

ADAPTIVE
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Monthly Market Review

August 2026

Did You Know?

When Safety Becomes a Risk
Cash can feel like a safe harbor during uncertain times. But increasing cash levels does not eliminate risk. It simply changes it. In this piece, we explore why the risks investors fear most are not always the ones that matter most.

Academic Perspective

A More Intentional Approach to Managing Money Together
By Hal Hershfield, Ph.D.
Research suggests couples benefit from taking a more intentional approach to managing money together. We highlight ways to foster transparency, navigate shared decisions and make difficult conversations more productive.

Market Review

- Stocks advanced in August, led by emerging markets.
- Strong earnings among technology companies helped U.S. stocks bounce back from a weak July.
- U.S. Treasury yields rose modestly, and rate-hike expectations grew, but the broad bond market delivered a monthly gain.

Appendix

- Glossary

Did You Know?

When Safety Becomes a Risk

Cash balances have risen for many investors this year, whether measured by bank deposits or by money market funds as a share of assets, as shown in **Figure 1**. This has occurred amid heightened geopolitical tensions, including the war in Iran and the risk that it becomes a prolonged conflict. That possibility has renewed concerns about inflation, as the effects of the pandemic-era inflation spike remain fresh in investors' minds. Adding to the uncertainty, opinions on how much artificial intelligence (AI) will reshape economies are as varied as those surrounding any previous technological revolution.

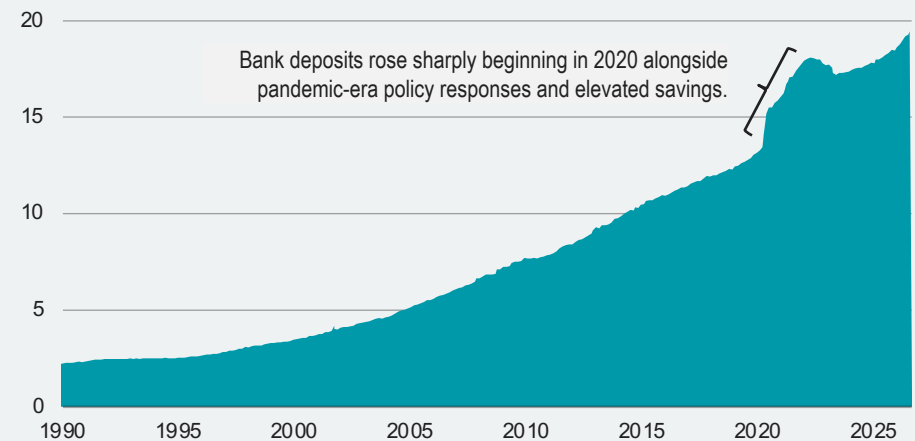
If volatility is a primary concern, the appeal of cash is understandable. Equities and higher-yielding bonds can experience meaningful drawdowns during periods of market stress, while cash yields are more attractive now than they have been for much of the past two decades.

But like much in investing, and frankly, in life, the decision comes with trade-offs. By allocating more to cash, investors reduce their exposure to assets that fluctuate more, which can help dampen portfolio volatility. At the same time, they reduce their exposure to assets that have historically generated higher long-term returns. In other words, raising cash levels in a portfolio doesn't reduce the risk an investor faces. It simply changes it.

The consequences of holding too much cash often emerge gradually through inflation, lower long-term returns, or the possibility that assets fail to grow sufficiently to support future spending needs. These costs rarely arrive as a dramatic headline or a sudden market decline. Instead, they accumulate quietly over time. Yet over long investment horizons, they can be just as consequential, if not more so.

Figure 1 | Cash Holdings Have Increased

U.S. Commercial Bank Deposits (\$ Trillions)



U.S. Money Market Fund Assets as a Share of Financial Assets (%)



Source: Federal Reserve.

Notes: U.S. commercial bank deposits are shown weekly from January 3, 1990, through August 19, 2026. U.S. money market fund holdings, expressed as a percentage of total household financial assets, are shown quarterly from Q1 1990 through Q1 2026.

Past performance is no guarantee of future results.

When Safety Becomes a Risk

The Long-Term Cost of Safety

To explore this trade-off, consider a traditional portfolio of 70% global equities and 30% U.S. bonds, a risk profile common among U.S. investors. Since 1970, an investor in this portfolio would have accumulated approximately 26% more wealth than an investor who shifted 10% of the portfolio from equities to cash (60% equities, 30% bonds and 10% cash), as shown in **Figure 2**. The result illustrates how long investment horizons can amplify the effects of small differences in expected returns.

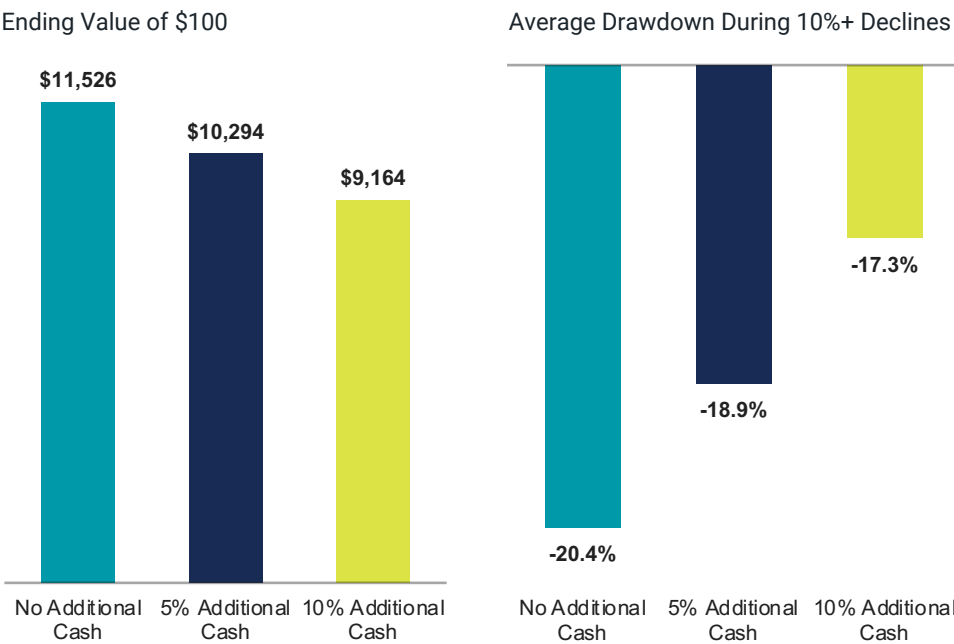
That higher ending wealth was accompanied by somewhat larger fluctuations in portfolio value. Over the full period, the 70/30 portfolio had an annualized standard deviation of 11%, compared with 9% for the portfolio with an additional 10% allocation to cash.

