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US Exceptionalism, AI and Towards the Total Portfolio

Perspectives on Markets, Strategic Allocation and the Investment Industry's Future

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Deglobalization, AI, demographics, public debt and climate change define the strategic investment outlook. In this book we contrast AI's reduced demand for labor versus the demographic-induced reduced supply, shaping productivity and inequality. We also defend the case for the exceptionalism of US equities, but not the US dollar. The end point of the book is a call to change investment methodology. Lower real returns, less diversification and more private assets suggest increased adoption of the total portfolio approach.

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Introduction

In these books our aim is to present a narrative that connects the strategic outlook to portfolio allocation, and how this may need to evolve. Forces such as deglobalization and AI have accelerated over the last year, while others such as demographic change, public debt and climate change remain ever present. A specific theme linked to these forces is the question of whether the US is still exceptional from an equity and a currency perspective. In this book we outline an affirmative answer to the former, but negative to the latter. Likewise, AI spawns multiple investment questions. The ones that we grapple with here are the most strategic or macro in nature. We show that the AI productivity question is bound up with demographics and the future of labor in a number of ways.

This raises questions of investment praxis. The consequence of these megaforges is that investor behavior at large still needs to adapt to an investment paradigm that is likely different from recent decades. We discuss not only what this means for the asset-management industry but also what this specifically means for investment methodology. We think that this strengthens the case for the total portfolio approach, and it is with that end point in mind that we structure the narrative of this book.

A discussion of the strategic outlook has to be framed by the huge forces that are likely to determine the path of key financial variables such as growth, inflation and risk premia in coming years. We see these as:

AI: There have been rapid developments over the last year, but we still have a high degree of uncertainty as to what this means for aggregate productivity, labor markets, societal inequality and market valuations—let alone larger questions of epistemology and political philosophy that AI raises.

Deglobalization: The Iran war has provided yet another leg to the idea that the world is deglobalizing.

Debt: Public debt is at its highest level relative to GDP since WWII for G7 nations. US debt service cost now exceeds the defense budget, while there have been brief episodes in the last year when attempts have been made to price in sovereign risk for the UK, France and Japan. We believe that the likely strategic outcome is risk of higher inflation as a mechanism for debt monetization.

Demographics: The working-age population is shrinking in most developed economies and China. A harsh immigration policy would also imply slight shrinkage

in the US as well. The last five years have also seen a pronounced fall in birth rates, which further intensifies the long-term implications of this. If productivity is constant (ρ pace AI) this implies lower growth. We also argue that, contrary to Japan's example, it is likely inflationary.

Climate: The alarming rapid increase in projected power demand in just the last 18 months, as a function of AI, makes an energy transition an even more distant goal. We think this cannot occur in the 2050 time frame. Hence, we expect a more than two-degree temperature increase, lowering growth rates, increasing inflation volatility and introducing more path uncertainty in forecasts.

We discuss the trade-off between these forces in this book. In concert, they imply a higher-equilibrium level of inflation. The extra aggregate growth due to AI is very much open to debate, but our central assumption is that the aggregate impact of all these forces is for lower global growth, not higher.

In our meetings with investors around the world, we find very little opposition to the proposition that equilibrium inflation will be higher, albeit with disagreement as to how much higher. However, asset allocation does not appear to have moved to match this. This dichotomy is shown in the sharp contrast between the evolution of market-based expectations of inflation versus precious metals over the last 18 months. Expectations of inflation over the next decade have not moved, yet gold is up 70% (*Display 1, page 3*). Both of these views, we suggest, cannot really hold in the long term.

This narrative builds on our recent books. We laid out the case for these megaforges in [A Preliminary Language for a Post-Global World](#)¹, while [Instability: Debt, Inflation and AI's Impact on Investing](#)² laid out the impact of several of these forces on particular areas of the market. The end point of this book, on the total portfolio approach, continues the broader case we made for the importance of process and methodology in finance in [Are We Human or Are We Dancer?](#)³

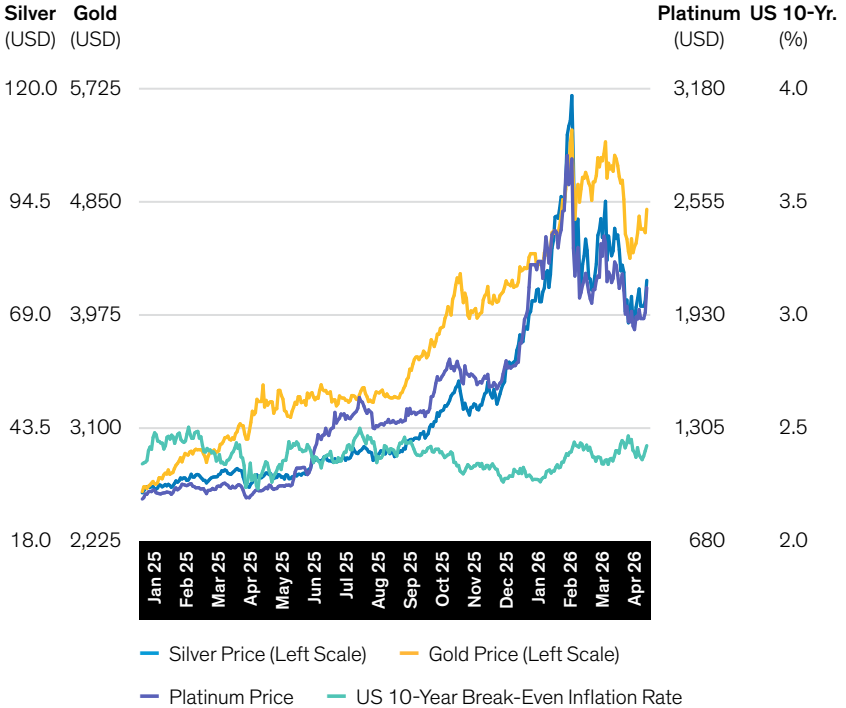
One force not explicitly included in the above list is geopolitics; however, no one can afford to be dismissive of it. Since the current US administration took office in early 2025, geopolitics has seen the most pronounced change of all the things that can be

1 Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *A Preliminary Language for a Post-Global World*, AllianceBernstein, May 2024, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-a-preliminary-language-for-a-post-global-world.html>.

2 Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>.

3 Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Are We Human or Are We Dancer?*, AllianceBernstein, July 2021, <https://www.alliancebernstein.com/content/dam/global/insights/insights-whitepapers/are-we-human-or-are-we-dancer.PDF>.

DISPLAY 1: A PAINFUL JUXTAPOSITION? PRECIOUS METALS VS. MARKET PRICING OF INFLATION

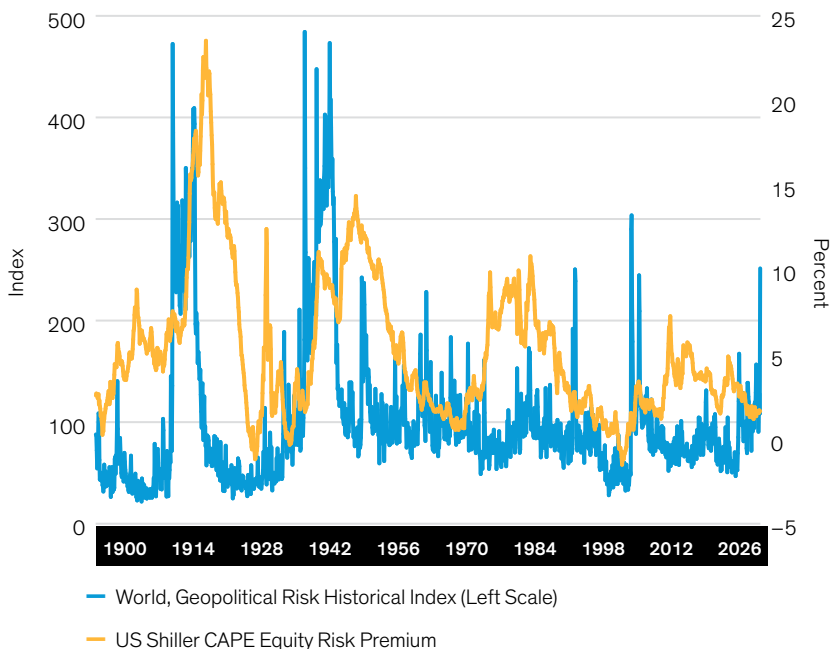


Past performance does not guarantee future results.

As of April 8, 2026 | Source: Macrobond and AllianceBernstein (AB)

said to frame the outlook for investing and markets. We would argue that this change is more significant and long-lasting than anything to do with the global economy, tariffs or other macro issues, barring AI and climate. What has occurred is a significant unwinding of the post-war US-led order. The Iran war has rightly dominated headlines, but the standoff over Greenland probably was also a step change with, at face value, the threat of the US to take by force the territory of a fellow North Atlantic Treaty Organization (NATO) member. Likewise, the downgrading of multilateral institutions such as the United Nations, the apparent normalization of “decapitation strikes” against heads of state and the break from prior views of the desirability of following even a fig leaf of international law are all seismic changes.

DISPLAY 2: GEOPOLITICAL RISK INDEX AND EQUITY RISK PREMIUM



Past performance does not guarantee future results.

CAPE: cyclically adjusted P/E ratio

As of April 8, 2026 | **Source:** Dario Caldara and Matteo Iacoviello, "Measuring Geopolitical Risk," *American Economic Review* 112, no. 4 (April 2022): 1194–1225, <https://www.aeaweb.org/articles?id=10.1257/aer.20191823>; Macrobond; Robert Shiller's database, S&P and AB

Nobody has a model for pricing in the end of NATO. Moreover, markets tend to be bad at pricing in geopolitical risks ex ante. Over the last 150 years, shifts in geopolitical risk have tended not to be priced ex ante by a rising risk premium, and instead tend to be priced when something "breaks" (*Display 2*). As the timing and scale of such impacts are very large, we think it is wrong to include them in return forecasts, a point we discuss in the equity section below. Investors should also prepare for a less "technocratic" approach, not only to trade, but also to supply chains for critical materials and commodities. This is a change that we think is here to stay.

Role of the US, and of US assets

The focus of the first two chapters of this book is the role of US assets in global portfolios. Whether either US equities or the US dollar are exceptional is not only a profoundly important thematic conversation that crops up in countless client meetings, but this also touches on several of the major forces that we outlined above: AI and the ability of it to raise productivity, debt and whether inflation is a necessary consequence, and demographic differences between nations.

The role and weighting of US assets in portfolios has consumed a huge amount of time in meetings over the last year. The start of 2025 saw a near-unanimous pro-US positioning by global investors. This was shattered by “liberation day,” and the somewhat capricious policy announcements since then have raised profound questions of trust in the US. That unanimity of positive investor views of early 2025 no longer holds. Instead, we find a very broad range of views on the US. Those who are nervous about US equities usually cite the concentration of the market, the attack on US institutions or market valuation. Yet, underweighting US equities consumes so much of the risk budget of a portfolio that we find many investors are unwilling to do it. Our view, laid out in chapter 1, is that, in fact, it is right to overweight the US within global equities from a strategic point of view. That view comes down to growth and the likelihood that US earnings growth will be superior to the rest of the world. There are a number of factors that point in this direction: An essentially flat profile of the working-age population, while less positive than the last 40 years in absolute terms, compares favorably to other key markets and implies relatively better GDP growth. Whatever one thinks about the productivity gain of AI, this is likely to be better exploited by US firms. There is also the ugly side of US exceptionalism, which is the recognition that US firms have achieved a degree of regulatory capture, as seen in the near-monotonic decline in the effective corporate tax rate for decades. There has to be a limit to how high the profit share of GDP goes (or else there would presumably be a revolution), but in a change in our view in recent years, we have given up assuming that there is a mean reversion in US profit share of GDP anytime soon. For some reason, the American electorate seems not to care. We can also cite the size of the home market and relative geographic security of supply chains. All this supports our view to overweight US equities compared to their already large weight in benchmarks.

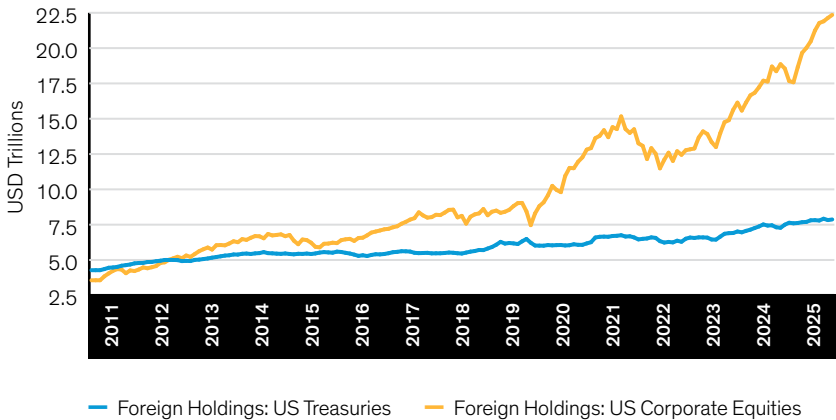
Where we think there is a clearer negative case to be made is against US bonds and the dollar. The recent positive performance of the dollar during the Iran war notwithstanding, we think that we have reached “peak dollar,” not in an exchange-rate sense, but in terms of its share of international transactions and share of central bank reserves. The combination of questions of fiscal sustainability (which is really a G7 problem rather than being peculiar to the US), a geopolitical imperative for BRICS (Brazil, Russia, India, China and South Africa) nations to find dollar alternatives and a destruction of trust in the US, which is likely permanent, all point to the US dollar being less of a safe haven asset. Before people read too much into this, let’s not

hold our breath. Changes in reserve currency status are slow—the last one took 20 years, through the 1920s and 30s—and there is no plausible alternative to the dollar. Moreover, the decision by the US to elevate stablecoins above other forms of digital money actually has created new demand for dollars. Our discussion on this in chapter 2 recommends that global investors should hedge more of their US-dollar exposure. We also do not think that US nominal long-duration bonds will play their role as a safe haven or (along with duration more generally) as a diversifier of equity risk.

Despite this, the glaring fact is that there has been no net selling of US bonds by global investors in recent years (*Display 3*). This is glaring, as it sits counter to the statements that we have heard, e.g., from some Asian and Northern European pension funds that they would consider divesting. So far, concerns about liquidity and existing rules of thumb have swamped any verbal statements about a wish to reposition.

Which brings us to gold, the subject of chapter 3. We retain a strategically positive recommendation on gold, as we have since 2019.⁴ For us, this is not really an isolated

DISPLAY 3: FOREIGN HOLDINGS OF US TREASURIES AND EQUITIES



Past performance does not guarantee future results.

As of April 8, 2026 | **Source:** Macrobond, US Department of the Treasury and AB

⁴ Inigo Fraser Jenkins, Paul Gait and Alla Harmsworth, *Global Quantitative Strategy: A Strong Case for Holding Gold*, Bernstein Research, February 11, 2019.

call, as it sits very much alongside a positive strategic recommendation for equities. The primary reason for institutional investors to hold gold is the evidence that its correlation with equities remains zero at very different levels of inflation. A lack of correlation is not a sufficient reason for asset-allocation models to overweight it, however. As is often pointed out, it is hard to enunciate to a credible price target for gold. Investors used to link it to the yield on Treasury Inflation-Protected Securities, however that model broke down when Russia invaded Ukraine and, in our new geopolitical climate, we see no reason for that relationship to reassert itself. One could appeal to the very long run, 170-year real return on gold, which has averaged about 0.6% per annum. This is problematic, as the return has been highly episodic, and it might not sound sufficient for the basis of a strategic position. However, if one assumes that BRICS nations, especially China, have a geopolitical imperative to buy more gold (albeit with unknowable timing and quantity) then this implies a somewhat higher real return target. Yet another strategic reason comes from the prognosis for fiat currencies when levels of public debt are already very high. These together are sufficient to point toward a positive view on gold. We would augment this with other non-fiat assets that have somewhat different characteristics, such as silver and crypto, but it is very much a gold-first view.

We should comment on the apparent failure of gold as a safe haven during the Iran war in early 2026. Is this a problem for the strategic gold thesis? We think not. The forces that we outlined above are all very long term in nature and do not preclude tactical periods of underperformance. There was a highly significant buildup in investor demand for gold in 2025. Specifically, this led to investor demand for gold exceeding demand even from jewelry for four quarters, an occurrence not seen since the 1980s, and a demand for liquid assets and meeting margin calls created selling pressure for an asset that had performed so well.

Finally, and this may be a semantic detail, but we do not think that gold should be viewed as a commodity anymore. In this new paradigm it behaves more like money. The role of non-fiat assets in general is set, we think, to be greater if this paradigm thesis is correct.

AI

There are multiple distinct AI topics that are relevant for the strategic, cross-asset outlook.

- To what extent can AI raise aggregate productivity?
- Is the level of AI capex justified? And what does this mean for market valuation and sector rotation?
- AI is resource intensive. Should it be viewed as an extractive industry? And, if so, what does this mean for inflation and returns from investing in the tangible economy?

- Does AI necessarily create job insecurity? Or is this just another technology change like the others since the Industrial Revolution that have not raised structural unemployment? More fundamentally, does AI imply greater inequality?
- What does AI mean for epistemology and the meaning of truth? How damaging might be its social impact?
- Is AI compatible with democracy?

Multiple books could, and no doubt will, be written on all of these topics. In this book we focus on the intersection of a few of these topics, ultimately with a view on what this means for strategic returns and risk levels. The great hope for AI, of course,

DISPLAY 4: AI VS. DEMOGRAPHICS AND CLIMATE IMPACT ON GROWTH

US		Positive Outcome	Middle Ground	Negative Outcome
Demographics	Immigration continues at recent pace	-0.6		
	Middle ground		-0.8	
	Harsh immigration policy			-0.9
Climate	No impact on growth	0.0		
	Academic research average		-0.2	
	Network for Greening the Financial System			-0.6
Labor-Capital Share	Corporations take more share	0.1		
	Constant share		0.0	
	Labor claws back share			-0.1
AI	Required boost from AI	0.5	1.0	1.6
	Techno-optimist	2.5		
	Average of recent academic studies		1.0	
	Acemoglu, "The Simple Macroeconomics of AI"			0.1

Current analysis and forecasts do not guarantee future results.

As of September 15, 2025 | **Source:** Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58; Network for Greening the Financial System; and AB

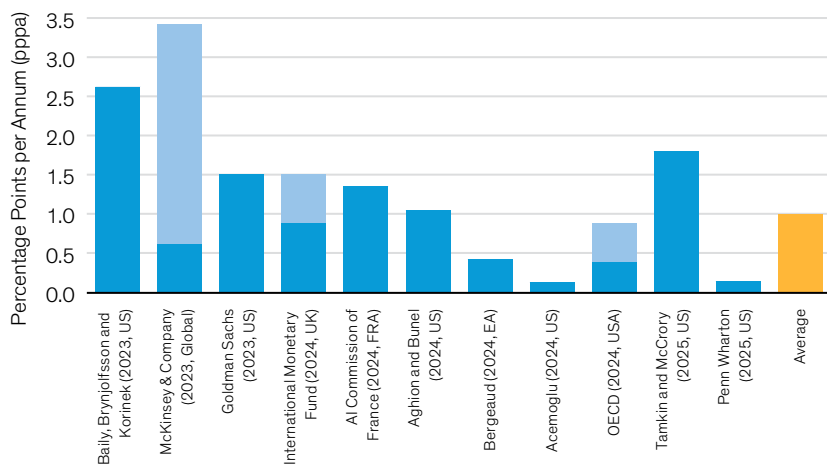
is that it potentially raises productivity. In our chapter “AI vs. Demographics,” we point out that one has to be humble in making the claim that it raises productivity by a given amount. It is not obvious that big changes in aggregate productivity are inherently predictable. The last time that >1 percentage points per annum (pppa) changes in long-run assumptions were made about productivity was during the technology, media and telecom bubble of 2000, and those forecasts had to be subsequently unwound. Thus, we are suspicious of approaches to forecasting the outlook that commence with an assumption about aggregate productivity growth at the outset. Instead, our preference is to “reverse engineer” the process by estimating the negative impact on growth from the other megaforces and asking whether it is plausible that AI can compensate for this drop.

It is easiest to make these numbers “add up” for the US. Our central case for the change in the size of the working-age population and for climate change (two of the biggest drags on strategic growth rates), imply that AI would have to raise the growth rate of productivity by 1 pppa over the next decade to keep growth steady at the average run rate of the past 40 years (*Display 4, page 8*). So, the question is, is a sustainable 1 pppa productivity growth plausible?

One way to answer this is to turn to history. The introduction of the steam engine in the early nineteenth century saw the first sustained increase in productivity in modern human history and led to an increase in per capita growth rates in the UK by 0.8 pppa. So, if AI is as good as the steam engine, then it could offset a large part of the decline in growth. Separately, we also appeal to recent attempts by academics to make this forecast (*Display 5, page 10*). The first thing to point out about such forecasts is that the range is implausibly wide, from 0.1 pppa to 3.5 pppa! So, the error bars on such forecasts are not particularly helpful. Nevertheless, the average is 0.9 pppa, again implying that AI might be able to counteract most of the decline in growth. Despite this, this would only keep growth close to the levels that we have been used to in recent decades, not an expansion of growth rates. Moreover, this ignores the downsides of AI in terms of inequality, politics and geopolitics. Making this balance outside the US is generally harder, given worse demographic outlooks and likely more muted AI benefits.

Changes in productivity can come about in socially positive and negative ways. Forecasts of productivity growth tend to be coy about how much of any productivity gain originates from making a unit of labor more productive versus through making a unit of labor redundant and automating a task that was not previously automated. Despite 200 years of waves of fear about automation and job losses, there has been zero evidence that technological change has led to a sustained increase in structural unemployment, although that aggregate point masks periods of extreme hardship for segments of society, so the social impact requires an analysis of the cross section and not just the aggregate. The economic point really is that despite all the fears, in the past technology has led to new jobs being created.

DISPLAY 5: ACADEMIC FORECASTS OF AI PRODUCTIVITY INCREASE

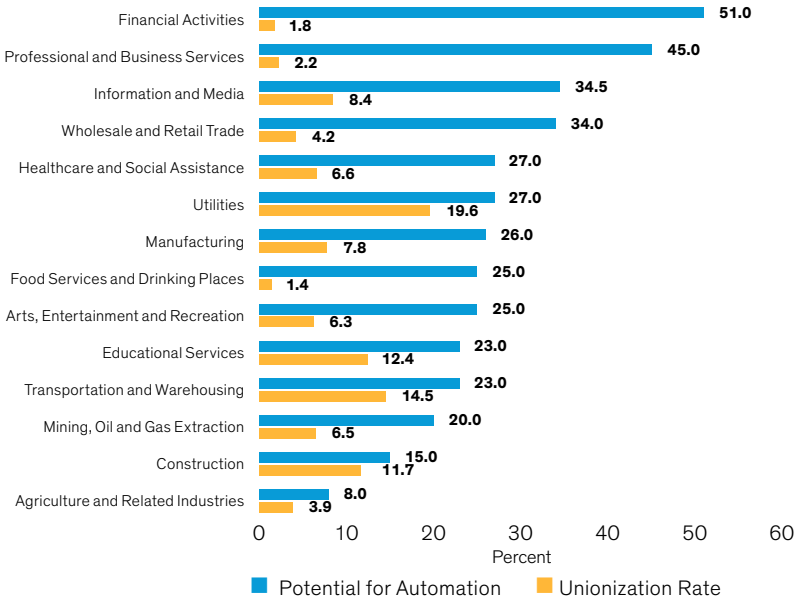


Current analysis does not guarantee future results.

When the source presents a range of estimates as the main result, the lower and upper bounds are indicated by light blue areas. In cases where predictions are made for total factor productivity, predicted labor productivity gains are obtained by assuming a standard long-run multiplier of 1.5 regarding the adjustment of the capital stock (Acemoglu, Aghion and Bunel, Bergeaud, and OECD). The estimates refer to the countries shown in brackets.

As of December 18, 2025 | **Source:** AI Commission of France; Alex Tamkin and Peter McCrory, *Estimating AI Productivity Gains from Claude Conversations*, Anthropic, November 5, 2025; Alexander Arnon, *The Projected Impact of Generative AI on Future Productivity Growth*, Penn Wharton Budget Model, University of Pennsylvania, September 8, 2025; Antonin Bergeaud, "The Past, Present and Future of European Productivity," presentation, ECB Forum on Central Banking 2024: Monetary Policy in an Era of Transformation, Session 4: Euro Area Productivity in the Short and Long Run, Sintra, Portugal, July 3, 2024; Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58; Francesco Filippucci, Peter Gal and Matthias Schief, "Miracle or Myth? Assessing the Macroeconomic Productivity Gains from Artificial Intelligence," working paper, *OECD Artificial Intelligence Papers*, No. 29, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2024, <https://doi.org/10.1787/b524a072-en>; Jan Hatzius, Joseph Briggs, Devsh Kodnani and Giovanni Pierdomenico, *The Potentially Large Effects of Artificial Intelligence on Economic Growth* (Briggs/Kodnani), Global Economics Analyst, Goldman Sachs, March 26, 2023; Martin Neil Baily, Erik Brynjolfsson and Anton Korinek, *Machines of Mind: The Case for an AI-Powered Productivity Boom*, Brookings Institution, May 10, 2023, <https://www.brookings.edu/articles/machines-of-mind-the-case-for-an-ai-powered-productivity-boom/>; Mauro Cazzaniga, Florence Jaumotte, Longji Li, Giovanni Melina, Augustus J. Pantoni, Carlo Pizzinelli, Emma J. Rockall and Marina Mendes Tavares, "Gen-AI: Artificial Intelligence and the Future of Work," staff discussion notes, International Monetary Fund, January 13, 2024; McKinsey & Company; Philippe Aghion and Simon Bunel, *AI and Growth: Where Do We Stand?*, Federal Reserve Bank of San Francisco, June 2024; and AB

DISPLAY 6: AI EXPOSURE VS. UNIONIZATION



Current analysis does not guarantee future results.

As of June 29, 2023 | **Source:** Accenture, US Bureau of Labor Statistics, US Department of Labor and AB

Despite this backdrop, we would point out that the current wave of technology does at least appear to be different from the rounds of automation of heavy industry that have occurred in recent decades, in that there is a marked difference between the exposure of professions to AI and the level of unionization in those professions. At the very least this implies a shift in the balance of labor versus capital bargaining power in favor of the latter (*Display 6*). In this book, we present a model of the trade-off between productivity gain and job displacement. Of course, in these early days we do not know the proportion of productivity gain that is likely to come from labor displacement versus labor enhancement, but the model allows us to gauge the scale of the trade-off.

We choose to pair AI with demographics in this book, as these issues are strategically entangled for more than one reason. The very big picture point is that the decline in the size of the working-age population in developed markets and China is the most predictable force that points to a lower-growth future than the one that we have been

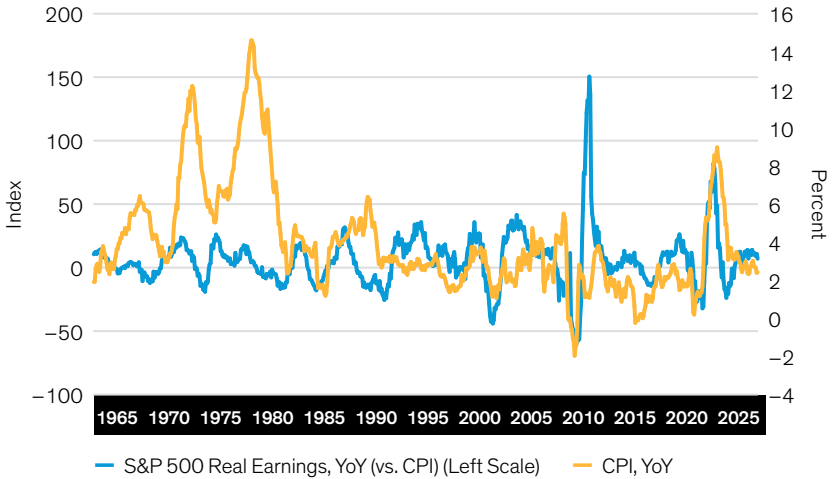
accustomed to for the last 40 years. If productivity is constant, then an approximately stable working-age population in the US and one that is set to decline by 1 pppa in China point to a material shift in starting assumptions about aggregate growth versus the post-1980 average. AI is the only force at scale that could counteract that (apart from mass immigration of course).

The other very different way to approach the interaction of these topics is via the question that has been asked: Do we need as many workers in the future? The fact that this question has been publicly aired and debated several times since the early nineteenth century, without ever being answered in the negative, makes us wary of the claim implicit in raising the question. Moreover, we are skeptical of the claim that automation from AI might balance out the reduction in the size of the working-age population. These are very different forces; and hence there is no need for them to be of the same order of magnitude. They are also likely to differ in their geographical and temporal impact (i.e., the likely slower impact on the demand for labor in Europe, where the working-age population is shrinking compared to the US).

In our second chapter on AI, "AI Capex: A Vertiginous Dialectic," we delve into the topic of whether the extraordinary capex expenditure related to AI can be justified. We present a range of possible paths for aggregate productivity increases, with assumptions about what proportion of such increases could be claimed as revenue by AI hyperscalers. The gains have to be large but are not inconceivable. Our conclusion is that it is possible to plausibly justify the valuation of the mega-cap tech names in the US; the bigger problem is that one is unlikely to have clarity about the revenue trajectory on a time horizon that is shorter than the depreciation cycle of the chips that consume the lion's share of capex budgets. While we have seen capex cycles in the past to rival the current one (the build-out of the railways, electrification, etc.), if we adjust for the depreciation of capex then this is possibly the most intense cycle of capex ever. This means that we will likely hit an "air pocket" at some point, where we simply do not have enough information about the earnings path. This is not bearish for the large-cap tech names, but it does imply that there is marked complacency about the level of volatility that should be expected. This leads to a need for defensive trades, which we discuss elsewhere in this book.

While AI is the only plausible force that can offset the structural downward forces on growth, we would point out that it is somewhat striking that the net impact on growth from AI is widely assumed to be positive. While our central forecast does not differ from this, we point out that this focuses on a specific set of assumptions about productivity improvements. Other possibilities are that AI is "too good" and aggressively displaces labor, hence undercutting demand; that it increases inequality, creating a social backlash; or that it proves very destabilizing to national politics or geopolitics.

DISPLAY 7: EQUITIES AS A REAL ASSET



Past performance does not guarantee future results.

YoY: year over year

From December 31, 1964, through January 31, 2026 | **Source:** FactSet, Macrobond, S&P and AB

Equities

A strategically positive view on equities is one result of the macro view articulated in this book, albeit a somewhat grudging one. Equities are “fully valued,” so one cannot, with any sense of equanimity, include a multiple expansion in a forecast at any time horizon. The risk to growth is that it falls rather than rises. Moreover, markets are concentrated. Yet, despite this somewhat inauspicious set of characteristics, we think the key case for equities rests in the evidence that it constitutes a real asset, and a liquid one to boot. As equilibrium inflation likely rises this will force investors to focus on the ability to generate real returns, and equities need to be at the core of that.

The evidence that equities can behave like a real asset at moderately elevated levels of inflation is important for this. We can show that as long as equilibrium inflation is not greater than 4% then the equity market is a generator of robust real earnings growth (*Display 7*).

We cannot dismiss the valuation and concentration of the market. The concentration level, as measured by the weight of the top 10 stocks within the US market, is not unprecedented. We have been at this level before, in the 1960s and pre-WWI. Other markets outside the US have also routinely exceeded this level of concentration.

Nevertheless, it is high compared to history. Our research suggests that the combined effect of high valuation and concentration is that it implies volatility will be higher, rather than that the market needs to deliver negative returns. Therefore, within our strategic positive position on equities we find space for defensive trades, especially where there are extenuating thematic reasons to support them, of which more below.

One plausible response to the strategic outlook outlined in this book is that surely the world is more “risky,” and hence this should be reflected in asset prices, specifically in risk premia. Asset pricing theory tells us that this should be the case. However, several things mitigate against this. First, one does not want to fall into the trap of saying “the future looks risky.” Surely, one could have said this at any stage back through time. Having said that, a greater than two-degree temperature increase and AI do feel like different kinds of risk that we have not seen before, and there is a good case that both forces materially broaden the range of possible paths in any long-term forecast. Moreover, the greatest change in the last 18 months has been the rupture in the geopolitical order. As we suggested earlier, no one has a model for the price impact of the ending of the post-war US-led order or the risk that NATO comes to an end. Second, there is very little evidence that the equity risk premium anticipates risks of this nature, so it could be wrong for a long period to include such an assumption.

One can pore over the fine details of strategic equity forecasts. The fine points of changes in growth forecasts might move the forecast for annual equity returns up or down on a scale of about 50 basis points (bps). However, changes to the assumptions of the equilibrium equity risk premium (ERP) can easily shift the annual return assumption by 200 bps or more. This is a problem for any strategist. Changes in equilibrium ERP assumptions are always more art than science. What period of history constitutes a basis for an equilibrium assumption? With the Shiller price to earnings at 39X, the brute fact is that there isn’t even room to increase the ERP if one wanted to. One would be left with a negative equity return forecast and a recommendation to strategically sell equities. That does not feel like a move that can be justified.

Maybe this sounds like an intellectual non sequitur, or the tail wagging the dog. Perhaps. But for long-horizon investors, we feel that the evidence that equities can deliver positive real returns is more important, even if those returns are substantially below those that investors have become accustomed to in recent decades. There are mitigating factors behind the high valuations: evidence that profitability has become more persistent, the observation that real rates do not need to mean revert higher and also the profit share of GDP moving higher. As we said before, there have to be limits to this, but there is no evidence that such a limit is approaching soon (however remarkable that may be from a social perspective).

The complacency about volatility means that we want to incorporate defensive trades, especially where there is a thematic element offering strategic support. One such area

is healthcare. We initiated a strategically positive view on the global sector in 2025, which we continue to maintain. We cover this in the chapter “US Healthcare: Attractive Valuation for a Structural Growth Opportunity.” Healthcare fits with the structural macro themes outlined in this book in that it is likely to be a long-run beneficiary of the demographic evolution to an older population, and it is also likely to be a beneficiary of AI (both in drug development and in the care sector). The sector has outperformed but still trades on a valuation discount to its long-run average. Yes, it comes with near-term regulatory risks, but these are different from the risks elsewhere in a portfolio. Moreover, from the point of view of portfolio design, it gives exposure to an element of growth in the total portfolio that is not dependent on large-cap tech.

Positioning

The strategic outlook of elevated long-term equilibrium inflation, somewhat lower growth and high starting multiples implies a future of lower real returns and less diversification available from traditional sources of return. It is not, however, a bearish outlook, as we can make a case that the major asset classes do deliver positive real return. We show how our capital-market expectations differ from the average of the last 15 years in *Display 8, page 16*. The conclusion is that investors are able to access a smaller return/risk “space” than they were before.

We have made the case in previous books that for investors who need to defend purchasing power over other objectives, which is the vast majority of investors, that inflation should be a benchmark. This implies a need to strategically overweight real assets, with equities being the largest real asset.⁵ We remain underweight nominal duration and continue to advocate positions in private assets, factors and non-fiat assets (*Display 9, pages 17–18*).

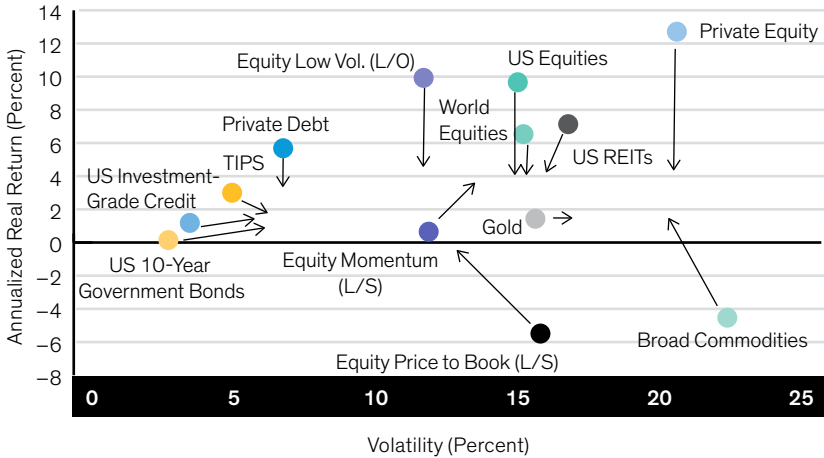
Praxis

The latter part of this book considers the process of investing and what the strategic outlook implies for changes to the design of portfolios. Rather than only opining about the strategic outlook and the prognosis for asset-class returns, we think that a shift in investment paradigm is sufficient to change *how* people invest.

We think that this points to greater interest in the total portfolio approach (TPA) as a logical response to a changed investment paradigm. The idea has been around for over a decade, yet we have seen a marked increase in the number of questions that we have about the approach from clients. There are two reasons for this: First, investors, in some form, agree with our view of lower returns and less available

⁵ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>.

DISPLAY 8: CAPITAL-MARKETS EXPECTATIONS SCATTER



Historical analysis and current forecasts do not guarantee future results.

L/O: long-only; L/S: long/short; REITs: real estate investment trusts; TIPS: Treasury Inflation-Protected Securities. The circles represent real returns and volatility from January 2010 to December 2022 for the major return streams investors can buy. The arrows represent the AB Institutional Solutions team's forecasts for the next five to 10 years. Private equity return data are from the US Private Equity Index from Cambridge Associates, compiled from 1,562 funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses and carried interest. Data are provided at no cost to managers. Private equity volatility is estimated from MSCI US Small Cap Value Index, with 15% leverage. For private debt, historical and future volatility is expressed as volatility of public US investment-grade credit. The number is between the historic volatility of public US high-yield fixed income and the Prequin Direct Lending Return Index. Factor future volatility is assumed to be in line with the post-1950 historical average.

As of October 5, 2023 | **Source:** BlackRock, Cambridge Associates, FactSet, Federal Reserve Bank of St. Louis, Kenneth R. French Data Library, MSCI, Prequin and AB

diversification. Second, investors see TPA as a route to integrating investments in public and private assets in portfolios.

Our chapter "Portfolio Design as Gesamtkunstwerk: The Total Portfolio Approach" explains why we think interest in TPA will continue to grow, what it is and what it means for asset allocation. At its heart, TPA is about removing silos from investing. An example of this is not to allocate assets in a manner predicated primarily by asset class, but instead to consider the portfolio as a set of return streams that could represent asset classes, factors or strategies. While most adopters of the approach would probably agree on this as a definition, what this means in practice is very

DISPLAY 9: STRATEGIC ASSET-CLASS VIEWS

Asset Class	Recommendation vs. 60/40	Comment
Developed Equities		
Overweight		
US Large-Cap	+	Real asset; attractive long-term returns; "US exceptionalism" still holds. Valuation and market concentration are sources of risk
US Small-/Mid-Cap	+	Historically an area of strong alpha generation by active managers
International Developed	Neutral	Attractive valuations but greater drag on growth from demographics and deglobalization than US
Japan	+	Positive inflation dynamic; corporate reform boosting corporate earnings and improving long-term fundamentals and shareholder returns; attractive valuations; diversification benefits
Europe	Neutral	The challenge is lack of growth drivers; the recent increase in infrastructure and defense spending might help. Valuation not enough, but also prevents being underweight
EM Equities		
Underweight		
EM ex China	Neutral	Positive growth premium over developed markets; better demographics (India, Africa); structural sentiment measures supportive; deglobalization to improve the diversification role of EM; geopolitics and policy are risks in some countries; President Trump poses increased risks to outlook (protectionism, higher USD)
China	-	Poor demographics, real estate overhang; policy and geopolitical risks to outlook despite cheap valuations
Style Premia		
US Growth	+*	Expensive but structural tailwinds (greater persistency of ROE; tech and AI theme exposure)
EAFE Dividend Yield	+*	Attractive valuations; defensive properties and volatility reduction for a less robust strategic outlook outside of the US; attractive source of income
Duration		
Underweight		
US Government: Long	-	Structural risks: fiscal sustainability, de-dollarization; inflation volatility; diminishing diversification role
US Government: Short	+	Better compensation for (lower) risk than long bonds
Euro Government Bonds	-	Yields attractive vs. history; balanced against this is geopolitical and domestic political risk

Asset Class	Recommendation vs. 60/40	Comment
Real Assets		
Overweight*		
REITs and Natural Resources Assets	Neutral	Real asset; strategic inflation hedge
US TIPS	+*	Attractive long-term returns; inflation protection
Infrastructure	+	Inflation protection in the form of offering positive long-term real return in both moderate- and high-inflation environments; beneficiary of energy transition
Private Assets		
Private Equity	Neutral	Expect zero multiple expansion in aggregate, higher cost of debt than most of its history; many investors are already overweight; high fee and liquidity concerns
Private Debt	+	Attractive current and prospective yield; floating nature provides inflation protection; beneficiary of retrenchment by traditional providers of credit
Non-Fiat		
Gold and Crypto	+	Hedge against debasement risk for G7 currencies; de-dollarization beneficiary

Historical analysis and current forecasts do not guarantee future results.

EAFE: Europe, Australasia and the Far East; EM: emerging-markets; REITs: real estate investment trusts; ROE: return on equity; TIPS: Treasury Inflation-Protected Securities

*Asset has a small or no benchmark allocation.

As of April 13, 2026 | **Source:** AB

different. This leads to a discussion of the hurdles to adopting a TPA approach, which are legion. Adopting TPA requires significant changes to governance structure and the definition of risk, the kinds of changes that need to be undertaken in a humble way. Moreover, it also likely implies organizational changes and career risk for those individuals steering the transition. Thus, adoption in its pure form will likely take considerable time, and we are likely to see many “halfway houses” adopted.

In this book we present our view of what constitutes TPA and show how it can differ from a traditional strategic asset allocation. The resulting portfolio ends up with a greater allocation to factor and active strategies, and also has more space for niche strategies that do not easily fit within traditional investment buckets. We think that greater adoption of TPA will also lead to changes in asset allocation in aggregate. For example, we think it would lead to a higher exposure to real and private assets, more investment in factor strategies, and likely a lower allocation to nominal bonds (as TPA encourages a broader set of vehicles to act as diversifiers of equity risk). We see this

as building on our previous work on the definition of idiosyncratic alpha, as identifying returns that have this characteristic is important for a TPA portfolio.⁶ More generally, this fits our appeal for a greater focus on process in investment, an idea we explored at length in our book *Are We Human or Are We Dancer?*⁷

In “Chapter 8—The Future of Asset Management: The Macro Imperative,” we go on to consider what a changed strategic investment outlook means for the asset-management industry more generally. The need to generate returns that can protect purchasing power and the likely ongoing increase in the role of private assets in portfolios imply that there is a continued increase in multi-asset investing, and also in OCIO (outsourced chief investment officer) mandates. Meanwhile, tie-ups between insurance companies and asset managers will probably increase as the role of insurance companies as providers of long-term capital becomes even more important in a world where more of the marginal raising of capital is happening in private markets.

One of the biggest investment challenges is the contemporary retirement problem of higher inflation, greater longevity (a nice problem to have of course), lower expected returns, reduced availability of defined benefit schemes, real value of state safety nets under threat, given debt levels and demographic challenges. This is primarily a social and political problem, and applies in many large economies. However, it is the role of the asset-management industry to help find solutions to this problem.

Yet another link between the future of the asset-management industry and macro forces lies in the role of digital assets. The initial focus on this is the role of crypto, and we continue to think that it has a role to play in a world where some non-fiat exposure becomes desirable in portfolios. However, the greater long-term role for the industry is likely to be in the tokenization of assets and the greater ease this allows in the inclusion of illiquid real assets in portfolios. Finally, in chapter 5, we consider the role of AI in investment and, in particular, the way that this likely changes the structural form of financial models. We are skeptical of the extent to which, in the near term, AI can automate investment decisions, in part because of the self-referential nature of financial markets.

Dystopia

The final chapter of this book takes the form of Galilean dialogue and is clearly fictional. However, despite the use of fiction, the topic is very serious. We discuss the twin features of modern investing: the dominance of passive cap-weighted indices

⁶ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *A Preliminary Language for a Post-Global World*, AllianceBernstein, May 2024, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-a-preliminary-language-for-a-post-global-world.html>.

⁷ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Are We Human or Are We Dancer?*, AllianceBernstein, July 2021, <https://www.alliancebernstein.com/content/dam/global/insights/insights-whitepapers/are-we-human-or-are-we-dancer.PDF>.

and the emergence of a small number of mega-cap companies. We do not suggest that either feature has caused the other, but they have become mutually entangled and represent a dystopian symbiosis. It is dystopian as the role of mega-cap companies stifles competition, and the degree of concentration in popular passive indices makes those “passive” investments riskier than they have been in the decades since they became so popular.

There is an argument to be had about what the emergence of mega-cap companies means for the state of competition and the functioning of capitalism. It could be claimed that they represent a triumph of capitalism. However, we are not so sure. Despite oligopolies potentially dampening competition, they also point to a shift in the bargaining power between corporates and the state, with the emergence of such large companies arguably pointing to lax antitrust enforcement and a process of regulatory capture. This is a dilemma for those who might want to enliven the functioning of a capitalist economy—a move to promote competition might imperil the returns to a concentrated market. The practical consequence is that there may be complacency about what volatility investors will experience.

The overall narrative of this book claims that there is a shift in the structural forces that ultimately underpin the returns of financial assets, which means investors should expect returns and the correlations between them to be different compared with what has proved to be a rather special period since the early 1980s. This is also bound up with questions of market structure and the power of corporates versus other stakeholders. The message is not bearish, but it does imply that investors should adapt their strategic asset allocation. We suggest that one possible response to this is to increase the focus on the total portfolio in a way that moves away from distinct asset-class silos.

Part I: US Exceptionalism, the Dollar and Gold

Chapter 1—The End of US Exceptionalism?

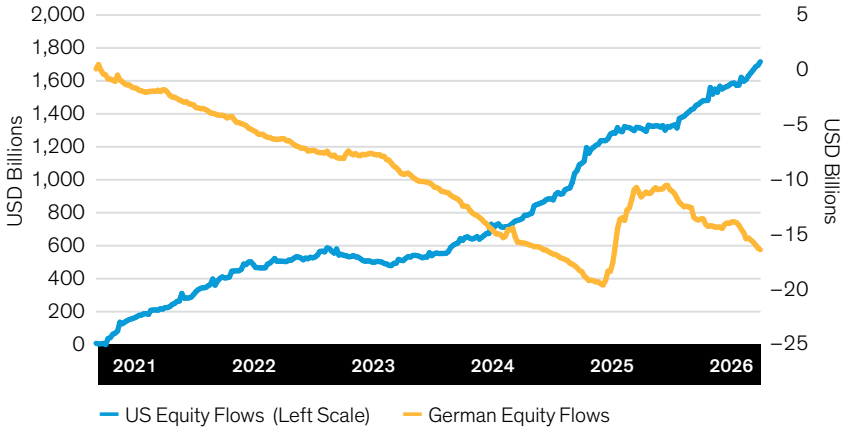
We take a view in this chapter that may be unpopular—defending the case for US exceptionalism. We also, by corollary, defend the case for a strategic overweight in US equities. This is not necessarily the case for US dollar exposure in general or US bonds, where risks are different. We do think there is a case for non-US investors to hedge more of their US dollar exposure, which we discuss in the next chapter.

In meetings with clients over the last 18 months, the question of the status of US assets has dominated conversations. There have been tactical attempts to allocate elsewhere, for example a post-“liberation day” pivot to Europe, and we have seen the case made for more strategic attempts to overweight other regions. However, our position is that investors need a position in US equities as a key strategic part of an allocation to try and eke out positive real returns in a low-return world. A lot of the commentary that we hear is based on the idea that US exceptionalism has a time limit. However, this belies a misunderstanding. The true exceptionalism is strategic, not tactical.

It will be unpopular for us to say that the US is exceptional, as it implies overweighting a market that already accounts for more than 70% of developed-market benchmark equity weights—a market that is expensive and concentrated, and where there has been an assault on US institutions and a hit to trust in the US that is probably permanent for global investors. Nevertheless, we think that US exceptionalism with respect to equities still stands. Yes, it has taken a knock, but some elements are genuinely sticky. For the dollar and US bonds, the reason to own them and, hence, the risks are somewhat different, as we discuss below and in other chapters in this book.

The last US election led to an almost euphoric preference for US equities on the part of global investors, which abruptly reversed in the wake of the policy announcements around “liberation day.” This in turn has led to a more positive turn in US sentiment more recently. The scale of the about-turn in investor sentiment in 2025 is apparent in the relative net flows into the US and Germany. The flows into US equities abruptly stopped around the date of the tariff announcements. Germany, meanwhile, which had been deeply unloved by investors (for many good reasons), saw inflows that, in one go, unwound all outflows since the end of 2023 (*Display 10, page 24*). It should be noted that while both domestic and international investors bought German (and other non-US) equities, the picture in the US was split. US domestic retail aggressively “bought the dip”; institutional and international investors sold. Since then, US inflows have recovered and Germany has returned to gradual net outflow.

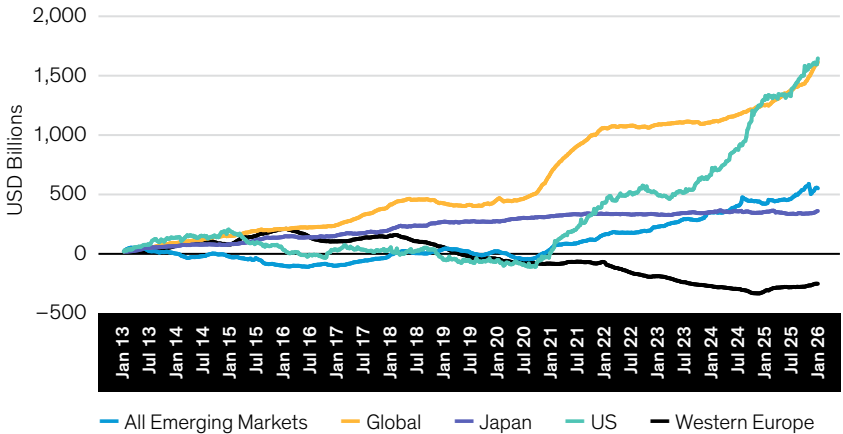
DISPLAY 10: US AND GERMAN EQUITY FLOWS



Current analysis does not guarantee future results.

As of May 13, 2026 | **Source:** Emerging Portfolio Fund Research Global (EPFR) and AB

DISPLAY 11: CUMULATIVE REGIONAL EQUITY FUND FLOWS



Current analysis does not guarantee future results.

Data from January 1, 2013, through March 27, 2026 | **Source:** EPFR and AB

The US has certainly been exceptional when it comes to equity flows and valuation. For bearish investors, this is not a happy combination: it implies that a loss of exceptionalism means that the market has a long way to fall. The US is far ahead of other regions in terms of cumulative flows (*Display 11, page 24*). However, as we outline below, we do not think that the cumulative flow difference between the US and the rest of the world (when it comes to equities) needs to reverse.

Valuation does matter and does imply a drag on US performance, relative to the rest of the world, over the medium to long term. It is perhaps the Achilles' heel of the US market. However, growth matters too. Over the last 30 years, the relative performance of regions has been predominantly determined by relative earnings growth. Therefore, using valuation as a way to determine regional allocations has not worked for a long time. Put another way, to underweight the US strategically would be to implicitly forecast that US earnings growth will underperform the rest of the world. We do not think that is likely.

Demographics: A US Advantage in Workforce Growth

Probably the clearest case for US exceptionalism is demographics. Compared with other large economies, the US has a workforce that is expected to grow. We note that this growth is significantly less than the rate that people have become accustomed to over the last 40 years. This period saw all the baby boomers enter the workforce; it also saw a significant increase in the female participation rate and plentiful migration. These are forces that have either run their course or are now going into reverse. Nevertheless, the US working-age population is expected to grow by 0.2% annualized between now and 2050 (compared with a 1.3% growth rate from 1980 through 2010).⁸

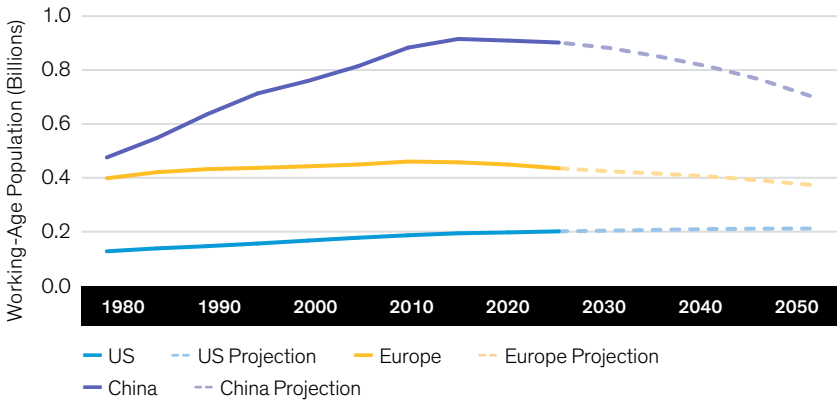
In other advanced economies, such as Europe and Japan, the working-age population is in outright contraction. In Europe it is expected to contract by 0.6% annualized between now and 2050. The political turn against migration means that migrant labor is not a realistic option to offset this decline. In China the situation is even worse, with a contraction in the workforce of a full 1% annualized expected over this period (*Display 12, page 26*).

We can express the expected growth rate of the economy as the number of workers multiplied by their productivity. We have written elsewhere about why we would not be confident making a forecast that the aggregate productivity improvement of AI can offset other downward forces on growth.⁹ Anyway, forecasting productivity has proven almost impossible in recent decades. Thus, this relatively better outlook for the number of workers sets the US up for better growth than other major regions.

⁸ This assumes, for the purposes of argument, that people still retire at 65. They won't, but that is a narrative we have explored elsewhere and doesn't alter the relative regional conclusions on this point.

⁹ Inigo Fraser Jenkins et al., *Machines, Democracy, Capitalism and Feudalism—Five Books for a Different Age, and What It Means for Investing*, AllianceBernstein, June 12, 2024, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/machines-democracy-capitalism-and-feudalism-five-books-for-a-different-age-and-what-it-means-for-investing.html>.

DISPLAY 12: THE US IS STILL A DEMOGRAPHIC EXCEPTION AMONG LARGE ECONOMIES—JUST LESS SO



		US	Europe	China
Annual working-age population growth, %	1980–2010	1.29	0.48	2.08
	2025–2050	0.20	–0.61	–0.99
Female labor force participation rate (15+ age), %	1980	51.5	40	–
	2010	59	50	–
Average annual net migration (millions)	1980–2010	1.04	0.7	–0.3

Current analysis and forecasts do not guarantee future results.

As of January 17, 2025 | Source: Macrobond, United Nations (UN) and AB

Counterargument on Demographics

There are possible counterarguments here. For example, a very harsh turn in immigration policy could decrease the growth rate of the US working-age population. The projections in the above table assume that future migration patterns for the US and other regions will continue as they have historically. Given the political sensitivity of migration in many countries, this trend cannot be assumed.

The Brookings Institution recently updated population growth-rate assumptions incorporating different immigration scenarios. The “main” scenario assumes a continuation of recent migration patterns, with annual net immigration levels into the US of between 850,000 and 980,000 people. The “high” immigration scenario assumes annual net immigration of 1.5 million people per year—a level only occasionally approached in the recent past. The “low” scenario assumes between

350,000 and 600,000 net migrants annually, which occurred during the latter years of the first Trump presidency. There is also a “zero” immigration scenario. In *Display 13*, we show what these scenarios imply for the annual change in the total population growth rate to the year 2100. The forecasts show that the recent trend rate of immigration is a requirement to maintain the US demographic advantage over other major economies. A low immigration scenario pushes the US into a net declining population, although still less so than in China and Europe. A zero net migration policy shrinks the population at a faster rate, but still perhaps no worse than other economies.

However, the Brookings forecasts are for 2100. If we take the UN population forecasts for 2050, which underpin the rest of our demographics analysis, then the zero-migration scenario for that time frame shows a 0.05% annualized reduction in total population. These are forecasts for the total population, because immigrants tend to be working age; the impact on the total working-age population would be worse than this. Actually achieving zero migration would be hard, and although this implies a significantly harsher outlook in terms of absolute growth rates than recent levels, relative to China and Europe it still is somewhat “exceptional.”

The other possible counterarguments relate to health. If there was a mass move away from vaccination, then that could conceivably have a negative impact on population growth via higher child mortality, for example. However, the potential scale does not seem to be significant enough. We would have cited obesity as a significant factor that would undermine US demographic advantages, but recent medical developments have ameliorated that problem.

DISPLAY 13: POPULATION GROWTH-RATE ASSUMPTIONS

	Growth Rate (% p.a.) by 2050	Growth Rate (% p.a.) by 2100
UN		
Medium	0.38	0.27
Zero Migration	-0.05	-0.33
Brookings		
High		0.36
Middle		0.13
Low		-0.05
Zero Migration		-0.47

Current analysis and forecasts do not guarantee future results.

p.a.: per annum | As of November 30, 2023 | **Source:** Brookings Institution and AB

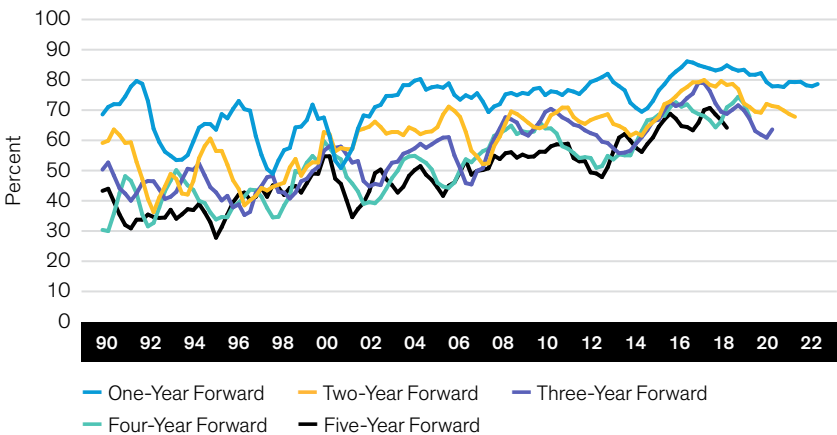
Structurally Higher and More Persistent Corporate Profitability

It has long been obvious that US companies have enjoyed profitability and productivity advantages that overseas rivals lack, however much they try to emulate them. Some of this gap appears to stem from organizational and management choices of US firms; some also comes from a supportive regulatory and tax environment.

