



# Capital Perspectives

Monthly investment analysis and insights from Wilmington Trust Investment Advisors

## ON THE RECORD

### Bond Yields: What goes up, must come down. Or does it?

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**Tony Roth**  
Chief Investment Officer

August was meant to be lazy and easy. Inflation slowed, the Federal Reserve (Fed) hiked again (which was widely expected), corporate earnings were solid enough to not be scary, and markets were taking the U.S. government’s refunding in stride. But investors rarely have the luxury of remaining comfortable for very long, and bond markets played the part of spoiler last month. A series of events drove the 10-year yield to its highest level in nearly 16 years, leading to the worst monthly performance of large-cap stocks this year, according to the S&P 500. The crucial questions are “Why?” and “Where does it go from here?” We’ve recently moved to a more constructive outlook for the U.S. economy but see continuing recession risk, which, along with high valuations, is mainly why we maintain our underweight to stocks. We also think long-term interest rates are more likely to move back down than up, bolstering our case for our current overweight to core fixed income.

#### A one-two-three punch for bond yields

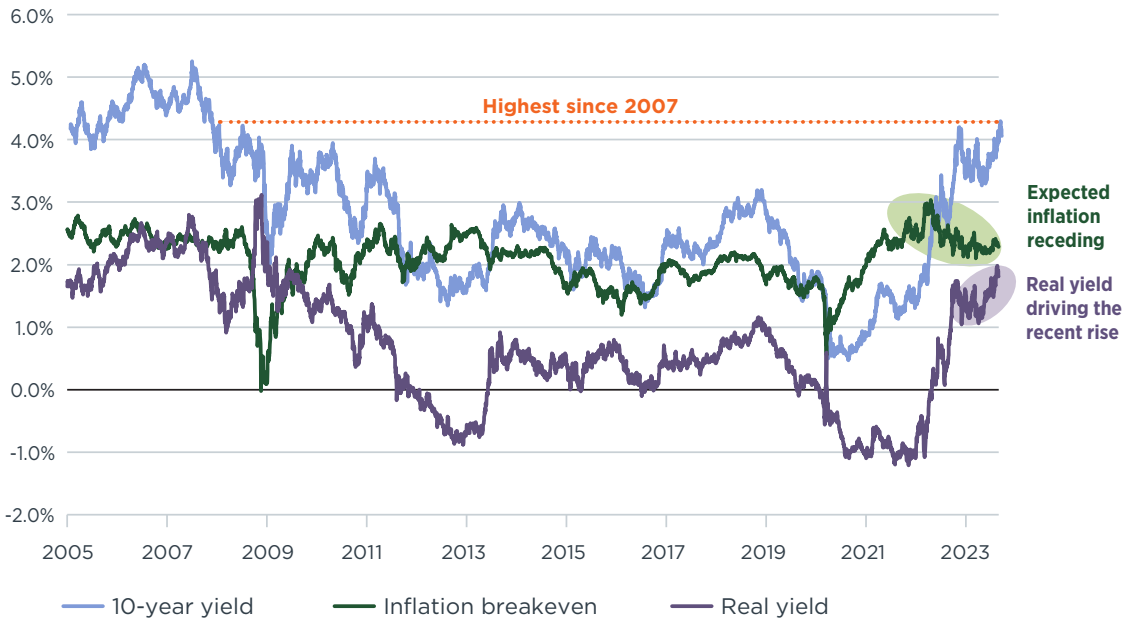
After spending most of the past year drifting in a range of 3.75%–4%, last month’s bond market selloff sent the 10-year yield to its highest level since October of 2007, which was almost a full year before the failure of Lehman Brothers and the onset of the GFC, or global financial crisis (Figure 1). There were three market developments that led directly to the shift in sentiment last month: an upside surprise in planned borrowing by the U.S. Treasury, Fitch’s downgrade of U.S. government debt, and a move by Japan’s central bank that pushed that country’s sovereign yields higher.

Continued

Figure 1

**Highest bond yields in 16 years**

U.S. 10-Year Treasury yield and components (%)



Data as of August 30, 2023.

Source: Bloomberg.

Past performance is not indicative of future results.

**Congress hasn't shown a willingness or ability to get its long-term borrowing under control. It's practically the same thing S&P said in August 2011 when it made the same move, making Fitch's decision appear laughably anticlimactic. Nevertheless, Fitch's move contributed to the selloff.**

That the U.S. government needed to borrow heavily was a surprise to no one. The Treasury had depleted its cash reserves by the time of the June 2023 debt ceiling agreement, and those reserves needed to be rebuilt. The increased borrowing had gone smoothly until July 31 when the government said it planned to borrow \$1 trillion in 3Q, sharply higher than the \$733 billion it had estimated just three months earlier, triggering selling pressure in longer-term Treasuries.

