The Magnificent Seven is not the first time that concentration in the market has spiked.

- The last major peak coincided with the dot-com bubble.

→ Parallels between today and the exuberance of the dot-com era beg the question of whether these companies will be the ones who benefit most from emerging technologies such as AI.

# Appendix

## Breakdown of the Russell 3000 Tech Industry & Sectors

→ The tech industries and sectors of the Russell 3000 are listed below:

- Technology (pre-2020)[1]
  - Diversified Technology
  - Electronics
  - Information Technology
  - Telecommunication
- Technology (2020 to current)
  - Software and Computer Services
  - Technology Hardware and Equipment
- Telecommunications (2020 to current)
  - Telecommunications Equipment
  - Telecommunications Service Providers

[1] Note, in 2020, the Russell 3000 changed their classification system so that Telecommunications became its own industry (separate from Technology), and the remaining tech sectors were re-named and re-classified.

## List of all the Stocks that made the Top 10 in the Russell 3000 During the Dot-Com Bubble and Now

| Dot-Com Bubble (1998-2002) | Today (2018-2022) |
|---|---|
| → General Electric | → Apple |
| → Coca-Cola | → Microsoft |
| → Exxon Mobil | → Alphabet |
| → Intel | → Amazon |
| → Merck | → Meta Platforms |
| → Altria Group | → Berkshire Hathaway |
| → Microsoft | → JPMorgan Chase |
| → Procter & Gamble | → Johnson & Johnson |
| → IBM | → Exxon Mobil |
| → Johnson & Johnson | → Bank of America |
| → Pfizer | → Visa |
| → Cisco Systems | → Procter & Gamble |
| → Lucent Technologies | → Tesla |
| → AT&T | → NVIDIA |
| → Citigroup | → UnitedHealth Group |
| → AIG | |
| → Time Warner | |
| → Walmart | |

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

# Estimated Retirement Association Performance
# As of December 31, 2023

## Estimated Aggregate Performance[1]

| | December[2] (%) | QTD (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|
| **Total Retirement Association** | **3.3** | **5.4** | **9.9** | **6.2** | **9.7** | **6.8** |

## Benchmark Returns

| | December (%) | QTD (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|
| Russell 3000 | 5.3 | 12.1 | 26.0 | 8.5 | 15.2 | 11.5 |
| MSCI EAFE | 5.3 | 10.4 | 18.2 | 4.0 | 8.2 | 4.3 |
| MSCI Emerging Markets | 3.9 | 7.9 | 9.8 | -5.1 | 3.7 | 2.7 |
| Bloomberg Aggregate | 3.8 | 6.8 | 5.5 | -3.3 | 1.1 | 1.8 |
| Bloomberg TIPS | 2.7 | 4.7 | 3.9 | -1.0 | 3.2 | 2.4 |
| Bloomberg High Yield | 3.7 | 7.2 | 13.4 | 2.0 | 5.4 | 4.6 |
| JPM EMBI Global Diversified (Hard Currency) | 4.7 | 9.2 | 11.1 | -3.6 | 1.7 | 3.2 |
| S&P Global Natural Resources | 3.9 | 3.6 | 4.1 | 12.9 | 11.2 | 5.2 |

## Estimated Total Assets

| | |
|---|---|
| **Estimated Total Retirement Assets As of December 31, 2023** | **$1,421,421,842** |
| **Current Month Performance Estimate through January 18** | -1.0% |

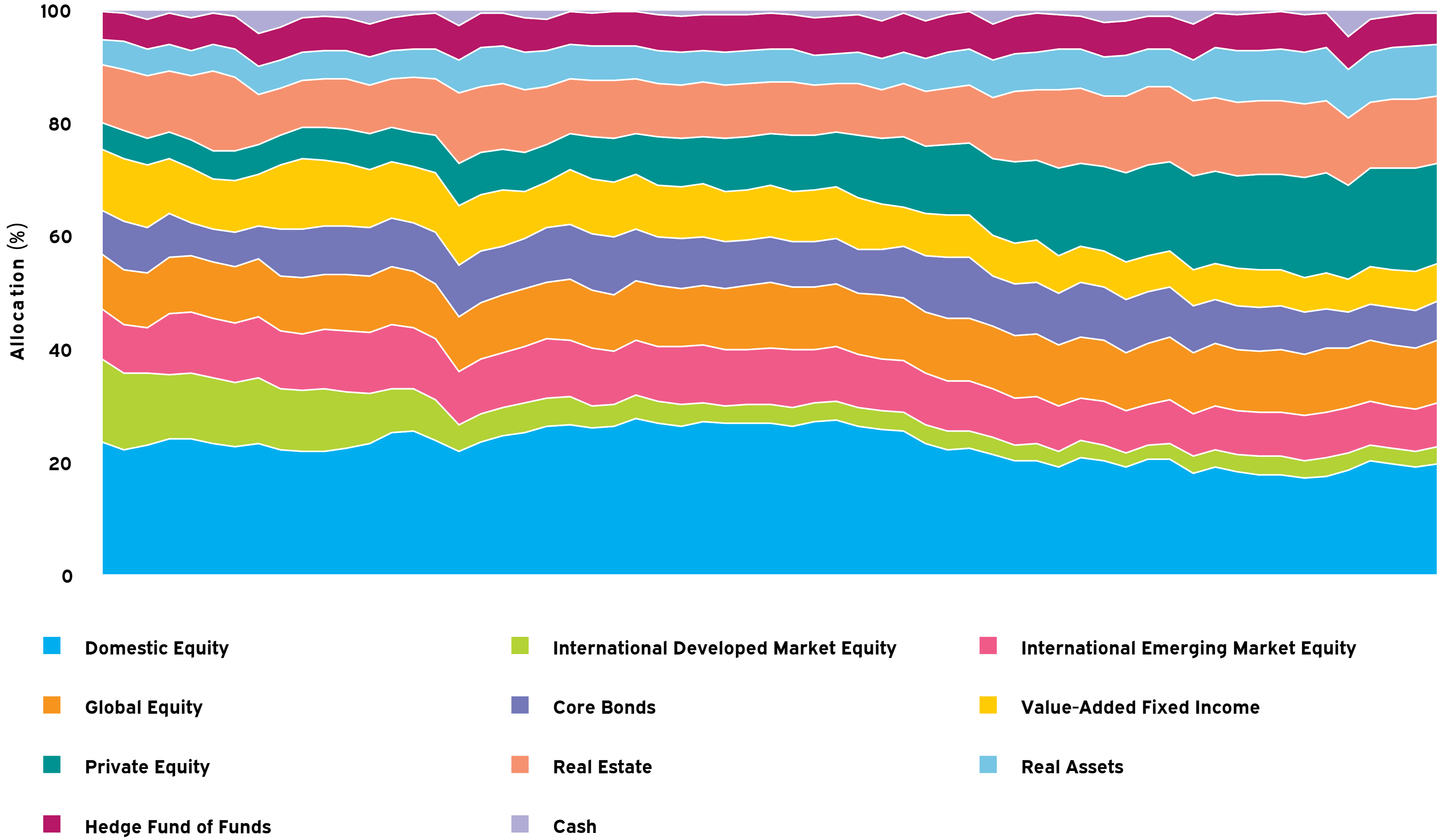
[1] The December performance estimates are calculated using index returns as of December 31, 2023 for each asset class. No performance estimate was included for private equity, real estate, infrastructure, and private natural resources asset classes.
[2] As of December 31, 2023.

# Performance Update
## As of November 30, 2023

## Asset Allocation Compliance | As of November 30, 2023

| | Current Balance ($) | Current Allocation (%) | Policy (%) | Policy Range (%) | Within IPS Range? |
|---|---|---|---|---|---|
| Total Equity | 899,736,204 | 65 | 69 | 60 - 80 | Yes |
| Domestic Equity | 271,609,865 | 20 | 26 | 21 - 36 | No |
| International Developed Market Equity | 41,637,872 | 3 | 6 | 1 - 16 | Yes |
| International Emerging Market Equity | 107,844,938 | 8 | 10 | 5 - 20 | Yes |
| Global Equity | 156,110,286 | 11 | 10 | 5 - 20 | Yes |
| Private Equity | 245,090,352 | 18 | 13 | 4 - 18 | Yes |
| Hedge Fund of Funds | 77,442,891 | 6 | 4 | 2 - 8 | Yes |
| Total Fixed Income | 187,950,881 | 14 | 15 | 5 - 25 | Yes |
| Core Bonds | 93,405,132 | 7 | 9 | 4 - 14 | Yes |
| Value-Added Fixed Income | 94,545,749 | 7 | 6 | 2 - 12 | Yes |
| Total Real Assets and Real Estate | 290,790,891 | 21 | 16 | 7 - 25 | Yes |
| Real Estate | 164,102,067 | 12 | 10 | 5 - 15 | Yes |
| Real Assets | 126,688,824 | 9 | 6 | 2 - 10 | Yes |
| Cash | 7,071,998 | 1 | 0 | 0 - 3 | Yes |
| Cash | 7,071,998 | 1 | 0 | 0 - 3 | Yes |
| **Total** | **1,385,549,974** | **100** | **100** | | |