The basis of the productivity advantage is deep-rooted and hard to emulate. For example, Nicholas Bloom showed in 2012 that US companies had a productivity advantage over European companies due to the productivity of their information technology as well as differences in people-management practices.¹⁰

DISPLAY 14: THE CASE FOR US GROWTH—HIGH-PROFITABILITY US COMPANIES ARE STAYING THAT WAY FOR LONGER

Percentage of High-ROE Decile US Stocks That Remain in the Top Two Deciles 1–5 Years Later



Historical analysis and current forecasts do not guarantee future results.

In each quarter since 1990, we split the stocks in the MSCI USA Index into groups by return on equity (ROE) deciles (within sectors) and calculated the percentage of stocks in the high-ROE decile at a specific point in time in the highest two deciles over the next 1–5 years. A four-quarter smoothing is applied to the quarterly percentages.

Data from January 1, 1990, through June 30, 2023 | **Source:** FactSet, MSCI and AB

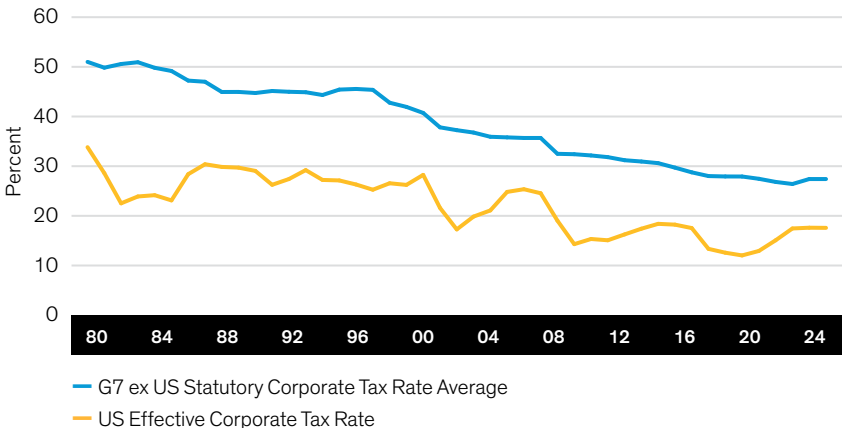
¹⁰ Nicholas Bloom, Raffaella Sadun and John Van Reenen, “Americans Do IT Better: US Multinationals and the Productivity Miracle,” *American Economic Review* 102, no. 1 (February 2012): 167–201, <https://www.aeaweb.org/articles?id=10.1257/aer.102.1.167>.

This lead is evident not just in a gap in the level of productivity between US companies and those in other regions, but also in the persistence of that productivity at the underlying firm level. We can show (*Display 14, page 28*) that the probability of a high-ROE company in the US remaining a high-ROE company five years later has been gradually increasing over time. This relationship is not the same in other regions. Note that this is an equal-weighted analysis, so it is not due to the platform benefits of the mega-caps. When it comes to justifying valuation differences, the persistence of ROE is a critical factor.

It is true that corporate governance changes in Japan might bring about an improvement in ROE there. But this author remembers writing a note on the case for convergence of Japanese ROE while he worked for Lehman Brothers 20 years ago. So, directionally this might happen, but let's not hold our breath to see actual convergence.

The US advantage is not just from great people management. US companies enjoy an incredibly favorable regulatory environment. This is most clear when it comes to tax treatment. As *Display 15*, shows, the US effective corporate tax rate has been trending down since the 1980s; at less than 18%, it is significantly below the 27%

DISPLAY 15: A SIZABLE GAP BETWEEN US AND G7 EX US CORPORATE TAX RATES

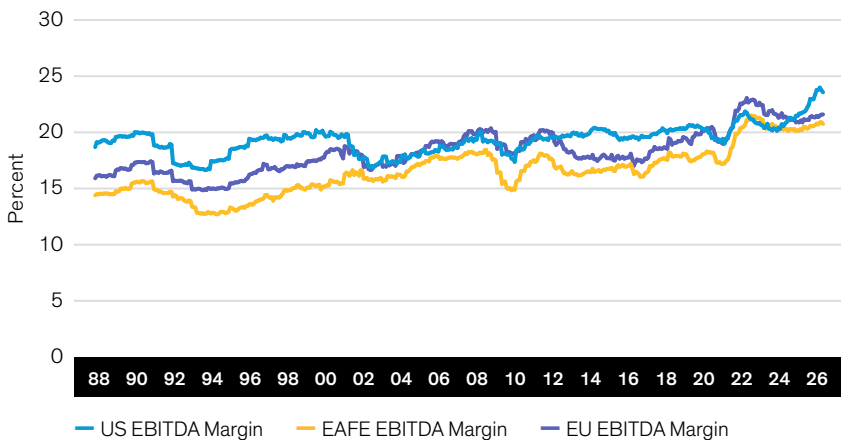


Current analysis does not guarantee future results.

US effective tax rate is calculated from aggregate US corporate profits before and after tax.

As of April 11, 2025 | **Source:** Federal Reserve Bank of St. Louis, Macrobond, Tax Foundation and AB

DISPLAY 16: US, EAFE AND EU EBITDA MARGINS



Current analysis does not guarantee future results.

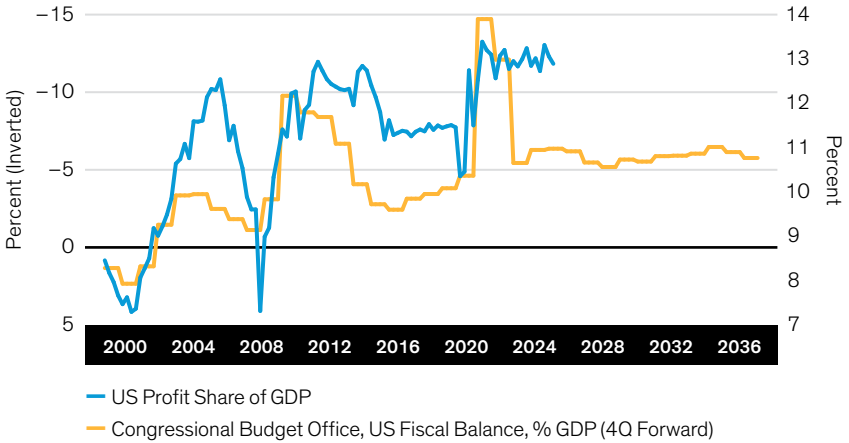
EAFE: Europe, Australasia and the Far East; EBITDA: earnings before interest, taxes, depreciation and amortization

As of March 30, 2026 | Source: FactSet and AB

average of other major developed countries. While this is not a secret—and so, in theory, easy to emulate—it is not likely to be a change that other countries enact. Indeed, pre-Trump, the international consensus was clearly moving the other way. Under Trump 2.0, it seems clear that favorable corporate tax treatment will continue.

The net result of this structural environment is that the US has a profit share of gross domestic product (GDP) that is exceptional compared with the rest of the world (*Display 16*). This advantage has been growing in recent decades, and in part explains the excess earning growth of the US over the rest of the world. While this is an unmitigated positive for shareholders, it does raise more fundamental questions. Are there social limits on the profit share of GDP? We think that there are. Our instinctive view is that profit share of GDP in the US “should” decline over time, which could erase some of the excess earnings growth of US corporations. However, despite that long-term view, for the foreseeable future we think that profit share will remain high. First, the development of AI is firmly in corporate hands. This is a choice that the US is making socially and politically; the decisions on what AI is developed and released will be determined in a way to maximize corporate profitability. Second, the Trump administration has so far focused on tariffs; any potential pivot to deregulation could grow corporate profit share even further.

DISPLAY 17: PROFIT SHARE AND DEFICIT



Current analysis does not guarantee future results.

As of March 30, 2026 | **Source:** Bureau of Economic Analysis, Congressional Budget Office, Macrobond and AB

We note in passing that there is a persistently positive relationship between corporate profit share and budget deficits (*Display 17*), so some of the “profit share exceptionalism” has less-positive connotations from a debt perspective. Nevertheless, it seems set to continue for the foreseeable future.

Counterargument on Profitability

There are also counterarguments to this point on the productivity advantage. The first would be that the laxer nature of US antitrust policy in recent years has enabled the emergence of platform companies that stifle competition. The more extreme version of this counterargument is the one made by Yanis Varoufakis, which claims that capitalism has actually died—in the sense that competition and profit are no longer the driving force, and that platform tech companies collect rent rather than profit.¹¹

There is then the argument that if tariff barriers are erected, they could further erode productivity. It is very hard to collect data that could give a meaningful argument on this point, but if this was indeed a force, then the existence of counter tariffs could also dent competition elsewhere.

¹¹ Yanis Varoufakis, *Technofeudalism: What Killed Capitalism* (Melville House, 2024).

Geographic Security of US Energy

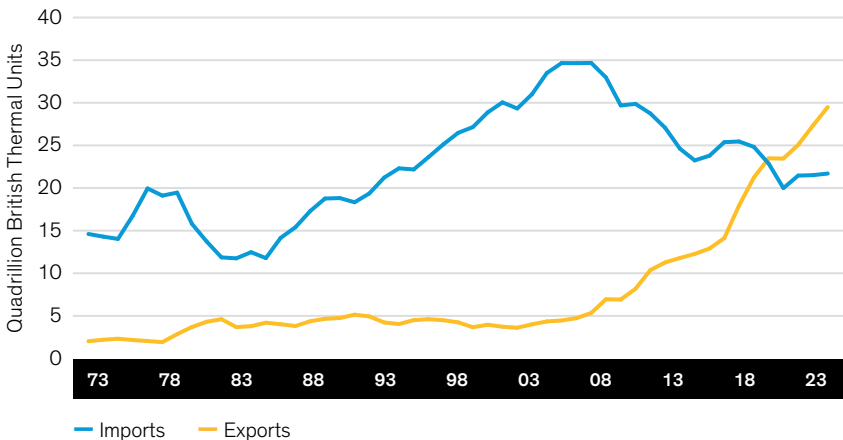
The US enjoys a security of energy supply that is unmatched by other major economic regions such as Europe, China and Japan. This gives the US a cost advantage and the ability to ensure continuity of supply in the face of geopolitical pressure, as was clearly not the case for Europe when Russia invaded Ukraine.

On the back of the shale revolution, the US became a net energy exporter by 2019 (*Display 18*). Even under the Biden administration, US oil production continued to surge. In 2024, the country produced a record 13.2 million barrels of oil per day on average, according to the US Energy Information Administration, cementing its position as the world's largest oil producer. The role of the US as an energy exporter has shown up in the recent war with Iran, in seeing the dollar appreciate in the early stages of the conflict as oil prices rose.

Counterargument on Energy Security

A counterargument is emerging to US energy security, positing that a rapid transition in other regions could undermine this advantage. This would not be a net negative to the US per se, but it would at least remove an important strategic advantage. We do think that this is eventually likely, but it does not appear to be a near-term prospect. The increase in renewable generation over the last 30 years has really only displaced coal in Europe's energy mix, while the share of oil and gas has barely moved.

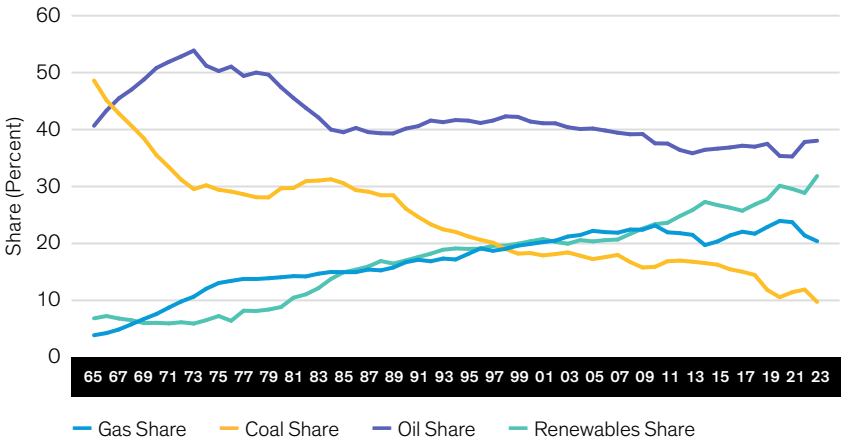
DISPLAY 18: US ENERGY IMPORTS VS. EXPORTS



Current analysis does not guarantee future results.

As of March 30, 2026 | **Source:** Macrobond, US Energy Information Administration and AB

DISPLAY 19: EUROPEAN ENERGY SOURCES: A LONG WAY TO GO UNTIL ENERGY SELF-SUFFICIENCY



Current analysis does not guarantee future results.

As of December 31, 2023 | Source: Our World in Data and AB

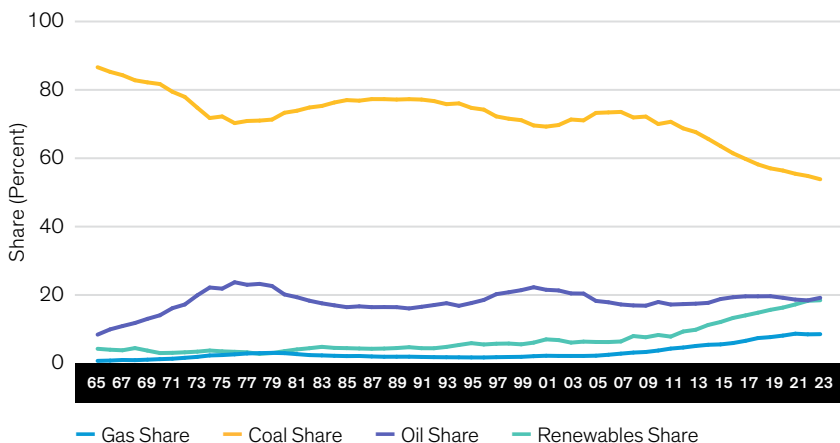
According to Eurostat, eurozone energy import share has risen slightly, from 58% in 2003 to 60% by 2023, despite this period seeing the fastest eurozone adoption of renewables (*Display 19*).

There is a case that faster development of renewables would be sufficient to make Europe energy self-sufficient, for example via development of North Sea wind power. In time, this development could bring down inflation in Europe's energy input cost. However, huge investment is needed both in generation and in the development of the grid, so this solution remains some way off. Moreover, there are limits to how large a share of power can be drawn from renewable, intermittent sources. The investigation into the Iberian Peninsula's recent massive power failure is still ongoing, but relying on too high a share of intermittent energy sources seems to be a possible contributing factor at the very least.

China has become the epicenter of the production of key elements for the energy transition, notably solar panels, and the sharp decrease in their price has accelerated forecasts of adoption rates. Nevertheless, as *Display 20*, page 34, shows coal still dominates Chinese power generation, and 7% of this coal is imported, according to the International Energy Agency.¹²

¹² "China" (website), International Energy Agency, 2026, <https://www.iea.org/countries/china/coal>.

DISPLAY 20: COAL REMAINS THE DOMINANT SOURCE OF CHINESE ENERGY



Current analysis does not guarantee future results.

As of December 31, 2023 | Source: Our World in Data and AB

Other Aspects of US Exceptionalism: Market Size and Climate

Another dimension of US exceptionalism is the size of its home market. Yes, the EU potentially constitutes a larger market than the US, but it still has national distinctions, including banking systems and language.

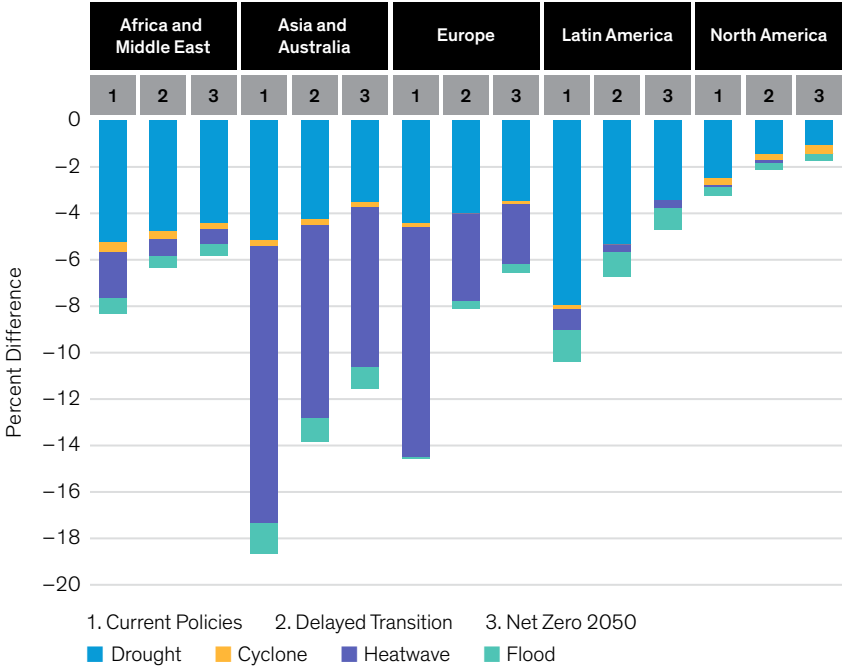
A final point in favor of exceptionalism is that some models for the impact of climate change on the global economy suggest that the US may feel a below-average negative impact. We do not explore this point in detail here—not because it is not significant, but because the scale of the errors in making such forecasts means that one would not wish to pin a whole argument on it.

Our view, as laid out in recent research, is that it is socially and politically **almost impossible to achieve net zero by 2050**, especially when adding the power demands of AI.¹³ This means it is highly likely that we will see global warming of more than two degrees Celsius. The big unknown is what this warming will mean for growth rates. The consensus is that it will be negative, but with large error bars around the forecasts.

¹³ Inigo Fraser Jenkins and Alla Harmsworth, *Can the Energy Transition Happen? And If Not, What Does That Mean for Asset Allocation?*, AllianceBernstein, November 18, 2024, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/can-the-energy-transition-happen.html>.

DISPLAY 21: TEMPERATURE PATHWAYS AND REGIONAL GDP

North America Relatively Less Affected Than Other Regions?



Current analysis and forecasts do not guarantee future results.

All values are differences from baseline (a hypothetical scenario with no transition or physical risk). Simple averages are used across countries when available for a given region. Latin America is composed of Chile, Mexico and Argentina, except for flood, which is available only for Mexico. North America includes the US and Canada, but only the US for flood. Africa includes Egypt and South Africa, but only South Africa for flood.

As of November 7, 2023 | **Source:** Network for Greening the Financial System and AB

Several forecasts, notably those run by the Network for Greening the Financial System and used by many central banks, assume that the negative impact on the US will be less than the global average. While that global average is important for determining the human impact, what matters through the blinkered lens of making a return forecast for financial markets is the impact of climate change on a GDP-weighted forecast for the world. This somewhat lowers the potential advantage to the US but still points to the possibility of a less unfavorable outcome for the US than for other major economies (*Display 21*).

The Case Against US Exceptionalism

Erosion of US Soft Power and Standing Back from International Institutions

We have laid out some of the potential counterarguments to US exceptionalism within the discussion above. However, some of the stronger arguments against continued US exceptionalism are qualitative. One is the impact of the US potentially standing back from some of the multilateral institutions that underpinned the US-led post-WWII order, such as the International Monetary Fund and North Atlantic Treaty Organization, as well as other institutions in which the US has historically had significant influence, such as the UN.

Similar claims can be made more generally about US “soft power.” This power can take many forms, such as cultural, general sentiment of the populace and aid. On this basis, US standing appears to have taken a significant hit. What we do not yet know is the marginal impact above and beyond tariff effects on international trade. The impact is perhaps clearest in defense policy. Aside from a trajectory of higher defense spending, e.g., in Europe, there is a debate about where these additional funds are spent. At the moment, a significant share is spent on US products, but the change in the geopolitical frame of reference makes it clear that a significant shift is afoot, with the likelihood that more of these funds will be spent locally.

Likewise, China has engaged in a new “Scramble for Africa” over the last decade with its “Belt and Road Initiative.” There were signs of a negative backlash against this effort, which could give an advantage to the US, but there are early indications that the shutdown of the US Agency for International Development has rapidly eroded US soft power on the continent. Studies had indicated that every \$1 spent on foreign aid generates approximately \$1.35 in US exports to recipient countries, but that advantage is now moot.¹⁴

Friction with US Universities and Risks to Growth

When the ongoing case for US exceptionalism has been discussed in recent client meetings, one line of pushback we have encountered is the long-run impact of the current US administration’s more confrontational approach to universities. Could this friction, we are asked, significantly erode the US growth advantage? The twin fears here are around the risk of an exodus of talent from US universities, with highly skilled people moving overseas, and around the impact from any funding cuts.

¹⁴ Stonewall-Jackson Collins, “Soft Power in American Foreign Policy: Quantifying the Returns on Investment,” Medium (website), March 4, 2025, <https://medium.com/@stonewalljacksoncollins/soft-power-in-american-foreign-policy-quantifying-the-returns-on-investment-e3f61b244fff>.

A recent paper by the Federal Reserve Bank of Dallas concluded that in the US, government-funded research and development has accounted for one-fifth of business sector growth in total factor productivity since WWII.¹⁵

Where the role of US universities and US soft power overlaps is on educational exchange and the attraction of US universities as a destination for global students. For example, the Fulbright Program has produced 44 heads of state, 63 Nobel Prize recipients and thousands of other people in senior roles worldwide.¹⁶ So, the undermining of US universities could in theory dent the US growth advantage. Having said that, given the large pay disparities between US and European universities, a large exodus looks unlikely—it is hard to imagine this having a significant impact on growth, whatever the headlines.

What About Bond Exceptionalism?

Where the case for US exceptionalism becomes murkier, we think, is for sovereign bonds and the US dollar. There are two types of worry here: One is related to fiscal sustainability and the other is related to any explicit policy implementation that changes the terms for non-US debt holders.

Fiscal sustainability has long been a concern, and it has become more elevated as an issue in client meetings over the last year. We take the view that there is no explicit level of debt/GDP that presents a problem per se, but as the ratio rises, it creates the risk of an exogenous shock causing a large increase in yields. This risk should be a feature of high-debt governments when the trend of interest rates is no longer endlessly downward. We have seen this in the “Liz Truss moment” in the UK, and also in the run-up to the last French election. As we suggested in a note last year, perhaps rather than debt/GDP, [interest expense as a share of government expenditure poses more of a threat](#).¹⁷ The US servicing cost of debt exceeded the country’s defense budget in 2024 for the first time in modern history. The proposed Ferguson limit, discussed in that note, suggests that when this happens to a great power it is at risk of no longer being a great power. However, the focus of this chapter is US exceptionalism, not an absolute statement about market direction. From this point of view, all of the G7 nations face the same debt problem, really.

The second concern is any change in US policy that would be to the detriment of foreign bondholders specifically, as was mooted in the idea of a putative “Mar-a-Lago Accord.” However, the US administration and Stephen Miran, the author of the report proposing this, appears to have stepped back from such notions recently.

¹⁵ Andrew Fieldhouse and Karel Mertens, “The Returns to Government R&D: Evidence from US Appropriations Shocks,” working paper, Federal Reserve Bank of Dallas, Dallas, TX, 2023.

¹⁶ “Notable Alumni,” Fulbright, 2026, <https://fulbrightprogram.org/awards/>.

¹⁷ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Geopolitics, Mar-a-Lago Accord and Investing in the New World Order*, AllianceBernstein, April 14, 2025, <https://www.alliancebernstein.com/apac/en/institutions/insights/investment-insights/geopolitics-mar-a-lago-accord-and-investing-in-the-new-world-order.html>.

Much of this debate ultimately comes down to trust. We think that trust in the US has been eroded, but investors face a dearth of other good options, especially if liquidity is their key concern. There have been flows out of US Treasuries by foreign investors at times over the past year, but these do not amount to a strategic realignment, despite all the talk. We are often asked what would prompt such a shift. The only plausible mechanism for this to change would be some massive capitulation by global investors in their positions, and that is something that we are not yet ready to call. So, we are left with the view that sovereign risk in the US “should” be priced, but so far, the global demand for liquid assets swamps that pricing of risk.

Over strategic horizons, we remain of the opinion that inflating away US debt is more attractive (and frankly more normal for large economies) than a more aggressive action; so, we retain a preference for Treasury Inflation-Protected Securities over nominal duration.

This issue begs more fundamental and theoretical questions. One is the question of what counts as a risk-free asset. We have long held the view that there is no such thing, or that, at least, the existence of a risk-free asset is a contingent concept, predicated on a specific set of geopolitical or economic states that do not always hold.¹⁸

The other question is more methodological in nature referring to how risk premia “stack.” There is a common notion that there should be a credit risk premium over “safe” government bonds and then an equity risk premium for the extra risk of having a lower level of claim. But does it have to be that way? We are not so sure. There are examples of when corporates are deemed at lower risk than the countries that play host to them, as happened in the eurozone debt crisis for large corporations in a range of sectors. This also occurred in the US in 2009–2010, when some large corporations such as J.P. Morgan and Johnson & Johnson traded at negative spreads.¹⁹ That was a brief episode in a time of extreme dislocation, not the situation that we currently face, but it shows that this is possible.

If there were a sudden shock that sent US sovereign yields higher, it is hard to envisage that development not being very negative for equities at the same time. However, over longer horizons, at the very least, if the “default” is a soft one via higher, longer-term inflation, then maybe equities as real assets (up to a certain level of inflation at least) can still deliver returns. No one really knows the answer to this, so we suspect that it will run and run.

18 Inigo Fraser Jenkins and Alla Harmsworth, *Global Quantitative Strategy: The End of Pax Americana and What It Means for the Market*, Bernstein Research, January 23, 2019.

19 Karan Bhanot and Liang Guo, “Negative Credit Spreads: Liquidity and Limits to Arbitrage,” *Journal of Fixed Income* 21, no. 1 (Summer 2011), <https://www.pm-research.com/content/ijfixinc/21/1/32>.

Conclusion and AB Portfolios

For equities, strategic US exceptionalism still stands. It has taken a knock for sure, and the scale of consensus in favor of the US before so-called “liberation day” makes it susceptible to near-term outflows. But in the longer term, investors who are desperate to eke out a positive real return in a lower-return world need to overweight US equities. Exceptionalism with regard to US bonds is moot. We can see good reasons why sovereign risk “should” be priced and why the curve should be steeper, but the lack of other liquid alternatives makes a strategic realignment hard for investors. Where exceptionalism may have been weakened is with the US dollar. For the foreseeable future it has no rival, but attempts to de-dollarize will step up, and we think that its role in portfolios has become riskier.

In AB retirement portfolios for non-US dollar investors, we are moving back to a strategic hedge on US assets from what has been a (very) long-term dollar overweight. Likewise, in our multi-asset income portfolios, we have increased hedging for non-US dollar accounts. In neither case have we changed our strategic view on US equities.

Chapter 2—The Dollar: Slowly Shifting Toward More Risk?

(David Hutchins is a coauthor of this chapter.)

The dollar is now less of a safe haven, and investors should respond accordingly. Having said that, the lack of any viable alternative means that a shift away from the dollar is likely to be slow rather than sudden. Indeed, despite all the angst and column inches, there is zero evidence of significant outflows from US assets so far.

There are distinct reasons for the dollar being more risky: fiscal sustainability questions, geopolitics and capricious policymaking. Given this range of forces that all point in the same direction, we think that the dollar's reserve status will indeed be eroded and that the process of de-dollarization is set to last, albeit at a slow pace. The lack of a liquid alternative is the dollar's strongest support.

The fiscal concerns are, to some extent, shared with G7 economies, and the interplay of sovereign risk and demand for liquid assets is complex and highly uncertain. After all, there is no level of debt/GDP that constitutes a hard limit.

The geopolitical aspect of the dollar is an inescapable part of forming a view. This process also encompasses central bank digital currencies and the evolution in the nature of money. To that end, this chapter also includes a book-review section covering recent important publications in this field (these works might also be of use for those seeking topical beach reading this summer).

We analyze strategic currency hedging in multi-asset portfolios and show how the benefits vary for investors in different regions. We suggest how this should adapt given the changing risks of dollar exposure.

Sometimes questions from investors coalesce around a topic in such a dominant way that it is very easy to determine what our next note should be about. One such issue over the last year has been the US dollar, its role and the prognosis for its future. A lot of the focus in financial commentary is on whether the dollar's depreciation in 2025 was the beginning of a longer-term trend. That is an important topic, of course, but we also want to link this topic to the riskiness of the dollar, as opposed to just its direction. A discussion of the dollar also requires addressing bigger topics such as geopolitics, the new Cold War and the meaning of reserve-currency status.

This chapter focuses on the dollar specifically. We start outlining recent changes in dollar behavior and whether there is a sign of a real movement out of dollar assets. We review threats to reserve-currency status, which necessarily touches on deeper questions such as What is money? We review several recent significant

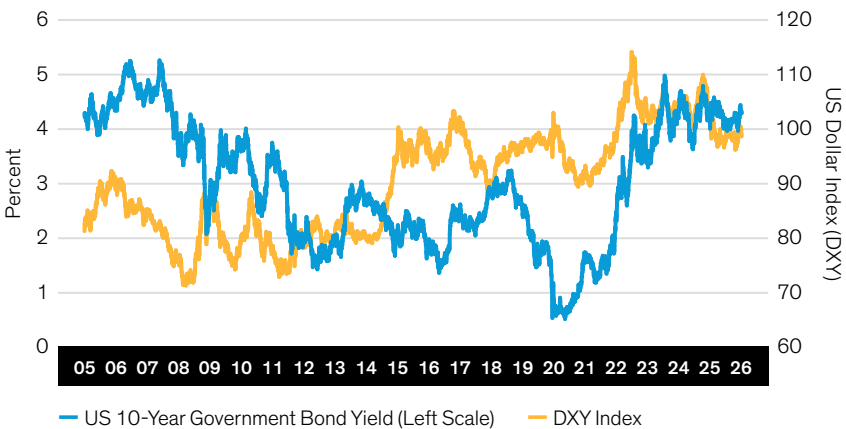
books that address these big-picture questions of currency. We conclude with the implications for portfolios and what it means for the need to hedge dollar exposure.

The conclusion we reach is that there are three distinct threats to the dollar's status: worries about fiscal sustainability, geopolitics and domestic policy choices. Some of these concerns (e.g., fiscal worries) apply to other economies too; for others, such as geopolitics, timing is very difficult to determine and is bound up in the changing global role of the US. Set against this is the lack of desirable alternatives, which tempers the likelihood of abrupt changes. Nevertheless, with such different forces in place, investors who continue to use the same rules of thumb about the dollar are at risk of being only half awake to multiple changes taking place in different spheres that point in the same direction. Non-US investors should change their approach to currency hedging—we explore what this means for different types of investors.

We Are Obligated to Think the Dollar Is Less Safe

We start this chapter with the clear evidence that the dollar's behavior has changed. Since so-called "liberation day" with its steep tariffs, the correlation between the trade-weighted dollar value and US bond yields has shifted (*Display 22*). Days when the dollar weakens now coincide with an increase in US bond yields. To be fair,

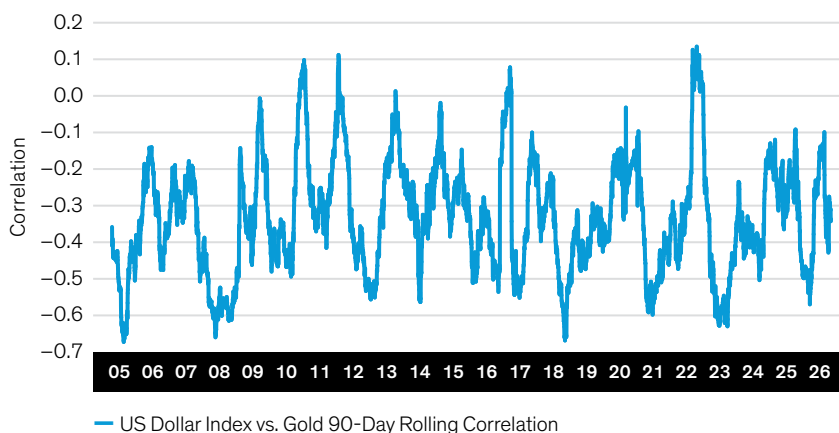
DISPLAY 22: THE DOLLAR-BOND YIELD RELATIONSHIP SUGGESTS A CHANGE OF RISK PERCEPTION



Past performance and current analysis do not guarantee future results.

As of March 30, 2026 | Source: ICE Data Indices, Macrobond, US Department of the Treasury and AB

DISPLAY 23: DIFFERENT VIEWS ON SAFE HAVENS—GOLD AND US-DOLLAR CORRELATION HAS FALLEN



Current analysis does not guarantee future results.

As of March 30, 2026 | **Source:** ICE Data Indices, LBMA, Macrobond and AB

while the display looks dramatic, the apparent strong positive relationship between the trade-weighted dollar and bond yields didn't hold in the same way before the pandemic. Nevertheless, the breakdown in this relationship now is a sign of disbelief in the US dollar as a safe haven asset.

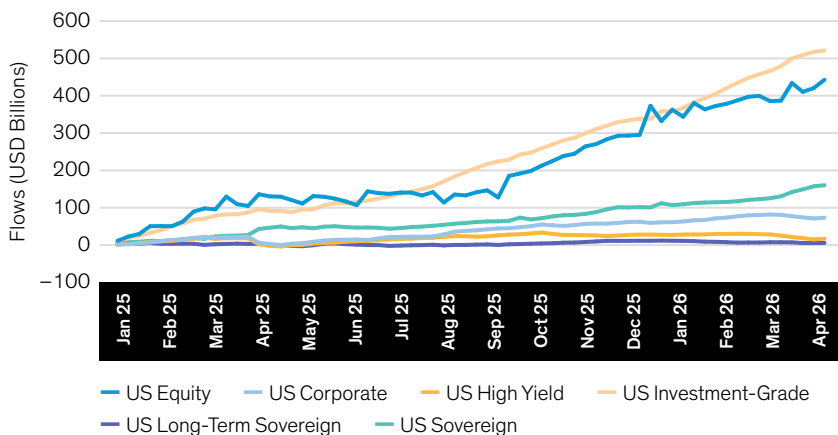
We also note a significant decrease in the correlation of the dollar and gold (itself priced in dollars). The 90-day rolling correlation of the US Dollar Index and gold is -0.6 ; that is not outside the bounds of history, but is back at levels last seen in the global financial crisis and post-COVID inflation shock (*Display 23*).

We have also seen similar moves from three of the key non-fiat currencies—gold, silver and Bitcoin (*Display 24, page 44*)—implying that despite significant differences among them, their common properties as potential non-fiat assets are coming to the fore, with a belated spillover into platinum as well during 2025. It is remarkable that this rally in assets like silver and platinum occurred with no rise in inflation expectations. Instead, it has happened at the same time that the debate about the dollar's reserve-currency status has intensified.

The Basis for Fears Around the Dollar

There are several distinct aspects of dollar risks that need to be separated because they have different implications.

DISPLAY 24: FLOWS INTO US ASSETS



Current analysis does not guarantee future results.

As of March 25, 2026 | **Source:** Emerging Portfolio Fund Research Global and AB

The proximate worry is fiscal sustainability. This is not a new concern—questions have been prevalent in our meetings with clients for a number of years. Nevertheless, the fiscal trajectory of the US gives this issue renewed concern. US public debt is currently above 100% of GDP already and, according to the latest Congressional Budget Office projections, it will rise to more than 120% of GDP by 2036.

This is not just a problem for the US. Yes, the fiscal trajectory is worse there, but for the G7 overall, the ratio of net debt to GDP is at the same level it was at the end of WWII. Japan sailed through the current US debt-to-GDP level long ago. We noted that it is far from obvious that aggregate net debt/GDP constitutes a hard limit.²⁰ Of more concern is that the US annual cost of debt service now exceeds the defense budget, a point we touch on below.

The second concern is possible policies that change the terms for non-US holders of US assets. This topic first flared up with the putative Mar-a-Lago Accord idea presented by Stephen Miran, the chair of the Council of Economic Advisers and on the Fed Board back in 2025. This proposal would convert US debt securities held

²⁰ See our case for this outlined by Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Geopolitics, Mar-a-Lago Accord and Investing in the New World Order*, AllianceBernstein, April 14, 2025, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/geopolitics-mar-a-lago-accord-and-investing-in-the-new-world-order.html>.

by non-US entities into much longer-term debt or apply some kind of service fee to coupons, i.e., a soft default. The administration appears to have backed away from the proposal. While these fears are now in the past, the genie is out of the bottle and investors need to account for the sheer capriciousness of US policymaking over the last 18 months. The treatment of foreign capital invested in US assets might not be the same in the future as it has long been assumed. This fundamentally challenges the idea of open capital markets, and the risk of a change in terms for foreign investors is non-zero, thus creating a significant disincentive to hold US assets.

The third leg to this argument is the geopolitical imperative of US rivals to de-dollarize. The weaponization of US-dollar access in the wake of the Russian invasion of Ukraine has accelerated efforts, particularly by China and Russia, to find payment systems beyond the reach of the US. Framing the current geopolitical context as a new Cold War between the US and China implies there will be a broader demand for nations to find non-dollar alternatives.

All Talk and No Flow?

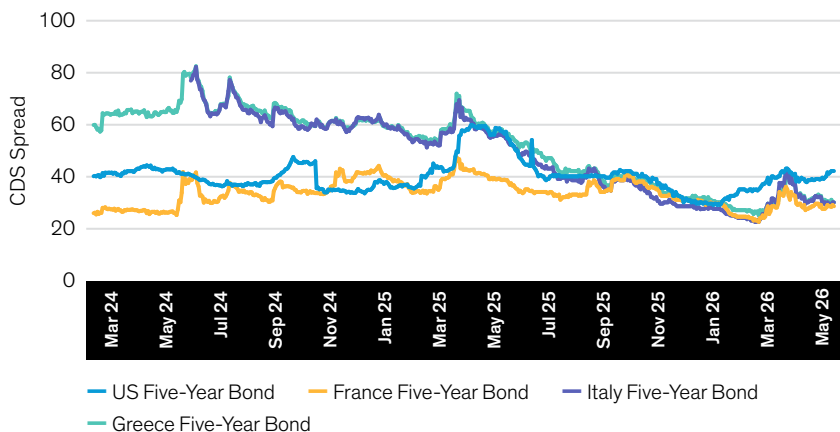
Looking at either flows into investment funds or (more lagged) total flows, there is no sign of a net selling of US assets—equities or bonds. Indeed, in the turmoil of early April 2025, as an example, US high-yield and investment-grade credit saw outflows, while US sovereign bonds saw inflows. Investors seem to have followed the playbook of what to do in a traditional business-cycle slowdown, not displaying an existential worry about government securities. We think it is right for investors to recognize that continued US growth exceptionalism underpins the case for US equities. However, the case for US bonds is less clear.

The conclusion from this? Despite all the brouhaha, there have been no net flows out of US assets this year (Display 24). So far, at least, this is all talk and no action. It may, of course, be too soon for any moves to show up in data. Also, the real issue here is strategic rather than tactical, and changes in strategic allocation are rightly taken slowly and humbly. Maybe we must simply wait to see this in the data.

However, this apparent lack of real rebalancing means that investors could be badly burned tactically if they position for a rapid shift out of US assets. The risk of US assets should be priced and hence the yield curve should be steeper. One observation that was much commented on is that US credit default swaps now trade above those of Italy and Greece (*Display 25, page 46*). However, demand for liquid assets has swamped fears over sovereign risk so far, and it seems very difficult to point to a proximate force that could change this.

Ultimately, we think a flow out of US bonds will occur. However, there are significant impediments. So far, the need for liquidity has swamped all other concerns. There have been flows into other asset areas since April's tariff rollout, e.g., into German equities and emerging-market debt and, notably, into gold. But all these moves have

DISPLAY 25: US CDS SPREAD NOW AT SIMILAR LEVELS TO ITALY AND GREECE



Past performance and current analysis do not guarantee future results.

CDS: credit default swap

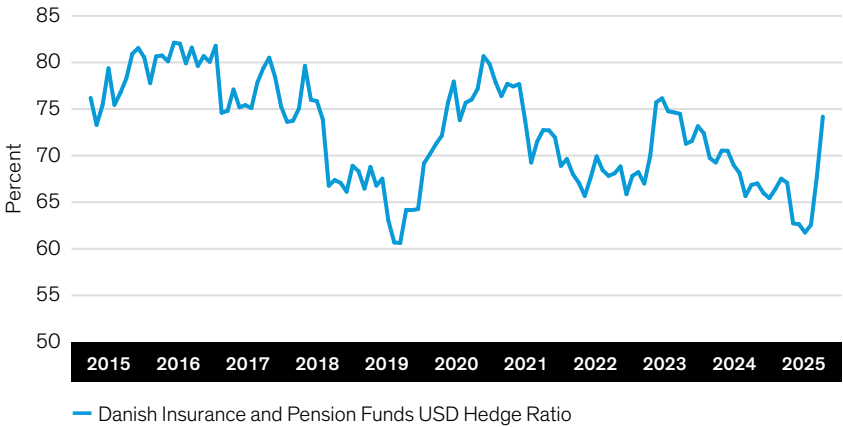
As of May 19, 2026 | **Source:** Bloomberg and AB

been into less-liquid assets. To meaningfully effect a strategic change in allocation away from US bonds, investors will have to change their governance structures to accept lower liquidity. That might be difficult.

Although there is no evidence of net selling of US assets, there is some emerging evidence of non-US investors increasing their hedging of US assets. As we discuss later in this chapter, we think this move makes sense. One example of this shift comes from Danish pension plans, which happen to have timely data on hedging activity. For those institutions, there was a sharp increase in the amount of hedging of US assets (*Display 26, page 47*). This even predated the threats from the Trump administration with regard to Greenland, which, if carried out, would essentially turn the US into a hostile state from Denmark's point of view.

Concerns about fiscal sustainability could, in theory, have been used to justify a negative view on duration and the dollar for a long time, but so far demand for liquid assets has swamped all else. Thomas Carlyle criticized economics as being dismal explicitly because it sought to reduce all human interaction to supply and demand. But here is an example where supply and demand might not be the only considerations. In the

DISPLAY 26: DANISH INSURANCE AND PENSION FUND USD HEDGE RATIO IS UP SHARPLY



Current analysis does not guarantee future results.

As of April 30, 2025 | **Source:** Danmarks Nationalbank and AB

context of a new Cold War and shift in economic regime, there are questions of political economy, with a focus on the political. We consider this topic in the next section.

Reserve Currency and Transubstantiation

Discussions on the role of the dollar ultimately have to be linked to its status as a reserve currency. Tactically, this might not be the paramount concern for investors more focused on the immediate question of whether to shift allocations, but strategically, we think this matters a great deal, as it is set to drive significant capital reallocation.

The bottom line for us is that there is no alternative to the US dollar for now. Having said that, the pressure to de-dollarize, for both geopolitical and economic reasons, is growing. Hence, the most likely path is a slow but consistent flow out of the dollar and into a range of other assets. Developments could accelerate this, but it is hard to imagine a set of circumstances that increases the dollar's role from today's level. Therefore, there is the idea that we have reached peak dollar, not necessarily in terms of trade-weighted value (short-term changes in the business cycle or investor panic could always move exchange rates), but in terms of its role in reserves and share of international transactions. It is really the lack of any viable alternative—and to some extent the unwillingness of investors to accept that the rule of thumb of many

decades might have changed—that is likely to make the de-dollarization process slow. For now, at least.

It is unclear what the Trump administration thinks of the balance of costs and benefits of the dollar having its current status. The administration has railed against the alleged overvaluation of the dollar that results from the international demand for dollar assets. At the same time, there have been threats to punish states that move away from dollar payment systems.

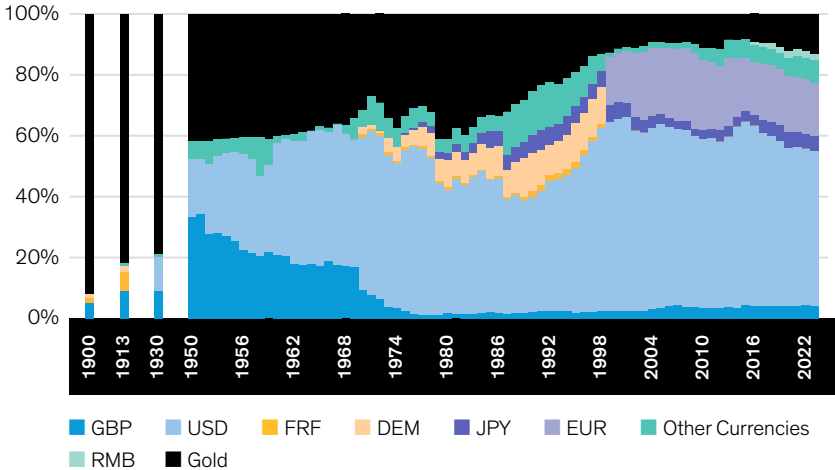
One possible interpretation of events in the first year of Trump's presidency is that an explicit objective of US policy announcements that might be detrimental to foreign capital is actually to lower the value of the dollar. If that is the case, perhaps the more than 9% fall in the broad dollar index in 2025 was a policy success. However, this aim seems unlikely to us, as there would have been less-destructive ways to achieve such an outcome. Indeed, any future attempt to negotiate a possible Plaza-type accord will be complicated by the significant loss of trust in the US among erstwhile allies. At the same time, incentives for the world to find dollar alternatives have accelerated even more after the last few months.

The US administration has criticized the supposed cost of maintaining the reserve currency, partly because of the idea that some of the cost results from the need to preserve military hard power. This seems to work both ways, though. Yes, it is true that through history countries that controlled the reserve currency, or equivalent, of the time also had dominant militaries. At the same time, the possession of reserve-currency status allows the country in question to borrow more cheaply. What is critical is that there is an ability to raise funds in a crisis without creating a run on the reserve currency. This is currently a significant advantage for the US, so we are not sure that this interaction between reserve-currency status and hard power should really be regarded as a cost.

It is informative to consider the last time there was a change in reserve currency. It took the 20 years of the interwar period for reserve-currency status to shift from sterling to the dollar. There is ample evidence that the two currencies shared reserve status between the wars. This shift took two decades despite the contender for reserve status being quite clear. True, it was not clear in the 1920s and 1930s how totally dominant the dollar would become by virtue of the international system that emerged at the end of WWII, but the transition still took a long time. This time, it is very unclear indeed what might constitute a dollar rival; hence we are not holding our breath to see such a transition.

If one takes central bank reserves as a measure for currency dominance, then the role of the dollar is unrivaled (*Display 27, page 49*). There has been a decline in the dollar's share of reserve assets over the last five years, but this is mainly in favor of gold rather than other fiat currencies. Indeed, considering gold's remarkable

DISPLAY 27: CENTRAL BANK INTERNATIONAL RESERVES OVER TIME



Current analysis does not guarantee future results.

As of May 31, 2025 | **Source:** Barry Eichengreen, Arnaud Mehl and Livia Chițu, *How Global Currencies Work: Past, Present and Future* (Princeton University Press, 2017); International Monetary Fund; Macrobond and AB

appreciation in recent years and the rapid pace of gold purchasing by central banks, gold is now in line with the euro as the second-largest reserve asset for global central banks. Similarly, when International Monetary Fund's drawing rights were last rebalanced in 2022, the weight of the dollar actually increased, with the extra weight of the renminbi coming at the expense of sterling, yen and euro.

We pointed out earlier that there are three strands to the debate around the status of the dollar: fiscal sustainability questions, geopolitics and concerns about the evolution of US policy. These can be thought of as internal threats to the dollar (fiscal sustainability and policy changes) and external threats (the geopolitical push to de-dollarize).

The conclusion we draw: These are strong forces with different underpinnings and playing out over different time scales, but all pointing in a similar direction. However, there is simply not going to be an abrupt shift, as no other currency or asset has equivalent status. China is highly unlikely to make its currency convertible, as it would likely spur huge capital flight, and if international investors are worried about the

ability of the US government to weaponize dollar access, they are hardly likely to be more positive about the role of the Chinese government.

Fiscal sustainability is not only a US concern. The G7 overall has the same level of debt/GDP as at the end of WWII. Japan surpassed the current level of US debt a long time ago. The specific issue is that the rate of deterioration of the fiscal position in the US is worse than in other large economies, but this is an almost impossible balance to call. There is (plainly) no absolute level of debt/GDP that constitutes a limit. If anything, we would give more credence to the “Ferguson limit,” discussed in the book review section below, that compares the interest cost of debt with the defense budget. Debt levels have been rising for decades; it is only with the interest-rate cycle turning that this constitutes a problem. We saw fears about sovereign debt suddenly flare up in the “Liz Truss moment” for the UK and in the run-up to the last French election. So far, the demand for liquid assets has swamped fears about sovereign risk. That is not to dismiss such fears. The ability to service debt does matter and, as we saw earlier in this chapter, affects the riskiness of the dollar. The conclusion is that this condition will likely be a long-running problem rather than constitute an acute break by itself.

The geopolitical aspect of the change in the status of the dollar comes down to the strategic imperative of rivals to the US to de-dollarize. This urge is seen in the jump in central banks’ share of gold buying after the Russian invasion of Ukraine. Gold, however, is not really a dollar alternative at scale. Yes, it has been acquired to give a backup basis for non-dollar systems, but as with previous attempts at gold standards, the supply cannot keep track with modern expectations of growth rates. What would challenge the dollar would be a broader shift to an alternative asset used for international trade and for pricing commodities. With the US already energy self-sufficient, the petrodollar system does not have the same level of strategic importance, creating more opportunities for alternative base currencies for commodities.

A real threat would come from a balkanization of payment systems. Here, the role of central bank digital currencies (CBDCs) and other private forms of digital money could really make a difference, hence we include a discussion of this in the book review section of this chapter. We argue that it is not the technology itself that is the key determinant of adoption here. Instead, what is significant is that the technology has been developed at the same time that other economic and geopolitical pressures for change exist. If it were just the presence of new technology itself as a determinant, that would likely not be sufficient to drive significant change in the dollar’s role.

In this way, we see the growth of CBDCs and stablecoins as a parallel to the growth of tokenization in asset management. It is not the technology alone that is the key determinant—it is the need for increased exposure to real assets and the need for liquidity that drives the adoption of the technology and why we think tokenization

will become increasingly important for investors. For more on this, see our note on tokenization that also discusses the changing social basis of money.²¹

There are significant hurdles in implementing CBDCs, not least of which is the apparently widely held view that the need for them is not obvious, at least from a US perspective. More than that, two specific hurdles suggest there will be significant pushback on their development, at least in the West. First is the question of personal liberty. As we discuss in the book review section that follows, while in theory anonymity could be built into such systems, there is a significant risk that CBDCs do not have anything like the degree of anonymity that cash has. This risk leads to deep debates about the rights of the individual versus the right of the state, the advantages of reducing criminal activity versus the imposition of morality set by one group on another, and other aspects. It is far beyond the remit of central banks to determine answers to these questions, so this debate seems set to run indefinitely.

The second complication is a somewhat more prosaic one, or at least it falls within the realm of economics as opposed to political philosophy. If individuals have access to a retail CBDC, then it is possible that they might prefer that choice over holding deposits at commercial banks. This could threaten the whole fractional reserve banking system, which has underpinned credit creation over centuries. Indeed, credit creation by commercial banks, partially backed by deposits, has been the main source of money creation in the modern economy. Thus, the rise of CBDCs raises questions about where money comes from and how it is created. Developments on this front in the presence of geopolitical and economic pressure on the dollar could speed a fragmentation of payment systems to the detriment of the dollar's role.

Neither of these impediments is as significant in China, however, especially not the former, so it seems more likely at this stage that the development of CBDCs will continue to advance faster in China and other BRICS+ countries more generally. It is unclear what form this development will take, i.e., “bridges” between individual country CBDCs or a more China-centric system. Meanwhile, digital-currency innovation in the West, at the moment at least, appears to be more dominated by the private sector in the form of stablecoins.²²

Both these internal and external threats to the dollar bring one back to more fundamental questions, such as What gives money its value? and What might undermine that value? One can't help but think there are similarities between the process by which a form of accepted money (be it paper or digital) acquires value

²¹ We have written elsewhere on tokenization. See Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Tokens, Power, Non-Jobs and Debasement: The Case for Strategic Allocation to Tokens*, AllianceBernstein, February 8, 2025, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/tokens-power-non-jobs-and-debasement-the-case-for-strategic-allocation-to-tokens.html>.

²² Daniel Davies, “Stablecoins May Be Nasty, but for Americans They’re Also Cheap,” *Financial Times*, June 5, 2025, <https://www.ft.com/content/28cfb319-4dea-4129-bb6d-ad91fe5010f0>.

and the process of transubstantiation in the Catholic mass. Faith appears to alter the underlying reality of such an asset, even if its external appearance remains unchanged. One often, after all, hears the word “faith” associated with the value of a currency. But how does this process come about? How does paper or digital money attain value, and is this process changing given the combination of new technologies with a shift in the geopolitical and economic order?

There is the view that money derives its value from social convention; if this was the case, then alternative units or crypto assets could take the role of fiat currency in theory. However, the alternative view is that in modern societies, government gives money its value. What this comes down to is the idea that modern money derives its value from the requirement to pay taxes in it, combined with governments having a monopoly on “hard power.” In *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance* (which we review below), Eswar S. Prasad suggests that the various forms money takes—store of value, unit of account and medium of exchange (to which Brunello Rosa and Casey Larsen would add “information”)—are separating and that maybe we should not expect to find all these uses in the same entity. This sounds very similar to Esther Perel’s view that expecting one single partner to fulfill all the different relationship needs implied in modern society is unrealistic and bound to lead to disappointment.

What does this mean for the dollar? The bottom line is the implication that an increasing share of international transactions and reserve-currency holdings will flow to non-dollar entities. However, the fact that gold has now caught up to become equal in size to the euro as the second-largest holding in central bank reserves shows that other established alternatives are not without problems. Indeed, it is the problems that exist with all alternatives that will likely keep this change slow. So yes, we do expect the dollar to depreciate, but it is really dollar risk rather than dollar returns that will be the real shift. Hence, the conclusion from this chapter is really about hedging dollar assets rather than a directional forecast.

Review of Recent Books on Money and the Dollar

There have been a number of recent books on the dollar and broader issues around the status of money and how it is changing. As they touch on the bigger questions raised in this chapter, we review aspects of them here for those who are interested in delving deeper into these topics. As ever, when we discuss books in our research, these should not be taken as traditional book reviews. Instead, we discuss the key points in these books that we think are germane to shifts that investors must grapple with in the way they think about strategic asset allocation, given the macro challenges of today.

Any discussion of the role of the dollar quickly spills over from economics into geopolitics. Indeed, despite three of the works we discuss here coming from very different angles, Kenneth Rogoff, Rosa and Larsen, and Niall Ferguson all implicitly or explicitly acknowledge the interplay of reserve-currency status and hard power.

Thus, the geopolitics of the dollar is an inescapable part of forming a view on its future return and risk level.

Probably the most relevant to the immediate issue of the dollar's role is Rogoff's recent book.

Rogoff, *Our Dollar, Your Problem: An Insider's View of Seven Turbulent Decades of Global Finance, and the Road Ahead*²³

This is a very prescient book, given that it was written in 2024 just before the deluge of concern about the role of the dollar.

There is an interesting history of other recent contenders to dollar hegemony, and the author suggests that at least part of the total dominance of the dollar is luck (the Japanese agreeing to devalue the yen in the 1980s and the admission of Greece into the euro holding back possible dollar rivals). The key part for discussions about the structural role of the dollar looking forward are the limits to the dollar's role: Rogoff concludes that "the Pax Dollar era" has peaked. Having said that, a decline could take a long time, given the lack of obvious alternatives. However, this has critical implications for funding the US government, as the global demand for dollars has given the US a huge advantage that might be at risk.

Rogoff identifies the geopolitical threats to the dollar from the wish of rivals to the US, particularly China, to find an alternative. However, he asserts that the real threats to the dollar come from within, not externally. This is the view that the level of debt matters and the mistaken view that low rates can persist indefinitely. Linked to this, he thinks that people are too complacent about inflation, assuming that the problem has been solved by central banks. Rogoff thinks that the post-pandemic world that sees deglobalization and concerns about high debt levels will lead to structurally higher levels of inflation.

As an aside, one view that flows from this position is that it is a mistake to view US government debt as safe. An outright default is unlikely (though the author asserts that the 1930s did see what constitutes a default), but what is more likely is an erosion of the value of US bonds by inflation.

The advantage of the US dollar being a reserve currency is mainly a lower cost of funding for the US government, but it is also the ability to weaponize access to dollars to contain rivals. There has been a lively debate about what the costs of the reserve currency are for the US. The main idea Rogoff cites is that to have the global reserve currency likely also requires one to have hegemonic military power. The link is debated; there are clear historical parallels to the previous role of sterling, and to other currencies that attained reserve status before that. The linkage possibly flows

²³ Kenneth Rogoff, *Our Dollar, Your Problem: An Insider's View of Seven Turbulent Decades of Global Finance, and the Road Ahead* (Yale University Press, 2025).

both ways. Having unrivaled hard power enables the US to enforce rules, but also having the reserve currency brings the critical benefit of allowing the US to quickly raise funding in an emergency.

There is a discussion of crypto. Rogoff confidently asserts that there is zero chance of crypto replacing the dollar (we agree). This necessarily leads to a discussion of “what is money.” He rejects Yuval Noah Harari’s view that money is purely a social convention in the sense that what constitutes money is mutual agreement between people. Rogoff is very much of the opinion that the role of government is critical and that governments will always have the last say as to what counts as money.

At the same time, he strongly disagrees with the idea that crypto is worthless. Interestingly, Rogoff’s view is that the backstop for crypto is its critical role in the underground economy, which he estimates as constituting between 20% and 30% of the economies of many large nations. We are not so sure that we agree with this, in the sense that the broader hunt for non-dollar, non-fiat assets also seems to constitute a demand for crypto. Rogoff also makes the point that crypto is helpful for evading capital controls and critical for those who do not have banking access, a point that we agree on.

There is a brief discussion of CBDCs. Rogoff says there are really two reasons for them: to improve efficiency of payments and to try and deflate or limit the role of the dollar. He thinks that CBDC development should be left for smaller nations, as the US has the most to lose. Ultimately, he is skeptical that it can compete with the dollar.