Fitch, the rating agency, compounded the selling pressure a few days later when it [downgraded the U.S. government's credit rating](#) (as discussed in a recent *Wilmington Wire* blog post) to AA+ from AAA, citing "the expected fiscal deterioration over the next three years, a high and growing general government debt burden, and the erosion of governance relative to AA- and AAA-rated peers over the last two decades that has manifested in repeated debt limit standoffs and last-minute resolutions." This was, in layman's terms, what everyone already knows, that Congress hasn't shown a willingness or ability to get its long-term borrowing under control. It's practically the same thing S&P said in August 2011 when it made the same move, making Fitch's decision appear laughably anticlimactic. Nevertheless, Fitch's move contributed to the selloff.

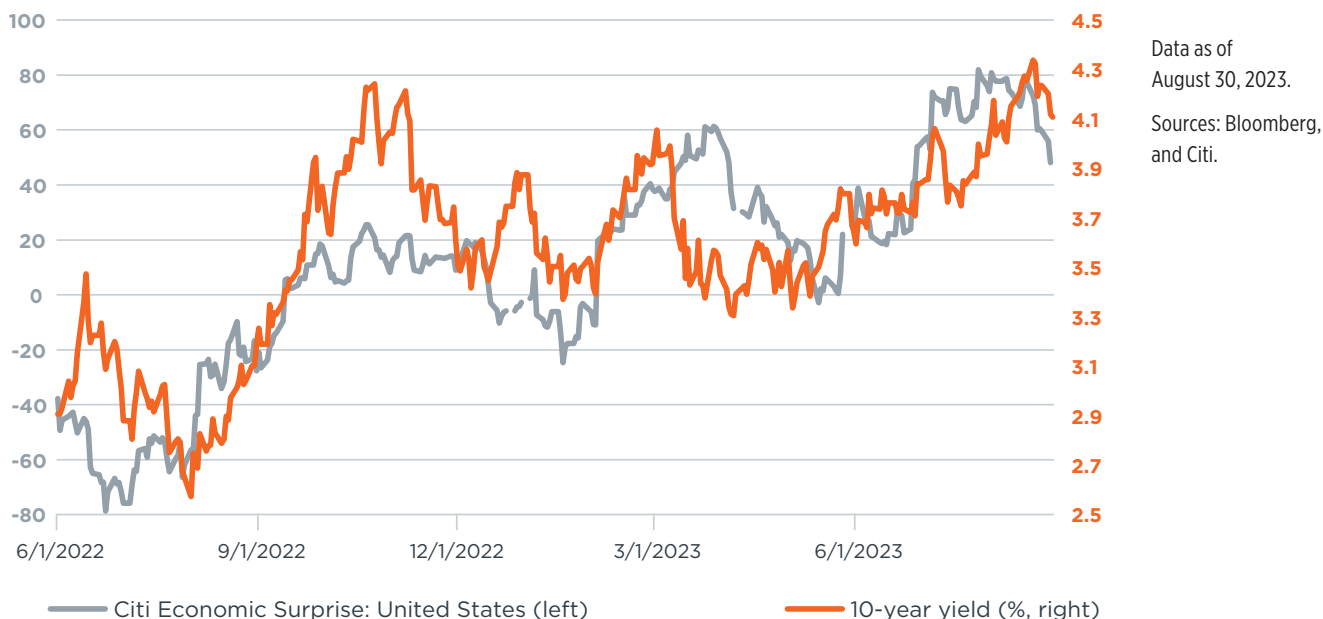
The third development came from abroad. The Bank of Japan (BoJ) loosened its grip on that country's interest rates by relaxing its yield curve control (YCC) policy that has been in place since 2016. In an effort to boost growth and inflation, the BoJ has been holding the 10-year yield at 0%, which has in turn driven Japanese fixed income investors more toward U.S. securities. The BoJ's adjustment last month makes its local bonds more attractive on the margin, and drives investors from the U.S. back to Japan, pushing U.S. yields higher. While each of these three events is

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Figure 2

### U.S economic data keep surprising to the upside helping drive rates higher

U.S. Citi Surprise Index and 10-year yield; Atlanta Fed GDPNow tracker



**It has been the real yield driving the most recent surge in Treasury rates and which can be seen as a proxy for economic growth, bringing with it significant uncertainty around future growth levels.**

very real and not expected to reverse, we do think the market has likely overreacted, pushing yields a bit too high.

#### Breaking it down

Another way to look at Treasury yields is to break them down into two components. Thanks to the existence of Treasury inflation-protected securities (TIPS), it is straightforward to see how much of a Treasury yield is compensating investors for inflation, with the remaining return representing the *real yield*. And both components reflect a combination of investors' expectations as well as uncertainty surrounding those projections.

Expectations for 10-year inflation peaked well over a year ago, in April 2022, ticking above 3% for the first time in the 25-year history of the data. That was when consumer prices were ramping up and the Fed was in the early stages of its campaign to rein in those pressures. Since that time, investors have been calmed by decelerating inflation, and expectations have declined to more normal levels, around 2.4% in August.

