

Monthly Market Review

July 2026

Did You Know?

Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

With inflation and interest rates in the headlines, we explain how key inflation measures shape the Fed's policy outlook and why staying disciplined through shifting inflation trends matters.

Academic Perspective

Annuities and Retirees: Beyond the Math
By Hal Hershfield, Ph.D.

Planning for income in retirement isn't just about the math – it's also shaped by uncertainty, framing and how people think about their future needs. We examine considerations and tradeoffs of annuities as a potential tool for retirees.

Market Review

- Global stocks were mixed in July, led by non-U.S. developed markets.
- Inflation worries and volatility in the technology sector left U.S. stocks with a slight loss for the month.
- Inflation concerns also weighed on the U.S. bond market, where all key sectors declined for the month as yields rose.

Appendix

- Glossary

Did You Know?

Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

One of the most notable developments from the July Federal Open Market Committee (FOMC) meeting was not the decision to leave interest rates unchanged, but the rare split behind it. Three bank presidents dissented in favor of a quarter-point rate hike, marking the first time since 2016 that three members broke with the committee's decision.

The unusually divided vote underscores growing disagreement over how to respond to persistent price pressures. Both the Federal Reserve (Fed) and financial markets are also weighing renewed geopolitical tensions in the Middle East and their potential impact on prices, particularly in the energy sector.

In response, markets continue to price in a rate hike at the September meeting with the potential for additional tightening going forward, as highlighted by **Figure 1**. This stands in contrast to the beginning of the year, when investors anticipated a series of rate cuts as inflation appeared to be moving closer to the Fed's target.

While the relationship between inflation and interest rates may seem straightforward, inflation isn't a single number, and different measures can paint different pictures of underlying price movements.

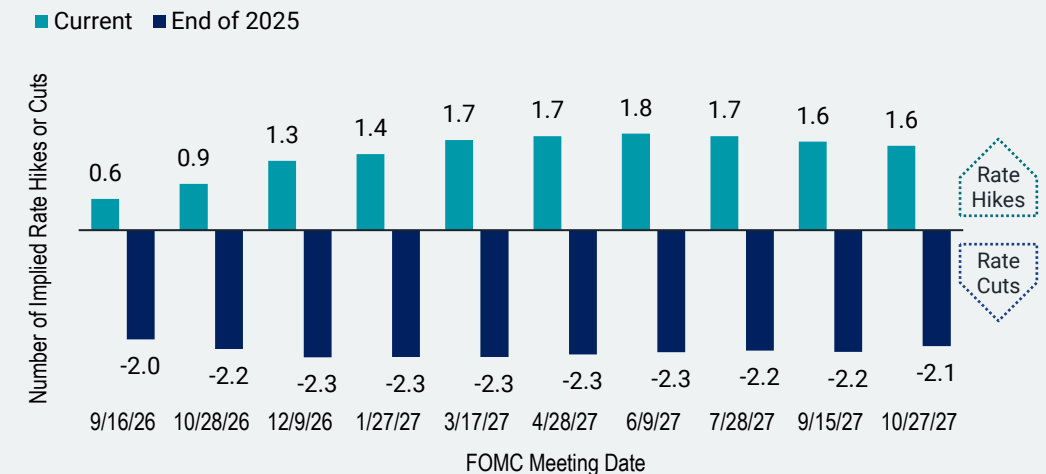
To better understand these differences, we take a closer look at the indexes that policymakers and market participants watch most closely.

Figure 1 | Markets Are Pricing in at Least One Rate Hike in 2026

Panel A | Current Aggregated Meeting Probabilities Implied by CME's Fed Funds Futures

MEETING DATE	PROBABILITY OF RATE RANGE		
	3.50 - 3.75	3.75 - 4.00	4.00 - 4.25
09/16/2026	41.07%	58.93%	0.00%
10/28/2026	14.50%	85.50%	0.00%
12/09/2026	0.00%	72.28%	27.72%
01/27/2027	0.00%	58.50%	41.50%
03/17/2027	0.00%	34.93%	65.07%
04/28/2027	0.00%	28.50%	71.50%
06/09/2027	0.00%	24.18%	75.82%
07/28/2027	0.00%	27.50%	72.50%
09/15/2027	0.00%	37.46%	62.54%
10/27/2027	0.00%	45.50%	54.50%
12/08/2027	0.00%	23.93%	76.07%

Panel B | Market Implied Cumulative Number of Rate Hikes/Cuts, End of 2025 vs. Current



Panel A: Data as of 8/4/2026. Source: CME FedWatch. The FedWatch tool's "Aggregated" view compares the rates implied by CME's Fed Funds futures with the Federal Reserve's current target rate range. As such, it provides a view into the cumulative number of hikes or cuts the market is pricing in by a certain point in the future. **Panel B:** Data as of 8/4/2026. End of 2025 data as of 12/31/2025. Source: Bloomberg, Avantis Investors.

Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

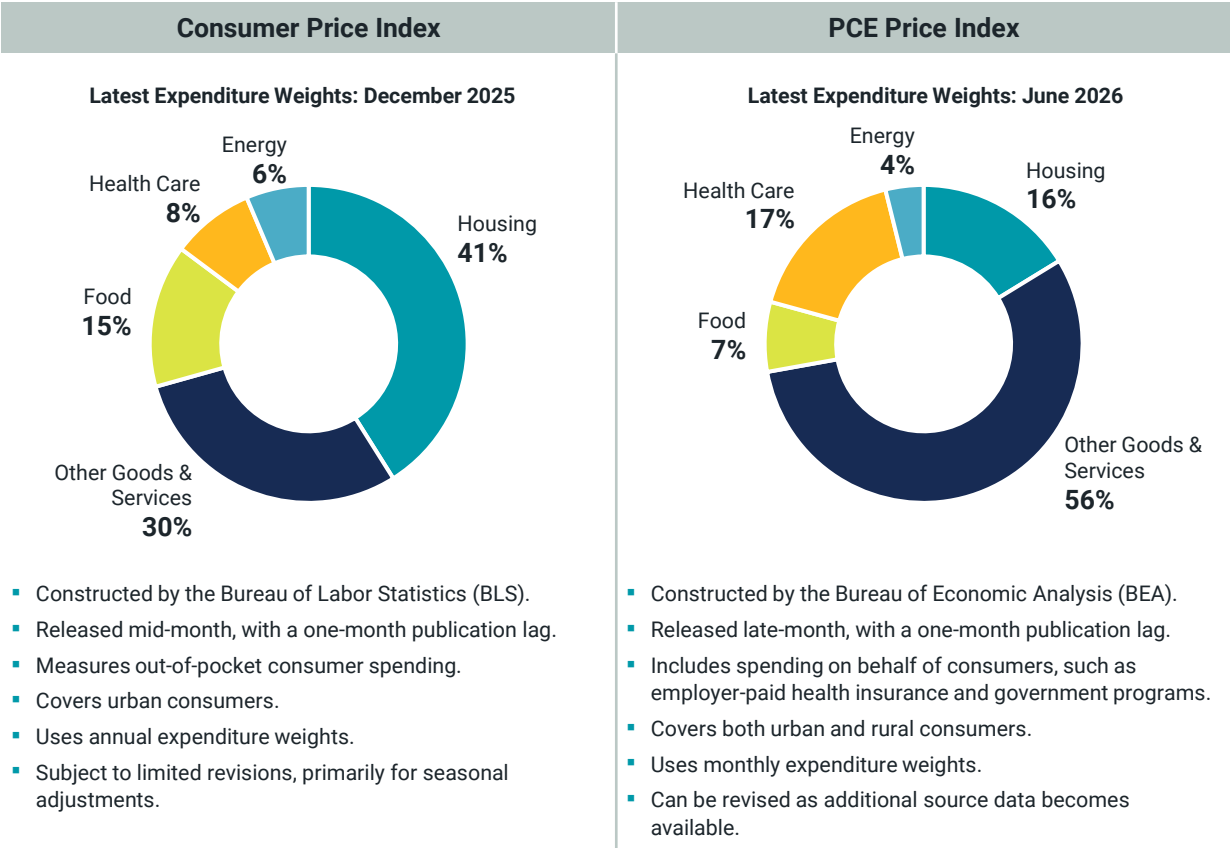
A Closer Look at the Different Measures of Inflation

The Consumer Price Index (CPI) and the Personal Consumption Expenditures (PCE) price index are the two most widely followed measures of inflation in the U.S. Both are designed to capture changes in consumer prices by tracking the cost of a basket of goods and services.

Despite that shared goal, they differ in important ways, including their coverage, underlying category weights and the degree of revision. **Figure 2** provides a closer look at these differences.

A few things stand out in the comparison. CPI receives significant investor attention, largely because it's released before PCE and because it contains much of the same price information that ultimately feeds into PCE. However, the Fed has preferred PCE since 2000 and defines its longer-run 2% inflation goal using the annual change in the core PCE price index.

Figure 2 | CPI vs. PCE: How the Two Inflation Gauges Differ



Source: U.S. Bureau of Labor Statistics, Bureau of Economic Analysis, and Avantis Investors.

Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

The Fed's preference for PCE reflects several features of the index. PCE covers a broader set of goods and services, including spending made on behalf of consumers. The index also better reflects changes in consumer spending patterns over time because category weights are dynamic and updated monthly.

For example, if high beef prices prompt consumers to switch to chicken, the PCE index will reflect that shift more quickly than CPI, which resets weights annually. PCE also includes both urban and rural consumers, whereas CPI focuses on urban consumers.

The category weights shown in **Figure 2** also help explain why CPI and PCE can tell somewhat different stories at a given point in time. CPI places far greater emphasis on housing costs, while PCE gives more weight to health care. The difference stems largely from PCE's broader coverage, which includes health care spending on behalf of consumers through programs such as Medicare and Medicaid, as well as employer-provided health insurance.

Because CPI focuses more directly on out-of-pocket consumer spending, housing accounts for a larger share of the index. As a result, the gap between CPI and PCE may reflect where price changes are most concentrated. Increases in housing costs tend to have a larger effect on CPI, whereas increases in health care costs tend to have a greater effect on PCE.

