

Research Review

Third Quarter 2023

Volatility across the financial markets remained elevated for the second consecutive month to end the quarter, as a hawkish pause by the Federal Reserve (Fed) helped support a further rise across Treasury interest rates and served as a primary headwind to performance across many key areas of the investment markets. Global equity performance was overwhelmingly negative during the third quarter, particularly among the interest rate-sensitive growth indices, as well as smaller capitalization areas of the market. Despite the pullback across equities since July and continued upward pressure on the U.S. dollar, emerging market equities relatively outperformed domestic. Similar to equities, bond returns were mostly negative, with notable weakness emanating out of the rate-sensitive sectors. Absent a sharp trend reversal across interest rates in the final quarter of 2023, the Bloomberg U.S. Aggregate Bond Index remains at risk of posting an unprecedented third consecutive annual decline, with a year-to-date total return of -1.2% through September. Real asset returns appeared mixed, with the interest rate and economically sensitive real estate investment trust (REIT) and global listed infrastructure categories witnessing steep losses. However, strong gains were witnessed among commodity and energy-related indices.

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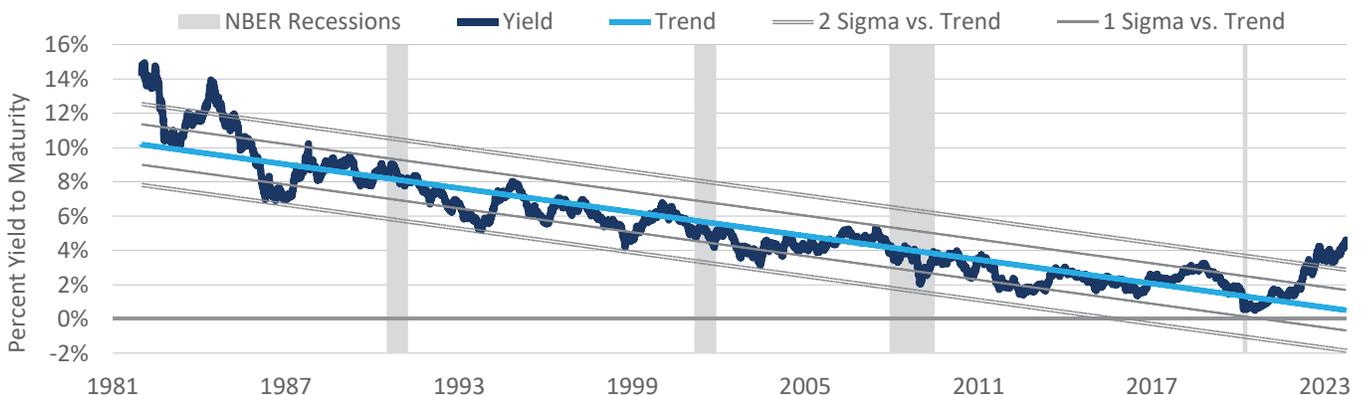
Economic Update

U.S. Treasury Rates Surge to Highest Level since 2007 as Fed Maintains Hawkish Posture

Global investors endured significant pain throughout the calendar year 2022 as the Fed's campaign to restore price stability resulted in a significant tightening in both monetary and broader financial conditions, which in turn drove volatility sharply higher across many key global asset classes and categories. Investors breathed a sigh of relief through the first seven months of 2023 as interest rate volatility moderated, the economy continued to expand at a healthy pace, and a potential end to the Fed's tightening cycle seemed to be on the horizon, all of which helped buttress the "soft landing" narrative.

Hopes for a soft landing were further supported by revisions to the Fed's Summary of Economic Projects (SEP) at the Federal Open Market Committee's (FOMC) late-September policy meeting, which saw upward revisions to forecasts over the coming years related to inflation-adjusted growth and the labor market. The upward revisions to the economic forecasts, however, were joined with downward revisions related to the likelihood of meaningful cuts to the policy rate in 2024, which supported the tighter-for-longer sentiment that has percolated in recent months. Prospects for a slower-than-anticipated reversal in Fed tightening have helped push Treasury prices sharply lower—and yields higher—since July, a move which has propelled the 10-Year Treasury Note yield to its highest level since 2007.

