Frontier International

Navigating the AI revolution in international equities

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Frontier Advisors | Forefront Thinking

About us

Frontier Advisors has been at the forefront of institutional investment advice in Australia for thirty years and provides advice on around $850 billion of assets across the superannuation, charity, public sector, insurance and university sectors.

Our purpose is to empower our clients to advance prosperity for their beneficiaries through through knowledge sharing; customisation; technology; and an alignment and focus that is unconstrained by any product conflicts.

Cathryn Goh

Consultant

Cathryn joined Frontier in January 2023 and is a Consultant in the Equities Research Team. Prior to joining Frontier, she spent three years as a generalist Equity Analyst at Rask, an investment research and education company. She has also worked as a freelance writer for The Motley Fool, a retail advisory platform. She holds a Bachelor of Commerce (Accounting and Finance) from The University of Melbourne.

Simone Gavin

Senior Consultant

Simone Gavin re-joined Frontier in May 2020 as a Senior Consultant and is a member of Frontier's Equities Team. Simone previously worked at Lonsec for seven years where she was responsible for undertaking manager research in global and domestic equities, with lead analyst responsibilities for global equities and emerging market equities. Prior to Lonsec, Simone spent five years at Standard & Poor's where she also undertook manager research in global and domestic equities and had lead analyst responsibilities for listed infrastructure and emerging market equities. Simone previously worked with Frontier as an analyst for two years until November 2007. Simone holds a Bachelor of Chemical Engineering (hons) and Commerce from The University of Melbourne.

Introduction

Frontier Advisors' Equities Team members, Cat Goh and Simone Gavin recently travelled to the US meeting with managers across global, emerging markets and small cap equities. This included visiting five cities and conducting 25 meetings, discussing both rated and not rated strategies across the style spectrum (growth, value, core) and different approaches (quantitative, fundamental).

As part of this trip, we asked managers a number of questions related to AI. We wanted to better understand the industries and stocks that are benefiting from AI and how this may evolve, particularly in any areas that may be less obvious. We also tested the case for US exceptionalism and discussed the potential 'losers' of AI.

While not the focus of this research paper, we also questioned managers on their use of AI in internal processes and the results were interesting for both fundamental and quantitative approaches. We believe there is a potential edge where managers can harness the opportunity, whether through more efficient research from a fundamental perspective or with the ability to more efficiently process large data sets from a quantitative approach. To some extent, AI could level the divide between fundamental and quantitative managers, helping fundamental managers to increase breadth through researching more stocks, and helping quants to put structure around unstructured datasets to quantify some of the more qualitative parts of investing (e.g. management quality).

In addition, we have and continue to observe a competitive advantage from firms with long-term internal data sets as well as firms willing to spend money on technology. While separate from AI, these are likely to be continual requirements to leverage AI and compound these advantages even further.

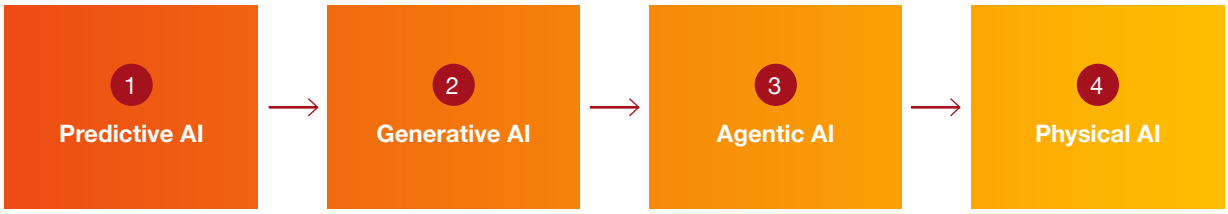
What is AI and how has it evolved?

The field of artificial intelligence (AI) dates back to the 1950s when the groundwork for symbolic AI was laid. Early efforts focussed on developing programs capable of theorem proving and general problem solving, and this was when natural language processing was born.