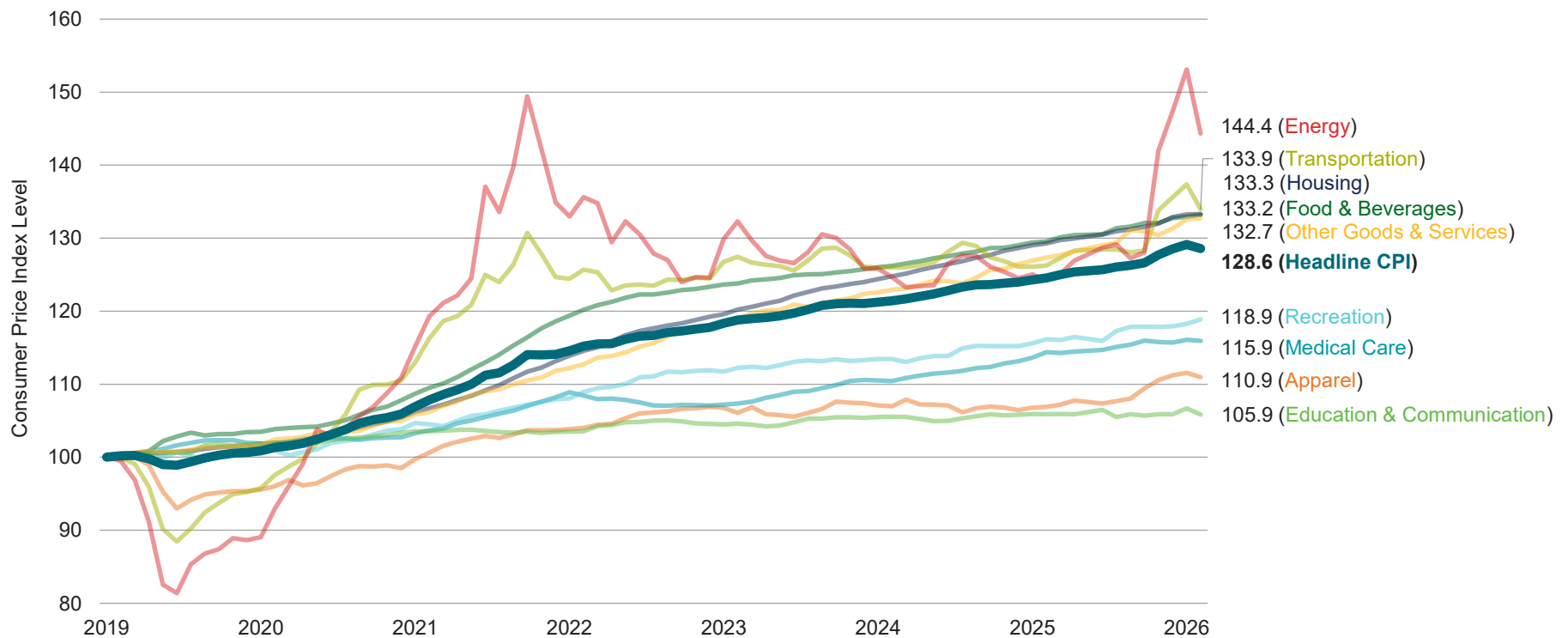
Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

The Role of Core Inflation Measures

Both CPI and PCE have "core" versions that exclude food and energy, as these categories tend to be more volatile and can fluctuate for reasons unrelated to broader inflation trends. **Figure 3** compares the price movements of headline CPI with its underlying categories by reindexing each measure to 100 in December 2019.

Figure 3 | Under Headline CPI, Consumer Prices Can Vary Greatly

CPI Index Level vs. Underlying Categories



Data from 12/31/2019–6/30/2026. Data indexed to 100 beginning 12/31/2019. Source: U.S. Bureau of Labor Statistics, Avantis Investors.

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Although headline CPI increased by 28.6% since 2019, price growth varied considerably across categories.

We break out energy as a separate series to highlight its volatility. In the headline CPI index, energy services, such as utilities, are primarily included within housing, while energy commodities, such as gasoline, are included within transportation. Isolated from the rest, energy prices charted a far bumpier course than headline CPI: energy experienced larger fluctuations over time than most other major categories, and the series finished 44.4% above its level in December 2019. This volatility helps explain why economists often focus on core inflation measures when assessing underlying price trends.

Interestingly, food prices didn't show the same degree of volatility as energy prices over the period. This distinction has become part of the broader conversation around how best to measure core inflation. Recent research from the St. Louis Fed suggested an alternative core PCE measure that excludes only energy goods rather than both food and energy.

The formulas for these measures have changed before and are likely to change again. In fact, the upcoming September release of core PCE will include adjustments the BEA is making to its measurement of the cost of software, legal services and investment management.¹

While we can't predict exactly how these measures will evolve or how the Fed will use them, it's important to remember that a single measure may not tell the full story. Beneath headline inflation numbers, price changes can vary meaningfully across categories.

¹ Matt Grossman, "A Statistical Revamp Is About to Lower Inflation, at a Critical Time," *Wall Street Journal*, July 19, 2026.

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How Different Are CPI and PCE in Practice?