## Asset Allocation History
## 5 Years Ending November 30, 2023



## Asset Allocation & Performance | As of November 30, 2023

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Retirement Association** | 1,385,549,974 | 100.0 | 3.8 | 2.0 | 6.4 | 5.2 | 7.0 | 8.0 | 6.6 | 7.7 | Nov-89 |
| *Policy Benchmark (Net)* | | | 5.3 | 3.3 | 11.0 | 7.3 | 4.4 | 6.9 | 6.4 | -- | |
| *Actual Allocation (Net)* | | | 4.3 | 2.8 | 10.4 | 6.6 | 4.7 | 6.6 | -- | -- | |
| **Domestic Equity Assets** | 271,609,865 | 19.6 | 9.2 | 3.5 | 11.6 | 5.8 | 5.1 | 10.1 | -- | 11.2 | Jan-16 |
| *Russell 3000 Index* | | | 9.3 | 6.4 | 19.6 | 12.6 | 8.3 | 11.8 | 11.2 | 12.2 | |
| **International Developed Market Equity Assets** | 41,637,872 | 3.0 | 9.4 | 6.1 | 11.8 | 10.3 | 0.1 | 2.3 | -- | 3.0 | Jan-16 |
| *MSCI EAFE (Net)* | | | 9.3 | 4.9 | 12.3 | 12.4 | 3.8 | 6.0 | 3.9 | 5.5 | |
| **International Emerging Market Equity Assets** | 107,844,938 | 7.8 | 8.2 | 3.8 | 8.8 | 5.5 | -2.5 | 3.3 | -- | 5.2 | Jan-16 |
| *MSCI Emerging Markets (Net)* | | | 8.0 | 3.8 | 5.7 | 4.2 | -4.0 | 2.3 | 2.1 | 5.3 | |
| **Global Equity Assets** | 156,110,286 | 11.3 | 6.4 | 4.8 | 11.6 | 8.9 | 7.0 | 8.7 | -- | 6.2 | Feb-18 |
| *MSCI AC World Index (Net)* | | | 9.2 | 5.9 | 16.6 | 12.0 | 5.7 | 9.1 | 7.6 | 6.2 | |
| **Core Fixed Income** | 93,405,132 | 6.7 | 2.9 | 2.2 | 2.9 | 2.8 | -2.0 | 1.8 | -- | 1.9 | Jan-16 |
| *75% Bbg Aggregate/25% Bbg US TIPs 1-10 year* | | | 3.9 | 2.6 | 1.8 | 1.3 | -3.2 | 1.3 | 1.5 | 1.4 | |
| **Value Added Fixed Income** | 94,545,749 | 6.8 | 3.0 | 2.4 | 8.0 | 8.0 | 1.5 | 3.3 | -- | 4.6 | Jan-16 |
| *Custom Benchmark - Global Fixed Income* | | | 4.1 | 3.2 | 7.1 | 7.3 | -0.3 | 2.6 | 3.2 | 3.7 | |
| **Hedge Funds** | 77,442,891 | 5.6 | 2.4 | 1.0 | 3.1 | 7.7 | 1.4 | 1.1 | 2.5 | 3.3 | Mar-10 |
| *Custom Benchmark* | | | 1.1 | 0.5 | 3.4 | 4.5 | 3.3 | 3.9 | 3.3 | 3.2 | |
| **Real Estate** | 164,102,067 | 11.8 | -0.6 | -0.6 | -3.7 | -5.9 | 14.1 | 10.7 | -- | 8.3 | Jan-16 |
| *Custom Benchmark* | | | 0.0 | 0.0 | -7.6 | -12.1 | 7.1 | 5.6 | -- | 5.8 | |

Effective January 1, 2023, asset class and total plan performance is rolled up using a weighted average calculation.
The policy benchmark is comprised of 26% Russell 3000/ 6% MSCI EAFE/ 10% MSCI Emerging Markets/ 13% MSCI ACWI IMI (Lagged) + 2%/ 10% MSCI ACWI/ 4% Hedge Funds Custom Benchmark/ 9% (75/25 Barclays Aggregate and Barclays 10yr)/ 6% Value Added FI Custom Benchmark/ 10% (80/20 NCREIF ODCE and Wilshire REIT)/ 6% CPI+3%
The Custom Benchmark - Global Fixed Income is comprised of 25% BBgBarc/ US High Yield, 25% / Credit Suisse Leveraged Loans / 25% JP Morgan EMBI Global diversified / and 25% BBgBarc Multiverse TR
Real Estate, Private Equity, and Real Assets market values and performance are one quarter lagged. With the exception of JPM Strategic Property, IFM, and TA Realty.

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Private Equity** | 245,090,352 | 17.7 | 0.0 | 0.0 | 5.4 | 8.1 | 25.2 | 17.6 | -- | 12.8 | Jan-16 |
| *MSCI ACWI IMI (1Q Lagged)+2%* | | | *0.0* | *0.0* | *26.2* | *18.4* | *13.2* | *9.8* | *10.8* | *11.5* | |
| **Real Assets** | 126,688,824 | 9.1 | 0.6 | 0.5 | 7.6 | 9.2 | 14.1 | 9.2 | -- | 4.7 | Jan-16 |
| *CPI +3% (Unadjusted)* | | | *0.0* | *0.3* | *6.3* | *6.2* | *8.8* | *7.1* | *5.9* | *6.4* | |
| **Cash and Cash Equivalent** | 7,071,998 | 0.5 | | | | | | | | | |

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Retirement Association** | **1,385,549,974** | **100.0** | **3.8** | **2.0** | **6.4** | **5.2** | **7.0** | **8.0** | **6.6** | **7.7** | **Nov-89** |
| *Policy Benchmark (Net)* | | | *5.3* | *3.3* | *11.0* | *7.3* | *4.4* | *6.9* | *6.4* | *--* | |
| *Actual Allocation (Net)* | | | *4.3* | *2.8* | *10.4* | *6.6* | *4.7* | *6.6* | *--* | *--* | |
| **Domestic Equity Assets** | **271,609,865** | **19.6** | **9.2** | **3.5** | **11.6** | **5.8** | **5.1** | **10.1** | **--** | **11.2** | **Jan-16** |
| *Russell 3000 Index* | | | *9.3* | *6.4* | *19.6* | *12.6* | *8.3* | *11.8* | *11.2* | *12.2* | |
| Rhumbline Russell 1000 Value | 71,115,013 | 5.1 | 7.5 | 3.7 | 5.6 | 1.4 | 8.3 | 7.5 | 8.0 | 8.8 | May-13 |
| *Russell 1000 Value Index* | | | *7.5* | *3.8* | *5.6* | *1.4* | *8.3* | *7.5* | *8.1* | *8.9* | |
| Rhumbline Russell 1000 Growth | 58,342,535 | 4.2 | 10.9 | 9.3 | 36.6 | 26.1 | 8.9 | 16.4 | 14.6 | 15.6 | Aug-09 |
| *Russell 1000 Growth Index* | | | *10.9* | *9.3* | *36.6* | *26.2* | *8.9* | *16.4* | *14.7* | *15.7* | |
| Fisher Midcap Value | 52,600,067 | 3.8 | 10.5 | 3.2 | 9.3 | 5.7 | 8.4 | 12.2 | 10.1 | 8.8 | May-07 |
| *Russell Midcap Value Index* | | | *9.4* | *4.0* | *4.6* | *-0.7* | *7.3* | *7.1* | *7.7* | *6.9* | |
| Newton Small Cap Growth | 44,199,270 | 3.2 | 9.3 | -1.3 | 1.7 | -4.8 | -7.3 | 8.3 | 9.6 | 12.3 | Sep-09 |
| *Russell 2000 Growth Index* | | | *9.1* | *0.7* | *6.0* | *-0.8* | *-4.3* | *4.2* | *6.2* | *10.4* | |
| Vulcan Partners Small Cap Value | 14,975,501 | 1.1 | 9.8 | 0.0 | 6.6 | 3.2 | -- | -- | -- | -14.9 | Apr-22 |
| *Russell 2000 Value Index* | | | *9.0* | *2.5* | *2.0* | *-4.7* | *6.5* | *4.7* | *5.7* | *-6.5* | |
| Systematic Small Cap Free Cash Flow | 30,377,479 | 2.2 | 7.1 | 1.7 | 7.7 | 1.9 | -- | -- | -- | 3.0 | Apr-22 |
| *Russell 2000 Value Index* | | | *9.0* | *2.5* | *2.0* | *-4.7* | *6.5* | *4.7* | *5.7* | *-6.5* | |
| **International Developed Market Equity Assets** | **41,637,872** | **3.0** | **9.4** | **6.1** | **11.8** | **10.3** | **0.1** | **2.3** | **--** | **3.0** | **Jan-16** |
| *MSCI EAFE (Net)* | | | *9.3* | *4.9* | *12.3* | *12.4* | *3.8* | *6.0* | *3.9* | *5.5* | |
| Aristotle International Equity | 22,225,742 | 1.6 | 8.4 | 4.7 | 12.0 | 9.6 | -- | -- | -- | 1.0 | Mar-21 |
| *MSCI EAFE (Net)* | | | *9.3* | *4.9* | *12.3* | *12.4* | *3.8* | *6.0* | *3.9* | *2.0* | |
| Walter Scott International Equity | 19,412,129 | 1.4 | 10.6 | 7.8 | 11.6 | 11.1 | -- | -- | -- | -0.3 | Mar-21 |
| *MSCI EAFE (Net)* | | | *9.3* | *4.9* | *12.3* | *12.4* | *3.8* | *6.0* | *3.9* | *2.0* | |