Rosa and Larsen, *Smart Money: How Digital Currencies Will Shape the New World Order*²⁴

The authors take a very different view on CBDCs from Rogoff’s. In their eyes, there is a case for developing CBDCs that is geopolitical in nature; from this point of view, they are a key part of the new Cold War between the US and China. Interestingly, the book ultimately makes a moral argument for the West to develop CBDCs. The argument is that if the West doesn’t act, then the 1.4 billion people who are unbanked will likely move to a payment system dominated by China. The other part of their argument is that the West has an opportunity to show that digital money is compatible with liberal democracy, as the other emerging model is autocratic.

The book describes how the argument for and against the development of CBDCs is about the future of money. It forces us to reconsider fundamental questions about what money is. Here, the view is closer to the idea of money as an information system rather than merely a store of value.

²⁴ Brunello Rosa and Casey Larsen, *Smart Money: How Digital Currencies Will Shape the New World Order* (Bloomsbury Publishing, 2024).

The focus of the book is really the symbiosis of geopolitics and money. The weaponization of the US dollar in the wake of the Russian invasion of Ukraine has been a critical stimulus for China's development of the digital yuan, or e-yuan. The authors then link this to the development of the Belt and Road Initiative. The claim is that this project is not only a force to develop infrastructure but also to encourage a broad use of yuan financing. The authors claim that China is seeking to position the e-yuan as a "reserve currency" for countries that are in the Belt and Road group. There are potentially broader implications for BRICS+ nations and the currency used to price commodities, which the authors see as critical given the likelihood of a massive increase in energy demand from advanced economies.

Rosa and Larsen are critical of the approach taken in the West. This approach has evolved from the view that CBDCs are a "solution in search of a problem" (as concluded by a House of Lords report on the topic) to outright skepticism with a view that CBDCs are a tool for authoritarian control of individuals' finances. Instead, the preferred blockchain digital money emerging in the West is stablecoins. The authors think the future of money is "too important to be left to the private sector," yet that seems to be exactly the path being followed. (Indeed, Rogoff takes the view that this allows for private sector innovation.)

In our view, we liked the attention that this book brought to the geopolitical aspect of CBDCs. However, in our opinion, there was not enough coverage of the dangers to established models of credit creation in capitalist economies posed by the potential for CBDCs to disintermediate commercial banks.

Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance*²⁵

The book covers a number of important issues around the topic of digital money, but the core theme relevant to our topic here is that it makes the case for CBDCs. The conclusion includes the phrase, "The rise of CBDCs is a foregone conclusion." However, the book is not simply a discussion of the economic case for CBDCs. It also includes an intriguing exploration of the idea that the advent of digital money implies a separation of the various forms of money, and moreover that conversations about the social implications of digital money in the form of inequality and questions of liberty are never far from the discussion (rightly so in our view).

Prasad suggests that the advent of digital money leads to a struggle between centralized official money and private forms of money. This is not a new state of affairs, though. We have seen this before, just prior to the era of central banks becoming so powerful, e.g., in the 19th century.

²⁵ Eswar S. Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance* (Belknap Press of Harvard University Press, 2021).

For Prasad, the positive case for CBDCs rests on the following points:

- The shift away from cash diminishes the role of the central bank. If one takes the view that the control of money is too big an issue to be left to the private sector, then CBDCs can restore the role of central banks (people will have different instinctive responses to this, of course).
- Financial inclusion, i.e., the ability of the unbanked to have easier access to money, though we think this might be double-edged: What if people are unbanked explicitly because of choices made by the state?
- Monetary sovereignty, in the sense of defending the ability to implement monetary policy (which, for example, would be a problem if prices started to be set in, say, crypto). It also brings the ability to innovate on monetary policy, e.g., through the ability to implement negative rates and helicopter money.
- It could reduce corruption/a shadow economy (though this is also double-edged in our view).

There is also a discussion of the case *against* CBDCs.

There is a legitimate fear of banking disintermediation—if retail CBDC is available, then this might cause capital flight from deposit-taking banks. Prasad particularly focuses on this in the context of the possibility for a bank run in a time of panic. That is a real concern, though our more strategic worry is the impact this could have on credit creation in the long term and hence on aggregate growth.

The other big case against CBDCs is privacy. The author takes the view that “the displacement of cash by digital payment systems will eliminate any vestige of privacy in commercial transactions.” This is a sobering statement, and one that those of a libertarian bent have already campaigned against. Prasad recognizes that the anonymity of cash has allowed society to evolve at certain times to make certain laws unviable when social mores have moved on. He cites the ending of prohibition in the US as an example; one can think of any number of similar cases today.

The book takes the view that the emergence of new payment systems raises questions about what constitutes a reserve currency and what is a safe haven, which of course is exactly what we are seeing today. On this point, though, Prasad writes that while use of the e-yuan will grow, it will be no threat to the dollar “for a decade.” However, this book was written before the Russian invasion of Ukraine, so it came before the intensification of the geopolitical imperative for de-dollarization.

While the book sees the rise of CBDCs as inevitable, the questions it raises also suggest that the future path of monetary evolution will be a social, political and possibly even a moral choice rather than a path determined by technology alone. After all, how much privacy or anonymity should there be in society?

Ferguson, “Ferguson’s Law: Debt Service, Military Spending, and the Fiscal Limits of Power”²⁶

This publication is not strictly about money, nor is it a book, but rather it is an extended paper. Nevertheless, we include it here as it is highly relevant to the current debate. Niall Ferguson recently proposed “Ferguson’s limit” (named, it seems, after Adam Ferguson, the eighteenth-century Scottish philosopher of the Enlightenment, rather than Niall himself). The law states that a great power that spends more on debt servicing than on defense will not remain a great power for long. This point is relevant because in 2024, US debt-service cost exceeded its defense budget (\$882 billion versus \$874 billion) for the first time. Ferguson cites Habsburg Spain, Bourbon France, the Ottoman Empire and Austria-Hungary as a list of unhappy examples where the cost of debt service exceeded defense spending—with deleterious consequences for these states to retain the ability to project power. This shortcoming was especially dangerous in times of more rapid technological change, when the need to service debt meant it was not possible to catch up with rivals.

The country that was most like the US in this regard was the UK, especially in the wake of WWI. UK defense spending was greater than the interest-service cost of debt in the late 19th century. In 1913, on the eve of WWI, interest payments were at an all-time low of 0.8% of GDP; defense spending accounted for 3.2%. As the war concluded, defense spending fell but interest-servicing costs soared to 7% of GDP in the early 1920s (*Display 28, page 58*). This curtailed the ability of the UK to project hard power. It was also the period when sterling began to lose its global reserve-currency status that it at first shared with the US dollar and then lost altogether after WWII.

An interesting aspect of the UK case is that it managed to cross back over the Ferguson limit. For the whole of the Cold War, the UK spent more on defense than on interest-servicing charges. In 1982, the time of the Falklands War, the UK was still spending 4.4% of GDP on defense, a level above the share that the US spends on defense today. However, this crossing back over the Ferguson limit required a policy of allowing the debt to be inflated away and, with that, a very significant devaluation of sterling (from \$5 per pound on the eve of WWII to \$2 by the early 1980s). This is an uncomfortable parallel to the US (*Display 29, page 58*).

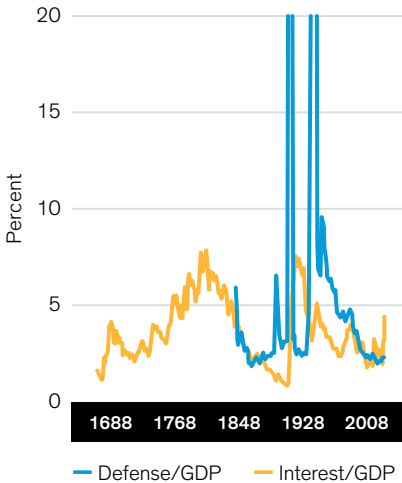
McWilliams, *The History of Money: A Story of Humanity*²⁷

Unlike most of the other material discussed in this section, this book is mainly a work of economic history covering the evolution of money from the very earliest times.

²⁶ Niall Ferguson, “Ferguson’s Law: Debt Service, Military Spending, and the Fiscal Limits of Power,” Hoover Institution History Working Papers, Stanford University, Stanford, CA, February 21, 2025, <https://www.hoover.org/sites/default/files/research/docs/HAHWGWorkingPaper-212502-Ferguson%27s%20Law-Final.pdf>.

²⁷ David McWilliams, *The History of Money: A Story of Humanity* (Henry Holt and Co., 2025).

DISPLAY 28: UK INTEREST AND DEFENSE EXPENDITURE (1688–2023)

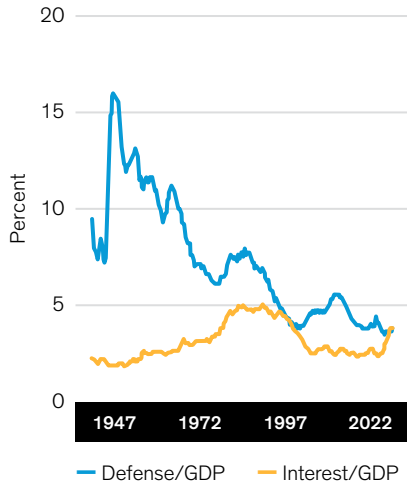


Historical analysis does not guarantee future results.

As of February 21, 2025

Source: Niall Ferguson, “Ferguson’s Law: Debt Service, Military Spending, and the Fiscal Limits of Power,” Hoover Institution History Working Papers, Stanford University, Stanford, CA, February 21, 2025, <https://www.hoover.org/sites/default/files/research/docs/HAHWGWorkingPaper-202502-Ferguson%27s%20Law-Final.pdf>; and AB

DISPLAY 29: US INTEREST AND DEFENSE EXPENDITURE (1947–2023)



Historical analysis does not guarantee future results.

As of February 21, 2025

Source: Niall Ferguson, “Ferguson’s Law: Debt Service, Military Spending, and the Fiscal Limits of Power,” Hoover Institution History Working Papers, Stanford University, Stanford, CA, February 21, 2025, <https://www.hoover.org/sites/default/files/research/docs/HAHWGWorkingPaper-202502-Ferguson%27s%20Law-Final.pdf>; and AB

There is a fascinating discussion of the first issuance of coins and events such as the Roman credit crisis of 33 AD.

The book’s coverage of more contemporary issues probably has most relevance for the investment implications of changes in the nature of money, in particular what McWilliams sees as a coming struggle between private and public money—a point of discussion in the other books discussed here. McWilliams is very dismissive of crypto and stablecoins, taking the view that the state will not give up power over money and worrying that these currency alternatives create the risk of regressive wealth transfer. He concludes that Bitcoin is to money what Esperanto is to language: a source of obsession for supporters but of little practical use in reality.

Currency Hedging in Multi-Asset Portfolios

For non-US investors, the approach taken for managing currency exposures is a first-order strategic and tactical decision. With the US dollar dominating the available market cap of equities available to buy, the key question for any investor—be they based in sterling, euro, yen, Swiss franc or Australian dollar—is the amount, if any, of this US-dollar exposure to hedge.

To Hedge or Not to Hedge—Simplistic Argument

To hedge: Currency risk is unrewarded and uncorrelated with markets, and hence should be eliminated from portfolios in the absence of any strong view on the direction of any particular currency.

Not to hedge: Hedging comes with a small but inevitable frictional cost on returns; even absent any view on the direction of currency exchange rates, this will impact long-term returns.

Building a Strategic Approach

It is important, whenever referring to a strategic approach, to understand the time horizon with which we are concerned. It would be naive to think that “strategic” is forever in all but the simplest of asset-allocation decisions—perhaps limited to equities versus bonds.

Our preferred approach is that strategic decisions are ones that you expect to play out sometime within the next five to 10 years, but that does not preclude them from happening quicker than this and creates the need to react quickly (in strategic terms) to capture the gains when they occur. For example, we may think an asset class is fundamentally mispriced but that market dynamics need to shift considerably for this to be realized. We believe that currency falls well within this camp, with mispricing able to last far beyond the tactical horizon of many investors but with an inescapable force of gravity in terms of purchasing-power parity, current-account deficits and interest-rate/inflation differentials.

Common Strategic Approaches

Three approaches are common within the market:

- 1. No hedge:** This approach is also common in two use cases—retail investors unaware of the risks they are running and investors with a very strong home bias (typically US investors) where the incidence of currency risk is minimal.
- 2. 100% hedge:** In this case, all assets are 100% hedged back to the investors' currency. This approach is common in two use cases—first, mutual funds built from a single-currency perspective with the objective of making them easy to move based on simple net asset value hedge to any other currency, and second by absolute-return long/short investors running to very tight short-term risk budgets and unwilling to let currency dominate the investor return experience.

3. Partial hedge: This is where two not entirely unrelated approaches dominate.

Low-risk asset hedge only: Hedging applies to lower-risk assets, such as bonds and absolute-return strategies. This approach tends to dominate among lower-sophistication asset allocators, such as smaller-wealth advisors and institutional investors, often constrained by their access to suitable vehicles.

Integrated hedge: A hedge ratio on assets is often set with allowance for the underlying volatility of the assets held. This tends to be the preferred approach of the most sophisticated institutional investors and wealth managers. Most common is a full hedge on low-risk assets, such as bonds and absolute-return strategies, combined with a fixed-rate hedge, typically 50%, of foreign-currency risk on risk assets (predominantly equities) and often constrained to developed-market currencies.

Our Preferred Approach to Currency Hedging

Unsurprisingly, we favor the last of these approaches, but with a slight nuance that the hedge ratio should vary by the currency of the underlying investors and based on their strategic outlook for currency markets, predominantly the US dollar, given US stocks' significant proportion of global equity markets.

Intuitively, the application of this approach in practice is:

DISPLAY 30: STRATEGIC HEDGING EXAMPLES

Investor Currency	Portfolio Foreign-Currency Exposure	Volatility Reduction Provided by Foreign Currency	Drawdown Protection Provided by Foreign Currency	Long-Term SAA Hedging Range*	Current Position
USD	Low	Minimal	Negative	75%–100%	Reduce
EUR	Average	Positive	Balanced	50%–75%	Increase
GBP	High	Positive	Positive	25%–50%	Increase
CHF	High	Negative	Negative	75%–100%	Increase
JPY	High	Negative	Balanced	50%–75%	Increase
AUD	High	Positive	Balanced	50%–75%	Increase

Current analysis does not guarantee future results.

SAA: strategic asset allocation

*As a percentage of a market cap-weighted developed-market portfolios, overseas currency exposures should be hedged.

As of June 30, 2025 | **Source:** Bloomberg, MSCI and AB

1. Hedge ratios should vary based on investors' home currency market:
 - a. Safe haven currencies such as the US dollar, yen, euro and Swiss franc should tend to a higher strategic hedge ratio, benefiting less from the safe haven nature of the US dollar.
 - b. Procyclical currencies such as the Australian dollar, sterling and emerging-market currencies should tend to a lower strategic hedge ratio, benefiting more from the safe haven nature of the US dollar and to a lesser extent the euro.
2. Our conclusions suggest that all investors would benefit from reduced exposure to the US dollar, including the following views:
 - a. The US dollar will weaken.
 - b. A negative correlation of the US dollar with equity markets is less likely.

The Strategic Hedging Range: Today and Tomorrow

Display 30, page 60, illustrates our case for hedging foreign-currency exposure based on an investor's base currency, from the perspective of an investor in global developed-market equities. This is a simplistic strategic asset-allocation framework that helps to set the guardrails (a 25% range) within which an asset allocator should consider both setting their long-term strategic hedge and perhaps tactically adjusting their hedge.

DISPLAY 31: RETURN DIFFERENTIALS OF HEDGED VS. UNHEDGED

	Max Return Differential Annualized over Three Years	Average Three-Year Annualized Return Differential
US Dollar	5.8%	0.4%
Euro	9.8%	-1.3%
Sterling	9.9%	-1.4%
Swiss Franc	9.6%	0.3%
Yen	16.3%	-7.1%
Australian Dollar	21.3%	-0.3%

Past performance and current analysis do not guarantee future results.

*As a percentage of a market cap-weighted developed-market portfolios, overseas currency exposures should be hedged.

Index used is the MSCI World Index unhedged and hedged to the relevant currency with net dividends reinvested.

As of June 30, 2025 | Source: Bloomberg, MSCI and AB

To capture a few highlights from the table:

For US-dollar and Swiss-franc investors, the home currency's highly defensive nature makes foreign-currency exposure beyond tactical positioning undesirable from the perspective of both diversification and drawdown protection. However, it should be noted in the case of US-dollar investors that the relatively low foreign-currency exposure within portfolios and the ability to build a well-diversified portfolio without owning overseas stocks means that a broader range of hedging strategies would often be applied in practice.

Both euro and yen investors benefit to some extent from having some currency exposure and should probably hedge at least 50%. In the case of euro investors, the breadth of the home market does allow for a lower hedge ratio, to the extent that a home-biased portfolio is used. For yen investors, a backward-looking approach would suggest a hedge ratio strategically toward a higher level would make sense, but it should be noted that this currency shows signs of being in transition from a defensive currency, more like the Swiss franc, to one that has more similarities with the euro.

For sterling investors, the significant benefits of holding US-dollar exposure from both a volatility-management and drawdown-protection perspective result in a lower strategic hedge range.

Returns: Currency Can Damage/Enhance Investors' Wealth

Return differentials on an annualized basis over three years between hedged and unhedged global equities can be significant for all investors, with Japanese and Australian investors the most exposed (*Display 31, page 61, and Display 32, page 63*).

Volatility Management: Hedging Does Not Always Reduce Volatility

For US-dollar, Swiss-franc and yen investors, hedging historically has reduced portfolio volatility in nearly all markets (*Display 33, page 64*). However, for the euro, sterling and Australian dollar, the case is more balanced, with hedging unattractively increasing volatility in volatile markets and reducing it in low-volatility markets.

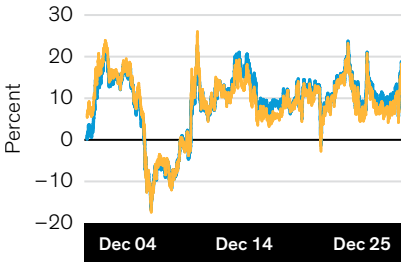
Drawdown Protection

Sterling investors see strong drawdown protection from holding unhedged equities (*Display 34, page 65*). For US-dollar, Swiss-franc and Australian-dollar investors, that protection appears to be minimal, whereas protection is more nuanced for yen and euro investors, often protecting initially but also delaying any market recovery.

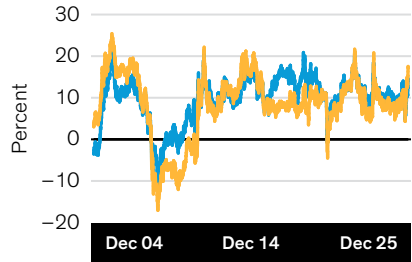
DISPLAY 32: ROLLING THREE-YEAR ANNUALIZED RETURNS—HEDGED AND UNHEDGED

MSCI World

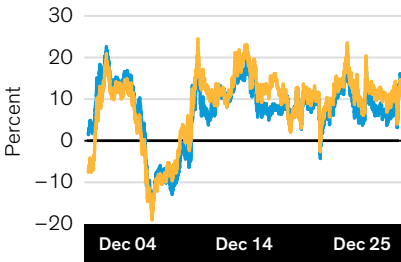
USD



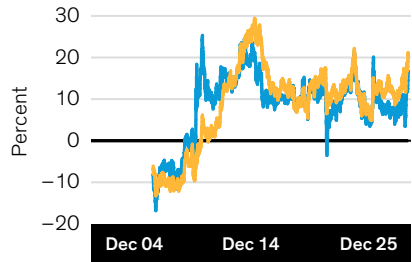
GBP



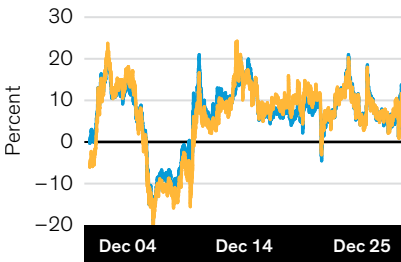
EUR



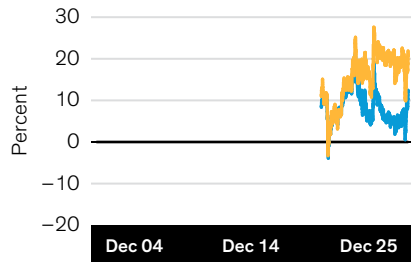
AUD



CHF



JPY



— Hedged — Unhedged

Past performance and current analysis do not guarantee future results.

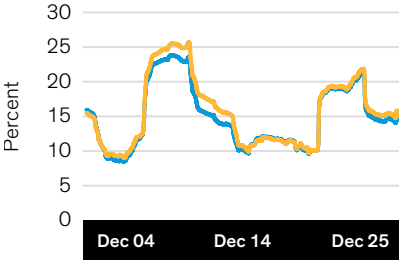
Index used is the MSCI World Index unhedged and hedged to the relevant currency with net dividends reinvested.

As of June 30, 2025 | **Source:** Bloomberg, MSCI and AB

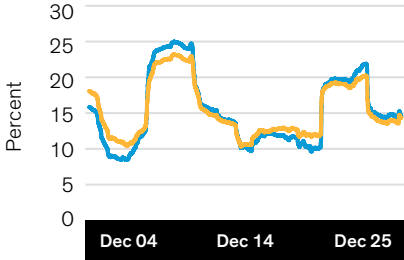
DISPLAY 33: ROLLING THREE-YEAR ANNUALIZED VOLATILITY—HEDGED AND UNHEDGED

MSCI World

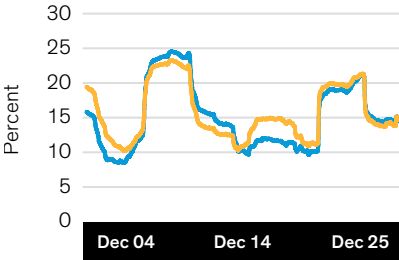
USD



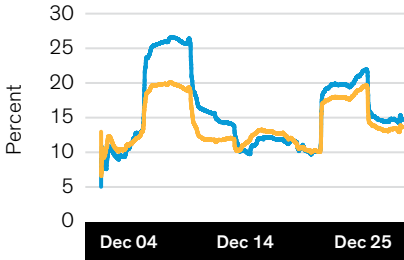
GBP



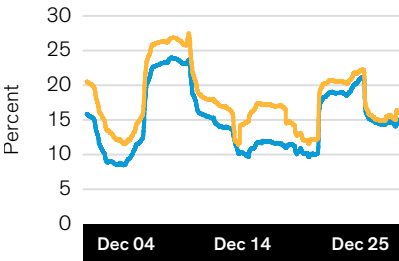
EUR



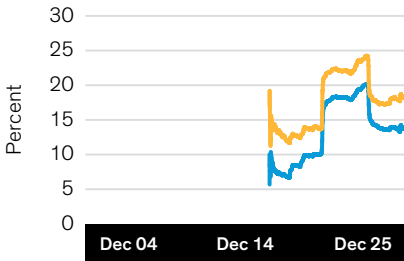
AUD



CHF



JPY



— Hedged — Unhedged

Current analysis does not guarantee future results.

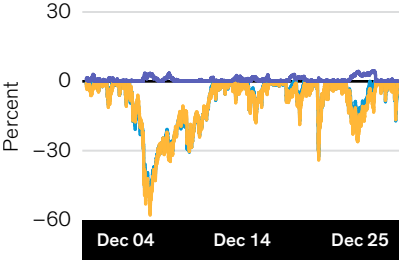
Index used is the MSCI World Index unhedged and hedged to the relevant currency with net dividends reinvested.

As of June 30, 2025 | **Source:** Bloomberg, MSCI and AB

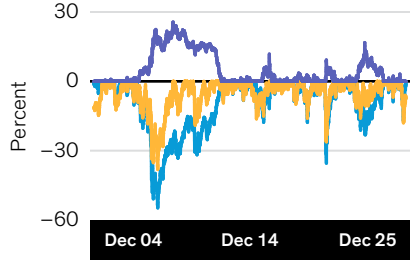
DISPLAY 34: DRAWDOWNS—HEDGED AND UNHEDGED

MSCI World

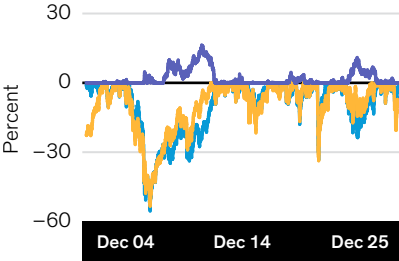
USD



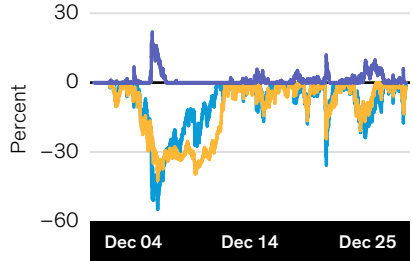
GBP



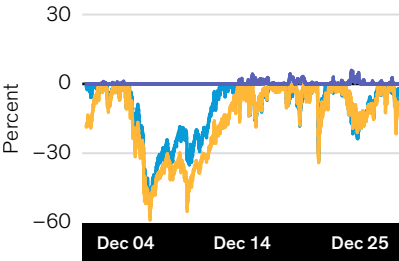
EUR



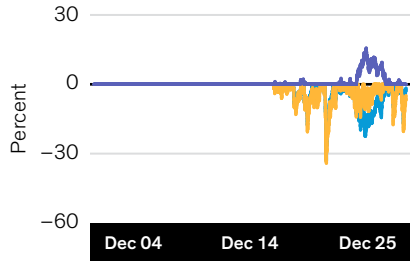
AUD



CHF



JPY



— Hedged — Unhedged — Protection

Current analysis does not guarantee future results.

Index used is the MSCI World Index unhedged and hedged to the relevant currency with net dividends reinvested.

As of June 30, 2025 | **Source:** Bloomberg, MSCI and AB

Chapter 3—The Ongoing Case for Gold

The extraordinary return from gold over the past two years, followed by an abrupt spike in volatility, ensures that questions about gold allocations come up in every single client meeting. But investors worry whether, after such a rally, there is still a case to own gold. We maintain our recommendation for a strategic allocation as part of an allocation to non-fiat, zero-duration assets.

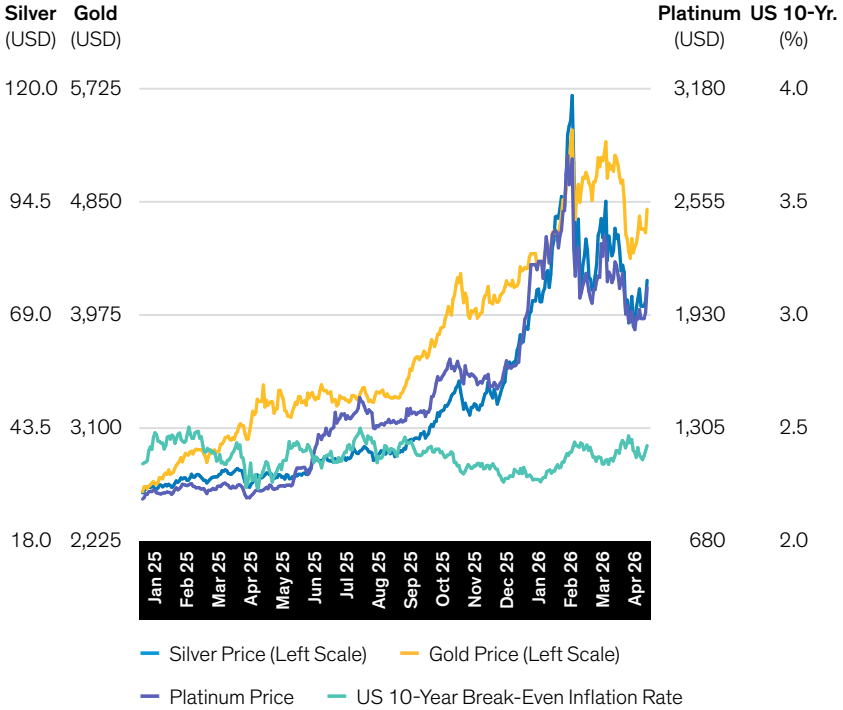
In the absence of a plausible price target, the case for holding gold rests on its zero correlation with equities at any level of inflation and in the context of a strategic overweight view on equities. The long-run real return from gold is only 0.57% per annum (p.a.) and has been episodic. However, the geopolitical imperative to de-dollarize implies a future return above this long-run average.

There remains a very heightened tactical risk, arising from investor demand for gold being far ahead of demand via jewelry to an extent that we have not seen before. We also show the extreme level of retail investor interest. Investors are likely to be fickle and sell as the trend breaks, so we think that there is volatility complacency for gold; in the near term, investors need to position for increased gold volatility as a tactical overlay on that strategic positive position.

Despite the topic of gold coming up in every meeting, the extent to which investors are actually invested varies enormously. Tactical risks aside, we think that the progression to a new investment regime implies that our strategic case for gold still stands—more investors need to contemplate an allocation.

Recent years have witnessed an extraordinary move in gold and other precious metals. It is often said that markets cannot price geopolitics. However, the escalation in geopolitical risks in early 2026 does show up in precious metals. We think it also shows that some investors are intent on trying to price in a higher structural risk of a new investment regime. For some time, the first display in our presentation deck has been the “mysterious” gulf between the market pricing of inflation versus the prices of gold, silver and platinum (*Display 35, page 68*). As a case in point, over the last year there has been no net movement in the pricing of inflation, and yet, even after the recent aggressive sell-off, gold and other precious metals are up between 70% and 130%. Yes, this change can involve short-term pricing of geopolitical risks, but it is notable that this has happened while equities have rallied. We suggest that, in equilibrium, the market pricing of inflation and the repricing of gold cannot both be

DISPLAY 35: A PAINFUL JUXTAPOSITION? PRECIOUS METALS VS. MARKET PRICING OF INFLATION



Past performance does not guarantee future results.

As of April 8, 2026 | **Source:** Macrobond and AB

right. We suggest that more investors will shift to assuming a higher equilibrium inflation level.

The recent and significant pullback of gold does not change this view. We explain below how, despite this longer-term positive view, we do think that in the near term investors should expect larger pullbacks and higher volatility. The recent sell-off is, we think, a function of a few factors: (1) the choice of Kevin Warsh for Federal Reserve chair lessens some of the recent worry about the extent to which the Fed might lose independence; (2) being historically more hawkish, the choice of Warsh might, at the margin, lead investors to expect a higher path of rates; (3) the increase in the price of gold during the early-January ratcheting up of language over Greenland hadn't been even partially unwound until now (the underlying risk hasn't really gone away); (4) the

scale of investor (and especially retail investor) demand means that there is a larger-than-normal group of fickle, short-term investors; and (5) the sheer monotonicity and scale of gold's performance until the Iran war means that it will inevitably be present in momentum trades, which may automatically cut gold positions after a reversal. These factors all point to heightened tactical risks, but they are tactical and do not change the strategic call.

Given the scale of gold returns over the last year, we think that a broader group of investors will find themselves having to grow allocations to gold as well.

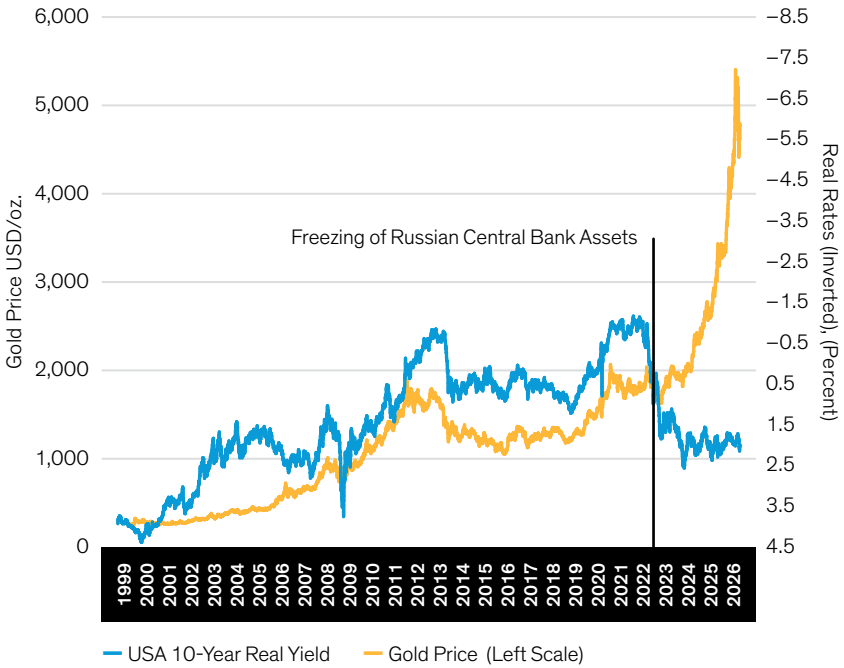
We have been positive on gold for many years and have reiterated that call multiple times ("Chapter 2—The Dollar: Slowly Shifting Toward More Risk?").²⁸ Given the scale of the upward move in recent months followed by an abrupt sell-off, we have been asked: Is there still a case to own gold? Strategically, we think the case is an unambiguous "yes," and so our strategic asset allocation (SAA) view remains to hold gold as part of a non-fiat allocation. It should be clear, though, that this is a long-term call based on our view of a structural shift in the investment regime. Tactically, we have a specific concern regarding the proportion of gold buying that is from investors versus demand for jewelry and the high level of retail interest, which has reached unprecedented levels. As we explain below, we think there is complacency about the volatility of gold if fickle investors (especially through buying as part of a momentum trade) sell their positions. But that can be compensated for by buying gold volatility.

When we travel the world and meet clients, it would not be an exaggeration to say that over the last year, gold has come up in 100% of client meetings across Europe, Asia and the US. However, the extent to which clients have actually invested varies massively depending on where they sit in the investment landscape. Family offices and (some) sovereign wealth funds are happy to hold significant positions. When we speak to pension plans, by contrast, the allocation is usually zero. We will repeat here what we say in client meetings: Yes, we get that gold has no income and so might seem anathema to pension funds, but we do think that the global pension system will be brought kicking and screaming to eventually hold gold.

Let's be clear up front. We don't have a price target. Yes, we are fully aware that when a strategist suggests that investors buy an asset for which they don't have a price target, it should set alarm bells ringing. There used to be a way to "value" gold, which was to compare it to Treasury Inflation-Protected Securities (TIPS), on the grounds that both were things that felt a bit like risk-free assets (we have never believed that there is such a thing as a risk-free asset—see our discussion later—but the relationship did hold). However, that relationship broke down the day Russia

²⁸ Inigo Fraser Jenkins, Paul Gait and Alla Harmsworth, *Global Quantitative Strategy: A Strong Case for Holding Gold*, Bernstein Research, February 11, 2019.

DISPLAY 36: THE GOLD-TIPS RELATIONSHIP BROKE DOWN WHEN RUSSIA INVADED UKRAINE



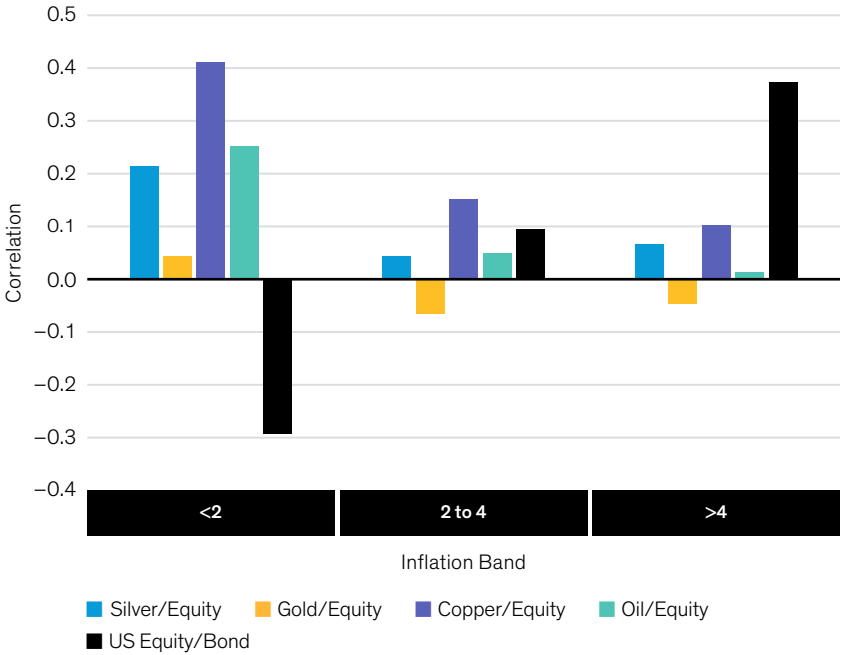
Past performance does not guarantee future results.

As of April 10, 2026 | Source: LBMA, Macrobond, US Federal Reserve and AB

launched its invasion of Ukraine (*Display 36*), and we do not see any good reason why that model should come back to relevance, given the change in the geopolitical and economic environment.

So, what is the case for investors to hold gold? From our point of view, the strongest case is not as a stand-alone trade but in conjunction with a strategic long position in equities. The view that permeates our research is that, despite high multiples and low prospective growth rates compared to history, investors must hold a strategic overweight in equities as the most liquid real-asset class, and so equities are key for defending purchasing power in the long run in a world of higher equilibrium inflation.

DISPLAY 37: CORRELATION OF GOLD TO EQUITIES AT DIFFERENT INFLATION LEVELS



Current analysis does not guarantee future results.

Note: The display covers the period from January 1970 to October 2025.

As of January 28, 2026 | **Source:** Global Financial Data, Macrobond and AB

Thus, the number one financial reason to hold gold is that it is an asset with a long-term correlation with equities of zero. Critically, that result is invariant to inflation level (*Display 37*). This is emphatically not the case for bonds, where any pretense of acting as a diversifier is annulled at higher levels of inflation. We have written ad nauseam how we do not expect the negative correlation of bonds and stock returns that was an artifact of recent decades to be something investors can rely on in the future.

A correlation of zero, however handy that may be, is not enough to make a case to hold the asset. Try putting that into an optimizer (not that we have ever approved of overreliance on such things), and it is not sufficient to recommend an allocation.

The background to a larger allocation is a shift in the geopolitical landscape. It has clearly been happening for some time, but the stark events of January 2026, with the US removing a head of state and then the Greenland debacle, show the scale of the move. The Greenland issue is the more important of the two—we think it marks the crossing of a line. The view of the US from among allies has shifted in a way that cannot really be undone. The unraveling of the “recency bias” of the last 80 years of a US-led multilateral order and a functioning North Atlantic Treaty Organization is not something that anyone can pretend to have a pricing model for. Owning gold is a good first response, though.

The latest hit to trust in the US has led to calls for non-US investors to sell US government bonds. We have been here before, though, in the midst of the Mar-a-Lago Accord scare of 2025. So far, that subject has been all talk and no action (on a net basis, anyway). We continue to make the case to global investors that US equities are exceptional and should be overweighted compared with benchmarks in global allocations. We get a lot of stick for this view, but the superior growth in the US underpins it.²⁹ However, US bonds and the dollar are very different. If long-run equilibrium inflation expectations are set to rise, it supports our case that, within our SAA, we are leery of long-duration nominal assets. In addition, questions of fiscal sustainability raise the risks to such assets.

A geopolitical overlay adds yet another layer. There is a desire among BRICS nations to at least try to de-dollarize. Moreover, should European Union (EU) pension plans hold US long-duration government bonds as a “low risk” asset when the US was recently threatening to invade the territory of an EU country? It doesn’t sound ideal. However, despite the rhetoric, so far the demand for liquidity and structural inertia makes it very hard to sell US government bonds. Maybe this will change, though probably not that quickly. Anyway, fiscal sustainability is a G7 problem, not just a US one.

In *Display 38, page 73*, we summarize the case for and against the dollar retaining its status. On balance, we think that we have reached peak dollar in the specific sense of its share of central bank assets and transactions, but not in exchange-rate terms. We do think that the net result is that the dollar will slowly lose its status as a safe haven asset. This is a process that has further to go.

Probably the strongest force in favor of the dollar retaining its status is the lack of any credible alternative and the observation that prior shifts in reserve currency have taken decades. A more recent support comes via the Guiding and Establishing National Innovation for US Stablecoins (GENIUS) Act, in the clear US preference for stablecoins over central bank digital currencies as digital money. With the vast

²⁹ Inigo Fraser Jenkins, *The End of US Exceptionalism?*, AllianceBernstein, May 15, 2025, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/the-end-of-us-exceptionalism.html>.

DISPLAY 38: THE DOLLAR IS NO LONGER EXCEPTIONAL

The Dollar Will Maintain Reserve Status for Now, but Attempts to De-Dollarize Are Accelerating	
Case for Losing Reserve Status	Why This Will Take a Long Time
Fiscal sustainability: though this is a problem for all G7 currencies	Stablecoins could drive increased USD adoption near term.
Geopolitics: China and BRICS imperative to de-dollarize	There may be no alternative to the dollar. China won't make renminbi convertible.
Trust: Capricious policymaking and US withdrawing from allies, declining support for democracy and falling trust in US institutions	The reach of USD is far greater than previous reserve currencies.
Fed independence: though also an issue for other central banks	The absolute US growth rate is lower than in the past but still exceptional vs. other economies.
	There is "not enough" gold, etc., even adding crypto. Asset-backed currency limitations
Conclusion	
Non-US investors hedge more USD exposure.	
There is a possibility of US sovereign risk being priced and a steeper yield curve.	
There is a role in portfolios for non-fiat assets: gold and crypto.	

Current analysis does not guarantee future results.

As of February 5, 2026 | Source: AB

majority of stablecoins being dollar denominated, their issuers have now emerged as being equivalent to a large country in terms of their appetite to buy short-maturity US Treasuries. However, set against this we think that the confluence of fiscal sustainability, geopolitics and questions of trust lead non-US investors to hedge more of their US-dollar exposure as it becomes less of a safe haven asset. We stress that this can be a very gradual process.

So, how does one make a return forecast for gold? The problems with this task are legion. As gold has no income, and not really any use either, one cannot price it off cash flows or utility. History is only somewhat useful as a guide. The 170-year real return of gold has been 0.57% p.a., on average, and highly episodic. So, it is not enough to be exciting and, anyway, that longer-run history is complicated by the existence of a gold standard for some of that time. However, using that long-run real return as a base, we observe that there is a geopolitical imperative for China and other BRICS nations to attempt to de-dollarize. Thus, the expected return on gold over the next decade should be above, not below, this very long-term average.

DISPLAY 39: ONE CANNOT VALUE GOLD, BUT ONE CAN VALUE EVERYTHING ELSE: GOLD VS. 60/40

Average (Annualized) Return Conditioned on Equity Valuation on Bond Yield

Gold: 60/40 (Five-Year Return)

Shiller P/E Quintile	BY Low		BY High			Average	
	1	2	3	4	5		
Cheap	1			15.4%	-14.0%	0.7%	
	2	-6.9%	-4.6%	17.9%	2.6%	-13.9%	-1.0%
	3	-11.5%	-1.7%	-14.8%	-18.8%		-11.7%
	4	-1.9%	15.9%	0.6%	-16.4%		-0.5%
Expensive	5	1.3%	4.0%	5.5%	-1.7%		2.3%
	Average	-4.8%	3.4%	2.3%	-3.8%	-14.0%	

← Gold less of a drag when starting bond yields are low

↓ Gold enhances returns when starting equity valuations are high

Gold: 60/40 (10-Year Return)

Shiller P/E Quintile	BY Low		BY High			Average	
	1	2	3	4	5		
Cheap	1			-3.3%	-14.2%	-8.8%	
	2	-6.8%	-6.3%	18.3%	-1.7%	-17.0%	-2.7%
	3	-6.5%	-1.4%	-6.1%	-10.9%		-6.2%
	4	-0.2%	3.0%	1.6%	-2.1%		0.6%
Expensive	5		10.5%	10.1%	5.6%		8.8%
	Average	-4.5%	1.5%	6.0%	-2.5%	-15.6%	

← Gold less of a drag when starting bond yields are low

↓ Gold enhances returns when starting equity valuations are high

Past performance does not guarantee future results.

BY: bond yield; P/E: price-to-earnings

Red circles show the current market regime.

Data are from January 1970 through September 2025.

As of October 8, 2025 | **Source:** Macrobond, Robert Shiller's database and AB

Given its lack of associated cash flow, one cannot value gold. However, one can value everything else! In *Display 39*, we show the five- and 10-year forward relative return of gold versus a 60/40 portfolio conditioned on the starting level of bond yields and starting Shiller price-to-earnings (P/E) ratio. The conclusion is that one does not want to hold gold when bond yields are very high or when equities are very cheap. We have circled where we are today on this basis, and it shows that gold has tended to outperform the 60/40 from these levels. There are not enough observations to

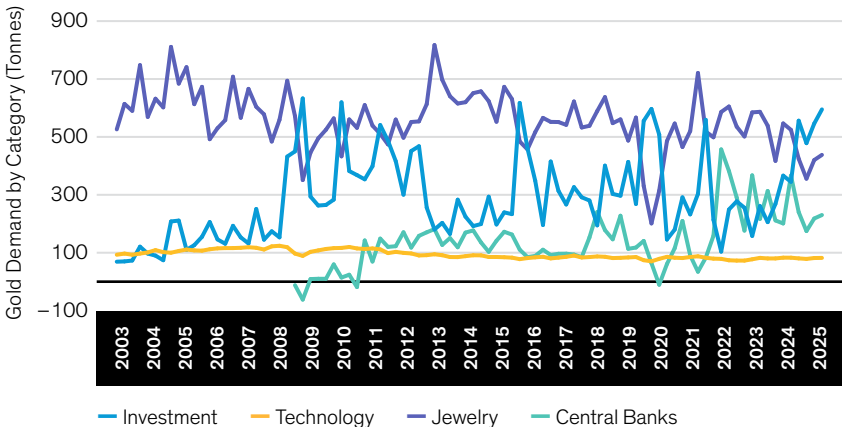
make this a statistically table-thumping case, but at the very least it implies that there is no evidence that gold is a drag on cross-asset portfolios from these levels. How can this be? Gold has delivered such strong returns, after all. Really, this tells us that all asset classes are expensive, and the rally in gold needs to be seen against that broader backdrop.

This above narrative points to a strategic, long-run case to hold gold in portfolios, and this underpins our view.

The Tactical Worry

Tactically, however, there are real concerns. The sell-off of late January to early February illustrates this well, but tactical concerns remain. Our specific concern is that investor demand for gold has exceeded gold demand via jewelry for four quarters (*Display 40*). As far as we can tell, this has not happened in multiple decades. It is likely that investors will be fickle. Not least because of the high and consistent return of gold in recent years, it will be part of momentum trades. Some of these investors will likely be short-term and sell their positions when the trend breaks. This creates volatility complacency when it comes to gold. Investors focused on the long-run strategic case for gold need to recognize that the experienced volatility will be very likely to be higher in the coming years than it has been recently. Thus, we think that

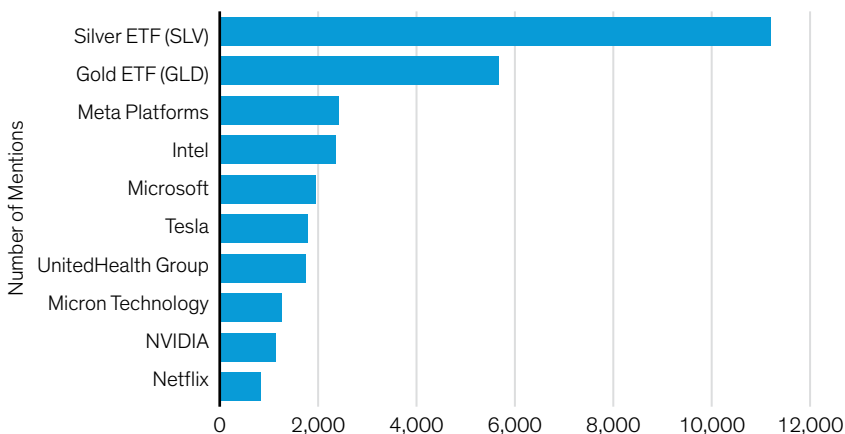
DISPLAY 40: INVESTOR DEMAND FOR GOLD HAS EXCEEDED JEWELRY DEMAND FOR FOUR QUARTERS—THIS HAS NOT HAPPENED IN RECENT DECADES



Current analysis does not guarantee future results.

As of January 29, 2026 | Source: Macrobond, World Gold Council and AB

DISPLAY 41: TOP TICKERS DISCUSSED IN WALLSTREETBETS FORUM



Current analysis does not guarantee future results. References to specific securities discussed are not to be considered recommendations by AllianceBernstein L.P.

ETF: exchange-traded fund

As of January 29, 2026 | **Source:** SwaggyStocks (website), accessed January 29, 2026, <http://www.swaggystocks.com/>; and AB

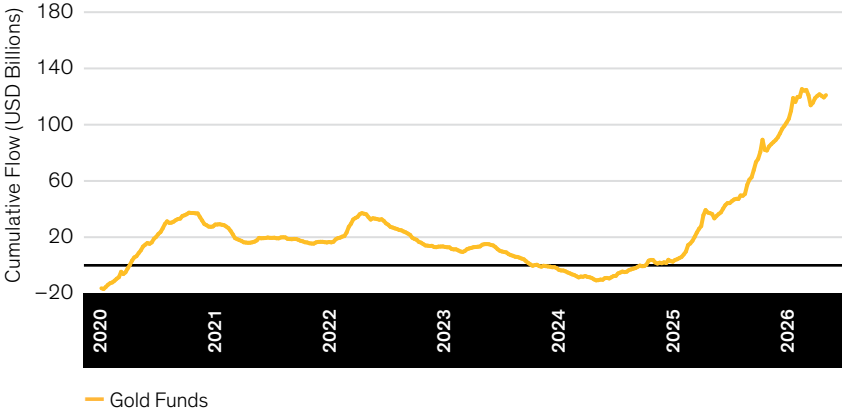
longer-term strategic positions in gold may need to include a tactical overlay that allows for an increase in gold volatility.

Another worrying sign for near-term gold returns is very heavy retail interest. As shown in *Display 41*, the Silver (SLV) and Gold (GLD) exchange-traded funds (ETFs) were the most popular tickers discussed in the WallStreetBets Reddit forum during the last week of January 2026. This is yet another sign that investors should not expect the recent smooth path to continue, making it likely that we will see abrupt pullbacks over tactical horizons.

Moreover, as *Display 42, page 77*, illustrates, the recent inflows into gold ETFs and mutual funds have been extremely strong recently. Historically, such strong inflows over a short period of time are an indication of elevated sentiment, and they act as a contrarian indicator for short-term performance.

Something of a counterbalance to this is that, despite the huge increase in investor demand, surveys of the institutional investment industry (*Display 43, page 77*) still imply that the modal position of investors in gold is zero! Moreover, from those prior

DISPLAY 42: GOLD ETF AND MUTUAL FUND FLOWS

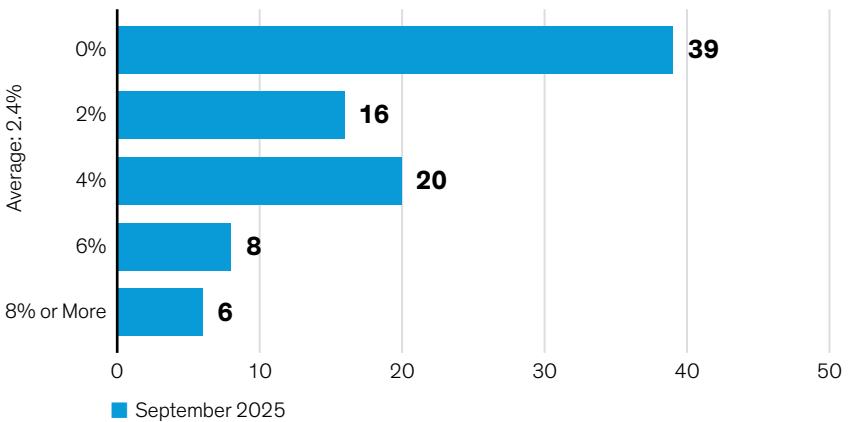


Current analysis does not guarantee future results.

ETF: exchange-traded fund

January 22, 2026 | Source: Emerging Portfolio Fund Research Global and AB

DISPLAY 43: BOFA SECURITIES FUND MANAGER SURVEY—CURRENT GOLD POSITION



Current analysis does not guarantee future results.

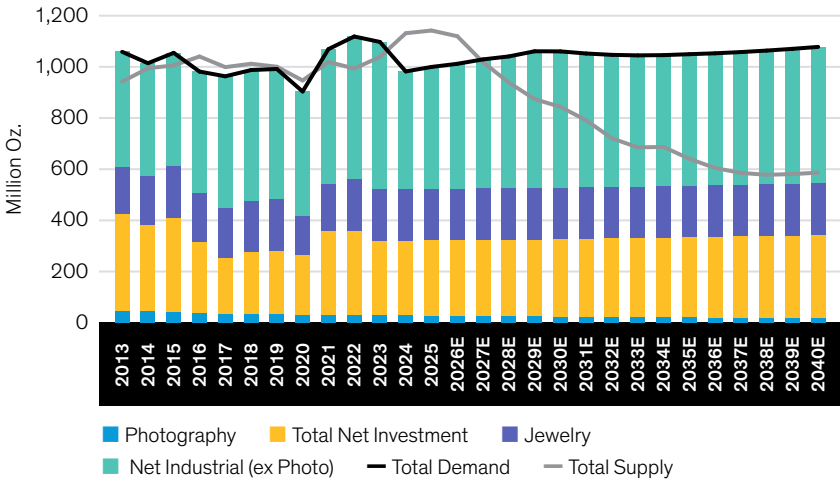
As of September 30, 2025 | Source: BofA Securities and AB

points when investor demand for jewelry has briefly exceeded jewelry demand, gold did tend to underperform the 60/40 portfolio over the following 12 months. However, on all those prior occasions, the high ownership of gold had coincided with a highly risk-averse environment, and so equity valuations were distressed. That is evidently not the case today.

Other Non-Fiat Assets

We describe our gold recommendation as really a recommendation for holding non-fiat, zero-duration assets. Last year, we recommended adding silver to this call. We recognize that there can be problems for investors in holding silver. Its low value density can make it superficially less attractive for large investors to hold and there are no mines dedicated to silver; instead, silver is a by-product, which means that supply-demand imbalances can lead to high volatility in its price. It is also less usual as a central bank reserve asset, but it has a specific role as part of a non-fiat trade today. Contrary to gold, investor silver buying makes up only a minority of total demand, because there are actually uses for the metal (*Display 44*). Moreover, despite a decline in the use of silver in photography, there is a case for a significant structural increase in demand for silver in solar cells that is set to dominate silver demand by 2030 (*Display 45, page 79*).

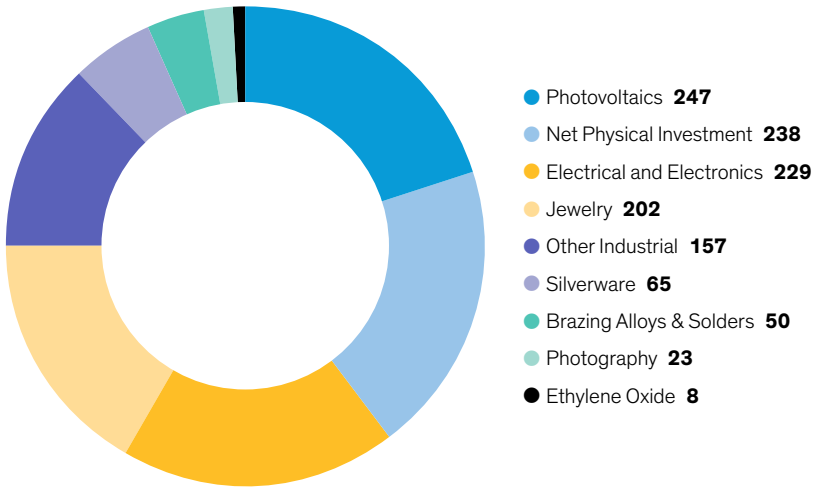
DISPLAY 44: SILVER DEMAND BY TYPE (MILLION OZ.)



Current analysis and forecasts do not guarantee future results.

As of June 30, 2023 | **Source:** Bernstein Research and AB

DISPLAY 45: 2030 ESTIMATED SILVER DEMAND (100%=1.0 BILLION OZ.)



Current analysis and forecasts do not guarantee future results.

As of June 30, 2023 | **Source:** Bernstein Research and AB

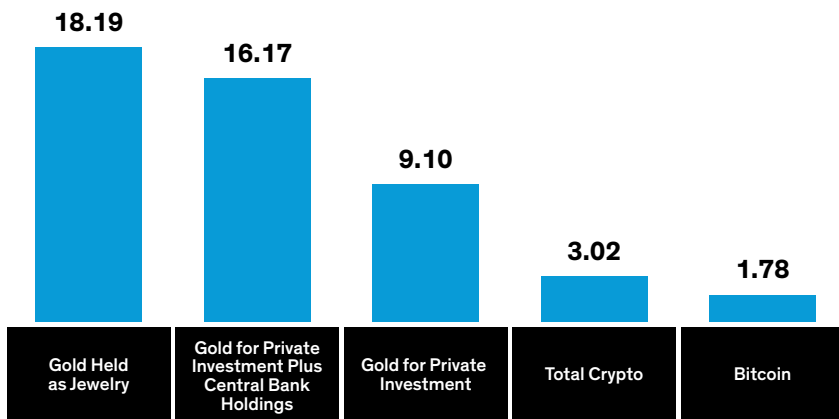
The other leg of our non-fiat trade, and one that has done much less well than the others, is to own crypto. As with gold, we cannot offer a price target for crypto, and we are deeply suspicious of any attempts to do so. For us, the case for crypto rests on the following:

1. As the demand for non-fiat, zero-duration assets increases, it creates demand for assets that may, in theory, share some gold-like characteristics. We cannot value Bitcoin, but we can conduct a scaling exercise. The quantity of gold in the world held for investment purposes is valued at \$9 trillion. There is no economic law whatsoever that implies that the value of crypto and gold need to have a given proportion. However, we would argue that as the demand for gold increases, it creates an umbrella under which the scale of Bitcoin holdings can rise (*Display 46, page 80*).
2. There is the promise of more regulatory clarity. President Donald Trump has markedly failed to produce this so far, focusing instead on stablecoins. While that matters from a macro perspective given its potential to increase dollar demand and, particularly, demand for short-dated US government debt, it does not help crypto. But the possibility of progress toward regulatory clarity for crypto sits in the background as an extra level of support.