In the 1990s, statistical machine learning leapt forward when the focus shifted from a knowledge-driven approach to a data-driven approach, where algorithms learnt from data without explicit programming. Further advancements were then achieved in the 2010s with the availability of massive datasets and the advent of powerful computing resources, particularly graphics processing units (GPUs), which propelled deep learning models. Frontier has evidenced many managers, particularly quant/hedge fund types, using such technology for some time.

Now, AI is discussed in our everyday conversations and some terms are often used interchangeably. Mostly people are using ChatGPT or Gemini but AI has extended to a number of new areas. Generative AI (GenAI) includes techniques such as diffusion models (simulate the process of adding noise to data) and large language models (LLMs), which allow the creation and manipulation of content. We have entered a new era of rapid increases in GenAI capabilities, driven by greater LLM creativity. The next frontier of GenAI is agentic AI, allowing these systems to act autonomously and perform workflows with minimal human intervention. The future then promises physical AI, which lets autonomous systems like cameras, robots, and self-driving cars perceive, understand, reason and perform complex actions in the physical world.

Figure 1: AI evolution



Source: Frontier Advisors

Beyond this, companies are also racing to develop artificial general intelligence (AGI), a theoretical type of AI that would possess the ability to perform any intellectual task that a human can. A monumental prize could be waiting for the winner of this race, further incentivising investment in AI.

This paper digs into the opportunities for investors to participate in the continued evolution of AI and what is widely believed will be a transformation of many industries that will at least match the impact of the internet.

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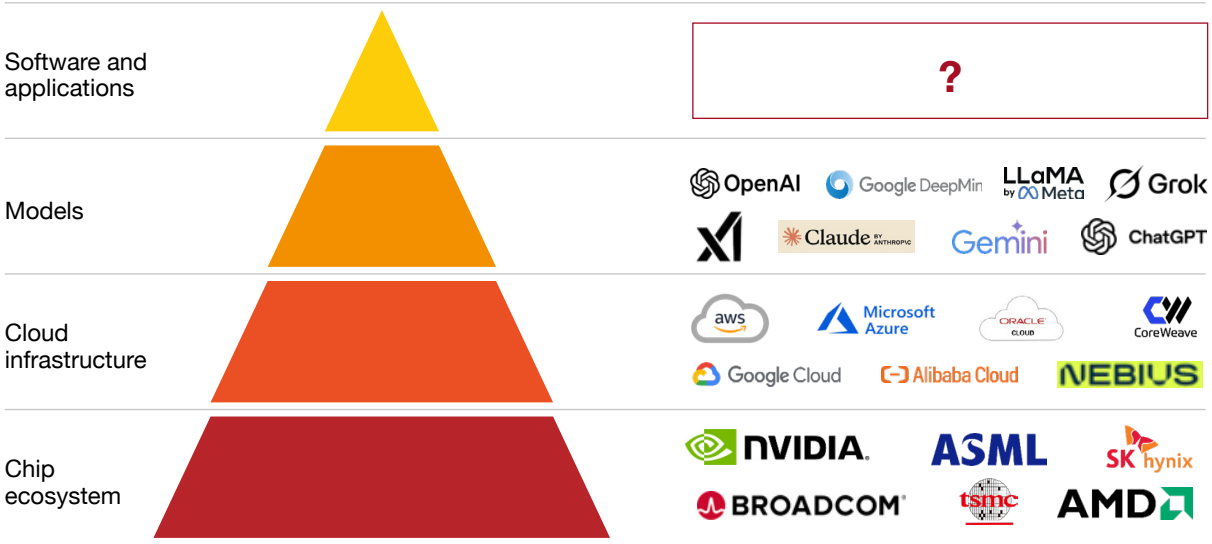
Unpacking the AI ecosystem

Setting the scene for our discussions, several managers described the AI ecosystem as a pyramid, which at its most simple form comprises four layers.

