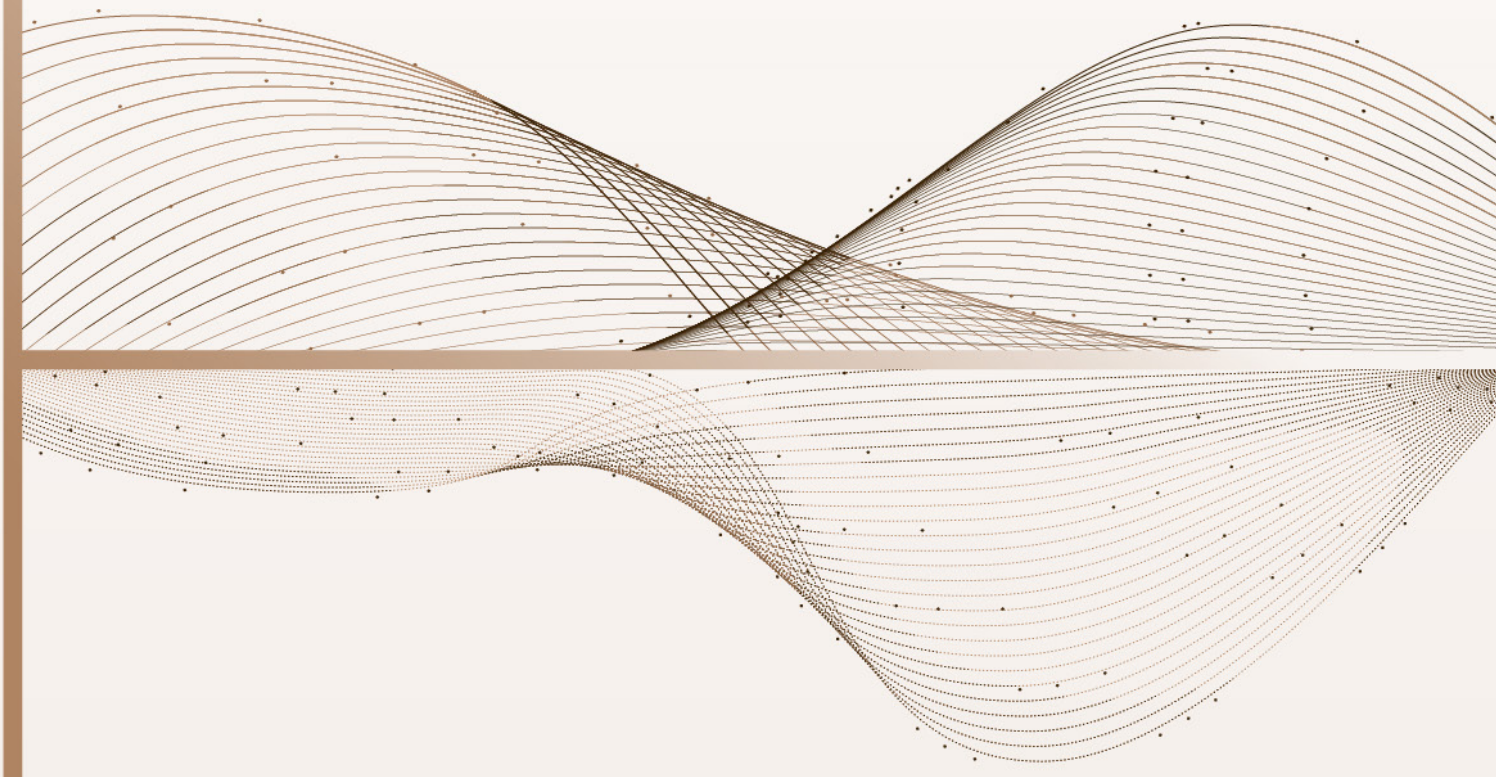
J.P.Morgan
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Outlook 2027

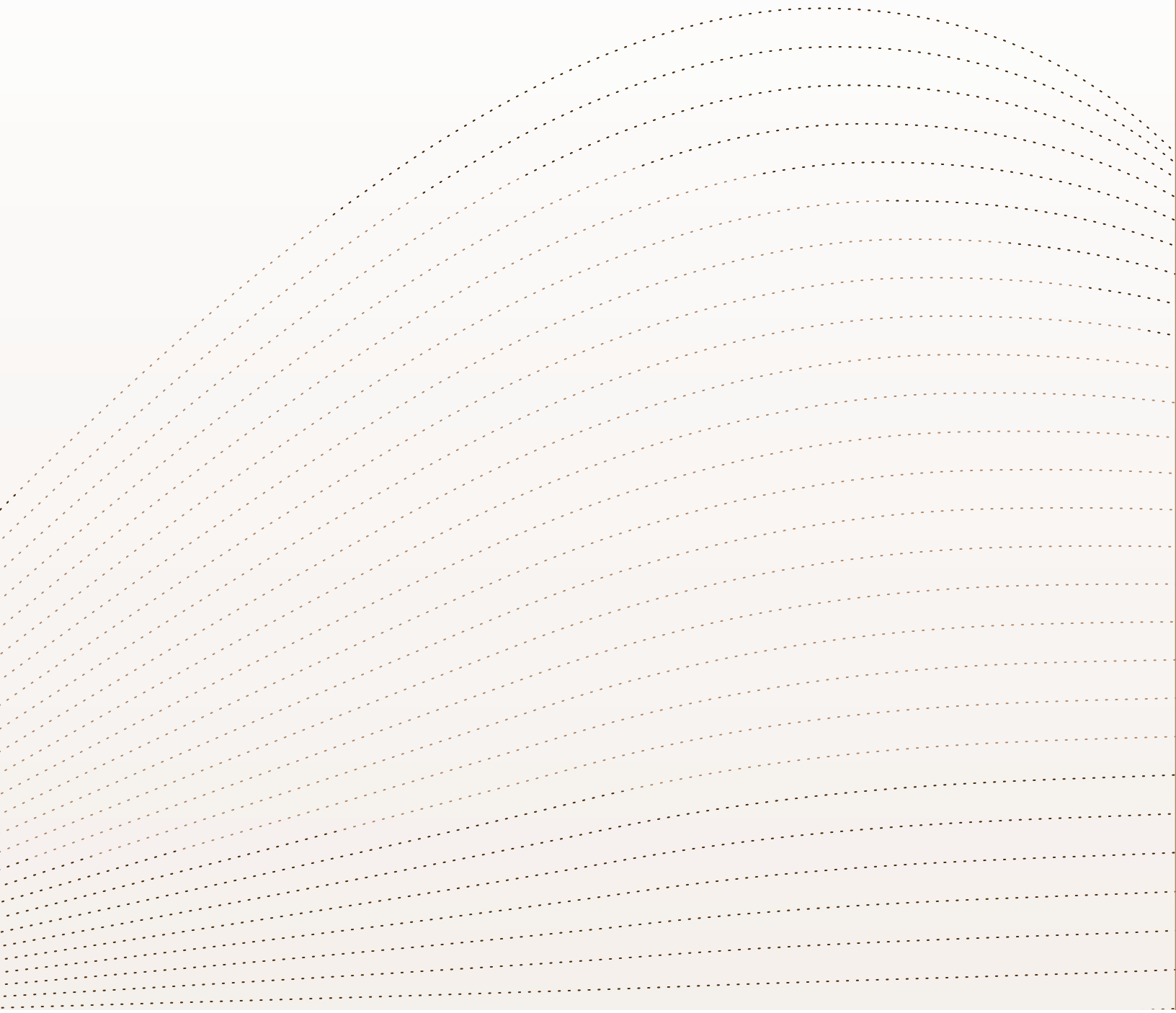
The Price of Progress



J.P.Morgan
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The Price of Progress

Your capital is in demand–set the terms



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Foreword

As we approach 2027, we are faced with two competing trends. Capital, as defined by interest rates, is delivering higher base returns, so our expectations for required returns to invest have risen. At the same time the need for this capital continues to grow to deliver the opportunities, and support the requirements, on the horizon. Companies and governments are looking to investors to fund the opportunities and priorities ahead, at a time when capital is more expensive and investment decisions must clear a higher bar.

In last year's Outlook, we explored how three forces, artificial intelligence (AI), global fragmentation and inflation, were defining a new market frontier. In 2027, that frontier must be funded.

Companies need capital to realize the full potential of AI. Governments need capital to strengthen security and resilience in a fragmented world. At the same time, inflation, economic growth and central bank policy continue to shape the investment environment. With cash earning a credible return, investors can afford to be discerning about where they put capital to work.

That is especially true of the AI build-out. Markets are beginning to question whether the scale of investment will ultimately pay off. We believe AI is a transformative technology that will fundamentally change how we live and work. We also believe investors need to be selective, with a focus on the companies that will define this new frontier.

In this environment, portfolio diversification remains critical. Forward-looking returns for stock-bond portfolios are the most attractive in years, but market volatility creates a wide range of possible outcomes. A diversified portfolio and a long-term perspective can help investors navigate both.

The new market frontier is starting to take shape. As investors consider the opportunities ahead, we are proud to serve as your financial partner and remain committed to helping you achieve your long-term goals.



David Frame
CEO, J.P. Morgan Global Private Bank

Introduction

Three forces are reshaping the investment landscape: artificial intelligence (AI), global fragmentation and inflation.

Scorecard for the 2026 Outlook

Theme	What we thought	What we got	Assessment
ARTIFICIAL INTELLIGENCE	AI investment and adoption would continue, creating opportunities across hyperscalers, semiconductors, power infrastructure and private market applications. Froth could build, but the greater risk would be failing to participate in a transformative technology.	**+$7 trillion in AI market cap** Companies supplying scarce AI components outperformed the broader equity market while vulnerable companies underperformed. Model lab revenue soared.	**On target** The AI build-out remained constrained by scarcity rather than excess capacity. We do not see the qualities of a broad financial market bubble, but there are signs of financial markets balking at further infrastructure additions.
GLOBAL FRAGMENTATION	Security, resilience and regional alignment would increasingly displace efficiency. Opportunities would emerge where defense, energy and supply chains converge.	**90% surge in crude oil prices** Conflict in Iran placed additional strain on defense inventories and global energy flows. Companies positioned to improve security and resilience outperformed the broader equity market. Government support for strategic manufacturing, defense and power continued to expand.	**On target** We have seen greater disruption. Geopolitical stress, especially the conflict in Iran, was even more acute than our base case anticipated.
INFLATION	Inflation would establish a higher and more volatile floor and be susceptible to rolling shocks. Investors would need to protect purchasing power with real assets and less correlated strategies.	**17 of 37 global central banks hiking rates** Inflation remained above target, and an energy shock reinforced existing price pressures. Global bond yields hit multi-decade highs.	**On target** Aggregate investment grade fixed income delivered negative total returns as infrastructure and hedge funds outperformed core fixed income.

In last year's *Outlook*, we highlighted their *Promise and Pressure*, and since then the salience of these themes has only grown. AI offered the potential for higher corporate profits and faster productivity growth, but also the risk of overinvestment, exuberance and disruption. Fragmentation favored resilience and security, but at the expense of cost, efficiency and government budgets. Inflation had retreated from its post-pandemic peak but seemed structurally higher and more vulnerable to rolling shocks.

Through 2026, markets moved to reflect the world we envisioned, in some cases more emphatically than we expected.

Demand for AI continued to far outstrip the supply of AI computing power ("compute" in the tech sector's shorthand). This has rewarded the companies designing, producing and providing the semiconductors, components and power required to deploy AI at scale. AI model providers generated real revenue as businesses began paying up for AI-driven productivity gains. Companies viewed as vulnerable to disruption underperformed.

Conflicts in Iran and Ukraine continued to highlight deep vulnerabilities in energy supply chains and defense inventories. The companies that we believe strengthen economic and national security resilience outperformed even as traditional defense companies lagged. Inflation remained above central bank targets, bond yields climbed to multi-decade highs and a global rate-hiking cycle kicked into gear.

Against that backdrop, a traditional balanced portfolio seems set to deliver high single-digit returns. Real assets (such as infrastructure and commodities) and active strategies (such as diversified hedge funds) have earned their keep as portfolio diversifiers.

The three forces (AI, fragmentation, inflation) continue to define the economic and market environment. And they're interacting in sometimes unexpected ways that investors need to understand. One theme links the three: An enormous demand for capital in both the private and public sectors is raising the cost of capital. (It's the law of supply and demand we remember from Economics 101.)

Investors like you set the price for that capital. That is a position of strength. It also compels decisions that cannot be deferred. As many investors look to protect—as well as expand upon—several years of handsome equity market gains, those decisions become even more important.

Technology companies need your capital—trillions of dollars' worth—to fund the next phase of the AI build-out. Governments need it to finance security, resilience and rearmament initiatives. Consumers, companies and sovereigns all need it to adapt to an inflationary, fragmented world.

But inflation, resilient economic growth and central bank policy mean that cash is more attractive. Today, it earns a real return. Every financing decision, from a hyperscaler's data center to a government's defense budget to your own portfolio allocation, now carries an opportunity cost that was obscured for most of the last cycle.

The AI boom will continue only if investors like you are willing to provide the financing to bridge the gap between infrastructure spending and consistent revenue. You will share the cost of security with governments through taxes, inflation or both, but you can also decide to own the beneficiaries of that investment. And a higher cost of capital means every one of these decisions must now clear a higher bar.

The old investing playbook may not power your portfolio through the current cycle, even if forward looking returns for traditional stock-bond mixes are still attractive. In the post-global financial crisis cycle, policymakers kept the cost of capital low to incentivize risk taking and boost asset prices. Today, capital has a price. We believe there is a wider range of possible outcomes and, in the context of public markets that have rarely been this concentrated, an increased need to consider exposures you may not have.

Capital is the bridge to a world that is more secure and productive. Your capital sets the price of progress. Place it wisely.

Key takeaways



1

Your capital is in demand—set the terms.

Technology companies and governments need trillions in financing. You can choose whom to lend to, what to own and at what price.

2

Yields aren't just elevated, they compensate for inflation.

Bonds are a real alternative to riskier assets.

3

A balanced portfolio is only the beginning.

Strengthen portfolios with real assets, hedge funds and private markets.

4

Geopolitical shocks create volatility; geopolitical shifts create opportunity.

Invest in defense, energy independence and supply chain reshoring globally.

5

Be selective about who gets your AI capital.

Lend to AI infrastructure and own the hyperscalers and AI-native start-ups.