DISPLAY 46: A SCALING EXERCISE FOR CRYPTO

Market Capitalization

Trillion (USD)



Current analysis does not guarantee future results.

Note: Gold statistics use end of 2024 value for gold stocks and latest gold price.

As of January 28, 2026 | Source: Macrobond, World Gold Council and AB

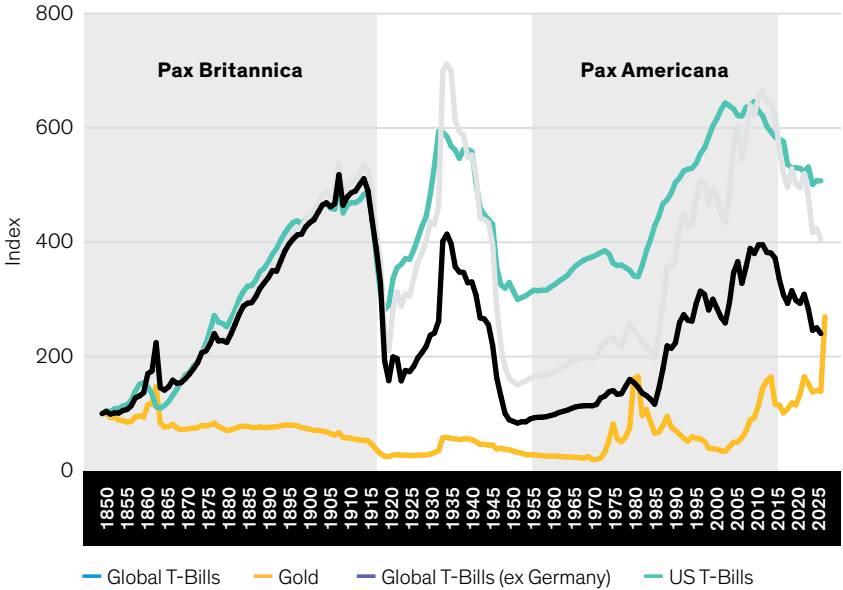
Two Final Thoughts

In case anyone still needs convincing, in our view, there is no such thing as a risk-free asset. Such a concept is either contingent on a specific set of economic or geopolitical circumstances or a theoretical sleight of hand to make the math easier for valuation and asset allocation. As *Display 47, page 81*, shows, the real return on things that should plausibly count as risk-free assets has been episodic and at times evidently not risk-free. If an asset delivered negative real returns over an extended period of time, why would anyone regard it as not having risk?³⁰

There is a “survivorship bias” inherent in many studies of long-run returns for both equity and bond markets, in that people tend to focus on the US and UK. But these are countries that happened to “work” without suffering catastrophic >95% losses, losing existential wars, etc. So yes, the US T-bill long-run return has been higher than that of gold, but we suggest that this history might not be a good guide over the very long term (*Display 48, page 81*).

³⁰ For our longer discussion on this topic, please see Inigo Fraser Jenkins and Alla Harmsworth, *Global Quantitative Strategy: The End of Pax Americana and What It Means for the Market*, Bernstein Research, January 23, 2019.

DISPLAY 47: NO SUCH THING AS A RISK-FREE ASSET?



Past performance does not guarantee future results.

The display covers the period from 1850 to 2025.

Through December 31, 2025 | Source: Global Financial Data, Macrobond and AB

DISPLAY 48: LONG-RUN REAL RETURNS OF GOLD AND OTHER SUPPOSEDLY “RISK-FREE” ASSETS

Annualized Real Returns 1850–2024

Gold*	0.57%
US T-Bills	0.94
Global T-Bills	0.51
Global T-Bills ex Germany	0.81

Past performance does not guarantee future results.

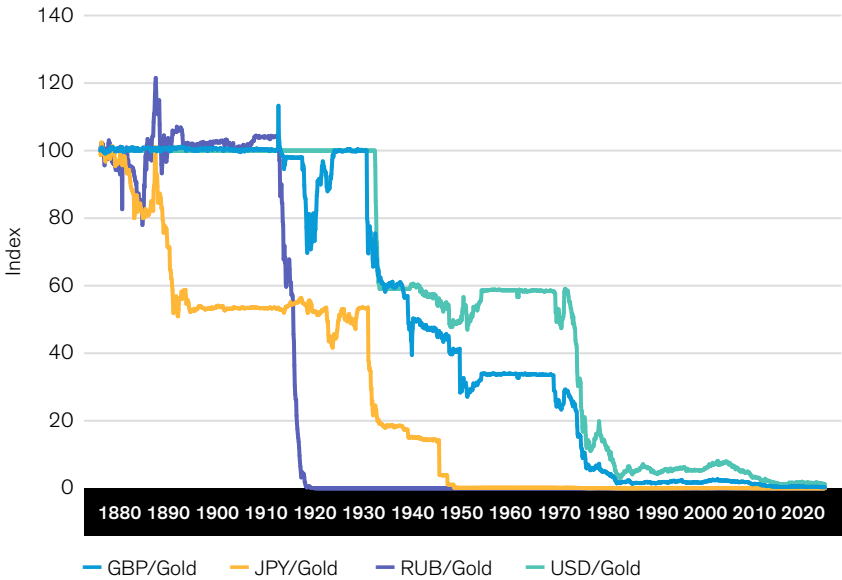
*Gold returns have been prorated to January 28, 2026.

Data from 1850 to 2024

As of December 31, 2025 | Source: Emerging Portfolio Fund Research Global and AB

As a closing point, we want to highlight that over long enough horizons, all fiat currencies have lost value against gold—either through war or revolution, or simply the expansion of government debt (*Display 49*). This doesn't tell us anything about short-term tactical performance, but it does point to a strategic case for non-fiat assets.

DISPLAY 49: SINKING WITHOUT A TRACE? MAJOR CURRENCIES AGAINST GOLD SINCE 1880



Past performance does not guarantee future results.

As of May 31, 2020 | **Source:** Global Financial Data and AB

Part II: Two Themes on AI

Chapter 4—AI vs. Demographics:

Or Might Shrinking Populations Not Be So Bad If Robots Are Taking Jobs, Anyway?

One of the key variables determining the strategic outlook is the degree to which artificial intelligence (AI) can deliver productivity gains. Past attempts to forecast productivity have been fraught with problems, so one needs to be humble in ascribing a significant increase in growth to AI. We will review the latest attempt to quantify this.

No boost from AI is happening in a vacuum. How plausible is it that productivity gains from AI can offset the downward forces on growth from demographics and climate?

To what extent do large productivity gains from AI require mass job displacement? We suggest a preliminary model for this trade-off. This topic raises questions about labor versus capital share and whether AI may have as large an impact on the distribution of gains as it does on total output.

Some have suggested that a shrinking workforce may not be a problem if AI is about to destroy jobs. However, this notion conflicts with the historical experience of automation. Moreover, the temporal and geographical distributions of these forces are very different.

The interaction of AI and demographics also has broader social implications: we see an evolution in the role of work and the extent to which it can give meaning. The more bullish AI forecasts imply a significant reduction in the workforce.

Our conclusions continue to support the case for US exceptionalism and an overweight to US equities, but not enough growth to shrink debt, hence we continue to believe the role of the US dollar will decline.

One of the key economic and social debates is what the impact of AI will be on productivity and the job market. The latest iteration of large language models (LLMs) available to the mass market is clearly remarkable in their scope and they are rapidly changing how many people work and the hiring decisions that they make.

In this chapter, we focus on some of the key macro questions that the rapid advance of LLMs prompts. Does a large step-up in productivity imply mass joblessness? Or is AI similar to previous rounds of technological advancement and automation that ended up creating as many jobs as were destroyed? Is the extra economic growth

enough to offset other significant downward forces on growth from a smaller working-age population and an increase in global temperatures by more than two degrees? Also, is this extra growth enough to fend off the need for governments to resort to inflation to deal with the buildup of debt? With 35 to 40 million Americans set to retire over the next decade and less immigration, along with an unknown number of jobs likely to be displaced by AI, what is the net impact on the balance of power between labor and capital? It is this set of questions that guides our discussion.

The pairing of AI with demographics may, at first sight, appear odd. One is fast-moving and the other the slowest of economic forces. However, we see them as intimately related in a number of ways. While the hope is that AI might raise productivity, a shrinkage of the working-age population acts to slow growth rates. One of the principal fears of AI is that it leads to mass joblessness, but what does that mean if the working-age population is shrinking anyway? In meetings with investors, some have suggested that a shrinking working-age population may be a good thing if AI is destroying jobs, but is such thinking putting hope over evidence? AI might also change the types of jobs available and the skills required—how does that interact with an aging workforce?

Before we get onto the topic of how the benefits of AI are distributed or what AI means for job enhancement versus job displacement, there is a huge disagreement about what the total productivity gain from AI is likely to be. Daron Acemoglu, winner of the 2024 Nobel prize for economics, has made a high-profile forecast that the annualized increase in US gross domestic product (GDP) from AI will be 1.2% over the next decade, or an increase of just 0.1 percentage points per annum (pppa). A raft of recent papers has come up with a range of higher estimates (*Display 50, page 87*), with most of them forecasting an annual increase in GDP growth rates of 1.0 pppa. Brynjolfsson notably forecasts more than 2.5 pppa.

There are important methodological differences underlying the various estimates. Daron Acemoglu's approach is calculated using a task-based aggregation framework adding up the micro-level, task-based productivity gains aggregated up to broad occupation level in the economy.³¹ In this approach, the key driver of productivity growth is the automation of tasks currently performed by humans. Philippe Aghion and Simon Bunel use the same framework but rely on different assumptions of AI adoption rates, exposure to AI by different occupations and potential cost savings, arriving at a more optimistic forecast for productivity gains.³²

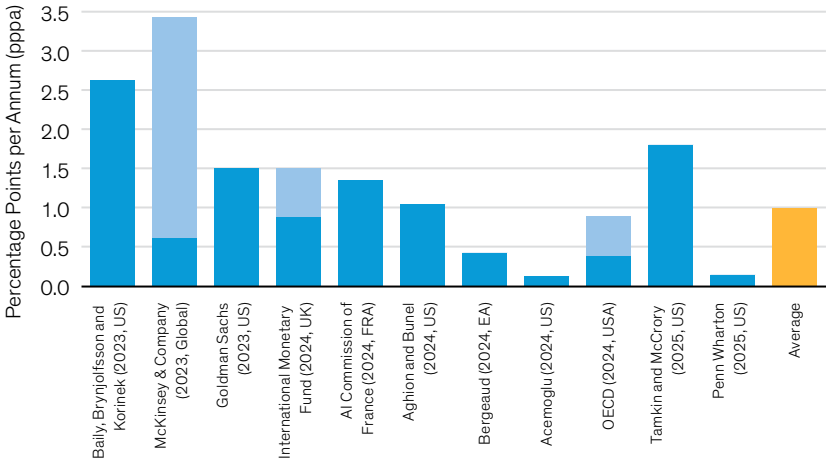
In a report published by the Organisation for Economic Co-operation and Development (OECD), Francesco Filippucci, Peter Gal and Matthias Schief go on to study not only the degree of automation possible for the tasks within a given

31 Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58.

32 Philippe Aghion and Simon Bunel, *AI and Growth: Where Do We Stand?*, Federal Reserve Bank of San Francisco, June 2024.

DISPLAY 50: DIVERGENT VIEWS ABOUT THE AGGREGATE PRODUCTIVITY GAINS FROM AI

Predicted Increase in Annual Labor Productivity Growth over a 10-Year Horizon Due to AI



Current analysis does not guarantee future results.

Notes: When the source presents a range of estimates as the main result, the lower and upper bounds are indicated by light-blue areas. In cases where predictions are made for total factor productivity, predicted labor productivity gains are obtained by assuming a standard long-run multiplier of 1.5 regarding the adjustment of the capital stock (Acemoglu 2024, Aghion and Bunel 2024, Bergeaud 2024 and OECD). The estimates refer to the countries shown in brackets.

As of December 8, 2024 | **Source:** AI Commission of France; Alex Tamkin and Peter McCrory, *Estimating AI Productivity Gains from Claude Conversations*, Anthropic, November 5, 2025; Alexander Arnon, *The Projected Impact of Generative AI on Future Productivity Growth*, Penn Wharton Budget Model, University of Pennsylvania, September 8, 2025; Antonin Bergeaud, “The Past, Present and Future of European Productivity,” presentation, ECB Forum on Central Banking 2024: Monetary Policy in an Era of Transformation, Session 4: Euro Area Productivity in the Short and Long Run, Sintra, Portugal, July 3, 2024; Daron Acemoglu, “The Simple Macroeconomics of AI,” *Economic Policy* 40, no. 121 (January 2025): 13–58; Francesco Filippucci, Peter Gal and Matthias Schief, “Miracle or Myth? Assessing the Macroeconomic Productivity Gains from Artificial Intelligence,” working paper, *OECD Artificial Intelligence Papers*, No. 29, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2024, <https://doi.org/10.1787/b524a072-en>; Jan Hatzius, Joseph Briggs, Devesh Kodnani and Giovanni Pierdomenico, *The Potentially Large Effects of Artificial Intelligence on Economic Growth* (Briggs/Kodnani), Global Economics Analyst, Goldman Sachs, March 26, 2023; Martin Neil Baily, Erik Brynjolfsson and Anton Korinek, *Machines of Mind: The Case for an AI-Powered Productivity Boom*, Brookings Institution, May 10, 2023, <https://www.brookings.edu/articles/machines-of-mind-the-case-for-an-ai-powered-productivity-boom/>; Mauro Cazzaniga, Florence Jaumotte, Longji Li, Giovanni Melina, Augustus J. Panton, Carlo Pizzinelli, Emma J. Rockall and Marina Mendes Tavares, “Gen-AI: Artificial Intelligence and the Future of Work,” staff discussion notes, International Monetary Fund, January 13, 2024; McKinsey & Company; Philippe Aghion and Simon Bunel, *AI and Growth: Where Do We Stand?*, Federal Reserve Bank of San Francisco, June 2024; and AB

occupation and industry, but also the second-order effects and the issue of how broad AI adoption might be across the economy.³³ If adoption is broad, then the input-output effects from the interconnectedness of sectors would have a beneficial impact. By contrast, if adoption is narrow, then this could significantly reduce productivity growth by raising costs without increasing growth (Baumol's growth disease). Finally, Martin Neil Baily, Erik Brynjolfsson and Anton Korinek also consider the micro-level productivity gains from AI adoption, but they crucially also assume that AI accelerates the rate of innovation through breakthroughs in research and development, and improvements in new-technology adoption across the economy.³⁴ The technological acceleration would compound over time, and thus lead to very substantial future productivity gains.

Evangelists for AI often equate it to the development of the steam engine—arguably the first technological development that raised per capita growth since humans developed farming to improve on nomadic roaming. Looking at UK GDP over the past eight centuries (*Display 51, page 89*), the widespread adoption of the steam engine by 1800 marks a clear break in the series. For the six centuries prior to 1800, UK per capita GDP growth was 0.39% annualized; after 1800, it has averaged 1.16%. Thus, very roughly, the Industrial Revolution and subsequent technological invention raised the trend per capita growth rate by 0.8 pppa. Our view is that one would have to be very wary of any forecasts for AI that assume a sustained impact on growth greater than that of the steam engine. Nevertheless, an increase in trend per capita growth of 0.8 pppa from today's level would be highly significant.

Some have advocated that the best way to view the aggregate economic impact of AI is indeed in the long-run context of previous rounds of automation. See, for example, Arvind Narayanan and Sayash Kapoor's recent paper exhorting one to view AI as a "normal technology."³⁵

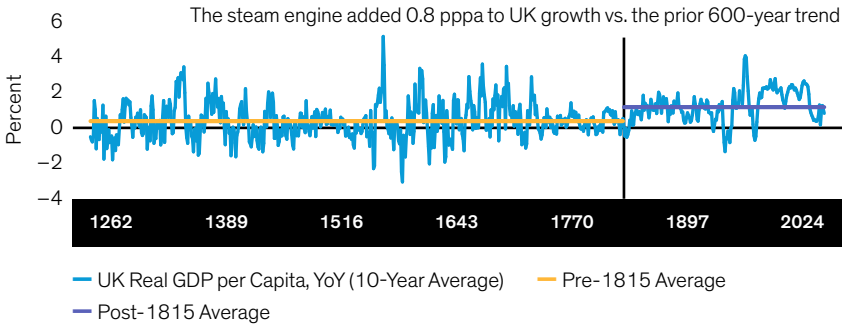
The difference between these forecasts is also highly significant in the context of the evolution of productivity growth (*Display 52, page 89*). The peak-to-trough range of sustained shifts between high- and low-productivity periods is on the order of 1.5 pppa.

33 Francesco Filippucci, Peter Gal and Matthias Schief, "Miracle or Myth? Assessing the Macroeconomic Productivity Gains from Artificial Intelligence," working paper, *OECD Artificial Intelligence Papers*, No. 29, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2024, <https://doi.org/10.1787/b524a072-en>.

34 Martin Neil Baily, Erik Brynjolfsson and Anton Korinek, *Machines of Mind: The Case for an AI-Powered Productivity Boom*, Brookings Institution, May 10, 2023, <https://www.brookings.edu/articles/machines-of-mind-the-case-for-an-ai-powered-productivity-boom/>.

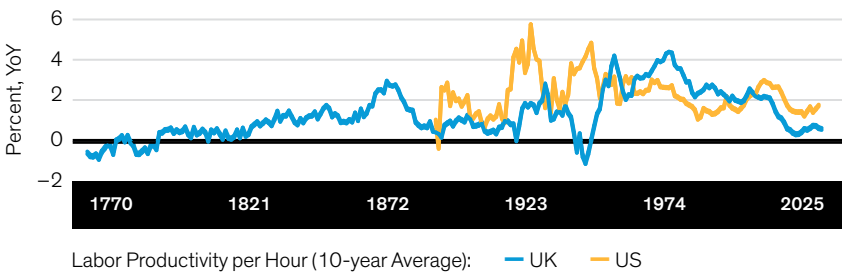
35 Arvind Narayanan and Sayash Kapoor, "AI as Normal Technology: An Alternative to the Vision of AI as a Potential Superintelligence," Knight First Amendment Institute at Columbia University, April 15, 2025, <https://knightcolumbia.org/content/ai-as-normal-technology>.

DISPLAY 51: UK REAL GDP PER CAPITA GROWTH SINCE 1262 (10-YEAR AVERAGE)



Current analysis does not guarantee future results. | pppa: percentage points per annum; YoY: year over year | As of September 4, 2025 | **Source:** Jutta Bolt and Jan Luiten van Zanden, "The Maddison Project: Maddison Style Estimates of the Evolution of the World Economy. A New 2020 Update," Maddison-Project Working Paper WP-15, Groningen Growth and Development Centre, University of Groningen, Groningen, Netherlands, October 2020, <https://www.rug.nl/ggdc/historicaldevelopment/maddison/publications/wp15.pdf>; and AB

DISPLAY 52: LONG-RUN LABOR-PRODUCTIVITY GROWTH TRENDS IN THE US AND UK



Current analysis does not guarantee future results. | UK labor productivity data from 1770 to 1890 is from the Bank of England; from 1890 to 1971 is from Bergeaud, Cette and Lecat, "Productivity Trends in Advanced Countries Between 1890 and 2012"; and from 1971 is from Macrobond. US labor productivity data from 1890 to 1971 is from Bergeaud, Cette and Lecat, "Productivity Trends in Advanced Countries Between 1890 and 2012"; and from 1971 is from Macrobond. | As of September 4, 2025 | **Source:** Antonin Bergeaud, Gilbert Cette and Rémy Lecat, "Productivity Trends in Advanced Countries Between 1890 and 2012," *Review of Income and Wealth* 62, no. 3 (March 10, 2015): 420–444, <https://doi.org/10.1111/roiw.12185>; Bank of England; Macrobond and AB

Potential Growth from AI vs. Constraints to Growth

However, positive growth from potential improvements in productivity needs to be set in the context of other megaforces that imply a downward pressure on growth. Some of these forces have a much higher degree of predictability (demographics) while others (climate) have a high degree of uncertainty. In *Display 53, page 91–92*, we try to scale the relative size of these megaforces in terms of the change that they imply for the rate of real growth in corporate earnings. The other forces that we consider are the change in the size of the working-age population, climate and aggregate shifts in labor versus capital share.

Although the core forecast for the size of the working-age population can be predicted with a high degree of accuracy, policy decisions can alter that, such as immigration policy and the assumed retirement age. Here, we assume the positive case is a continuation of immigration rates of recent years, which would leave the US working-age population slightly growing. A harsher policy of zero immigration would lead to a slight reduction in the working-age population, though, notably, even then the US would still have more favorable demographics than the rest of the developed world and China. For those others, demographic change is a net drain on growth, significantly so in the case of China.

A further constraint on growth is likely to be the climate prognosis. On this topic, the error bars around any forecasts are far wider than for demographics, but this nonetheless needs to be considered. Following our recent research on this topic, we assume that it is highly unlikely that we meet net zero by 2050.³⁶ As a result of this miss, we assume that the increase in temperature by 2050 exceeds two degrees. The implications of this for growth are widely debated. We have shown in previous research that academic attempts to link a given increase in temperature to growth rates yield a broad scatter of points, i.e., a high level of heterogeneity in views.³⁷ However, there is agreement that a temperature increase of two degrees would be negative for growth. A simple equal-weighted averaging of the 28 academic studies that we consider suggests that a two-degree increase in temperature is consistent with a 0.2 pppa reduction in growth rates. More recent estimates tend to be worse: taking the most recent such estimate, from the Network for Greening the Financial System, suggests a starker result of a 0.6 pppa reduction in growth.

In the forecast for real corporate earnings, we also consider shifts in the profit share of GDP. In the US there has been a large increase in this share in recent decades. One could take the view that there are social limits to how high this share could rise before it becomes unacceptable. However, if the decisions about which AIs are developed

36 Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>. See “Chapter 2—Can the Energy Transition Happen? And If Not, What Does that Mean for Asset Allocation?”

37 Ibid.

DISPLAY 53: CAN A PRODUCTIVITY BOOST FROM AI OFFSET OTHER LIKELY DOWNWARD FORCES ON GROWTH?

Net Changes in Impetus to Growth from Macro Forces (Percentage Points per Annum over 10 Years)

Region		Positive Outcome	Middle Ground	Negative Outcome	Notes
US					
Demographics	Immigration continues at recent pace	-0.6	—	—	The effect is compared to historical average growth
	Middle ground	—	-0.8	—	US likely to have stable working-age population...
	Harsh immigration policy	—	—	-0.9	... i.e., a decline in growth compared to recently
Climate	No impact on growth	0	—	—	Assuming zero impact (seems highly unlikely)
	Academic research average	—	-0.2	—	—
	NGFS	—	—	-0.6	—
Labor-Capital Share	Corporations take more share	0.1	—	—	Recent policy and AI development as enablers
	Constant share	—	0	—	—
	Labor claws back share	—	—	-0.1	Assumes there are social limits to capital share
AI	Required boost from AI	0.5	1	1.6	—
	Techno-optimist	2.5	—	—	Assumes that fast AI adoption yields scientific breakthroughs
	Average of recent academic studies	—	1	—	Assumes fast adoption
	Acemoglu, "The Simple Macroeconomics of AI"	—	—	0.1	—
Developed World ex US					
Demographics	Immigration continues at recent pace	-0.6	—	—	The effect is compared to historical average growth
	Middle ground	—	-0.8	—	Developed-world working-age population shrinks regardless of immigration policy
	Harsh immigration policy	—	—	-0.9	—
Climate	Climate change has no impact on growth	0	—	—	Assuming zero impact (seems highly unlikely)
	Academic research average	—	-0.2	—	—
	NGFS	—	—	-0.6	—

Region		Positive Outcome	Middle Ground	Negative Outcome	Notes
Labor-Capital Share	Assume constant	0	0	0	Less tolerance of high capital share
AI	Required boost from AI	0.6	1	1.5	—
	Techno-optimist	0.8	—	—	Apply same ratio as in US
	OECD average	—	0.3	—	GDP-weighted average of Germany, Italy, UK, France and Japan
	Slow adoption	—	—	0	Assume zero productivity uplift
Developed World					
Demographics	Immigration continues at recent pace	-0.7	—	—	—
	Middle ground	—	-0.9	—	—
	Harsh immigration policy	—	—	-1.0	—
Climate	No impact on growth	0	—	—	Assuming zero impact (seems highly unlikely)
	Academic research average	—	-0.2	—	—
	NGFS	—	—	-0.6	—
Labor-Capital Share	Assume constant	0	0	0	—
AI	Required boost from AI	0.7	1.1	1.6	Use GDP-weighted share to apply globally
	Techno-optimist	1.2	—	—	—
	Average of recent studies	—	0.5	—	—
	Acemoglu, "The Simple Macroeconomics of AI"	—	—	0	—

Current analysis does not guarantee future results.

NGFS: Network for Greening the Financial System

As of September 10, 2025 | **Source:** Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58; Network for Greening the Financial System; OECD; United Nations and AB

and released are left in the hands of corporations, then this share could increase to even more unprecedented levels. Profit share has been more stable in the rest of the world, so we assume it will remain constant elsewhere.

Display 53 shows the required uplift in productivity from AI that would offset these other downward forces on growth. Under the most positive scenario for the US: (1) immigration would continue at historical levels, and the working-age population

would continue to grow at 0.3% (versus the historical average of 0.9%); and (2) the rise in temperatures would have no impact on GDP. However, even under this rosy scenario, if we compare the change in average growth rates to the average since 1980, AI would still need to raise the rate of productivity growth by 0.5 pppa in order to reflect that, despite an increase in the working-age population, the growth rate of the workforce would still be 0.6 pppa slower than it has been. However, the average of recent academic studies implies that AI could deliver growth above this amount.

Under the more negative path, where a harsh immigration policy and climate impact on growth is in line with the latest studies, the drag to GDP growth would be $-0.9\% + (-0.6\%) + (-0.1\%) = -1.6\%$. This does not include the effect of additional healthcare workers needed to support an increasingly larger population of elderly people with increasing prevalence of dementia and other chronic illnesses, which would make the demographic headwind to growth even larger, nor the possible drags on growth from deglobalization. Thus, the productivity growth rate from AI would have to be much greater just to keep growth in line with recent experience. It would take the very techno-optimist view for AI to make up for lost growth in those circumstances, and a sustained boost to productivity from AI greater than that provided by the steam engine.

We will discuss potential regional differences for any productivity boost from AI in more detail later in this chapter. However, there is a case that the uplift to growth outside the US will be lower. Using OECD forecasts, the GDP-weighted expected productivity increases for Germany, Italy, the UK, France and Japan are likely to be on the order of 0.3 pppa, and yet the demographic headwinds are harsher.

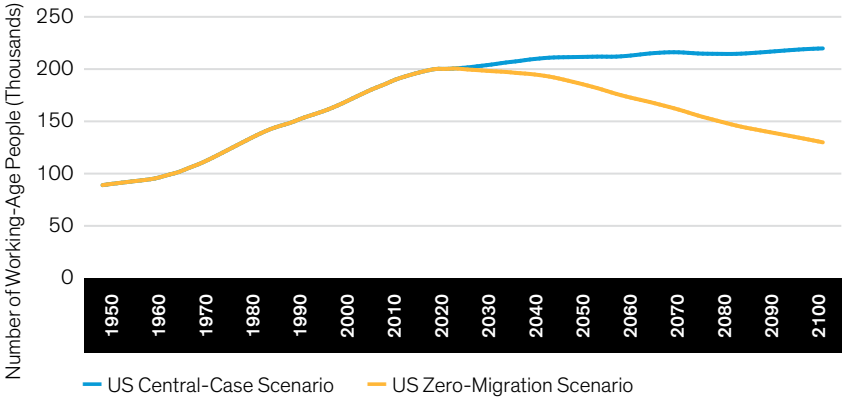
We note in Display 53 that the changes in the size of the working-age population may look similar, but the absolute levels are very different, i.e., population growth in the US and a decline elsewhere.

We note one important assumption of the central United Nations (UN) demographics projection is that it assumes migration rates in-line with historical averages. However, the experience over the last five years in the US and a number of European countries shows that there can be dramatic shifts in migration numbers in a relatively short period of time. For example, in Spain during 2021 through 2023, there were three million immigrants born outside of the European Union (EU).³⁸ That equates to nearly 6% of the region's total population and nearly 10% of the working-age population. In the US, the 1.6 million new immigrants in 2023 marked the largest increase in more than 20 years.³⁹

³⁸ Omar G. Encarnación, "Spain Is an Example to the World," *New York Times* (August 11, 2025), <https://www.nytimes.com/2025/08/11/opinion/spain-immigration-sanchez-amnesty.html>.

³⁹ John Gramlich and Jeffrey S. Passel, "US Immigrant Population in 2023 Saw Largest Increase in More Than 20 Years," Pew Research Center (September 27, 2024), <https://www.pewresearch.org/short-reads/2024/09/27/u-s-immigrant-population-in-2023-saw-largest-increase-in-more-than-20-years/>.

DISPLAY 54: US WORKING-AGE POPULATION GROWTH RATE UNDER DIFFERENT SCENARIOS



Current analysis does not guarantee future results.

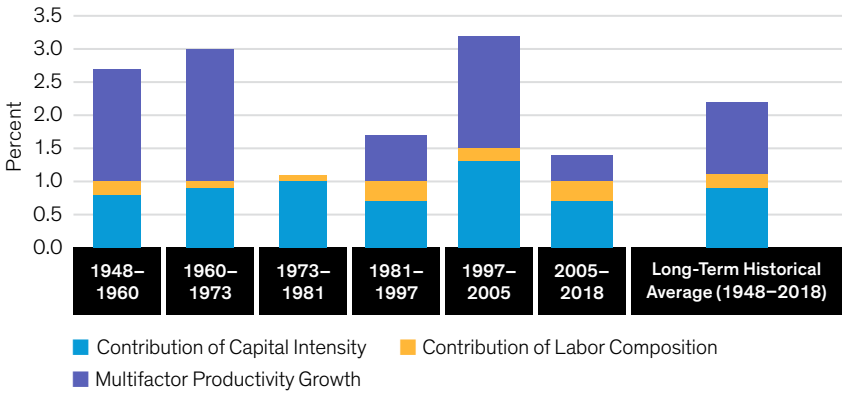
As of September 4, 2025 | **Source:** United Nations and AB

Recent US migrant flows are now running at levels significantly below the average of recent years, and the migration policy is expected to tighten further. The UN provides an alternative demographic forecast under a scenario where all migration flows drop to zero from 2025. *Display 54*, shows a comparison of this scenario with the baseline projection. In this scenario, the US working-age population growth would drop to -0.16% pppa. While this is an extreme scenario that's unlikely to materialize, it does serve as a useful illustration of how a shift in policy can significantly affect the structural growth rate.

This exercise allows for a humbler approach to estimating the impact of a productivity gain from AI. Given the poor track record in the industry, and the economics profession more broadly, at making forecasts of productivity, it allows us to reverse engineer the problem and ask how large any aggregate productivity gain must be to offset the downward force on growth from these other megaforges. The implication from the above analysis is that for the total developed world, we should expect a decline of 1.1 pppa in the growth rate of real earnings and GDP over the next decade.

How plausible is such a compensating increase in growth due to AI? The amplitude of changes in productivity in the US between low- and high-productivity periods since World War II has been about the same order of magnitude (*Display 55, page 95*). Therefore, there is a case to be made that an AI productivity gain can indeed offset downward forces on growth. However, this case requires one to assume that the maximum historical range of productivity increases as a base case, a forecast that we do not think is prudent.

DISPLAY 55: RANGE OF HISTORICAL PRODUCTIVITY GROWTH



Current analysis does not guarantee future results.

As of June 30, 2023 | **Source:** US Bureau of Labor Statistics and AB

The AI/demographics balance and how it interacts with other macro forces also has implications for the ongoing debate about US exceptionalism. We made the case in “Chapter 1—The End of US Exceptionalism,” that exceptionalism for US growth (and hence equity returns) can be robustly defended, and this analysis agrees with that case. The range of outcomes across a range of AI and demographics assumptions (the two recurring big themes in this chapter) show a range that favors the US relative to other regions.

For the world ex US, a rapid AI adoption would offset a “good” (well, less bad) possible climate outcome and demographic change, perhaps pointing to no change in real growth rates. This is a very optimistic outcome, though, as it assumes that the same AI growth benefits that can be achieved in the US under a good scenario can also be achieved elsewhere. This is probably not quite right given: (1) smaller tech sectors in other countries; (2) a history of non-US firms not being as effective as their US peers in harnessing technology and (3) other major economies not having the same degree of security of energy supply.⁴⁰

While the balance of forces on growth shows an advantage for the US from an equity-allocation perspective, the US also has a more rapidly deteriorating fiscal balance. Our

⁴⁰ Nicholas Bloom, Raffaella Sadun and John Van Reenen, “Americans Do IT Better: US Multinationals and the Productivity Miracle,” *American Economic Review* 102, no. 1 (February 2012): 167–201, <https://www.aeaweb.org/articles?id=10.1257/aer.102.1.167>.

view is that the appeal of the dollar as a reserve currency is waning (see “Chapter 2—The Dollar: Slowly Shifting Toward More Risk?”), so the topic of fiscal sustainability is becoming more pressing. This begs the question: What level of extra growth is needed to shrink US debt? Without a plausible mechanism to grow out of debt, the challenge raises the risk of inflation or financial repression as more likely paths out.

The current level of federal US debt is 100% of the GDP. Based on the Congressional Budget Office (CBO) baseline projection, public debt is expected to reach nearly 120% in the next decade, and would then continue to grow to 156% of GDP by 2050.⁴¹ In this projection, total factor productivity (TFP) is assumed to grow at an average annual rate of 1% pppa in coming years, and the rate of population growth is expected to decline from an average of 0.4% a year from 2025 through 2035 to an average of 0.1% thereafter.

Could an AI-driven rise in productivity help to keep the growth of debt under control? In one of the recent alternative scenarios produced by the CBO, if TFP in the nonfarm business sector achieved sustained growth of 0.5% per year above the baseline, the debt-to-GDP ratio would be stabilized at 113%.⁴² However, while the CBO projections include the effect of slowing population growth, they do not consider the potential for a negative impetus to growth from adverse climate change, nor the potential for an even harsher immigration policy to reduce the working-age population.

Thus, taking these into account, the change in the growth rate required to stabilize the growth of debt is likely to be higher. So, we conclude that the midrange forecast for AI-led productivity gains is probably not sufficient to stabilize debt; estimates for productivity gains at the more bullish end of the range are required.

As we pointed out in “Chapter 2—The Dollar: Slowly Shifting Toward More Risk?” the level of debt/GDP does not represent a hard limit. It is exceptionally hard to forecast what level triggers concerns about debt sustainability to a degree that sovereign risk is priced in. Instead, the interest expense as a share of expenditure might represent a harder limit. On this basis, we think it is significant that the US servicing cost on debt exceeded the defense budget for the first time in 2024. A very generous assumption of AI productivity gain will be required to correct this.

Do Significant Productivity Gains from AI Entail Mass Job Losses?

An intriguing question has come up in various guises during recent meetings with clients. This is the question of whether a shrinking working-age population may, contrary to first appearances, be a good thing. The premise is that perhaps AI is about to displace jobs on an unprecedented scale, in which case fewer workers may be required. This line of reasoning goes on to suggest that a growing working-age

⁴¹ For more details, please see *The Long-Term Budget Outlook: 2025 to 2055*, Congressional Budget Office, March 27, 2025, <https://www.cbo.gov/publication/61187>.

⁴² *The Long-Term Budget Outlook Under Alternative Scenarios for the Economy and the Budget*, Congressional Budget Office, May 2025, <https://www.cbo.gov/publication/61429>.

population (which, in the developed world, is still only a prospect in the US) might create social problems if there is a large number of people looking for work, but who are no longer able to find employment. Some investors have suggested to us that, given this potential outcome, maybe the prospect of shrinking working-age populations in Europe, Japan and China might not be a problem from an economic growth perspective (this point is distinct from the positive planetary impact of declining populations). We think there is likely an element of wishful thinking in this line of argument, but the interaction between a productivity improvement from AI and declining working-age populations is critical from an economic and social point of view, so it is worth analyzing.

This harks back to a theme as old as the Industrial Revolution. In *Two Memorials on Behalf of the Working Classes* (styled as a presentation to the governments of Europe and America), Robert Owen suggested that scientific advances would “soon render human labor of little avail in the creation of wealth.” His vision was that increased automation could lessen the demand for adult and child labor, ending misery for large swaths of the population. Making sure that automation was subservient to labor was an important step, according to Owen, to ensure that the benefits of automation were evenly spread. He made this suggestion when writing in 1818 and thus prefigured by a century John Maynard Keynes’s famous suggestion in “Economic Possibilities for Our Grandchildren” that the working week could be cut to 15 hours because the economy was becoming more productive. Keynes made this suggestion in 1930, looking 100 years into the future. We are nearly at the point in time that Keynes was speculating about, but the prospect of a 15-hour week seems laughable. We discussed the reasons why this was a mistaken forecast in *Instability: Debt, Inflation and AI’s Impact on Investing* (see “Chapter 3—Machines, Democracy, Capitalism and Feudalism: Five Books for a Different Age, and What It Means for Investing”).

The idea of productivity gains obviating the need to work has been echoed more recently in the contemporary left accelerationist movement, which starts by rejecting the need to work and then calls for rapid automation to free up people’s time, with this being achieved by a democratization of productive technologies.⁴³

One of the key reasons why Keynes’s forecast was wrong and why Owen’s utopian hope has yet to come to pass was that the gains of productivity improvements were not shared equally. Owen’s own suggested solution to the problem of distributing these benefits was cooperatives and the commons, which is very far from the dominant model of late-stage capitalism. Indeed, the dominance of platform companies and increasing rent-seeking behavior of mega-caps point in the opposite direction. Corporations are clearly in the driving seat of AI development in capitalist societies, with the power to decide what kind of AI is developed and released.

⁴³ See Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World Without Work* (Verso, 2015).

The point Owen raised at the dawn of the Industrial Revolution is highly relevant today with the rise of AI. The dominant fear with AI is that automation will destroy jobs in a semi-permanent way, especially for a range of white-collar jobs that supported a mass-affluent cohort in society. The counterargument to this is that the fears about mass job displacement might turn out to be empty fears as AI creates demand for new jobs. This, after all, is the net result of all the previous rounds of automation since the beginning of the Industrial Revolution.⁴⁴ Kerstin Hötte, Melline Somers and Angelos Theodorakopoulos conducted a systematic literature review of the impact of technology on jobs.⁴⁵ They concluded that the labor-displacing effect of technology has, in the past, been more than offset by labor creation.

There has been no upward trend in structural unemployment rates over the long run. Why should one think that AI is different from previous breakthroughs in technology? Despite the lack of evidence of prior rounds of automation leading to structural unemployment, there is evidence that previous rounds of automation have led to a collapse in real wages in affected sectors.⁴⁶ We discuss, later in this chapter, the broader aspect of this, focused less narrowly on economics.

We started this chapter by noting that there is significant dispersion in forecasts of the impact of AI on productivity. Aside from trying to forecast this aggregate impact on growth, the question that interests us is: Does a very positive view on the productivity improvement of AI necessarily entail a view that jobs are displaced en masse? The extent to which productivity gains from AI rely on simply displacing labor versus making existing labor more productive is clearly a key question for the future of the labor market and the prognosis for individual sectors. It also matters in allowing us to get a sense of the social impact of AI and cast some light on the key economic question of the level of productivity gain that is plausible.

Any near-term improvement in productivity due to AI could come about from two possible channels: either from substituting labor and saving the cost of the roles that are displaced while keeping output constant, or by complementing labor by making a given role more productive. In time, there are also other channels: for example, AI could also create new roles.

In order to gauge the impact of these effects, one needs to distinguish between tasks and jobs. A given job requires a selection of different tasks to be completed. We won't go into detail on how to distinguish between tasks and jobs, as it feels like this has been discussed

44 See David H. Autor "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *Journal of Economic Perspectives* 29, no. 3 (Summer 2015): 3–30, <https://www.aeaweb.org/articles?id=10.1257/jep.29.3.3>.

45 Kerstin Hötte, Melline Somers and Angelos Theodorakopoulos, "Technology and Jobs: A Systematic Literature Review," *Technological Forecasting and Social Change* 194 (September 2023): <https://doi.org/10.1016/j.techfore.2023.122750>.

46 See John Cassidy, "The Logic of the Luddites," in *Capitalism and Its Critics: A History: From the Industrial Revolution to AI* (Farrar, Straus and Giroux, 2025), and his discussion of weavers' wages from 1800 to 1820.

a lot in recent commentary on the economic consequences of AI. For people who are interested in doing so, we recommend reading Tyna Eloundou and Daron Acemoglu.⁴⁷

One of the most comprehensive attempts to measure the degree to which individual tasks are exposed to automation by LLMs is the work of Eloundou, who uses both a ChatGPT and human-based approach to assess the degree to which LLMs can undertake the individual tasks that make up each occupation within the economy.⁴⁸ Aggregating across all the tasks that are required for a particular occupation yields an exposure score for how much of that task could be performed by an LLM. Eloundou concludes that 80% of workers have an occupation with at least 10% of its tasks exposed to LLMs, while 19% of workers are in an occupation where over half of its tasks are exposed. A recent paper from the Brookings Institution suggests that 30% of workers could see at least 50% of their occupation's tasks disrupted.⁴⁹

Display 56, page 100, shows the percentage of exposure to LLM automation tasks (using estimates by Eloundou), aggregated in major occupation groups. At the high end, more than 70% of computer and mathematical tasks as well as office and administrative tasks are exposed to LLM automation. At the low end, construction, building and maintenance, and protective services have exposure levels of only around 20%.

Each industry in the economy consists of a range of individual occupations. By summing up the AI exposure of individual occupations that make up a sector, we can arrive at an AI exposure for major sectors in the economy (*Display 57, page 101*). On this basis, for broad sectors, financial services are the most exposed to AI, while construction and agriculture are the least exposed. This seems reasonable.

How much of a productivity gain can be expected for a given task that is exposed to AI? This question can be thought about as the product of the micro-level productivity gain in any specific task, the exposure of the task to AI and the adoption rate (we discuss the latter below).

Filippucci, Gal and Schief provide a detailed review of academic literature estimating the micro-level gains in productivity from AI adoption.⁵⁰ The estimates for different tasks range from a 14% to 56% improvement, with varying degrees of precision and

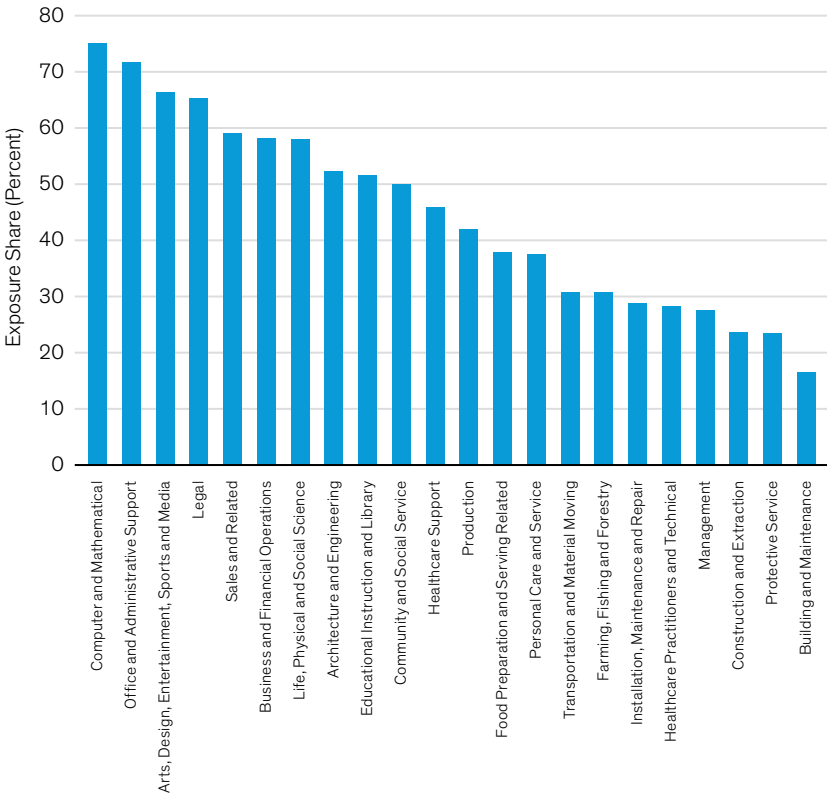
⁴⁷ Tyna Eloundou, Sam Manning, Pamela Mishkin and Daniel Rock, "GPTs Are GPTs: Labor Market Impact Potential of LLMs," *Science* 384, no. 6702 (June 20, 2024): 1306–1308, <https://doi.org/10.1126/science.adj0998>. Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58.

⁴⁸ *Ibid.*

⁴⁹ Molly Kinder, Xavier de Souza Briggs, Mark Muro and Sifan Liu, *Generative AI, the American Worker, and the Future of Work*, Brookings Institution, October 10, 2024, <https://www.brookings.edu/articles/generative-ai-the-american-worker-and-the-future-of-work/>.

⁵⁰ Francesco Filippucci, Peter Gal and Matthias Schief, "Miracle or Myth? Assessing the Macroeconomic Productivity Gains from Artificial Intelligence," working paper, *OECD Artificial Intelligence Papers*, No. 29, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2024, <https://doi.org/10.1787/b524a072-en>.

DISPLAY 56: LLM TASK EXPOSURE LEVELS FOR MAJOR OCCUPATION GROUPS



Current analysis does not guarantee future results.

LLM: large language model

Task exposure data is provided by OpenAI.

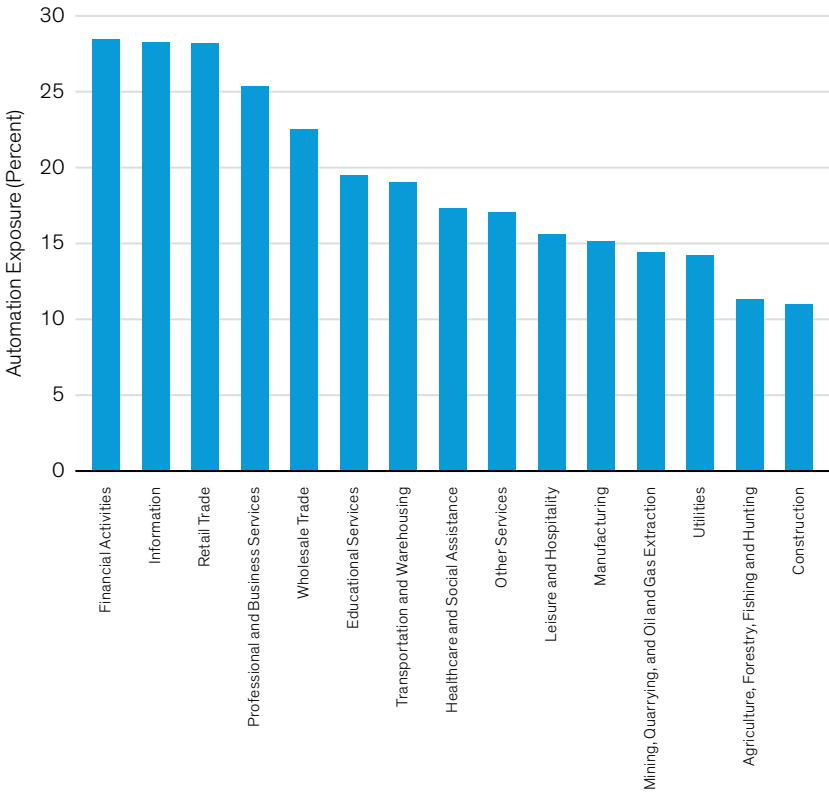
As of October 10, 2024 | **Source:** Brookings Institution and AB

confidence intervals. However, most studies tend to converge to a 30% baseline effect on productivity over a 10-year horizon. In our analysis, we take a slightly more conservative approach and assume a 15% productivity gain.

But the literature on productivity gains from AI tends to skirt over the topic of how much of that gain comes from allowing workers to produce more versus displacing workers while

DISPLAY 57: LLM AUTOMATION EXPOSURE BY SECTOR

Weighted by Industry Value-Added Share



Current analysis does not guarantee future results.

LLM: large language model

Occupation-level automation data provided by Acemoglu; value-added data from Bureau of Economic Analysis input-output tables.

As of May 12, 2024 | **Source:** Bureau of Economic Analysis; Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58; and AB

maintaining the same output. This approach is understandable. After all, it is hard enough to forecast productivity alone, let alone untangle its component parts. Ideally, one would estimate the proportion of workers that are displaced and the cost, then also estimate the proportion of workers that remain and those workers' increase in productivity.

However, in practice it is very hard to come up with hard estimates for the proportion displaced versus remaining. In a sense, this difficulty goes to the heart of the current debate about how productivity gains from AI evolve. This split may be something that is more amenable to a forecast in the next one to two years, as we have more live use cases of how AI is being adopted in corporations.

Just because a job is exposed to AI does not mean it will be eliminated. Indeed, there are jobs with mundane elements that are exposed to AI, and AI might enable a worker to become more productive (and for the work to become more interesting). See Autor for a good discussion on this point, which highlights the crucial distinction that it is not jobs that will be displaced per se, but tasks, with each job involving many tasks.⁵¹ A similar argument is made by Lukas Freund and Lukas Mann, who argue that the primary effect of AI on the labor market is through job transformation rather than an outright job loss.⁵² They note three categories of workers resulting from the automation of tasks. First, workers that are highly specialized in tasks that become automated are forced to leave their transformed jobs, suffer wage losses and are at risk of structural unemployment. However, automation also creates two groups of winners. The first group is incumbent workers that remain in highly automation-exposed occupations, who are freed to spend more time on tasks that are less easily automated, such as customer-facing and coordination tasks in which they excel. The second group is workers who previously were discouraged from taking roles in automation-exposed sectors due to a lack of necessary skills in data processing and analysis, for example. These workers are now able to switch into these new jobs and potentially earn a wage premium. Thus, as the authors suggest, the automation-exposure measures of occupations are best viewed as potential for change, rather than an outright job displacement. However, AI-based automation will still have major labor-market effects by transforming how workers spend their time and through reallocation between different sectors of the economy.

One attempt to observe the split between displacement and complementing tasks was made by Handa et al., which assessed millions of Claude conversations to determine what this LLM was used for.⁵³ Over half of the instances were to complete coding or writing tasks. Importantly, though, 57% of Claude usage was to complement a human activity and 43% was used to automate and displace a human activity.

Because of these difficulties, our analysis assumes a range of scaling factors for converting the degree to which a job is exposed and the number of such jobs that may

⁵¹ David Autor and Neil Thompson, "Expertise," NBER Working Paper No. 33941, National Bureau of Economic Research, Cambridge, MA, June 24, 2025.

⁵² Lukas B. Freund and Lukas F. Mann, "Job Transformation, Specialization, and the Labor Market Effects of AI," working paper 12072, Munich Society for the Promotion of Economic Research, CESifo, Munich, Germany, August 16, 2025.

⁵³ Kunal Handa, Alex Tamkin, Miles McCain, Saffron Huang, Esin Durmus, Sarah Heck, Jared Mueller, Jerry Hong, Stuart Ritchie, Tim Belonax, Kevin K. Troy, Dario Amodei, Jared Kaplan, Jack Clark and Deep Ganguli, *Which Economic Tasks Are Performed with AI? Evidence from Millions of Claude Conversations*, Anthropic, February 2025.

be eliminated (*Display 58*). Any such approach will be open to counterarguments, but we feel that doing so is important to give us some form of quantitative basis to assess the interaction of productivity and job losses. We make this link fully expecting the need to revise these numbers in coming years, but it is a start, nonetheless.

The aggregation of AI exposure across industries outlined above suggests three broad tiers of AI exposure: less than 15%, 15%–25% and greater than 25%. Because there is so much uncertainty about the degree to which efficiency gains are linked to a displacement of jobs, we then assume a range of scenarios for the extent to which exposure to AI translates into job displacement. In all cases, we assume that jobs with less than 15% exposure do not see job displacement. We then assume three tiers of displacement (low, medium and high) for other sectors. In the high-displacement case, we assume there is a 1:1 conversion between AI exposure and job displacement for the sectors where more than 25% of tasks are exposed to AI. In interpreting this, in the high-displacement scenario, all the productivity gain from AI in those sectors is driven by a lower need for employment.

We also need to make assumptions about adoption rates. Filippucci, Gal and Schief compare the early adoption of AI (since the launch of ChatGPT) and that of previous widespread general-purpose technologies such as electricity, computers and the internet.⁵⁴ A decade after electricity’s first introduction, the adoption rate of firms reached 20%. The trajectory of internet adoption was much quicker, reaching more

DISPLAY 58: ASSUMED SCENARIOS OF LOW/MEDIUM/HIGH DISPLACEMENT FOR DIFFERENT AUTOMATION EXPOSURE BANDS

Exposure Band	Displacement Scenario		
	Low Scenario	Medium Scenario	High Scenario
<15%	0%	0%	0%
15%–25%	10%	15%	20%
>25%	20%	25%	Proportional to Exposure

Current analysis does not guarantee future results.

As of August 21, 2025 | Source: AB

⁵⁴ Francesco Filippucci, Peter Gal and Matthias Schief, “Miracle or Myth? Assessing the Macroeconomic Productivity Gains from Artificial Intelligence,” working paper, *OECD Artificial Intelligence Papers*, No. 29, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2024, <https://doi.org/10.1787/b524a072-en>.

than 40% in the first 10 years. So far, the adoption of AI appears to be happening at an even faster pace—it took only five days after launch for ChatGPT to reach one million users. It currently has more than 900 million active weekly users and is on track to reach one billion by the end of the year.⁵⁵ Thus, we expect AI adoption to be fast, especially in the US, and to surpass the pace of previous technological innovations. In our high-adoption case, we expect 60% adoption, and in our medium case 40% adoption, over the next decade. For simplicity, we are assuming the same adoption rates across sectors, though of course this could be adapted to sector-specific adoption.

We bring all this together in *Display 59, page 105*, which is an attempt to cast light on the trade-off between growth and job displacement. We show results for several different scenarios, representing fast or slow AI adoption by corporates and also high, medium and low linkages between AI exposure and job displacement. Generally speaking, a greater productivity improvement of AI implied a higher degree of job losses, but the scale of this link has a large range.

A caveat is that this methodology does not allow us to account for new roles that are potentially created. Previous rounds of automation have created new tasks. So, the net number of displaced jobs could well be overstated. However, the other theme in this chapter is demographics and the aging of populations in advanced economies and China. Seen in this light, there are questions around how appropriate new roles might be for the individuals displaced and the risk of a drag on growth from a structural increase in unemployment.

The total displacement of labor is calculated as:

$$\text{Total displacement} = \text{adoption rate} \times \sum_{\text{industries}} \text{displacement rate based on AI exposure} \times \text{share of employment}$$

In order to link this to corporate earnings growth, we calculate total gain in productivity:

$$\text{Gain in productivity} = \text{adoption rate} \times \text{productivity gain factor} \times \sum_{\text{industries}} \text{AI exposure} \times \text{share of profit}$$

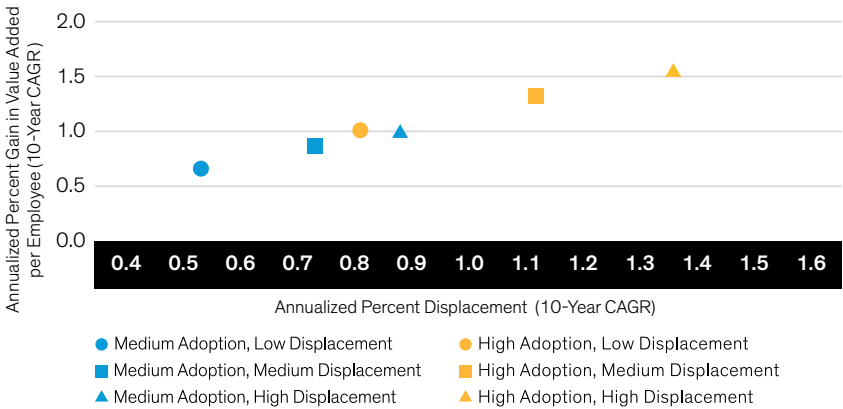
The total productivity gain is then divided by the remaining number of workers, which accounts for the displacement calculated earlier. To avoid double counting the part of a productivity gain that comes from a decline in the number of workers, we halve the productivity gain factor assumed in recent literature to account approximately for the labor versus capital share. Finally, both the productivity gain and displacement are compared to the 2023 baseline and annualized over 10 years.

⁵⁵ Shubham Singh, "ChatGPT Users Statistics (June 2026)—Growth & Usage Data," DemandSage (June 5, 2026), <https://www.demandsage.com/chatgpt-statistics/>.

In the medium-adoption and medium-displacement scenario, the annual gain in productivity is 1% (close to the OECD forecast for productivity growth and the mean of the studies considered earlier in this chapter), resulting in 0.7% of displaced workforce per year. In the most extreme case of high adoption and high displacement, the annual productivity gain is 1.75% (at the bullish end of the AI forecasts considered earlier), implying that 1.4% of the workforce is displaced annually.

To put the displacement numbers in perspective, the US Bureau of Labor Statistics puts the annual rate of labor turnover in the US private sector in the region of 3%–4%.⁵⁶ Thus, in the case of high adoption and high displacement, the annual labor churn would increase by nearly 50%, but the resulting gain in productivity would also be very high by historical standards.

DISPLAY 59: A FIRST ATTEMPT AT THE TRADE-OFF BETWEEN PRODUCTIVITY GROWTH AND JOB DISPLACEMENT OVER A 10-YEAR HORIZON



Current analysis does not guarantee future results.

CAGR: compound annual growth rate

The high-adoption rate assumes a 60% adoption rate in the first decade and the mid-adoption rate assumes a 40% adoption (in line with the growth of internet adoption).

