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Global giants in the AI supply chain

Key takeaways

- *Globally, the largest artificial intelligence (AI) firms are based in the United States, China, Chinese Taipei, Korea and the Netherlands.*
- *These global AI giants account for an increasing share of total market capitalisation, capital expenditure and revenues in their respective jurisdictions.*
- *For many AI giants – and particularly those from the United States and China – scope and scale go together as they expand the breadth of their activities into multiple layers in the AI supply chain.*

The promise of artificial intelligence (AI) hinges on the firms that build, operate and provide AI products and services.[1] But AI is not provided through a single market. It rests on a supply chain made up of at least five layers: computing power ("compute"), infrastructure, data tools, models and applications (Gambacorta and Shreeti (2025)). Building the layers requires large upfront investment, but unit costs can fall as the scale grows. The economics of AI can also reward integration across different layers, as costs can fall when firms operate in different markets and benefit from complementarities.

Taken together, these economies of scale and scope can favour the emergence of large AI firms. Even among the largest AI firms globally, only a few have combined the resources to invest heavily and the breadth to operate across multiple layers of the supply chain. As AI use diffuses across sectors, these firms are gaining macroeconomic heft in the global economy. In the last two decades, they have been steadily investing and spending more on research and development (R&D) and, recently, on data centres and information technology (IT) manufacturing (Aldasoro et al (2026)). They are now in a position to set the pace of aggregate investment, the direction of R&D, the terms on which others access critical inputs and the direction of innovation. When giants move, the ground can move with them. In this way, the decisions of a handful of AI firms can have a significant impact on a range of macroeconomic outcomes.

The global AI landscape: scale and breadth

AI products and services are provided through a complex supply chain. At the base is computing power or specialised hardware, most notably microprocessors and high bandwidth memory chips, designed to handle the intensive computations required for training of and inference from AI models. Above this sits the infrastructure, including data centres and cloud services, to build, store and operate AI models. The next input layer is training data and data tools. These comprise vast, multimodal data sets spanning text,

[1] AI can be defined as the design and building of intelligent agents that receive percepts from the environment and take actions that affect that environment (see Norvig and Russell (2020)). This includes various applications of machine learning as well as newer innovations in large language models and generative AI. In this Bulletin, our focus is on the firms that provide these AI products and services (AI firms).

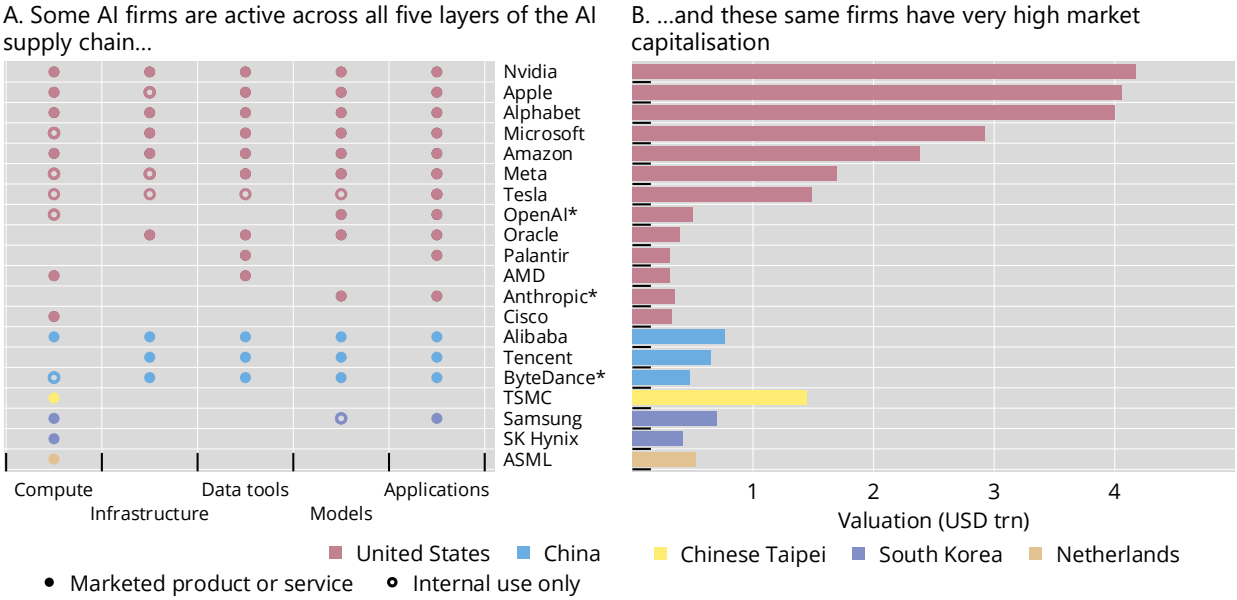
images, audio and video, sourced from both public and proprietary repositories. Computing power, cloud infrastructure and data feed into the next layer – the market for foundation models. These are large, pre-trained AI models that can be adapted to a wide range of tasks. Finally, the top layer of the supply chain consists of user-facing AI applications that leverage these models for specific uses.