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PART 1

Inflation, central banks and the cost of capital

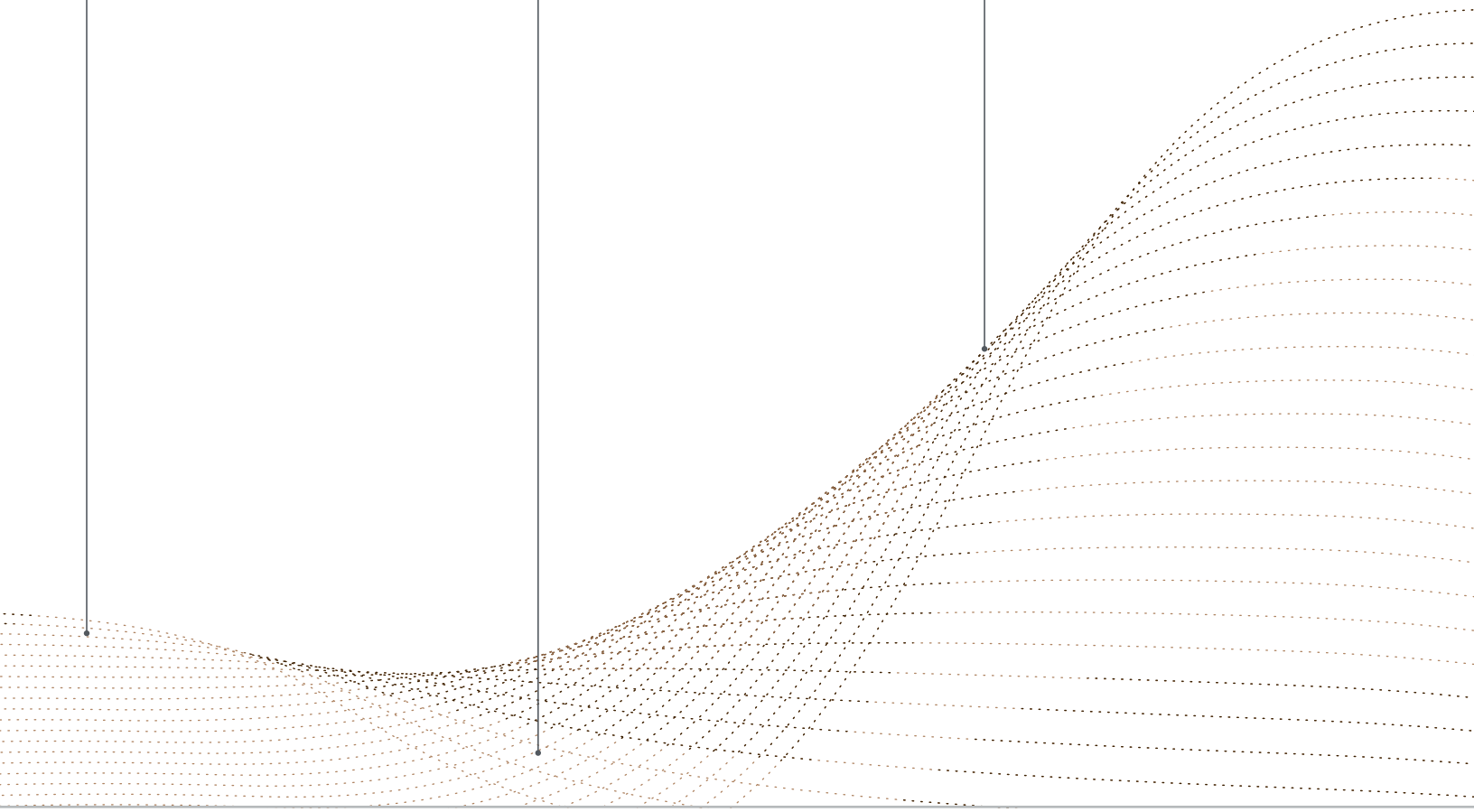
PART 2

Global fragmentation

Conflict, compute and supply chain bottlenecks raise the cost of capital

PART 3

Will the AI capex boom ultimately pay off?



Part 1

Inflation, central banks and the cost of capital

Last year, we argued that we are in a new regime where transformative technologies and a changing geopolitical environment drive investment returns more than traditional forces such as GDP growth or central bank policies.

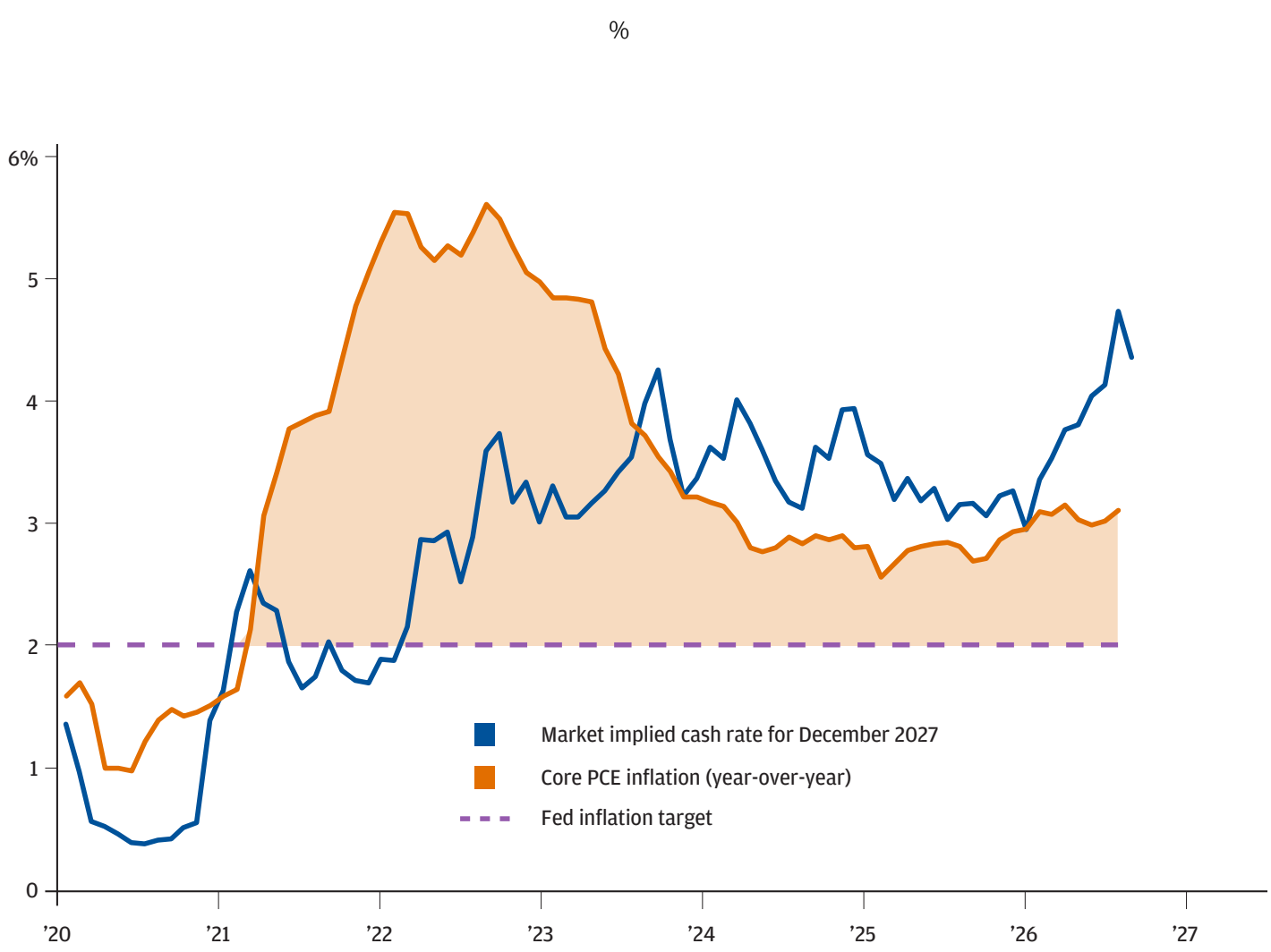
In 2027, central banks will matter again. Before you place your capital, you must make a judgment about how far central bank policy rates will rise. Inflation is key to that decision for central banks—and for your portfolio.

We believe that the Federal Reserve and other global central banks are raising rates to adjust their policy stance and influence inflation expectations. They are not looking to lower demand. If we are right, the expansion can continue, and our constructive view on multi-asset portfolios will hold. If we are wrong, the cycle could end with a hiking campaign that breaks economic demand and pressures risk assets.

While U.S. inflation has remained above the Fed's 2% target, that reflects supply-driven factors such as energy prices. The labor market is stable and wage growth is decelerating. Thus, we believe that inflation will begin to moderate. We see no sign of a nascent wage-price spiral or overheating economy that the Fed would need to correct with an aggressive rate hiking campaign.

The European Central Bank (ECB) seems to be running a similar playbook, signaling it will continue hiking only if it sees further effects of higher energy prices. On the other hand, the People's Bank of China (PBoC), facing persistent disinflation, seems likely to keep policy accommodative for the foreseeable future.

PERSISTENT INFLATION IS DRIVING A HIGHER COST OF CAPITAL



Source: Bloomberg Finance L.P. PCE data as of September 2026. Market implied SOFR data as of October 31, 2026.



Inflation containment: Cost of capital, not the policy rate, is doing the heavy lifting

In the post-global financial crisis period, unprecedented monetary policy (zero and negative interest rates and quantitative easing) coupled with robust forward guidance from the Fed anchored sovereign rates and compressed credit spreads and equity risk premiums. In other words, capital had an "artificial" price. Today, after substantial interest rate hikes, quantitative tightening and the discontinuation of forward guidance, the price of capital is more real.

Investors have as much to do with that change as central bankers. Even before September, when the Fed raised its policy rate 25 basis points (bps), yields were already on the rise. Year to date the 10-year U.S. Treasury has risen roughly 75bps to around 5%. Fifty of those basis points arrived in September alone, placing the move in the top decile of monthly increases since 1962. Credit spreads have widened modestly, investment grade (IG) by around 10bps, high yield by roughly 40bps.

Importantly, markets are expecting more than two additional hikes in the current cycle (the next one in December). That means a higher cost of capital already constrains growth and inflation, even absent an aggressive Fed.

What are the risks to our view?

What might compel the Fed to kick off an aggressive hiking cycle? A stronger-than-expected economy, with wages accelerating ahead of productivity, could force the Fed's hand. So too could a sustained move in 5-year/5-year inflation breakevens above 3%. Indeed, the trajectory of data center construction is important for bond yields. Ten-year U.S. Treasury yields peaked as investors began to question further AI capex in 2027. A reacceleration in AI infrastructure investment could push yields higher.

If higher diesel prices depress economic demand, it would present a particular challenge to policymakers. In the United States, the cost of diesel has risen to nearly $6.30/gallon from ~$3.80 before the Middle East conflict began. Diesel at $10/gallon for a quarter could make a meaningful dent in economic activity. The Fed would then have to choose between hiking into a weakening economy or risking that inflation expectations move higher. This is just one example of the potential that the next growth downturn could be accompanied by stubborn inflation, which would pose a challenge for more traditional portfolios.

Yes, inflation is still a threat to your capital

Inflation is the foundation for our economic outlook, and we believe it should also be reflected in the foundation of your investment plan. Even though we expect inflation to moderate through 2027, it still poses a key risk to the purchasing power of your capital.

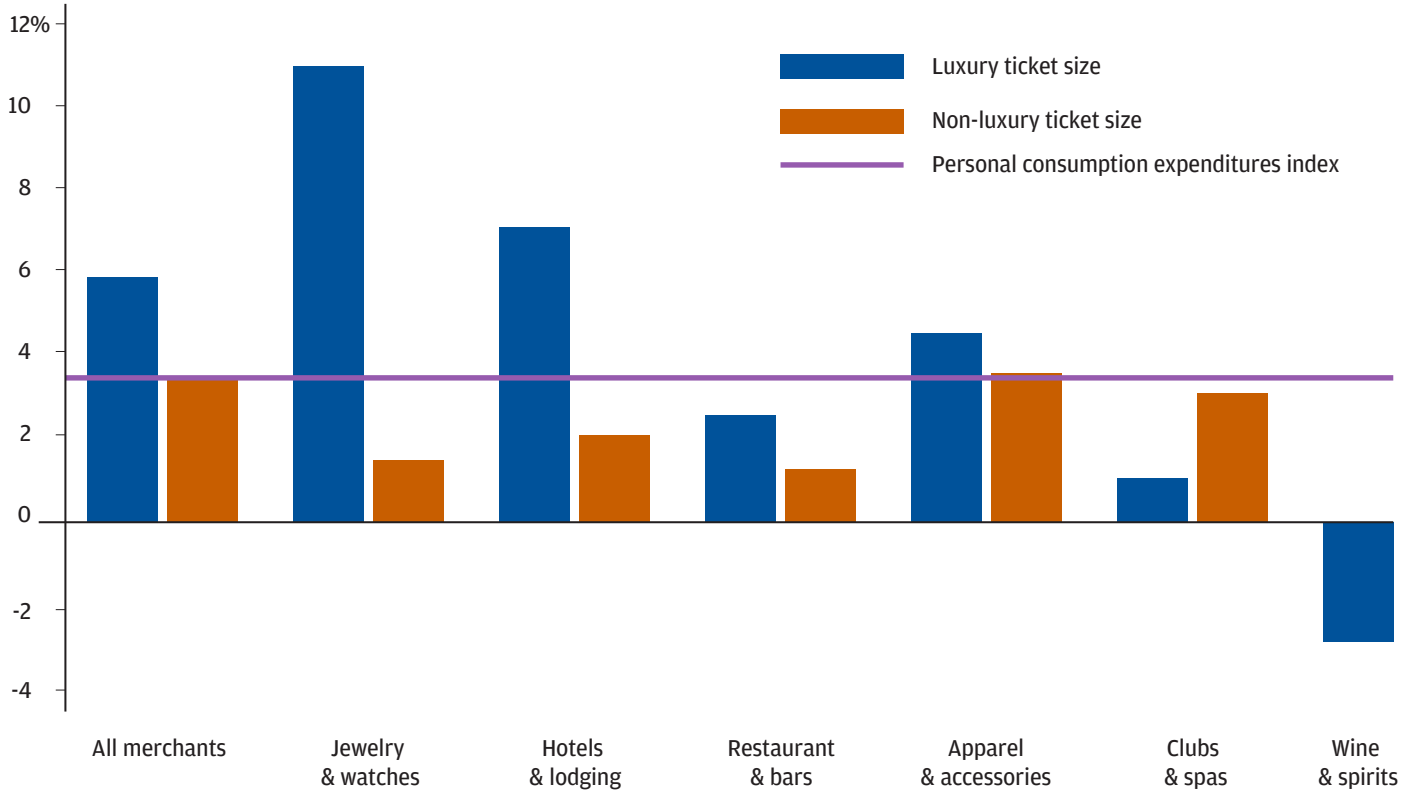
Many of our clients may also need to use a different benchmark than policymakers and economists. From 2019 through 2025, the headline PCE index rose at a ~3.5% annual rate. Over the same period, based on our own clients' spending data, average ticket sizes on luxury goods purchases increased at more than a 6% rate. Maintaining purchasing power for the goods and services that matter most to you likely requires a higher hurdle than the headline inflation index would suggest.

