



# **PERSPECTIVES** THAT DRIVE ENTERPRISE SUCCESS



**PERIOD ENDING: JUNE 30, 2024**

Investment Performance Review for

**North Dakota State Investment Board Legacy Fund**

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VERUSINVESTMENTS.COM

SEATTLE 206.622.3700

CHICAGO 312.815.5228

PITTSBURGH 412.784.6678

LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

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Investment Landscape **TAB I**

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Legacy Fund **TAB II**

# 2<sup>nd</sup> quarter summary

## THE ECONOMY

- U.S. inflation (CPI) fell to 3.0% YoY in June, following two consecutive months of flat prices (0.0% in May and -0.1% in June). The report reflected a slowing in shelter costs, which have been a primary hurdle for inflation reaching the 2% Federal Reserve target. If the slowing of shelter prices persists, inflation could fall rather quickly. Core inflation (ex-Food & Energy) was 3.3% year-over-year in June.
- The U.S. labor market remains strong, but recently some cracks of weakness have appeared. Unemployment jumped unexpectedly to 4.1% in June—a level not seen since 2021. Jobless claims have also been rising. This negative data could prove to be a continuation of the trend towards a more balanced labor market, though it will be important to monitor conditions closely.

## EQUITY

- Emerging market equities outperformed during Q2, up +5.0%, despite significant ongoing underperformance of China. U.S. equities were close behind (S&P 500 +4.3%), setting a new all-time-high price level. In contrast, international developed equities were flat.
- Small cap and value style investing underperformed. Small cap lagged large cap by -6.9% while value underperformed growth by -10.5%. The style premia performance gap was even wider over the past year, as small cap underperformed large cap by -13.8% and value underperformed growth by -20.4%.

## FIXED INCOME

- The 10-year U.S. Treasury yield increased slightly from 4.20% to 4.36% during Q2, resulting in near-zero or negative performance for high quality fixed income of a longer duration profile.
- Default activity in loans and credit reached a one-year low at the end of Q2. However, the gap between bank loan and high yield default activity has increased to a 10-year high, with total volume of distressed or defaults comprised of loans (80%) to bonds (20%) on pace for a record high.

## ASSET ALLOCATION ISSUES

- Many goods and services prices have been falling in areas such as autos, energy, and transportation. This trend has occurred alongside signs of weakness in the job market and consumer spending, and has reignited hopes for lower inflation, which would ease pressures on household budgets and allow for interest rate cuts. It is possible that an economic *soft landing* may be occurring, which would suggest lower rates and further gains for risk assets.
- Market-priced volatility (Cboe VIX Index) remained very low, ending at 12.4% in June. This has raised eyebrows, given a variety of risks that domestic equities face, but low volatility is typical of strongly up trending equity environments. Markets continue to present a unique environment of low equity volatility but high fixed income volatility. This gap has closed somewhat, as bond market implied volatility has receded.

Risk assets delivered moderate returns in Q2, while fixed income was flat to mildly positive, depending on duration profile.

*A soft landing appears possible for the U.S. economy.*

# What drove the market in Q2?

**"The US Economy is showing clear signs of a slowdown"**

## Employment change, Non-farm payrolls

| January | February | March | April | May  | June |
|---------|----------|-------|-------|------|------|
| 256k    | 236k     | 240k  | 108k  | 218k | 206k |

Article Source: Bloomberg, July 8<sup>th</sup>, 2024

**"Earnings bolster US stocks, but crucial inflation report looms"**

## S&P 500 EPS Growth, Year-over-year

| Q4 2022 | Q1 2023 | Q2 2023 | Q3 2023 | Q4 2023 | Q1 2024 |
|---------|---------|---------|---------|---------|---------|
| +4.3%   | -1.5%   | -2.0%   | -5.0%   | +4.1%   | +6.9%   |

Article Source: Reuters, May 14<sup>th</sup>, 2024

**"Slowing U.S. inflation fuels expectations of interest rate cuts"**

## Consumer Price Index, Year-over-year change

| Jan 23 | Feb 24 | March 24 | April 24 | May 24 | June 24 |
|--------|--------|----------|----------|--------|---------|
| 3.1%   | 3.2%   | 3.5%     | 3.4%     | 3.3%   | 3.0%    |

Article Source: Wall Street Journal, June 28<sup>th</sup>, 2024

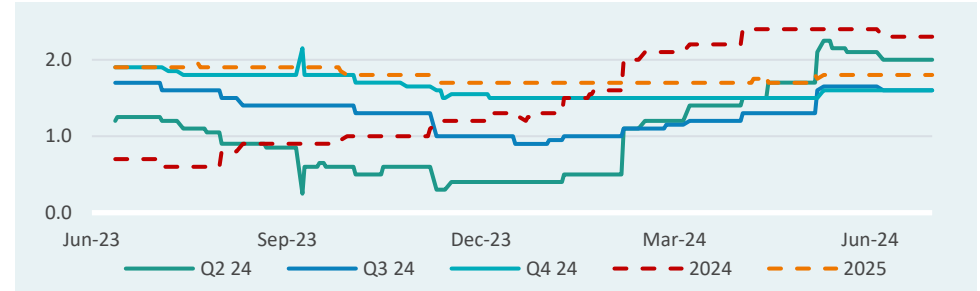
**"European Central Bank cuts interest rates for first time in 5 years"**

## ECB Overnight Rate, Actual and Implied

| March 24 | June 24 | Sep 24 (E) | Dec 24 (E) | March 25 (E) | June 25 (E) |
|----------|---------|------------|------------|--------------|-------------|
| 4.0%     | 3.75%   | 3.45%      | 3.20%      | 2.98%        | 2.75%       |

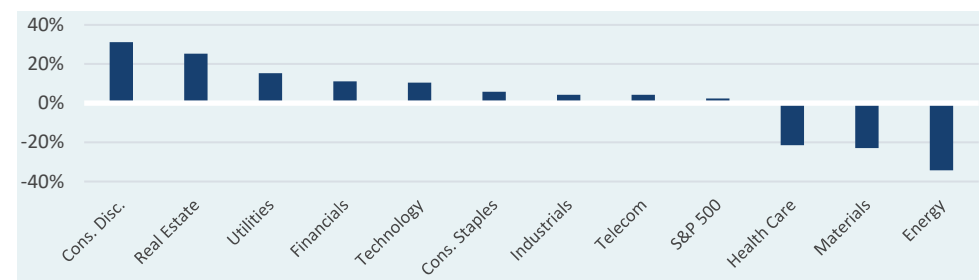
Article Source: Financial Times, June 6<sup>th</sup>, 2024

## US GDP GROWTH PROJECTIONS (%)



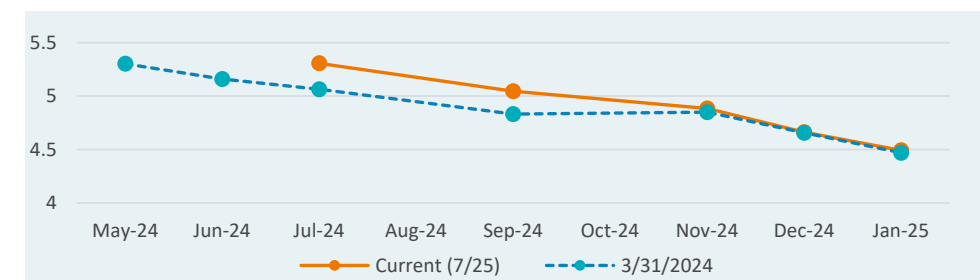
Source: Bloomberg, as of 6/30/24

## S&P 500 TRAILING 12M EARNINGS GROWTH, YOY



Source: Bloomberg, as of 6/30/24

## U.S. MARKET IMPLIED FUTURE INTEREST RATES (%)



Source: Bloomberg, as of 7/25/24

# U.S. economics summary

- Real GDP growth was substantially higher than expected in Q2, rising 2.8% quarter-over-quarter (3.1% year-over-year), beating economist forecasts of a 2.0% increase on the quarter. The GDP release reflected an increase in consumer spending, as well as increased investment in inventories and capital goods. Residential fixed investment detracted from GDP growth, as did the trade deficit.
- U.S. inflation (CPI) fell to 3.0% YoY in June, following two consecutive months of flat prices (0.0% in May and -0.1% in June). The report reflected a slowing in shelter costs, which have been a primary hurdle for inflation reaching the 2% Federal Reserve target. If a slowing of shelter prices persists, inflation could fall rather quickly. Core inflation (e.g., Food & Energy) was 3.3% year-over-year in June.
- Inflation adjusted personal spending growth was 2.6% year-over-year in June, remaining in a 2-3% range for the past two years and suggesting more

moderate economic expansion in line with pre-pandemic conditions. Purchases of goods have been weaker than services, perhaps partly a reflection of higher interest rates, which impact the affordability of big-ticket items such as autos and homes.

- The U.S. labor market remains strong, but in recent months some cracks of weakness have appeared. Unemployment jumped unexpectedly to 4.1% in June—a level not seen since 2021. Jobless claims have also been rising. This negative data could prove to be a continuation of the trend towards a more balanced labor market.
- Consumer sentiment deteriorated in Q2, moving back towards the lows of 2022. The University of Michigan Consumer Sentiment survey dropped from 79.4 to 66.4 on concerns over high goods and services prices and the impacts of inflation on personal income. Household expectations for lower interest rates in the future helped to buoy the index somewhat.

|   | Most Recent           | 12 Months Prior       |
|---|-----------------------|-----------------------|
| Real GDP (YoY)                          | 3.1%<br>6/30/24       | 2.4%<br>6/30/23       |
| Inflation<br>(CPI YoY, Core)            | 3.3%<br>6/30/24       | 3.1%<br>6/30/23       |
| Expected Inflation<br>(5yr-5yr forward) | 2.3%<br>6/30/24       | 2.3%<br>6/30/23       |
| Fed Funds Target Range                  | 5.25–5.50%<br>6/30/24 | 5.00–5.25%<br>6/30/23 |
| 10-Year Rate                            | 4.20%<br>6/30/24      | 3.80%<br>6/30/23      |
| U-3<br>Unemployment                     | 4.1%<br>6/30/24       | 3.6%<br>6/30/23       |
| U-6<br>Unemployment                     | 7.4%<br>6/30/24       | 6.9%<br>6/30/23       |

# Inflation

U.S. inflation (CPI) fell to 3.0% year-over-year in June, following two consecutive months of flat prices (0.0% in May and -0.1% in June). The June report was the first which reflected slower shelter cost increases, which have been a large hurdle for inflation falling to the Fed's 2% target. If this slowing in shelter prices persists, inflation could fall much more quickly to the Fed's 2% target. Core inflation (ex-Food & Energy) dropped to 3.3% year-over-year in June. Many goods and services prices have been *falling* in recent months in areas such as automobiles, energy, and transportation services. This trend has occurred alongside

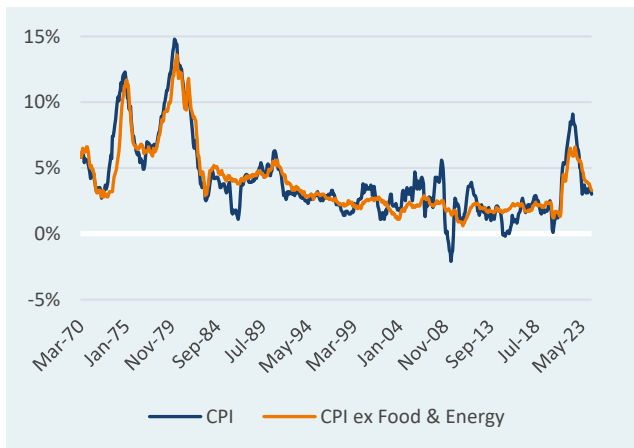
signs of weakness in the job market and other areas of the economy, and has reignited hopes for inflation to normalize, easing pressures on household budgets and allowing for interest rate cuts.

Investors have been watching monthly inflation reports very closely for potential signs of the future inflation path. If monthly inflation reports come in at a 0.2% to 0.3%, we can expect inflation to remain around today's level. However, if additional inflation reports come in at 0.1% or lower, inflation would fall rather quickly to 2%.

Inflation has fluctuated between 3-3.5% over the past year.

Shelter will likely need to slow further for inflation to reach 2%.

U.S. CPI (YOY)



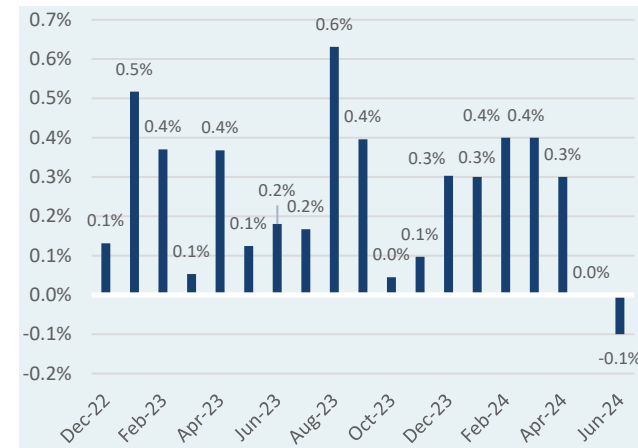
Source: BLS, as of 6/30/24

POTENTIAL INFLATION PATHS



Source: FRED, Verus, of 6/30/24

MONTHLY PRICE MOVEMENT (CPI)



Source: BLS, as of 6/30/24

# Housing

Imbalances in the U.S. housing market appear to be here to stay, at least for a while, as sharply lower home prices and/or lower mortgage rates (the conditions needed for reasonable affordability) seem unlikely. Affordability is extremely difficult for new homebuyers, currently near record lows, and has worsened as the average home price was up +5.8% year-over-year in May. The other saving grace for potential homebuyers would be lower mortgage rates, but Federal Reserve rate cuts are expected to be moderate and may not have a large impact on the longer end of the yield curve. A driver of ultra-low mortgage rates during the pandemic was government quantitative easing, much of which was focused on mortgage debt and therefore pushed mortgage interest rate spreads to unusually low levels. In short, mortgage rates may fall in the next few years but perhaps only mildly.

Fortunately, rent price growth has slowed considerably, up only 0.8% year-over-year in May, according to Redfin. As the cost of renting versus owning has dramatically shifted, a strong surge in activity towards renting and away from homeownership would not be surprising in the near future.

Depressed home sales activity reflects extreme unaffordability. Monthly home sales are at levels similar to that which followed the 2008-2009 housing bubble. Prior to that crisis, the mid-1990s were the most recent time that compares to this level of sales activity. On the other hand, *new home sales* activity has been fairly robust, which may provide some incremental easing to home prices through increased supply.

30-YEAR MORTGAGE RATE (%)



Source: Freddie Mac, as of 6/30/24

EXISTING HOME SALES



Source: FRED, as of 6/30/24

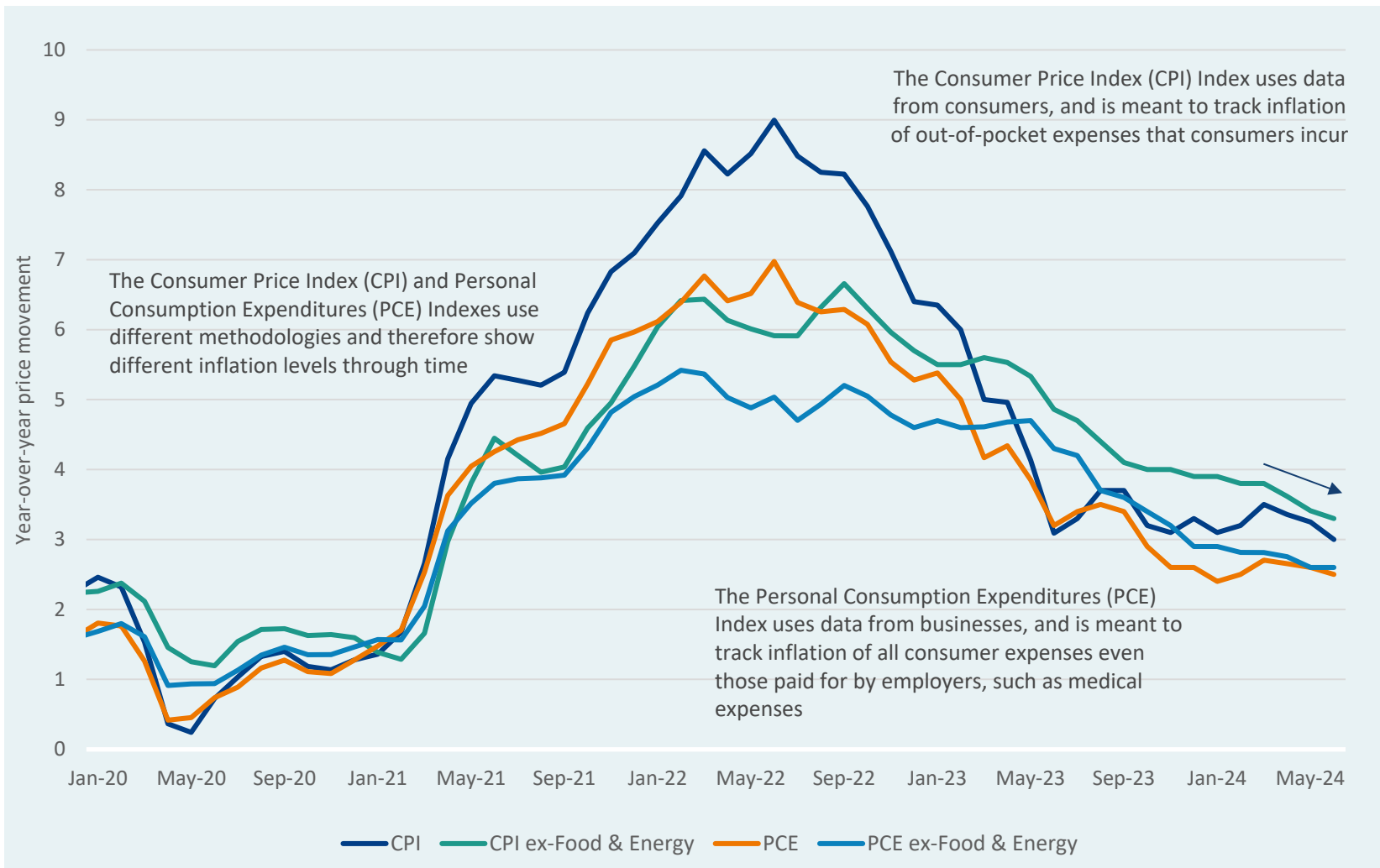
HOUSING AFFORDABILITY



Source: FRED, as of 3/31/24 – Housing affordability is calculated as the cost of a median priced single-family home at the current mortgage rate, as a percentage of the median family income



# Inflation conditions are normalizing



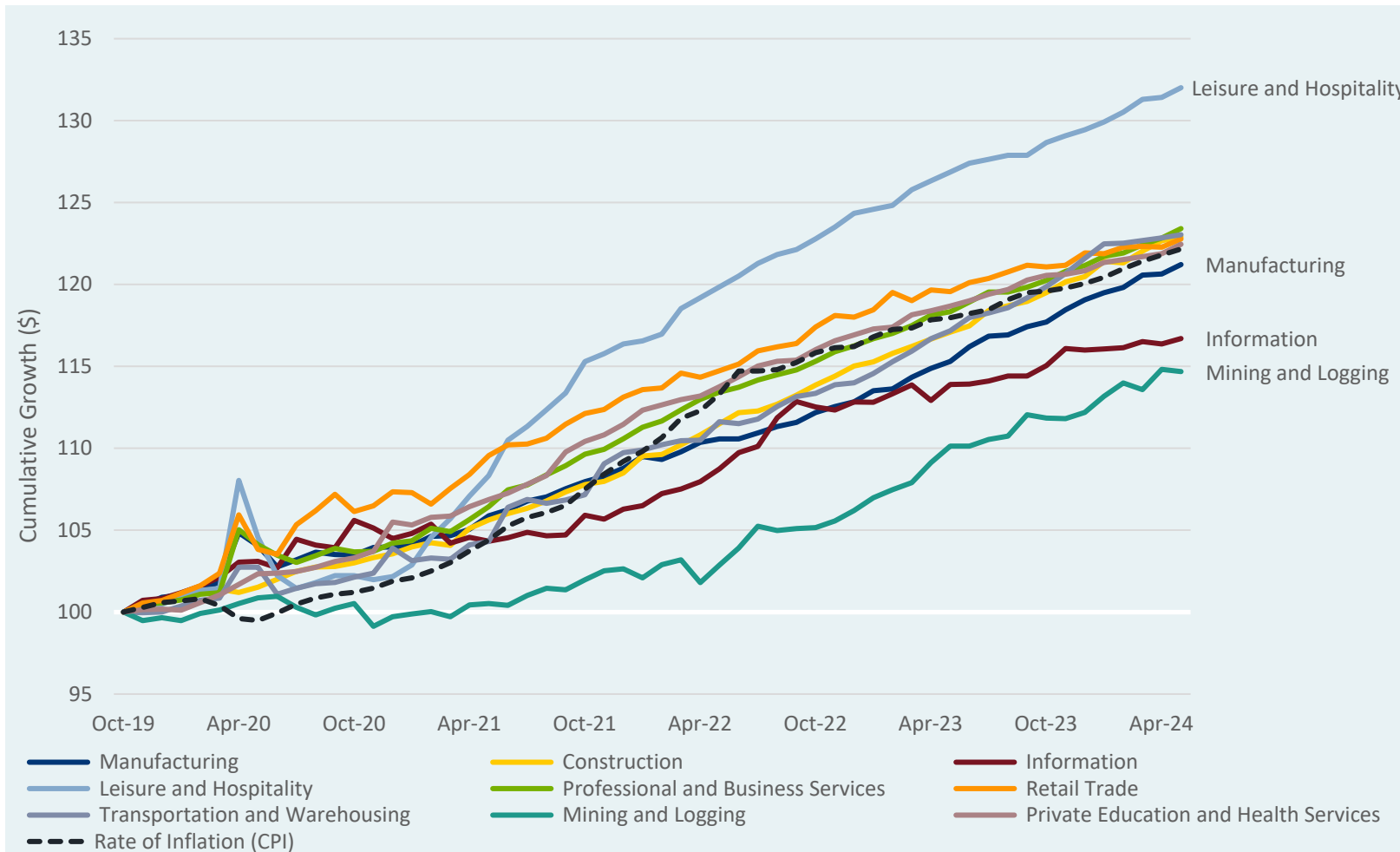
Moderating price pressures in recent months have helped to push year-over-year CPI inflation to 3.0%.