The difference was also evident during market declines. During the Global Financial Crisis, which represented the largest drawdown difference observed in the sample, the 70/30 portfolio's maximum drawdown was approximately 5 percentage points higher than that of the portfolio with an additional 10% allocation to cash. Across all major drawdowns, the difference averaged approximately 3 percentage points.

The difference exists because cash and equities represent fundamentally different economic claims. Cash generally earns a short-term interest rate, while equities represent ownership in businesses whose earnings can grow over time.¹ As those businesses reinvest, innovate and expand, investors participate in that growth through higher earnings, dividends and stock prices.

Figure 2 | The Long-Term Trade-Off of Holding Additional Cash

Portfolios consist of 70% global equities and 30% U.S. bonds, with cash replacing a portion of the equity allocation (January 1970–August 2026)



Sources: Morningstar, MSCI, Bloomberg and Federal Reserve. **Past performance is no guarantee of future results.**
Notes: Drawdowns are calculated using month-end returns and measured as the percentage decline from each portfolio's previous peak value. Portfolios consist of (1) 70% global equities, 30% U.S. bonds and 0% cash; (2) 65% global equities, 30% U.S. bonds and 5% cash; and (3) 60% global equities, 30% U.S. bonds and 10% cash. Allocations remain constant throughout the analysis. Average drawdown is calculated using the maximum drawdown observed during each 70/30 portfolio drawdown episode of 10% or greater. The month-end dates corresponding to these drawdown troughs are June 1970, September 1974, September 1981, November 1987, September 1990, September 2002, February 2009, September 2011, March 2020 and September 2022. Global equities represented by the MSCI ACWI Index, using the MSCI World Index for periods prior to 2001. U.S. bonds represented by the Bloomberg U.S. Aggregate Bond Index, using 10-Year U.S. Treasury returns prior to 1973. Cash represented by U.S. Treasury bills.

¹ The term cash is used broadly to include bank deposits, money market funds, U.S. Treasury bills and other cash-equivalent investments.

When Safety Becomes a Risk

Over long periods, even modest differences in returns can lead to substantial differences in wealth because each year's gains create a larger base on which future gains can compound. As a result, the performance gap between equities and cash tends to widen over time.

The historical record supports this idea. Over time, both equities and bonds have outperformed cash more often than not, even over relatively short investment horizons. As holding periods have lengthened, that advantage has generally become both more likely and more pronounced.

For instance, global equities outperformed cash in 68% of rolling one-year periods, 72% of rolling five-year periods and 89% of rolling 10-year periods, as shown in **Figure 3**. While the magnitude has varied across markets, currencies and time periods, the pattern itself has remained remarkably consistent.

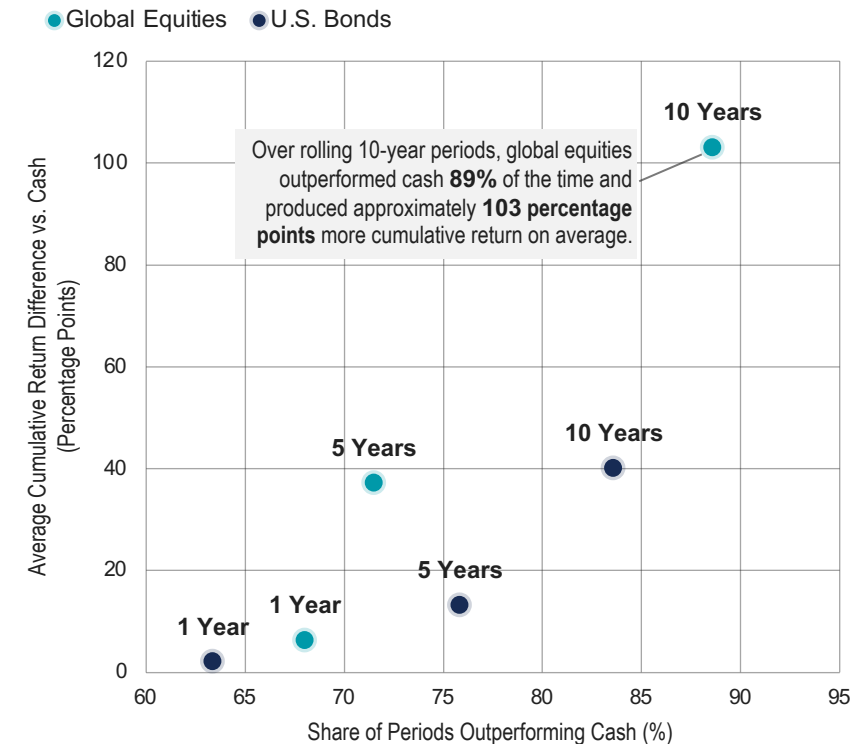
If the historical evidence is so persistent, why do many investors continue to increase cash allocations during periods of uncertainty? Part of the answer is behavioral. Investors don't experience all risks equally. A market decline is immediately visible. It appears on account statements, dominates financial headlines and often generates a strong emotional response.

By contrast, the costs of holding excess cash are rarely observed directly. Few investors receive a statement showing the wealth that could have been accumulated had a different allocation decision been made. As a result, the benefits of holding cash often feel tangible and immediate, while the associated costs remain abstract and deferred to the future.

This can make actions that reduce short-term anxiety seem prudent, even when they reduce the likelihood of achieving long-term goals. In fact, because many investors are uncomfortable with uncertainty, riskier assets have historically needed to offer higher expected returns to attract capital.