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **International Emerging Market Equity Assets** | **107,844,938** | **7.8** | **8.2** | **3.8** | **8.8** | **5.5** | **-2.5** | **3.3** | **--** | **5.2** | **Jan-16** |
| *MSCI Emerging Markets (Net)* | | | *8.0* | *3.8* | *5.7* | *4.2* | *-4.0* | *2.3* | *2.1* | *5.3* | |
| ABS Emerging Markets | 57,415,224 | 4.1 | 7.6 | 2.7 | 9.0 | 6.7 | -1.6 | 5.6 | -- | 5.6 | Dec-18 |
| *MSCI Emerging Markets (Net)* | | | *8.0* | *3.8* | *5.7* | *4.2* | *-4.0* | *2.3* | *2.1* | *2.3* | |
| Driehaus Emerging Markets Growth | 50,429,714 | 3.6 | 8.9 | 5.1 | 8.6 | 4.2 | -3.5 | -- | -- | 4.4 | Mar-19 |
| *MSCI Emerging Markets (Net)* | | | *8.0* | *3.8* | *5.7* | *4.2* | *-4.0* | *2.3* | *2.1* | *1.2* | |
| **Global Equity Assets** | **156,110,286** | **11.3** | **6.4** | **4.8** | **11.6** | **8.9** | **7.0** | **8.7** | **--** | **6.2** | **Feb-18** |
| *MSCI AC World Index (Net)* | | | *9.2* | *5.9* | *16.6* | *12.0* | *5.7* | *9.1* | *7.6* | *6.2* | |
| First Eagle Global Value Fund | 26,097,202 | 1.9 | 5.7 | 4.0 | 9.4 | 8.2 | 6.0 | 7.1 | -- | 4.7 | Feb-18 |
| *MSCI AC World Index Value (Net)* | | | *7.3* | *3.6* | *6.1* | *3.6* | *6.9* | *5.5* | *5.1* | *3.2* | |
| Kopernik Global All Cap Fund | 42,045,140 | 3.0 | 2.9 | 3.8 | 11.1 | 9.3 | 9.8 | 12.2 | -- | 7.8 | Feb-18 |
| *MSCI AC World Index Value (Net)* | | | *7.3* | *3.6* | *6.1* | *3.6* | *6.9* | *5.5* | *5.1* | *3.2* | |
| Lee Munder Global Multi-Cap Strategy | 41,003,854 | 3.0 | 9.0 | 6.2 | 16.8 | 11.1 | 6.2 | 7.5 | -- | 5.8 | Mar-18 |
| *MSCI AC World Index (Net)* | | | *9.2* | *5.9* | *16.6* | *12.0* | *5.7* | *9.1* | *7.6* | *7.1* | |
| Wellington Durable Enterprises, L.P. | 46,964,089 | 3.4 | 7.7 | 5.1 | 8.4 | 7.0 | 6.3 | 8.6 | -- | 8.1 | Mar-18 |
| *MSCI AC World Index (Net)* | | | *9.2* | *5.9* | *16.6* | *12.0* | *5.7* | *9.1* | *7.6* | *7.1* | |

## Asset Allocation & Performance | As of November 30, 2023

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Core Fixed Income** | **93,405,132** | **6.7** | **2.9** | **2.2** | **2.9** | **2.8** | **-2.0** | **1.8** | **--** | **1.9** | **Jan-16** |
| *75% Bbg Aggregate/25% Bbg US TIPs 1-10 year* | | | *3.9* | *2.6* | *1.8* | *1.3* | *-3.2* | *1.3* | *1.5* | *1.4* | |
| Lord Abbett Short Duration Credit Trust II | 39,535,062 | 2.9 | 1.4 | 1.6 | 4.3 | 4.8 | 0.3 | -- | -- | 1.2 | Aug-19 |
| *Blmbg. 1-3 Year Credit* | | | *1.4* | *1.7* | *3.9* | *4.2* | *0.1* | *1.9* | *1.6* | *1.3* | |
| Lord Abbett Core Fixed Income Trust II | 40,793,962 | 2.9 | 4.5 | 2.9 | 2.2 | 1.8 | -- | -- | -- | -5.9 | Dec-21 |
| *Blmbg. U.S. Aggregate Index* | | | *4.5* | *2.9* | *1.6* | *1.2* | *-4.5* | *0.7* | *1.4* | *-6.1* | |
| Rhumbline TIPS Trust | 13,076,108 | 0.9 | 2.7 | 1.9 | 1.1 | 0.1 | -1.5 | -- | -- | -1.4 | Sep-20 |
| *Blmbg. U.S. TIPS* | | | *2.7* | *2.0* | *1.2* | *0.1* | *-1.5* | *2.7* | *2.0* | *-1.4* | |
| **Value Added Fixed Income** | **94,545,749** | **6.8** | **3.0** | **2.4** | **8.0** | **8.0** | **1.5** | **3.3** | **--** | **4.6** | **Jan-16** |
| *Custom Benchmark - Global Fixed Income* | | | *4.1* | *3.2* | *7.1* | *7.3* | *-0.3* | *2.6* | *3.2* | *3.7* | |
| Eaton Vance High Yield | 12,566,946 | 0.9 | 4.0 | 2.8 | 8.0 | 7.6 | 1.5 | 4.0 | 4.1 | 5.9 | May-06 |
| *ICE BofA High Yield Master II* | | | *4.5* | *3.3* | *9.4* | *8.6* | *1.4* | *4.0* | *4.2* | *6.2* | |
| First Eagle Bank Loan Select Fund | 11,699,296 | 0.8 | 1.0 | 1.6 | 11.0 | 11.0 | 5.0 | 4.3 | 4.3 | 5.0 | Oct-10 |
| *Credit Suisse Leveraged Loan Index* | | | *1.2* | *1.2* | *11.3* | *11.7* | *5.5* | *4.7* | *4.3* | *4.8* | |
| Manulife Strategic Fixed Income | 35,179,265 | 2.5 | 4.2 | 3.0 | 4.6 | 4.3 | -1.1 | -- | -- | 1.3 | Aug-19 |
| *Blmbg. Global Multiverse* | | | *5.1* | *3.8* | *1.8* | *2.4* | *-6.1* | *-0.6* | *0.1* | *-2.3* | |
| Mesirow High Yield | 15,984,117 | 1.2 | 3.0 | 1.9 | 12.6 | 12.1 | 5.2 | -- | -- | 6.0 | Aug-19 |
| *Blmbg. U.S. Corp: High Yield Index* | | | *4.5* | *3.3* | *9.4* | *8.7* | *1.4* | *4.1* | *4.3* | *2.9* | |
| Eaton Vance EMD Opportunities Fund | 8,795,654 | 0.6 | 2.7 | 2.3 | 8.8 | 11.3 | 1.1 | -- | -- | 2.7 | Aug-20 |
| *JPM EMBI Global Diversified* | | | *5.7* | *4.2* | *6.1* | *6.4* | *-4.4* | *1.0* | *2.8* | *-3.3* | |
| Schroder All ILS Fund LTD | 10,320,471 | 0.7 | 0.0 | 1.6 | -- | -- | -- | -- | -- | 3.2 | Aug-23 |

First Eagle Bank Loan Select Market Value and Performance is estimated as of November 30, 2023.

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hedge Funds** | **77,442,891** | **5.6** | **2.4** | **1.0** | **3.1** | **7.7** | **1.4** | **1.1** | **2.5** | **3.3** | **Mar-10** |
| *Custom Benchmark* | | | *1.1* | *0.5* | *3.4* | *4.5* | *3.3* | *3.9* | *3.3* | *3.2* | |
| ABS Offshore SPC - Global Segregated Portfolio | 31,482,123 | 2.3 | 4.4 | 2.2 | 5.3 | 6.1 | 1.2 | 4.9 | 3.9 | 4.9 | Sep-10 |
| *HFRI Equity Hedge (Total) Index* | | | *4.4* | *1.8* | *6.6* | *5.9* | *4.2* | *6.6* | *5.0* | *5.4* | |
| Entrust Special Opportunities Fund III, Ltd. | 12,739,590 | 0.9 | 0.0 | 0.0 | -4.5 | 9.4 | -1.4 | -4.6 | -- | 1.6 | Oct-16 |
| *HFRI Fund of Funds Composite Index (QTR)* | | | *2.2* | *1.1* | *4.0* | *4.3* | *2.7* | *4.3* | *3.2* | *3.8* | |
| Old Farm Partners Master Fund, L.P. | 16,023,168 | 1.2 | 2.9 | 0.3 | 4.6 | 3.1 | 2.0 | 5.1 | -- | 4.0 | Oct-18 |
| *HFRI Fund of Funds Composite Index* | | | *2.2* | *1.1* | *4.0* | *4.3* | *2.7* | *4.3* | *3.2* | *3.5* | |
| EnTrustPermal Special Opportunities Evergreen Fund, Ltd. | 17,198,010 | 1.2 | 0.0 | 0.0 | -10.6 | -1.5 | -3.1 | -- | -- | -0.7 | Jan-19 |
| *HFRI Fund of Funds Composite Index (QTR)* | | | *2.2* | *1.1* | *4.0* | *4.3* | *2.7* | *4.3* | *3.2* | *4.7* | |
| **Real Estate** | **164,102,067** | **11.8** | **-0.6** | **-0.6** | **-3.7** | **-5.9** | **14.1** | **10.7** | **--** | **8.3** | **Jan-16** |
| *Custom Benchmark* | | | *0.0* | *0.0* | *-7.6* | *-12.1* | *7.1* | *5.6* | *--* | *5.8* | |
| **Core Real Estate** | **103,491,318** | **7.5** | **-0.9** | **-1.0** | **-4.8** | **-9.2** | **9.4** | **7.9** | **--** | **7.6** | **Jan-16** |
| *NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly* | | | *0.0* | *0.0* | *-7.6* | *-12.1* | *7.1* | *5.7* | *8.2* | *6.5* | |
| TA Realty Core Property Fund, L.P. | 73,833,893 | 5.3 | 0.0 | 0.0 | -1.9 | -7.3 | 12.7 | 10.9 | -- | 10.4 | Apr-18 |
| *NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly* | | | *0.0* | *0.0* | *-7.6* | *-12.1* | *7.1* | *5.7* | *8.2* | *5.7* | |
| JPMorgan Strategic Property | 29,657,424 | 2.1 | -3.1 | -3.2 | -11.1 | -13.4 | 3.5 | -- | -- | 2.8 | Apr-19 |
| *NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly* | | | *0.0* | *0.0* | *-7.6* | *-12.1* | *7.1* | *5.7* | *8.2* | *5.4* | |
| **Non-Core Real Estate** | **60,610,749** | **4.4** | **0.0** | **0.0** | **-1.7** | **0.5** | **23.2** | **16.3** | **--** | **8.3** | **Jan-16** |

