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Would the real AI bubble please stand up?

A brief guide to boom or bust

December 2025

Adrian Cox | Stefan Abrudan

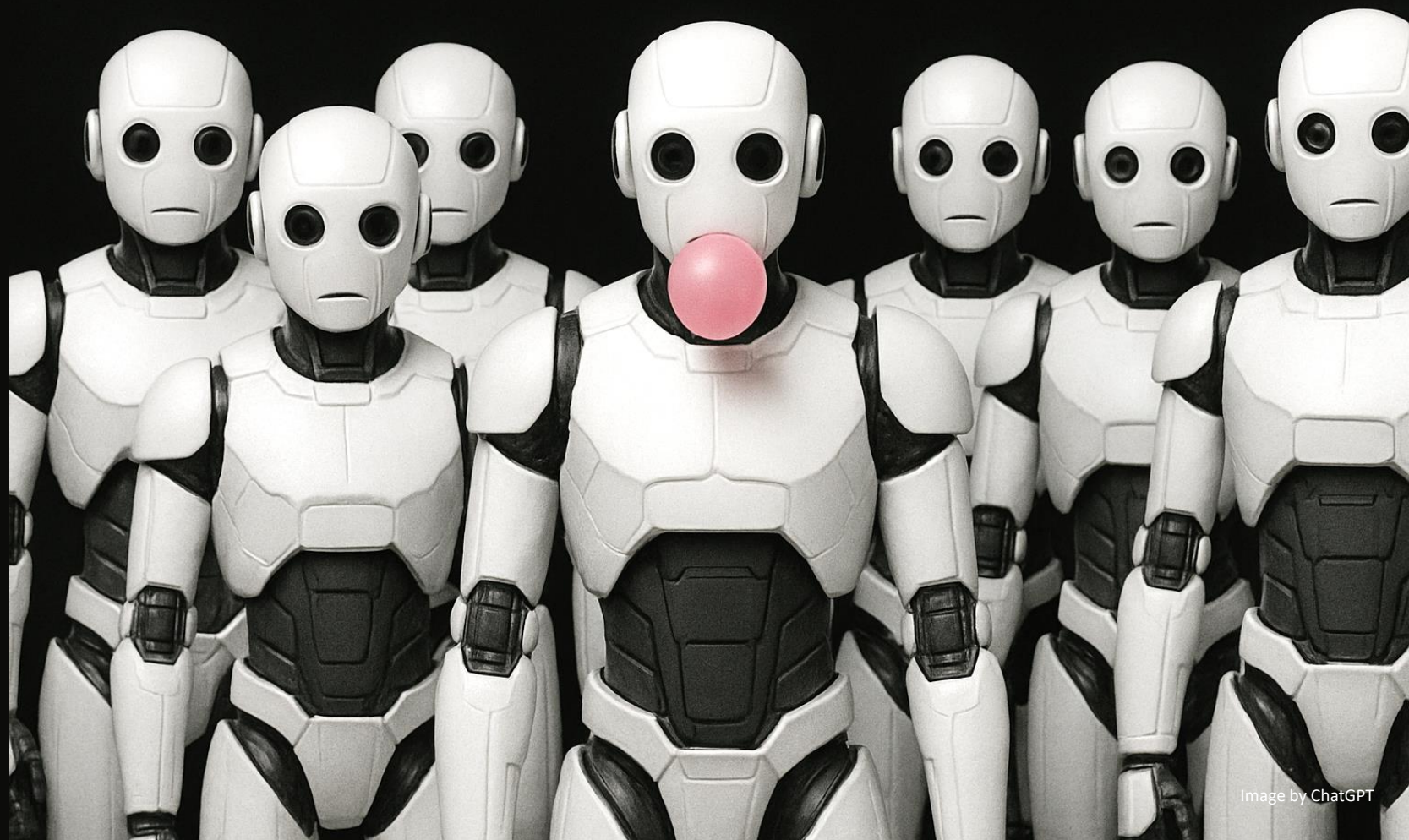


Image by ChatGPT

Is there an AI bubble? Or are there more than one?

Is there an AI bubble? With valuations surging and an economy riding on AI capital expenditure just three years since the launch of ChatGPT, this is the top question on the mind of investors – particularly the generation scarred by the dot-com bubble of the late 1990s.

If this is a bubble, it is still in its early stages. Retreating now risks leaving significant gains on the table. It was more than three years after then-US Federal Reserve Chairman Alan Greenspan warned of "irrational exuberance" in December 1996 that the dot-com bubble burst.

In fact, the dot-com bubble was really two bubbles: one with lightly capitalised, never-profitable IPOs and the other with heavily indebted telecoms companies that laid down fibre optic cables that remained dark for years.

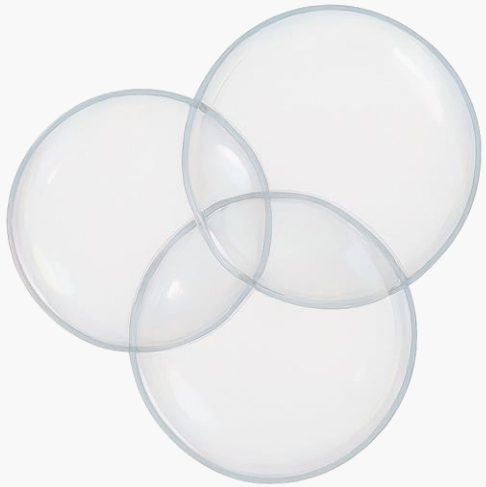
There is also more than one boom (or bubble) this time. The charge is led by well-established big tech companies with multiple revenue streams, who are paying for their investment in data centres mostly out of free cash flow and from which they are generating immediate returns from enterprise customers. The unprofitable companies at the cutting edge of model and application development are still private, with spending commitments that may or may not actually be fulfilled depending on how their business models evolve.

Part of the issue comes down to naming. Just as the cliché goes that Inuit people have 100 words for snow, there is not just one kind of bubble.

This report aims to separate out at least three different kinds of bubble: valuations, investment and technology. We explain why we think that reports of a bubble are exaggerated (for now) as well as what could go wrong.

Would the real AI bubble please stand up?

1. Valuations
2. Investment
3. Technology



Would the real AI bubble please stand up?

Red flags

1. Elevated valuations
2. Historic investment
3. Flawed technology

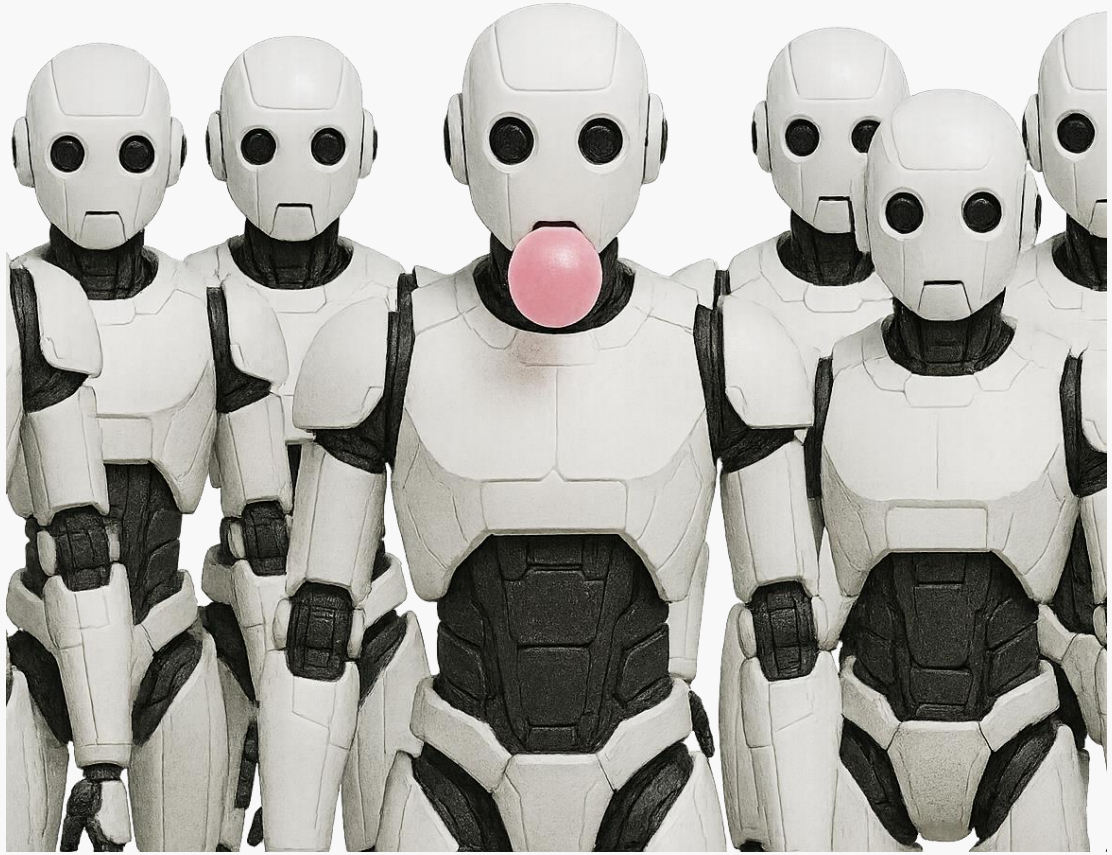
Green flags

1. Valuations: rangebound, earnings-led, public vs private
2. Investment: in trend, real returns, cashflow funded
3. Technology: still scaling, demand-led, falling costs

Why this matters

What could go wrong

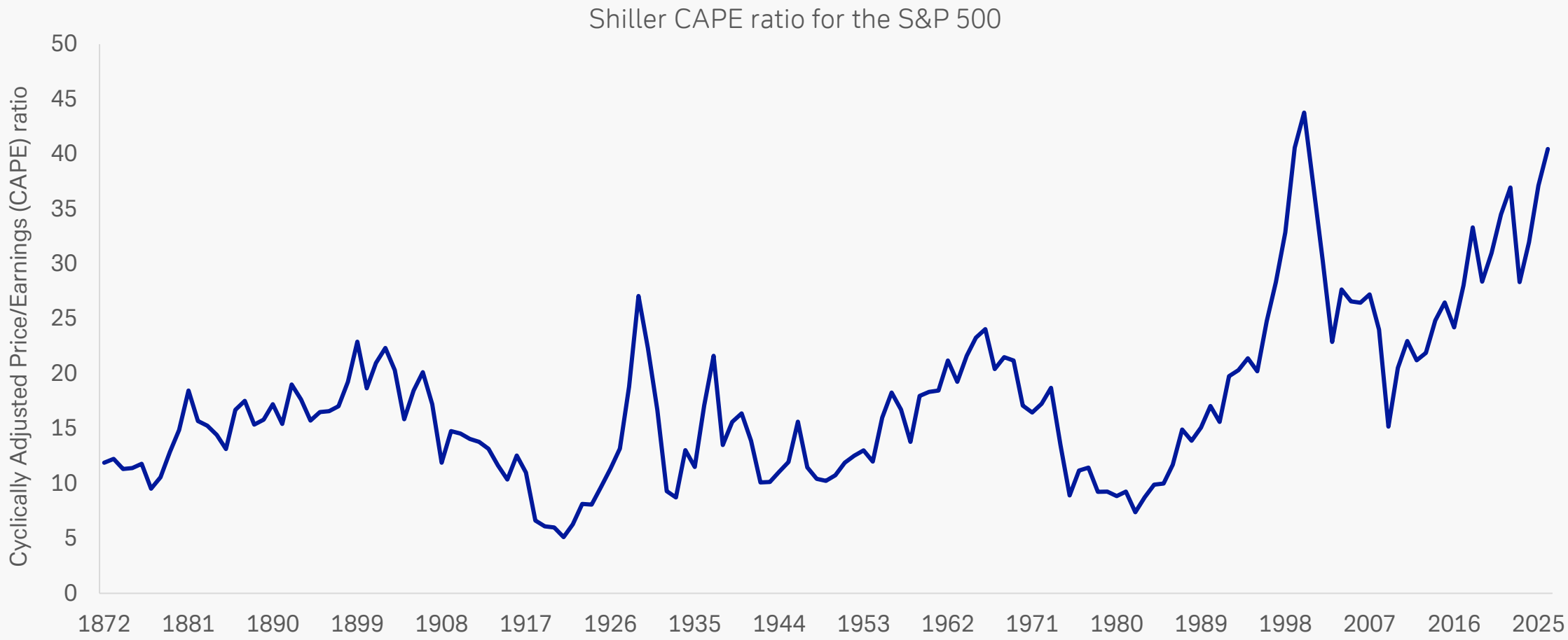
1. Circular finance valuations
2. Debt-fuelled investment
3. Technological hurdles
4. Social or political backlash
5. Supply bottlenecks



