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Semiquincententacles

The US grip on markets on the 250th anniversary of the Declaration of Independence

Behold the Aquilaceph, half-bald eagle and half-octopus. On the semiquincentennial 250th anniversary of the US Declaration of Independence, this imaginary beast is a metaphor for the continued US grip on financial markets. In this special issue we look at the details: US reserve currency status, capital flows, the much anticipated but still unprofitable "Sell America" trade, US corporate profitability and productivity in the age of AI, investing in Security & Resilience, equity market concentration, energy independence and the revival of the US IPO market. The biggest medium-term concerns for investors in US assets, other than the sustainability of the US Federal debt and cyclical inflationary pressures: the increased unpredictability in the rule of law, and government defunding of science and sidelining of scientific expertise.

By **Michael Cembalest** | Chairman of Market and Investment Strategy for J.P. Morgan Asset & Wealth Management

Semiquincententacles: the US grip on markets on the 250th anniversary of the Declaration of Independence

Introduction

Behold the Aquilaceph, half-bald eagle and half-octopus. On the semiquincentennial 250th anniversary of the US Declaration of Independence, this imaginary beast is a metaphor for the continued US grip on global markets. In this special issue we look at the details: US reserve currency status, capital flows, the much anticipated but still unprofitable "Sell America" trade, US corporate profitability and productivity in the age of AI, investing in Security & Resilience, equity market concentration, energy independence and the revival of the US IPO market. The biggest medium-term concerns for investors in US assets, other than the sustainability of the US Federal debt and cyclical inflationary pressures[1]: the increased unpredictability in the rule of law, and government defunding of science and sidelining of scientific expertise.

Michael Cembalest
JP Morgan Asset Management

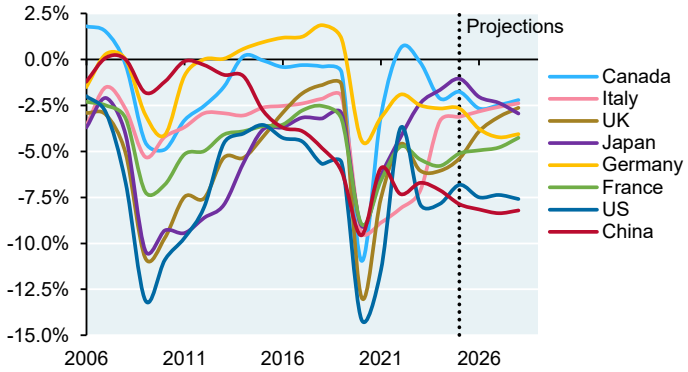
Contents

[1] We covered the inflation challenges facing the new Fed Chair in our *Home Alone* piece on May 26, 2026. Our main conclusion: current US economic conditions are closer to prior periods of Fed tightening than easing.

[1] The dollar's grip on reserve currency status defies the usual suspects

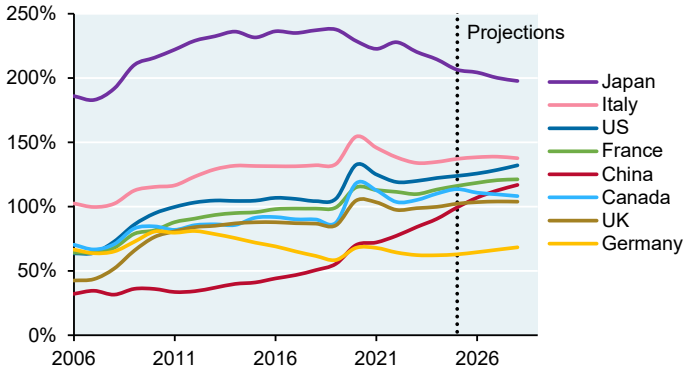
When US dollar doomsayers lay out their arguments, the charts below are the usual suspects: high US budget deficits, a US debt to GDP ratio which has risen from 60% to 125% in the last twenty years[2], and increasing instances of US sanctions on foreign governments, companies and individuals (which presumably reduces the willingness of non-US entities to hold dollar assets). Note that China, often cited as the reserve currency of the future, looks no better than the US on debt and deficit metrics.

Government budget deficits
Share of GDP



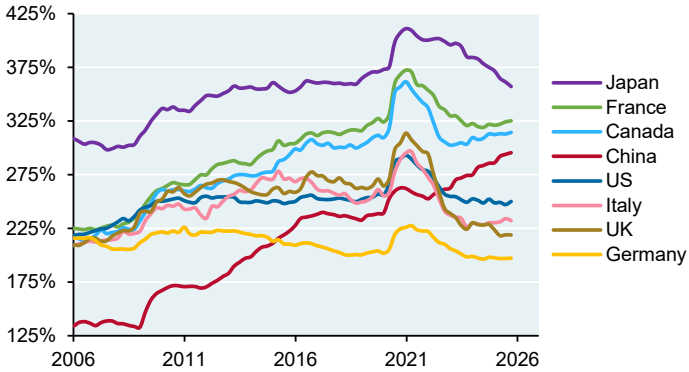
Source: IMF, JPMAM, 2025. Includes federal, state and local government

General government gross debt
Share of GDP



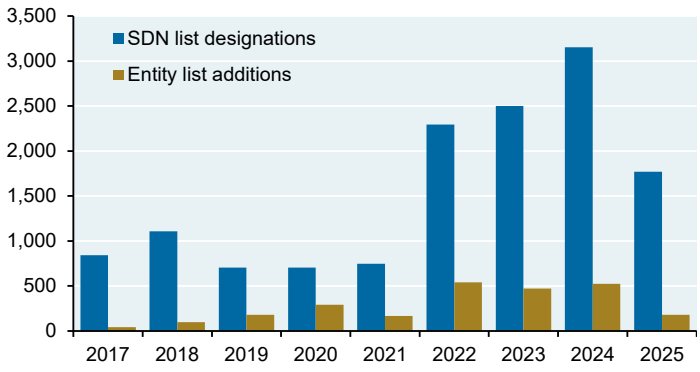
Source: IMF, JPMAM, 2025. Includes federal, state and local government

Total household, nonfinancial corporate and govt debt
Percent of GDP



Source: BIS, JPMAM, Q3 2025

Specially Designated Nationals & Blocked Persons (SDN) List designations & Entity List additions, Number per year



Source: Center for a New American Security, January 29, 2026

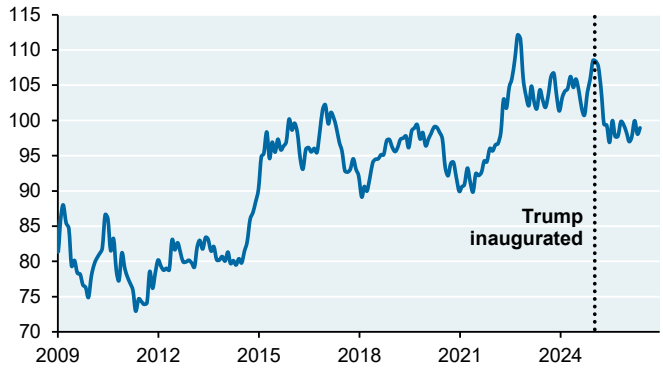
[2] **On IMF data**. The budget deficit shown on the left is the general government overall fiscal balance, defined as the difference between revenue and total expenditure, excluding policy lending. Gross debt on the right includes debt securities, loans, insurance, pensions, standardized guarantee schemes, special drawing rights, currency, deposits and other accounts payable. Both measures include federal, state and local governments.

Despite these negatives, the US dollar has ignored the doomsayers. Other than an immediate selloff of ~10% when Trump took office (from a post-GFC high level for the dollar), the trade-weighted dollar has been resilient. This 10% decline looks like a modest currency realignment rather than the onset of a sharper decline that took place in the 1980's (after the Plaza Accord to deliberately weaken the dollar), or the decline in the early 2000's after the launch of the Euro.

US dollar trade weighted exchange rate, 1967 - 2026

Source: Bloomberg, JPMAM, May 2026

US dollar trade weighted exchange rate, 2009 - 2026



Source: Bloomberg, JPMAM, May 2026

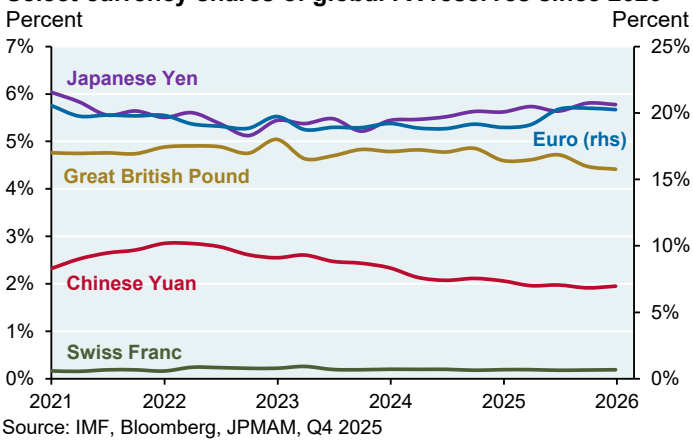
I'm not surprised by the dollar's resilience: the six metrics we track regarding the dollar's reserve currency status are mostly stable: the dollar's share of cross border loans, international debt securities, foreign exchange volumes, FX reserve asset allocation, export invoicing and SWIFT payments. The dollar share of FX reserves has declined by 3% since December 2020 but the offsetting increase has entirely been in the IMF's "other currency" category which includes the Singapore Dollar, Korean Won, Swedish Krona, Norwegian Krone and others. FX reserve shares for the Euro, Yen, Pound and Chinese RMB have declined since that date.

Reserve currency tracker: US$ share of debt, FX, reserves and trade

Dollar share of:	2020	2021	2022	2023	2024	2025	2026	Latest as of date	Source	Next release date
Cross-border loans	52%	54%	52%	53%	52%	51%	-	Q4 2025	ECB	June 2027
Intl. debt securities	50%	52%	53%	51%	53%	51%	-	Q4 2025	ECB	June 2027
FX transaction volume	-	-	88%	-	-	89%	-	Apr 2025	BIS	April 2028
Official FX reserves	60%	59%	59%	59%	59%	57%	-	Q4 2025	IMF	Q3 2026
Exports invoicing	41%	42%	43%	42%	-	42%	-	Jun 2025	ECB	Unknown
SWIFT payments	39%	41%	42%	48%	49%	49%	51%	Apr 2026	SWIFT	June 2026

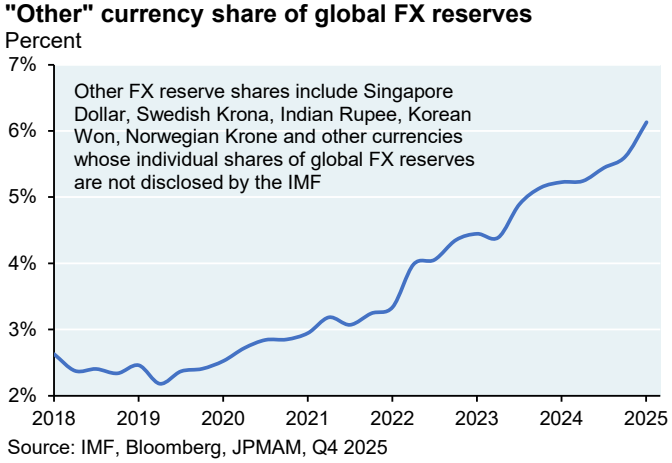
Source: BIS, ECB, IMF, SWIFT, JPMAM. 2026

Select currency shares of global FX reserves since 2020



Source: IMF, Bloomberg, JPMAM, Q4 2025

"Other" currency share of global FX reserves

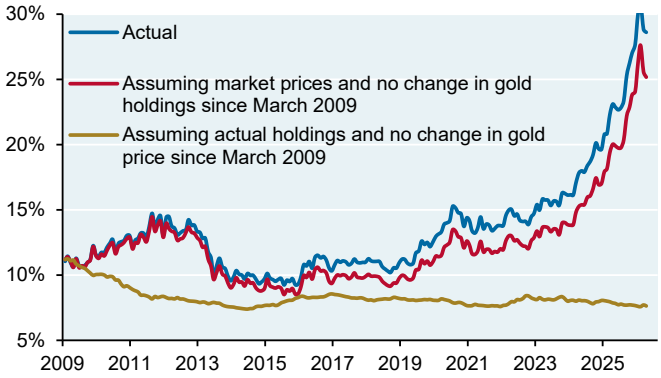


Source: IMF, Bloomberg, JPMAM, Q4 2025

Another support for the dollar: relative productivity shocks have been the dominant source of long-run movements in bilateral real exchange rates[3]. In other words, if the US experiences a larger AI productivity shock than its trading partners, that's another argument in favor of the dollar's long term value.

What about the share of gold in central bank reserves rising from 11% in 2009 to 29% by March 2026? This may not mean what you think it does. **Almost the entire increase in the gold share of central bank reserves since 2009 is a function of rising gold prices rather than higher gold allocations**. As I wrote last fall, if we hold central bank gold allocations constant at their March 2009 level of 963 mm troy ounces and value them at today's gold price, the gold share of reserves would be 26%, very close to today's 29% level. But if we keep gold prices flat at 2009 levels and use actual central bank gold holdings, the gold share of reserves actually *falls* to 8%. So, what you're seeing is a gold *price* effect rather than a physical gold *allocation* effect.

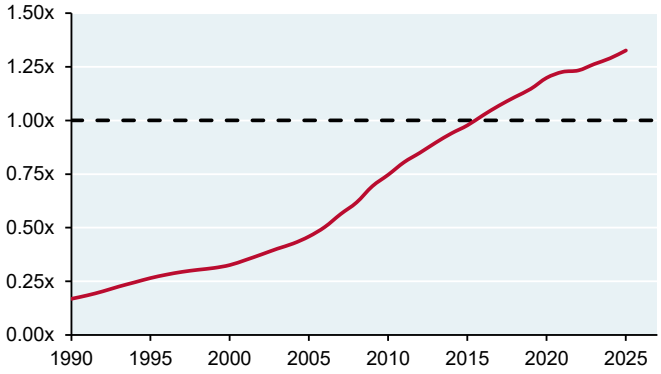
Gold share of world FX reserves
Percent



Source: IMF, Bloomberg, JPMAM, May 2026

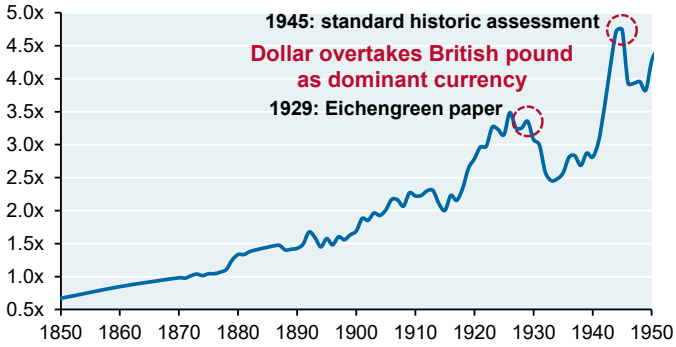
Reserve currencies are hard to dislodge, particularly without a clear replacement. While China's economy is now larger than the US, there's more to reserve currency status than size; market depth, liquidity, clarity of default resolution, ability to perfect interest in property, etc matter just as much. If size were all that mattered, the US would have overtaken the UK as world reserve currency long before it actually did. As shown in the second chart, US GDP was at least 3.5x larger than the UK by the time the dollar replaced the pound as the world's reserve currency, whether using the early estimate of 1929 or the standard estimate of 1945.

China's economy is now larger than the US
China real GDP divided by US real GDP



Source: Conference Board, JPMAM, 2025

The US economy was 3.5x-5x larger than the UK when the US$ replaced the pound as the world's reserve currency
US real GDP divided by UK real GDP

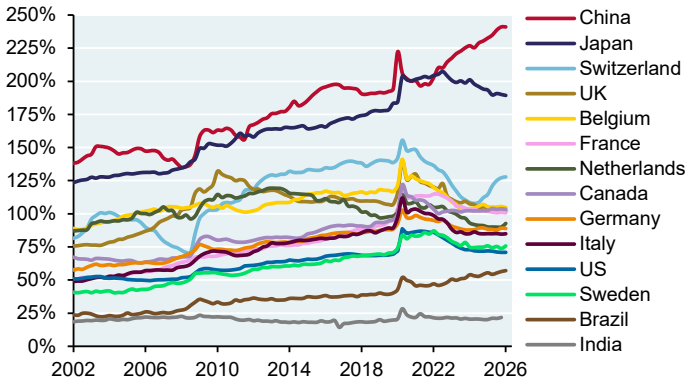


Source: Conference Board, Angus Maddison Project, JPMAM, 2022

[3] *"Productivity Shocks and Real Exchange Rates"*, Annika Alexius (Uppsala University), April 2005*; "Real Exchange Rates and Balassa-Samuelson Effect Revisited"*, Michael Devereux (Vancouver School of Economics), 2014

China as world reserve currency is a frankly preposterous idea right now. China has achieved its growth targets via one of the largest monetary expansions the world has ever seen: at $60 trillion, China's domestic banking assets have reached ~50% of *global* GDP. If China fully opened its capital account, possible outflows could crush the RMB and trigger a collapse in Chinese equity/real estate markets. Even with the controls shown in the text box, China reportedly experienced a record $800 bn to $1 trillion in capital outflows in 2025[4].

How much Chinese liquidity would leave if it could?
M2 money supply as a % of GDP



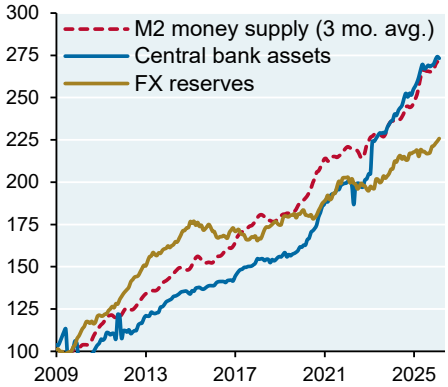
Source: Haver Analytics, JPMAM. Q1 2026

Chinese capital controls

- $50,000 annual cap on personal outward remittances
- China launched a campaign targeting illegal cross-border trading to stem capital outflows, threatening severe penalties against brokers and ordering non-compliant accounts to be liquidated within two years
- Corporate remittances are subject to strict regulatory approval, monitoring and quotas from SAFE and the People's Bank of China
- Strict rules govern cross-border trade transactions to prevent hidden capital flight disguised as trade. Prepayments for imports over specified thresholds require registration with SAFE, while overseas payments involving terms over 90 days are audited

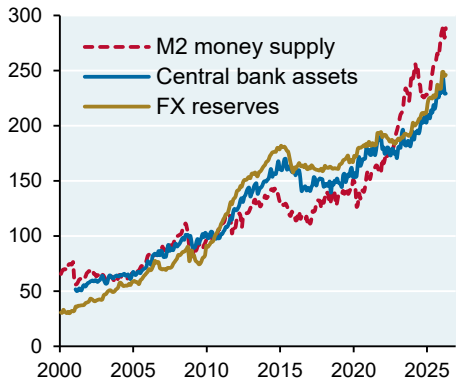
My colleague Alex Wolf has done some insightful analysis on this topic. As shown below, FX reserves, central bank assets and money supply usually move in sync, whether we're looking at fixed currency pegs[5] or a floating currency like the Mexican Peso; otherwise there would likely be an adjustment through a decline in the exchange rate or a balance of payments crisis. **China is different: there's a huge disconnect between its soaring money supply and much slower growth in FX reserves and central bank assets. The reason: money creation is essentially out of the central bank's control. This arrangement may only be sustainable when accompanied by a closed and highly regulated capital account, which is entirely inconsistent with reserve currency status**.

Pegged currencies
Index (100 = September 2009), in US$



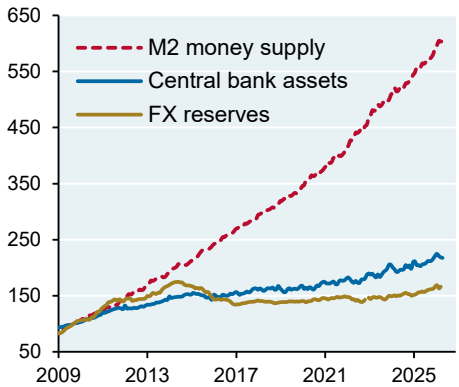
Source: Bloomberg, JPMAM, March 2026

Mexico (floating currency)
Index (100 = July 2010), in US$



Source: Bloomberg, JPMAM, April 2026

China (controlled / restricted)
Index (100 = September 2009), in US$



Source: Bloomberg, JPMAM, May 2026

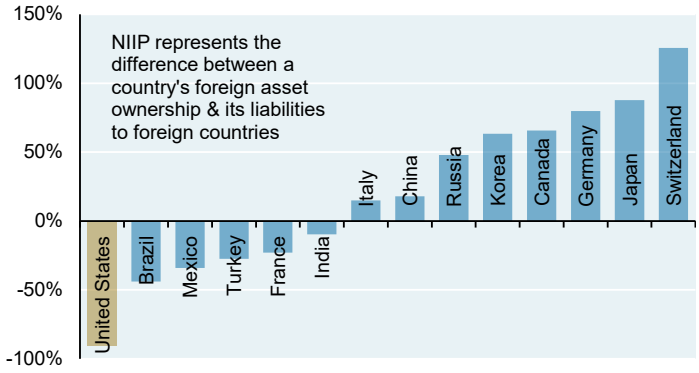
[4] China is not just restricting movement of capital but of people as well. New regulations impose travel restrictions on Chinese AI engineers at private firms. Beijing already imposes travel restrictions on key personnel such as prominent college researchers, nuclear scientists and executives at state firms

[5] Pegs include UAE Dirham, Hong Kong $, Kuwaiti Dinar, Qatari Riyal, Singapore $ and Taiwan $; equal weighted

[2] The US still attracts plenty of foreign capital

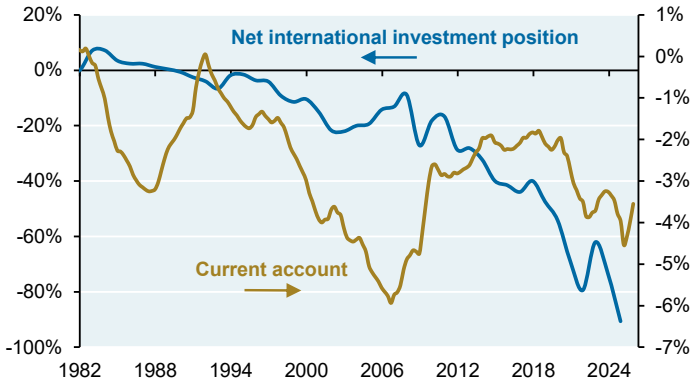
The US runs the largest negative Net International Investment Position of the countries shown below, meaning that the US is effectively the largest net debtor nation and absorbs a lot of foreign capital. Similarly, the US runs the third largest current account deficit in the OECD, behind only New Zealand and Slovakia. If there were signs that non-US investors were losing their appetite to hold US assets, that could be a troubling development.