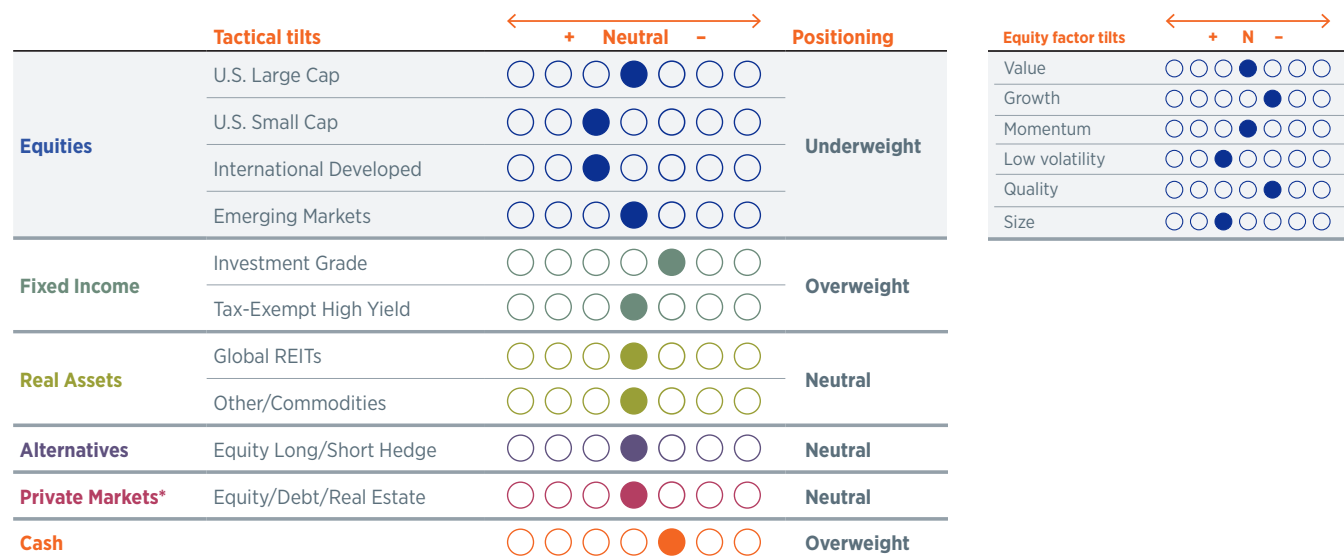
It has been the real yield driving the most recent surge in Treasury rates and which can be seen as a proxy for economic growth, as well as the uncertainty around future growth levels. The U.S. economy continues to defy gravity with strong consumer spending, a possible bottoming out of the housing sector, decent capital expenditure projections, and solid job growth. To wit, the Citi U.S. Economic Surprise Index has been on a steady positive march upward since May 2023, and the Atlanta Fed's GDPNow tracker is currently calling for stronger than 5% growth in 3Q 2023

Continued

Figure 3

**Current positioning**

High-net-worth portfolios with private markets\*



\* Private markets are only available to investors that meet Securities and Exchange Commission standards and are qualified and accredited. We recommend a strategic allocation to private markets but do not tactically adjust this asset class.

Data as of September 1, 2023.

Positioning reflects our monthly tactical asset allocation (TAA) versus the long-term strategic asset allocation (SAA) benchmark. For an overview of our asset allocation strategies, please see the disclosures.

**Although we have recently upgraded our outlook—moving to a baseline expectation of a soft landing and the U.S. avoiding recession—we do not expect a no landing scenario, where the economy simply remains strong.**

(Figure 2). This is all in spite of the swift increase in interest rates over the past year and a shock to the U.S. banking system in early 2023.

While the strong economic data may seem to be unambiguously good news, there is a downside. The rise in real yields is reflecting strong economic growth but also the possibility of more rate hikes and a sustained plateau for rates from the Fed to accompany that significant expansion. One interpretation of the full breakdown shown in Figure 1 is that the U.S. economy has returned *not* to a *pre-Covid*-state, but a *pre-GFC*-state, when growth was higher, but so was inflation, as well as the entire yield curve. The pain endured by equities in August could be less a recession signal as much as it is a sad farewell to the low-rate environment that endured and relentlessly supported stocks for a decade before Covid.

We do think fixed income markets may have overreacted to this recent spate of strong economic data. Although we have recently upgraded our outlook—moving to a baseline expectation of a soft landing and the U.S. avoiding recession—we do not expect a *no landing* scenario, where the economy simply remains strong. The environment is too challenging for that. High rates are weighing on firms' capex plans and also on consumer spending. Additionally, [consumers have spent down](#) the bulk of their dry powder, or cash reserves. Along with the soft landing, we're still looking at a below-trend economy in the 1%–2% growth range. As that plays out in the data, we expect to see some relief with longer-term rates drifting back down.