Source: Deutsche Bank Research; image by ChatGPT

Red flags: 1. Valuations: levels are nearing the historic peaks of the dot-com era

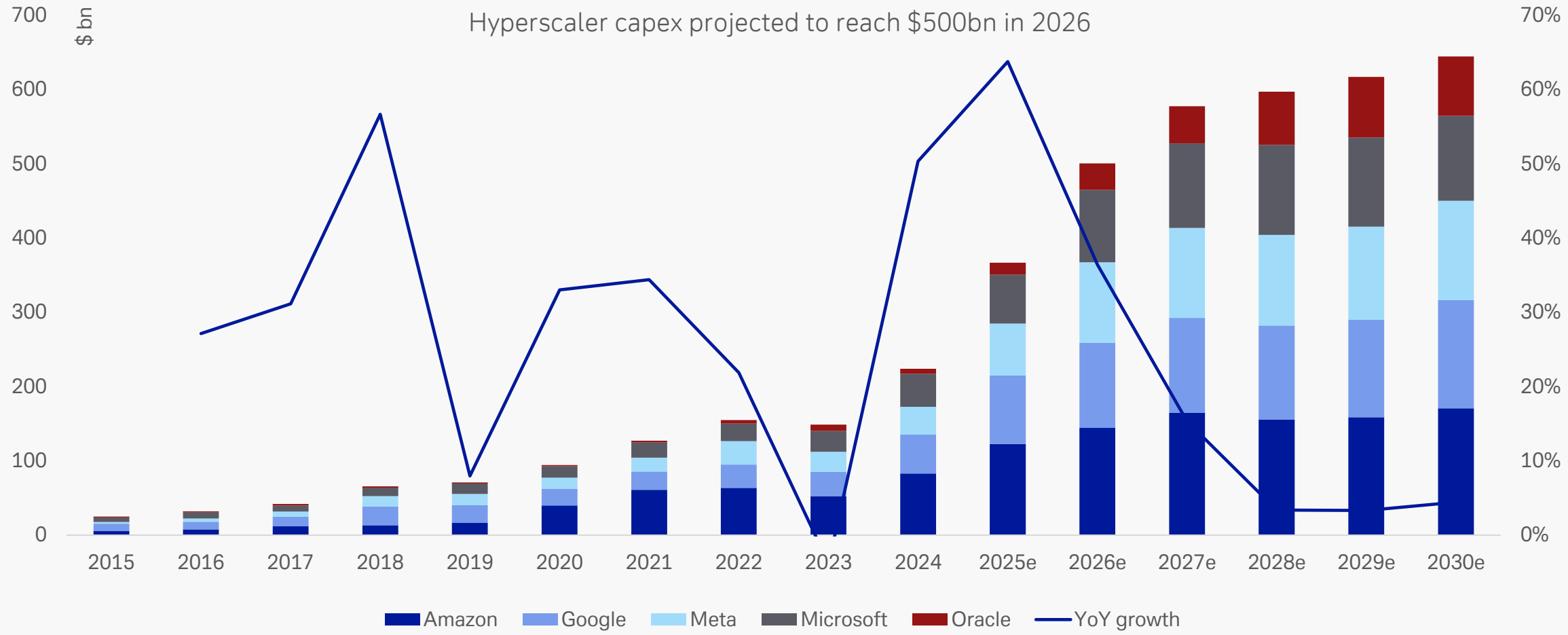
The Shiller Cyclically Adjusted Price/Earnings ratio is has passed 40, not too far below its peak of almost 44 in 2000



Source: Shiller Cyclically Adjusted Price/Earnings (CAPE) ratio, Deutsche Bank Research

Red flags: 2. Investment: AI data centre capex may hit historic $4 trillion total by 2030

Capex, led by hyperscalers, is forecast to exceed 10x inflation-adjusted cost of Apollo programme with no guaranteed return

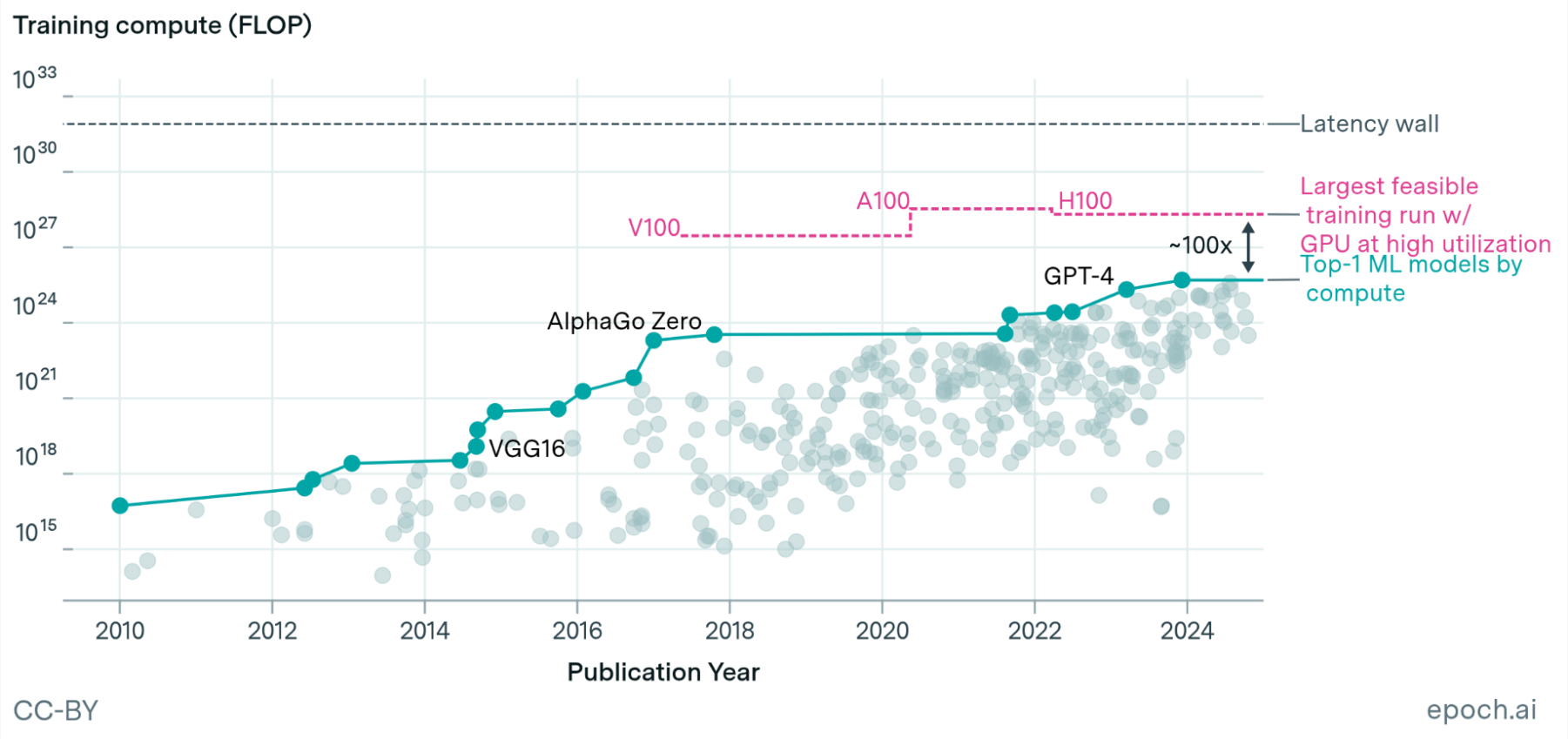


Source: Bloomberg Finance LP, Deutsche Bank Research

Red flags: 3. Technology: generative AI is flawed and may hit a wall

The tech is (still) prone to error and hallucinations; can be hard to apply at scale; and faces bottlenecks in further scaling

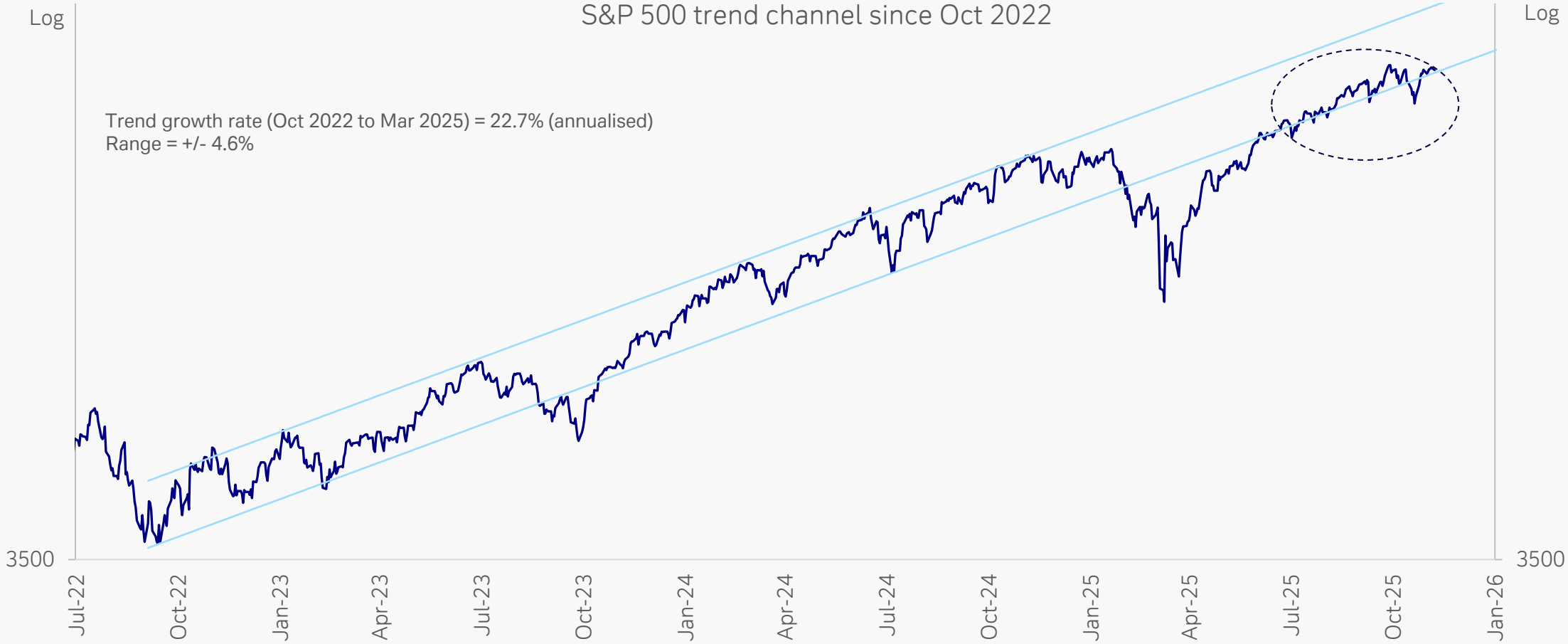
AI's rapid scaling may soon hit physical barriers such as limits on how fast data can be moved between chips, some researchers say



Source:Ege Erdil, and David Schneider-Joseph. 'Data movement limits to frontier model training'. ArXiv [cs.DC], 2024. arXiv. https://arxiv.org/abs/2411.01137

Green flags: 1.1 Valuations: equities are still at the low end of the post-2022 trend

