

Economic, Market, and Investment Strategy Overview

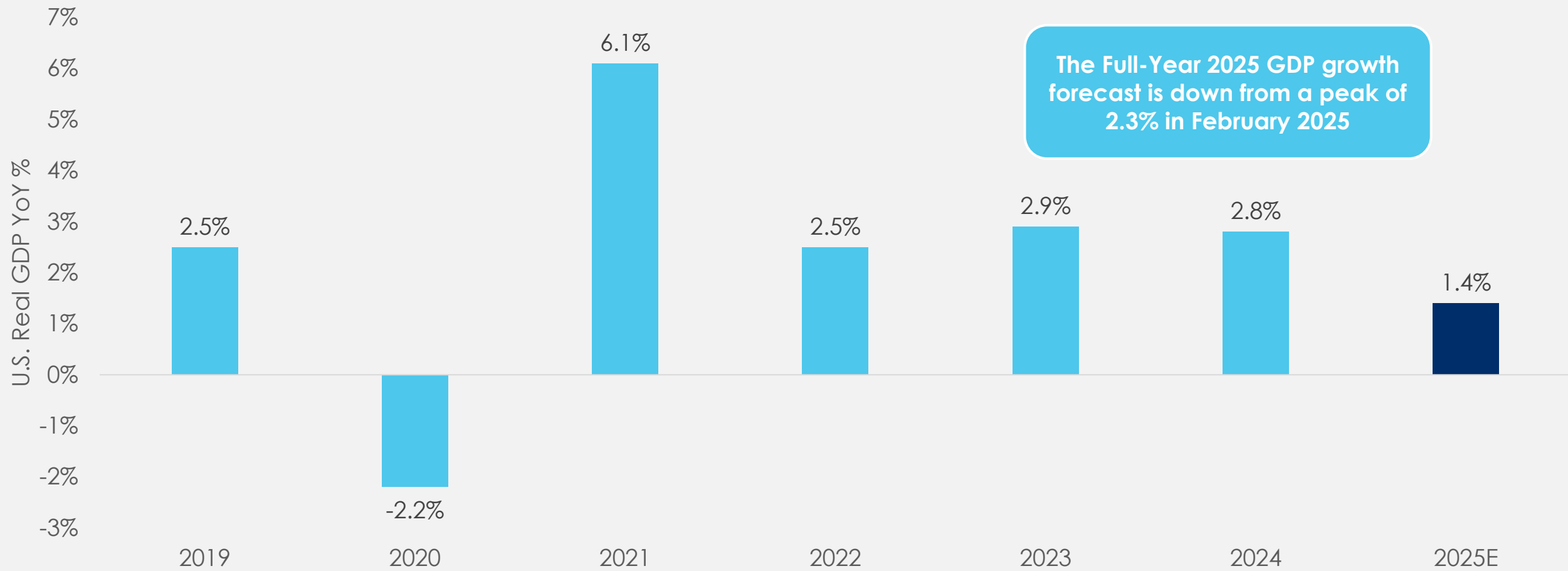
Actuarial Club of Hartford and Springfield
May 22, 2025

Kelly Kowalski, CFA
Head of Investment Strategy

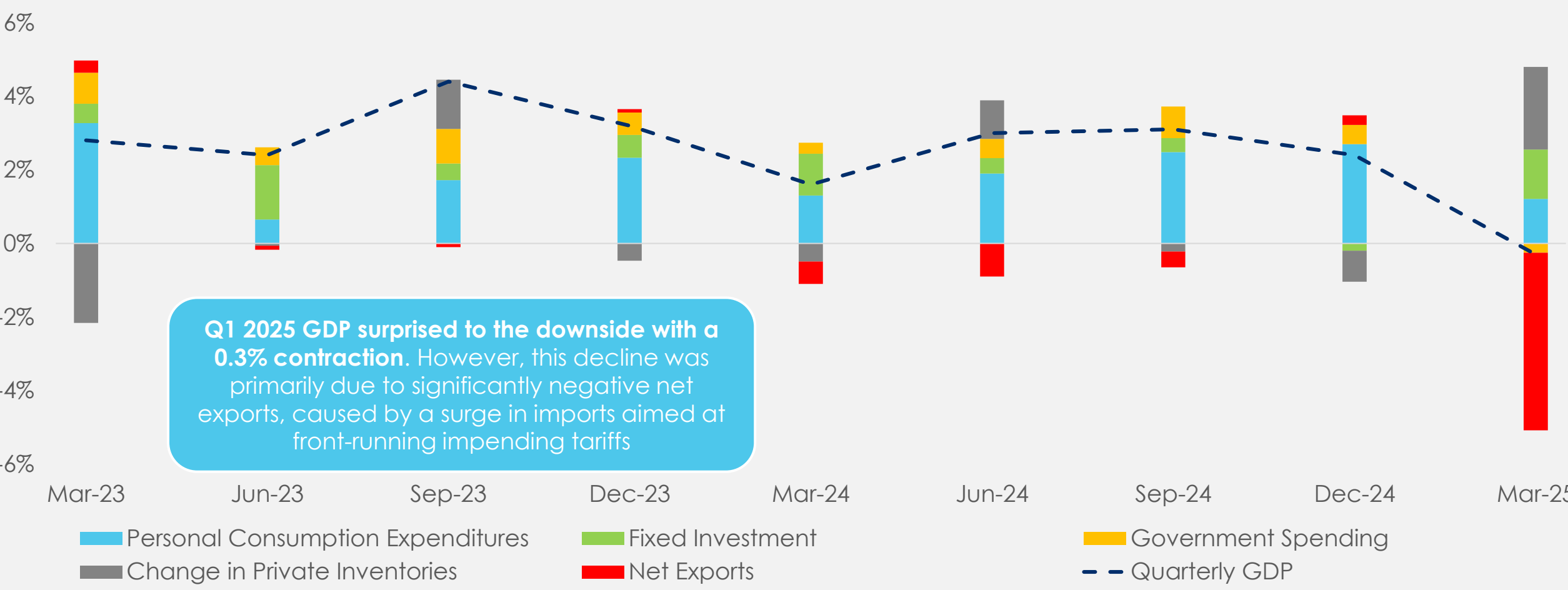


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Current U.S. Economy Readings Stable, but Outlook Strained



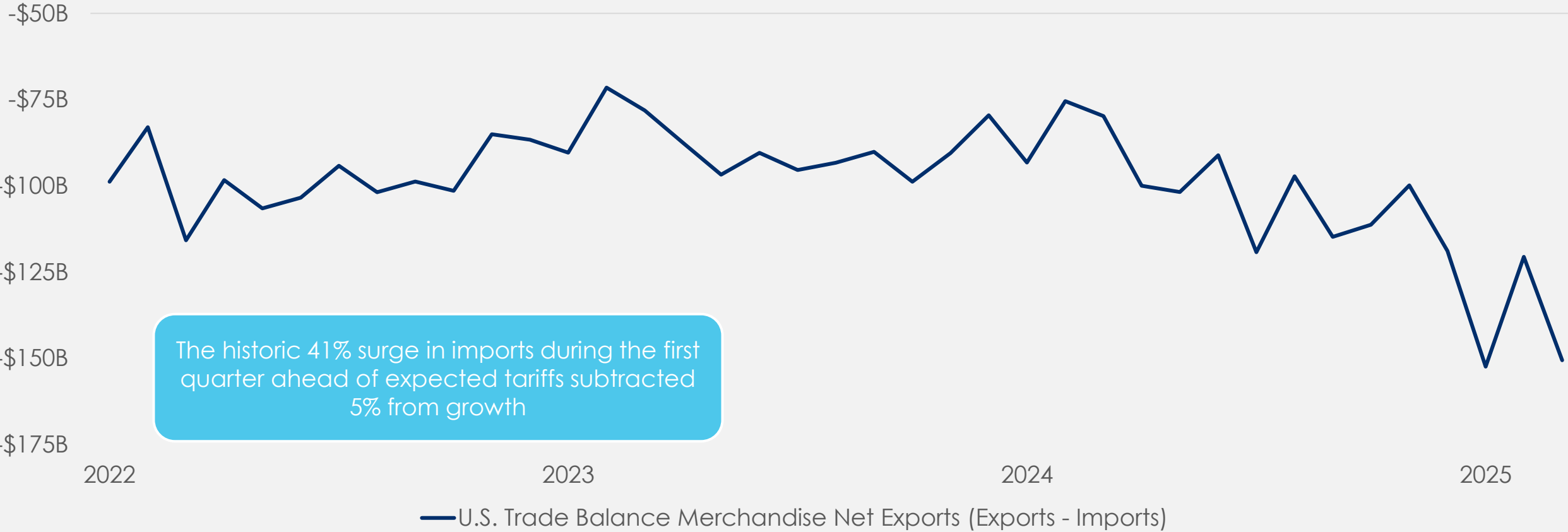
Quarterly GDP



Source: Bloomberg as of 3/31/2025

Net Exports Distort First Quarter GDP

U.S. Census Bureau Net Exports



The historic 41% surge in imports during the first quarter ahead of expected tariffs subtracted 5% from growth

Source: Bloomberg, Bianco Research, & U.S. Census Bureau as of 3/31/2025

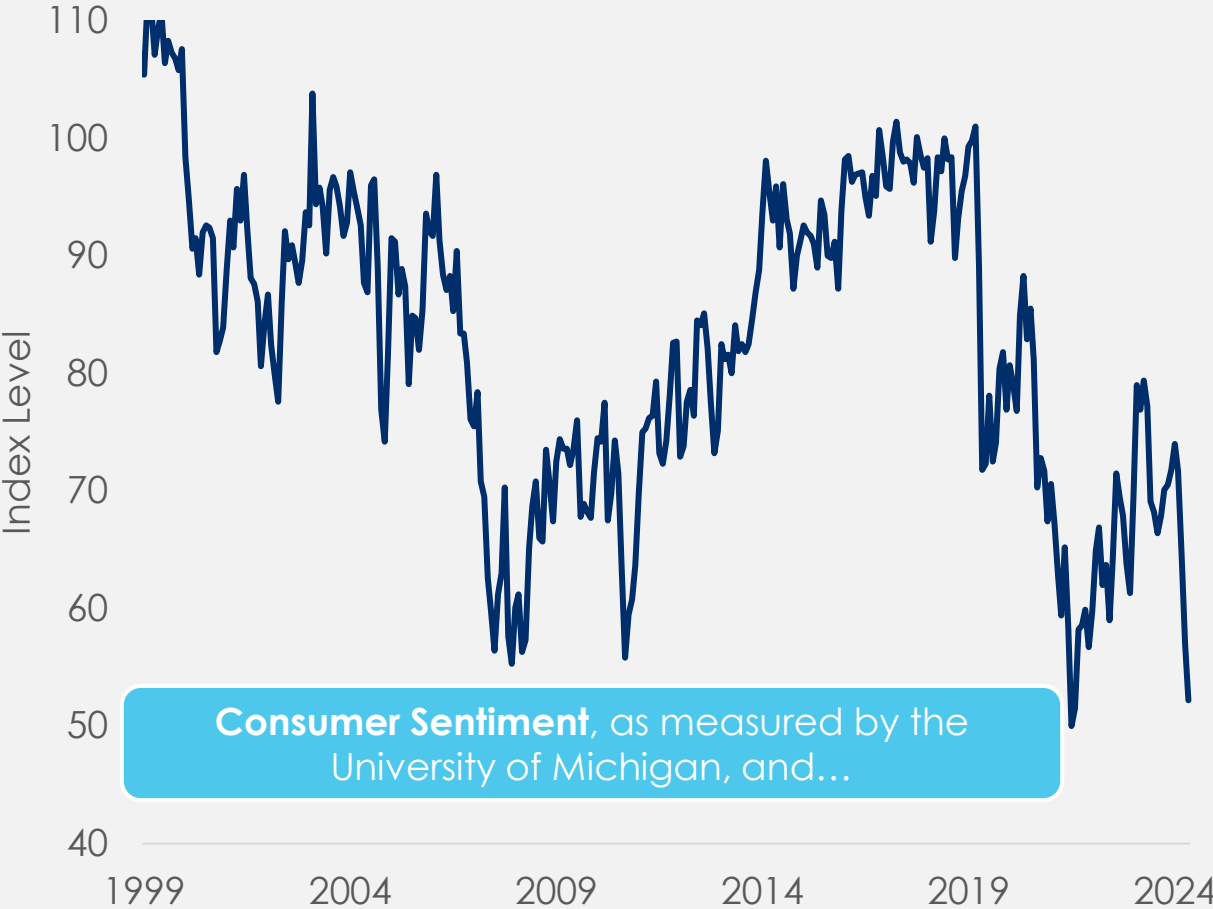
Slowdown or Recession?