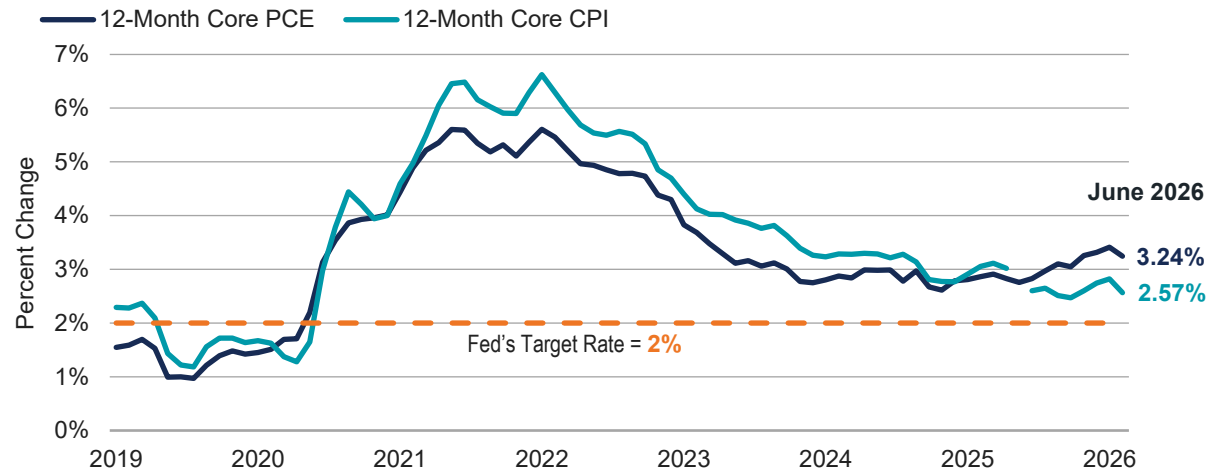
Given the differences we've discussed between CPI and PCE, it is reasonable to expect the two indexes to diverge at times. **Figure 4** compares 12-month core CPI and 12-month core PCE to show how the measures have behaved relative to one another over time.

Panel A focuses on the past five years, including the high-inflation period in 2021 and 2022. While the two measures generally move in the same direction, we can see that gaps may emerge over shorter periods. For example, core PCE has remained elevated recently even as core CPI has shown signs of cooling.

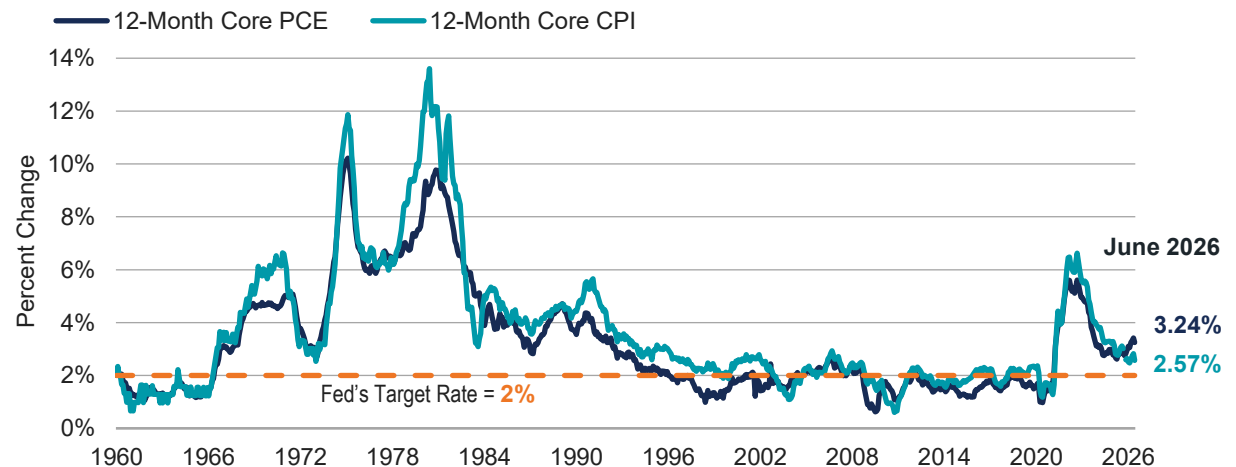
Panel B zooms out to provide a long-term perspective. Although CPI and PCE are not perfectly aligned, they have tracked each other closely over time and tend to signal similar inflation trends. As a result, temporary gaps between the two measures are often less important than the broader message they convey about the direction and persistence of inflation.

Figure 4 | Despite Differences, CPI and PCE Signal Similar Inflation Trends

Panel A | Over Short Periods, Gaps Between CPI and PCE Can Emerge



Panel B | Over the Long Term, CPI and PCE Have Moved in Lockstep



Panel A: Data from 12/31/2019–6/30/2026. Source: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, Avantis Investors.

Panel B: Data from 1/1/1960–6/30/2026. Source: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, Avantis Investors.

Inflation Alphabet Soup: CPI, PCE and Shifting Rate Expectations

Takeaways for Investors

Regardless of how it's measured, inflation erodes purchasing power. For long-term investors, the question then becomes how to build portfolios that can grow wealth at a rate exceeding inflation over time.

Figure 5 compares the growth of \$1 invested in the U.S. stock market and one-month Treasury bills since 1947 alongside the cumulative rise in prices over the same period, as measured by the CPI.