Source: FRED, Verus, as of 6/30/24



# Wage gains vs. rate of inflation

AVERAGE HOURLY EARNINGS



Over the past few years, inflation has eaten into wallets and resulted in shrinking pay for many types of work.

If inflation were to move higher, many households do not have much room to maneuver financially.

Source: FRED, Verus, as of 6/30/24

# GDP growth

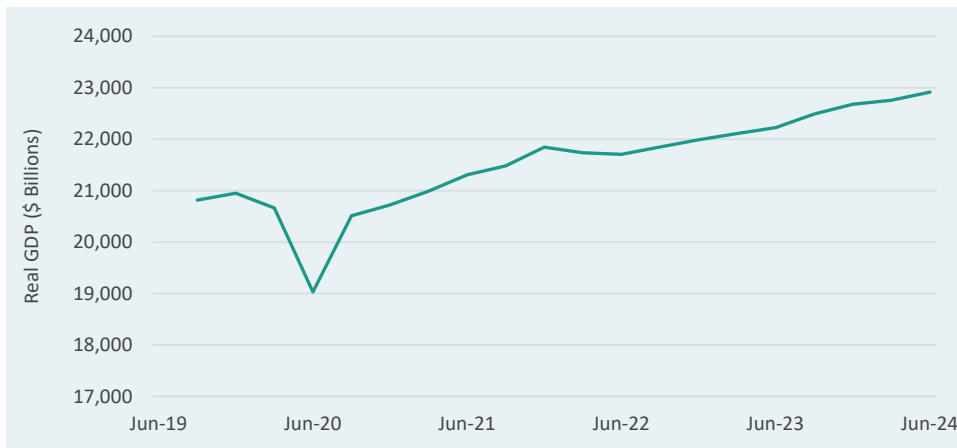
Real GDP growth was substantially higher than expected in Q2, rising 2.8% quarter-over-quarter (3.1% year-over-year), beating economist forecasts of a 2.0% increase on the quarter. The GDP release reflected an increase in consumer spending, as well as increased investment in inventories and capital goods. Residential fixed investment detracted from GDP growth, as did the trade deficit.

While consumption increased this quarter, economists are wary of the sustainability of consumer spending growth. Much of the increase in spending was concentrated in necessities, and with a cooling labor market and low savings rate, consumer spending could slow if these issues persist.

Recent economic data seems to reaffirm the idea that the U.S. economy is moving towards a more moderate growth phase after many quarters of surprisingly hot growth and spending. Unlike past periods of economic weakening, many trends today could reasonably be summarized as a *return to normalcy*. For example, following the pandemic, the domestic labor market was experiencing a historic mismatch between the number of jobs available and the number of workers available. Resolving that mismatch required a material weakening in the labor market from *extreme tightness* to *relatively strong*, but not a move (yet) towards anything that suggests recession.

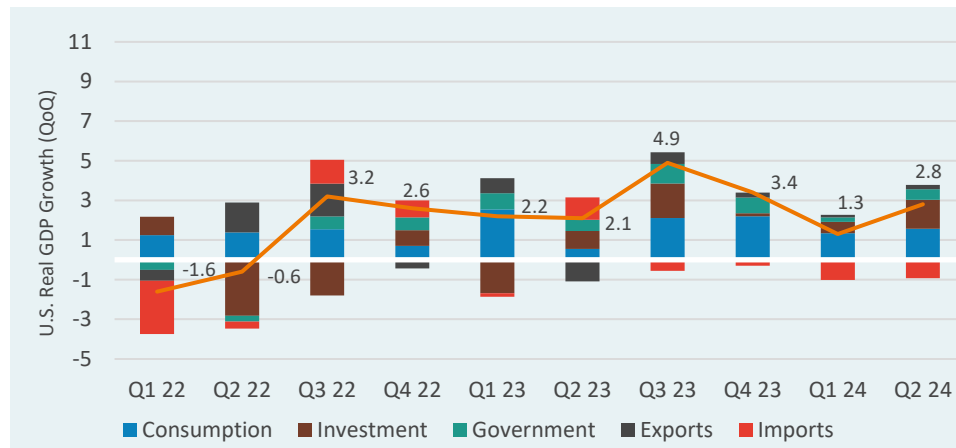
U.S. growth picked up in Q2, but concerns remain regarding the strength of the consumer.

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 6/30/24

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 6/30/24

# The consumer

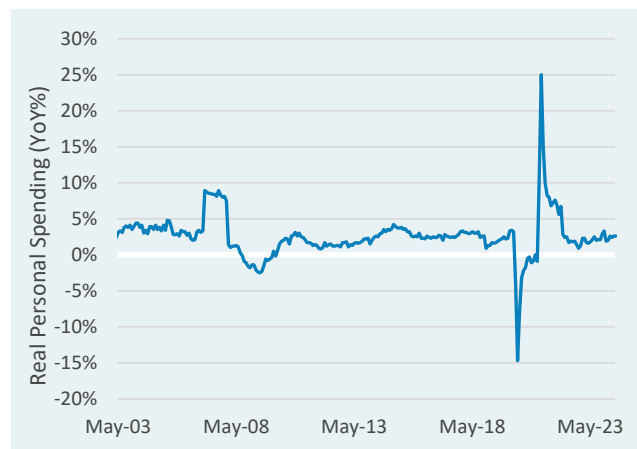
Inflation adjusted personal spending growth was 2.6% year-over-year in June, and has remained in a 2-3% range for the past two years. This rate indicates moderate economic expansion in line with pre-pandemic rates of growth. Purchases of goods have been much weaker than purchases of services, perhaps partly a reflection of higher interest rates which have impacted the affordability of big ticket items such as automobiles and homes.

Many Americans continue to spend rather freely despite higher costs of goods and services taking up a greater portion of take-home income,

and extreme discontent around inflation. However, certain non-essential spending such as for vacations has been robust. Total traveler volumes at U.S. airports in late June reached a record level.

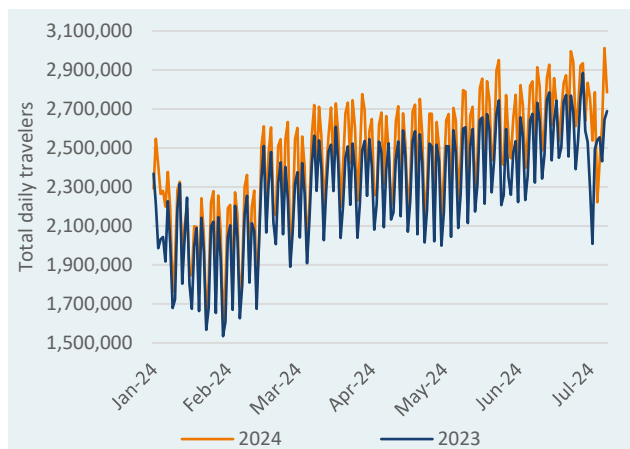
Personal savings rates improved slightly over the quarter, from 3.5% to 3.9%. It seems reasonable to assume that savings rates should improve if wage gains continue to outpace the rate of inflation, all else equal.

**REAL PERSONAL SPENDING**



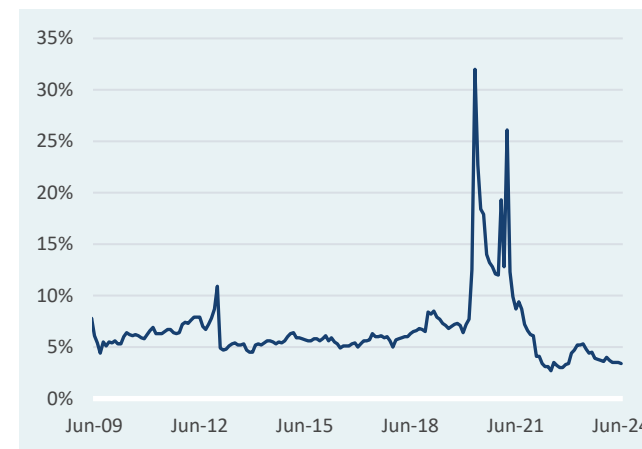
Source: FRED, as of 6/30/24

**U.S. TSA AIRPORT ACTIVITY**



Source: FRED, as of 7/8/24

**PERSONAL SAVINGS RATE**



Source: FRED, as of 6/30/24

# Labor market

The U.S. labor market remains strong relative to history, but in recent months some cracks of weakness have appeared. The rate of unemployment jumped unexpectedly to 4.1% in June—a level not seen since 2021. Jobless claims have also been rising throughout the year. This negative data could prove to be a continuation of the trend towards a more balanced labor market, though it will be important to monitor conditions closely.

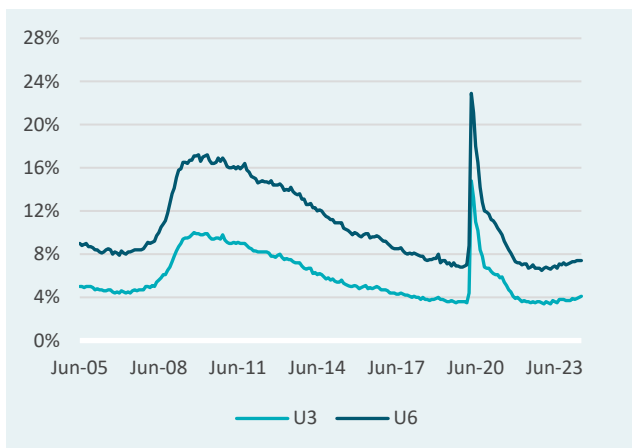
Average hourly earnings growth was 3.9% year-over-year in June, slightly outpacing the rate of inflation. As inflation has fallen, wage growth has also slowed, likely a reflection of a

more normal balance between jobs available and workers available, as well as less urgency for cost-of-living adjustments.

In many past instances of increasing unemployment, job losses were quick and accelerating, which often preceded recession. In contrast, more recently the rate of unemployment has more gradually moved up. Recessions have rarely occurred without a sharper downtrend in employment, which given current conditions might suggest we are seeing a moderation of economic growth rather than a move towards something worse.

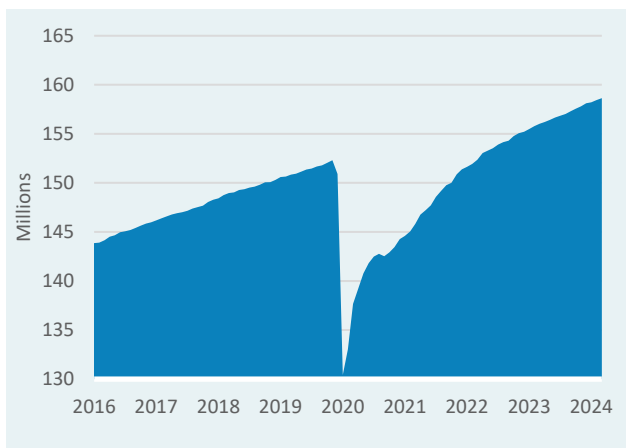
The labor market remains strong by historical standards, though conditions have moved in a weaker direction.

U.S. UNEMPLOYMENT



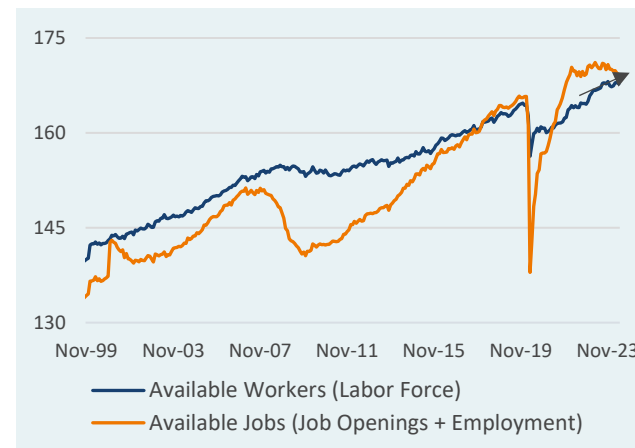
Source: FRED, as of 6/30/24

TOTAL U.S. EMPLOYMENT



Source: FRED, as of 6/30/24

WORKERS AVAILABLE VS. AVAILABLE JOBS



Source: BLS, Verus, as of 5/31/24

# International economics summary

- Global economic data continues to paint a picture of slower but positive growth—a move back to pre-pandemic rates of expansion in the United States and across emerging markets, but with concerning weakness in Europe and Japan. Moderating conditions have allowed for rate cut signaling from central banks, which will likely provide an incremental boost to activity in the near-term.
- Inflation has fallen to a 2-3% range for most developed countries. Big inflation trends have tended historically to rhyme across the developed world, as crises often impact prices of global goods and services in similar ways. Recently, pandemic effects such as global supply chain issues, government stimulus, and higher energy prices had resulted in a similar ebb and flow to prices across marketplaces.
- India's economy continues to face uncertainty for this upcoming quarter.

In the last five out of six years, India's real GDP growth rate has fallen short of the Economic Survey projections, but they have seen growth in private investments and infrastructure spending. Annual retail inflation rose to 5.1% in June compared to 4.8% from the previous month, primarily due to food prices. The Reserve Bank of India paused rate hikes, with the goal of not obstructing growth, and bringing inflation to its target rate of 4%.

- China year-over-year inflation was just 0.2% in June, as the country struggles with deflationary pressures, given a real estate slump, a weak job market, and generally poor economic conditions. According to some reports, excess manufacturing capacity and government incentives for overinvestment have created a situation where supply is outstripping demand. A declining population significantly adds to uncertainty around these issues.

| Area          | GDP<br>(Real, YoY) | Inflation<br>(CPI,<br>YoY) | Unemployment     |
|---------------|--------------------|----------------------------|------------------|
| United States | 3.1%<br>6/30/24    | 3.0%<br>6/30/24            | 4.1%<br>6/30/24  |
| Eurozone      | 0.4%<br>3/31/24    | 2.5%<br>6/30/24            | 6.4%<br>5/31/24  |
| Japan         | (0.7%)<br>3/31/24  | 2.3%<br>6/30/24            | 2.8%<br>5/31/24  |
| BRICS Nations | 5.3%<br>3/31/24    | 1.9%<br>6/30/24            | 4.8%<br>12/31/22 |
| Brazil        | 2.5%<br>3/31/24    | 4.2%<br>6/30/24            | 7.1%<br>5/31/24  |
| Russia        | 5.4%<br>3/31/24    | 8.6%<br>6/30/24            | 2.6%<br>5/31/24  |
| India         | 7.8%<br>3/31/24    | 5.1%<br>6/30/24            | 9.2%<br>6/30/24  |
| China         | 4.7%<br>6/30/24    | 0.2%<br>6/30/24            | 5.0%<br>6/30/24  |

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

# Equity environment

- Emerging market equities outperformed during Q2, up +5.0% (MSCI Emerging Markets), despite ongoing poor returns from China. U.S. equities were close behind (S&P 500 +4.3%), setting a new all-time-high price level. In contrast, international developed equities were relatively rangebound (MSCI EAFE -0.4%).
- Blended S&P 500 year-over-year Q2 earnings growth was +9.3% as of July 12th. If total reported earnings growth ends at this +9.3% rate, it would mark the largest year-over-year earnings growth rate since Q1 of 2022.
- The U.S. dollar rose moderately in value during Q2, resulting in losses for U.S. investors with unhedged foreign currency exposure. Given that the Federal Reserve is expected to engage in similar rate cuts as other developed economies, it is unclear the extent to which the global rate cutting path will impact relative currency valuations. Unexpected central bank actions will likely have the greatest directional impact in the future.
- Small cap and value style investing drastically underperformed during Q1. Small cap lagged large cap by -6.9% (Russell 2000 -3.3% vs. Russell 1000 +3.6%), while value underperformed growth by -10.5% (Russell 1000 Value -2.2% vs. Russell 1000 Growth +8.3%). The style premia performance gap was even wider over the last year, as small cap underperformed large cap by -13.8% and value underperformed growth by -20.4%.
- Markets continue to present a unique environment of low equity volatility but high fixed income volatility. This gap has closed somewhat, as bond market implied volatility has moved a bit back towards normal levels since reaching a nearly all-time high 2023.

|  | QTD TOTAL RETURN |          | 1 YEAR TOTAL RETURN |          |
|--|------------------|----------|---------------------|----------|
|  | (unhedged)       | (hedged) | (unhedged)          | (hedged) |
| U.S. Large Cap (S&P 500)                 | 4.3%             |          | 24.6%               |          |
| U.S. Small Cap (Russell 2000)            | (3.3%)           |          | 10.1%               |          |
| U.S. Equity (Russell 3000)               | 3.2%             |          | 23.1%               |          |
| U.S. Large Value (Russell 1000 Value)    | (2.2%)           |          | 13.1%               |          |
| US Large Growth (Russell 1000 Growth)    | 8.3%             |          | 33.5%               |          |
| Global Equity (MSCI ACWI)                | 2.9%             | 3.5%     | 19.4%               | 21.6%    |
| International Large (MSCI EAFE)          | (0.4%)           | 1.7%     | 11.5%               | 18.5%    |
| Eurozone (EURO STOXX 50)                 | (2.8%)           | (1.7%)   | 12.0%               | 16.3%    |
| U.K. (FTSE 100)                          | 3.8%             | 3.8%     | 12.1%               | 13.2%    |
| Japan (TOPIX)                            | (4.3%)           | 3.0%     | 12.7%               | 32.5%    |
| Emerging Markets (MSCI Emerging Markets) | 5.0%             | 6.3%     | 12.5%               | 15.8%    |

Source: Russell Investments, MSCI, STOXX, FTSE, JPX, as of 6/30/24

# Domestic equity size & style

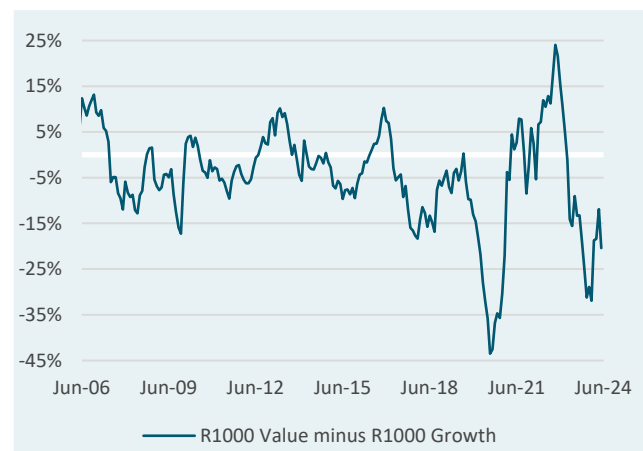
Small cap and value style investing drastically underperformed during Q1. Small cap lagged large cap by -6.9% (Russell 2000 -3.3% vs. Russell 1000 +3.6%), while value underperformed growth by -10.5% (Russell 1000 Value -2.2% vs. Russell 1000 Growth +8.3%). The style premia performance gap was even wider over the last year, as small cap underperformed large cap by -13.8% and value underperformed growth by -20.4%.

Much of the difference in style performance is driven by sector differences. Growth has a much greater exposure to mega cap technology companies, which continued to overshadow all other sectors in the second quarter. Nvidia extended its historic run, while Apple and Tesla bounced back from a poor first quarter. Technology and Communication companies led earnings

growth and this is expected to persist going forward. Per Factset, Communication Services and Technology companies within the S&P 500 are expected to provide earnings growth of 21% and 18.7%, respectively, leading all other sectors. This has translated into volatility between sectors, where Technology (+13.8%) and Communications (+9.4%) led the S&P 500 in Q2, while six out of eleven sectors declined in value over the quarter.