2019 through 2025

From 2019 through 2025, the headline PCE index rose at a ~3.5% annual rate. Over the same period, based on our own clients' spending data, average ticket sizes on luxury goods purchases increased at more than a 6% rate.

HEADLINE INFLATION MAY NOT BE THE BEST REFERENCE FOR PROTECTING PURCHASING POWER

Annualized increase, 2019-2025, %



Source: J.P. Morgan proprietary credit card data. Data as of 2025. Note: Merchants must have sufficient activity to be classified, including at least 50 households, 250 transactions over the full period and at least one year with 30 transactions. In categories containing both luxury and non-luxury merchants, a merchant generally must have a base-year median transaction of at least $250 and either rank in the top 20% of its category on both median transaction size and concentration of spending from households with $100 million or more in assets, or rank in the top 10% on transaction size alone. Certain inherently luxury categories, such as art dealers and jewelers, are classified separately. Bars show annualized 2019-2025 growth in average transaction size for merchants with sufficient activity in all seven years; the measure captures both price and purchasing mix.

The investment implications

We believe that fixed income markets are compensating investors appropriately to take on the risks of sticky inflation and higher policy rates. Investment grade yields in the United States are above 6% for the first time since the global financial crisis. Long-dated municipals yield roughly 5%, equivalent to an ~8% taxable-equivalent yield.

At the end of the day, bond investing is math, and today's bond math is unusually friendly to investors.

At today's all-in yields, rates would have to rise roughly another 100bps from here to wipe out a year of IG carry, a worse outcome than even our bear case. Yields may not have peaked for the cycle. But we believe that investors who add to high grade credit today can realize solid returns over the medium term even if global central banks tighten more than we expect and you experience short-term mark to market losses along the way.

Beyond investment grade, preferred equity looks to be well positioned to deliver attractive returns to portfolios. In fact, we would rather fund U.S. and Canadian banks through preferred equity than common equity. Headline yields are around 7% and they are a tax efficient asset for U.S.-based investors. Many of the catalysts that could drive bank stock outperformance have played out. Still, collecting high-single-digit, tax-efficient returns by owning bank preferred stock seems attractive from a risk-reward perspective.

Private credit may also be a counterintuitive beneficiary of a rising rate environment. Consider: In direct lending, realized loan default rates range from 1% to 3%, but a broader "shadow" default rate[1] puts loans under stress at ~15% of the business development company (BDC) universe.[2] Investors are compensated for taking on this risk: Spreads including discount at issue have widened by about 100bps year-to-date. At a ~5% default rate and ~50% recovery, loss-adjusted yields on senior-secured direct lending still clear ~7.5%.[3]

Higher borrowing costs also present opportunity for distressed managers who can charge a high price for liquidity, and we are seeing new potential in places such as private credit secondaries and asset-backed finance.

In a world where capital once again has a price, fixed income is where that cost is being paid most explicitly to you.

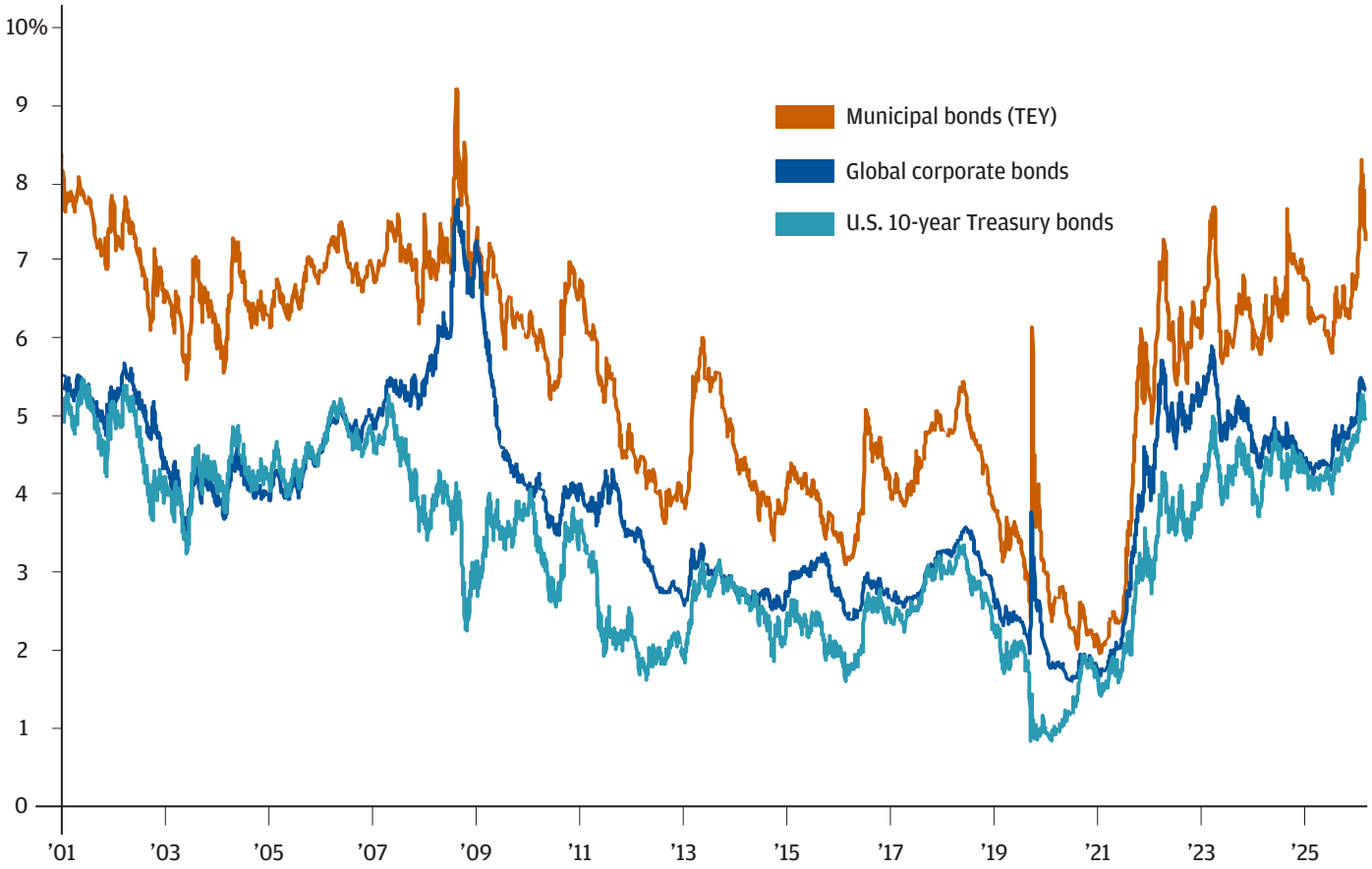
[1] Capturing non-accruals, distressed PIK, maturity extensions >2 years marked below 95% of par, foreclosed loans converted from debt to equity and loans marked below 80% of par.

[2] PitchBook, "Eye on the Market: Califoreboding," Michael Cembalest, as of Q2 2026.

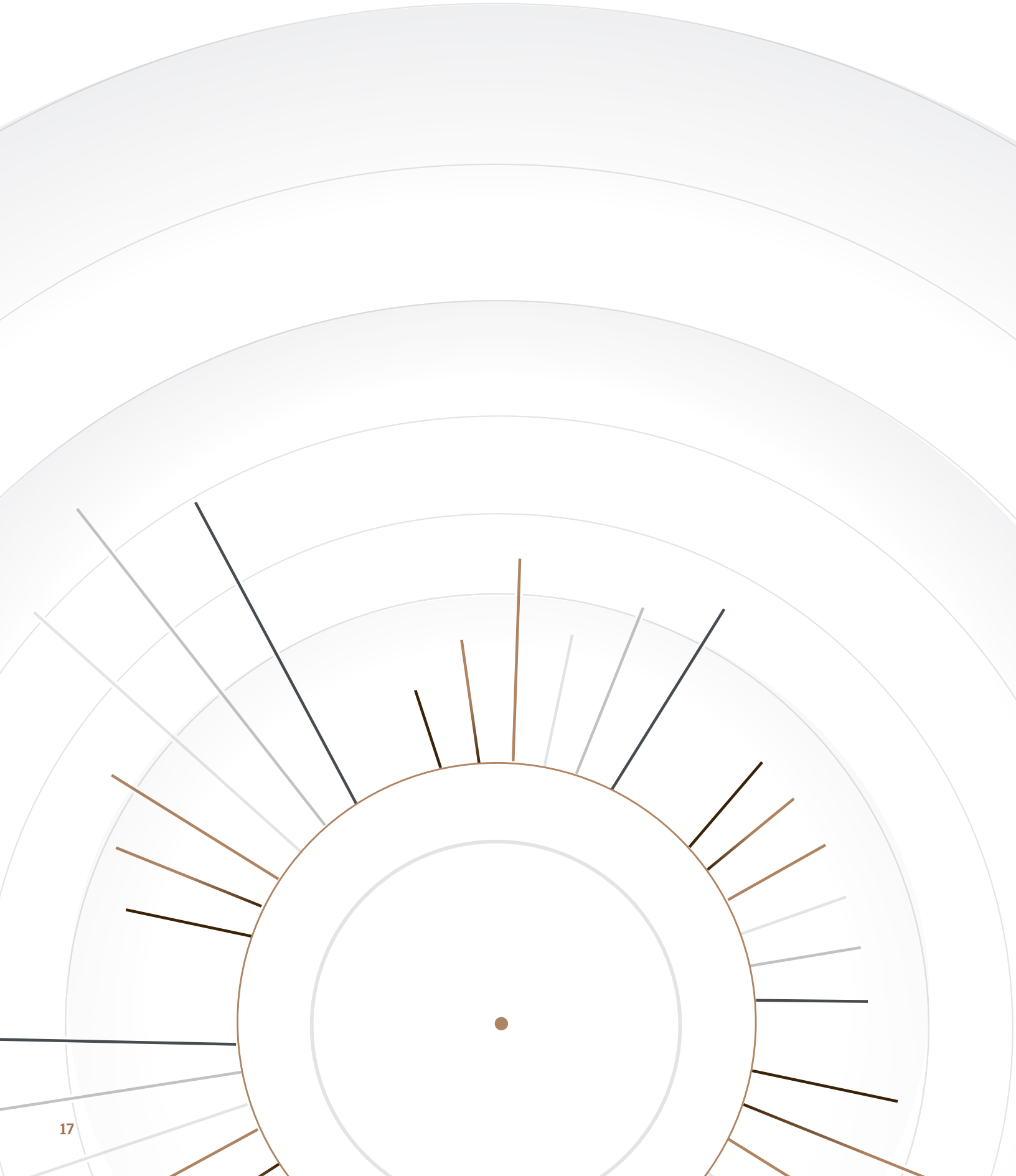
[3] J.P. Morgan Private Bank, J.P. Morgan Credit Research, KBRA DLD, as of October 2026.

GLOBAL BOND YIELDS ARE NEAR THEIR MULTI-DECADE HIGHS

Yield, %



Source: Bloomberg Finance L.P. Data as of October 31, 2026. Note: Uses Bloomberg Global Aggregate Corporate yield to worst. TEY = Tax Equivalent Yield: Fed Tax Equivalent Yield (FED TEY) calculated as YTW / (1-40.8%). The 40.8% tax figure is the sum of the highest federal tax rate (37%) and the Medicare tax of 3.8%. This calculation uses the maximum tax rate and grosses that figure by the maximum federal tax rate.



A balanced portfolio is only the beginning.

We are more positive on core fixed income than we were last year. Our long-term outlook for traditional multi-asset portfolios that mix public equities with core fixed income suggests competitive returns over the next 10-15 years.

However, we see three reasons to add other diversifiers to portfolios.

First, in large part due to the uncertainty associated with the potential payback of AI investment, there is a wide range of possible outcomes.

Options that protect against a sharp decline in equities are trading at their highest price of the year. Insurance protection against default for investment grade companies that are borrowing to finance the AI infrastructure build is approaching levels more commonly seen in junk issuers. Assets like diversified hedge fund strategies tend to perform well when volatility is elevated and could thus help limit portfolio drawdowns. For example, macro hedge funds have delivered positive performance on average during quarters when both stocks and bonds are down.

Second, the threat of inflation shocks driven in part by geopolitical fragmentation should lead to a positive correlation between stocks and bonds.

That suggests that a traditional 60% stock/40% bond portfolio is not prepared for a scenario where stocks and bonds are both falling. Core real assets and commodities respond to inflation differently than stocks and bonds. Both deserve the consideration of your long-term capital.

Third, public equity markets have rarely been this concentrated, largely because of the dominance of AI and technology more broadly.

The 10 largest stocks in the S&P 500 account for nearly 40% of the index, the highest share since at least 1980. Of course, concentration in technology and AI-linked names has driven strong performance, which we believe will continue.

Still, investors should consider alternative drivers of capital appreciation. For instance, U.S. core private equity has a 24% weight to technology and adjacent companies relative to the S&P 500 at nearly 50%. In exchange for liquidity, private equity provides the opportunity for capital appreciation without the concentration of technology. Manager selection is crucial, though, especially in an environment where software is at risk of disruption and leverage-driven returns will be harder to generate.