Net international investment position by country, 2024
Percent of GDP



Source: Brookings, IMF, JPMAM, 2026

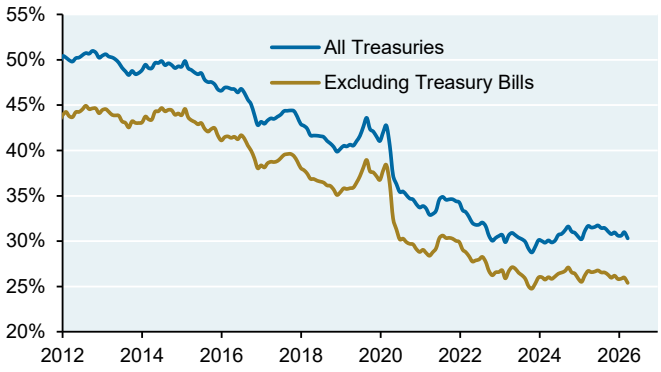
US net debtor nation measures
Percent of GDP



Source: Brookings, IMF, Bloomberg, JPMAM, Q4 2025

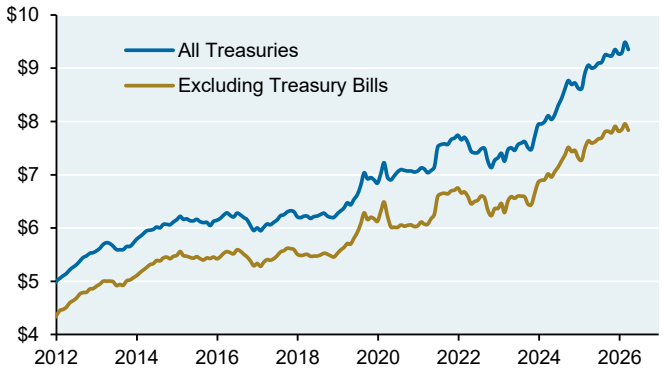
According to the latest data, the US still attracts substantial capital inflows. The first chart on the falling foreign *share* of US Treasuries outstanding gets a lot of attention but is incomplete without considering the second chart: foreign *holdings* of Treasuries are still rising, they're just not rising as fast as the US debt. The same rising trend is seen when looking at foreign holdings of US corporate bonds and US equities: there's limited evidence that non-US investors are shunning either category.

Foreign holdings share of US Treasuries
Share of total outstanding US Treasuries



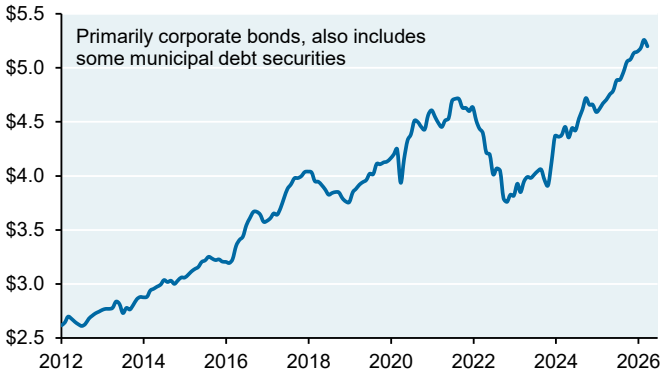
Source: US Treasury, JPMAM, March 2026

Foreign holdings of US Treasuries
US$, trillions



Source: US Treasury, JPMAM, March 2026

Foreign holdings of US long term non-sovereign bonds
US$, trillions



Source: US Treasury, JPMAM, March 2026

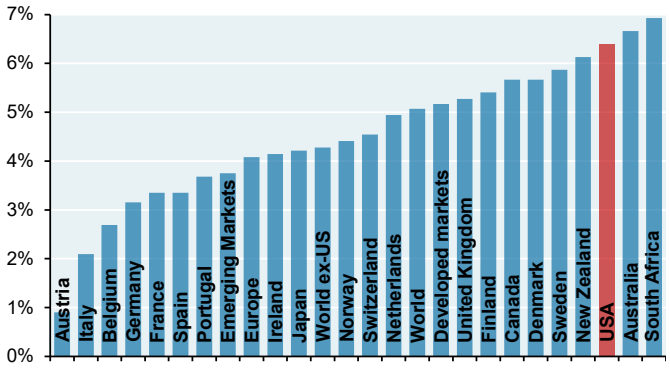
Foreign holdings of US equities normalized by S&P 500 returns, US$, trillions (normalized to February 2026)

Source: US Treasury, Bloomberg, JPMAM, March 2026

[3] The "Sell America" trade runs out of steam

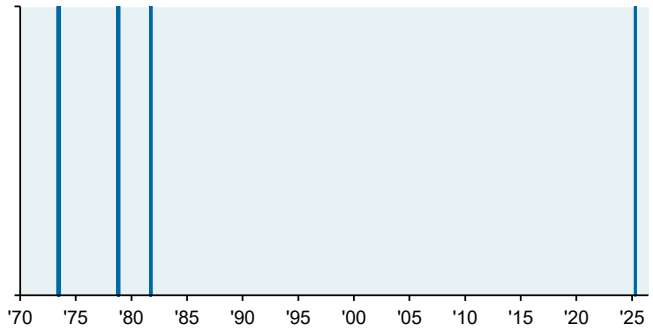
The US is widely recognized as a prime destination for equity investing, ranking third in Elroy Dimson's long-term real equity returns database which begins in the year 1900. But in March 2025, a flurry of Trump Administration executive orders were catalysts for the first "Sell America" episode since 1982: a simultaneous absolute and relative decline in the S&P 500, a decline in the dollar and rising Treasury yields.

Real annualized returns on equities, 1900-2022
Percent



Source: Dimson, Marsh and Staunton Database, 2023

"Sell America" instances since 1970
S&P -5%, US trade-weighted dollar -5%, US equities vs ROW -5%, 10 yr Treasury yield +10 bps, over a 30 day period



Source: Bloomberg, JPMAM, June 15, 2026

After this occurred, I appeared on a Scott Galloway markets podcast. Scott pushed hard on the Sell America thesis (after a bizarre pre-interview discussion of R-rated topics[6]) but I disagreed. I didn't think this dynamic would feed on itself. Since then, the trade weighted dollar is down just 1%; US 10+ year Treasury yields are 10 basis points higher but 70 bps higher elsewhere in the developed world; and US equities have outperformed.

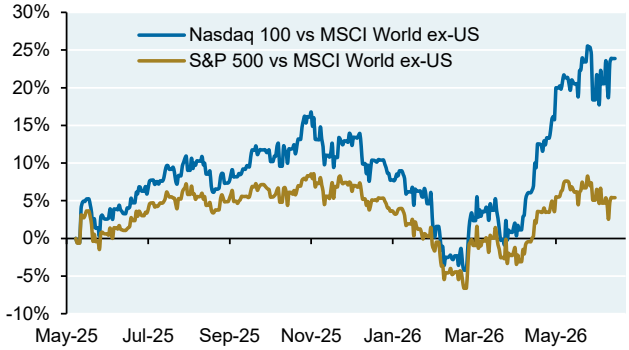
US dollar trade weighted exchange rate (DXY)
Index

Source: Bloomberg, JPMAM, June 15, 2026

Change in 10+ year bond yields since May 8, 2025
Change in yield

Source: Bloomberg, JP Morgan Government Bond Index, June 22, 2026

US vs World ex-US equities, market cap weighted
Cumulative total return % since May 8, 2025



Source: Bloomberg, JPMAM, June 22, 2026

US vs World ex-US equities, equal weighted
Cumulative total return % since May 8, 2025

Source: Bloomberg, JPMAM, June 22, 2026

[6] In pre-interview introductions to his podcast, Scott discusses matters better suited for a mid-life crisis therapy session than for markets discussions. Imagine an adult Holden Caulfield, still desperate for attention but without adolescence as an excuse

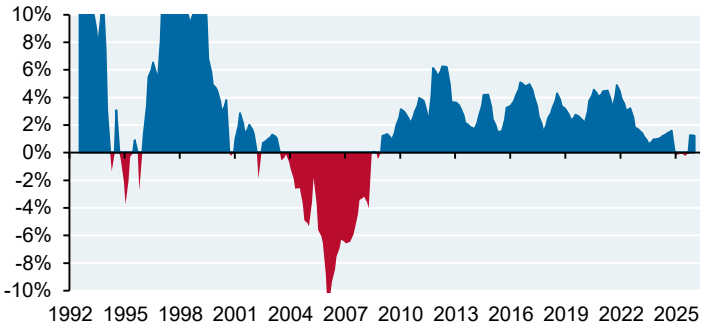
Over the long term US equities have crushed the Rest of the World, even after accounting for the recovery in non-US stocks in 2025. The table walks through the details. On the left we show annualized returns based on different starting years through to December 2024. On the right: annualized returns through today. For example: an investor starting the clock in 2012 would have earned 12.5% annual returns in the US vs just 2.9% on Rest of World equities for excess returns of 9.6% through the end of 2024. Through today, that annual excess return has declined but is still enormous at 8%. **Bottom line**: whatever your time horizon as a long-term investor, US equities have delivered enormous excess returns since the early 1980's even after accounting for the non-US equity recovery in 2025.

Starting year of investment	Annualized returns through December 2024			Annualized returns through June 2026			Decline in US excess return since Dec 2024
	US	Rest of World	US excess	US	Rest of World	US excess	
1984	9.3%	5.7%	3.6%	9.6%	6.4%	3.2%	-0.3%
1986	8.8%	3.6%	5.1%	9.1%	4.4%	4.7%	-0.4%
1988	8.8%	2.6%	6.2%	9.2%	3.4%	5.8%	-0.4%
1990	8.8%	3.3%	5.5%	9.2%	4.2%	5.1%	-0.4%
1992	8.5%	3.7%	4.8%	8.9%	4.6%	4.3%	-0.4%
1994	8.9%	2.9%	6.0%	9.3%	3.8%	5.5%	-0.5%
1996	7.7%	2.5%	5.1%	8.2%	3.6%	4.6%	-0.5%
1998	6.2%	2.1%	4.1%	6.8%	3.2%	3.6%	-0.5%
2000	6.4%	1.9%	4.5%	7.1%	3.2%	3.9%	-0.6%
2002	9.0%	4.2%	4.8%	9.6%	5.4%	4.1%	-0.6%
2004	8.2%	2.2%	6.0%	8.9%	3.7%	5.2%	-0.8%
2006	8.2%	0.7%	7.6%	9.0%	2.4%	6.6%	-0.9%
2008	12.4%	4.0%	8.4%	12.9%	5.7%	7.3%	-1.2%
2010	11.6%	2.2%	9.4%	12.3%	4.2%	8.1%	-1.4%
2012	12.5%	2.9%	9.6%	13.2%	5.2%	8.0%	-1.6%
2014	11.1%	2.5%	8.5%	12.0%	5.2%	6.8%	-1.8%
2016	12.8%	3.9%	8.9%	13.7%	7.0%	6.7%	-2.2%
2018	15.3%	5.1%	10.2%	15.9%	8.8%	7.1%	-3.1%
2020	11.9%	1.8%	10.0%	13.7%	7.8%	5.9%	-4.1%
2022	23.7%	8.2%	15.5%	21.6%	15.3%	6.3%	-9.2%

Source: Bloomberg, JPMAM, June 15, 2026

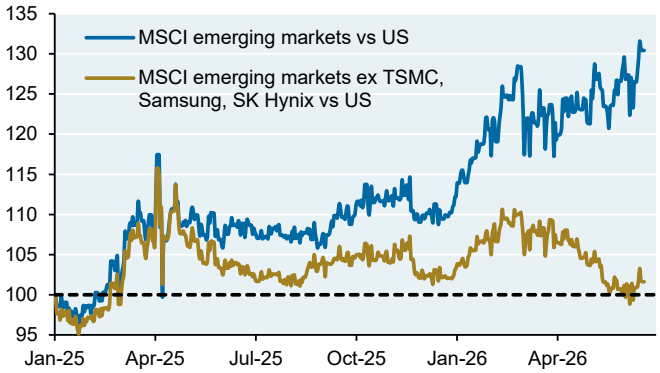
Here's a look at another asset allocation strategy discussed in the Eye on the Market: **overweight the US and Emerging Markets, and underweight Europe and Japan**. The results speak for themselves; this has been one of the most consistent excess returns in the world of investing. To be clear, the recent strong performance in Emerging Markets equities has been highly influenced by just three AI-related stocks, as shown on the right.

Overweight US & EM, underweight Europe & Japan
3-year rolling out (under) performance vs MSCI All World Index



Source: Bloomberg, JPMAM. March 2026. All equity, rebalanced quarterly, no currency hedging. JPN 50% of original weight, EUR 50% of original weight; US & EM overweighted by the remaining balance pro rata. Past performance is not indicative of future results

Emerging markets equity price return relative to US
Relative to MSCI US, index (100 = January 2025)



Source: Bloomberg, JPMAM, June 21, 2026

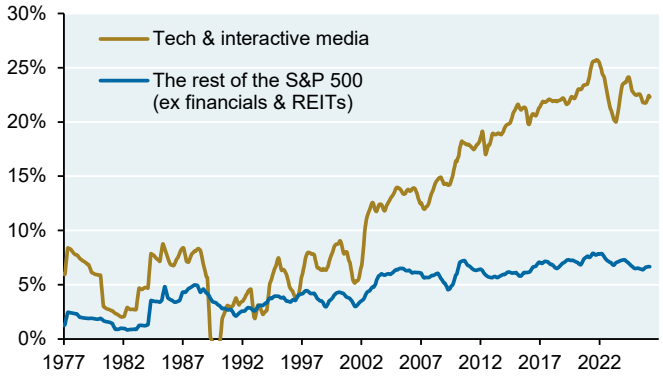
[4] US companies are more profitable than Rest of World, but there are signs of investor exuberance in AI

The P/E ratio discount for non-US stocks has been the equivalent of a **bug zapper** for many asset allocators. Drawn to the shiny light of a growing discount for non-US stocks since 2010, many strategists and investors dove head-first into non-US stocks, only to suffer severe underperformance vs the US as shown on the prior page. As we often point out, P/E comparisons do not reflect the fact that in practically every major sector, **US companies have higher return on assets and higher return on equity than Europe, Japan or China**. While the technology sector is a primary driver of this gap, it's far from the whole story. As per the tables, US corporate profitability dominates across the board in the major sectors and in many minor sectors as well.

The discount for non-US stocks
MSCI World ex-US fwd P/E divided by US fwd P/E

Source: Bloomberg, JPMAM, June 15, 2026

S&P 500 free cash flow margins: tech & interactive media vs the rest, Percent



Source: Empirical Research Partners, May 2026

Major sector return on assets							
	Staple	Con disc	Tech	Hcare	Comm serv	Indust	Finan
US	7.7	7.1	15.0	5.9	10.3	7.2	1.5
Euro	6.0	1.7	8.5	7.1	2.1	5.1	0.8
Japan	3.2	2.1	8.1	5.3	5.7	4.6	0.6
China	4.2	1.2	8.5	3.2	2.0	1.7	0.8

Source: Bloomberg, JPMAM, June 15, 2026

Major sector return on equity							
	Staple	Con disc	Tech	Hcare	Comm serv	Indust	Finan
US	25.8	24.2	32.6	17.1	23.9	25.1	14.1
Euro	18.2	5.0	16.5	16.9	7.8	16.7	13.4
Japan	8.3	5.6	12.7	9.3	20.2	10.6	10.5
China	14.1	10.2	8.9	8.8	15.9	9.7	10.8

Source: Bloomberg, JPMAM, June 15, 2026

Minor sector return on assets				
	Utilities	Materials	Real estate	Energy
US	2.8	4.8	4.0	5.3
Euro	2.7	4.9	3.7	3.5
Japan	4.0	2.7	3.2	3.5
China	2.6	5.2	0.0	3.7

Source: Bloomberg, JPMAM, June 15, 2026

Minor sector return on equity				
	Utilities	Materials	Real estate	Energy
US	10.7	11.0	9.8	11.4
Euro	11.0	10.9	9.5	9.9
Japan	9.7	5.7	9.7	7.9
China	8.8	13.9	0.0	8.6

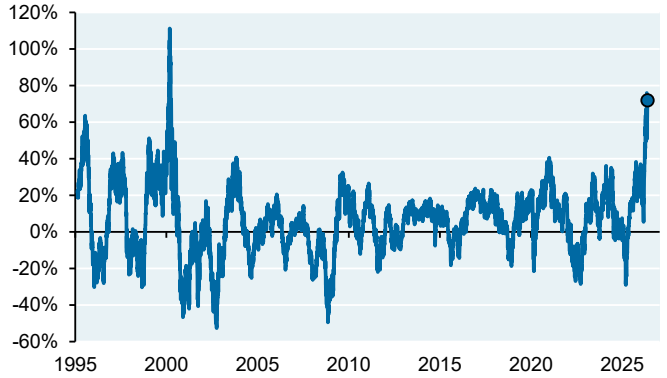
Source: Bloomberg, JPMAM, June 15, 2026

That said, there are signs of **investor exuberance in the AI trade** which has driven 65%-80% of S&P 500 returns, profits and capital spending since the launch of ChatGPT in 2022, based on our basket of 42 publicly traded AI related companies in the S&P 500. Some examples appear on the next page.

Investor exuberance examples:

- The semiconductor stock rally has generated technicals breaching levels last seen during the dot-com boom
- Measures that are also rising sharply: hedge fund exposure to semiconductor and hardware stocks, margin loan balances on the Korean stock market, and retail activity in semiconductor options
- Very wonky but worth understanding: the rise in leveraged ETFs and the impact of such products on equity markets. To deliver leveraged returns each day, the providers of such products buy into rallies and sell into declines, amplifying whatever price momentum is occurring. As shown, the impact on global equity markets from leveraged semiconductor ETF rebalancing has grown by 5x since early 2024
- Other indicators also flashing red: very low market breadth, stocks with elevated price to sales ratios as a share of total market cap, collapse in put/call premiums and margin debt as a % of M2 money supply

Acid flashback: semiconductor technicals
Philadelphia semiconductor index: distance from 200 day moving avg



Source: Bloomberg, JPMAM, June 15, 2026

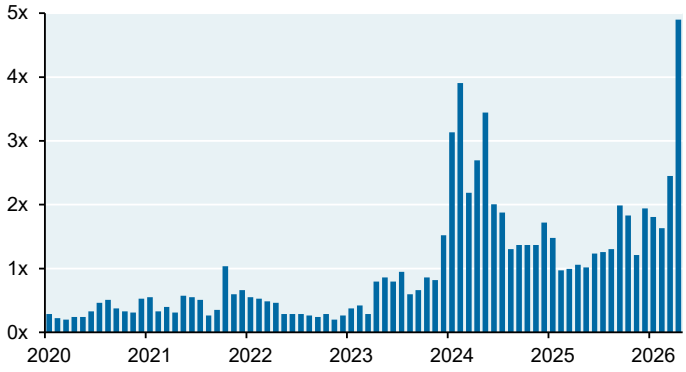
Hedge fund net exposure to global semis and hardware
Net exposure (% of total global net exposure)

Source: Morgan Stanley, May 2026

Korea margin loans outstanding
Trillion won, KOSPI and KOSDAQ

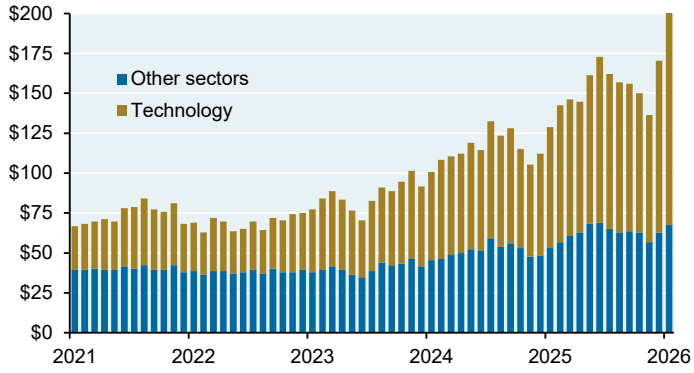
Source: Korea Financial Investment Association, JPMAM, June 5, 2026

Average daily semiconductor options premium traded by month, Index (2020 average)



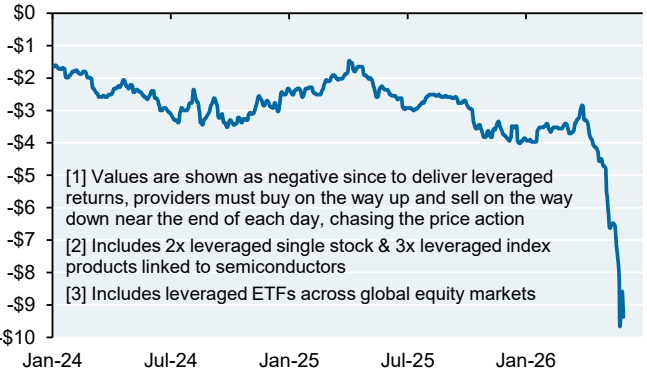
Source: Bloomberg, Citadel Securities, May 28, 2026

Leveraged ETF monthly AUM
US$, billions, 5 year lookback



Source: Bloomberg, Citadel Securities, May 18, 2026

Leveraged semiconductor rebalancing market impact
Underlying traded for every 1% move in SPX, beta-adjusted, US$ bn

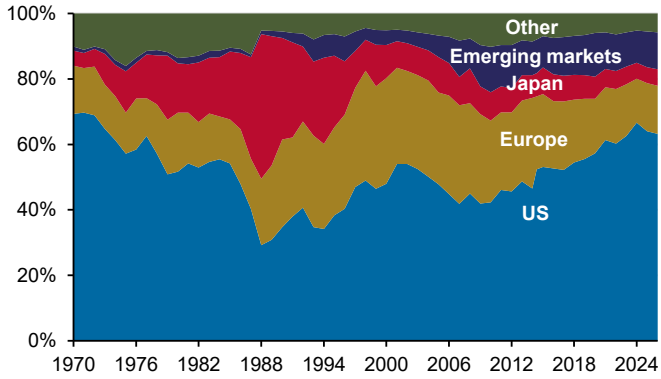


Source: Morgan Stanley, May 2026

[5] All the AI eggs in one basket: concentration of market cap, accelerator revenue, frontier labs and belief

For investors, the success of megacap stocks has come with a price: the rising share of the US in global equity portfolios, and the rising share of market cap and earnings from the largest companies within the S&P 500 itself. As recently as 2015 the 10 largest US stocks represented just 17% of S&P 500 market cap; that was also the level that prevailed during the mid-1990's. Now this figure has risen to ~40% (chart, right). This might surprise you, but 40% concentration still ranks among the three *lowest* equity concentration figures in the world; only Japan and India have less. Increased concentration creates risks and challenges for asset allocators, but it's important to put US equity market concentration in a global context.

MSCI All Country World Index region weights
Percent

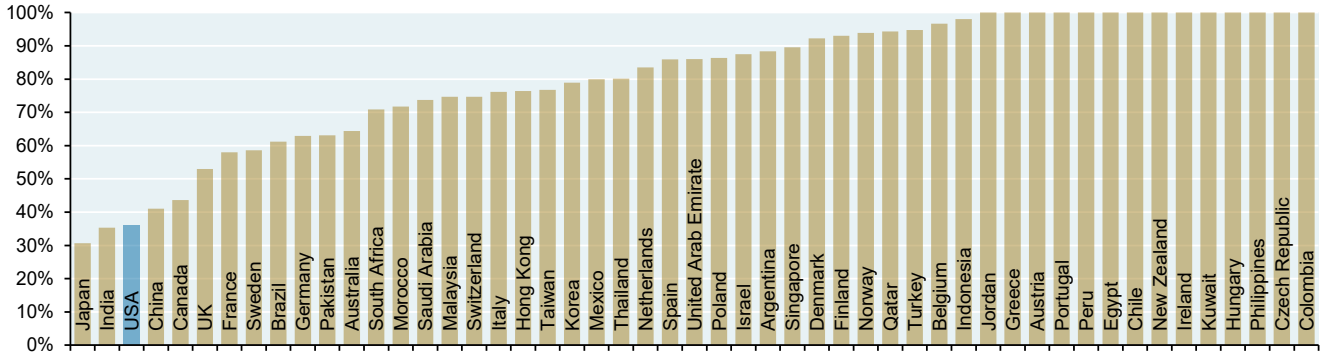


Source: Elroy Dimson pre-1988, MSCI, Bloomberg, JPMAM. March 2026.