Polymarket U.S. 2025 Recession Probability



Sentiment Indicators or Soft Data Indicate Extreme Caution

Consumer Sentiment



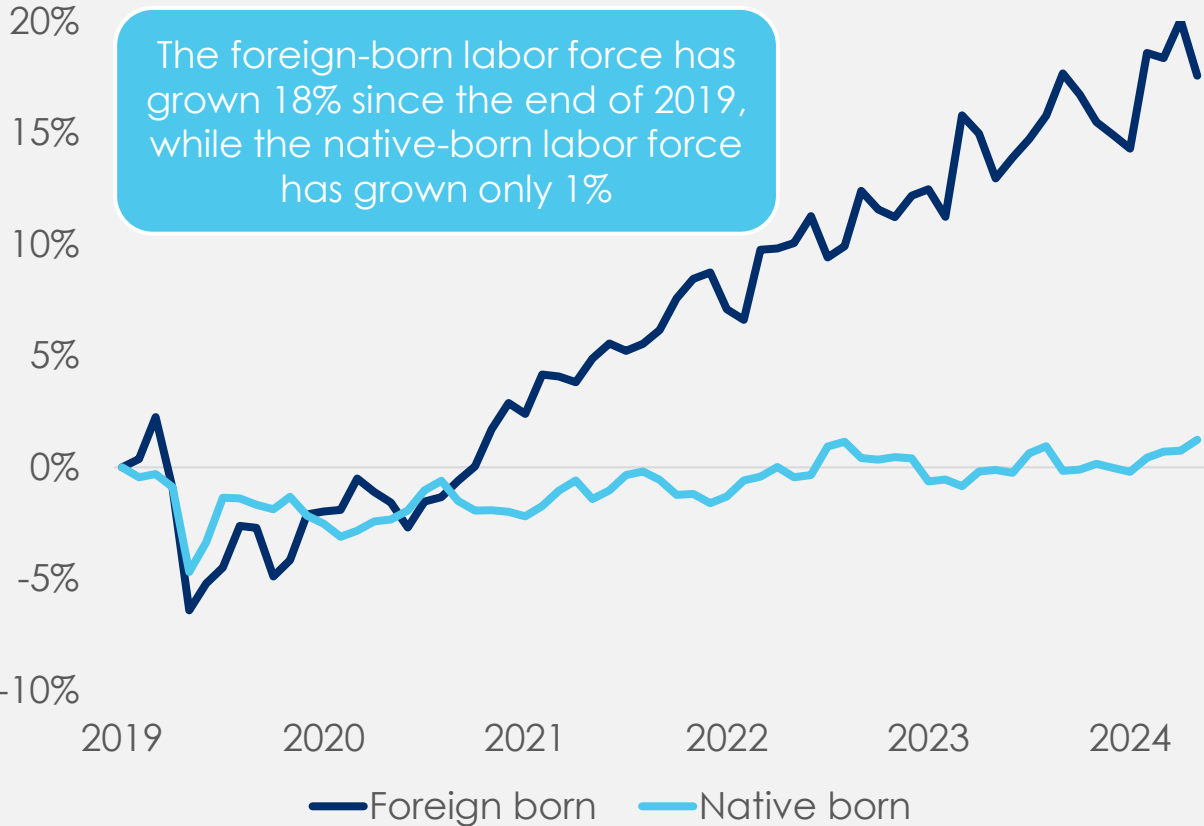
U.S. Economic Policy Uncertainty



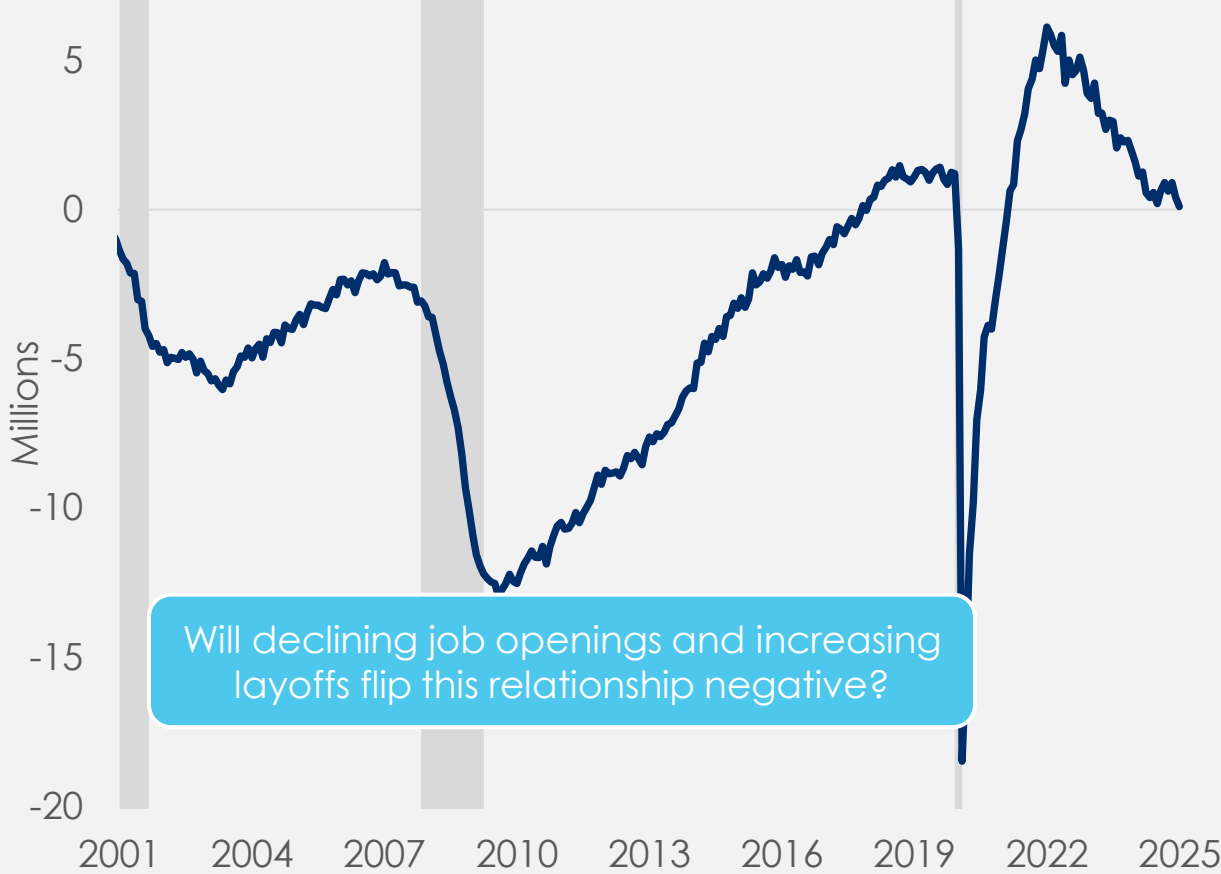
Source: Bloomberg as of 4/30/2025 and Bloomberg as of 3/31/2025