AFTER BREAKING OUT OF A 40-YEAR DOWNTREND IN 2022, U.S. TREASURY RATES CONTINUE TO MOVE HIGHER



Data sources: Bloomberg, L.P., NBER, FEG; Data as of September 29, 2023

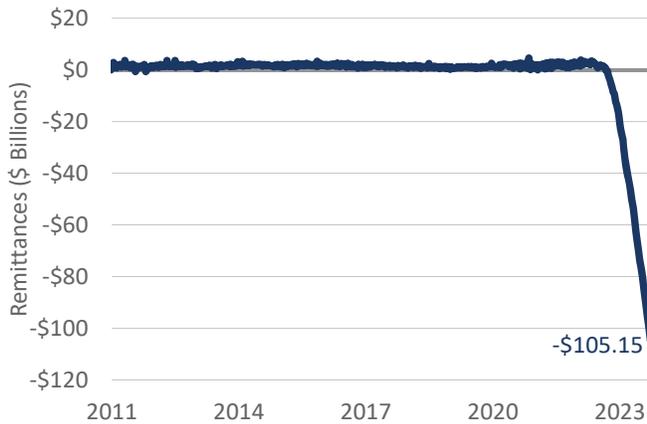
Shaded areas represent periods of recession.

The relentless rise in Treasury rates since May has come at an incredibly inopportune time, as a deluge of Treasury issuance has hit the market since the debt ceiling impasse was resolved in early June. From June 1 to October 3, total public debt outstanding swelled to well over \$33 trillion, with an astonishing \$2 trillion increase in only four months' time. The combination of a ballooning federal debt burden and spiking interest rates compounds an already unstable fiscal situation, which includes a Treasury budget deficit that stood at nearly 8% as a share of nominal Gross Domestic Product (GDP) as of July, a sobering read on the fiscal situation that could deteriorate further, should the economy buckle under the weight of Fed-induced monetary restraint.

Moreover, the Fed's 5.4% interest rate paid on more than \$3 trillion of commercial banking system reserve assets has resulted in a net operating loss exceeding \$100 billion. This loss would appear even more dramatic if the Fed were required to mark its balance sheet assets to market, as a significant portion of the assets were purchased when interest rates were much lower—and bond prices higher—in 2020

FEDERAL RESERVE NET OPERATING GAIN (LOSS)

Earnings Remittances Due to the U.S. Treasury



Data sources: Federal Reserve, Bloomberg, L.P.;
Data as of September 27, 2023

budget deficit. When the Fed is operating at a net loss, however, the opposite effect takes hold, exacerbating an already-wide Treasury budget deficit.

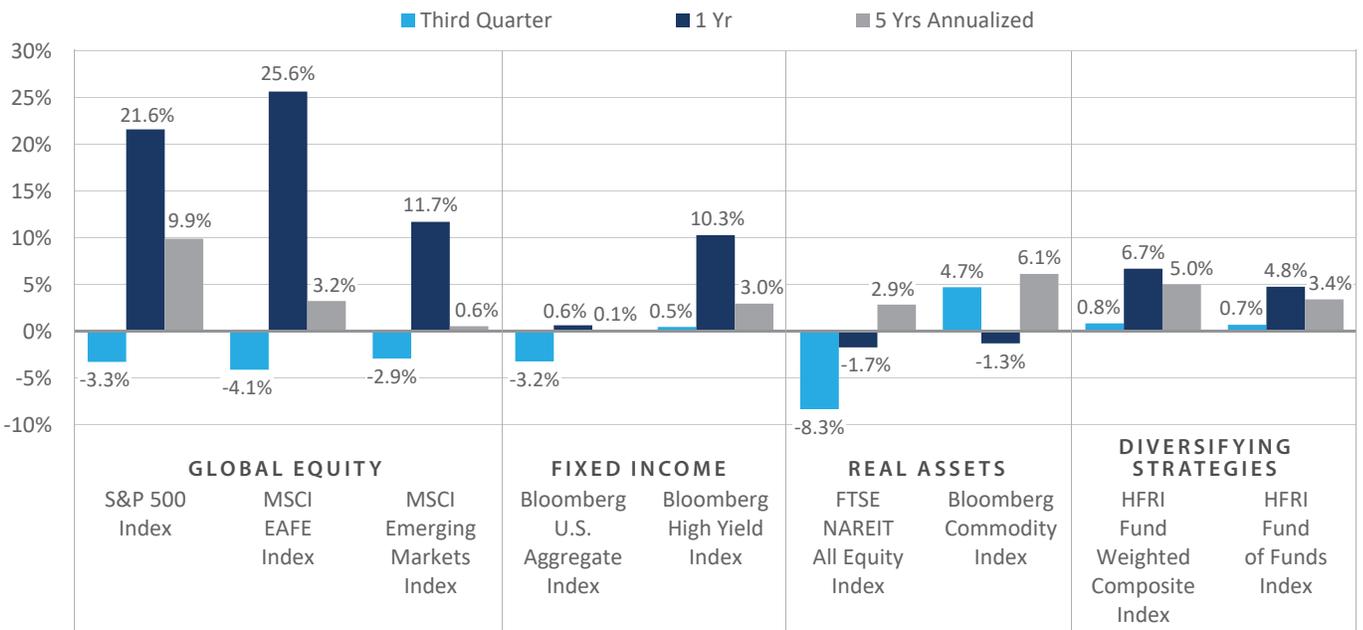
To conclude, after falling behind the eight ball in the management of the price stability half of its dual mandate and allowing inflationary momentum to accelerate well above its 2% targeted level, the Fed's quest to restore price both stability and credibility has resulted in a sharp rise in the policy rate and Treasury rates. In turn, negatively impacting the rate-sensitive pockets of the financial markets and the broader economy. While sentiment for an economic soft landing permeated throughout the investment community in the first half of the year, this narrative has been increasingly called into question since July, as a robust economic situation, continued labor market tightness, spiking oil prices, and hawkish Fed forward guidance have reintroduced concerns for a hard landing. The potentiality of which could result in a continuation of the financial market volatility investors have endured since July until a reset of the business cycle is observed.