Top 10 company share of S&P 500 market cap & earnings
Percent

Source: Goldman Sachs Global Investment Research, June 5, 2026

Equity market concentration: the US is actually at the lower end
Top ten company share of country equity index market capitalization



Source: Bloomberg, JPMAM, June 15, 2026

But in the new world of AI, there are other concentrations to think about as well: NVIDIA's concentrated share of accelerator revenue, concentrated frontier lab revenues (particularly at a time of improving open models and commoditization of enterprise tokens), frontier lab appreciation as a concentrated share of hyperscaler earnings, concentration of tech hardware and software in US GDP and concentration of hyperscalers in capital spending projections. We cover these concentration risks in the rest of this section.

Warning label. This section includes technical AI jargon, conjecture on AI products and services that are rapidly changing, views on non-public companies whose disclosures can be opaque or incomplete, and thoughts about the future which may be wildly off the mark. If you have messianic opinions on these topics and cannot stand to see other points of view, or if you are shocked that topic X or Y did not get mentioned, or if you find their entire topic to be frustratingly inaccessible to most laypeople, take a deep breath and remember that I'm trying my best to cover what is arguably the most technically complex market catalyst in the last 40 years, particularly compared to the internet, broadband, B2B, application software, fiber and cloud computing.

Concentration of accelerator revenue

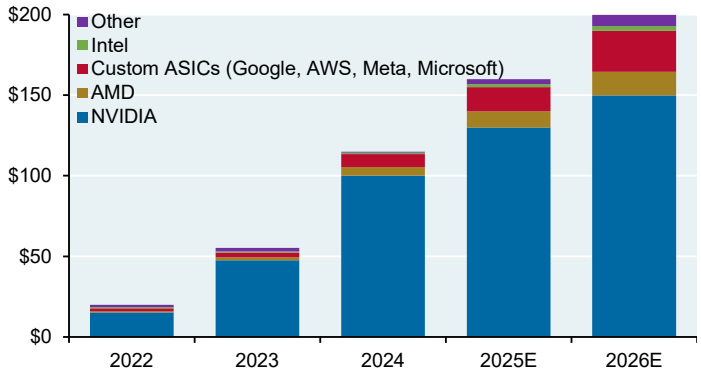
Let's get some jargon out of the way. An accelerator is hardware designed to offload specialized compute-intensive workloads away from the CPU. There are two prominent kinds of accelerators, GPUs and ASICs. GPUs are general purpose graphics processing units that can process massive amounts of data simultaneously, while application-specific integrated circuits (ASICs) are specialized processors designed to handle more defined tasks.

Here's the important point: according to JP Morgan Equity Research, **the unit economics of ASICs (Google TPUs, AWS Trainium, Microsoft Maia, Meta MTIA) are improving vs NVIDIA GPUs**[7]. The hyperscalers using their own in-house chips report total cost of ownership reductions of 30% - 40% vs merchant GPU fleets. Similarly, Amazon claims that its AWS Trainium3 UltraServers offer 30% lower total cost of ownership (at FP8 precision) than NVIDIA GB300 NVL72 systems. Anthropic's commitment to run Claude on AWS Trainium for the next decade is the strongest third-party endorsement of ASICs to date, and is consistent with NVIDIA's gradually declining share of accelerator revenue shown in the first chart (from 85% in 2023 to 75% estimated for 2026). To be clear, there's still tremendous demand for NVIDIA products; at the 2026 GTC event, CEO Jensen Huang cited at least $1 trillion of demand for Blackwell and Rubin infrastructure projected through the end of 2027.

As shown on the right, the AI workload mix is gradually shifting in favor of inference. Inference now accounts for the majority of AI compute, is growing with reasoning models and agentic workloads, and is also the kind of high-volume, well-characterized workload where fixed-function ASIC chips can also perform well. Anthropic's strategy of using Trainium, TPUs and Nvidia GPUs may be a preview of future AI architecture: merchant GPUs for flexibility and frontier research, ASICs for scaled training and inference tasks.

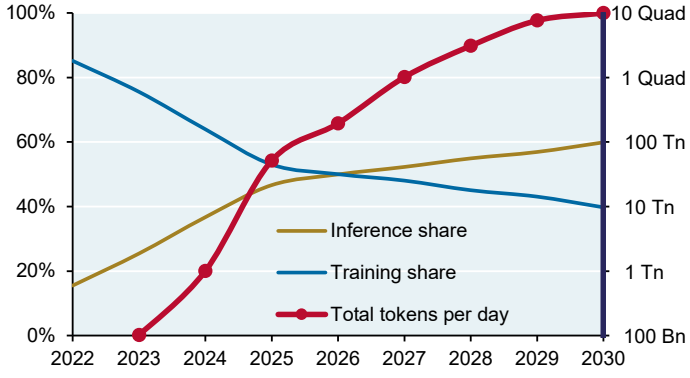
While the GPU vs ASIC debate is a lively one, future AI servers will likely combine both types, using one or the other depending on the characteristics of the AI workload. NVIDIA's licensing agreement with Groq allows it to offer a SuperPod composed of Rubin racks to handle certain compute-bound workloads (input processing and matrix multiplication) with Groq 3 LPX racks to handle memory-bound workloads (mixture of experts neutral network computations). While some of my contacts believe that this SuperPod might be the best inference system the world has ever seen, adopting it is not trivial since it may require a switch from air-cooling to liquid-cooling and much higher power density. Bottom line: the accelerator landscape keeps shifting and this is my best read on where things stand right now.

AI accelerator revenue by company



Source: Silicon Analysts, Q1 2026

Training vs inference share of AI compute



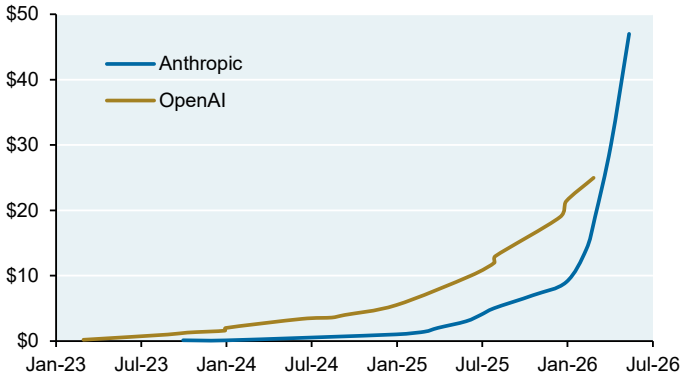
Source: JP Morgan Equity Research, Paul Kedrosky, JPMAM. 2026

[7] "*AI Capex 2.0: If You Build It, They Will Finance It*", Tarek Hamid, JP Morgan Equity Research, June 16, 2026

The concentration of frontier lab revenue

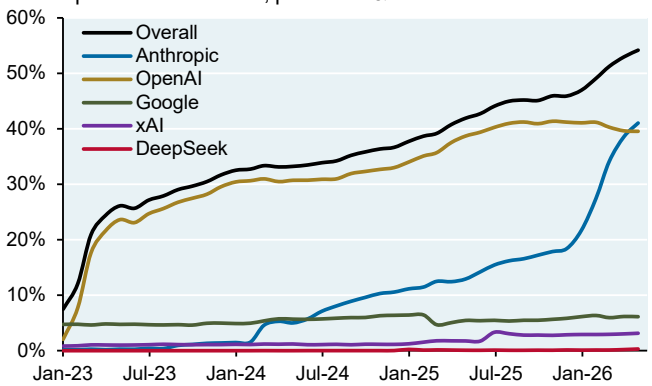
The first chart shows soaring frontier lab annualized revenue run rates, while the second shows estimates of paid subscription uptake by businesses[8]. The concept of "revenue" is more complicated than you might think. OpenAI revenues are net of the 20% share owed to Microsoft, while Anthropic reports all sales as revenue and accounts for amounts owed to resellers like AWS, Microsoft and Google as Sales & Marketing Expenses[9]. Either way, these top line revenue figures are rising at a very rapid pace.

Anthropic and OpenAI annualized revenue
US$, billions



Source: EpochAI, May 15, 2026

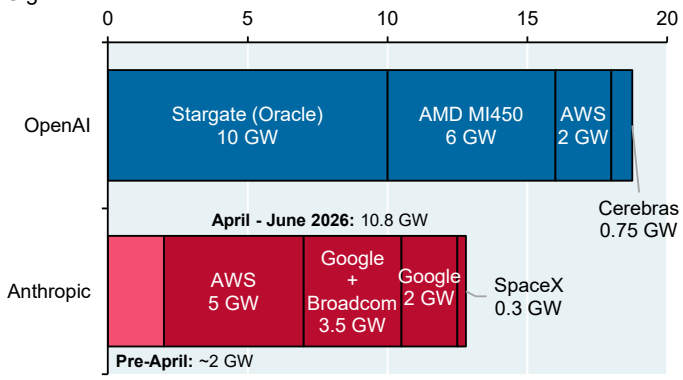
AI adoption rate by model, Share of US businesses with paid subscriptions to AI models, platforms & tools



Source: Ramp, May 2026

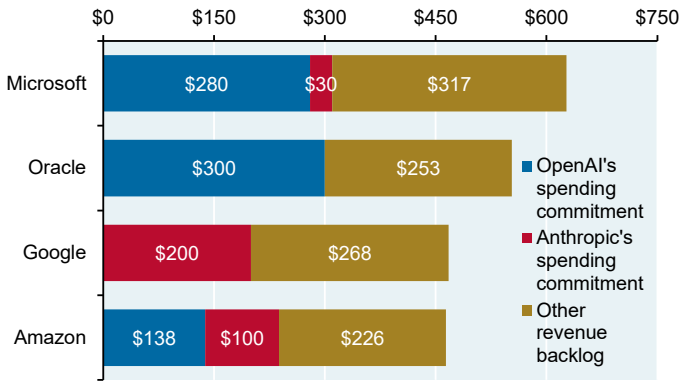
But while both frontier labs are profitable on a *gross* margin basis (Anthropic 44%[10], OpenAI 42%[11]), **the bigger questions relate to capital spending and *operating* margins**. In April 2026, Anthropic contracted for 8.5 GW of computing capacity; in May it contracted with SpaceX for its 300 MW Colossus I campus in Tennessee; and in June it contracted with Google for what we estimate to be another 1-2 GW[12]. The big picture: frontier lab commitments are around half of the $2 trillion in revenue backlogs disclosed by large cloud providers as of Q1, and these commitments have grown since then. That's part of the reason for multiple equity funding rounds of $95 bn+ announced by Anthropic so far this year. At this point, I view frontier lab projections of when they will be cash flow positive (OpenAI 2029-2030, Anthropic 2028) as speculative, uncertain and subject to revision.

Estimated compute commitments as of June 2026
Gigawatts



Source: The Product Compass, TheWhiteBox Consulting, JPMAM, June 2026

Cloud provider revenue backlogs
US$, billions



Source: The Information, May 21, 2026

[8] This chart may underestimate DeepSeek usage since some businesses may access it via OpenRouter as well

[9] "*Read OpenAI's latest internal memo about beating the competition*", The Verge, April 13, 2026; "*The Math Behind Anthropic's Mad Revenue Growth*", The Information, March 24, 2026

[10] "*Anthropic's gross margin is the most important number in tech*", Pitchbook, June 10, 2026

[11] "*OpenAI spending hit $34 billion last year, ahead of planned IPO*", Financial Times, June 15, 2026

[12] $200 bn over 5 years for ~200 Ironwood TPUs; $22.1 k per hour per 10 MW pod * 365 days * 24 hours/day

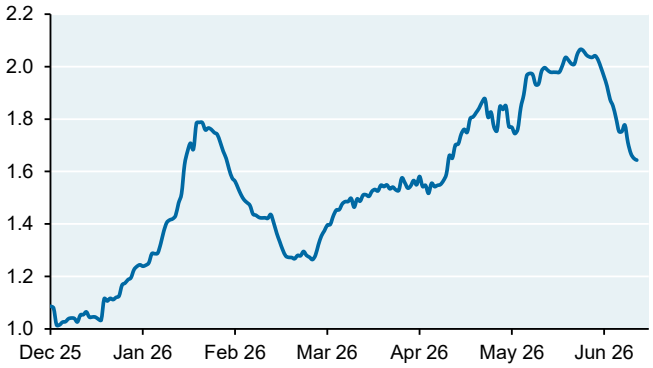
The frontier labs are shifting to usage-based token pricing as one means of paying for those capital outlays. It's expected to become the norm, at least for enterprises, on a cost-plus basis that includes total costs of ownership. This will increase frontier lab token prices, a trend which is already underway:

- OpenAI doubled token prices from GPT-5.4 to GPT-5.5
- Microsoft raised Copilot prices starting June 1st, and also cut its internal Claude Code licenses. Some token price increase examples: 3x – 9x for Opus variants, up to 9x for Sonnet, up to 6x for Gemini and 6x for GPT. Some users even reported 100x price hikes with these changes[13]
- Anthropic's Team Plan tops out at 150 seats. Larger customers are pushed to Enterprise where the public self-serve pricing is $20 per seat plus metered usage at standard API token rates with no included token allowance, meaning that the $20 seat fee only buys access and every token used is billed separately. The reason Anthropic is so focused on this: SemiAnalysis estimates the revenue opportunity loss associated with subscriptions vs API calls. For the Claude Max 20x plan, a subscription user would pay $200 per month but if these same tasks were executed at API pricing, they could spend as much as $8,000 instead

As a result, **some enterprises may seek to avoid frontier lab token price increases by migrating to cheaper open models**. Open models refer to open source (training data set released) and open weight (no training data set released, just parameter weights), and they can usually be downloaded for free. Is there evidence that such migrations are taking place already?

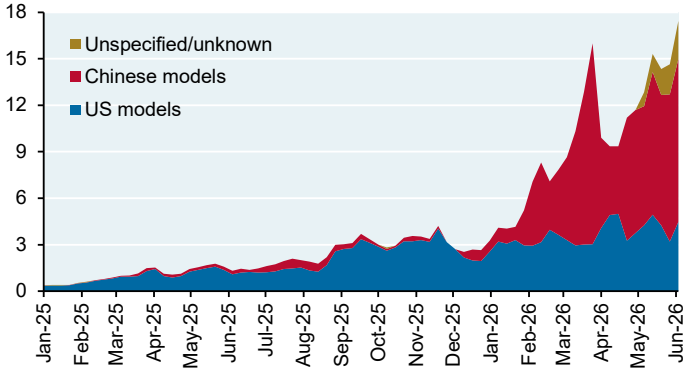
- The founder of Lindy AI, a productivity assistant chatbot company, announced that they moved their entire app AI service from Claude to DeepSeek, claiming savings of millions of dollars and improved performance[14]
- Brian Armstrong from Coinbase tweeted that "80% of workloads will be running in 99% cheaper models" within a year, and mentioned Coinbase was actively moving workflows to cheaper models
- Migration trends away from more expensive tokens appear to be confirmed by declining average token prices shown below on the left. However, there's some disagreement about exactly what the chart means since it could also imply more efficient inference service by frontier labs
- OpenRouter shows a surge in API calls to Chinese models. By April 2026, the best Chinese open-weight models (Qwen, DeepSeek V4, Kimi) scored within a few dozen Elo points of closed frontier models and cost 10x - 50x less per token. Moreover, **agent harnesses** (external systems such as memory, tools, safety boundaries and orchestration layers in Claude Code or OpenCode) that can run open models often improves their output quality and reduces the need to rely on the most expensive frontier models
- **Bottom line**: it's early in the AI cycle to measure open model adoption trends, and evidence is mixed. As we discuss next, cost vs performance tradeoffs appear to provide ample incentive for open model adoption

Silicon Data LLM token expenditure index
Price (US$) per million tokens



Source: Bloomberg, JPMAM, June 19, 2026

Weekly token consumption of top 9 models through OpenRouter API calls, Trillions of tokens



Source: OpenRouter LLM Ranking Leaderboard, JPMAM, June 8, 2026

[13] *"Github Copilot customers report up to 100-fold price hikes",* Tom's Hardware, June 3, 2026

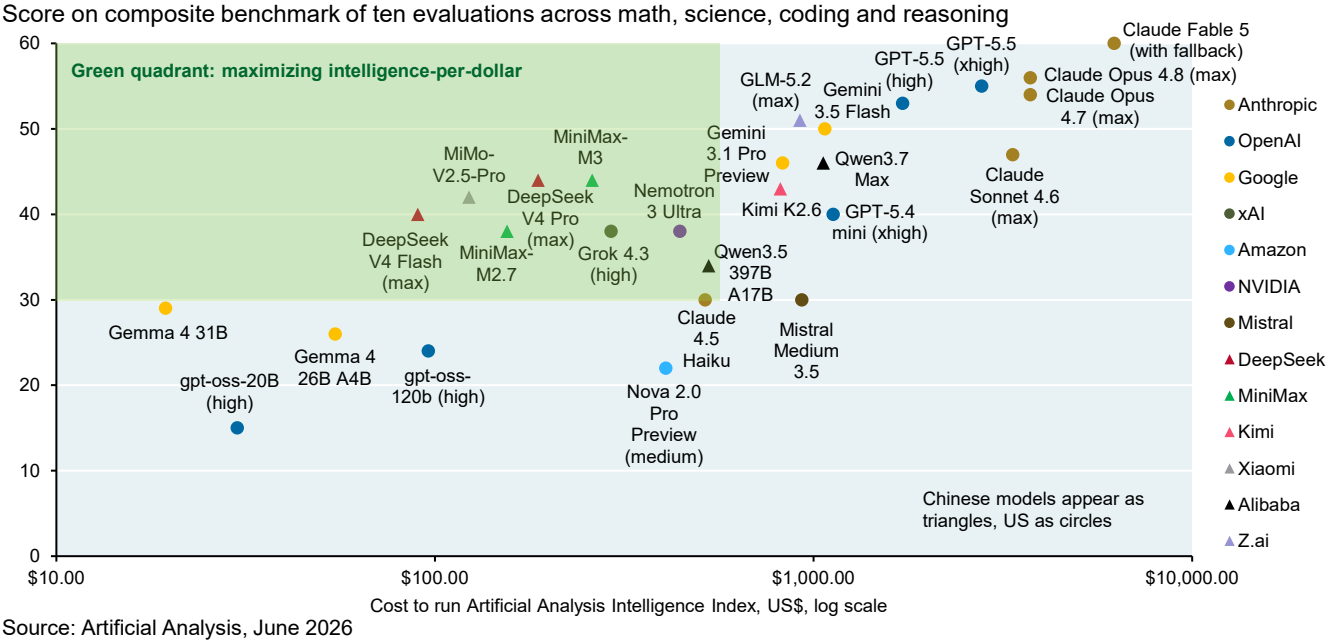
[14] *"AI costs spike as subscriptions hit pricing wall, firms turn towards Chinese LLMs, open-source models to extend budget",* Tom's Hardware, June 13, 2026

Commoditization of enterprise tokens

Frontier models are here to stay since they're needed for cybersecurity, distillation training, agents and scientific discovery, all of which require maximum performance. There are enterprises even willing to pay up for ultra-fast tokens. For example, Cursor and Anthropic charge 6x more for tokens that are 2.5x faster.

That said, many tokens consumed in the future may not come from frontier models but from smaller open models that are up to the tasks. Amazon now offers a half-dozen open models at a fraction of frontier pricing, and NVIDIA is teaming up with Dell, Lenovo and HP to make PCs designed with AI agents. While OpenAI and Anthropic compete with their own smaller models (e.g., Claude Haiku and GPT-5.4-mini), these models aren't competitive vs the efficient frontier right now. That frontier shown as the green zone below is dominated by China (DeepSeek, MiniMax, Xiaomi, Alibaba) and only includes a modest presence from US models including one from xAI (Grok) and one from NVIDIA (Nemotron). Consider the following: Claude Opus 4.8 costs $3,700 to run the Artificial Analysis Intelligence Index task set for a score of 56, while DeepSeek V4 Pro (Max) scores at 44 for just $186, which is ~20x cheaper. **TLDR; you don't need frontier level intelligence for everything, and if you do, Z.ai's GLM 5.2 appears competitive with top tier Anthropic and OpenAI models.**

Artificial Analysis Intelligence Index score vs cost to run by model
Score on composite benchmark of ten evaluations across math, science, coding and reasoning



Source: Artificial Analysis, June 2026

"Reinforcement Learning as a Service" and Fine-Tuning, in which enterprises train open models on their own data, is a potential threat to frontier labs like OpenAI and Anthropic. Ramp demonstrated that an **open model that is smaller but trained on a company's own data may be superior to a frontier model**, regardless of how much smarter the frontier model is. Ramp's analysis showed that a small Chinese model with just 35 billion parameters outperformed Anthropic Opus 4.6 while obtaining Haiku level speeds on a data center GPU[15]. Another example: legal start-up Harvey post-trained NVIDIA's open weight Nemotron 3 Ultra model for just 24 hours and achieved frontier lab level performance at 1/8th to 1/50th the token cost of Sonnet 4.6 and Opus 4.6.

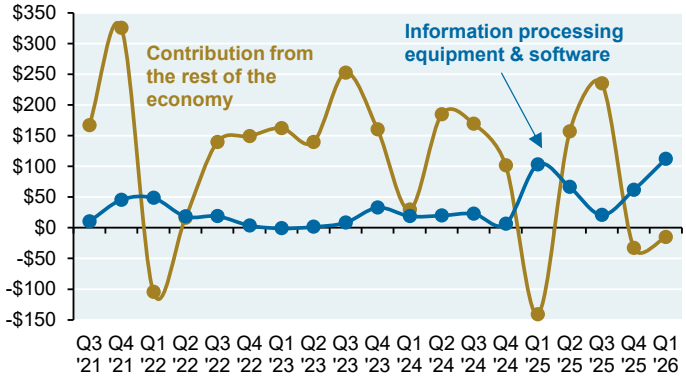
To be clear: open models do not require a DIY approach by enterprises. Enterprises can work with hyperscalers to access "platform as a service" (e.g., Amazon Bedrock or Microsoft Foundry) to access models like DeepSeek as well as OpenAI, and obtain 24/7 operational support, enterprise-grade service level agreements, data privacy and security, compliance guarantees, etc for all open/closed models. The DIY "infrastructure as a service" approach is unlikely to be adopted broadly since it requires a more sophisticated hands-on approach, but that's not the paradigm I'm referring to here. Open models do not necessarily imply worse hyperscaler enterprise-grade guarantees or adoption complexity if you opt for **turnkey hyperscaler inference services**.