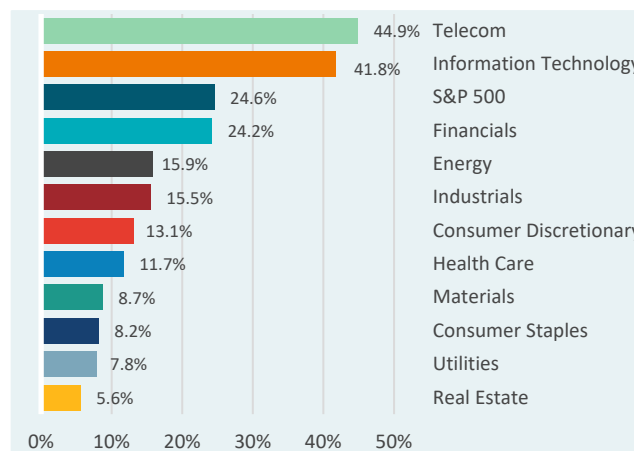
Unusually large disparities in style performance has been apparent, driven by sector trends and mega cap stock dominance. Market behavior continues to support our stance that short-term factor timing decisions should in most circumstances be pursued only in the rare occasion of obvious market mispricing and with a clear catalyst for price correction.

VALUE VS. GROWTH 1-YR ROLLING



Source: FTSE, Bloomberg, as of 6/30/24

S&P 500 SECTOR RETURNS (1 YEAR ROLLING)



Source: FTSE, Bloomberg, as of 6/30/24

1-YEAR SIZE & STYLE PERFORMANCE

|           | Value | Core  | Growth |
|-----------|-------|-------|--------|
| Large Cap | 13.1% | 23.9% | 33.5%  |
| Mid Cap   | 12.0% | 12.9% | 15.1%  |
| Small Cap | 10.9% | 10.1% | 9.1%   |

Source: FTSE, Bloomberg, as of 6/30/24



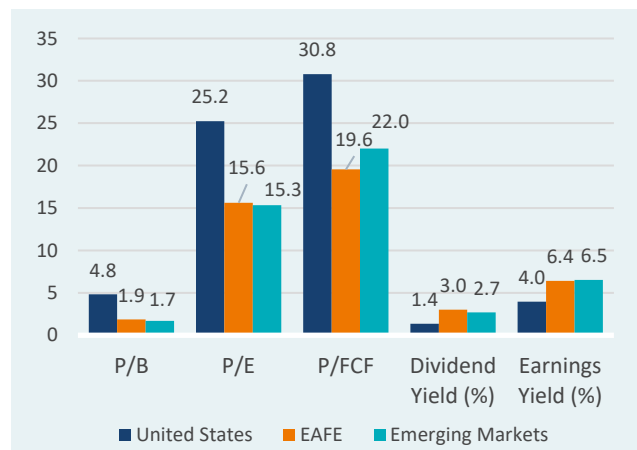
# Equity valuations

Valuations moved higher in Q2 across each market. The S&P 500 traded at a Forward P/E of 21.4 at the end of June and a Trailing P/E of 25.2. High valuations have pushed the U.S. dividend yield to a nearly all-time historic low of 1.4%.

Lofty prices, along with a much more attractive environment for fixed income, suggest to us that the next decade may look much different than the past decade of unusually strong U.S. equity performance. The past decade was made possible by a very low equity valuation starting point, the impressive rise of mega cap tech / social media / online

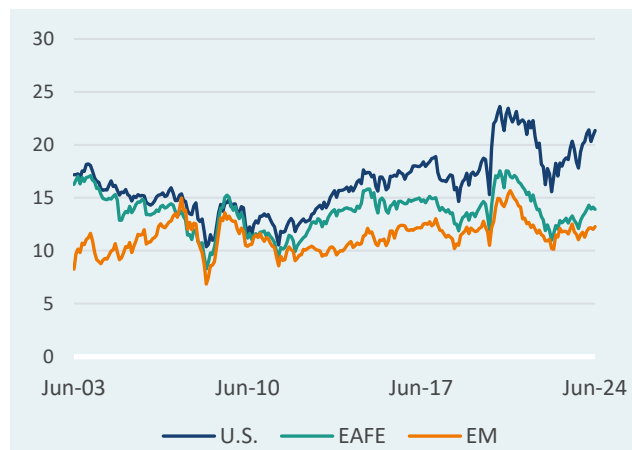
retailing businesses, extreme government stimulus pumped into the system, corporate tax cuts, and financial engineering following ultra low interest rates which contributed to a very large gain in corporate profit margins. Now, looking at the next 10 years, we are starting with high valuations, already high corporate profit margins, large debt burdens across many segments of the economy, and arguably a lower chance of future debt-driven stimulus. Fixed income may be very competitive with equity in terms of yields and prospective return over the next ten years. We believe this change in regime is noteworthy and may reasonably act as a theme for institutional asset allocation.

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 6/30/24 – Trailing P/E

FORWARD PRICE/EARNINGS RATIO



Source: MSCI, Bloomberg, as of 6/30/24

S&P 500 HISTORICAL DIVIDEND YIELD



Source: S&P, Bloomberg, as of 6/30/24

# U.S. valuations & expected earnings



If projected earnings growth rates hold over the next two years, and the market increases in price at a more moderate rate, then valuations will come down toward historical averages.

Source: Bloomberg, Verus, as of 7/19/24 – here we assume that both: a) the S&P 500 delivers earnings growth over the next two years in line with current estimates (11% in 2024 and 14.7% in 2025), and b) The S&P 500 delivers a total return in those years equivalent to the Verus 2024 CMA return estimate. If both of things occur, the S&P 500 Price/Earnings ratio will move back towards the historical average.

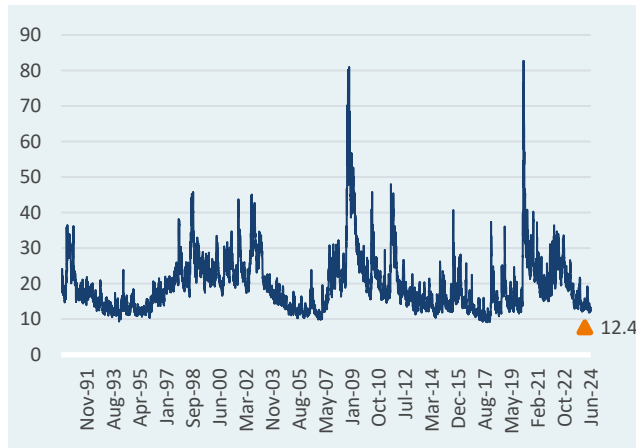
# Market volatility

Market-priced volatility (Cboe VIX Index) remained very low during the second quarter, ending at 12.4% in June. This has reasonably raised eyebrows, given a variety of risks that domestic equities face, but low volatility is typical of strongly up trending equity environments.

Recent realized one-year volatility has also been fairly mild across global markets, relative to history. Domestic, international developed, and emerging market equities have all delivered between 14.6% and 15.8% volatility during that time, with emerging markets marking the upper end of the range.

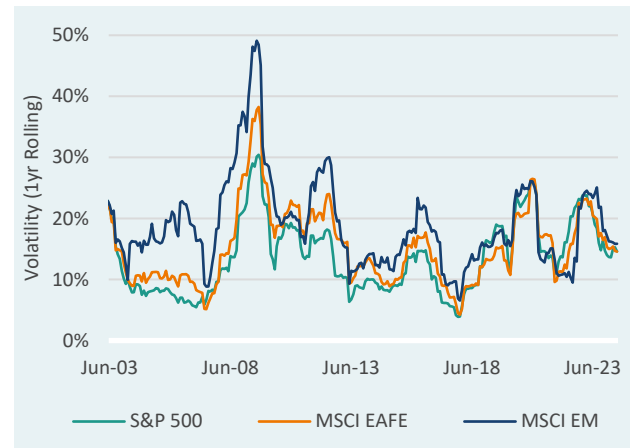
This asset allocation environment is unique in terms of low equity volatility but high fixed income volatility. This gap has closed somewhat, as bond market implied volatility has moved a bit back towards normal levels since reaching a nearly all time high in 2023. Bond characteristics are captured by the “MOVE” Index—which calculates the implied volatility of U.S. Treasury securities. As further clarity is gained around the path of the Federal Reserve, we would expect that bond volatility will further moderate.

U.S. IMPLIED VOLATILITY (VIX)



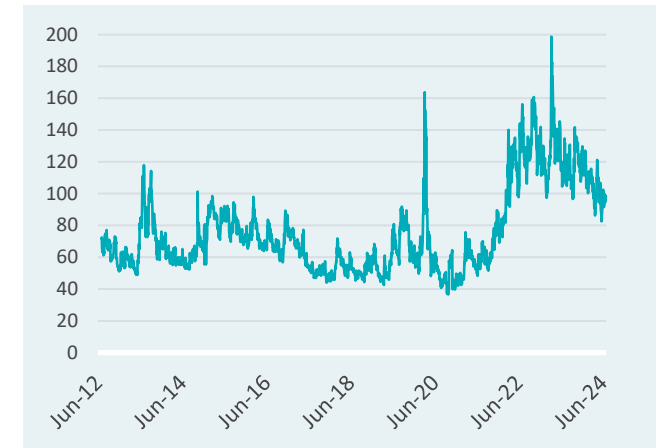
Source: Cboe, as of 6/30/24

REALIZED VOLATILITY



Source: S&P, MSCI, as of 6/30/24

U.S. TREASURY IMPLIED VOL (“MOVE” INDEX)



Source: Bloomberg, as of 6/30/24

# Fixed income environment

- The 10-year U.S. Treasury yield initially increased in Q2, rising from 4.20% to a peak of 4.70% before gradually falling to 4.36%, resulting in an overall increase in yields with a downward trend going into Q3. These movements resulted in near-zero performance for short to intermediate duration high quality fixed income and negative performance for longer duration.
- By comparison, most credit indices saw positive returns. High yield gained +1.1% (Bbg U.S. Corporate High Yield), while bank loans rose +1.9% (S&P/LSTA Leveraged Loan). Longer duration investment grade corporate bonds declined by -1.6% (Bloomberg U.S. Long Corporate Credit) as sensitivity to rising yields in April overwhelmed gradual returns in the latter half of the quarter. This reflects a continued concern in the market over inflation and higher-for-longer Fed policy.
- The U.S. yield curve, indicated by the 10-year minus the 2-year Treasury

yield, continues to remain inverted, marking over two years of continuous yield curve inversion (June 6th, 2022). The curve ended the quarter inverted by -35bps. While an inverted yield curve has been a common metric for predicting recessions, the recent continued economic resilience has increased public optimism of a potential soft-landing.

- Default activity in loans and credit reached a one-year low at the end of Q2. However, the gap between bank loan and high yield default activity has increased to a 10-year high, with total volume of distressed or defaults comprised of loans (80%) to bonds (20%) is on pace to be a record high proportion. During the period, a total of \$15.2 billion of bank loan and high yield bonds were impacted by default or distressed exchanges, down from \$20.6 billion in the prior quarter. Notably, default/distressed exchange volume averaged \$17.9 billion quarterly since 2020 and \$14 billion quarterly over the last 17.5 years.

|   | QTD<br>Total Return | 1 Year<br>Total Return |
|---|---------------------|------------------------|
| Core Fixed Income<br>(Bloomberg U.S. Aggregate)               | 0.1%                | 2.6%                   |
| Core Plus Fixed Income<br>(Bloomberg U.S. Universal)          | 0.2%                | 3.5%                   |
| U.S. Treasuries<br>(Bloomberg U.S. Treasury)                  | 0.1%                | 1.5%                   |
| U.S. Treasuries: Long<br>(Bloomberg U.S. Treasury 20+)        | (2.2%)              | (7.2%)                 |
| U.S. High Yield<br>(Bloomberg U.S. Corporate HY)              | 1.1%                | 10.4%                  |
| Bank Loans<br>(S&P/LSTA Leveraged Loan)                       | 1.9%                | 11.1%                  |
| Emerging Market Debt Local<br>(JPM GBI-EM Global Diversified) | -1.6%               | 0.7%                   |
| Emerging Market Debt Hard<br>(JPM EMBI Global Diversified)    | 0.3%                | 9.2%                   |
| Mortgage-Backed Securities<br>(Bloomberg MBS)                 | 0.1%                | 2.1%                   |

Source: Bloomberg, as of 6/30/24

# Credit environment

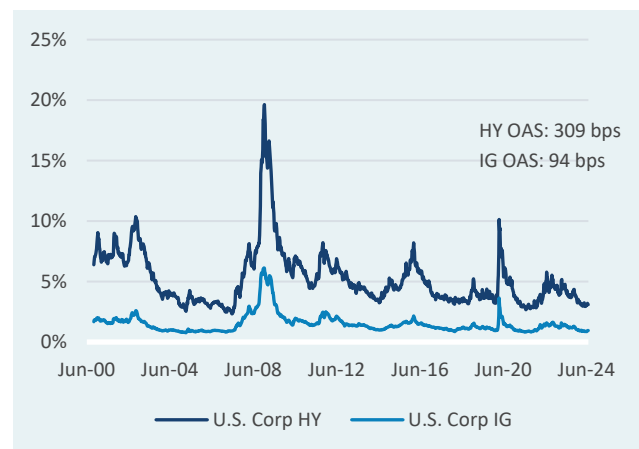
During the second quarter, credit markets delivered mostly positive returns with lower-quality credit such as high yield bonds and bank loans leading. Bank loans rose +1.9% (CS Leveraged Loans), while high yield bonds increased by +1.1% (Bbg U.S. Corporate High Yield). Longer duration investment grade corporate bonds (Bloomberg U.S. Long Corporate Credit) fell by -1.6% as concerns over rising interest rates and higher expected inflation acted as a headwind to performance.

Returns across credit ratings were broadly positive during Q2. Higher-quality BB-rated bonds returned +1.4% compared to +1.1% for B-rated, while non-distressed CCC's led with +2.0% returns. CCC-rated bonds including distressed lagged other credits with +0.2% returns. Higher-quality bank loans outperformed lower quality, with BB- and B- rated

loans returning +1.88% and +2.13%, while CCC-rated loans only returned +0.14%.

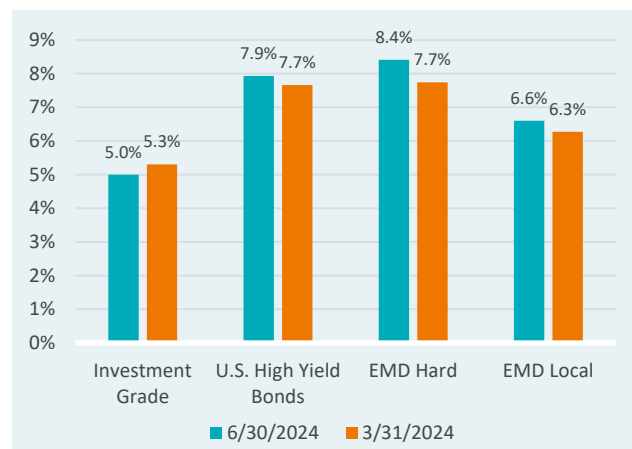
High quality credit spreads declined during the quarter while high yield spreads were mixed as recession concerns contended with further resilience in the corporate sector. Lower-quality high yield bond spreads rose by roughly 0.1% to 3.2%, while investment grade spreads continued to tighten by 0.3% to 0.9%. These trends continue to show spreads below long-term historical averages, suggesting that investors remain confident in the ability of most businesses to service debt. However, widening spreads and lower returns in CCC and distressed suggest that the highest risk credit sectors are beginning to show strain under the continued pressure of higher lending rates.

## SPREADS



Source: Barclays, Bloomberg, as of 6/30/24

## YIELD TO MATURITY



Source: Bloomberg, J.P. Morgan as of 6/30/24

## CREDIT SPREAD (OAS)

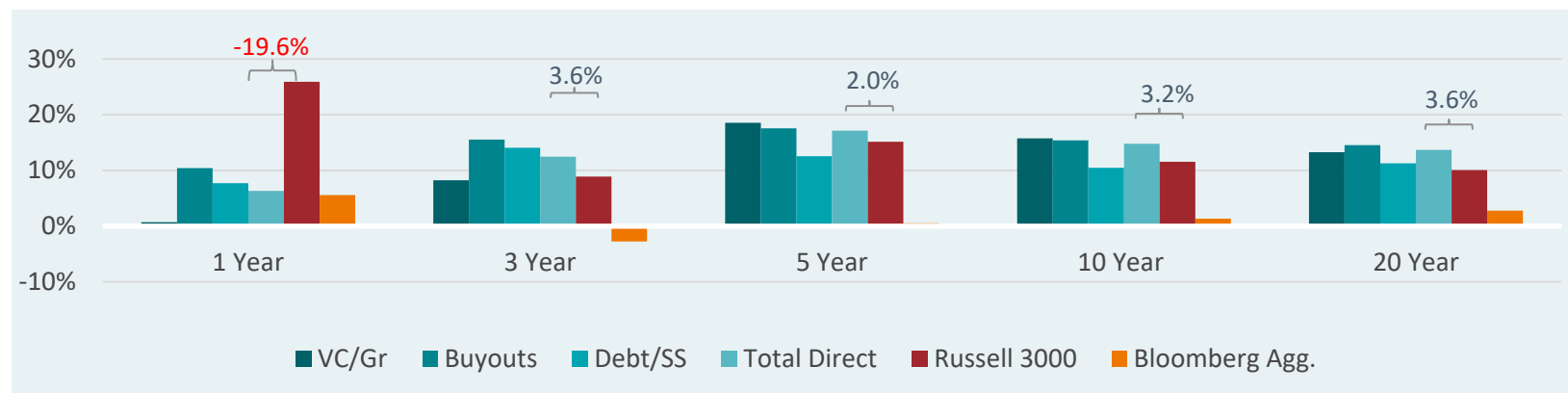
| Market              | 6/30/24 | 6/30/23 |
|---------------------|---------|---------|
| Long U.S. Corp      | 1.2%    | 1.5%    |
| U.S. Inv Grade Corp | 0.9%    | 1.2%    |
| U.S. High Yield     | 3.1%    | 3.9%    |
| U.S. Bank Loans*    | 3.9%    | 3.8%    |

Source: Barclays, Credit Suisse, Bloomberg, as of 6/30/24

\*Discount margin (4-year life)

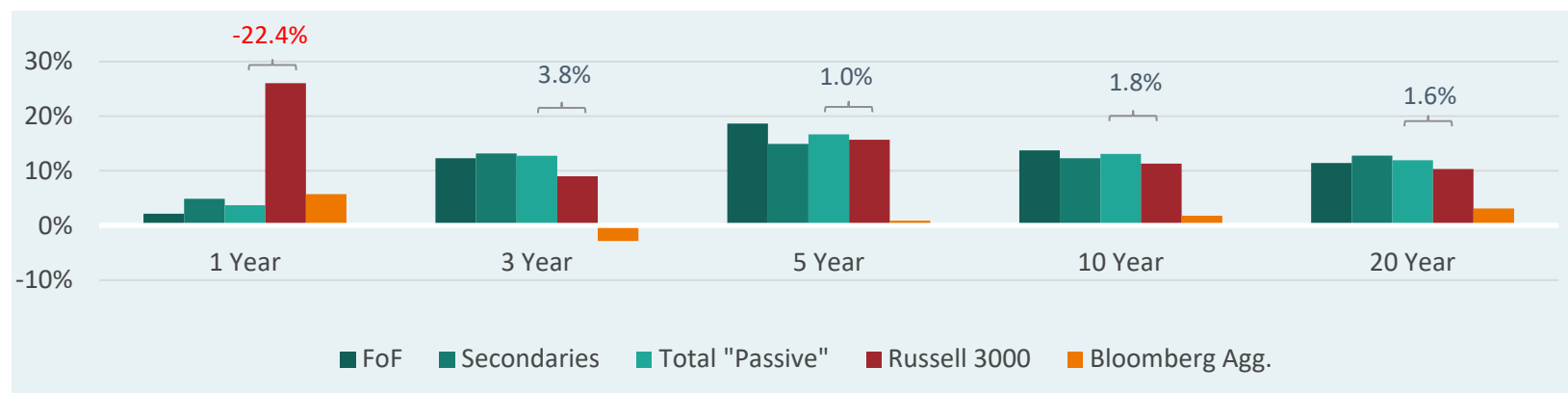
# Private equity vs. traditional assets performance

## DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods, aside from the 1-year.

## "PASSIVE" STRATEGIES

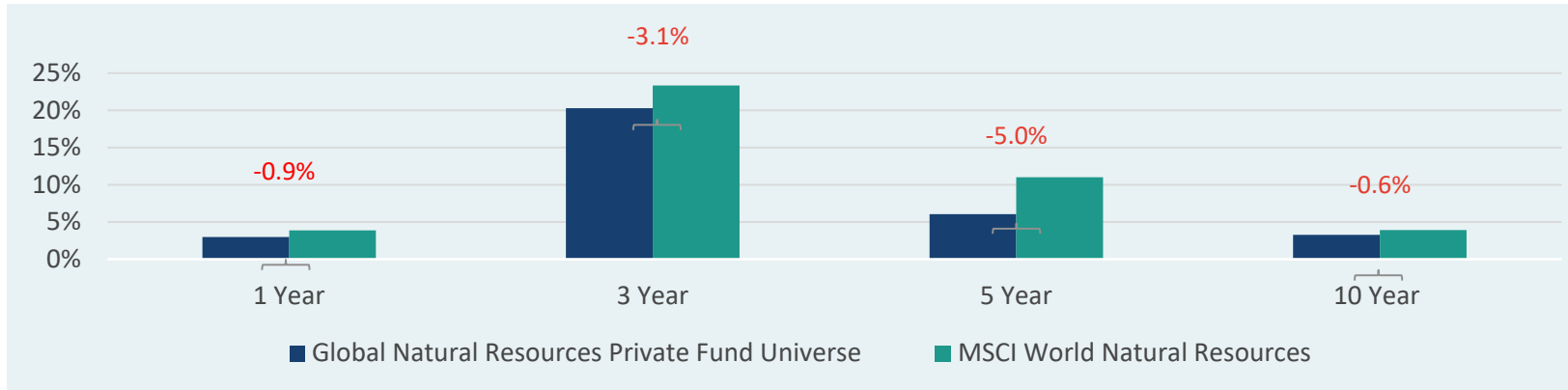


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 1-year.