Figure 3 | The Historical Advantage of Equities and Bonds Over Cash Has Been Greater in Longer Holding Periods

Analysis of Rolling Periods (January 1970–August 2026)



Sources: Morningstar, MSCI, Bloomberg and Federal Reserve. **Past performance is no guarantee of future results.**

Notes: Each observation shows, for the indicated rolling investment horizon, the average cumulative return of global equities or U.S. bonds relative to U.S. cash and the percentage of periods in which the asset outperformed cash. Global equities represented by the MSCI ACWI Index, using the MSCI World Index for periods prior to 2001. U.S. bonds represented by the Bloomberg U.S. Aggregate Bond Index, using 10-Year U.S. Treasury returns prior to 1973. Cash is represented by U.S. Treasury bills.

When Safety Becomes a Risk

Putting Cash in Its Proper Place

None of this suggests that investors should avoid cash entirely. For near-term spending needs, such as an upcoming home purchase or other planned expenditures, keeping higher cash balances can be appropriate and prudent. Cash provides flexibility and can reduce the likelihood of being forced to sell long-term investments in unfavorable market conditions.

Determining how much cash to hold is an important part of financial planning. Advisors routinely help clients evaluate upcoming liabilities, liquidity needs, tax considerations and sources of future spending. In some cases, maintaining dedicated cash reserves may be appropriate. In others, future spending can be funded through ongoing portfolio management, such as rebalancing, tax-loss harvesting or selling appreciated assets as needed.

Investors are often tempted to increase cash balances when markets are at or near record highs. Yet such periods are a normal feature of long-term investing and, on their own, provide little guidance about future returns, as illustrated in **Figure 4**. As a result, future spending needs don't always require maintaining large cash reserves years in advance.

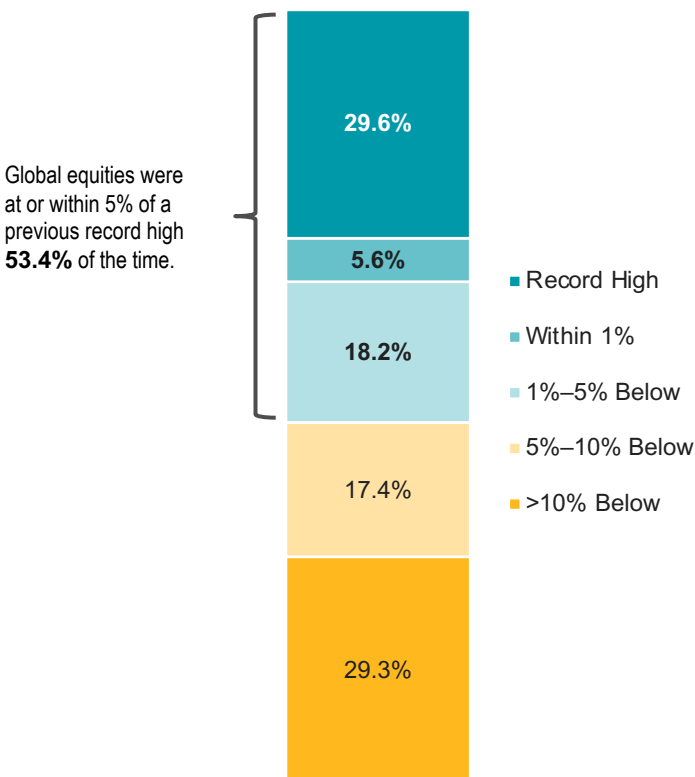


For investors waiting on the sidelines for “the right” buying opportunity, it’s worth remembering that history shows further gains have often followed all-time highs. In our view, the goal is neither to maximize nor minimize cash balances, but to align them with the purpose they are intended to serve.

Ultimately, the decision isn’t about avoiding risk but about choosing which risks to bear. In that sense, the greatest danger may not be market volatility itself but the sacrifice of long-term objectives in pursuit of short-term comfort.

Figure 4 | Global Equities Have Often Been Near Record Highs

Percentage of month-end observations relative to the previous record high (January 1970–August 2026)



Sources: Morningstar and MSCI. **Past performance is no guarantee of future results.**
Notes: Each month-end observation was classified based on its proximity to the previous record high. Percentages show the share of observations in each category over the sample period. Global equities represented by the MSCI ACWI Index, using the MSCI World Index for periods prior to 2001.

Academic Perspective

A More Intentional Approach to Managing Money Together

If my relationship with my wife were a person, it would have just reached legal drinking age. Twenty-one years ago, we had our first date and, somewhat uncharacteristically, it was an electronic dance music show at the now-closed LA Sports Arena. We were younger then, and one thing I remember for sure is that we split the ticket price. I can't recall where we ate dinner before the show, but I'm pretty sure we split the cost of that, too.

Zoom ahead to the present day, and the idea of going on a date and divvying up the price of any portion of it seems a bit ridiculous. That's the way we operate, of course, and I know there are plenty of couples out there who do split their finances.

But is there a "right" way to handle money in relationships? More broadly, what sort of issues arise when it comes to joint financial decision-making?

As it turns out, there's been a growing body of work in this space within the academic world, so I figured it was a good time to check in with one of its true leaders, Indiana University Professor Jenny Olson, on a recent episode of ["The Behavioral Divide"](#) podcast. Alongside her, we had financial advisor Mark Johnson, founder and CEO of Wealth Architects, who navigates couples' financial decision-making almost every day in his practice.

There were a few big takeaways that I want to spotlight, all of which have practical applications.



Hal Hershfield, Ph.D.

Consultant to Avantis Investors

Hal is a professor of Marketing and Behavioral Decision Making in the Anderson School of Management at the University of California, Los Angeles.

His research asks, "How can we help move people from who they are now to who they'll be in the future in a way that maximizes well-being?"

A More Intentional Approach to Managing Money Together

What One Partner Knows Isn't the Same as What They Think They Know

Professor Olson's research finds that the person who thinks they know more about financial matters is often the one who drives the proverbial ship. What's interesting is that it's not necessarily the person who actually knows more, but the person who, subjectively, feels like they know more. One of my favorite demonstrations of this? Olson and her collaborators recorded couples as they discussed financial matters, and the partner who felt they knew more about the topic ended up talking more.