[15] *"Building Fast & Accurate Agents with Prime-RL Post Training",* Ramp Labs, May 7, 2026

Concentration of tech hardware & software in GDP and capital spending

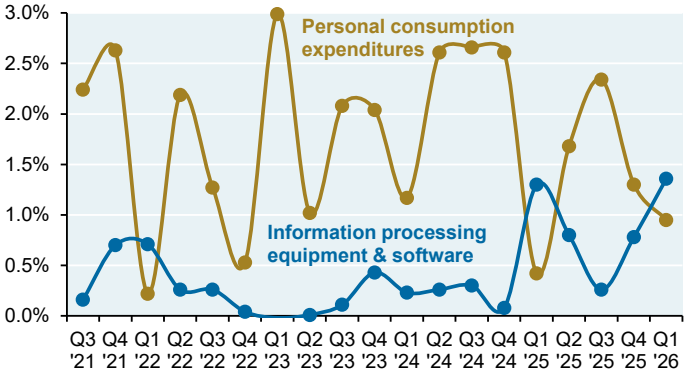
The contribution of tech equipment and software to GDP growth has been increasing relative to everything else. The Administration is fortunate that AI is offsetting the growth-dampening impacts of some of its policies.

Quarterly contributions to real GDP growth
US$, billions



Source: Bloomberg, BEA, JPMAM, Q1 2026

Quarterly contributions to real GDP growth
Percent

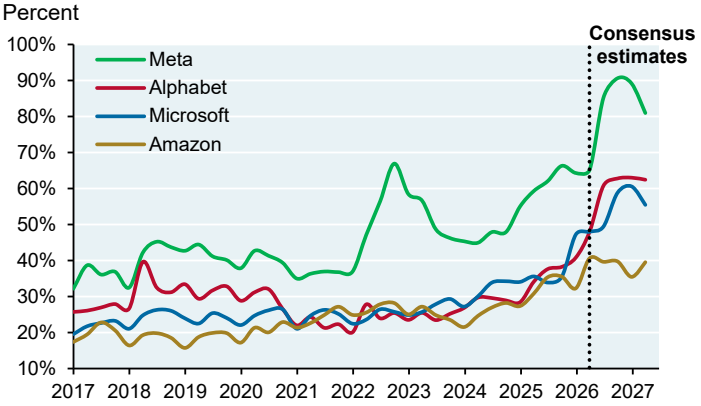


Source: Bloomberg, BEA, JPMAM, Q1 2026

Consensus estimates point to increased **hyperscaler capex** and falling free cash flow margins. Large tech companies have begun to access debt markets in greater volumes than they had historically when they financed capital spending mostly via cash flow. That said, even with this increased borrowing, hyperscaler leverage ratios are still low from a comparative perspective other than Oracle.

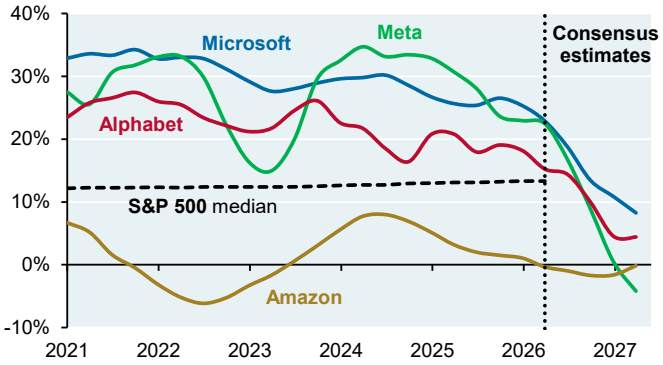
The last concentration to keep in mind: the large share of **appreciated frontier lab holdings in hyperscaler profits** in Q1 of this year, included in the category of "other income".

Hyperscaler capex and R&D as a share of revenues
Percent



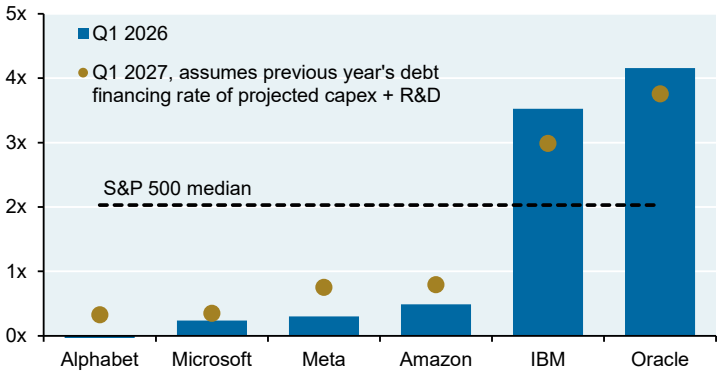
Source: Bloomberg, JPMAM, June 15, 2026

Hyperscaler free cash flow margins (net of capex)
Percent, trailing 12 months



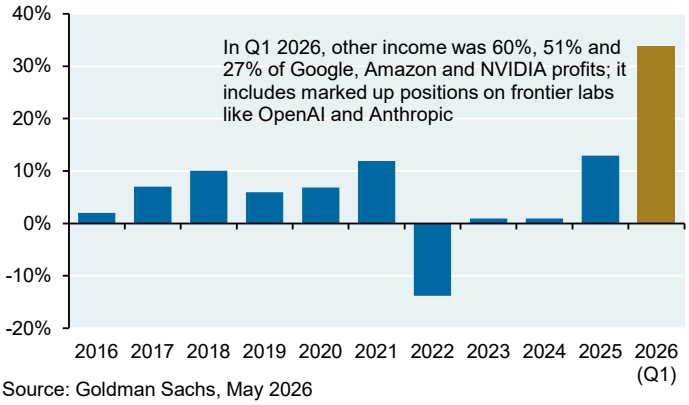
Source: Bloomberg, JPMAM, June 15, 2026

Hyperscaler net debt to trailing 12m EBITDA
Multiple, includes bonds, loans and SPV triple net leases



Source: Bloomberg, JPMAM, June 15, 2026

AI hyperscaler "other income" share of total profits
Percent

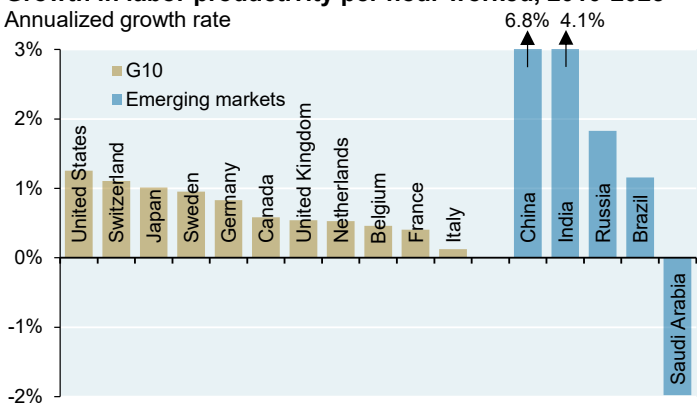


Source: Goldman Sachs, May 2026

[6] US productivity growth still leads the G10

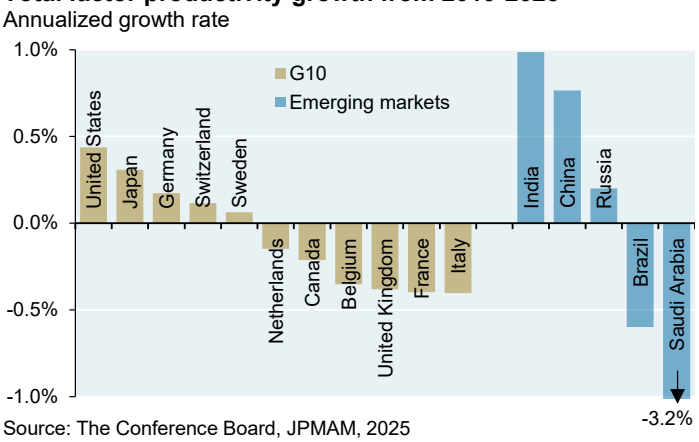
Whether the issue is labor productivity or total factor productivity[16], the US leads the G10. Some emerging economies are experiencing faster productivity growth since they're starting from a lower base of economic development. Similar productivity booms once occurred in the US: from 1917 to 1927, US labor productivity rose by 3.8% and total factor productivity rose by 2.8% after the introduction of the internal combustion engine, electric motors and deeper capital markets[17].

Growth in labor productivity per hour worked, 2010-2025



Source: The Conference Board, JPMAM, 2025

Total factor productivity growth from 2010-2025



Source: The Conference Board, JPMAM, 2025

While it's impossible to know the precise reasons for it, US productivity has picked up since the launch of GPT in the fall of 2022 with even larger gains in the information sector and in the IT data processing subset.

Productivity gains, pre-COVID vs post-GPT

Real GDP method (annualized)	From To	Q1 2016 Q1 2020	Q4 2022 Q4 2025	Q3 2023 Q4 2025
Non-financial corporate		1.1%	2.9%	3.3%
Information sector		5.0%	9.9%	7.8%
Data processing		8.0%	15.3%	14.4%

Source: BLS, Bloomberg, JPMAM, Q4 2025

Productivity gains, pre-COVID vs post-GPT

Real gross output method (annualized)	From To	Q1 2016 Q1 2020	Q4 2022 Q4 2025	Q3 2023 Q4 2025
Non-financial corporate		1.1%	2.9%	3.3%
Information sector		3.7%	7.9%	6.7%
Data processing		7.8%	11.6%	12.3%

Source: BLS, Bloomberg, JPMAM, Q4 2025

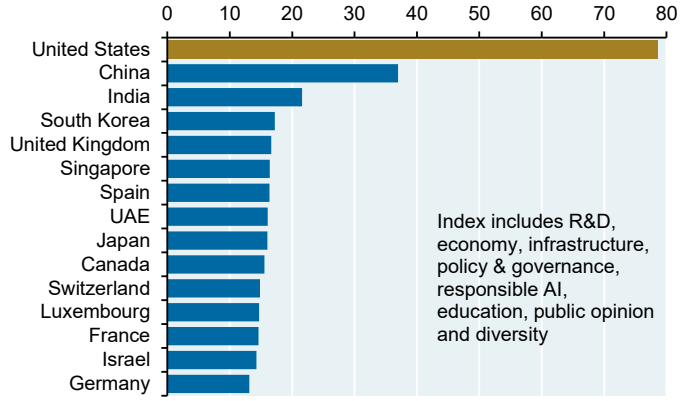
[16] Total Factor Productivity is the portion of economic output not explained by the amount of physical inputs such as labor and capital. It effectively measures how efficiently an economy turns resources into goods and services, and is an indicator of technological and operational innovation

[17] "*Lessons from Past Productivity Booms*", Roger Ferguson, Federal Reserve Vice Chairman, January 2004

[7] The US lead in AI and its Taiwanese Achilles Heel while China catches up

If US productivity growth continues to lead the rest of the G10, the US lead in artificial intelligence would probably explain why. The charts below show measures of AI readiness from four different sources. They all point to the same conclusion: the US is the most vibrant and prepared country for AI, with China close behind on some measures. The US lead is something we need to monitor given risks of Federal, state or local moratoriums on data center development, partial nationalization or policies that delay or restrict access to certain frontier models.

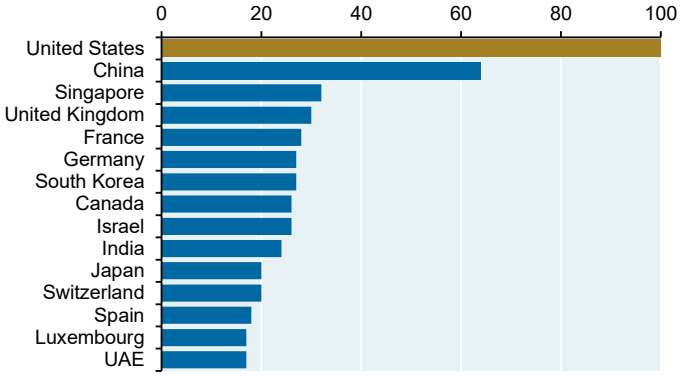
Global AI vibrancy index, top 15 countries



Source: Stanford University, JPMAM, November 2024

Global AI index

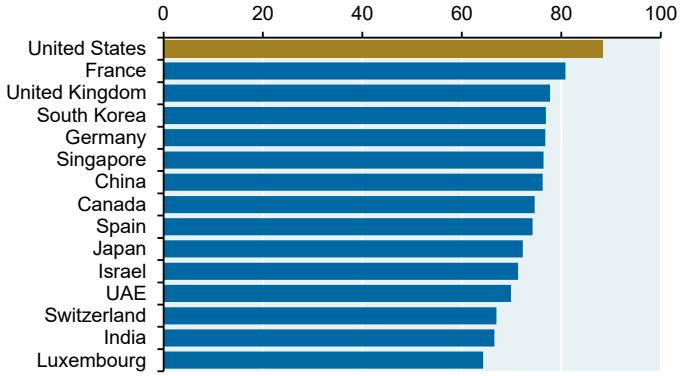
Index (practical implementation of AI, innovation and investment)



Source: Tortoise Media, JPMAM, September 2024

Government AI readiness index

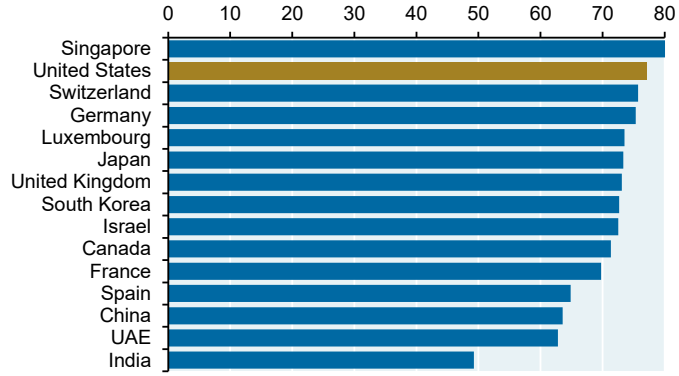
Index (government policy & implementation for public services)



Source: Oxford Insights, JPMAM, 2025

AI preparedness index

Index (digital infrastructure, human capital, innovation & regulation)



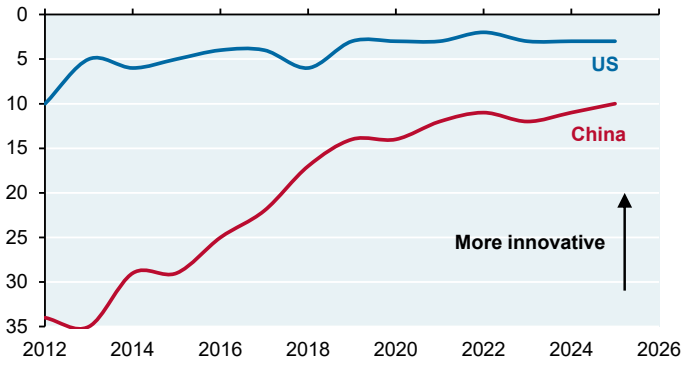
Source: International Monetary Fund, JPMAM, 2023

China has been steadily climbing the innovation and complexity food chain across a range of industries. The first chart shows China breaking into the top ten on innovation. On AI specifically, Chinese frontier models are not far behind the US on intelligence scores, and when considering total cost of ownership, chips from Huawei and Cambricon are reportedly comparable to NVIDIA GPUs. As we noted in the May Eye on the Market, China's GPU self-sufficiency has risen from 10% in 2021 to 40% today, with projections of ~80% by 2030.

Some breaking news on this topic: Huawei may have found a way to keep scaling its chips despite China's lack of access to ASML's EUV lithography tools[18]. Instead of needing to shrink transistors below 7 nanometers, Huawei claims it can increase compute density through vertical chip logic design, a feat it appears to have accomplished via some impressive engineering. The bottom line: China may now have a way to competitively scale compute on a chip basis on smartphones and is targeting AI processors by 2030-2031 with density comparable to future 1.4A-class chips. If so, China's 2030 chips could be competitive with US 2028–2030 chips on a chip-by-chip basis (on top of already being competitive on a cost per MW basis).

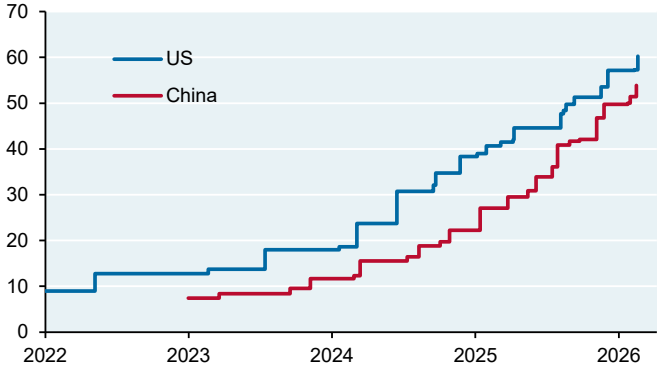
China is also on track to produce more of its own high bandwidth memory. CXMT, the leading DRAM producer in China and fourth largest in the world, cannot access EUV equipment due to export controls so it relies on DUV tools and multi-patterning instead. While its wafer allocation to AI-related high bandwidth memory is low right now (only 5k wafer starts per month out of 265k wspm capacity), the team at SemiAnalysis believes CXMT will reach 100k wspm by 2028 due to pressure from the Chinese government. While CXMT HBM quality and production yield will probably trail Korean and US counterparts, Chinese semiconductor companies are expected to start using CXMT products as part of China's AI self-sufficiency goals.

China breaks into top 10 most innovative economies
Global Innovation Index, country rank, (1 = highest innovation)



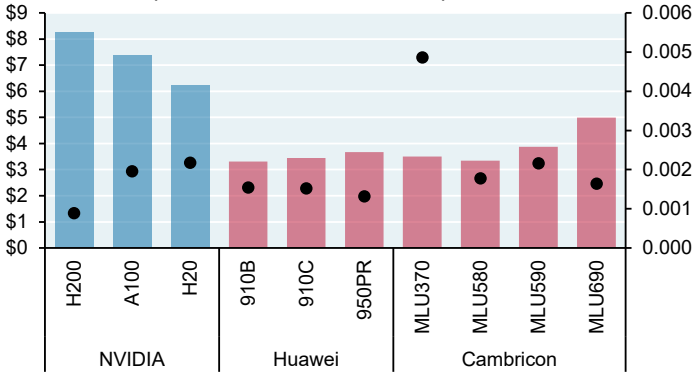
Source: World Intellectual Property Organization, 2025

Frontier language model intelligence
Score



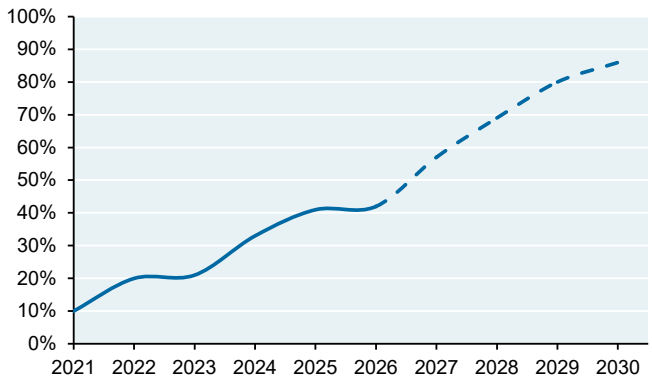
Source: Artificial Analysis, May 18, 2026

Total cost of ownership (TCO) and per token
TCO, US$ mm per MW, bars Cost per token, US cents, dots



Source: Morgan Stanley Asia Technology, May 10, 2026

China GPU self-sufficiency
Percent

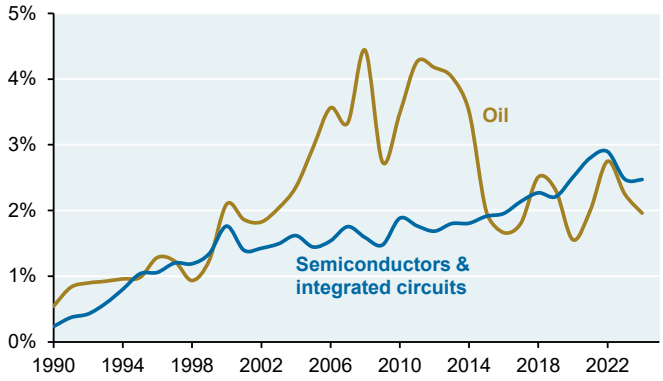


Source: Morgan Stanley Asia Technology, May 10, 2026

[18] "*Huawei claims sanctions-busting breakthrough with 1.4nm-class chips by 2031*", Tom's Hardware, May 25, 2026

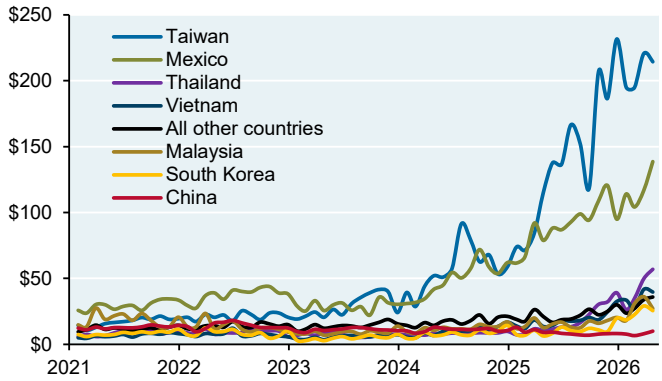
That brings us to the issue of Taiwan. While investors are justifiably focused on the Strait of Hormuz given the impact of the war on oil markets, the Taiwan Strait is just as important. As shown on the left, global trade in semiconductors and integrated circuits has been steadily growing and recently exceeded global trade in crude oil. As shown on the right, US AI-related imports from Taiwan have been soaring. Eight of the 10 largest companies in the world by market cap depend in large part on TSMC supply (the only exceptions are TSMC itself and Saudi Aramco). For these companies, more than one third of their combined $2 trillion in revenue comes from hardware that uses TSMC products[19]. The digital economy, automotive economy and industrial production economy rely on TSMC, and without it the world economy would sputter.

Oil and semiconductor trade share of global GDP
Percent



Source: UN Comtrade, World Bank, IMF, JPMAM, 2024

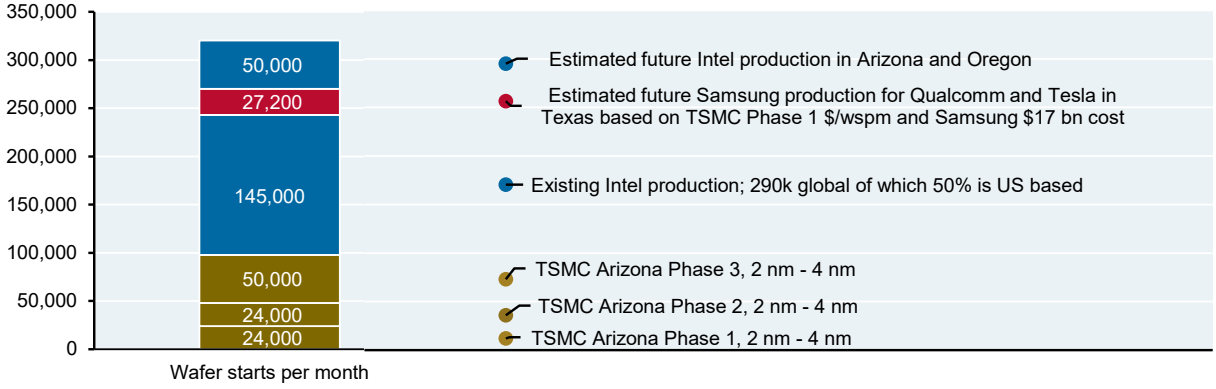
US AI related computer imports
Billions, US$, monthly annualized, includes large comp, GPUs & parts



Source: USITC, JPMAM, April 2026

Given these risks, Commerce Secretary Lutnick set a goal for the US to onshore 40% of semiconductor demand by the end of Trump's term in 2028[20]. By that time, global advanced node demand is expected to grow from 850k wafer starts per month (wspm) in 2024 to 1.4 mm. For the US share, we estimate that ~75% of TSMC leading edge wafer revenues come from US customers, implying US advanced node demand of ~1 mm wspm in 2028. If the estimated production levels in the chart are achieved, the US might be 30%-35% self-sufficient in advance node production by the end of the decade but would still be highly reliant on Taiwan.