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Indeed, a handful of data releases late in the month supported our view, pushed rates back down a bit, giving a boost to equities.

### **Holding portfolios steady**

Given all the uncertainty, we are maintaining our current, mildly defensive position in portfolios. We hold a modest underweight to equities versus our long-term strategic asset allocation target, specifically within U.S. small cap and international developed equities. We think our full allocation to U.S. large cap remains appropriate and have been encouraged by its overall strong performance this year (Figure 3).

We hold an overweight to core fixed income. That asset class suffered losses in August due to the rate movements described above, but losses were worse in equities, so this relative positioning was advantageous. We expect rates to come down over our nine- to 12-month tactical horizon as economic growth expectations recede a bit, so this overweight should be additive. We also hold a small overweight to cash that we expect to deploy in future months.

Best,

A handwritten signature in black ink that reads "Tony". The signature is written in a cursive, slightly slanted style.

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## ASSET CLASS OVERVIEW

# Hedge Funds

**Jordan Strauss, CFA**, Senior Portfolio Manager  
**Jessica Blitz, CFA**, Research Analyst

AS OF AUGUST 31, 2023

	QTD	YTD	2022
HFRX Global Hedge	0.85%	1.49%	-4.41%
HFRX Equity Hedge	0.98%	3.97%	-3.18%
HFRX Event Driven	2.04%	-1.01%	-7.27%
HFRX Macro	-1.09%	-0.84%	3.75%
HFRX Relative Value	0.75%	2.94%	-7.72%

Sources: Morningstar. Investing involves risks and you may incur a profit or a loss. Past performance cannot guarantee future results. Indices are not available for direct investment.

### What we are seeing now

Hedge fund managers were broadly defensively positioned during the back half of 2022 and remained so into the beginning of 2023. Net selling remained strong into April, with managers hesitant to add significantly to single-name longs during macroeconomic uncertainty. This proved prescient, as global long/short returns were largely due to short bets underperforming the market through February and March.

A notable exception to the widespread net selling was in U.S. technology, where funds added incrementally to long books. In May, when technology stocks ripped, the average long/short equity fund saw their alpha generation increase, predominantly due to strong performance in their long books. Despite the uptick, the average discretionary equity strategy failed to overcome their weaker first quarter and ended the first half of the year with negative alpha; gains were largely driven by beta exposure. Quant equity strategies fared slightly better but trailed the magnitude of their outperformance during 2022.

Performance dispersion within the hedge fund universe continues by strategy. After dominating in 2022, macro and multi-strategy funds struggled to maintain their outperformance into 2023. Credit strategies performed moderately well, while equity strategies lagged on a relative performance basis.

### What's changing

July ended as one of the largest de-grossing months in recent years, even as nearly all the last year has seen decreased gross trading activity. As mega cap technology winners rose and markets began to widen, hedge funds started to reduce short positions in June, though the pace of short covering increased dramatically in July. The combined notional short covering activity through June and July was the largest since 2016. Single stocks and macro products were net bought for the period, though this was primarily driven by short covering rather than increasing market exposure.

### What we expect

In 2022 and during the COVID-19 sell-off of March and April 2020, hedge funds were broadly able to generate a diversified return stream during challenging market conditions. While long-standing trends—performance dispersion, hedge fund market concentration, and fee compression—will continue to challenge the industry for the foreseeable future, we believe that with strong due diligence, investing in the right hedge fund can provide downside mitigation, as displayed during recent market contractions. While recent market performance has been narrow in nature, select funds should be well positioned to capitalize on volatility and stock market dispersion in the coming months.

# Disclosures

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Alternative assets, such as strategies that invest in hedge funds, can present greater risk and are not suitable for all investors.

Any positioning information provided does not include all positions that were taken in client accounts and may not be representative of current positioning. It should not be assumed that the positions described are or will be profitable or that positions taken in the future will be profitable or will equal the performance of those described.

Indices are not available for direct investment. Investment in a security or strategy designed to replicate the performance of an index will incur expenses, such as management fees and transaction costs that will reduce returns.

## **An overview of our asset allocation strategies:**

Wilmington Trust offers seven asset allocation models for taxable (high-net-worth) and tax-exempt (institutional) investors across five strategies reflecting a range of investment objectives and risk tolerances: Aggressive, Growth, Growth & Income, Income & Growth, and Conservative. The seven models are High-Net-Worth (HNW), HNW with Liquid Alternatives, HNW with Private Markets, HNW Tax Advantaged, Institutional, Institutional with Hedge LP, and Institutional with Private Markets. As the names imply, the strategies vary with the type and degree of exposure to hedge strategies and private market exposure, as well as with the focus on taxable or tax-exempt income.