Part 2

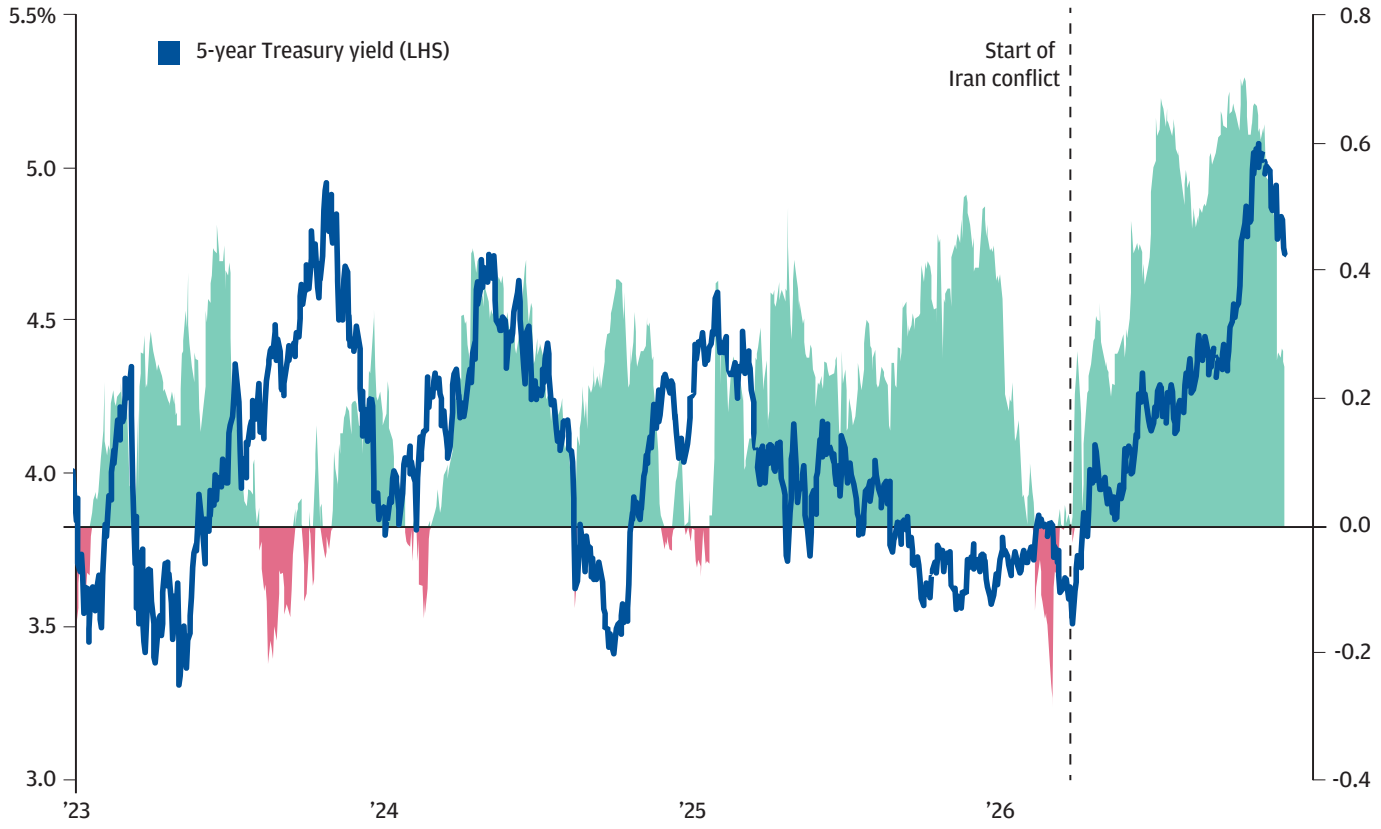
Global fragmentation

Conflict, compute and supply chain bottlenecks raise the cost of capital

Global fragmentation, the second force we highlight, is spurring growing demand for capital from governments, many of which carry high levels of debt and deficits.

IN THE WAKE OF THE IRAN CONFLICT, OIL PRICES AND GOVERNMENT BOND YIELDS HAVE BEEN HIGHLY CORRELATED

5-year U.S. Treasury yield and its correlation with the Brent crude oil price (RHS)



Source: Bloomberg Finance L.P. Data as of October 31, 2026. Note: Shows 40-day rolling correlation.

Sovereigns need capital to defend themselves in a new era of conflict, where $70,000 drones can be competitive with million-dollar missile systems, defense inventories are depleted, and the U.S. security umbrella is not what it once was.[4] Governments will increasingly need capital to finance their AI ecosystems ("compute sovereignty" may become a new catchphrase). And sovereigns certainly need capital for energy security. Conflict in Iran and the closure of the Strait of Hormuz were first a shock and then a sobering reality, and the ongoing conflict has only exacerbated the fragility of global energy supply chains, to say nothing of the long-term threats from climate-related risks.

Where will the missing capital come from? You will be asked to share the cost through some mix of tariffs, taxes, inflation and higher rates.

Global fragmentation should also force an assessment of geographic diversification. Be thoughtful about which currencies you save in, which sovereigns you lend to, and consider the global spectrum of potential beneficiaries.

Which sovereign blocs have earned your capital?

Global fragmentation should force you to think more critically about capital allocation across sovereign blocs. Traditional metrics such as trade balances and policy credibility are useful, but you must also consider a country's natural resources and its exposure to critical bottlenecks. Can a country defend itself? That question has new resonance.

We suggest assessing sovereign risks against their vulnerability to four criteria.

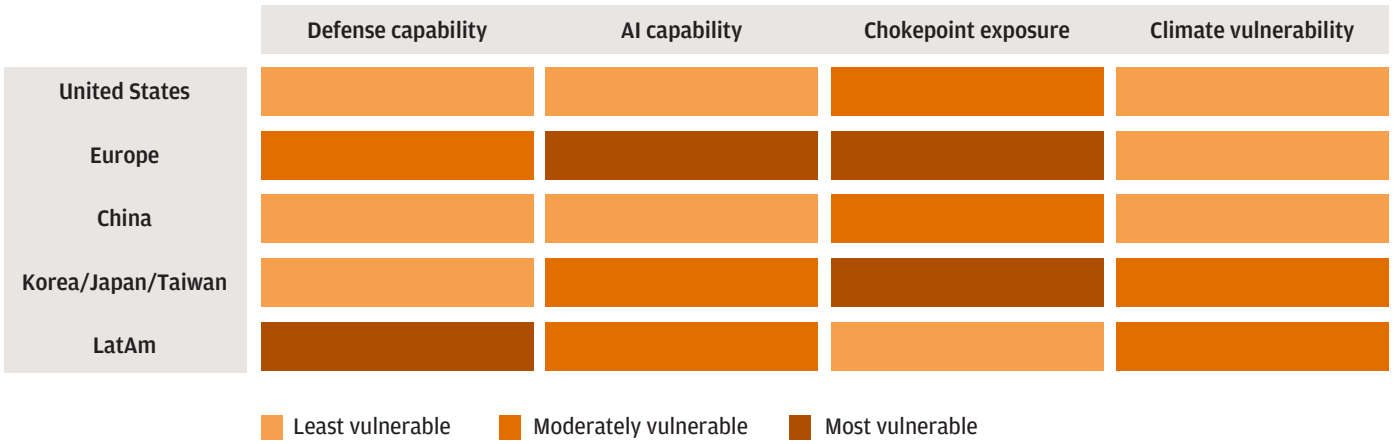
- **Conflict.** Can the sovereign provide its own security, or is it dependent on outside support at prices that may prove unsustainable?
- **Compute.** Does the sovereign have its own AI infrastructure and research ecosystem? Is it prepared to defend against AI-enabled cyberattacks?
- **Chokepoints.** Can the sovereign rely on domestically run supply chains, or does it depend on foreign suppliers?
- **Climate.** Is the sovereign vulnerable to the negative impacts of climate change, and is it positioned to invest in adaptation?

We think this framework can help identify which countries and regions might be best positioned for the era of global fragmentation. The bottom line is that all the blocs that we care about as capital allocators have vulnerabilities to mitigate. Concentration in one is probably not prudent.

[4] Center for Strategic and International Studies. Drone Saturation: Russia's Shahed Campaign. 2025; CSIS. The Cost and Value in Air and Missile Defense Intercepts. 2025.

Here, we make a few observations that can guide capital allocation decisions.

ACROSS DEFENSE, AI, SUPPLY CHAINS AND CLIMATE, ALL GLOBAL BLOCS HAVE VULNERABILITIES TO ADDRESS



Sources: Global Firepower, Stanford University Human-Centered Artificial Intelligence, ChinaTalk, University of Notre Dame. Defense capability data as of 2025. Note: Defense capability determined using Global Firepower's 2026 PowerIndex (Military Strength Rankings). We classify ranks 1–25 as Strong, 26–75 as Medium and 76–145 as Weak; these are editorial thresholds, not GFP categories. Chokepoint exposure is a qualitative analyst assessment of energy, critical-mineral and semiconductor dependencies on a 1–5 exposure scale, informed by Naveen Krishnan's economic-security framework in ChinaTalk's "How to Score Economic Security" (May 4, 2026). Group ratings apply those thresholds to the median rank of ranked members. Europe includes the 21 EU countries using the euro and the UK. LatAm comprises 20 sovereign Latin American states: Mexico; the six Spanish-speaking states of Central America; Cuba, the Dominican Republic and Haiti; and the ten Spanish- or Portuguese-speaking sovereign states of South America. Belize, Guyana and Suriname are excluded under this language-based definition.

First, the **United States** seems relatively well-positioned to weather geopolitical fragmentation over the long term, but there are still critical risks to address. Fiscal capacity, resource endowment and more limited bottleneck vulnerability all argue in favor of Treasuries and the dollar. But there is a risk in central banks and reserve managers diversifying their savings away from the United States. U.S. policymakers and business leaders are beginning to address competitive vulnerabilities in areas such as semiconductor manufacturing, skilled engineering labor and rare earths. The ongoing El Niño could cause disruption in insurance markets and food prices, and we are waiting to see the potential response from insurers and policymakers.

Europe: Market outlooks diverge among equity, sovereign credit and corporate credit.

While bondholders are funding capital requirements into needed resiliency spending, stockholders can benefit from that spending.

Europe's challenges include elevated oil and gas prices (most European nations are not energy self-sufficient), rising government bond yields, high levels of debt and more frequent and severe heatwaves and drought. In France, 10-year government bonds now yield more than their Italian counterparts for the first time since the creation of the eurozone, a roughly 130bps swing from early 2024. (At the end of Q2, France's public debt-to-GDP ratio was 119% versus 140% for Italy.) French elections in 2027, which will likely produce a contest between candidates on the far left and far right, loom large.

European policymakers on the national and pan-European level have called for greater investment in defense, technology and energy security in lieu of expanded welfare programs. We are also monitoring the potential for broader adaptation spending to mitigate the adverse impacts of a hotter, less predictable climate. German defense spending has doubled since 2022, with Germany notably harnessing its industrial infrastructure to diversify away from automobile manufacturing.[5] But the broader push for investment has encountered political resistance and limitations in scaling up capacity. Only about a third of European Union counter-drone and short-range air defense programs are expected to be complete by 2030.[6]

Given the emerging fiscal strains for European sovereigns, we prefer to place our capital in European multinational corporations over sovereign debt.

We continue to invest in European equity markets, where corporate earnings have proven stronger than expected. Capital has flowed to Europe's beneficiaries of global fragmentation. The ranks include the dominant Dutch company that prints every advanced chip and French and British defense companies capturing rearmament orders.

Asia: Different blocs, different trades

Geopolitical fragmentation plays differently across Asian markets.

China is in many ways a beneficiary of the trend. It is an industrial and manufacturing power, with an enviable supply of energy. The country remains a major exporter (its trade surplus continues to set records) and it is building a parallel AI ecosystem with sophisticated low-cost models. But economic growth remains weak and uneven as its property sector continues to struggle and domestic consumption recovers slowly. In September, fixed asset investment fell 7.2%.[7]

A U.S. or European investor who is considering allocating capital to China must also weigh the potential for alignment risk—that is, the potential for diverging geopolitical interests with China. On balance, we opt for a selective and relatively small allocation to Chinese markets, but you shouldn't ignore it entirely.

Korea, Taiwan and Japan sell what a fragmented world needs, e.g., semiconductors, AI infrastructure and shipbuilding equipment. Korea holds roughly 70% of global DRAM capacity, while Taiwan dominates advanced chip manufacturing.[8]

We remain constructive on Korea and Taiwan equities and selectively positive on Japan.

Latin America: Opportunities for capital in nearshoring and commodities

Latin America offers exposure to two related opportunities, the nearshoring that is accelerating amid global fragmentation and a bull market in commodities.

We see **Mexico** as a clear beneficiary of nearshoring. The United States–Mexico–Canada Agreement (USMCA) remains intact, despite political rhetoric from the U.S. administration. Mexico's manufacturing base and deep capital market links to the United States underscore the country's investment potential. That potential may increase as firms sell higher value-add exports and services into U.S. markets. In fact, tech products now make up nearly 50% of Mexico's exports, and the United States receives 40% of its imported servers from Mexico.[9] For investors, it's helpful, too, that the peso is a high-carry convertible currency.

The rest of the region offers investors a commodity-FX trade: **Chile and Peru** sit on roughly a quarter of the world's copper reserves.[10] **Brazil** not only adds iron ore, agriculture and oil, but also already hosts 218 data centers, with the potential to double capacity by 2030.[11] As investors in the region, we favor risk assets over currencies. We still favor Latin America, even after the Brazil election surprise, with a special preference for Mexico and a more neutral stance on Chile and Peru.

5 Stockholm International Peace Research Institute. SIPRI Military Expenditure Database. April 2026; Reuters. Explainer: What is included in Germany's 2026 draft budget? 2025.

6 Euronews. Only a third of EU counter-drone programmes will deliver by 2030, leaked report warns. October 8, 2026.

7 National Bureau of Statistics of China. Investment in Fixed Assets for January–September 2026. October 19, 2026.

8 TrendForce. DRAM revenue rankings, 2Q26. September 7, 2026

9 J.P. Morgan Global Research. LatAm Monthly Wrap, Diego Celedon. October 2, 2026. U.S. Department of Commerce. Data as of December 31, 2025.

10 U.S. Geological Survey. Mineral Commodity Summaries 2026: Copper. January 2026.

11 Americas Quarterly. How Latin America is Climbing the High Tech Value Chain. October 13, 2026.



The case for gold and commodities

In a fragmented world, we believe that gold and other commodities may be worth considering as additions to portfolios.

Turning first to gold, many countries have expressed a desire to hold savings in something outside the dollar-based system and broadly diversify away from fiat currencies. As a result, central banks have increased their gold holdings as a share of overall reserves. The shift hasn't been uniform, but IMF data shows the dollar's share of official foreign exchange reserves has fallen to roughly 57% from a peak of 70% in 2000.[12]

Commodities such as copper, oil and gas serve as vital components in compute supply chains and national resiliency initiatives. Electrification and grid enhancement help drive a projected 25% supply shortfall of copper and 40% shortfall of lithium by 2035.[13] We expect supply shortages to persist even as producers ramp up to meet growing demand. New copper mines, for example, take more than 16 years to build.[14] Importantly, too, exposure to commodities offers a portfolio hedge to higher inflation. In fact, over the last 50 years commodities have delivered positive returns on average in quarters when stock and bond prices both decline.

Despite constrained supply and ongoing structural demand, the stocks of commodity and natural resource companies are generally less expensive than the overall market. The global energy and materials sectors trade at a 33% and 15% discount to the S&P 500, respectively, and sport higher dividend yields.

Do security spending beneficiaries deserve your capital?

Global fragmentation has supported businesses that benefit from security spending. The trend will continue, we believe. **Indeed, global fragmentation could be one of the best reasons to invest globally in equity markets.** Most countries face security vulnerabilities they need to address and most markets host the companies that benefit from the spending, from Japan and Korea to France, Sweden and Mexico.

Generally, buyers of security-related products and services care more about reliability and quick delivery than price. As we've discussed, supply shortages of critical components like transformers (with lead times between 2.5 and 3 years) and copper will persist for the foreseeable future.[15] That gives security companies pricing power and order books that run for years.