U.S. Labor Market

Percentage Change in Labor Force Since End of 2019



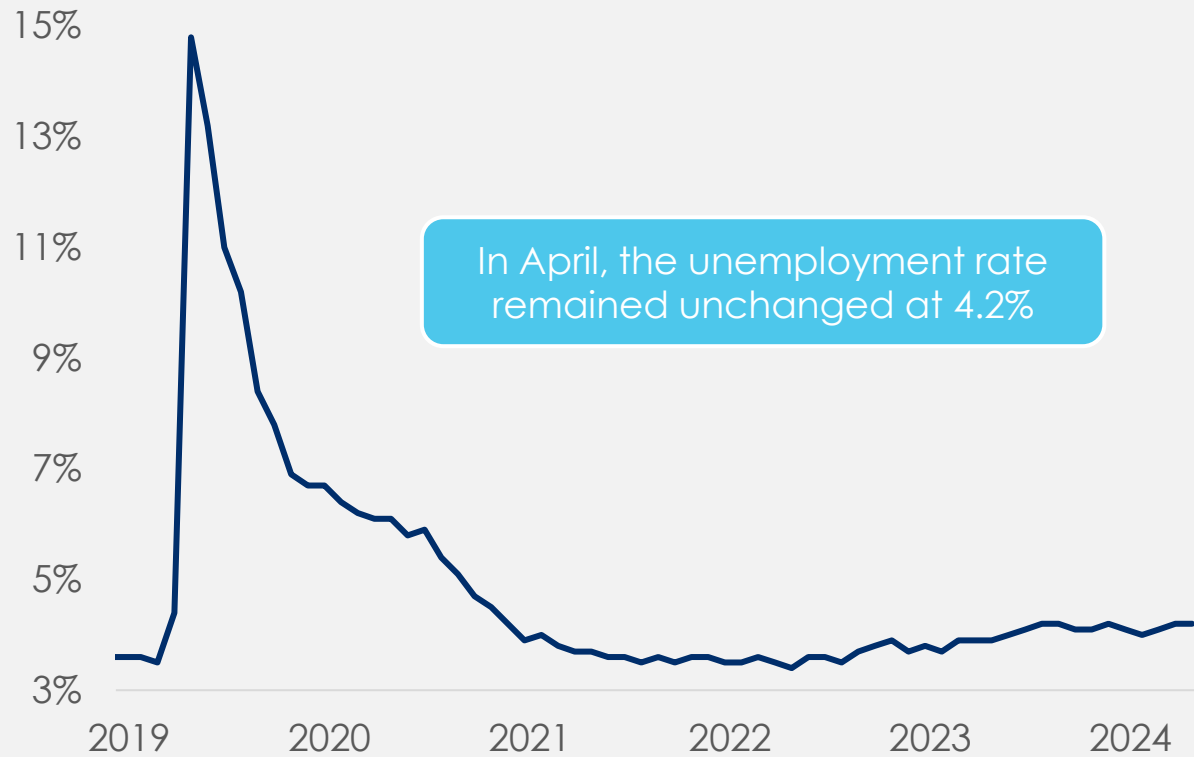
Jobs Versus Unemployed



Source: FRED and as of 4/30/2025 and Bloomberg as of 3/31/2025

Labor Market Does Not Indicate Recession

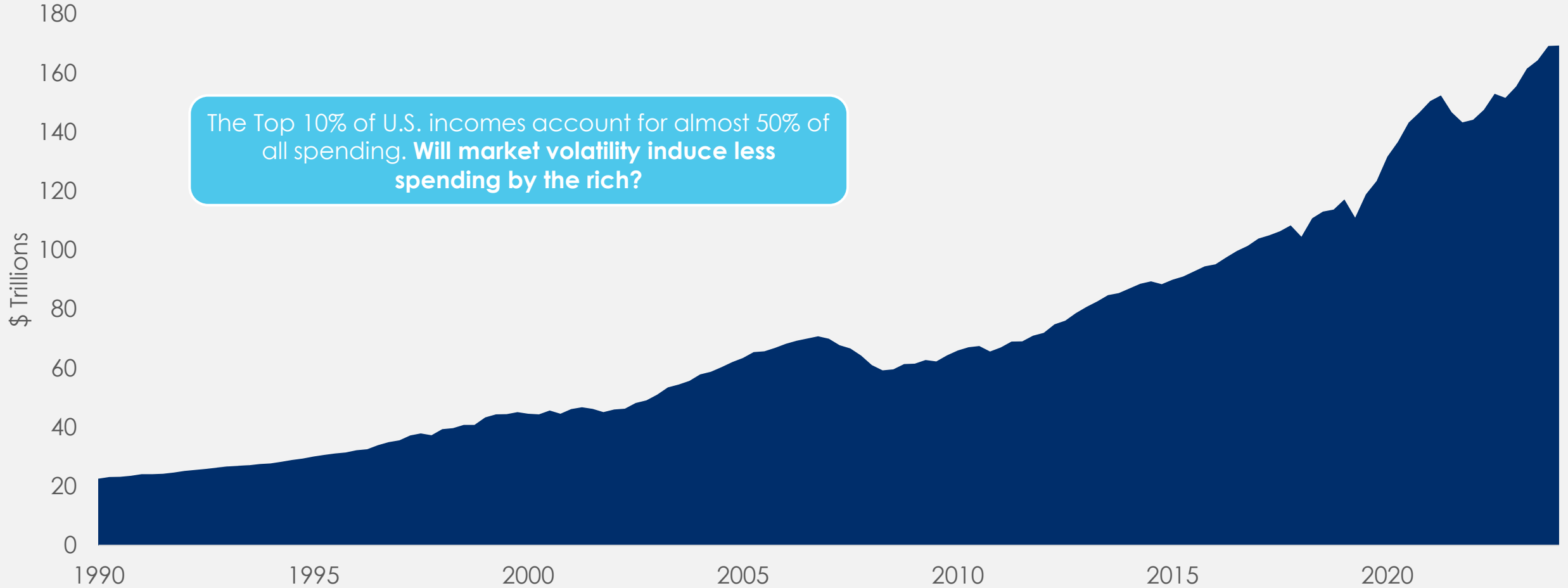
Unemployment Rate



U.S. Quits Rate

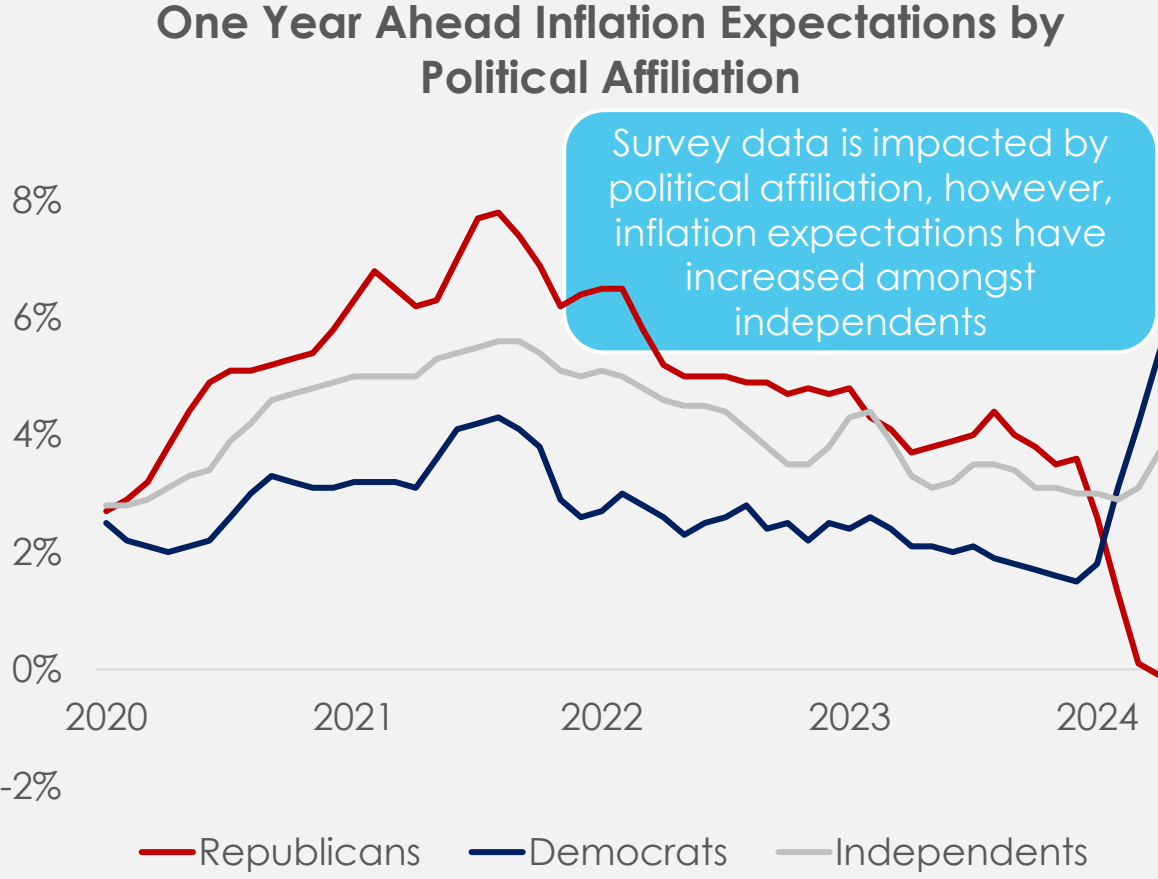
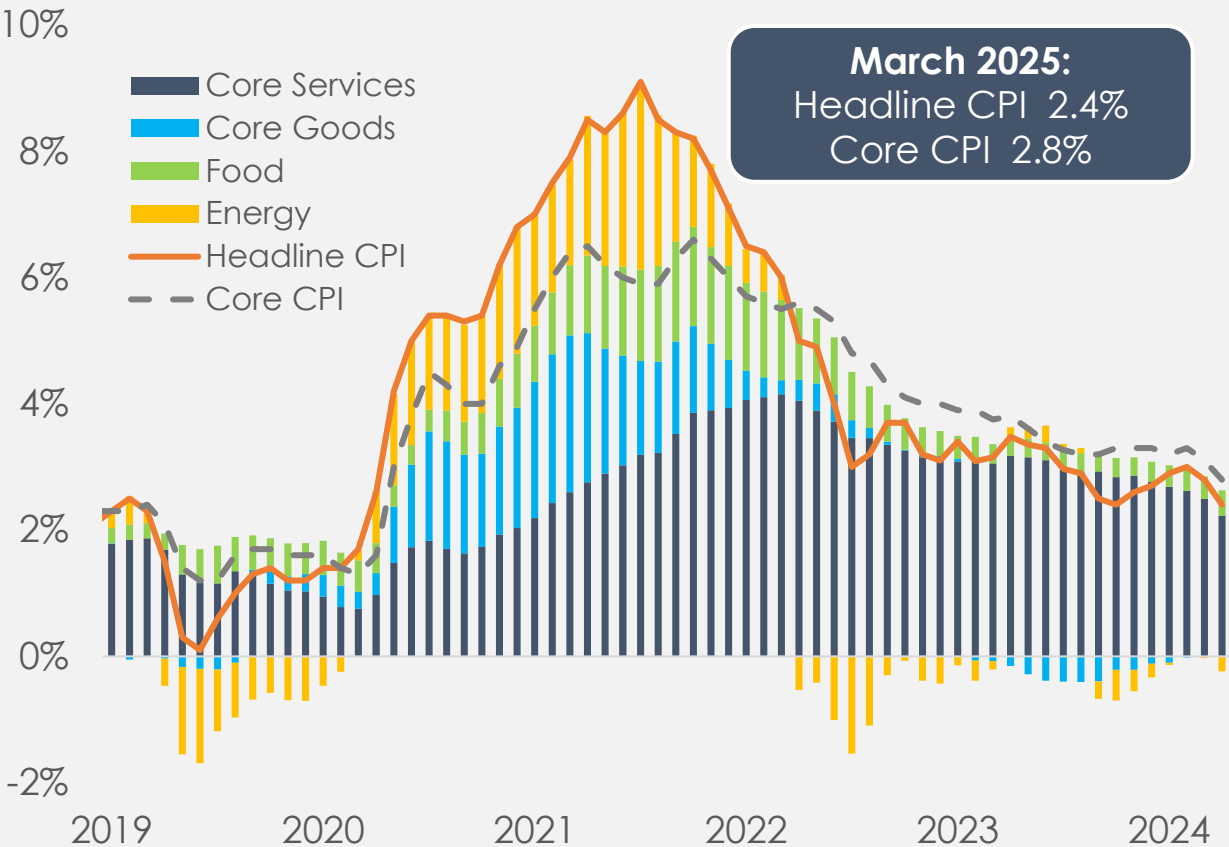


U.S. Household Net Worth



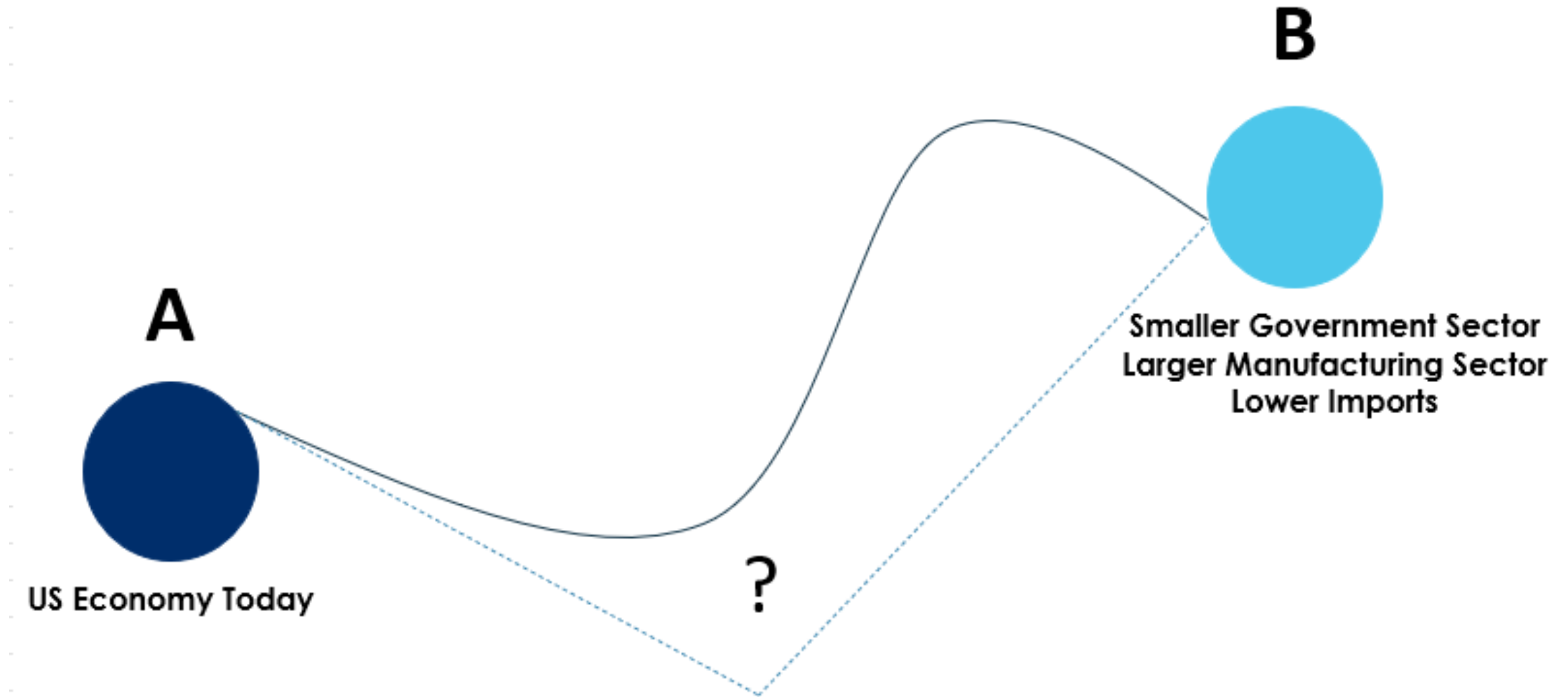
The Top 10% of U.S. incomes account for almost 50% of all spending. **Will market volatility induce less spending by the rich?**

Disinflation Progressing... Will Tariffs Cause Resurgence?



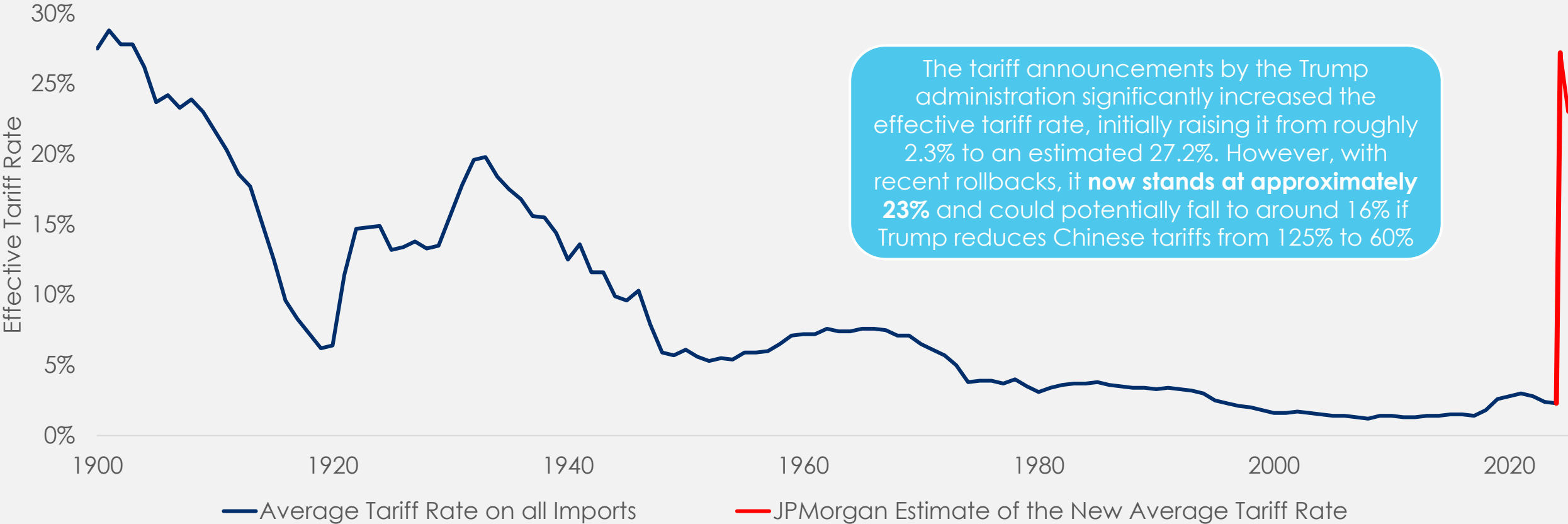
Source: Bloomberg as of 3/31/2025 and 4/30/2025

Will Short-Term Pain Lead to Long-Term Gain?