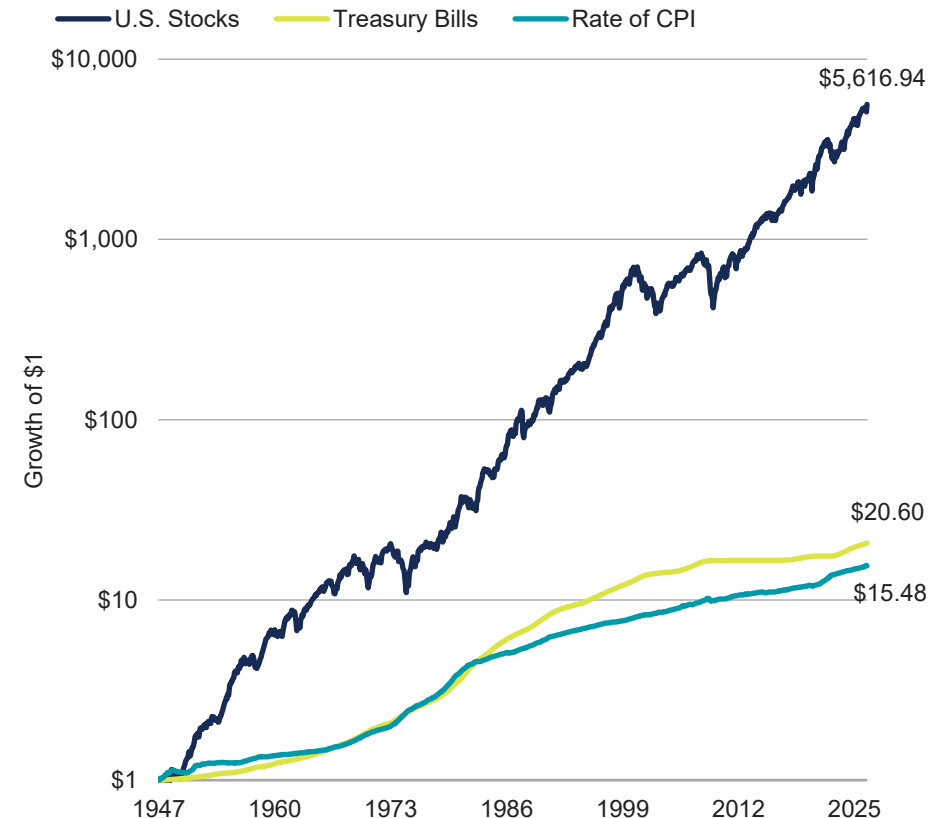
Consumer prices have risen to more than 15 times their 1947 level, meaning \$1 would need to grow to about \$15.48 just to maintain its purchasing power. By contrast, \$1 invested in the U.S. stock market has grown to more than \$5,600. That's great news for investors: While inflation is a real risk, history suggests that disciplined investing can be an effective tool for overcoming it.

The main takeaway isn't that investors should ignore inflation. On the contrary, inflation matters, and it's reasonable to pay attention to how it is measured and how it may influence monetary policy.

At the same time, periods of higher inflation don't need to be a reason to abandon long-term discipline. Instead, finding an asset allocation you can stick with, embracing diversification, and using tax- and cost-efficient investment strategies can help stack the odds in your favor toward achieving a positive long-term investment experience.

Figure 5 | Long-Term Investments Have Historically Outpaced Inflation

Growth of \$1 at the Rate of CPI vs. \$1 Invested in U.S. Stocks or Treasury Bills



Data from 1/1/1947–6/1/2026. Source: Bureau of Labor Statistics, Ken French Data Library, and Avantis Investors.

Academic Perspective

Annuities and Retirees: Beyond the Math

On a recent family road trip, my 6-year-old son asked the question every parent has heard at least a million times, one he had asked at least 10 other times on that trip: “How much longer until we’re there?”

On that occasion, rather than answering him, I got lost in thought about how his uncertainty wasn’t all that different from what happens when we try to plan retirement spending. Hear me out: From where I sat, the answer was clear – I could look at Google Maps and see we had about 10 miles, or 47 minutes, left on our trip (did I mention that we live in Los Angeles?).

Longevity Risk Makes Retirement Spending Uncertain

But from his seat, with no clear view of the screen, he simply had no idea what the rest of the trip would be like. Determining a spending plan in retirement requires knowledge of a different kind of remainder (our time left to live), yet we occupy the same seat as children – we have no way to truly predict how long that time will be.

For many people, this kind of uncertainty is where an annuity can fit. It was the topic of [our final installment in the “Beyond the Math”](#) mini-series on [“The Behavioral Divide”](#) podcast. To better understand the psychology behind annuities, I spoke with University of Illinois Professor Jeff Brown, who has spent the past 30 years studying annuity decision-making, and with David Busch, chief investment officer at Trajan Wealth.



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?”

Annuities and Retirees: Beyond the Math

What Is an Annuity?

As Brown noted, in its most basic form, an annuity is "just an exchange of a sum of wealth for a stream of income." But annuities can then differ along two dimensions, which Brown frames as a two-by-two grid.