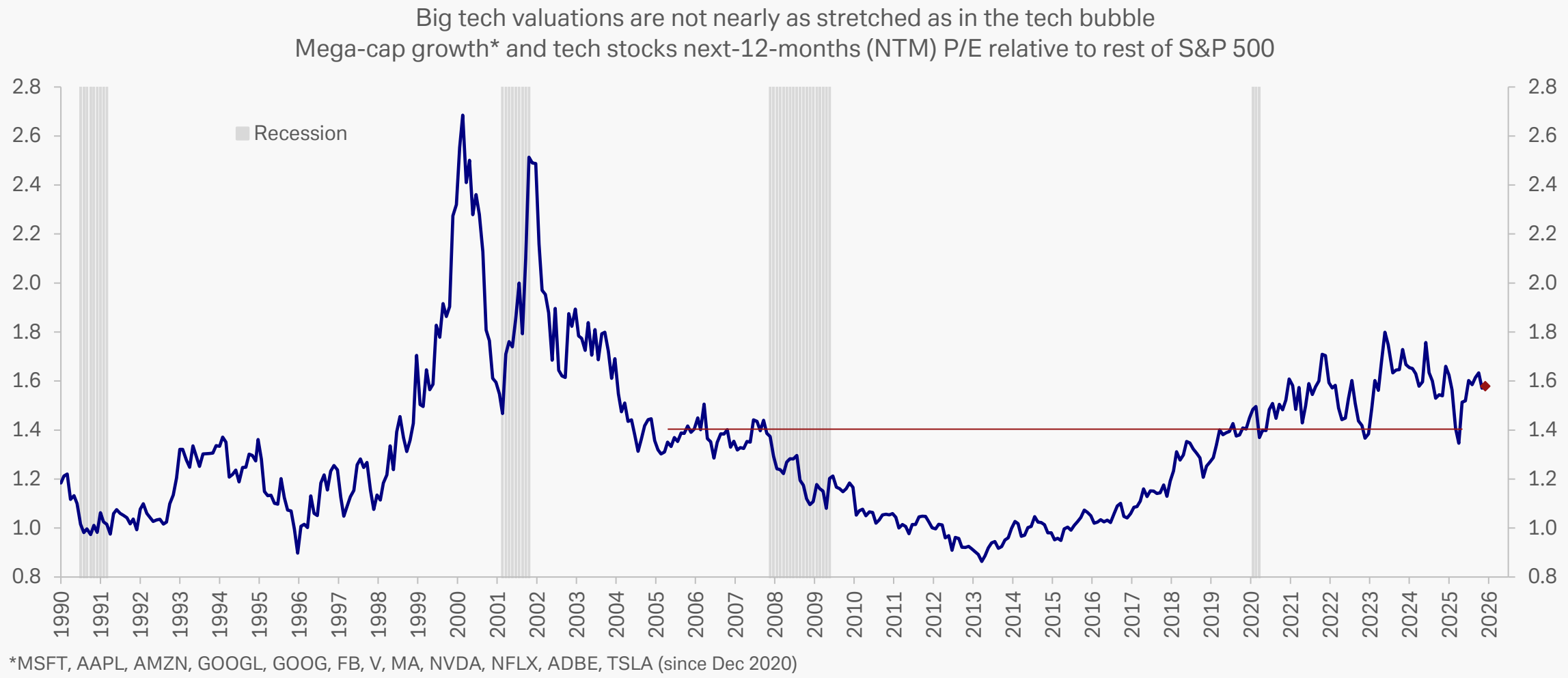
Historically elevated valuations are due to structural and cyclical factors and supported by a robust demand-supply balance



Source: Bloomberg Finance LP, Deutsche Bank Research

Green flags: 1.2 Valuations: tech stock rally has been driven by earnings growth

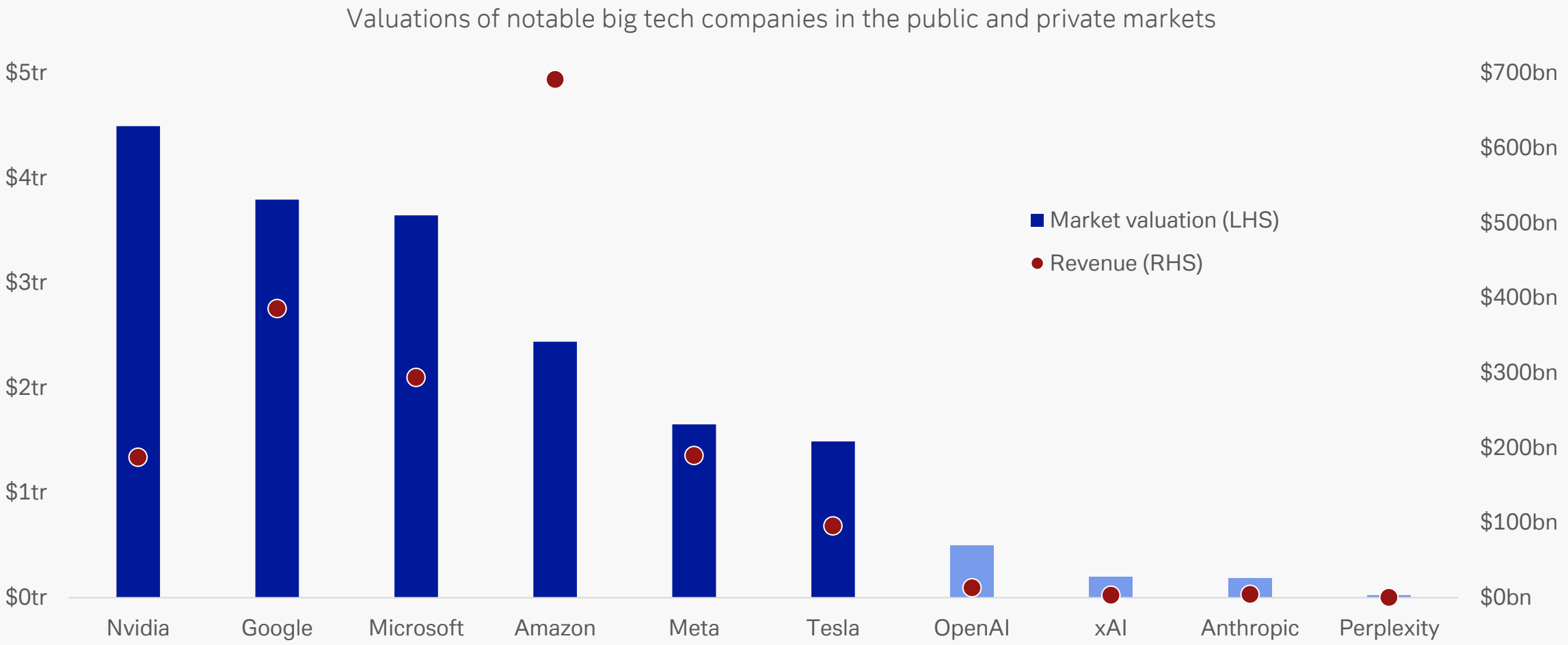
The 60% valuation premium for tech has been justified by 20%+ earnings growth differential; now earnings are broadening



Source: Deutsche Bank Research

Green flags: 1.3 Valuations: highest valuations are non-profitable private companies

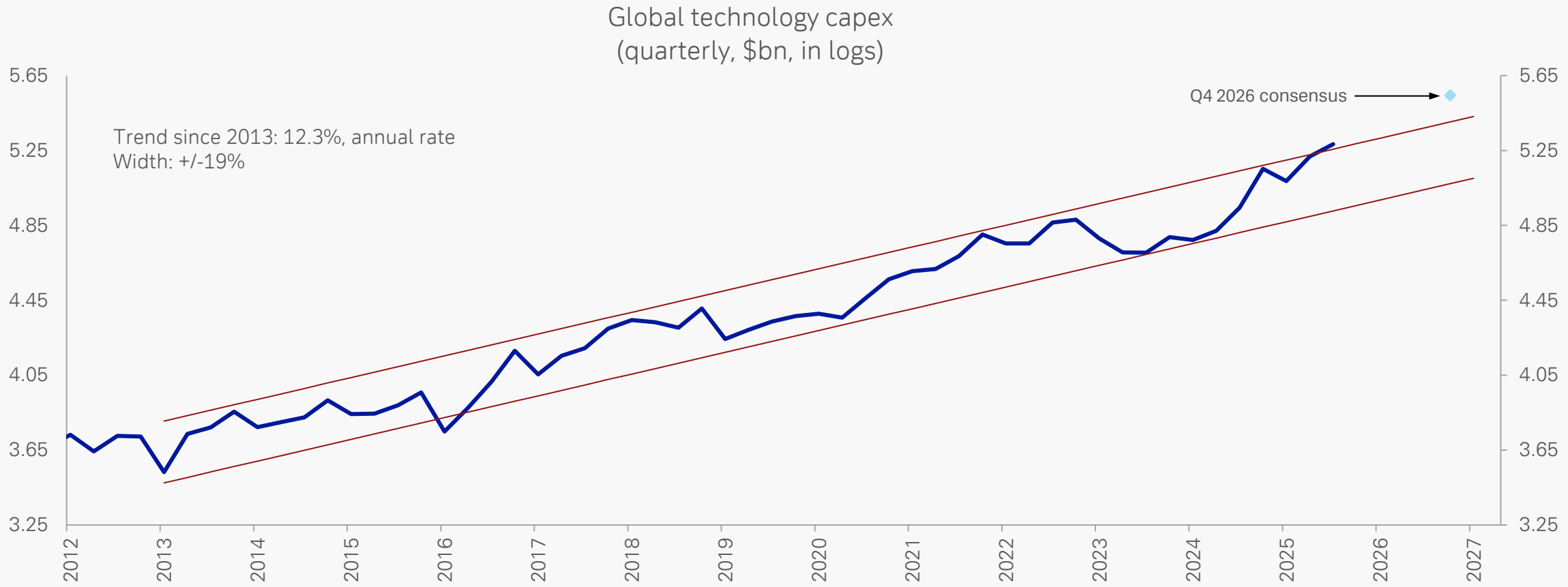
The price to sales ratio of OpenAI is 38 and Anthropic is 44, vs Nvidia at 22, Microsoft at 12, Google at 9.9 and Amazon at 3.5



Source: Sacra, Bloomberg Finance LP, Deutsche Bank Research; OpenAI is based on its reported forecast revenue of $13bn for 2025, rather than its estimate of $20bn annual recurring revenue at year-end

Green flags: 2.1 Investment: capex growth is still in line with strong trend from 2013

At less than 40% of EBITDA, tech capex is still well below levels of late 1990s and is now just at levels of rest of S&P 500

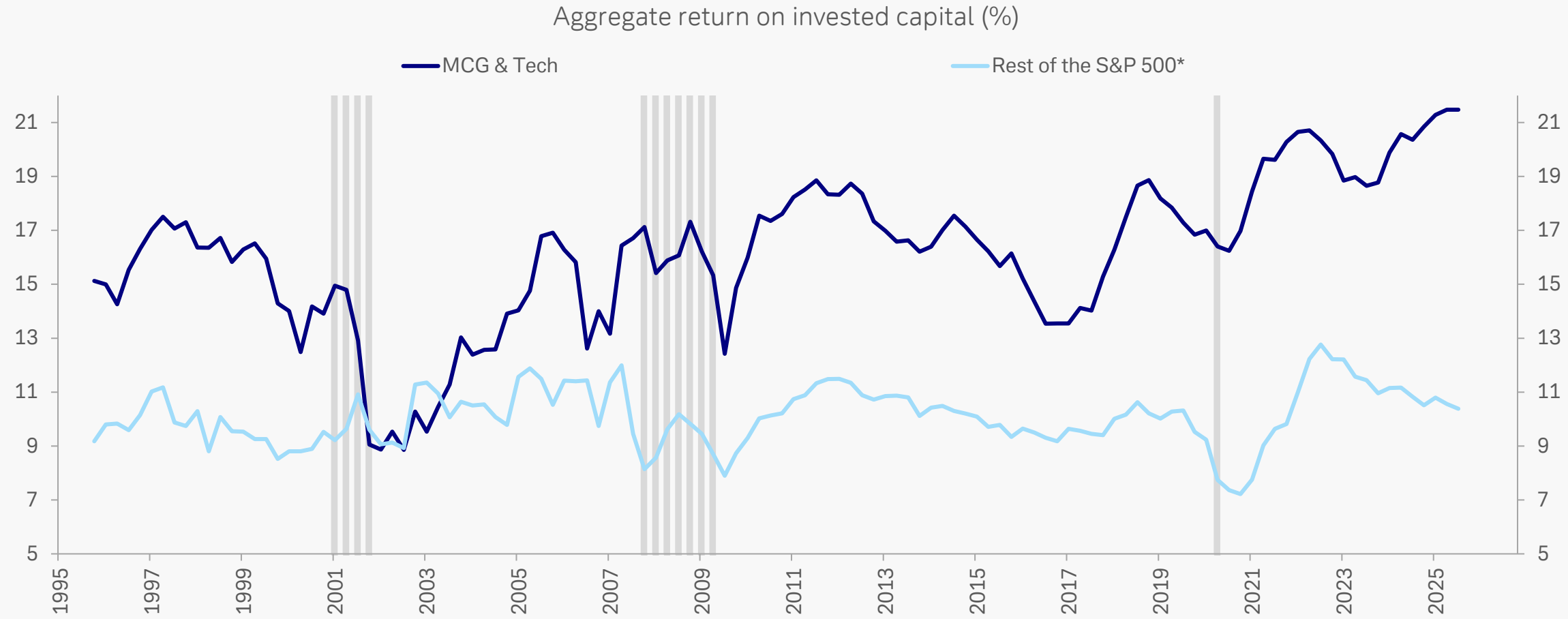


*MCG & Tech + other members of S&P 1200 Global Tech index + FTSE China Tech index

Source: Bloomberg Finance LP, Deutsche Bank Research

Green flags: 2.2 Investment: big tech returns have grown since start of AI cycle

Hyperscalers are generating new returns from AI via customer cloud demand, AI-powered tools and cost savings on coding