Strong earnings (seven of every 10 stocks we follow on this theme have positive earnings revisions over the last 12 months) and rising expectations have pushed a basket of security stocks to a nearly 25% return year to date. We expect continued earnings growth will drive the next leg of outperformance. Active stock selection will be critical, though, in separating the market's winners and losers and identifying the firms that deserve your capital.

Where we are placing our capital

We are placing our own capital behind the need for security spending in a fragmented world. **JPMorganChase's Security and Resiliency Initiative (SRI)** is a USD 1.5 trillion, 10-year plan to facilitate, finance and invest in industries critical to economic security and resiliency.[16] The firm will make direct equity investments for an initial amount of USD 10 billion in select companies, primarily in the United States but also in Europe, to help enhance their growth, spur innovation and accelerate strategic manufacturing. The remainder of the pledge is designed to secure debt and loan financing for similar initiatives. Some recent examples include a financing commitment to MP Materials, a rare earth metals company, and an equity investment in Shield AI, a leader in defense technology and autonomous aircraft. We are also focused on the USD 1.3 trillion upgrade needed for Europe's electrical grid.

We are committed to doing our part to address the vulnerabilities that are inherent in a fragmented world.

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12 International Monetary Fund. Currency Composition of Official Foreign Exchange Reserves (COFER). September 30, 2026.

13 International Energy Agency. Global Critical Minerals Outlook 2026. July 2026.

14 International Energy Agency. Copper prices have hit record highs, but smelters face mounting strategic pressures. March 2026.

15 Wood Mackenzie. Mind the gap: tackling supply-chain challenges in the electric T&D sector. October 15, 2025.

16 JPMorganChase. JPMorganChase Launches $1.5 Trillion Security and Resiliency Initiative. October 13, 2025.

Part 3

Will the AI capex boom ultimately pay off?

The AI build-out has created a staggering demand for capital. Going forward, political pressure will increasingly impact the capex boom.

Since 2022, AI capex has totaled over USD 2 trillion, with trillions more expected in the next several years.

Will the capex continue?
Yes, if investors like you fund it, and regulations allow it. And, perhaps more importantly for long-term investors: Will AI spending ultimately pay off?

These may be the most important questions for investors heading into 2027.

Investors must consider four related issues:

- How far and how fast will AI adoption (early use of AI models) and diffusion (more extensive use across the economy) progress?
- How many trillions will AI need to deliver to generate returns for investors?
- Will markets be willing to finance the infrastructure build-out, and at what price?
- Which layer of the equity stack will be best positioned to generate returns: the infrastructure layer that builds the AI data centers, the compute layer that rents out the semiconductors, or the application layer that turns model tokens (chunks of text) into durable business revenue?

These four issues inform much of today's market debate. If you already own U.S. equities, you have been a passive participant. That's because, as our Chairman of Market and Investment Strategy, Michael Cembalest, has shown, a basket of 54 AI stocks represents over half of the S&P 500 market cap, 66% of earnings growth, 59% of the index price return and 82% of capex/R&D growth since January 2024.[17]

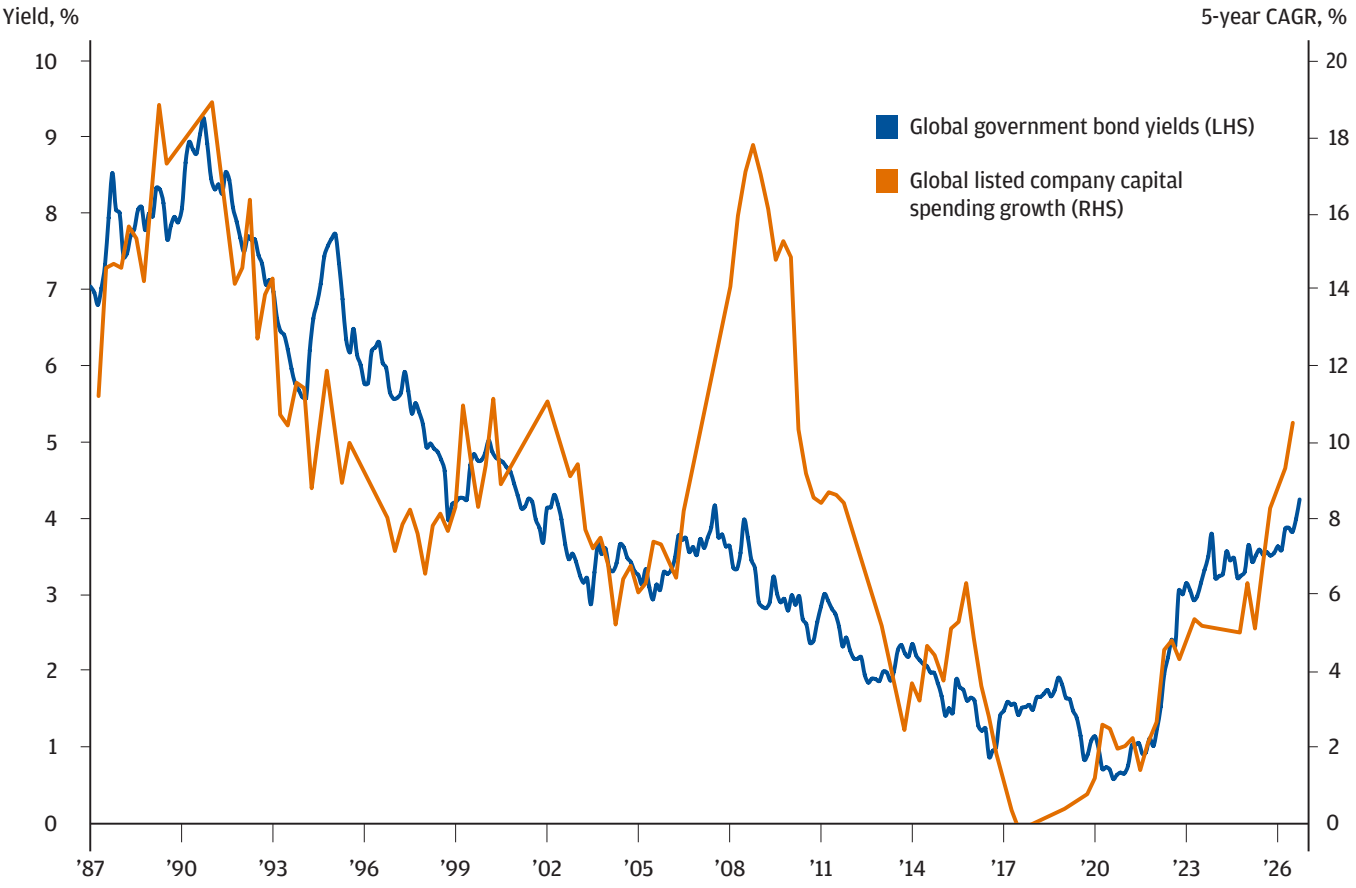
We believe in AI's long-term potential to boost productivity and corporate profits. But investors are asking serious questions about the magnitude of the infrastructure build, and markets may be starting to shift their perception of who the ultimate winners will be.

Our portfolio positioning reflects a reasonably optimistic outlook. We believe investment grade AI-related debt, which offers attractive all-in yields, is more secure than media headlines suggest. Today, we think that it will be difficult for data center infrastructure-related names (e.g. semiconductors) to exceed expectations. Hyperscalers and privately-owned application companies seem best positioned to provide strong returns to your capital from here.

[17] J.P. Morgan Asset & Wealth Management. Michael Cembalest. October 2026.

A STRONGER CORPORATE INVESTMENT CYCLE IS DRIVING HIGHER BORROWING COSTS

Yield, %



Sources: Michael Cembalest, JPMAM, LSEG, JPM GABI. Data as of October 27, 2026.

AI spreads through the economy—or all bets are off

If AI adoption and diffusion stall, nothing else really matters. The infrastructure gets stranded, the compute rents compress and the applications never find their potential customers.

Data tells us that these are still very early days for AI adoption. According to Ramp, a financial technology company that tracks business spending, 80% of AI spending is driven by 1% of businesses, overwhelmingly technology startups buying tokens from other technology startups.[18] In an analysis of AI and productivity, J.P. Morgan Asset Management estimates that only 6% of U.S. work hours are AI-assisted today, even as two-thirds of tasks may be theoretically exposed.[19]

To justify the trillions of capital targeted for the AI build-out, adoption and diffusion must broaden beyond the technology sector and deepen beyond pilot programs. We think this will happen, for three reasons.

First, enterprise adoption is shifting from experimentation to productivity. Most large enterprises remain skittish about AI agents, which operate with minimal human involvement. But as corporate leaders grow more comfortable with the technology, we think they will increasingly deploy agentic models that will boost productivity and compute intensity per user.

Second, the history of transformative technologies tells us that falling prices unlock use cases faster than they compress revenue. Since 2023, the price of a given level of AI capability has fallen at a 13x annual rate, which is four times faster than DNA sequencing.[20] Over the same period, annual run-rate revenues for the leading model providers have grown from zero to well over USD 100 billion.[21] Goldman Sachs projects a 24x increase in token consumption through 2030 as use cases expand.[22] J.P. Morgan Asset Management projects that overall AI adoption could rise to 40% of today's tasks by 2040.[23]

Third, consumer agents, which can autonomously handle a range of tasks, could gain traction. Meta's Muse has emerged as one contender in this arena. In many large economic sectors like healthcare and transportation, AI models still have a low penetration rate, and that too could change.[24]

The bear case for AI adoption is straightforward: AI remains a productivity tool for technologists and a novelty for everyone else. The error rate remains too high and enterprise adoption stalls while most consumers decide to take a pass on the new

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18 Ramp Economics Lab. Ramp AI Index. September 2026.

19 J.P. Morgan Asset Management, "A brighter productivity outlook for the AI era," 2027 Long-Term Capital Market Assumptions, October 2026.

20 Epoch AI. The Plunging Price of Thought. September 22, 2026.

21 Reuters. October 2026.

22 Goldman Sachs. AI Agents Forecast to Boost Tech Cash Flow as Usage Soars. May 20, 2026.

23 J.P. Morgan Asset Management. 2027 Long-Term Capital Market Assumptions. September 30, 2026.

24 U.S. Census Bureau. Business Trends and Outlook Survey (AI use by sector) 2026.

25 Michael Cembalest, JPMAM, Redbud Consulting. November 5, 2026.

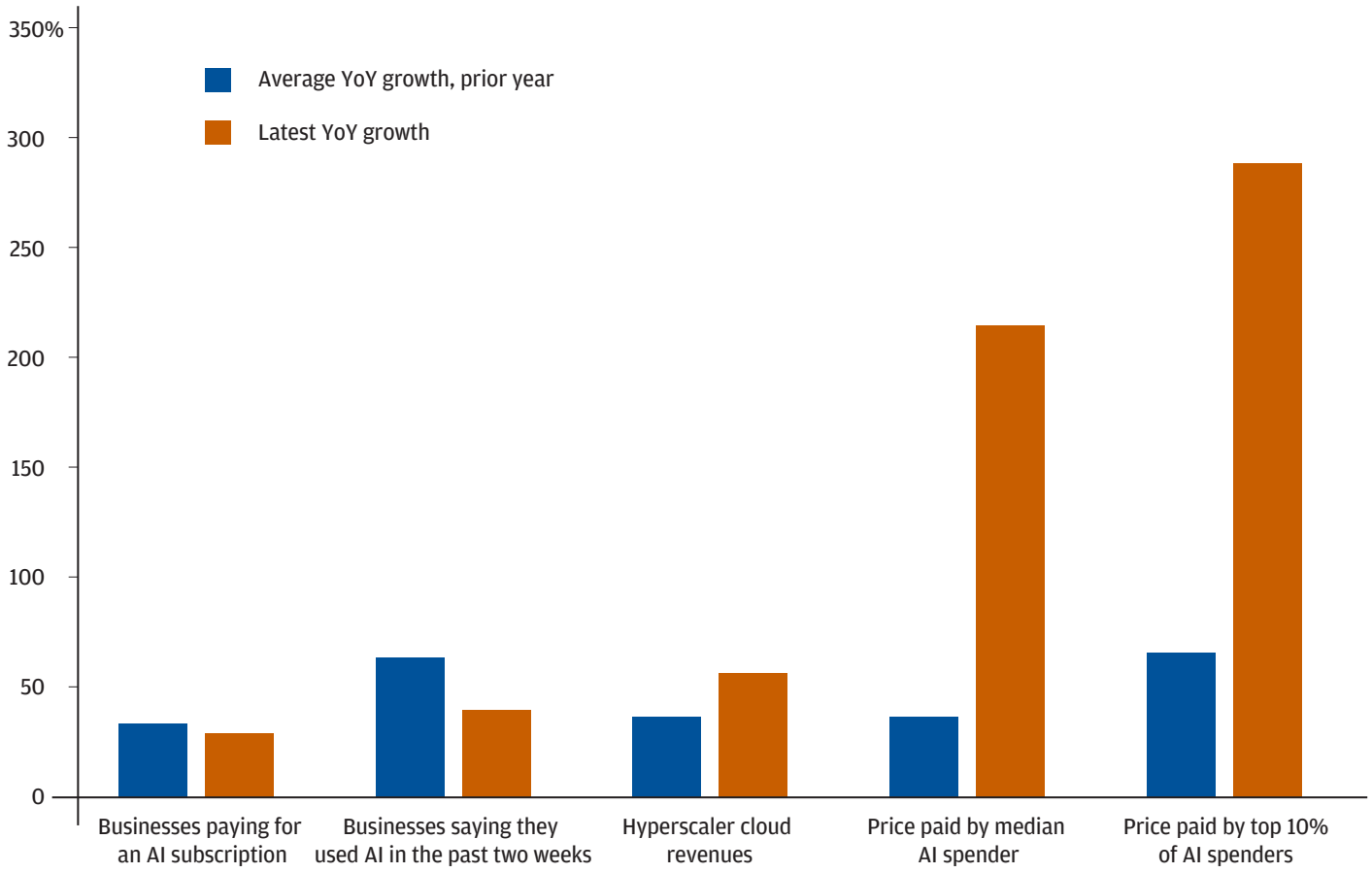
technology. In that world, token demand grows, but more slowly than expected. The entire AI ecosystem could lose much of its sheen as valuations decline.

Public and political opposition to AI is a key risk to the larger ecosystem. Data center construction became a flashpoint during U.S. midterm elections; 50 of the 51 nationwide ballot initiatives related to data centers went in favor of restricting development.[25] The increased potential for cybercrime is another risk as open-source models improve and potential adversaries gain access to compute infrastructure.

To assess diffusion rates, we track public indices of nontechnology enterprise adoption and spending. AI adoption surveys are useful, as are transcripts from public company earnings and hyperscaler cloud revenues. Based on the data that we see, the broad picture suggests continued AI adoption, diffusion and monetization, even if the market had recently overestimated the pace of private model lab revenues.