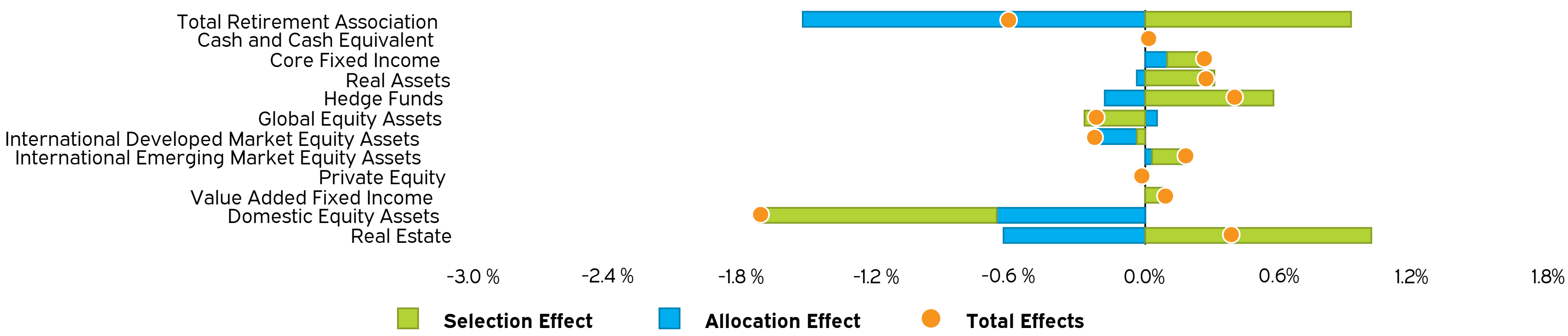
Entrust Special Opportunities Fund III and Entrust Permal Special Opportunities Evergreen Fund: Data is based on June 30, 2023 fair market value, adjusted for subsequent cash flows.
Note: The data for JPMorgan Strategic Property is as of November 30, 2023.

## Asset Allocation & Performance | As of November 30, 2023

| | Market Value $ | % of Portfolio | 1 Mo (%) | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Private Equity** | **245,090,352** | **17.7** | **0.0** | **0.0** | **5.4** | **8.1** | **25.2** | **17.6** | **--** | **12.8** | **Jan-16** |
| *MSCI ACWI IMI (1Q Lagged)+2%* | | | *0.0* | *0.0* | *26.2* | *18.4* | *13.2* | *9.8* | *10.8* | *11.5* | |
| **Private Equity** | **228,608,986** | **16.5** | **0.0** | **0.0** | **5.6** | **8.6** | **25.6** | **18.3** | **--** | **12.6** | **Feb-16** |
| **Venture Capital** | **16,481,367** | **1.2** | **0.0** | **0.0** | **3.4** | **1.0** | **20.2** | **10.6** | **--** | **10.6** | **Feb-16** |
| **Real Assets** | **126,688,824** | **9.1** | **0.6** | **0.5** | **7.6** | **9.2** | **14.1** | **9.2** | **--** | **4.7** | **Jan-16** |
| *CPI +3% (Unadjusted)* | | | *0.0* | *0.3* | *6.3* | *6.2* | *8.8* | *7.1* | *5.9* | *6.4* | |
| **Core Real Assets** | **75,728,962** | **5.5** | **1.0** | **0.9** | **6.5** | **9.6** | **11.9** | **10.9** | **--** | **10.4** | **Oct-18** |
| *CPI +3% (Unadjusted)* | | | *0.0* | *0.3* | *6.3* | *6.2* | *8.8* | *7.1* | *5.9* | *7.0* | |
| IFM Global Infrastructure | 75,728,962 | 5.5 | 1.0 | 0.9 | 6.5 | 9.6 | 11.9 | 10.9 | -- | 10.4 | Oct-18 |
| *CPI +3% (Unadjusted)* | | | *0.0* | *0.3* | *6.3* | *6.2* | *8.8* | *7.1* | *5.9* | *7.0* | |
| **Non-Core Real Assets** | **50,959,862** | **3.7** | **0.0** | **0.0** | **9.3** | **9.3** | **16.7** | **7.8** | **--** | **4.8** | **Jan-16** |
| *CPI +3% (Unadjusted)* | | | *0.0* | *0.3* | *6.3* | *6.2* | *8.8* | *7.1* | *5.9* | *6.4* | |
| **Cash and Cash Equivalent** | **7,071,998** | **0.5** | | | | | | | | | |
| Cash | 7,071,998 | 0.5 | | | | | | | | | |

Note: The data for Real Estate, Private Equity, and Real Assets is based on June 30, 2023 fair market value, adjusted for subsequent cash flows.
Note: The data for IFM Global Infrastructure is as of November 30, 2023.

## Attribution Effects
### 1 Year Ending November 30, 2023




## Attribution Summary
### 1 Year Ending November 30, 2023

| | Wtd. Actual Return (%) | Wtd. Index Return (%) | Excess Return (%) | Selection Effect (%) | Allocation Effect (%) | Total Effect (%) |
|---|---|---|---|---|---|---|
| Cash and Cash Equivalent | 3.0 | 4.9 | -1.9 | 0.0 | 0.0 | 0.0 |
| Core Fixed Income | 2.8 | 0.6 | 2.3 | 0.2 | 0.1 | 0.3 |
| Real Assets | 9.2 | 5.5 | 3.8 | 0.3 | 0.0 | 0.3 |
| Hedge Funds | 7.7 | -1.5 | 9.2 | 0.6 | -0.2 | 0.4 |
| Global Equity Assets | 8.9 | 11.2 | -2.3 | -0.3 | 0.1 | -0.2 |
| International Developed Market Equity Assets | 10.3 | 11.6 | -1.3 | 0.0 | -0.2 | -0.2 |
| International Emerging Market Equity Assets | 5.5 | 3.5 | 2.1 | 0.2 | 0.0 | 0.2 |
| Private Equity | 8.1 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Value Added Fixed Income | 8.0 | 6.5 | 1.4 | 0.1 | 0.0 | 0.1 |
| Domestic Equity Assets | 5.8 | 11.8 | -6.0 | -1.1 | -0.7 | -1.7 |
| Real Estate | -5.9 | -12.8 | 6.9 | 1.0 | -0.6 | 0.4 |
| Total Retirement Association | 5.2 | 5.8 | -0.6 | 0.9 | -1.5 | -0.6 |

| Risk Return Statistics | 3 Yrs | 5 Yrs |
|---|---|---|
| | Total Retirement Association | Total Retirement Association |
| **RETURN SUMMARY STATISTICS** | | |
| Maximum Return | 5.7 | 6.9 |
| Minimum Return | -4.0 | -10.5 |
| Return | 7.0 | 8.0 |
| Excess Return | 5.1 | 6.4 |
| Excess Performance | 2.6 | 1.0 |
| **RISK SUMMARY STATISTICS** | | |
| Beta | 0.7 | 0.9 |
| Upside Risk | 6.9 | 8.2 |
| Downside Risk | 4.7 | 6.8 |
| **RISK/RETURN SUMMARY STATISTICS** | | |
| Standard Deviation | 8.1 | 10.3 |
| Sortino Ratio | 1.0 | 0.9 |
| Alpha | 3.6 | 1.7 |
| Sharpe Ratio | 0.6 | 0.6 |
| Excess Risk | 8.2 | 10.5 |
| Tracking Error | 4.2 | 3.9 |
| Information Ratio | 0.5 | 0.2 |
| **CORRELATION STATISTICS** | | |
| R-Squared | 0.8 | 0.9 |
| Actual Correlation | 0.9 | 0.9 |