Sources: Refinitiv PME: U.S. Private Equity Funds sub asset classes as of September 30, 2023. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

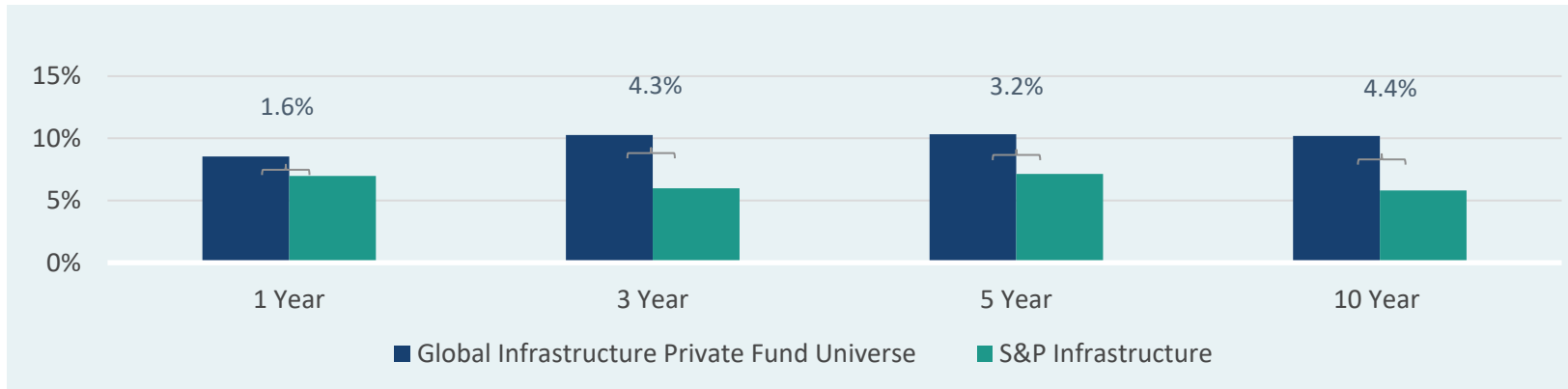
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS



N.R. funds underperformed the MSCI World Natural Resources benchmark across all periods.

## GLOBAL INFRASTRUCTURE FUNDS



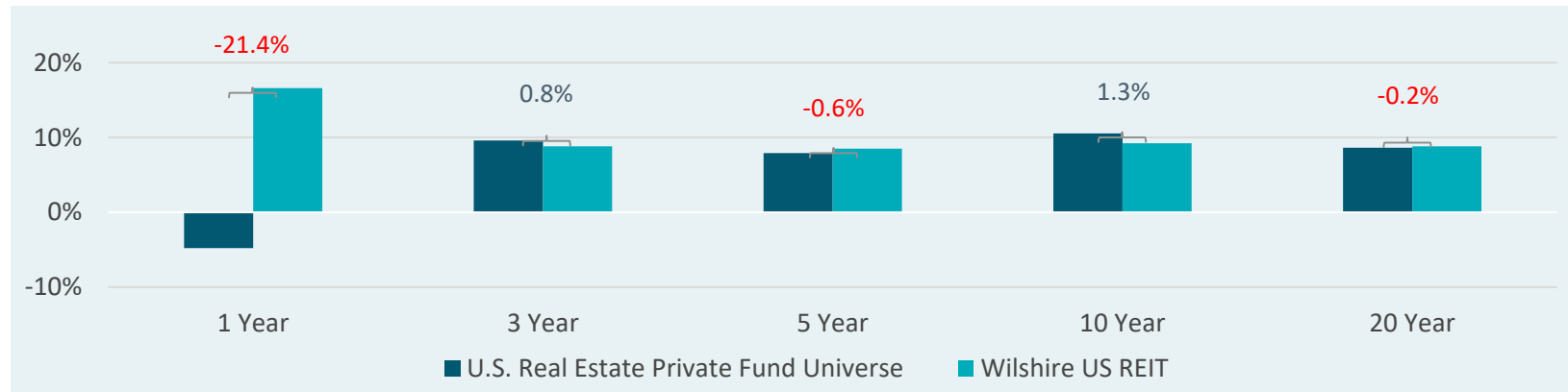
Infra. funds outperformed the S&P Infra. across all periods.

Sources: Refinitiv PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2023. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.



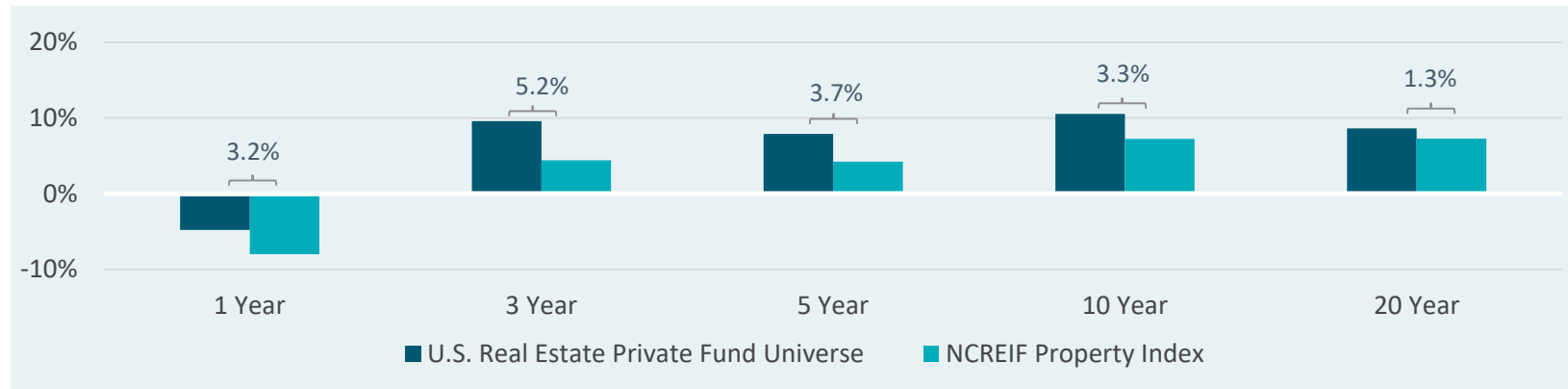
# Private vs. liquid and core real estate performance

## U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. fund performance vs. the Wilshire U.S. REIT Index has been mixed.

## U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods.

Sources: Refinitiv PME: U.S. Real Estate universes as of September 30, 2023. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

# Market environment appendix

# Periodic table of returns

|                         | 2004 | 2005 | 2006 | 2007 | 2008  | 2009  | 2010 | 2011  | 2012 | 2013 | 2014  | 2015  | 2016 | 2017 | 2018  | 2019 | 2020 | 2021 | 2022  | 2023 | YTD  | 5-Year | 10-Year |
|-------------------------|------|------|------|------|-------|-------|------|-------|------|------|-------|-------|------|------|-------|------|------|------|-------|------|------|--------|---------|
| Large Cap Growth        | 26.0 | 34.5 | 32.6 | 39.8 | 5.2   | 79.0  | 29.1 | 14.3  | 18.6 | 43.3 | 13.5  | 13.3  | 31.7 | 37.3 | 6.7   | 36.4 | 38.5 | 28.3 | 16.1  | 42.7 | 20.7 | 19.3   | 16.3    |
| Large Cap Equity        | 22.2 | 21.4 | 26.9 | 16.2 | 1.4   | 37.2  | 26.9 | 7.8   | 18.1 | 38.8 | 13.2  | 5.7   | 21.3 | 30.2 | 1.9   | 31.4 | 34.6 | 27.6 | 9.4   | 26.5 | 14.2 | 14.6   | 12.5    |
| Emerging Markets Equity | 20.7 | 20.1 | 23.5 | 15.8 | -6.5  | 34.5  | 24.5 | 2.6   | 17.9 | 34.5 | 13.0  | 0.9   | 17.3 | 25.0 | 0.0   | 28.5 | 21.0 | 27.1 | 1.5   | 18.7 | 7.5  | 9.0    | 8.2     |
| Large Cap Value         | 18.3 | 14.0 | 22.2 | 11.8 | -21.4 | 32.5  | 19.2 | 1.5   | 17.5 | 33.5 | 11.8  | 0.6   | 12.1 | 22.2 | -1.5  | 26.5 | 20.0 | 26.5 | -4.7  | 18.2 | 6.6  | 7.2    | 7.4     |
| International Equity    | 16.5 | 7.5  | 18.4 | 11.6 | -25.9 | 28.4  | 16.8 | 0.4   | 16.4 | 33.1 | 6.0   | 0.0   | 11.8 | 21.7 | -3.5  | 25.5 | 18.3 | 25.2 | -7.5  | 16.9 | 5.3  | 7.1    | 7.0     |
| 60/40 Global Portfolio  | 14.5 | 7.1  | 16.6 | 10.9 | -28.9 | 27.2  | 16.7 | 0.1   | 16.3 | 32.5 | 5.6   | -0.4  | 11.3 | 17.1 | -4.8  | 22.4 | 14.0 | 17.7 | -13.0 | 15.4 | 5.3  | 6.9    | 6.4     |
| Commodities             | 14.3 | 6.3  | 15.5 | 10.3 | -33.8 | 23.3  | 16.1 | -2.1  | 15.3 | 23.3 | 4.9   | -0.8  | 11.2 | 14.6 | -6.0  | 22.0 | 10.3 | 14.8 | -14.5 | 14.6 | 5.1  | 6.5    | 6.2     |
| Hedge Funds of Funds    | 12.9 | 5.3  | 15.1 | 7.0  | -35.6 | 20.6  | 15.5 | -2.9  | 14.6 | 12.1 | 4.2   | -1.4  | 8.0  | 13.7 | -8.3  | 18.6 | 7.8  | 11.3 | -14.5 | 11.5 | 4.6  | 6.2    | 5.0     |
| Small Cap Growth        | 11.4 | 4.7  | 13.3 | 7.0  | -36.8 | 19.7  | 13.1 | -4.2  | 11.5 | 11.0 | 3.4   | -2.5  | 7.1  | 7.8  | -9.3  | 18.4 | 7.5  | 8.9  | -17.3 | 9.8  | 4.4  | 5.7    | 4.3     |
| Cash                    | 9.1  | 4.6  | 10.4 | 5.8  | -37.6 | 18.9  | 10.2 | -5.5  | 10.5 | 9.0  | 2.8   | -3.8  | 5.7  | 7.7  | -11.0 | 8.7  | 4.6  | 6.5  | -19.1 | 6.3  | 2.6  | 4.8    | 3.5     |
| Small Cap Equity        | 6.9  | 4.6  | 9.1  | 4.4  | -38.4 | 11.5  | 8.2  | -5.7  | 4.8  | 0.1  | 0.0   | -4.4  | 2.6  | 7.0  | -11.2 | 7.8  | 2.8  | 2.8  | -20.1 | 5.5  | 1.7  | 3.8    | 2.8     |
| US Bonds                | 6.3  | 4.2  | 4.8  | -0.2 | -38.5 | 5.9   | 6.5  | -11.7 | 4.2  | -2.0 | -1.8  | -7.5  | 1.0  | 3.5  | -12.9 | 7.7  | 0.5  | 0.0  | -20.4 | 5.0  | -0.7 | 3.1    | 1.5     |
| Small Cap Value         | 4.3  | 3.2  | 4.3  | -1.6 | -43.1 | 0.2   | 5.7  | -13.3 | 0.1  | -2.3 | -4.5  | -14.9 | 0.5  | 1.7  | -13.8 | 6.4  | 0.5  | -1.5 | -26.4 | -7.9 | -0.8 | 2.1    | 1.3     |
| Real Estate             | 1.4  | 2.4  | 2.1  | -9.8 | -53.2 | -16.9 | 0.1  | -18.2 | -1.1 | -9.5 | -17.0 | -24.7 | 0.3  | 0.9  | -14.6 | 2.1  | -3.1 | -2.5 | -29.1 | -7.9 | -1.0 | -0.2   | -1.3    |

Large Cap Equity

Large Cap Value

Large Cap Growth

Small Cap Equity

Small Cap Value

Small Cap Growth

International Equity

Emerging Markets Equity

US Bonds

Cash

Commodities

Real Estate

Hedge Funds of Funds

60% MSCI ACWI/40% Bloomberg Global Bond

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 12/31/23.

# Detailed index returns

## DOMESTIC EQUITY

|                        | Month | QTD   | YTD   | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-------|-------|--------|--------|--------|---------|
| <b>Core Index</b>      |       |       |       |        |        |        |         |
| S&P 500                | 3.6   | 4.3   | 15.3  | 24.6   | 10.0   | 15.0   | 12.9    |
| S&P 500 Equal Weighted | (0.5) | (2.6) | 5.1   | 11.8   | 4.8    | 10.9   | 10.0    |
| DJ Industrial Average  | 1.2   | (1.3) | 4.8   | 16.0   | 6.4    | 10.3   | 11.3    |
| Russell Top 200        | 4.5   | 5.7   | 17.2  | 27.4   | 10.9   | 16.4   | 13.8    |
| Russell 1000           | 3.3   | 3.6   | 14.2  | 23.9   | 8.7    | 14.6   | 12.5    |
| Russell 2000           | (0.9) | (3.3) | 1.7   | 10.1   | (2.6)  | 6.9    | 7.0     |
| Russell 3000           | 3.1   | 3.2   | 13.6  | 23.1   | 8.1    | 14.1   | 12.1    |
| Russell Mid Cap        | (0.7) | (3.3) | 5.0   | 12.9   | 2.4    | 9.5    | 9.0     |
| <b>Style Index</b>     |       |       |       |        |        |        |         |
| Russell 1000 Growth    | 6.7   | 8.3   | 20.7  | 33.5   | 11.3   | 19.3   | 16.3    |
| Russell 1000 Value     | (0.9) | (2.2) | 6.6   | 13.1   | 5.5    | 9.0    | 8.2     |
| Russell 2000 Growth    | (0.2) | (2.9) | 4.4   | 9.1    | (4.9)  | 6.2    | 7.4     |
| Russell 2000 Value     | (1.7) | (3.6) | (3.6) | 10.9   | (0.5)  | 7.1    | 6.2     |

## INTERNATIONAL EQUITY

|                        |       |        |        |       |       |      |       |
|------------------------|-------|--------|--------|-------|-------|------|-------|
| <b>Broad Index</b>     |       |        |        |       |       |      |       |
| MSCI ACWI              | 2.2   | 2.9    | 11.3   | 19.4  | 5.4   | 10.8 | 8.4   |
| MSCI ACWI ex US        | (0.1) | 1.0    | 5.7    | 11.6  | 0.5   | 5.5  | 3.8   |
| MSCI EAFE              | (1.6) | (0.4)  | 5.3    | 11.5  | 2.9   | 6.5  | 4.3   |
| MSCI EM                | 3.9   | 5.0    | 7.5    | 12.5  | (5.1) | 3.1  | 2.8   |
| MSCI EAFE Small Cap    | (3.0) | (1.8)  | 0.5    | 7.8   | (3.4) | 4.2  | 4.3   |
| <b>Style Index</b>     |       |        |        |       |       |      |       |
| MSCI EAFE Growth       | (0.4) | (0.8)  | 6.2    | 9.4   | 0.1   | 6.5  | 5.4   |
| MSCI EAFE Value        | (2.8) | 0.0    | 4.5    | 13.7  | 5.5   | 6.1  | 3.0   |
| <b>Regional Index</b>  |       |        |        |       |       |      |       |
| MSCI UK                | (1.8) | 3.7    | 6.9    | 12.5  | 6.9   | 5.7  | 2.7   |
| MSCI Japan             | (0.7) | (4.3)  | 6.3    | 13.1  | 2.3   | 6.6  | 5.5   |
| MSCI Euro              | (3.3) | (2.8)  | 5.4    | 10.1  | 3.6   | 7.2  | 4.1   |
| MSCI EM Asia           | 5.0   | 7.4    | 11.0   | 15.1  | (5.5) | 4.6  | 4.5   |
| MSCI EM Latin American | (6.1) | (12.2) | (15.7) | (5.6) | 0.9   | 0.1  | (0.3) |

## FIXED INCOME

|                               | Month | QTD   | YTD   | 1 Year | 3 Year | 5 Year | 10 Year |
|-------------------------------|-------|-------|-------|--------|--------|--------|---------|
| <b>Broad Index</b>            |       |       |       |        |        |        |         |
| Bloomberg US TIPS             | 0.8   | 0.8   | 0.7   | 2.7    | (1.3)  | 2.1    | 1.9     |
| Bloomberg US Treasury Bills   | 0.4   | 1.3   | 2.6   | 5.5    | 3.0    | 2.2    | 1.5     |
| Bloomberg US Agg Bond         | 0.9   | 0.1   | (0.7) | 2.6    | (3.0)  | (0.2)  | 1.3     |
| Bloomberg US Universal        | 0.9   | 0.2   | (0.3) | 3.5    | (2.7)  | 0.1    | 1.6     |
| <b>Duration</b>               |       |       |       |        |        |        |         |
| Bloomberg US Treasury 1-3 Yr  | 0.6   | 0.9   | 1.2   | 4.5    | 0.3    | 1.0    | 1.1     |
| Bloomberg US Treasury Long    | 1.7   | (1.8) | (5.0) | (5.6)  | (10.5) | (4.3)  | 0.6     |
| Bloomberg US Treasury         | 1.0   | 0.1   | (0.9) | 1.5    | (3.3)  | (0.7)  | 0.9     |
| <b>Issuer</b>                 |       |       |       |        |        |        |         |
| Bloomberg US MBS              | 1.2   | 0.1   | (1.0) | 2.1    | (2.9)  | (0.8)  | 0.9     |
| Bloomberg US Corp. High Yield | 0.9   | 1.1   | 2.6   | 10.4   | 1.6    | 3.9    | 4.3     |
| Bloomberg US Agency Interm    | 0.7   | 0.8   | 1.0   | 4.5    | (0.5)  | 0.6    | 1.2     |
| Bloomberg US Credit           | 0.7   | (0.0) | (0.5) | 4.4    | (2.9)  | 0.5    | 2.2     |

## OTHER

|                           |       |        |        |        |        |       |       |
|---------------------------|-------|--------|--------|--------|--------|-------|-------|
| <b>Index</b>              |       |        |        |        |        |       |       |
| Bloomberg Commodity       | (1.5) | 2.9    | 5.1    | 5.0    | 5.7    | 7.2   | (1.3) |
| Wilshire US REIT          | 3.0   | (0.2)  | (0.3)  | 8.6    | 0.3    | 4.0   | 5.9   |
| CS Leveraged Loans        | 0.3   | 1.9    | 4.4    | 11.0   | 6.0    | 5.4   | 4.6   |
| S&P Global Infrastructure | (2.9) | 2.7    | 4.0    | 7.0    | 5.6    | 4.3   | 4.6   |
| Alerian MLP               | 4.7   | 3.8    | 19.2   | 34.2   | 22.3   | 11.1  | 1.9   |
| <b>Regional Index</b>     |       |        |        |        |        |       |       |
| JPM EMBI Global Div       | 0.6   | 0.3    | 2.3    | 9.2    | (3.5)  | 0.6   | 3.2   |
| JPM GBI-EM Global Div     | (1.1) | (1.6)  | 0.7    | 0.7    | (3.3)  | (1.3) | (0.9) |
| <b>Hedge Funds</b>        |       |        |        |        |        |       |       |
| HFRI Composite            | (0.2) | 0.4    | 4.8    | 9.6    | 2.8    | 6.6   | 4.8   |
| HFRI FOF Composite        | 0.1   | 0.4    | 4.6    | 8.4    | 2.0    | 4.8   | 3.5   |
| <b>Currency (Spot)</b>    |       |        |        |        |        |       |       |
| Euro                      | (1.3) | (1.8)  | (3.0)  | (1.8)  | (3.3)  | (1.2) | (2.4) |
| Pound Sterling            | (0.7) | 0.3    | (0.8)  | (0.6)  | (2.9)  | (0.1) | (3.0) |
| Yen                       | (2.3) | (10.1) | (12.4) | (10.2) | (11.6) | (7.7) | (4.5) |