DEMAND FOR AI IS STILL RISING AT AN IMPRESSIVE CLIP

AI demand metrics, 12 months ending mid-September 2026, %



Sources: Empirical Research Partners, U.S. Census Bureau, Ramp, Bloomberg Finance L.P. Data as of September 2026. Note: Hyperscaler cloud revenue is aggregated revenue of Microsoft Azure, Google Cloud, Amazon AWS and Oracle Cloud. Census AI-use series adjusted for the November 2025 survey question wording change.

How many trillions does AI need to deliver?

AI spending only pays off if the economy generates enough revenue from it, and does so quickly enough, to cover the cost of the capital deployed (especially data centers). Given the sheer size of the current pipeline, and anxiety about how much of it moves from plans to completed projects, we expect growing investor pressure to see that revenues do in fact materialize.

To understand the challenge, consider what it takes to break even or pay for itself year to year, including the cost of investor capital. A gigawatt of AI data center capacity costs roughly USD 40 billion. To cover its cost of capital, a 1GW facility must generate about USD 11 billion in revenue per year.[26] The ~129GW of global frontier data center capacity expected by 2029 would therefore need to generate about USD 1.5 trillion a year in compute revenue, largely sourced from the application companies that must rent computing power to produce products and services that are consumed by enterprises, consumers and governments. These companies, in particular the private model labs, likely need to earn 50% margins above their computing costs. That means end-customer AI spending would need to total roughly twice that amount, about USD 3 trillion per year.

So how much revenue could the AI ecosystem earn in the early 2030s? Under reasonable assumptions, we estimate:

- **Enterprises** could spend about USD 2.5 trillion a year on AI through employee AI tools and agents.
- **Consumer sectors** could add about USD 750 billion in revenue through advertising and subscriptions.
- **Governments** could add another USD 400 billion.[27]

That gets AI revenue to about USD ~3.5 trillion, about USD 700 billion above the breakeven rate needed for the data centers to pay for themselves year to year. That surplus represents returns for investors in the compute and application layer. It may seem sizable, but it is based on an addressable market that is merely an estimate and far from assured.

A closely watched risk is whether a large share of AI-driven revenue, especially from large enterprises, comes from job displacement—replacing workers, rather than creating new demand. If half of potential enterprise AI spending replaces roles that would otherwise be filled, and AI costs about half as much as the worker it replaces, AI would absorb roughly 24 million knowledge worker jobs worldwide over five years, or about 1.3% of the global knowledge workforce each year. That is disruptive, but it is about a third of the pace at which U.S. manufacturing shed its workforce in the 2000s (~3.4% a year) amid factory automation and China's entry into the World Trade Organization. Much of the AI adjustment could come through roles left unfilled rather than layoffs. The bigger risk is concentration: Displacement that falls heavily on specific occupations or regions could test political limits well before the aggregate numbers do.[28]

To illustrate, if two-thirds of those displaced roles were in the United States, the U.S. would absorb roughly 16 million workers over five years, or about 3 million a year. That is roughly 2% of payrolls annually, more than four times the pace of the 2000s manufacturing decline. It would approach the rate of job loss during the Great Recession, only sustained for five years rather than two. Even if most of AI job displacement avoids layoffs, it would at the very least eliminate the economy's normal annual job growth. As the midterm election results suggest, it seems very unlikely that there would be political tolerance of this outcome.

J.P. Morgan Asset Management's analysis of AI's impact on the economy suggests that job disruption is more likely to occur within jobs rather than eliminate jobs outright. After all, every job is ultimately a collection of tasks, and to date, AI can automate or augment only a portion of them. Moreover, while we anticipate AI diffusion across the economy will be profound, it will take time, and adoption is expected to be uneven and gradual. In our view,

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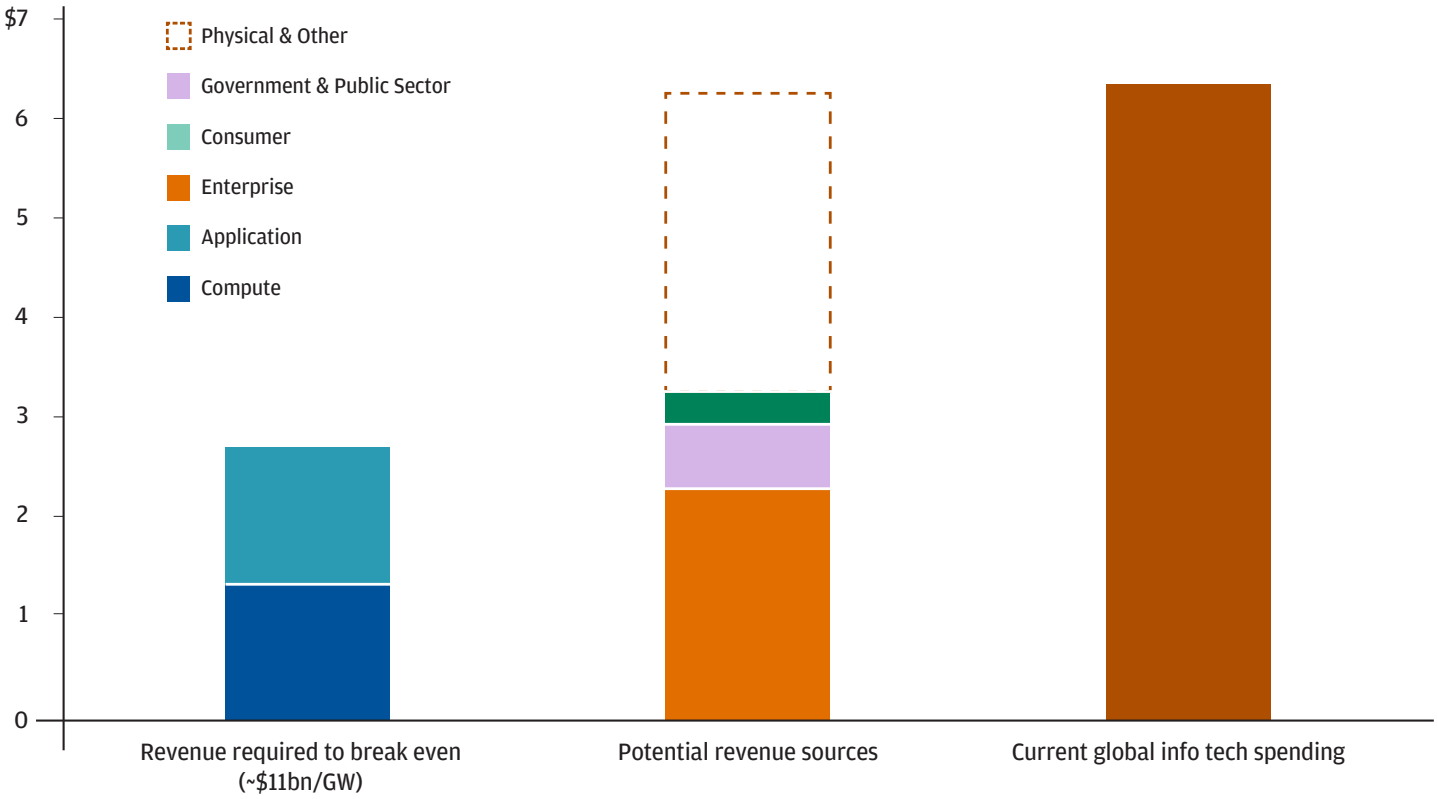
[26] Today, a 1GW data center can support about 600,000 GPUs running at the same time. If, on average, those chips are "rented" (used and paid for by customers) 70% of the time, that comes to about 3.7 billion GPU-hours per year. At roughly USD 3 per GPU-hour, that adds up to about USD 11 billion of annual revenue.

[27] For full details, see the methodology table in the appendix.

[28] Labor-replacing spend equals 50% of estimated early-2030s enterprise AI spending (~USD 2.4 trillion), or ~USD 1.2 trillion. We divide that by an effective cost of USD 50,000 per job, which assumes AI is priced at half the ~USD 100,000 fully loaded cost of a knowledge worker. That gives ~24 million jobs, spread over five years and measured against a global base of ~384 million knowledge workers. The manufacturing comparison uses the BLS manufacturing employment series: ~17.3mm in January 2000 to ~11.5mm in January 2010, or ~0.58mm jobs a year (3.4% of the starting base). Estimates are illustrative.

THE INFRASTRUCTURE PIPELINE IS REACHING THE LIMITS OF WHAT POTENTIAL REVENUES CAN SUPPORT

Breakeven AI ecosystem revenues and potential revenue drivers by the early 2030s, USD trillions



Sources: J.P. Morgan Private Bank, Michael Cembalest's Eye on the Market, JPMorgan Research, Coatue Management, Epoch AI, SemiAnalysis, LSEG, Bloomberg, Gartner. Data as of October 2026. Breakeven revenue per GW is the annual revenue needed to cover a pre-tax cost of capital, recover capital over each asset's useful life (5 years for accelerators) and pay operating costs. For full methodology, see appendix. Estimates are illustrative, depend on the assumptions above, and are not a forecast.

this steady uptake should help limit the risk of widespread job displacement.

Turning back to the economics of the AI build-out: The gap between the revenue required for the AI ecosystem to break even and the potential revenue from sources such as enterprises and consumers is a critical variable. When the potential market is far larger than what the AI ecosystem needs to break even, every new data center looks like a solid investment. But as the infrastructure pipeline grows toward the size of the addressable AI market, the gap shrinks, and so do the incentives to keep building.

We believe the infrastructure pipeline is entering a more selective phase. First, the addressable market is still very much debated, especially after frontier model lab revenues decelerated recently. Second, bond markets have started to balk at excessive leverage and aggressive infrastructure plans from smaller AI players. Finally, overbuilding is often how capital investment booms end. The railroads and the internet were both tremendously productive innovations. But far too much track and fiber were laid before demand arrived. As a result, capital markets suffered severe losses. In the AI cycle, though, more restrictions around data center development reduce the risk that capacity exceeds demand.

Going forward, companies will find it difficult to convince investors that they need additional data center capacity beyond the current pipeline especially in light of the likelihood of a more onerous regulatory environment. Therefore, value may increasingly accrue to companies that control the crucial bottlenecks, or have the pricing power to work through constraints such as political pressure, regulatory shifts, power availability, grid access, permitting speed and financing.

Financing the AI build-out

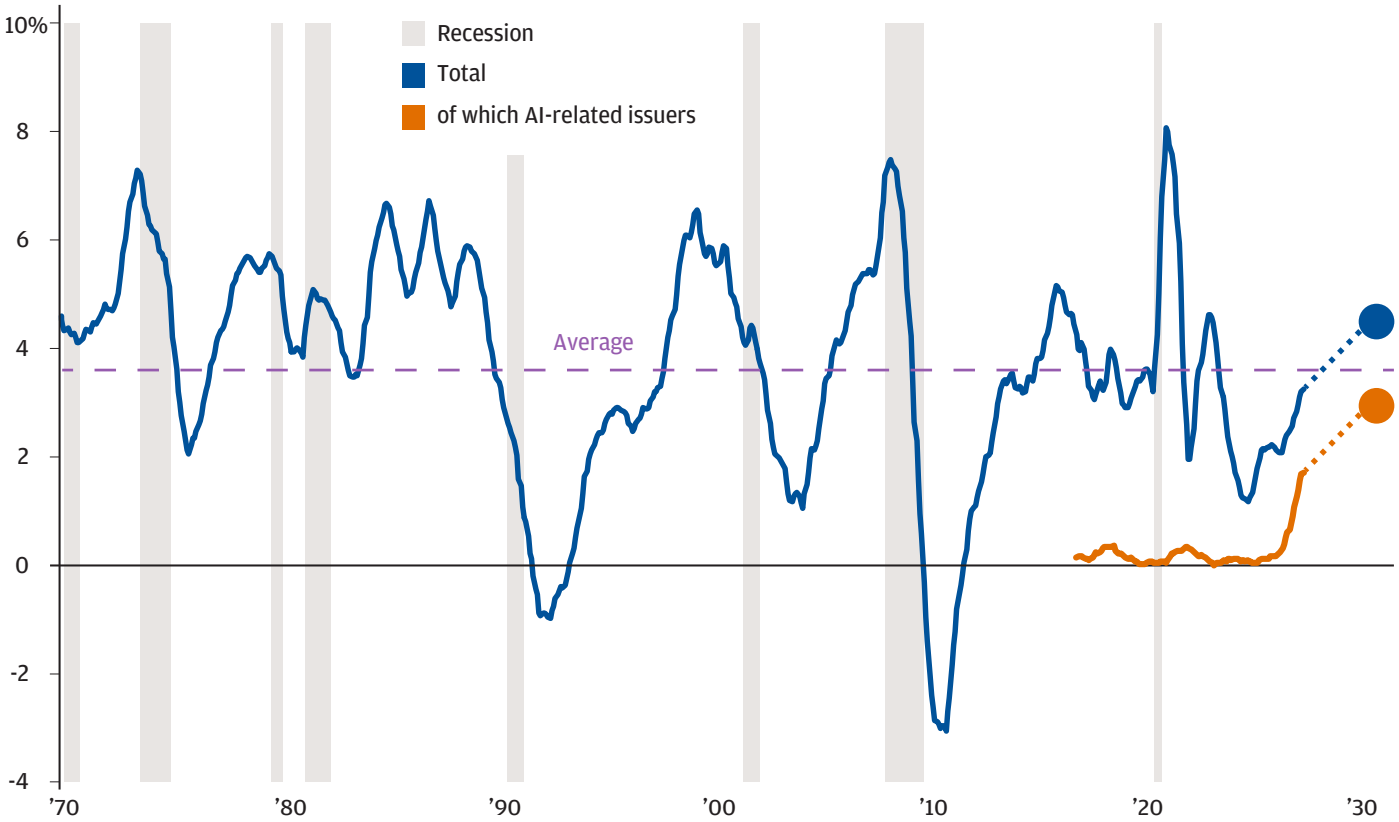
As even casual observers of the AI story understand, financing will be key to how the plot unfolds. As a result, before you underwrite the equity at any layer of the AI ecosystem, you should be comfortable with the debt on a company's balance sheet. (Another lesson from Economics 101: In a debt default, equity value disappears.)

Some AI companies have recently hit the limits of what public debt markets will tolerate. Consider the example of unsecured bonds from CoreWeave, a "neocloud" (typically highly leveraged providers that rent out their compute capacity). Their bonds trade at distressed level spreads well over 1,000bps. Does this signal the beginning of the end of the AI boom? No, but it does suggest a different opportunity set within public and private markets.

Although AI debt is growing (AI-related issuance will top USD 300 billion this year), debt growth as a share of GDP is still much lower than previous historical leverage cycles and more political hurdles to data center development could also result in a slower pace of leverage growth.

