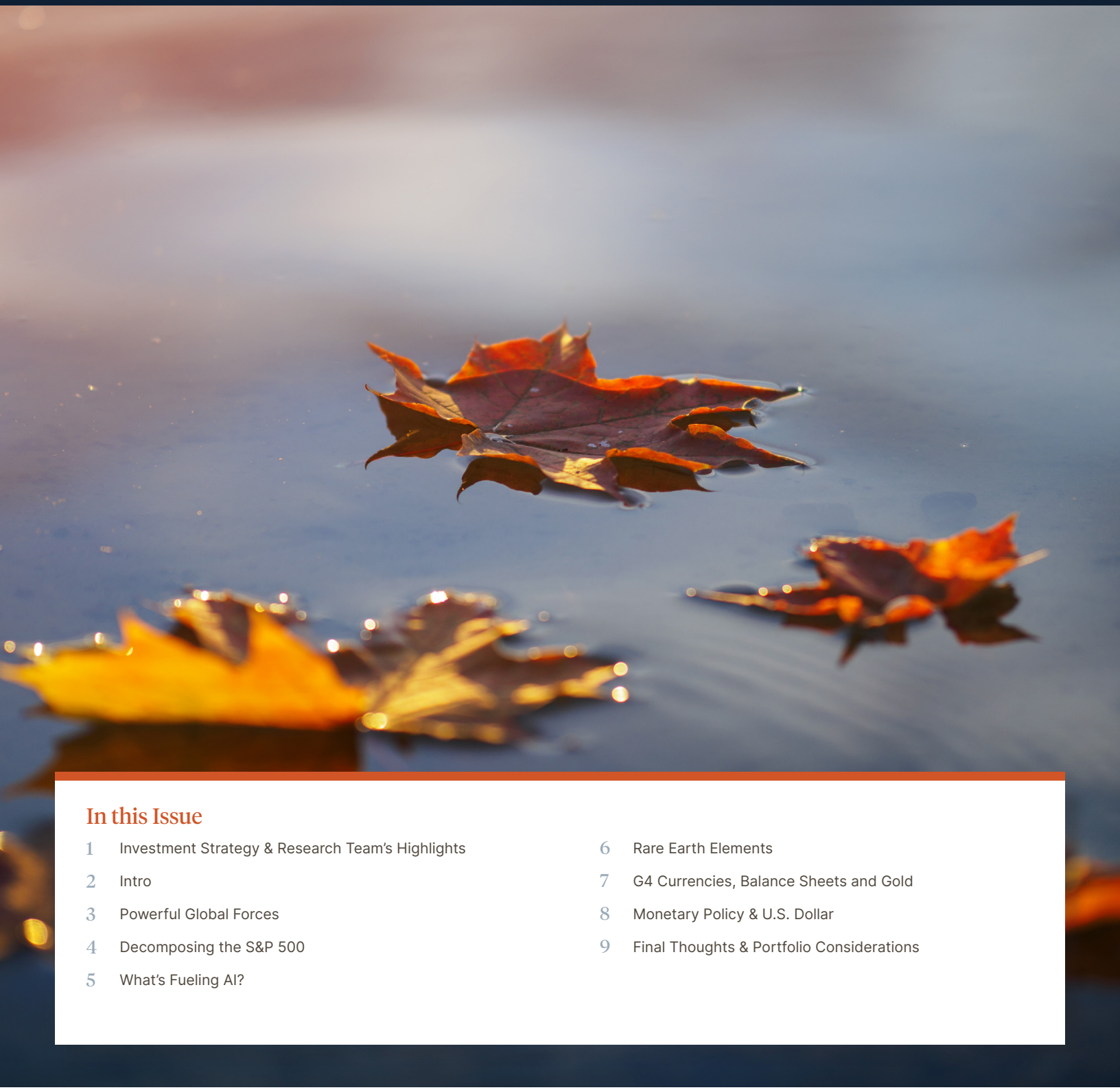
fathom
ASPIRIANT INSIGHTS

FOURTH QUARTER 2025 INSIGHT

Investing Outlook

Los Angeles | San Francisco | San Diego | Silicon Valley | Orange County | New York | Minneapolis | Milwaukee | Cincinnati | Austin



In this Issue

Investment Strategy & Research Highlights

- **The U.S. Economy Remains Resilient:** As we head into the end of 2025, the economy continues to grow. Job gains and spending have cooled somewhat, but overall, the economy has remained resilient.
- **AI Dominance:** Artificial intelligence continues to drive market performance – lifting earnings, fueling investment in data centers and shaping expectations for growth and inflation.
- **Mounting Uncertainties:** At the same time, several dynamics may pressure markets: the possibility of a prolonged government shutdown, a softer U.S. dollar, concentration of returns in a few large tech names and heightened international tensions.
- **Portfolio Implications:** With powerful global forces reshaping the world order—forces that are likely to remain unresolved for some time—it's critical to maintain a disciplined investment approach, staying well-diversified to balance potential risks and opportunities that lie ahead.