Model Strategies may include exposure to the following asset classes: U.S. large-capitalization stocks, U.S. small-cap stocks, developed international stocks, emerging market stocks, U.S. and international real asset securities (including inflation-linked bonds and commodity-related and real estate-related securities), U.S. and international investment-grade bonds (corporate for Institutional or Tax Advantaged, municipal for other HNW), U.S. and international speculative grade (high-yield) corporate bonds and floating-rate notes, emerging markets debt, and cash equivalents. Model Strategies employing nontraditional hedge and private market investments will, naturally, carry those exposures as well. **Each asset class carries a distinct set of risks, which should be reviewed and understood prior to investing.**

## **Allocations:**

Each strategy group is constructed with target policy weights for each asset class. Wilmington Trust periodically adjusts the policy weights' target allocations and may shift from the target allocations within certain ranges. Such tactical allocation adjustments are generally considered on a monthly basis in response to market conditions.

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## Disclosures Continued

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The asset classes and their current proxies are:

- Large-cap U.S. stocks: Russell 1000® Index
- Small-cap U.S. stocks: Russell 2000® Index
- Developed international stocks: MSCI EAFE® (Net) Index
- Emerging market stocks: MSCI Emerging Markets Index
- U.S. inflation-linked bonds: Bloomberg US Treasury Inflation Notes TR Index Value Unhedged\*
- International inflation-linked bonds: Bloomberg World ex US ILB (Hedged) Index
- Commodity-related securities: Bloomberg Commodity Index
- U.S. REITs: S&P US REIT Index
- International REITs: Dow Jones Global ex US Select RESI Index
- Private markets: S&P Listed Private Equity Index
- Hedge funds: HFRX Global Hedge Fund Index
- U.S. taxable, investment-grade bonds: Bloomberg U.S. Aggregate Index
- U.S. high-yield corporate bonds: Bloomberg U.S. Corporate High Yield Index
- U.S. municipal, investment-grade bonds: S&P Municipal Bond Index
- U.S. municipal high-yield bonds: 60% Bloomberg High Yield Municipal Bond Index / 40% Municipal Bond Index
- International taxable, investment-grade bonds: Bloomberg Global Aggregate ex US
- Emerging bond markets: Bloomberg EM USD Aggregate
- Cash equivalent: 30-day U.S. Treasury bill rate

### **All investments carry some degree of risk.**

Return volatility, as measured by standard deviation, of asset classes is often used as a proxy for illustrating risk. Volatility serves as a collective, quantitative estimate of risks present to varying degrees in the respective asset classes (e.g., liquidity, credit, and default risks). Certain types of risk may be underrepresented by this measure. **Investors should develop a thorough understanding of the risks of any investment prior to committing funds.**

**Quality ratings** are used to evaluate the likelihood of default by a bond issuer. Independent rating agencies, such as Moody's Investors Service and Standard & Poors, analyze the financial strength of each bond's issuer. Ratings range from Aaa or AAA (highest quality) to C or D (lowest quality). Bonds rated Baa3 or BBB and better are considered **Investment Grade**. Bonds rated Ba1 or BB and below are **Speculative Grade** (also **High Yield**.)

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# Glossary

**30-day U.S. Treasury bill rate Bank of America Merrill Lynch U.S. 3-Month Treasury Bill Index** measures the performance of a single U.S. Treasury bill added to the index at the beginning of the month and held for a full month; the issue is replaced with a newly selected issue at each month-end and the index will often hold the Treasury bill issued at the most recent three-month auction, it is also possible for a seasoned six-month bill to be selected.

**Alpha** is the excess return of an investment, relative to the return of a benchmark index.

**Basis points** refers to a common unit of measure for interest rates and other percentages in finance. One basis point is equal to 1/100th of 1%, or 0.01%, or 0.0001, and is used to denote the percentage change in a financial instrument.

**Beta** is a measure of how an individual asset moves when the overall stock market increases or decreases. Thus, beta is a useful measure of the contribution of an individual asset to the risk of the market portfolio when it is added in small quantity.

**The Bloomberg Agriculture Subindex Total Return (BCOMAGTR)**, formerly known as Dow Jones-UBS Agriculture Subindex Total Return (DJUBAGTR), is a commodity group subindex of the Bloomberg CTR composed of futures contracts on coffee, corn, cotton, soybeans, soybean oil, soybean meal, sugar and wheat and reflects the return on fully collateralized futures positions and is quoted in USD.

**The Bloomberg Commodity Index** is composed of futures contracts and reflects the returns on a fully collateralized investment in the BCOM; it combines the returns of the BCOM with the returns on cash collateral invested in 13 week (3 Month) U.S. Treasury Bills.

**The Bloomberg Commodity Total Return index (BCOMTR)** is composed of futures contracts and reflects the returns on a fully collateralized investment in the BCOM and combines the returns of BCOM with the returns on cash collateral invested in 13 week (3 Month) U.S. Treasury Bills.