- The first is timing: Immediate annuities pay income right away in exchange for a premium, whereas deferred annuities collect a premium now and begin paying income at a later date.
- The second concerns the structure of payouts: Fixed annuities exchange your premium for a set payment for the rest of your life, while variable annuities are invested in a diversified pool of assets, so the payout can rise or fall with the market.

Throughout our conversation, it became apparent that, when it comes to annuities, as with the other topics (Social Security and mortgages) we discussed in our "Beyond the Math" series, two aspects matter greatly: how a product is *framed* and what that product is *for*.

How Framing Shapes Annuity Decisions

Several years ago, Brown and his colleagues conducted influential research in which they presented information about annuities to people, with the product subtly described using either an *investment* or a *consumption* frame.¹ For instance:

Investment frame: "Mr. Red invests \$100,000 in an account that earns \$650 each month for as long as he lives."

Consumption frame: "Mr. Red can spend \$650 each month for as long as he lives in addition to Social Security."

It's the same product, of course, but with different framing. As Brown described it, framing an annuity in terms of consumption moved about half the people who would otherwise have rejected the annuity to prefer it (over taking a lump sum).

Consider the reason: The investment frame brings to mind the possibility of "losing" the initial \$100,000 if you die early. The consumption frame removes any mention of the account balance and instead focuses on spending potential.

What's interesting here, and where Brown and Busch agreed, is that the entire American retirement system effectively orients people toward the investment frame by encouraging them to think in terms of accumulation (e.g., "What's your number?").

Annuities and Retirees: Beyond the Math

But with the probability of living into one's 80s or 90s considerably higher now than it once was, as Busch pointed out, having insurance against outliving one's savings may be even more important.

Busch further noted that the very way an advisor raises the topic of annuities is the real-world version of Brown's framing experiment. For instance, if an annuity is discussed in the immediate context of a client's portfolio, it may inadvertently prompt them to think of annuities in investment terms (making them less attractive).

Instead, it may be wiser to discuss risk and ask whether an annuity, as a consumption device that hedges against outliving one's savings, "fits" that client. Along these lines, annuities may not, of course, be right for everyone. If a client, for instance, has a strong bequest motive, a shorter-than-average life expectancy, or even a need for cash in the near future, annuities may not be suitable for them.

Why Your Future Self Matters in Retirement Planning

Going deeper, Brown asked a question he once posed to government officials at a congressional hearing: "Why do we even save for retirement?" Is it to have the largest lump sum possible at age 65, or is it to maintain our living standards for the rest of our lives? Of course, it's the latter. But just asking that question raises a deeper one: What do you want the last 10 to 15 years of your life to look like?

Brown suggests that a conversation about retirement spending should start at the end, with clients being asked to imagine what they will be like at age 90. Of course, there can be a disconnect between who someone is at 65 and who they may become 25 years later.

But planning for a version of yourself you don't yet know is a form of care for an older version of you. One fact of aging is that most of us will experience some form of cognitive decline over time. As Brown pointed out, having income coming in each month helps manage that decline by taking one more worry off the table.

Annuities and Retirees: Beyond the Math

The “math” may point to an annuity as a potentially wise way to help protect against outliving one’s savings. But relying on math alone may overlook the fundamental psychology behind this type of purchase.

As Brown said, when he was helping his mother plan her retirement, she called him worried, asking whether she would run out of money. As an economist, he ran through probabilities and showed her spreadsheets. A few months later, she called with the same question – the adult and more serious version of “when will we be there?” – which is when it occurred to him that “all the probabilities in the world weren’t going to do it for her. She needed a sense of certainty.” That sort of certainty, rather than a rate of return, may be what an annuity is actually for.

Balancing Certainty, Flexibility and Peace of Mind

Of course, there are always trade-offs. Maintaining an allocation through retirement, with some level of stocks for growth and bonds for risk management, provides less certainty about longevity risk but offers transparency into the current account value and liquidity if needed.

By contrast, annuitizing all your assets guarantees a steady monthly income and helps protect against longevity risk – but only by surrendering your lump-sum nest egg and the liquidity it provides. The key is understanding the options and trade-offs, considering both the math and individual psychology, to determine what’s best suited to each person’s unique goals and objectives.

Market Review



Snapshot

Global stocks were mixed in July, led by non-U.S. developed markets. U.S. Treasury yields rose, and bond returns declined.

- Turbulence rattled the U.S. stock market in July, as oil prices rose, Fed policy remained unclear and valuation concerns weighed on artificial intelligence (AI)-related stocks. Better-than-expected inflation data helped spark a late-month rally that offset some earlier losses, but the S&P 500 Index was nearly flat for the month.
- Rising oil prices propelled the energy sector to the top of the performance hierarchy in July, with a gain of nearly 13%. Four of the index's 11 sectors declined for the month, led by information technology, weighed down by a sell-off among AI-related stocks.
- With a gain of 2%, non-U.S. developed markets stocks outperformed U.S. stocks in July. After logging strong returns for several consecutive months, emerging markets (EM) stocks retreated, declining more than 3% in July.
- The annual U.S. inflation rate (CPI) dropped to 3.5% in June, from 4.2% in May, the first decline in five months. The U.K. annual inflation rate also slowed in June to its lowest level since March 2025. Meanwhile, eurozone inflation edged higher in July, reflecting the month's renewed surge in oil prices.
- U.S. stock market performance was mixed in July, with value indices generally gaining and growth indices declining. All capitalization-based indices declined, with large-caps outperforming small- and mid-cap stocks. Among non-U.S. developed markets, value outpaced growth, and large-caps outperformed small-caps. All the major size and style indices in emerging markets declined for the month.
- U.S. Treasury yields rose for the month, and the broad U.S. bond market index declined.