and early 2021. As of June 30, 2023, the Fed's combined quarterly financial report noted a \$1 trillion cumulative unrealized loss on its security holdings.

Ordinarily, the Fed's income from its balance sheet assets more than offsets its operating expenses, resulting in a net surplus that is remitted to the U.S. Treasury, in turn reducing the Treasury

Market Summary

Third Quarter 2023



Data sources: Lipper, HedgeFund Research

Global Equity

After a strong risk-on rally in the summer, equity markets sentiment shifted over the quarter, pressured by a significant rise in bond yields and commitments to higher-for-longer monetary policy from central banks globally. The decline in equity returns was broad-based, led by rate-sensitive sectors such as real estate and information technology (IT).

Amid the rising rate environment, value stocks outperformed growth stocks, as the growth stocks' valuations are often more sensitive to long-term discount rates. Additionally, large cap outperformed small cap equities, which tend to face higher interest rate expenses.

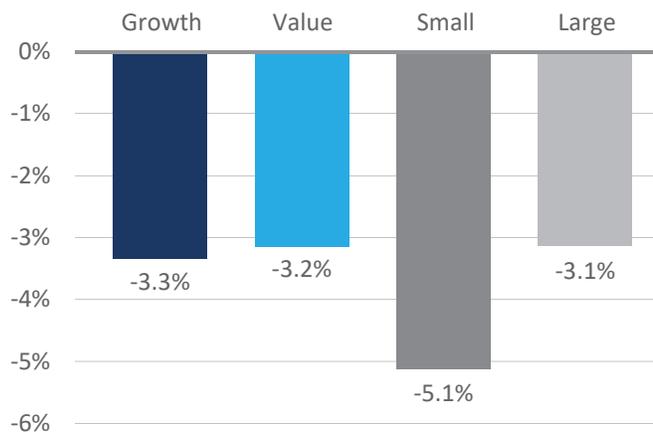
Energy stocks remained resilient over the quarter as oil traded above \$90 per barrel. Meanwhile, stock prices of many members of the "Magnificent Seven" fell, which weighed on the Russell 1000 and S&P 500 indices due to the significant concentration levels in the largest market capitalization stocks.

European stocks declined in the quarter. Consumer discretionary shares were the weakest due in part to concerns about elevated interest rates pressuring consumers. IT also declined as higher interest rates influenced the discount rate applied to longer-duration positions not only in the U.S. but internationally as well.

Unlike other developed markets, UK equities rose in local currencies. The UK's significant exposure to the energy and materials sector benefited performance as those sectors led the market. Domestically focused small cap and mid cap equities rebounded amid a rise in UK consumer confidence. Even domestic banks and real estate equities posted modest returns.