Intro

Volatility and uncertainty continue to shape the global economic landscape as 2025 draws to a close. Despite numerous crosscurrents—including geopolitical tensions, shifting trade dynamics and evolving monetary policy—the U.S. economy has remained resilient. Growth has slowed from the rapid pace of midyear but continues to expand, supported by strong corporate balance sheets, improving productivity and ongoing investment in technology.

As we look toward 2026, maintaining perspective amid powerful global forces becomes essential. The following sections examine several of these forces, their influence on markets and the implications for long-term portfolios.

Powerful Global Forces

Powerful global forces shaping today's world order can be grouped into five categories:

1. Economic growth
2. Technological advances
3. Resource availability
4. Energy availability
5. Political tensions.

Importantly, each operates both within and across countries.

Some of the most important aspects of economic growth currently include global trade flows of goods and services, tariffs and other restrictions, and the generation and distribution of wealth. These are critical factors because they determine whether standards of living are deteriorating or improving.

The second category, technological advances, encompasses AI, robotics, autonomous systems, AI-enabled national defense, cybersecurity and warfare. Each can alter the playing field by expanding the range of risks and opportunities.

The third and fourth categories, resource and energy availability, are vital to competitiveness—especially given the energy demands of AI.

Finally, political tensions are rife. Domestically, the U.S. faces protests, government shutdowns and deepening polarization. Abroad, the current state of affairs increasingly resembles a second Cold War. Both the U.S. and China are rapidly strengthening and testing their capabilities and alliances.

Although this shifting world order can feel unsettling, the U.S. remains the world's strongest country overall, based on Ray Dalio's Eight Key Measures of Power framework (introduced in our third quarter 2025 Insight). Importantly, we are confident that the U.S. can maintain its standing if we unite and compete against other countries, not each other.

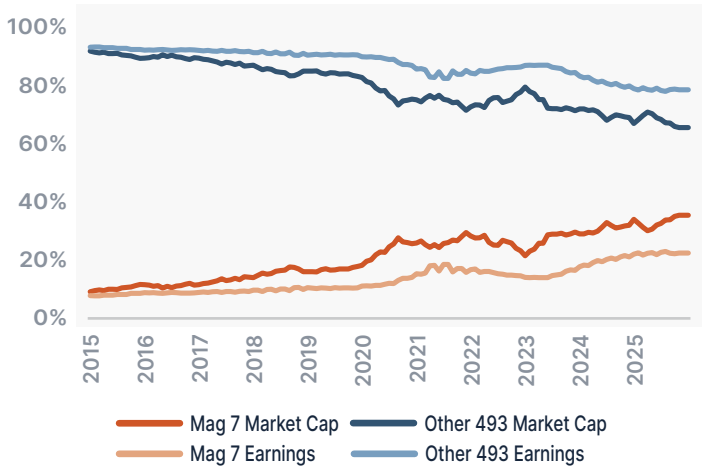
Decomposing the S&P 500

The Magnificent 7 (Mag 7) are the seven largest technology-oriented companies in the S&P 500: Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia and Tesla. Over the past decade, these companies have come to dominate the market across multiple metrics. As shown in **Figure 1**, in 2015, the Mag 7 accounted for 9% of the earnings and 11% of the market capitalization of the S&P 500. Today, those shares have surged—representing 22% of earnings and 35% of the index's market capitalization. That means seven companies out of 500—or just 1.4% of the index by count—produce roughly a quarter of total earnings and represent about one-third of the U.S. large-cap equity market's value.

FIGURE 1

S&P 500 Earnings & Market Cap Decomposed into the Mag 7 & Other 493

Percentage of S&P 500



Source: Aspiriant analysis. Data from Bloomberg. The S&P 500 is a market-capitalization weighted index that includes the most widely held companies chosen with respect to market size, liquidity and industry. Magnificent 7 (Mag 7) refers to the seven largest U.S. technology-oriented companies by market capitalization: Apple (AAPL), Microsoft (MSFT), Alphabet (GOOGL), Amazon (AMZN), Meta Platforms (META), Tesla (TSLA), and Nvidia (NVDA).

