

TOP *of* MIND

MARKET CONCENTRATION: HOW BIG A WORRY?



The top 10 stocks in the S&P 500 account for an outsized share of the index's market cap and of its stellar 2024 performance. So, just how anomalous is today's equity market concentration, and how worrying is it? GS' David Kostin argues that the unusually high concentration warrants investor concern because history suggests that high concentration is associated with lower long-run returns. But Acadian's Owen Lamont thinks worries about concentration are overblown, arguing that concentrated markets aren't inherently riskier and don't portend future poor performance, though high valuation often does. At the heart of the matter is whether the outperformance of today's dominant stocks can persist over the longer term.

Lamont and Kostin agree this will likely prove difficult, and NYU Stern's Thomas Philippon and Cravath's Noah Phillips opine on a key risk to sustained outperformance: antitrust scrutiny. So, GS strategists advise staying invested in US equities but recommend shifting some assets to equal-weighted indices and diversifying across strategies and regions.



If the historical pattern persists, high concentration today portends much lower S&P 500 returns over the next decade than would have been the case in a less concentrated market.

- David Kostin

[Current investor concerns about high US market concentration] are totally overblown...there are many reasons to think that the US stock market is overvalued, but concentration isn't one of them.

- Owen Lamont

There is substantial reason to believe that the Trump Administration will remain fairly aggressive in the pursuit of antitrust prosecutions and blocking mergers in the tech sector and beyond.

- Noah Phillips



Allison Nathan | allison.nathan@gs.com

Jenny Grimberg | jenny.grimberg@gs.com

Ashley Rhodes | ashley.rhodes@gs.com

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David Kostin, Chief US Equity Strategist at Goldman Sachs

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OPTIMAL PORTFOLIOS AMID HIGH CONCENTRATION
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...AND MORE

Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html.

Macro news and views

We provide a brief snapshot on the most important economies for the global markets

US

Latest GS proprietary datapoints/major changes in views

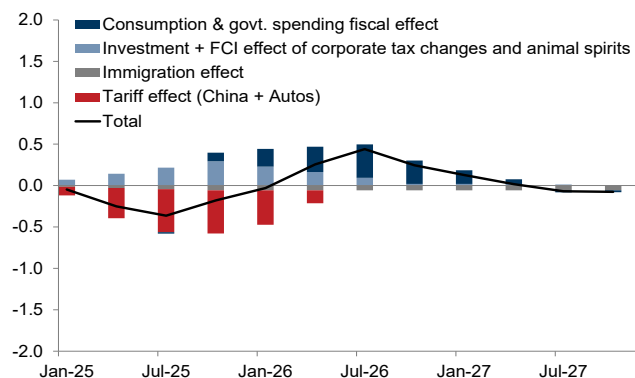
- We recently raised our end-2025 US core PCE inflation forecast to 2.4% yoy (from 2%) on the back of the higher China and auto tariffs we expect in Trump's second term.

Datapoints/trends we're focused on

- US economic policy in Trump 2.0; we expect higher China and auto tariffs, lower immigration, some fresh tax cuts, and regulatory easing to have limited US growth impacts.
- US growth outperformance, which we expect again in 2025 as we forecast above-consensus 2.5% US GDP growth (yoy).
- Fed policy; we expect the Fed to deliver consecutive rate cuts through 1Q25 before slowing the cutting pace, though we see some risk that the Fed could slow the pace sooner.

Trump policy shifts: only modest US growth impacts

Estimated impact of baseline post-election policy changes on US year-over-year real GDP growth, pp



Source: Goldman Sachs GIR.

Japan

Latest GS proprietary datapoints/major changes in views

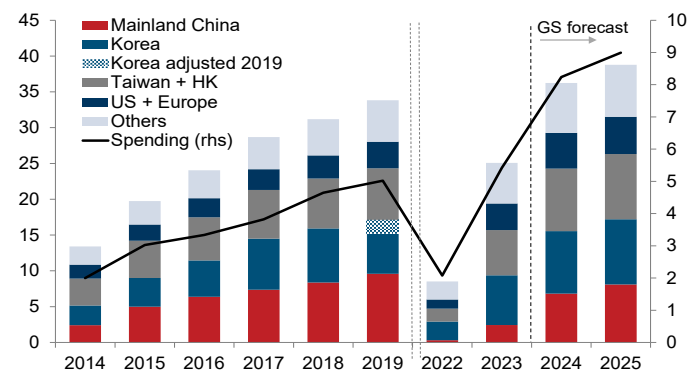
- No major changes in views.

Datapoints/trends we're focused on

- BoJ policy; we expect the BoJ to hike rates again in Jan and Jul 2025, though the Jan hike could be brought forward to Dec 2024 if USD/JPY strengthens to around 160.
- Japan growth; we expect GDP growth to recover to 1.2% in 2025 (vs. -0.2% this year) on the back of solid consumer spending, a rise in goods exports, and increased tourism.
- Japan inflation; we now see evidence of a virtuous cycle between wages and prices, suggesting that the economy has crossed a key checkpoint toward sustainable inflation.

Japan: a boost from increased tourism

Number of foreign visitors to Japan (lhs, mn) and their spending (rhs, ¥tn); GS forecast for 2024 and 2025



Source: BoJ, Japan National Tourism Organization, Goldman Sachs GIR.

Europe

Latest GS proprietary datapoints/major changes in views

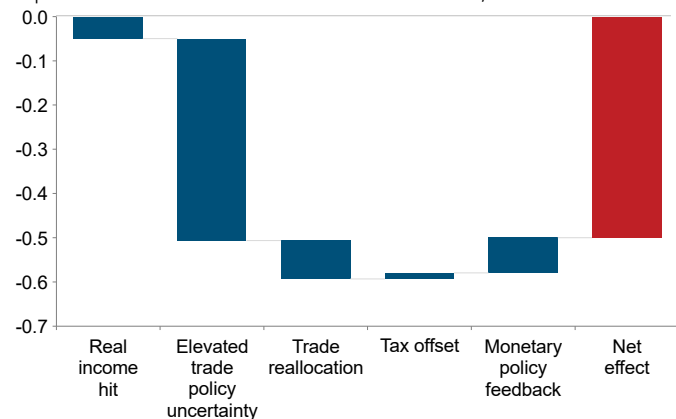
- We recently revised our BoE forecast to a quarterly pace of cuts next year (vs. sequential cuts from Feb previously) to a terminal rate of 3.25% on the back of recent developments that point to stronger near-term UK growth and inflation.

Datapoints/trends we're focused on

- EA growth; we expect below-consensus GDP growth of 0.8% in 2025 (yoy) owing to ongoing structural headwinds in the manufacturing sector, higher trade policy uncertainty following the US election, and further fiscal consolidation.
- ECB policy; we expect a 25bp rate cut in Dec, followed by continued sequential 25bp cuts to a terminal rate of 1.75%.

Euro area: a growth hit from trade tensions

Impact of baseline US tariffs on Euro area GDP, %



Source: Haver Analytics, Goldman Sachs GIR.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

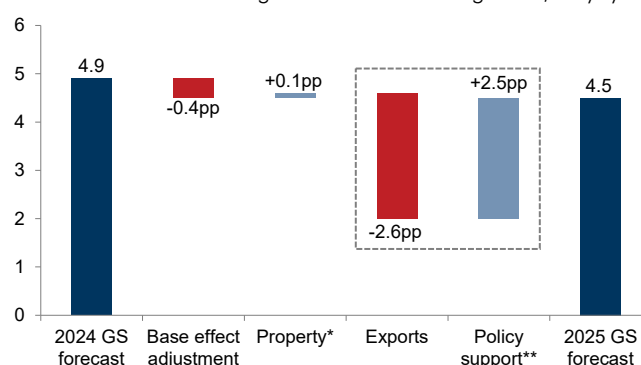
- We recently lowered our 2025 China GDP growth forecast to 4.5% (yoy, from 4.7%) to reflect the impact of likely higher US tariffs that are only partially offset by easier policy.

Datapoints/trends we're focused on

- China growth rotation; we expect policy support to become the key driver of China growth in 2025, taking the reins from exports, which fueled the Chinese economy this year.
- India growth; we expect a cyclical slowdown in 2025 owing to continued fiscal consolidation and slower credit growth, but we believe India's structural growth story remains intact.
- EM easing cycles, which should continue next year, though tariff-related FX pressures could impact the pace of cuts.

China: a growth rotation from exports to policy

Contribution to the change in China real GDP growth, % yoy



*Property contribution includes policy support in the property sector.

**Policy support refers to non-property policy support to avoid double counting.

Source: Goldman Sachs GIR.

Market concentration: How big a worry?

S&P 500 returns this year have been nothing short of spectacular, with the index rising an eye-popping 26% year to date, recently breaking the 6000 level. But it's no secret that this stellar performance owes to a handful of technology stocks—the so-called Magnificent 7—which returned 41% year to date versus only 18% for the remaining 493 stocks and accounted for an astonishing 47% of the index's gains. So, just how anomalous is the level of US equity market concentration today, and how worried should investors be about it?

We turn to GS Chief US Equity Strategist David Kostin and Acadian Asset Management's Owen Lamont for answers. Kostin views the S&P 500 as unusually concentrated today, with the current 36% of total index market cap accounted for by the top 10 stocks substantially exceeding the roughly 20% average of the last several decades, and the market cap of the largest stock relative to the 75th percentile stock suggesting the highest level of concentration since 1932. He says that investors don't need to worry about this high concentration over the short term, arguing that no relationship exists between concentration and near-term returns, and forecasts that solid earnings growth amid a still-favorable macro backdrop will lift the S&P 500 to 6500 by year-end 2025—yielding an above-average 9% price return for the year.

But Kostin argues that investors *do* need to worry about market concentration over the longer term, say 10 years, because history suggests that high concentration is associated with lower returns over longer horizons. Specifically, when Kostin adds in market concentration as a distinct variable to his long-run return model, the model forecasts average S&P 500 annualized returns of 3%—sharply below the historical average of 11% and 400bp below the 7% average that the model excluding market concentration would suggest. This drag on long-run returns, he says, owes to the inherently higher volatility of more concentrated portfolios and, more crucially, to the high valuations of the stocks driving the concentration, which today trade at a negative risk premium, suggesting that investors are not being sufficiently compensated for this increased risk.

Lamont, by contrast, contends that the US stock market is not alarmingly concentrated today relative to history—with the 1950s and 60s featuring much more concentrated markets—and to the rest of the world, with some equity markets in Europe and Asia substantially more concentrated. And he argues that market concentration in and of itself should not be a source of investor concern, as it is mainly a mechanical byproduct of profits becoming more concentrated in the largest firms and those firms becoming more richly valued.

While Lamont agrees that more concentrated portfolios are inherently riskier, he says that the same can't be said of more concentrated *markets*. He argues that stock market risk comes from two sources—fundamental risk, and prices departing from fundamentals—neither one of which necessarily increases when stock market concentration rises. Case in point: the US stock market in the 1950s—when just three stocks accounted for nearly 30% of the market—was arguably safer and less volatile than the market today. And he sees no strong relationship between the level of concentration and subsequent performance. So, Lamont's main message to investors is: "if

you want to worry about something, worry about the overvaluation of big growth stocks, not concentration."

All that said, at the heart of the matter is whether the outperformance of today's dominant stocks can persist over the medium-to-longer term. And here, Lamont and Kostin agree that sustained outperformance will likely prove difficult. In Lamont's view, an underappreciated risk today is the likelihood that mean reversion in top firms' fundamentals and valuations—which has little to do with these firms' size relative to the market—results in their future underperformance. Kostin puts some numbers around this, finding that over the past four decades, only around 3% of S&P 500 companies were able to generate 20%+ revenue growth—the market's current long-term growth expectations for the Magnificent 7—for 10 consecutive years.

While such deceleration has often occurred for organic reasons, increased regulatory scrutiny also poses risk to future performance. We first dig into the genesis of this scrutiny with NYU's Stern School of Business' Thomas Philippon, who explains that regulators must step in—and often have—when big firms use their market power to prevent competition or to raise prices, which Philippon refers to as "bad concentration". He dismisses the notion that such actions on the part of regulators stifle innovation, arguing that firms are at their most innovative *not* when they are dominant, but rather when they face fierce competitive pressure, such as when Apple created the iMac in a desperate effort to survive against Microsoft.

With this in mind, we then speak with Noah Phillips, former FTC Commissioner and current Co-Chair of the Antitrust Practice at Cravath, to better understand the nuts and bolts of US antitrust policy today and how it may evolve. He argues that not nearly as much daylight existed between Biden's and Trump 1.0's approaches to antitrust as many people seem to think, and warns that investors expecting less regulatory scrutiny in Trump's second term, especially of big tech firms, will likely be disappointed.