SMALL CAP STOCKS DECLINE THE FURTHEST

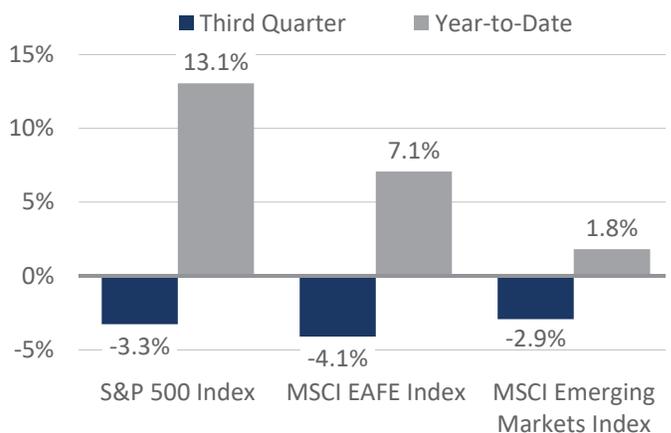
U.S. Style Returns



Data source: FTSE Russell

U.S. EQUITIES STILL LEADING YEAR-TO-DATE

Equity Indices Performance (Returns in U.S. Dollars)



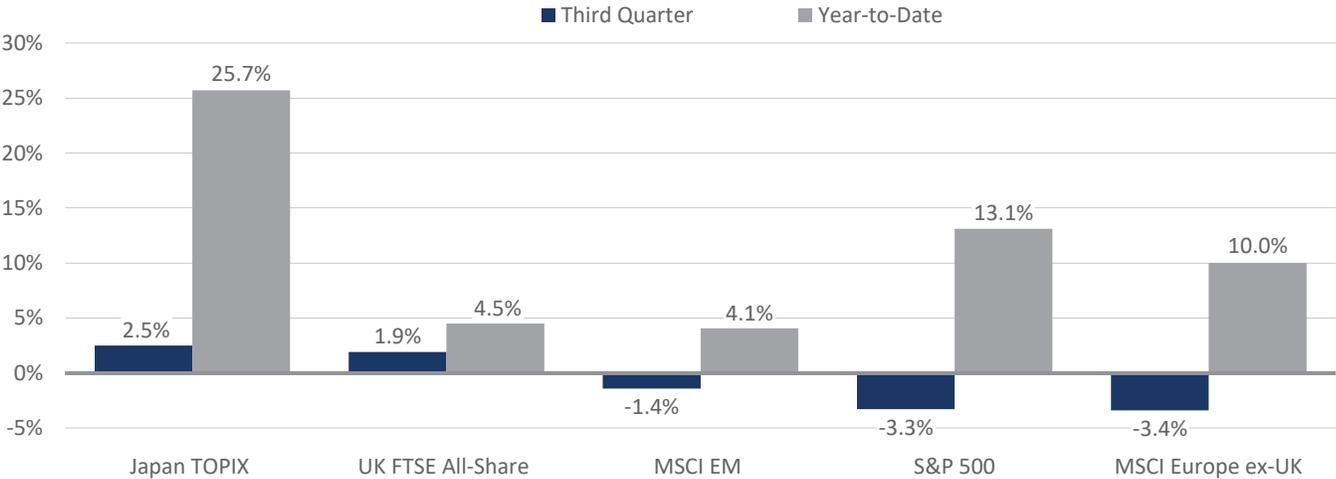
Data sources: S&P, MSCI; Data as of October 10, 2023

Japanese equities saw continued strong performance in local currency. Solid earnings results were supported by the weakening of the yen, and strong domestic demand contributed to solid equity returns. Akin to the U.S., rising interest rates negatively impacted growth equities in Japan, particularly in semiconductor-related industries. Meanwhile, value stocks, such as regional banks, energy, and auto industries, were additive to the market's performance.

Emerging markets equities declined over the quarter. The concerns of the Chinese property market resurfaced as two of the largest property companies faced difficult financial conditions. Taiwan and Korea underperformed the broader index as IT and semiconductors were challenged. Conversely, markets like the United Arab Emirates (UAE) and other energy exporters benefited from the increase in oil prices.

JAPAN'S EQUITY MARKET HAS BEEN STRONG IN YEN TERMS

Regional Equity Performance (Returns in Local Currency)