Market concentration of this magnitude benefits investors only as long as the Mag 7 continue to outperform. To support these valuations—and, specifically, expectations around AI-related growth—Alphabet, Amazon, Meta and Microsoft have collectively committed hundreds of billions of dollars in capital expenditures to acquire leading-edge graphics processing units (GPUs) and build data centers. As a result, their free cash flow yield (earnings after capital expenditures relative to price) is at a secular low of 1.7%, translating roughly into a 60x multiple of free cash flow for the Mag 7. At these valuation levels, there is little margin for error should the pace of adoption or underlying economics fall short of expectations.

What's Fueling AI?

To propel development forward and reinforce the AI capital-expenditure (capex) cycle, the industry has created a web of interdependencies. Nvidia made investments in leading AI model developers—xAI, Mistral and OpenAI—while those same companies use those proceeds to buy chips from Nvidia. There are similar links around OpenAI with technology start-ups and hyperscalers such as Microsoft and Oracle. This tangled web of relationships is likely to accelerate AI growth in the near term. Over time, however, it could make the AI complex more fragile and politically exposed as conflicts of interest become both more apparent and disruptive.

One potential chokepoint for AI development is access to electricity. An AI search requires about 10 times more energy than a standard Google search. As data centers sprout up to support the increasing use of AI, demand for power is expected to accelerate significantly.

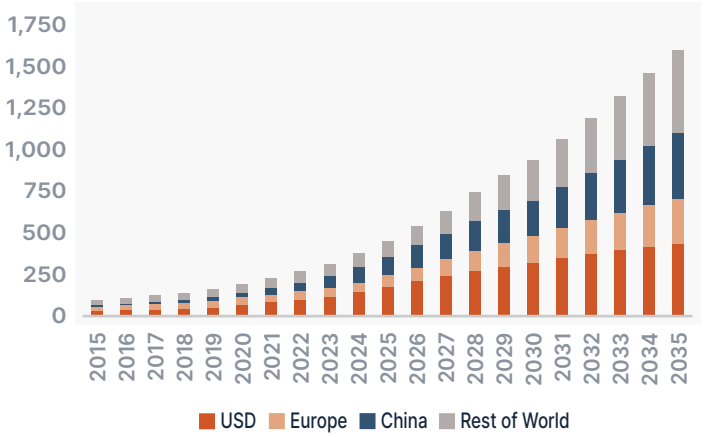
Figure 2 shows past and projected global data-center demand for power from 2015 through 2035. Within five years, power demand from data centers is forecast to double, and, in ten years, more than triple. In the U.S. alone, data centers are expected to account for 10% to 12% of electricity consumption by 2030. With interconnection queues averaging five years, long lead times for power turbine production and regulatory hurdles to building high-voltage transmission lines, it is unclear whether the necessary infrastructure can expand quickly enough to support AI in its current power-hungry form.

Like most new technologies, AI is unlikely to follow a linear path to success and mass acceptance. The adoption cycle often begins with a lot of promise and early proof-of-concepts, drawing in media attention and capital flows. The next stage, fueled by some early success, further expands expectations and investor interest. This is typically followed by disappointment as outcomes fall short, interest wanes, funding recedes and surviving companies pivot business models. From that period of re-evaluation, the next generation of products emerge, adoption grows steadily, businesses scale and the technology eventually becomes widely established.