As of September 3, 2025 | **Source:** Daron Acemoglu, “The Simple Macroeconomics of AI,” *Economic Policy* 40, no. 121 (January 2025): 13–58; US Bureau of Labor Statistics; and AB

⁵⁶ US Bureau of Labor Statistics (website), “Table 20. Annual Average Total Separations Rates by Industry and Region, Not Seasonally Adjusted,” Economic News Release, accessed March 11, 2025, <https://www.bls.gov/news.release/jolts.t20.htm>.

If the displaced workers are able to retrain and find employment in other industries relatively quickly, this shock to the labor market might be an acceptable trade-off for the productivity gains. However, a more negative interpretation would be to assume that the automated jobs are lost permanently and that most or all of the displaced workers become structurally unemployed. In the worst interpretation of this case, the structural unemployment rate would rise by more than 14% over a decade in the high-adoption and high-displacement scenario. That would presumably require government intervention in the form of universal basic income or other social guarantees.

Questions of Distribution

It would be naïve in the extreme to assume that the impact on aggregate productivity was the only question of economic relevance with regard to AI. An analysis of AI inevitably raises questions of cross-sectional distributions of gains. AI could plausibly raise aggregate productivity while forcing a broader dispersion of outcomes across society, e.g., the potential for some people to become much more productive while others are simply displaced.

In *Power and Progress*, Acemoglu and Johnson make the case that the distribution of benefits from a technology is not determined by the technology itself, but rather by social and political decisions made when the technology emerges.⁵⁷ There are two ways for a new technology to alter the wealth distribution. It could impact the wage distribution across society (the more uneven distribution of wages has been the new development in recent decades, as pointed out by Thomas Piketty).⁵⁸ A technology can also affect the split between labor and capital, for example by automating jobs that previously were not automated.

The debate about how many jobs are put at risk by automation is as old as the Industrial Revolution, and so far, there has not been a trend increase in unemployment despite all the rounds of automation. Nevertheless, one aspect of AI sets it apart from the rounds of automation since World War II: nonunionized roles seem particularly exposed (*Display 60, page 107*). This has potentially significant implications for the bargaining power of labor versus capital, which we discuss below. Its impact on the cross-sectional distribution of wealth is complex, though, as many of the nonunionized jobs most at risk are higher-paid white-collar jobs. Such a shift could undo part of the growth in income inequality in recent years (and wealth inequality could well rise, as the owners of capital take a larger share of gains).

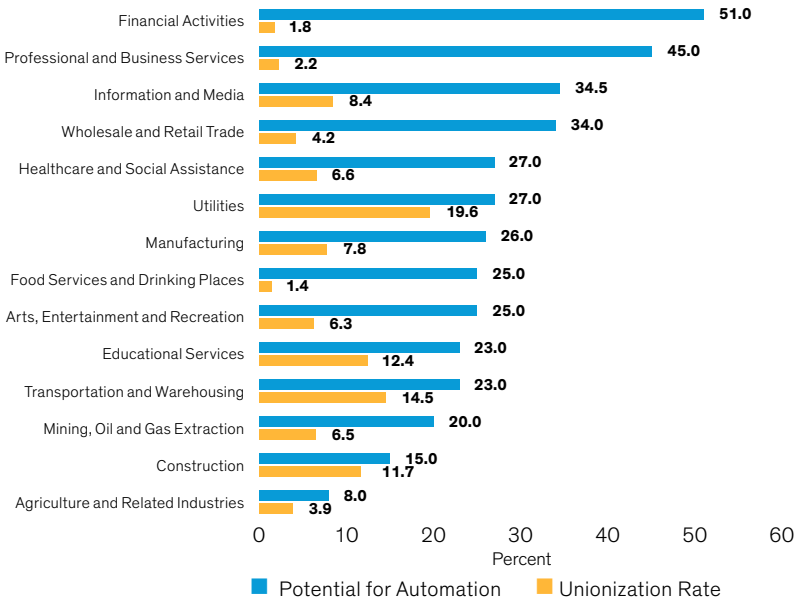
There have been examples of AI safeguards being put in place through collective bargaining.⁵⁹ But, for the most part, in the West it seems to be corporations that are firmly

⁵⁷ Daron Acemoglu and Simon Johnson, *Power and Progress: Our Thousand-Year Struggle over Technology and Prosperity* (PublicAffairs, 2023).

⁵⁸ Thomas Piketty, *Capital in the Twenty-First Century*, translated by Arthur Goldhammer (Belknap Press of Harvard University Press, 2014).

⁵⁹ Molly Kinder, *Hollywood Writers Went on Strike to Protect Their Livelihoods from Generative AI. Their Remarkable Victory Matters for All Workers*, Brookings Institution, April 12, 2024, <https://www.brookings.edu/articles/hollywood-writers-went-on-strike-to-protect-their-livelihoods-from-generative-ai-their-remarkable-victory-matters-for-all-workers/>.

DISPLAY 60: NONUNIONIZED LABOR IS MOST AT RISK FROM AI DISRUPTION



Current analysis does not guarantee future results.

As of June 29, 2023 | **Source:** Accenture, US Bureau of Labor Statistics, US Department of Labor and AB

in the driving seat in determining which AI is developed and released. Thus, the direction of travel seems to be set for gains for capital at the expense of labor (and perhaps at the expense of governments too). If the path to greater automation does indeed imply mass job displacement, will states allow the scenario of mass joblessness? It will possibly become a key policy question with potential different answers, e.g., between the EU and US.

The other question of distribution is one of a cohort effect. Early evidence from Erik Brynjolfsson, Bharat Chandar and Ruyu Chen shows that in sectors with a high exposure to AI, the relative impact on job creation is much more pronounced in the cohort under age 30 than for older workers.⁶⁰ We would link this to our view that greater longevity,

⁶⁰ Erik Brynjolfsson, Bharat Chandar and Ruyu Chen, “Canaries in the Coal Mine? Six Facts About the Recent Employment Effects of Artificial Intelligence,” working paper, Stanford Digital Economy Lab, Stanford Institute for Human-Centered AI, Stanford University, Stanford, CA, November 13, 2025.

a higher prospect of inflation, a curtailment of defined benefit pension provision and questions over the degree to which state support can be maintained given fiscal pressure all imply that this age cohort has to save at a faster rate than older groups. The prospect of high job displacement within this cohort is therefore doubly problematic.

Country Differences: Furthering US Exceptionalism

Most of this chapter is concerned with sectoral differences in AI exposure, but there are country implications too. Differences in the benefits of AI by country will depend on:

- adoption rates (partly determined by policy and partly by corporate readiness);
- the share of tasks that are exposed to AI, itself a function of the proportion of jobs in services versus manufacturing;
- the ability to meet the power demand of AI and the security of that energy supply; and
- the degree to which productivity gains come from displacing workers versus increasing the productivity of individual workers. Some regions may be more averse to allowing mass job displacement.

Seen in this light, we think that there is a strong case to be made that the US will be a *relative* beneficiary among developed markets, no matter what the absolute level of productivity gain. Note that this is distinct from the question about whether current megacaps are the specific companies to benefit from AI or whether the beneficiaries are spread across the economy more broadly. On all aspects of readiness, from composition of the labor market to energy supply, there is a case that an effective role of AI further supports the case for US exceptionalism. There has been evidence that US firms have long been more effective at deploying IT, and this could be a larger example of that advantage.⁶¹

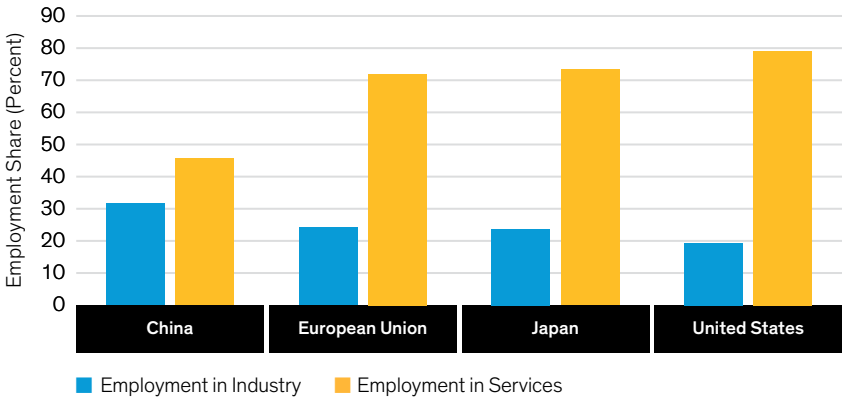
As we have discussed earlier, knowledge- and service-oriented sectors are most exposed to AI automation. In *Display 61, page 109*, we show the employment composition in major economies based on service and industry sectors. The US has the largest share of service employment, close to 80%. Europe's share is considerably lower at around 70%, and in China service-oriented employment constitutes only 46% of the economy. This reinforces our view that the US is likely to be the biggest beneficiary of AI adoption. On the other hand, if in the end most of the benefit comes from displacing workers, then this would put the US at a disadvantage on this basis. However, this is not our central assumption.

Filippucci et al. estimated the potential impact on productivity of AI adoption across the G7 economies (*Display 62, page 110*).⁶² In the baseline scenario, they predict

⁶¹ Nicholas Bloom, Raffaella Sadun and John Van Reenen, "Americans Do IT Better: US Multinationals and the Productivity Miracle," *American Economic Review* 102, no. 1 (February 2012): 167–201, <https://www.aeaweb.org/articles?id=10.1257/aer.102.1.167>.

⁶² Francesco Filippucci, Peter Gal, Katharina Laengle and Matthias Schief, "Macroeconomic Productivity Gains from Artificial Intelligence in G7 Economies," working paper, *OECD Artificial Intelligence Papers*, No. 41, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2025, <https://doi.org/10.1787/a5319ab5-en>.

DISPLAY 61: SHARE OF EMPLOYMENT IN SERVICES VS. MANUFACTURING



Current analysis does not guarantee future results.

As of December 31, 2023 | **Source:** World Bank and AB

much lower benefits from AI for France, Italy and Japan. Meanwhile, the UK, Germany and Canada are expected to see productivity gains close to those in the US. This projected difference in part reflects observed adoption rates but also owes to sectoral differences. The distinction also mirrors the gain in productivity from IT adoption from 1995 to 2005, which was larger in the US than in Europe.

Moreover, the London School of Economics and Political Science public policy professor Luis Garicano notes that European employment protection laws and other exit and entry barriers pose a significant headwind to any technological change. For example, he notes that German codetermination law forces large companies to run every major capital expenditure and automation decision through a parity-supervisory board and cannot act without worker consent.⁶³ Similar lengthy and costly negotiations with affected workers are also deeply embedded into French law. Italian and Spanish labor law and Nordic collective-bargaining practices make large-scale headcount reductions extremely costly. Professor Garicano also notes that the US younger demographic is an advantage in terms of AI adoption, as the increasingly aging European society is less able to switch and adapt to new technologies.

⁶³ Please see Luis Garicano, "Can AI Solve Europe's Problems?: Baumol's Disease, Regulatory Resistance, and the O-Ring Problem," *Silicon Continent* (June 26, 2025), <https://www.siliconcontinent.com/p/can-ai-solve-europes-problems>.

DISPLAY 62: EXPECTED AGGREGATE PRODUCTIVITY GAINS FROM AI ACROSS G7 ECONOMIES

Scenario	Exposure, Given AI Capabilities*	AI Adoption Pace	AI's Predicted Contribution to Annual Labor Productivity Growth over the Next Decade (in Percentage Points)						
			US	UK	Germany	Canada	France	Italy	Japan
Slow Adoption	Baseline	"Slow" (as Electricity)	0.41	0.39	0.34	0.35	0.26	0.19	0.16
Medium Adoption and Expanded AI Capabilities	Expanded	"Medium" (as Computers and Internet)	0.99	0.97	0.86	0.86	0.72	0.57	0.51
Rapid Adoption and Expanded AI Capabilities	Expanded	"Rapid" (as Mobile Phones)	1.28	1.27	1.16	1.13	1.05	0.89	0.82

Current analysis does not guarantee future results.

*Exposure to AI is measured as the weighted share of tasks in which AI can substantially reduce the time required for their completion. Baseline exposure refers to the median estimate, and high exposure refers to the upper-end estimate of task-level exposure in Eloundou, Manning, Mishkin and Rock, "GPTs Are GPTs: Labor Market Impact Potential of LLMs," which makes a more optimistic assumption about the integration of AI via the development of complementary software. AI exposure can vary across countries due to differences in the occupational structure within sectors and the sectoral composition of the economy.

As of June 30, 2025 | **Source:** Francesco Filippucci, Peter Gal, Katharina Laengle and Matthias Schief, "Macroeconomic Productivity Gains from Artificial Intelligence in G7 Economies," working paper, *OECD Artificial Intelligence Papers*, No. 41, OECD Publishing, Organisation for Economic Co-operation and Development, Paris, France, 2025, <https://doi.org/10.1787/a5319ab5-en>; Tyna Eloundou, Sam Manning, Pamela Mishkin and Daniel Rock, "GPTs Are GPTs: Labor Market Impact Potential of LLMs," *Science* 384, no. 6702 (June 20, 2024): 1306–1308, <https://doi.org/10.1126/science.adj0998>; and AB

The Economics View of Jobs and Productivity Is Too Narrow

We think the debate about productivity improvement versus job displacement is ultimately too narrow. We don't want to dismiss it, as it is one of the key economic debates of our age. However, this debate assumes that paid employment performs only a task of economic distribution. Work does much more than that, and for many people it gives meaning as well. Robert Skidelsky offered a good discussion of this point in his book *The Machine Age*.⁶⁴ In the extreme case of mass joblessness, if that occurs, his work implies that a program of universal basic income wouldn't be sufficient to make up for what is lost.

⁶⁴ Robert Skidelsky, *The Machine Age: An Idea, a History, a Warning* (Allen Lane, 2023). See our book review in *Instability: Debt, Inflation and AI's Impact on Investing*, "Chapter 3—Machines, Democracy, Capitalism and Feudalism: Five Books for a Different Age, and What It Means for Investing."

The more positive view of this path would be to adopt the view of Nick Srnicek and the left-accelerationism movement that calls for automation explicitly to end the need for work. The difference between these two views lies less in the nature of AI as a technology and more in the social and political power structures that guide it. From a technological point of view, the advent of AI makes a socialist utopia seem not quite so far-fetched, perhaps. However, the entirely corporate-led approach to AI makes that end point seem highly unlikely.

There are broader epistemological implications too. We think that AI is likely to change the role of explanation, and hence the path to meaning. AI models can be powerful as a route to making predictions, and as such can strongly outperform alternative approaches. Fundamentally, one of the ways that AI models can achieve this is to use an approach to pattern recognition that goes far beyond what humans are capable of. Indeed, it is part of the whole power of machine-learning approaches that they can use highly complex and nonlinear approaches to categorizing data. But this power creates a potential gulf between prediction and explanation. The latter is usually taken to mean linking a specific case to a generalized example or accepted theory, but no such thing exists in the case of AI. It's not clear where this leaves explanation as a concept. The techno-optimists no doubt will tell us that the desire for explanation is too anthropocentric and should be abandoned, but we are not so sure.

If this notion seems too abstract, one can apply the evolution in how knowledge is attained to financial analysis. We think that AI will herald a profound change in model structure—that is to say, the structural underpinning of the approach used for financial analysis. A minihistory of the financial model for a company can serve as an example. In theory, a revolution in financial analysis took place in the early 1990s with the transition from paper-based spreadsheets to Excel. However, we would argue that, from a model structure point of view, this was not, in fact, a profound change at all. Models became far easier to update, as there was no longer a need to rub out a number and pencil in a new one. As a result, models had more lines added to them, but the structure of the model didn't change in the progression from paper spreadsheets to digital ones.

Much later, it seemed plausible that the ubiquitous use of Python would bring about a change in model structure, and we argued as such a decade ago, but it never really happened.⁶⁵ The practical change was that the inputs to the model could change to become a function of mass web scraping, with an order of magnitude increase in input data. However, the structure of models used to value companies did not really change—it was merely able to have a broader range of inputs. It turned out that despite the ability of technology to revolutionize the approach to modeling, a host of

⁶⁵ Inigo Fraser Jenkins, Olivier Khatib and Alla Harmsworth, *Global Quantitative Strategy: Why Company Models Need to Move Out of Excel and into Python*, Bernstein Research, October 4, 2018.

other factors slowed innovation (organizational inertia, lack of demand and regulation in terms of formal dissemination requirements for sell-side analysts).

The ease of access to AI seems set to offer a new approach that could lead to the largest change in financial-model structure since paper spreadsheets. If this happens, it is entirely possible that predictive efficacy increases, but possibly not the ability to explain. Of course, many people may shrug their shoulders and be perfectly content with explanation-free prediction if it leads to outperformance. In finance that may be good enough most of the time, though not, we would argue, when the model goes wrong. When that happens, an explanation is actually needed.

Even more broadly, what does AI mean for human interaction? This, in turn, arguably has a huge indirect influence on any attempt to make a macro forecast over strategic horizons. Franco Berardi argues that technology is changing the nature of personal interaction in what he calls the de-sexualization of desire.⁶⁶ The dematerialization of communicative exchange has been in progress for some time, driven for example by social media, and plausibly boosted by the pandemic. Once communication is dematerialized, AI has a significant ability to take a greater role in deciding what is actually said either via text prompts, by giving personal advice or even by entirely populating the chat, as happens on dating platforms. This shift suggests that an even wider gulf within society beckons.

Conclusions and Investment Implications

The role of AI permeates many strategic discussions about the outlook for investing. For the purposes of making macro pronouncements, the key factors within this topic are the likely range of AI-driven productivity improvement and to what extent it results from a net displacement of labor versus an increase of the productivity of a unit of labor. In conjunction with this, we think that the discussion of AI in the investment industry is focused too much on what the absolute improvement in productivity might be, whereas we think a more relevant issue is the net effect of AI productivity improvements in conjunction with other contemporaneous forces such as a shrinking working-age population and the likelihood of worse climate outcomes that act to depress growth.

For the US, the more optimistic scenarios for AI productivity improvements are enough to significantly offset these other downward forces. However, our base case is that this extra growth is not likely to be sufficient to force a shrinkage in net debt/GDP.

Thus, this conclusion reinforces our view that US exceptionalism still stands and that investors should strategically overweight the US within equity portfolios. However,

⁶⁶ Franco "Bifo" Berardi, "Hyper-Semiotization and De-Sexualization of Desire: On Félix Guattari," *e-flux* 133 (February 2023): <https://www.e-flux.com/journal/133/514287/hyper-semiotization-and-de-sexualization-of-desire-on-felix-guattari/>.

concerns about fiscal sustainability remain, so our view is still that the dollar's status will continue to be eroded.

For the world beyond the US, even optimistic forecasts for AI productivity improvements seem unlikely to be sufficient to offset downward forces on growth, principally because the decline in working-age populations is more acute in Europe and Japan. It also seems likely that achieving the same degree of AI-led productivity uplift will be harder in those regions.

This brings us to the question of the interaction of declining populations and the possible displacement of labor, the linking of the AI and demographics themes that are at the heart of this chapter. We do not think it is likely that these two huge changes will happen to balance out—there is no reason why they should. Moreover, forecasts for these issues have a very different status. Demographics is one of the few things in economics that can be forecast with a high degree of certainty. Productivity growth, by contrast, has been one of the things that has shown itself to be the least tractable for forecasting purposes.

There seems to be a likely geographical mismatch in where these forces are strongest. Among capitalist economies, it seems likely that AI adoption will be fastest in the US, but the US working-age population is still likely to grow over the next decade (or under a very harsh immigration policy, potentially remain static or shrink slightly). In the EU and Japan, by contrast, AI adoption is likely to be slower, but the working-age population is shrinking.

In China, the working-age population is set to decline at the shocking rate of 1% annualized from now until 2050, and AI adoption has the potential to be rapid in some areas. However, the office-based service-economy jobs, where the change in automation potential is arguably the strongest, constitute only 45% of the workforce, as opposed to 80% in the US. Thus, it is not clear what the scale of the aggregate economy-wide improvement in productivity from AI is likely to be at this stage.

Demographics and AI also overlap when it comes to considering the climate impact on growth. We take the view that a declining human population would be good from a planetary point of view, but also that the change is happening too slowly to have a material effect on the ability to curtail temperature increases to less than two degrees. The extra power demand of AI (with total data-center power demand forecast to be three times the total power consumption of Japan by 2030) will likely have a more immediate impact.

The more bullish forecasts for AI-led productivity gains do seem to imply a need for significant labor disruption. While past rounds of automation have not led to a structural increase in unemployment, it does seem that AI is different, not least in the way that nonunionized jobs are those most at risk. AI is the best hope, economically speaking, for a counterbalance to the significant downward forces on growth.

However, at the same time, it implies a risk for social dislocation both via the job market and in the distribution of wealth. It does not seem likely that a shrinking workforce will naturally balance this in a harmonious way, not least because of the significant temporal and geographical differences in these forces.

We are still at an early stage of the adoption of AI, and evidence is simply not available to determine whether this is a “normal” technological development that, while disrupting jobs, creates new ones, or whether “this time it’s different,” and jobs are displaced and not replaced. The midrange of the latest productivity-growth forecasts is in the same range as the expected decline in growth due to other forces. While this is encouraging, it is not enough to talk about an absolute increase in growth rates or a route to grow out of government debt burdens. The higher range of productivity forecasts would indeed lead to a net increase in growth rates for the economy, but those high levels of productivity gains are probably the ones that are most detrimental for the future of jobs.

Chapter 5—AI Capex: A Vertiginous Dialectic

Whether or not AI constitutes a bubble is the dominant question in financial markets today. There are three distinct AI questions:

1. By how much can AI raise productivity?
2. Does AI inevitably imply job destruction?
3. Are the flow of capital into AI capex and associated revenue projections overdone?

This chapter focuses mainly on the last question, with “Chapter 4—AI vs. Demographics,” analyzing the first two.

The projections for data-center construction place it on a par with historic major capex waves. Indeed, on some metrics the capex intensity is unique, as is the growth rate of revenues required to justify it.

We show scenarios for what different rates of productivity growth mean for AI valuations. In addition, the change in funding to include debt and vendor financing raises risks, though admittedly this has only emerged recently.

A particular concern is the need for evidence of rapid broadening and growth of revenues on a time scale shorter than the rapid depreciation cycle of chips. Thus, our main concern is not valuation per se, but the risk of an “air pocket,” in which investors lack information about the revenue trajectory from AI on a time scale significantly shorter than the depreciation cycle. Another concern is the deterioration in funding quality during the last year.

The consequence is that we are not bearish, but we do think there is complacency about volatility and that risks of a drawdown are elevated. Therefore, a key question is: What constitutes a defensive trade today? We suggest global healthcare, low volatility and MSCI EAFE income as trades that can be put on today, alongside a position in the market that is ultimately strategically positive.

Investors are grappling with a host of issues relating to AI. We would classify three of the biggest conundrums as interrelated and thorny questions:

1. What is the potential productivity gain from AI?
2. How much of a productivity gain comes from displacing labor versus enhancing labor, with the attendant worry of what this means for the jobs market?
3. Does the extraordinary flow of capital into AI capex constitute a bubble?

In this chapter, we focus on the last question.

When we meet with clients, the term “AI bubble” is frequently used by investors. In fact, the sheer casualness with which that phrase is cast around sits oddly juxtaposed with the evidence of flows still accruing into equities and the wave of capital seeking a home in AI-linked investments across private markets.

We should remark up front in this chapter the irony of all this. In those prelapsarian days before the pandemic, the discussion was about the falling need for physical capex. There were serious academic discussions about how the nature of capitalism was changing if there were no longer any need for capital.⁶⁷ Yet now we are witnessing what, on some metrics, might be the most intense wave of capex in history. Thus, rather than pondering what capitalism looks like without a need for capital, we are instead left contemplating what capitalism looks like without a need for labor. This is a very abrupt change of profound importance philosophically. It matters financially too. In fact, we note that this could be part of a deeper challenge to capitalism (see “Chapter 9—The Dystopian Symbiosis: Passive Investing and Platform Capitalism”).

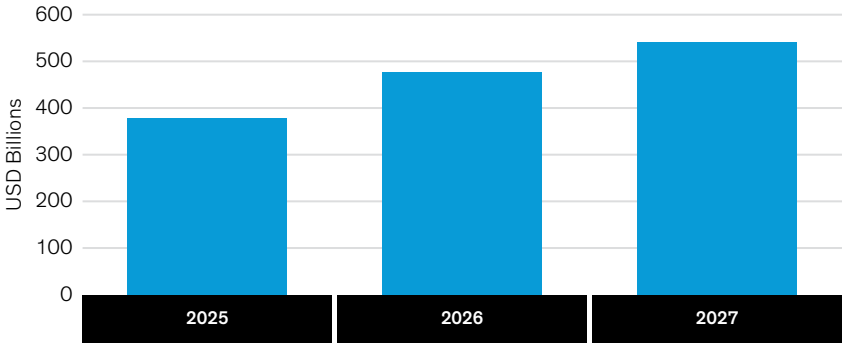
The use cases of AI are slowly emerging, albeit it’s frankly too early to lay out a high-confidence path. However, memories of the tech bubble frequently emerge in conversations with clients, as do analogies with the railway-building frenzy of the 19th century and other episodes where the adoption and economic benefits of a new technology took much longer than investors first hoped and where the ultimate beneficiaries were not clear. The case for and against the bubble-like quality of AI presents itself as a vertiginous dialectic that permeates the outlook for most asset classes. On one hand, companies have never grown as fast as the numbers required to justify current valuations; on the other hand, these are already companies that are bringing in revenue, unlike during the tech bubble. More fundamentally, there is a promise of untold productivity growth, yet on the other side is the realization that such growth might come at the expense of a job-free future, with profound social questions in the form of inequality, not to mention planetary impact.

We try to think about the extraordinary capex plans for AI both from the point of view of the tech sector itself and from the perspective of the US economy overall. In 2025, the amount spent on building data centers was likely approximately \$400 billion. The amount forecast to be spent by the main hyperscalers by the end of 2027 is more than \$1 trillion (*Display 63, page 117*). And it does not include all of OpenAI’s spending, which alone has committed to 30 gigawatts (GW) of data-center capacity from AMD, Broadcom, NVIDIA, Oracle and other partners, at a cost of more than \$1.4 trillion.⁶⁸

67 See the very good discussion of this in Jonathan Haskel and Stian Westlake, *Capitalism Without Capital: The Rise of the Intangible Economy* (Princeton University Press, 2018).

68 Ina Fried, “Sam Altman: OpenAI Wants to Get to \$1 Trillion a Year in Infrastructure Spend,” *Axios*, October 28, 2025, <https://www.axios.com/2025/10/28/openai-1-trillion-altman>.

DISPLAY 63: CONSENSUS CAPEX PROJECTIONS FOR THE MAJOR AI COMPANIES

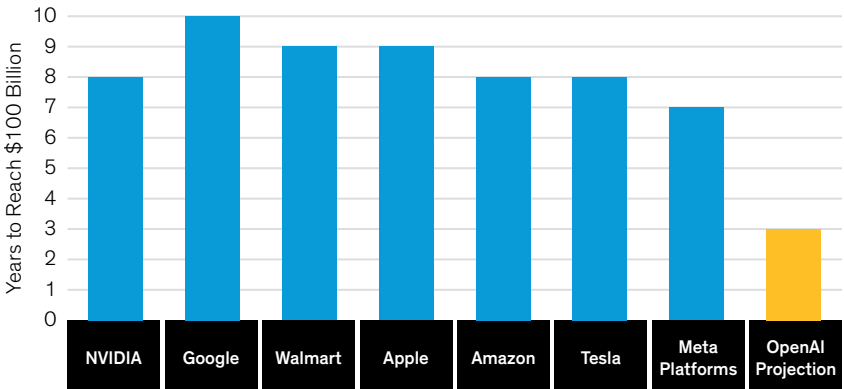


Current analysis and forecasts do not guarantee future results.

The display includes Apple, Google, Meta Platforms, Microsoft, Oracle and Amazon.

As of October 31, 2025 | **Source:** Bloomberg and AB

DISPLAY 64: OPENAI IS PROJECTING UNPRECEDENTED GROWTH TO \$100 BILLION IN REVENUE



Current analysis does not guarantee future results.

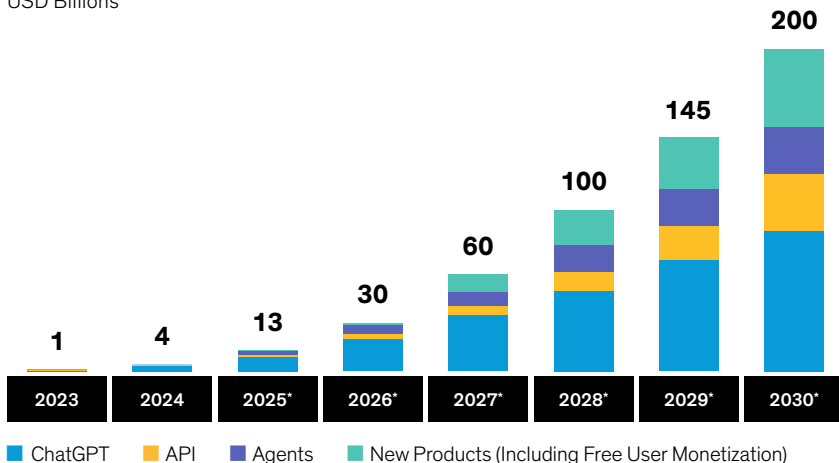
References to specific securities discussed are not to be considered recommendations by AllianceBernstein L.P.

As of December 1, 2025 | **Source:** Epoch AI and AB

DISPLAY 65: PROJECTION OF RAPID RISE AND BROADENING OF OPENAI REVENUES

Projection as of 3Q 2025

USD Billions



Current analysis and forecasts do not guarantee future results.

API: application programming interface

*Projections

As of November 15, 2025 | **Source:** *The Information* and AB

How is the AI sector going to achieve the revenue to pay for this? Taking OpenAI as a case in point, the firm projects that it will achieve \$100 billion of revenue in 2028 (*Display 64, page 117*) and \$200 billion in 2030. In the context of a transformational general-purpose technology, this is perhaps understandable. However, no company has ever grown this fast.

Of this revenue total for 2030, ChatGPT would only be just under half (though still significantly larger than the number of paying users today). In addition, there are planned new sources of revenue—for example, tools for government and business, new shopping tools, video creation, and highly personalized advertising. OpenAI is also considering becoming a supplier of computing resources (*Display 65*).

So, how likely is it that this will happen? It does not seem to be impossible, but a lot needs to go right. We explore this issue in this chapter by considering how we know whether this path is achievable. One caveat is the power demand that it will require, which we treat in a separate section.

Taking a high-level macro view, which is the point of this chapter, we can skip over the exact mechanism of the revenue collection and defer to the great promise of AI as a path to productivity growth.

Scenarios for Productivity, Profit Growth and Valuation

How can one think about grounding the outlook for the possible revenue of AI companies and whether this can justify the capex? The framework that we use for this is grounded in our prior work on the range of aggregate productivity outcomes that are plausible (see “Chapter 4—AI vs. Demographics: Or Might Shrinking Populations Not Be So Bad If Robots Are Taking Jobs, Anyway?”). The overwhelming message from that prior work is that one has to be humble in forecasting productivity growth, but given the need to have some kind of quantitative grounding for a framework, we use the range of the key academic (and academic-adjacent) studies that attempt to forecast productivity growth.

Note that most estimates leave out the problem that there are downward forces on growth (demographics, climate and deglobalization) that are of comparable scale, so AI’s productivity gain would not necessarily be extra growth but just making up for lost growth elsewhere. This means that AI doesn’t plausibly solve things like the buildup of public sector debt. Nevertheless, this does offer a view on how plausible it is that the valuations for AI-related companies can be justified, which is our focus here.

The average productivity growth assumed in these studies is an increase of 0.9 percentage points per annum (pppa) over the next decade. We note that this is close to the level of extra growth needed to offset the other downward forces on growth; it’s also similar to the long-term sustained uptick in growth that was delivered by the steam engine. Thus, this forms the middle forecast for the analysis that follows. The low-growth case is essentially the one outlined by Daron Acemoglu in “The Simple Macroeconomics of AI.”⁶⁹ This case is that AI delivers an uplift to growth on the order of 0.1 pppa and that there is a constraint on the application of AI, in part from the lag of development in robotics, which means that approximately 20% of tasks are exposed to AI and that it is economical to automate about 5% of them. The techno-optimist view maps most closely onto the view expressed by Martin Neil Baily, Erik Brynjolfsson and Anton Korinek,⁷⁰ which accords an extra growth rate of about 2.5 pppa, in part predicated on things like scientific breakthroughs enabled by AI. This is a huge range of forecasts for changes to annual growth rates and really underpins the idea that we just don’t know what the impact of AI will be. But we can use these forecasts to form a basis for a range of scenarios.

⁶⁹ Daron Acemoglu, “The Simple Macroeconomics of AI,” *Economic Policy* 40, no. 121 (January 2025): 13–58.

⁷⁰ Martin Neil Baily, Erik Brynjolfsson and Anton Korinek, *Machines of Mind: The Case for an AI-Powered Productivity Boom*, Brookings Institution, May 10, 2023, <https://www.brookings.edu/articles/machines-of-mind-the-case-for-an-ai-powered-productivity-boom/>.

We assume global developed-market gross domestic product (GDP) of \$70 trillion that, in a base case, grows at 4pppa nominal (2% real + 2% inflation). We assume three scenarios for an incremental per-annum uplift to growth of 0.1%, 0.9% and 2.5% based on the range of recent academic studies (*Display 66*). We assume that the AI mega-cap names manage to capture 10% of any incremental productivity uplift; this represents the total accessible market. We further assume that these firms can earn 20% margin on this (down from the current net-income margin for these names of 28%, but above the long-run tech margin of 10%). In other words, the earnings uplift for the AI names is 2% of any incremental GDP growth. A standout feature of today's AI companies that sets them apart from the technology, media and telecom (TMT) bubble of 1999–2000 is that they are profitable already. So, let's assume that their 2024 net income is a base that continues to grow at 7 pppa

DISPLAY 66: THREE SCENARIOS FOR AI PRODUCTIVITY AND AI COMPANY VALUATION

	Low (+0.1%)	Mid (+0.9%)	Techno- Optimist (+2.5%)
Baseline Developed-Market GDP (2024)	70,000	70,000	70,000
Starting Earnings for AI Companies (2024)	368	368	368
Baseline Nominal GDP 2030 (4%/Year)	88,572	88,572	88,572
Incremental Gain from AI, Percent per Annum	0.1	0.9	2.5
Scenario-Specific 2030 GDP	89,085	93,272	102,140
Incremental GDP from AI (2030)	512	4,700	13,568
AI Total Accessible Market (10% of Increment, USD Billions)	51	470	1,357
AI Earnings (Assume 20% Margin, USD Billions)	10.24	93.99	271.35
Baseline Sector Earnings from Non-AI Business (2030, USD Billions)	552	552	552
Total Sector Earnings AI + Legacy Business (2030, USD Billions)	563	646	824
Market Cap 2030 (Price +7%/Year for 5 Years, USD Billions)	16,690	16,690	16,690
Implied Scenario-Specific P/E (2030)	29.7	25.8	20.3
Market P/E Multiple	21.8	—	—
Tech Relative P/E	1.36	1.18	0.93

Current analysis does not guarantee future results.

The display shows potential 2030 multiples for hyperscalers (Microsoft, Alphabet Inc., Amazon, Meta and Oracle) based on three productivity growth scenarios: Low, Mid and Optimistic, with 0.1%, 0.9% and 2.5% additional productivity growth, respectively. The display assumes that hyperscalers capture 10% of incremental GDP growth and that they earn 20% margins on the incremental income. Their legacy business earnings are assumed to grow by 7% per year. Finally, they are assumed to return 7% per annum through 2030.

As of November 30, 2025 | **Source:** Bloomberg, FactSet and AB

(the average growth rate of US tech earnings since 1995), regardless of additional AI revenue. The three scenarios then imply a range of earnings uplift over this base. Our long-term equity return forecast is 7% in nominal terms, so we assume that the AI-related names yield returns from here until 2030 that are in line with this broad market forecast. On this basis, this yields the range of price/earnings (P/E) multiples in 2030 for the group shown at the bottom of Display 66.

This bullish case also requires a hard form of US exceptionalism to hold. To be clear, we do have the view that the US equity market is exceptional, and we remain strategically overweight US equities. At the same time, it has to be recognized that the techno-optimist case outlined above assumes a continued ability for US tech companies to extract value from the rest of the developed world. This seems imminently likely in the near term, not least given the highly significant gap in data-center capacity between the US and the rest of the world and given the lower power prices in the US. There does not seem to be any ability to mount an opposition to this from the rest of the world, but in the long term we think this is moot. If some of this apparent US advantage is essentially a failure of antitrust in the US and a subsequent process of regulatory capture (e.g., via lower effective tax rates), it is not obvious why the rest of the world would accept an even more aggressive move in this direction; we think there would likely be a backlash.

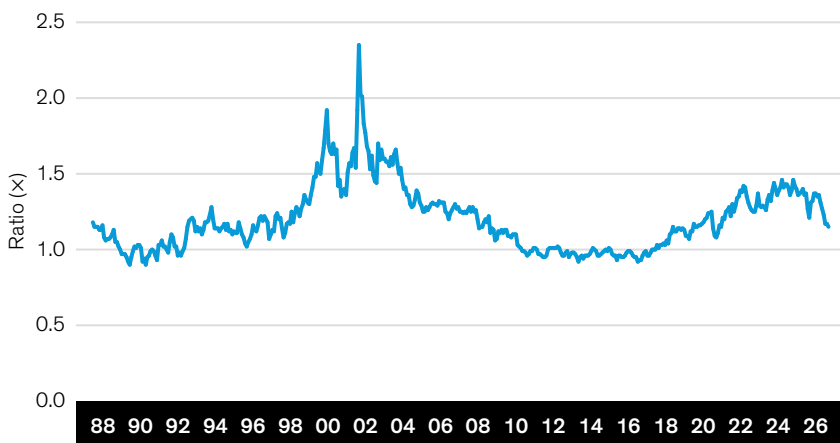
Of course, it can be argued that any exercise that seeks to model a long-term P/E is of limited utility, as one never knows over what time horizon any equilibrium multiple may be reached, or indeed what might constitute an equilibrium multiple. However, we would argue they perform a useful basis, as over medium-term horizons there have been ranges of multiples that one can point to.

Over the last 37 years, US tech stocks have, on average, traded at a 20% premium to the market (*Display 67, page 122*). This includes the TMT bubble of 1999–2000. Over time, the absolute multiple of the market has also risen. We have argued before that we do not need to see a reversion to long-term absolute market multiples. Fundamentally, the case for this lack of long-term mean reversion is driven by:

- 1.** the increased persistence of return on equity over time for US companies;
- 2.** our lack of belief that there needs to be a mean reversion in the real cost of capital;
- 3.** the fact that de-equitization will continue, as it requires a huge change in policy to reverse; and
- 4.** the fact that there is a good case that investor allocations over time must strategically reweight toward equities away from nominal assets.

This does not mean that valuation can be ignored, and we would reject any such claim. We can show that periods of high multiples, as is the case today, tend to beget periods of higher volatility, and we would also strongly reject any claim that there can be any sustained increase in the market multiple from today's level.

DISPLAY 67: US TECHNOLOGY 12-MONTH FORWARD P/E RELATIVE TO MARKET



Past performance does not guarantee future results.

As of April 6, 2026 | Source: FactSet and AB

A 20% premium on, say, a market multiple of 20 \times (above the 37-year average of 17 \times) implies a tech multiple of 24 \times ; this suggests that there is indeed a path to justifying current valuations from the macroproductivity and revenue assumptions outlined in this chapter. To the extent that there is a “problem,” it seems to hinge more on how one can know what path of productivity one is on, a topic that we turn to next.

The “Problem” of Depreciation

One can lay out these scenarios, but they describe possible paths rather than capturing the risks and the mechanism by which those risks may play on investors’ willingness to see which of the paths described above we are on.

It is often claimed that AI, specifically the large language model, is one of the fastest-adopted new technologies ever in human history. The growth of ChatGPT from zero to 900 million weekly users (most of them not paying, of course) within three years of being released is exhibit number one. However, the flip side of this observation is that the depreciation time of much of the underlying assets is also one of the shortest ever. Graphics processing units (GPUs) account for approximately 40% of new data-center capex, and their useful life is short.

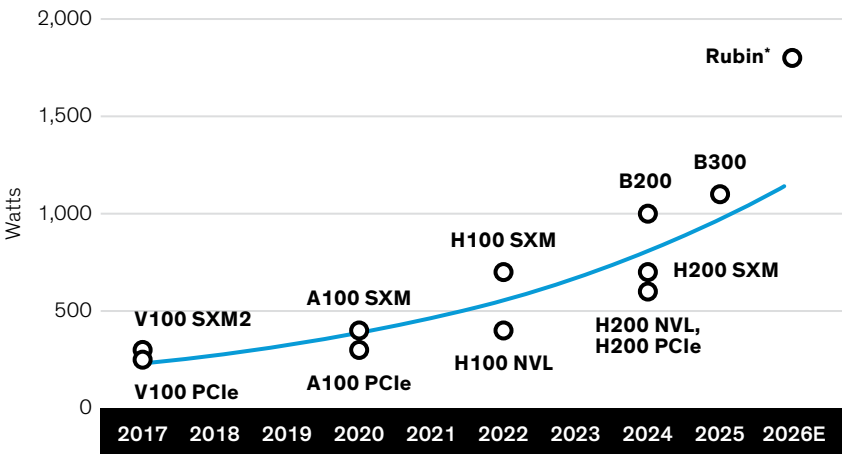
Of course, there is an active debate about *how* short this useful life is. There appears to be a good case that a five- to six-year depreciation time is achievable,⁷¹ although there are risks to this view and a case that the depreciation might not be linear.

As one extends the time horizon forward, though, there are potential downward risks to this useful life. The higher power usage of the latest generation of chips plausibly lessens their useful life even more than previous generations, and the latest generation of GPUs operates at a power level that has no historical precedent (*Display 68*).

One can think about the implications of this situation in several ways. One way is that the current high capex numbers have to be maintained on an ongoing basis. Another way is that it is imperative to have data on the realized revenue growth path for AI on a time frame that is significantly shorter than this depreciation cycle. It is

DISPLAY 68: THE INCREASING POWER USAGE OF CHIPS IMPLIES FASTER DEPRECIATION CYCLES

NVIDIA Data Center GPU Thermal Design Power (Watts)



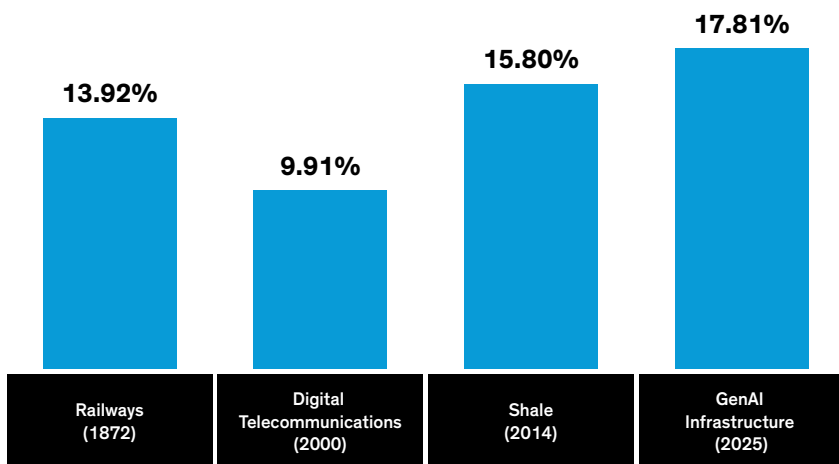
Current analysis and forecasts do not guarantee future results.

*Rubin thermal design power is based on estimates.

As of November 14, 2025 | Source: NVIDIA and AB

⁷¹ See Stacy A. Rasgon, *AI Value Chain: Can You Really Run a GPU for 6 Years?*, Bernstein Research, November 17, 2025.

DISPLAY 69: ON A DEPRECIATION-ADJUSTED BASIS, THIS COULD BE THE MOST INTENSE CAPEX WAVE



Past performance does not guarantee future results.

Depreciation assumed as follows: railways 30 years, digital telecommunications 12 years, shale seven years and GenAI infrastructure five years.

The display is adapted from Exponential View Substack (www.exponentialview.co).

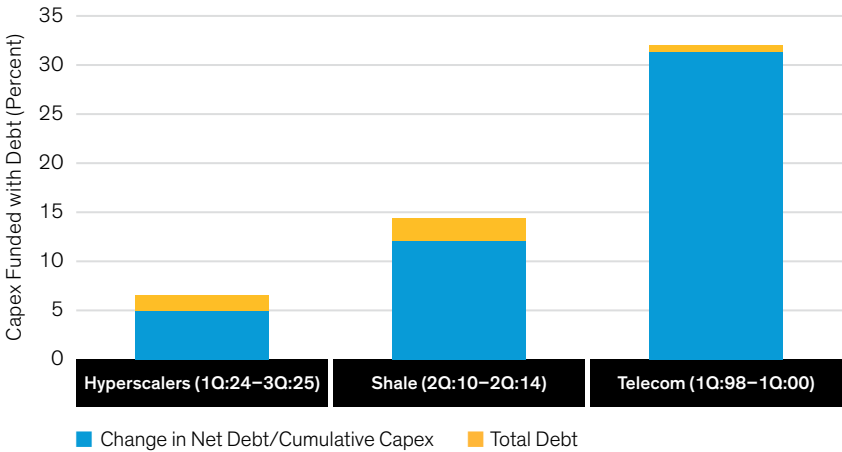
As of September 17, 2025 | **Source:** Exponential View Substack, Federal Reserve Bank of San Francisco, Federal Reserve Bank of St. Louis, JSTOR, Synergy Resources, *WIRED* and AB

in this that we see one of the key risks emerging: the idea that there could be an “air pocket” where we simply do not have fast enough information on the rate and breadth of revenue growth. It is this that, we think, will be a driver of volatility and almost inevitable drawdowns over the next year, even if the path of AI revenue is ultimately upward.

Of course, we have seen past waves of capex, but unlike previous huge capex cycles (railways, the US interstate system, electricity and even fiber), the short depreciation time of the current wave stands out as unusual (*Display 69*).

The requisite increase in power usage also contributes to worries about aggregate power demand from AI data centers emerging as a bottleneck, a point we discuss later in this chapter.

DISPLAY 70: LEVERAGE PORTION OF CAPEX FOR AI IS WELL BELOW PRIOR INVESTMENT CYCLES



Current analysis does not guarantee future results.

As of November 1, 2025 | **Source:** Wells Fargo Securities and AB

Funding Quality

Another caveat that raises risks is funding quality. Until 2025, the capex needs of AI were met from free cash flow. This has now changed with debt being raised and the emergence of vendor-financing arrangements. The fact that debt is involved should not be surprising; the insatiable shift back to a form of capitalism that requires capital implies that debt will be a significant part of the mix. As is often noted, a distinguishing feature of bubbles is that they tend to be levered. Thus, the emergence of debt financing, while not unsurprising, raises an alarm that if things don't go to plan, this might not just be a misallocation of capital but a bubble (*Display 70*).

The credit market has seen a wave of \$200 billion of AI-related issuance since the start of 2025 from the likes of Meta Platforms, Alphabet Inc. and Oracle,⁷² although this is matched by a large amount of capital seeking such exposure, hence keeping spreads tight.

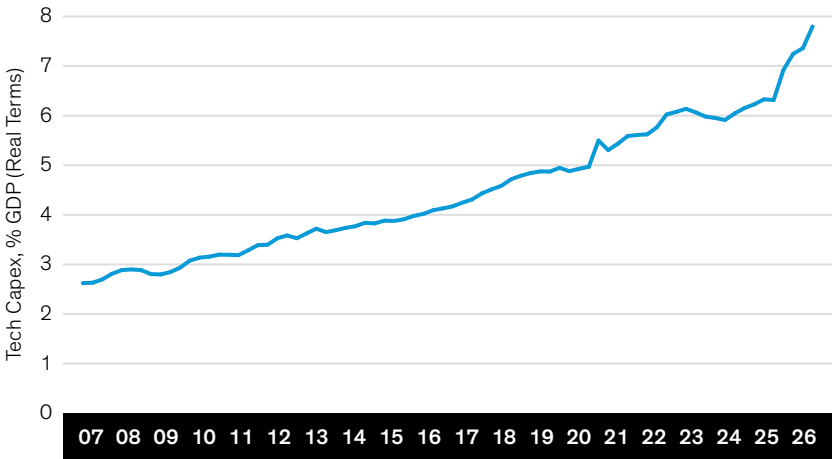
⁷² Ian Smith, Robin Wigglesworth and Tabby Kinder, "Credit Market Hit with \$200bn 'Flood' of AI-Related Issuance," *Financial Times* (October 31, 2025).

Having said that, debt financing has only emerged this year. If we are early in a debt-raising cycle, then this cycle could go a long way further. If we measure leverage as debt securities and loans of the nonfinancial corporate sector as a percentage of GDP, then the recent increase in leverage does not look significant compared with previous cycles, such as the buildup of leverage in 1997–2001 and 2005–2009. Having said that, this cycle has seen a transfer of where debt has built up—from the corporate sector to the government sector—and a significant buildup of private debt in parallel.

Macro Growth

What does this mean for the economy overall? In the short term, the demand for capex has been the key element contributing positively to US GDP growth when there has been slowing activity elsewhere. But this is not the key point. The bigger issue is that tech is consuming a larger share of capex (*Display 71*). On one level, this might not matter. The distinction between sectors in the economy, in a similar way to the distinction of sectors within the listed stock market, is most definitely not written in stone. As tech or AI takes on a growing share of activities that used to be considered

DISPLAY 71: TECH CAPEX IS ACCOUNTING FOR A RAPIDLY GROWING SHARE OF US GDP



Past performance does not guarantee future results.

Tech capex includes Information Processing Equipment & Software, and Computers & Peripheral Equipment.

As of March 30, 2026 | **Source:** Bureau of Economic Analysis, Macrobond and AB

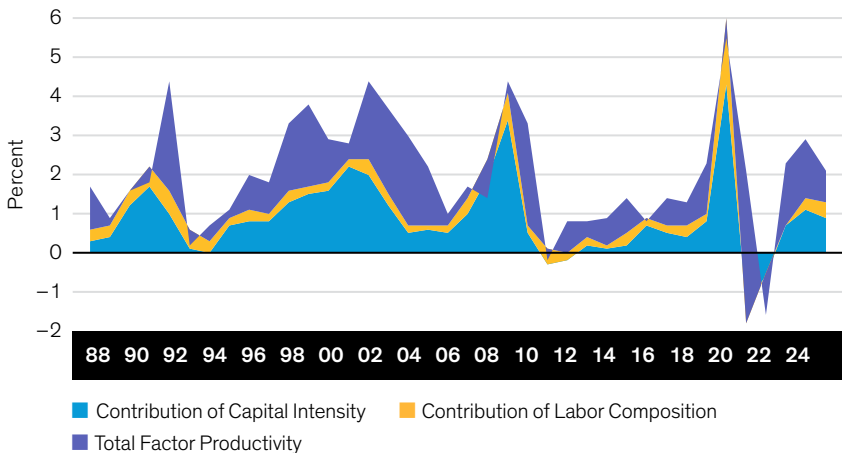
different sectors, then it is natural that this capex share will rise. The more important point is whether this capex will lead to a trend improvement in growth via productivity.

Previous periods of capital deepening have led to productivity growth, at least for a while. The most recent example is the late 1990s (Display 72). The TMT bubble did lead to an increase in productivity; the problem was that it was transient and did not stick. There were two stages to this episode: The second half of the 1990s saw a process of capital deepening. Then, from 2000 to 2004, the main contribution was a pickup in total factor productivity.

Applying this experience to today's circumstances, the contribution of the capex surge to growth this year and next via an increase in capital intensity is real enough, and it likely kept the US out of a recession in 2025. The hope is that this leads to a sustained increase in the growth rate of overall productivity in a way that did not happen after 2000.

A sustained increase in productivity is the great hope of AI, but it is also something that we have to be very humble about attempting to forecast. It is not obvious at all that sustained increases in productivity are amenable to being forecast (see "Chapter 4—AI vs. Demographics"). As an example of the perils of forecasting

DISPLAY 72: CONTRIBUTIONS TO US LABOR PRODUCTIVITY GROWTH



Current analysis does not guarantee future results.

As of December 31, 2024 | **Source:** Macrobond, US Bureau of Labor Statistics and AB

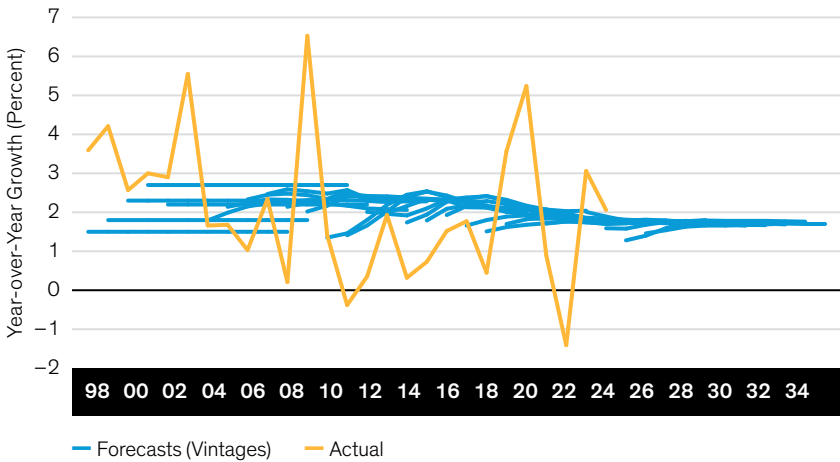
sustained increases in productivity, during the TMT bubble, the Congressional Budget Office (CBO) raised its medium-term projections of labor productivity growth to 2.7 percent for the next decade. This constituted a huge shift in the forecast: In four years, from 1997 to 2001, the CBO more than doubled its 10-year projection of productivity growth from 1.2 to 2.7 percent, and then had to lower it again (*Display 73*). As is common with forecasts of productivity growth in other countries, the forecasts have had a pronounced downward trend for the past decade.⁷³ The point of bringing this up is that one has to be very humble in making any forecast of productivity growth.

Power Implications

There is a real concern about the power demand of AI. There are a few specific worries, but we would really point to:

1. the possibility that insufficient power supply is a bottleneck to any hoped-for productivity improvement from AI;

DISPLAY 73: CBO-PROJECTED VS. ACTUAL LABOR PRODUCTIVITY GROWTH



Current analysis and forecasts do not guarantee future results.

As of November 14, 2025 | **Source:** Congressional Budget Office (CBO), Macrobond and AB

⁷³ Dale W. Jorgenson, Mun S. Ho and Kevin J. Stiroh, “A Retrospective Look at the US Productivity Growth Resurgence,” *Journal of Economic Perspectives* 22, no. 1 (Winter 2008): 3–24.

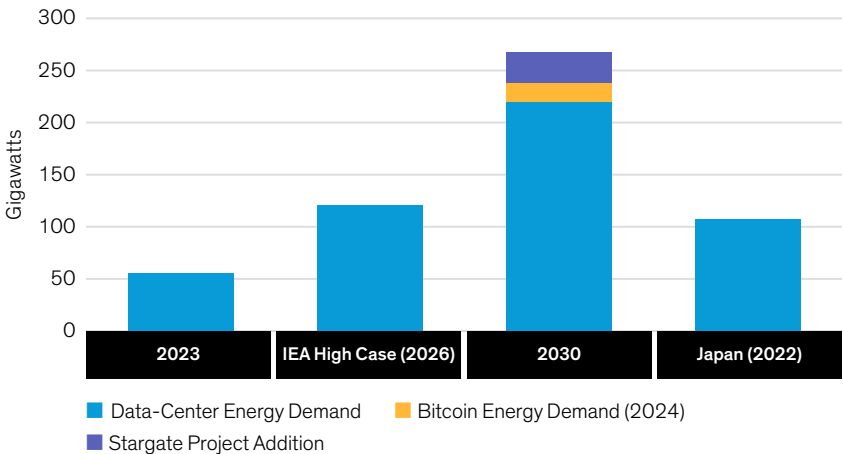
2. tight power markets that push up power prices for consumers and businesses in the near term; and
3. the extra power demand from AI, which looks set to be equivalent to the total power demand of Japan by the end of 2026 (*Display 74*).

The third item is an extra reason to assume that an energy transition cannot happen, or at least that it would be significantly delayed, thus there is a greater risk of a temperature increase of more than two degrees.

Using OpenAI as a case in point, the company has contracted for a total of approximately 20 GW of power capacity through various partnerships as of October 2025 (*Display 75, page 130*). This total includes several major deals:

- 4.5 GW from a five-year, \$300 billion cloud-computing deal with Oracle, primarily for the Stargate project
- 10 GW through an alliance with NVIDIA to build data centers using NVIDIA hardware
- 6 GW from a strategic partnership with AMD for the deployment of AMD Instinct GPUs

DISPLAY 74: GLOBAL DATA-CENTER POWER DEMAND IN 2026 IS EXPECTED TO EQUAL JAPAN'S TOTAL POWER DEMAND



Current analysis and forecasts do not guarantee future results.

As of January 28, 2025 | **Source:** Cambridge Judge Business School—University of Cambridge, Enerdata, International Energy Agency (IEA), McKinsey & Company, Bernstein Research and AB

DISPLAY 75: WORLD ENERGY SUPPLY FORECAST

Power Generation (TWh)							Capacity Additions (GW/Year) 2024–2050	Power Generation per Capacity (TWh per GW)
Source	2024	% Share	2050	% Share	2024	2050		
Fossil Fuels	18,309	59%	10,800	35%	4,664	2,751	–74	3.9
Of Which Gas	7,001	22%	7,000	10%	2,007	2,007	0	3.5
Solar	2,112	7%	29,280	42%	1,865	25,865	923	1.1
Wind	2,511	8%	13,022	19%	1,135	5,885	183	2.2
Nuclear	2,817	9%	7,220	10%	416	1,066	25	6.8
Hydro	4,453	14%	6,978	10%	1,411	2,211	31	3.2
Other	1,054	3%	2,701	4%				
Total	31,256	100%	70,000	224%				

Current analysis does not guarantee future results.

GW: gigawatt; TWh: terawatt hours

As of August 15, 2025 | **Source:** EIS, IEA, Bernstein Research estimates and AB

OpenAI also has existing agreements with Microsoft Azure, having agreed to purchase an incremental \$250 billion of Azure services, though a specific power capacity in GW for the total Microsoft deal was not specified in the snippets.