US might reach 30%-35% of advanced node (< 5 nm) production by 2028-2030



Source: JPMAM, 2025

[19] "*TSMC Overseas Fabs*", Semianalysis, November 30, 2025

[20] "*Taiwan pressured to move 50% of chip production to US or lose protection*", ARS Technica, Sept 29, 2025

All about Taiwan

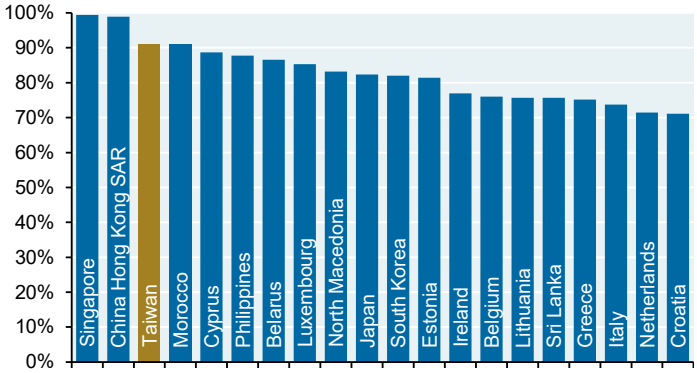
Taiwan is one of the most import-dependent countries in the world: 90% of its primary energy consumption relies on fossil fuel imports. In what might be the most ill-advised energy policy shift in history, Taiwan's share of electricity generation from home-grown nuclear power fell from 50% in the 1980's to just 5% today.

Instead, imported LNG now accounts for 40% of power generation and Taiwan only has 10-11 days of domestic natural gas storage; I almost didn't believe these figures when I first read them[21]. Taiwan plans to ratchet up LNG reliance further by expanding existing LNG terminals and building new ones. The risks are so apparent that LNG suppliers in Singapore's trading hub require force majeure and act of war provisions in Taiwan delivery contracts in case they're unable to deliver cargoes and have to seek alternative buyers.

Taiwan also imports ~60 percent of its food supply and 67% of its caloric intake. As shown below, Taiwan is the only country outside the Middle East in the top ten list of food import dependency, other than Hong Kong. This is all the more unusual given how much higher Taiwan's arable land share is (22%) compared to the rest of the countries in the top ten of food import dependency (less than 5%). **Bottom line: Taiwan may be the most blockade-sensitive advanced economy in the world.**

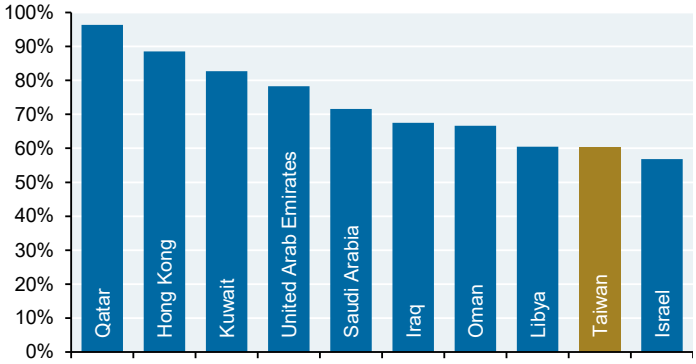
And as shown in the third chart, large shares of Chinese military assets are located in or near the Taiwan Strait. The map from a recent WSJ article is now a standard day in Taiwan as China encircles it with various destroyers, frigates and intelligence gathering ships[22].

Net imports of fossil fuels as a share of primary energy consumption



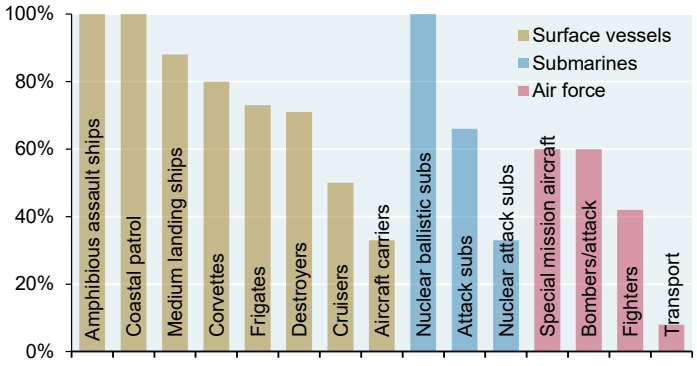
Source: Energy Institute, JPMAM, 2025

Value of food imports as a % of domestic food supply
Countries with at least $50 bn in GDP

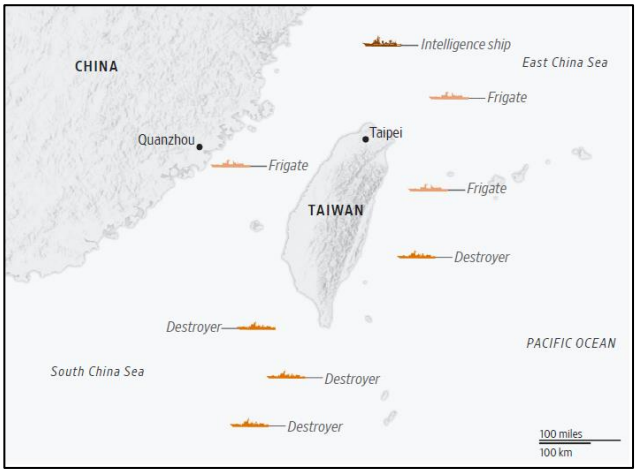


Source: UN FAO, 2025

Share of Chinese assets deployed near the Taiwan Strait (in the PLA Eastern and Southern Theater Commands), %



Source: CSIS, DOD, September 2025



[21] "*Taiwan vulnerable to LNG supply risks in the event of a maritime blockade*", S&P Global, May 2024

[22] "*How China's Navy Is Tightening the Noose on Taiwan*", WSJ, June 19, 2026

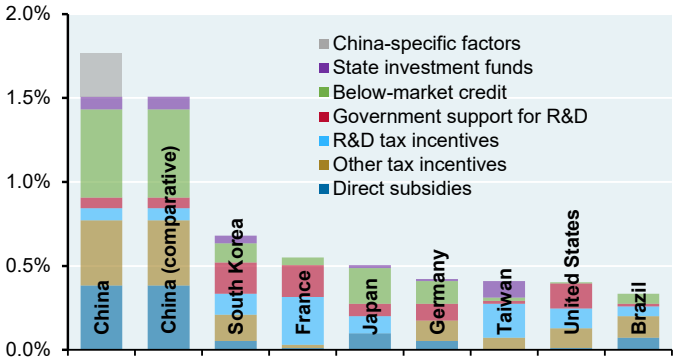
[8] Investing in US Security & Resilience as early post-mortems on the Iran War roll in

The US has historically trailed other large countries with respect to industrial policy; that is now changing. A structural reorganization is underway in US public and private investment from efficiency-first towards building greater national and economic security, resiliency and reliability. Given the level of catch-up required across key segments such as defense, critical minerals, cybersecurity and advanced manufacturing, the Security & Resiliency theme will likely be a durable one. Catalysts include:

- LNG carrier/shipbuilding in the US under the August 2025 US-Korea Maritime Agreement
- Upgrades necessary to protect info software and operational assets from cyber threats
- Project Vault, a US strategic critical minerals reserve. This public-private partnership, backed by $10 billion in EXIM Bank financing, aims to store 60 critical minerals for civilian industries to strengthen industrial resilience and economic security during supply chain disruptions
- US Federal investments and price floor instruments (such as the MP Materials deal)
- US national security strategy to reduce Latin American reliance on Chinese debt and FDI, and instead position the US as the primary option for financing energy and cyber infrastructure

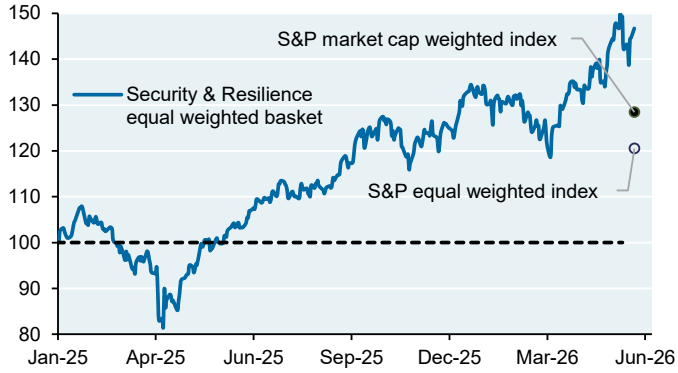
Our colleagues in JP Morgan Securities have been tracking the Security & Resilience theme by focusing on select companies across the five industries shown below[23]. Since January 2025, this SRI theme has outperformed the S&P 500 with strong returns in four of the five industries (healthcare resilience is the laggard).

Industrial policy spending in key economies, 2022
Percent of GDP



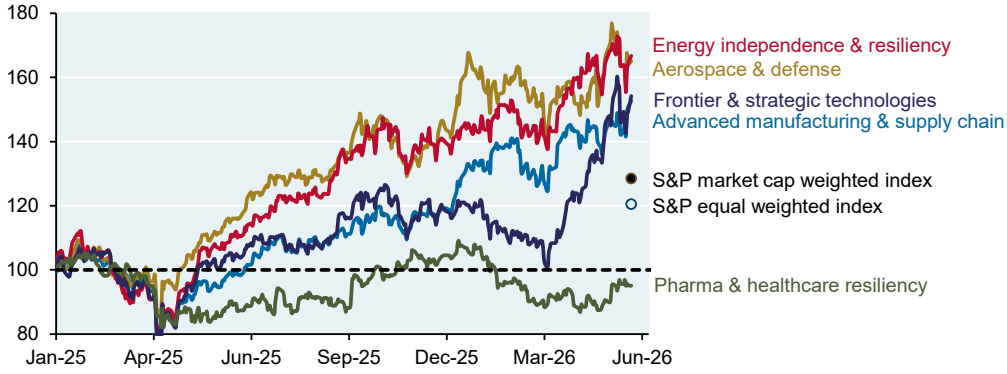
Source: CSIS, 2022

Security & Resilience stocks vs. the market
Index (Dec 2024 = 100)



Source: Bloomberg, JPMAM, June 15, 2026

Security & Resilience stocks by industry
Index (Dec 2024 = 100)

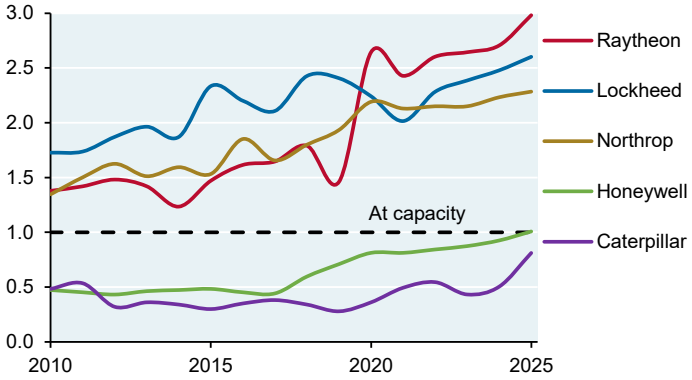


Source: Bloomberg, JPMAM, June 15, 2026

[23] "*Equity Thematic Strategy: Security and Resilience Investing*", JP Morgan Global Markets Strategy, Dubravko Lakos-Bujas, May 15, 2026

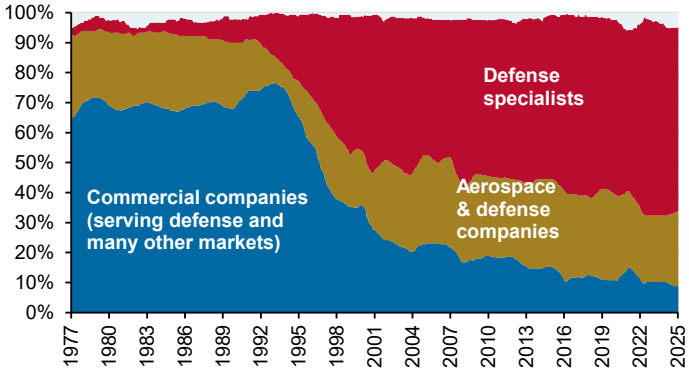
One of the best SRI industries has been defense. US defense acquisition typically favors incumbent pure-play defense contractors over new entrants from the commercial sector, but Congress and the DoD are working to strike more of a balance, like the one that existed in the 1980s. High book-to-bill ratios for prime contractors show more supply chain constraints than commercial sector contractors such as Honeywell/Caterpillar.

US defense prime contractor capacity constraints
Book-to-bill ratio



Source: JP Morgan Industry & Policy Thematics, June 8, 2026

Major weapons systems acquisition budget share by industrial base, Percent share



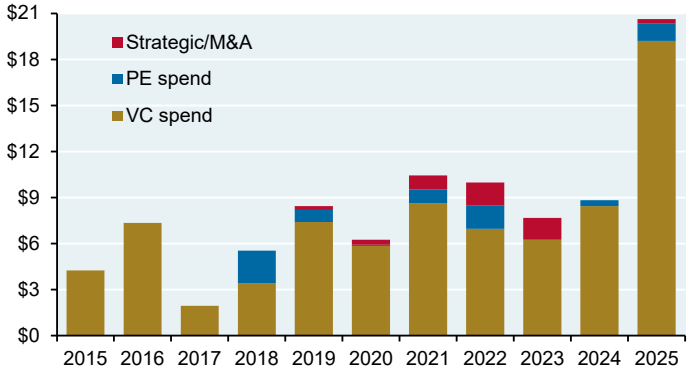
Source: CSIS, August 2024

The 2026 National Defense Authorization Act (NDAA) aims for a commercial-first approach that requires research and formal documentation before opting out of commercial providers, and reduces compliance burdens by limiting defense-unique clauses in contracts. Other pro-commercial efforts:

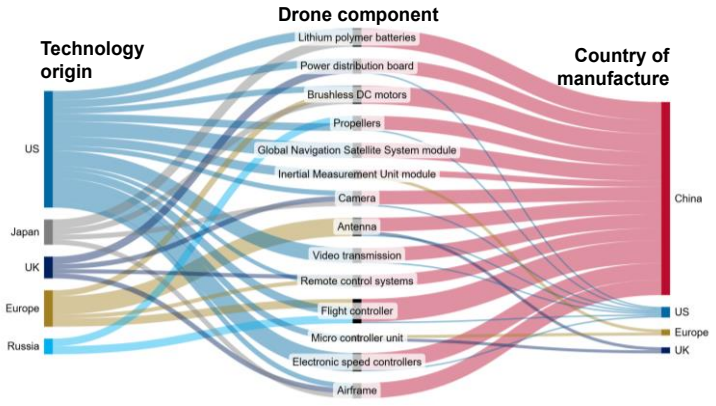
- The DoD is increasingly using non-traditional acquisition pathways like Commercial Solutions Openings and Other Transaction Agreements, bypassing the bureaucratic Federal Acquisition Regulation framework
- The Modular Open Systems Architecture acquisition criteria requires new programs to maximize use of modular components that are more easily produced by commercial manufacturing processes
- On software, the NDAA creates more flexibility to pay contractors with a commercial-style subscription model, adding more flexibility to refine the goals of the product throughout the life of the contract
- The Joint All Domain Command and Control initiative seeks to connect sensors across land, sea, air, space and cyber domains into one network that automatically matches threats to the best available response, opening the door for new software, AI and modular hardware companies

On drones and robotics: to meet the DoD's 2025 Drone Dominance Initiative goal of 200,000 military drones by 2027 and reduced supply chain reliance on China (right chart), manufacturing capacity outside of the traditional defense industrial base will be necessary. With funding and prioritization from the DDI and the 2023 Replicator Initiative, and with a strong pickup in investment from private capital, the commercial sector may be positioned to meet part of this new demand.

Private capital invested in US robotics and drones
US$, billions



Source: JP Morgan Industry & Policy Thematics, June 8, 2026



Source: MIT Technology Review, JPMAM, July 2024

National security aftershocks from the Iran War

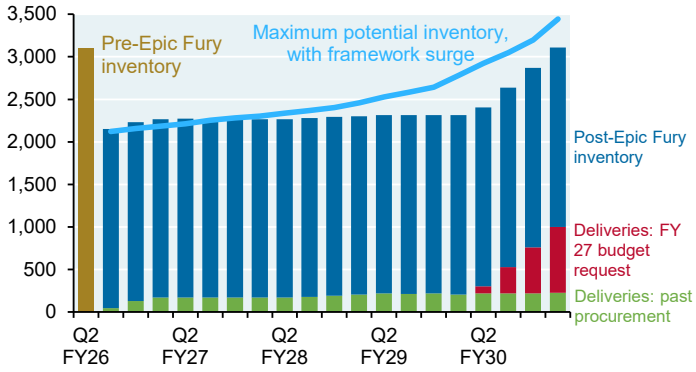
For the last few years we have been tracking munitions readiness estimates from Mark Cancian at CSIS. Here is Mark's latest assessment (May 2026) of US munitions replenishment timelines due to the war in Iran with charts on two critical defense systems: tomahawk missiles and THAAD anti-ballistic missile systems. These timelines prompted the Administration in June 2026 to invoke the **Defense Production Act** to force defense companies to produce more weapons since, an acknowledgment that current conditions pose a direct threat to national defense preparedness.

Key munition stockpiles and timelines to rebuild

	Estimated use in Iran War	FY 2027 request	Deliveries in FY 2026	Annual production capacity (current maximum rate / framework agreement goal)	Estimated return to prewar inventory
Tomahawk	1,000+	785	207	600 / 1,000	Late 2030 - early 2031
Terminal High Altitude Area Defense (THAAD)	190-290	857	92	96 / 400	Mid to late 2029
Patriot	1,060-1,430	3,203	172	2,000 / 2,000	Mid-2029
Standard Missile (SM) 3	130-250	214	52	156 / 250	Early 2029
Standard Missile (SM) 6	190-370	540	125	239 / 500	Late 2028 - early 2029
Joint Air-to-Surface Standoff Missile (JASSM)	1,100+	821	484	860	Mid-2027
Precision Strike Missile (PrSM)	40-70	1,134	70	680 / 550	Late 2026

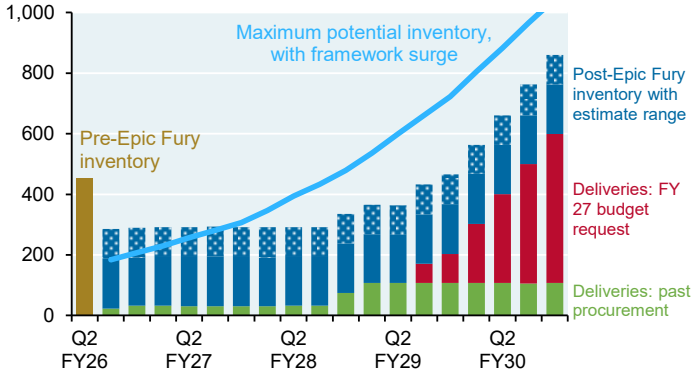
Source: CSIS, May 27, 2026

Projected US Tomahawk inventory
Number of missiles



Source: CSIS, May 27, 2026

Projected US THAAD interceptor inventory
Number of interceptors



Source: CSIS, May 27, 2026

Early post-mortems on the Iran War are rolling in. It may be premature to judge the short term and long term consequences of the war for the US, but the tone of the post-mortems I'm seeing is pretty consistent:

- Iran Defeat is a Bigger Defeat than Vietnam in Foreign Policy
- Why Trump lost in Iran in the Houston Chronicle
- Trump in Defeat, The Sad Hawks and Iran has humiliated Trump in the Atlantic
- Trump loses to Iran on Substack (Ron Dreher)
- Was it worth it? The True Cost of Trump's Iran War from the Council on Foreign Relations
- The long shadow of the Iran War: Trump's most consequential foreign policy mistake in Foreign Affairs

[9] The increased unpredictability in the rule of law

On the issue of the rule of law during Trump's second term, I want to start by listing policies that are **arguably not** signs of eroding legal standards and practices. Due to sweeping delegations of power to the executive branch, the President has always had an arsenal of tools available, some of which have been used by previous Presidents only to limited extents or for discrete purposes. The deployment of such tools by the current administration does not constitute a constitutional crisis unless it consistently ignores judicial rulings against it. According to my constitutional law contacts, examples of "legal/most likely legal" policies include the following:

General Policymaking Discretion

• repealing Biden Executive Orders
• appointing a Census Bureau head who would design a form that counts both people and citizens for purposes of the 2030 Census
• pausing implementation of gov't programs such as renewable energy subsidies to develop new priorities, as long as funds are spent within the broad boundaries of the related congressional appropriation
• allowing states to use federal educational block grants for public school choice programs

Managing the Executive Branch

• restructuring or eliminating agencies not created by federal statutes and whose independent existence is not otherwise statutorily required
• stripping away as much authority and as many employees as legally possible from certain statutorily established agencies like the Department of Education
• abolishing DEI offices, trainings and programs in federal agencies, and rescinding executive orders requiring affirmative action by federal contractors
• terminating or transferring federal employees who currently are not subject to federal civil service protections

Foreign and International Affairs

• withdrawing from organizations such as the WHO, particularly in the absence of Congressional legislation mandating US membership
• designating foreign drug cartels as foreign terrorist organizations, since foreign affairs is traditionally an area of deference to the Executive Branch
• imposing increased duties on certain foreign imports, though the use of the International Emergency Economic Power Acts to impose tariffs was deemed invalid

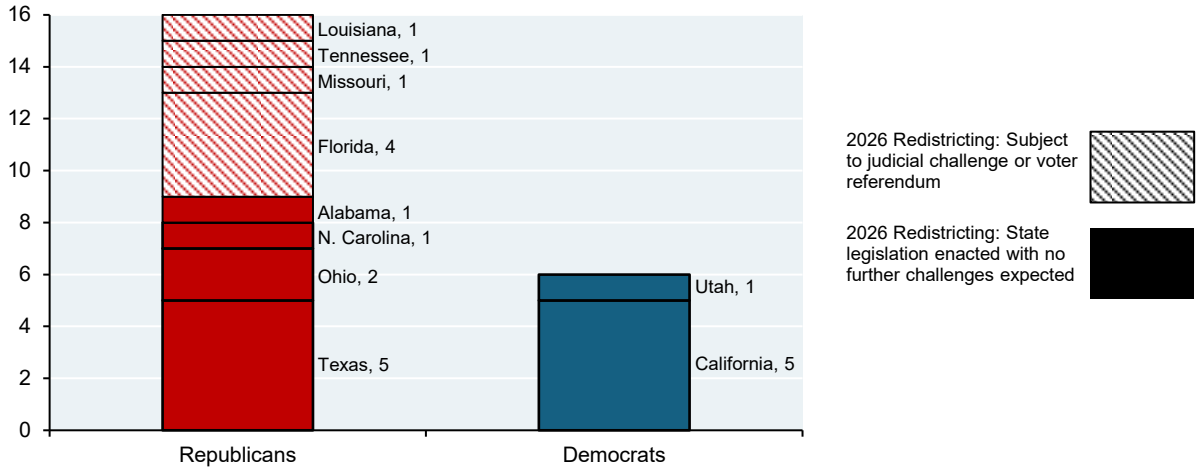
Immigration and Border Policies

• aggressively deporting undocumented aliens pursuant to standard statutory procedures (although specific tactics and programs were challenged and depending on execution, some efforts were struck down)
• temporarily suspending refugee admissions and temporarily barring admission to foreign nationals from countries with screening procedures determined insufficient from a national security perspective
• ending temporary protected status for refugees from certain counties, though many remain in litigation

On a related note, the Supreme Court sided with the Trump Administration on 21 occasions out of 25 on the emergency docket in 2025. The four rulings against the administration dealt with deployment of National Guard troops to maintain general law and order, deportations under the Alien Enemies Act of 1798, accrued but unpaid bills to government contractors for foreign aid projects, and free speech issues for immigration judges. See Appendix II for details.