Firms that provide AI products and services are currently among the world's most valuable companies. Graph 1 maps the top 20 AI firms worldwide (global AI giants) by supply chain presence and market value, based on Rishabh and Shreeti (2026a). Graph 1.A shows the breadth of their activities, measured by the number of layers of the AI supply chain the firm is active in. A firm can be active in a particular layer of the supply chain either by selling products and services to others or by building them for internal use. Graph 1.B shows these firms' valuations, as measured by market capitalisation at the end of 2025.

Four patterns stand out. First, among the top 20 global AI firms, the top seven are all publicly listed firms based in the United States (US). Together they account for more than twice the market value of the next 13 AI firms. Second, many firms with a big presence in AI have a broad span of activities. This is particularly true for US-based AI giants (Nvidia, Apple, Alphabet, Microsoft, Amazon, Meta) and Chinese giants (Alibaba, Tencent, ByteDance). These firms are present across most or all markets of the AI supply chain. Often, they play the dual role of selling their products and services to the market and building capacity in different layers for their own business. The ability to bundle products and services and move into adjacent layers faster than rivals brings them competitive advantages in AI that go beyond a single market. Third, the rest of the top 20 firms (eg chipmakers such as TSMC, ASML, SK Hynix) are more specialised, supplying critical computing power inputs but not necessarily extending their business into cloud infrastructure, data tools, AI models or applications. Fourth, US-based private AI firms (eg OpenAI, Anthropic) are currently at the frontier of AI model development but have limited external presence in compute and cloud infrastructure markets. Nonetheless, they are still actively building capacity in compute and infrastructure through partnerships and investment deals.

At the top of the AI market, scope and scale go together[1]

Graph 1



[1] Valuations are in USD and rounded. Jurisdiction in the legend refers to headquarters location. If a firm both sells and uses a capability internally, it is coded as marketed. Valuations are whole-firm and are not allocated across layers. * = privately held firm.

Sources: PitchBook (public market capitalisations, private company valuations); authors' coding of supply chain roles from publicly available information on firm products and services.