Data sources: J.P. Morgan, MSCI

Fixed Income

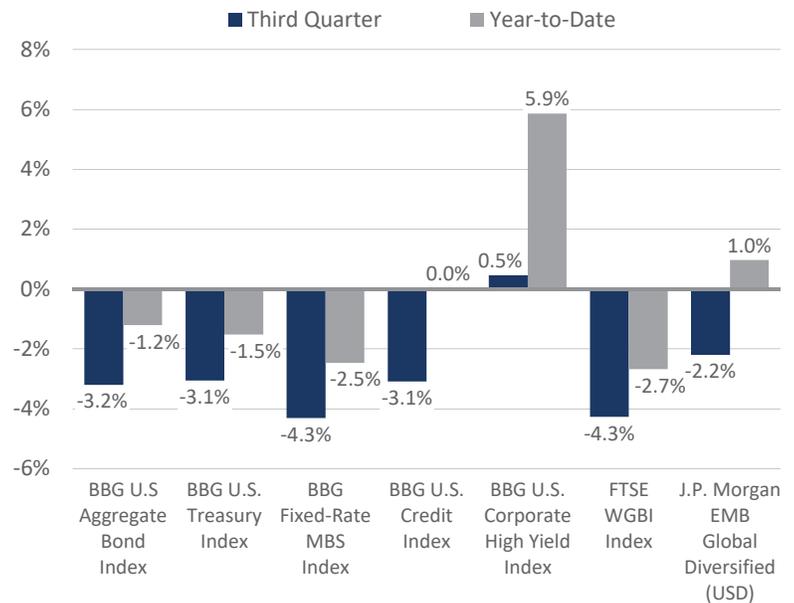
The summer's interest rate sell-off intensified in the third quarter as a confluence of fiscal policy, monetary policy, and economic developments fueled a rise in interest rates. The long end of the yield curve bore the brunt of the sell-off, leading to a material bear steepening of the curve. The 2- and 10-year Treasury yields rose to reach 5.12% and 4.59%, respectively. With the rise in the 10-year yield outpacing the 2-year, the 10-year/2-year Treasury spread steepened 0.62% to -0.44%, with the majority of the steepening—roughly 0.50%—taking place in September.

In the 1980s, Economist Ed Yardeni coined the phrase "bond vigilante" in response to the sell-off in interest rates thought to be caused by investors' distaste for the government's fiscal policies. Moody's again highlighted governance concerns in September, encapsulating growing emphasis on U.S. fiscal policy trends. The long end of the yield curve is historically correlated to the outlook on economic growth, inflation expectations, and fiscal health. Contemporary bond vigilantes cite mounting fiscal deficits, increased Treasury issuance, and the rising sovereign interest burden as motivators for the recent sell-off in interest rates.

The broad decrease in risk appetite during the quarter hit the credit markets in September. The yield to worst (YTW) on the high yield index rose roughly 0.5% during September to reach 8.9% on the back of rising credit spreads and base rates. While credit spreads remain tight on a historical basis, reflecting minimal compensation for credit risk, the YTW on below investment grade credit has improved considerably.