So, what does this all mean for investors? Kostin advises non-taxable investors to shift some equity assets from cap- to equal-weighted benchmarks given his estimate that the typical stock will likely return 8% over the next decade—500bp more than the aggregate index. GS Chief Global Equity Strategist Peter Oppenheimer, for his part, sees the US equity market's high concentration and valuation as a reason to diversify equity exposure across strategies and regions more so than in the past, even as a US overweight still makes sense given GS expectations for still-solid US economic and earnings growth next year. GS Research's Head of Asset Allocation Christian Mueller-Glissmann similarly thinks that high US concentration and valuation argue for reducing the weight of US equities in multi-asset portfolios. However, he also finds that the optimal portfolio could remain the tried-and-true 60/40, though with a different mix of equities and bonds below the surface.

Allison Nathan, Editor

Email: allison.nathan@gs.com
Tel: 212-357-7504
Goldman Sachs & Co. LLC



Interview with David Kostin

David Kostin is Chief US Equity Strategist at Goldman Sachs. Below, he argues that investors should be concerned about high US equity market concentration today as history suggests that high concentration is associated with lower S&P 500 index returns over longer horizons. He therefore recommends non-taxable investors shift some equity assets to track equal-weighted benchmarks.



Allison Nathan: How concentrated is the US equity market today relative to history?

David Kostin: The top ten stocks in the S&P 500 by market capitalization today, which are mainly but not exclusively tech companies, account for around 36% of the total market cap of the index. That compares to an average of around 20% over the 45 years for which we have daily data for this metric, and a prior peak of around 25% at the height of the Dot Com boom in 2000. Another metric of concentration, the market cap of the largest stock relative to the 75th percentile stock—for which we have data spanning the last 100 years—suggests that the current level of concentration is the highest since 1932. So, the S&P 500 index is unusually concentrated today relative to history.

Allison Nathan: So, should investors be concerned about the current level of market concentration?

David Kostin: Investors do not need to be concerned about high market concentration over the short run; we have found no relationship between market concentration and S&P 500 returns over the subsequent week, month, six months, or year—when factors such as valuation, near-term economic and earnings growth, money flow, share buybacks/dividend policy, etc. drive returns—and maintain a 9% forecast for S&P 500 price returns over the next 12 months. But investors should be concerned about market concentration over the longer term, say 10 years, because the historical record suggests that a meaningful relationship exists between market concentration and forward returns, with high concentration associated with lower returns over longer horizons.

Specifically, when forecasting long-run returns using several variables, including valuation, profitability, interest rates, economic fundamentals and, importantly, market concentration, we have found that market concentration is a distinct variable that enhances our long-run return model. To see this, consider that, over the last 100 years, the typical annualized return of the S&P 500 over a 10-year window, which sees an average of five quarters of economic contraction, has been 11%. Over the past decade that has seen only two quarters of economic contraction, the annualized return has been roughly 13.5%. But over the coming decade, even assuming a less-than-average four quarters of economic contraction, our model forecasts S&P 500 annualized returns between -1% and +7%, with an average of 3%. Removing concentration from the model would suggest a return ranging from 3% to 11% with an average of 7%—still below average but much less so—suggesting that concentration alone explains 400bp of the additional drag on returns above and

beyond other factors such as valuation. So, if the historical pattern persists, high concentration today portends much lower S&P 500 returns over the next decade than would have been the case in a less concentrated market.

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Allison Nathan: What’s the intuition behind why high concentration drags on longer-run returns?

David Kostin: The drag intuitively comes from two sources. First, high concentration suggests that forward realized volatility will likely be greater given the narrow group of companies driving the index; any portfolio with a small number of constituents subject to idiosyncratic risk will be more volatile than a broadly diversified portfolio. But, perhaps even more crucially, the high valuations of the stocks driving the high concentration mean that investors are not being sufficiently compensated for this increased risk.

“ The high valuations of the stocks driving the high concentration mean that investors are not being sufficiently compensated for this increased risk.”

To put some numbers on this, these stocks today trade with a negative risk premium, which hasn’t happened in over 20 years, since the Dot Com boom. Back then, the internet companies at the center of the boom traded at 47x earnings, suggesting an earnings yield—the inverse of the earnings multiple—of roughly 2% compared to a 10-year Treasury yield of roughly 6%, which amounted to around a 400bp negative risk premium. Today, the valuation of the leading tech companies is smaller at roughly 31x earnings, the inverse of which is around 3.2%, compared to a 10-year Treasury yield of roughly 4.4%, which amounts to over 100bp of negative risk premium versus the rest of the market that is trading at a positive risk premium. So, these companies are trading at extremely high valuations relative to the risk investors face by owning them. And with these companies returning 42% ytd—accounting for 56% of the index’s return—that risk is large.

Second, driving these exceptionally high valuations are expectations of continued strong long-term earnings growth—on the order of 20%—and persistently high margins. But

history shows that the number of companies that can consistently deliver 20% or greater growth and high margins is extremely small and fades dramatically over time, with almost no companies able to successfully do so over a decade. Putting some numbers around this, over the past four decades, the share of S&P 500 companies that were able to generate 20%+ revenue growth for 10 consecutive years was only around 3%, and only 0.1% of firms were able to maintain EBIT margins of over 50%. So, history suggests that the earnings performance of these companies will likely disappoint current euphoric market expectations over the longer run.

“ History suggests that the earnings performance of these [dominant] companies will likely disappoint current euphoric market expectations over the longer run.”

Allison Nathan: Both of these factors relate back to valuation though, so why doesn't valuation capture the risk that market concentration poses to future returns?

David Kostin: Again, concentration is related to valuation but distinct from it. While concentration and valuation can be correlated at some points, as was the case during the Dot Com boom and is the case today, oftentimes no relationship exists; correlation has ebbed and flowed over the decades, and we have found that less than 10% of the variation in market concentration can be explained by variation in valuation. That's why incorporating concentration as a distinct variable into a model that forecasts long-term returns makes sense—it adds explanatory power to the model.

Allison Nathan: Why is the market underappreciating the risk that high concentration poses to longer-run returns?

David Kostin: That's hard to say. Obviously, some ebullience about the market is at work. But it's difficult to square the level of focus on market concentration I observe from investors and the reality that most investors totally ignore it when forecasting long-run returns. It's particularly head-scratching given that these return assumptions are critically important for the investment strategy and asset allocation decisions of longer-term investors like sovereign wealth funds and especially public pension funds, many of which are dramatically underfunded.

That said, it's worth mentioning that most of these investors nevertheless share our view that S&P 500 annualized returns over the next decade will likely be lower than the 11% average just given the high valuations of the largest companies today. That recognition has led expectations for 10-year returns among longer-term investors to cluster in the 5-8% range, with the average around 6%. Based on my observations, few investors expect average or above-average returns, even if we seem to be on the low end of the range of expectations at 3%.

Allison Nathan: Where could your assumption that current high levels of market concentration will drag on longer-run returns go wrong?

David Kostin: Our analysis is based on historical patterns, and this time could prove different than the past for several reasons. First, generative AI technology could be a more sustainable driver of growth for today's largest companies than we assume. Historically, our long-term return model has proven too pessimistic in periods of rapid technological change. Second, constituent turnover presents some risk. Historically, around 3.5% of S&P 500 constituents turn over every year on average and, since 1980, 36% of S&P 500 constituents have turned over during the average 10-year period. So, the index is continually reconstituted and less successful companies are replaced by new firms that may have better growth prospects. If this pattern persists, faster growing and more profitable companies could enter the index over the next decade, which would boost returns.

And third, demand for US equities from US households—the primary owners of US stocks—could rise. Based on data from the Federal Reserve, the allocation of US household portfolios to equities is around 50%—the highest reported level since the data series began in 1952. These already record-high levels of ownership suggest that this is perhaps a smaller risk than the others we've discussed, but a growing equity-oriented investment culture among households nonetheless presents risk of higher allocations to equities in the years ahead.

“ It's critical to understand that we are **not** saying that equities generally are likely to deliver low returns... the typical stock will likely return 8% over the next decade—500bp greater than the aggregate index.”

Allison Nathan: Given all that, how should equity investors be positioned going forward?

David Kostin: It's critical to understand that we are **not** saying that equities generally are likely to deliver low returns; our analysis suggests that returns for capitalization-weighted indices, like the S&P 500, will likely be substantially lower than average over the next decade—**not** the returns of the average stock, which trades at a lower valuation, etc. today. We estimate that the typical stock will likely return 8% over the next decade—500bp greater than the aggregate index.

For non-taxable investors like sovereign wealth and pension funds, this suggests that an equal-weighted benchmark would provide a better risk-adjusted return for investments in the US public stock market today than a cap-weighted benchmark. And we find that, since 1970, the equal-weighted benchmark has outperformed the cap-weighted S&P 500 index during nearly 80% of rolling 10-year periods. So, at the current moment of high concentration, we recommend that non-taxable investors not only recognize, but act on, the increased risk this concentration poses to long-run returns and shift public equity allocations toward equal-weighted indices.

Interview with Owen Lamont

Owen Lamont is Senior Vice President and Portfolio Manager at Acadian Asset Management LLC. Below, he argues that current investor concerns about elevated US equity market concentration are overblown, and that the more worrying feature of today's stock market is its overvaluation.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs or Acadian Asset Management LLC.



Allison Nathan: How concentrated is the US equity market today in both absolute and relative terms?

Owen Lamont: The top ten firms account for more than 30% of the total market cap of US equities, a level of concentration higher than in 2000 but similar to other points in US history, such as the 1930s, 1950s, or

1960s. By some measures, markets are less concentrated today than historically. In the mid-1950s, just three stocks—IBM, AT&T, and GM—accounted for around 28% of the total market cap of the stock market. And in 1960, a single stock, AT&T, represented 13% of the entire market—roughly double the weight of today's largest stock, Nvidia. So, market concentration is within historical norms for the US.

Relative to international markets, the US stock market is far less concentrated. Some countries in Europe, notably Switzerland and France, have much more concentrated stock markets than the US. In both Taiwan and South Korea, one stock accounts for over 20% of total market cap. And two decades ago, a single stock accounted for over 70% of the Finnish stock market. So, both historically and internationally, the US stock market is not alarmingly concentrated today.

“Both historically and internationally, the US stock market is not alarmingly concentrated today.”

Allison Nathan: So, are current investor concerns about high US market concentration overblown?

Owen Lamont: Yes, totally overblown.

It's certainly true that market concentration has risen over the past decade, but that is mainly a mechanical byproduct of two trends. First, total profits have become more concentrated in the largest firms. So the concentration of market cap is just appropriately reflecting the concentration of fundamentals. Second, mega cap tech firms are somewhat more richly valued than they were ten years ago. Put these two facts together, and they imply that the largest firms have outperformed, and that mechanically makes concentration rise.

There are many reasons to think that the US stock market is overvalued, but concentration isn't one of them. If you want to worry about something, worry about the overvaluation of big growth stocks, not concentration.

Wonderful things have happened to large growth firms in recent years. The underappreciated risk is that normalization takes hold and large growth firms will underperform in the future. But that's not about concentration, that's about mean reversion.

Allison Nathan: But aren't more concentrated markets inherently riskier?

Owen Lamont: No. That argument is the right intuition for constructing individual portfolios, but the wrong intuition for evaluating the riskiness of the market as a whole. It is certainly true that when an individual investor chooses assets to own in their portfolio, bigger weights on a single or small number of assets generally increases risk. But it isn't necessarily true that a more concentrated stock market is riskier. For example, the stock market in the 1950s was more concentrated but arguably safer and less volatile than the stock market today, and the US economy more broadly wasn't especially risky during that period even though one giant phone company, three large automakers, and a handful of big oil companies dominated it.

Ultimately, stock market risk comes from two sources: fundamental risk, or prices departing from fundamentals. And neither one of those necessarily increases when stock market concentration rises. The breakup of AT&T in the early 1980s provides a good example of this point. After many years of legal battles, the Department of Justice (DOJ) forced the company, which was the second largest stock in the US market at the time, to split into several independent firms—one “Ma Bell” became seven “Baby Bells” in 1984. As a result, market concentration declined overnight. But the market didn't become any safer just because seven stocks now existed where before there was one. On the contrary, one monopolistic phone company is arguably *less* risky for investors than seven competing Baby Bells.

Many people also underappreciate the fact that individual companies can be diverse in and of themselves. The Magnificent 7 companies have a vast array of business lines—streaming, e-commerce, cloud storage, etc. And putting a bunch of highly successful, profitable, and relatively uncorrelated businesses into one stock that has significant weight in the index is not, in itself, problematic.

“I don't see a strong historical relationship between the level of market concentration and subsequent performance.”

Allison Nathan: Even if concentrated markets aren't necessarily riskier, do they lead to lower market returns?

Owen Lamont: I don't see a strong historical relationship between the level of market concentration and subsequent performance. The more important determinant of future performance is valuation. And while concentration and valuation have been positively correlated in the past, high valuation is not an inherent feature of highly concentrated markets. Take the tech bubble of the late 1990s, during which a very concentrated market eventually underperformed. The causal mechanism behind the underperformance was not concentration, but rather the expensiveness of the market, and of growth stocks in particular. Expensive stocks—whether they dominate the market or not—historically experience poor future performance.