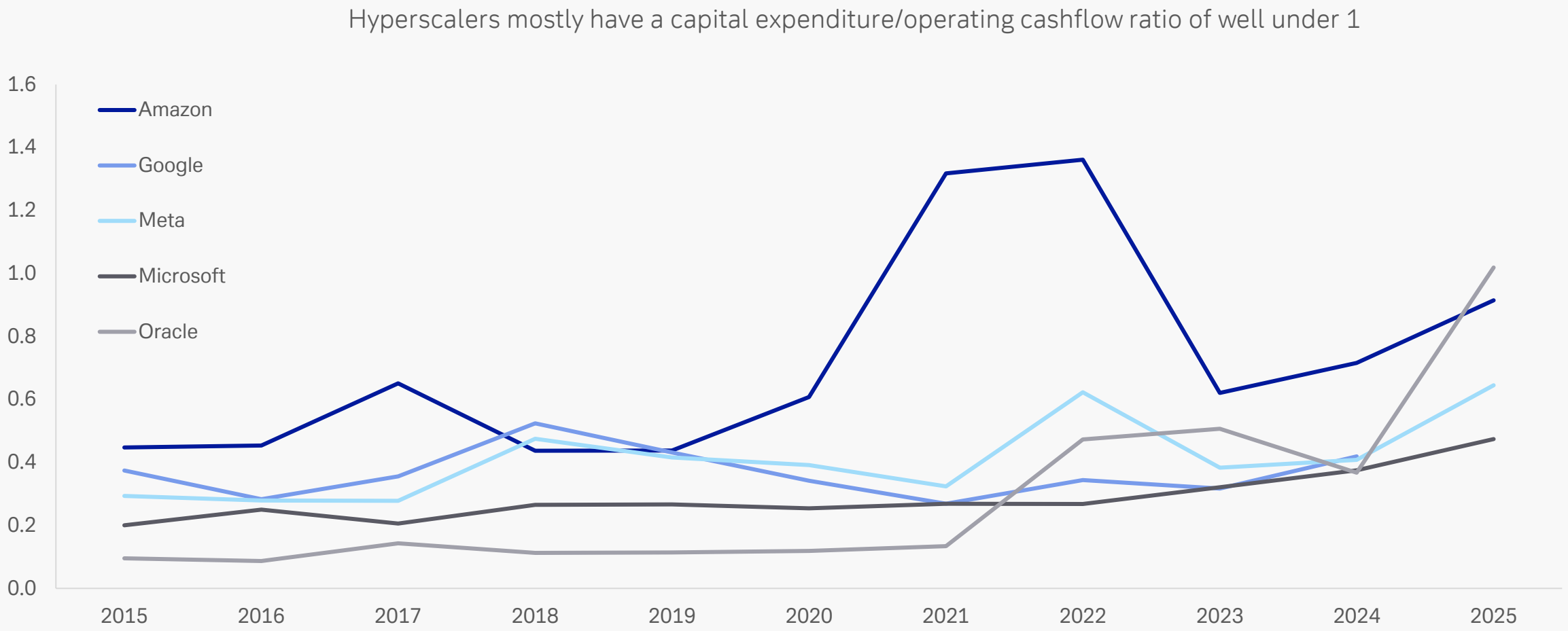


*Excludes Financials, Real Estate and Utilities

Source: Bloomberg Finance LP, Deutsche Bank Research

Green flags: 2.3 Investment: hyperscalers are funding capex mainly via free cash flow

With, eg Google generating $48bn in operating cashflow in Q3, hyperscalers can afford to invest without external capital

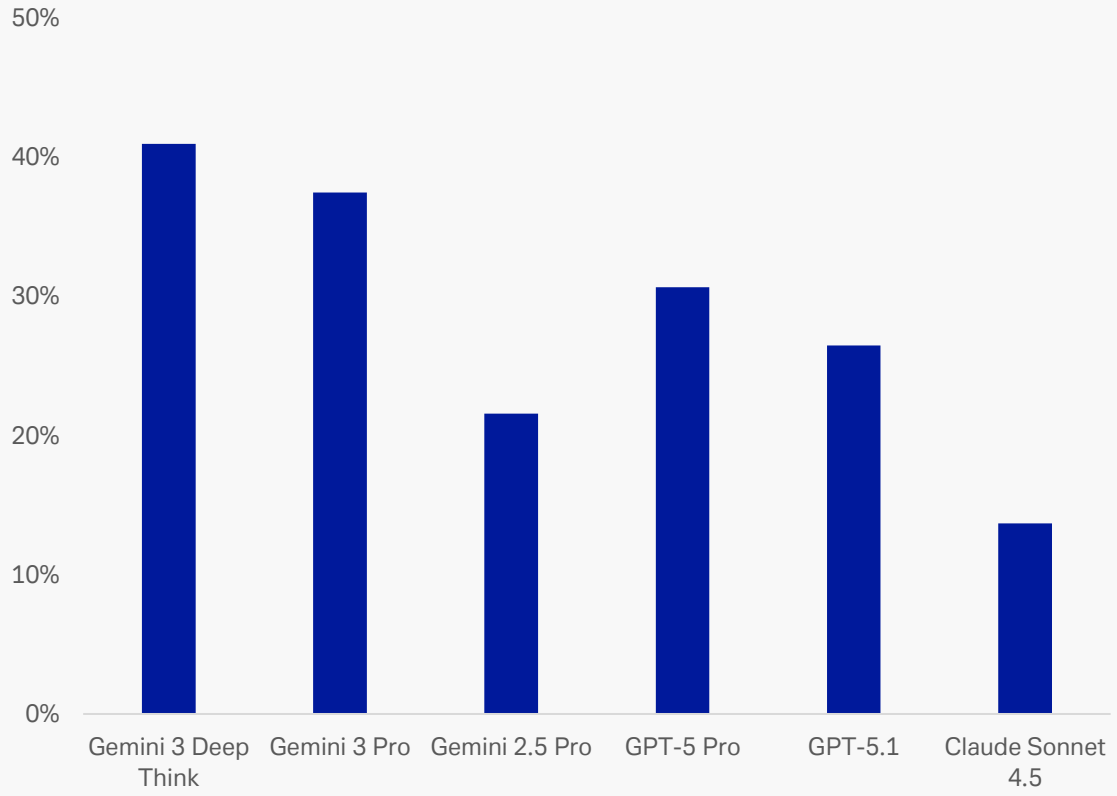


Source: Bloomberg Finance LP, Deutsche Bank

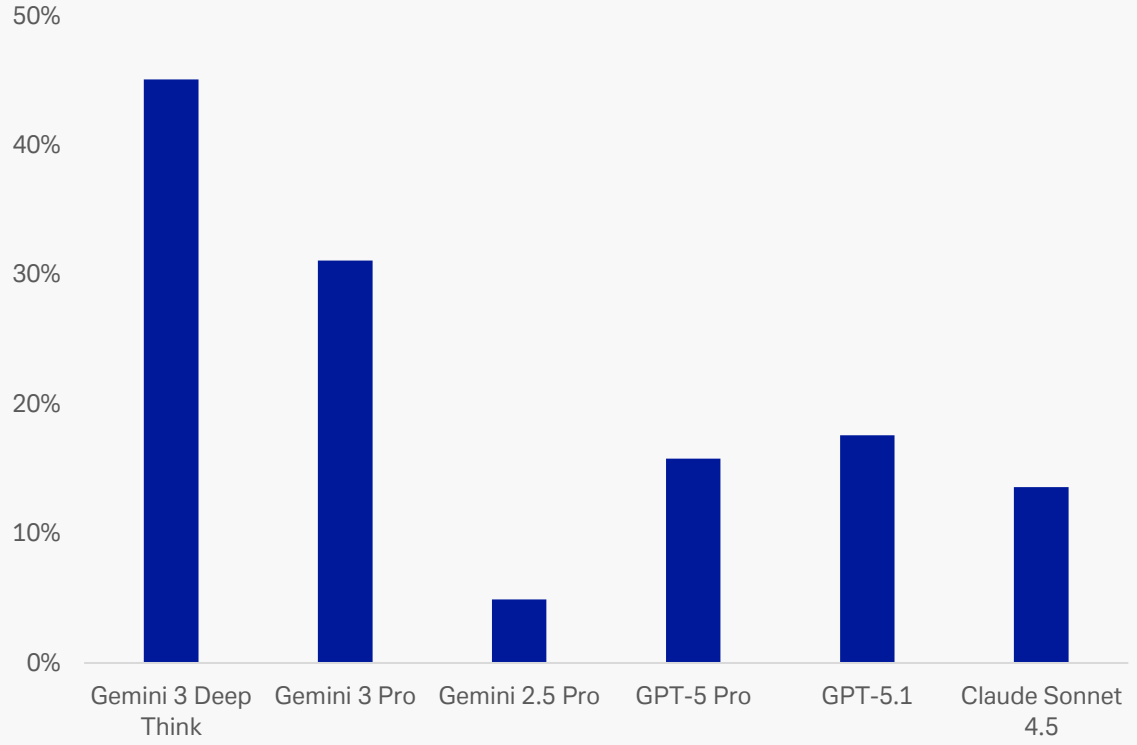
Green flags: 3.1 Technology: scaling is still delivering improvements in capabilities

Launch of Google's Gemini 3 in November showed that AI has not yet hit a wall, with significant multimodal advances

Gemini 3 exceeds all previous models in Humanity's Last Exam, which tests reasoning and knowledge



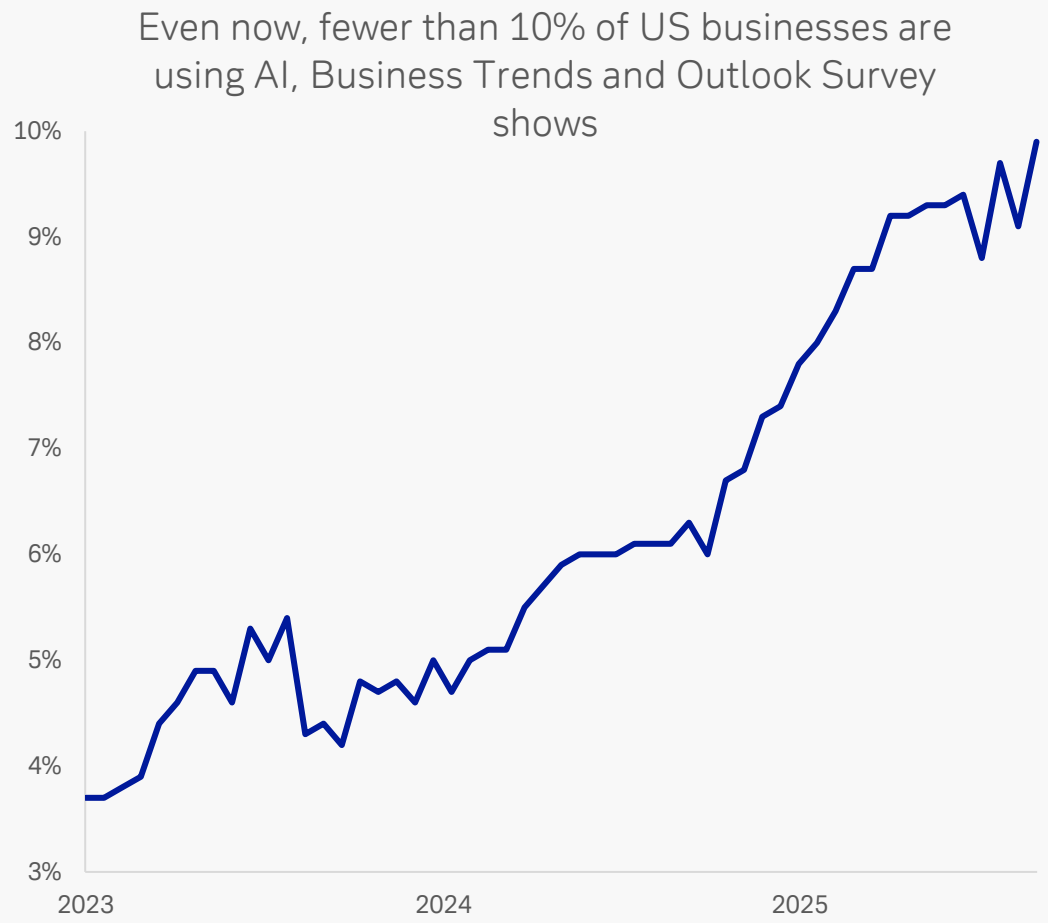
Gemini 3 saw the biggest improvement in visual reasoning, where it scored three times higher than GPT-5 Pro in ARC-AGI-2