AI-RELATED BORROWING HAS PICKED UP SHARPLY AND SIGNIFICANTLY MORE ISSUANCE IS EXPECTED

Nonfinancial corporate credit creation as share of GDP, 4-quarter moving average, %



Sources: Bridgewater Associates, Haver Analytics, Federal Reserve Board, Bureau of Economic Analysis. Data as of September 2026.

Today, most of the AI debt is issued by investment grade borrowers with some of the strongest balance sheets in the world. The hyperscalers as a whole (Alphabet, Amazon, Microsoft, Oracle) carry interest coverage above 50x, compared with ~9x for the median investment-grade issuer. Oracle is clearly an outlier. We still see opportunity in some investment grade hyperscaler debt.

New financing structures have drawn scrutiny, though, because they can obscure who owns the debt and what collateral sits behind it. Case in point: ~USD 165 billion in off-balance-sheet from Nvidia support roughly 6.5GW of planned compute capacity from new model providers.[29] Nvidia aims to cultivate a customer base beyond the hyperscalers and frontier model labs. In principle, this should reduce concentration risk in the AI ecosystem. But off-balance-sheet structures add to the opacity of the system and are likely raising the cost of capital.

Artificial intelligence has shifted the technology sector from an asset-light to an asset-heavy business model. A decade ago, the largest cloud companies reinvested about 7% of their revenue in capital spending. This year, analysts' consensus expects roughly 36%. That is nearly the reinvestment rate of a regulated utility, and it absorbs almost all of the cloud companies' operating cash flow.

The further you move from the hyperscalers, the more asset-heavy the business model becomes. Neoclouds such as CoreWeave spend close to USD 3 in capex for every dollar of revenue, and they fund the difference with debt. The demand for capital is also growing in the power sector, where U.S. utilities plan nearly USD 1.5 trillion of investment over the next five years.[30]

Today the assets in focus are GPUs and data centers. Tomorrow they could be autonomous vehicles and robots. Either way, asset-heavy models need financing. We have been exploring opportunities to provide that financing through private markets to data center developers and neoclouds that are struggling to raise capital in public markets on attractive terms. This is a riskier proposition, which comes with commensurately higher potential returns.

[29] Semianalysis. Nvidia's Backstop Universe - Heads I Win, Tails Who Loses? September 11, 2026.

[30] Edison Electric Institute. EEI Data: Electric Companies to Invest $1.4 Trillion. 2026.

What you must believe to own the infrastructure layer

The infrastructure layer (semiconductors, memory, electrical equipment, power generation and construction) gets paid on delivery. Its revenue is a function of gigawatts built.

To allocate your capital to AI infrastructure firms, you need to believe the build-out will be larger than what investors have priced into the stocks. That has so far proved true. Wall Street analysts have underestimated hyperscaler capex growth by an average of 50 percentage points in each of the last three years.

However, as we have explained, we believe we are reaching the limits of upward revisions to the infrastructure layer, even if demand for compute seems to be outstripping physical capacity.

To believe that the equity of the infrastructure layer can outperform from here, you also probably need to believe that the political restrictions on data center development are less restrictive than what is currently priced into markets. At the time of writing, semiconductor stocks were already pricing in between a 20% and 40% decline in earnings. Further, an ever-larger fleet of AI data centers would require consistent replenishment of semiconductors to support revenues. Finally, sovereign demand for AI capacity may result in a global data center fleet built for redundancy and security, not capital efficiency.

Our base case scenario assumes decelerating capex growth, but that comes with a silver lining. A slower build preserves scarcity, and scarcity may be more profitable for the rest of the AI ecosystem, at least in the near term. Limiting data center supply could help maintain pricing power for both computing power and intelligence itself, even if it limits the potential for AI disruption.

Focus on the hyperscaler elite

We are more bullish about the prospects for hyperscalers. Looking across the public market AI ecosystem, we think the group may be most deserving of your capital today.

The hyperscalers could benefit whether compute is abundant or scarce, cheap or expensive. They draw strength from the reach of their businesses: They own the data centers, run the clouds and sell the AI applications (search, advertising, productivity software and consumer products). When compute is scarce, they benefit by charging higher rents for their capacity. When compute is more plentiful, and thus less costly, hyperscalers' own application businesses benefit from lower prices.

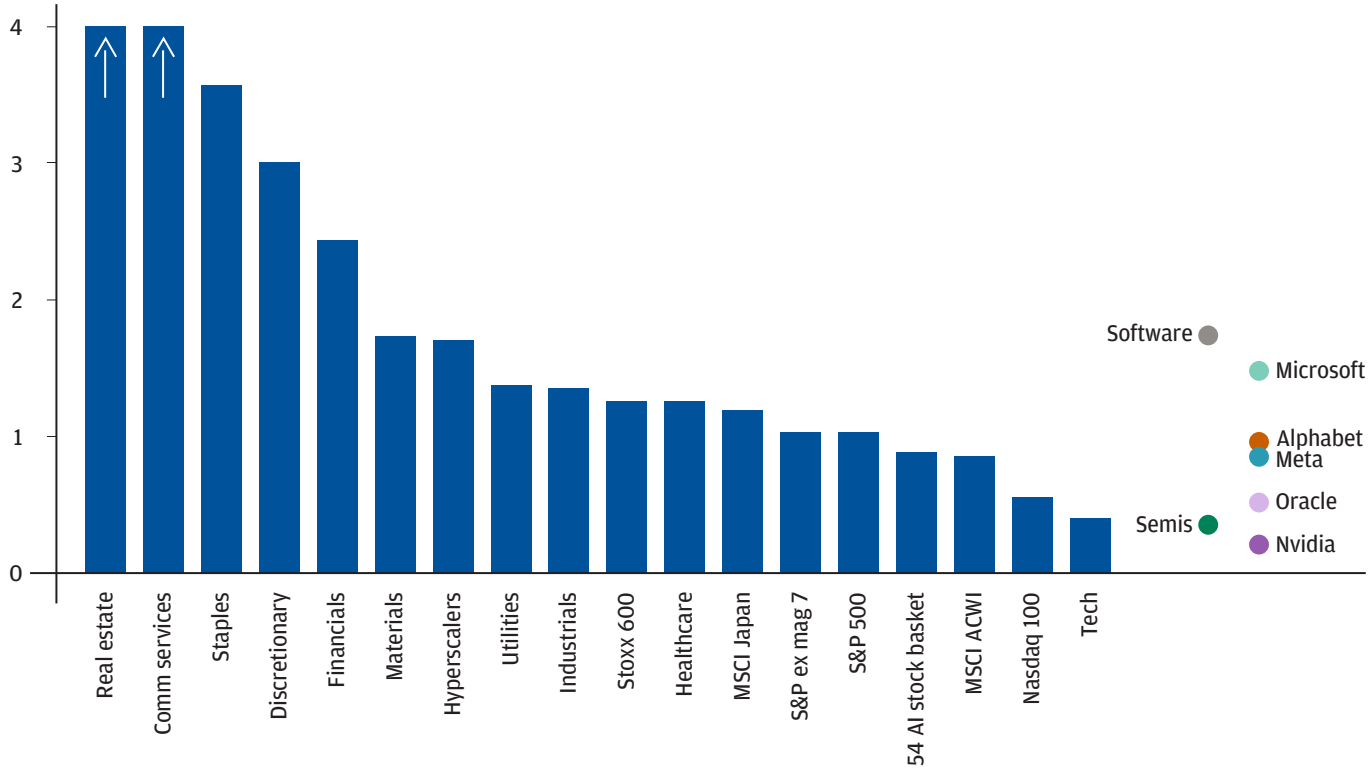
We can also see a clear path to a return on their AI investments. Sales growth in core cloud businesses is accelerating. Meta's and Alphabet's investments in AI-driven advertising are starting to pay off. Hyperscaler balance sheets could bend, but we do not believe they will break. Recent disappointing earnings reports are also providing an attractive entry point for investors.

A moderating pace of infrastructure build, which we now expect, would also ease pressure on hyperscalers' free cash flow. Finally, the hyperscalers now trade at attractive prices in both the debt and equity markets. As an aggregate, their stocks trade at a very slight P/E premium to the market (well below their own long run averages) and price-to-earnings growth ratios suggest that markets aren't giving them very much credit for continued growth.

Heading into 2027, we believe hyperscalers present the best risk-adjusted returns for your public equity capital.

INVESTORS DON'T PAY A PREMIUM FOR TECH EARNINGS GROWTH

P/E ratio divided by projected annual consensus earnings growth rate



Sources: Michael Cembalest, JPMAM, Bloomberg Finance L.P. Data as of October 27, 2026.

What you must believe to invest your capital in the application layer

The application layer sits at the top of the AI stack: the frontier labs, enterprise AI platforms and vertical software companies that turn tokens into products customers buy. Companies in the application layer operate in a variety of sectors, from coding and customer service to healthcare and law. Their revenue is a function of tokens consumed or, increasingly, outcomes delivered. The application layer's main cost is the compute it rents.

Frontier labs and other application firms sell "intelligence" (the ability to reason and work toward a goal) for which they can now charge a premium price. Today, frontier labs in the application layer earn 60%-90% gross margins.[31]

Markets consistently question whether the frontier labs' exceptional profit margins are sustainable. These labs could face growing competition from China-origin open-weight models, which now account for ~80% of tokens generated on platforms such as OpenRouter, an AI platform/service provider. Enterprises are also keen to limit the cost of their employees' token usage, which could impinge on frontier lab revenue.[32]

To be bullish about the application layer, you need to believe in some combination of the following scenarios:

- Model quality matters. Customers don't choose models on price alone. They weigh cost against quality, reliability, latency (essentially how long it takes for a model to respond to a query) and how well a model aligns with a customer's workflows. Open-weight models will certainly improve, but we think frontier models will command a premium for the foreseeable future. Indeed, they still account for over 90% of enterprise token spending.
- Pricing could move from tokens to outcomes. Under usage-based pricing, revenue is tied to a unit that should keep getting cheaper. Under outcome-based pricing, revenue is tied to the value of the work. As a result, falling token costs widen margins without reducing revenue.
- Demand extends meaningfully beyond today's base. Enterprise adoption of agentic workflows, household adoption of consumer agents and physical world AI applications such as robots begin to take hold. AI's promised future starts to become real.

The history of value creation favors the "second wave" companies in a capex boom, the firms that build on the early infrastructure. That is perhaps the most persuasive argument for the value of the application layer. The rise of railroads in the United States enabled the launch of Sears department stores. Electricity set the stage for Hollywood entertainment. The internet enabled e-commerce and the app store. Another lesson from history is that innovation cycles lead to increased demand in other sectors of the economy. Today, we believe that demand for experiences, travel, luxury, wellness, longevity and sports could all increase as AI diffuses.

At the beginning of the electricity and computer era, public markets reflected the incumbents. But within 30 years, nearly half of the 10 largest publicly traded stocks in the market were native to those technologies. We believe the same pattern will prevail in the AI era. Consider exposure in today's private markets to the potential public giants of tomorrow.

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[31] SemiAnalysis. July 8, 2026.

[32] RampAI. October 2026.



Conclusion

A focus on your capital—demand for capital, cost of capital—will reverberate through markets in the coming year. Do you believe in the AI boom enough to provide the financing that could bridge the gap between capital investment and durable revenue? Will you bet on the beneficiaries of security spending? Will you use the potential returns from higher interest rates to lower risk within your portfolio while maintaining your previous return target? Cash may even be a slightly more attractive proposition.

As always, you'll want to build a portfolio that is sturdy enough, and flexible enough, to help you achieve your long-term goals. We are here to help assess the investment potential and challenges across the financial landscape. In 2027 and beyond, we aim to help ensure you charge the right price for your capital.



Our mission

The Global Investment Strategy Group provides industry-leading insights and investment advice to help our clients achieve their long-term goals. They draw on the extensive knowledge and experience of the Group's economists, investment strategists and asset-class strategists to provide a unique perspective across the global financial markets.

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Appendix

AI BREAKEVEN ANALYSIS: ASSUMPTIONS AND METHODOLOGY

Outlook 2027 ("How many trillions does AI need to deliver?").
All figures in U.S. dollars. Revenue figures are for the early 2030s.

Category	Methodology	Key numbers
1. What a gigawatt (GW) costs to build and run		
Capex per GW	All-in build cost of 1GW of AI data center capacity	$40B
Capex mix	Servers / networking / power, land & shell	56% / 13% / 30% ($22.6B / $5.3B / $12.2B)
Cost of capital	Pre-tax WACC, applied to all components	15%
Useful life	Servers & networking / power, land & shell	5 years / 15 years
Capital charge	Capital recovered as a level annuity over each asset's life (annuity factor at 15%)	$10.38B per year
Operating costs	Power: 1.14GW facility × 8,760 hrs × 71% utilization × $83.4/MWh, plus labor & maintenance	$0.59B + $0.17B = $0.76B per year
2. Breakeven for a single gigawatt		
Breakeven revenue per GW	Annual capital charge + operating costs (earns the cost of capital, no excess return)	**$11.1B per year**
GPU density	GPUs per GW of capacity	611,477
GPU utilization	Share of hours rented	71% (≈3.8B GPU-hours per GW per year)
Breakeven GPU rental rate	Breakeven revenue ÷ GPU-hours	**$2.93 per GPU-hour**
3. Breakeven for the global fleet		
Fleet size	Global AI data center capacity, end-2029	129 GW
Compute-layer breakeven	Fleet × breakeven revenue per GW	$1.44T per year
Application-layer margin	Gross margin labs and AI software earn above their compute cost	50%
End-customer breakeven	Compute breakeven ÷ (1 – application margin)	**$2.87T per year**
Marginal requirement	Additional end-customer revenue needed per new GW	$22.3B per year
4. Potential AI revenue (enterprise + consumer + government only)		
Enterprise: Software engineers	Engineers × penetration × monthly AI spend per engineer	27MM × 100% × $3,228/mo = $1,046B
Enterprise: Other white-collar	Non-engineer knowledge workers (384MM total less 27MM engineers) × penetration × monthly spend	357MM × 60% × $539/mo = $1,385B
Enterprise total	Blended 63% penetration; ≈$840 per AI user per month (≈$528 averaged across all knowledge workers)	**$2,431B**
Consumer: Subscriptions	Paid subscribers × blended ARPU	400MM × $13/mo = $62B
Consumer: Advertising	AI-driven uplift × projected digital ad market	25% × $2,160B = $540B
Consumer: Other	Embedded AI features (25% × $300B) + agent commissions (500MM × $25/yr) + companions/gaming ($5B × 10)	$75B + $12.5B + $50B = $137.5B
Consumer total		**$740B**
Government & public sector	U.S. federal ($2B × 25) + NATO allies (1.5× U.S.) + sovereign AI programs + public services (1.25% × $10T)	$50B + $75B + $150B + $125B = $400B
5. Result		
Total potential AI revenue	Enterprise + consumer + government	**$3,571B (≈$3.6T)**
Surplus over breakeven	Potential revenue – end-customer breakeven	**$697B (+24%)**

Sources include: J.P. Morgan Private Bank, Michael Cembalest's Eye on the Market, JPMorgan Research, Coatue Management, Epoch AI, SemiAnalysis, LSEG, Bloomberg, Gartner. Estimates are illustrative and depend on the assumptions above. Physical AI (robotics, autonomy) is excluded and would be upside.