Also: while it gets a lot of press and might seem anti-democratic in practice, I would not characterize partisan gerrymandering as an example of erosion in the rule of law. The US Constitution and most state constitutions do *not* contain bans on gerrymandering for **political** purposes, while the Supreme Court has declared that creation of majority-minority districts for **racial** purposes *does* violate the constitution. As a result, GOP states have been found to be acting within the realm of constitutionality in their redistricting efforts, and the same holds true for redistricting by Democratic states. Assuming that judicial challenges and voter referendums proceed as we expect them to, the GOP could pick up 12-16 seats in the 2026 midterms compared to 6 by the Democrats. Some states (Virginia, Colorado, New Jersey, Wisconsin, Georgia and Mississippi) were unable to draft redistricting legislation in time for the 2026 midterms due to clauses in state constitutions but could do so for the 2028 general election. At that time, the GOP advantage from redistricting could narrow sharply.

New 2026 House seats that may result from state redistricting and Voting Rights Act decision



Source: JPMAM, 2026

Pending decisions affecting the left side of the chart as of June 7, 2026:

Florida: a trial court declined to issue a preliminary injunction to ban the state from using the new map in the 2026 midterms. The District Court of Appeals declined to either certify the case directly to the Florida Supreme Court or expedite the appeal. Accordingly, it is extremely unlikely that any court will enjoin the new map before the 2026 election, despite a provision in the Florida Constitution prohibiting partisan gerrymandering

Missouri: the State Supreme Court upheld the new map, while opponents have filed signatures to place a referendum on the November ballot to nullify the new map. The Missouri Secretary of State will decide on the referendum's legitimacy by August; unclear impact on 2026 midterms if referendum passes

Tennessee: a Federal judge declined to ban the new map; a three judge Federal District Court will have the chance to enter a preliminary injunction; litigation ongoing, new map likely to stand in 2026 midterms

Louisiana: Following a US Supreme Court decision invalidating Louisiana's congressional map which included two majority-minority districts, the Governor delayed congressional primaries and the legislature adopted a new, replacement map containing a single majority-minority district. Plaintiffs have challenged the new map's validity before a three-judge federal district court. The court is currently scheduled to hold a hearing on June 17, but Louisiana is seeking to cancel it on the grounds it is too late for a federal court to order further changes to its map this election cycle

Alabama: Alabama sought to use a map it adopted in 2023 containing only one majority-minority district. A three-judge federal district court entered a preliminary injunction barring the state from using that map, but the US Supreme Court recently stayed that ruling. Thus, Alabama will be able to use its preferred map from 2023 for the November election

That said, some analyses of the rule of law in the US show substantial concerns about constraints on Executive Branch power, compliance with court orders, politicized law enforcement and fear of reprisals.

The 2026 UCLA/Bright Line Watch Democracy project surveyed legal experts (21 Article III Federal judges, 113 lawyers and 193 law professors) to assess the legal system under Trump's second term. Roughly half of the judges were appointed by Democrats and half by the GOP. However, 86% of all respondents self-identified as liberal from a constitutional standpoint (i.e, they believe that Supreme Court should base rulings on what it thinks the Constitutional means in current times, rather than based on what the Constitution meant as originally written), which may heavily impact the results. UCLA concluded that most respondents perceived a significant erosion in the rule of law in Trump's second term, examples of which include politicized law enforcement, dysfunctional separation of powers and executive-branch overreach. Examples:

Retaliation. Nine in ten say the Administration has used the Department of Justice (DoJ) to go after enemies and provide benefits to allies

Presumption of good faith. Only one in five agree the federal government still merits the "presumption of regularity" in court (the doctrine that courts should presume government officials act lawfully and in good faith absent clear evidence to the contrary)

Compliance with judiciary. Eight in ten report that federal officials fail to comply with court orders somewhat or very often, and nearly nine in ten say Trump DoJ appointees mislead federal judges somewhat or very often[24]

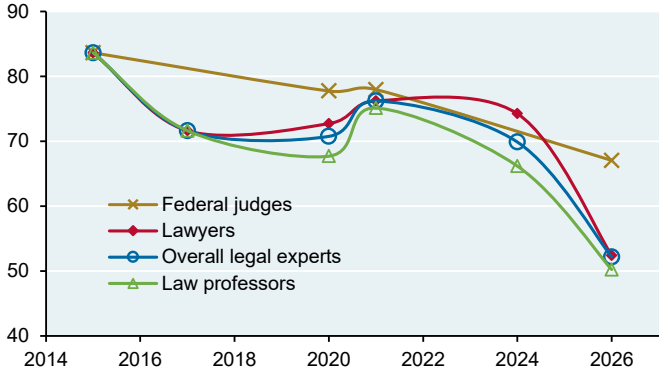
Reprisals. Nearly one in five lawyers report that representation decisions by their firms have often been affected by fear of adverse action by government officials or agencies during the Trump administration

Harassment. Almost half of federal judges are concerned about harassment if they rule against the federal government. Substantial minorities of lawyers are concerned about facing legal sanctions or professional consequences for taking legal action against the government

Core legal principles. Less than a fourth believe in the following principles: that US government agencies do not punish political opponents; that law enforcement is not exploited for political purposes and remains neutral; that investigations of public officials are not compromised; that government officials face sanctions for misconduct; and that government officials do not use public office for private gain[25]

Most conservative respondents agreed that the Administration pursues political enemies to a significant degree, that the President provides favors or benefits to allies and that Trump DoJ appointees often mislead Federal judges; however, they do not view the overall rule of law as being much different than in 2015.

Legal expert ratings of the US rule of law
Mean rule of law rating



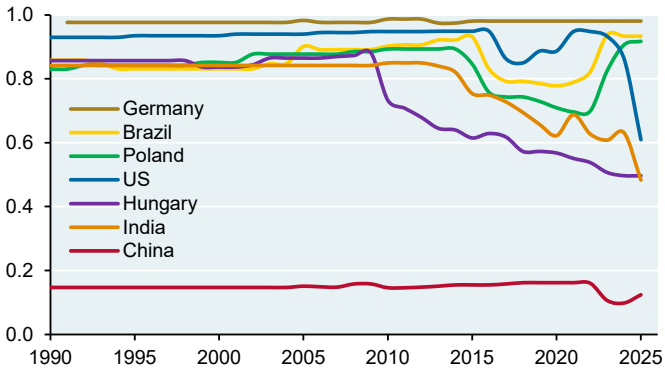
Source: UCLA Democracy Project, 2026

[24] Minnesota Chief US District Judge Patrick Schiltz, a Republican appointee, said Immigration and Customs Enforcement had violated nearly 100 court orders and had "likely violated more court orders in January 2026 than some federal agencies have violated in their entire existence"

[25] From Public Citizen: 14 of 27 identified donors to the White House ballroom project won new/expanded federal contracts worth more than $50 billion during the past six months. Also: 16 of 27 donors face federal enforcement actions (antitrust, labor, securities violations) or had actions suspended by the Administration

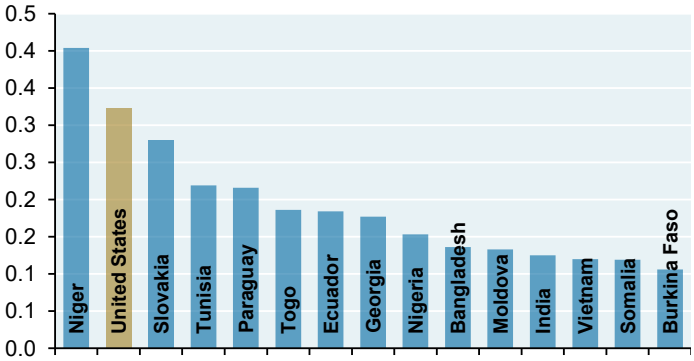
The Varieties of Democracy Project hosted by the University of Gothenburg (Sweden) assesses legislative checks on the executive branch for 200+ countries. Germany represents the upper bound of legislative checks and balances, while China ranks at the low end with practically no legislative oversight[26]. I plotted countries that have experienced large shifts; the US score declined sharply in 2025 and ranks second among the largest declines since 2023, only behind the African country of Niger. My constitutional law contacts believe the report to be somewhat partisan and inaccurate in certain respects, such as sections on US voting rights history and freedom of expression, and that the report conflates the *ability* of Congress to exercise legislative checks on the executive branch with its *willingness* to do so in an environment of unified government. But I include it here as another example of how US rule of law issues are perceived in a global context.

Legislative checks on government, Index (legislature/govt agency ability to question, investigate & oversee the executive)



Source: V-Dem, Our World In Data, JPMAM, 2025

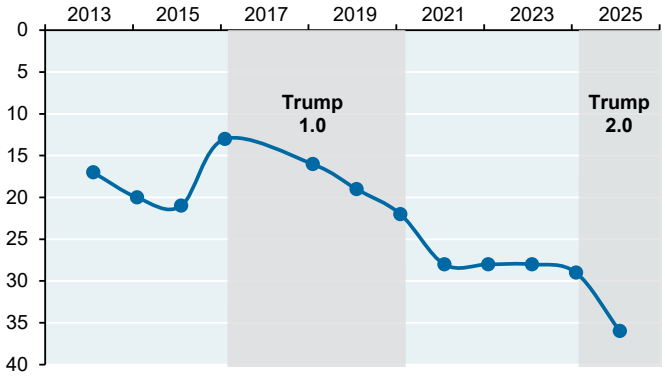
Largest declines in legislative checks on government, 2023-2025, Index decline



Source: V-Dem, Our World In Data, JPMAM, 2025

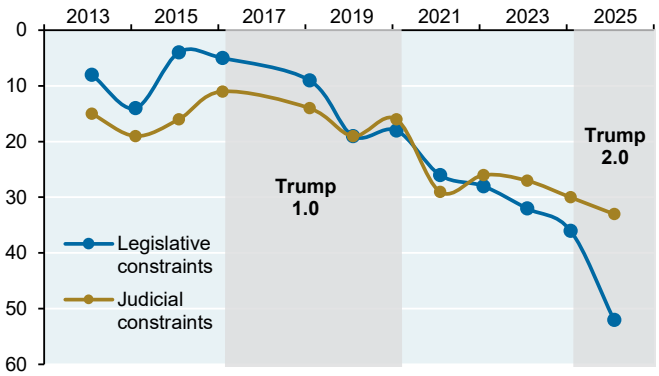
The World Justice Project, founded in 2006 as a presidential initiative of the American Bar Association, tracks various aspects of the rule of law across 143 countries. While the overall US rank from 2023 to 2025 only fell one spot from #26 to #27, there were large declines in certain categories germane to this section. For "Constraints on government powers", the US rank declined from #28 to #36. This decline was largely driven by declining US scores on "Government powers are effectively limited by the legislature" (from #32 to #52) and "Government powers are effectively limited by the judiciary" (from #27 to #33). These rankings also declined during Trump's first term.

WJP Constraint on Government Powers: US rank
Rank, N = 140



Source: World Justice Project, 2025

Constraints on Government Power by branch: US rank
Rank, N = 140



Source: World Justice Project, 2025

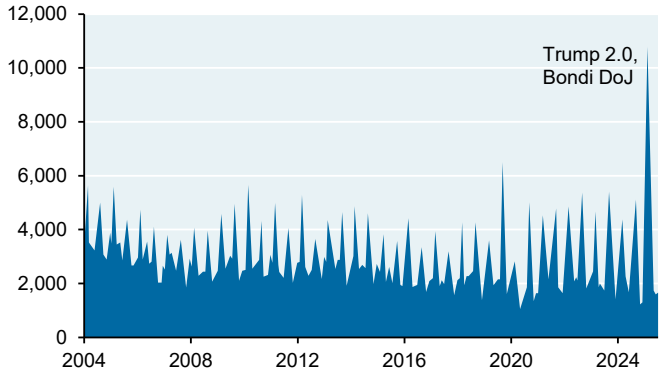
[26] According to data from the World Justice Project, the Cato Institute, Freedom House and the Economist Intelligence Unit, China's democracy scores rank in the bottom 5% alongside countries like Russia, Venezuela, Egypt and Iran

Another sign of the increased unpredictability in the rule of law: a collapse in DoJ prosecutions

The Trump 2.0 DoJ has terminated potential criminal cases referred to it by law enforcement and other federal agencies at a record pace. The table shows terminated cases by category (some cases were pending multi-year FBI and DEA investigations; for complex cases, the DoJ can take years before deciding whether to bring charges). Part of the 2025 spike in terminations reflects a normal shift in DoJ priorities that occurs when Presidential administrations change, and the close-out of stale cases. But the magnitude of the shift and its composition are unusual, prompting ~300 ex-DoJ officials to publicly state that the DoJ was taking a sledgehammer to long-standing work designed to protect communities and the rule of law[27].

While the Trump 2.0 DoJ increased prosecution of immigration cases, **it also terminated pending investigations involving organized crime, white collar crime, corruption, labor racketeering, violent crime, healthcare fraud and national security at a record pace**. Even as the Trump administration launched efforts to root out waste and abuse, the DoJ terminated around three times as many cases of major fraud compared with similar time periods under prior administrations[28]. Terminations also included 300 cases involving charges of providing material support to foreign terrorist organizations; 60 union corruption and labor racketeering cases; and 5,000 cases of federal drug law violations, including trafficking and money laundering.

Cases terminated by the Department of Justice
Number of criminal cases terminated, monthly



Source: Ken Morales (ProPublica), March 31, 2026

Referred cases that the DOJ declines to prosecute
First six months of each administration

Case type	Avg of prior 3 administrations	Trump (2025)	Change in declined cases
Labor	28	64	129%
National security	720	1,391	93%
Organized crime	98	182	86%
White-collar crime	3,787	6,009	59%
Drugs	3,447	4,999	45%
Corruption	471	623	32%
Violent crime	4,858	6,108	26%
Civil rights	457	535	17%
Other	2,786	2,950	6%
Immigration	864	674	-22%

Source: Ken Morales (ProPublica), March 31, 2026

Other legal odds and ends

- Last November the "Article III Coalition", a group of 50 retired federal judges appointed by presidents of both parties, highlighted a recent surge in threats against judges and stated that Administration rhetoric from high-ranking officials endangers judges and court staff and also undermines public trust in the judiciary
- As of November 2025, there were 204 cases in which federal district courts ruled on requests for preliminary relief against the administration[29]. In 154 cases, district court judges granted either a temporary restraining order, a preliminary injunction or both. These outcomes were bipartisan: 41 of 154 cases with rulings adverse to the administration were presided over by 30 GOP-appointed judges, half of whom were appointed by Trump himself. The 41 cases decided by GOP judges would be an unprecedented number of rulings adverse to the gov't during the first 10 months of any presidency according to Stephen Vladeck at Georgetown
- Comments on Trump IRS agreement: "Breathtaking abuse of the tax and legal system" (DeBot, NYU); "Presidents don't have authority to immunize themselves from personal liability for not paying taxes" (Wehle, University of Baltimore); "There is no historical precedent for this kind of presidential immunity from the IRS" (Mehotra, Northwestern); "An unprecedented remedy" (Werfel, former IRS Commissioner)

[27] "*Urgent Message from Recent DOJ Alumni Decrying Attacks on Justice Department*", October 6, 2025

[28] "*Trump's Justice Department Dropped 23,000 Criminal Investigations in Shift to Immigration*", ProPublica, Ken Morales and David Armstrong, March 2026

[29] "*Trump Administration's Dangerous War Against District Judges*", Stephen Vladeck (Georgetown), American Bar Association, March 2026

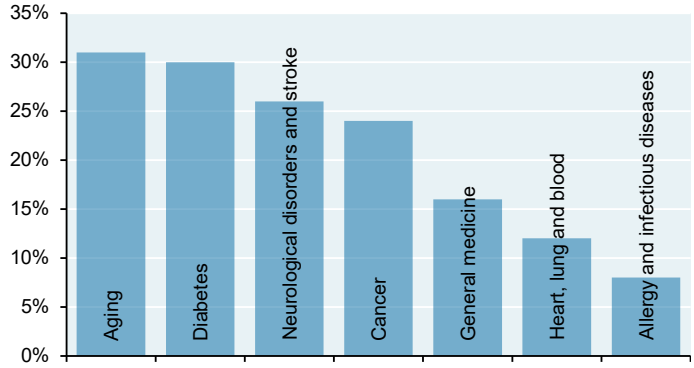
[10] Federal government defunding of science and sidelining of scientific expertise

This year also marks another milestone: the 80th anniversary of "*Science, The Endless Frontier*", a document prepared for President Truman which argued for sustained government funding for scientific research after WWII to ensure national security, health and prosperity. The report highlighted the government's central role in supporting science that harnessed nuclear energy, implemented radar and developed methods of mass-producing natural penicillin, all important elements of US success in World War II. The report also proposed creating a new federal agency which led to the establishment of the National Science Foundation and advocated for supporting scientific talent and research in universities, laying the foundation for modern US science policy. By the 1950's, the US had established itself as the undisputed global leader in science.

The National Institutes of Health dates back to 1948. The NIH spearheaded efforts to eradicate smallpox, to develop modern antiretroviral therapies and to map the human genome. The NIH has also played a critical role in the advancement of US science: NIH funding supported basic or applied research related to 99% of newly approved medicines, and funded research which supported clinical trials for 62% of these drugs[30]. As for the NSF, its history includes decades of research laying the groundwork for the internet, Doppler radar, supercomputing, 3D printing and artificial intelligence.

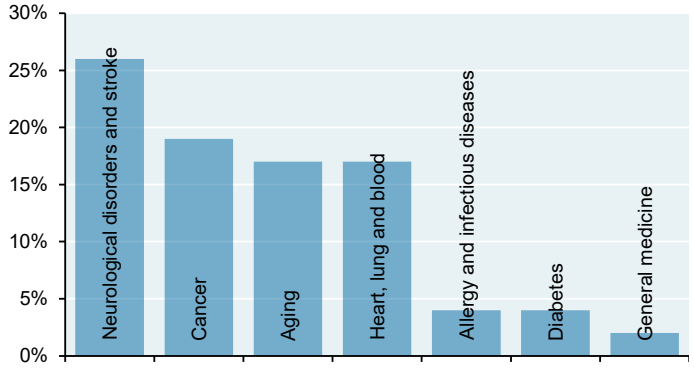
Government funding policies with respect to science are changing. The charts tell the story: there have been declines in competitive NIH grants (aging, diabetes, cancer, strokes, heart disease, infectious diseases) and in NSF grants (technology, STEM disciplines, engineering, biology). Based on data from the Union of Concerned Scientists and *Nature*, we estimate that roughly half of 6,000 terminated NIH grants fell afoul of Executive Order 14151 and other directives which seek to terminate government activities related to LGBTQ+ health, vaccine hesitancy, environmental justice and DEI; the remainder were terminated for other reasons entirely.

Decline in number of competitive grants issued by NIH
Percent decline, 2025 vs 2015-2024 average



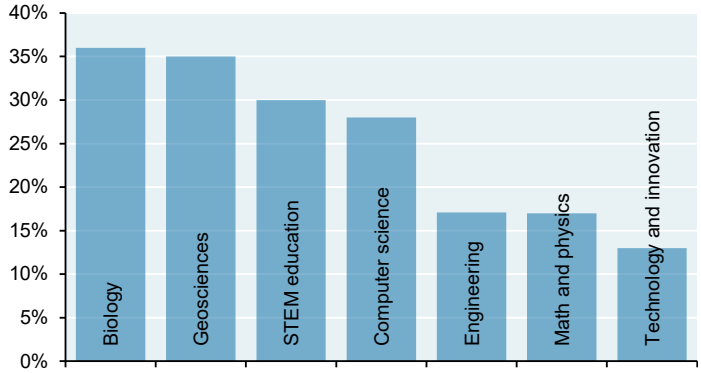
Source: NYT, JPMAM, December 2, 2025

Decline in competitive grant funding issued by NIH
Percent decline, 2025 vs 2015-2024 average



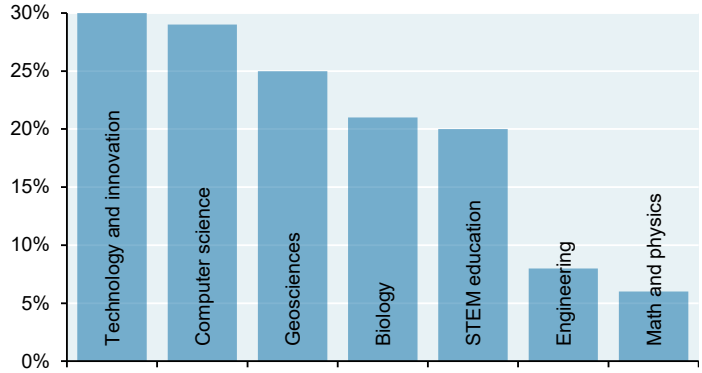
Source: NYT, JPMAM, December 2, 2025

Decline in number of new grants issued by NSF
Percent decline, 2025 vs 2015-2024 average



Source: NYT, JPMAM, December 2, 2025

Decline in new grant funding issued by NSF
Percent decline, 2025 vs 2015-2024 average

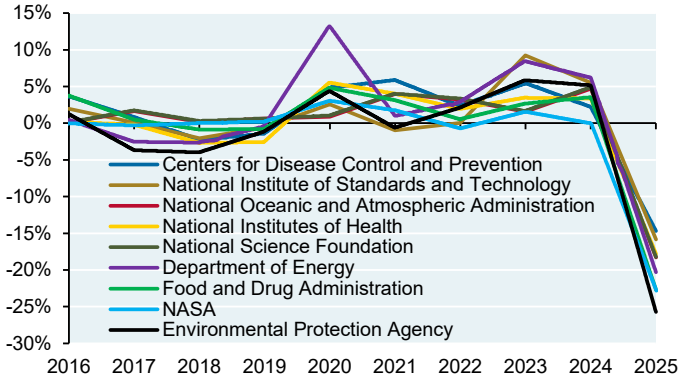


Source: NYT, JPMAM, December 2, 2025

[30] *"How the NIH became the backbone of American medical research and a major driver of innovation and economic growth",* The Conversation, December 15,2025

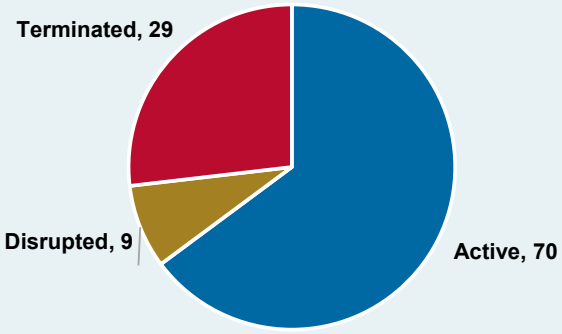
In April 2026 the Administration fired the entire National Science Board; the NSB is the governing body for the National Science Foundation. The dismissals took place just days before the NSB released its "*Science and Engineering Indicators*" report which highlighted that China is closing the gap with the US in key scientific and technological metrics (science & engineering papers published in the top 1% of most cited journals articles, total gross expenditures on R&D, the number of patents awarded in AI, quantum information science and technology, biotechnology, semiconductors and nuclear technologies). There have also been sharp declines in staffing at science and public health related agencies, and terminations of independent federal advisory agencies[31].