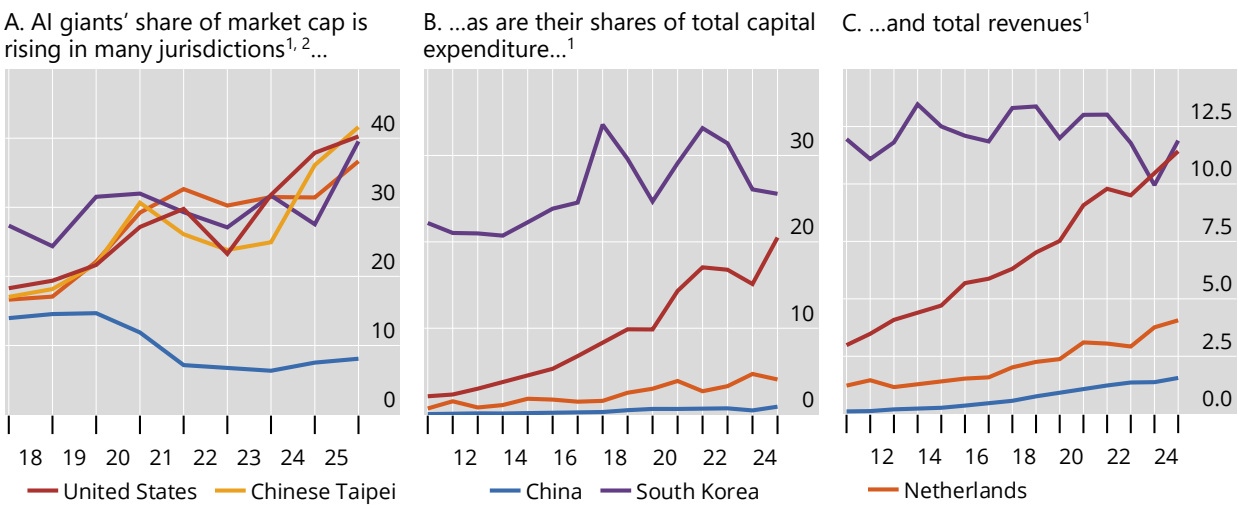
The economic footprint of global AI giants

AI giants have gained macroeconomic significance in many jurisdictions. The share of the top 20 publicly listed global AI firms in total equity markets has risen consistently in most jurisdictions recently. This coincides with the rapid technological progress in AI since 2010.[2] By the end of 2025, these firms accounted for 30–40% of total market capitalisation in the US, Chinese Taipei, Korea and the Netherlands (Graph 2.A). Publicly listed Chinese AI giants account for a lower proportion of equity markets in China, at around 10% at the end of 2025. Notably, despite the expanding scope of their activities, the market value of Chinese technology companies has seen a significant decline since 2020, following regulatory reforms in the Chinese tech sector around antitrust laws and data use (Kwok and Murdoch (2023)).

Beyond market sentiment, the footprint of AI giants in the real economy is also expanding. While data are not available for all jurisdictions, global AI giants' shares of total capital expenditure (capex) and total revenue have been rising in many jurisdictions (Graphs 2.B and 2.C). At the end of 2024, these giants accounted for 26% of the total capex in Korea, 21% in the US, 4% in the Netherlands and 1% in China.[3] Their share in total revenue ranged between 12% in Korea, 11% in the US, 4% in the Netherlands and 2% in China. Taken together, these trends point to the salient role global AI giants are playing in shaping aggregate demand, productivity growth and the direction of structural change across many economies.

Global AI giants' market capitalisation, capex and revenues

As a percentage of total — Graph 2



[1] The share equals publicly listed AI giants' total of the relevant measure divided by the jurisdiction total for that measure. Jurisdiction totals cover publicly listed firms, excluding financial firms (banks, insurers, capital markets firms and other financial services) and real estate investment trusts. [2] For Chinese Taipei, total market capitalisation is the combined market capitalisation of the Taipei Exchange and the Taiwan Stock Exchange.

Sources: Rishabh and Shreeti (2026a); S&P Global Market Intelligence; World Federation of Exchanges; authors' calculations.

[2] Key technological milestones include advances in computer vision and speech recognition (early 2010s), the transformer architecture (2017) and the rapid emergence of large language models and AI agents after 2020.

[3] AI-related investment is now sizeable in the macro aggregates as well, at about 4.9% of US GDP in 2025 and roughly 2.5% in the euro area and 3.5% in China in 2024.