**The Bloomberg Dollar Spot Index** tracks the performance of a basket of 10 leading global currencies versus the U.S. Dollar. It has a dynamically updated composition and represents

a diverse set of currencies that are important from trade and liquidity perspectives.

**The Bloomberg Energy Subindex Total Return (BCOMENTR)**, formerly known as Dow Jones-UBS Energy Subindex Total Return (DJUBENTR), is a commodity group subindex of the Bloomberg CTR composed of futures contracts on crude oil, heating oil, unleaded gasoline and natural gas and reflects the return on fully collateralized futures positions and is quoted in USD

**The Bloomberg Global Aggregate Bond Index** measures the performance of global investment-grade fixed-rate debt markets, including the U.S., Pan-European, Asian-Pacific, Global Treasury, Eurodollar, Euro-Yen, Canadian, and investment-Grade 144A index-eligible securities.

**The Bloomberg Industrial Metals Subindex Total Return Index (BCOMTNT)**, formerly known as Dow Jones-UBS Industrial Metals Subindex Total Return (DJUBINTR), is a commodity group subindex of the Bloomberg CTR composed of longer-dated futures contracts on aluminum, copper, nickel and zinc and reflects the return on fully collateralized futures positions and is quoted in USD.

**Bloomberg Municipal Bond Index** covers the four main sectors of the USD-denominated long-term tax-exempt bond market: state, and local, general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds.

**The Bloomberg Precious Metals Subindex Total Return (BCOMPRTTR)**, formerly known as Dow Jones-UBS Precious Metals Subindex Total Return (DJUBPRTR), is a commodity group subindex of the Bloomberg CTR composed of futures contracts on gold and silver. It reflects the return on fully collateralized futures positions and is quoted in USD.

**The Bloomberg U.S. Aggregate Index** measures the performance of the entire U.S. market of taxable, fixed-rate, investment-grade bonds. Each issue in the index has at least one year left until maturity and an outstanding par value of at least \$250 million.

**The Bloomberg US Credit Index** measures the investment grade, US dollar-denominated, fixed-rate, taxable corporate and government related bond markets. It is composed of the US Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supnationals and local authorities.

**The Bloomberg U.S. High Yield Corporate Index**, formerly Lehman Brothers U.S. High Yield Corporate Index, measures the performance of taxable, fixed-rate bonds issued by industrial, utility, and financial companies and rated below investment grade. Each issue in the index has at least one year left until maturity and an outstanding par value of at least \$150 million.

**The Bloomberg U.S. Mortgage Backed Securities Index** measures the performance of investment grade fixed-rate mortgage-backed pass-through securities of GNMA, FNMA, and FHLMC.

**The Bloomberg US Treasury US TIPS TR USD index** measures the performance of rules-based, market value-weighted inflation-protected securities issued by the U.S. Treasury. It is a subset of the Bloomberg US Treasury Inflation-Linked Bond Index (Series-L), which measures the performance of the US Treasury Inflation Protected Securities (TIPS) market. Federal Reserve holdings of US TIPS are not index eligible and are excluded from the face amount outstanding of each bond in the index.

**Call risk:** Call risk is the possibility that an issuer may redeem a fixed income security before maturity (a call) at a price below its current market price. An increase in the likelihood of a call may reduce the security's price.

**Cambridge Global Private Equity Index** is a horizon calculation based on data compiled from 2,354 private equity funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest.

**Consumer price index** measures the price of consumer goods and how they're trending and is a tool for measuring how the economy as a whole is faring when it comes to inflation or deflation.

**Coupon, coupon rate, or coupon payment** is the annual interest rate paid on a bond, expressed as a percentage of the face value and paid from issue date until maturity.

Continued

## Glossary Continued

**Credit risk:** Fixed income securities carry the risk of default, which means that the security issuer fails to pay interest or principal when due. Many fixed income securities receive credit ratings from services such as Standard & Poor's and Moody's Investor Services, Inc. These services assign ratings to securities by assessing the likelihood of issuer default. Lower credit ratings correspond to higher credit risk.

**Dow Jones Global ex. US Select RESI Index** tracks the performance of equity real estate investment trusts (REITs) and real estate operating companies (REOCs) traded globally, excluding the U.S.

**Drawdown** is a peak-trough decline during a specific period for an investment, trading account, or fund and is usually quoted as the percentage between the peak and the subsequent trough.

**Drift** occurs when an asset or investment diverges significantly from its objective or investment style, such as market capitalization. It can result naturally from capital appreciation in one asset relative to others in a portfolio, a change in a fund's management, or a manager who begins to diverge from the portfolio's mandate. It can be corrected by rebalancing the fund to optimal weights.

**Duration risk** is the risk associated with the sensitivity of a bond's price to a one percent change in interest rates. The higher a bond's duration, the greater its sensitivity to interest rates changes.

**Equity risk premium** is the extra return that's available to equity investors above the return they could get by investing in a riskless investment like T-Bills or T-Bonds or cash.