Change in agency staff levels from previous year
Percent



Source: Nature, January 22, 2026

Disruptions and terminations of independent federal advisory committees at science agencies, January 2025 to June 2025



Agencies include: NSF, EPA, HHS and USDA
Source: GSA FAC Database, Union of Concerned Scientists, June 30, 2025

Assessments regarding the impact of Trump Administration NIH policies include the following. The second quote is the most worrisome for investors.

Observation	Source
Even when lawmakers or the courts direct the restoration of NIH funding, that's only part of the story. By then, multiyear clinical trials have seen years of data collection invalidated, and patients who need lifesaving care have been abandoned	Arati Prabhakar, former head of White House Office of Science and Technology Policy and DARPA
Downstream effects are not limited to academia. Biotechnology start-ups, private sector R&D and clinical innovation pipelines all depend on federally funded basic research and a steady influx of NIH-trained scientists. Without that flow of talent, the entire US innovation engine, from basic discovery to commercial drug development, risks slowing down and jeopardizing progress on diseases that affect millions of Americans	Sandra Barbosu of the Information Technology and Innovation Foundation
The social compact between scientific research and the government is being systematically undermined...The intention was to punish elite universities, it was not to destroy the scientific capacity of the United States, but that's what they're doing. It's one thing to destroy something. It is quite another to destroy it and have nothing to replace it with. I think that's the moment we're in	Shirley Tilghman, molecular biologist and former president of Princeton
Grant terminations during 2025 halted funding for 383 drug trials, exposing 74,000 patients to uncertainty or lost access to treatments from funding disruptions	American Medical Association
While some funding terminations arose out of the president's attacks on universities such as Columbia or Harvard, an analysis leveraging government data suggested that two-thirds of all terminated research funding was destined for public colleges and universities instead	American Progress
After years of growth, enrollments in PhD programs in life and biomedical sciences flatlined	National Student Clearinghouse Research
Administration officials connect this complete chaos to an intent to make it stronger, not realizing that by doing what they're doing, it's basically taking an axe to the system. They're destroying it and they don't really understand that when you tell them	Elias Zerhouni, head of the NIH under President Bush from 2002 to 2008
American scientists submitted 32% more applications to jobs abroad in 2025 vs 2024; 85 rising and established US scientists, including an NIH neurobiologist and a Princeton nuclear physicist, moved to China; the EU launched a EUR 500 million package to attract US scientists to Europe	Nature; CNN; Breugel.org

[31] "*US Science After a Year of Trump*", Nature, Max Kozlov, Jeff Tollefson and Dan Garisto, January 20, 2026

The OMB proposal on NIH grants

In a May 2026 Substack piece, former NIH official Elizabeth Ginexi outlined concerns about proposed changes by the OMB regarding Federal involvement in the NIH grant process[32]. Ginexi's bottom line: peer review, open competition and institutional autonomy are the pillars of the existing system. The proposed rule dismantles all three simultaneously in a way that is binding on every federal agency by October 1, 2026.

Political Appointees Take Control of Grant Awards (§200.205): political appointees rather than career scientists or program officers would be required to conduct a "pre-issuance review" of every discretionary grant before it is awarded. These appointees are explicitly forbidden from deferring to peer reviewers or routinely ratifying their recommendations. Criteria they must apply include blocking awards that "promote anti-American values"

Peer Review Is No Longer Binding (§200.205(d)): The rule explicitly states that peer review recommendations "remain advisory and are not ministerially ratified, routinely deferred to, or otherwise treated as de facto binding." This directly dismantles the post-WWII system used by NIH, NSF, DOE, NASA and nearly every science agency in which independent expert peer review was the primary measure of scientific merit. Under this rule, a political appointee can override the scientific community's judgment with no finding of cause.

Active Grants Can Be Terminated at Any Time, for Any Reason (§200.340): the rule codifies and expands the authority to terminate active grants mid-award simply because they are "inconsistent with program goals or agency priorities." Agencies need only provide a brief written rationale; no finding of noncompliance or fraud is required. This retroactively threatens ongoing multi-year research that researchers and institutions have built programs around.

Applicants Can Be Denied Based on Organizational Affiliations (§200.206): risk factors agencies may use to deny a grant application are expanded to include an applicant's membership in or affiliation with organizations that "advocate for the overthrow of the US Government" or "undermine public safety or national security." Given the preamble's expansive framing of what constitutes anti-American activity, this language could be used to disqualify researchers affiliated with civil rights, environmental or public health advocacy organizations.

Program Goals Must Align with Administration Policies and Priorities (§200.202): every new federal grant program including science programs must now be designed with goals that explicitly align with administration policies and priorities. This requirement is embedded directly in the regulatory text governing program design, meaning science agencies must structure their grant solicitations around the current administration's political agenda rather than solely around scientific need, statutory mandate or the advice of the scientific community.

OMB Gains Direct Oversight of Which Institutions Receive Grants: a new provision allows OMB to require agencies to submit reports identifying the specific recipients of federal awards over any given period. Combined with OMB's new authority to require political alignment in program design, this gives the White House direct oversight and leverage over which institutions receive federal research funding. That function has historically been insulated from political interference, and with good reason.

[32] "*Summary of Key Changes in OMB's Proposed Federal Financial Assistance Rule*", Elizabeth Ginexi (former NIH Senior Program Officer), Federal Register, May 29, 2026

Any discussion of the pendulum of US scientific progress and backsliding should include HHS Secretary RFK Jr and his campaign to raise doubts about vaccine safety. Some background: vaccines are arguably among the greatest achievements in biomedical science and public health. When unchecked, vaccine preventable diseases (VPDs) have enormous social and economic costs. The table shows pre-vaccine incidence of VPDs and how vaccines led to case declines of 90%-100%[33]. In the US, for a single birth cohort, vaccines are estimated to prevent 20 million cases of disease and more than 40,000 deaths[34]. Vaccines were part of a broader medical science revolution which began in the 1870's with antiseptics in medicine, a revolution which doubled life expectancies which at the time had been roughly unchanged since the Bronze Age in 1200 BC.

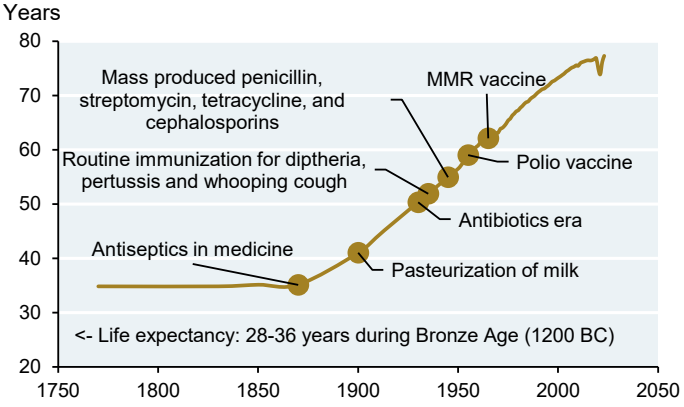
While RFK has acknowledged the effectiveness of MMR vaccines, FactCheck.org could not find a single instance in which he offered clear unqualified support for the vaccine without including or later adding inaccurate or misleading information that might cause someone to rethink vaccination[35].

Vaccine preventable diseases in the US

	PRE-VACCINE			POST-VACCINE		
VPD	Annual cases	Annual deaths	Vaccine decade	Cases (2006)	Deaths (2004)	Case decline
Diphtheria	21,053	1,822	1940's	0	0	100%
Measles	530,217	440	1960's	55	0	100%
Mumps	162,344	39	1940's	6,584	0	96%
Pertussis	200,752	4,034	1940's	15,632	27	92%
Polio (acute)	19,794	1,393	1950's	0	0	100%
Rubella	47,745	17	1960's	11	0	100%
Smallpox	29,005	337	1790's	0	0	100%
Hepatitis A	117,333	137	1990's	15,298	18	87%
Tetanus	580	472	1940's	41	4	93%

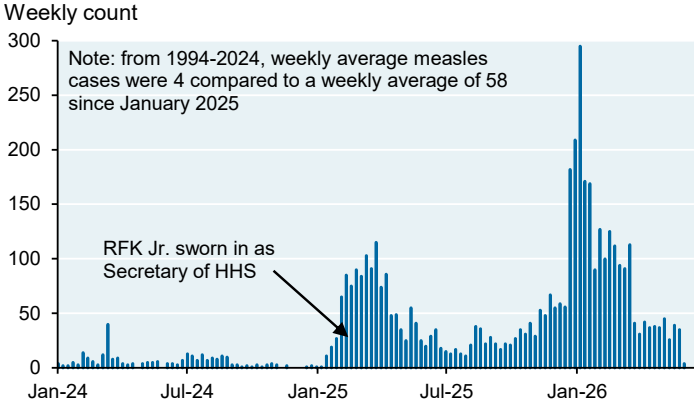
Source: Roush and Murphy, JAMA, 2007

Life expectancy by year of birth



Source: Riley (2005); Zijdeman (2015); HMD (2025); UN WPP (2024); OWID

Measles cases reported in the US, 2024-2026



Source: CDC, JPMAM, June 7, 2026

[33] "*Historical Comparisons of Morbidity and Mortality for Vaccine-Preventable Diseases in the United States*", JAMA American Medical Association, Roush and Murphy, November 14, 2007

[34] "*Simply put: vaccination saves lives*", Proceedings of National Academy of Science, Orenstein & Ahmed, 2017

[35] "*A Timeline of RFK Jr.'s Mixed Messaging on the Measles Vaccine*", FactCheck.org, May 28, 2026

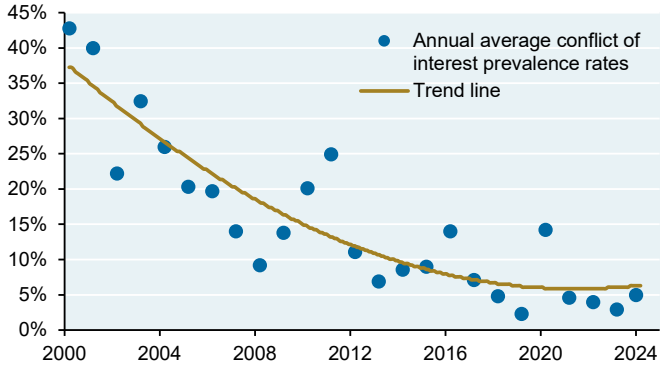
I thought vaccine efficacy was settled science decades ago, but RFK and his team have a new agenda[36]:

- In June 2025, Kennedy fired all 17 members of the Advisory Committee on Immunization Practices and replaced them; some new members reportedly have a history of anti-vaccine views. RFK cited conflicts of interest as a reason for ACIP dismissals, although as shown in the charts below such conflicts had reached all-time lows at the time the members were dismissed[37]
- FDA officials have delayed or blocked publication of studies supporting safety of widely used vaccines against Covid and shingles in recent months. The studies, conducted by scientists at the FDA that analyzed millions of patient records, found serious side effects to be very rare
- Scientists were directed to withdraw two Covid vaccine studies that were accepted by medical journals. These actions follow on decisions to cut research funding for vaccine development, to release unvetted information casting doubt on vaccines and to block other information supporting their safety, including blocking a paper by career CDC scientists indicating that the Covid vaccine sharply cut the odds of hospitalizations and emergency room visits
- Aaron Kesselheim, a Harvard Medical School professor who studies FDA regulation, suggested that the request to pull the papers was an act of censorship, adding that "at any other time in history, this would be a major scandal that would lead to congressional hearings and resignations of leadership". Jeanne Marrazzo, a former NIH official and chief executive of the Infectious Diseases Society of America, stated that FDA leaders withdrawing papers from publication is an act of "sabotage"

An October 2025 Washington Post OpEd entitled "***Six surgeons general: It's our duty to warn the nation about RFK Jr***" was written by surgeons general serving under Bush I, Clinton, Bush II, Obama, Trump and Biden. Their concern: RFK's "profound, immediate and unprecedented threat to public health". They describe the current period as one during which science and expertise take a back seat to ideology and misinformation.

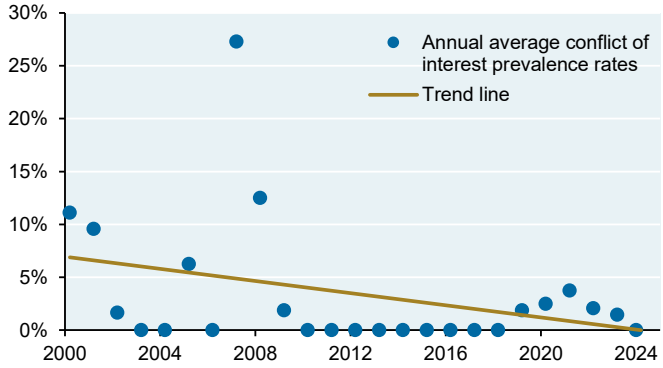
In a prior piece I explained why I consider Secretary of Defense Robert McNamara and Attorney General John Mitchell to be the two most controversial cabinet members of the last sixty years. I concluded by saying that they could rest easier now that RFK is poised to replace them. Little has changed since then.

Conflict of interest (COI) prevalence rates on CDC's Advisory Committee on Immunization Practices, Percent



Source: CDC, VRBPAC, USC Schaeffer Center, August 18, 2025

COI prevalence rates on FDA's Vaccine & Related Biological Products Advisory Committee, Percent



Source: CDC, VRBPAC, USC Schaeffer Center, August 18, 2025

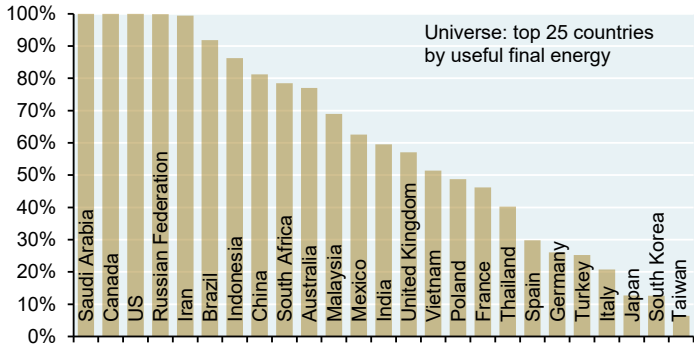
[36] "*FDA Blocked Publication of Research Finding Covid and Shingles Vaccines Were Safe*", New York Times, May 5, 2026; The Conversation, December 18, 2025

[37] "*Conflicts of Interest in Federal Vaccine Advisory Committees*", JAMA Research Letters, Genevieve Kanter et al, Leonard Schaeffer Center for Health Policy and Economics, University of Southern California, August 18, 2025. Financial conflicts of interest for each ACIP voting meeting were obtained from a database of CDC disclosures created by HHS, which includes past, current and pending relationships. ACIP members are expected to recuse themselves from deliberations and votes related to any product for which they have a current conflict

[11] Energy independence and the energy transition: the US goes it alone

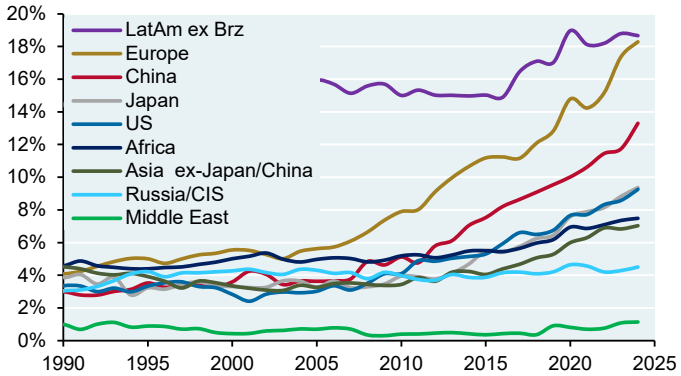
As one of the few major energy consumers that sources almost 100% of its energy needs domestically, the US has taken a U-turn as shown in the third chart by de-emphasizing investment in low emissions power generation. This stands in contrast to most other regions other than the Middle East. The result: as shown in the second chart, the US is experiencing a slower pace of decarbonization than other regions as well. This might seem like sensible policy for the US to adopt given its current status as a net exporter of fossil fuels. But since most commodities are priced globally, US commodity prices still soared after the Iran war began. While renewable energy involves substantial exposure to Chinese supply chains, the consequences of heightened exposure to rising fossil fuel prices has pushed many other countries in the opposite direction as the US. Silver lining: as shown in the last chart, the oil intensity of US GDP growth and corporate profits has plummeted since 1990.

Useful final energy self sufficiency
Percent of useful final energy consumption from renewables, nuclear and domestically produced fossil fuels



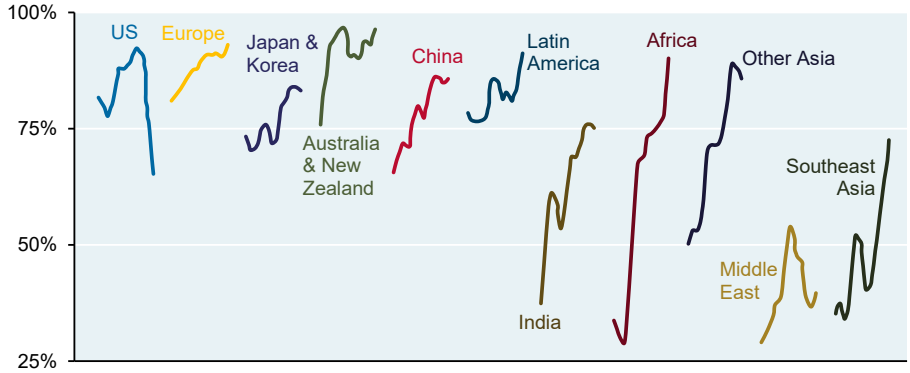
Source: Energy Institute, IEA, JPMAM, 2025

Decarbonization has been a mostly linear industrial transition since 2010, Renewable share of useful final energy



Source: Energy Institute, IEA, JPMAM, 2025

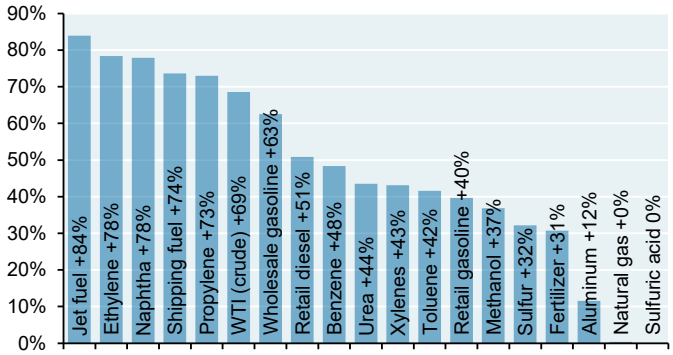
Share of total electricity generation investment from low-emissions sources, 2015-2026 Percent



Source: IEA, JPMAM, 2026

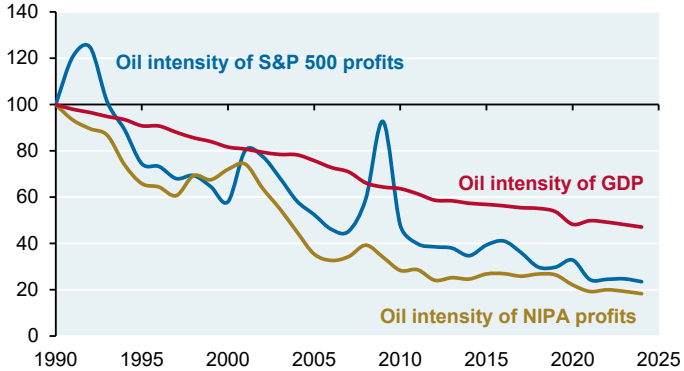
For much more information on the US and global energy landscape, see our 16th annual Eye on the Market energy paper here

Change in US commodity prices from start of Iran War to April 7, 2026, % price change



Source: Bloomberg, JPMAM, April 7, 2026. Price change from close of last business day before Iran War (Feb 27, 2026)

Oil intensity of the US economy
Index (100 = 1990)

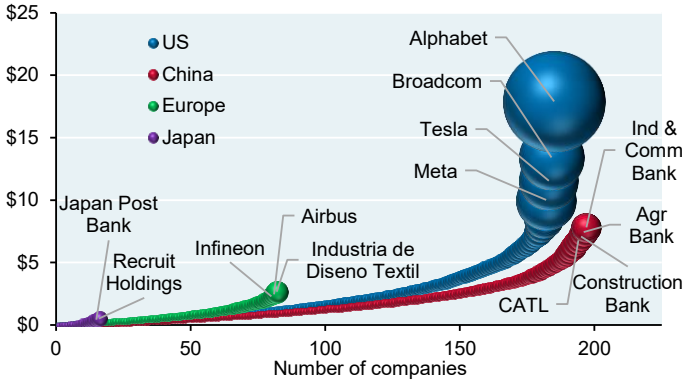


Source: Energy Institute, S&P, BEA, JPMAM, 2025

Appendix I: On the IPO calendar, supply, demand, free float timelines and performance

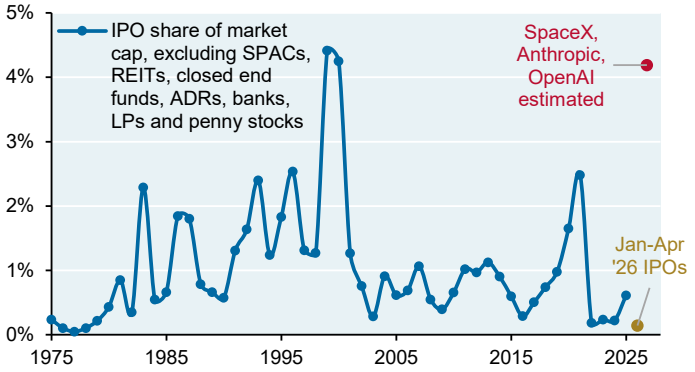
With three large IPOs planned for this year, I wanted to go through a few related topics. The first is a chart showing US IPO dominance in the 21st century. This approach showing the number of IPOs and their cumulative current market cap is an adaptation from the September 2024 Draghi report which was meant to propel Europe into a higher gear of entrepreneurship, competitiveness and capital formation (there is no evidence that the reforms were adopted or that the desired results took place). The second chart shows the total market cap of US IPO companies as a share of total market capitalization; we don't just focus on IPO *proceeds* since most of the rest of the company usually ends up being sold to investors within 12-18 months. There has been a lot of hand-wringing regarding the IPO decline vs the 1990s, but this year looks like a very large reversal.