Branching out: expanding into additional supply chain layers

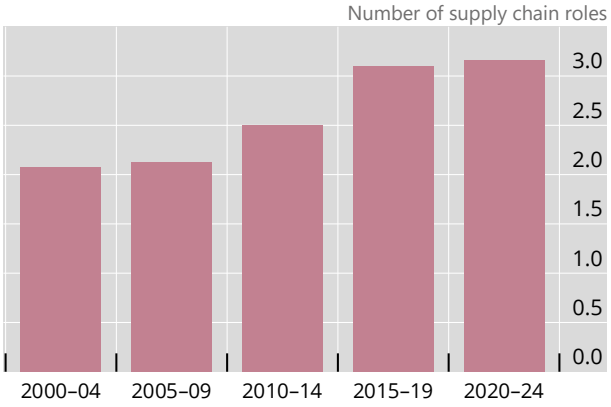
In the last two decades, global AI giants, particularly those based in the US and China, have expanded to new areas within the AI ecosystem. In early 2026, the CEO of Google DeepMind noted that Chinese AI models are rapidly closing the gap with frontier US-based AI models (Kharpal (2026)). Like their US-based counterparts, Chinese AI giants are also active in several input layers of the AI supply chain.[4] Notably, Chinese AI giants are increasing their cross-border activities, with both Alibaba and Tencent building several data centres outside of China (Reuters (2025); Tencent (2025)).

For publicly listed global giants based in the US (see firms in Graph 1), it is possible to quantify this supply chain expansion. Business descriptions in the regulatory 10-K filings of publicly listed US firms can be used to identify the markets AI firms operate in (Rishabh and Shreeti (2026b)). These descriptions outline firms' products, services, core business activities and market segments on a yearly basis. Using large language model-based textual analysis of the 10-K filings, we identify the number of AI markets (out of the five layers of the supply chain) that each AI firm operates in. We also identify the primary and secondary AI markets that each AI firm operates in.

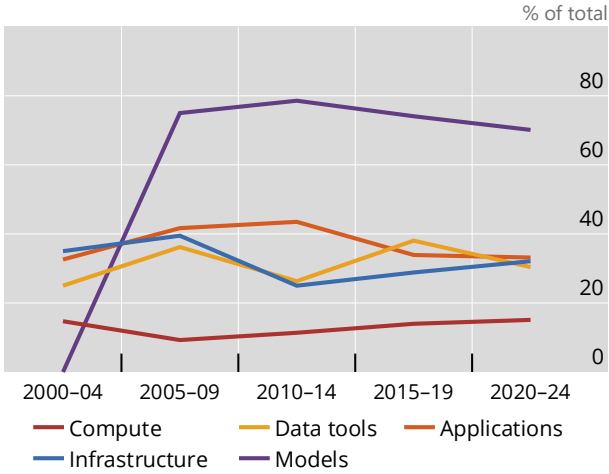
In the early 2000s, each public US-based global AI giant operated, on average, in two of the five layers of the supply chain. More recently, they have expanded the scope of their activities and now operate in three to four layers each (Graph 3.A), with some spanning all five. Thus, US giants are now designing and producing chips, running cloud infrastructure, building data tools, training AI models and operating user-facing AI applications.

AI giants are branching out into more layers of the supply chain — Graph 3

A. US-based AI giants now have 3–4 supply chain roles each compared with 2 roles in 2000…[1]



B. …and account for an increasing share of deal-making activity in various AI markets[2]



[1] US publicly listed AI giants, excluding Palantir. Classification follows Rishabh and Shreeti (2026b) using the 10-K Business Description section. Roles are coded into five categories: compute, AI infrastructure, data tools, models and applications. Values are averages within five-year categories starting in 2000. Note that the average number of roles in this graph is lower than in Graph 1, as this graph excludes roles where AI giants are active only for internal uses and does not cover 2025. [2] US publicly listed AI giants, excluding Palantir. Each line shows the giants' share of all AI producer deals for a given target supply chain layer.

Sources: Rishabh and Shreeti (2026b); PitchBook; Compustat; firm 10-K filings.