## Annual Investment Expense Analysis

| | Fee Schedule | Market Value | Estimated Expense | Expense Ratio (%) |
|---|---|---|---|---|
| **Domestic Equity Assets** | | **271,609,865** | **949,800** | **0.35** |
| Rhumbline Russell 1000 Value | 0.05 % of First $25 M<br>0.04 % of Next $25 M<br>0.03 % Thereafter | 71,115,013 | 28,835 | 0.04 |
| Rhumbline Russell 1000 Growth | 0.05 % of First $25 M<br>0.04 % of Next $25 M<br>0.03 % Thereafter | 58,342,535 | 25,003 | 0.04 |
| Fisher Midcap Value | 0.65 % of Assets | 52,600,067 | 341,900 | 0.65 |
| Newton Small Cap Growth | 0.45 % of Assets | 44,199,270 | 198,897 | 0.45 |
| Vulcan Partners Small Cap Value | 0.83 % of Assets | 14,975,501 | 124,297 | 0.83 |
| Systematic Small Cap Free Cash Flow | 0.76 % of Assets | 30,377,479 | 230,869 | 0.76 |
| **International Developed Market Equity Assets** | | **41,637,872** | **254,497** | **0.61** |
| Aristotle International Equity | 0.49 % of Assets | 22,225,742 | 108,906 | 0.49 |
| Walter Scott International Equity | 0.75 % of Assets | 19,412,129 | 145,591 | 0.75 |
| **International Emerging Market Equity Assets** | | **107,844,938** | **478,317** | **0.44** |
| ABS Emerging Markets | Performance Based 0.35 and 0.10 | 57,415,224 | 200,953 | 0.35 |
| Driehaus Emerging Markets Growth | 0.55 % of Assets | 50,429,714 | 277,363 | 0.55 |
| **Global Equity Assets** | | **156,110,286** | **998,392** | **0.64** |
| First Eagle Global Value Fund | 0.75 % of Assets | 26,097,202 | 195,729 | 0.75 |
| Kopernik Global All Cap Fund | 0.80 % of First $50 M<br>0.75 % of Next $150 M<br>0.70 % of Next $250 M<br>0.65 % of Next $350 M<br>0.00 % Thereafter | 42,045,140 | 336,361 | 0.80 |
| Lee Munder Global Multi-Cap Strategy | 0.45 % of Assets | 41,003,854 | 184,517 | 0.45 |
| Wellington Durable Enterprises, L.P. | 0.60 % of Assets | 46,964,089 | 281,785 | 0.60 |
| **Core Fixed Income** | | **93,405,132** | **132,823** | **0.14** |
| Lord Abbett Short Duration Credit Trust II | 0.17 % of Assets | 39,535,062 | 67,210 | 0.17 |
| Lord Abbett Core Fixed Income Trust II | 0.15 % of Assets | 40,793,962 | 61,191 | 0.15 |
| Rhumbline TIPS Trust | 0.04 % of First $5 M<br>0.03 % Thereafter | 13,076,108 | 4,423 | 0.03 |
| **Value Added Fixed Income** | | **94,545,749** | **313,029** | **0.33** |
| Eaton Vance High Yield | 0.42 % of Assets | 12,566,946 | 52,781 | 0.42 |
| First Eagle Bank Loan Select Fund | 0.40 % of Assets | 11,699,296 | 46,797 | 0.40 |
| Manulife Strategic Fixed Income | 0.35 % of Assets | 35,179,265 | 123,127 | 0.35 |
| Mesirow High Yield | 0.40 % of Assets | 15,984,117 | 63,936 | 0.40 |
| Eaton Vance EMD Opportunities Fund | 0.30 % of Assets | 8,795,654 | 26,387 | 0.30 |
| **Total** | | **754,833,370** | **3,126,858** | |

Eaton Vance EMD Opportunities Fund: Stated fee of 0.30% with other operating expenses capped at 0.15%.

| Private Equity | Commitment | Total Contributions | Total Distributions | Value |
|---|---|---|---|---|
| Ascend Ventures II, L.P. | 2,500,000 | 2,327,488 | 995,193 | 4,793 |
| Ascent Venture Partners V, L.P. | 5,000,000 | 5,004,731 | 4,494,116 | 3,184,982 |
| Audax Mezzanine Fund IV, L.P. | 10,000,000 | 9,003,599 | 7,751,969 | 3,277,132 |
| Charlesbank Technology Opportunities Fund, L.P. | 12,000,000 | 8,759,666 | 1,999,703 | 17,773,050 |
| Ironsides Opportunities Fund II | 20,000,000 | 6,269,024 | 127,791 | 6,397,452 |
| Ironsides Co-Investment Fund VI, L.P. | 13,000,000 | 11,749,689 | 440,844 | 13,754,542 |
| DN Partners II, L.P. | 5,000,000 | 2,375,841 | 23,571 | 2,602,713 |
| Euro Choice V, L.P. | 6,078,518 | 5,919,759 | 6,026,656 | 3,018,836 |
| FS Equity Partners VIII, L.P. | 12,000,000 | 9,724,864 | 324,324 | 15,343,879 |
| Globespan Capital Partners V, L.P. | 5,000,000 | 4,852,500 | 9,516,019 | 2,555,951 |
| HarbourVest Partners Co-Investment Fund V, L.P. | 12,000,000 | 9,300,000 | 2,373,256 | 14,397,177 |
| HarbourVest Partners Co-Investment Fund VI, L.P. | 13,000,000 | 6,500,000 | 0 | 6,810,931 |
| Ironsides Direct Investment Fund V, L.P. | 12,000,000 | 11,870,897 | 3,152,053 | 18,739,860 |
| Kohlberg Investors IX | 10,000,000 | 8,363,166 | 294,108 | 11,261,413 |
| Landmark Equity Partners XIV, L.P. | 6,000,000 | 5,843,572 | 7,446,442 | 408,687 |
| Leeds Equity Partners V, L.P. | 2,500,000 | 3,525,207 | 5,594,639 | 259,644 |
| Lexington Capital Partners VII, L.P. | 10,000,000 | 8,958,787 | 13,401,824 | 1,143,016 |
| LLR Equity Partners V, L.P. | 12,000,000 | 11,640,000 | 3,986,780 | 16,944,947 |
| Mesirow Financial Capital Partners IX, L.P. | 4,000,000 | 3,840,731 | 2,021,056 | 79,611 |
| Ridgemont Equity Partners III, L.P. | 12,000,000 | 12,910,739 | 7,072,051 | 16,752,593 |
| Ridgemont Equity Partners IV, L.P. | 13,000,000 | 1,008,678 | 0 | 1,092,995 |
| Rimco Production Company, Inc | 2,000,000 | 2,000,000 | 7,651,066 | 1 |
| Searchlight Capital III, L.P. | 12,000,000 | 9,246,689 | 3,969,713 | 10,951,931 |
| Siguler Guff Distressed Opportunities Fund III, L.P. | 6,000,000 | 5,820,000 | 9,239,704 | 415,671 |
| Summit Partners Growth Equity Fund IX, L.P. | 10,000,000 | 11,781,000 | 12,558,753 | 15,509,792 |
| Summit Partners Venture Capital Fund V | 10,000,000 | 5,548,562 | 444,178 | 5,245,832 |
| Summit Partners Growth Equity Fund XI, L.P. | 13,000,000 | 3,172,863 | 0 | 3,332,562 |
| TRG Growth Partnership II, L.P. | 7,500,000 | 7,366,152 | 8,989,845 | 543,251 |
| Trilantic Capital Partners VI (North America), L.P. | 12,000,000 | 11,854,436 | 1,192,424 | 15,119,481 |
| Waud Capital Partners V, L.P. | 10,000,000 | 10,036,521 | 52,149 | 15,122,664 |
| Wellspring Capital Partners VI, L.P. | 12,000,000 | 11,801,119 | 2,594,018 | 16,108,359 |
| Kohlberg Investors X, L.P. | 10,000,000 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| Waud Capital Partners VI | 10,000,000 | 0 | 0 | 0 |
| Trilantic Capital Partners VII | 10,000,000 | 0 | 0 | 0 |
| **Total Plymouth County - PE** | **291,578,518** | **228,376,281** | **123,734,243** | **238,153,748** |
| **Real Assets** | **Commitment** | **Total Contributions** | **Total Distributions** | **Value** |
| Basalt Infrastructure Partners II | 10,000,000 | 9,416,866 | 5,845,746 | 7,375,110 |
| BlackRock Global Renewable Power Infrastructure Fund III, L.P. | 10,000,000 | 5,827,537 | 282,545 | 6,305,557 |
| BTG Pactual Global Timberland Resources Fund, LLC | 5,043,536 | 5,043,536 | 1,869,240 | 1,441,400 |
| Climate Adaptive Infrastructure Fund I | 10,000,000 | 4,921,629 | 584,326 | 5,271,387 |
| Global Infrastructure Partners III, L.P. | 10,000,000 | 10,281,798 | 4,885,650 | 10,389,781 |
| Global Infrastructure Partners IV, L.P. | 10,000,000 | 7,943,160 | 206,895 | 8,153,443 |
| IFM Global Infrastructure (U.S.), L.P. | 60,000,000 | 60,000,000 | 4,082,232 | 75,728,962 |
| ISQ Global Infrastructure Fund III (USTE), L.P. | 10,000,000 | 2,815,287 | 1,223 | 2,932,979 |
| JPMorgan Global Maritime Investment | 10,000,000 | 10,034,375 | 5,459,408 | 3,428,354 |
| Domain Timbervest Partners III, L.P. | 5,000,000 | 5,000,000 | 4,151,126 | 3,579,478 |
| BlackRock Global Infrastructure Fund IV | 10,000,000 | 1,871,975 | 0 | 1,794,988 |
| **Total Plymouth County - RA** | **140,043,536** | **113,739,297** | **21,522,645** | **119,026,329** |
| **Real Estate** | **Commitment** | **Total Contributions** | **Total Distributions** | **Value** |
| 1921 Realty, Inc. | 5,000,000 | 5,378,294 | 0 | 544,736 |
| AEW Partners IX, L.P. | 10,000,000 | 7,201,646 | 141,499 | 7,658,914 |
| AEW Partners Real Estate Fund VIII, L.P. | 25,000,000 | 23,989,589 | 29,352,491 | 6,254,291 |
| Berkshire Value Fund V, L.P. | 9,000,000 | 6,283,181 | 1,058,371 | 5,782,165 |
| Carlyle Realty Partners VIII, L.P. | 18,000,000 | 15,404,133 | 11,476,769 | 9,959,998 |
| DSF Capital Partners IV, L.P. | 5,000,000 | 5,000,000 | 7,406,550 | 0 |
| DSF Multi-Family Real Estate Fund III, L.P. | 15,000,000 | 15,079,717 | 22,982,692 | 4,416,237 |
| JPMorgan Strategic Property Fund | 27,000,000 | 27,000,000 | 7,591,322 | 29,657,424 |
| PCCP Equity IX, L.P. | 10,000,000 | 6,719,943 | 0 | 6,939,010 |
| Real Estate International Partnership Fund I, L.P. | 15,000,000 | 12,677,141 | 11,372,161 | 591,899 |
| Rockpoint Real Estate Fund VI, L.P. | 9,000,000 | 7,292,898 | 1,091,059 | 7,653,917 |