Source: Morningstar, HFRI, as of 6/30/24

# Legacy Fund

Investment Performance Review  
Period Ending: June 30, 2024



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[VERUSINVESTMENTS.COM](https://verusinvestments.com)

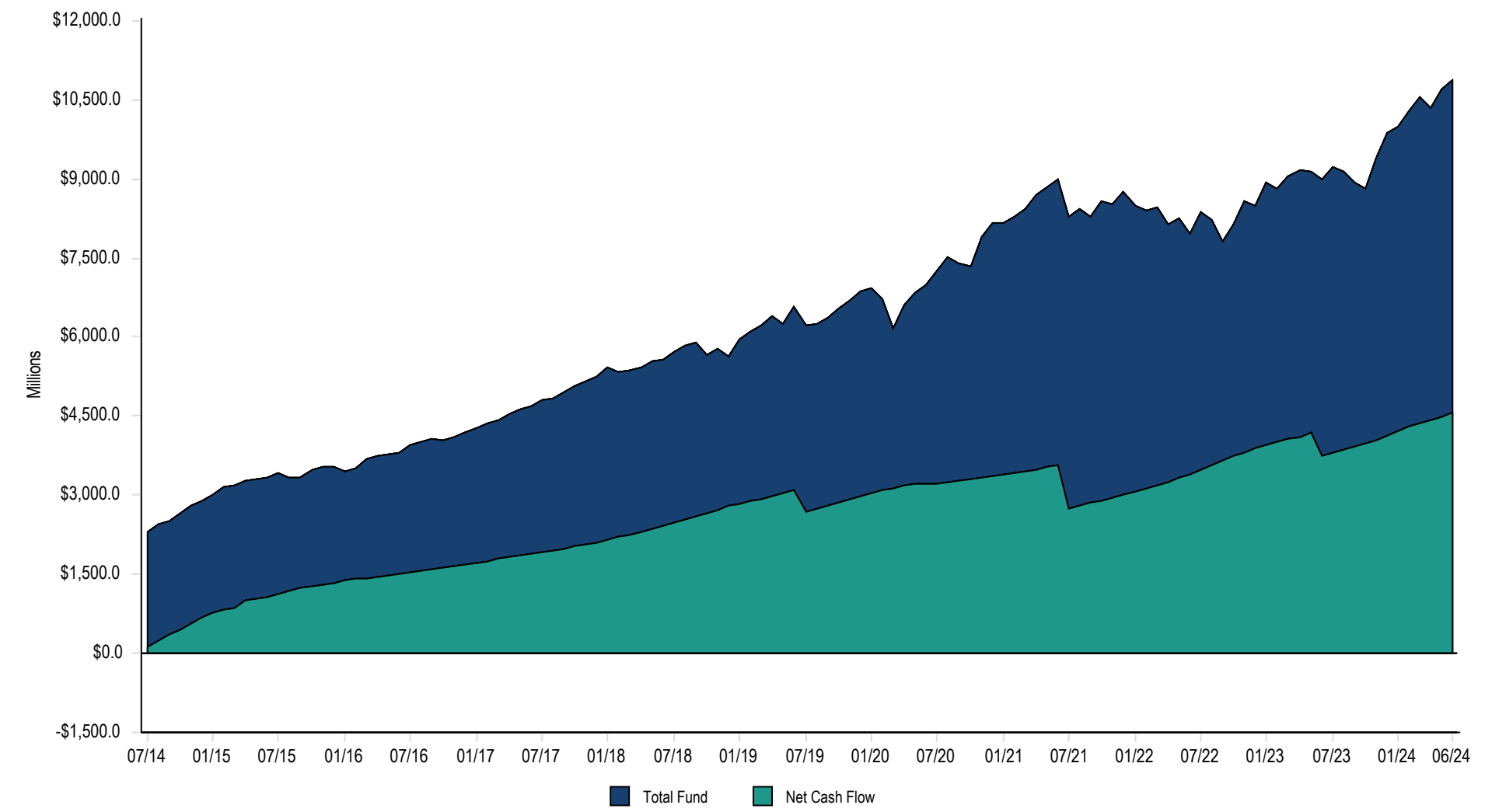
SEATTLE 206.622.3700

CHICAGO 312.815.5228

PITTSBURGH 412.784.6678

LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

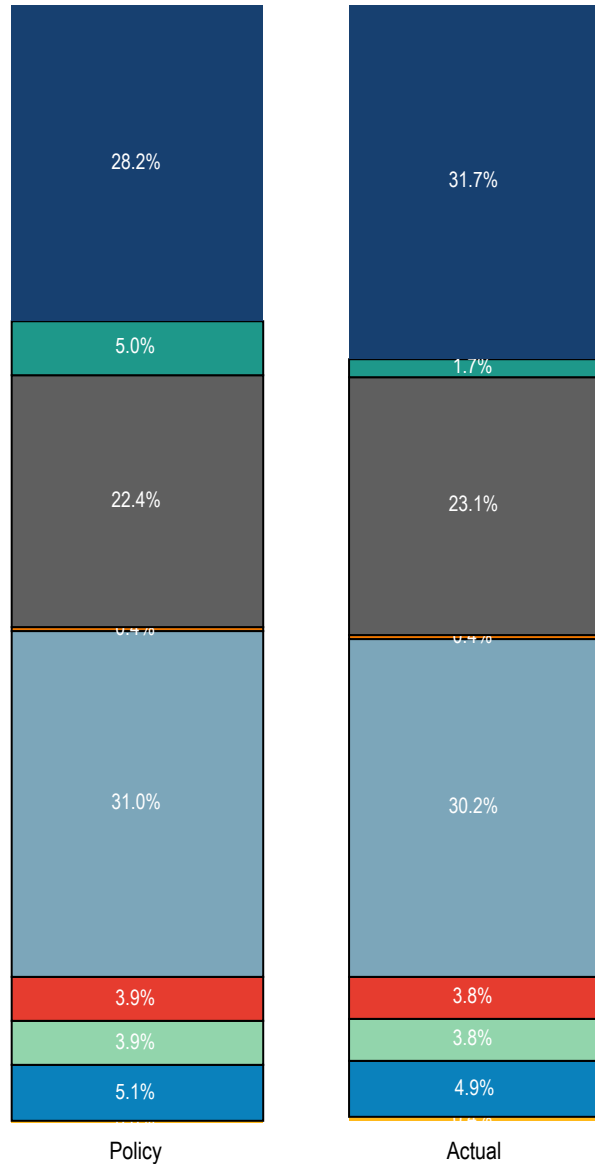


Net Cash Flow is Cumulative.

# Total Fund

## Asset Allocation vs Policy

NDSIB - Legacy Fund  
Period Ending: June 30, 2024



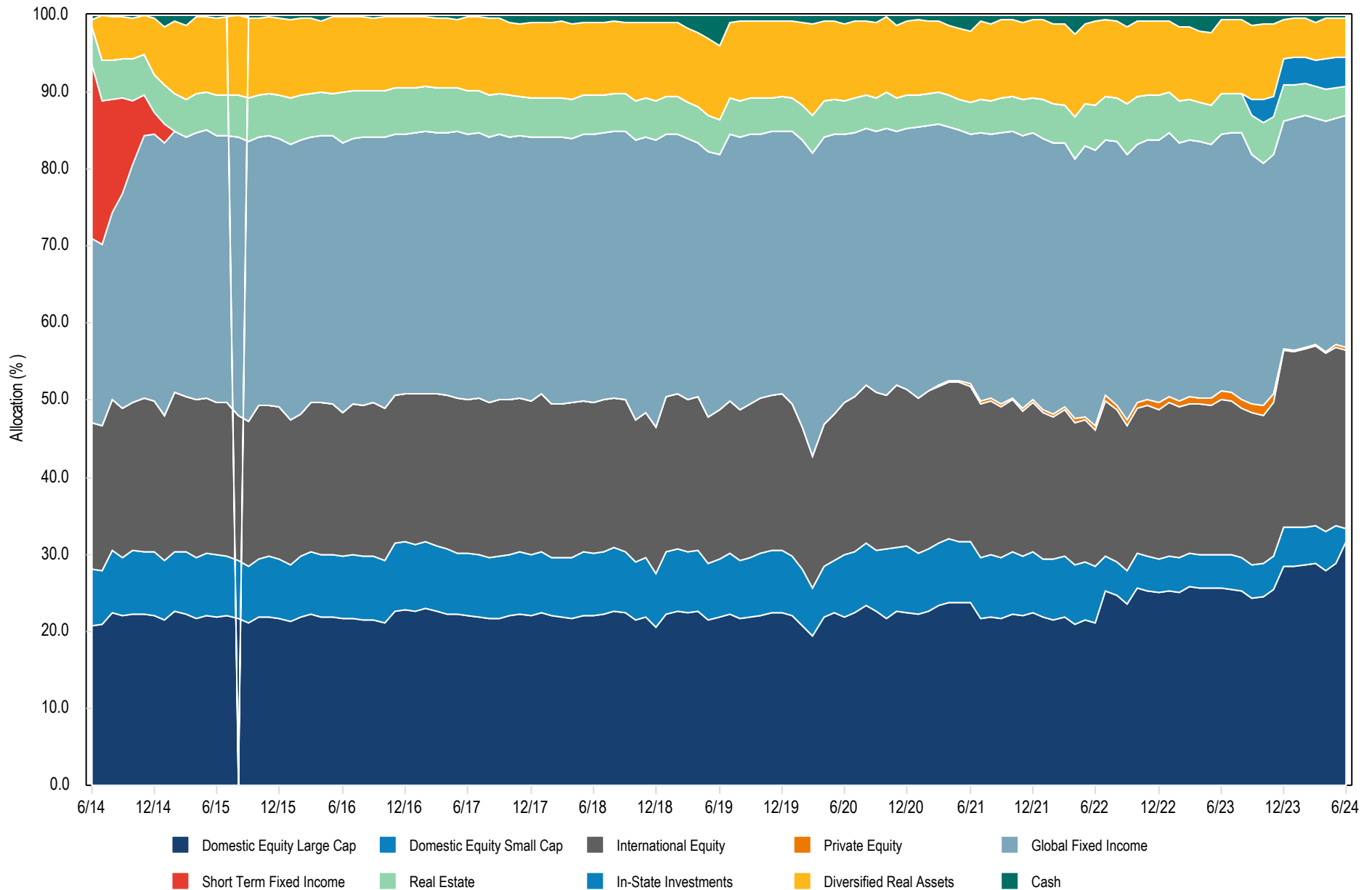
|                           | Current<br>Balance<br>(\$) | Current<br>Allocation<br>(%) | Policy<br>Allocation<br>(%) | Differences<br>(\$) |
|---------------------------|----------------------------|------------------------------|-----------------------------|---------------------|
| Domestic Equity Large Cap | 3,444,204,211              | 31.7                         | 28.2                        | 372,139,868         |
| Domestic Equity Small Cap | 179,552,502                | 1.7                          | 5.0                         | -362,538,104        |
| International Equity      | 2,518,017,596              | 23.1                         | 22.4                        | 77,467,596          |
| Private Equity            | 44,293,892                 | 0.4                          | 0.4                         | 1,866,572           |
| Global Fixed Income       | 3,280,187,393              | 30.2                         | 31.0                        | -97,353,654         |
| Real Estate               | 416,357,923                | 3.8                          | 3.9                         | -9,655,887          |
| In-State Investments      | 410,454,650                | 3.8                          | 3.9                         | -17,299,768         |
| Diversified Real Assets   | 537,291,375                | 4.9                          | 5.1                         | -12,740,755         |
| Cash                      | 48,440,495                 | 0.4                          | 0.0                         | 48,114,131          |
| <b>Total</b>              | <b>10,878,800,038</b>      | <b>100.0</b>                 | <b>100.0</b>                |                     |

Residual Holdings value of \$1,742,868 & Transition Account value of \$44,553 included in Large Cap Domestic Equity value for styling purposes.



# Total Fund Asset Allocation History

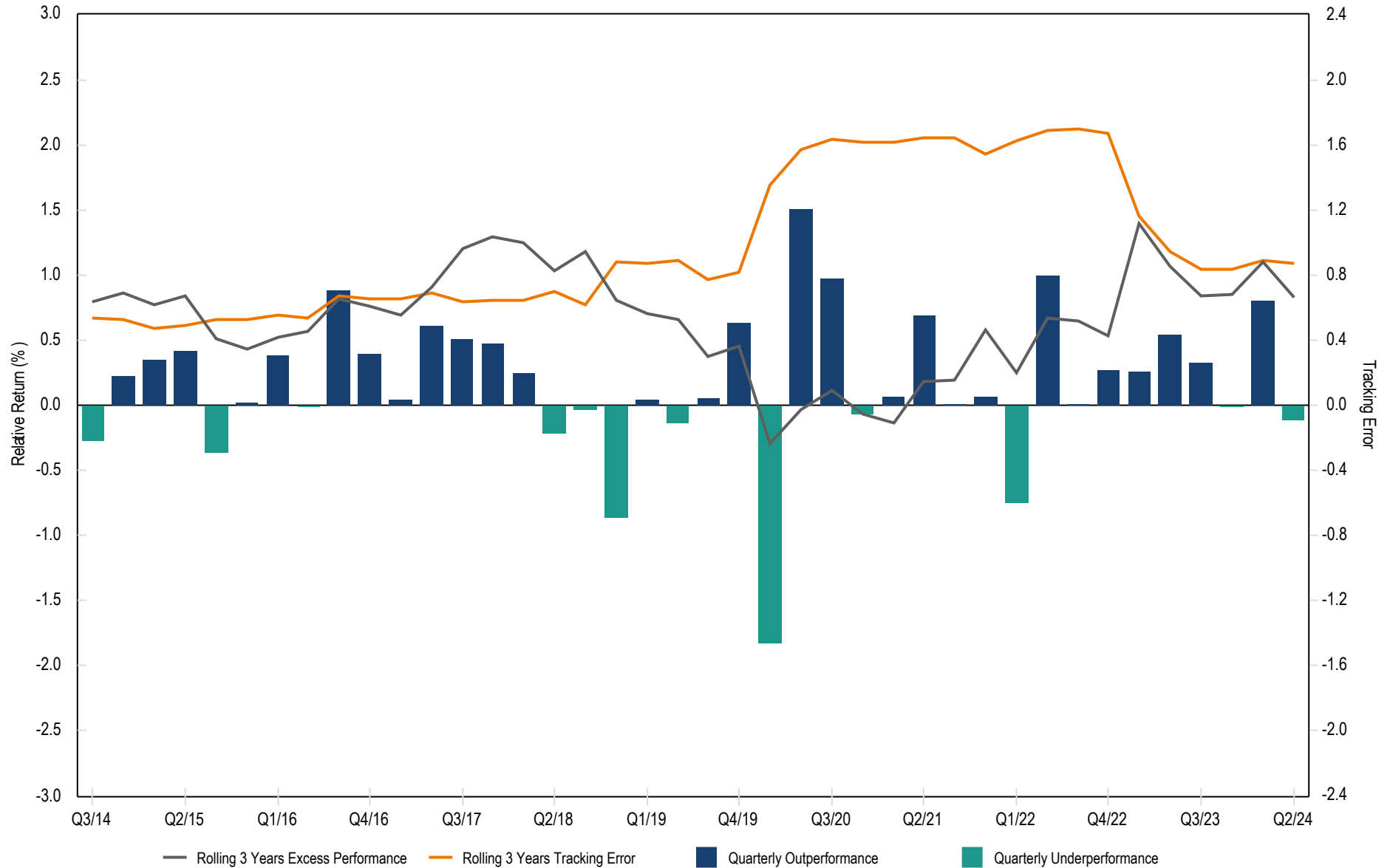
NDSIB - Legacy Fund  
Period Ending: June 30, 2024



Total Fund  
Rolling Performance Relative to Policy (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

Rolling Annualized Excess Performance and Tracking Error

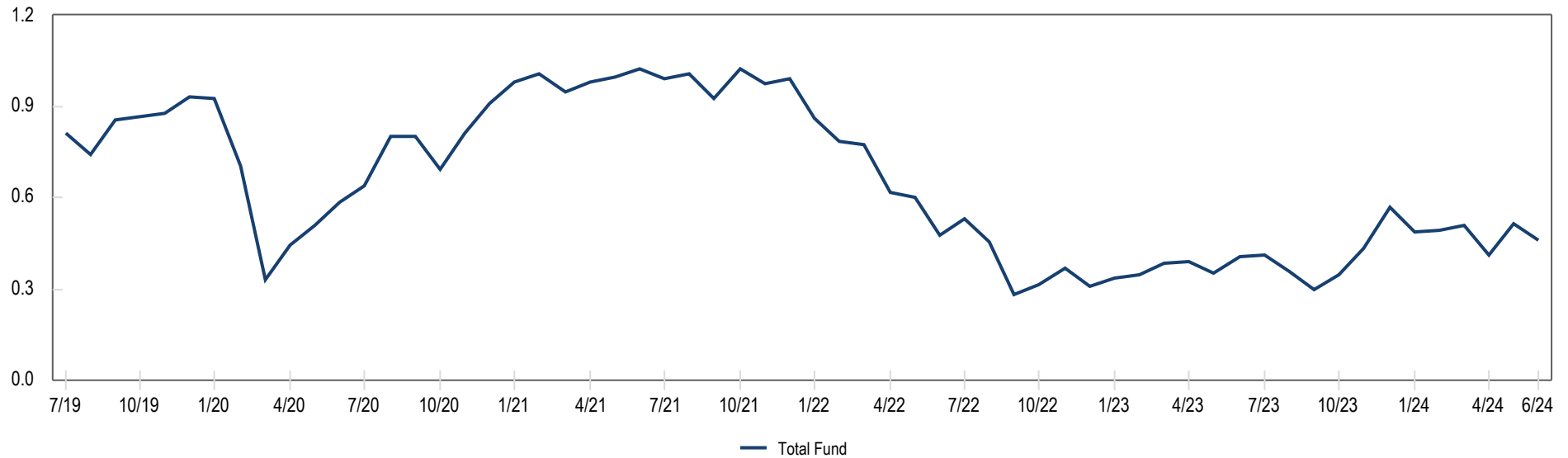


Analytic is using the Corridor Target Index

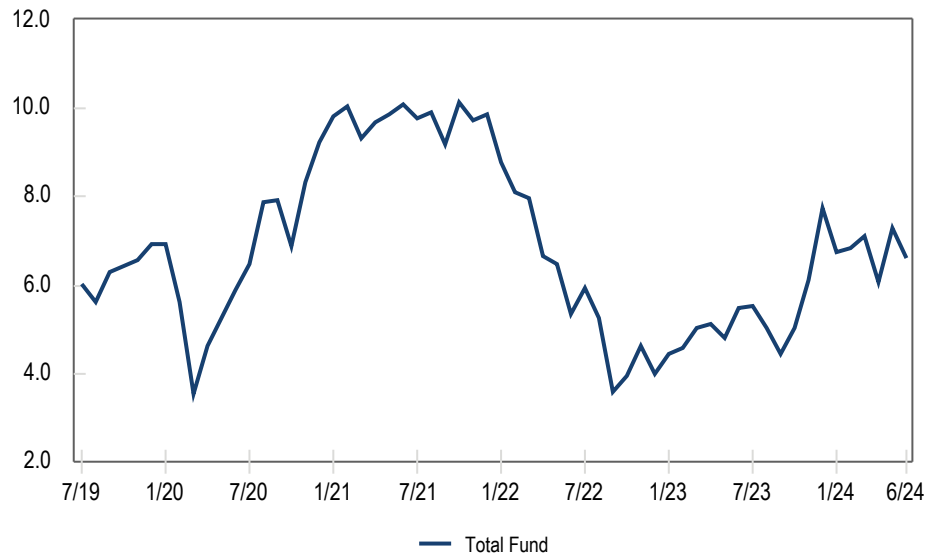
Total Fund  
Risk Analysis - 5 Years (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