Many troubling measures suggest that the US stock market is overvalued today, including value spreads, or the price of growth stocks relative to value stocks, which indicate that growth stocks are overpriced. And while that metric does not necessarily speak to the valuation of the market as a whole, it is likely an indication of overexuberance in the broader market. That is the more worrying aspect of today's stock market, not concentration.

“Many troubling measures suggest that the US stock market is overvalued today... That is the more worrying aspect of today's stock market, not concentration.”

Allison Nathan: Some argue that elevated market concentration leads to lower returns because top firms can't maintain high levels of sales growth/profit margins over sustained periods. How concerned are you about an eventual deceleration in today's dominant firms?

Owen Lamont: The top firms of today will probably decelerate over time. But that has little to do with their size relative to the rest of the market, and more to do with, as you noted, an eventual deterioration in their fundamentals as well as their expensive valuations. While the recent period has been somewhat anomalous in that the companies dominating the market today have done so for the last decade, big growth stocks eventually underperform as their profits mean-revert and their stock prices return to fundamentals. But that is not especially concerning. Creative destruction is an inevitable part of the American experience. The firms that were important to the US economy 30 years ago are not the firms that are important today. And 30 years from now a whole new set of firms—not the Magnificent 7—will very likely be generating jobs and profits and dominating the economy. So, I am not overly concerned about individual firms doing poorly; it's part of how our system works.

Allison Nathan: Concerns about market concentration and the power of the dominant firms has led to a wave of antitrust efforts. Are you concerned that these efforts could lead to company breakups and lower returns?

Owen Lamont: It's not clear that a straight line exists between a stock comprising a large part of the US market and that stock

becoming the target of antitrust concerns. The aim of antitrust policy is to halt anticompetitive practices, not the success of large companies just because they're large and successful. So, it's a stretch to say that the rising market cap of a company will necessarily make it a target of antitrust action.

That said, it is clear that while some government-mandated breakups may be good for society, they are not necessarily good for investors. If a company would function better by being broken up into separate, smaller companies, shareholders would have already done precisely that. Again, consider the breakup of AT&T in the 1980s. If holding seven Baby Bells was better than holding one big monopolistic phone company, shareholders should have voluntarily acted to split up the company. Similarly, I see no reason why breaking up the Magnificent 7 into the Magnificent 49 would benefit investors today. So, the potential for more antitrust action is a concern for investors.

Allison Nathan: Are you concerned about concentration risk in that it's a significant amount of market cap in the hands of just a few individuals that run these large firms?

Owen Lamont: That's a valid concern, but not a new one. In the 1950s, the CEO of General Motors, Charles Wilson—who eventually became Secretary of Defense under President Eisenhower—controlled far more of the US economy and stock market than any CEO in America today.

And it is possible for one individual to control two separate listed firms, in which case concentration does not reflect individual-specific risk. If you are worried about one individual running amuck, concentration is not the right way to measure the problem.

Allison Nathan: So, you're not concerned about concentration, but you are concerned about valuation. What does that mean for the likely return profile of equities over the next decade?

Owen Lamont: Given that the US stock market is expensive today and, as we discussed, expensive stocks historically have experienced low subsequent returns, equities will likely deliver lower returns in the next decade compared to the previous one.

Allison Nathan: What else should investors be concerned about?

Owen Lamont: Aside from well-known geopolitical risks, AI technology is the great wildcard of the next decade. This technology has the power to be as transformative as the rise of the internet in the 1990s, and likely more so. The internet significantly altered the landscape of the stock market, destroying some firms—like Blockbuster—while creating previously unimagined ones. But, in the process, it generated a huge market bubble that eventually burst. AI could follow the same pattern, setting the market up for an eventual downturn. I am already seeing some signs of a bubble today.

On the other hand, if the benefits of AI technology broaden out to smaller companies, a sharp turnaround in underperforming small cap value stocks could lift the broader market. So, I see both massive AI-related upside and downside risks for the US stock market in the next 5-10 years.

US equity market concentration...

The 10 largest stocks in the S&P 500 currently account for over a third of total market cap

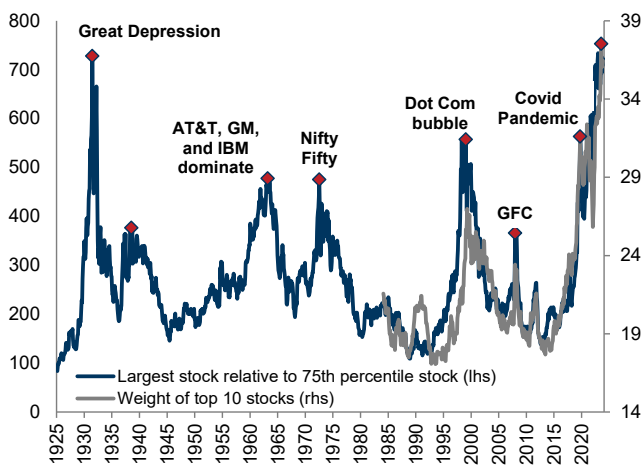
Market cap of 10 largest S&P 500 firms, % of index total



Source: FactSet, Compustat, Goldman Sachs GIR.

US equity market concentration today is particularly high relative to history

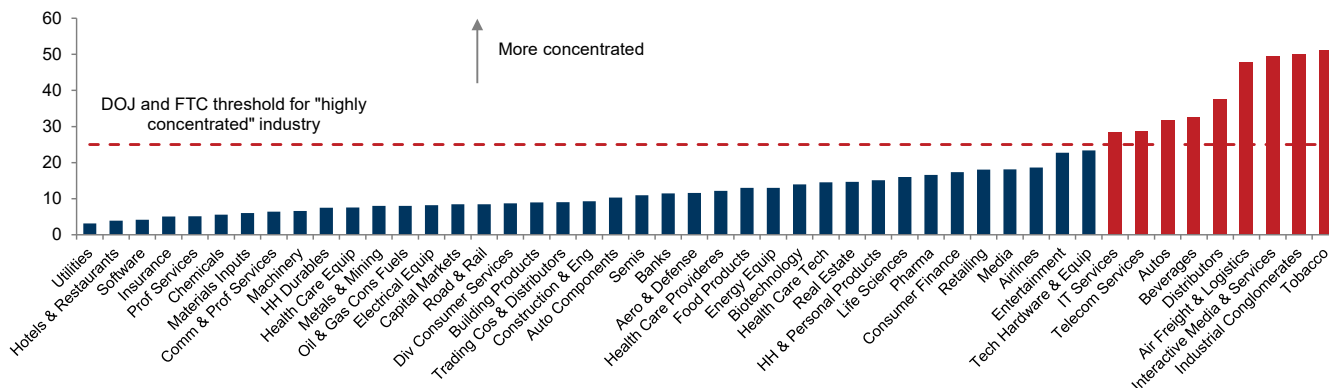
Market cap of the largest stock relative to 75th percentile stock (x, lhs), weight of top 10 stocks in S&P 500 (%), rhs)*



*Consists of US stocks with price, shares, and revenue data listed on the NYSE, AMEX, or NASDAQ. Series prior to 1985 estimated based on data from Kenneth French data library reflecting the market cap distribution of NYSE stocks. Source: Compustat, CRSP, Kenneth French, Goldman Sachs GIR.

According to the Herfindahl-Hirschman Index, another common measure of market concentration, the most concentrated areas of the US equity market today are tobacco, industrial conglomerates, and interactive media & services...

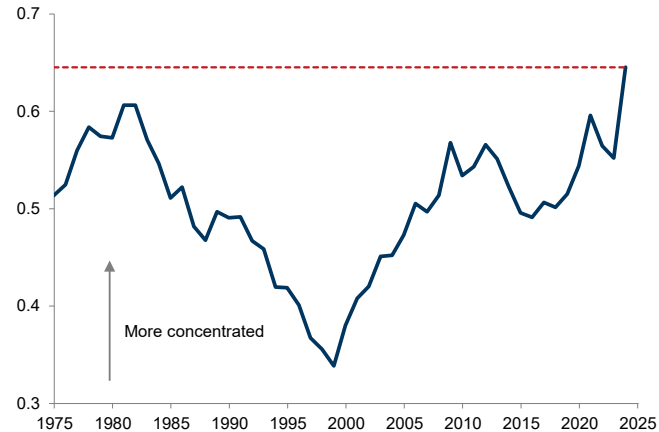
Current Herfindahl-Hirschman Index (HHI) across the public US equity market by industry (based on 2023 US sales)*



*Universe is S&P Total Market Index using GICS level 2 and 3 industries. Source: Compustat, Goldman Sachs GIR

...though the HHI for the market as a whole is high

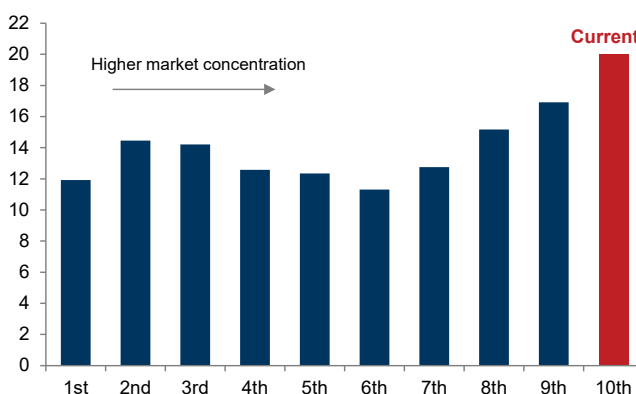
HHI for the US equity market, based on total annual sales*



*Universe is publicly-listed US companies. HHI is calculated by summing the squares of each firm's share of total sales in a given year. Source: Compustat, Goldman Sachs GIR.

Higher market concentration is associated with higher volatility...

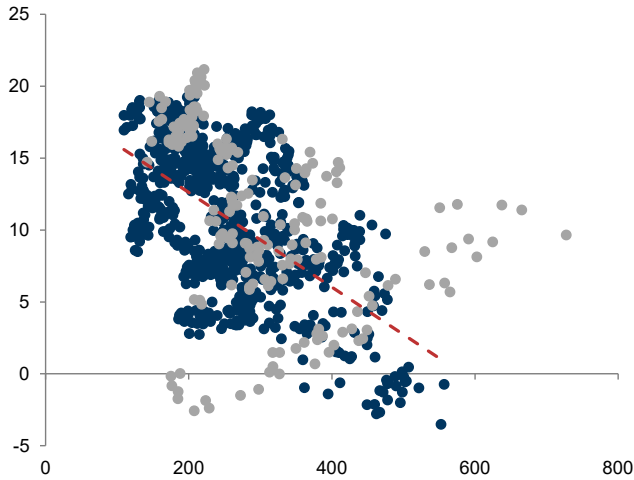
S&P 500 1y forward realized volatility (y-axis) based on starting level of market concentration (x-axis, decile) (1930-2024)



Source: Goldman Sachs GIR.

...in pics

...as well as with lower forward returns
S&P 500 market concentration (x-axis, x) vs. 10-year annualized forward return (y-axis, %)



Note: Market concentration is defined as the market cap of the largest stock relative to the 75th percentile stock; grey observations are recessions.
Source: Goldman Sachs GIR.

...and the valuations of these stocks have risen significantly...
Median company P/E multiple



Source: Compustat, Goldman Sachs GIR.

...compared to the top stocks in either 1973...
Characteristics of largest stocks in 1973

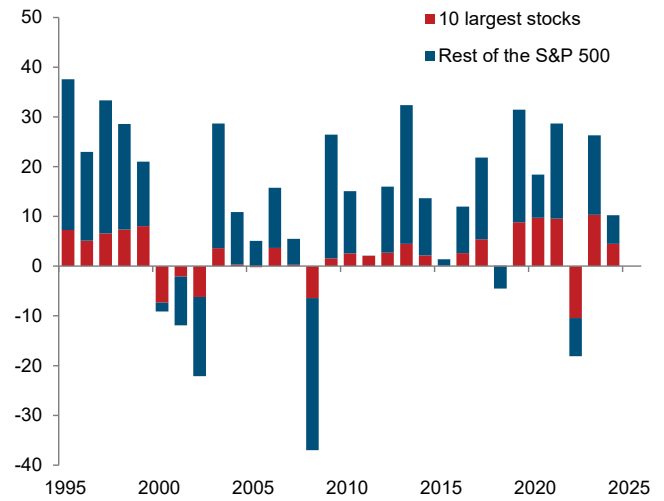
Largest stocks in 1973							
Company	Sector	Market cap		P/E ratio		Trailing 12m profits	
		\$bn	% of S&P 500	Last 12m	Next 12m	ROE	Net margin
IBM	Info Tech	\$47	7%	38x		18%	13%
Eastman Kodak	Info Tech	24	4	48		20	15
Exxon	Energy	20	3	13		12	7
Sears Roebuck	Consumer Dis	18	3	31		14	5
General Electric	Industrials	13	2	26		18	5
Xerox	Info Tech	12	2	49		21	11
Texaco	Energy	10	2	12		13	10
Minnesota Mining & Mfg	Industrials	10	2	41		19	12
Procter & Gamble	Consumer Staples	9	1	32		18	8
Coca-Cola	Consumer Staples	9	1	48		24	10
Top 10 total / median		\$171	27%	35x		18%	10%

Source: Compustat, FactSet, Goldman Sachs GIR.