FIGURE 2

Global Power Demand from AI Data Centers

Power Consumption, TWhs



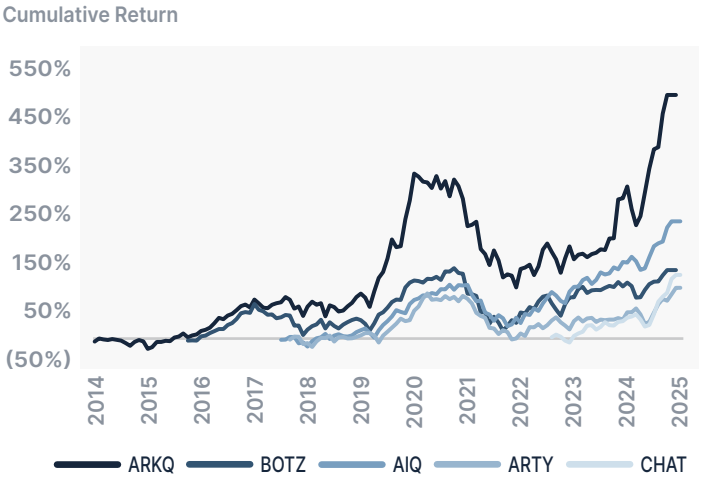
Data as of 12/31/24. Source: Aspiriant analysis. Data from International Energy Agency (IEA), Bloomberg NEF. Estimates of global power demand from AI data centers are based on IEA and Bloomberg NEF modeling. Both organizations combine observed data on current data-center electricity use with projections for computing capacity growth, hardware efficiency gains, and regional infrastructure expansion. Forecasts are scenario-based and approximate, reflecting uncertainty in AI adoption rates, grid constraints, and future efficiency improvements.

AI's potential is vast, but its power needs are equally immense.

Public-market exchange-traded funds (ETFs) tracking the AI theme—such as the ARK Autonomous Technology & Robotics ETF (ARKQ), Global X Robotics & Artificial Intelligence ETF (BOTZ), Global X Artificial Intelligence & Technology ETF (AIQ), ARK Artificial Intelligence ETF (ARTY), and Roundhill Generative AI ETF (CHAT)—have indeed loosely followed this pattern, as shown in **Figure 3**. Overall, AI appears to be in the second phase: a lot of investor interest—approximately two-thirds of every venture capital dollar is going into AI or related investments—with limited broad-based commercial applications. For now, there is more promise than proven profitability.

FIGURE 3

AI Exuberance



Data as of 9/30/25. Source: Aspiriant analysis. Data from Bloomberg. ARKQ, BOTZ, AIQ, ARTY, and CHAT are publicly traded, thematic AI technology and robotics ETFs. See additional disclosures for third-party data and other considerations.

AI remains in its early growth phase, fueled by investor enthusiasm and steady progress toward real-world applications.

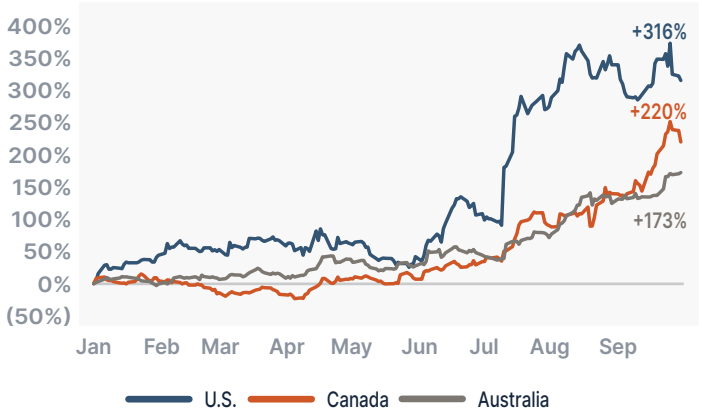
Rare Earth Elements

China is the dominant global supplier of rare earth elements (REEs) needed for magnets used in electric motors, wind turbines, hard drives and defense systems. They are vital to several industries including automakers, aerospace, semiconductors and national defense. In fact, sources estimate China's global supply of rare earth mining at roughly 70% and at ~85–90% for processing and refining—making the U.S. and most other developed countries heavily reliant on China.

As shown in **Figure 4,** stocks of rare-earth miners and refiners in the U.S., Canada, and Australia were already performing well in early 2025. More recently, they've surged in response to China flexing its might and strengthening its negotiating position by announcing plans to restrict exports to the U.S. as part of trade negotiations. Some of that run-up reflects investor anticipation that the U.S. will solidify production deals with its allies. In fact, the U.S. and Australia recently announced a rare-earths deal, with more announcements likely to come.

FIGURE 4

Rare Earth Stocks Surge



Source: Aspiriant analysis. Data from Bloomberg. Some Rare Earth Elements include: Neodymium (Nd), Dysprosium (Dy), Terbium (Tb), Samarium (Sm), Yttrium (Y), Europium (Eu), Gadolinium (Gd), Scandium (Sc). Regional rare earth composites are market-capitalization-weighted baskets of publicly traded companies primarily engaged in rare-earth mining, refining, or related critical-mineral activities within each respective country. Constituents were selected based on company headquarters, primary listing exchange, and identifiable rare-earth exposure. Weights are proportional to market capitalization as of December 31, 2024. The composites are for illustrative purposes only and do not represent investable indices.