Tariffs in Historical Perspective

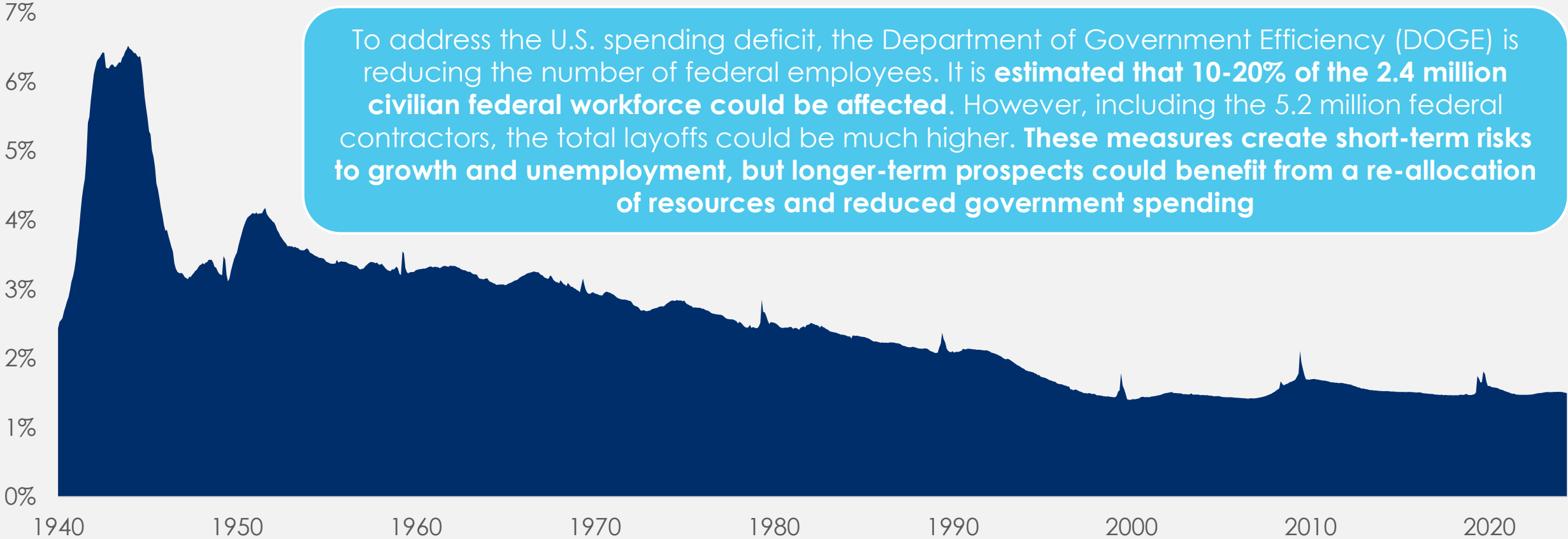
Average Tariff Rates on U.S. Imports



Source: Bianco Research, JPMorgan, and Bloomberg as of 4/30/2025

DOGE and Federal Jobs

Federal Civilian Jobs ex Postal Workers as a Percentage of Total Nonfarm Jobs

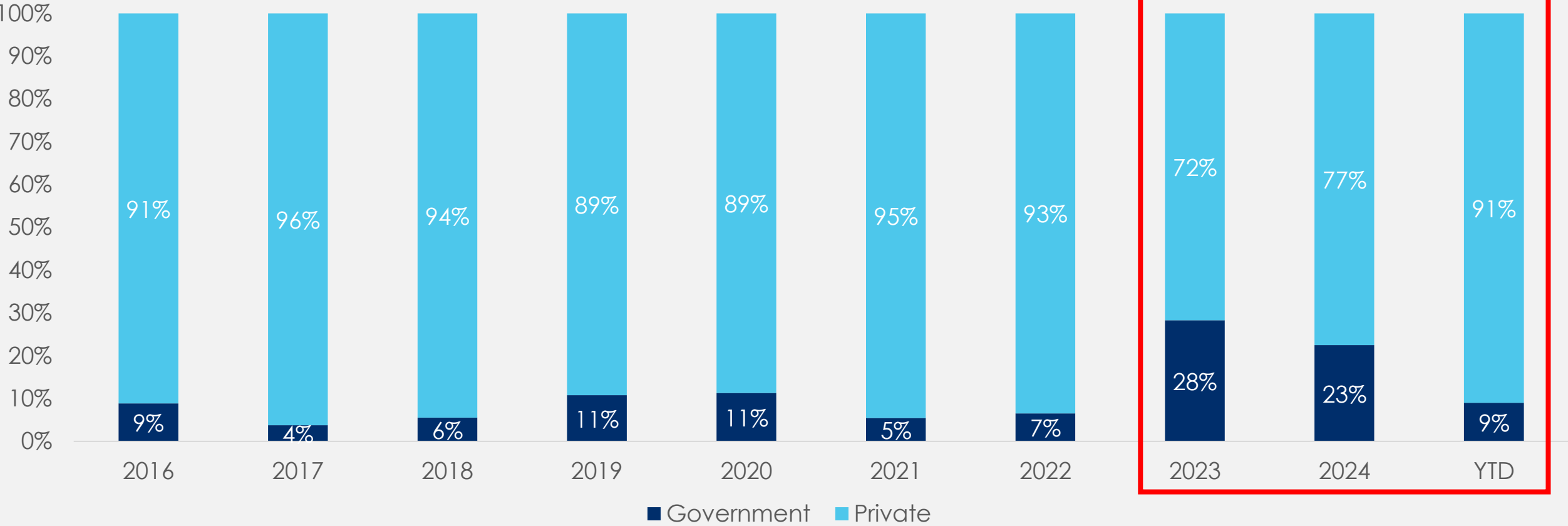


To address the U.S. spending deficit, the Department of Government Efficiency (DOGE) is reducing the number of federal employees. It is **estimated that 10-20% of the 2.4 million civilian federal workforce could be affected**. However, including the 5.2 million federal contractors, the total layoffs could be much higher. **These measures create short-term risks to growth and unemployment, but longer-term prospects could benefit from a re-allocation of resources and reduced government spending**

Source: Bloomberg and Wall Street Journal as of 4/30/2025

Government Job Growth Slowing After Strong Growth Previous Two Years

Share of Jobs Added



Source: Torsten Slok, Apollo and Bloomberg as of 4/30/2025

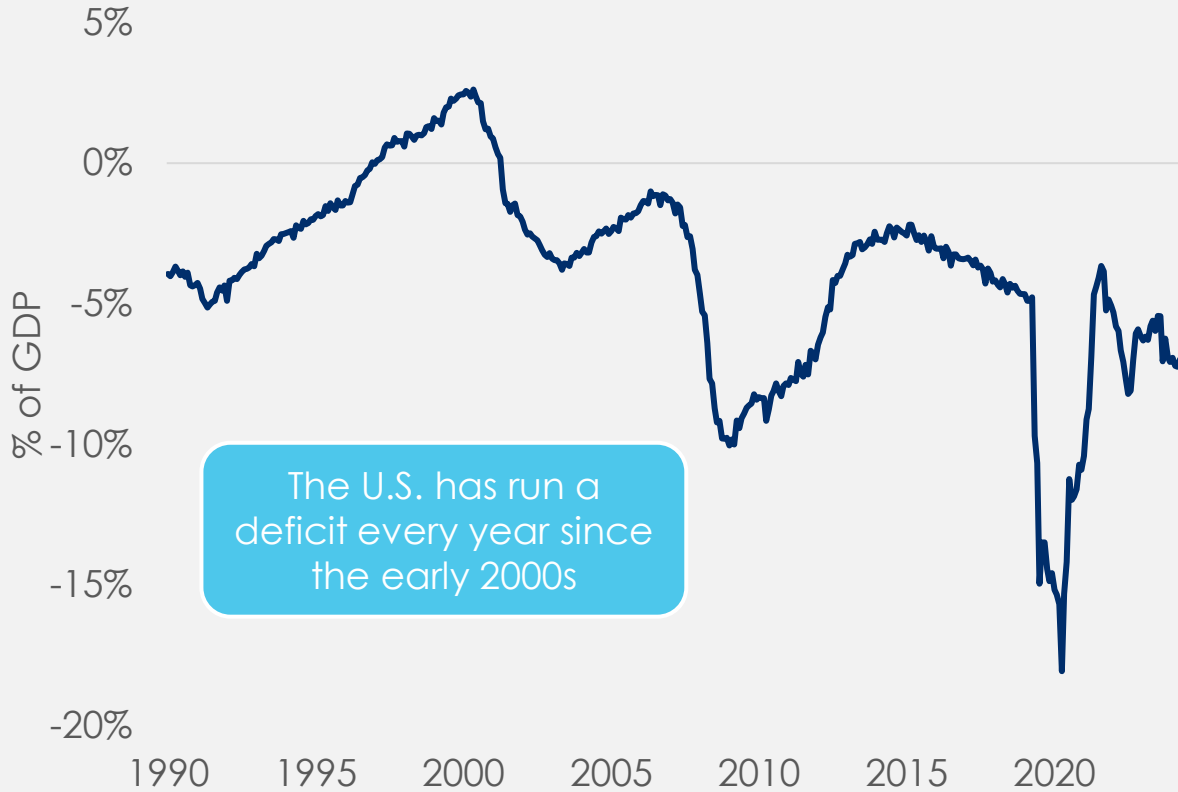
Rapid U.S. Debt Accumulation

Time Required to Reach Total U.S. Debt Levels

<u>Of:</u>	
\$10 Trillion	232 Years
\$20 Trillion	9 Years
\$30 Trillion	4.5 Years
\$31 Trillion	8 Months
\$32 Trillion	8 Months
\$33 Trillion	3 Months
\$34 Trillion	3 Months
\$35 Trillion	7 Months
\$36 Trillion	4 Months
<u>Latest Level:</u>	\$36.7 Trillion

The rise in U.S. debt levels has been exceptionally rapid, with a **trillion dollars being added to the budget within months rather than years**. This issue is particularly contentious as, alongside new debt being incurred, existing debt that rolls over must be refinanced at higher rates

U.S. Deficit as a Percent of GDP



Source: Bloomberg as of 4/30/2025 and 3/31/2025

U.S. Debt

How to Address Ballooning Deficit and Debt?