Creation of new public companies in the 21st century
Cumulative market cap in trillions of US$



Source: Bloomberg, JPMAM, June 15, 2026

Market cap of IPO companies as % of US total market cap
IPO market cap at first close / US total market cap



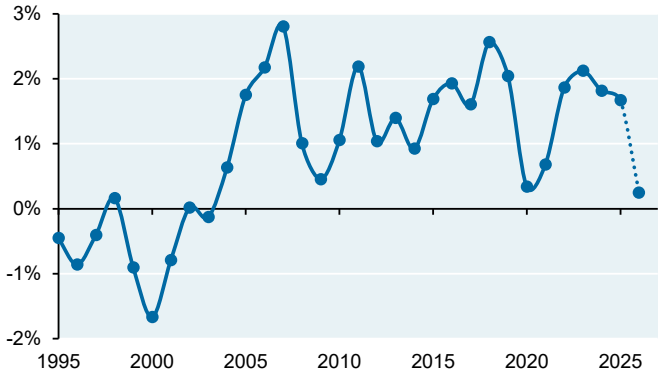
Source: Jay Ritter (U Florida), World Bank, Bloomberg, JPMAM, June 15, 2026

There's some concern about the ability of equity market investors to absorb these capital raises, in part due to the low level of mutual fund cash balances. However, when looking at the pace of gross buybacks compared to IPO issuance proceeds plus the value of shares from expiring lockups, the net balance still looks positive (i.e., in contrast to the net negative conditions that prevailed at the end of the 1990's). M&A may be another source of liquidity for IPOs: US M&A activity has been resilient with ~$900 billion of announced transactions YTD (+48% vs 2025), and cash has represented ~70% of consideration for announced M&A this year[38].

US equity mutual fund cash balances, % of total assets
Percent

Source: ICI, JPMorgan Flows & Liquidity, March 2026

US equity net demand share of Russell 3000 market cap
Gross buybacks less equity issuances & shares from expiring lockups



Source: Goldman Sachs Global Investment Research, May 29, 2026

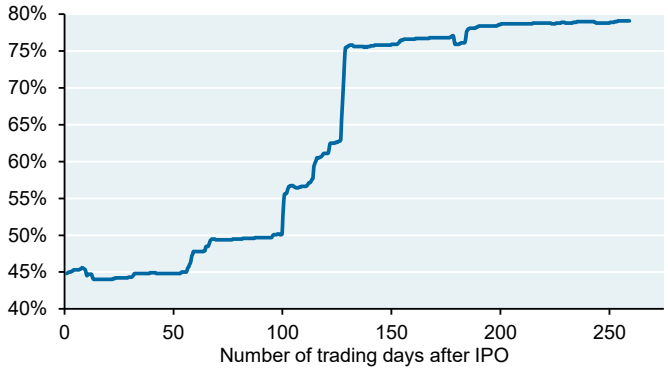
[38] "*Corporate equity demand should outweigh record IPO supply in 2026*", Goldman Sachs (Ben Snider), Portfolio Strategy Research, May 29, 2026

IPO free float timelines

Indexes like the S&P 500 are weighted by float-adjusted market cap; i.e., shares available for trading by the public in the secondary market, excluding restricted and locked-up shares. JP Morgan Global Market Strategy analyzed the 10 largest IPOs since 2010[39]. As shown in the first two charts, this cohort went public with an average free float share of 45% which rose to 75% upon expiration of IPO lock-ups. The free float share generally jumps at that point for two reasons: first, insiders and pre-IPO investors sell shares in the secondary market. Second, after the lock-up expires, shares held by non-insider employees and non-strategic investors with stakes less than 10% are then counted towards the free float regardless of whether they sell their shares.

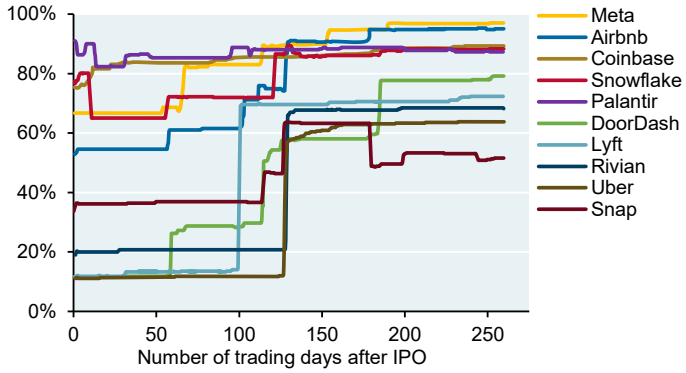
Free float timelines vary substantially based on the universe chosen. The third chart shows the free float timeline for all IPOs since 2003 and large IPOs with low initial float compared to the JPM cohort. The fourth chart shows estimates of the SpaceX free float timeline[40]. The SpaceX float begins at ~5% of its own market cap and 0.1% of total equity market cap; by July 2027 the latter figure could reach 2.9% of the total equity market.

Average free float shares of the 10 largest IPOs since 2010
Free float share of publicly traded share class



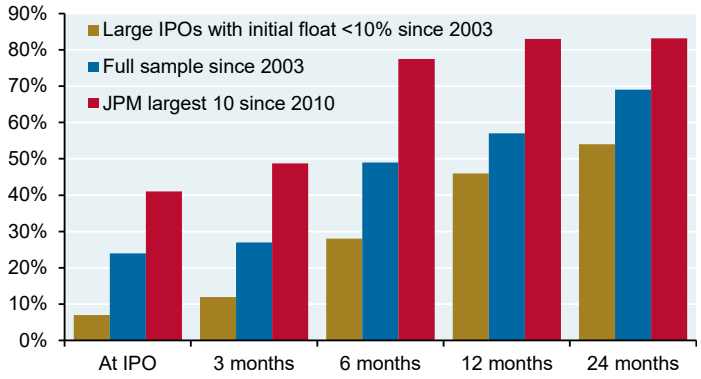
Source: JP Morgan Flows & Liquidity, May 13, 2026

Free float shares of the 10 largest IPOs since 2010
Free float share of publicly traded share class



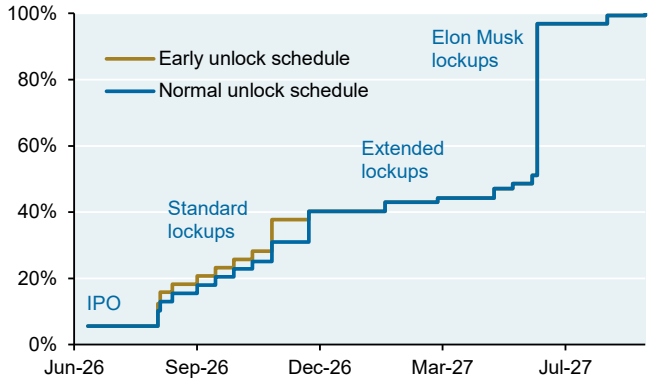
Source: JP Morgan Flows & Liquidity, May 13, 2026

Median free float share following IPO
Median free float share of publicly traded share class



Source: Goldman Sachs, JP Morgan, June 2026

Estimates of SpaceX free float timeline
% of SpaceX market cap



Source: Rand Group Research, June 2026

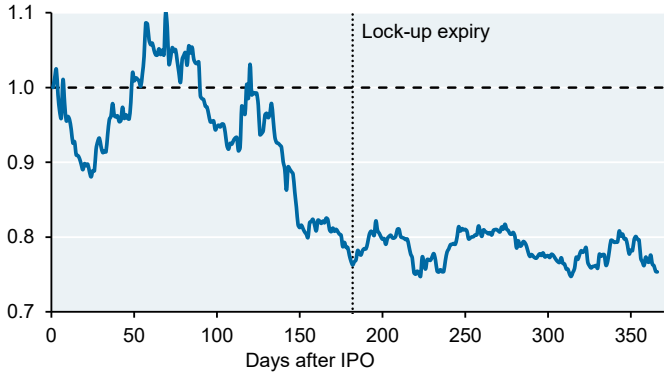
[39] "*Revisiting equity supply and demand from the coming IPOs*", JP Morgan Global Markets Strategy Flows & Liquidity Report, May 13, 2026. In the analysis, JPM included Palantir as an IPO even though it was actually a direct listing in which existing shares held by insiders are listed directly on an exchange with no underwriter.

[40] The first SpaceX tranche will be unlocked two days after the company releases 2Q26 earnings, expected in mid-August. The final tranche will unlock 180 days after the IPO, in mid-December. The IPO itself will release 4.3% of the company's market capitalization, or 4.9% if the greenshoe is exercised. Musk owns another 42% and is subject to a one-year lockup. "Certain significant investors" have also agreed to a one-year lockup, but neither their identities nor holdings have been disclosed. From 40% to 50% of SpaceX shares could be unlocked between mid-August and mid-December, amounting to roughly US$900 bn. If the stock price rises, the figure could exceed US$1 trn. Source: Gavekal Research, 6/12/2026

IPO performance from first day close to end of lockup

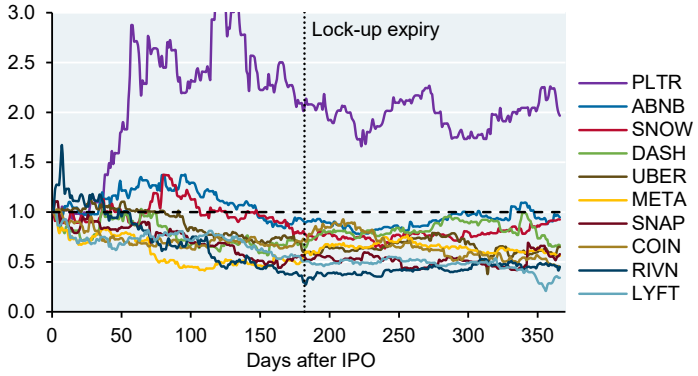
Using the JPM cohort of the 10 largest stocks since 2010, we wanted to see if there were any notable trends regarding how IPOs perform heading into the expiration of lockup periods. As shown below, there was a consistent pattern of IPO prices declining for this cohort as the end of the lockup period approached. Note that we are showing returns net of the NASDAQ in order to isolate excess returns rather than absolute returns, and we are looking at returns from the first day close rather than from the IPO price. These findings are consistent with academic research and our own research that finds anomalous negative returns heading into the expiration of lockup periods. This has implications for when investors might want to build positions in IPO companies in the secondary market if they are unable to obtain an IPO allocation.

10 largest IPOs since 2010 relative performance
Avg price performance relative to Nasdaq 100, index (1 = first close)



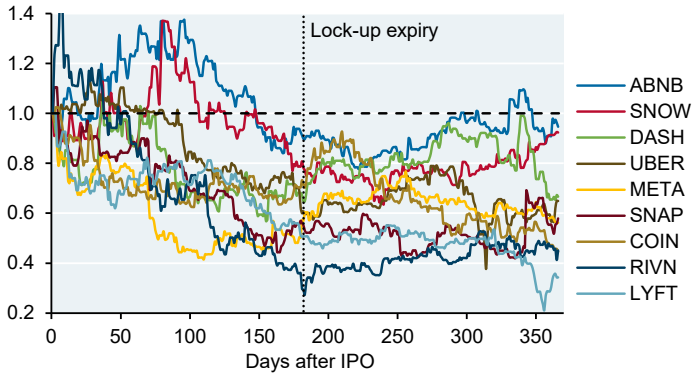
Source: Bloomberg, JPMAM, June 10, 2026

10 largest IPOs since 2010 relative performance
Price performance relative to Nasdaq 100, index (1 = first close)



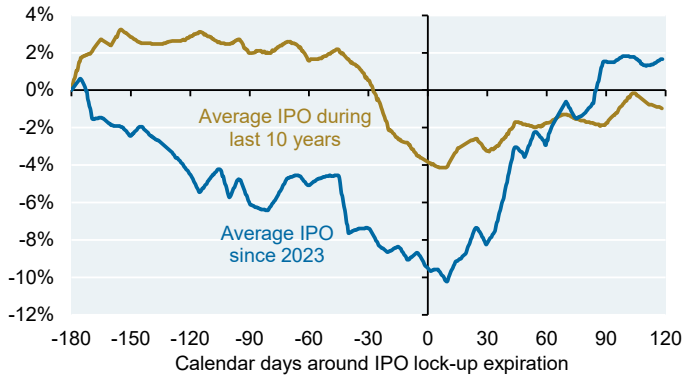
Source: Bloomberg, JPMAM, June 10, 2026

10 largest IPOs since 2010 relative performance (ex PLTR)
Price performance relative to Nasdaq 100, index (1 = first close)



Source: Bloomberg, JPMAM, June 10, 2026

Cumulative return around IPO lock-up expiration
Percent, US IPOs greater than $25 million in value since 2017



Source: Goldman Sachs, April 2026

In 2026 the ten largest IPOs have performed well since IPO, but they're all still within their lockup periods. Note how median and average returns decline if we use first close prices instead of IPO price.

Ten largest US IPOs in 2026 by proceeds raised

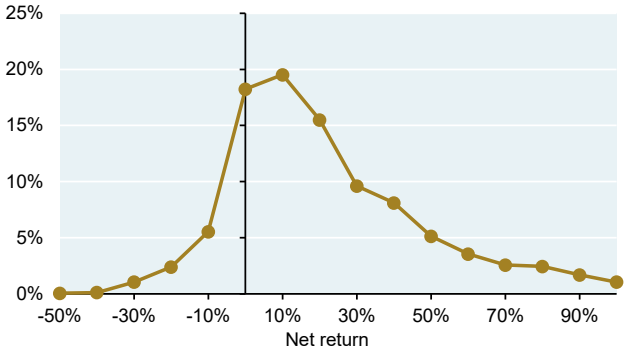
	Proceeds raised	Days since IPO	IPO price	First close	Curr price	Gain vs IPO	Gain vs first close
1 Space Exploration Technologies Corp.	$75,000,006,000	11	$135	$161	$155	15%	-4%
2 Cerebras Systems Inc.	$5,550,000,000	40	$185	$311	$224	21%	-28%
3 Innio N.V.	$2,430,000,000	19	$27	$33	$41	52%	24%
4 Madison Air Solutions Corporation	$2,232,692,370	68	$27	$32	$39	43%	21%
5 Fervo Energy Company	$1,890,000,000	41	$27	$37	$36	35%	0%
6 Blackstone Digital Infrastructure Trust Inc.	$1,750,000,000	40	$20	$20	$22	8%	9%
7 Quantinuum Inc.	$1,680,000,000	19	$60	$60	$68	14%	13%
8 Forgent Power Solutions, Inc.	$1,512,000,000	138	$27	$29	$62	129%	113%
9 Arxis, Inc.	$1,134,000,000	68	$28	$39	$46	65%	19%
10 X-Energy, Inc.	$1,017,857,180	60	$23	$29	$20	-12%	-31%
					Average:	37%	14%
Source: Bloomberg, JPMAM, June 22, 2026					Median:	28%	11%

Some additional stats from our 2023 IPO analysis[41]

From IPO price to 7 days later (short term "flipping"). For investors buying every non-SPAC IPO since 2010, median and average net returns based on a 7-day holding period were substantially positive for every sector and sub-sector shown. And when looking in aggregate across all sectors, median and average net returns were positive in every year. In this analysis, net returns are computed vs the S&P Small Cap Growth index.

Distribution of net returns, All sectors, H=7 days

excl. SPACs, N=1716, >$50 mm, H=7 days, vs S&P Small Cap Growth

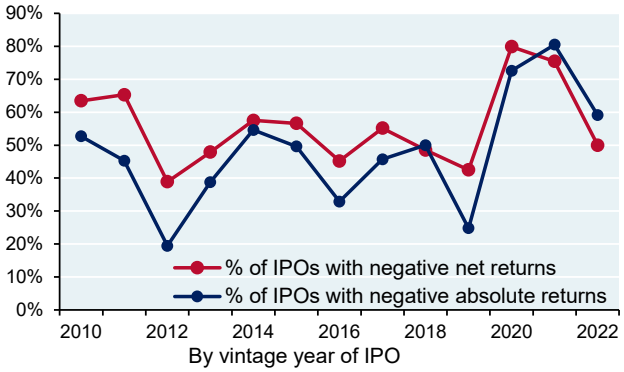


Bloomberg, JPMAM. 07/07/2023

For IPO investors with longer holding periods, results were rather dismal from 2010 to 2022. The first chart shows the high share of IPOs with negative returns over two years, on an absolute basis and relative to an equity benchmark. The second chart shows rising IPO price to sales ratios and an increasing share of IPOs with negative profits when companies went public. To be clear, these figures *exclude* SPACs, which as a rule were much worse on all fronts. The third chart shows average and median returns. Why the gap? Average returns were boosted by a very small number of mega-winners, as indicated by the skewed return distribution on the right.

Share of IPOs with negative returns: All sectors

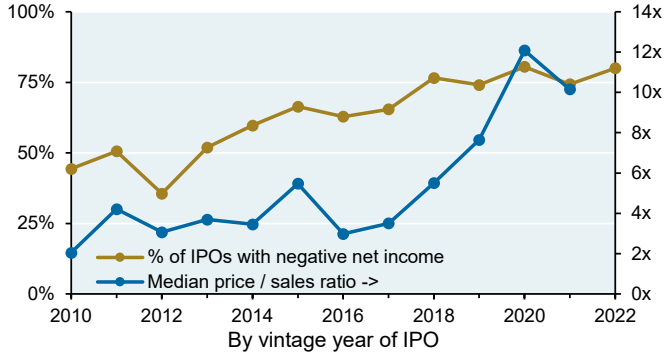
excl. SPACs, N=1717, >$50 mm, H=2 yr, vs S&P Small Cap Growth



Bloomberg, JPMAM. 07/12/2023

Financial statistics at time of IPO, All sectors

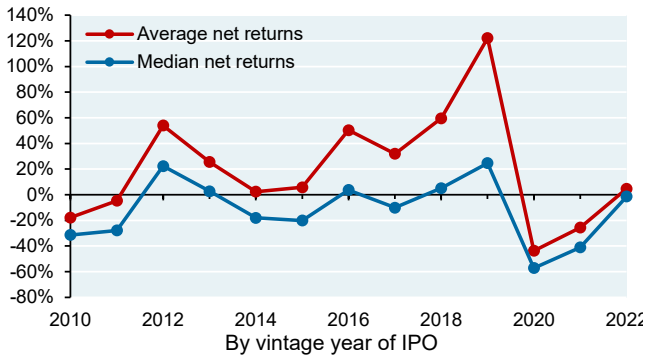
excl. SPACs, N=1717, >$50 mm, H=2 yr



Bloomberg, JPMAM. 07/16/2023

Net returns by year, All sectors

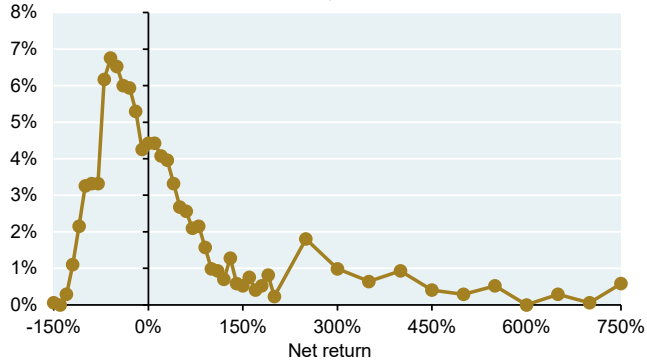
excl. SPACs, N=1717, >$50 mm, H=2 yr, vs S&P Small Cap Growth



Bloomberg, JPMAM. 07/07/2023

Distribution of net returns, All sectors, H=2 yr

excl. SPACs, N=1717, >$50 mm, H=2 yr, vs S&P Small Cap Growth



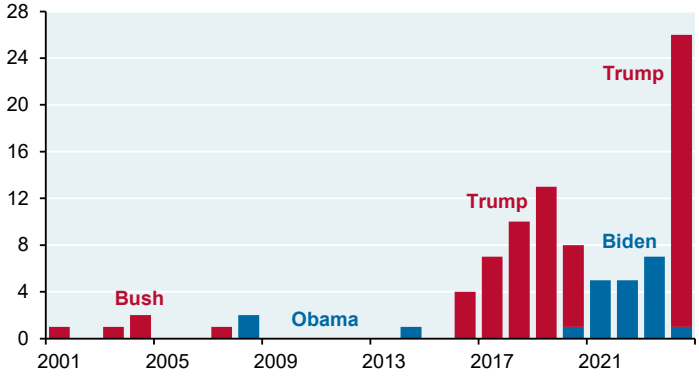
Bloomberg, JPMAM. 07/11/2023

[41] "*Mr. Toad's Wild Ride: the impact of underperforming 2020 and 2021 US IPOs*", Eye on the Market, July 2023

Appendix II: The Trump Administration has mostly prevailed on the Supreme Court emergency docket

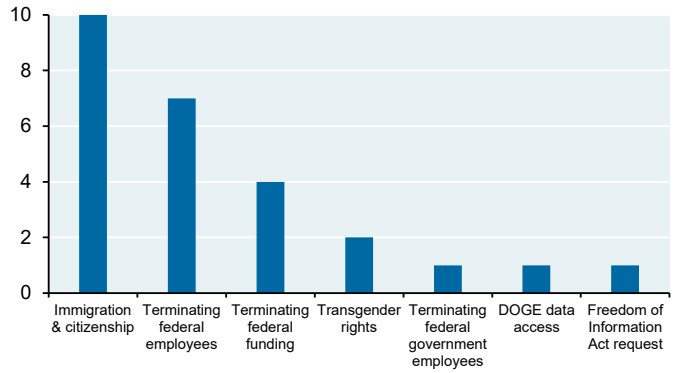
Although several district courts have ruled against various Administration orders, actions and policies, the Supreme Court has stayed or reversed many of those rulings. By one count[42] as of the beginning of this year, the Court ruled in the Trump Administration's favor in 21 out of 25 matters on its emergency docket through which it decides whether to immediately suspend a lower court's order while a case proceeds through the court system. The first chart shows the increased frequency of the Trump Administration using the emergency docket compared to prior 21st century administrations.

Emergency docket appeals to the Supreme Court
Supreme Court terms 2001-02 to 2024-25



Source: Steven Vladeck (Georgetown), Erwin Chemerinsky (UC Berkeley), 2026

Trump Administration Supreme Court emergency applications, Number of applications



Source: Ballotpedia, October 1, 2025

Even in those few instances where the Administration suffered a loss on the emergency docket, it was often limited and sometimes overshadowed by subsequent rulings. Among the Administration's few losses on the emergency docket:

- the Court held federal law limits the circumstances under which the President may federalize and deploy National Guard troops to enforce federal law and maintain order in states, though this ruling does not apply to either the protection of federal property and personnel, or deployments within the District of Columbia
- it held the Administration must provide greater notice and an opportunity to be heard for aliens whom the Administration seeks to deport under the Alien Enemies Act of 1798, though it has not yet otherwise resolved the legality of the Administration's efforts to use this law
- the Court declined to stay a district court order requiring the Administration to pay up to $2 billion to nonprofits and contractors which had already performed foreign aid work. The Court stayed another order, however, which would have required the Administration to obligate another $4 billion in appropriated foreign aid funds for additional work before the appropriation expired. This latter ruling effectively allowed the Administration to execute a controversial pocket rescission of appropriated funds, though it was based primarily on jurisdictional grounds
- in December 2025, the Supreme Court declined to stay a case brought by immigration judges who claimed they had a First Amendment right to give public speeches about immigration law. Months later, however, the Court held that the Fourth Circuit had erred by ruling in the judges' favor based on an argument the judges themselves had not raised. It reversed the Fourth Circuit's ruling in the judges' favor and remanded to allow that court to consider other aspects of the case

[42] "*Looking back at 2025: the Supreme Court and the Trump Administration*", Erwin Chemerinsky (Dean of UC Berkeley Law School), January 5, 2026

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