As a fix, Johnson suggested focusing on "below the line" topics rather than just "above the line" ones. "Above the line" refers to the specific financial products that advisors and clients discuss, such as annuities and savings vehicles. "Below the line," by contrast, represents the values, vision and goals that relate to life (and what money can help support), where neither partner has an expertise advantage, because nobody is the expert on what someone else cares about.

Concretely, an advisor might:

- Ask each partner about their role in financial decisions and how they came to take that role – this may help the quieter partner express what they want and how they want to be involved.
- "Simplify the complex" – reduce jargon to prevent widening the confidence gap, which may lead less knowledgeable partners to feel more disengaged.

Joint Accounts Help, but It's Not the Joint Account That's Doing the Work

Olson pointed out that the transition to marriage involves moving from "not just you and me, but it's we." Financially, there's often been a suggestion that joint bank accounts can help solidify the concept of "we" and may bolster relationship satisfaction. But that idea was never rigorously tested until Olson and her colleagues assigned newlyweds to either open a joint bank account or not.

Compared to maintaining separate accounts, joint bank accounts helped preserve relationship satisfaction after the "honeymoon period" ended. The reason is almost more important: Joint bank accounts help create what researchers call "shared communal norms." When couples have transparency into how each other, and they as a couple, are spending money, it can prompt more conversations about the same below-the-line topics that matter so much.

Practically, pooling finances can feel like a loss of autonomy, which is the most common objection Olson hears. She and Johnson arrived at a similar solution independently: set a spending threshold, or a pre-agreed amount each partner can spend without checking in with the other. Johnson and his wife, for example, set theirs at \$700 a month early in their marriage. It's also, as Johnson pointed out, a way to remove guilt when one partner earns much more than the other or isn't earning at all.

A More Intentional Approach to Managing Money Together

Tough Financial Conversations Aren't as Bad as You Think They'll Be

In new research, Olson had couples predict how a financial conversation would go, prompted them to have it that night, and then had them report back 24 hours later about how it went.

Overwhelmingly, it wasn't as bad as the couple had expected. Plenty of psychology research has found that we misjudge our future emotions, and this is a classic and applicable example.

The solution is to structure and outsource. In other words, if an advisor "assigns" a couple to discuss their financial issues, responsibility is removed from any one party. It's not "I'm upset that you spent so much on X, Y or Z last month," but rather, "Our advisor recommended that we talk about X topic, so I suppose we should." Johnson called this outsourcing responsibility.

He also cited an example of his clients in their 80s who come in every six months or so, specifically to have difficult financial conversations in a safe, facilitated setting. Somehow, that seems more conducive to productive alignment than 11 p.m. the night before a big morning meeting that one partner has — which, as Johnson pointed out, is exactly where a lot of these conversations end up happening.

My wife and I stopped splitting our expenses ages ago, and, admittedly, we never deliberately decided that would be our course of action. We accidentally fell into a good setup. Indeed, financial decision-making within couples is often one of those things that simply happens, when in fact it should be intentional, transparent and appropriately audited.

Market Review



Snapshot

Global stocks broadly advanced in August, with emerging markets leading the way. U.S. Treasury yields rose slightly, but most bonds advanced.

- Despite another volatile month, the S&P 500 Index ended August with a gain of 2.7%, lifting the year-to-date return to more than 13%. Inflation fears, growing expectations for Fed rate hikes and ongoing Middle East tensions fueled the turbulence. But robust technology-sector earnings helped drive the index to three all-time closing highs in the month.
- With oil prices on the rise, energy remained the top-performing index sector, up 7% for the month. The information technology sector rebounded from a weak July to gain 6.3% in August. Five of the index's 11 sectors declined for the month, led by utilities, down nearly 5%.
- Emerging markets (EM) stocks rebounded and outperformed their developed markets peers in August, while U.S. stocks outpaced non-U.S. developed markets stocks.
- The annual U.S. inflation rate (CPI) slowed for the second straight month, from 3.5% in June to 3.4% in July. Meanwhile, inflation rose in the U.K., from 2.6% in June to 2.9% in July, and in the eurozone, from 2.9% in July to 3.3% in August.
- In the U.S., growth stocks outperformed value stocks across capitalizations. Large-caps outperformed mid- and small-cap stocks. Among non-U.S. developed markets, growth outpaced value, and small-caps outperformed large-caps. In emerging markets, growth notably outperformed value in the small-cap universe, and small-caps significantly outperformed large-caps.

Returns (%)

INDEX	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR
U.S. Large-Cap Equity							
S&P 500	2.72	1.68	13.14	20.38	21.04	12.79	15.37
U.S. Small-Cap Equity							
Russell 2000	0.98	1.58	20.01	26.46	17.46	6.85	10.55
Intl. Developed Markets Equity							
MSCI World ex USA	2.19	4.12	13.88	22.35	18.85	9.75	9.76
Emerging Markets Equity							
MSCI Emerging Markets	3.37	-1.22	24.08	39.25	23.23	8.18	9.29
Global Real Estate Equity							
S&P Global REIT	-3.06	1.34	10.99	10.88	9.81	1.66	3.61
U.S. Fixed Income							
Bloomberg U.S. Aggregate Bond	0.39	-0.68	-0.31	1.89	4.08	-0.29	1.40
Global Fixed Income							
Bloomberg Global Aggregate Bond	0.45	-0.79	-0.30	0.60	3.62	-1.74	0.34
U.S. Cash							
Bloomberg U.S. 1-3 Month Treasury Bill	0.29	0.93	2.45	3.84	4.64	3.74	2.41

Data as of 8/31/2026. Performance in USD. Periods greater than one year have been annualized. Past performance is no guarantee of future results. Source: FactSet.

Inflation, sometimes referred to as headline inflation, reflects rising prices for consumer goods and services, or equivalently, a declining value of money. Core inflation excludes food and energy prices, which tend to be volatile.