Returns (%)

INDEX	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR
U.S. Large-Cap Equity							
S&P 500	-0.06	4.19	10.14	19.56	19.32	12.86	15.08
U.S. Small-Cap Equity							
Russell 2000	-3.03	4.99	18.85	34.18	15.09	7.11	10.64
Intl. Developed Markets Equity							
MSCI World ex USA	2.06	4.75	11.44	25.00	16.45	9.62	9.54
Emerging Markets Equity							
MSCI Emerging Markets	-3.07	4.82	20.04	36.44	19.33	8.03	9.19
Global Real Estate Equity							
S&P Global REIT	2.57	4.45	14.49	19.18	9.79	2.66	3.58
U.S. Fixed Income							
Bloomberg U.S. Aggregate Bond	-1.30	-0.76	-0.69	2.71	3.73	-0.40	1.35
Global Fixed Income							
Bloomberg Global Aggregate Bond	-0.53	-0.90	-0.75	1.60	2.99	-1.91	0.25
U.S. Cash							
Bloomberg U.S. 1-3 Month Treasury Bill	0.34	0.95	2.15	3.93	4.70	3.68	2.38

Data as of 7/31/2026. 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	3.82	-4.76	20.67	0.32
	Small	0.01	-5.86	23.00	15.02

- The broad U.S. stock market rally stalled in July, but the index maintained a solid year-to-date gain. Size and style indices were mixed for the month.
- Large-cap stocks declined slightly but outpaced small- and mid-cap stocks in July. Small-cap stocks remained the top year-to-date performers, up nearly 19%, followed by mid-caps, up 15%.
- Value stocks advanced and fared better than their growth-style peers across the board in July. Value also outperformed for the year-to-date period, led by small-cap value, up 23%.

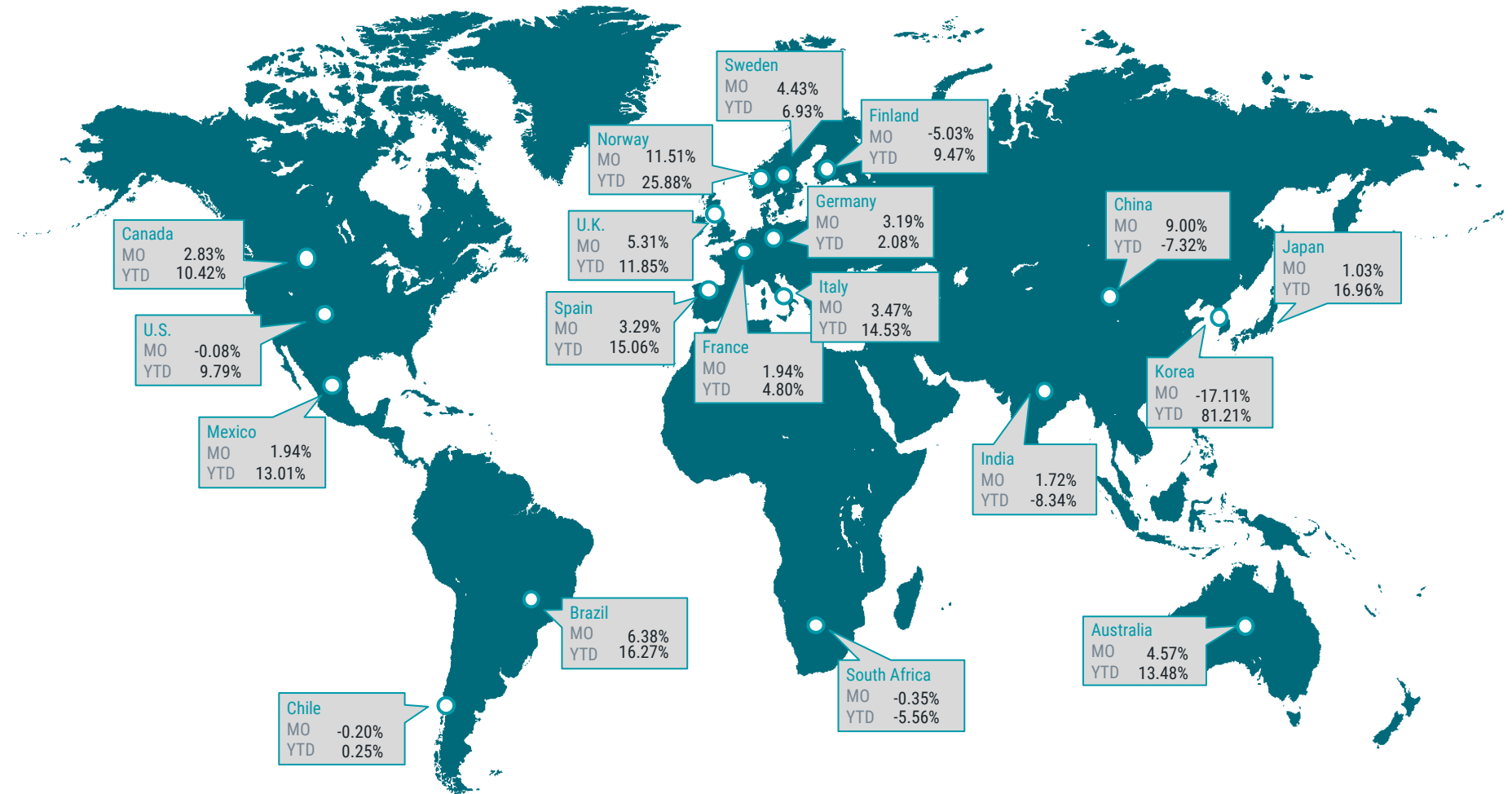
		Non-U.S. Developed Markets			
		QTD (%)		YTD (%)	
		Value	Growth	Value	Growth
Size	Large	5.39	-1.42	18.10	5.65
	Small	4.71	-1.56	10.28	8.12