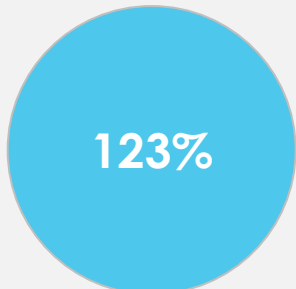
U.S. National Debt



Federal Budget Deficit



Debt-to-GDP Ratio

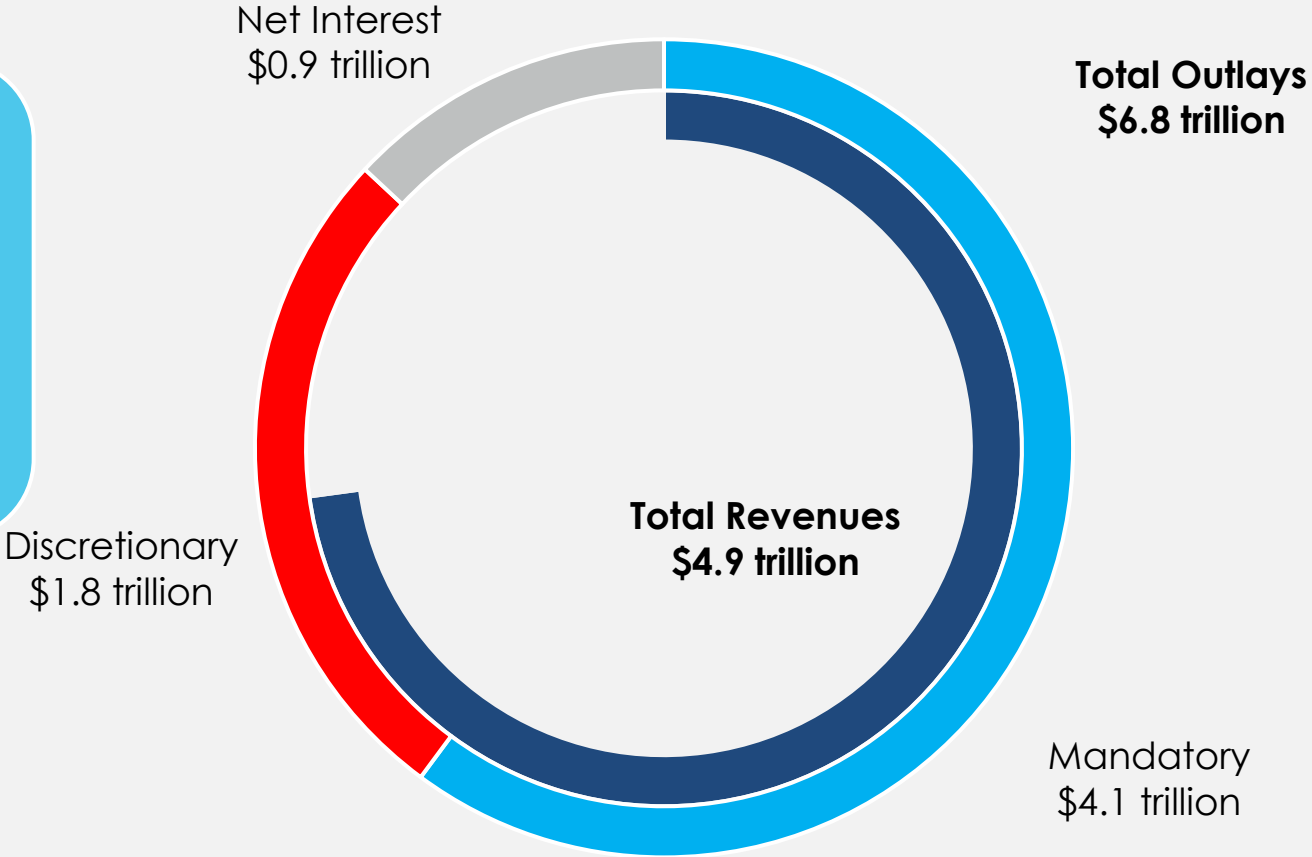


The U.S. ran the third largest budget deficit on record in 2024

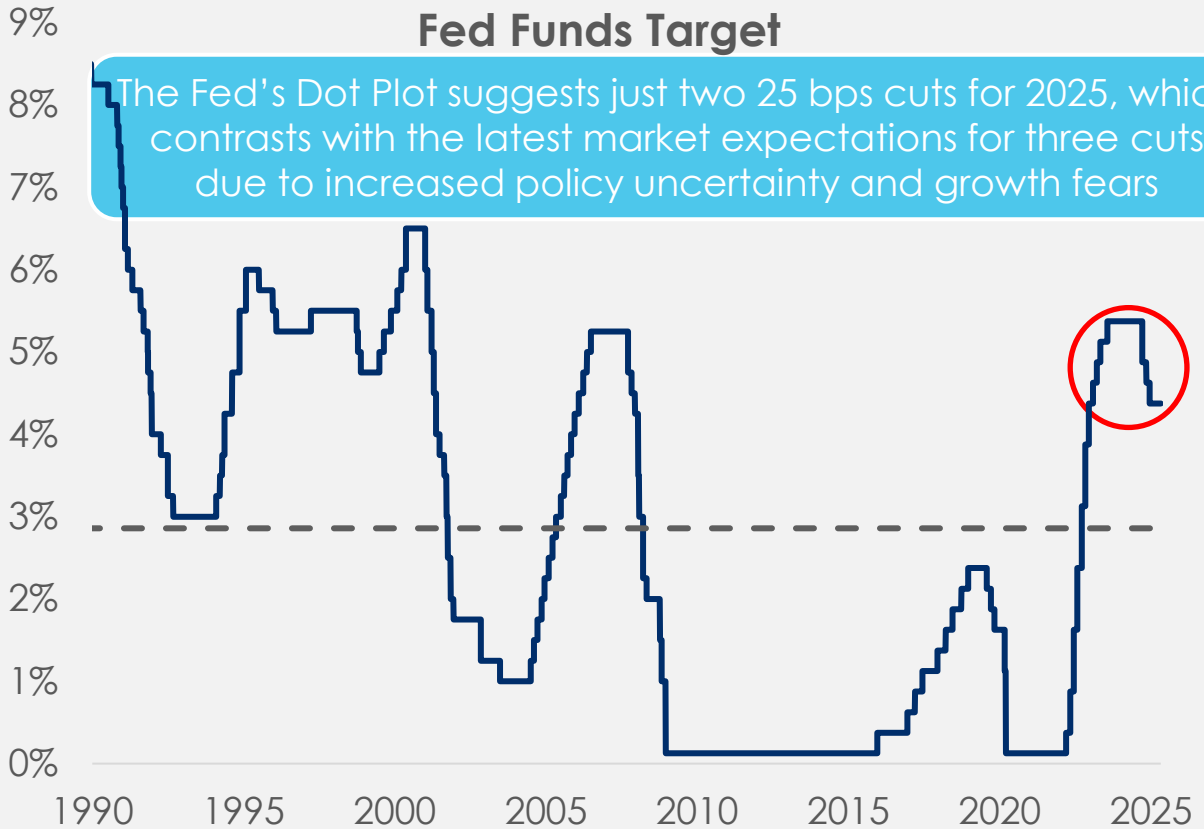
Source: usdebtclock.org as of 4/30/2025

Congressional Budget Office (CBO) 2024 Budget Breakdown

In 2024, more than 100% of total revenues and almost 75% of the overall budget were consumed by mandatory expenses and net interest. The budget remains in focus as DOGE seeks to reduce spending and Republicans seek extension of tax cuts



Growth Scare Fears Support Interest Rate Cuts



Source: Bloomberg as of 4/30/2025

How Many Interest Rate Cuts Are Priced One Year Ahead?

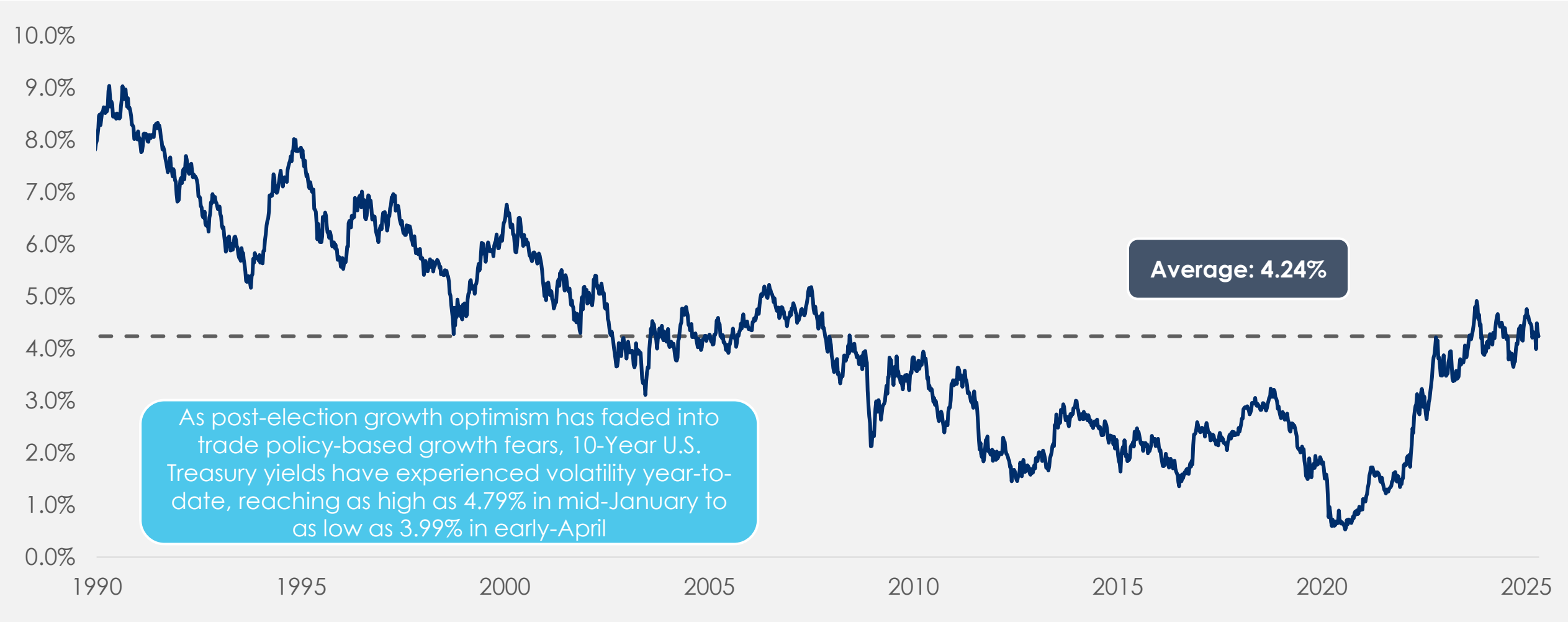
One Year Ahead Fed Funds Hikes/Cuts

Rolling one-year expectations for interest rate cuts, as indicated by the futures market, have risen sharply from approximately one 25 basis point cut at the start of the year to approximately four at the end of April



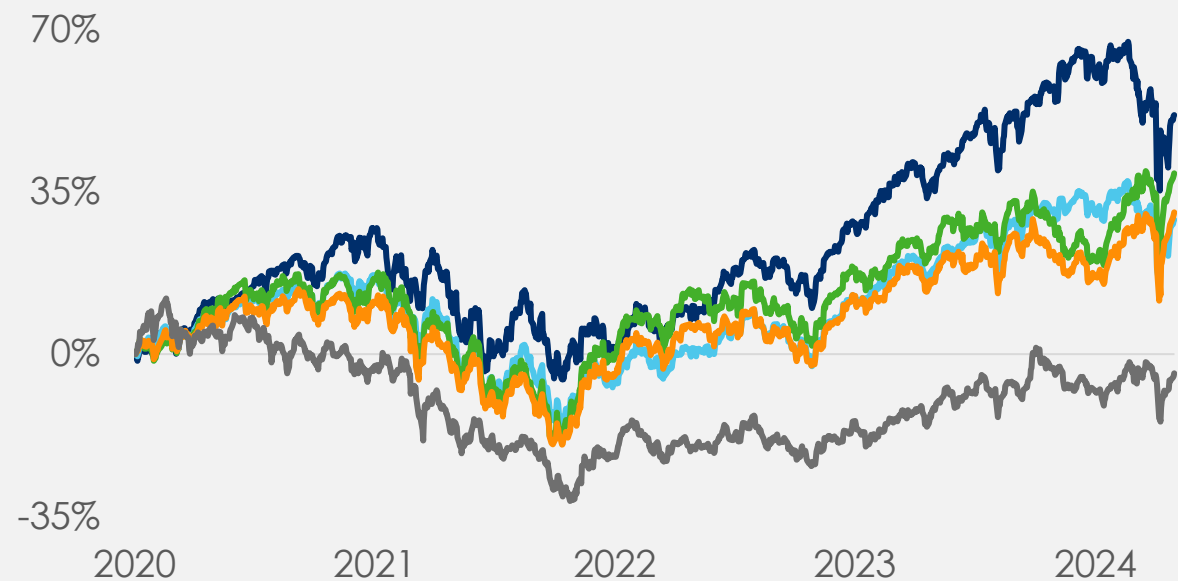
Source: Bloomberg and Bianco Research as of 4/30/2025

U.S. 10-Year Treasury Yield



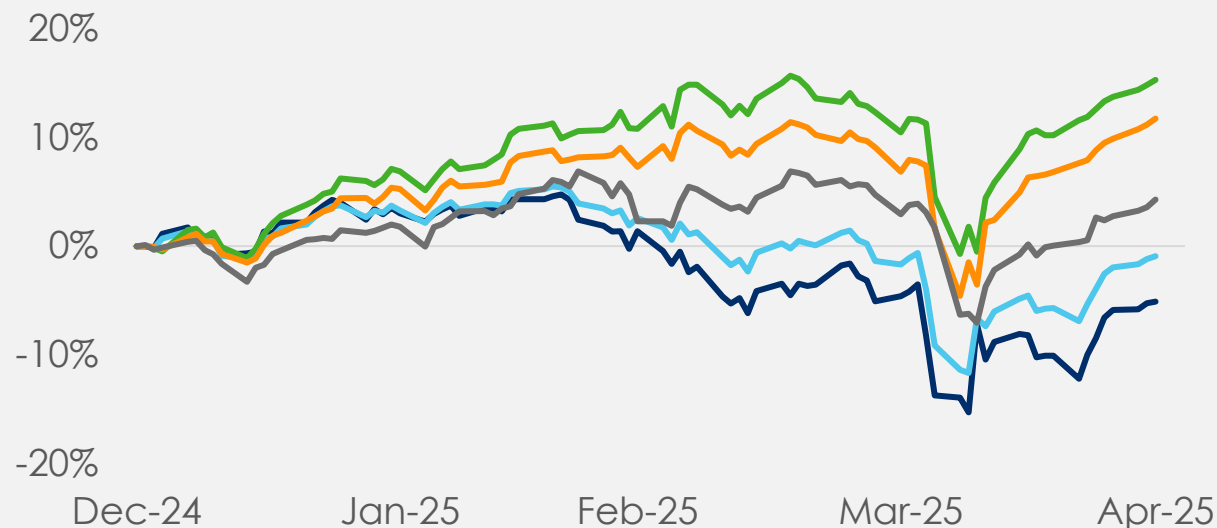
U.S. Stock Market Has Underperformed to Begin 2025

MSCI Cumulative Total Returns Since 2020



- MSCI USA Net Total Return USD Index
- MSCI All Country World Index
- MSCI Europe Net Total Return USD Index
- MSCI EAFE Net Total Return USD Index
- MSCI Emerging Net Total Return USD Index

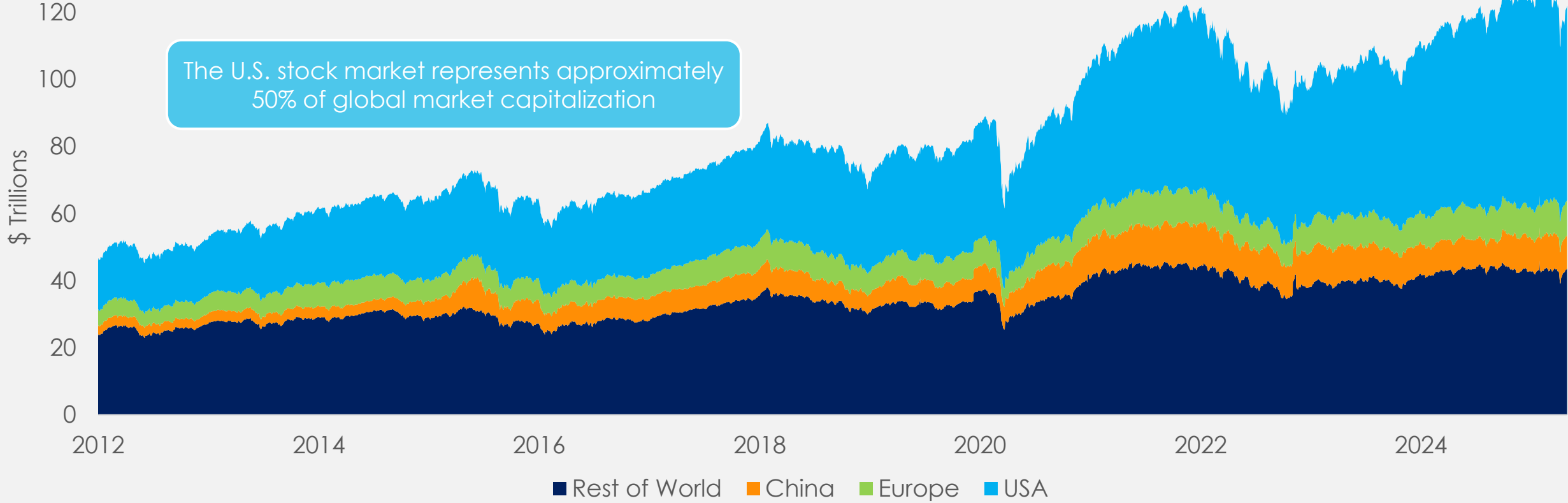
MSCI Cumulative Total Returns Year-To-Date



- MSCI USA Net Total Return USD Index
- MSCI All Country World Index
- MSCI Europe Net Total Return USD Index
- MSCI EAFE Net Total Return USD Index
- MSCI Emerging Net Total Return USD Index