G4 Currencies, Balance Sheets and Gold

Although not technically a "rare earth," gold has been in the spotlight this year. **Figure 5** tracks both the quantity of gold held by central banks and its price per ounce since 1980.

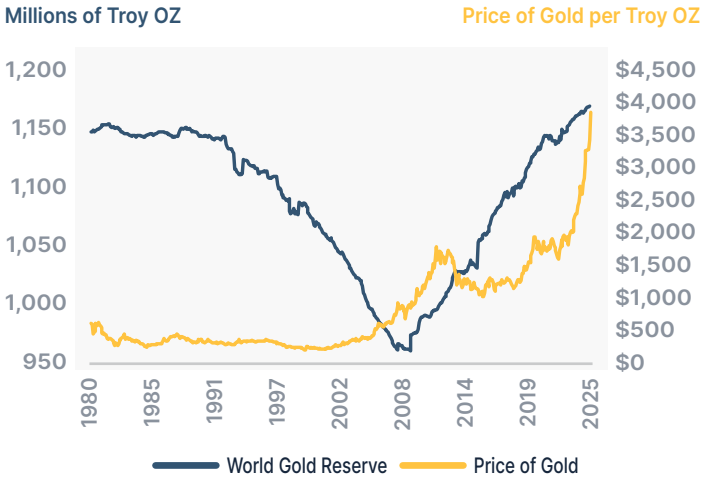
After President Nixon suspended the conversion of the U.S. dollar into gold in 1971, central banks reduced their gold reserves, favoring the U.S. dollar and other European currencies. Prices languished for nearly thirty years, until renewed interest emerged during the Global Financial Crisis (GFC) in late 2007 and again around the 2019 Fed Pivot. However, since early 2024, the price of gold has roughly doubled, which we believe reflects a combination of factors including above-target inflation, rising deficits and debt, and geopolitical tensions.

Since the GFC, total world reserves have risen 117%, while gold reserves have increased 455% over the same period. Although some countries (notably China and Russia) increased the quantity of gold they're holding, the majority of this change relates to the significant spike in the price of gold—nearly double what it was just two years ago. While central banks may not be fully responsible for gold's recent price spike, more banks could become buyers in the future and we doubt any will become sellers.

We expect central-bank policies to modestly support both equities and gold. Banks are likely to continue reducing short-term rates and unlikely to tighten long-term rates, which would mean decreasing the size of their balance sheets more rapidly than expected. But, by no means does that indicate things won't be bumpy in the years ahead. To the contrary, we expect elevated volatility as the world order continues to evolve.

FIGURE 5

World Gold Reserve Holdings vs. Price of Gold



Source: Aspiriant analysis. Data from Bloomberg. Gold share of world reserves is calculated as the market value of official gold holdings divided by total international reserves (foreign exchange + gold). All values are in U.S. dollars. Troy ounce (oz t or t oz) is the standard unit of measure for precious metals such as gold, silver, and platinum.

Gold's resurgence reflects more than price; it mirrors today's uncertainty and search for stability.

Figure 6 shows the aggregate amount of balance-sheet assets held by the U.S. Federal Reserve, European Central Bank, Bank of Japan and Bank of England (in gray). In February 2022, as the banks sought to prop up their economies during the troubled times surrounding COVID-19, the aggregate balance reached approximately $26.3 trillion. Since then, the banks have slowly but steadily reduced their balance sheets, which now total approximately $18 trillion in assets. Each bank has signaled an even slower pace of reductions ahead.

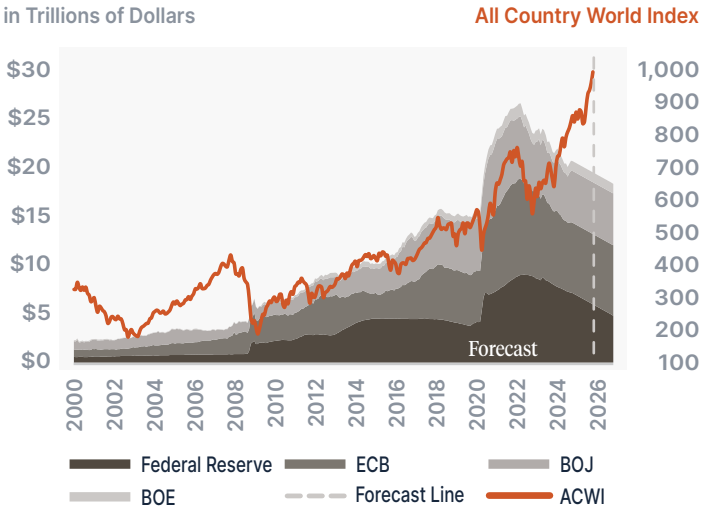
We're now at a point where central banks plan to make only small reductions to their balance sheets, which we think will have limited impact on long-term interest rates and, therefore, equity valuations. In fact, we wouldn't be surprised to see the Fed's balance sheet begin growing again, especially at the first sign of any economic or market turmoil.