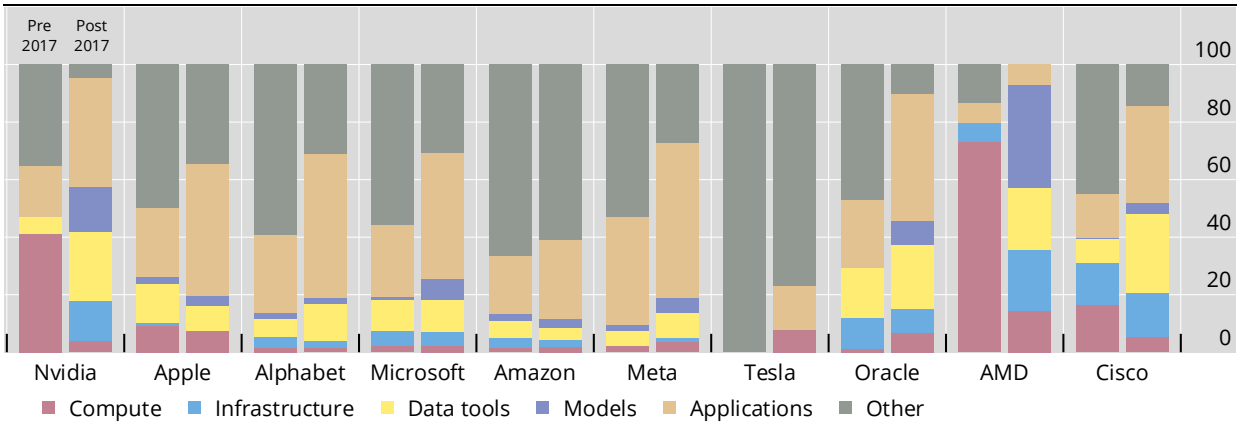
[4] For example, in September 2025, the chairman of Alibaba Cloud Intelligence emphasised Alibaba's position as a "full-stack AI provider", providing cloud services, AI models like Qwen and AI inference chips like Hanguang 800 (Alibaba (2025)). Tencent has also been following a similar strategy, integrating its own large language model, Hunyuan, into its cloud service and social media application WeChat.

Publicly listed US-based giants have also expanded their venture financing and deal-making activity in the five key markets. Deal-level data and descriptions of target companies allow us to measure giants' deal-making activity relative to all AI producers in each market.[5] In the latest periods, these giants accounted for nearly 70% of all deals in the market for AI models and 33% of all deals in the market for AI applications (Graph 3.B). In the market for data tools, infrastructure and compute, their share was also sizeable, at about 30%, 32% and 15%, respectively.

Over time, the US AI giants have participated more in deals in AI markets, rather than in non-AI markets. Since 2017, AI deals account for a significantly greater proportion of deal-making activity for all 10 of these firms (Graph 4). Moreover, these companies are making deals across a wider range of AI markets than before, particularly in the market for user-facing AI applications. Thus, even firms that started in very different business lines have become increasingly AI-focused.

AI giants' deals increasingly span multiple AI markets[1]

As a percentage of total — Graph 4



[1] Investment deals by US publicly listed AI giants, excluding Palantir. Each pair shows the target role composition of a giant's deals before (2000–16) and after (2017–24) the onset of the current AI wave. Target roles are predicted using the primary supply chain classification of the deal target based on textual analysis of the firm description in PitchBook. "Other" refers to deals in non-AI markets.

Source: authors' elaboration based on Compustat and PitchBook.

Economic implications

Global AI giants are currently engaged in fierce competition with each other, driving further advances in AI. The massive scale of AI giants can allow for greater internalisation of costs through vertical integration. This could enhance efficiency, increase profitability and drive further innovation.[6] At the same time, recent research notes that innovative industries like AI exhibit a particular life cycle, with initial phases of intense competition *for* (rather than *in*) the market, followed by many firms exiting and the industry ending up more concentrated (Beraja and Buera (2026)). Azoulay et al (2024) note that tighter control over complementary inputs may eventually restrict entry of new firms and dampen broader innovation.[7]

5 We train a machine learning model to classify target companies' business activities into: (i) hardware or computing power; (ii) infrastructure, including cloud computing; (iii) data; (iv) AI models; and (v) AI applications. The training data set for the model uses business descriptions of target companies from PitchBook.