OpenAI's overall goal, as stated by CEO Sam Altman, is to build out 30 GW of “compute” infrastructure, valued at approximately \$1.4 trillion, to support future AI models.⁷⁴

It seems unclear at this stage where this extra power is to come from. Twenty GW is about the power output of 20 nuclear power stations. This statistic is thrown around a lot, but one should pause and consider how staggering it is. Moreover, the average time to build a nuclear power station—more than six years—would make them highly unlikely to be able to meet this target, not to mention the lack of nuclear or grid development in the US over the last decade. Gas and renewables presumably have to provide the bulk of this draw. Our view is that the risks of supply constraint plus energy price inflation remain high.

Bernstein Research has suggested that the share of total power from solar and wind needs to rise significantly as the most plausible way to meet this extra demand.

⁷⁴ “Seizing the AI Opportunity,” OpenAI, October 27, 2025.

This topic of power is most definitely not only an economic question; we think it is primarily a social one. The immediate question is: In this world of supply lagging demand, how will access to power be apportioned? One of the defining features of the US economy in recent decades has been the increasing power of corporations and the rise in the corporate profit share of GDP. If that is applied to power access as well, then it raises yet another inequality issue for AI. We suspect this will become a point of political focus in the coming years.

Strategically, there are the climate implications and the difficulty of effecting an energy transition. We wrote about this at length,⁷⁵ but aside from this also being a question of growing inequality, it plausibly implies a downward force on economic growth rates that offsets any productivity gains from AI. Hence, the question that is raised in some client meetings is about whether, in the round, it is indeed right to assume that AI increases growth rates at all.

Implications for the Market: What Is a Defensive Trade?

We end this chapter with the observation we made at the outset: The flow of capital into AI represents a vertiginous dialectic. We simply do not have enough data yet to resolve the yawning gap between different projections of the gains from AI and for whom they will accrue. This situation points toward two wildly different views of aggregate growth: corporate profit growth and valuation.

The bifurcation of the US stock market is well-known. As we show in *Display 76*, page 132, the valuation of the 10 largest stocks is 31× 12-month forward earnings per share (EPS). The rest of the market, omitting those 10 stocks, is 19×.

Given the high level of market concentration, the impact of any devaluation of the AI-linked names would be significant. Using a broad framework as a guide, a decline in the multiple of the 10 largest stocks to 20× 12-month forward EPS (while this level is above the 50-year average, we have explained that we do not think there has to be a full mean reversion in absolute multiples) would imply a drawdown of those names of 36% and a fall in the overall market of 14%.

It would clearly be naïve to assume that the rest of the market would not fall in such an environment, so any decline would be larger than this. Although retail investors have been participating in the direct purchasing of AI-related names in unprecedented bulk, there has also been a very elevated flow into passive capitalization-weighted indices that would presumably go rapidly in reverse in such a scenario.

75 Inigo Fraser Jenkins and Alla Harmsworth, *Can the Energy Transition Happen? And If Not, What Does That Mean for Asset Allocation?*, AllianceBernstein, November 18, 2024, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/can-the-energy-transition-happen.html>.

DISPLAY 76: VALUATION OF THE 10 LARGEST STOCKS IN THE US MARKET

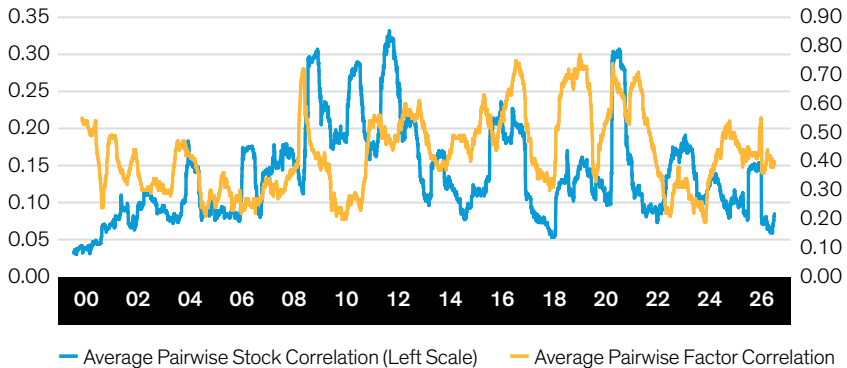


Past performance does not guarantee future results.

P/E: price to earnings

As of October 30, 2025 | Source: FactSet and AB

DISPLAY 77: AVERAGE PAIRWISE STOCK AND FACTOR CORRELATION



Past performance does not guarantee future results.

The stock correlations are the average pairwise correlations of daily stock returns for the constituents of the MSCI AC World Index over a rolling six-month window.

From March 7, 2000, through March 26, 2026 | Source: FactSet, MSCI and AB

Correlations among stocks and among factors have been well-behaved and stable in recent times (*Display 77, page 132*). So-called “liberation day” in 2025 caused correlations to rise for a period, but the effect of that appears to have abated. But even abstracting from that very recent decline, correlations have been subdued. However, they tend to rise abruptly in times of sell-offs, not least because of the scale of the flow into passive cap-weighted indices that presumably reverses abruptly upon a sell-off.

Just to be crystal clear, we are not calling for a downturn. There is not enough evidence for the current projections of AI, or for the shift in funding quality, to determine a sell-off. However, we do think that the risk of a drawdown is elevated and that there is a high degree of complacency about volatility. This is in part to do with market structure and in part AI-specific. We think that the risk of a drawdown is elevated for two reasons:

1. The confluence of high valuations and high concentration implies a greater risk of drawdown (see “Chapter 6—US Healthcare: Attractive Valuation for a Structural Growth Opportunity”).
2. Over the time frame of the depreciation cycle of the GPUs being installed, there is an elevated risk of an “air pocket” with insufficient clarity about the ability to achieve challenging revenue targets that will lead to drawdowns.

This does not constitute a net bearish view, but it does mean that investors need to line up defensive trades and, in some cases, start to allocate toward them. So, the big question is: What constitutes a defensive trade in this environment? One problem is that the timing is highly uncertain, so any drawdown-mitigation strategy must be relatively cheap to carry. In “Chapter 6—US Healthcare: Attractive Valuation for a Structural Growth Opportunity,” we suggest that the healthcare sector constitutes a candidate for being a defensive trade. Other possibilities are exposure to the low-volatility factor and non-US income strategies.

Low Volatility

A candidate for a defensive trade is exposure to the low-volatility factor for these key reasons:

1. We think there is complacency about volatility, so low-volatility stocks should outperform. The caveat is the need for an extra focus on forward-looking expectations of volatility, not just stocks that have had low volatility in a period of smooth inflows into a rising market.
2. As a factor, low volatility is attractively valued (*Display 78, page 134*).

Moreover, as we show in *Display 79, page 134*, the 12-month correlation between the global momentum and low-volatility factors is approaching historic lows, which reinforces our view that the low-volatility factor should act as a hedge against a tech-driven market sell-off.

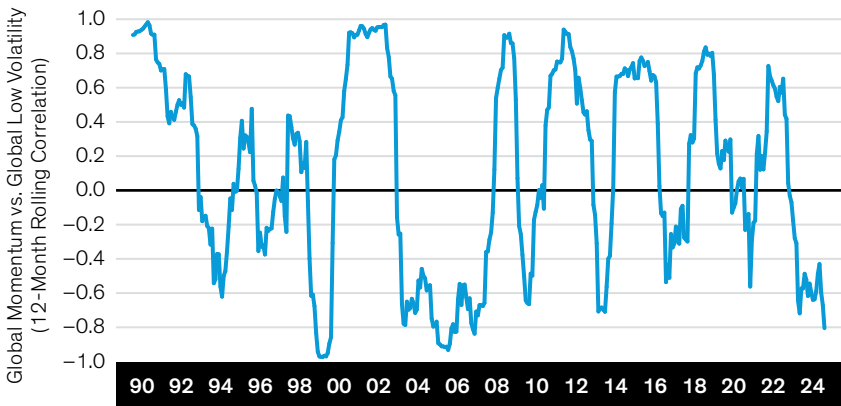
DISPLAY 78: THE LOW-VOLATILITY FACTOR TRADES AT ITS LARGEST DISCOUNT TO THE BROAD US MARKET IN 15 YEARS



Past performance does not guarantee future results.

As of November 19, 2025 | Source: Macrobond, MSCI and AB

DISPLAY 79: CORRELATION OF LOW VOLATILITY AND MOMENTUM IS CLOSE TO HISTORIC LOWS



Past performance does not guarantee future results.

As of December 2, 2025 | Source: FactSet and AB

EAFE Income

A third defensive trade to highlight is international income. The case for income being one of the more defensive possible permutations of value trades is well established. Focusing this trade on non-US markets makes sense in the context of defending against a sell-off in US tech names (this does not change our strategic view to overweight the US over longer horizons). Simple exposure to international income strategies in the equity market are overweight energy, financials, utilities and consumer staples. And the factor is currently valued in line with its historic average multiple (*Display 80*).

Short-Duration Fixed Income

Almost inevitably, short-duration fixed income would be likely to see inflows in an AI sell-off. However, a couple of points are worth noting:

1. Given the uncertain timing of any AI-related drawdown and the need for some investors to lever such a position to have a meaningful impact on a portfolio, there is a limit to how attractive this can be. So, this is not a call we would make today.
2. We think the focus has to be on short duration, not long. We remain strategically underweight long-duration nominal debt, given public debt levels, an expectation of higher inflation, capricious US policymaking and a geopolitical imperative to de-dollarize. An extra incentive would come from the likelihood of rate cuts to offset the negative wealth effect of any sell-off.

DISPLAY 80: RELATIVE VALUATION OF MSCI EAFE DIVIDEND YIELD FACTOR



Past performance does not guarantee future results.

As of March 30, 2026 | Source: Macrobond, MSCI and AB

Part III: Defensive Strategies

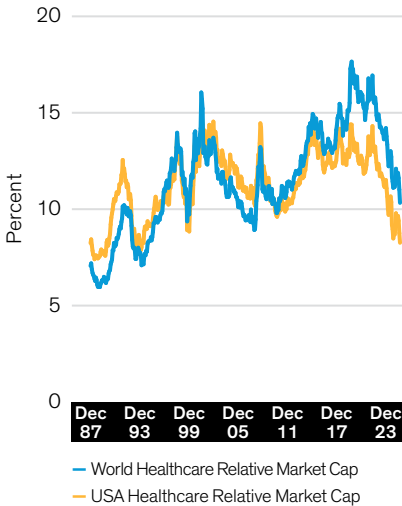
Chapter 6—US Healthcare: Attractive Valuation for a Structural Growth Opportunity

In our view, the macroeconomic and market environment in the coming years will be defined by the megaforces of demographics, deglobalization, a delayed energy transition and mounting public debt. Their impact points to an environment of structurally lower growth as well as higher and more volatile inflation, which in turn leads us to expect lower equity returns and higher market volatility than over the previous 15 years. There is an open question: How much can AI offset some of these challenges, particularly through a broad-based productivity increase?

We believe our outlook warrants a strategic overweight in the US healthcare sector. The year 2025 in healthcare was dominated by radical uncertainty and political pressure, including major personnel changes at US Department of Health and Human Services (HHS), threats of excessive tariffs on pharmaceuticals, cuts in life-science funding, Medicaid cuts and pharmacy benefit manager (PBM) reform. While uncertainty has moderated around some issues—such as the threat of tariffs—considerable unknowns and risks remain, in particular the long-term effects of Medicaid cuts and the ultimate scope of the PBM reform. In addition, the desire to limit the price of drugs and healthcare remains a popular and important bipartisan issue. However, at the same time, the sector could play an important role in diversifying away from heavy market concentration in tech as well as in stabilizing portfolios during market drawdowns. In the longer run, healthcare should be a structural beneficiary of an aging US population, with its pricing power enabling sustained real earnings growth—even in a world of structurally higher inflation. We also view the sector as one of the clearest potential beneficiaries of AI. Multiple possible applications could increase productivity and cut drug-development costs, improve research and development (R&D) efficiency and effectiveness, and drive better customer services and care. While we acknowledge considerable policy uncertainty surrounding US healthcare in particular, the current sector valuation and investors' positioning should limit the potential downside and provide an attractive entry point.

US healthcare's share of the overall equity market is still close to its lowest level in 15 years, currently standing at only 10% (*Display 81, page 140*). Today's negative sentiment toward the sector is also evident in its current valuation (*Display 82, page 140*), with the 12-month forward-P/E multiple of US healthcare versus the market significantly below the historical average. Globally, the picture is similar, with healthcare also trading at a significant discount.

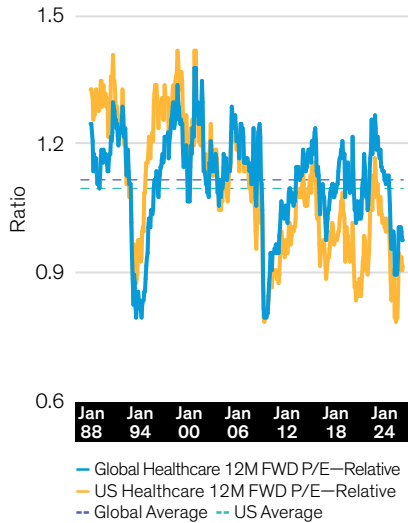
DISPLAY 81: US HEALTHCARE RELATIVE MARKET SHARE IS NEAR HISTORIC LOWS



Past performance does not guarantee future results.

As of May 31, 2026 | **Source:** FactSet and AB

DISPLAY 82: US AND GLOBAL HEALTHCARE TRADE AT A DISCOUNT TO THE BROADER MARKET



Past performance does not guarantee future results.

12M FWD P/E: price to next 12 months earnings

As of May 31, 2026 | **Source:** FactSet and AB

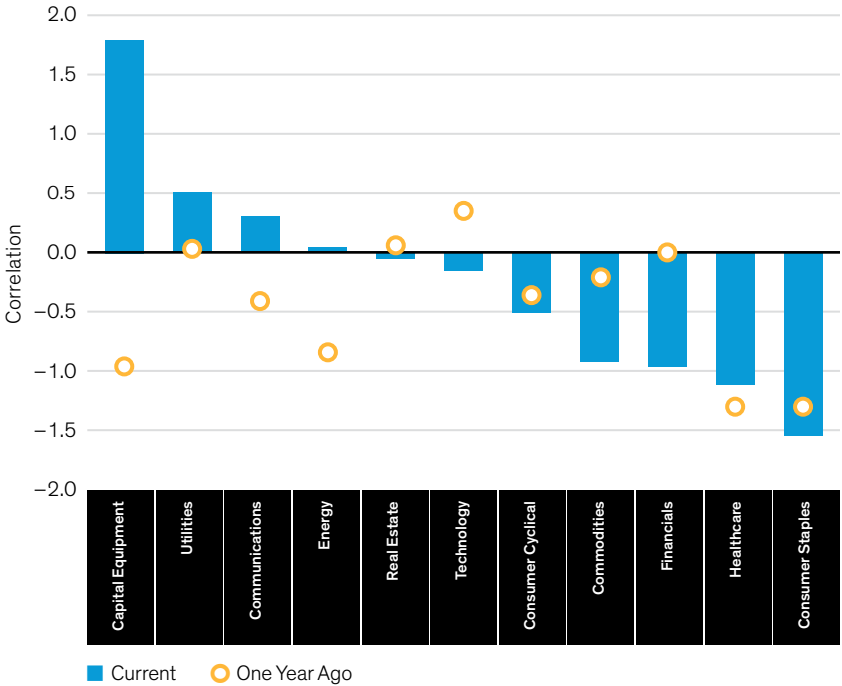
To put US healthcare into the context of the rest of the US market (*Display 83, page 141*), it is currently the second-cheapest sector on a relative basis, after a significant de-rating compared to last year.

Outside of the global financial crisis and the COVID-19 pandemic, mid-1993 and the end of 2016 were the only other periods that saw similar healthcare discounts to the broader market. Both episodes were also characterized by significant policy uncertainty for the industry.

Shortly after President Bill Clinton's election in 1992, he made healthcare reform the cornerstone of the administration's first-term agenda, aiming to overhaul the system and provide universal healthcare for all Americans. Other suggested policy measures included health-insurance reform, the establishment of regional healthcare alliances in each state to compete for customers, consumer choice of health plans,

DISPLAY 83: US HEALTHCARE IS THE SECOND-CHEAPEST SECTOR IN THE MARKET

12-Month Forward Price to Earnings Relative to the Market (Z-Score)



Current analysis does not guarantee future results.

As of March 2, 2026 | Source: FactSet and AB

and provisions for Medicaid beneficiaries. Government oversight and regulation of the sector would have been significantly expanded to ensure standards for quality and affordability.

In 2016, the market was worried about the potential repeal and replacement of the Affordable Care Act (ACA), a move that was one of the centerpieces of Donald Trump's campaign for his first presidential term. At the time, the healthcare sector was under intense scrutiny over drug-pricing policies and the potential tax implications of proposed high-profile mergers such as Pfizer and Allergan. In the background there was growing worry about the impact of the impending patent-expiration cliff in the pharmaceuticals segment.

This time around, arguably the biggest challenge has been the 2025 reconciliation law that made historic cuts to federal Medicaid funding and coverage, which is estimated to reduce federal Medicaid spending by \$911 billion over 10 years and to increase the number of people without health insurance by 7.5 million by 2034.⁷⁶

In addition, there are broader political headwinds from the new leadership at the HHS. HHS is often directly challenging big pharmaceutical companies and vaccine manufacturers. It has also advocated for big changes to healthcare regulations as well as existing practices and policies. This not only increases uncertainty but creates a risk of inadvertent disruption, as evidenced, for example, by the resignation of US Food and Drug Agency veteran Peter Marks.⁷⁷

Finally, there is still a considerable overhang around the ultimate scope and effect of the changes to PBM business practices, including delinking PBM compensation from the price of a drug, establishing transparency and reporting requirements for PBMs, and requiring PBMs to fully pass through 100% of drug rebates and discounts to employer health plans regulated under the Employee Retirement Income Security Act of 1974.⁷⁸ While the ultimate impact of these reforms is unknown, it poses a significant threat to PBM profitability.

However, we think there are a number of mitigating factors that should limit the ultimate impact on the sector. We note that radical healthcare reform is still not the top priority for the current administration, which is focused on tariffs, immigration and tax reform. While the headline number of Medicaid cuts is very significant, the impact will be spread over 10 years and will to some extent be offset by individual states that co-fund Medicaid with the federal government. As of early 2026, the uncertainty around pharmaceutical tariffs and most-favored-nation pricing agreements have eased considerably. The US administration has reached drug pricing agreements with the 16 major pharmaceutical companies and most large drugmakers have committed to building manufacturing facilities in the US, which will shelter them from tariffs.

Another mitigating factor is that the structure of the healthcare sector today is much different than it used to be. Historically, it had been dominated by pharmaceutical companies, but they are now less than 40% of the overall market's capitalization.

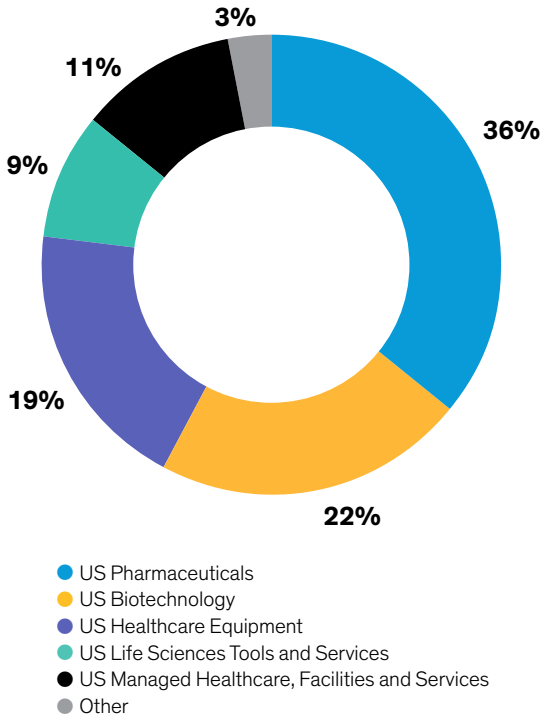
76 Elizabeth Williams, Anna Mudumala, Elizabeth Hinton and Robin Rudowitz, "Medicaid Enrollment & Spending Growth: FY 2025 & 2026," *KFF*, November 13, 2025, <https://www.kff.org/medicaid/medicaid-what-to-watch-in-2026/>.

77 Christina Jewett, Sheryl Gay Stolberg and Noah Weiland, "Top F.D.A. Vaccine Official Resigns, Citing Kennedy's 'Misinformation and Lies,'" *New York Times*, March 28, 2025, <https://www.nytimes.com/2025/03/28/health/fda-vaccines-rfk-jr-peter-marks.html>.

78 For more detail please see Meredith Freed, Juliette Cubanski, Elizabeth Williams and Kaye Pestaina, "What to Know About Pharmacy Benefit Managers (PBMs) and Federal Efforts at Regulation," *KFF*, February 9, 2026, <https://www.kff.org/other-health/what-to-know-about-pharmacy-benefit-managers-pbms-and-federal-efforts-at-regulation/>.

DISPLAY 84: THE US HEALTHCARE SECTOR'S STRUCTURE

(Percent of Market Capitalization)



Current analysis does not guarantee future results.

The display is based on the Russell 1000 Healthcare Index.

As of February 28, 2026 | **Source:** BlackRock, FTSE Russell and AB

Also, other industries, such as healthcare equipment and biotech, play important roles and offer different and diversifying earnings and return streams (*Display 84*).

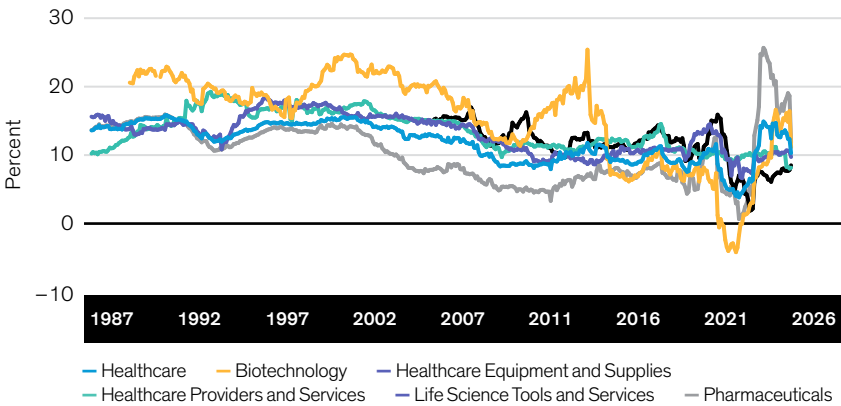
Looking at long-term earnings expectations by industry, medtech has historically been a source of high earnings growth, and biotech's long-term growth prospects have improved a lot in recent years (*Display 85, page 144*). Bernstein's Medical Technologies & Services sector analysts note that medtech should be resilient to political uncertainty because it constitutes only 7% of US healthcare spending, less than half of the 15% spend for pharmaceuticals, which receives much more political

focus.⁷⁹ Also, most medtech devices are purchased by hospitals, so pricing dynamics keep price levels much steadier over time, as cost-sensitive hospitals try to secure the best prices they can. The team also notes that medtech supply chains are fairly insulated from China: They moved to minimize shipments from China during the trade war in Trump's first presidency, and the COVID-19 pandemic forced medtechs to invest in supply chain resilience.

Negative investor sentiment is also clearly evident in flows (*Display 86, page 145*). Over the last two years, healthcare has seen the largest outflows among US sectors of more than \$31 billion. This suggests investors are underweight the sector, which should be another key factor mitigating the potential downside.

In our view, investors' pessimism contrasts sharply with strong earnings growth potential for the sector in the long run. As *Display 87, page 145*, shows, US healthcare consensus long-term earnings growth expectations have been trending down since the middle of 2025 and are currently below the expectations for the broader market. We note, however, that the market earnings consensus is currently significantly biased by very optimistic estimates for the tech sector (*Display 88, page 145*).

DISPLAY 85: CONSENSUS LONG-TERM EARNINGS GROWTH ESTIMATES FOR HEALTHCARE SUB-SECTORS



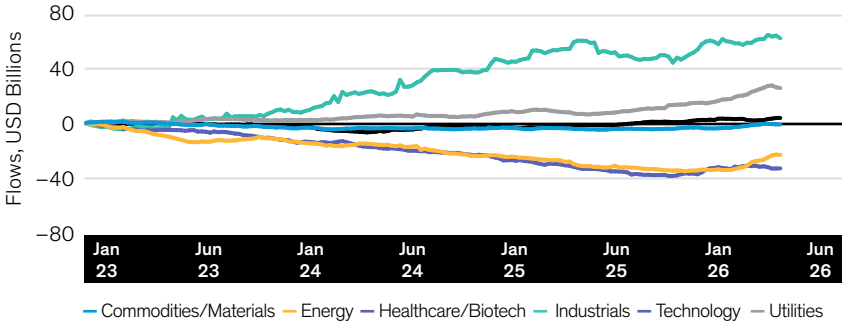
Current analysis does not guarantee future results.

As of March 2, 2026 | **Source:** FactSet and AB

⁷⁹ Lisa Bedell Clive and Estelle Pang, *European Medtech: Chaos in DC... A 30,000 Foot View on Tariffs, DOGE, and Healthcare Policy Under Trump 2.0*, Bernstein Research, April 11, 2025.

DISPLAY 86: HEAVY HEALTHCARE OUTFLOWS OVER THE PAST TWO YEARS

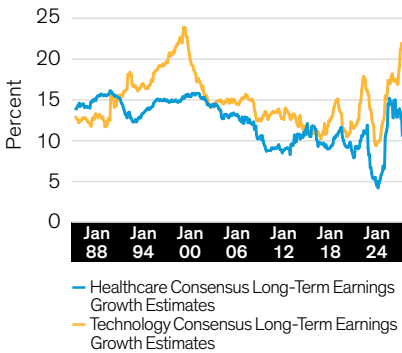
US Equity Sector Flows Since 2023



Current analysis does not guarantee future results.

As of March 2, 2026 | Source: Emerging Portfolio Fund Research Global and AB

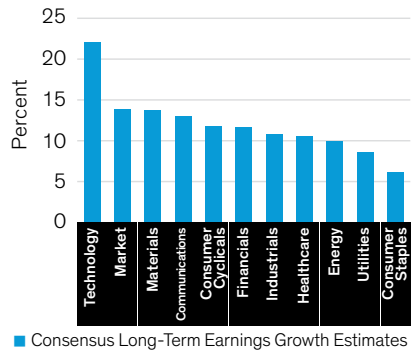
DISPLAY 87: US TECH EARNINGS ESTIMATES HAVE SURGED RECENTLY AND ARE VERY EXTENDED COMPARED TO HISTORY



Past performance does not guarantee future results.

As of February 28, 2026 | Source: FactSet and AB

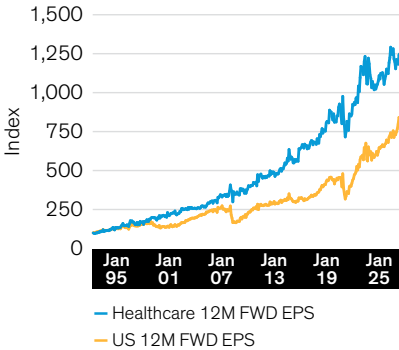
DISPLAY 88: LONG-TERM HEALTHCARE EARNINGS ALSO LOOK FAVORABLE



Past performance does not guarantee future results.

As of February 28, 2026 | Source: FactSet and AB

DISPLAY 89: US HEALTHCARE HAS A STRONG TRACK RECORD OF EARNINGS GROWTH...

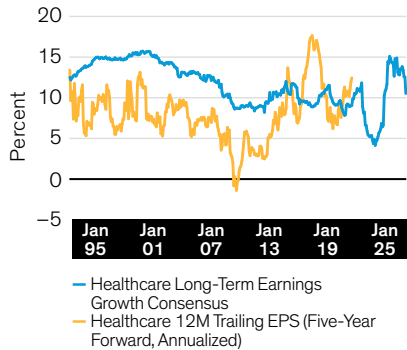


Past performance does not guarantee future results.

12M FWD EPS: 12-month forward earnings per share

As of February 28, 2026 | **Source:** FactSet and AB

DISPLAY 90: ...AND IS MEETING ANALYST CONSENSUS EXPECTATIONS FOR LONG-TERM GROWTH



Past performance does not guarantee future results.

EPS: earnings per share

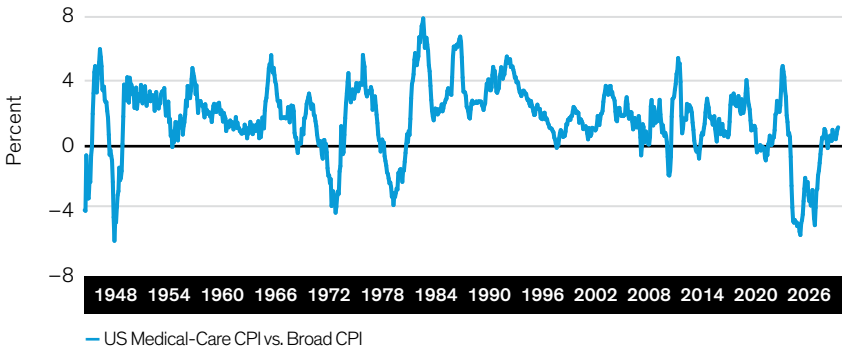
As of February 28, 2026 | **Source:** FactSet and AB

While as *Displays 89* and *90*, show, healthcare also has a strong track record of outpacing market earnings growth. Since 1995, annualized earnings growth for the sector was 8.5% versus 7.1% for the broader market. And we expect significant long-term tailwinds for healthcare earnings from AI implementation and demographic trends, which we discuss later in the chapter. Finally, if US tech-sector earnings expectations prove to be too optimistic, we expect the healthcare sector to be one of the key beneficiaries from sector rotation due to its defensive characteristics and historical earnings resilience.

Over nearly 80 years, medical-care and drug inflation has grown faster than the overall Consumer Price Index (*Display 91*, page 147). To us, this is evidence of the strong pricing power in the sector, and it demonstrates healthcare's ability to deliver real earnings growth. As we noted in our recent research, we expect inflation to be structurally higher and more volatile in the coming years.⁸⁰ We also believe that the

⁸⁰ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *A Higher Inflation Future and the Need for Real Assets*, AllianceBernstein, March 10, 2025, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/a-higher-inflation-future-and-the-need-for-real-assets.html>.

DISPLAY 91: MEDICAL-CARE INFLATION HAS EXCEEDED BROAD CPI



Current analysis does not guarantee future results.

As of March 2, 2026 | **Source:** Macrobond, US Bureau of Labor Statistics and AB

ability to grow earnings above inflation will become increasingly more valuable in this new macro regime; over time, that should warrant a premium valuation multiple.

The US equity market is very heavily concentrated in the high-growth but expensive Magnificent Seven stocks. We think it would be prudent for investors to diversify the sources of growth in their portfolios, and that US healthcare exposure can be effective in that role—especially because it doesn't come at a significant valuation premium right now.

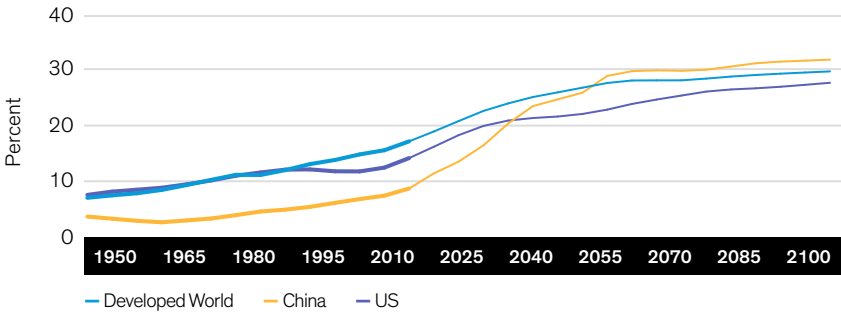
Long-term growth expectations for US healthcare should be achievable and supported by structural trends, namely the demographics of an aging population and the growing need for care. There are potential benefits from AI adoption, too, which we discuss in more detail below.

Demographics Should Be a Strong Structural Tailwind for Healthcare

Demographics will be a key megaforce defining the macroeconomic picture in the coming decades, as we see it, with the global population aging rapidly (*Display 92, page 148*). The share of the elderly population in the developed world, and China in particular, has risen over the last decade and is projected to grow substantially in the coming years. While the US has a comparably better demographic outlook, it faces the same trend.

DISPLAY 92: THE SHARE OF ELDERLY POPULATION LIKELY TO CLIMB ACROSS THE WORLD

65+ Age Population (Percent Total)

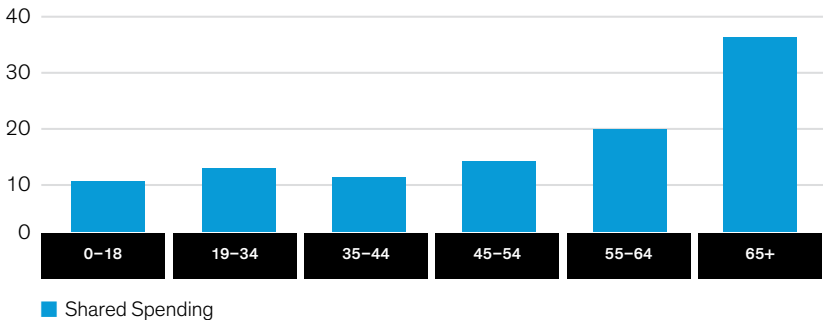


Current analysis does not guarantee future results.

As of March 31, 2026 | **Source:** Macrobond, United Nations Department of Economic and Social Affairs, and AB

DISPLAY 93: THE ELDERLY ACCOUNT FOR A GREATER SHARE OF TOTAL US HEALTHCARE SPENDING

Percent of Spending by Age Group



Current analysis does not guarantee future results.

The results are based on 2021 survey data. For more info, please see: Matt McGough, Imani Telesford, Lynne Cotter and Gary Claxton, "How Do Health Expenditures Vary Across the Population," *KFF*, March 2, 2026, <https://www.kff.org/health-costs/how-health-expenditures-vary-across-the-population-slideshow/>.

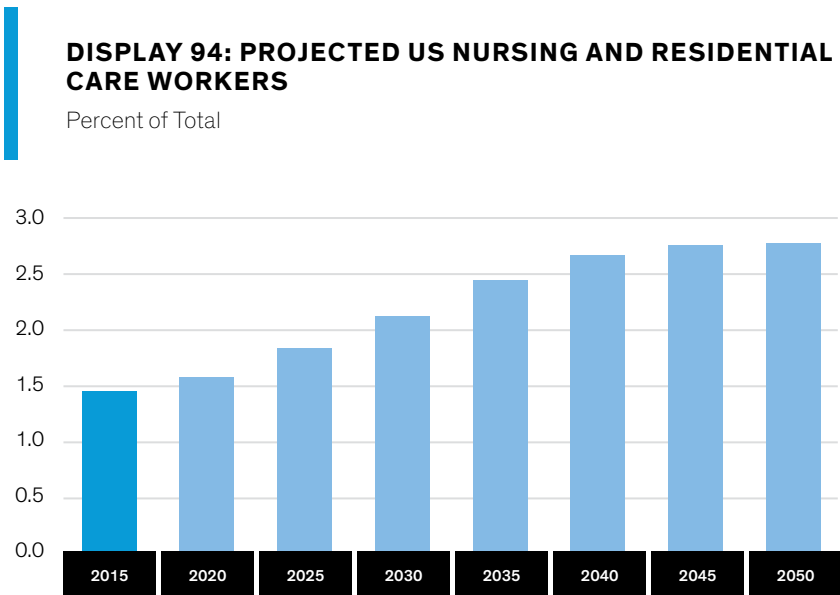
As of March 5, 2026 | **Source:** KFF and AB

Those aged 65 and older account for a disproportionate share of overall healthcare spending (*Display 93, page 148*). So, as their share of the overall population grows, it will create a structural tailwind for higher spending on healthcare.

The share of elderly people aged 75 and older is also growing rapidly. Unfortunately, this means an increasing prevalence of dementia and other diseases that require much greater care. We can illustrate this need by using United Nations demographic projections of people aged 75 and older. Our analysis suggests that the years through 2050 will see a large, sustained rise in the need for social care and social care facilities (*Display 94*).

The Healthcare Sector as an AI Adoption Beneficiary

Productivity gains resulting from widespread AI adoption are often presented as a possible solution to offset the negative impacts of deglobalization, demographics and climate change. While it is very hard to estimate the potential and durability of productivity gains at the overall level of the economy, especially at this early stage of adoption, we do see the healthcare sector as one of the clearest potential AI beneficiaries.



Current analysis and forecasts do not guarantee future results.

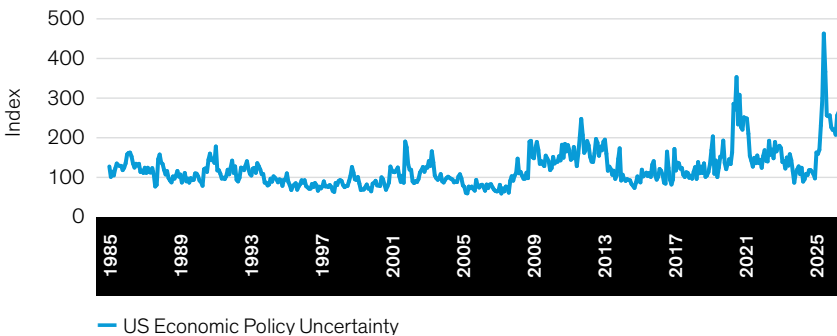
The analysis uses United Nations demographic projections and assumes that 0.17 nursing and residential care workers will be needed for each person aged over 75.

As of March 3, 2026 | **Source:** Macrobond, United Nations Department of Economic and Social Affairs, and AB

There have already been tangible AI-driven achievements in this arena, most notably the huge improvements in predicting protein structures by the AlphaFold AI program developed by Google DeepMind. Below, we consider other areas with a high likelihood of AI-enabled improvements:

- New drug discoveries could be improved and their costs lowered, and drug trials could be made more cost-effective. Novartis and Eli Lilly have already partnered with Isomorphic Labs on AI-assisted drug development that capitalizes on the AlphaFold model.⁸¹
- In medical technology, data analytics can be leveraged to enhance the use of hospital infrastructure, improve diagnostics and provide more personalized treatments to patients.
- The digitizing of medical records, better data management and workflow automation can free up doctors' time to focus on treatment, enabling them to see more patients. For example, in UnitedHealth Group's third-quarter 2024 earnings call, then-CEO Andrew Witt noted that the company's nurses already use generative AI to review documents more efficiently and quickly. He also noted that AI is helping customer advocates with routine customer interactions and healthcare provider searches, giving them more time to focus on more complex customer inquiries.

DISPLAY 95: US POLICY UNCERTAINTY REMAINS SIGNIFICANTLY ELEVATED



Current analysis does not guarantee future results.

As of March 2, 2026 | **Source:** Federal Reserve Bank of St. Louis, Macrobond and AB

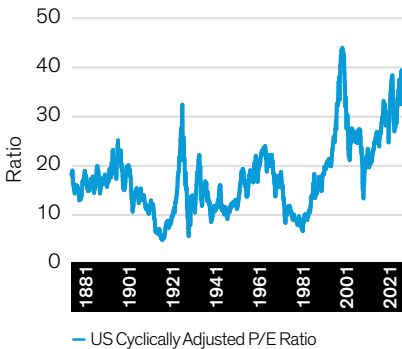
⁸¹ "Isomorphic Labs Kicks Off 2024 with Two Pharmaceutical Collaborations," Isomorphic Labs, January 7, 2024, <https://www.isomorphiclabs.com/articles/isomorphic-labs-kicks-off-2024-with-two-pharmaceutical-collaborations>.

- AI-enabled data collection and the analysis of large-scale datasets can be used to develop more personalized treatment plans, help diagnose diseases earlier and reduce the need for invasive procedures. Ultimately, this leads to better patient outcomes and lower costs.
- Significant cost reductions are possible across the sector through lower research and development costs, enhanced operational efficiency, predictive medical-technology maintenance, and automation of routine administrative tasks.

Healthcare Exposure May Play a Stabilizing Role in the Portfolio

In 2025, the US stock market witnessed extreme bouts of turbulence. As *Display 95*, page 150, shows, policy uncertainty in the US remains significantly elevated. Meanwhile, the Shiller price-to-earnings ratio in the broader US equity market is 40x, firmly in the top decile versus history (*Display 96*). Elevated valuations have historically indicated the risk of more severe future market drawdowns (*Display 97*), and drawdown risk is greater in the current climate of extreme market and geopolitical uncertainty.

DISPLAY 96: US SHILLER PRICE TO EARNINGS IS FIRMLY IN THE TOP DECILE OF HISTORIC VALUATION RANGE

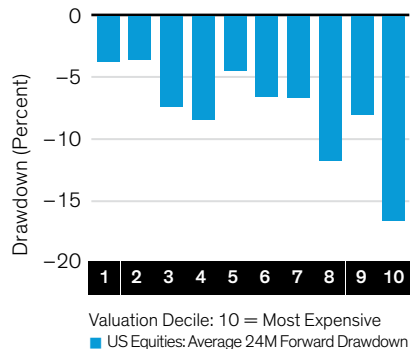


Past performance and current analysis do not guarantee future results.

P/E: price-to-earnings

As of April 10, 2026 | **Source:** Macrobond, Robert Shiller's database and AB

DISPLAY 97: HIGHER VALUATIONS HAVE BEEN ASSOCIATED WITH BIGGER MARKET DRAWDOWNS

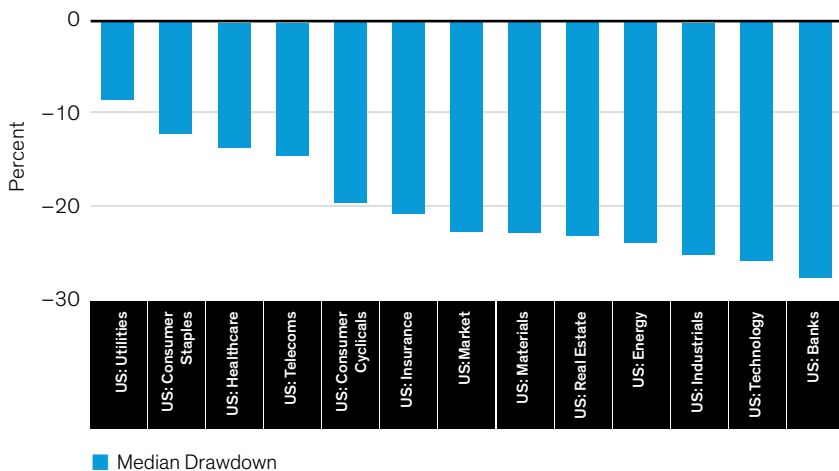


Past performance and current analysis do not guarantee future results.

The analysis covers the period from January 1970 through December 2024. Valuation is measured by the Shiller price-to-earnings multiple.

As of December 31, 2024 | **Source:** Macrobond, Robert Shiller's database and AB

DISPLAY 98: MEDIAN US EQUITY SECTOR DRAWDOWN IN PERIODS OF MARKET STRESS



Past performance and current analysis do not guarantee future results.

The display shows the median drawdown for each sector from 1987 to 2025 in periods when the overall market drawdown was more than 10%.

The analysis covers the period from August 1987 to January 2025.

As of January 31, 2025 | **Source:** FactSet and AB

Given the current state of the US equity market and the risk of drawdowns, we believe it would be prudent to consider adding assets to the portfolio to help weather market sell-offs. Historically, the healthcare sector has acted as a defensive allocation and has seen much lower drawdowns when market stress has been high (*Display 98*).

Conclusion

It's true that a significant level of policy uncertainty surrounds the healthcare sector, as new US leadership has proposed a number of policies aimed at that part of the economy. But in our view, much of this cloudiness has been reflected in current valuations and investors' views toward the sector.

That should reduce the amount of downside in US healthcare, from our perspective. As the market currently stands, that translates into an attractive valuation for adding a strategic overweight to the sector. Investors can also access what we see as strong structural growth prospects from the effects of an aging population and AI efficiencies. And healthcare has the potential to cushion portfolios in a time of macro uncertainty, given its historically defensive nature.

Part IV: Changing How to Invest

Chapter 7—Portfolio Design as Gesamtkunstwerk: The Total Portfolio Approach

Adoption of the total portfolio approach (TPA) is set to grow. In part, this increasing popularity is in response to a particular set of macro circumstances of a new investment regime that implies lower returns and less diversification. But this growth is also for reasons exogenous to the wants of investors, resulting from a shift in the locus of capital raising, with a structurally greater role for private markets.

At its heart, TPA is a holistic approach to allocation that rejects the primacy of the asset class or the public-versus-private split as the basis for allocation. Instead, it recasts the task of an allocator to being the curator of return streams.

There are, however, significant hurdles to adoption: a change in governance structure and in organization and career risk for those making the transition.

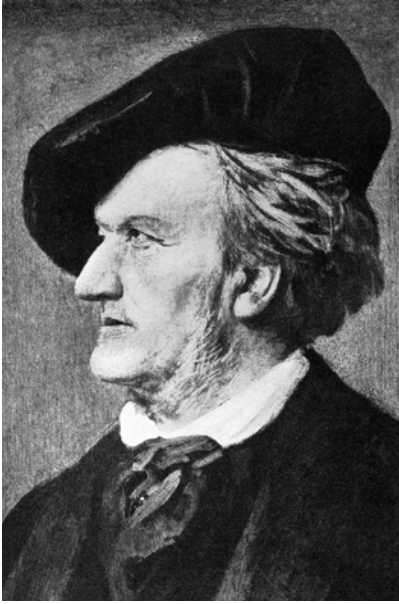
We discuss what this state means for investment praxis. The theoretically pure approach might be hard to adopt; hence other approaches involve starting from constraints (especially liquidity), then making assumptions about what an attractive mix of return streams might be. We show an example of these approaches, which uses simulations to find an attractive resulting allocation.

TPA likely allows for the greater adoption of illiquid assets, factors and active return streams.

Rejecting the Primacy of the Asset Class

In our travels around the world to see clients, it is always intriguing when common questions recur. It is especially interesting when the questions are about topics that were not referenced in your author's presentation deck, and so were not led by the presenter. One such topic is the TPA. Questions on TPA have been raised in our meetings with investors in Japan, the Middle East, North America and Europe. The idea is hardly new—we remember talking about it to clients a decade ago, and it has never gone away. We have long looked favorably on the approach, but we also recognize that it comes with caveats. For some investors, these can be significant objections, and TPA's efficacy, or at least the need for it, is also dependent on macro conditions. It is with this backdrop that the topic is back on the list of subjects that investors want to talk about. More importantly, there have been new converts to the approach, so more assets are being managed in this way.

DISPLAY 99: CAN THE CONCEPT OF GESAMTKUNSTWERK BE APPLIED TO INVESTING?



Source: Getty Images

and lowbrow as asset allocation, but the immersive nature of TPA (at least in its ideal form) and the necessity of arriving at a synthesis of investment approaches suggest to us that the analogy is apt. Just as Richard Wagner (*Display 99*) tried to achieve the total work of art, using TPA to direct allocation is an attempt to get close to the total possibility of what investing can achieve.

In this chapter, we attempt to lay out what TPA is as well as the (multiple) reasons that it is back as a topic and is set to grow in importance. We give some examples of what this shift means for allocations and also the problems with the approach. These represent real hurdles for many investors, so we also discuss approaches that incorporate elements of a TPA but don't adopt it wholesale. Such approaches, while perhaps not offering all the advantages of TPA, may be more acceptable for some investors.

Adopting TPA is part of seeing that the real goal of investing is to meet obligations in the real world, i.e., seeing inflation as the benchmark. If one thinks that one's benchmark is a set of asset-class return indices with some weighting attached to them, then one will never, and should never, adopt TPA. However, we would suggest that in most cases such a benchmark is misguided. The claim might sound cavalier, but that is the point. The question of whether to adopt TPA, implicitly at least, goes to the heart of the question of what investment management is for.

This note will discuss in detail what TPA means, but fundamentally, and to put it in the language of a manifesto, TPA is about rejecting the primacy of the asset class. Indeed, it questions whether an asset class is even a "thing." In its holistic nature, we would suggest that the TPA amounts to nothing less than a Gesamtkunstwerk for investing. It might sound presumptuous to apply the language of Parsifal to something as pedestrian

What Is TPA? And the Theoretical Case for It

At heart, TPA takes a holistic approach to risk and investment exposures in a portfolio. That is to say, it looks across public and private assets, alpha and beta return streams, and asset classes. This nature sets it apart from traditional approaches to asset allocation that tend to view allocations to asset classes as distinct buckets, and that often do not explicitly think about common factor risks across those asset classes.

Thus, fundamentally, TPA is about removing silos from asset allocation. It also changes the metric by which risk is measured. The relevant measure of risk for TPA is the volatility of the total portfolio and a metric of required liquidity. A traditional approach to asset allocation, by contrast, also cares about active risk and the deviation from an asset class “passive” benchmark that is introduced by any “active” allocation. In its purest form, TPA rejects the notion of active risk as being relevant, hence the need for quotation marks around terms such as “active” and “passive.”

TPA in its pure form recognizes, or at least allows for the possibility, that the alpha-beta dividing line is dynamic and not fixed. Indeed, TPA recognizes that this should properly be thought of not as a dichotomy but as a spectrum encompassing active investing, factor strategies and passive approaches.

Thinking about investing in this way, in theory, allows for more flexibility. So, in a macro state of lower returns and harder-to-achieve diversification, which is what we think is the prospect today, it allows an investor to partition and allocate risk more efficiently. This requires an ability to view risk across asset classes, public and private holdings, and passive and active allocations. There are practical challenges in doing this, but more efficient use of risk is an essential benefit.

As part of the route to achieving superior diversification, we would argue that TPA makes it easier to benefit from time-horizon diversification. This is the idea that modes of investing with very different alpha decay times offer a route to diversification that is different from the classic idea of simply finding return streams that have a low correlation.⁸²

TPA turns the allocator into a “curator of returns streams.” We think this phrase is appropriate, as it does not assume an inherent primacy of a given set of return streams. Of course, in practice, there will be massively different scales of capacity and liquidity between different assets, but that aspect is tackled in the setting of liquidity requirements or other constraints.

Credo

There is a set of either supporting beliefs implicit in the adoption of TPA or helpful *a priori* positions that enable its adoption. As this is really a foundational issue in the

⁸² Inigo Fraser Jenkins, Alix Guerrini and Alla Harmsworth, *Global Quantitative Strategy—Time Horizons in Finance: Bayesian Trees for Market Allocation*, Bernstein Research, February 16, 2016.

allocation of assets, it is hard to avoid outlining it in terms of “beliefs.” In a language akin to that adopted at Nicaea, we could phrase this along the lines of:

- A belief that, ultimately, the role of the asset allocator is to bring together diverse return streams in a way that is not encumbered by silos of asset class or asset type that have largely been invented by the investment industry;
- A rejection of market-based multi-asset benchmarks (and ideally a lack of belief in the concept of a risk-free asset, though that is not, strictly speaking, essential for TPA);
- A multifaceted case for private assets, recognizing the structural shift in the locus of capital raising, the need for alternative sources of return and diversification, and the idea that the dividing line between public and private is, at the very least, fluid and, at best, illusory;
- The belief that factors have a role to play in asset allocation that puts them on a similar level as asset classes; and
- The need to fundamentally consider how to weight things, not necessarily based on the rules of thumb of the last 40 years or peer-group analysis.⁸³

TPA—Why Now?

The theoretical case for TPA is fair enough, but why does it appear to be making a resurgence now? If TPA means shifts such as seeking a broader set of diversifying assets and allocating more to active (including long-short active), then many such approaches would have suffered compared with a very simple 60/40 portfolio since 1980. We are strong believers in Occam’s razor, and hence are highly suspicious of complexity for the sake of it, so why adopt a potentially more complex system if recent performance might not have been better, and in fact might have been considerably worse?

We suggest that two very different forces at work imply TPA is needed more now, one driven by investors and the other more macro:

- The realization that achieving a given level of real return and achieving diversification is harder in a new investment paradigm; and
- A shift in how capital is raised in the contemporary economy. Public equity and credit are no longer privileged. Hence, a need to think about risk, exposures and allocation across public and private markets.

This is not the forum to lay out why we expect long-run returns to be lower.⁸⁴ In short, this is because of the confluence of high multiples across asset classes, lower growth rates (demographics and deglobalization only partly offset by AI) and higher

83 We have written elsewhere on the question of how to weight financial assets. See Inigo Fraser Jenkins and Alla Harmsworth, *Too Much Certainty Is a Terrible Thing: Benchmarks and the Meaning of Risk*, AllianceBernstein, March 14, 2024, <https://www.alliancebernstein.com/apac/en/institutions/insights/investment-insights/too-much-certainty-is-a-terrible-thing-benchmarks-and-the-meaning-of-risk.html>.

inflation (debt, deglobalization again and climate). Likewise, the move for a greater role of private assets stems from structural shifts that have dislodged public markets and bank credit from their formerly preeminent position. Unless buybacks are made illegal, initial public offerings are made easier and banks are allowed to take a lot more risk, this process will continue. Yet, all the while, corporations need to raise capital, hence a growing natural allocation to private assets.

To these macro considerations, we could add the topic of how investment decisions are made. The driving forces of today's market regime—debt, demographics, climate/energy transition, and AI—cut across different asset classes as well as public and private markets. They require dialogue and coordination across different teams and are hard to address if the investment process is siloed into different asset classes.

At the same time, these changes are enabled by, and, in some cases, accelerated by, two long-running trends within the asset-management industry itself. One is the rapid growth of assets under management (AUM) in smart beta exchange-traded funds, which enable cheap, liquid and easy addition of factor exposures while also facilitating better factor risk measurement and management. The second trend is advances in, and wider adoption of, investment technology such as sophisticated risk-management tools, liquidity forecasting, advanced macroeconomic scenario modeling, and machine learning and other AI tools.

The implementation difficulties of full TPA (which we discuss below) mean that in practice, partial adoptions or halfway houses will likely be very prevalent. As one example, Willis Towers Watson (WTW) and its Thinking Ahead Institute define TPA not as one specific approach, but in the language of a spectrum. They suggest a taxonomy based on five key pillars of governance, investment, people, risk and sustainability.⁸⁵ They then provide 16 markers under each of these categories in the spectrum ranging from pure strategic asset allocation (SAA) of zero to pure TPA of five. Very few organizations score five on most of these categories; thus the tool can be viewed as a road map moving toward a more encompassing version of TPA. Different organizations might also choose to implement more or fewer of the TPA principles across different pillars based on their own unique organizational structures and needs. According to WTW, in 2024 the TPA adoption score of global institutions included in its survey was 2.5, and their stated desired level was 3.6.⁸⁶

⁸⁴ See our case for this outlined in Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>.

⁸⁵ For more details, please see Aaron Filbeck and Jayne Bok, *From Vision to Execution: How Investors Are Operationalizing the Total Portfolio Approach*, CAIA Association and Thinking Ahead Institute, 2025, <https://www.thinkingaheadinstitute.org/content/uploads/2025/10/2025-TPA-Report-from-Vision-to-Execution.pdf>.

⁸⁶ Ibid.

The key differences between SAA and the TPA approaches that WTW delineates are that a pure SAA approach tends to be siloed across asset classes and benchmark-driven, with investment changes made infrequently and only basic considerations of liquidity incorporated in the investment process. By contrast, TPA is more goal-driven and aligned to total fund outcomes, the investment focus is on contribution to total portfolio outcomes, portfolios are monitored in real time and asset-allocation changes are dynamic. There is a full integration of liquid and illiquid assets, and tail risks are explicitly measured.

A Brief History of TPA

The total portfolio approach has not been a popular academic research topic. Until very recently, information about its adoption was most likely to be found in white papers and strategy documents produced by asset owners in Canada, Australia and the Netherlands who were the early advocates and adopters of the TPA approach.⁸⁷ Perhaps the most comprehensive academic paper discussing TPA principles is by Redouane Elkamhi and Jacky S. H. Lee.⁸⁸ The authors provide a detailed history of SAA's intellectual lineage from Benjamin Graham to Harry Markowitz to William Sharpe and David Swensen, and they highlight how the static portfolio model of discrete asset-class silos is increasingly unsuited to the evolving market regime characterized by growing market complexity, more-frequent regime shifts, liquidity constraints driven by the rise of private markets and path-dependency risks. Elkamhi and Lee define TPA not as a prescriptive allocation but as a "mindset of preparedness," which is centered on four key principles:

- **Preparedness rather than planning:** anticipating multiple states of the world rather than fixing exposures;
- **Holistic portfolio management:** evaluating each investment by its total portfolio contribution rather than its performance within a silo;
- **Intertemporal hedging:** positioning the portfolio for evolving risk premia and macroeconomic states; and
- **Dynamic trade-offs:** maintaining optionality, managing illiquidity and adjusting liquid exposures as private portfolios evolve.

As a result, Elkamhi and Lee argue that governance must shift from fixed-allocation targets to exposure-based guardrails, allowing investment teams discretion on their decisions but within certain risk limits. Performance evaluation should also become multidimensional, as no single benchmark adequately captures TPA's objectives. Incentives must focus on rewarding total fund outcomes, and culture must support cross-asset collaboration and shared accountability. Finally, the paper

⁸⁷ See, for example, "ATP's Investment Approach," memorandum, ATP Group, 2021, <https://www.atp.dk/en/dokument/atps-investment-approach-2021>.

⁸⁸ Redouane Elkamhi and Jacky S. H. Lee, "Total Portfolio Approach," *Journal of Portfolio Management* 51, no. 8 (Portfolio Manager Perspectives 2025): 109–127, <https://doi.org/10.3905/jpm.2025.1.728>.

presents a detailed analytical toolkit required to operationalize TPA. It includes factor-based portfolio construction, reverse-optimization techniques, regime-aware asset allocation and liquidity-aware rebalancing models, contrasting them with the SAA approach.