Special thanks to the US Portfolio Strategy team for all charts.

The 10 largest stocks have been significant drivers of the aggregate S&P 500 return in recent years...

Contribution to annual S&P 500 return, pp



Source: Goldman Sachs GIR.

...though today's leaders generally have relatively high profit margins and returns on equity...

Characteristics of largest stocks in 2024

Largest stocks in 2024							
Company	Sector	Market cap		P/E ratio		Trailing 12m profits	
		\$bn	% of S&P 500	Last 12m	Next 12m	ROE	Net margin
NVIDIA	Info Tech	\$3,608	7%	56x	36x	81%	54%
Apple	Info Tech	3,474	7	36	30	163	24
Microsoft	Info Tech	3,069	6	34	30	31	36
Amazon.com	Consumer Dis	1,853	4	41	33	18	8
Alphabet	Comm Services	1,795	4	22	19	29	28
Meta Platforms	Comm Services	1,230	2	26	22	31	35
Tesla	Consumer Dis	942	2	136	105	12	8
Berkshire Hathaway	Financials	865	2	24	24	7	17
Broadcom	Info Tech	763	2	33	26	34	46
JPMorgan Chase	Financials	696	1	13	14	16	31
Top 10 total / median		\$18,296	36%	33x	28x	30%	29%

Source: Compustat, FactSet, Goldman Sachs GIR.

...or 2000

Characteristics of largest stocks in 2000

Largest stocks in 2000							
Company	Sector	Market cap		P/E ratio		Trailing 12m profits	
		\$bn	% of S&P 500	Last 12m	Next 12m	ROE	Net margin
Microsoft	Info Tech	\$557	4%	65x	60x	29%	39%
Cisco Systems	Info Tech	533	4	181	133	22	20
General Electric	Industrials	513	4	50	43	26	9
Intel	Info Tech	442	3	57	45	27	26
Exxon Mobil	Energy	271	2	31	22	18	5
Walmart	Consumer Staples	252	2	45	39	23	3
Oracle	Info Tech	222	2	150	108	41	15
IBM	Info Tech	212	2	36	27	30	7
Citigroup	Financials	202	2	18	19	24	13
Lucent Technologies	Info Tech	196	2	77	41	20	9
Top 10 total / median		\$3,398	27%	53x	42x	25%	11%

Source: Compustat, FactSet, Goldman Sachs GIR.

Interview with Noah Phillips

Noah Phillips served as Commissioner of the Federal Trade Commission from 2018 to 2022 and is Co-Chair of the Antitrust Practice at Cravath. Below, he discusses the workings of US antitrust policy and what may lie ahead for antitrust under the new administration, arguing that investors looking for less regulatory scrutiny of big tech firms may be disappointed.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Allison Nathan: Which institutions are responsible for antitrust initiatives in the US today, and how do their roles differ?

Noah Phillips: The US oddly has two government agencies responsible for antitrust enforcement and policymaking, and much of their jurisdictions overlap: the Department of Justice (DOJ) and the Federal Trade Commission (FTC). Both bring conduct—involving alleged anticompetitive behaviors—and merger cases. But several important differences exist between the two. One, their processes. Take mergers as an example. The DOJ brings cases to block mergers in federal court, whereas the FTC typically brings two merger cases—one in federal court and the other in its in-house administrative court, with the federal case to enjoin the merger so the FTC can resolve the case in its administrative court. Two, their structures. At the DOJ, the assistant attorney general for the Antitrust Division leads antitrust efforts on the agency's behalf. At the FTC, five commissioners, one of whom is the chair and directs the staff, run the agency.

Three, the legal statutes they enforce. The DOJ enforces the Sherman Antitrust Act and the Clayton Antitrust Act, Section 7 of which is the federal merger statute. The FTC enforces the Clayton Act as well but also Section 5 of the FTC Act, which “prohibits unfair methods of competition”. Section 5 is broader than the Sherman Act, though how much broader has been a matter of debate for over a century. And four, the industries they focus on, which is generally more a matter of historical precedent than law—except in a few areas such as common carriers, where the FTC is barred by statute from involvement. Over time, for example, the DOJ has come to focus on media and energy transmission and production, while the FTC has come to focus on pharmaceuticals and oil and gas. But in a lot of sectors, including tech, the lines are not clearly drawn. In the rare case when the agencies can't decide who should deal with a merger, they literally flip a coin, which happened once during my time as FTC Commissioner.

Allison Nathan: To what extent does the US president have authority in the antitrust arena?

Noah Phillips: The president's main authority in this arena is over appointments. The president can appoint the assistant attorney general and his/her superiors in the DOJ as well as FTC commissioners, so long as the positions of the latter are open. That's important to note because FTC commissioners' terms don't necessarily align with elections or the transfer of power between administrations. And because the FTC is an independent agency in the scheme of the federal government, under prevailing law, the president can't fire FTC

commissioners for policy differences—only for cause—and the commissioners can't be forced to step down when a new president is elected. That said, the FTC chair has historically stepped down when a new president assumes office to allow that president to effectuate his policy views via a new chair. The president can designate a new chair from among the commissioners. But a degree of leadership continuity still exists, as many or all of the non-chair commissioners stay on.

The DOJ leadership isn't statutorily protected from firing by the president, so the DOJ is less independent, although the agency has generally been protected from White House involvement since the Nixon years. That said, on day one of a new administration, political appointees at the head of government agencies and divisions such as the DOJ typically step down and different political appointees and some career officials temporarily step in until new senior leadership are confirmed.

The president can also guide antitrust policy through his/her actions. Over the years, presidents have exercised this authority to varying degrees. President Biden was very focused on competition early in his term and adopted a “whole-of-government” approach to competition policy, issuing an [Executive Order](#) in 2021 that directed many federal agencies, including the FTC and DOJ, to take action against dozens of practices identified by the Administration and established the White House Competition Council, with Biden also appointing a special assistant for competition policy, Tim Wu, to coordinate the whole effort. So, the president can play a strong role in the antitrust arena.

Allison Nathan: So, what will likely happen at the FTC and DOJ now that Trump has been reelected?

Noah Phillips: The fact that FTC Chair Lina Khan's term recently expired wouldn't force her to step down until the lengthy process of appointing and confirming a new commissioner takes place, but she is most likely to observe the historical norm and do so. That would leave the FTC with an even split of two Republican commissioners, Melissa Holyoak and Andrew Ferguson, and two Democratic commissioners, Rebecca Kelly Slaughter and Alvaro Bedoya. So, in the immediate term, while Trump will likely designate a new chair or acting chair from among the remaining commissioners, given that they agree on the overwhelming bulk of matters and decisions are made by majority vote, it will probably be largely business as usual at the FTC. Trump filling the open fifth commissioner slot would break any possible tie regardless of whether that person comes in as the new chair or a non-chair commissioner. But that probably wouldn't happen for months given that the Senate must confirm FTC commissioners. At the DOJ, Assistant Attorney General for the Antitrust Division Jonathan Kanter will also likely step down, setting the stage for

Trump's appointee to take the helm as soon as the Senate confirms them.

Allison Nathan: You served as FTC Commissioner for four years that spanned the Trump and Biden Administrations. How did antitrust policy and enforcement evolve over the two administrations?

Noah Phillips: Biden's Executive Order purported to shift US antitrust policy to a more interventionist and aggressive stance relative to the prior several decades in response to rising economic populism that featured concerns about the conduct and power of large corporations. This shift in approach was visible along several dimensions, from the rhetoric the White House and enforcers used, to the types of cases the agencies brought, to the policy statements they adopted, to the Administration's "whole-of-government" strategy.

But, as a practical matter, the biggest change the Biden Administration brought to merger control was its aversion to remedies—deals that the parties in a case agree to in order to address concerns about competition. The DOJ's current public position is that it doesn't do remedies, although it has been forced to in a few cases. The FTC, by contrast, issued a [policy in 2021](#) stating that it would do remedies, but only if the surviving party agreed to seek prior approval before closing any future deals; the government would no longer have to challenge a deal to block it. While the FTC hasn't fully abided by that policy, for example, allowing Exxon to acquire Pioneer and Chevron to acquire Hess without including prior approval requirements, most of the agreements the FTC has struck in merger cases have involved such requirements.

All that said, as much as the Biden Administration has strived to strike a different tone on antitrust, the reality is that the road toward more aggressive policy and enforcement began before it. While it's not often characterized as such, antitrust enforcement was fairly aggressive during the first Trump Administration, which blocked many mergers and oversaw the initiation of monopolization cases, including the DOJ's case against Google as well as the FTC's case against Facebook. So, not nearly as much daylight exists between Biden's and Trump term one's approaches to antitrust as the former envisioned and as many people seem to think. There is also reason to believe that Trump term two will be closer to Biden than Trump term one.

Allison Nathan: So, are investors that expect less regulatory scrutiny of big tech firms under the new administration likely to be disappointed?

Noah Phillips: Yes. Some variations in antitrust policy and the basis for enforcement may occur, but the appetite to scrutinize large firms, especially tech firms, will probably remain given that the political salience of economic populism has only grown since Trump's first term. An underappreciated but consequential issue to watch will be how regulators' approach to remedies evolves—will they do remedies, and what kind? For every case that the FTC or DOJ files, whether it ends up in liability—meaning, the company has been found legally responsible for violating antitrust laws—or the parties reach an agreement to settle the case, the agencies need to have a view on the appropriate remedies. And regulators could find

themselves in a fraught situation because the expectations of them could differ from the public posture of the agency. For example, in an interview before the election, Trump suggested that he would not support breaking up Google, despite the DOJ's current public position that it is seeking Google's breakup now that it has been found liable in a court of law. Whether that changes will be important to watch and will largely depend on who ends up running these efforts at the DOJ under Trump. If Trump wants the DOJ to switch course on the Google case, he would likely attempt to appoint someone who shares that view.

Allison Nathan: Several other cases against big tech firms, including the FTC's case against Amazon and the DOJ's case against Apple, are pending. What could happen to those cases?

Noah Phillips: Each agency will need to decide whether they want to drop, settle, or continue to prosecute their respective cases, and what outcome they hope to achieve by doing so. At the DOJ, the fate of each case will largely depend on what the new assistant attorney general for Antitrust wants to do. At the FTC, if a majority of the Commission can't come to an agreement on a pending case, the case will continue. That said, the FTC chair has the ability to steer much of what the staff does, which includes the government's litigating position. So, the new chair could decide to include some remedies in the case filing, that he/she doesn't want to make a certain argument, or, at the extreme, to tell the court that he/she doesn't believe the FTC has the power to take a certain action, just as the Republican commissioners did when the FTC tried to ban non-competes.

Allison Nathan: What sectors beyond tech are worth keeping an eye on in terms of how antitrust policy may evolve during Trump's second term?

Noah Phillips: Many sectors—not just big tech—have been the objects of antitrust scrutiny under the Biden Administration; in general, that may well continue. However, some sectors were also singled out in odds ways that may not continue, such as the way in which the FTC allowed the Exxon-Pioneer and Chevron-Hess mergers to proceed. Private equity is another area to watch. Even though it wasn't mentioned in Biden's Executive Order, both Lina Khan and Jonathan Kanter have been very focused on private equity and skeptical of the business model. Whether that continues under Trump is an open question.

Allison Nathan: What will you be watching to gauge the direction of antitrust policy and enforcement ahead?

Noah Phillips: I will be closely watching whom Trump nominates for the open FTC and DOJ positions, which will give some indication of where antitrust policy and enforcement may be headed. At the end of the day, though, the headlines about how permissive the Trump Administration could be in its second term will probably prove too bullish. As we've discussed, there is substantial reason to believe that the Trump Administration will remain fairly aggressive in the pursuit of antitrust prosecutions and blocking mergers in the tech sector and beyond.

Interview with Thomas Philippon

Thomas Philippon is the Max L. Heine Professor of Finance at New York University's Stern School of Business and author of *The Great Reversal: How America Gave Up on Free Markets*. Below, he makes the case that while higher industry concentration is not always harmful, the rise of "bad" concentration in the US has hurt consumers and the economy, which argues for ensuring fierce competition among firms in the tech industry and AI space.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Jenny Grimberg: How concentrated are US industries today?