Note: The value is based on June 30, 2023 FMV.
Note: The value for IFM Global Infrastructure and JPMorgan Strategic Property is as of November 30, 2023. The Value for TA Realty Core Property Fund is based on 6/30/2023 FMV as this fund is reported in real time.

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Rhumbline Russell 1000 Value | 72,951,230 | - | -7,000,000 | -7,000,000 | 71,115,013 |
| Rhumbline Russell 1000 Growth | 52,609,688 | - | - | - | 58,342,535 |
| Fisher Midcap Value | 47,587,035 | - | - | - | 52,600,067 |
| Newton Small Cap Growth | 40,428,331 | - | - | - | 44,199,270 |
| Vulcan Partners Small Cap Value | 13,625,635 | - | - | - | 14,975,501 |
| Systematic Small Cap Free Cash Flow | 28,360,106 | - | - | - | 30,377,479 |
| Aristotle International Equity | 20,504,830 | - | - | - | 22,225,742 |
| Walter Scott International Equity | 17,536,443 | - | - | - | 19,412,129 |
| ABS Emerging Markets | 53,346,881 | - | - | - | 57,415,224 |
| Driehaus Emerging Markets Growth | 46,301,165 | - | - | - | 50,429,714 |
| First Eagle Global Value Fund | 24,682,960 | - | - | - | 26,097,202 |
| Kopernik Global All Cap Fund | 40,854,372 | - | - | - | 42,045,140 |
| Lee Munder Global Multi-Cap Strategy | 37,607,793 | - | - | - | 41,003,854 |
| Wellington Durable Enterprises, L.P. | 43,598,401 | - | - | - | 46,964,089 |
| Lord Abbett Short Duration Credit Trust II | 38,983,923 | - | - | - | 39,535,062 |
| Lord Abbett Core Fixed Income Trust II | 39,027,140 | - | - | - | 40,793,962 |
| Rhumbline TIPS Trust | 12,731,919 | - | - | - | 13,076,108 |
| Eaton Vance High Yield | 12,083,683 | - | - | - | 12,566,946 |
| First Eagle Bank Loan Select Fund | 11,584,608 | - | - | - | 11,699,296 |
| Manulife Strategic Fixed Income | 33,742,044 | - | - | - | 35,179,265 |
| Mesirow High Yield | 15,512,169 | - | - | - | 15,984,117 |
| Eaton Vance EMD Opportunities Fund | 8,561,272 | - | - | - | 8,795,654 |
| Schroder All ILS Fund LTD | 10,320,471 | - | - | - | 10,320,471 |
| ABS Offshore SPC - Global Segregated Portfolio | 30,152,500 | - | - | - | 31,482,123 |
| Entrust Special Opportunities Fund III, Ltd. | 12,739,590 | - | - | - | 12,739,590 |
| Old Farm Partners Master Fund, L.P. | 15,566,457 | - | - | - | 16,023,168 |
| EnTrustPermal Special Opportunities Evergreen Fund, Ltd. | 17,198,010 | - | - | - | 17,198,010 |
| TA Realty Core Property Fund, L.P. | 74,558,902 | - | -725,009 | -725,009 | 73,833,893 |
| JPMorgan Strategic Property | 30,574,760 | - | - | - | 29,657,424 |

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Mesirow Financial International Real Estate Fund I | 591,899 | - | - | - | 591,899 |
| DSF Multi-Family Real Estate Fund III | 4,394,141 | - | - | - | 4,394,141 |
| AEW Partners Real Estate VIII | 6,254,291 | - | -780,874 | -780,874 | 5,473,417 |
| 1921 Realty, Inc | 544,736 | - | - | - | 544,736 |
| Carlyle Realty Partners VIII | 9,573,459 | - | - | - | 9,573,459 |
| Berkshire Value Fund V | 6,033,183 | - | - | - | 6,033,183 |
| Rockpoint Real Estate Fund VI, L.P. | 8,084,662 | 278,164 | - | 278,164 | 8,362,826 |
| TerraCap Partners V, L.P | 10,630,682 | - | - | - | 10,630,682 |
| AEW Partners Real Estate Fund IX, L.P. | 7,567,396 | - | - | - | 7,567,396 |
| PCCP Equity IX, L.P. | 7,439,010 | - | - | - | 7,439,010 |
| Euro Choice V Programme | 3,018,836 | - | -34,252 | -34,252 | 2,984,585 |
| Lexington Capital Partners VII | 1,067,292 | - | - | - | 1,067,292 |
| TRG Growth Partnership II | 410,440 | - | - | - | 410,440 |
| Landmark Equity Partners XIV | 351,103 | - | - | - | 351,103 |
| Summit Partners Growth Equity Fund IX | 15,154,988 | - | - | - | 15,154,988 |
| Leeds Equity Partners V | 259,644 | - | -15,830 | -15,830 | 243,814 |
| Audax Mezzanine Debt IV | 3,213,973 | - | - | - | 3,213,973 |
| Siguler Guff Distressed Opportunities Fund III, LP | 415,671 | - | - | - | 415,671 |
| Mesirow Financial Capital Partners IX, LP | 79,611 | - | - | - | 79,611 |
| DN Partners II, LP | 2,476,693 | - | - | - | 2,476,693 |
| LLR Equity Partners V, LP. | 16,440,290 | - | - | - | 16,440,290 |
| Wellspring Capital Partners VI | 17,314,577 | - | - | - | 17,314,577 |
| Trilantic Capital Partners VI, L.P. | 13,507,692 | - | - | - | 13,507,692 |
| HarbourVest Partners Co-Investment V | 14,397,177 | - | - | - | 14,397,177 |
| Ironsides Direct Investment Fund V, L.P. | 19,891,350 | - | - | - | 19,891,350 |
| Ridgemont Equity Partners III, L.P. | 16,752,593 | - | -508,471 | -508,471 | 16,244,122 |
| FS Equity Partners VIII, L.P. | 15,575,844 | - | - | - | 15,575,844 |
| Charlesbank Technology Opportunities Fund | 20,323,607 | - | - | - | 20,323,607 |
| Searchlight Capital III, L.P. | 11,661,714 | - | -947,713 | -947,713 | 10,714,001 |

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Waud Capital Partners V | 15,122,664 | - | -1,015,130 | -1,015,130 | 14,107,534 |
| Summit Partners Venture Capital Fund V | 5,363,878 | - | - | - | 5,363,878 |
| Ironsides Co-Investment Fund VI, L.P. | 13,754,542 | - | - | - | 13,754,542 |
| HarbourVest Partners Co-Investment Fund VI, L.P. | 7,460,931 | 1,950,000 | - | 1,950,000 | 9,410,931 |
| Ridgemont Equity Partners IV, L.P. | 3,969,163 | 1,338,834 | - | 1,338,834 | 5,307,997 |
| Summit Partners Growth Equity Fund XI | 3,478,171 | - | - | - | 3,478,171 |
| Ironsides Opportunities Fund II, L.P. | 5,172,886 | - | - | - | 5,172,886 |
| Ascent Ventures V | 3,184,982 | - | - | - | 3,184,982 |
| Globespan Capital V | 2,034,972 | - | - | - | 2,034,972 |
| Kohlberg Investors IX | 11,261,413 | - | - | - | 11,261,413 |
| Waud Capital Partners VI | 1,206,218 | - | - | - | 1,206,218 |
| IFM Global Infrastructure | 74,960,819 | - | - | - | 75,728,962 |
| JP Morgan Global Maritime Investment | 489,306 | - | - | - | 489,306 |
| Timbervest Partners III, LP | 3,469,478 | - | - | - | 3,469,478 |
| BTG Pactual Global Timberland Resources | 1,441,400 | - | - | - | 1,441,400 |
| Global Infrastructure Partners III | 10,327,651 | - | -155,486 | -155,486 | 10,172,164 |
| Basalt Infrastructure Partners II | 7,144,773 | - | - | - | 7,144,773 |
| Global Infrastructure Partners IV, L.P. | 8,842,609 | - | - | - | 8,842,609 |
| ISQ Global Infrastructure Fund III (USTE), L.P. | 4,007,301 | - | - | - | 4,007,301 |
| BlackRock Global Renewable Power Infrastructure Fund III, L.P. | 7,370,364 | - | - | - | 7,370,364 |
| Climate Adaptive Infrastructure Fund | 5,191,340 | - | - | - | 5,191,340 |
| BlackRock Global Infrastructure Fund IV, L.P. | 2,831,127 | - | - | - | 2,831,127 |
| Cash | 8,546,777 | 11,305,435 | -12,780,214 | -1,474,779 | 7,071,998 |
| **Total** | **1,343,391,640** | **14,872,433** | **-23,962,979** | **-9,090,546** | **1,385,549,974** |