BONDS ON PACE FOR A THIRD YEAR OF NEGATIVE RETURNS

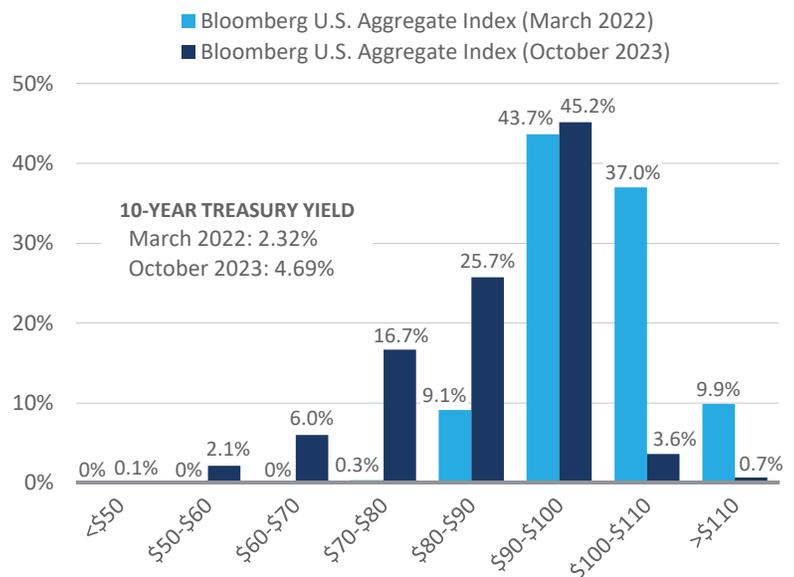
Fixed Income Returns



Data sources: Federal Reserve, Bloomberg, L.P.; Data as of October 2, 2023

RISING RATES REPRICE BOND INDICIES

The Movement in Rates Leading to Many Bonds Trading at Deep Discounts to Par



Data source: FactSet; Data as of October 2, 2023

Real Assets

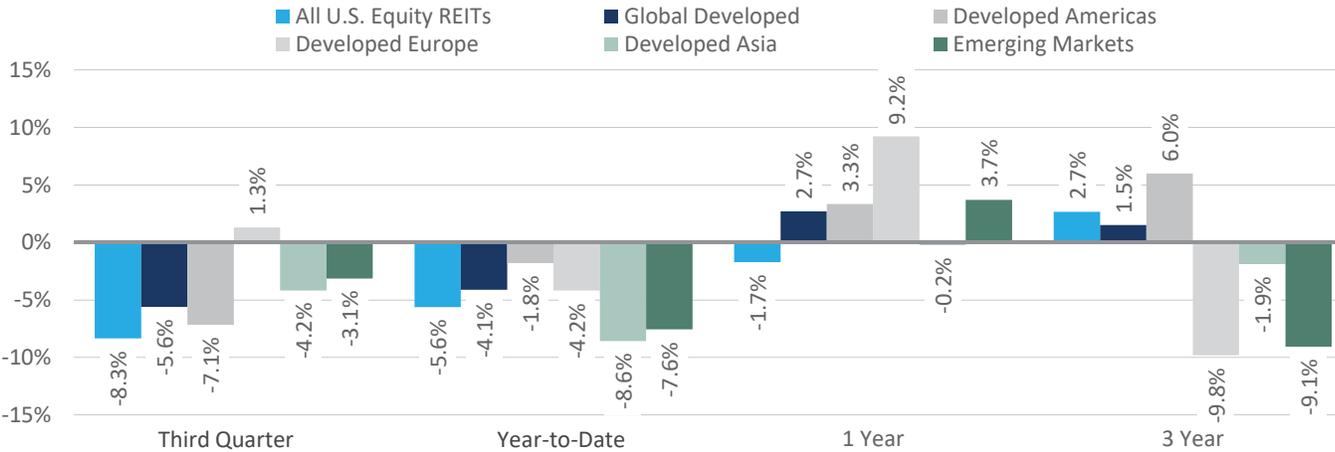
Real Estate

Global Real Estate Investment Trust (REIT) indices declined steeply in August amid a sell-off across risk assets. The market is now pricing in higher interest rates for longer due to the Fed's hawkish stance on inflation, resulting in higher borrowing costs for REITs.

All U.S. and global REIT sub-sector returns were negative during the third quarter. Year-to-date, the data center sub-sector index rose over 16% due to decade-low vacancy rates driven by cloud computing and upbeat expectations for artificial intelligence (AI). Single-family REIT returns remained positive for 2023 as consumers chose rental properties over home purchases due to rising mortgage rates and elevated home values.