**ESG** is a strategy that integrates environmental, social, and governance (ESG) factors into the investment process may avoid or sell investments that do not meet criteria set forth by the investment manager. Such investments may perform better than investments selected utilizing ESG factors.

**Event-driven hedge fund strategies** attempt to take advantage of temporary stock mispricing before or after a corporate event takes place. An event-driven strategy exploits the tendency of a company's stock price to suffer during a period of change.

**Federal funds rate** is the interest rate at which depository institutions lend reserve balances to other depository institutions overnight on an uncollateralized basis.

**Global intangible low-taxed income (GILTI)** is a category of income that is earned abroad by U.S.-controlled foreign corporations (CFCs) and is subject to special treatment under the U.S. tax code.

**Gold** can be significantly affected by international monetary and political developments as well as supply and demand for gold and operational costs associated with mining.

**Headline inflation** is a measure of the total inflation within an economy, including commodities such as food and energy prices, which tend to be much more volatile and prone to inflationary spikes.

**HFR® (HedgeFundResearch) Indices** are the established global leader in the indexation, analysis and research of the hedge fund industry. They are broadly constructed indices designed to capture the breadth of hedge fund performance trends across all strategies and regions.

**HFRX Absolute Return Index and the HFRX Global Hedge Fund Index** represent the overall composition of the hedge fund universe and comprise all eligible hedge fund strategies and selects constituents that characteristically exhibit lower volatilities and lower correlations to standard directional benchmarks of equity market and hedge fund industry performance.

**HFRX Global Hedge Fund Index** is designed to be representative of the overall composition of the hedge fund universe and are asset weighted based on the distribution of assets in the hedge fund industry.

**Inflation-linked bonds** are a specific type of index-linked securities that are tied to the costs of consumer goods as measured by the Consumer Price Index (CPI) or another index. Their values increase during inflationary periods, which reduces the risk of uncertainty.

**Interest rate risk:** Prices of fixed income securities rise and fall in response to changes in the interest rate paid by similar securities. Generally, when interest rates rise, prices of fixed income securities fall. However, market factors, such as the demand for particular fixed income securities, may cause the price of certain fixed income securities to fall while the price of other securities rise or remain unchanged. Interest rate changes have a greater effect on the price of fixed income securities with longer durations. Duration measures the price sensitivity of a fixed income security to changes in interest rates.

**The ISM manufacturing index**, also known as the purchasing managers' index (PMI), is a monthly indicator of U.S. economic activity based on a survey of purchasing managers at more than 300 manufacturing firms and is considered to be a key indicator of the state of the U.S. economy.

**ISM Non-Manufacturing Index** is an economic index based on surveys of more than 400 non-manufacturing (or services) firms' purchasing and supply executives and is part of the ISM Report On Business—Manufacturing (PMI) and Services (PMI).

**ISM Services Prices Paid Index** is a diffusion index calculated by adding the percent of responses indicating they paid more for inputs plus one-half of those responding who paid the same; resulting in a single number that is seasonally adjusted.

**LIBOR** is the average interbank interest rate at which a selection of banks on the London money market are prepared to lend to one another.

**Long, or a long position**, describes an investor's expectation of a holding's future value. A position that the investor expects will rise in value and plans to hold for a long period of time is often described as "held long." It is the opposite of short, or a short position.

**M2 money supply** is a measure of the money supply that includes cash, checking deposits, and other types of deposits that are readily convertible to cash such as CDs.

**Macro hedge fund strategies** generally focus on financial instruments that are broad in scope and move based on systemic or market risk (not security specific). In general, portfolio managers who trade within the context of macro strategies focus on currency strategies, interest rates strategies, and stock index strategies.

Continued

## Glossary Continued

**MSCI AC Asia ex Japan Index** captures large- and mid-cap representation across two of three developed markets countries (excluding Japan) and nine emerging markets countries in Asia. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI All Country World Index (ACWI)** is a stock index designed to track broad global equity-market performance. Maintained by Morgan Stanley Capital International (MSCI), the index comprises the stocks of about 3,000 companies from 23 developed countries and 26 emerging markets.

**MSCI China Index** captures large- and mid-cap representation across China A shares, H shares, B shares, Red chips, P chips and foreign listings (e.g. ADRs). The index covers about 85% of this China equity universe. Currently, the index includes large-cap A and mid-cap A shares represented at 20% of their free float adjusted market capitalization.

**MSCI EAFE Growth Index** captures large- and mid-cap securities exhibiting overall growth style characteristics across developed markets countries around the world, excluding the U.S. and Canada.

**MSCI EAFE Index** is an equity index which captures large and mid-cap representation across 21 Developed Markets countries around the world, excluding the U.S. and Canada. With 902 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI EAFE® (net) Index** measures the performance of approximately 20 developed equity markets, excluding those of the United States and Canada; total returns of the index are net of the maximum tax withholding rates that apply in many countries to dividends paid to non-resident investors.