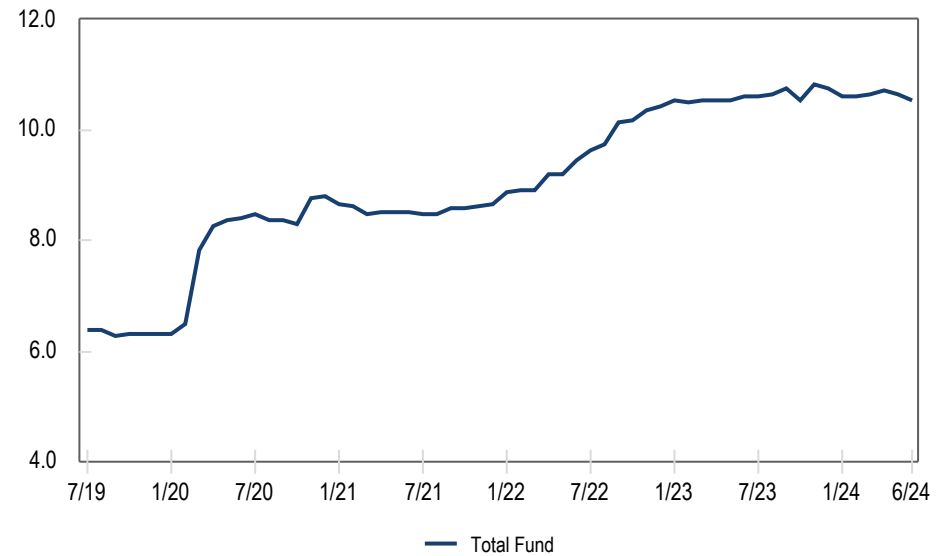
Rolling 5 Years Sharpe Ratio



Rolling 5 Years Return



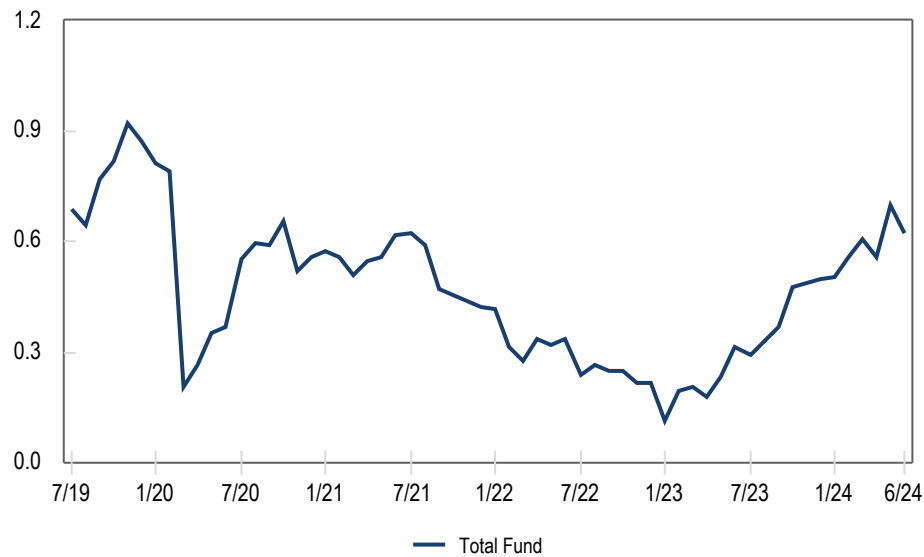
Rolling 5 Years Standard Deviation



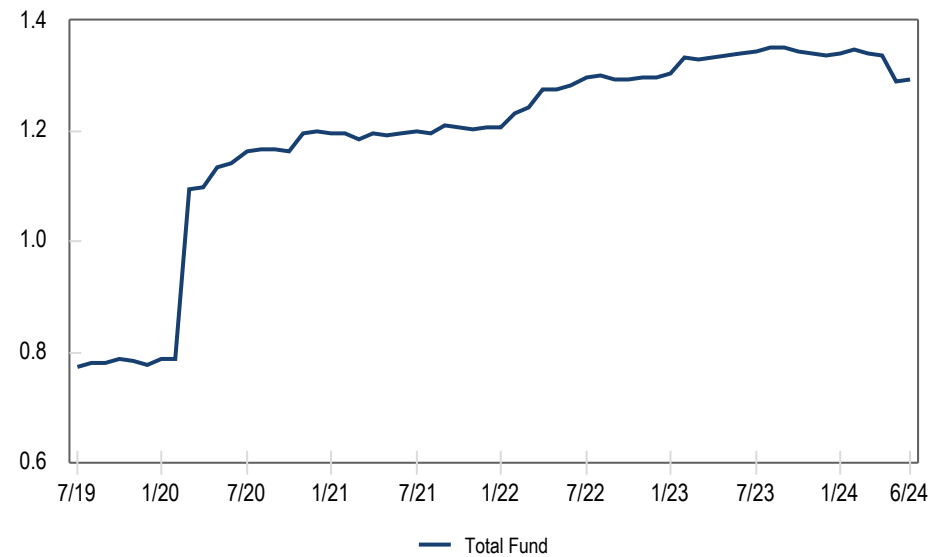
# Total Fund Risk Analysis - 5 Years (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

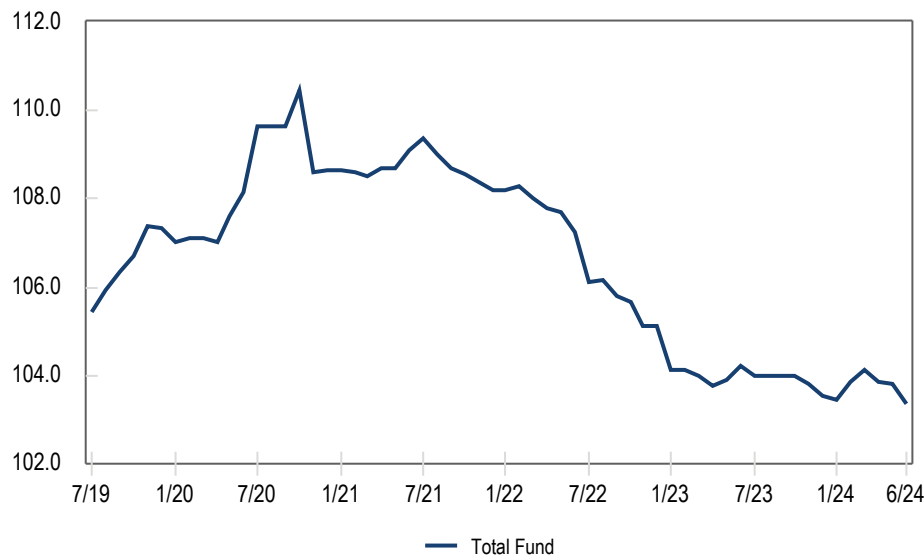
Rolling 5 Years Information Ratio



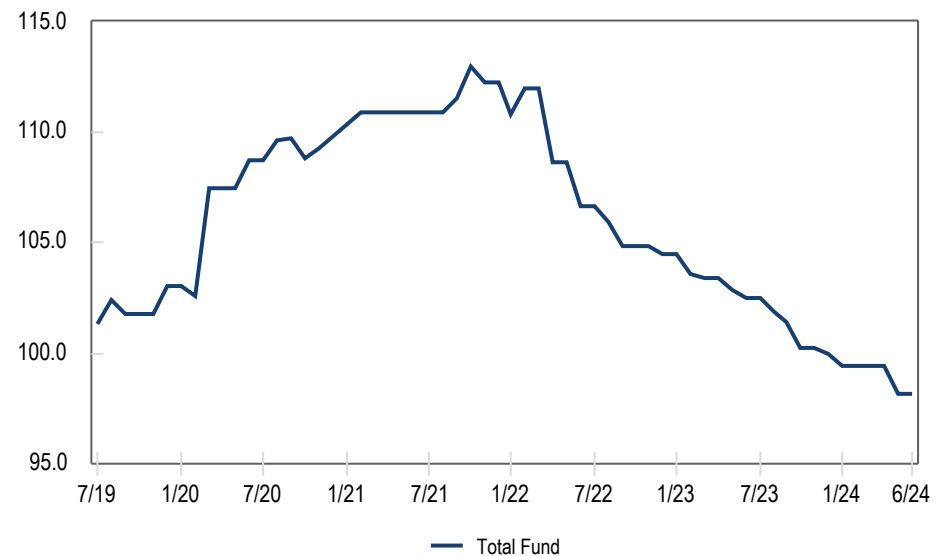
Rolling 5 Years Tracking Error



Rolling 5 Years Up Capture



Rolling 5 Years Down Capture

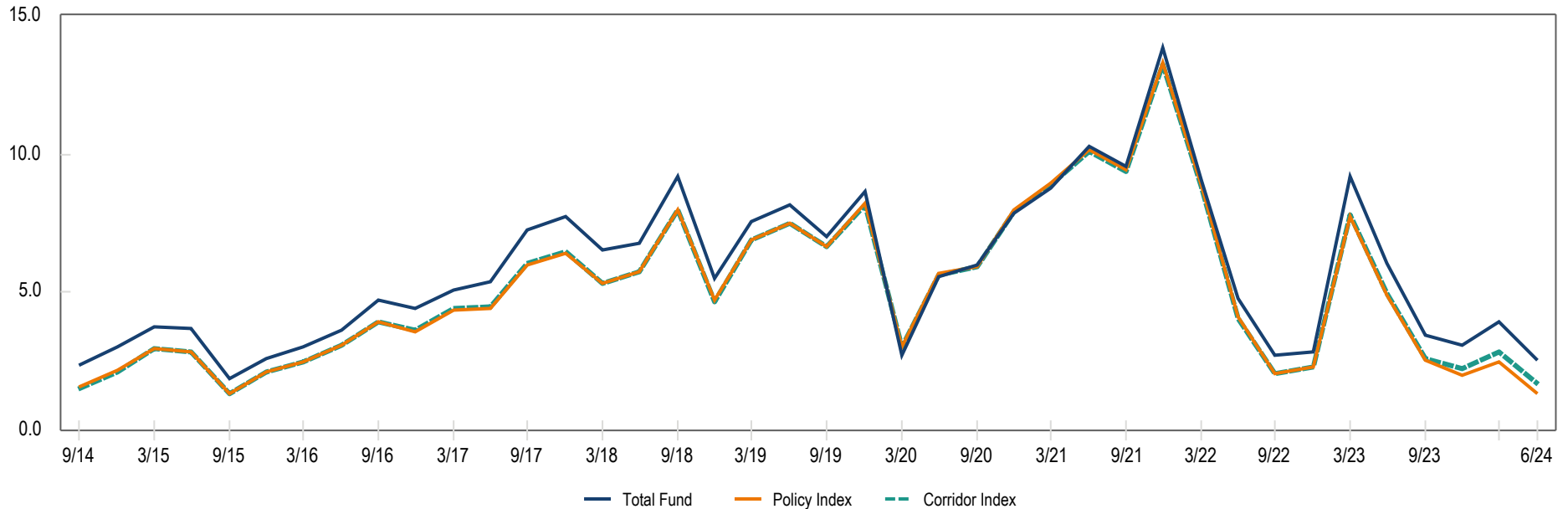


Analytic is using the Corridor Target Index

# Total Fund Rolling Risk Statistics

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

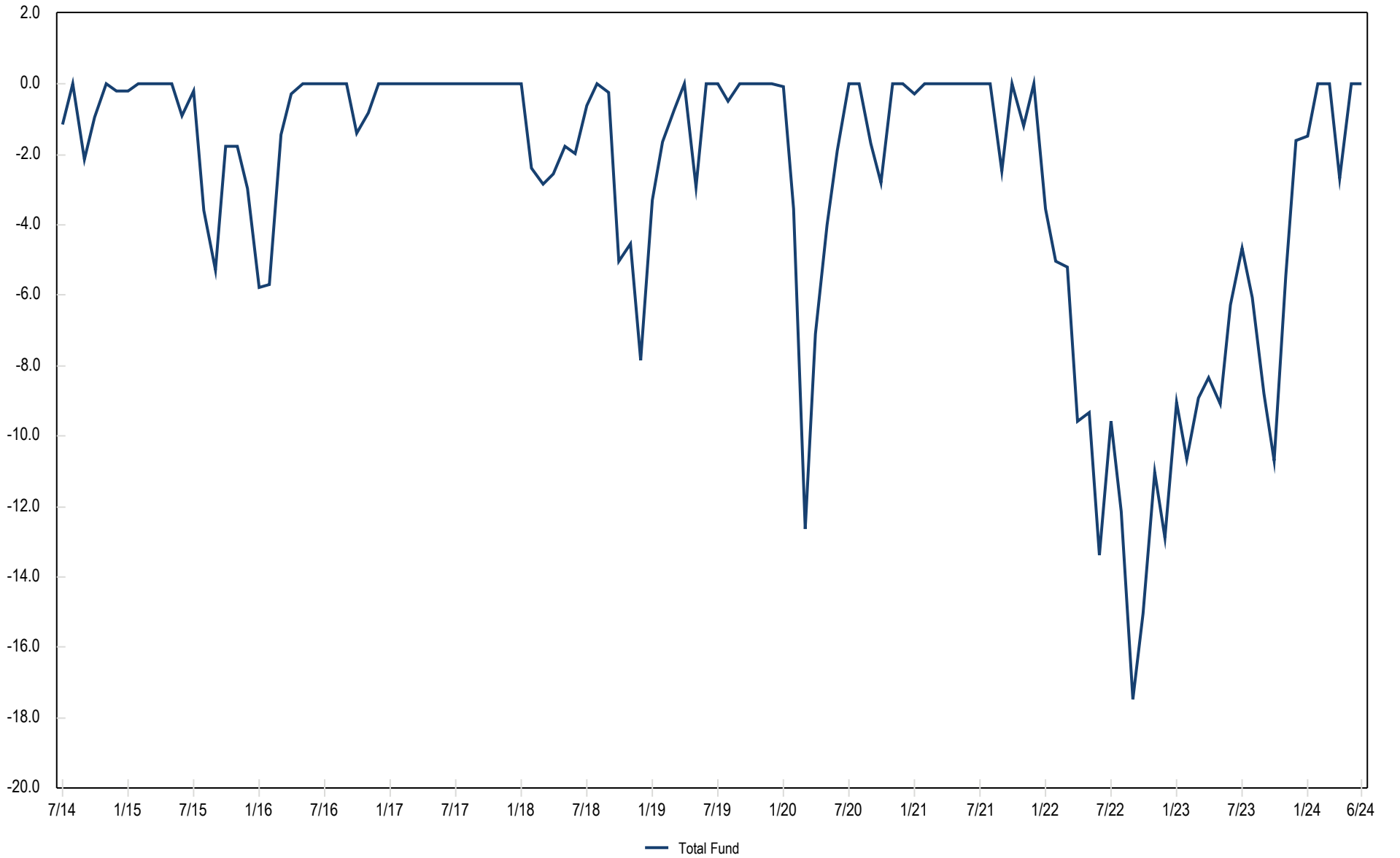
Rolling 3 Years Return



|                           | Jun-2015 | Jun-2016 | Jun-2017 | Jun-2018 | Jun-2019 | Jun-2020 | Jun-2021 | Jun-2022 | Jun-2023 | Jun-2024 |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Return                    | 3.7      | 3.6      | 5.4      | 6.8      | 8.2      | 5.6      | 10.3     | 4.7      | 6.1      | 2.5      |
| Standard Deviation        | 2.8      | 5.3      | 5.6      | 5.6      | 6.4      | 9.6      | 10.6     | 10.6     | 10.1     | 10.1     |
|                           | Jun-2015 | Jun-2016 | Jun-2017 | Jun-2018 | Jun-2019 | Jun-2020 | Jun-2021 | Jun-2022 | Jun-2023 | Jun-2024 |
| <i>vs. Policy Index</i>   |          |          |          |          |          |          |          |          |          |          |
| Alpha                     | 0.9      | 0.6      | 0.9      | 0.9      | 0.1      | -0.7     | -0.7     | 0.5      | 1.3      | 1.2      |
| Beta                      | 1.0      | 1.0      | 1.0      | 1.0      | 1.1      | 1.1      | 1.1      | 1.0      | 1.0      | 1.0      |
| Consistency               | 69.4     | 61.1     | 63.9     | 66.7     | 61.1     | 61.1     | 61.1     | 66.7     | 63.9     | 63.9     |
| Tracking Error            | 0.5      | 0.6      | 0.7      | 0.6      | 0.8      | 1.4      | 1.5      | 1.5      | 1.1      | 1.3      |
| <i>vs. Corridor Index</i> |          |          |          |          |          |          |          |          |          |          |
| Alpha                     | 0.9      | 0.5      | 0.8      | 0.8      | 0.1      | -0.6     | -0.6     | 0.5      | 1.2      | 0.9      |
| Beta                      | 1.0      | 1.0      | 1.0      | 1.0      | 1.1      | 1.1      | 1.1      | 1.0      | 1.0      | 1.0      |
| Consistency               | 72.2     | 63.9     | 63.9     | 66.7     | 61.1     | 61.1     | 61.1     | 66.7     | 61.1     | 61.1     |
| Tracking Error            | 0.5      | 0.6      | 0.7      | 0.7      | 0.8      | 1.4      | 1.5      | 1.5      | 1.1      | 1.0      |

Total Fund  
Historical Drawdowns (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024



|            | Max Drawdown | Recovery Periods | # of Drawdowns in Period |
|------------|--------------|------------------|--------------------------|
| Total Fund | -17.5        | 26 Months        | 16                       |

Total Fund  
Risk Statistics (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

|                                       | 1 Yr       |              | 3 Yrs      |              | 5 Yrs      |              | 10 Yrs     |              |
|---------------------------------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|
|                                       | Total Fund | Policy Index | Total Fund | Policy Index | Total Fund | Policy Index | Total Fund | Policy Index |
| <b>Return Summary Statistics</b>      |            |              |            |              |            |              |            |              |
| Up Market Periods                     | 7          | 7            | 20         | 20           | 38         | 38           | 79         | 79           |
| Down Market Periods                   | 5          | 5            | 16         | 16           | 22         | 22           | 41         | 41           |
| Maximum Return                        | 5.9        | 6.0          | 5.9        | 6.0          | 7.1        | 7.6          | 7.1        | 7.6          |
| Minimum Return                        | -2.9       | -3.0         | -6.1       | -6.3         | -9.4       | -7.8         | -9.4       | -7.8         |
| Return                                | 10.9       | 8.8          | 2.5        | 1.4          | 6.6        | 5.6          | 6.2        | 5.4          |
| Cumulative Return                     | 10.9       | 8.8          | 7.8        | 4.1          | 37.9       | 31.1         | 82.1       | 68.7         |
| Active Return                         | 1.9        | 0.0          | 1.1        | 0.0          | 1.0        | 0.0          | 0.8        | 0.0          |
| <b>Risk Summary Statistics</b>        |            |              |            |              |            |              |            |              |
| Beta                                  | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          |
| Upside Risk                           | 2.5        | 2.4          | 7.6        | 7.5          | 8.1        | 7.9          | 6.9        | 6.6          |
| Downside Risk                         | 4.7        | 4.6          | 6.8        | 7.2          | 7.0        | 6.8          | 5.7        | 5.5          |
| <b>Risk/Return Summary Statistics</b> |            |              |            |              |            |              |            |              |
| Standard Deviation                    | 9.2        | 9.1          | 10.1       | 10.4         | 10.5       | 10.3         | 8.7        | 8.5          |
| Alpha                                 | 1.9        | 0.0          | 1.2        | 0.0          | 1.0        | 0.0          | 0.7        | 0.0          |
| Sharpe Ratio                          | 0.6        | 0.4          | 0.0        | -0.1         | 0.5        | 0.4          | 0.6        | 0.5          |
| Active Return/Risk                    | 0.2        | 0.0          | 0.1        | 0.0          | 0.1        | 0.0          | 0.1        | 0.0          |
| Tracking Error                        | 1.6        | 0.0          | 1.3        | 0.0          | 1.5        | 0.0          | 1.2        | 0.0          |
| Information Ratio                     | 1.1        | -            | 0.9        | -            | 0.7        | -            | 0.7        | -            |
| <b>Correlation Statistics</b>         |            |              |            |              |            |              |            |              |
| R-Squared                             | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          |
| Actual Correlation                    | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          | 1.0        | 1.0          |
| Consistency                           | 66.7       | 100.0        | 63.9       | 100.0        | 66.7       | 100.0        | 63.3       | 100.0        |



Total Fund  
Risk Statistics (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