Equity Returns | Size and Style

		U.S.			
		QTD (%)		YTD (%)	
		Value	Growth	Value	Growth
Size	Large	5.93	-1.21	23.12	4.06
	Small	0.31	-4.31	23.38	16.91

- The broad U.S. stock market rose in August and maintained a solid year-to-date gain. Size and style indices also advanced for both periods.
- Large-cap stocks outpaced small- and mid-cap stocks for the month. Small-cap stocks remained the top year-to-date performers, up 20%.
- Growth stocks outperformed their value-style peers across the board in August. Large-cap growth stocks gained nearly 4%. But year to date, value remained the top-performing style, led by small-cap value, up more than 23%.

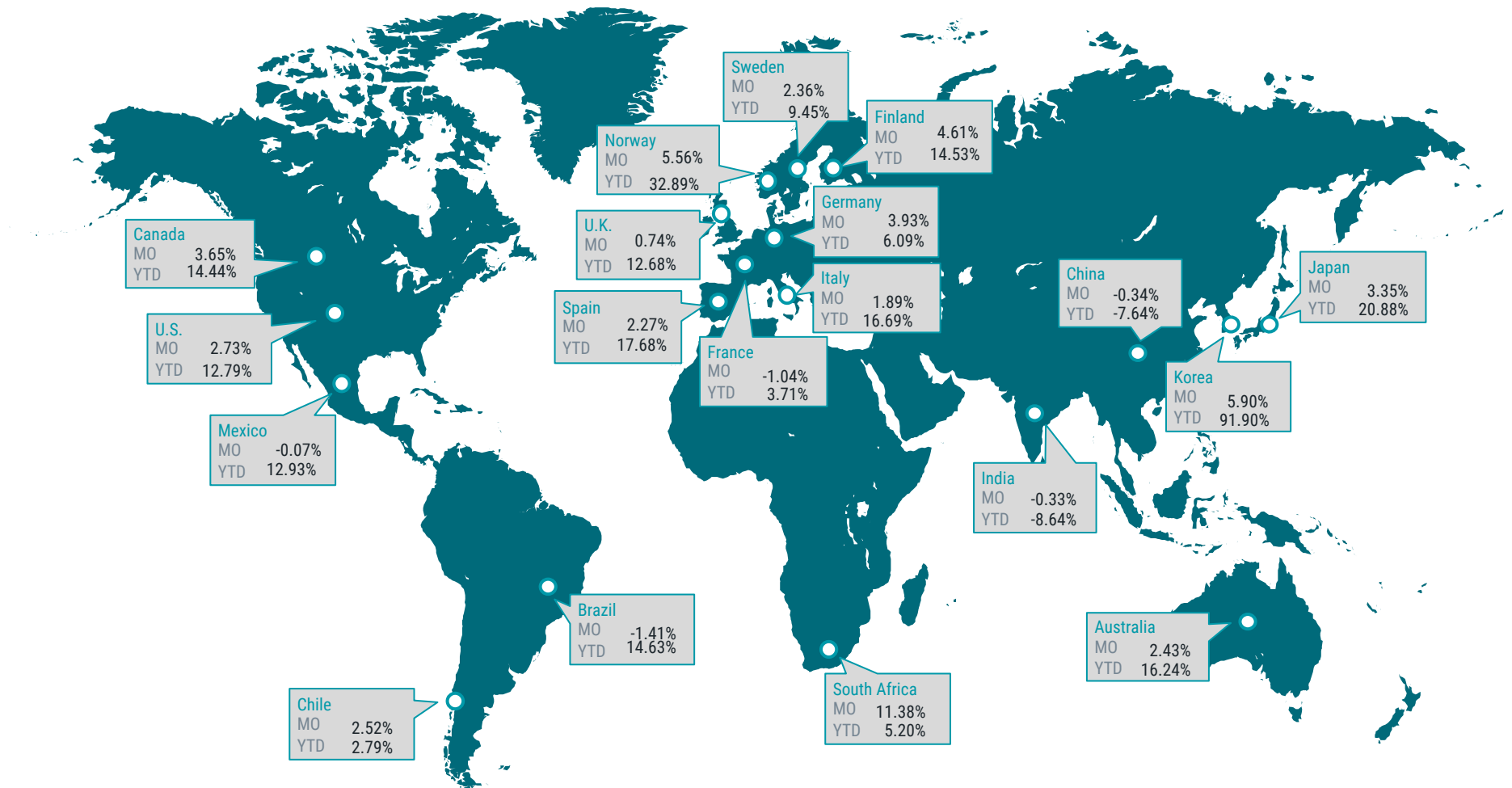
		Non-U.S. Developed Markets			
		QTD (%)		YTD (%)	
		Value	Growth	Value	Growth
Size	Large	6.18	1.70	18.99	9.00
	Small	8.78	3.68	14.56	13.88

- Non-U.S. developed markets stocks advanced but lagged U.S. stocks in August. Year to date, they maintained an edge over U.S. stocks.
- With a return of nearly 5%, small-cap stocks outperformed their large-cap peers for the month. Small-caps modestly outperformed large-caps for the year-to-date period.
- Growth stocks outpaced value stocks in August, led by small-cap growth, up 5.3%. The value style retained the top year-to-date spot, led by large-cap value stocks, up 19%.

		Emerging Markets			
		QTD (%)		YTD (%)	
		Value	Growth	Value	Growth
Size	Large	1.87	-3.16	25.11	22.53
	Small	1.69	2.52	15.77	14.74

- EM stocks broadly outperformed developed markets stocks in August and year to date, with gains of 3.4% and 24.1%, respectively.
- Small-cap stocks, up 9.5%, fared better than large- and mid-cap stocks in August. With a 26% gain, mid-cap stocks outperformed year to date.
- Growth stocks outperformed value stocks among small and mid caps in August, while value outperformed slightly in the large-cap universe. Year to date, value outperformed across the board, with mid-cap value gaining nearly 32%.

Equity Returns | Country



Data as of 8/31/2026. Performance in USD. Past performance is no guarantee of future results. Source: FactSet. Countries are represented by MSCI country indices.

Fixed-Income Returns

U.S. bonds bounced back in August, but the monthly gain wasn't enough to restore a positive year-to-date return.