- Non-U.S. developed markets stocks advanced and outperformed U.S. stocks in July and year to date, with gains of 2.1% and 11.4%, respectively.
- Large-cap stocks outperformed their small-cap peers for the month and year to date. Large-caps returned nearly 2% in July and nearly 12% year to date.
- Value stocks outpaced growth stocks in July, led by mid-cap value, up 6.2%. The value style also outperformed year to date, with large-cap value stocks leading the way, up more than 18%.

		Emerging Markets			
		QTD (%)		YTD (%)	
		Value	Growth	Value	Growth
Size	Large	-0.66	-5.54	22.00	19.52
	Small	-5.43	-8.07	7.66	2.89

- The broad EM stock index lagged developed markets stocks in July but continued to outperform year to date with a 20% return.
- While all size segments declined in July, mid-cap stocks fared better than their large- and small-cap peers, which declined 3% and nearly 7%, respectively. Large-cap stocks outperformed year to date, gaining nearly 21%.
- Value stocks outperformed growth stocks across the board in July and year to date. With a gain of 23%, mid-cap value stocks were top year-to-date performers.

Equity Returns | Country



Data as of 7/31/2026. Performance in USD. Past performance is no guarantee of future results. Source: FactSet. Countries are represented by MSCI country indices.

Fixed-Income Returns

Alongside rising oil prices and associated inflation worries, U.S. bonds retreated in July.

- The Bloomberg U.S. Aggregate Bond Index broke its three-month winning streak, returning -1.3% in July. After easing in June, oil prices rose again in July, fueling inflation worries and pushing Treasury yields higher. The Fed's hawkish tone also pressured yields.
- Treasury yields rose, particularly among longer-maturity securities. The yield on the 10-year Treasury note rose to its highest level since January 2025. The 30-year Treasury yield surged to its highest level since 2007.
- Most bond market sectors declined in July, and credit spreads widened. High-yield corporates declined but outperformed investment-grade corporates. TIPS declined but outperformed nominal Treasuries as inflation expectations rose. Municipal bonds declined and underperformed Treasuries.
- U.S. GDP expanded in the second quarter, but at a slower-than-expected annualized pace of 1.5%. Other data released in July showed manufacturing expanded, the unemployment rate inched lower, and consumer confidence improved.
- Annual headline CPI slowed in June as energy prices declined. The annualized core PCE price index, the Fed's preferred inflation gauge, eased from 3.4% in May to 3.3% in June.
- The Fed left interest rates unchanged for a fifth straight meeting, but three officials dissented, further fueling market expectations for a rate hike this year. Despite elevated uncertainty due to the conflict in Iran, Fed Board Chair Kevin Warsh characterized economic activity as solid.

Returns (%)

INDEX	1 MO	3 MO	YTD	1 YR	3 YR	5 YR	10 YR
Global Fixed Income							
Bloomberg Global Aggregate Bond	-0.53	-0.90	-0.75	1.60	2.99	-1.91	0.25
U.S. Fixed Income							
Bloomberg U.S. Aggregate Bond	-1.30	-0.76	-0.69	2.71	3.73	-0.40	1.35
U.S. High-Yield Corporate							
Bloomberg U.S. Corporate High Yield Bond	-0.25	0.51	1.71	5.17	8.27	4.04	5.51
U.S. Investment Grade							
Bloomberg U.S. Corporate Bond	-1.67	-0.75	-0.83	2.53	4.58	-0.27	2.27
Municipals							
Bloomberg Municipal Bond	-1.85	-0.54	0.43	5.27	2.98	0.51	1.95
U.S. TIPS							
Bloomberg U.S. Treasury Inflation Protected Securities (TIPS)	-0.68	-0.94	0.46	2.59	3.70	0.34	2.42
U.S. Treasuries							
Bloomberg U.S. Treasury Bond	-1.11	-0.72	-0.84	1.97	2.91	-0.91	0.71
U.S. Cash							
Bloomberg U.S. 1-3 Month Treasury Bill	0.34	0.95	2.15	3.93	4.70	3.68	2.38

Data as of 7/31/2026. 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 7/31/2026. 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.

Glossary

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.

Glossary

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.