Thomas Philippon: US industries are currently more concentrated than they have been since the post-war period, but concentration should be evaluated on an industry-by-industry basis, because the relevant market will differ depending on the industry. Using a US

consolidated measure of concentration to determine how concentrated the restaurant industry is makes no sense because people don't eat at restaurants across the country from them, but using a consolidated measure for the telecoms industry does make sense, as few people would purchase a phone that only works in their zip code. Most US industries fall somewhere in between these two extremes. According to this method, concentration has increased in 75% of US industries since 2000. But the degree of concentration varies significantly across industries. The tech industry always comes to mind as the quintessential highly concentrated industry, but some retail, wholesale trade, and transportation industries are also quite concentrated, and in many cases, concentration has reached fairly high levels relative to history.

Jenny Grimberg: Is higher industry concentration necessarily a bad thing?

Thomas Philippon: No. Concentration can be "good" or "bad". After Apple launched the iPhone in 2007, its share of the smartphone market rose significantly and, as a result, the industry became more concentrated. But that was clearly a positive development because it was the direct consequence of Apple inventing a great product. Walmart also became a dominant player in the supermarket sector in the 1990s for a good reason—it offered lower prices than its competitors thanks to its more efficient supply chain. Good concentration can also be linked to trade. The European car industry, for example, is still quite competitive, but the number of independent firms has declined over recent decades because some firms have merged, not to gain undue advantage but rather in response to global competition.

By contrast, bad concentration occurs when incumbent firms try to protect their market share by preventing competitors from entering the market or when firms merge and then use their increased market power to raise prices. Good concentration is a feature of many markets, including the US, Europe, and Japan. But bad concentration is more of a US-specific phenomenon.

Jenny Grimberg: Why has the US experienced more bad concentration than other countries?

Thomas Philippon: The increase in bad concentration in the US is the result of high barriers to entry in some industries and unchecked mergers in others. The US wireless market is a good example of both. New firms find it difficult to enter the wireless market because cellphone plans must cover a significant share of the population, which can be extremely costly. Regulators can facilitate entry by, for example, mandating that new entrants be allowed to rent part of an existing network while they build up capacity to eventually offer their own services, which is the approach French regulators took several years ago. As a result, French cellphone bills went from being roughly 50% higher to 50% lower than in the US, where regulators essentially forgot the antitrust playbook they had invented and took the opposite approach, allowing several cellphone company mergers that drove prices higher.

This is a problem because high cellphone bills—together with expensive high-speed internet bills—are killing US household budgets, which was entirely avoidable. The US wireless market probably could have remained competitive even with as little as four, five, or six players; an industry doesn't need dozens of firms to be competitive. But decades of mergers have left just a few players in the wireless industry, similar to the US airline industry, where mergers have whittled down the number of carriers servicing specific routes, resulting in high prices, in contrast to Europe where fierce competition among many carriers has resulted in relatively low fares.

Jenny Grimberg: Has the rise in bad concentration been a net negative for the US economy?

Thomas Philippon: It has undoubtedly been a net negative for consumers. Whether that is also true for the broader economy is a more complicated question, with the answer essentially boiling down to the impact of concentration on investment. In theory, it can go either way. It is possible for concentration to spur higher investment because some markets have significant fixed costs, and to recoup those costs, firms must be able to enjoy healthy profit margins. But competition also forces firms to invest and innovate to survive. Barriers to entry would then lower investment. Empirically, we see that when competition increases, firms may take a hit on margins or cut their dividends, but they don't slash their capital expenditures and, if anything, increase them. So, the investment rate is actually higher when firms compete more. For that reason, I'm fairly confident that bad concentration negatively affects not just consumers, but the economy as a whole.

Jenny Grimberg: Big tech firms are the focal point of current concerns about market concentration. How unique are these companies in terms of their size and the factors behind their success compared to past superstar firms?

Thomas Philippon: They aren't particularly unique in either sense. IBM and AT&T are two former superstar companies that were monopolies in their respective industries in the mid-to-late 20th century. Apple's sales relative to US GDP are currently only slightly higher than IBM's and AT&T's were back then, and Apple's sales as a share of global GDP are roughly the same as those of the two former superstars. So, while big tech firms have undoubtedly earned their moniker, they are not unusually large by historical standards. It's also long been the case that superstar firms earned their success through innovation and efficiency, and the same is true of Apple, Google, Facebook, etc. So, these firms aren't anything new under the sun and therefore shouldn't be treated any differently than every successful firm in the past: their success should be welcomed, but they cannot be allowed to flout the rules or abuse their market power because of it.

Jenny Grimberg: So, how would you characterize the role of regulators in scrutinizing these firms?

Thomas Philippon: It's difficult to find a US company that became big without being innovative, but it's also difficult to find a company that became big and then didn't try to abuse its market power. Ultimately, that problem can be resolved in one of two ways—by the market or by government intervention. In the case of Walmart, Amazon entered the market in the early 2000s, effectively disrupting Walmart's dominance. And today, the US supermarket industry is comprised of a handful of large, efficient firms that compete fiercely, resulting in low retail prices.

When the market can't solve the problem, regulators must step in. Unfortunately, the historical record shows that these remedies tend to come too late—by the time the government stepped in to rein in Microsoft in the late 1990s, its competitor, Netscape, was already dead. However, regulatory action can still enable the next round of innovation. It's probably not a coincidence that the tech industry experienced its most innovative decade following the *US vs. Microsoft* trial. Before the trial, Microsoft was buying up every competitor it could get its hands on and left unchecked, this buying spree likely would've continued. So, Google and Facebook may never have had an opportunity to become Google and Facebook. The same is true of today's big tech firms. Regulatory action will undoubtedly come too late to undo the harm these companies have inflicted on potential competitors over the last several years, but such action can still make room for new competitors to grow and thrive.

Jenny Grimberg: But hasn't the US been so innovative and dynamic in large part because US regulators have not clamped down on companies? Europe, for example, strictly enforces antitrust laws and has few world-class companies.

Thomas Philippon: I strongly disagree on the causality here. Apple was at its most innovative the year before it launched the iPhone, when the company wasn't nearly big enough in the smartphone space to warrant regulatory scrutiny. Google was most innovative when it was developing its first search algorithm, which, similarly, occurred when the company had little market power. So, the argument that the US' innovation and dynamism owes to lax antitrust enforcement is misplaced. On the contrary, breaking up monopolies and ensuring healthy

competition is what *helped* make the US economy the most dynamic in the world. But that wasn't the only factor; top universities, an ecosystem between those universities and private R&D, and an integrated market that allows firms to scale up quickly are also a key part of why the US is home to so many world-class companies. Europe, by contrast, lacks a single market and an ecosystem of innovation, so the idea that Europe would suddenly become a hub of innovation if it could just "fix" its antitrust policies is crazy. In reality, as discussed, these policies are increasing competition and innovation; it's these other factors that are missing from Europe's economy.

All that said, the ideal antitrust policy is one that allows firms to have some market power while also ensuring that competition remains fierce. The optimal level of monopoly rent is not zero, as firms must have some monopoly power in order to recoup their costs. But fierce competition motivates companies to innovate. Apple arguably began developing innovative products like the iMac because it was desperate to survive following several years of financial difficulties amid intense competition from more successful rivals like Microsoft. So, it's all about balance when it comes to crafting the right antitrust policy to encourage the creation of new and innovative firms.

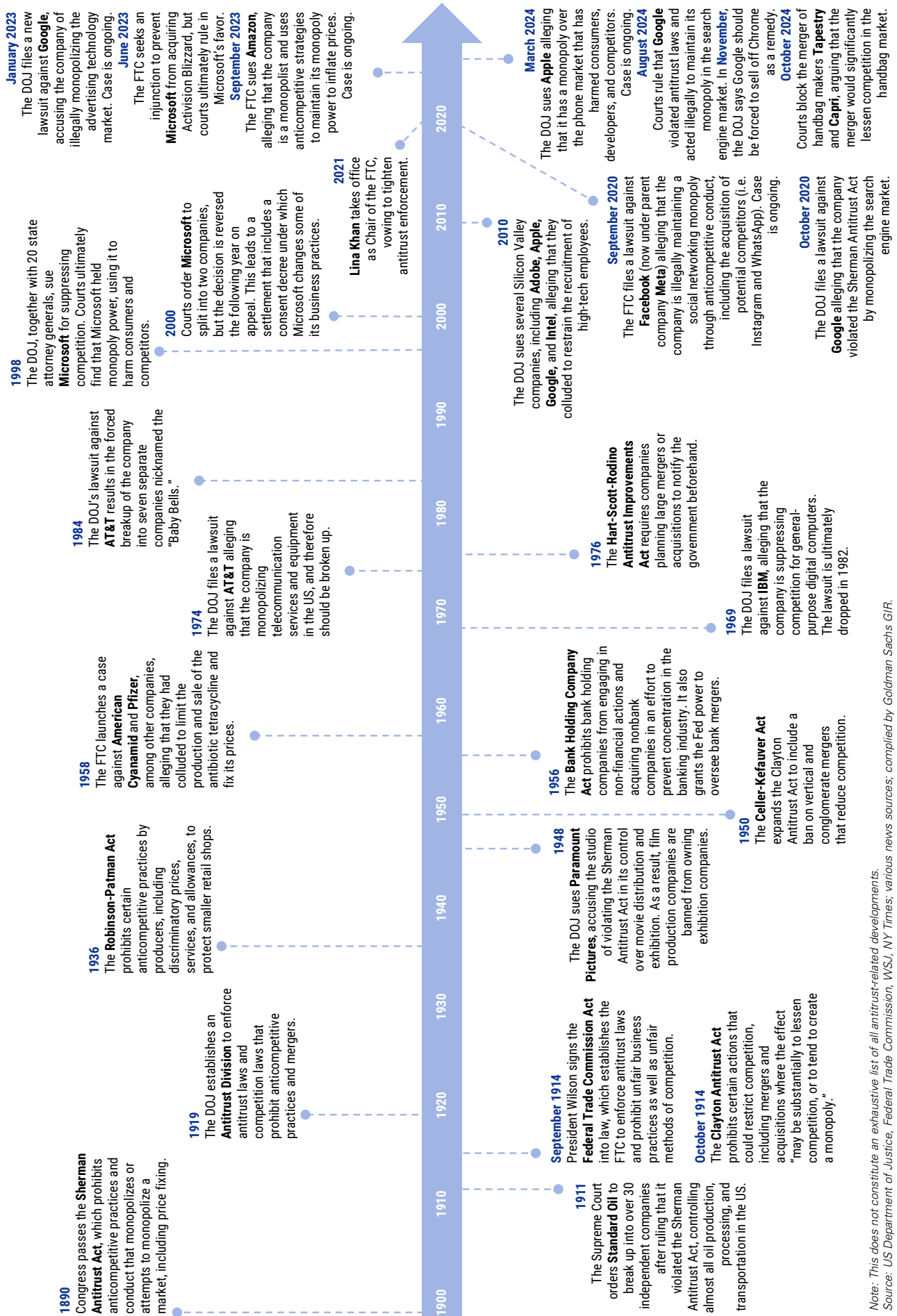
Jenny Grimberg: Some investors are concerned about today's high level of market concentration because history suggests that dominant firms ultimately lose their dominance. Are such concerns warranted?

Thomas Philippon: Yes and no. Past superstar companies are, in many cases, still the dominant players in their respective industries. GM and Ford are still two of America's largest car manufacturers, and AT&T remains among the top firms in the telecoms business. Ultimately, industries exhibit a strong vintage effect, with the firms born at the time of a technical revolution tending to remain dominant in their industry. So, in all likelihood, Apple will retain its dominance in cellphone manufacturing, Google in search, etc. That said, past superstar firms no longer dominate the US stock market and economy as the leading-edge industry has changed owing to the nature of innovation. And whether today's tech giants will dominate the next innovative frontier, which seems likely to revolve in some way around AI, is an open question. The next AI breakthrough will probably not come from feeding even more data into large language models—which favors large incumbent firms due to the significant costs associated with doing so—but rather the development of better/smarter algorithms, which doesn't inherently favor a Google vs. a startup or a company that doesn't even exist yet.

Jenny Grimberg: What would it mean for the US economy if today's tech giants come to dominate the AI space and, conversely, if they don't?