- Most Treasury yields rose in August but at a more muted pace than in July. The 10-year Treasury yield rose 2 bps, while the 2-year yield increased 5 bps. The 30-year Treasury yield, which recently climbed to a nearly 20-year, dipped 4 bps to 5.24%.
- Seeking to tame longer-maturity yields, the U.S. Treasury said it would accelerate its government debt repurchases. This helped push Treasury yields lower late in the month.
- Within the Bloomberg U.S. Aggregate Bond Index, all sectors rose, led by MBS. Investment-grade credit spreads were nearly unchanged, while high-yield spreads tightened. High-yield corporates outperformed investment-grade corporates.
- U.S. private sector economic activity (S&P Global US Composite PMI) expanded in August at the fastest pace since April 2022. Meanwhile, the economy shed 23,000 jobs in July, while the unemployment rate inched lower.
- Annual headline and core CPI slowed in July. The annualized core PCE price index, the Fed's preferred inflation gauge, held steady at 3.3% in July, well above the Fed's 2% target.
- At the Fed's annual Jackson Hole Economic Symposium on August 28, Fed Board Chair Kevin Warsh emphasized the importance of restoring inflation to its 2% target. His hawkish comments boosted the market's rate-hike expectations.
- Municipal bonds declined for the month and underperformed Treasuries. TIPS were nearly flat in August.

Returns (%)

INDEX	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR
Global Fixed Income							
Bloomberg Global Aggregate Bond	0.45	-0.79	-0.30	0.60	3.62	-1.74	0.34
U.S. Fixed Income							
Bloomberg U.S. Aggregate Bond	0.39	-0.68	-0.31	1.89	4.08	-0.29	1.40
U.S. High-Yield Corporate							
Bloomberg U.S. Corporate High Yield Bond	0.97	0.99	2.69	4.88	8.52	4.13	5.39
U.S. Investment Grade							
Bloomberg U.S. Corporate Bond	0.43	-1.06	-0.40	1.94	5.00	-0.12	2.30
Municipals							
Bloomberg Municipal Bond	-0.23	-1.13	0.20	4.12	3.40	0.54	1.91
U.S. TIPS							
Bloomberg U.S. Treasury Inflation Protected Securities (TIPS)	0.04	-1.11	0.51	1.08	4.03	0.39	2.47
U.S. Treasuries							
Bloomberg U.S. Treasury Bond	0.31	-0.53	-0.53	1.22	3.20	-0.81	0.79
U.S. Cash							
Bloomberg U.S. 1-3 Month Treasury Bill	0.29	0.93	2.45	3.84	4.64	3.74	2.41

Data as of 8/31/2026. Performance in USD. Periods greater than one year have been annualized. Past performance is no guarantee of future results. Source: FactSet.

Global Yield Curves



Data as of 8/31/2026. Source: Bloomberg.

Yield is a rate of return for bonds and other fixed-income securities. A yield curve is a line graph that shows yields of fixed-income securities from a single sector (e.g., Treasuries) over various maturities (e.g., five and 10 years) at a single point in time (e.g., 12/31/2020).

Appendix

Glossary

Agencies: Agency securities are debt securities issued by U.S. government agencies such as the Federal Home Loan Bank and the Federal Farm Credit Bank. Some agency securities are backed by the full faith and credit of the U.S. government, while others are guaranteed only by the issuing agency.

Basis points (BPS): Basis points are used in financial literature to express values that are carried out to two decimal places (hundredths of a percentage point), particularly ratios, such as yields, fees, and returns. Basis points describe values that are typically on the right side of the decimal point—one basis point equals one one-hundredth of a percentage point (0.01%).

Bloomberg Global Aggregate Bond Index: A flagship measure of global investment-grade debt from 24 local currency markets. This multicurrency benchmark includes Treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

Bloomberg Global U.S. Treasury - U.S. TIPS Index: Consists of Treasury inflation-protected securities issued by the U.S. Treasury with a remaining maturity of one year or more.

Bloomberg Municipal Bond Index: A market value-weighted index designed for the long-term tax-exempt bond market.

Bloomberg U.S. 1-3 Month Treasury Bill Index: A subindex of the Bloomberg Barclays U.S. Short Treasury Index, the Bloomberg Barclays U.S. 1-3 Month Treasury Bill Index is composed of zero-coupon Treasury bills with a maturity between one and three months.

Bloomberg 1-5 Year U.S. Government/Credit Index: Tracks the market for investment grade, US dollar-denominated, fixed-rate treasuries, government-related and corporate securities.

Bloomberg U.S. Aggregate Bond Index: Represents securities that are taxable, registered with the Securities and Exchange Commission, and U.S. dollar-denominated. The index covers the U.S. investment-grade fixed-rate bond market, with index components for government and corporate securities, mortgage pass-through securities and asset-backed securities.

Bloomberg U.S. Corporate Bond Index: Measures the investment-grade, fixed-rate, taxable corporate bond market. It includes U.S. dollar-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers.

Bloomberg U.S. Corporate High Yield Bond Index: Measures the U.S. dollar-denominated, high-yield (non-investment grade), fixed-rate corporate bond market.

Bloomberg U.S. Corporate High Yield Bond Index: Measures the U.S. dollar-denominated, high-yield (non-investment grade), fixed-rate corporate bond market.

Bloomberg U.S. Treasury Index: Measures U.S. dollar-denominated, fixed-rate, nominal debt issued by the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index.

Book-to-Market Ratio: Compares a company's book value relative to its market capitalization. Book value is generally a firm's reported assets minus its liabilities on its balance sheet. A firm's market capitalization is calculated by taking its share price and multiplying it by the number of shares it has outstanding.

Carbon Emissions Intensity: A measure of emissions efficiency calculated as company emissions normalized by company revenue (metric tons CO2 per USD million sales) and presented as a weighted average of fund or index holdings. Company emissions data includes reported or estimated scope 1 and scope 2 greenhouse gas emissions in carbon dioxide equivalents. If neither reported nor estimated emissions data is available for a company held by the fund or index, emissions data for that company is excluded from the carbon emissions intensity calculation. The calculation of this measure is completed by American Century Investment Management Inc, the investment advisor to the ETFs reporting the measure, based on data sources from MSCI. The Carbon Emissions Intensity figure is solely a result of a mathematical calculation based on the MSCI data, with no additional inputs. Scores and ratings across third-party providers may be inconsistent or incomparable and, in certain cases, incorrect. In addition, data is not currently available for many issuers and, when available, frequently only includes some but not all of the characteristics considered.