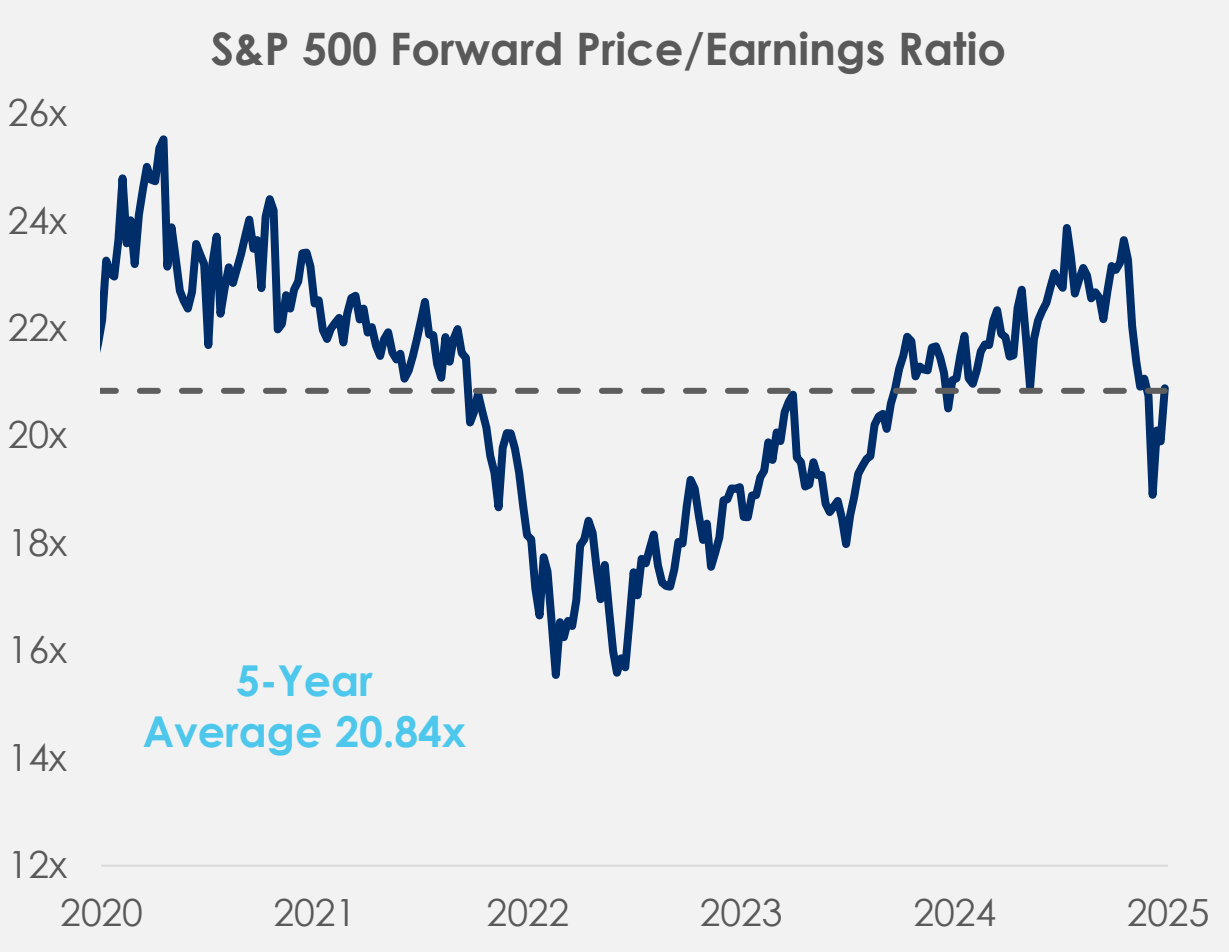
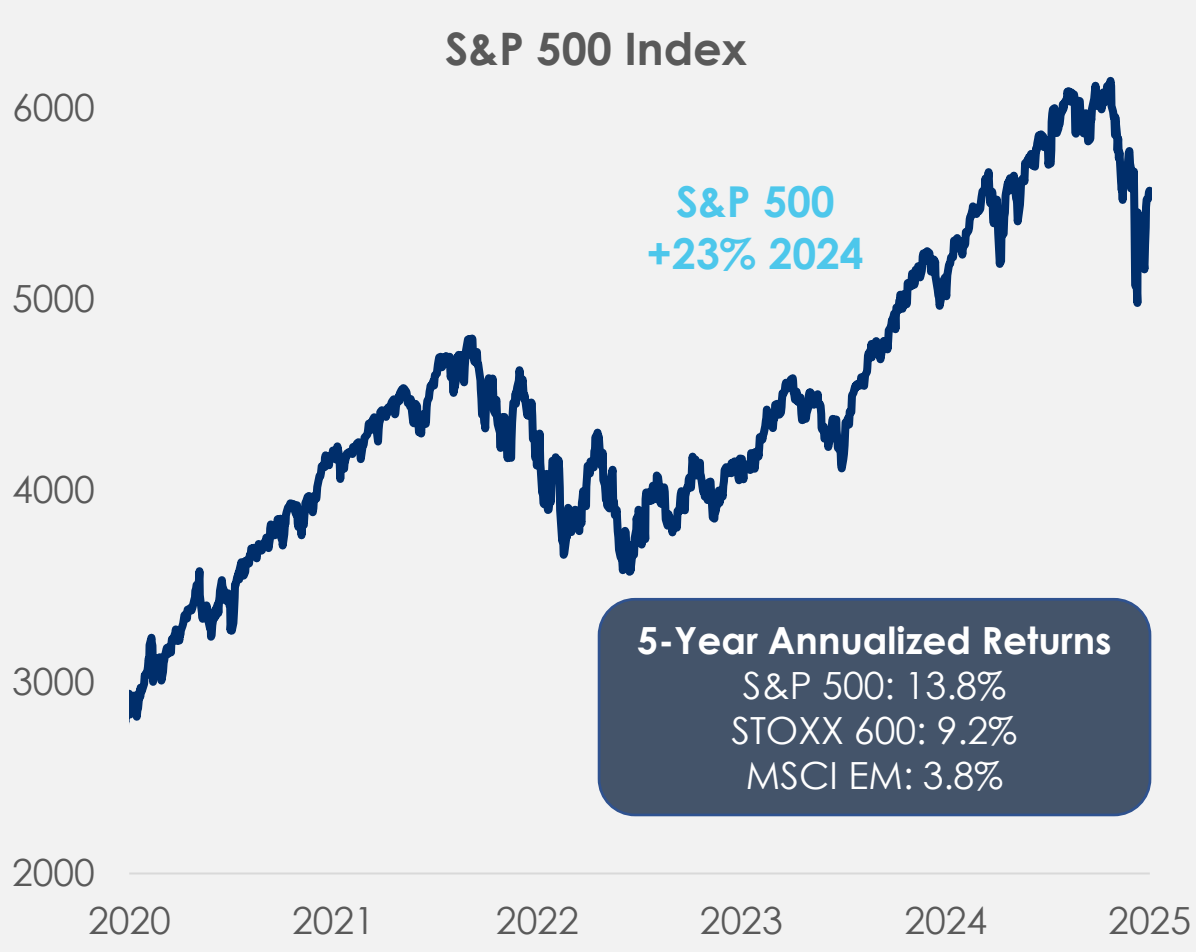
Global Market Capitalization