Indices are shown for illustrative purposes only. An index is unmanaged, is not an investment product and may not be considered for direct investment. Index returns do not reflect the deduction of any fees or expenses and assume reinvestment of dividends and interest. All indices are denominated in U.S. dollars unless noted otherwise. Indices are an inherently weak predictive or comparative tool and provide a hypothetical representation for use as a benchmark.

5-year / 5-year forward inflation breakeven rate (5y5y): A market-based measure of expected average inflation over the five-year period beginning five years from today, derived from nominal and inflation-protected government bond yields.

Agentic AI / agentic models: Artificial intelligence systems designed to plan and carry out multi-step tasks with limited human intervention, often by using tools, retrieving information and taking actions within defined workflows.

AI application layer: The part of the AI ecosystem that converts models and tokens into products or services customers buy, including frontier labs, enterprise platforms, agents and vertical software.

AI compute layer: The part of the AI ecosystem that supplies and rents the computing capacity used to train and run AI models, including chips, servers, cloud infrastructure and related services.

AI infrastructure layer: The physical foundation of the AI ecosystem, including semiconductors, memory, networking, electrical equipment, power generation, data centers and construction.

Alignment risk: The investment risk that a country, company or asset becomes disadvantaged as geopolitical interests, standards, trade relationships or financial systems diverge across competing blocs.

Alternative assets: Investment categories outside traditional public equities and core fixed income, including private equity, private credit, hedge funds, infrastructure, real estate and commodities.

Basis point (bp or bps): One one-hundredth of a percentage point. For example, 100 basis points equal 1 percentage point.

Bottleneck basket: A thematic group of companies that make or control scarce physical inputs needed for economic and national security, such as semiconductors, commodities, power generation equipment and gas turbines.

BRIC countries: Brazil, Russia, India and China, a grouping of large emerging economies.

Business development company (BDC): A publicly traded or non-traded investment company that primarily lends to or invests in small and middle-market businesses, often through private credit.

Capital expenditure (capex): Spending to acquire, build or upgrade long-lived assets such as data centers, machinery, power infrastructure and other property or equipment.

Carry: The income earned from holding an investment, such as a bond coupon or credit spread, before changes in market price and other costs.

Central bank policy rate: The short-term interest rate set or targeted by a central bank to influence financial conditions, economic activity and inflation.

Consumer Price Index (CPI): A measure of inflation that tracks changes over time in prices paid by consumers for a representative basket of goods and services.

Correlation: A statistical measure of how two variables move in relation to one another. A correlation of 1 indicates they move together, 0 indicates no consistent relationship and -1 indicates they move in opposite directions.

Credit spread: The additional yield on a bond or loan relative to a comparable government security or benchmark rate, compensating investors for credit and liquidity risk.

Debt-to-GDP ratio: A measure of a country's public debt relative to its gross domestic product, commonly used to assess the scale and sustainability of government indebtedness.

Developed markets (DM): Countries with advanced economies, established financial markets and generally high income levels, such as the United States, Japan and many European economies.

Direct lending: Private credit provided directly by non-bank lenders to companies, often through negotiated senior-secured loans to middle-market borrowers.

Diversified hedge funds: Pooled investment strategies that use multiple approaches, such as macro, relative value, long/short and event-driven investing, to seek returns with lower dependence on broad stock and bond markets.

Emerging markets (EM): Countries with developing economies and financial markets that may offer higher growth potential but generally involve greater economic, political, currency and market risk than developed markets.

Federal funds rate: The interest rate at which U.S. banks lend reserve balances to one another overnight; the Federal Reserve sets a target range for this rate as its principal policy tool.

Free cash flow: Cash generated by a company after operating expenses and capital expenditures, available for debt repayment, dividends, share repurchases, acquisitions or reinvestment.

Frontier labs / model providers: Organizations that develop and commercialize leading-edge artificial intelligence models, often selling access through subscriptions, application programming interfaces or usage-based pricing.

Gross margin: Revenue less the direct cost of providing goods or services, expressed as a percentage of revenue.

High yield: Corporate debt rated below investment grade, generally offering higher yields to compensate investors for greater credit and default risk.

Hyperscalers: Large cloud-computing providers able to deliver computing resources at a scale and speed that supports major enterprises and internet services.

Inflation breakeven rate: The difference between the yields of nominal and inflation-protected government bonds of similar maturity, commonly interpreted as a market-based measure of expected inflation plus an inflation risk premium.

Infrastructure: Long-lived physical assets and systems that support economic activity, including power generation and transmission, transportation, communications and data center assets.

Interest coverage ratio: A measure of a borrower's ability to meet interest payments, typically calculated as earnings before interest and taxes divided by interest expense.

Investment grade (IG): Bonds or borrowers rated at or above the minimum investment grade threshold by recognized credit-rating agencies, indicating comparatively lower expected default risk than high yield debt.

Latency: The time required for an artificial intelligence model or computing system to respond to a request.

Liquidity: The ease with which an asset can be bought or sold without materially affecting its price. Private investments generally offer less liquidity than publicly traded securities.

Loss-adjusted yield: An investment's yield after deducting expected credit losses, typically based on assumptions for default rates and recovery values.

Nearshoring: Relocating production or services closer to a company's end market, often to neighboring or regionally aligned countries, to reduce supply-chain risk and transportation costs.

Neocloud: A specialized cloud provider, often focused on renting AI computing capacity and frequently relying more heavily on external financing than established hyperscalers.

Nominal GDP: The value of goods and services produced by an economy measured at current prices, without adjusting for inflation.

Off-balance-sheet commitment: A contractual obligation or financial exposure that is not recorded as conventional debt on the sponsoring company's balance sheet, though it may still create economic risk.

Open-source model: An artificial intelligence model whose underlying code, model weights or technical components are made available for others to use, modify or deploy, subject to its license.

Outcome-based pricing: A pricing model in which customers pay for the value or result delivered, rather than for the number of users, software seats or tokens consumed.

Overnight index swap / overnight rate futures: Market instruments used to express expectations for the future path of short-term interest rates linked to an overnight benchmark.

Personal Consumption Expenditures (PCE) price index: A broad measure of prices paid by U.S. consumers for goods and services. The Federal Reserve uses the PCE price index as its preferred inflation gauge.

Price-to-earnings (P/E) multiple: A valuation measure calculated by dividing a company's share price by its earnings per share.

Private credit: Privately negotiated lending by non-bank investors to companies, typically offering less liquidity than public bonds and often using floating interest rates.

Real assets: Investments tied to physical assets or resources, including infrastructure, real estate and commodities, that may provide income and potential sensitivity to inflation.

Real return: An investment return after adjusting for inflation.

Recovery rate: The share of principal and accrued value that lenders recover after a borrower defaults.

Reserve currency: A currency widely held by central banks and institutions and commonly used in international trade, finance and payments.

S&P 500 Index: A market-capitalization-weighted index of 500 leading U.S. companies, widely used as a gauge of the U.S. large-cap equity market.

Security and Resiliency Initiative (SRI): JPMorganChase's USD 1.5 trillion, 10-year initiative to facilitate, finance and invest in industries considered critical to economic security and resiliency, including an initial USD 10 billion of direct investments in select companies.

Secured debt: Borrowing backed by specified collateral that lenders may claim if the borrower fails to repay.

Secured Overnight Financing Rate (SOFR): A broad measure of the cost of borrowing cash overnight collateralized by U.S. Treasury securities and a widely used reference rate for U.S. dollar financing.

Shadow default rate: A broader measure of credit stress that goes beyond reported payment defaults to include indicators such as non-accruals, distressed payment-in-kind arrangements, material maturity extensions, foreclosures and deeply discounted loan marks.

Sovereign credit: Debt issued or guaranteed by a national government, whose risk reflects the sovereign's fiscal position, economic capacity, policy credibility and ability and willingness to repay.

Take-or-pay contract: An agreement requiring a customer to pay for a minimum amount of capacity, goods or services whether or not the customer uses them.

Taxable-equivalent yield: The pretax yield a taxable bond would need to provide to match the after-tax yield of a tax-exempt bond, based on an investor's applicable tax rate.

Token: A basic unit of text or data processed by an artificial intelligence model. Model usage and pricing are often measured by the number of input, output and reasoning tokens consumed.

U.S. Treasury yield: The market interest rate on debt issued by the U.S. government. Treasury yields serve as benchmarks for borrowing costs and investor expectations across financial markets.

Unsecured debt: Borrowing that is not backed by specific collateral, leaving lenders dependent on the issuer's general creditworthiness and claim on its assets.

USMCA: The United States-Mexico-Canada Agreement, the trade agreement governing economic relations among the three countries and replacing the North American Free Trade Agreement.

Usage-based pricing: A pricing model in which customer charges rise or fall with measured consumption, such as tokens processed, computing capacity used or transactions completed.

Vertical software: Software designed for the workflows and specialized requirements of a specific industry or profession, such as healthcare, law or financial services.

JPMAM Long-Term Capital Market Assumptions

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UNDERSTANDING LONG-TERM ESTIMATES

Our investment management research incorporates our proprietary projections of the returns and volatility of each asset class over the long term, as well as estimates of the correlations among asset classes. Clearly, financial firms cannot predict how markets will perform in the future. But we do believe that by analyzing current economic and market conditions and historical market trends, and then, most critically, making projections of future economic growth, inflation and real yields for each country, we can estimate the long-term performance for an entire asset class, given current and our estimated equilibrium levels. The "equilibrium" level shows the average or central tendency of a market or macroeconomic variable such as yield or credit spread that is expected to prevail over the long term, because the level represents the value inherent in a given market. The return assumptions are based on our proprietary process of using a building block approach for each of the asset classes. For instance, the building blocks for equity consist of our projections on inflation, real earnings growth, dividend yield and the impact of valuations. The building blocks for fixed income consist of our projections for future yields and the change in bond prices. The estimates for alternatives are driven by our historical analysis and judgment about the relationship to public markets. It is possible—indeed, probable—that actual returns will vary considerably from this expectation, even for a number of years. But we believe that market returns will always at some point return to the equilibrium trend. We further believe that these kinds of forward-looking assessments are far more accurate than historical trends in deciding what asset class performance will be, and how best to determine an optimal asset mix.

In reviewing this material, please understand that all references to expected return are not promises, or even estimates, of actual returns one may achieve. The assumptions are not based on specific products and do not reflect fees, such as investment management fees, oversight fees, transaction costs or other expenses that could reduce return. They simply show what the long-term return should be, according to our best estimates of current and equilibrium conditions. Also note that actual performance may be affected by the expertise of the person who actually manages these investments, both in picking individual securities and possibly adjusting the mix periodically to take advantage of asset class undervaluations and overvaluations caused by market trends. For the purpose of this analysis volatility is defined as a statistical measure of the dispersion of return for a given allocation and is measured as the standard deviation of the allocation's arithmetic return. The Sharpe ratio is a return/risk measure, where the return (the numerator) is defined as the incremental annual return of an investment over the risk-free rate. Risk (the denominator) is defined as the standard deviation (volatility) of the allocation's return less the risk-free rate. The risk-free rate utilized is J.P. Morgan's long-term assumption for Cash.

Correlation is a statistical measure of the degree to which the movements of two variables, in this case asset class returns, are related. Correlation can range from -1 to 1 with 1 indicating that the returns of two assets move directionally in concert with one another, i.e. they behave in the same way during the same time. A correlation of 0 indicates that the returns move independently of each other and -1 indicates that they move in the opposite direction.

IMPORTANT INFORMATION

Key risks

Alternative investments: Investing in alternative assets involves higher risks than traditional investments, including, without limitation, limited liquidity, and is suitable only for investors with sufficient knowledge and sophistication to evaluate the merits and risks of such investments. Alternative investments should not be deemed a complete investment program and distributions are not guaranteed. They may not be tax efficient, and an investor should consult with their tax professional prior to investing. Alternative investments often have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the investment loss or gain—including risk of loss of the entire investment. For comprehensive details around unique set of risks for specific alternative investments, please consult the offering memorandum.

Bonds: Bonds are subject to interest rate risk, credit and default risk of the issuer. Bond prices generally fall when interest rates rise.

Commodities: Investments in commodities may have greater volatility than investments in traditional securities. The value of commodities may be affected by changes in overall market movements, commodity index volatility, changes in interest rates, or factors affecting a particular industry or commodity, such as drought, floods, weather, livestock disease, embargoes, tariffs and international economic, political and regulatory developments. Investing in commodities creates an opportunity for increased return but, at the same time, creates the possibility for greater loss.

Diversification: Diversification and asset allocation does not ensure a profit or protect against loss.

Equities: The price of equity securities may rise or fall due to changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. Equity securities are subject to "stock market risk," meaning that stock prices in general may decline over short or extended periods of time.

Emerging markets: Investing in emerging markets involves a greater degree of risk and increased volatility compared to developed markets. Changes in currency exchange rates and differences in accounting and taxation policies outside the investor's jurisdiction can raise or lower returns. Some markets may not be as politically and economically stable, and differences in taxation policies and legal systems outside the investor's jurisdiction may create additional risks. Investors should carefully consider these risks and consult with financial and legal advisors before investing in emerging markets.

Fixed income: Investing in fixed income products is subject to certain risks, including interest rate, credit, inflation, call, prepayment and reinvestment risk.

High yield bonds: High yield bonds are speculative noninvestment grade bonds that have higher risk of default or other adverse credit events which are appropriate for high risk investors only.

International investments: International investments may not be suitable for all investors. International investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Some overseas markets may not be as politically and economically stable as the United States and other nations. Investments in international markets can be more volatile.

Municipal Bonds: Investors should understand the potential tax liabilities surrounding a municipal bond purchase. Certain municipal bonds are federally taxed if the holder is subject to alternative minimum tax. Capital gains, if any, are federally taxable. The investor should note that the income from tax-free municipal bond funds may be subject to state and local taxation and the Alternative Minimum Tax (AMT).

Preferreds: Preferred investments share characteristics of both stocks and bonds. Preferred securities are typically long-dated securities with call protection that fall in between debt and equity in the capital structure. Preferred securities carry various risks and considerations which include concentration risk; interest rate risk; lower credit ratings than individual bonds; a lower claim to assets than a firm's individual bonds; higher yields due to these risk characteristics; and callable implications, meaning the issuing company may redeem the stock at a certain price after a certain date.

Small capitalization companies: Small capitalization companies typically carry more risk than well-established blue-chip companies since smaller companies can carry a higher degree of market volatility than most large cap and/or blue-chip companies.

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