GLOBAL REITs LAG IN AUGUST

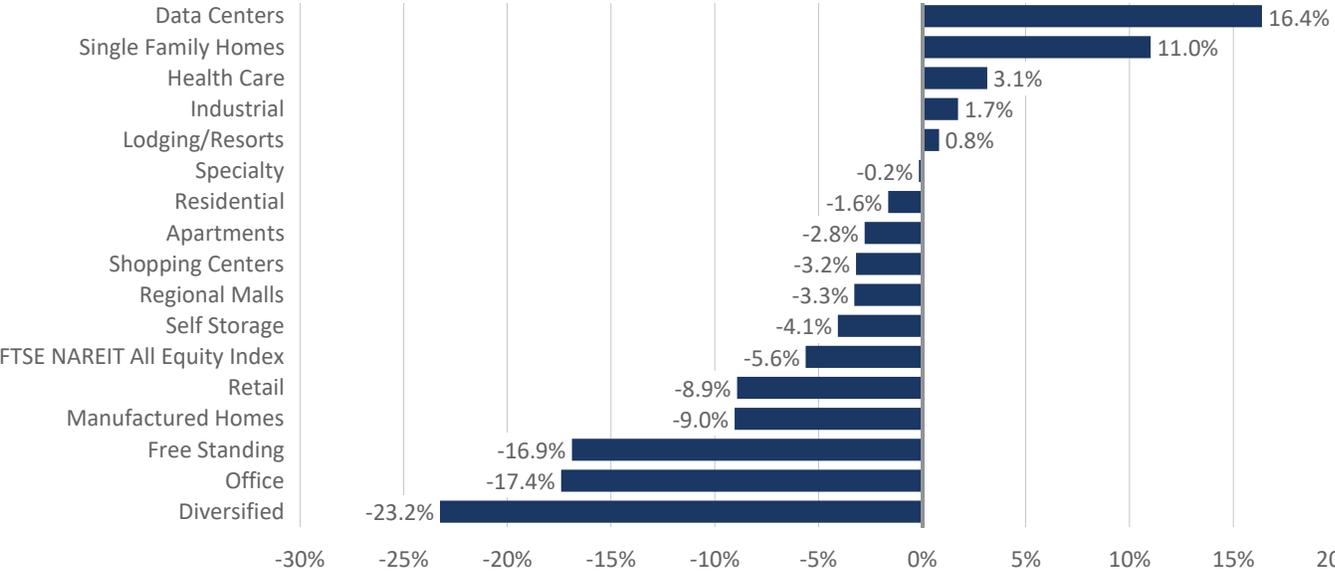
Trailing REIT Performance by Geography



Data source: FactSet

DATA CENTERS RESILIENT ON AI-FUELED DEMAND GROWTH

U.S. REIT Trailing Performance by Property Type, Year-to-Date



Data source: FactSet

Natural Resources

Oil prices, as measured by West Texas Intermediate (WTI), continued to rise, surpassing \$93 per barrel and boosting commodity returns. WTI's elevated price started to deteriorate into October, falling roughly \$10 per barrel in 10 days, partly due to seasonal demand, despite continued production cuts from OPEC+ countries.

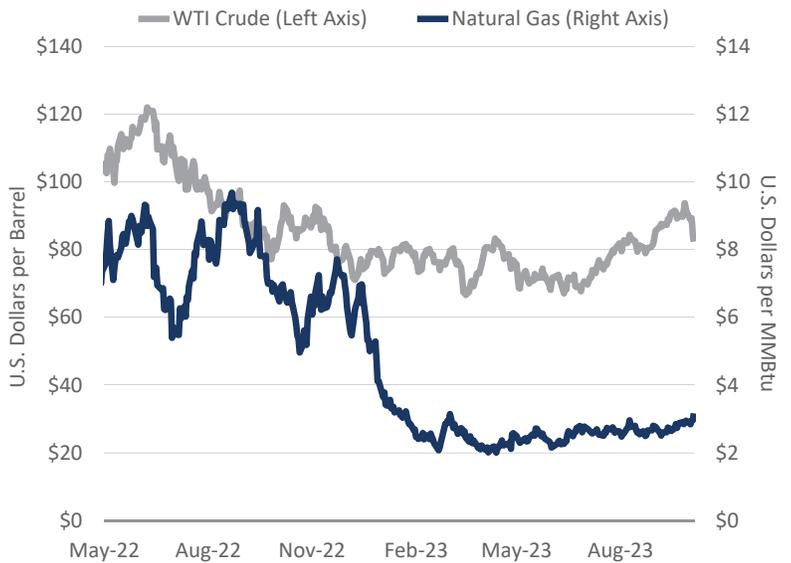
Gasoline prices declined to a greater magnitude than oil during the same time period, as measured by the RBOB Gasoline Continuous Contract. The accumulation of U.S. gasoline stockpiles at the conclusion of the peak summer season, in contrast to typical seasonal patterns, led to the downturn in gasoline prices.

Infrastructure

Global infrastructure, excluding midstream energy and marine ports, underperformed in September. Master Limited Partnership (MLP) energy infrastructure was the only sub-sector with positive returns. Midstream energy infrastructure has benefitted this summer due to the rally in oil prices as OPEC+ continued to cut back on supply.

OIL PRICE DECLINES AFTER SUMMER RALLY

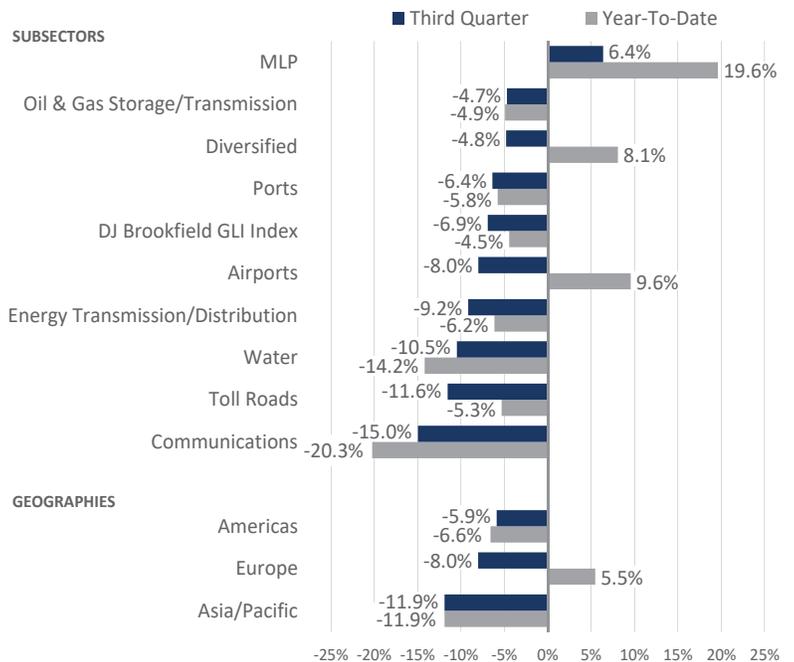
Price of West Texas Intermediate (WTI) Crude and U.S. Natural Gas