The backdrop for gold is similar. Higher long-term interest rates could cause gold to retreat, as some investors would prefer bonds. So long as inflation continues to cool, we don't expect central banks to tighten more than they've signaled. Therefore, like equities, gold could also find support from monetary policy decisions in the future.

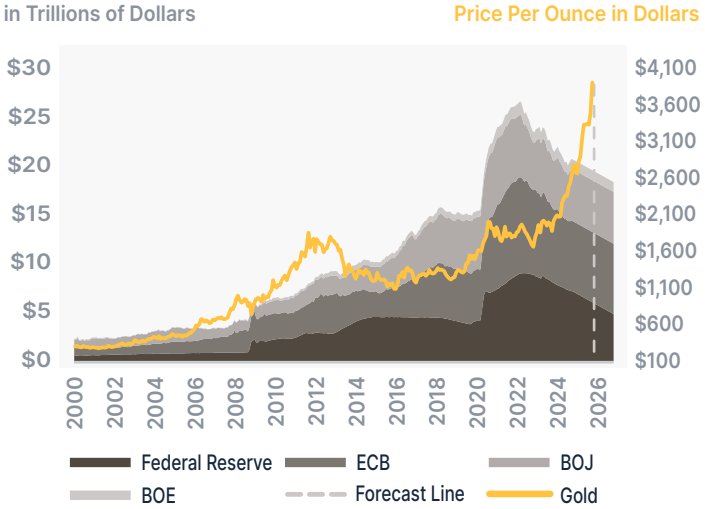
A central bank buying its own government securities and agency securities is considered stimulative to the economy because it injects liquidity into their financial system and helps reduce long-term interest rates. Likewise, smaller balance sheets are restrictive because selling assets depletes liquidity from the financial system and therefore buoys long-term interest rates.

FIGURE 6

G4 Balance Sheets & Global Equities



G4 Balance Sheets & Gold



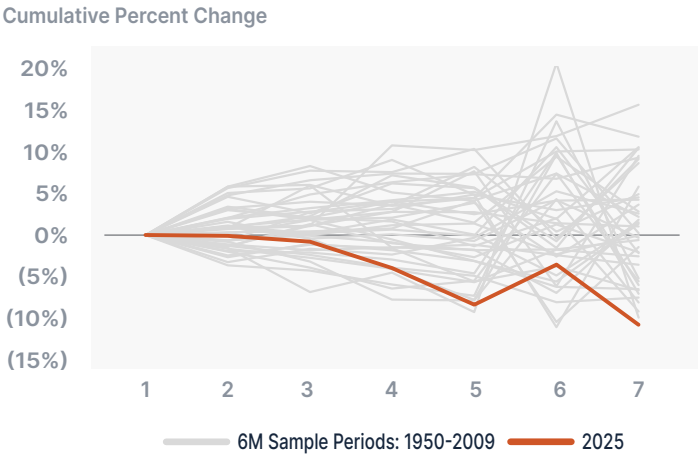
Data as of 9/30/25. Source: Aspiriant analysis. Data from Bloomberg. "G4" refers to the four major central bank—the Federal Reserve (Fed), European Central Bank (ECB), Bank of England (BOE), and Bank of Japan (BOJ). Aggregate G4 balance sheets represent the combined assets of these central banks, measured in U.S. dollars. The ACWI (All Country World Index) represents the performance of global equities, while the gold series reflects the price per ounce in U.S. dollars.

Monetary Policy & U.S. Dollar

Figure 7 illustrates the performance of the U.S. dollar over the first six months of each year beginning in 1986 (with a gray line marking the performance of the dollar against a basket of six major international currencies for every year in the sample). The current year (in orange) shows 2025's 11% decline as the worst first half of the year for the dollar in 40 years.

FIGURE 7

Percent Change in U.S. Dollar Index (1986-2025)



Source: Aspiriant analysis. Data from Bloomberg. Percent Change in U.S. Dollar Index analysis contains 40 sample periods.