Stephen Gilmore and Joseph Simonian echo the key principles expressed by Elkamhi and Lee: the importance of breaking down asset-class silos and viewing the portfolio holistically with a one-team approach, aligning incentives with total fund outcomes, and establishing a unified technological infrastructure with consistent risk-measurement and -modeling standards as well as a shared knowledge base.⁸⁹ The unique contributions of the paper are practical considerations and examples of how TPA adoption can enable a hierarchical approach to goal setting, which, in addition to desired risk and return objectives, would also incorporate considerations of overall portfolio liquidity, managing tail risks and maximum drawdown, and aligning sustainability goals. The authors also argue that TPA naturally aligns with factor-based portfolio construction. They discuss practical considerations of using elastic net regularization as well as machine-learning methods to select the most parsimonious but still economically significant set of factors.

Meanwhile, several earlier academic papers focused only on one or several aspects of TPA, such as risk modeling or investment frameworks. For example, Mark Anson shows how ESG implementation presents a challenge for investing in siloed asset-allocation buckets, and how successful implementation requires viewing the total portfolio as a single entity to ensure alignment of objectives.⁹⁰ To do this, the paper proposes breaking down each investment into key economic drivers and evaluating the overall impact of each investment on the overall risk and return of the total portfolio. Robert Bass, Scott Gladstone and Andrew Ang demonstrated how portfolios can be viewed through a lens of factor exposures rather than asset-class allocations.⁹¹

Outside of academia, the WTW's Thinking Ahead Institute and the Chartered Alternative Investment Analyst (CAIA) Association have tracked the evolution of SAA and the progress of TPA adoption for many years and regularly produce research compendiums in collaboration with asset owner CIOs. Their most recent study, *From Vision to Execution: How Investors Are Operationalizing the Total Portfolio Approach*, is a detailed examination of how large institutional investors are transitioning from SAA

89 Stephen Gilmore and Joseph Simonian, "Some Practical Considerations for the Total Portfolio Approach to Pension Fund Management," *Journal of Portfolio Management* 51, no. 10 (Future of Asset Management 2025): 40–48, <https://doi.org/10.3905/jpm.2025.1.748>; Redouane Elkamhi and Jacky S. H. Lee, "Total Portfolio Approach," *Journal of Portfolio Management* 51, no. 8 (Portfolio Manager Perspectives 2025): 109–127, <https://doi.org/10.3905/jpm.2025.1.728>.

90 Mark Anson, "Thinking Outside the Benchmark: Part II," *Journal of Portfolio Management* 51, no. 1 (50th Anniversary 2024): 123–131, <https://doi.org/10.3905/jpm.2024.51.1.123>.

91 Robert Bass, Scott Gladstone and Andrew Ang, "Total Portfolio Factor, Not Just Asset, Allocation," *Journal of Portfolio Management* 43, no. 5 (Special QES Issue 2017): 38–52, <https://doi.org/10.3905/jpm.2017.43.5.038>.

to TPA, drawing on interviews and inputs of 12 large asset-management companies.⁹² It includes discussion of theoretical underpinnings of TPA but also illustrates it with observed organizational practice, implementation challenges and measurable portfolio effects. The authors, Aaron Filbeck and Jayne Bok, stressed governance and culture as the key foundations of TPA, requiring explicit delegation, redefined accountabilities, and organizational alignment on objectives and risk management. They map the evolution of TPA adoption through stages of Activation, Starter TPA, Becoming More Prescriptive and One-Fund integration, and they include a detailed TPA taxonomy for each stage (we discuss this in more detail later). Finally, the report provides evidence for a key motivator for TPA adoption—improved performance. According to their research, TPA adopters have outperformed SAA peers by 1.3% on average per year.

One common theme emerging across different research papers is that there is no single TPA approach with prescriptive rules. Instead, it should be viewed as a spectrum of adoption or a mindset that each organization will have to adapt based on its unique needs.

Challenges of TPA

We are happy to extol the virtues of TPA. We think that the theoretical case for TPA, the particular set of macro circumstances that investors face today, and the need to think across public and private markets all align to point in its favor. However, there are also significant challenges in adopting TPA, primarily around questions of governance, organization and the definition of risk.

In a pure TPA construct, the key expression of risk is through the design of a portfolio with a broad range of return streams that, in aggregate, offers an attractive return and risk. However, this could involve very different kinds of return streams, and with different weights, than a traditional allocation. Any change of this significance necessarily involves career risk for those driving the investment decisions.

An important aspect of TPA is rejecting (or at least downplaying) traditional benchmarks and definitions of “active risk.” As a result, TPA can lead to large deviations from the benchmark. This means comparisons with other funds that do not have such large deviations might lead to questions about choices that management has made if this gap is not favorable.

TPA brings with it an organizational challenge. In many investment houses that follow an orthodox approach to investing, investment teams tend to be grouped by asset class; those responsible for “alternative” investments may be separated from those investing in “traditional” assets. It is far from clear that this is the best way to arrange investment functions under a TPA. There may be different ways to group investment

⁹² Aaron Filbeck and Jayne Bok, *From Vision to Execution: How Investors Are Operationalizing the Total Portfolio Approach*, CAIA Association and Thinking Ahead Institute, 2025, <https://www.thinkingaheadinstitute.org/content/uploads/2025/10/2025-TPA-Report-from-Vision-to-Execution.pdf>.

activities: for example, certain active, fundamental approaches might be grouped together, whether that applies to equities, fixed income or private assets.

Challenging the organizational structure in turn raises the question of what skill sets are needed and the extent to which these may differ from the staffing needs and experience under more traditional approaches. This could be controversial, to say the least.

Prior attempts to switch to different allocation approaches, for example the push for cross-asset risk premia in the early 2010s, suffered because passive cap-weighted indices yielded such strong returns and inflation was quiescent. The idea was theoretically attractive but ultimately led to underperformance compared with simpler traditional approaches. There is always a danger in any move of this nature that it may fail to deliver an advantage. However, we think that the case for low returns and diminished diversification is strong. Moreover, the shift in the pattern of capital raising demands a response that allows the efficient incorporation of private with public assets.

Ultimately, the biggest challenge in adopting TPA is that it constitutes a change in governance, which brings agency risk and so requires a very clear (and long-term) alignment between the ultimate owners of the assets and their managers.

We like to end a section on the challenges of TPA by pointing out that, despite the challenges, sticking with a traditional approach to investing is also risky. With all the evidence that returns in the future may be constrained, the experience of 2022 ably demonstrating that long-duration bonds may fail as a diversifier of equity risk and the patent need to incorporate a broader range of private assets in investing all imply that there are, in fact, governance problems in sticking with traditional approaches.

Toward an Implementation of TPA

Given this background, what does it mean for investment praxis? In theory, the approach would be to explicitly lay out one's constraints at the beginning of the process. Liquidity would probably be the primary constraint, but there could be others, including seeking diversification across what drives return streams (risk premia, mean reversion, active skill, etc.) rather than just diversification couched in the language of the covariance matrix. Other constraints might be on capacity and avoiding "corner solutions," etc. Notably absent from these constraints would be an *a priori* dictate on asset-class weights. Given a comprehensive set of constraints and set of beliefs in terms of return, variance and covariance, then, in theory, an optimizer does the rest. This would be the implementation closest to the spirit of the ultimate role of the portfolio manager being the curator of return streams, with the question of whether these individual return streams are asset classes, factors or active strategies being pushed down to a secondary level.

However, in practice this is hard to do. This author, for one, has never been a big believer in optimizers anyway, at very least because of a lack of confidence in how well returns and risk can be forecast. Not to mention doing so in the context of a new

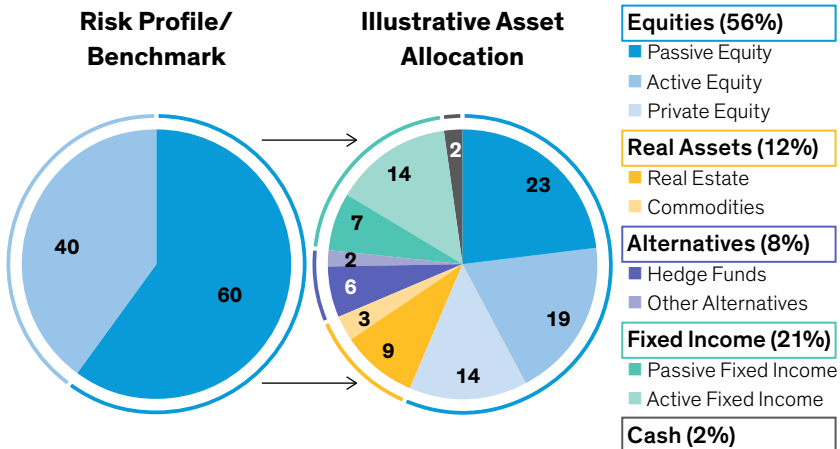
macro regime outside the bounds of the last 40 years, and probably the last 80 years. It is especially hard to have confidence in such an approach when it involves asset classes or return streams that do not have a long history, and a lack of clarity around their joint behavior in previously untested conditions.

So instead, a more practical approach is to start with the set of constraints, but then to make assumptions about what exposures are beneficial, acting in the spirit of the “curating of return stream” model, i.e., being agnostic to public-private distinctions (subject to a liquidity constraint) and seeking a result that allocates across alpha, beta and factors to achieve a diversity of the type of return. Starting from this assumed position, one can simulate locally similar portfolios and decide which one of them is most appropriate.

The starting point, at least for reference, is the current asset allocation used in the industry in practice. Clearly, the reality of this will depend very much on the type of institution, target, liquidity, etc. For working purposes, here we start with the asset allocation of US state pension plans (*Display 100*).

DISPLAY 100: TYPICAL ASSET ALLOCATION OF A PENSION PLAN

Percent



Current analysis does not guarantee future results.

Figures may not sum due to rounding.

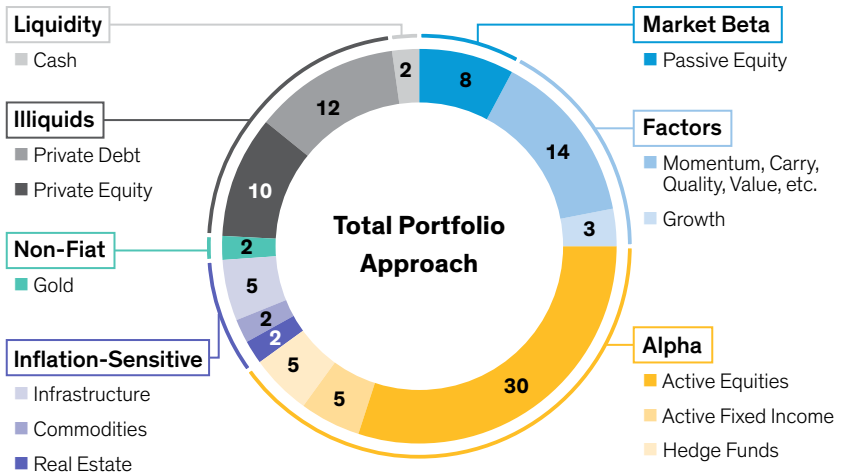
As of December 31, 2025 | Source: AB

In the first phase, at least, of moving to TPA, it will probably be hard for managers to immediately shift to an asset allocation that is radically different from the one they have adopted historically. Moreover, we assume that the historical portfolio presumably reflected constraints, such as liquidity, that remain binding (though we suspect that the move to a TPA may, in time, lead investors to challenge assumptions about how much liquidity is really needed).

In laying out what a preliminary TPA portfolio might look like, we seek to add explicit weights to active returns, factor returns and a broader range of “alternative” returns—for example, explicitly allocating to non-fiat assets. This in part reflects the methodology of TPA, which we think is a given for any investor making such a move, but also reflects choices and beliefs made by us, for example, on the likelihood of higher inflation and lower asset-class returns. Specifically, we used long-only equity factors for ease of implementation (e.g., based on MSCI factor definitions). This was used in conjunction with generic private asset assumptions for private equity and private debt, which largely reflect large leveraged buyout and direct lending, respectively.

DISPLAY 101: HOW THIS MIGHT DIFFER UNDER A TOTAL PORTFOLIO APPROACH

Percent



Current analysis does not guarantee future results.

Figures may not sum due to rounding.

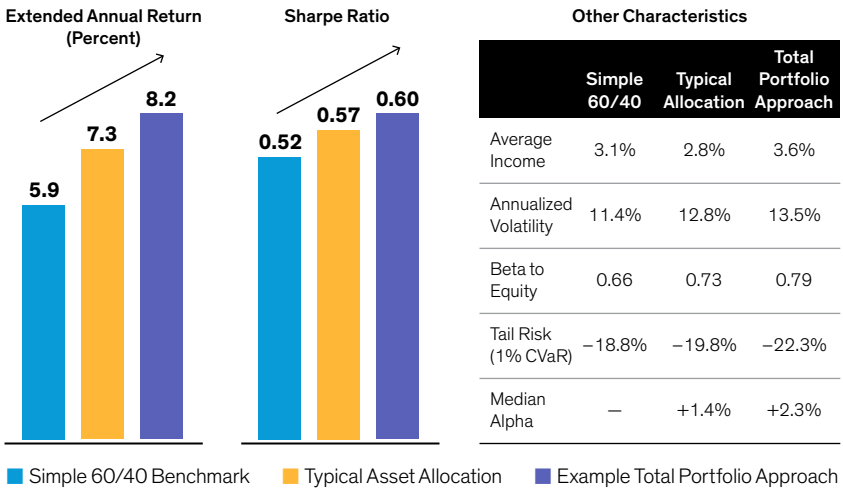
As of December 31, 2025 | Source: AB

Within the alpha allocation, we used the top quartile of global equity and fixed-income managers and a similar approach for top-quartile equity market-neutral managers for hedge funds.

This yields a starting position. We then run a very large number of simulations for allocations that deviate from this starting position in numerous ways. Given our own capital-market assumptions for return and risk, and bearing in mind *a priori* constraints, this allows us to find the most attractive allocation. Note that this is not the same as starting with an optimizer, but as a preliminary way to move a portfolio to a TPA it is perhaps more doable for many investors (*Display 101, page 165*).

What is the advantage of such a move? In *Display 102* we apply our capital-market assumptions, to this allocation and compare it with our representative allocation of

DISPLAY 102: EXPECTED RISK AND RETURN ENHANCEMENT



Simulated or hypothetical performance results have certain inherent limitations.

CVaR: conditional value-at-risk. Forward-looking forecasts are formed for a 20-year horizon. Returns shown are in US-dollar terms and fully hedged. Forecasts assume ability to select top-performing active managers. Private market return assumptions are those of the AB Institutional Solutions team. Public market return assumptions are those of the AB Capital Markets Engine.

As of June 30, 2025 | Source: AB

a typical US state pension plan and a simple 60/40 approach, implying an uplift in prospective return and Sharpe ratio.

This is by no means the only approach to TPA, and the assumptions and constraints are clearly open to being molded to individual circumstances, not to mention the capital-market assumptions.

One of our assertions for why this matters now is that it fits the zeitgeist of a low real-return future. Of course, this view might be wrong. If, instead, we find ourselves in a world where disinflationary pressures reassert themselves, sovereign risk is not priced and equity returns are plentiful, then it is likely that this would give way to a future where the organizational pain of moving to TPA would not be justified by an ability to demonstrate superior risk-adjusted returns.

Compromise Positions as Steps to TPA

For many readers, we recognize that adopting TPA in full will be hard. This could be because they do not quite accept the idea of a new investment regime. We suspect that for more investors, the constraint is that the required shift in governance and organization is too hard or will at least take a significant amount of time. Thus, compromise or “halfway house” positions will likely be popular. Some of these are things widely adopted today and do not necessarily have to be seen as a step to TPA.

- Incorporate factor strategies in SAA. This could be done, for example, by taking some allocation from the equity allocation in the case of long-only factors, or from “alternatives” or diversifying strategies in the case of long-short.
- Explicitly incorporate public and private assets in the assessment of risk. Rather than simply allocating a portion of the portfolio to private assets, which can often feel ad hoc, at least look at the risk exposures across the public and private portions and be willing to use them to inform allocations.
- Incorporate an explicit allocation to alpha as part of SAA (ideally with this alpha being idiosyncratic over and above a separate explicit allocation to factors).
- Recognize that the real benchmark might be inflation rather than a set of market indices.
- Think about risk as the risk of a loss of purchasing power rather than active risk versus a given benchmark (total portfolio risk and metrics of liquidity still clearly matter).
- Encourage cross-team collaboration efforts on major strategic research topics, such as AI, demographics and energy transition that impact not just a single asset class but the whole portfolio.
- Expand portfolio breadth and introduce more exotic and niche strategies, such as insurance-linked securities, volatility-linked strategies, non-fiat assets or niche hedge-fund and private-debt investments. Often, this is accompanied by greater

tolerance of illiquidity, because a more integrated view of the portfolio enables better modeling of required cash-flow profiles and a better estimation of drawdown risks and economic exposures. For example, cash-flow needs might be addressed not only through cash of public fixed-income allocations, but also by increasing private debt or private-infrastructure exposure in place of private equity.

- Organizations will differ on the speed of adoption as well as scale, with some preferring a radical shift in mindset while others prefer a gradual bottom-up approach over time. The WTW report cited earlier presents a number of real-world examples of how different organizations approach the transition to TPA.⁹³ For example, it cites an example of TCorp starting from breaking down asset-class silos, introducing a reference portfolio and replacing an asset-class benchmark early in the process. Meanwhile, the report highlights other organizations, such as PSP Capital, State of Wisconsin Investment Board and Canada Pension Plan Investments Board, which adopted a more gradual approach, including steps like introducing dynamic asset allocation, encouraging collaborative research, integrating risk budgets and unifying investment team structures.

Aggregate SAA Implications If Even Some Steps Toward TPA Are Taken

If the case for TPA is supported by both the macro prognosis and shift in the locus of capital raising, then it implies that adoption will rise over time. If we move beyond the case of implementation for an individual investor and think about the aggregate implications, what emergent properties might this engender?

- Greater allocations to private and illiquid assets, and those that don't fit neatly into approaches to asset allocation adopted in recent years. This could range from the macro, i.e., positions in non-fiat assets, to the micro, such as active strategies in niche assets (e.g., ownership rights, contractual income and tokenized real assets).
- Increased focus on idiosyncratic alpha rather than alpha relative to a univariate benchmark, and the allowance of greater tracking error, as active risk plays a reduced role as a constraint. In theory, this could allow for an easier acceptance of active allocations. We would not go as far as to say that this would lift the active AUM share within asset classes, as the rotation from active to passive within, say, equities is one of the straightest lines in finance; anyway, the idea of looking at allocations with asset-class silos is anathema to TPA. But it could allow for an overall greater explicit allocation to alpha across asset classes (either in the value of making correct SAA decisions, for which there is no possible passive alternative anyway, or in finding opportunities across public and private dividing lines).

93 Aaron Filbeck and Jayne Bok, *From Vision to Execution: How Investors Are Operationalizing the Total Portfolio Approach*, CAIA Association and Thinking Ahead Institute, 2025, <https://www.thinkingaheadinstitute.org/content/uploads/2025/10/2025-TPA-Report-from-Vision-to-Execution.pdf>.

- Greater use of factor strategies. This seems self-explanatory.
- We believe that the adoption of TPA leads to a smaller allocation to nominal long-duration government bonds. To be clear, we think this switch needs to happen, anyway. Our previous research made the case that bonds are less likely to be as effective a diversifier of equity risk; we think the risk to inflation is on the upside and climbing in a period of high government debt, making the notion that government debt is in some way “risk free” laughable. That is before one even considers the implications of the rupture in geopolitics. But TPA redoubles this shift. An investor that adopts TPA likely holds one or more of the following views: that a broad range of assets is needed for diversification in the new regime, that a larger allocation to illiquid assets is acceptable and that risk to purchasing power is a major consideration.

An intriguing possibility is that the TPA approach should make it easier to hold long-horizon investments such as the equity value factor, which can experience multiyear underperformance against an equity benchmark, therefore facing significant career risk, increasing the likelihood that the position is sold at exactly the wrong time. Under the TPA approach, by contrast, the investment would be assessed on its long-run contribution to the overall portfolio. And a better view of liquidity profiles across the whole portfolio reduces the risk of a fire-sale of private and illiquid assets during periods of market stress, which increases the chance of realizing their illiquidity premium and full return potential over the long term (*Display 103*).

DISPLAY 103: ASSETS THAT GAIN AND ASSETS THAT LOSE OUT UNDER A BROAD SHIFT TO TPA

Assets That See Growing Demand Under TPA	Assets That See Weakening Demand Under TPA
Illiquid assets	
Assets that don't fit neatly into traditional buckets: non-fiat, contract-based, etc.	Nominal long-duration bonds (TPA allows for broader routes to find effective diversification)
Factor strategies (long-only and long-short)	
Active strategies (long-only and long-short)	

Current analysis does not guarantee future results.

As of January 26, 2026 | **Source:** AB

Conclusion

By way of concluding this chapter, it's worth stopping and asking the question: What is investing for? People may choose to try to answer this in a myriad of ways, but we would suggest that ultimately it has to be to fund activities ("liabilities" if one prefers the term) in the real economy such as retirement, healthcare and physical investment. If one is happy to accept that point as a very naïve depiction of the point of investing, then surely the target or benchmark is inevitably linked, in some way, to inflation and not to metrics couched in terms of market indices.

One needs to also be aware that the 1980–2020 period was highly unusual. Growth was abundant, in part driven by favorable demographics, the opening up of the global economy, and the adoption of a regulatory and tax regime incredibly favorable to corporations (in the US at least). In addition to this, inflation fell. Credit for this can probably be doled out to globalization, automation and (possibly) the increasing independence of central banks in this time. At the same time, investors generally did not believe that they had to consider planetary limits, and there were no major wars. Moreover, this was a period in which, initially at least, public equity and public fixed-income markets dominated allocation, because that is how capital was raised (in addition to bank credit). It is in this context that the basis of SAA as practiced in the industry was set. It made sense to talk of asset classes and diversification derived from a limited set of choices across them. But the world is not always like that. Indeed, we would assert that none of these factors apply anymore. Not one.

It would be easy to draw a bearish conclusion from the set of macro concerns that abound, the unraveling of the post-war order and asset valuations that are extended. However, we believe that would be the wrong conclusion to draw. Instead, we think that investing has just become harder. The return-risk "space" accessible to investors using traditional approaches has shrunk. It is in this context that the extra flexibility and focus on ultimate investing goals, which TPA offers, means that it is an approach that will be adopted much more broadly in years to come.

Chapter 8—The Future of Asset Management: The Macro Imperative

This chapter outlines an outlook for the asset-management industry, rooted in our view of the macro investment environment, which suggests that asset owners may need to reexamine their strategic allocations. A higher equilibrium level of inflation, high valuation multiples and less-available diversification are not bearish per se, but they do prompt a need to change portfolio design, with the need to protect long-term purchasing power at its heart.

We see an increased role for investing in an explicitly multi-asset context, in part responding to the needs of asset owners, but also reflecting a structural change in the pattern of capital raising in the contemporary economy. This shift raises the level of allocation to private assets in portfolios. A further example is a need to redesign allocations for pension plans in response to greater longevity and a reduced role for bonds as diversifiers.

An outlook of lower asset-class returns means that persistent sources of alpha need to play a greater role in allocation.

We also think that innovation—e.g., in the form of the tokenization of real assets—is an important step toward incorporating diversifying return streams without compromising liquidity. Ultimately, this evolution subverts the notion of asset classes.

There are plenty of views of the industry from a consultant perspective. Here, in an attempt to be additive, we try to offer a perspective that is intentionally different from that and rooted in a strategic macro outlook. The recent uncertainty in the macro outlook, strong returns across asset classes and the concentration of markets might have consumed the attention of the industry. However, we think there is a case to be made that asset owners face a new paradigm in the investment outlook, one that changes how they need to operate compared to the norms of recent decades. This paradigm shift has implications for return assumptions, asset allocation, governance and organizational structure. In this chapter, we reflect on what this means for the asset-management industry and how it will need to adapt.

The challenge that asset owners face has evolved. For years, the challenge was generating return in a low-yield world. Now, yield is apparently plentiful. For some investors, this might have made asset allocation easier; however, we expect that for most, ease is ultimately illusory. This depends on what the objective is, but for defined contribution (DC) funds, endowments, sovereign wealth funds and those

advising individuals saving for retirement, the objective has to be real returns and the protection of purchasing power, which we think is becoming harder. The key elements of this macro outlook are:

1. Returns have been plentiful. However, they likely will not be so in the future because valuations are high across asset classes and there are downward risks to long-term economic-growth rates (from demographic change, deglobalization and climate, only partly offset by gains from AI).
2. Inflation has apparently been tamed in this cycle, and market-based measures of forward-looking inflation are not unduly elevated. However, the pricing of gold and other non-fiat assets shows a very different picture. Our view of the structural forces at work is that inflation remains a risk long term (public debt, deglobalization).
3. The confluence of (1) and (2) is, ultimately, a governance issue. What should the target or benchmark be? Investors need to focus on the generation of real returns and protection of purchasing power in a way that has not been needed to be core to the outlook for decades.
4. In addition, diversification had been plentiful in recent decades, but that changed in 2022. We think that finding diversifying return streams is going to remain a problem, requiring further shifts in asset allocation and rules of thumb about investing.

We are not going to lay out the evidence for this macro view in this chapter, as we have extensively covered it in our recent research.⁹⁴ This macro view creates challenges for asset owners and suggests a shift both in strategic asset allocation (SAA) and governance. This shift creates opportunities for the asset-management industry to respond.

An important step in this process is educating asset owners and investors about the change in the investment outlook for the next 10 years and how its difference from the last 40 years implies a need to change SAA and governance. By the latter, we explicitly mean a change in the objective function, with the need to protect purchasing power from being elevated in importance over other targets for many types of investors.

Multi-Asset Investing Is Active Investing...and OCIO

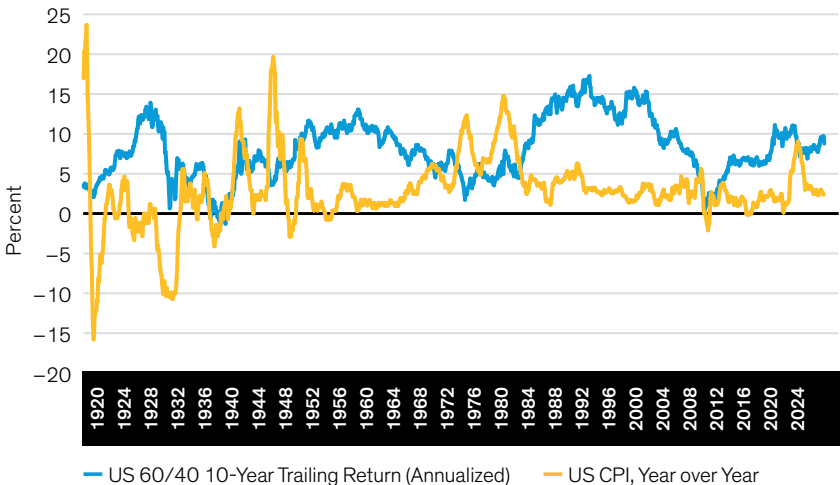
The vision of the investment environment that we have laid out suggests a change in the status of multi-asset investing. With hindsight (always a reassuring perspective), equities and bonds both delivered positive returns over the last 40 years and managed to do it while having a negative correlation between them. In that context, investors could be forgiven for thinking that they did not need to pay for multi-asset

⁹⁴ Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>.

investing. They might even have been led, falsely, to believe that there was such a thing as a “passive” approach to multi-asset investing in the form of 60/40. We think that the experience of 2022, with its simultaneous fall in both equities and fixed income, has shaken such comfort (*Display 104*). We also believe that the need for a more active approach to multi-asset investing, one that firmly embeds allocations to private assets and nontraditional assets (e.g., non-fiat assets, factor strategies), is essential. Moreover, in a world where the role of traditional active intra-asset class strategies has shrunk, such multi-asset active investing will be a larger part of what people understand active investing to be.

The death of the 60/40 portfolio has been proclaimed many times before (including by the current author), but 2022 provides an example of what can go wrong with such a strategy. A move away from the assumption that 60/40 provides a neutral basis for asset allocation is needed for investors to think more deeply about the need for a different approach to multi-asset. *Display 105, page 174*, shows the real return against volatility for stocks, bonds and a 60/40 combination of the two in the US. The period from 1980 to 2020 provided a supernormal boost to both returns and the internal diversification of the strategy that has underpinned its popularity,

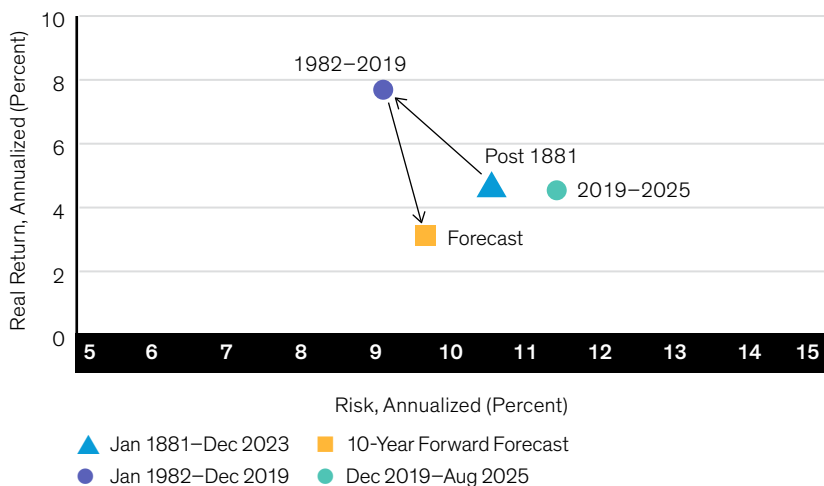
DISPLAY 104: THE 60/40 PORTFOLIO HAPPENED TO BEAT INFLATION FOR 40 YEARS, BUT IT HAS NOT ALWAYS BEEN SO EFFECTIVE



Past performance does not guarantee future results.

As of March 31, 2026 | **Source:** Global Financial Data, Macrobond and AB

DISPLAY 105: RETURN/RISK OF THE 60/40 PORTFOLIO HAS BEEN UNUSUALLY STRONG IN RECENT DECADES



Past performance does not guarantee future results.

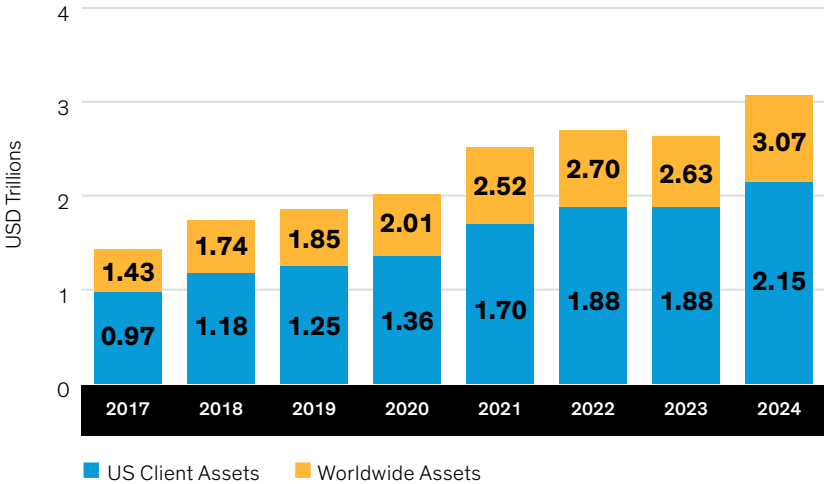
As of September 22, 2025 | **Source:** Global Financial Data, Macrobond and AB

but this experience was also far above the long-term normal. Our 10-year forward projection is much more sober, and indeed the return over the last five years (shown in green) has been much worse than this long-term trend, particularly in terms of the volatility experienced.

A recognition of the need for multi-asset active investing can take many forms. For example, there are funds that can invest across all asset classes with an objective of beating some cash-return or inflation benchmark. Another permutation would be multi-asset income funds. Perhaps a larger part of the recognition of an active approach to multi-asset is via the growth of interest in outsourced chief investment officer (OCIO) arrangements.

Studies of the industry are awash with charts showing the growth of the OCIO market. Worldwide assets for OCIO are estimated to have been \$3 trillion in 2024, up from \$1.9 trillion in 2019, a percentage expansion that is slightly below the total return on the MSCI World Index but likely ahead of the return on balanced strategies (*Display 106, page 175*). We agree that this seems set to grow, but given that the foundation of this chapter is changes driven by a macro imperative and not internal industry dynamics, for us the force of interest is less the scarcity of resources within

DISPLAY 106: THE RAPID GROWTH OF THE OCIO MARKET



Current analysis does not guarantee future results.

As of March 31, 2024 | **Source:** Douglas Appell, “Special Report: Investment Outsourcing,” *Pensions & Investments* (July 15, 2024); and AB

asset owners or the fulfilling of fiduciary duty than it is the greater difficulty of achieving a given level of real return relative to opportunities for diversification using traditional building blocks.

The growth of OCIO arrangements in the face of the macro challenges that we see does prompt questions about what skills are needed to successfully allocate and whether this might involve an evolution from traditional approaches to OCIO, e.g., in regard to how actively to take positions across sectors and asset classes.

Fundamentally, this situation leads to an increased willingness to take a total portfolio approach (TPA). We have long been believers in a TPA, as opposed to a traditional approach to SAA that assumes predetermined asset-class silos. While the idea has been theoretically of interest for a long time, we have found a definitive step-up in questions about it in client meetings over the last 12 months. We think that several things prompt the uptick: worry about traditional sources of diversification not working; recognition that the growth of private asset classes raises questions about traditional asset-class silos; and the realization that generating a given level of real returns is likely to be just a lot harder. We think that this is also a recognition that multi-asset investing has to be active investing, taken to another level.

Implicit in this is a discussion of the role of factors in investing. The willingness to concede a role to factors in investing has had a checkered history. For much of the last decade, key style factors have delivered subpar returns at a time when simple exposure to several asset classes has delivered exceptional returns. This underperformance dampened the appetite for factor exposure in portfolios. We have made the case in previous research⁹⁵ that factors can play both a return and a diversifying role in portfolios. We believe there is a case to be made that the return from factor risk premia is nonzero and that the pairwise correlation of factors may be more stable than the pairwise correlation of asset classes. Therefore, introducing factors into a strategic allocation alongside asset classes is additive.

Recognizing a role for factors subverts the traditional taxonomy of investment decisions, and that development is enriching. Fundamentally, admitting a role for factors is an attempt to be as efficient as possible in the way risk is partitioned and allocated. It is a move that we believe makes sense in a world of lower real returns and diminished diversification potential.

Private Assets and a Spectrum of Liquidity

Despite the significant allocation to private assets that has already occurred, we think there are a host of reasons why allocations are set to increase further (*Display 107, page 177*). From an asset-owner perspective, this is the confluence of the need for real returns and the hunt for sources of diversification. We always feel obliged to clarify the meaning of diversification when mentioned in the same breath as private assets. Investors need to be aware that diversification from private assets is categorically not derived from stale prices. Instead, where diversification exists, it comes from the ability to buy return streams that do not occur in public markets (by either the nature of their underlying legal structure or their sector exposure). In addition, an exogenous reason for private asset allocation to increase is that it reflects a structural shift in how capital is raised in the contemporary economy, which we think is here to stay.⁹⁶ This shift toward a greater proportion of capital being raised under the aegis of private “markets” is partly a result of the continued shrinking of public equity markets and partly due to a declining share of traditional credit creation by banks, and is set to continue in a structural way. This structural shift suggests that, aggregated across all asset owners, the allocation to private assets will continue to grow.

The implications for asset managers are not only in sourcing the investment in the private assets themselves, but also in helping asset owners combine public

⁹⁵ Inigo Fraser Jenkins et al., *Asset Classes and Factors: What's the Difference?*, Bernstein Research, November 2021, <https://www.alliancebernstein.com/content/dam/global/insights/insights-whitepapers/asset-classes-factors.pdf>.

⁹⁶ See Inigo Fraser Jenkins, Alla Harnsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Instability: Debt, Inflation and AI's Impact on Investing*, AllianceBernstein, June 2025, <https://www.alliancebernstein.com/americas/en/institutions/capabilities/the-book-2025/the-book-2025-perspectives-on-markets-strategic-allocation-and-the-investment-industrys-future.html>.

DISPLAY 107: THE CASE FOR FURTHER GROWTH IN PRIVATE ASSET ALLOCATION...AND THE LIMITS

A Need for More Private Assets

Demand (from Investors)

- Prospect of a lower nominal return on public markets
- Need for diversification
- Need for inflation protection
- Exposure to sectors not represented in public markets
- Need for active return streams

Supply

- Dearth of young, high-growth companies coming to market
- Buybacks driving a shrinking stock of public equity
- Retrenchment of traditional providers of credit
- Borrowers recognizing greater flexibility of private capital

Emerging Limits on Private-Market Allocation

Liquidity is a greater concern

- Transition from quantitative easing to quantitative tightening
- Asset-owner portfolios are more illiquid
- More fragile liquidity in public markets

Fees, which now constitute the lion's share of many fee budgets

Current analysis does not guarantee future results.

As of March 31, 2026 | Source: AB

and private assets in thoughtful ways. This combination is likely to become more important as asset-class silos erode over time.

The real limitation, we think, is liquidity. That is not meant to dismiss limits set as rules of thumb or by consultant guidance, etc., but we think that these influences tend to be based on peer-group analysis, so they are contingent on a given state of the world and ultimately subject to revision. The reason that liquidity is likely to become even more important as a limiting factor is that asset-owner portfolios have become more illiquid, putting more pressure on the remaining liquid portion. Also, the liquidity available in public markets has become more fragile as a consequence of changes in market microstructure.

This focus on liquidity as a limiting factor has a crucial consequence for allocations to private markets. Rather than bucket all illiquid assets together as an allocation, we think that investors will increasingly see a spectrum of liquidity. Seen in this light, the subset of private assets that return cash within a small number of years or that

have predefined liquidity events will likely be favored over decade-long horizons (e.g., favoring private debt and asset-backed vehicles over private equity).

The lion's share of capital allocated to private assets over the last decade has been into private equity. We expect to see a broadening out of allocations driven by shifting macro opportunities. We are concerned that the *average* investor in private equity may be disappointed in the ability of future returns to keep pace with historical returns. We can model the returns from private equity in aggregate as:

$$\text{Private Equity Return} = (\text{unlevered return}) + \text{Financial Leverage} \times (\text{unlevered return} - \text{cost of debt}) + \text{Multiple Expansion} - \text{Fees}$$

Where:

$$\text{Unlevered Return} = \text{Income Yield} + \text{Real Growth}$$

The problem, from a future-return point of view, is that the cost of debt is now higher than it was over the prior history of the private equity industry existing at scale; and the entry valuation, e.g., in terms of buyout multiples, is close to a record. Thus, we conclude that the average private equity investment is likely to see a near-zero multiple expansion (*Display 108, page 179*).

There is still a place for private equity allocation, but the attraction derives more from the ability to pick top-quartile managers: the dispersion of outcomes within private equity is very wide versus dispersion within active public equity. That means there is still a case for an allocation, but investors need to be open-eyed about what that allocation is: This is about alpha and manager selection, not about asset-class beta. Bluntly, it seems likely that the illiquidity premium for the average private equity investment is zero.

By contrast, we think that other areas of private markets can fill a greater role in the investor need for positive real returns and diversification. Despite large inflows into private debt in recent years, we think that there is more to come. In part, this is the effect of the retreat by traditional lenders—i.e., banks—the shorter time horizon to return capital, and the fact that the illiquidity premium can be observed *ex ante*. Private debt is a rapidly expanding area with numerous subsections (*Display 109, page 180*).

This is not to dismiss the risks of private debt, which are legion. There is a macro concern that the growth of private debt moves the locus of systematic risk away from banks and toward pension plans, insurance companies and other asset owners. The worry from a regulatory perspective is that this risk might be harder to track. Ultimately, though, we worry less about this, because it is solvable through disclosure and transparency requirements. Our counterargument is that long-horizon unlevered

DISPLAY 108: PRIVATE EQUITY RETURN FORECAST

Private Equity (Buyout Funds)

Income Yield	2.0%
Real Growth	4.0%
Debt/Equity	1.2
Real Cost of Debt	4.0%
Levered Return	8.4%
Multiple Expansion	0.0%

		Net Real Return (Top Quintile)	Net Nominal Return (Top Quintile)
		18.4%	21.4%
Gross Real Return	8.4%	Net Real Return (Base Case)	Net Nominal Return (Base Case)
		3.8%	6.8%
		Net Real Return (Bottom Quintile)	Net Nominal Return (Bottom Quintile)
		-8.2%	-5.2%

There is no guarantee that any estimates or forecasts will be realized.

Simulated or hypothetical performance results have certain inherent limitations.

As of December 31, 2023 | **Source:** Bloomberg, FactSet, Federal Reserve Bank of St. Louis and AB

entities such as pension plans and insurance companies might be a better place for these risks to sit, as opposed to sitting with levered cyclical businesses, i.e., banks.

However, there is a micro risk too. The asset class, at this scale, has not been tested in a real default cycle. This is indeed a concern and needs to be taken seriously. It means that the process of manager selection has to put a high degree of emphasis on tenure and the process of managing defaults. A third risk lies in the scale of the capital inflow in recent years, to which retail capital is now being added. While we think that this shift in allocation is directionally right, it does change the bargaining power of investors versus those who are raising capital, be that through lower expected returns or in the quality of the available terms. A sector that has not been tested in a previous default cycle, that has seen substantial capital inflow and that is now a destination for retail capital is worrisome. People need to be aware that the future will likely contain

DISPLAY 109: ATTRIBUTES OF SPECIFIC PRIVATE ASSET CLASSES

	Expected Return, Net of Fees, Real	AUM	Expected Return Time for Majority of Capital	Fixed or Floating Coupons?	Correlation with US Equities
Direct Lending (incl. Senior and Mezzanine)	4%	~US\$1 Tn	5–6 Years	Floating	0.55
Asset-Backed	Various	~US\$6 Tn	3–4 Years	Mostly Floating	0.13
Private Equity	4%	~US\$13 Tn	>7 Years	N/A	1*

Current analysis does not guarantee future results.

AUM: assets under management

Simulated or hypothetical performance results have certain inherent limitations.

Correlation data are from December 1, 1991, through August 31, 2025. Asset-backed security returns are proxied by the Bloomberg US Asset-Backed Securities Index and direct-lending returns are from the Preqin Direct Lending Index.

*For private equity, we assume a correlation of 1.0 to represent economic reality; of course, others can choose to define this correlation differently if they so wish.

Expected returns are AB Institutional Solutions forecasts.

As of October 15, 2025 | **Source:** Bloomberg, Preqin and AB

disappointments—disappointments that have not been seen in the historical data. Having said that, for private equity, unlike for private equity, one can observe the illiquidity premium ex ante and determine if it is attractive or not for a given investor.

None of these risks should be ignored, yet they also need to be assessed in the context that essentially all asset classes are fully valued, in our view. The task for SAA, and for the asset-management industry at large, is to thoughtfully allocate across these different kinds of risk.

The other side of this capital inflow is that part of the role of the asset-management industry will have to be the democratization of alternatives. This has started—e.g., with private asset exposure for pensions in regions such as the US, the UK and Australia—but it has further to go. This theme comes up in other sections of this chapter: for example, in the future of pensions and the growth of tokenization. But as the locus of capital raising moves away from traditional sources, this demand for broader access will grow.

Insurance/Asset-Management Tie-Ups

Seen from a macro standpoint, and irrespective of other industry dynamics, tie-ups between insurance companies and asset managers seem set to grow. This growth potential is driven both by a change in how capital is raised and by the way that the macro outlook implies a changing demand for types of return streams.

Insurance companies are potential providers of long-term capital. This means that they can play an important role in a world where the marginal unit of capital used to fund growth is now more likely to come via private assets than public markets. The shift for the asset-management industry is that this will likely elevate the importance of insurance companies as providers of long-term capital; one way this will likely manifest itself is via strategic partnerships. Third-party-managed insurance assets expanded by 25% in 2024 to hit an all-time high of \$4.5 trillion, according to data from Clearwater Analytics. Private market investments have grown to make up 21% of these assets.⁹⁷

Separately, there is a need for return streams to respond to a different investment environment. What we describe as the contemporary retirement problem in another section of this chapter shows the need for return streams that can benefit investors in times of higher inflation and also offer protection for longevity risk. This implies a demand for products such as variable annuities, life products and other related offerings. Products that have a potential variable outcome become more attractive than fixed annuities in the macro environment we have laid out. Moreover, this solution set likely becomes a key part of retirement planning, because protecting against longevity risk is arguably more of an insurance problem than an investment problem.

Life insurance assets have grown substantially. Using data from the Bank for International Settlements, life insurance companies managed total assets of about \$35 trillion, or 8% of global financial assets, in 2022, up from \$14 trillion two decades earlier.⁹⁸ This expansion does not necessarily represent an increase in the share of total financial assets, but it is significant growth, nonetheless. Our case is that macro reasons imply this is set to grow further.

The counter to this is a social one. If variable annuities or life products are a larger share of what is needed for retirement, it means that risk is being transferred to individuals just as inflation is rising. However, we would argue that this is a decision that has been made already, with the decline of defined benefit (DB) schemes and questions about the future real value of state guarantees.

⁹⁷ Sam Heller, "Managers Forge Strategic Partnerships, Hire to Crack Insurance Channel," *FundFire*, September 9, 2025, https://www.fundfire.com/lead/enroll/4966614/687744?from=https%3A%2F%2Fwww.fundfire.com%2Fc%2F4966614%2F687744%3Freferrer_module%3DdashLatestNews%26module_order%3D0&referrer_module=dashLatestNews.

⁹⁸ Fabian Garavito, Ulf Lewrick, Tomas Stastny and Karamfil Todorov, "Shifting Landscapes: Life Insurance and Financial Stability," *BIS Quarterly Review* (September 16, 2024), https://www.bis.org/publ/qtrpdf/r_qt2409b.htm.

This situation implies that there are opportunities for joint action by insurance companies and asset managers. Insurers may need more expertise at generating long-term real returns, and insurance companies are likely to play a central role in offering insurance against longevity risk in a higher-inflation world.

The Contemporary Retirement Problem

We present an ugly cocktail:

- Higher equilibrium inflation (deglobalization, debt, demographics)
- Higher inflation volatility (extreme climate events, policy uncertainty)
- Lower expected returns across asset classes (lower growth expectations, high starting valuations)
- Less diversification available (equity-bond correlation remaining positive)
- Greater longevity (admittedly a good problem to have, just tough economically!)
- Need for greater savings juxtaposed with the loss of labor bargaining power and greater income inequality as a consequence of AI
- Reduced DB availability, so risk transferred to individuals (smaller share of households benefiting from a DB pension)
- Real value of state safety nets under threat (public debt already high, higher dependency ratio, loss of peace dividend)

This mix constitutes an acute problem for traditional approaches to retirement. Some of the possible ways to address this lie outside the scope of the asset-manager/asset-owner dynamic, and are ultimately political questions about the social contract in the form of expectations around retirement age, the standard of living expected in retirement, immigration and assumptions about contribution rates.

Ultimately, we think that this cocktail threatens the ability of individuals to enjoy a retirement that can last decades, as has become normal in the last 50 years. However, older people turn up to vote, so presumably the need to defend retirement as an institution will be politically important. Short of addressing it by taxing younger people, which would create enormous issues of intergenerational fairness, the investment industry has a key role. We think that the social contract underpinning the funding of retirement will become a huge societal issue. It's not just the longevity issue that is often discussed, but also the damage caused by the outlook for lower asset-class returns, a reduced ability to diversify, higher equilibrium inflation and a political rejection of immigration. Ultimately, this challenge will likely be a long-term driver of populism in years to come. The travails of certain European countries at present on this front are just the beginnings of a long-run problem in developed and middle-income countries.

To quantify this problem, *Display 110, page 184*, plots the expected income in retirement, expressed as a share of national median income on the vertical axis, with the horizontal axis showing its bottom-fifth-worst percentile of expected outcomes.

The examples shown are the following:

- 1.** What has happened historically: a traditional, simple target-date strategy with 30-year *historical* returns. It holds 100% equities until age 45, then gradually evolves to 100% government bonds by age 55, with retirement at 65.
- 2.** The same allocation structure as above but using our predictions of lower real returns and a positive stock-bond correlation (i.e., a hardship outcome).
- 3.** The simplest way to take more risk for longer: allocate 100% to equities for the entire glide path, retiring at 65. (It still doesn't generate enough return).
- 4.** Take more risk for longer but still retire at 65; 150% exposure to equities throughout the whole glide path until age 65. (This achieves just enough return but with an unacceptable level of risk in terms of the worst 5% outcome.)
- 5.** Stay invested in risk assets beyond 65 and work longer; hold 100% equities until 65, then shift on a sliding scale to 100% government bonds until retirement at 75. (This is still not as good as historical returns but plausibly generates enough return.)

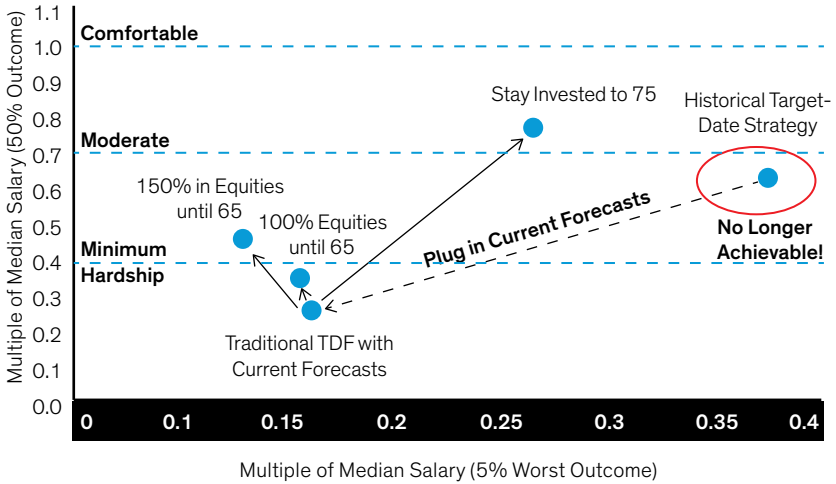
We recognize that these are very simplistic approaches to glide paths—one can be more efficient about blending different kinds of risk and mitigating the sequencing risk of an abrupt conversion of savings into annuities. However, this way makes it easier to lay out the scale of the problem and possible remedies. In the context of these very simplistic glide paths, it should be noted that the risk with option five is that even though we show the 5% worst outcome on the horizontal axis, there is a short-term risk associated with this option for a potentially significant share of the population, and therefore, it might raise social questions.

Interpreting the conclusions from this analysis, the stark reality is that someone who earns a median income over their working life, paying 8% of their salary each year into a traditional simple target-date structure that reallocates from stocks to bonds over the midpoint of their career, would face a hardship outcome in retirement. Here, we assume that the person retires at 65, and we define a hardship outcome as an annual retirement income that is less than one-third of the national median income, as defined by the Pensions and Lifetime Savings Association in the UK.⁹⁹ It is this harsh break from what has been achieved in the past that prompts a need for change.

Of course, one might push back on this whole notion of a low-return future. Techno-optimists would point to the advent of AI as a potential boost to productivity and,

⁹⁹ "Picture Your Future: Retirement Living Standards," Pensions UK, accessed July 25, 2024, <https://www.retirementlivingstandards.org.uk>.

DISPLAY 110: THE SOCIAL ROLE OF OUR INDUSTRY? IS RETIREMENT STILL POSSIBLE? MAYBE, BUT THERE'S A NEED TO TAKE RISK FOR LONGER. BONDS ARE NOT LOW RISK!



There is no guarantee that any estimates or forecasts will be realized.

Simulated or hypothetical performance results have certain inherent limitations.

TDF: target-date fund

This display shows the expected median income in retirement (annuity rate) plotted against the likely worst-fifth percentile of retirement outcomes. We overlay lines showing how these outcomes relate to different levels of comfort in retirement, using the Pensions and Lifetime Savings Association (PLSA) definitions of retirement needs as a percentage of national median income. The baseline target-date strategy simply invests 100% in equities until age 45, then has a linear reallocation over 10 years to become 100% bonds by age 55. The examples shown are as follows: (1) the historical target-date strategy shows the median outcome of returns from such a strategy over complete lifetime-savings cycles since 1970, while the distribution of returns uses a longer look-back period to all outcomes since 1941; (2) the same target-date structure, applying our forecast of lower returns and positive stock-bond correlation; (3) a simple approach to taking more risk of 100% equities through the entire career; (4) 150% equities through the entire career; (5) 100% equities until age 65 and then linear reallocation to 100% bonds at age 75; retire at age 75.

As of May 31, 2024 | **Source:** Global Financial Data, PLSA and AB

hence, growth rates. A transformational uplift in growth rates would underpin the case for a rally in growth assets and also potentially give governments a route to grow out of current debt levels, thereby reducing inflation risk. Such a view would not be our base case, but, anyway, for pension systems, that is not necessarily an unambiguously positive prospect. "Chapter 4—AI vs. Demographics: Or Might Shrinking Populations

Not Be So Bad If Robots Are Taking Jobs, Anyway?” on the interaction of AI-led productivity gains versus job displacement, suggests that the belief in a productivity boost from AI being sufficient to offset downward forces on growth would be very destructive to the labor market. This in turn raises questions about the ability of workers to save for retirement; i.e., it raises questions of distributional fairness.

What does this mean for the asset-management industry?

- Rethink traditional models for target-date glide paths for a world of lower returns, higher inflation and positive stock-bond correlation. Part of this shift is the need to thoughtfully consider how to take enough risk to ensure that retirees don't run out of money. There has already been a shift to increase equity allocations, but we think there is a case for allocations to move still higher, with a view toward how to protect purchasing power from higher equilibrium inflation.
- Rethink the range of assets that are held. One obvious area for focus is increasing the holding of private assets. We have made the case for private assets more generally elsewhere in this chapter. The key attraction from a pension-glide-path point of view is the ability to offer diversification and a link to real returns.
- Reduce the role of long-duration nominal bonds, especially the idea of “de-risking” just as the savings pot starts to reach a significant size in mid-career. We covered this point in more detail in our note, *Pensions and Bonds: The End of the Affair?*¹⁰⁰
- Increase focus on the need for retirement income, driven by increased longevity and higher inflation.
- Possibly rethink benchmarks. We have long held the view that there are no real financial-market benchmarks for cross-asset investments. However, of course, the industry loves benchmarks and needs something with which to assess value added. In a target-date context, this can lead to benchmarks essentially based on a peer-group averaging, but this might not be the most rational benchmark economically. We expect more discussion in the industry on this point, and we suspect that trying to beat long-term future inflation might play a more explicit role.

Ultimately, these shifts are about recognizing two fundamental aspects for the asset-management industry. First, saving for retirement is necessarily an active decision. There can be no such thing as a passive glide path or allocation for retirement. Second, for those concerned about there being a social role of the investment industry, one of the two key roles is enabling individuals to retire (the other social role is being able to help with the efficient allocation of capital in a capitalist economy). The days are long gone when corporations would try to differentiate themselves on the basis of the strength of their DB offerings, though a greater recognition of the

¹⁰⁰ Inigo Fraser Jenkins and David Hutchins, *Pensions and Bonds: The End of the Affair?*, AllianceBernstein, August 6, 2024, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/pensions-and-bonds-the-end-of-the-affair.html>.

increased challenge of generating real returns could conceivably prompt providers to consider differentiation again—at least translated to a DC context.

The Need for Active, Concentrated Markets, and the Active Opportunity Set

The active-management industry has hardly covered itself in glory over the last two years, with the high concentration of returns within the market making it very hard for long-only managers to outperform benchmark indices. The result, in principle, could be a loss of belief in active management. However, when we speak to asset allocators tasked with forming portfolios for the long term, we hear a lot of support for allocating to active strategies.

The problem for asset owners is that the confluence of high valuations and expectations of lower future growth rates implies lower returns from broad exposure to a cap-weighted passive market index. We forecast global real returns on equities to be 4% per annum over the next 10 years. This might sound horrible compared with the norms of recent decades, but it is not bearish; it is at least a positive return in real terms.

In a lower-return world, investors need more exposure to alpha. Over the last 10 years, global developed-market passive equity returns over inflation were 9% per annum, and the top quartile of active managers produced an extra return of 1.65% per annum (net of fees). Perhaps with hindsight, and considering all the work that went into sourcing that alpha, this does not seem very impressive. However, in the context of our forecast of a 4% per annum real return, the extra return would be proportionately much more significant.

We stress that this is definitively not a plea for more tactical asset allocation. Proving skill at timing requires an enormously long period, and that becomes especially hard if there is a legitimate case for regime change. While timing certainly plays a role as one of the alpha engines that underlie an active approach, there are many other engines, too, including security selection and implementation. A broad range of alpha-generation tools is likely important—e.g., across public and private as well as quantitative and fundamental—as is taking advantage of time-horizon diversification where possible.¹⁰¹ An expanded role for alpha can also make use of approaches such as portable alpha, which we see is having a renaissance as awareness grows about how to thoughtfully separate alpha and beta, and also given the ability to source alpha from markets that might not be such a significant part of overall asset allocation.

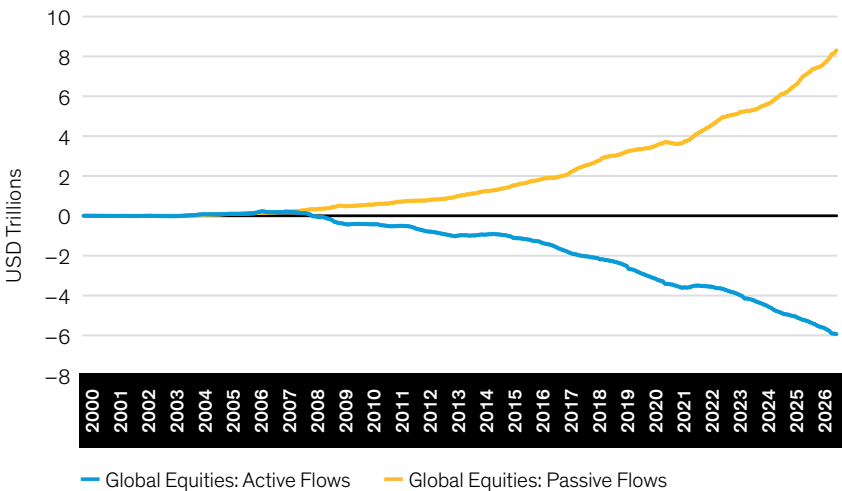
We have often been asked: At what point will the proportion of equity markets managed passively reach a peak? The hypothesis is that at some point, the existence of “too much” passive will cause some break, either in terms of market correlations or market inefficiencies. We view such thinking as fallacious. Even our own published view, from

¹⁰¹ Inigo Fraser Jenkins, Alix Guerrini and Alla Harmsworth, *Global Quantitative Strategy—Time Horizons in Finance: Bayesian Trees for Market Allocation*, Bernstein Research, February 16, 2016.

a decade ago,¹⁰² that passive investing breaks down the capital-allocation function of capitalism recognizes that such things can never be known in real time, and so it does not constitute a feedback mechanism to “save markets.” In any case, the cumulative flow of assets from active to passive is one of the few things in finance that looks like an actual monotonic line (*Display 111*). Is anyone, in all seriousness, going to call a turn in this series?