**MSCI Emerging Markets (net) Index** captures large- and mid-cap representation across 27 emerging markets countries. With 1,407 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI EAFE Value Index** captures large- and mid-cap securities exhibiting overall value style characteristics across developed markets countries around the world, excluding the U.S. and Canada.

**MSCI Emerging Markets Index** captures large- and mid-cap representation across 26 emerging markets countries. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI Europe Index** captures large- and mid-cap representation across 15 developed markets (DM) countries in Europe. The index covers approximately 85% of the free float-adjusted market capitalization across the European DM equity universe.

**MSCI Japan Index** is designed to measure the performance of the large- and mid-cap segments of the Japanese market. The index covers approximately 85% of the free float-adjusted market capitalization in Japan.

**MSCI United Kingdom Index** is designed to measure the performance of the large- and mid-cap segments of the UK market. The index covers approximately 85% of the free float-adjusted market capitalization in the UK.

**Personal consumption expenditures** is the primary measure of consumer spending on goods and services in the U.S. economy and is the primary engine that drives future economic growth.

**Price-to-earnings (P/E) ratio** measures a company's current share price relative to its earnings per share (EPS).

**Producer Price Index (PPI)** is a family of indexes measuring the average change in selling prices received by domestic producers of goods and services.

**Real estate investment trusts, or REITs,** are companies that own, operate, or finance income-generating real estate. Similar to mutual funds, REITs pool the capital of numerous investors, allowing them to earn dividends from real estate investments without having to buy, manage, or finance properties themselves.

**Relative value hedge fund strategies** cover a variety of low-volatility trading strategies with the consistent theme of attempting to reduce market risk, i.e., the manager seeks to generate a profit regardless of which direction the markets are moving. All relative value strategies minimize market risk by taking offsetting long and short positions in related stocks, bonds, and other types of securities.

**Reverse optimization** uses risk estimates and optimal portfolio weights (asset allocations) to derive the forward-looking returns that generate the highest expected risk-adjusted return for the portfolio; in contrast, traditional optimization uses risk estimates and forward-looking return assumptions to derive the portfolio weights (asset allocations) that generate the highest expected risk-adjusted return for the portfolio. Reverse optimization can be used to test or validate market outcomes in addition to (not as a replacement for) other methods of analysis.

**Risk assets** refers to assets that are not risk-free, such as currencies, equities, and other financial instruments. Treasuries are not included.

**Russell 1000® Index** measures the performance of the 1,000 largest companies in the Russell 3000 Index, representing approximately 92% of the total market capitalization of the Russell 3000 Index.

**Russell 1000 Growth** is a market capitalization-weighted index that measures the performance of the large-cap growth segment of U.S. equity securities; it includes the Russell 1000 index companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 1000 Value** is a market capitalization-weighted index that measures the performance of the large-cap value segment of U.S. equity securities; it includes the Russell 1000 index companies with lower price-to-book ratios and lower expected growth values.

**Russell 2000® Index** measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index.

**S&P 500 index** measures the stock performance of 500 large companies listed on stock exchanges in the U.S. and is one of the most commonly followed equity indices.

**The S&P Developed Property index** defines and measures the investable universe of publicly traded property companies domiciled in developed markets. The companies in the index are engaged in real estate related activities, such as property ownership, management, development, rental and investment.

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## Glossary Continued

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**S&P Listed Private Equity Index** comprises the leading listed private equity companies that meet specific size, liquidity, exposure, and activity requirements. The index is designed to provide tradable exposure to the leading publicly-listed companies that are active in the private equity space.

**The S&P Municipal Bond Index** is a broad, market value-weighted index that seeks to measure the performance of the U.S. municipal bond market.

**S&P US REIT Index** measures the investable U.S. real estate investment trust market and maintains a constituency that reflects the market's overall composition.

**Short-duration Treasury securities** are backed by the full faith and credit of the U.S. government. They typically mature in one year or less.

**Short, or short position**, refers to a trading technique in which an investor sells a security with plans to buy it later; it is used when an investor expects the price of a security to fall in the short term.

**Stagflation** is persistent high inflation combined with high unemployment and stagnant demand in a country's economy.

**Tail risk** is the probability that the asset performs far below or far above its average past performance. Investors are most concerned with "left" tail risk, or the likelihood that observations fall three standard deviations below the average expected return.

**Value sectors or stocks**, generally refer to those trading at levels perceived to be below their fundamentals.

**Yield curve** plots yields (interest rates) of bonds having equal credit quality but differing maturity dates. The slope of the yield curve gives an idea of future interest rate changes and economic activity.

**Yield to maturity** is the estimated total return on a bond if the bond is held until it matures.

**Yield to worst** measures the lowest possible yield that can be received on a bond with an early retirement provision and must always be less than yield to maturity because it represents a return for a shortened investment period.