Many factors contributed to this decline, including concerns over U.S. fiscal sustainability, inflation levels persistently above the Fed's target, a desire among international investors to diversify away from dollar assets, and a loss of confidence in U.S. institutions.

No institution is arguably more important to investors than the Federal Reserve. The Fed is undergoing a leadership transformation that could have significant implications for interest rates, the dollar, and financial markets in the months ahead. With Fed Chair Jerome Powell's current term set to expire in May of 2026, more attention is being paid to his likely replacements. In the race among leading candidates, prediction markets indicate Kevin Hassett, Director of the National Economic Council, has an edge over former Fed Governor Kevin Warsh and current Fed Governor Christopher Waller.

Of course, the Fed Chair is only one vote—a critically influential one—among the 12 voting members of the Federal Open Market Committee (FOMC), the policy-making body of the Federal Reserve. President Trump has appointed three of the seven members of the Board of Governors constituents, and originally the Chair. Assuming Chair Powell resigns from the Board of Governors, as has been customary for past Fed Chairs, President Trump would have four appointees on the 12-member FOMC. Should the firing of current Fed Governor Lisa Cook be upheld by the courts, there is an outside scenario that could allow for more immediate control of policymaking.

Final Thoughts & Portfolio Considerations

Economic conditions, in the aggregate, remain relatively strong. U.S. economic growth is forecast to come in around 2% annualized for the third quarter—down from the 3.8% pace recorded in the second quarter and up from the negative 0.5% rate in the first three months of the year.

Labor markets are healthy by historical measures, with low overall unemployment. That said, youth unemployment—those aged 20 to 24—is at its highest level in 10 years. Hiring is soft and narrowly concentrated in a few sectors. Labor force growth, due to decreased immigration among other factors, is virtually zero. Fortunately, rising productivity (output per hour worked) has climbed higher in recent months and can help offset any adverse inflation and economic growth consequences from a static labor force.

Core inflation, excluding food and energy has declined from the peak of 6.6%, in September of 2022, to 3.1% year over year. However, progress has stalled for the last several months. Inflation has hovered around 3%, making the Fed's target of 2% look more like a floor rather than the upper bound we experienced for much of the past 30 years.

Consumer sentiment regarding these economic crosscurrents appears largely driven by income levels. Lower-income households are experiencing stagnant real wage growth and struggling to afford basic necessities. This has resulted in higher default rates for credit cards, auto loans, and student loans as well as a significant rise in the use of buy now, pay later programs. Conversely, higher-income households had positive real income growth and have also benefited more

directly from record asset prices. These conditions led to more spending within higher income cohorts, especially on discretionary items such as travel and upscale dining. The top 10% of households now account for almost half of total consumer spending in the U.S.

Layered into this mixed economic picture, there are mounting uncertainties around the ultimate cost and return on investment from the massive funding of AI initiatives, a growing concern around U.S. fiscal sustainability, rising geopolitical tensions and conflict, changing trade policy, shifting global supply chains, and, finally, central bank independence.

We remain optimistic about the opportunities ahead but recognize that ongoing policy uncertainty and market volatility can feel uneasy. As mentioned before, we think the best response to greater unpredictability is to maintain a diversified portfolio. That includes owning U.S. and international stocks and bonds, as well as diversifying assets such as gold and other hard assets and, where appropriate, an allocation to private markets. At the same time, investors must maintain the agility and wherewithal to thoughtfully reallocate across the portfolio as market drawdowns occur or new opportunities emerge.

Fourth quarter 2025 investing outlook and insight provided by:

John Allen, CFA,® CAIA
Chief Investment Officer, Partner

Marc Castellani, CFA,® CAIA, CIMA®
Managing Director, Partner

Camila Kremer, CFA,® CAIA
Senior Research Analyst, Partner

Important disclosures

Aspiriant is an investment adviser registered with the Securities and Exchange Commission (SEC), which does not imply a certain level of skill or training. Additional information regarding Aspiriant and its advisory practices can be obtained at aspiriant.com.

Information contained herein is considered confidential, private, and Aspiriant proprietary inside information that is intended only for the audience to which Aspiriant has knowingly distributed this presentation, either by way of request or voluntarily. Any redistribution of this material without our prior express written permission is a violation of Aspiriant's privacy policy adopted to comply with various state and federal privacy laws and may subject any unauthorized distributor to legal action.