There have been good reasons for this monotonic reallocation: At the beginning of this period, too many managers were charging active fees but delivering passive performance. Another reason only became apparent with hindsight: A period of very strong returns meant that the extra return from active management was less important. There was also a less-good reason, which is the industry’s views of fees. Fees are, of course, critical, and minimizing them is a central goal for investors. However, there has been a (misguided) focus on minimizing headline ex ante fees as opposed to viewing fees through the lens of wanting to maximize ex post net-of-fee returns. The latter is more difficult, of course, as one cannot observe them ahead of time. Nevertheless, that has to be the true goal.

DISPLAY 111: GLOBAL FLOWS INTO ACTIVE AND PASSIVE EQUITY FUNDS



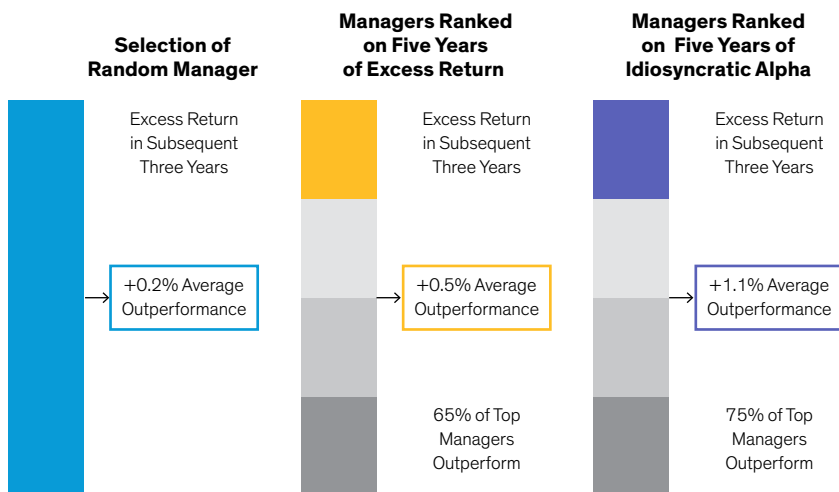
There is no guarantee that any estimates or forecasts will be realized.

As of February 28, 2026 | **Source:** Emerging Portfolio Fund Research Global and AB

102 Inigo Fraser Jenkins et al., *Fund Management Strategy—The Silent Road to Serfdom: Why Passive Investing Is Worse Than Marxism*, Bernstein Research, August 23, 2016.

DISPLAY 112: FINDING “IDIOSYNCRATIC” ALPHA

Idiosyncratic Alpha Is More Persistent



Historical analysis and current forecasts do not guarantee future results.

Based on a sample of 2,000 globally benchmarked managers.

Returns are gross of fees. From January 1, 2006, through December 31, 2014

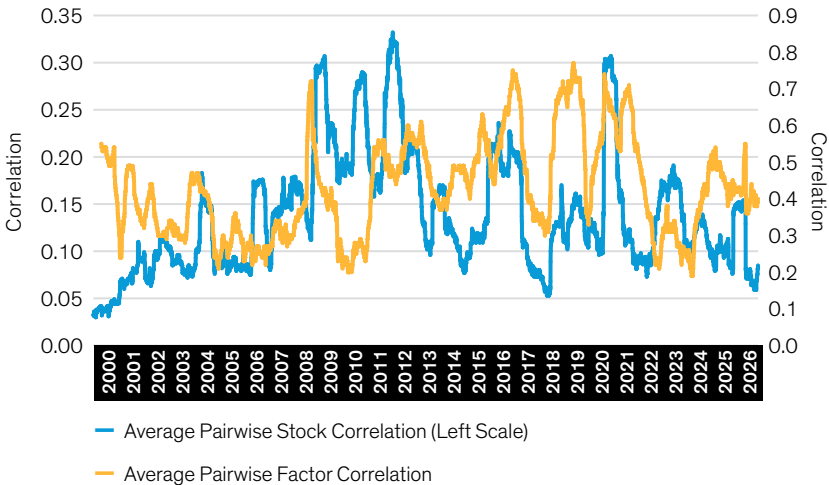
Source: eVestment, Morningstar, MSCI and AB

Returns to capital-market indices are unlikely to remain at this high level, and a more nuanced view of fees should slow the trajectory of the active-to-passive line. It still won't reverse it, but that is a story we will keep for a separate essay in its own right.

The central strategic case for an allocation to active today is that, in a world where asset-class “beta” delivers low returns, persistent alpha becomes a higher share of the end-investors' return. The return has to be persistent for this argument to hold. In our research, we have shown that “idiosyncratic” alpha is more persistent than the traditional alpha measured as excess return over a benchmark (*Display 112*). Note that in this display we show returns gross of fees. On a net-of-fee basis, the randomly selected manager would likely underperform, making the difference between the random manager and the highly idiosyncratic manager even more stark.

Idiosyncratic alpha, i.e., alpha shorn of simple and persistent factor exposures, is a better candidate for being persistent, as portfolios run in such a way are less likely to be damaged by switches in factor performance.

DISPLAY 113: AVERAGE PAIRWISE FACTOR AND STOCK CORRELATION IS LOW



Current analysis does not guarantee future results.

Stock correlations are the average pairwise correlations of daily stock returns for the constituents of the MSCI All-Country World Index over a rolling six-month window.

From July 4, 2000, through March 25, 2026 | **Source:** FactSet, MSCI and AB

Concentration remains a challenge tactically, but there are other aspects of market structure that are more benign, such as the low average pairwise correlation of stocks and factors (*Display 113*).

Conclusion: The commentary might be all about the active industry being under pressure, but on a forward-looking basis, the bigger challenge is probably for asset owners. A future of low returns from asset-class betas implies a need to thoughtfully add alpha as part of an SAA process.

Digital Assets: Tokenization, Crypto and Stablecoins

Much, if not most, of the commentary about blockchain-based assets in investment starts by extolling the virtues of the technology. Here we suggest a different take, one rooted in the macro outlook and the needs of asset owners. It suggests that the uptake in digital assets will be significant. We group these assets in one section, as they are stepping stones to each other from a regulatory and operational point of view, but, really, they perform very different roles in portfolios.

The digital asset most in demand for investors now is crypto. For some asset managers, offering access to crypto and an ability to include it in multi-asset solutions will likely be the initial focus of investment in digital assets. Though, really, the biggest change for the asset-management industry ultimately is likely to be the growth of tokenized assets.

For some time, we have held the view that crypto assets such as Bitcoin and Ethereum are potentially useful assets in portfolios,¹⁰³ and since 2024 we have been explicitly recommending crypto as part of a broader non-fiat asset exposure in our SAA advice for clients.¹⁰⁴ For us, the macro case for non-fiat assets rests on the view that equilibrium inflation is likely to be elevated, so investors will need to have significant allocation to real assets, including equities. Around this, they will need assets that provide an attractive trade-off of real return and an ability to diversify. The central asset here, of course, is gold. Its key attribute, in this context, being that its correlation with equities remains invariant with the inflation level. Over and above the case that rests on correlation, the trend of de-dollarization and the need for central banks to buy gold provide a potential extra level of support for returns.¹⁰⁵

Thus, this is mainly a strategic case for gold, but our view is that other non-fiat, zero-duration assets can ride on the coattails of gold. We have seen this with silver and platinum over the course of 2025, and we think that major cryptocurrencies can benefit in the same way. An extra catalyst for them is the promise of greater regulatory clarity. At present, we fully recognize that the empirical evidence does not support crypto as a hedge. After all, its correlation with gold and with risk assets has seen numerous changes—indeed crypto has shown a tendency to behave more like a risk asset when risk is especially elevated. However, we think this is inevitable in the early stages of adoption with a high degree of retail investor involvement. We also recognize, just to be clear, that cryptocurrencies have zero intrinsic value. However, that is also the case for gold and in no way precludes either from having a role in portfolios.

Stablecoins have been the digital asset that has probably gone through the most change over the last year, with much greater regulatory acceptance in the US and also a signal from the current US administration that stablecoins are the preferred approach to digital money in the US—not central bank digital currencies. That is to say, there is a strong preference for private money over public money. Our view is that stablecoins are set to grow and will be important for the macroeconomy. They are part of the discussion about whether the dollar can retain its status, and stablecoin issuers have become

103 Inigo Fraser Jenkins et al., *Portfolio Strategy: Cryptocurrencies in Asset Allocation—I Have Changed My Mind*, Bernstein Research, November 30, 2020.

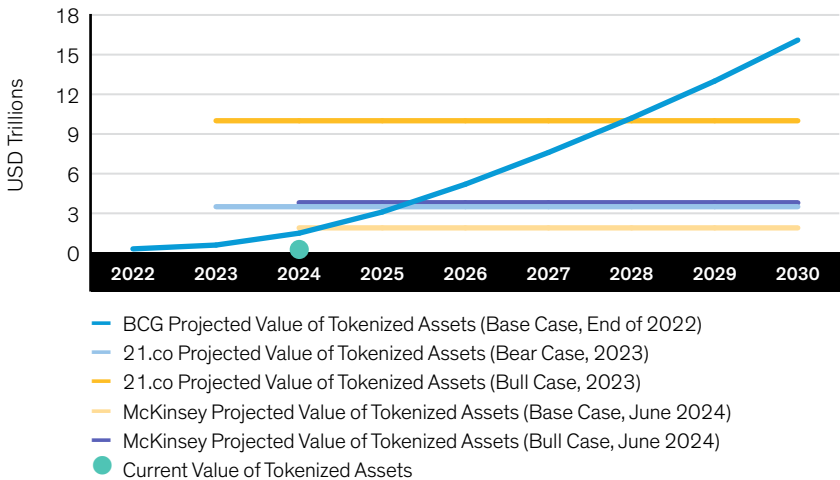
104 Inigo Fraser Jenkins and Alla Harmsworth, *Five Themes for '25 and their SAA Implications for US Equities, TIPS and Crypto*, AllianceBernstein, December 1, 2024, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/five-themes-for-25-and-their-saa-implications-for-us-equities-tips-and-crypto.html>.

105 Inigo Fraser Jenkins, Alla Harmsworth, Robertas Stancikas, Harjaspreet Mand and Maureen Hughes, *Investing in a Post-Global World*, AllianceBernstein, October 10, 2022, <https://www.alliancebernstein.com/americas/en/institutions/insights/investment-insights/investing-in-a-post-global-world.html>.

a larger part of the aggregate demand for US government debt. They also form part of the debate about the future of the banking system, and hence credit creation. For asset managers, while there will be a need to transact with stablecoins, we do not see stablecoins as a game changer in terms of the way that investment views are formed. Presumably, it will be attractive for some players in the industry to launch coins, and the facilitation of clients' wishes to include them as part of their investment assets will be important. However, given their status of being tied to a fiat currency, they don't change the range of investment options in a way that crypto assets do, for example.

We think that the real prize, though, is tokenization, especially of real assets. For us, there are strong macro reasons to drive adoption, stemming from a need that asset owners are going to face—to hold greater exposure to real assets combined with a need for greater liquidity. The need for real assets stems from the case for higher equilibrium inflation and lower growth. The need for liquidity comes from the confluence of the more fragile liquidity in public markets and the higher share of illiquid assets in many asset-owner portfolios, creating more pressure on the liquid component in times of stress. By holding the promise of fractionalizing exposure to illiquid assets, we think that this becomes an important element of portfolio design.

DISPLAY 114: PROJECTIONS OF UPTAKE OF TOKENIZATION



Current analysis and forecasts do not guarantee future results.

Current value of tokenized assets as of July 30, 2024

As of July 30, 2024 | **Source:** 21.co, Boston Consulting Group (BCG), Dune Analytics, McKinsey & Company, World Economic Forum and AB

We have been making the case for tokenized assets for some years, and so far, real-life allocations remain small (*Display 114, page 191*). The area needs greater regulatory clarity in order to grow, and more asset owners need to be convinced of the case for increased real asset exposure, but we think that this will come with time. As with other areas that are at the heart of more complex multi-asset investing, the need for advances has been somewhat clouded by the rampant returns from public equities. The first steps in this area so far have been to tokenize funds, but this area really comes into its own when there is an availability to buy tokenized exposure to previously hard-to-access assets.

There is a bigger narrative here. Our vision is that tokenization will ultimately subvert the concept of an asset class and is critical to more efficient cross-asset active investing, i.e., something more akin to a purer form of a total portfolio approach, in which we have long been believers. For asset managers, the steps are to help the origination of tokenized assets and the building of them into multi-asset portfolios.

AI Tools and AI Exposure

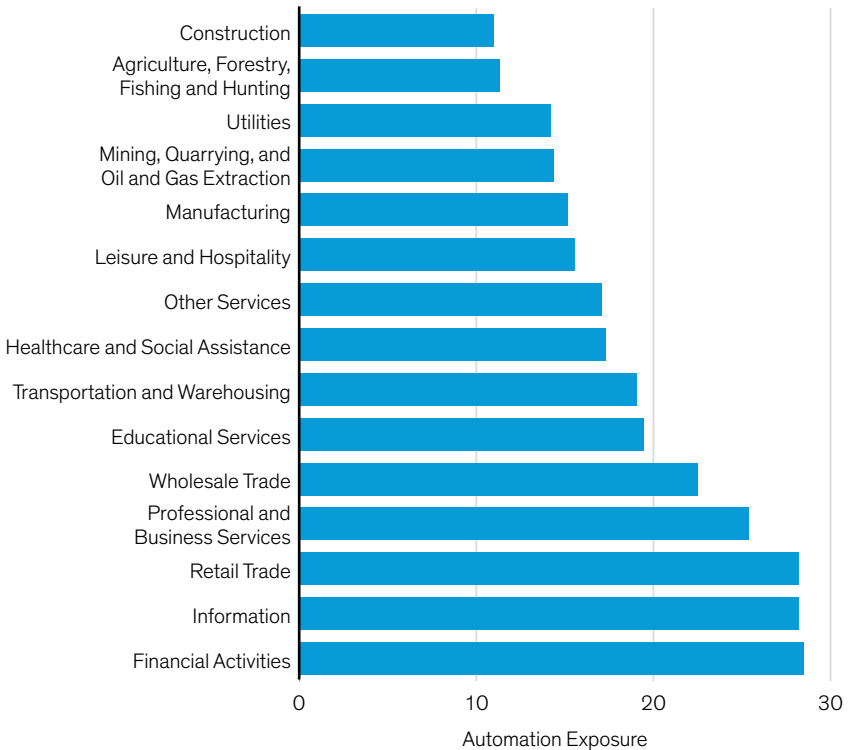
Our recent work on the aggregate impact of AI discussed how finance is one of the sectors most exposed to AI. The most common way to measure exposure is to start by measuring the AI exposure of individual tasks and then aggregate that to occupational and sector levels. For example, Tyna Eloundou sourced occupational data in the US economy from the O*NET occupational database and employed human annotators as well as GPT-4 itself to construct a dataset of how much different tasks are exposed to AI.¹⁰⁶ The O*NET database provides information on generalized work activities and detailed tasks for more than 900 occupations, with each occupation typically including 20–40 different tasks. The individual task-automation exposure scores can then be combined with the task weights for each occupation to calculate the aggregate automation exposure.

The financial industry workflow contains many tasks, such as summarizing large documents, synthesizing and transforming data, editing and writing code, and providing feedback on documents, all of which are very effectively managed by large language models (LLMs). The financial sector is one of the most automation-exposed occupations, together with computer science and programming, office and administrative support, and legal. Because economic industries can also be viewed as a combination of individual occupations, this process can be taken one step further to aggregate the automation exposure to the level of major economic sectors. As we show in *Display 115, page 193*, where occupations are weighted by the sector value-added share, the financial sector is the most exposed to AI.

¹⁰⁶ Tyna Eloundou, Sam Manning, Pamela Mishkin and Daniel Rock, “GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models,” working paper, University of Pennsylvania, Philadelphia, PA, August 22, 2023, <https://doi.org/10.48550/arXiv.2303.10130>.

DISPLAY 115: LLM AUTOMATION EXPOSURE BY SECTOR

Weighted by Industry Value-Added Share



Current analysis does not guarantee future results.

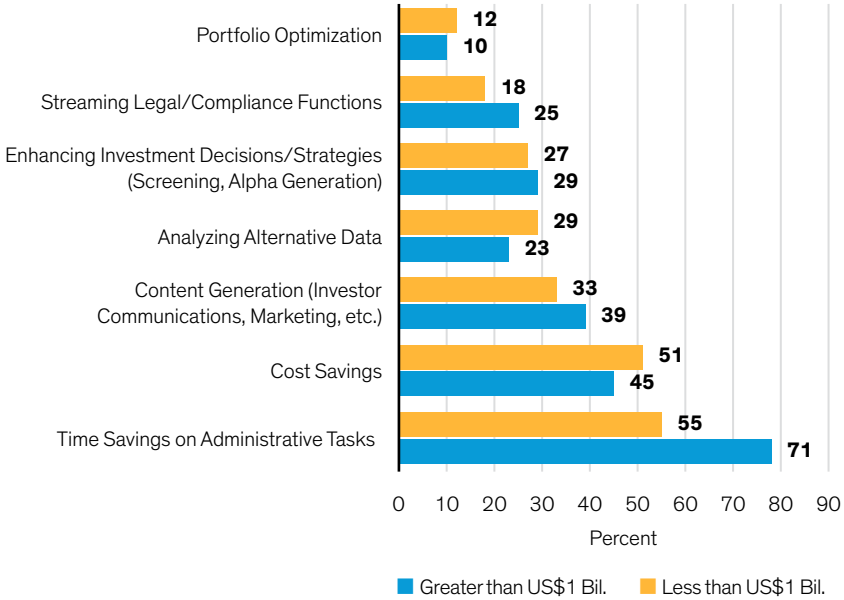
LLM: large language model. Occupation-level automation data provided by Daron Acemoglu. Value-added data comes from Bureau of Economic Analysis input-output tables.

As of May 12, 2024 | **Source:** Bureau of Economic Analysis; Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (January 2025): 13–58; and AB

There are two parts to this debate. One is the extent to which a given industry is exposed to AI. The other is, to the extent that there is a productivity increase, does it derive from displacing jobs and replacing them with an automated process or by making a unit of labor more productive?

DISPLAY 116: AIMA 4Q 2023 HEDGE FUND SURVEY

The Main Advantages That Hedge Funds Say Will Come from Embracing Generative AI Tools



Current analysis does not guarantee future results.

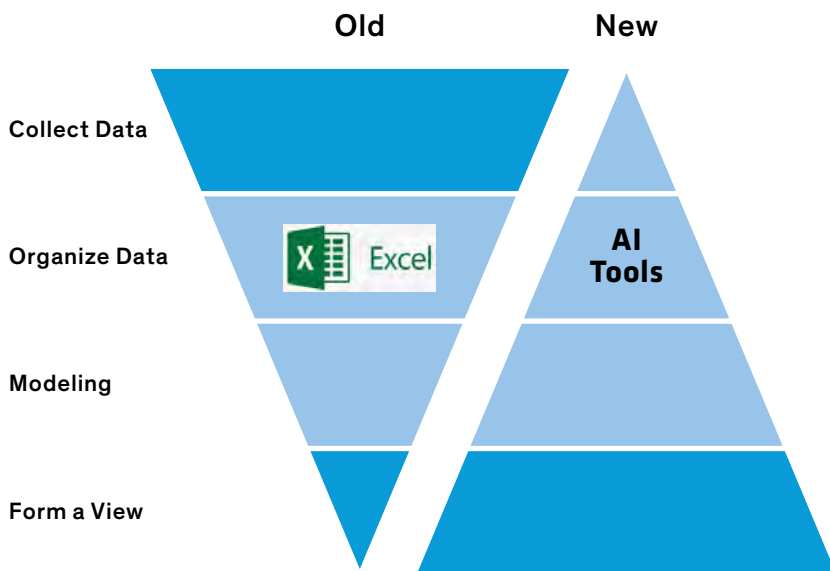
As of March 14, 2025 | **Source:** Alternative Investment Management Association (AIMA), Bernstein Research and AB

Surveys of the industry suggest that the bulk of AI use at the moment is focused on administrative tasks within finance, communication and the analysis of alternative datasets (*Display 116*). An example would be the hyperpersonalization of distribution.

AI can be expected to evolve the role of the investment analyst, as well. We display this potential shift of emphasis in *Display 117, page 195*, which is an update of a chart that we first published seven years ago in the context of Python automating some analytical tasks.

More fundamentally, we think that AI will herald a profound change in model structure—that is to say, the structural underpinning of the approach used for financial analysis. A mini history of the financial model for a company can serve as an example. In theory, a revolution in financial analysis took place in the early 1990s with the transition from

DISPLAY 117: THE CHANGING USES OF RESEARCH ANALYSTS' TIME



Current analysis does not guarantee future results.

As of October 22, 2025 | Source: AB

paper-based spreadsheets to Microsoft Excel. However, we would argue that, from a model structure point of view, this was not, in fact, a profound change at all. Models did become far easier to update, as there was no longer a need to rub out a number and pencil in a new one. As a result, models had more lines added to them, but the structure of the model didn't change in the progression from paper spreadsheets to digital ones.

Much later, it seemed plausible that the ubiquitous use of Python would bring about a change in model structure, and we argued as such a decade ago,¹⁰⁷ but it never really happened. The practical change was that the inputs to the model could evolve to become a function of mass web-scraping, with an order-of-magnitude increase in input data. However, the structure of models used to value companies did not really change—it was merely able to have a broader range of inputs. It turned out that, despite the ability of technology to revolutionize the approach to modeling, a host of

¹⁰⁷ Inigo Fraser Jenkins, Olivier Khatib and Alla Harmsworth, *Global Quantitative Strategy: Why Company Models Need to Move Out of Excel and into Python*, Bernstein Research, October 4, 2018.

other factors slowed innovation (organizational inertia, lack of demand and regulation in terms of formal dissemination requirements for sell-side analysts).

The ease of access to AI seems set to offer a new approach that could lead to the largest change in financial-model structure since paper spreadsheets. We would raise an epistemological issue at this stage: If this happens, it is entirely possible that predictive efficacy increases, but possibly not the ability to explain. Of course, many people may shrug their shoulders and be perfectly content with an explanation-free prediction if it leads to outperformance. In finance, that may be good enough most of the time, though not, we would argue, when the model goes wrong. When that happens, an explanation is actually needed.

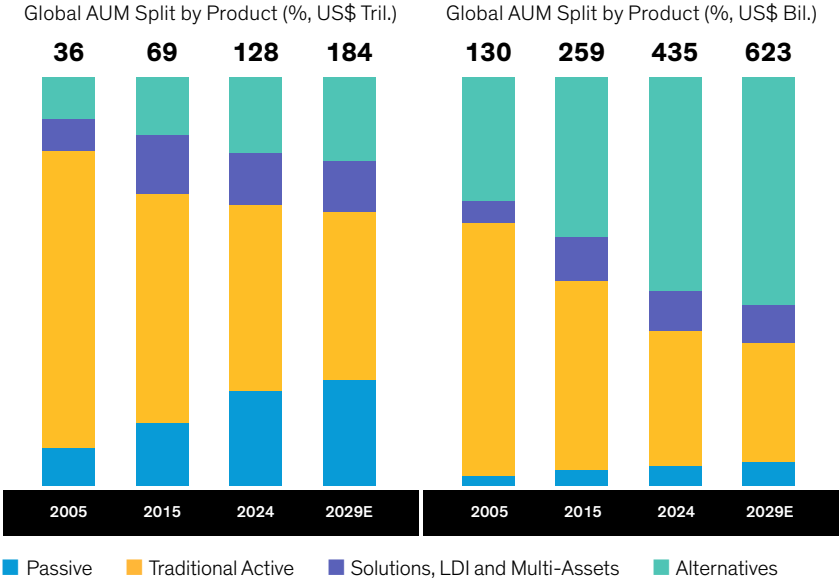
We think it might be hard to use AI in automating investment decisions, in part because financial markets are self-referential in such a way that finance can never have any laws, like a science, and at best has contingent rules of thumb that change over time. More prosaically, investors might want to have someone to blame when things go wrong, and also, crucially, to offer explanations.

Fees

A lot of flows in the industry are determined by fees. This is, of course, understandable, though we think misguided in terms of what it means in practice. Our specific worry is that the focus on headline upfront fees should not really be the key point. The thing that matters most is maximizing the net-of-fee ex post return. But one cannot observe that ahead of time, hence the focus on the former as a mental shortcut. Our view that the macro outlook requires a more efficient way to partition and allocate to risk also implies, ideally, a shift to thinking about a view on fees that is more focused on maximizing the net-of-fee returns across the book. However, we realize it would be naïve to assume that such a step can happen swiftly.

In the meantime, the barbell of allocations to passive and alternatives seems set to continue (*Display 118, page 197*); our outlook described here implies that these silos, in time, will become less distinct.

DISPLAY 118: ALTERNATIVE INVESTMENTS GENERATE MORE THAN 50% OF GLOBAL REVENUES, WITH LESS THAN 25% OF GLOBAL AUM



Current analysis does not guarantee future results.

AUM: assets under management; LDI: liability-driven investments

As of December 31, 2024 | **Source:** Boston Consulting Group and AB

Chapter 9—The Dystopian Symbiosis: Passive Investing and Platform Capitalism

This chapter takes the form of Galilean dialogue, and it is clearly fictional, but the implications are very real. Please do not confuse the fictional format with an intention to not be serious.¹⁰⁸

Interlocutors:

Salviati: An investment strategist

Pangloss: A successful and experienced investor

Sagredo: An educated layman with a wish to invest

Sagredo: Thank you my friends for convening here on this beautiful morning in my favorite city. I am much moved and worried by what I read these days. I have been following the markets closely in recent years and I am struck by how well the stock market has performed despite any recent nervousness. I am grateful that I followed advice and put my savings into stocks, as I paid heed to those who have said inflation will rise and one needs a high allocation to stocks in order to protect the power to purchase goods and services of the same value in the future—I am still some way to retirement, but you know one wants to keep watch on such things. I kept things simple and just bought passive exposure to stocks. It seemed like what so many people were doing, and the market has treated me well. But what worries me is this: so much of the gain is from a small number of stocks, and other people have been buying passive instruments as well. Is this riskier now than it was before? What transpires if something happens to one of these massive companies and people like me try to sell their passive instruments at the same time? Is it the fact that so many people have been buying these passive instruments that is responsible for why these few companies are so huge today? Did we cause this? After all, these passive instruments are weighted by market cap and I read that that is a choice, not something that needs to be written in stone.

Pangloss: Let me stop you there my dear friend. You have been reading too much scaremongering. People who make their occupation by writing—whether they are in

108 See our previous dialogue on the topic of crypto: Inigo Fraser Jenkins, *Portfolio Strategy: A Dialogue Concerning Cryptocurrencies*, Bernstein Research, January 29, 2021.

the employ of finance firms and engaged in research or are journalists, they all want the same thing! They need to shock you a little bit; if they just said everything is fine, then no one would bother to read their work. We are living in the heyday of capitalism, and capitalism is the best of all possible world systems!

Salviati: Your claim is hardly beyond doubt! I can think of countless objections. But even if one wants to accept that capitalism is the best of possible world systems, the world that we have arrived at today is only capitalism in name or, at least, is more fragile than it should be!

There are parallel, stark features of the corporate sector and the way that people invest today. These are the high concentration of the weight of the stock market into a small number of mega-cap names and the predominance of “passive” investment in cap-weighted indices, such that large flows into tracking funds direct an ever greater volume of capital to a small number of companies.

I suggest that these parallel features constitute a dystopian symbiosis. It's a symbiosis, as the presence of massive platform companies and passive capital-weighted indices feed off each other like a marriage of convenience; it is dystopian because both stand in the way of competition and capitalism. The massive companies stifle competition, and the passive cap-weighted indices do nothing to aid the process of capital allocation in the economy as they are, by construction, backward-looking.

Sagredo: This sounds worrisome indeed. But are these two attributes symbiotic or causal? I am not gifted with enough intelligence to tell which might have caused the other, but maybe you can enlighten me? It seems that both have happened at the same time, that is to say over the course of the last decade and a half. Surely it seems like a coincidence for these to occur at the same time if one has not led to the other?

Salviati: Much as I worry about this topic, I don't think I can ascribe causation between them. One might say that, when investors buy passive funds that are weighted by market cap, they promote companies that have been successful in the past and hence force a momentum characteristic in the market higher. It is also true that when there are new flows into indices that are weighted by market cap, then the largest companies receive the largest extra flow of capital.

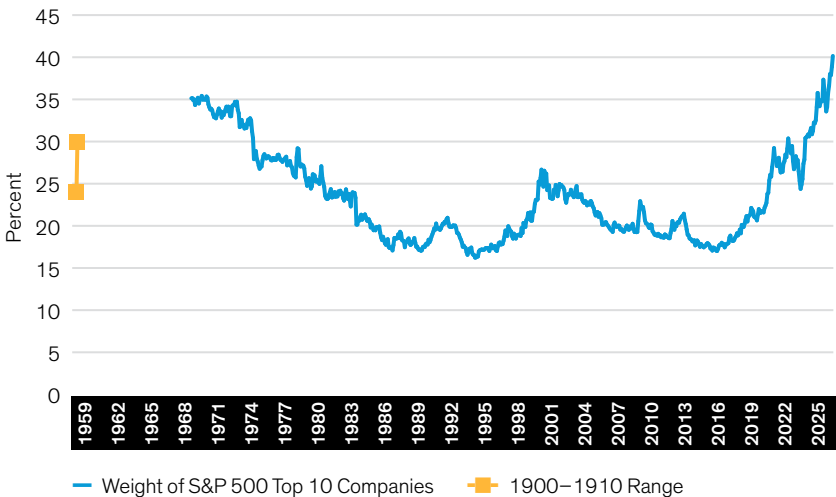
However, there are also perfectly natural reasons why concentration in the market has grown. There are the network and scale benefits of technology, be it the network effects of intangible capital or the scale advantages of data centers running at huge scale. One makes no moral judgment about this; if it is indeed the case that technology has a scale advantage, then it would be expected to lead, in equilibrium, to a group of larger companies.

My final reason for denying causation is that the high concentration of the market is not, actually, that unusual. In the US we have been close to here twice before. The Nifty 50 period of the late 1960s saw a very similar level of concentration, and concentration was also elevated from 1900 to 1910. Standard Oil was itself 10% of the US market in 1900, prior to its breakup in 1911. Moreover, other stock markets have been more concentrated than the current US level: look at Denmark or Israel to name but two. In fact, the odd outlier was the level of de-concentration of the 1990s. We are all shaped by our own journey and personal experience, and anyone who learned their experience of the market in that period would find today's level of concentration unusual (*Display 119*).

This reminds me of the Arian heresy of the fourth century. Are these two forces—cap-weighting of passive investments and concentration of massive companies—of the same substance, or does one have primacy over the other?

Nevertheless, even without this causation, I contend that high concentration is worrying. It is bad for competition and the oft-lauded animal spirits of a healthy capitalist system. What makes this doubly worrying is the scale of the flow into

DISPLAY 119: CONCENTRATION OF THE US MARKET: WE HAVE BEEN HERE BEFORE



Past performance does not guarantee future results.

As of October 31, 2025 | **Source:** Bryan Taylor, "200 Years of Market Concentration," Finaeon, May 22, 2024, <https://finaeon.com/200-years-of-market-concentration/>; FactSet; and AB

passive indices that gives the appearance of lower volatility, and I suggest it is more worrying now because of the proportion of capital that is invested in the market passively.

Pangloss: Well, I'm heartened that you haven't fallen into the easy trap that passive investing has caused the emergence of massive companies. But I still fundamentally disagree with much of what you have said!

Show me evidence that passive investing impedes the allocation of capital. Or indeed that the emergence of large companies represents some divergence from a capitalist norm!

How would you even know that capital wasn't being allocated efficiently and correctly? I grant you that it sounds elegant as a phrase to throw out in academic discourse. But what is the evidence?

You are thinking about some absurdist extremes, where the only way that equity capital is owned is via active or passive funds, and furthermore that the passive funds squeeze out active funds to the extent that there are none left. It is a striking rhetorical device, I grant you, to take one's opponent's view and inflate it to absurdist extremes and then attack it. But I can see through that! There is not a zero-sum game between active and passive investing. There are many shares held by founders and individuals; there are new shares being issued and others being bought back. The number of shares held in active and passive funds altogether accounts for less than half of the market.

On your other point, that the mega-cap companies smother competition, I am not at all convinced. They represent a triumph of capitalism! The extraordinary innovation of recent years has given birth to near-unparalleled growth. There are benefits of scale, be it from the nature of intangible assets and their scalability at low cost and their network benefits or be it from the new wave of data centers that give promise of a step forward that could exceed that of the Industrial Revolution! I do not see why you see this as a problem. Moreover, it has created a huge amount of wealth. That is real and tangible. This is surely to be celebrated! Innovation has meant that the return on capital has been high, and access to investment has never been easier or cheaper.

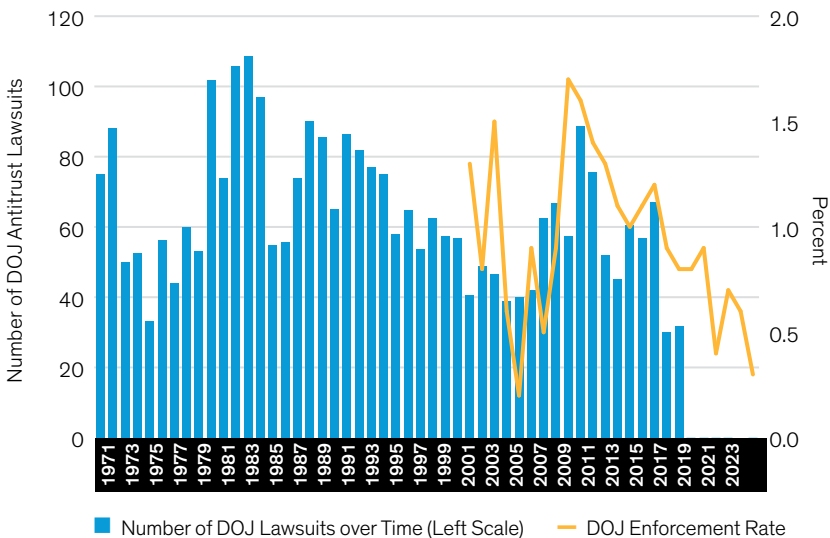
Salviati: I'm not so sure. I could push my argument further. There are several possible stories to tell about the rise of this concentration. Let us focus on that for a moment rather than the passive cap-weighted indexing side of the ledger. I grant you that there has been innovation in the corporate sector. But how sure are you that is the primary explanation for the state in which we find ourselves today with a small number of companies of unprecedented size?

I contend that there are less benign forces at work, too, that have also contributed to this. There has been a social and political choice made in recent decades to allow more power to corporations, as opposed to both labor and governments. But it is the power of corporations versus governments that is most relevant to my point here. An

example of this is the decline in the willingness to enforce antitrust mechanisms. This has helped the emergence of more powerful corporations than was the case, say, in the post-war decades. A consequence of this is that something that looks akin to regulatory capture is at work (*Display 120*).

I do not seek to make a moral point about this per se, but it does need to be recognized that this is a social and political choice that has been made, whether citizens explicitly realize this or not. The primary evidence for this is in the tax paid by the US corporate sector. The effective tax rate of US companies has fallen in an almost monotonic fashion

DISPLAY 120: DECLINE OF ANTITRUST CASES

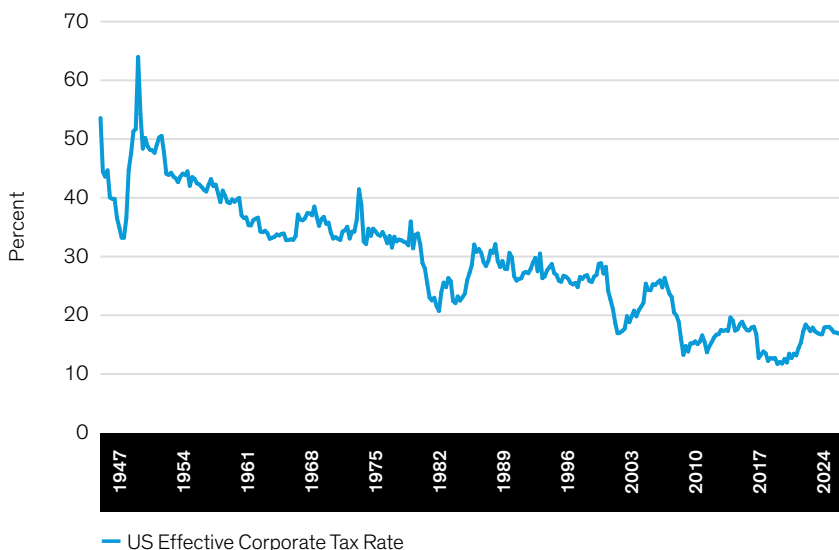


Current analysis does not guarantee future results.

DOJ: US Department of Justice. Bars show the number of DOJ antitrust lawsuits for each year of the period 1971–2018. The total number of lawsuits over the sample period is 3,055. It is hard to get consistent data over a long time series hence showing this as two separate series.

As of October 23, 2024 | **Source:** Ryan Quillian and Pegah Nabili, “Three Years Running: Merger Enforcement Activity Continues at Historically Low Levels According to the Agencies’ Most Recent HSR Report,” *Westlaw Today*, Thomson Reuters (October 23, 2024), <https://www.cov.com/-/media/files/corporate/publications/2024/10/three-years-running-merger-enforcement-activity-continues-at-historically-low-levels-according-to-the-agencies-most-recent-hsr-report.pdf>; Tania Babina, Simcha Barkai, Jessica Jeffers, Ezra Karger and Ekaterina Volkova, “Antitrust Enforcement Increases Economic Activity,” NBER Working Paper No. 31597, National Bureau of Economic Research, Cambridge, MA, August 2023, <https://doi.org/10.3386/w31597>; and AB

DISPLAY 121: DECLINE IN THE EFFECTIVE TAX RATE FOR US CORPORATES



— US Effective Corporate Tax Rate

Current analysis does not guarantee future results.

As of April 15, 2025 | **Source:** Bureau of Economic Analysis, Macrobond and AB

from above 40% in the 1960s to below 20% over the last decade (*Display 121*). Seen in this light, high margins and plentiful growth in earnings suddenly do not look so positive from a social perspective. Why should the people accept this? I cannot fathom it!

We should consider two other forces that have aided the overall strong return of the market. These are true not only for technology stocks but for the market overall. I bring them up here, as they also represent an implicit social and political choice, of which I do not believe everyone is aware.

The first of these is buybacks. Since buybacks were made legal in 1982, corporations have emerged as the primary buyer of their own stock in the US. Indeed, across all developed markets this approach is entrenched, and buybacks exceed the issuance of new stock. By this mechanism, the public stock market is shrinking. That is helpful for returns, but my point is that this represents a levering up of the system for little, or no, social utility. I genuinely believe that most people don't realize this. What might appear as a rational decision for an individual company has a separate emergent property when considered in the light of the overall system, which is a higher level of corporate debt

and less of an equity buffer. I can only think that this is a combination of management teams being told to focus on metrics that are couched in terms of metrics per share, and also because it is a short-term expedient to increase returns for the owners of capital.

The second of my points is a more obvious leveraging up of the system, and that is the enormous increase in government debt, also since 1980. There have been many reasons for this, and its effects show up in many other ways, mainly the increased riskiness of government bonds and the ending of any notion of there being such a thing as a “risk-free” asset (there never was such a thing but it suited the academics and investors so well to postulate that such a thing existed). But for our purposes here, the point is the evidence that greater government deficits help the corporate sector by lifting margins but create a social cost via leverage.

We don't want to overstate these. There has been real, organic growth beyond these forces, but they have been consistent contributors. Net buybacks have lifted US equity returns by 1.6% per annum, and the increase in the deficit over the last two decades has arguably raised margins by four percentage points. But the point is that, in unison, they represent an increase in risk to the system that was not the same before the great bull run started in the early 1980s.

Sagredo: So, are the strong returns from the stock market in some sense fake?

Salviati: No, no, I did not seek to give that impression. There has been real innovation and real growth. But in parallel, there have been choices that have increased the power of the corporate sector and hence boosted the return on capital. The point is that these are not free choices—they raise risk elsewhere. In a democracy, if people chose to make this choice, then who am I to criticize it? I just worry that the choice has been subtle, with a slow change over time in the understanding of what is acceptable, so that voters have not really explicitly made this choice. Especially not global voters who live in a world of multinational companies.

Pangloss: Again, I think you raise worries of a theoretical and academic nature. Why do these things matter? We have bountiful growth, the people have jobs and the return of the stock market has made people well off. You want to jeopardize that?

Salviati: Well, I would challenge your view about people being well off. It has made some people very well off, but that has not been equally shared. I will return to that point later.

Since you are still not convinced, I see, I would like to push my point even further and bring up the work of Varoufakis.

Pangloss: Here we go! Please can we not discuss Marxism? You really think that is relevant when discussing the structure of the stock market? Imagine putting that in a research note aimed at institutional investors and see how you fare!

Salviati: I beg to differ! Marxism is always relevant, even for me, who happens to believe that capitalism is a helpful system for society in many ways. One needs to be open-minded to alternative points of view, and I believe this is a viewpoint that potentially undercuts the whole system you claim to love so much.

The point I wanted to make is that Varoufakis has declared that capitalism has died.¹⁰⁹ This might sound surprising. After all, it seems like we are in a society refined by the norms of capitalism to a degree never seen before. Varoufakis, however, claims this is a veneer. Companies talk of profits, but really profits are no longer the primary force; instead, the emergence of platform companies of huge scale and with unprecedented power vis-à-vis regulators means that rather than collecting profit, they are really collecting rent. Therefore, we are now in a quasi-feudal system and not a capitalist one.

The only irony, for Varoufakis at least, is that capitalism was not brought low by the action of organized labor, but instead by platform companies benefiting from an extraordinarily low cost of capital.

If this is the case, then for those who believe in capitalism as a mechanism for growth, it raises profound questions about the ability to continue growth as has been experienced before. I worry about this point a lot, as it does indeed seem the case that platform companies do charge something akin to rent and, I can see many examples when their actions do not look to be commensurate with an ideal form of capitalism, at least as I see it.

Pangloss: You make a strong argument. But I would like to add another angle. Your narrative is grounded in the world of publicly listed companies.

All that we are discussing is happening at a time when the stock market is becoming progressively less relevant—both as a venue for entrepreneurs to raise capital and as a share of the assets for institutional investors.

Since the war, the primary source of capital to fund growth has been the public stock market. But the locus of capital creation has moved! You seem to phrase this as necessarily a risk. But why should the public market be preeminent? I strongly believe that regulation is the enemy of innovation. There are too many regulations and unhelpful attention foisted on firms that choose to seek a public listing. This stifles innovation and the growth you claim you are so fond of. But is it any wonder that there has been a smaller number of IPOs for decades? And if corporates wish to engage in buybacks, then that is their own private decision of how to best use their cash, or their ability to raise debt. Meddle with that at your peril!

May I remind you that this city created what I would contend was the very first factory in Europe. Hundreds of years before the British had their Industrial Revolution, the Arsenale established what was essentially assembly lines and was capable of building a galley in a

¹⁰⁹ Yanis Varoufakis, *Technofeudalism: What Killed Capitalism* (Melville House, 2024).

single day! Do you know how hard this was, and how extraordinary for the time? The need to make the hull, the miles of ropes, the sails. The immensely long rope-making halls have stood the test of time and are still here. This was automation taken to a level that had not been dreamed of before. Without that, the glory of Lepanto would not have been possible! The reason for all this activity? A city built on commerce above all other considerations. Yet it did not require a stock market to fund it. My point is that capital can come in many forms. I am unconcerned about the shrinking public market; fashion and opportunity change over time.

Sagredo: I think I follow your argument, but there is another kind of concentration that I read a lot about, and that is the concentration of the weight of the stock market in companies that are listed in the US. This share has grown relentlessly even as the share of the US as a share of the global economy has shrunk. Something seems odd about this. Can either of you gentlemen explain it?

Pangloss: Yes, the effect that you describe is true. But it should not be a surprise, or indeed a source of concern. Some of this is the rise of massive tech companies that we discussed earlier. But the extra element to this, the apparent disconnect between the weight of the US in the stock market compared to the weight of the US in the global economy, reflects another choice about the source of capital. It is the rise of China that has been the primary reason for the shrinkage of the US as a share of the economy overall, but China has chosen not to seek public equity financing in the same way. Thus, this apparent disconnect is inevitable.

Salviati: This is one point at least on which I'm happy to say that we are in agreement.

Sagredo: Thank you both for your views on this. I must admit I am struck by how two such intelligent people as yourselves can have such divergent views. But tell me, the topic of the day seems to be AI and how it will transform the economy. It also seems to be the dominant issue for the stock market, given the way hopes about AI have driven up the returns of stocks. Does this dynamic of AI change either of your views?

Salviati: It is of prime importance! We face a world where there are very plausible reasons why the growth rates that have seemed normal in the last 40 years might no longer be attainable. Smaller working-age populations, deglobalization, the exceeding of planetary limits and the buildup of debt all point to an outlook of lower growth. AI is the only force that could plausibly offset these forces. But that is not the central point that we are discussing here. So far, the market's experience of AI has been very much as a game of scale. Those who can build or secure the greatest capacity of data centers have benefited the most. Thus, so far, AI appears set to exacerbate the concentration that we have seen so far.

Acemoglu teaches us that the emergence of a new technology does not, per se, determine who benefits from it.¹¹⁰ Instead, that is determined by political choices

110 Daron Acemoglu and Simon Johnson, *Power and Progress: Our Thousand-Year Struggle over Technology and Prosperity* (PublicAffairs, 2023).

made at the time that the new technology emerges. Given the view on the growth of corporate power that I have already outlined and the observation that, in the West at least, corporations are firmly in charge of deciding what type of AI is developed, then this is potentially alarming about further entrenching the power of large platforms. We also see this in the relative power of capital versus labor: Union membership in the US has reached a new low, and the sectors that are most exposed to AI are the ones with the lowest union membership. Therefore, one should expect corporations to be in a position to take more power. Many might view AI as a benign force, but we are tempted to side with Crawford in labeling it as an extractive industry.¹¹¹

Pangloss: You are very fatalistic about this. One thing we agree on is that AI is a potentially huge source of growth and increase in productivity. But I'm not sure we know yet who is going to win from AI. When a new technology comes along, the cards are all thrown into the air. Will it be the large companies that have access to the data centers that are the winners? Or will access to those kinds of models be commoditized? If they are commoditized, the winners could be a plethora of smaller companies, many of which don't exist yet. Maybe the suppliers of power and the builders of the power grid are the ones who benefit? We just don't know. It's one of the reasons I think that, despite what you say, competition is alive and well. Let the development of AI just take its course.

Moreover, on your fears about passive investing, the rise of AI also shows the presence of counteracting forces. Yes, there has been a large flow into passive cap-weighted indices, but do not forget that individual retail investors are participating in the market in a way that they did not a decade ago. They are choosing to buy individual stocks linked to AI and that is an active investment, it's just not taking place within a traditional active fund.

Salviati: I agree that it seems too early to say who benefits from this new technology. But what about jobs? I read stories already about workers losing their jobs because of automation. Aside from the social cost of that, if it happens on a larger scale then don't we have a problem? It's all very well for AI to improve productivity, but if there are only a small proportion of workers still employed that is no good! There would be a recession and then a need to rethink the structure of the economy.

Pangloss: But this worry is as old as the Industrial Revolution. In fact, it is older! Queen Elizabeth I denied a patent for a knitting machine explicitly because it would destroy jobs and render her subjects impoverished. Some 250 years later, the Luddites smashed mill machinery because of automation. But after all these years of innovation we still have full employment! People who hold your position always fail to estimate how many new jobs are created that, prior to the new technology, could not be imagined! This is how capitalism works. It creates more growth in total in the end.

111 Kate Crawford, *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* (Yale University Press, 2021).

Salviati: You blithely skip over real hardship! Real wages were static for generations during the Industrial Revolution and groups of people were left in penury, or else had to subject themselves to working conditions of a woefully inferior level than they had before. But I will say no more on this particular topic, or it will send us off on a tangent that we would not be able to do justice to today.

Pangloss: May I move us on slightly in our debate?

Salviati: Please do! I am sick of talking about AI every day.

Pangloss: The concern outlined at the beginning of this debate was the interaction of large companies with passive cap-weighted investing. But buying equities by way of a passive cap-weighted index is not the only way to do so—it is a choice, an explicit choice.

Yes, the biggest listed companies are worth trillions, but the opportunity set for investors is different from that. If one considers the number of companies in the US with revenues greater than \$100 million and just counts them rather than adding up their sizes, then the listed companies in the US only account for 15% of the group (*Display 122, page 210*). There are many other ways for people to invest that expand their opportunity, one just needs to consider private companies too.

Salviati: I do not dispute any of this. However, to benefit from this there would have to be a huge shift in the way that investors design their portfolios. I do not doubt that there are other ways to invest that do not involve the cap-weighted index, but it is very far from the way that large institutions think!

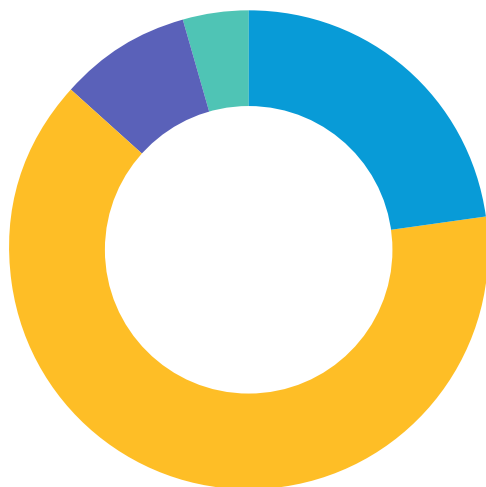
OK, but there needs to be a shift in how investors think! Exposure to passive capital-weighted investments is going up, not down.

Pangloss: In the meantime, the pairing of buying a concentrated and weighed index with the huge success of the largest companies has been a good thing. My friend, you said earlier that you felt this was a problem in some way, as it was not equally shared?

Salviati: Yes indeed! A huge problem of the creation of wealth in recent decades, especially with the rise of globalization, was that the benefits were not equally shared. That is what has given rise to populism and the attack on enlightenment norms that many have cherished so dearly. As Piketty so comprehensively showed, inequality has risen and, as the ownership of capital is more concentrated than the ability to offer one's labor, then anything that increases the returns on capital will increase inequality more.¹¹² Bluntly put, the rich own more of the stock market and hence benefit most from its rise.

112 Thomas Piketty, *Capital in the Twenty-First Century*, translated by Arthur Goldhammer (Belknap Press of Harvard University Press, 2014).

DISPLAY 122: FEWER THAN 15% OF COMPANIES WITH OVER \$100M IN REVENUE ARE PUBLICLY TRADED



- Private (\$500+ Mil.) **22.79%**
- Private (\$100-\$499 Mil.) **63.93%**
- Public (\$500+ Mil.) **9.02%**
- Public (\$100-\$499 Mil.) **4.26%**

Historical analysis does not guarantee future results.

S&P Capital IQ data as of December 2022; most recent data from Statistics of US Businesses (2017) used to triangulate S&P Capital IQ estimates for privately held company counts by revenue band
As of December 31, 2022 | **Source:** Bain & Company, S&P Capital IQ, US Census Bureau and AB

Pangloss: I often hear people talk about only a narrow group benefited, and there is truth in that, I grant you, but let me remind you that pension funds have significantly invested in the market too. The size of pension pots might be very unequal, I agree, but nevertheless this is the mechanism for many people to enjoy retirement. Therefore, the benefits from what you characterize as a symbiosis are actually felt broadly.

Salviati: Yes, it is true that pension funds own a significant share of the market. But you cannot just state that fact in isolation. In recent decades, there has been a huge transfer of who bears the risk of retirement, with that risk now being borne more by individuals. Maybe people accepted this in a world where inflation was low, and returns could easily beat inflation. But I would contend that has changed. The confluence of a greater riskiness of returns (in part because of this topic we are discussing today), the likelihood of higher inflation, greater longevity (admittedly a

nice problem, just one that needs to be funded) and the shrinking number of people benefiting from defined benefit pensions all point to a greater need to generate returns. Despite pension funds benefiting from the high returns of recent years, there is no extra cushion to protect from a period of low returns in real terms. We think that this pension funding problem might be enough to threaten the social contract. Anyway, don't get me started on the scale of the pension problem or we will be here for another day. The point is that those pension returns are not sufficient.

Sagredo: Gentlemen, we are getting needlessly theoretical here. I want to bring us back down to earth. What does this dystopian symbiosis, as my friend calls it, mean in practice for one who wants to invest their money today?

Salviati: Well, I think it makes investing riskier. Specifically, I think it means that the passive index is riskier than it has been in the past. The confluence of high concentration, a dominant factor driving returns (in the sense of a principal component analysis) and high valuations points to the idea that there is complacency about volatility today. The scale of the flows that have been disproportionately into passive cap-weighted funds with a high exposure to the mega-cap companies implies the risk of a significant negative wealth effect if there is an upset to expectations for those large companies.

Sagredo: Are you saying I shouldn't own the stock market now?

Salviati: Well, no, I am not saying that. The timing of any such upset is highly uncertain, and I can see a case where the market finds its way higher. So, stay invested, but hark what I mean about complacency about volatility and also have defensive trades in place.

Pangloss: Ha! So, despite all your misgivings, it does not make you do anything that different from what I am doing in practice.

Salviati: Indeed not. But my fears are about the riskiness of the system and the efficiency with which capital is allocated.

Sagredo: And what about the longer-term implications? Does our topic of discussion today imperil the very concept of the stock market? For an institution that started in the coffee houses of the seventeenth century then grew to be the primary locus of capital raising for the great growth period of the 20th century, is this how it ends? With a declining number of shares listed and of those that are listed, ever more and more weight in a smaller number of companies and an ever higher proportion of it accounted for by passive funds?

Salviati: There is a lot to like in the way that you phrase it. I don't disagree with any of it. But bear in mind that there are reasons why investors will need to own, if anything, an even higher proportion of stocks, I think. But you are right that the

point of the stock market has changed and it no longer occupies the privileged position that it once did.

Pangloss: I have to say I'm unmoved. It remains an important place for investors to find returns and for entrepreneurs to raise capital. But there are other venues as well. Ultimately the distinction between public and private assets is fake, anyway.

Sagredo: As the day draws to a close, can we think about what the conclusions are from our discussion? Having heard both your arguments, I think I am more likely to take my friends' view that the symbiosis, as you call it, is indeed a problem. But if one were to take that view, what is one to do about it? It seems like those who wish to revive capitalism are in a bind; if anything is done to unwind the mega-cap companies, then passive investment indices would suffer, causing a huge loss of wealth, which would adversely affect pension funds, among other things. Traditionally, that might have at least hurt the wealthy more, but I'm not even so sure of that today, if more of them have moved into private assets.

You said earlier that we have been here before. How did we get out of this state in the past?

Salviati: That's a very astute question! It has happened via different routes is the answer. The high concentration of the early 1900s was ended by regulation; the breakup of Standard Oil I mentioned before. But in the 1970s, this was more a narrative of market forces, an abrupt deterioration in the macro outlook and a de-rating of companies that had been expensive. So, there is not necessarily a single template.

One could take the view that the system can fix itself. As the public equity market shrinks and loses its primacy, both as a venue to raise capital and as a share of investment portfolios, then one could argue, perhaps, that if one views the whole equity market (i.e., public and private), the problem is reduced. However, we are not so sure. I think that the evidence of an increase in corporate power vis-à-vis governments and labor implies that a more active push is needed. This would have an economic goal in increasing competition, which is the core of capitalism, and also a sociopolitical objective in curbing the power of corporations in the interest of liberal democracy.

Pangloss: What you suggest shocks me profoundly. We have a system that has created untold wealth in recent decades and a corporate sector that has been an engine of growth for the economy. One would mess with that at one's peril! How could pension funds, or individuals saving for retirement, cope with a breaking up of big tech? Moreover, passive funds are a good thing: they democratize access to investing, something that surely your social conscience cares about. As I said at the beginning, the capitalist system is the best of all possible economic models. We have had decades of high growth, and I fully expect that to continue.

Salviati: Yes, growth has been strong. Some of that was a peculiar set of circumstances since the 1980s: globalization and a strong demographic stimulus, both of which have now gone into reverse. Some of it was also a failure to realize planetary boundaries. There was also a series of choices that allowed corporations to raise margins and, hence, earnings growth, but I'm not sure that was good for growth in the broader sense. My contention is that the emergence of a high degree of market concentration has blunted the role of competition, while in parallel the emergence of passive investing as the dominant mode of investing in public markets has blunted the capital allocation role traditionally fulfilled by investors. For anyone concerned about the functioning of capitalism, I suggest that the dystopian symbiosis I have outlined should be a concern. However, it goes beyond that, as in the age of AI, the now-dominant position of large companies to control the news agenda raises social questions too. Thus, it is also a problem for liberalism (in the philosophical sense of the word rather than the contemporary American political usage of the term) and for democracy itself.

The dystopian symbiosis represents a clear and present danger. More fundamentally, it does not represent the heyday of capitalism—instead, it is killing it.

Sagredo: Gentlemen, on that note I see that it is now dark, so let's bring this day to a sclose.

Pangloss: You are lucky that I enjoy the debate so much, but also that I'm hungry, so that I'm happy for you to have the last word!

Sagredo: The gondola is outside and is waiting to take us to the Rialto. We deserve a glass or two of wine.

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