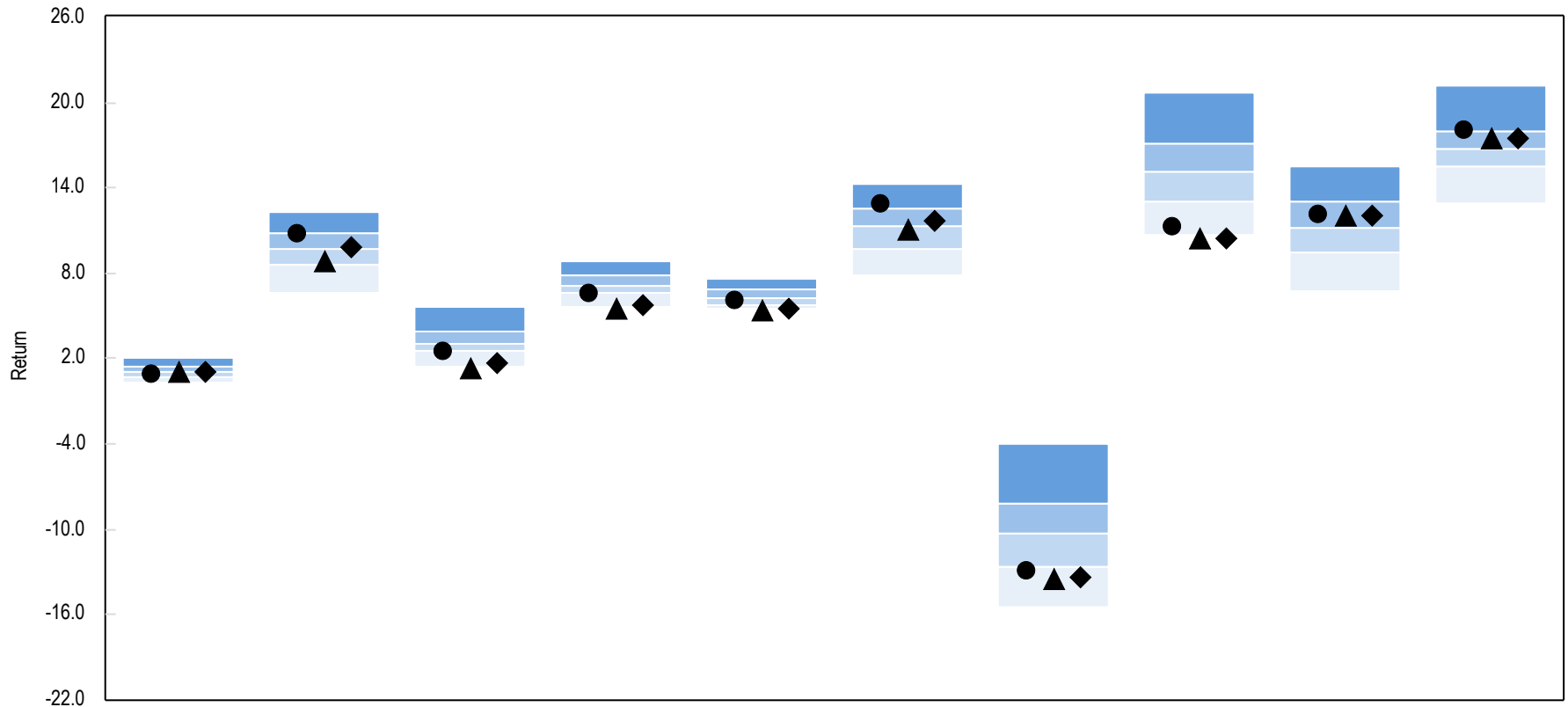
|                                       | 1 Yr       |                 | 3 Yrs      |                 | 5 Yrs      |                 | 10 Yrs     |                 |
|---------------------------------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
|                                       | Total Fund | Corridor Target | Total Fund | Corridor Target | Total Fund | Corridor Target | Total Fund | Corridor Target |
| <b>Return Summary Statistics</b>      |            |                 |            |                 |            |                 |            |                 |
| Up Market Periods                     | 7          | 7               | 20         | 20              | 38         | 38              | 79         | 79              |
| Down Market Periods                   | 5          | 5               | 16         | 16              | 22         | 22              | 41         | 41              |
| Maximum Return                        | 5.9        | 6.1             | 5.9        | 6.1             | 7.1        | 7.6             | 7.1        | 7.6             |
| Minimum Return                        | -2.9       | -3.1            | -6.1       | -6.3            | -9.4       | -7.8            | -9.4       | -7.8            |
| Return                                | 10.9       | 9.8             | 2.5        | 1.7             | 6.6        | 5.8             | 6.2        | 5.5             |
| Cumulative Return                     | 10.9       | 9.8             | 7.8        | 5.2             | 37.9       | 32.5            | 82.1       | 70.6            |
| Active Return                         | 1.0        | 0.0             | 0.8        | 0.0             | 0.8        | 0.0             | 0.7        | 0.0             |
| <b>Risk Summary Statistics</b>        |            |                 |            |                 |            |                 |            |                 |
| Beta                                  | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             |
| Upside Risk                           | 2.5        | 2.5             | 7.6        | 7.7             | 8.1        | 8.1             | 6.9        | 6.7             |
| Downside Risk                         | 4.7        | 5.1             | 6.8        | 7.3             | 7.0        | 6.9             | 5.7        | 5.6             |
| <b>Risk/Return Summary Statistics</b> |            |                 |            |                 |            |                 |            |                 |
| Standard Deviation                    | 9.2        | 9.6             | 10.1       | 10.6            | 10.5       | 10.4            | 8.7        | 8.6             |
| Alpha                                 | 1.4        | 0.0             | 0.9        | 0.0             | 0.8        | 0.0             | 0.6        | 0.0             |
| Sharpe Ratio                          | 0.6        | 0.5             | 0.0        | -0.1            | 0.5        | 0.4             | 0.6        | 0.5             |
| Active Return/Risk                    | 0.1        | 0.0             | 0.1        | 0.0             | 0.1        | 0.0             | 0.1        | 0.0             |
| Tracking Error                        | 0.8        | 0.0             | 1.0        | 0.0             | 1.3        | 0.0             | 1.1        | 0.0             |
| Information Ratio                     | 1.2        | -               | 0.7        | -               | 0.6        | -               | 0.6        | -               |
| <b>Correlation Statistics</b>         |            |                 |            |                 |            |                 |            |                 |
| R-Squared                             | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             |
| Actual Correlation                    | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             | 1.0        | 1.0             |
| Consistency                           | 66.7       | 100.0           | 61.1       | 100.0           | 65.0       | 100.0           | 62.5       | 100.0           |

# Total Fund

## Peer Universe Comparison: Cumulative Perf (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

Total Fund vs. InvMetrics Public DB > \$1B



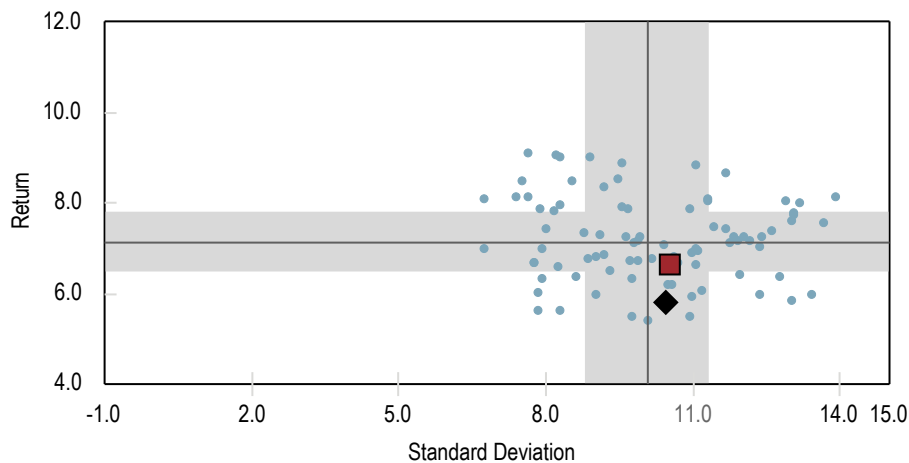
|                  | 3 Mo     | Fiscal YTD | 3 Yrs    | 5 Yrs    | 10 Yrs   | 2023      | 2022       | 2021      | 2020      | 2019      |
|------------------|----------|------------|----------|----------|----------|-----------|------------|-----------|-----------|-----------|
| ● Total Fund     | 1.0 (56) | 10.9 (25)  | 2.5 (74) | 6.6 (75) | 6.2 (58) | 12.9 (19) | -12.9 (79) | 11.3 (93) | 12.2 (38) | 18.1 (23) |
| ▲ Policy Index   | 1.1 (50) | 8.8 (70)   | 1.4 (96) | 5.6 (98) | 5.4 (97) | 11.1 (52) | -13.5 (85) | 10.4 (97) | 12.1 (40) | 17.5 (32) |
| ◆ Corridor Index | 1.1 (49) | 9.8 (47)   | 1.7 (91) | 5.8 (95) | 5.5 (97) | 11.7 (38) | -13.4 (84) | 10.4 (97) | 12.0 (41) | 17.5 (33) |
| 5th Percentile   | 2.0      | 12.4       | 5.6      | 8.9      | 7.6      | 14.3      | -4.0       | 20.7      | 15.6      | 21.2      |
| 1st Quartile     | 1.4      | 10.8       | 4.0      | 7.9      | 6.9      | 12.5      | -8.2       | 17.2      | 13.0      | 17.9      |
| Median           | 1.0      | 9.7        | 3.0      | 7.2      | 6.3      | 11.3      | -10.3      | 15.2      | 11.2      | 16.8      |
| 3rd Quartile     | 0.7      | 8.6        | 2.5      | 6.6      | 5.8      | 9.7       | -12.6      | 13.0      | 9.4       | 15.5      |
| 95th Percentile  | 0.3      | 6.6        | 1.4      | 5.7      | 5.5      | 7.9       | -15.5      | 10.7      | 6.8       | 12.9      |
| Population       | 94       | 94         | 89       | 87       | 82       | 171       | 171        | 201       | 212       | 188       |

# Total Fund Risk Analysis 5 Years (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

|                | Anlzd Return | Anlzd Standard Deviation | Anlzd Alpha | Beta | R-Squared | Up Mkt Capture Ratio | Down Mkt Capture Ratio | Information Ratio | Tracking Error | Sharpe Ratio |
|----------------|--------------|--------------------------|-------------|------|-----------|----------------------|------------------------|-------------------|----------------|--------------|
| Total Fund     | 6.63         | 10.54                    | 0.80        | 1.00 | 0.98      | 103.38               | 98.19                  | 0.63              | 1.29           | 0.46         |
| Corridor Index | 5.79         | 10.43                    | 0.00        | 1.00 | 1.00      | 100.00               | 100.00                 | -                 | 0.00           | 0.39         |

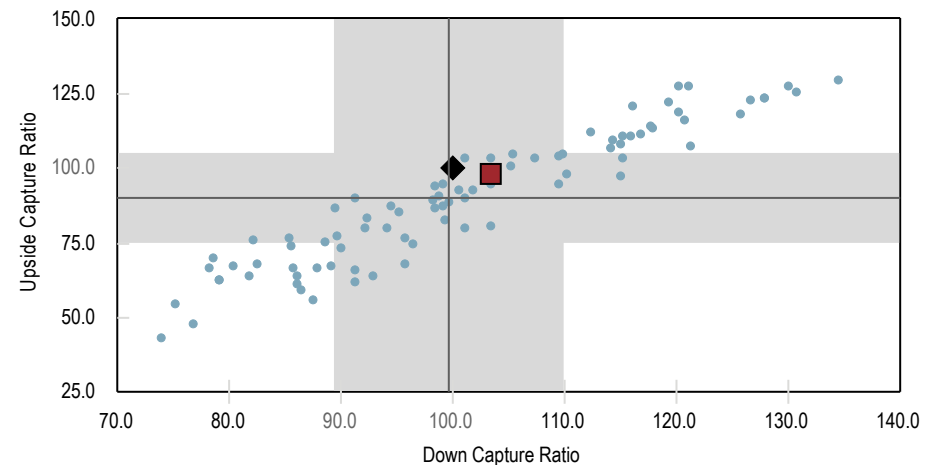
Return vs. Standard Deviation



InvMetrics Public DB > \$1B

|                | Return | Standard Deviation |
|----------------|--------|--------------------|
| Total Fund     | 6.63   | 10.54              |
| Corridor Index | 5.79   | 10.43              |
| Median         | 7.16   | 10.06              |
| Population     | 87     | 87                 |

Down Capture vs. Up Capture



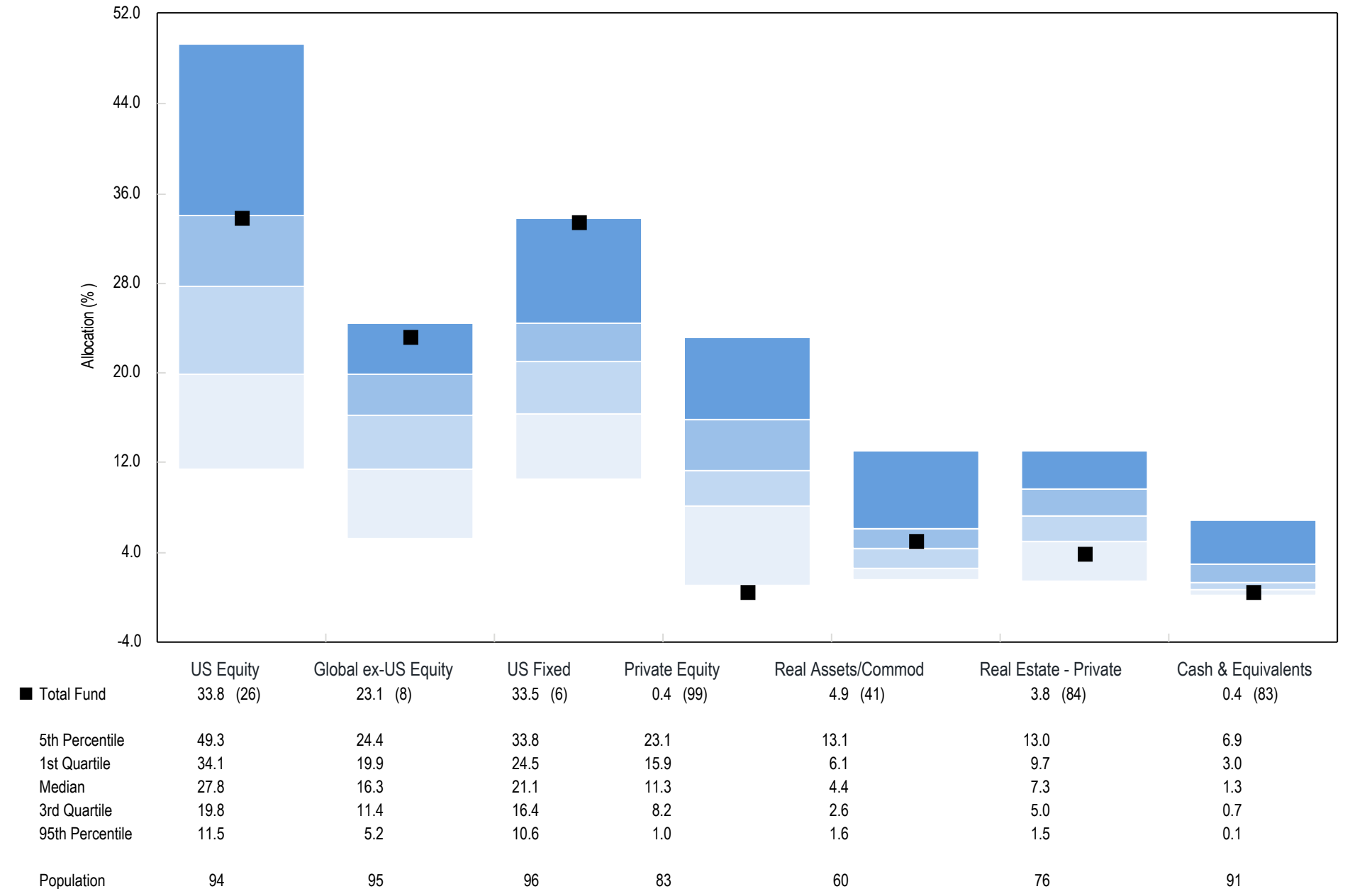
InvMetrics Public DB > \$1B

|                | Down Capture | Up Capture |
|----------------|--------------|------------|
| Total Fund     | 98.19        | 103.38     |
| Corridor Index | 100.00       | 100.00     |
| Median         | 90.15        | 99.64      |
| Population     | 87           | 87         |

# Total Fund

## Peer Universe Comparison: Asset Allocation

NDSIB - Legacy Fund  
Period Ending: June 30, 2024



In-State Equity included in US equity & In-State Fixed Income included in US Fixed for styling purposes. InvMetrics Public DB > \$1B is the Plan Sponsor Peer Group.

# Total Fund

## Asset Allocation & Performance (Net of Fees)

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

|   | Market Value          | % of Portfolio | 3 Mo        | YTD         | Fiscal YTD   | 1 Yr         | 3 Yrs       | 5 Yrs       | 7 Yrs       | 10 Yrs      |
|---|-----------------------|----------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|
| <b>Total Fund</b>                             | <b>10,878,800,038</b> |                | <b>1.0</b>  | <b>5.6</b>  | <b>10.9</b>  | <b>10.9</b>  | <b>2.5</b>  | <b>6.6</b>  | <b>6.5</b>  | <b>6.2</b>  |
| Policy Index                                  |                       |                | 1.1         | 4.5         | 8.8          | 8.8          | 1.4         | 5.6         | 5.8         | 5.4         |
| Corridor Index                                |                       |                | 1.1         | 4.9         | 9.8          | 9.8          | 1.7         | 5.8         | 5.9         | 5.5         |
| <b>Total Equity</b>                           | <b>6,184,325,334</b>  |                | <b>1.4</b>  | <b>10.1</b> | <b>18.0</b>  | <b>18.0</b>  | <b>4.8</b>  | <b>10.5</b> | <b>-</b>    | <b>-</b>    |
| <b>Public Equity</b>                          | <b>6,140,031,442</b>  |                | <b>1.5</b>  | <b>10.1</b> | <b>18.1</b>  | <b>18.1</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| Public Equity Benchmark                       |                       |                | 1.9         | 9.4         | 17.6         | 17.6         | -           | -           | -           | -           |
| <b>Domestic Equity</b>                        | <b>3,621,969,293</b>  |                | <b>1.9</b>  | <b>12.4</b> | <b>21.6</b>  | <b>21.6</b>  | <b>7.6</b>  | <b>13.1</b> | <b>12.1</b> | <b>11.2</b> |
| Domestic Equity Benchmark                     |                       |                | 2.5         | 12.3        | 21.8         | 21.8         | 6.4         | 13.1        | 12.4        | 11.4        |
| <b>Large Cap</b>                              | <b>3,442,416,790</b>  |                | <b>3.4</b>  | <b>15.3</b> | <b>25.1</b>  | <b>25.1</b>  | <b>9.6</b>  | <b>15.4</b> | <b>14.1</b> | <b>12.7</b> |
| Russell 1000 Index                            |                       |                | 3.6         | 14.2        | 23.9         | 23.9         | 8.7         | 14.6        | 13.9        | 12.5        |
| <b>Small Cap</b>                              | <b>179,552,502</b>    |                | <b>-6.1</b> | <b>-2.8</b> | <b>3.2</b>   | <b>3.2</b>   | <b>-0.9</b> | <b>5.0</b>  | <b>5.2</b>  | <b>5.9</b>  |
| Russell 2000 Index                            |                       |                | -3.3        | 1.7         | 10.1         | 10.1         | -2.6        | 6.9         | 6.8         | 7.0         |
| <b>International Equity</b>                   | <b>2,518,017,596</b>  |                | <b>0.8</b>  | <b>6.8</b>  | <b>13.1</b>  | <b>13.1</b>  | <b>0.7</b>  | <b>6.7</b>  | <b>5.9</b>  | <b>4.9</b>  |
| Legacy - Total International Equity Benchmark |                       |                | 0.9         | 5.3         | 11.6         | 11.6         | 1.6         | 5.8         | 5.3         | 4.0         |
| <b>International Equity All Cap</b>           | <b>918,249,315</b>    |                | <b>0.5</b>  | <b>9.0</b>  | <b>15.2</b>  | <b>15.2</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| MSCI AC World ex USA IMI (Net)                |                       |                | 0.9         | 5.3         | 11.6         | 11.6         | -           | -           | -           | -           |
| <b>International Developed Large Cap</b>      | <b>993,036,177</b>    |                | <b>-0.6</b> | <b>4.9</b>  | <b>11.1</b>  | <b>11.1</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| MSCI World ex U.S. (Net)                      |                       |                | -0.6        | 5.0         | 11.2         | 11.2         | -           | -           | -           | -           |
| <b>International Developed Small Cap</b>      | <b>150,032,466</b>    |                | <b>-0.5</b> | <b>3.1</b>  | <b>10.4</b>  | <b>10.4</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| MSCI World ex U.S. Small Cap Index (Net)      |                       |                | -1.6        | 1.0         | 7.8          | 7.8          | -           | -           | -           | -           |
| <b>Emerging Markets</b>                       | <b>456,699,639</b>    |                | <b>5.2</b>  | <b>7.5</b>  | <b>13.6</b>  | <b>13.6</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| MSCI Emerging Markets (Net)                   |                       |                | 5.0         | 7.5         | 12.5         | 12.5         | -           | -           | -           | -           |
| <b>Private Equity</b>                         | <b>44,293,892</b>     |                | <b>0.6</b>  | <b>1.8</b>  | <b>3.0</b>   | <b>3.0</b>   | <b>3.0</b>  | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| Private Equity Benchmark                      |                       |                | 1.6         | 3.6         | 11.3         | 11.3         | 4.1         | -           | -           | -           |
| <b>Total Income</b>                           | <b>3,280,187,393</b>  |                | <b>0.7</b>  | <b>0.6</b>  | <b>4.6</b>   | <b>4.6</b>   | <b>-1.5</b> | <b>1.2</b>  | <b>2.3</b>  | <b>2.8</b>  |
| Blmbg. U.S. Aggregate Index                   |                       |                | 0.1         | -0.7        | 2.6          | 2.6          | -3.0        | -0.2        | 0.9         | 1.3         |
| <b>Private Credit</b>                         | <b>659,103,600</b>    |                | <b>2.9</b>  | <b>5.1</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| <b>Total Real Assets</b>                      | <b>953,649,298</b>    |                | <b>-0.9</b> | <b>-2.2</b> | <b>-3.4</b>  | <b>-3.4</b>  | <b>1.4</b>  | <b>3.7</b>  | <b>-</b>    | <b>-</b>    |
| <b>Real Estate</b>                            | <b>416,357,923</b>    |                | <b>-3.0</b> | <b>-9.6</b> | <b>-12.4</b> | <b>-12.4</b> | <b>0.7</b>  | <b>1.7</b>  | <b>3.0</b>  | <b>5.3</b>  |
| NCREIF Property Index                         |                       |                | -0.3        | -1.2        | -5.5         | -5.5         | 2.3         | 3.4         | 4.4         | 6.1         |
| <b>Infrastructure</b>                         | <b>537,291,375</b>    |                | <b>0.8</b>  | <b>4.6</b>  | <b>4.3</b>   | <b>4.3</b>   | <b>3.1</b>  | <b>5.4</b>  | <b>5.2</b>  | <b>4.0</b>  |
| Infrastructure Benchmark                      |                       |                | 0.5         | -0.9        | -2.4         | -2.4         | 0.1         | 2.4         | 2.8         | 1.9         |
| <b>In-State Investments</b>                   | <b>410,454,650</b>    |                | <b>0.9</b>  | <b>1.6</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| <b>In-State Fixed Income</b>                  | <b>361,110,261</b>    |                | <b>0.9</b>  | <b>1.8</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |
| <b>In-State Equity</b>                        | <b>49,344,389</b>     |                | <b>0.4</b>  | <b>0.4</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>    | <b>-</b>    | <b>-</b>    | <b>-</b>    |

Residual holdings account with a market value of \$1,742,868.05 included in total fund market value.