All opinions, figures, charts/graphs, estimates, and data included in this document are as of the date indicated and are subject to change without notice. The statements contained herein may include statements of future expectations, general market performance, or economic conditions, and other forward-looking statements that are based on our current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance, or events to differ materially from those expressed or implied in such statements. Forecasts, projections, and other forward-looking statements are based upon assumptions, current beliefs, and expectations. Forward-looking statements are subject to numerous assumptions, estimates, risks, and uncertainties, including but not limited to: economic, business, market, and geopolitical conditions; U.S. and foreign regulatory developments relating to financial institutions and markets, government oversight, and fiscal and tax policy. Any forward-looking information should not be regarded as a representation by Aspiriant or any other person that estimates or expectations will be achieved, as the future is not predictable.

Past performance is not indicative of future results. There can be no assurance that any strategy will meet its investment objectives. All investments can lose value. The performance and volatility of an investor's portfolio will not be the same as an index. Indices are unmanaged and have no fees. An investment may not be made directly in an index. The data used in this material was obtained from third-party sources the firm believes are reliable and from internal research. Aspiriant is not responsible for the accuracy of any third-party data used in the preparation of this presentation. This information alone is not sufficient and should not be used for the development or implementation of an investment strategy. It should not be construed as investment advice to any party. Investing in securities, such as equities, fixed income, and mutual funds, involves the risk of partial or complete loss of capital that prospective investors should be prepared to bear. Any reference to securities, directly or indirectly, is not a recommendation and does not represent a solicitation to buy or an offer to sell such securities. Any statistical information contained herein has been obtained from publicly available market data (such as data published by Bloomberg Finance L.P. and its affiliates), internal research, and regulatory filings.

Glossary of Terms Used in this Issue

Artificial Intelligence (AI): The simulation of human intelligence by computer systems, including learning, reasoning, and problem-solving. In this report, AI references include automation, robotics, and AI-enabled national defense.

Capital Expenditures (Capex): Funds used by a company to acquire, upgrade, and maintain physical assets such as property, industrial buildings, or technology infrastructure.

Consumer Price Index (CPI): A measure of the average change over time in the prices paid by consumers for a market basket of goods and services. Core CPI excludes food and energy prices to provide a clearer picture of long-term inflation trends.

Data Centers: Facilities used to house computer systems and related components, such as telecommunications and storage systems. In this report, data-center expansion is discussed in the context of AI-driven energy demand.

Exchange-Traded Fund (ETF): A pooled investment vehicle that holds a diversified portfolio of assets and trades on an exchange like a stock. ETFs can track indexes, sectors, or themes such as artificial intelligence.

Federal Open Market Committee (FOMC): The policy-making body of the Federal Reserve responsible for setting U.S. monetary policy, including target interest rates and open-market operations.

Free Cash Flow Yield: Calculated as operating cash flow minus capital expenditures, divided by market capitalization. It represents the cash a company generates relative to its share price.

Gross Domestic Product (GDP): The total value of goods and services produced within a country's borders over a specific period, used as a key measure of economic health.

G4: Refers to the four major central banks—the Federal Reserve (Fed), European Central Bank (ECB), Bank of England (BOE), and Bank of Japan (BOJ).

Magnificent 7 (Mag 7): Refers to the seven largest U.S. technology-oriented companies by market capitalization: Apple (AAPL), Microsoft (MSFT), Alphabet (GOOGL), Amazon (AMZN), Meta Platforms (META), Tesla (TSLA), and Nvidia (NVDA).

Monetary Policy: The actions taken by a central bank to manage money supply and interest rates in pursuit of macroeconomic objectives such as inflation control, employment, and economic growth.

Rare Earth Elements (REEs): A group of 17 metallic elements critical to modern technologies such as electric vehicles, wind turbines, and defense systems. They play an essential role in magnets, semiconductors, and other advanced components.

Ray Dalio's "Eight Key Measures of Power": A framework from Principles for Dealing with the Changing World Order that evaluates national strength based on factors including innovation, education, trade, military capability, and reserve-currency status.

Short-Term Interest Rates: The rates of interest charged on loans or paid on deposits with maturities of less than one year, often influenced by central-bank policy.

S&P 500: A market-capitalization-weighted index that includes the 500 most widely held companies in the U.S. market, chosen based on market size, liquidity, and industry representation.

U.S. Dollar Index (DXY): A measure of the value of the U.S. dollar relative to a basket of major world currencies. Used to gauge the dollar's strength over time.