CBOE Volatility Index (VIX): Tracks the expected 30-day future volatility of the S&P 500 Index.

U.S. Consumer Confidence Index: A survey administered by The Conference Board that measures how optimistic or pessimistic consumers are about their expected financial situation.

Consumer Price Index (CPI): CPI is a U.S. government (Bureau of Labor Statistics) index derived from detailed consumer spending information. Headline CPI measures price changes in a market basket of consumer goods and services such as gas, food, clothing, and cars. Core CPI excludes food and energy prices, which tend to be volatile.

CRSP U.S. Total Market Index: Consists of nearly 4,000 constituents across mega, large, small and micro capitalizations, representing nearly 100% of the U.S. investable equity market.

Glossary

Credit Quality: Refers to the creditworthiness or financial health of the issuer of the bond. It reflects the likelihood that the issuer will meet its debt obligations, including interest payments and the return of principal, in a timely manner. Credit rating agencies assess and assign credit ratings to bonds based on the issuer's financial strength, stability, and ability to honor its debt commitments.

Credit Rating: Standard & Poor's credit ratings range from AAA (highest quality; perceived as least likely to default) to D (in default). Securities and issuers rated AAA to BBB are considered/perceived to be "investment-grade"; those below BBB are considered/perceived to be non-investment-grade (high yield).

Dow Jones Industrial Average: An average made up of 30 blue-chip stocks that trade daily on the New York Stock Exchange.

Duration: Measures how long it takes, in years, for an investor to be repaid a bond's price by the bond's total cash flows. It is also a measure of a bond's interest rate sensitivity. The longer the duration, the more sensitive a bond is to interest rate shifts.

Effective Duration: The average duration of all the bonds in a fund. It provides an indication of how a fund's net asset value (NAV) will change as interest rates change.

Emerging Markets Debt: Debt issued by countries whose economies are considered to be developing or emerging from underdevelopment.

Environmental, Social and Governance (ESG): Standards used to evaluate a company's operations in terms of sustainability and ethical impact. Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and communities. Governance criteria assess the company's leadership, executive pay, audits, internal controls, and shareholder rights.

Exchange-Traded Fund (ETF): An ETF represents a basket of securities that trades on an exchange, similar to a stock. An ETF differs from a mutual fund in that its share price fluctuates all day as investors buy and sell the ETF. A mutual fund's net asset value (NAV) is calculated once per day after the market closes.

Expected Returns: Valuation theory shows that the expected return of a stock is a function of its current price, its book equity (assets minus liabilities) and expected future profits, and that the expected return of a bond is a function of its current yield and its expected capital appreciation (depreciation). We use information in current market prices and company financials to identify differences in expected returns among securities, seeking to overweight securities with higher expected returns based on this current market information.

Actual returns may be different than expected returns, and there is no guarantee that the strategy will be successful.

Inverted Yield Curve: An interest rate environment in which long-term debt instruments have a lower yield than short-term debt instruments of the same credit quality.

Market Capitalization: The market value of all the equity of a company's common and preferred shares. It is usually estimated by multiplying the stock price by the number of shares for each share class and summing the results.

Money Market Mutual Funds: These funds invest in short-term debt instruments (e.g., commercial paper, U.S. Treasury bills, repurchase agreements) and are valued for their relative safety and liquidity.

MSCI ACWI Index: A capitalization-weighted index that is designed to measure the equity market performance of developed and emerging markets.

MSCI ACWI ex-USA Index: A market capitalization-weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the United States.

MSCI Emerging Markets IMI Index: Captures large-, mid- and small-cap securities across 27 emerging markets countries.

MSCI Emerging Markets IMI Value Index: Captures large-, mid- and small-cap securities exhibiting overall value style characteristics across 27 emerging markets countries. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

MSCI Emerging Markets Asia IMI Index: Captures large-, mid- and small-cap securities in China, India, Indonesia, Korea, Malaysia, the Philippines, Taiwan and Thailand.

MSCI Emerging Markets EMEA IMI Index: Captures large-, mid- and small-cap securities across 11 emerging markets countries in Europe, the Middle East and Africa (EMEA).

MSCI Emerging Markets Latin America IMI Index: Captures large-, mid- and small-cap securities in Brazil, Chile, Colombia, Mexico and Peru.

MSCI Europe IMI Index: Captures large-, mid- and small-cap securities across 15 developed markets countries in Europe.

MSCI Pacific IMI Index: Captures large-, mid- and small-cap securities in five developed markets countries: Australia, Hong Kong, Japan, New Zealand and Singapore.

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MSCI USA Index: A market capitalization-weighted index designed to measure the performance of the large and mid-cap segments of the U.S. market.

MSCI World ex USA IMI Index: Captures large-, mid- and small-cap representation across 22 of 23 developed markets countries, excluding the U.S.

MSCI World ex USA Small Cap Index: Captures small-cap representation across 22 of 23 developed markets countries, excluding the U.S.

MSCI World ex USA Value Index: Captures large- and mid-cap securities exhibiting overall value style characteristics across 22 of 23 developed markets countries. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

Mortgage-Backed Securities (MBS): A type of securitized debt that represents ownership in pools of mortgage loans and their payments.

Net Asset Value (NAV): The total value per share of all the underlying securities in a portfolio.

Oil and Gas Revenue Percentage: Represents the proportion of total revenue of fund or index holdings that is derived from reported or estimated oil and gas-related activities. If neither reported nor estimated oil and gas-related data is available for held by either the fund or the index, such data for that company is excluded from the calculation.

The calculation of this measure is completed by American Century Investment Management Inc, the investment advisor to the ETFs reporting the measure, based on data sourced from MSCI. The Oil and Gas Revenue Percentage figure is solely a result of a mathematical calculation based the MSCI data, with no additional inputs.

Scores and ratings across third party providers may be inconsistent or incomparable, and, in certain cases, incorrect. In addition, data is not currently available for many issuers and, when available, frequently only includes some but not all of the characteristics considered.