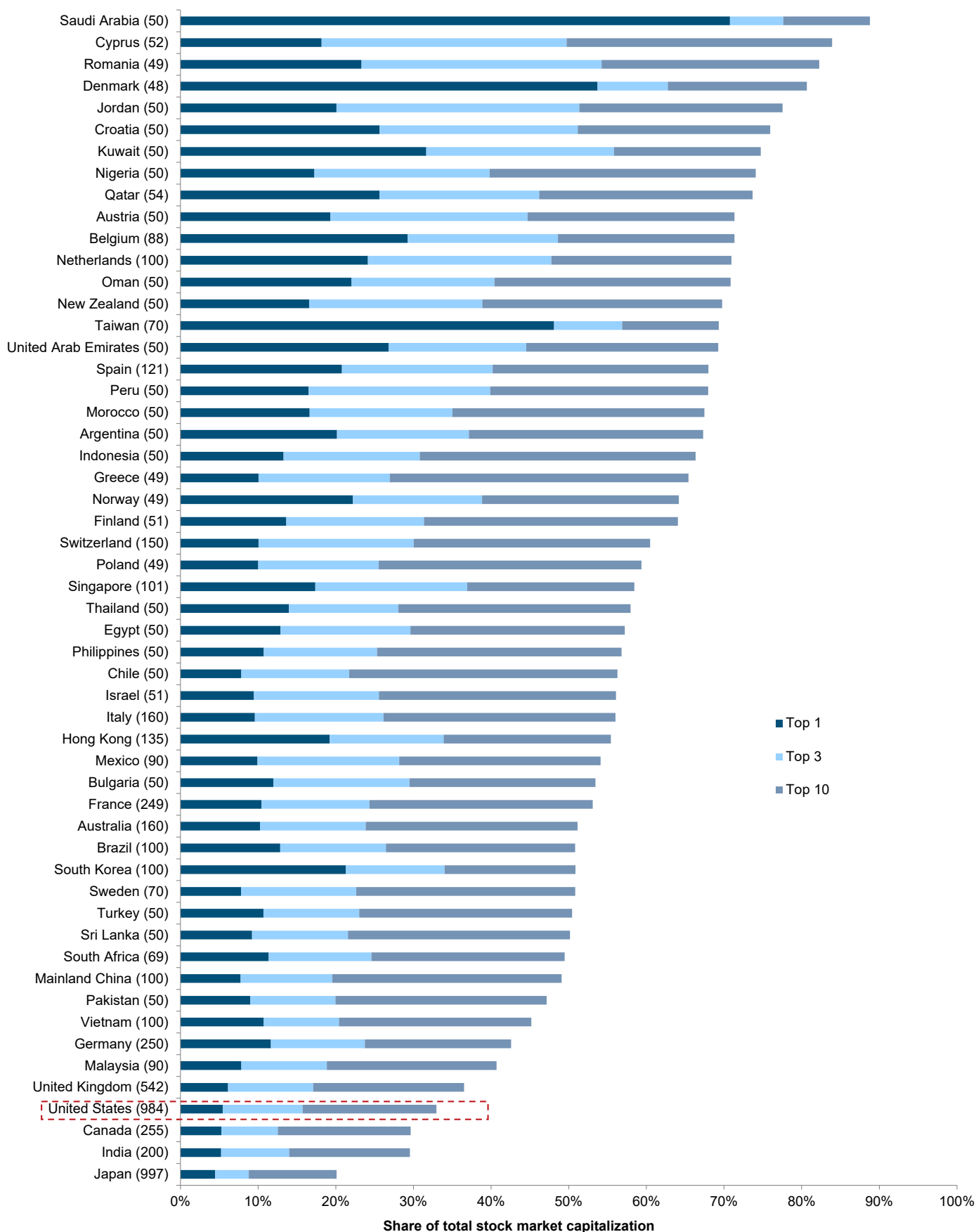
Thomas Philippon: It would ultimately depend on why they dominate—because they were the most innovative companies in the space, or because high barriers to entry or lax antitrust enforcement stifled competition? As we've discussed, the answer will determine the impacts on consumers and the broader economy. Remember: fierce competition benefits consumers and improves—not harms—innovation, thereby benefitting the US economy. So, whether tech giants dominate will be just as important to watch as *why* they dominate.

A history of US antitrust regulation



Note: This does not constitute an exhaustive list of all antitrust-related developments. Source: US Department of Justice, Federal Trade Commission, WSJ, NY Times; various news sources; compiled by Goldman Sachs G/I.R.

A look at market concentration, globally



Note: Market concentration measured by share of total market capitalization of the top 1, 3, and 10 stocks within each economy's equity market; only includes economies with at least 45 listed companies; figures in parentheses represent the number of listed companies in that economy. Source: Datastream, Worldscope, Goldman Sachs GIR.

Special thanks to Senior European Portfolio Strategist Guillaume Jaisson for chart.

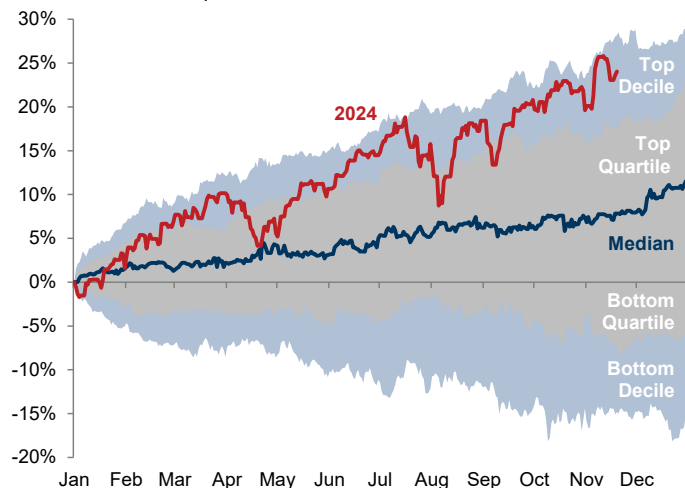
Diversify to amplify

Peter Oppenheimer argues that equity investors should look to diversify across regions and strategies given the US equity market’s high concentration and valuation

The rise in the S&P 500 in 2024 has been one of the strongest since 1928. Even more strikingly, since the current equity upswing began in October 2023 on optimism about peak inflation and the prospect of a Fed pivot, the MSCI World index is up nearly 40% in price terms alone (and around 60% since the trough triggered by rising interest rates in 2022), the NASDAQ has climbed over 50%, and the world’s biggest company, Nvidia, has surged over 250%.

The S&P’s rise this year has been one of the strongest since 1928

Calendarized S&P 500 performance since 1928



Source: Bloomberg, Datastream, Goldman Sachs GIR.

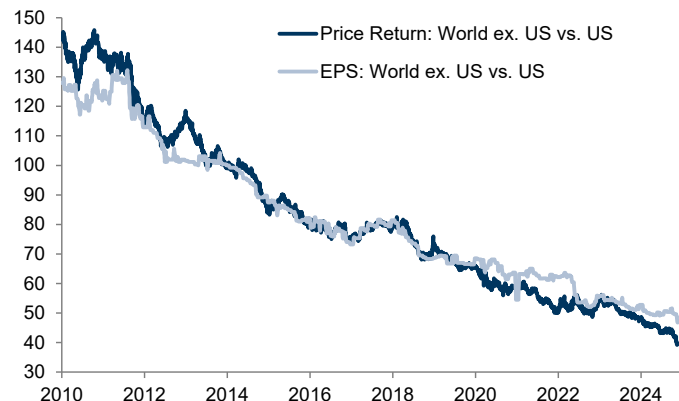
Profit growth has been a key driver of these spectacular returns, as has valuation expansion; around half of the equity return globally in 2024 owes to rising valuation, driven by growing optimism in lower inflation and interest rates. But another factor has been an increasingly concentrated equity market, which raises risk to investors.

Concentration comes in 3s, none of them speculative

This concentration has taken three forms, which are all linked by and to profitability. First, since 2010, the US equity market has become bigger relative to the rest of the world’s stock markets, which have experienced less profit growth. Second, technology has dominated equity market returns because the profitability of the sector has far outstripped other sectors over the same period. And third, stock concentration has increased, particularly in the US, in large part due to the preponderance of highly profitable US technology companies, which have become bigger and a larger share of the market, in large part owing to this strong profitability.

The US stock market has outgrown the rest of the world in terms of earnings

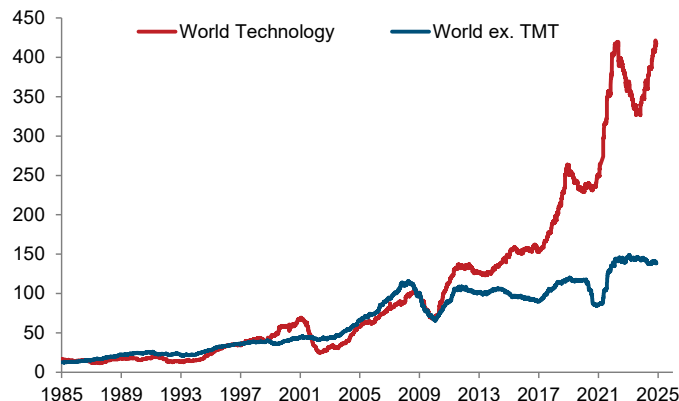
Price return and 12m forward EPS in local currency, index. Jan 2014=100



Source: Datastream, STOXX, Goldman Sachs GIR.

Tech earnings have outstripped those of the global market

12m Trailing EPS (USD), index. Jan 2009=100

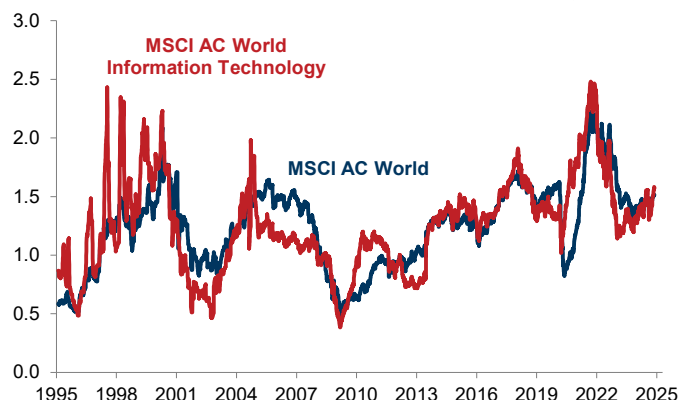


Source: Datastream, Worldscope, Goldman Sachs GIR.

Importantly, these forms of concentration are not speculative, but are instead backed by fundamentals. This is especially true of large US technology companies, whose market prominence reflects premium fundamentals, not excessive valuation. In numbers, the PEG ratio (valuation relative to expected growth) for the technology sector is in line with the rest of the equity complex.

The technology sector’s PEG ratio is in line with the rest of the equity complex

PEG ratio (12m forward P/E divided by second 12m forward EPS growth)

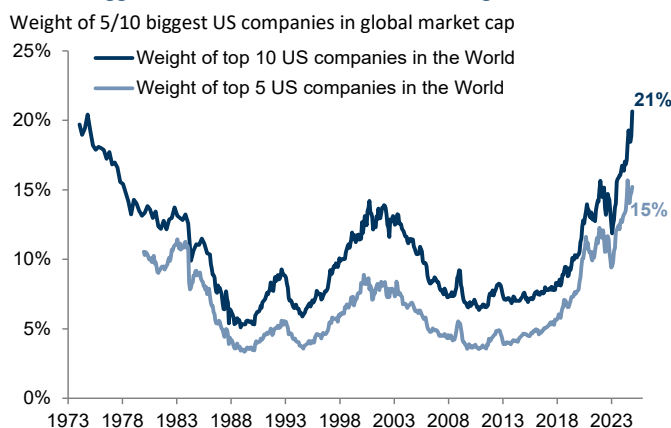


Source: Datastream, Goldman Sachs GIR.

The valuation of the largest technology companies, while high relative to the rest of the equity market's, is also much lower than was the case for dominant companies during previous bubbles. For example, valuations of the dominant companies during the technology bubble were roughly twice the average of the Magnificent 7 today. The valuations of the biggest companies in Japan during the late 1980s bubble (when Japan's equity market was bigger than that of the US) were much higher than the current valuations of the Magnificent 7.

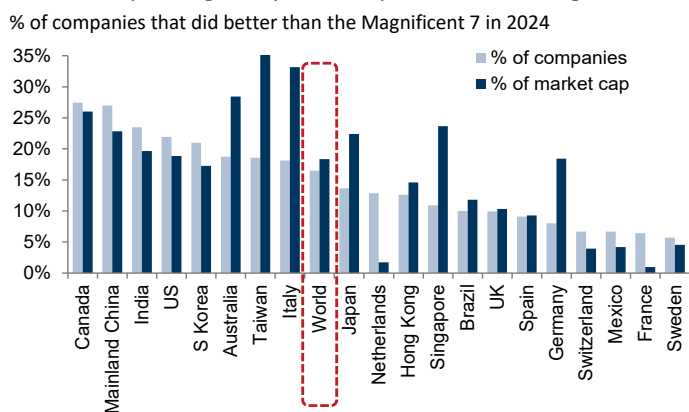
Nonetheless, this relentless rise in relative size has left the US equity market accounting for around 70% of the MSCI AC World index and the 10 biggest US stocks accounting for over 20% of the entire value of the global index.

The 10 biggest US stocks account for >20% of global index value



Source: Datastream, Goldman Sachs GIR.

17% of companies globally have outperformed the Mag 7



Source: Datastream, Goldman Sachs GIR.