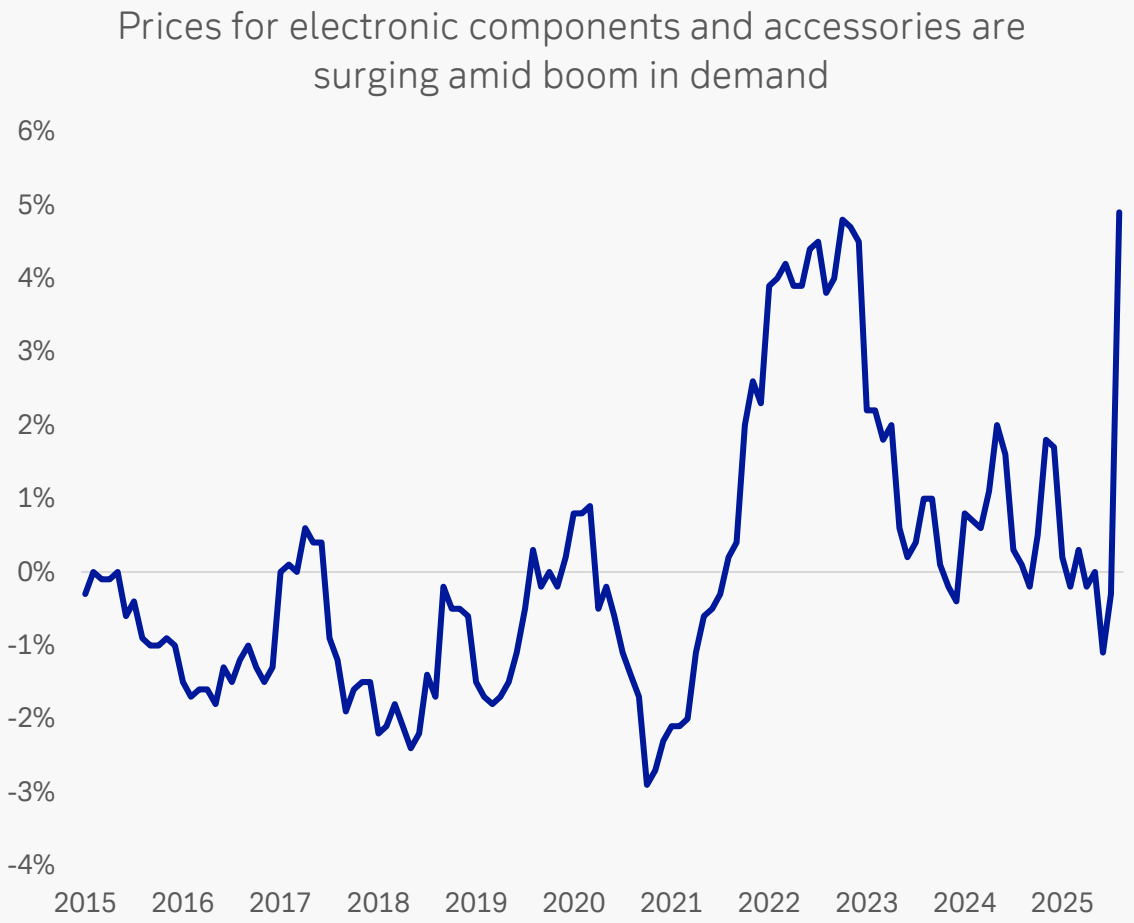


Source: Google, Deutsche Bank

Green flags: 3.2 Technology: AI rollout is just getting started and demand is surging

Google said in October it is processing 1.3 quadrillion tokens a month, up from 9.7 trillion in April 2024, as AI workloads rise

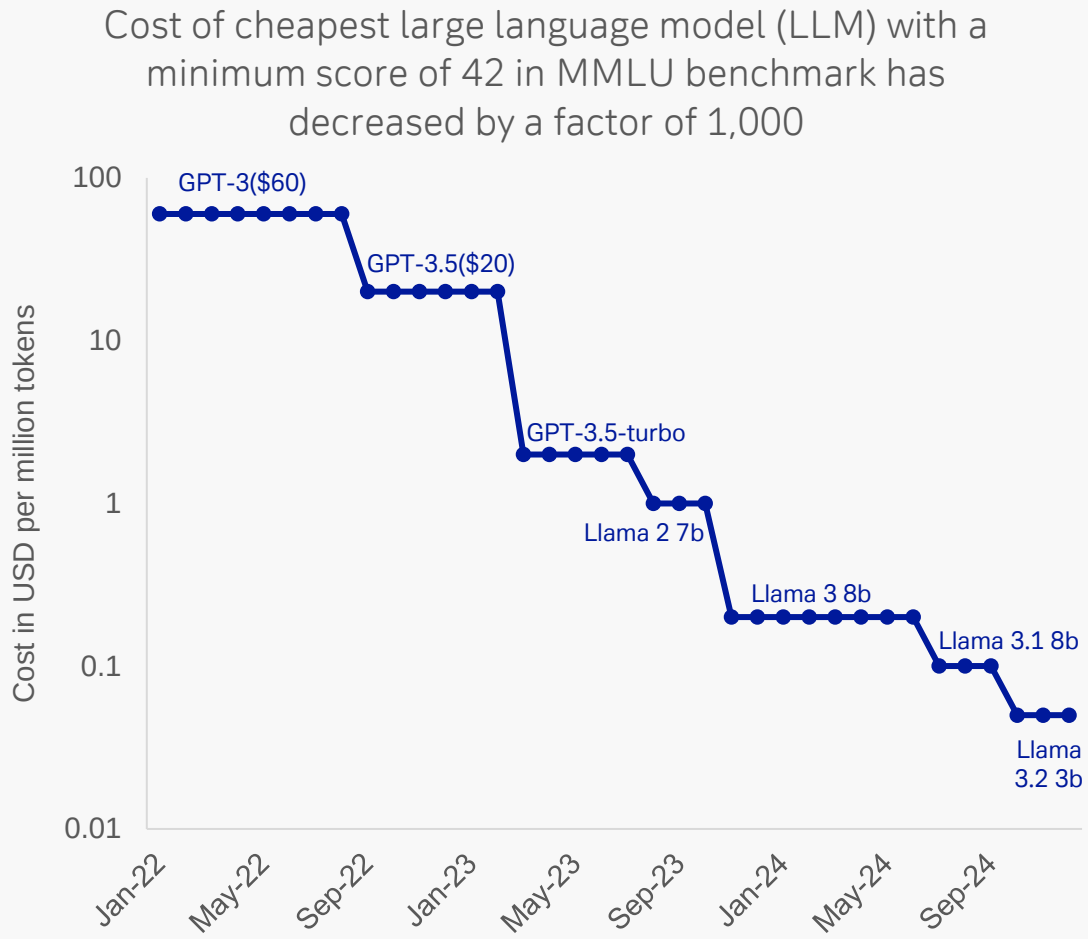


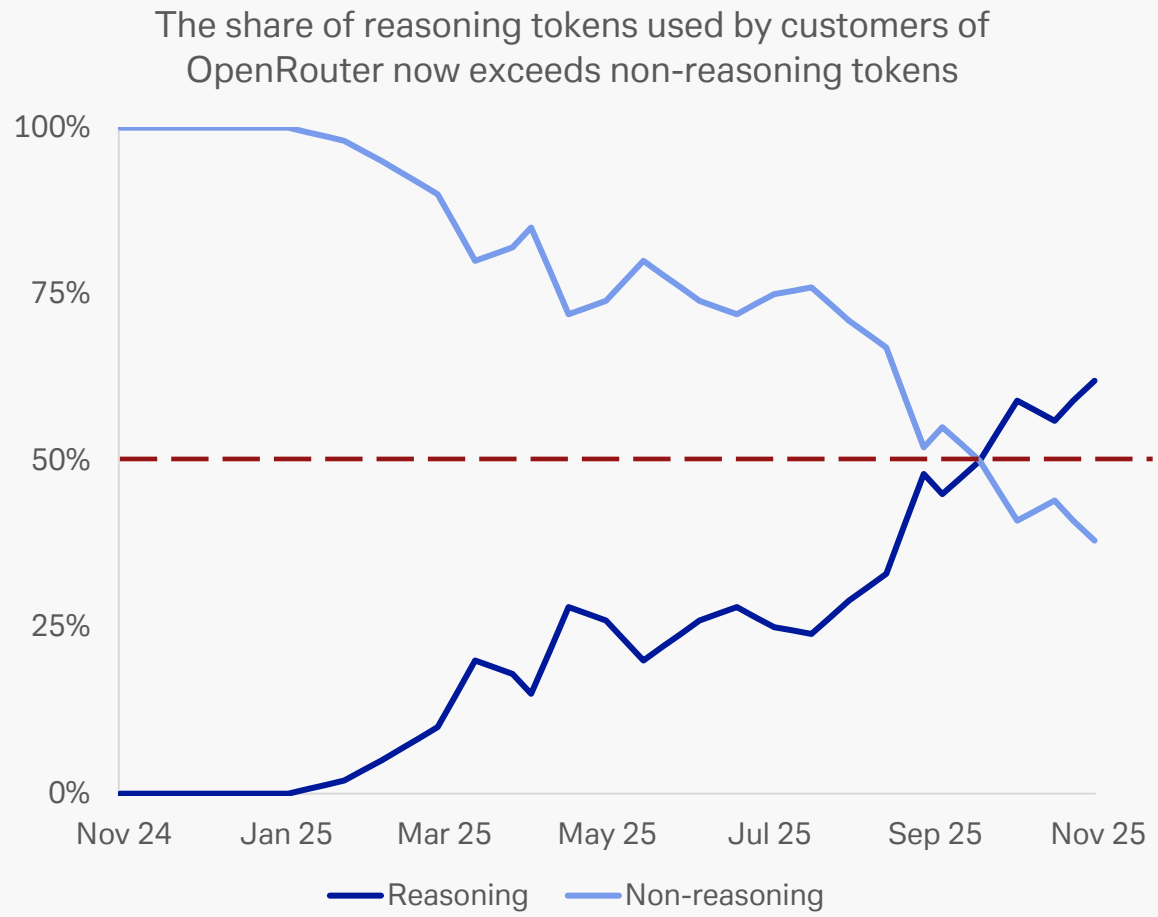


Source: US Census Bureau, Bureau of Labor Statistics, Deutsche Bank Research

Green flags: 3.3 Technology: demand is also fuelled by tumbling costs and new uses

AI follows Jevon's Paradox, where greater efficiency and lower costs boost consumption, meaning no chips are lying idle