Option-Adjusted Spread (OAS): Measures the difference between the yield of a bond with an embedded option and the yield on Treasuries. Call options give the issuer the right to redeem the bond prior to maturity at a preset price, and put options allow the holder to sell the bond back to the company on certain dates. The OAS adjusts the spread to account for these potential changing cash flows.

Personal Consumption Expenditures (PCE): The PCE price deflator – which comes from the Bureau of Economic Analysis' quarterly report on U.S. gross domestic product – is based on a survey of businesses and is intended to capture the price changes in all final goods, no matter the purchaser. Because of its broader scope and certain differences in the methodology used to calculate the PCE price index, the Federal Reserve holds the PCE deflator as its preferred, consistent measure of inflation over time.

Price-to-Earnings Ratio (P/E): The price of a stock divided by its annual earnings per share. These earnings can be historical (the most recent 12 months) or forward-looking (an estimate of the next 12 months). A P/E ratio allows analysts to compare stocks on the basis of how much an investor is paying (in terms of price) for a dollar of recent or expected earnings. Higher P/E ratios imply that a stock's earnings are valued more highly, usually on the basis of higher expected earnings growth in the future or higher quality of earnings.

Producer Price Index (PPI): Measures the average change over time in the prices that domestic producers receive for their goods and services. It is a key indicator of inflation at the wholesale level, reflecting the prices producers charge for their output before it reaches consumers.

Profits-to-Book Ratio: Measures a company's profits relative to its book value. A company's profits are generally calculated by subtracting operating expenses from its gross profit. Book value is generally a firm's reported assets minus its liabilities on its balance sheet.

Responsible Equity ETFs: Because the portfolio managers screen securities based on environmental, social and governance (ESG) characteristics, the fund may exclude the securities of certain issuers or industry sectors for other than financial reasons and, as a result, the fund may perform differently or maintain a different risk profile than the market generally or compared to funds that do not use similar ESG-based screens.

Investing based on ESG considerations may also prioritize long-term rather than short-term returns. Furthermore, when analyzing ESG criteria for issuers, the portfolio management team relies on proprietary evaluations and information, ratings and scoring models published by third-party sources (collectively, "ESG Data").

Due to the lack of regulation and uniform reporting standards with respect to ESG characteristics of issuers, ESG Data may be inconsistent across sources and, in certain cases, incorrect. In addition, ESG Data is not currently available for many issuers and, when available, frequently only includes some but not all of the ESG characteristics considered by the team when applying their ESG screens.

See Environmental, Social and Governance (ESG) in the Glossary for more information.

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Russell 1000® Growth Index: Measures the performance of those Russell 1000 Index companies (the 1,000 largest publicly traded U.S. companies, based on total market capitalization) with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Value Index: Measures the performance of those Russell 1000 Index companies (the 1,000 largest publicly traded U.S. companies, based on total market capitalization) with lower price-to-book ratios and lower forecasted growth values.

Russell 2000® Index: Measures the performance of the 2,000 smallest companies among the 3,000 largest publicly traded U.S. companies, based on total market capitalization.

Russell 2000® Growth Index: Measures the performance of those Russell 2000 Index companies (the 2,000 smallest of the 3,000 largest publicly traded U.S. companies, based on total market capitalization) with higher price-to-book ratios and higher forecasted growth values.

Russell 2000® Value Index: Measures the performance of those Russell 2000 Index companies (the 2,000 smallest of the 3,000 largest publicly traded U.S. companies, based on total market capitalization) with lower price-to-book ratios and lower forecasted growth values.

Russell 3000® Index: Measures the performance of the largest 3,000 U.S. companies representing approximately 98% of the investable U.S. equity market.

S&P 500® Index: A market-capitalization-weighted index of the 500 largest U.S. publicly traded companies. The index is widely regarded as the best gauge of large-cap U.S. equities.

S&P Global REIT Index: A comprehensive benchmark of publicly traded equity REITs listed in both developed and emerging markets.

S&P National AMT-Free Municipal Bond Index: A broad, comprehensive, market value-weighted index designed to measure the performance of the investment-grade tax-exempt U.S. municipal bond market. Bonds issued by U.S. territories, including Puerto Rico, are excluded from this index. It is not possible to invest directly in an index.

SEC Yield: A calculation based on a 30-day period ending on the last day of the previous month. It is computed by dividing the net investment income per share earned during the period by the maximum offering price per share on the last day of the period.

Securitized Debt: Debt resulting from the process of aggregating debt instruments into a pool of similar debts, then issuing new securities backed by the pool (securitizing the debt). Examples include asset-backed and mortgage-backed securities.

Standard deviation: Standard deviation is a statistical measurement of variations from the average. In financial literature, it's often used to measure risk when risk is measured or defined in terms of volatility. In general, more risk means more volatility and more volatility means a higher standard deviation — there's more variation from the average of the data being measured.

Treasury Inflation-Protected Securities (TIPS): A special type of U.S. Treasury security that is indexed to inflation as measured by the Consumer Price Index, or CPI. At maturity, TIPS are guaranteed by the U.S. government to return at least their initial \$1,000 principal value, or that principal value adjusted for inflation, whichever amount is greater. In addition, as their principal values are adjusted for inflation, their interest payments also adjust.

Treasury Yield: The yield of a Treasury security (most often refers to U.S. Treasury securities issued by the U.S. government).

U.S. Treasury securities: Debt securities issued by the U.S. Treasury and backed by the direct "full faith and credit" of the U.S. government. Treasury securities include bills (maturing in one year or less), notes (maturing in two to 10 years) and bonds (maturing in more than 10 years).

Weighted Average Book-to-Market: An average book-to-market ratio resulting from the multiplication of each security's book-to-market by its weight in the portfolio.

Weighted Average Market Capitalization: An average market capitalization resulting from the multiplication of each security's market capitalization by its weight in the portfolio.

Weighted Average Profitability-to-Book: An average profitability-to-book ratio resulting from the multiplication of each security's profitability-to-book by its weight in the portfolio.

Yield to Maturity: The rate of return an investor will receive if an interest-bearing security, such as a bond, is held to its maturity date. It considers total annual interest payments, the purchase price, the redemption value, and the amount of time remaining until maturity.