Data source: FactSet

MIDSTREAM INFRASTRUCTURE OUTPERFORMS QUARTER-TO-DATE

Listed Infrastructure Trailing Returns



Data source: FactSet

Diversifying Strategies

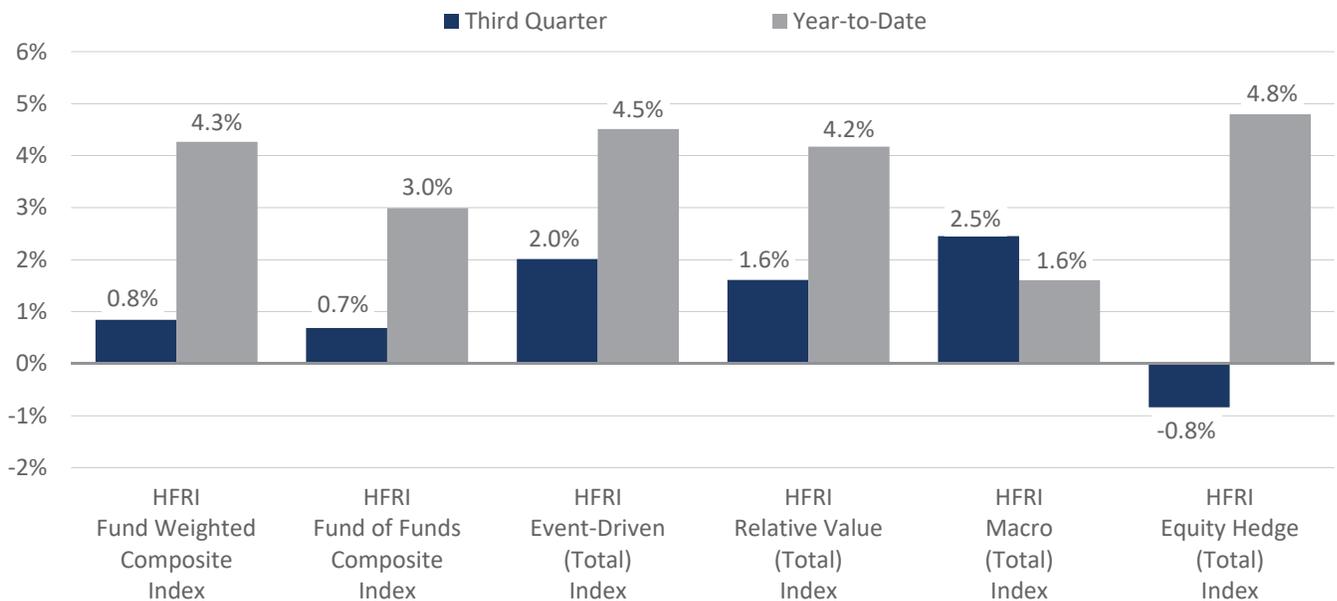
Hedge fund returns were slightly positive over the quarter, adding to solid year-to-date performance. The HFRI Equity-Hedge Index was the largest detractor to composite index performance. The HFRI Event-Driven Index, the HFRI Relative Value Index, and the HFRI Macro Index all posted positive returns. Hedged equity started the quarter with strong performance but quickly reverted in the back half.

Hedged Equity benefited from a market rally, which coincided with an increase in long-net equity positions. However, the increase was primarily an outcome of covering short positions rather than adding to long positions. Hedge funds began re-building their short book as equities began to sell off.

Following a disappointing August, macro-funds ended the quarter on a high note. Macro's success in the third quarter was primarily driven by crude oil tailwinds. The HFRI Macro Commodity Index was up 4.8% compared to the HFRI Currency Index, up 1.2%. Systematic macro outperformed discretionary in September as trend-followers were able to ramp up positions and take advantage of considerable momentum swings.

HEDGE FUNDS ADD TO POSITIVE YEAR-TO-DATE PERFORMANCE

HFRI Indices Performance Returns (U.S. Dollars)



Data source: HedgeFund Research

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All data is as of September 30, 2023 unless otherwise noted.

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