6 Indeed, past literature has shown that there can be an optimal level of competition in product markets with respect to innovative activity, as intermediate levels of competition encourage firms in neck-and-neck competition to innovate (Aghion et al (2005)). That said, it is difficult to assess where the current market structure is relative to this proposed optimal level.

7 Beyond competition, Acemoglu et al (2012) note that idiosyncratic microeconomic shocks can increase aggregate volatility and elevate tail risks if they originate in sectors that are disproportionately important for the rest of the economy.

As these firms grow further, they will shape, and be shaped by, jurisdictional strategies across the AI supply chain. Conscious of cross-border dependencies and geopolitical risk, many jurisdictions are developing "sovereign AI" strategies.[8] Thus, the key trade-off facing jurisdictions is between building national AI capacity to ensure resilience versus avoiding duplication of the fixed costs to build critical AI infrastructure. Looking beyond the United States and China, a few jurisdictions may be able to cultivate full-stack AI giants, and others can still shape outcomes by building competitive and resilient AI ecosystems. Smaller economies may find comparative advantage in specific layers like AI applications, fine-tuned AI models, computation tools or domain-specific data.

Effective policy can tilt the balance towards innovation with contestability by ensuring fair access to key inputs such as data and computing power (Mihet et al (2026)). It can also support interoperable standards and multi-cloud strategies, and strengthen competition policy. Macro-financial oversight will also matter. This includes monitoring system-wide dependencies in compute, cloud infrastructure and models and the evolving financial structure of AI giants. Ultimately, the goal is an AI ecosystem that is innovative, contestable and resilient.

References

Acemoglu, D, V M Carvalho, A Ozdaglar and A Tahbaz-Salehi (2012): "The network origins of aggregate fluctuations", *Econometrica*, vol 80, no 5.

Aghion, P, N Bloom, R Blundell, R Griffith and P Howitt (2005): "Competition and innovation: an inverted-U relationship", *Quarterly Journal of Economics*, vol 120, no 2.

Aldasoro, I, S Doerr and D Rees (2026): "Financing the AI boom: from cash flows to debt", *BIS Bulletin*, no 120, January.

Alibaba (2025): "Alibaba Cloud's Apsara Conference 2025: full stack AI + cloud leads the way to the future of AI", September.

Azoulay, P, J L Krieger and A Nagaraj (2024): "Old moats for new models: openness, control, and competition in generative AI", *National Bureau of Economic Research Working Papers*, no 32474.

Beraja, M and F J Buera (2026): "The life-cycle of concentrated industries", *National Bureau of Economic Research Working Papers*, no 34770.

Gambacorta, L and V Shreeti (2025): "The AI supply chain", *BIS Papers*, no 154, March.

Kharpal, A (2026): "China just 'months' behind U.S. AI models, Google DeepMind CEO says", *CNBC*, 15 January.

Kwok, D and S Murdoch (2023): "Beijing's regulatory crackdown wipes 1.1 trillion off Chinese big tech", *Reuters*, 12 July.

Mihet, R, K Rishabh and O Gomes (2026): "Is it AI or data that drives firm market power?", *Journal of Monetary Economics*, vol 157, no 103878.

Norvig, P and S Russell (2020): *Artificial intelligence: a modern approach,* 4th edition, Prentice Hall.

Reuters (2025): "Alibaba Cloud announces new data centers in Malaysia, the Philippines", 2 July.

Rishabh, K and V Shreeti (2026a): "The geography of AI firms", mimeo.

——— (2026b): "Market structure and firm outcomes in artificial intelligence", mimeo.

Tencent (2025): "Tencent announces global rollout of scenario-based AI capabilities to accelerate industrial efficiency", September.

[8] Examples include the UK's Compute Roadmap, European Union's AI Factories or Korea's National Sovereign AI Initiative.