Total Fund

Asset Allocation & Performance (Net of Fees)

NDSIB - Legacy Fund

Period Ending: June 30, 2024

|                           | Market Value | % of Portfolio | 3 Mo | YTD | Fiscal YTD | 1 Yr | 3 Yrs | 5 Yrs | 7 Yrs | 10 Yrs |
|---------------------------|--------------|----------------|------|-----|------------|------|-------|-------|-------|--------|
| Cash and Equivalents      | 48,440,495   |                | 1.3  | 2.7 | 5.5        | 5.5  | 3.0   | 2.1   | 2.0   | 1.4    |
| 90 Day U.S. Treasury Bill |              |                | 1.3  | 2.6 | 5.4        | 5.4  | 3.0   | 2.2   | 2.1   | 1.5    |

Residual holdings account with a market value of \$1,742,868.05 included in total fund market value.

# Total Fund Plan Comparison

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

| Investment Manager                   | Asset Class          | Pension            |                   | Insurance          |                   | Legacy             |                   | Total         |            |
|--------------------------------------|----------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|---------------|------------|
|                                      |                      | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value  | % of Total |
| LA Capital Large Cap Growth          | Domestic Equity      | 52,852,096         | 0.7               | 7,169,683          | 0.2               | 84,900,765         | 0.8               | 144,922,544   | 0.7        |
| NTAM R1000 Index                     | Domestic Equity      | 669,030,466        | 8.5               | 79,308,535         | 2.4               | 1,046,365,087      | 9.6               | 1,794,704,088 | 8.1        |
| NTAM Quant Enh R1000                 | Domestic Equity      | 321,492,176        | 4.1               | 37,740,288         | 1.1               | 491,660,097        | 4.5               | 850,892,560   | 3.8        |
| Parametric-Clifton Enh R1000         | Domestic Equity      | 322,566,666        | 4.1               | 40,104,631         | 1.2               | 491,871,406        | 4.5               | 854,542,704   | 3.9        |
| LA Capital Enhanced ex Alpha Fd      | Domestic Equity      | 502,462,176        | 6.4               | 53,053,052         | 1.6               | 778,517,223        | 7.2               | 1,334,032,451 | 6.0        |
| LA Capital Enhanced Alpha Fund       | Domestic Equity      | 326,632,695        | 4.1               | 48,358,314         | 1.5               | 549,102,213        | 5.0               | 924,093,222   | 4.2        |
| Atlanta Capital                      | Domestic Equity      | 34,961,712         | 0.4               | 6,537,842          | 0.2               | 46,482,758         | 0.4               | 87,982,313    | 0.4        |
| Riverbridge Small Cap Growth         | Domestic Equity      | 35,606,717         | 0.5               | 6,636,233          | 0.2               | 45,907,981         | 0.4               | 88,150,931    | 0.4        |
| Sycamore Small Cap Value             | Domestic Equity      | 34,845,560         | 0.4               | 6,619,199          | 0.2               | 45,954,823         | 0.4               | 87,419,583    | 0.4        |
| NTAM R2000 Index                     | Domestic Equity      | 10,289,671         | 0.1               | 1,306,333          | 0.0               | 41,206,940         | 0.4               | 52,802,943    | 0.2        |
| William Blair Int'l Leaders          | International Equity | 216,467,670        | 2.7               | 28,848,196         | 0.9               | 421,271,912        | 3.9               | 666,587,779   | 3.0        |
| Arrowstreet ACWI ex US               | International Equity | 381,785,134        | 4.8               | 49,804,188         | 1.5               | 496,977,402        | 4.6               | 928,566,724   | 4.2        |
| State St MSCI World exUS             | International Equity | 481,897,970        | 6.1               | 65,592,423         | 2.0               | 993,036,177        | 9.1               | 1,540,526,570 | 7.0        |
| State St MSCI exUS Small             | International Equity | 44,648,681         | 0.6               | 5,745,416          | 0.2               | 87,619,330         | 0.8               | 138,013,427   | 0.6        |
| DFA Intl Small Cap Value             | International Equity | 32,294,764         | 0.4               | 4,495,022          | 0.1               | 62,413,136         | 0.6               | 99,202,922    | 0.4        |
| Wellington Intl SM Cap               | International Equity | 111,259            | 0.0               | -                  | -                 | -                  | -                 | 111,259       | 0.0        |
| DFA EM All Cap Core                  | International Equity | 110,815,919        | 1.4               | 14,866,893         | 0.4               | 223,184,500        | 2.1               | 348,867,312   | 1.6        |
| State St MSCI EM China               | International Equity | 31,275,212         | 0.4               | 3,972,934          | 0.1               | 62,943,518         | 0.6               | 98,191,664    | 0.4        |
| State St MSCI EM ex China            | International Equity | 84,577,538         | 1.1               | 10,901,528         | 0.3               | 170,571,620        | 1.6               | 266,050,685   | 1.2        |
| Adams St 2010 Direct Partnership     | Private Equity       | 512,443            | 0.0               | -                  | -                 | -                  | -                 | 512,443       | 0.0        |
| Adams St 2010 Non-US Emg Partnership | Private Equity       | 1,043,318          | 0.0               | -                  | -                 | -                  | -                 | 1,043,318     | 0.0        |
| Adams St 2010 Non-US Partnership     | Private Equity       | 1,579,719          | 0.0               | -                  | -                 | -                  | -                 | 1,579,719     | 0.0        |
| Adams St 2010 Partnership            | Private Equity       | 3,910,898          | 0.0               | -                  | -                 | -                  | -                 | 3,910,898     | 0.0        |
| Adams St 1998 Partnership            | Private Equity       | 13,433             | 0.0               | -                  | -                 | -                  | -                 | 13,433        | 0.0        |
| Adams St 1999 Partnership            | Private Equity       | 80,333             | 0.0               | -                  | -                 | -                  | -                 | 80,333        | 0.0        |
| Adams St 2000 Partnership            | Private Equity       | 83,407             | 0.0               | -                  | -                 | -                  | -                 | 83,407        | 0.0        |
| Adams St 2001 Partnership            | Private Equity       | 105,555            | 0.0               | -                  | -                 | -                  | -                 | 105,555       | 0.0        |
| Adams St 2002 Partnership            | Private Equity       | 38,888             | 0.0               | -                  | -                 | -                  | -                 | 38,888        | 0.0        |
| Adams St 2003 Partnership            | Private Equity       | 34,343             | 0.0               | -                  | -                 | -                  | -                 | 34,343        | 0.0        |
| Adams St 2000 Non-US Partnership     | Private Equity       | 35,736             | 0.0               | -                  | -                 | -                  | -                 | 35,736        | 0.0        |
| Adams St 2002 Non-US Partnership     | Private Equity       | 30,431             | 0.0               | -                  | -                 | -                  | -                 | 30,431        | 0.0        |
| Adams St 2004 Non-US Partnership     | Private Equity       | 123,476            | 0.0               | -                  | -                 | -                  | -                 | 123,476       | 0.0        |
| Adams St 2008 Non-US Partnership     | Private Equity       | 3,076,339          | 0.0               | -                  | -                 | -                  | -                 | 3,076,339     | 0.0        |
| Adams St 2015 Global Fund            | Private Equity       | 35,278,745         | 0.4               | -                  | -                 | -                  | -                 | 35,278,745    | 0.2        |
| Adams St 2016 Global Fund            | Private Equity       | 34,739,398         | 0.4               | -                  | -                 | -                  | -                 | 34,739,398    | 0.2        |

# Total Fund Plan Comparison

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

| Investment Manager              | Asset Class    | Pension            |                   | Insurance          |                   | Legacy             |                   | Total         |            |
|---------------------------------|----------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|---------------|------------|
|                                 |                | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value  | % of Total |
| Adams St 2017 Global Fund       | Private Equity | 74,238,937         | 0.9               | -                  | -                 | -                  | -                 | 74,238,937    | 0.3        |
| Adams St 2018 Global Fund       | Private Equity | 76,368,034         | 1.0               | -                  | -                 | -                  | -                 | 76,368,034    | 0.3        |
| Adams St 2019 Global Fund       | Private Equity | 70,652,566         | 0.9               | -                  | -                 | -                  | -                 | 70,652,566    | 0.3        |
| Adams St 2020 Global Fund       | Private Equity | 52,532,241         | 0.7               | -                  | -                 | -                  | -                 | 52,532,241    | 0.2        |
| Adams St 2021 Global Fund       | Private Equity | 34,408,413         | 0.4               | -                  | -                 | -                  | -                 | 34,408,413    | 0.2        |
| Adams St Direct Co-Invest 2006  | Private Equity | -                  | -                 | -                  | -                 | -                  | -                 | -             | -          |
| Altor Fund VI                   | Private Equity | 2,604,875          | 0.0               | -                  | -                 | 2,821,779          | 0.0               | 5,426,655     | 0.0        |
| BlackRock PEP                   | Private Equity | 232,556,879        | 2.9               | -                  | -                 | -                  | -                 | 232,556,879   | 1.1        |
| Blackrock PEP 2020              | Private Equity | 129,666,212        | 1.6               | -                  | -                 | -                  | -                 | 129,666,212   | 0.6        |
| HIG Capital                     | Private Equity | 3,045,157          | 0.0               | -                  | -                 | 4,350,224          | 0.0               | 7,395,382     | 0.0        |
| Sixth Street Partners - TAO     | Private Equity | 79,680,611         | 1.0               | -                  | -                 | 122,306,058        | 1.1               | 201,986,669   | 0.9        |
| Kelso                           | Private Equity | 9,601,847          | 0.1               | -                  | -                 | 10,386,890         | 0.1               | 19,988,737    | 0.1        |
| Portfolio Advisors GP Solutions | Private Equity | 11,155,910         | 0.1               | -                  | -                 | 16,733,838         | 0.2               | 27,889,748    | 0.1        |
| Lewis & Clark, LP               | Private Equity | 1,446,923          | 0.0               | -                  | -                 | -                  | -                 | 1,446,923     | 0.0        |
| Lewis & Clark II                | Private Equity | 3,652,126          | 0.0               | -                  | -                 | -                  | -                 | 3,652,126     | 0.0        |
| CorsAir III                     | Private Equity | 10,775,005         | 0.1               | -                  | -                 | -                  | -                 | 10,775,005    | 0.0        |
| Capital International V         | Private Equity | 114,065            | 0.0               | -                  | -                 | -                  | -                 | 114,065       | 0.0        |
| Capital International VI        | Private Equity | 1,703,746          | 0.0               | -                  | -                 | -                  | -                 | 1,703,746     | 0.0        |
| EIG Energy Fund XIV             | Private Equity | 1,560,318          | 0.0               | -                  | -                 | -                  | -                 | 1,560,318     | 0.0        |
| Hearthstone Advisors MSIII      | Private Equity | 58,695             | 0.0               | -                  | -                 | -                  | -                 | 58,695        | 0.0        |
| Residual Holdings               | Other          | 5,101,001          | 0.1               | 223,128            | 0.0               | 1,742,868          | 0.0               | 7,066,997     | 0.0        |
| Transition Account              | Other          | 286,032            | 0.0               | -                  | -                 | 44,553             | 0.0               | 330,585       | 0.0        |
| Allspring Med Quality Credit    | Fixed Income   | 110,749,048        | 1.4               | 109,810,254        | 3.3               | 165,815,146        | 1.5               | 386,374,448   | 1.7        |
| Manulife-Declaration TRBF       | Fixed Income   | 585,970            | 0.0               | 433,032            | 0.0               | 855,087            | 0.0               | 1,874,089     | 0.0        |
| PIMCO DiSCO II                  | Fixed Income   | 58,345,586         | 0.7               | 54,284,585         | 1.6               | 114,370,345        | 1.1               | 227,000,516   | 1.0        |
| PIMCO Core Plus Constrained     | Fixed Income   | 343,405,762        | 4.3               | 333,505,936        | 10.1              | 504,763,354        | 4.6               | 1,181,675,053 | 5.3        |
| Prudential Core                 | Fixed Income   | 342,328,860        | 4.3               | -                  | -                 | -                  | -                 | 342,328,860   | 1.5        |
| State Street Gov Index          | Fixed Income   | 152,678,397        | 1.9               | 151,296,558        | 4.6               | 224,732,939        | 2.1               | 528,707,893   | 2.4        |
| State Street Credit Index       | Fixed Income   | 41,709,395         | 0.5               | 41,146,720         | 1.2               | 58,737,010         | 0.5               | 141,593,125   | 0.6        |
| Western Asset Core Plus         | Fixed Income   | 338,171,629        | 4.3               | 337,510,917        | 10.2              | 503,459,591        | 4.6               | 1,179,142,137 | 5.3        |
| Fixed Income Transition         | Fixed Income   | -                  | -                 | -                  | -                 | -                  | -                 | -             | -          |
| Cerberus ND Private Credit      | Fixed Income   | 151,466,958        | 1.9               | -                  | -                 | 231,124,508        | 2.1               | 382,591,466   | 1.7        |
| Ares ND Credit Strategies       | Fixed Income   | 125,881,130        | 1.6               | -                  | -                 | 190,084,330        | 1.7               | 315,965,460   | 1.4        |
| Goldman Sachs 2006 Offshore     | Fixed Income   | 1                  | 0.0               | -                  | -                 | -                  | -                 | 1             | 0.0        |
| Loomis Sayles HY                | Fixed Income   | 2,570,253          | 0.0               | -                  | -                 | -                  | -                 | 2,570,253     | 0.0        |



Total Fund  
Plan Comparison

NDSIB - Legacy Fund  
Period Ending: June 30, 2024

| Investment Manager                  | Asset Class             | Pension            |                   | Insurance          |                   | Legacy             |                   | Total          |            |
|-------------------------------------|-------------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|----------------|------------|
|                                     |                         | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value<br>\$ | Allocation<br>(%) | Market Value   | % of Total |
| PIMCO Bravo II                      | Fixed Income            | 2,490,958          | 0.0               | 1,272,600          | 0.0               | 1,218,359          | 0.0               | 4,981,917      | 0.0        |
| Nomura High Yield                   | Fixed Income            | 163,442,008        | 2.1               | -                  | -                 | 329,422,131        | 3.0               | 492,864,139    | 2.2        |
| PineBridge High Yield               | Fixed Income            | 163,398,015        | 2.1               | -                  | -                 | 329,372,802        | 3.0               | 492,770,817    | 2.2        |
| Invesco Core Real Estate            | Real Estate             | 356,641,876        | 4.5               | 53,796,127         | 1.6               | 188,517,756        | 1.7               | 598,955,760    | 2.7        |
| Invesco Asia RE Fund III            | Real Estate             | 15,969,870         | 0.2               | -                  | -                 | -                  | -                 | 15,969,870     | 0.1        |
| Invesco RE Fund VI                  | Real Estate             | 47,545,781         | 0.6               | -                  | -                 | 47,545,781         | 0.4               | 95,091,562     | 0.4        |
| Invesco Value Added Fd IV           | Real Estate             | 249,247            | 0.0               | -                  | -                 | -                  | -                 | 249,247        | 0.0        |
| Invesco Value Added Fd V            | Real Estate             | 53,961,568         | 0.7               | -                  | -                 | -                  | -                 | 53,961,568     | 0.2        |
| JP Morgan SPC & Strat RE            | Real Estate             | 245,296,584        | 3.1               | -                  | -                 | -                  | -                 | 245,296,584    | 1.1        |
| JPM GreaterEur Opp Prop Fd          | Real Estate             | 1                  | 0.0               | -                  | -                 | -                  | -                 | 1              | 0.0        |
| ISQ Global Infrastructure II        | Diversified Real Assets | 74,172,377         | 0.9               | -                  | -                 | 85,583,508         | 0.8               | 159,755,885    | 0.7        |
| ISQ Global Infrastructure III       | Diversified Real Assets | 31,788,524         | 0.4               | -                  | -                 | 47,682,788         | 0.4               | 79,471,312     | 0.4        |
| The Rohatyn Group                   | Diversified Real Assets | 17,554,229         | 0.2               | -                  | -                 | -                  | -                 | 17,554,229     | 0.1        |
| JP Morgan IIF Infrastructure        | Diversified Real Assets | 130,864,517        | 1.7               | 40,155,159         | 1.2               | 107,517,975        | 1.0               | 278,537,652    | 1.3        |
| Grosvenor CIS Fund I                | Diversified Real Assets | 9,191,589          | 0.1               | 4,595,796          | 0.1               | -                  | -                 | 13,787,385     | 0.1        |
| Grosvenor CIS Fund II               | Diversified Real Assets | 19,968,883         | 0.3               | -                  | -                 | 49,913,688         | 0.5               | 69,882,571     | 0.3        |
| Grosvenor CIS Fund III              | Diversified Real Assets | 38,107,019         | 0.5               | 7,233,206          | 0.2               | 50,632,441         | 0.5               | 95,972,666     | 0.4        |
| Macquarie Infrastructure Fund IV    | Diversified Real Assets | 81,686,135         | 1.0               | -                  | -                 | 94,253,233         | 0.9               | 175,939,368    | 0.8        |
| Macquarie Infrastructure Fund V     | Diversified Real Assets | 67,520,024         | 0.9               | 16,910,829         | 0.5               | 101,280,035        | 0.9               | 185,710,888    | 0.8        |
| Springbank Timberland               | Diversified Real Assets | 50,135,577         | 0.6               | -                  | -                 | -                  | -                 | 50,135,577     | 0.2        |
| Teredo                              | Diversified Real Assets | 23,784,470         | 0.3               | -                  | -                 | -                  | -                 | 23,784,470     | 0.1        |
| Northern Trust Cash Account         | Cash                    | 57,480,030         | 0.7               | 70,847,716         | 2.1               | 8,382,050          | 0.1               | 136,709,796    | 0.6        |
| BND Cash                            | Cash                    | 11,618,054         | 0.1               | 22,250,792         | 0.7               | 40,058,445         | 0.4               | 73,927,290     | 0.3        |
| Prudential Core Plus                | Fixed Income            | -                  | -                 | 339,552,902        | 10.2              | 503,925,733        | 4.6               | 843,478,634    | 3.8        |
| Barings Active Short Duration       | Fixed Income            | -                  | -                 | 513,610,444        | 15.5              | -                  | -                 | 513,610,444    | 2.3        |
| JP Morgan Short Term Bond           | Fixed Income            | -                  | -                 | 512,915,023        | 15.5              | -                  | -                 | 512,915,023    | 2.3        |
| JP Morgan Income & Growth Fd        | Real Estate             | -                  | -                 | 43,505,668         | 1.3               | 180,294,386        | 1.7               | 223,800,054    | 1.0        |
| TIR Eastern Timber Opps             | Diversified Real Assets | -                  | -                 | 22,632,741         | 0.7               | -                  | -                 | 22,632,741     | 0.1        |
| Western US TIPS                     | Diversified Real Assets | -                  | -                 | 168,298,177        | 5.1               | 427,707            | 0.0               | 168,725,883    | 0.8        |
| Cerberus Global II                  | Private Equity          | -                  | -                 | -                  | -                 | 6,948,947          | 0.1               | 6,948,947      | 0.0        |
| Fortress                            | Private Equity          | -                  | -                 | -                  | -                 | 3,052,213          | 0.0               | 3,052,213      | 0.0        |
| BND Legacy Infrastructure Loan Fund | In-State Investments    | -                  | -                 | -                  | -                 | 50,059,095         | 0.5               | 50,059,095     | 0.2        |
| BND CDs                             | In-State Investments    | -                  | -                 | -                  | -                 | 311,051,165        | 2.9               | 311,051,165    | 1.4        |
| 50 South Capital II                 | In-State Investments    | -                  | -                 | -                  | -                 | 49,344,389         | 0.5               | 49,344,389     | 0.2        |
| Total                               |                         | 7,907,270,460      | 100.0             | 3,316,849,020      | 100.0             | 10,878,800,038     | 100.0             | 22,102,919,518 | 100.0      |

# Glossary

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

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

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

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

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

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

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

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

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

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