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Rhumbline Russell 1000 Value | 58,144,941 | 37,500,000 | -26,500,000 | 11,000,000 | 71,115,013 |
| Rhumbline Russell 1000 Growth | 37,167,306 | 12,500,000 | -5,000,000 | 7,500,000 | 58,342,535 |
| Fisher Midcap Value | 55,787,552 | - | -8,000,000 | -8,000,000 | 52,600,067 |
| Newton Small Cap Growth | 43,265,221 | - | - | - | 44,199,270 |
| Vulcan Partners Small Cap Value | 13,919,774 | 28,497 | -28,497 | - | 14,975,501 |
| Systematic Small Cap Free Cash Flow | 28,203,474 | - | - | - | 30,377,479 |
| Aristotle International Equity | 19,839,194 | - | - | - | 22,225,742 |
| Walter Scott International Equity | 17,359,513 | - | -103,148 | -103,148 | 19,412,129 |
| ABS Emerging Markets | 52,685,835 | - | - | - | 57,415,224 |
| Driehaus Emerging Markets Growth | 46,198,805 | - | - | - | 50,429,714 |
| First Eagle Global Value Fund | 23,862,955 | - | - | - | 26,097,202 |
| Kopernik Global All Cap Fund | 34,061,261 | 4,000,000 | - | 4,000,000 | 42,045,140 |
| Lee Munder Global Multi-Cap Strategy | 38,740,800 | - | -4,000,000 | -4,000,000 | 41,003,854 |
| Wellington Durable Enterprises, L.P. | 43,333,556 | - | - | - | 46,964,089 |
| Lord Abbett Short Duration Credit Trust II | 52,709,058 | - | -15,000,000 | -15,000,000 | 39,535,062 |
| Lord Abbett Core Fixed Income Trust II | 39,851,657 | - | - | - | 40,793,962 |
| Rhumbline TIPS Trust | 16,828,767 | - | -4,000,000 | -4,000,000 | 13,076,108 |
| Eaton Vance High Yield | 11,632,494 | - | - | - | 12,566,946 |
| First Eagle Bank Loan Select Fund | 10,539,128 | - | - | - | 11,699,296 |
| Manulife Strategic Fixed Income | 40,372,490 | - | -7,096,262 | -7,096,262 | 35,179,265 |
| Mesirow High Yield | 14,195,684 | - | - | - | 15,984,117 |
| Eaton Vance EMD Opportunities Fund | 8,082,933 | - | - | - | 8,795,654 |
| Schroder All ILS Fund LTD | - | 10,000,000 | - | 10,000,000 | 10,320,471 |
| ABS Offshore SPC - Global Segregated Portfolio | 34,717,268 | - | -5,000,000 | -5,000,000 | 31,482,123 |
| Entrust Special Opportunities Fund III, Ltd. | 13,663,481 | - | -335,366 | -335,366 | 12,739,590 |
| Old Farm Partners Master Fund, L.P. | 15,330,488 | - | - | -49,721 | 16,023,168 |
| EnTrustPermal Special Opportunities Evergreen Fund, Ltd. | 19,236,406 | - | - | -397,450 | 17,198,010 |
| TA Realty Core Property Fund, L.P. | 77,516,051 | 135,653 | -2,397,992 | -2,262,339 | 73,833,893 |
| JPMorgan Strategic Property | 34,892,370 | 576 | -1,759,824 | -1,759,247 | 29,657,424 |

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Mesirow Financial International Real Estate Fund I | 699,983 | - | - | - | 591,899 |
| DSF Multi-Family Real Estate Fund III | 5,039,395 | - | -926,452 | -926,452 | 4,394,141 |
| AEW Partners Real Estate VIII | 6,278,348 | - | -1,106,629 | -1,106,629 | 5,473,417 |
| 1921 Realty, Inc | 556,339 | - | - | - | 544,736 |
| Carlyle Realty Partners VIII | 11,664,172 | 190,670 | -1,281,898 | -1,091,228 | 9,573,459 |
| Berkshire Value Fund V | 7,101,747 | 251,018 | - | 251,018 | 6,033,183 |
| Rockpoint Real Estate Fund VI, L.P. | 7,854,027 | 753,130 | - | 753,130 | 8,362,826 |
| TerraCap Partners V, L.P | 10,005,097 | - | - | - | 10,630,682 |
| AEW Partners Real Estate Fund IX, L.P. | 6,567,145 | 681,657 | -91,518 | 590,139 | 7,567,396 |
| PCCP Equity IX, L.P. | 5,326,020 | 2,100,000 | - | 2,100,000 | 7,439,010 |
| Euro Choice V Programme | 2,986,491 | - | -403,035 | -403,035 | 2,984,585 |
| Lexington Capital Partners VII | 1,390,888 | - | -247,060 | -247,060 | 1,067,292 |
| TRG Growth Partnership II | 1,313,508 | -1,032,045 | -132,811 | -1,164,857 | 410,440 |
| Landmark Equity Partners XIV | 460,357 | - | -105,955 | -105,955 | 351,103 |
| Summit Partners Growth Equity Fund IX | 15,085,855 | 77,000 | -354,804 | -277,804 | 15,154,988 |
| Leeds Equity Partners V | 238,203 | - | -15,830 | -15,830 | 243,814 |
| Audax Mezzanine Debt IV | 2,935,145 | 302,868 | -250,016 | 52,852 | 3,213,973 |
| Siguler Guff Distressed Opportunities Fund III, LP | 496,843 | - | -47,344 | -47,344 | 415,671 |
| Mesirow Financial Capital Partners IX, LP | 78,637 | - | - | - | 79,611 |
| DN Partners II, LP | 2,426,338 | - | -177,113 | -177,113 | 2,476,693 |
| LLR Equity Partners V, LP. | 16,200,112 | 240,000 | -940,619 | -700,619 | 16,440,290 |
| Wellspring Capital Partners VI | 15,590,471 | 1,311,451 | -202,082 | 1,109,369 | 17,314,577 |
| Trilantic Capital Partners VI, L.P. | 13,480,292 | 1,767,934 | -2,069,970 | -302,037 | 13,507,692 |
| HarbourVest Partners Co-Investment V | 13,632,677 | - | -460,488 | -460,488 | 14,397,177 |
| Ironsides Direct Investment Fund V, L.P. | 18,327,411 | 1,451,191 | -299,701 | 1,151,490 | 19,891,350 |
| Ridgemont Equity Partners III, L.P. | 18,009,648 | 952,259 | -2,549,288 | -1,597,029 | 16,244,122 |
| FS Equity Partners VIII, L.P. | 14,436,439 | 1,072,873 | -11,020 | 1,061,853 | 15,575,844 |
| Charlesbank Technology Opportunities Fund | 14,960,556 | 2,734,424 | -921,167 | 1,813,257 | 20,323,607 |
| Searchlight Capital III, L.P. | 9,317,120 | 1,943,984 | -1,262,180 | 681,804 | 10,714,001 |