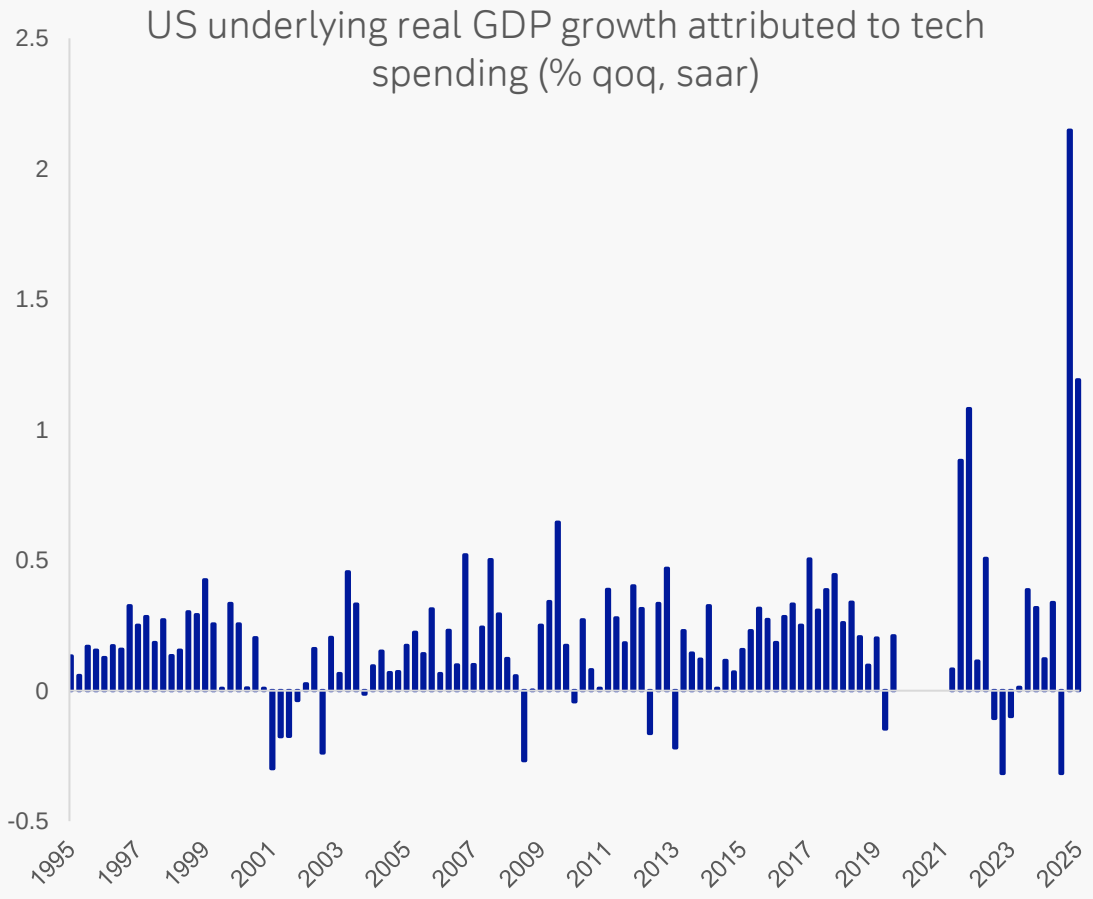


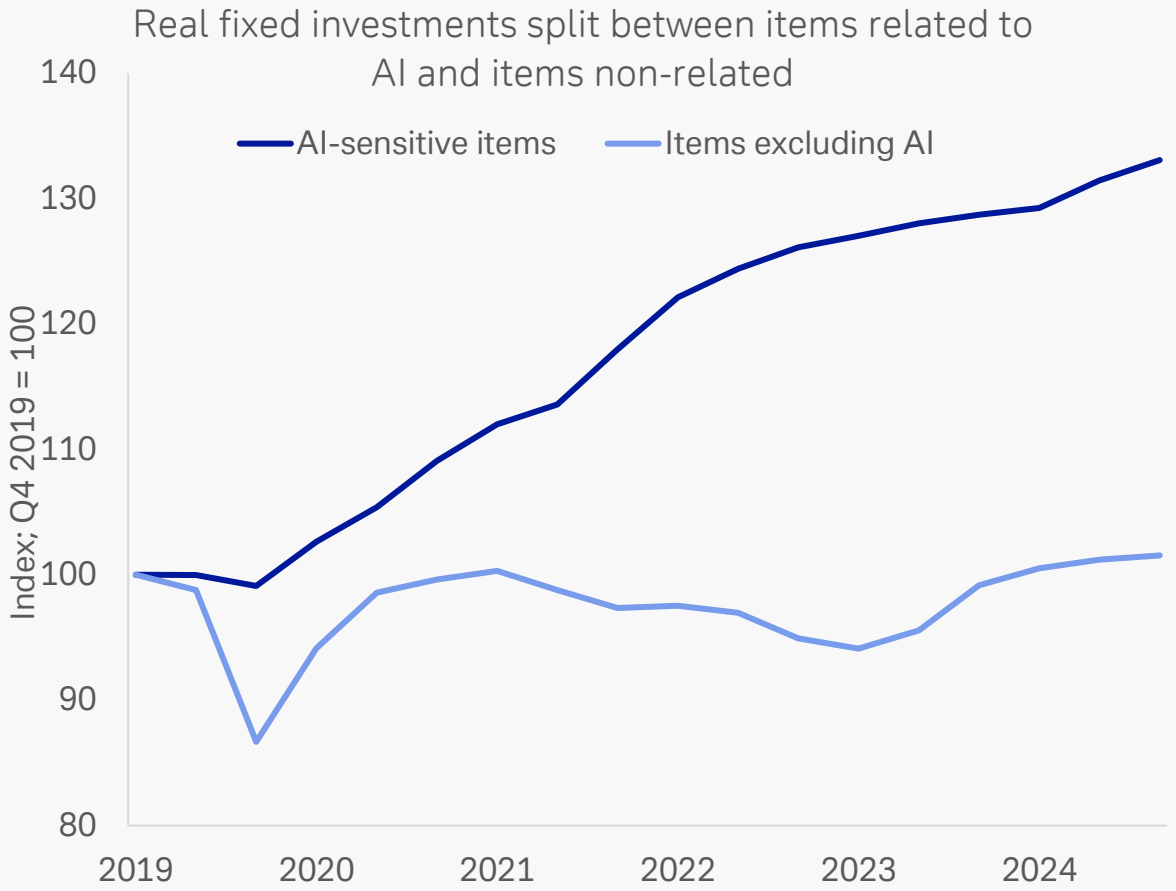


Source: Guido Appenzeller/together.ai, OpenRouter, Deutsche Bank Research

Why does this matter? Investment in AI-related sectors is critical to GDP growth

US would be close to recession this year if it weren't for tech-related spending, as other spending has flatlined post-Covid

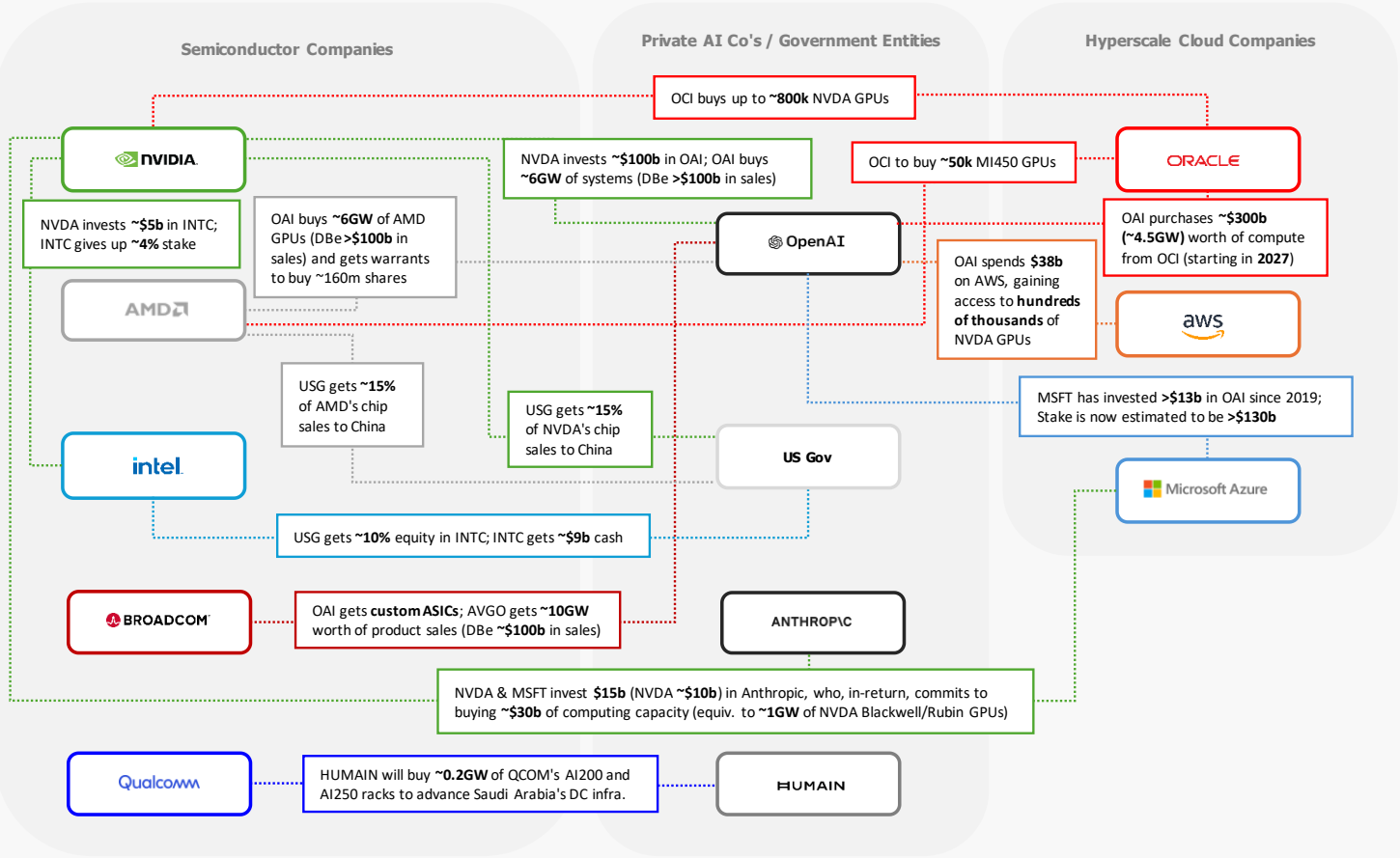




Source: US Bureau of Economic Analysis, Bureau of Economic Analysis, Deutsche Bank Research; underlying GDP measured as real final sales to private domestic purchasers; tech spending includes the software and IT equipment components of fixed investment and domestic sales

What could go wrong? 1. Valuations: circular financing may lead to opaque valuations

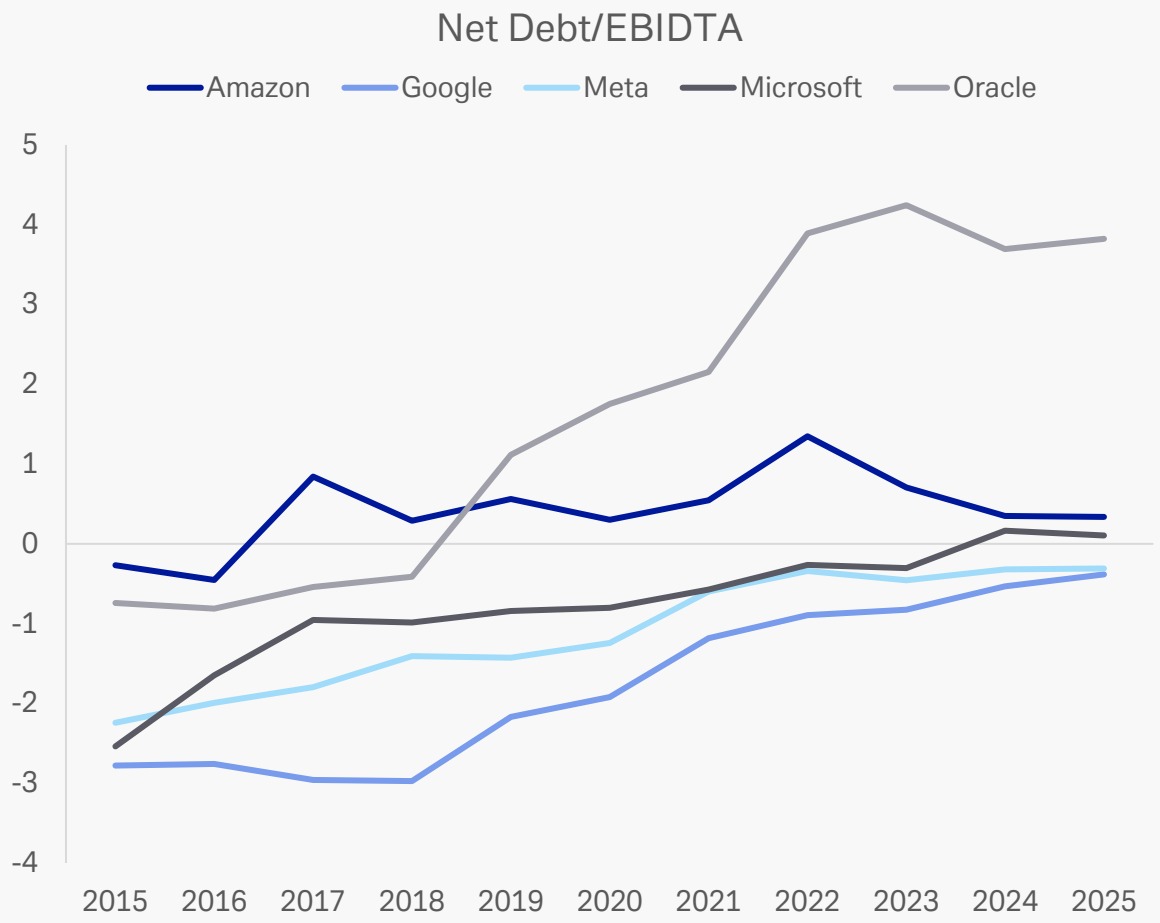
Recent complex agreements, such as OpenAI's $1.4trn in compute commitments over eight years, may carry systemic risks