Current World Market Cap \$121 Trillion



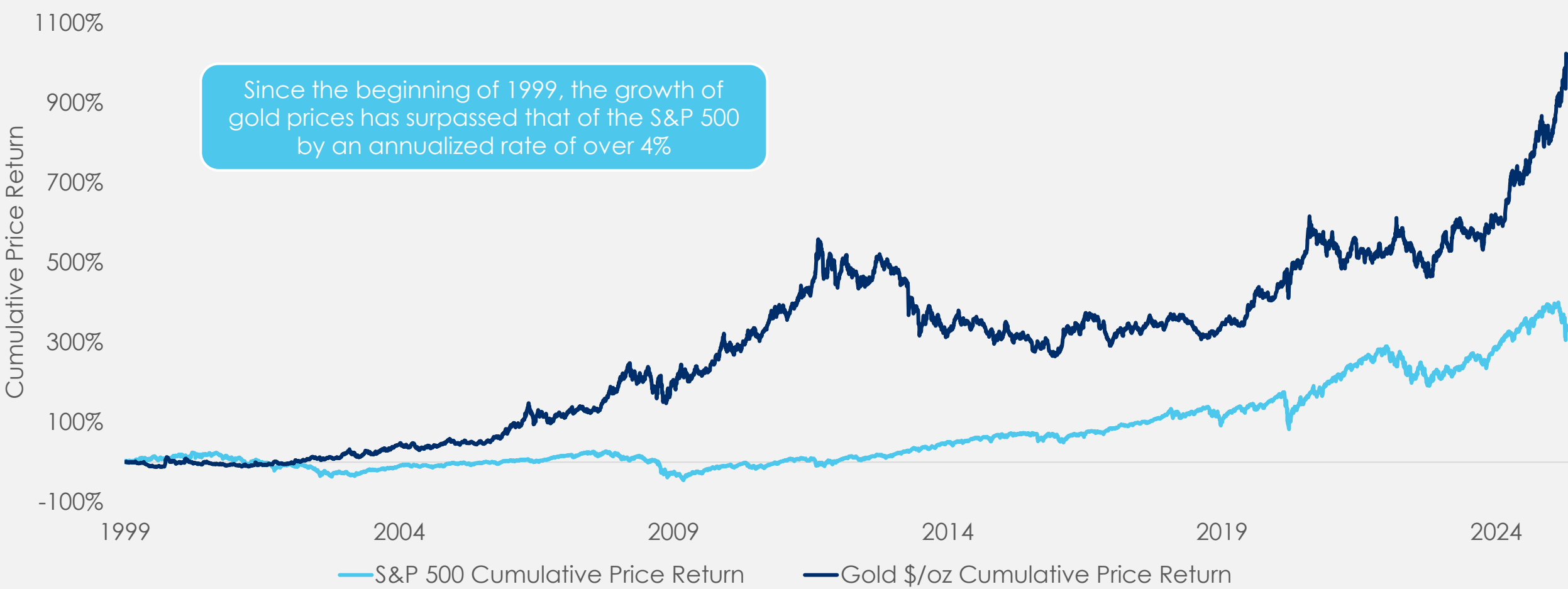
Source: Bloomberg as of 4/30/2025

Equity Markets Retreat Following Several Consecutive All-Time-Highs



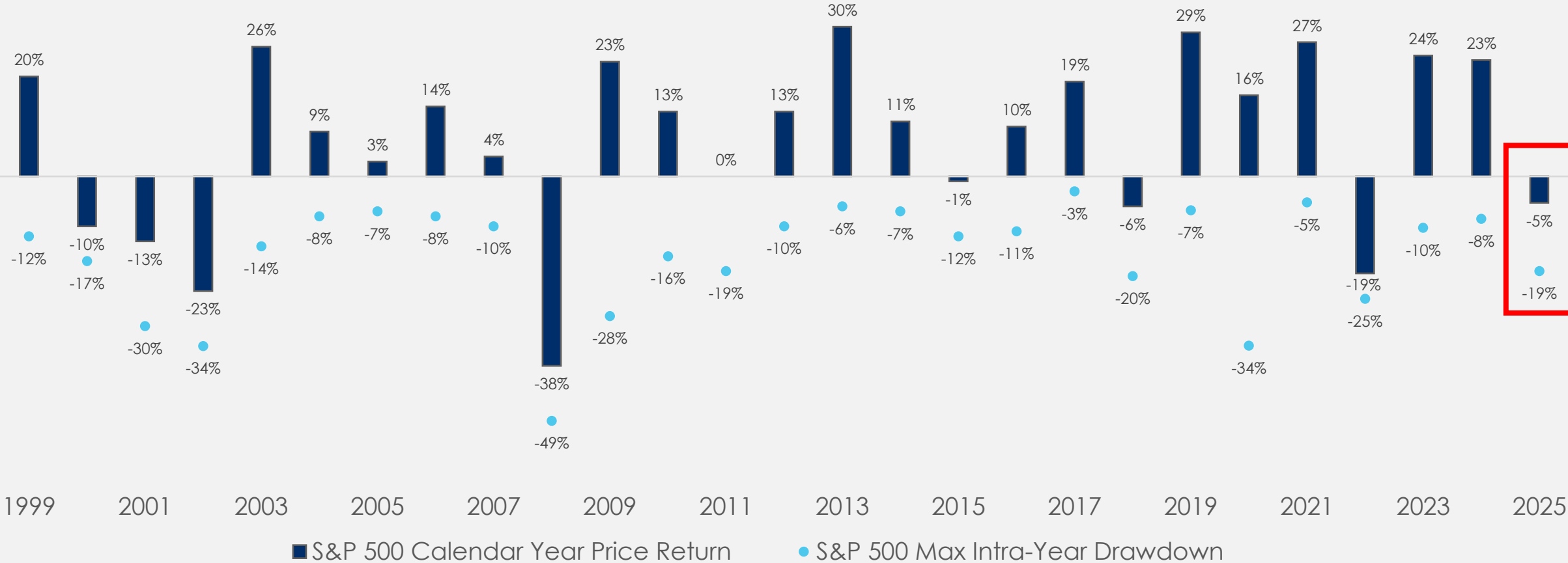
Source: Bloomberg as of 4/30/2025

Gold vs. S&P 500



Source: Bloomberg as of 4/30/2025

Year-to-Date Equity Drawdown in Historical Context

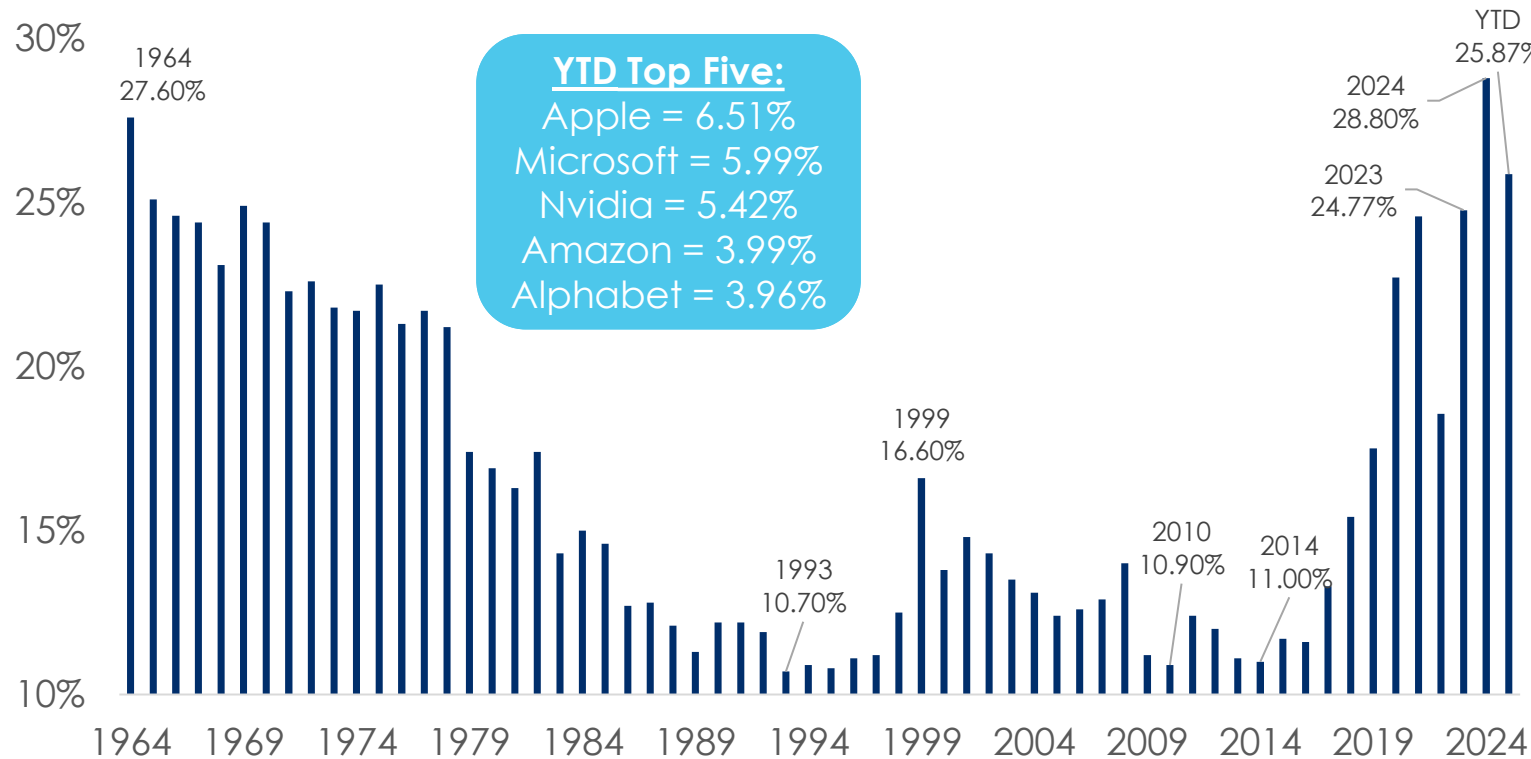


Source: Bloomberg as of 4/30/2025

Stock Concentrations and The Magnificent Seven



Concentration of the Five Largest Stocks in the S&P 500

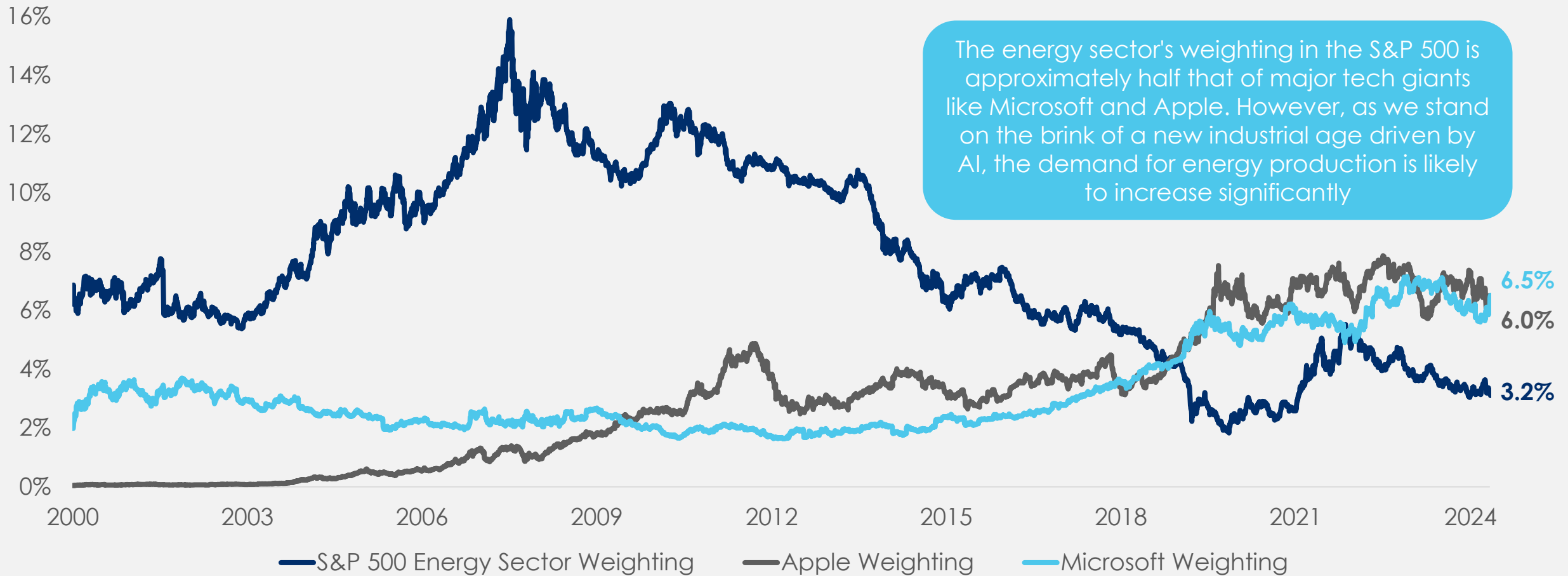


Top 10 Largest U.S. Companies	Market Cap (\$ Billions)	YTD25 Price Return
Apple	\$ 3,192	-15%
Microsoft	\$ 2,938	-6%
NVIDIA	\$ 2,658	-19%
Amazon	\$ 1,957	-16%
Alphabet	\$ 1,939	-16%
Meta	\$ 1,386	-6%
Berkshire Hath.	\$ 1,151	18%
Tesla	\$ 909	-30%
Broadcom	\$ 905	-17%
Eli Lilly	\$ 852	16%
Total	\$ 17,887	--

Due to Magnificent 7 year-to-date underperformance, their share of total S&P 500 market capitalization has fallen to approximately 30% as compared to almost 35% to begin the year

Source: Bianco Research and Bloomberg as of 4/30/2025

Energy Sector S&P500 Weighting vs. Tech Giants

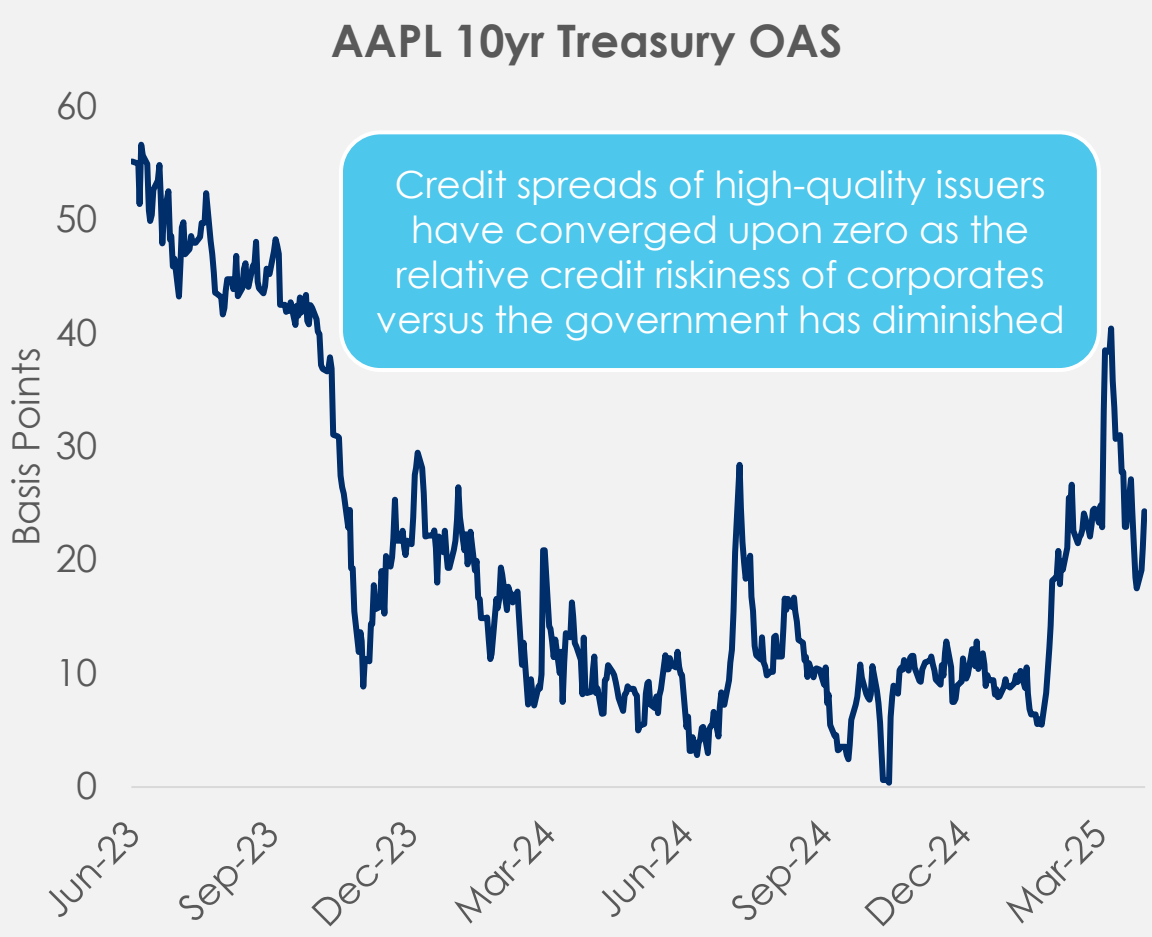
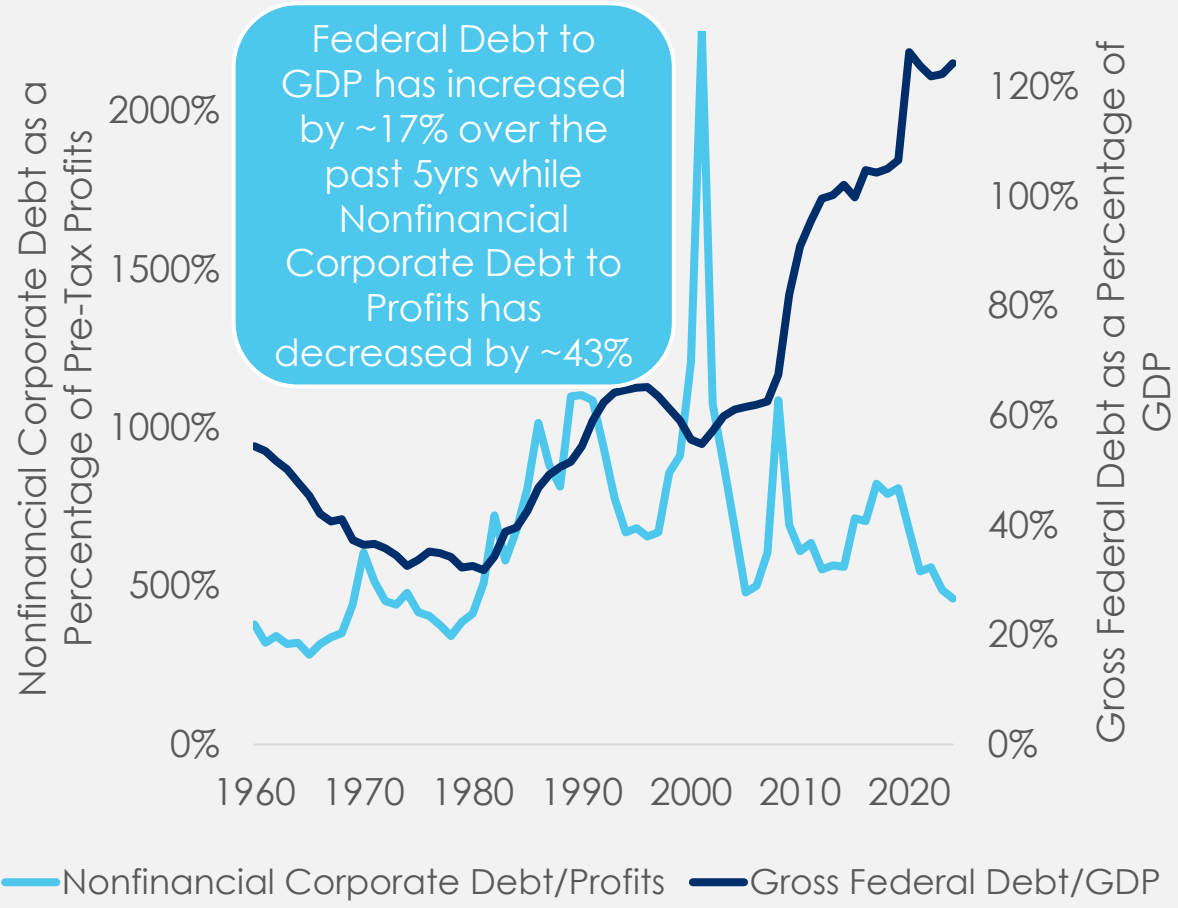