## Financial Reconciliation | Year To Date Ending November 30, 2023

| | Beginning Market Value | Contributions | Distributions | Net Cash Flow | Ending Market Value |
|---|---|---|---|---|---|
| Waud Capital Partners V | 14,428,940 | 234,744 | -1,076,948 | -842,204 | 14,107,534 |
| Summit Partners Venture Capital Fund V | 5,029,001 | 474,806 | -444,178 | 30,628 | 5,363,878 |
| Ironsides Co-Investment Fund VI, L.P. | 14,255,911 | - | -1,023,990 | -1,023,990 | 13,754,542 |
| HarbourVest Partners Co-Investment Fund VI, L.P. | 3,001,949 | 5,850,000 | - | 5,850,000 | 9,410,931 |
| Ridgemont Equity Partners IV, L.P. | - | 5,223,680 | - | 5,223,680 | 5,307,997 |
| Summit Partners Growth Equity Fund XI | 1,367,501 | 1,718,889 | - | 1,718,889 | 3,478,171 |
| Ironsides Opportunities Fund II, L.P. | 1,633,210 | 6,604,346 | -3,320,889 | 3,283,457 | 5,172,886 |
| Ascent Ventures V | 3,124,944 | - | - | - | 3,184,982 |
| Globespan Capital V | 3,557,979 | - | -612,060 | -612,060 | 2,034,972 |
| Kohlberg Investors IX | 7,899,628 | 1,942,118 | - | 1,942,118 | 11,261,413 |
| Waud Capital Partners VI | - | 1,206,218 | - | 1,206,218 | 1,206,218 |
| IFM Global Infrastructure | 47,130,351 | 25,000,000 | -1,070,224 | 23,929,776 | 75,728,962 |
| JP Morgan Global Maritime Investment | 7,222,785 | - | -6,155,229 | -6,155,229 | 489,306 |
| Timbervest Partners III, LP | 3,611,063 | 110,000 | -155,000 | -45,000 | 3,469,478 |
| BTG Pactual Global Timberland Resources | 1,377,651 | - | - | - | 1,441,400 |
| Global Infrastructure Partners III | 9,922,547 | 96,330 | -454,805 | -358,475 | 10,172,164 |
| Basalt Infrastructure Partners II | 6,525,463 | - | -230,337 | -230,337 | 7,144,773 |
| Global Infrastructure Partners IV, L.P. | 7,987,674 | 805,326 | -256,564 | 548,762 | 8,842,609 |
| ISQ Global Infrastructure Fund III (USTE), L.P. | 971,137 | 2,828,188 | -23,744 | 2,804,444 | 4,007,301 |
| BlackRock Global Renewable Power Infrastructure Fund III, L.P. | 3,841,675 | 2,762,366 | - | 2,762,366 | 7,370,364 |
| Climate Adaptive Infrastructure Fund | 3,187,514 | 1,149,789 | -80,047 | 1,069,742 | 5,191,340 |
| BlackRock Global Infrastructure Fund IV, L.P. | 656,206 | 2,264,331 | -12,423 | 2,251,908 | 2,831,127 |
| Cash | 33,771,643 | 194,062,748 | -220,761,646 | -26,698,898 | 7,071,998 |
| **Total** | **1,305,102,500** | **331,297,017** | **-328,756,154** | **2,093,692** | **1,385,549,974** |

# Appendices

# Corporate Update

**7**
Offices

**235+**
Employees

**245+**
Clients

**$1.8T**
Assets Under Advisement

**$200B**
Assets in Alternative Investments

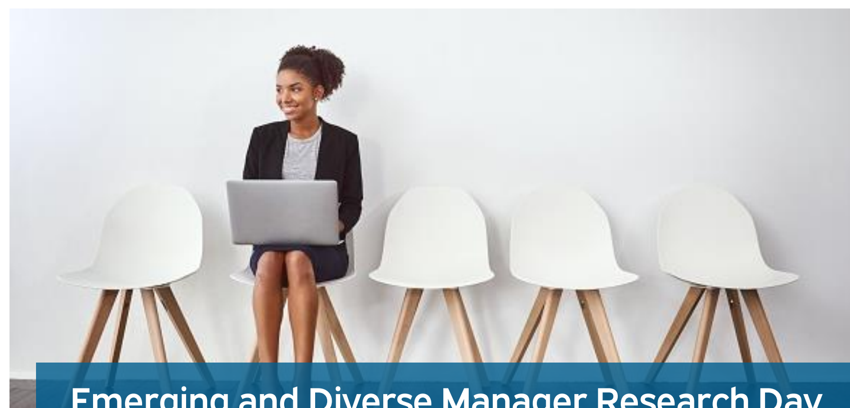
**98%**
Client Retention Rate

**5:1**
Client | Consultant Ratio

**Meketa Investment Group is proud to work for over 15 million American families everyday!**

## UPCOMING EVENTS

Q4 Investment Perspectives Webcast
April 2024



Emerging and Diverse Manager Research Day
April 2024

Client and employee counts as of December 31, 2023; assets as of September 30, 2023.
Client retention rate is one minus the number of clients lost divided by the number of clients at prior year-end.

## THOUGHT LEADERSHIP

### Read our December Connectives "Navigating US China Tensions with Dynamic Portfolio Levers"

Sifting through economic, financial, and political factors is proving to be increasingly challenging for institutional investors as sentiment toward China continues to turn negative in western governments.

While some US investors have decided to actively underweight or even exit China altogether, others are seeking dynamic portfolio and manager solutions.

Read more here:
https://meketa.com/news/meketa-connectives-navigating-us-china-tensions-with-dynamic-portfolio-levers/

### Read our recent white paper "Opportunities in Critical Minerals"

The push toward net-zero emissions has expedited the need for green energy and technology. At the forefront of this green energy boom are critical minerals, the essential inputs to all types of green technologies, especially electric vehicles ("EVs") and EV batteries.

This research note provides an overview of critical minerals, their uses, current market size, as well as describes the unique opportunity that critical minerals may provide for investors.

Read more here:
https://meketa.com/leadership/the-opportunity-in-critical-minerals/


### Watch our recent webinar "Mission Driven Investing Manager Research Day Roundtable"

As part of Meketa's first Public and Private Markets Mission Driven Investing Manager Research Day, we hosted a one-hour roundtable discussion with a panel of institutional investors speaking about their experiences with mission driven investing. The panel includes perspectives from investors who invest broadly in mission-driven investments, as well as specifically for economic development in a particular state or region and as informed by religious values. Discussion topics include impact and return goals, mission related investment structures, best practices in manager due diligence and other areas relevant for the mission driven investor.

Read more here:
https://meketa.com/leadership/december-2023-mission-driven-investing-manager-research-day-roundtable/

## MEKETA VALUES CULTURE

Whether looking for new team members or getting to know our current fellow team mates better, Meketa values the people we work with.

INTEGRITY • STEWARDSHIP • SERVICE • CULTURE • DIVERSITY • COMMUNITY




## MEKETA IN THE NEWS

Pensions&Investments

### Asset owners lean on consultants to be educated about ESG

By Palash Ghosh | 11.20.23

Read full article here

Meketa assists clients in understanding different approaches to sustainability, including focusing on integrating material sustainability financial risks and opportunities, seeking investments that also offer impact on a given environmental or social themes, and investing in products for socially responsible ends that do not include a performance expectation to meet or exceed a market beta, said Sarah Bernstein, head of sustainability. "Some pension funds have specific requests, for example how to respond to ESG and/or anti-ESG legislation; provide analysis on options to address climate risks and opportunities; or address diversity, equity and inclusion concerns," she added.

One area that is seeing a lot of interest from investors is opportunities around the energy transition. Lisa Bacon, managing principal, private markets consultant and infrastructure program lead at Meketa, said deploying capital into renewables and related infrastructure has been going on for a number of years even before "energy transition" and "decarbonization" became common terms.

In fact, "as both governmental entities and corporates in the U.S. and abroad have established more ambitious goals for reducing greenhouse gases and reaching net-zero carbon emissions, demand for private capital to support investments in assets and companies that will help meet these goals has also increased," Bacon said. "Opportunities have also arisen in the natural resources sector involving alternative fuels, metals and minerals for batteries and electric chargers, and other sustainable inputs and activities." Bacon added that Meketa and its clients want to be investing in the areas "where economic activity is increasing and where growth potential supports attractive risk-adjusted returns."

### Impact of higher rates top of mind for institutions

By Palash Ghosh | 11.20.23

Read full article here

Aside from rising interest rates, noted Frank Benham, director of research at Meketa, his firm's clients are also concerned about the potential for an economic hard landing, as well as both political and economic risks in China.

Regarding China, Amy Hsiang, director of public markets manager research at Meketa, said clients are interested in learning more about emerging markets. "Whether or not translates to actually increasing allocations to emerging markets, only time will tell," Hsiang said. "We have not seen clients actively avoid China."

"Clients are increasing exposure to select alternatives like private credit and private equity. This needs to be balanced with an understanding of each clients' liquidity needs to ensure the portfolio can deliver on all commitments through a market cycle." John A. Haggerty, director of private market investments at Meketa, noted that in times of uncertainty and market volatility, the issue of placing value on alternative assets naturally receives more scrutiny. "Private market performance lags public market performance in both up markets and down markets," he said. "So, the gaps have been greater in recent years with the stock market swings, negative in 2022 and positive for much of 2023."

FUNDfire

### Corporate Pensions at 'Inflection Point' as Funded Statuses Improve

By Bridget Hickey 11.28.23

Read full article here

Corporate pension sponsors are at an "inflection point" when it comes to deciding about the future of their plans, said Jonathan Camp, a managing principal at investment consultant Meketa.

Companies may choose to hedge their liabilities or transfer risk. Almost 90% of corporate pension respondents to a recent survey by MetLife said they were interested in completely divesting all their defined benefit plan liabilities.

However, the news earlier this month that International Business Machines, better known as IBM, is reopening its defined benefit pension as a cash balance plan has sparked a conversation within the industry about whether other companies will follow suit.

Companies that are over-funded may opt to follow in IBM's stead, Camp suggested. He added that one client, (un-named), re-opened its pension plan more than a year ago.

"The benefit of just keeping your frozen pension plan on your books is that it's very easy to open it back up in a different form in the future, versus if you terminate your plan," he said. "It will be interesting to see, if now that we have this first mover publicly, if other companies think to themselves, 'well, you know, I can do that too'."

# Disclaimer, Glossary, and Notes

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SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security).

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\%\ (\text{discount})}{5\ (\text{yrs. to maturity})} = \begin{array}{l}1\%\ \text{pro rata, plus}\\ 5.26\%\ (\text{current yield})\end{array} = 6.26\%\ (\text{yield to maturity})$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.