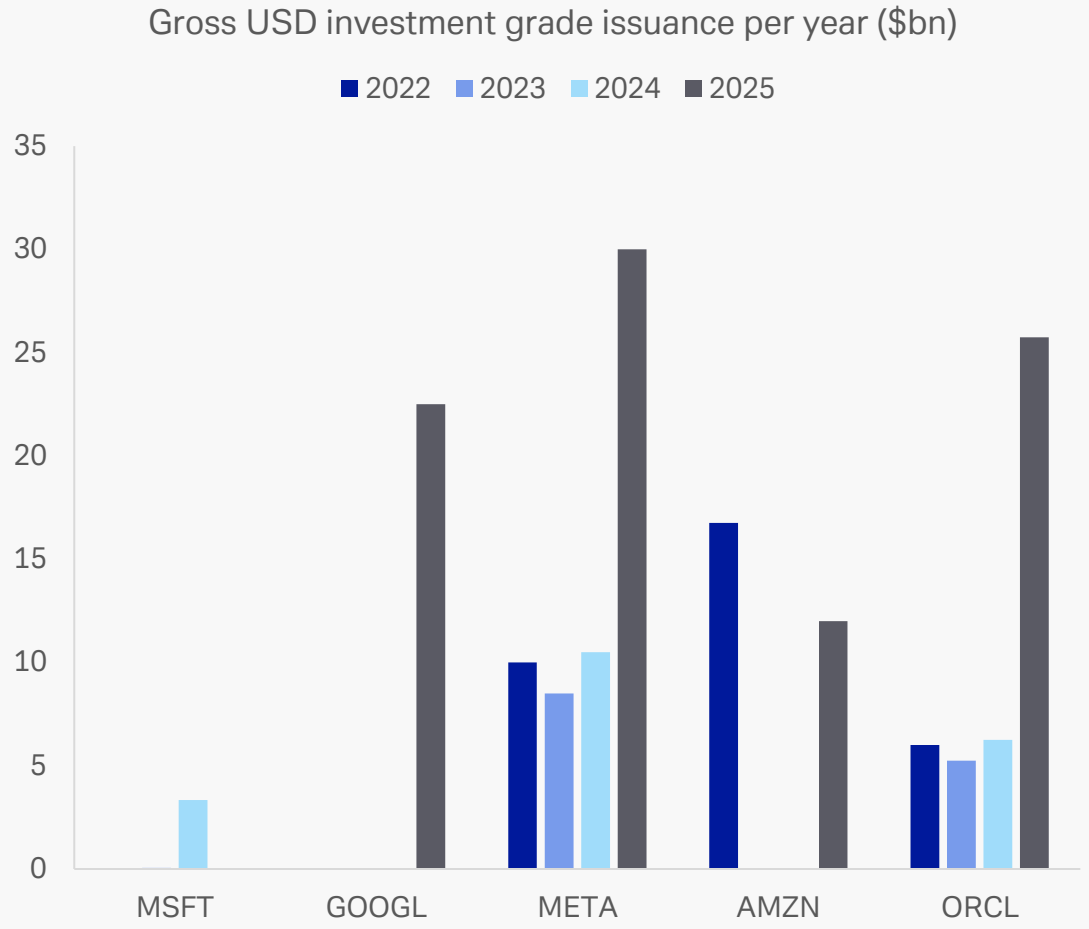


Source: Deutsche Bank Research, company press releases. Note: Schematic above is updated on an ongoing basis following official company announcements; The deals outlined above are not exhaustive; Note that there are other major AI-centric deals involving software/cloud companies; For more details reach out to the DB Semiconductors Team

What could go wrong? 2. Investment: costs could spiral, forcing companies into debt

Even the cash-rich hyperscalers have begun to issue far more debt, with downstream companies also set to increase issuance

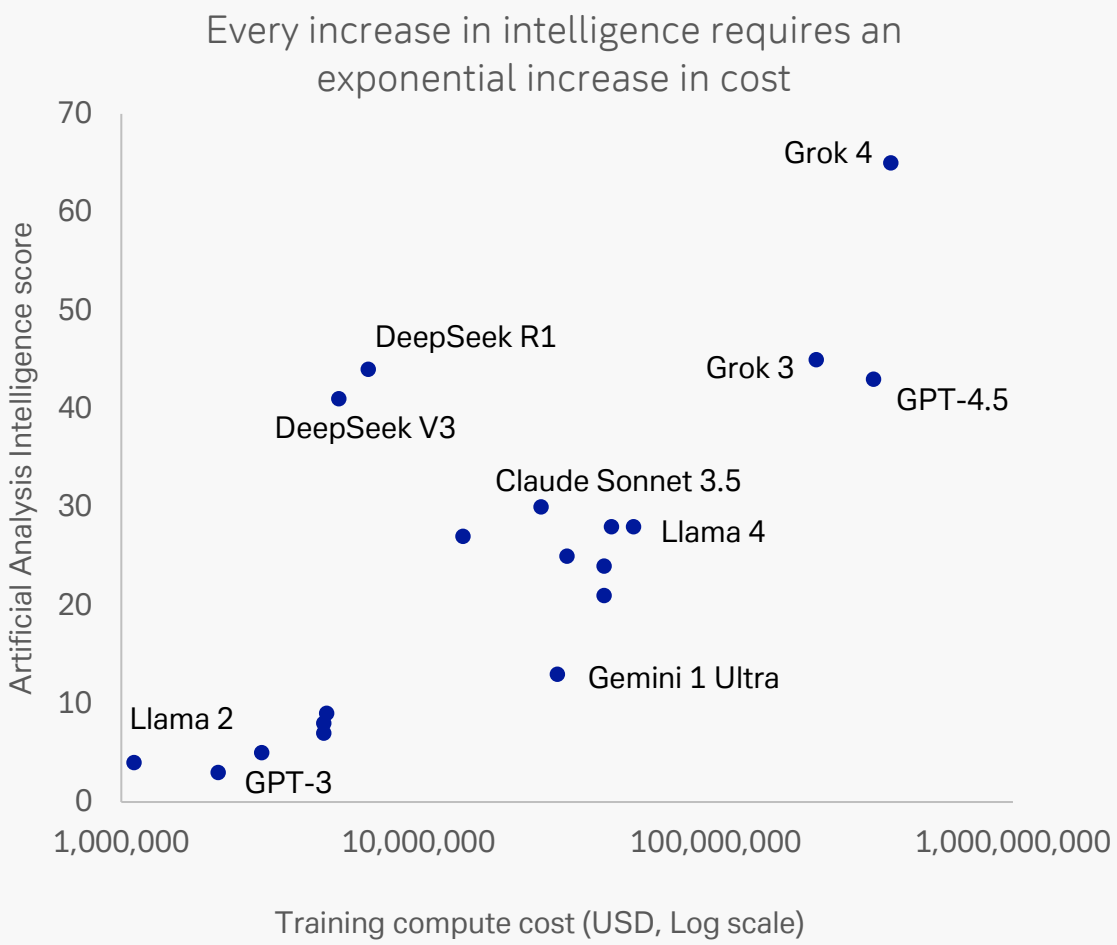


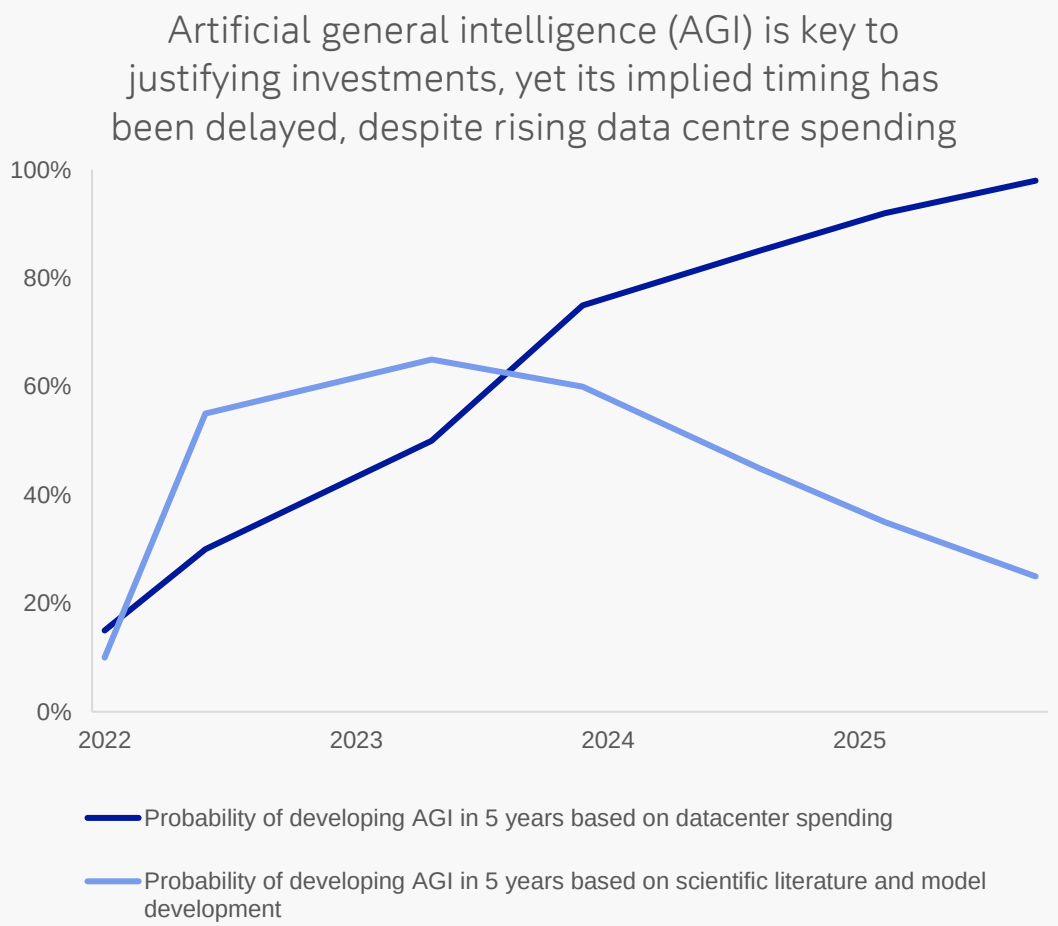


Source: Bloomberg Finance LP, Deutsche Bank Research

What could go wrong? 3. Technology: practical hurdles, prohibitive costs or slow gains

As scaling shows diminishing returns, developers may not keep finding other ways to deliver value that works "in the field"