U.S. Investment-Grade Corporate Credit Spreads



Bloomberg U.S. Aggregate Corporate Index	12/31/2021	12/31/2022	12/31/2023	12/31/2024	4/30/2025
	92 bps	130 bps	99 bps	80 bps	106 bps

U.S. Government vs. Corporate Credit



Source: FRED & Blackrock as of 12/31/2024 and Bloomberg as of 4/30/2025

There are many tailwinds at play:



GDP growth projections remain close to the long-term stable growth rate of about 2%, countering recession concerns



Relatively low unemployment, strong wage growth, and continued job creation remain supportive of consumer spending



Corporate profits are stable, and Balance Sheets are resilient



The rise of artificial intelligence and machine learning are transforming industries, driving investment, and creating new markets



Trump policies of lower taxes, de-regulation, and a private sector-driven economy, while currently overshadowed by tariffs and persistent uncertainty, are supportive of long-term economic gains

Yet headwinds cannot be ignored:



Equity and debt market valuations remain historically expensive, despite recent volatility and market repricing



Consumer sentiment has plummeted to near historic lows while inflation expectations have surged as consumers digest tariff policies and implications



Elevated inflation persists while markets are pricing in recessionary concerns and a faster pace of interest rate cuts



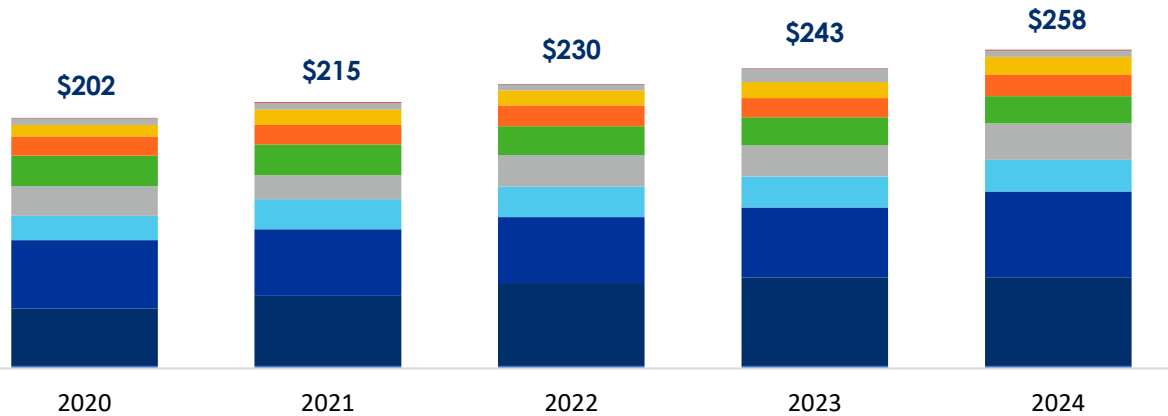
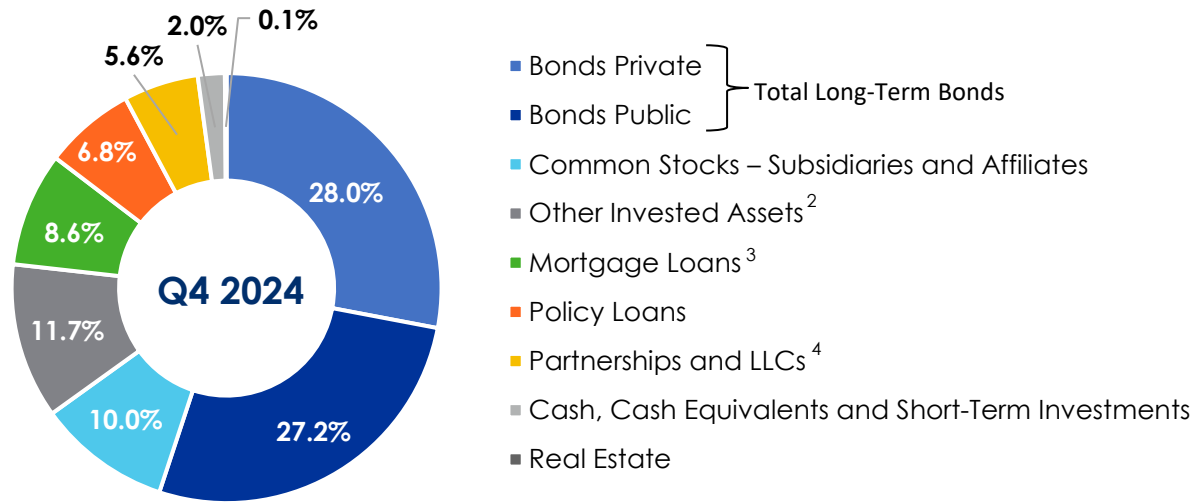
The U.S. fiscal deficit figures expected to stay high (6%–7% of GDP), despite tariff revenues and actions to make spending more efficient



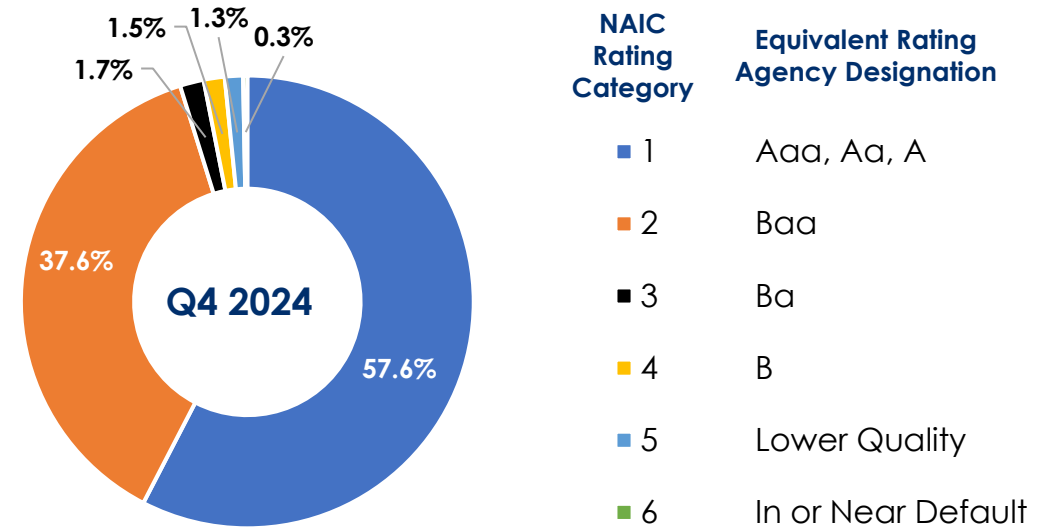
Trade policy is threatening the growth outlook and could turn foreigners away from U.S. assets

High Quality Diversified GIA – External View

\$257.8 Billion Cash and Invested Assets by Asset Class¹



Long-Term Bond Portfolio by NAIC Rating¹

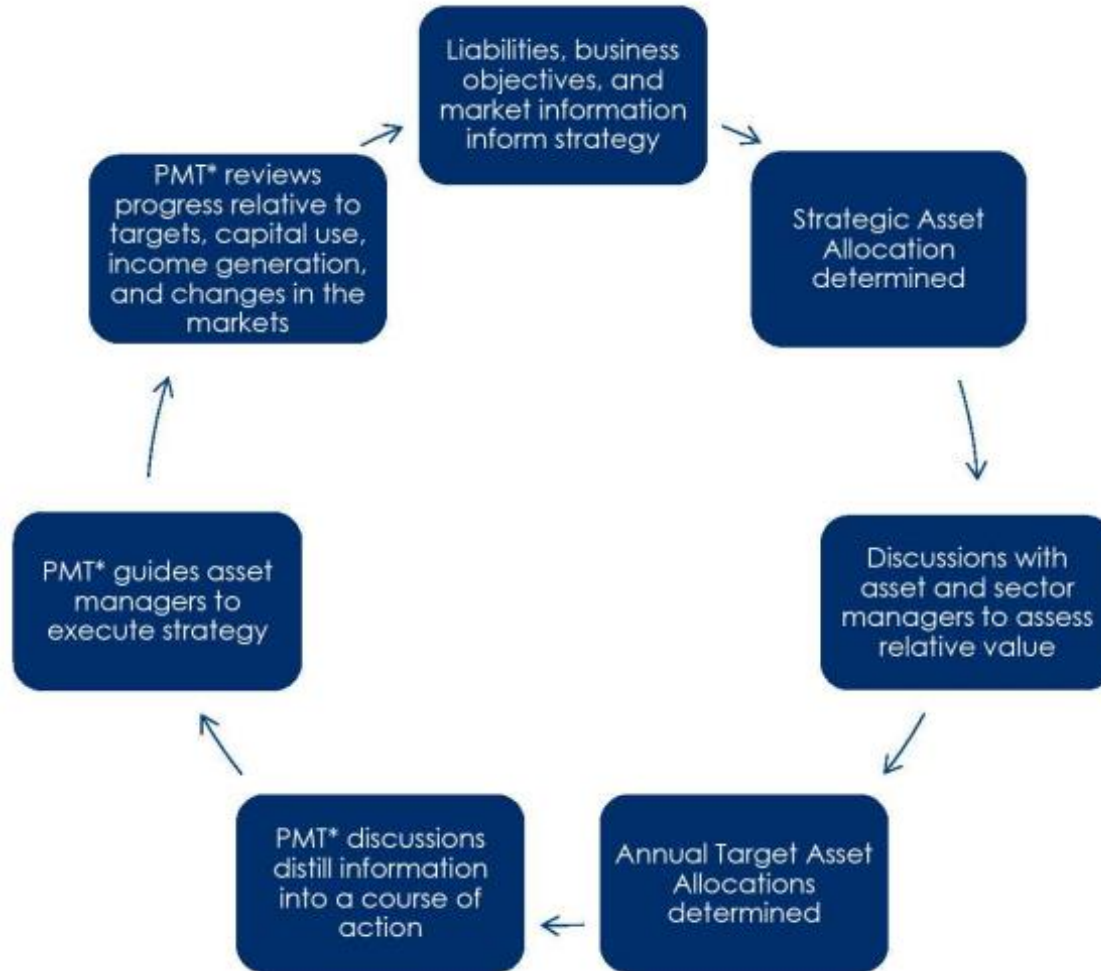


- Diversified investment portfolio across asset classes
- Majority of assets are high quality, fixed income assets
- More than 95% of long-term bond portfolio is rated investment grade
- The largest long-term corporate bond exposure represents 0.17% of GIA assets¹

(1) Source: MassMutual Life Insurance Company Statutory Financial Statements; As of Q4 2024 and year-end 2023, 2022 and 2021, invested assets exclude \$24B, \$17B, \$17B and \$15B respectively of funds withheld investments, given the associated investment risk is fully reinsured. The funds withheld investment portfolio has counterparty protections in place, including investment guidelines that were established to meet MassMutual's risk management objectives; (2) Other invested assets include derivatives, receivables, unaffiliated common stock, and preferred stock; (3) Mortgage loans include \$6,388M of residential whole loans; (4) Partnerships and LLCs include \$5,438M of common stocks, \$3,471M of real estate, \$2,563M of mortgage loans, \$1,655M of other, \$923M of bonds/preferred stock, \$392M of surplus notes, and \$115M of low-income housing tax credits

MassMutual Investment Process

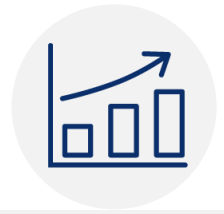
Ongoing assessment of the markets and relative value informs asset allocation and execution



*PMT is the Portfolio Management Team led by the CIO

- Understanding the product liabilities, including crediting strategies and policyowner options and how those change in different environments, provides the foundation to portfolio construction
- The investment process relies on ongoing communication, facilitated by standing meetings
- ALM continuously assesses risks, particularly those related to interest rate movements, and actions are taken as needed to manage those risks
- Liquidity use and needs are monitored, forecasted, and managed throughout the investment process
- Capital use and other corporate goals are tracked and may provide boundaries or expand opportunities

Recent Trends in Insurance Investing



- **Insurance product sales mix moving more towards short-term annuities**
 - Retail market taking advantage of higher interest rates
- **More private credit**
 - This continues trend from low rate/low spread environment
 - Credit (and equity) markets relative volume moving from public to private
- **Increase in Securitized Assets**
 - Fills need for short average life assets to back short-term annuities
 - Takes advantage of spread/ratings arbitrage in the market
- **Increase in Fund Finance/NAV lending.**
 - Continues trend of credit lending moving away from traditional banks towards non-bank lenders
- **More opportunistic approach to Commercial Mortgage Lending**



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