Concentration risks

While these companies may continue to be strong performers, there are risks that their relative growth rates may slow, undermining their and the broader index's performance. Mega cap tech has increasingly shifted from being a relatively capital-light sector to a capital-intensive one. The prospective return on this invested capital will likely fade over time, particularly as other companies are able to piggyback off of this capital spend to scale new products and services at a lower cost. Historically at least, it has been difficult for any firm to maintain high sales growth and profit margins over sustained periods. During the past 40 years, the share of companies that have been able to grow sales at a rate of 20% faded sharply over a decade, and only 3% of firms maintained this pace of growth for 10 years

(see pgs. 4-5). Our US strategists also note that <1% of firms maintained EBIT margins of >50% for 10 consecutive years. Despite this historical context, consensus long-term growth expectations for the 10 largest S&P 500 stocks are currently in the 99th percentile relative to the past two decades.

Diversify across strategies and regions to amplify

We don't believe these high growth expectations are a reason to underweight large cap tech, as we don't think these firms are in a valuation bubble. But we do think this high valuation, coupled with unusually concentrated markets, makes a compelling case for diversifying exposure to a greater extent in 2025 than in recent years to enhance risk-adjusted returns.

Within technology, this diversification may be achieved by adding exposure beyond the dominant hyperscalers, and our US strategists emphasize the opportunity in Phase 3 AI beneficiaries. Outside of technology, diversification could take the form of broadening participation, for example, via the equal-weight S&P 500 (SPW) and the S&P 400 (MID). The long-term outperformance of these alternatives suggests that the strength of the US economy and the earnings and innovative capacity of US corporates can be captured outside of large-cap and capitalization-weighted indices. These alternative indices are also likely to benefit more than mega cap tech from falling interest rates given that the largest companies (often with strong balance sheets) disproportionately boosted returns during the period of rising interest rates. So, expectations of lower interest rates suggest that the contribution of index returns should widen. Outside of the US, barbell strategies that offer a balance between quality growth and deep value (such as telecoms or real estate in Europe) also provide diversification opportunities.

Another means of diversifying and broadening participation is through growth companies across a diverse group of sectors and markets outside of the technology sector. Such "Ex Tech Compounding" (ETCs), which have a solid track record of high and stable revenues, margins, and cash flows, underperformed the MSCI AC World index in the recent period of rising interest rates and have de-rated much more than large cap technology. The realized volatility of the ETCs is notably lower, at 2x less than that of the Magnificent 7. So, from a portfolio construction perspective, the ETCs can help boost the Sharpe ratio of a portfolio and mitigate risks if volatility increases.

Broadening exposure geographically also offers select diversification opportunities despite our confidence in the continued solid performance of the US economy and equity market. Our equity market forecasts are relatively similar across regions, with our highest return forecasts in Japan (where we are overweight), driven by EPS growth rather than multiple expansion and the tailwind of a weak Yen. And some pockets of deep value exist globally, with the UK, selected EMs, and China all having particularly low PEG ratios. Again, we do not view this as a reason to overweight these markets at the expense of US exposure. But we do see opportunities to find selective undervalued companies in these and other markets.

Peter Oppenheimer, Chief Global Equity Strategist

Email: peter.oppenheimer@gs.com
Tel: 44-20-7552-5782

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Optimal portfolios amid high concentration

Christian Mueller-Glissmann makes the case that, despite high concentration arguing for lower equity allocations, the optimal portfolio could remain the 60/40, with some tweaks

Potential headwinds to S&P 500 long-term returns from high levels of market concentration have raised the question of what the optimal portfolio will look like over the coming decade. Historically, roughly 60% equities/40% bonds has been the optimal asset mix, though that has varied significantly over time, with the optimal mix shifting to 100% equities following the Covid pandemic. High concentration and the resulting lower long-term equity returns (see pgs. 4-5) argue for reducing the weight of equities in multi-asset portfolios ahead. However, the optimal portfolio could remain the tried-and-true 60/40, though with a different mix of equities and bonds below the surface.

A shifting optimal asset mix

Structural macro conditions have historically been a key driver of the optimal asset mix. Periods in which the optimal mix consisted of low equity allocations usually owed to low inflation or stagnation boosting risk-adjusted bond returns, such as during the Great Depression, WWII, the Tech Bubble burst, and the Global Financial Crisis (GFC). Conversely, periods in which the optimal mix consisted of *high* equity allocations owed to elevated inflation weighing on bonds, such as in the 1970s and 2022, or favorable macro conditions boosting equities, including the productivity growth years of the 1950s, 1960s, and 1990s. Equity-only investors achieved similar or better risk-adjusted returns—as measured by Sharpe ratios—than 60/40 investors during 1908-1922 and 1955-1990. Strong equity returns vs. bonds, more positive equity/bond correlations, and higher rates volatility have also heavily skewed the optimal asset mix toward equities since the Covid crisis.

In the last 10 years, the S&P 500 has posted returns above the long-run average owing to tailwinds from rising corporate profitability and valuation expansion. While the US experienced relatively low growth post the GFC, the corporate sector materially outgrew the economy as the fast-growing US tech sector, falling interest costs, low labor cost inflation, tax cuts, and share buybacks fueled an increase in corporate profitability. Rising corporate profitability, coupled with the generally low and anchored inflation regime of the last several decades, in turn boosted equity valuations, with S&P 500 Shiller P/Es reaching fresh highs in recent years.

A higher return on equity (ROE), boosted by higher profit margins, helps explain the uptrend of the S&P 500 Shiller P/E since the 1990s. But one of the side effects of rising ROEs has been higher market concentration—the two are linked, with the Mag 7 responsible for a large part of the corporate profitability uplift.

High concentration argues for lower equity allocations...

The question for investors today is whether that will remain the case over the next decade in light of the high degree of equity

market concentration. High concentration increases portfolio risk, with the top 10 stocks in the S&P 500 currently accounting for nearly half of the index's volatility. And beyond the higher volatility, high concentration, should it reverse, could weigh on the S&P 500 ROE and, in turn, longer-term returns.

Unsurprisingly, we find¹ that the optimal weight of equities in multi-asset portfolios is lower when expected S&P 500 ROE is lower. And in cases when ROE declines, the optimal equity allocation falls well below long-run averages, with bonds making up the bulk of the optimal portfolio.

...but bonds aren't necessarily the answer

However, the solution to high market concentration isn't as simple as lowering equity allocations and increasing bond allocations. While bonds would provide protection in the event of weaker equity returns, larger bond allocations increase a portfolio's vulnerability to inflation and fiscal risks. We see more value in increasing exposure to growth equity—stocks exposed to productivity growth—and, at the same time, to real assets, both of which can provide diversification benefits for portfolios in extreme structural cycle scenarios, such as periods of high productivity growth fueled by technological revolutions (when growth equity would likely outperform) or stagflation/stagnation (when real assets would likely become a key diversifier).

That said, even if the structural cycle is favorable to equities, a key challenge is that equities tend to anticipate higher productivity growth before it materializes, resulting in increased risk of overpaying. And with US growth and tech stock valuations already elevated, investors will need to be selective in their hunt for the beneficiaries of future technological revolutions. The opposite is true for real assets as markets have faded inflation risks across assets in the past two years. Assets such as inflation-indexed bonds (TIPS) are pricing relatively little inflation risk for the next decade, and real estate/infrastructure stocks trade at relatively discounted valuations.

The road leads back to 60/40, but with some tweaks

As a result, the optimal asset mix for the next decade could well be one-third growth equity, one-third bonds, and one-third real assets. Real assets might include stocks with pricing power in areas such as infrastructure, real estate, and commodities, meaning that multi-asset investors could allocate an additional 20% of their portfolios toward stocks on top of the growth equity investments, with the balance of real assets potentially allocated toward TIPS or gold. This would lead back to a roughly 60/40 portfolio, though such portfolios would look different below the surface than they have historically as investors tailor their equity and bond exposures to account for the two trends likely to shape the world economy ahead: higher inflation risk on the back of deglobalization, decarbonization, and demographic changes and the potential for AI or other innovations to drive a productivity revolution.

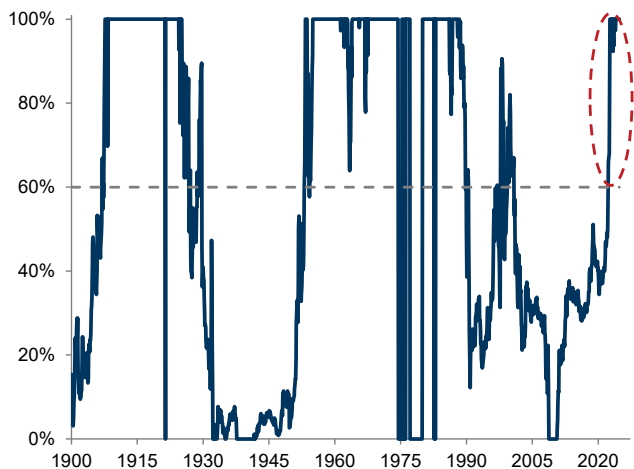
Christian Mueller-Glissmann, Head of Asset Allocation Research

Email: christian.mueller-glissmann@gs.com
Tel: 44-20-7774-1714

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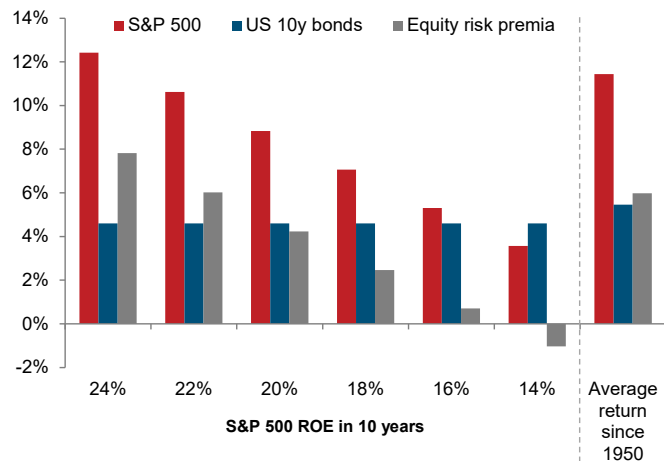
¹ Using our macro-based strategic tilting framework, which estimates the optimal asset mix in a balanced portfolio based on the structural growth-inflation mix and ROE and incorporates relative return, relative risk, correlations, and the return of cash.

The optimal asset mix has shifted significantly over time
Optimal portfolio weight of S&P 500 in a balanced portfolio over a 10y rolling horizon, %



Source: Haver Analytics, Goldman Sachs GIR.

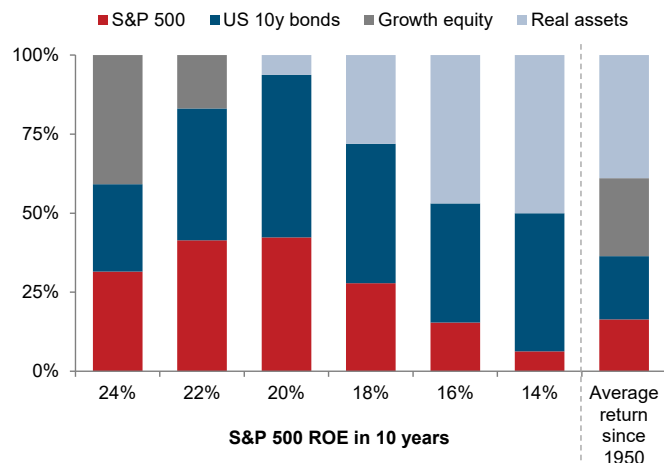
Lower ROEs would be a major drag on long-term S&P 500 returns
10y total return forecasts



Source: Haver Analytics, Goldman Sachs GIR.

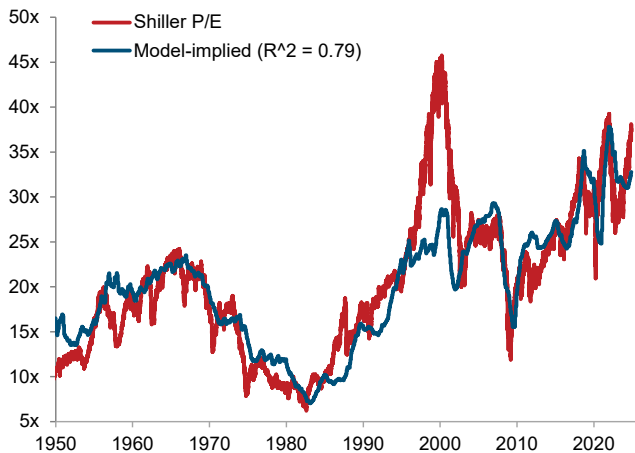
Higher allocations to real assets can help manage inflation risk and create more balance in multi-asset portfolios

Optimal asset mix including growth equity and real assets



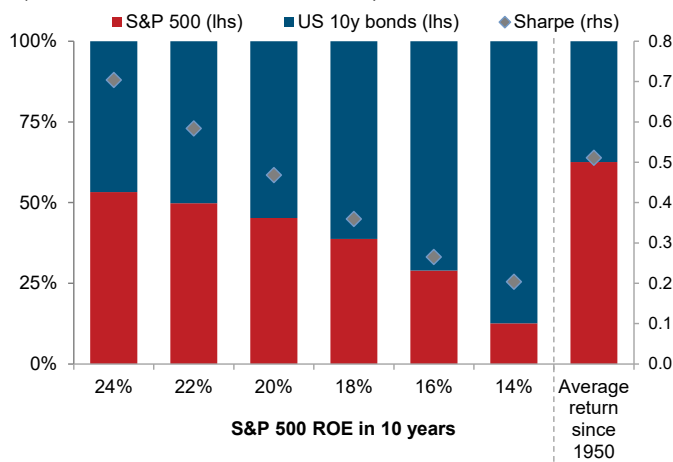
Source: Haver Analytics, Goldman Sachs GIR.