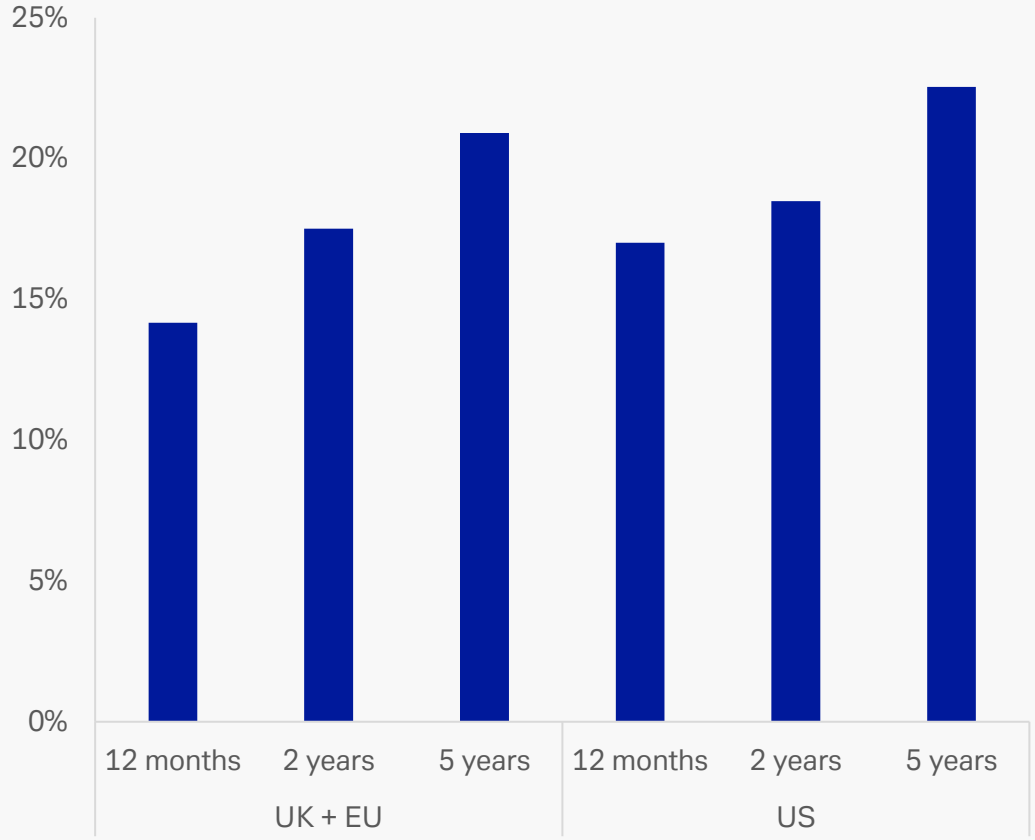


Source: Artificial Analysis, EpochAI, Deutsche Bank Research

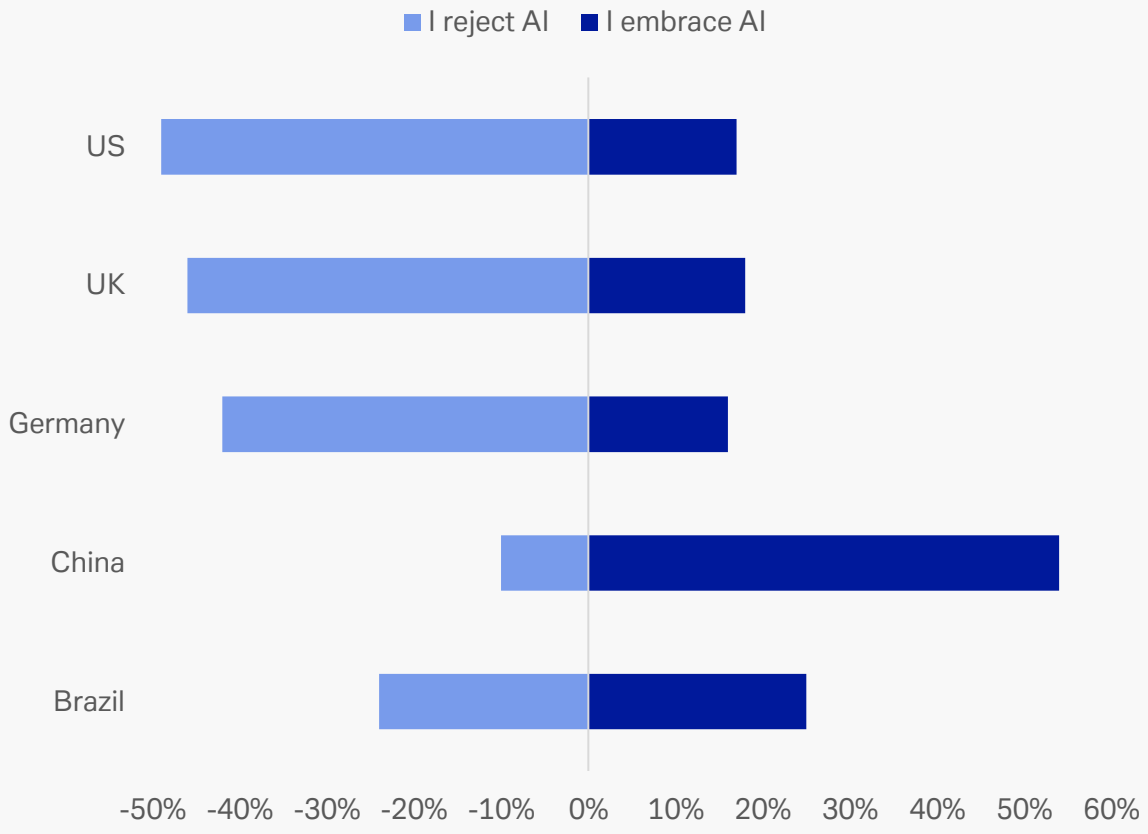
What could go wrong? 4. Social, political backlash on fears of control, privacy, jobs

Rising scepticism about AI could lead to customer boycotts, employee resistance and restrictive regulation

Percentage of people who are very concerned that AI will take their jobs over the coming years



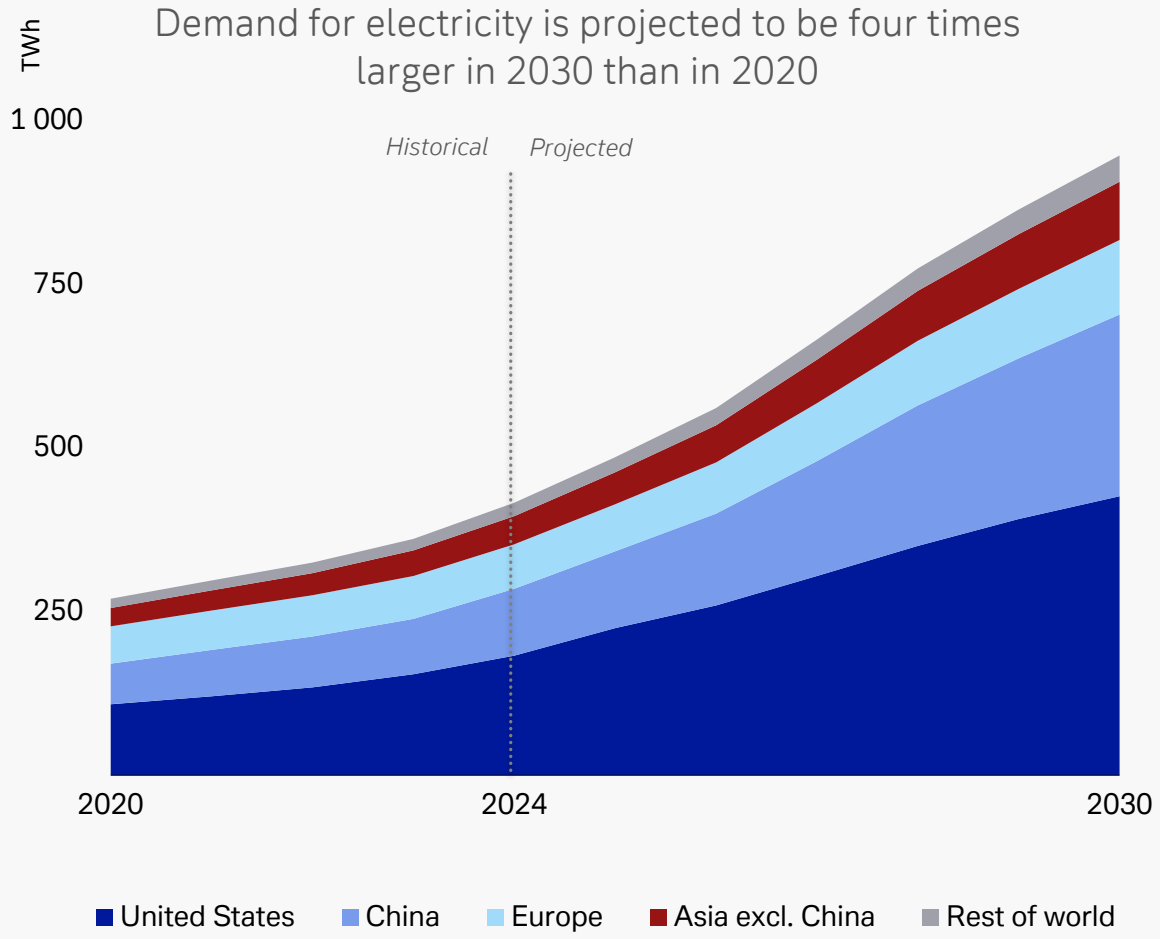
More people in developed markets resist greater AI use, while those in Brazil and China embrace it

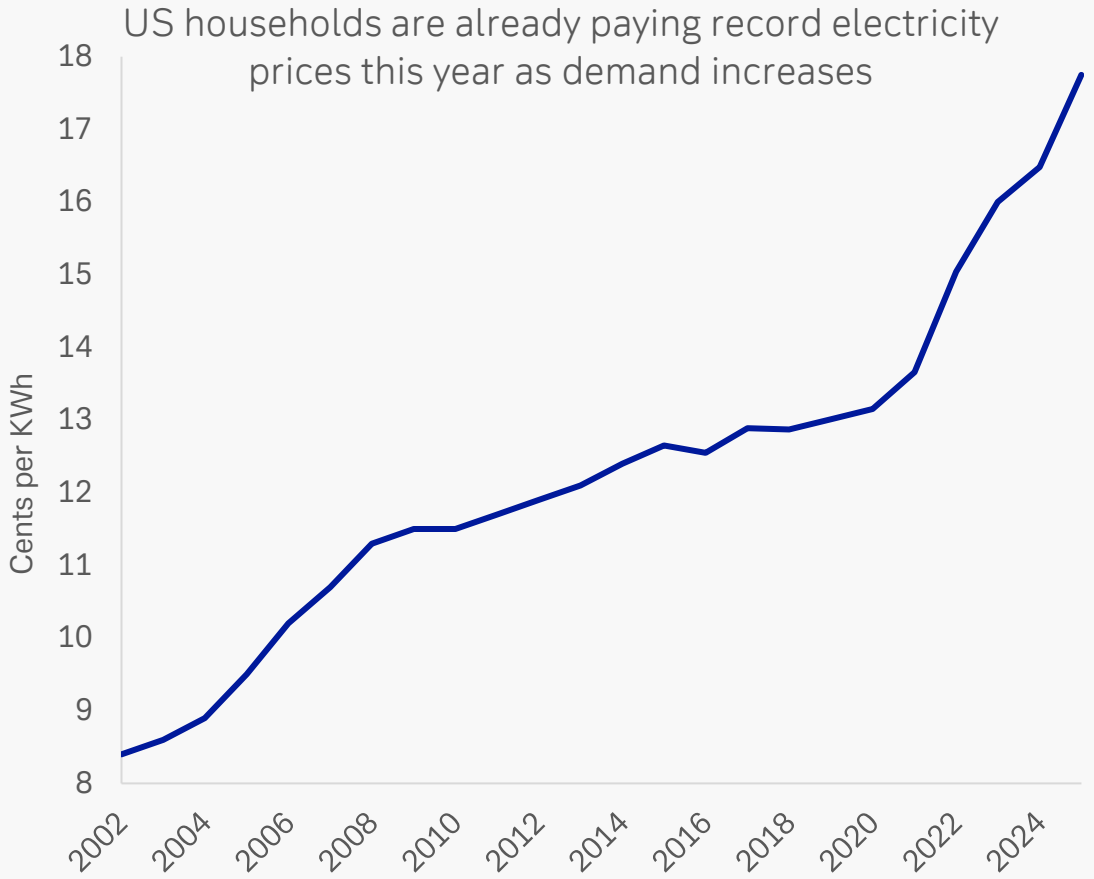


Source: dbDataInsights survey of 10,000 respondents in US, UK, France, Germany, Italy and Spain, Sept-Nov 2025; 2025 Edelman Trust Barometer Flash Poll: Trust and AI at a Crossroads; Deutsche Bank Research

What could go wrong? 5. Practical or geopolitical supply bottlenecks, eg energy, chips

The biggest hurdle to adoption and monetisation is supply, particularly electricity, where capacity will take years to build





Source: IEA, Deutsche Bank Research

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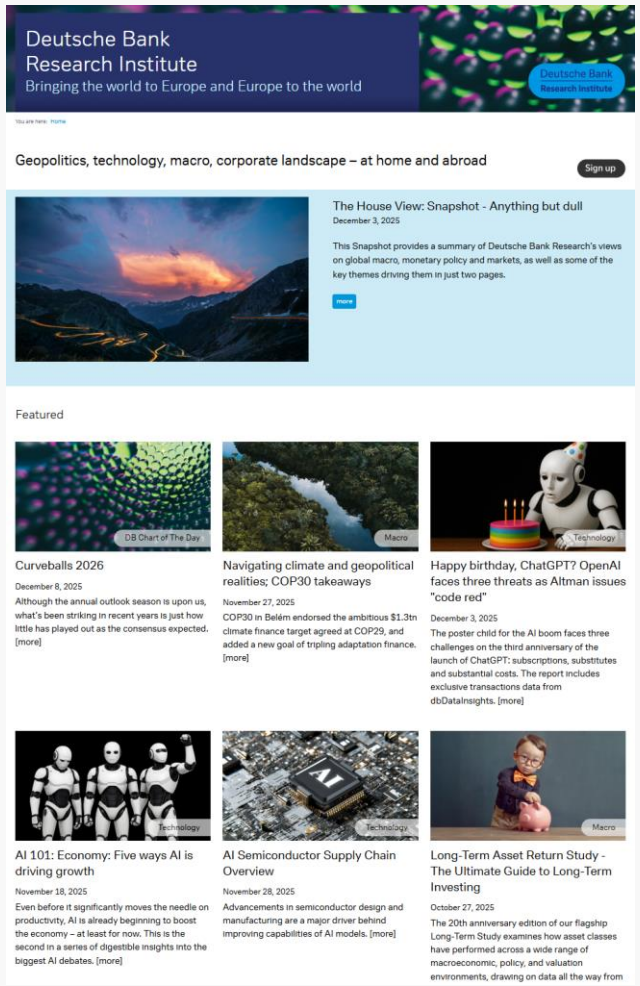

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Happy birthday, ChatGPT? OpenAI faces three threats as Altman issues "code red" (Dec 3, 2025)
AI semiconductor supply chain overview (Nov 28, 2025)
AI 101: Economy: Five ways AI is driving growth (Nov 18, 2025)
European spending on ChatGPT has stalled since May: dbDataInsights (Oct 14, 2025)
AI 101: Technology: hype-free guide for users (Oct 2, 2025)
"AI bubble" bubble bursts (Sept 30, 2025)
The Summer AI Turned Ugly: Part 2 (Sept 4, 2025)
The Summer AI Turned Ugly: Part 1 (Sept 2, 2025)

The authors would like to thank their Deutsche Bank Research colleagues for inspiration and charts, notably from the following reports (only available to clients)

Capital Goods: 2026 sector outlook (Gael de Bray et al, Dec 7, 2025)
IG & HY Strategy: 2026 Outlook: Fire & Ice: Round II (Steve Caprio et al, Nov 25, 2025)
Asset Allocation: 2026 US Equities Outlook: Staying Constructive (Binky Chadha, Parag Thatte, Nov 25, 2025)

Image by DALL-E 2

Authors

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Appendix 1

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