S&P 500 Shiller P/E's have trended up over the last 35 years due to favorable inflation regimes and rising corporate profitability
S&P 500 Shiller P/E fair value model based on 10y average inflation and LTM ROE



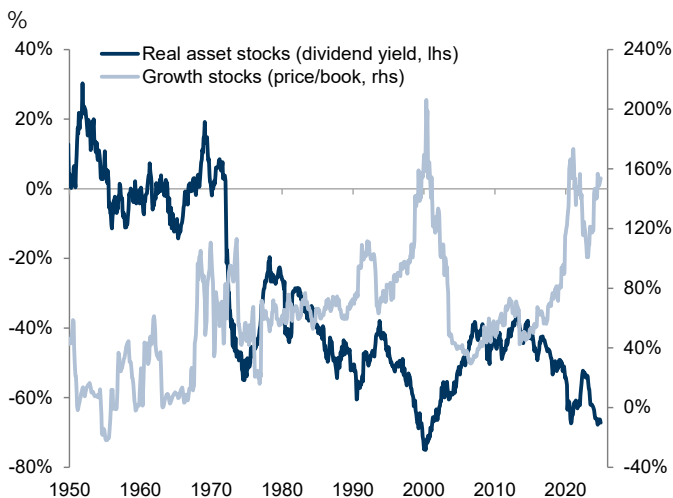
Source: Haver Analytics, Kenneth French, Robert Shiller, Goldman Sachs GIR.

The optimal equity allocation in most forward scenarios is much lower than over the last decade, especially if ROE is lower
Optimal asset mix for the next 10 years



Source: Haver Analytics, Goldman Sachs GIR.

Growth stocks trade at a premium to the market, while real asset stocks look inexpensive



Source: Haver Analytics, Kenneth French, FactSet, Goldman Sachs GIR.

Summary of our key forecasts

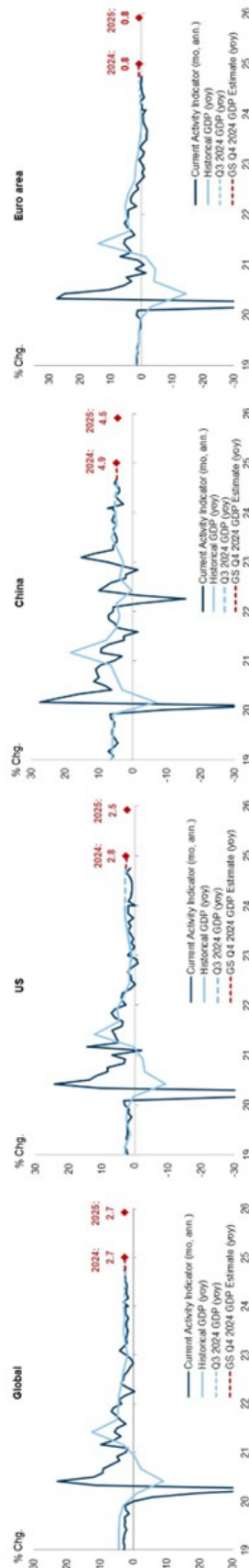
GS GIR: Macro at a glance

Watching

- **Globally**, we expect solid real GDP growth of 2.7% yoy in 2025, reflecting tailwinds from real disposable household income growth and easing financial conditions amid continued rate cuts, with US growth likely to continue outpacing its DM peers given its significantly stronger productivity growth. We expect global core inflation to converge toward 2% by end-2025 on the back of subdued core goods inflation, a further decline in shelter inflation, and steady wage disinflation.
- **In the US**, we expect above-consensus real GDP growth of 2.5% yoy in 2025, reflecting robust real income growth, easing financial conditions, and strong productivity growth. We expect core PCE inflation to slow to 2.4% by December 2025, reflecting further cooling in shelter inflation and easing wage pressures but a moderate boost from higher tariffs. We expect the unemployment rate to decline gradually to 3.9% by end-2025.
- **We expect the Fed** to deliver consecutive 25bp cuts in December, January, and March before slowing the pace of cuts to every other meeting, for two final 25bp cuts in June and September 2025 to a terminal rate range of 3.25-3.5%, although we see some risk that the FOMC could slow the pace sooner.
- **In the Euro area**, we expect below-consensus real GDP growth of 0.8% yoy in 2025, reflecting continued structural headwinds in the manufacturing sector—including high energy prices and competitive pressures from China—higher trade policy uncertainty, and ongoing fiscal consolidation. We expect headline and core inflation to return to 2% sustainably by end-2025, driven by a further cooling in services inflation.
- **We expect the ECB** to deliver a 25bp cut in December, followed by continued sequential 25bp cuts until the policy rate reaches 1.75% in July 2025, although we see a low hurdle for a step-up to 50bp cuts in December if Euro area growth and inflation data disappoint notably.
- **In China**, we expect real GDP growth to slow to 4.5% yoy in 2025 as the recent significant step-up in policy easing measures only partially offsets weak domestic consumption, the ongoing property market downturn, and likely higher US tariffs. Over the longer term, we remain cautious on China's growth outlook given several structural challenges, including deteriorating demographics, a multi-year debt deleveraging trend, and global supply chain de-risking.
- **WATCH US POLICY AND CONFLICT IN THE MIDDLE EAST.** Trump's second term will likely bring important policy shifts, including higher China and auto tariffs, lower immigration, some fresh tax cuts, and regulatory easing. In the US, we expect the growth boost from lower taxes to be roughly offset by the drag from higher tariffs, but we expect larger growth drags from tariffs in Europe and China, especially in the case of an across-the-board tariff. The conflict in the Middle East also remains highly uncertain and further escalation could send oil prices substantially higher.

Goldman Sachs Global Investment Research.

Growth



Source: Haver Analytics, Goldman Sachs Global Investment Research.
 Note: GS CAI is a measure of current growth. For more information on the methodology of the CAI please see "Improving Our Within-Month CAI Forecasts," Global Economics Comment, Mar. 06, 2023.

Forecasts

Economics	2024				2025				Markets													
	GS (Q4/Q4)	Cons. (Q4/Q4)	GS (CY)	Cons. (CY)	Last	E2024	E2025	FX	Last	3m	12m	S&P 500	E2024	E2025	GS	Cons.	GS	Cons.	12m	YTD	E2024 P/E	
GDP growth (%)	Global	2.7	--	2.7	2.7	4.41	4.30	4.25	EUR/\$	1.04	1.03	Price	6,000	6,500	6,500	25.1	25.3x	S&P 500	9	25.1	25.3x	
Policy rates (%)	US	2.5	2.4	2.6	2.7	2.25	2.20	1.90	GBP/\$	1.25	1.30	EPS	\$241	\$242	\$288	9	9.2	MX/APJ	9	9.2	14.8x	
	Euro area	4.9	4.9	4.5	4.5	1.08	1.10	1.60	\$/JPY	155	159	Growth	8%	9%	11%	14%	14%	Topix	15	14.0	15.8x	
	China	1.1	1.1	0.8	0.8	4.33	4.25	4.00	\$/CNY	7.22	7.40	7.50	Consumer	2024	2025	2024	2025	Wage Tracker	4	6.2	14.2x	
	Japan	0.25	0.37	0.75	0.73	2.695	2.670	2.930	Credit (bp)	Last	2025	40/25	Unemp. Rate (%)	2024	2025	2024 (%)	2025	Q1	Q2	Q3	Q4	
Commodities	Crude Oil, Brent (\$/bbl)	75	75	74	74	3.13	3.00	3.25	USD	IG	78	83	85	US	2.6	4.1	2.5	3.9	4.5	4.5	4.3	--
	Nat Gas, NYMEX (\$/mmBtu)	46.90	42	38	38	48.90	42	38	HY	258	290	300	Euro area	2.3	6.5	2.0	6.7	--	--	--	--	
	Nat Gas, TTF (EUR/MWh)	8.848	9.600	10.660	10.660	EUR	IG	120	121	125	China	0.4	--	0.8	--	--	--	--	--	--	--	--
	Copper (\$/mt)	2.695	2.670	2.930	2.930	Gold (\$/troy oz)	333	338	350	HY	333	338	350	China	0.4	--	0.8	--	--	--	--	--

Market pricing as of November 22, 2024

Source: Bloomberg, Goldman Sachs Global Investment Research. For important disclosures, see the Disclosure Appendix at www.gs.com/research/hedge.html.

Glossary of GS proprietary indices

Current Activity Indicator (CAI)

GS CAIs measure the growth signal in a broad range of weekly and monthly indicators, offering an alternative to Gross Domestic Product (GDP). GDP is an imperfect guide to current activity: In most countries, it is only available quarterly and is released with a substantial delay, and its initial estimates are often heavily revised. GDP also ignores important measures of real activity, such as employment and the purchasing managers' indexes (PMIs). All of these problems reduce the effectiveness of GDP for investment and policy decisions. Our CAIs aim to address GDP's shortcomings and provide a timelier read on the pace of growth.

For more, see our CAI page and Global Economics Analyst: Trackin' All Over the World – Our New Global CAI, 25 February 2017.

Dynamic Equilibrium Exchange Rates (DEER)

The GSDEER framework establishes an equilibrium (or "fair") value of the real exchange rate based on relative productivity and terms-of-trade differentials.

For more, see our GSDEER page, Global Economics Paper No. 227: Finding Fair Value in EM FX, 26 January 2016, and Global Markets Analyst: A Look at Valuation Across G10 FX, 29 June 2017.

Financial Conditions Index (FCI)

GS FCIs gauge the "looseness" or "tightness" of financial conditions across the world's major economies, incorporating variables that directly affect spending on domestically produced goods and services. FCIs can provide valuable information about the economic growth outlook and the direct and indirect effects of monetary policy on real economic activity.

FCIs for the G10 economies are calculated as a weighted average of a policy rate, a long-term risk-free bond yield, a corporate credit spread, an equity price variable, and a trade-weighted exchange rate; the Euro area FCI also includes a sovereign credit spread. The weights mirror the effects of the financial variables on real GDP growth in our models over a one-year horizon. FCIs for emerging markets are calculated as a weighted average of a short-term interest rate, a long-term swap rate, a CDS spread, an equity price variable, a trade-weighted exchange rate, and—in economies with large foreign-currency-denominated debt stocks—a debt-weighted exchange rate index.

For more, see our FCI page, Global Economics Analyst: Our New G10 Financial Conditions Indices, 20 April 2017, and Global Economics Analyst: Tracking EM Financial Conditions – Our New FCIs, 6 October 2017.

Goldman Sachs Analyst Index (GSAI)

The US GSAI is based on a monthly survey of GS equity analysts to obtain their assessments of business conditions in the industries they follow. The results provide timely "bottom-up" information about US economic activity to supplement and cross-check our analysis of "top-down" data. Based on analysts' responses, we create a diffusion index for economic activity comparable to the ISM's indexes for activity in the manufacturing and nonmanufacturing sectors.

Macro-Data Assessment Platform (MAP)

GS MAP scores facilitate rapid interpretation of new data releases for economic indicators worldwide. MAP summarizes the importance of a specific data release (i.e., its historical correlation with GDP) and the degree of surprise relative to the consensus forecast. The sign on the degree of surprise characterizes underperformance with a negative number and outperformance with a positive number. Each of these two components is ranked on a scale from 0 to 5, with the MAP score being the product of the two, i.e., from -25 to +25. For example, a MAP score of +20 (5;+4) would indicate that the data has a very high correlation to GDP (5) and that it came out well above consensus expectations (+4), for a total MAP value of +20.

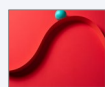
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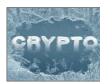
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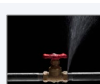
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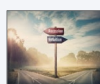
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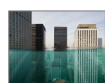
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Reg AC

We, Allison Nathan, Jenny Grimberg, Ashley Rhodes, David Kostin, Peter Oppenheimer, and Christian Mueller-Glissmann, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

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