The bottom of this pyramid (and the entire ecosystem) is underpinned by chips and their various components, including the GPUs designed by Nvidia and manufactured by TSMC. The next layer comprises the hyperscalers and associated cloud infrastructure, which together with the chip ecosystem represent the picks and shovels in the AI gold rush. These two layers are largely where most of the value has accrued to date in the market and together, they enable the creation of foundational models and LLMs which sit on the next layer of the pyramid. These models are then used to build various products and solutions, which leads to the top of the pyramid being the software and applications layer (comprising existing companies as well as those that don't exist yet). Perhaps unsurprisingly, this layer is where managers hold the most uncertainty, which we will discuss in a later section focussed on disruption.

Figure 2: AI ecosystem



Source: Frontier Advisors

A notable development within the chip ecosystem is that almost all of the major players, including Amazon, Google, Microsoft, OpenAI, Apple and Meta, are designing their own custom silicon chips for their AI infrastructure to tailor performance, lower costs and reduce reliance on Nvidia. Some managers have noted that TSMC stands to benefit as "everyone's foundry", being agnostic to the type of chip produced and being able to generate higher margins on these custom chips.

Within cloud infrastructure, Amazon Web Services (AWS) is the leader in terms of market share, but Microsoft Azure and Google Cloud are growing faster thanks to their enterprise relationships and stronger background in AI. While estimates vary, together these three hyperscalers control more than 60% of the global cloud computing market. Oracle has cemented itself as the number four player after initially missing the shift to the cloud before getting another a chance with the AI boom, aligning itself with OpenAI and Nvidia. In China, familiar names in Alibaba and Tencent are among the major players. But across the industry more broadly, a new generation of cloud providers are emerging known as neoclouds. Importantly, these neoclouds are purpose-built for AI workloads, specialising in raw performance and offering flexible pricing models through GPU processing-as-a-service. While several neocloud providers have emerged, the key players in public markets are currently CoreWeave, Nebius and Iren which have each signed major deals with various AI model developers; naturally attracting strong investor interest as a result.

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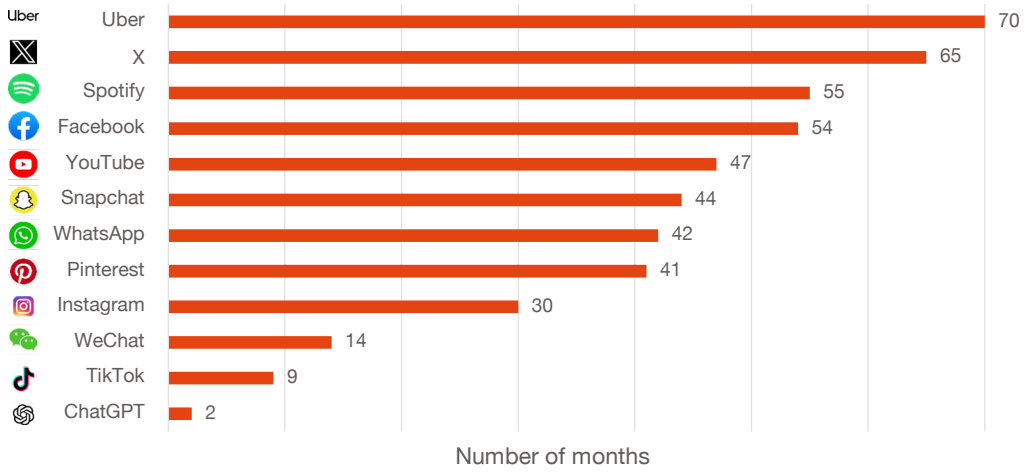
Figure 3: Major listed neoclouds

Source: Bloomberg, Frontier Advisors. Data as of 31 October 2025.

At the model layer, the most widely adopted model, so far, is OpenAI's ChatGPT. The phenomenon of ChatGPT can be seen in its rapid adoption, setting the record for the fastest-growing consumer app by reaching 100 million users in just two months after its November 2022 launch. With more than 800 million people now using ChatGPT every week, take up has been strong but as a number of managers pointed out, less than 5% of ChatGPT's user base is paying for a subscription. This leads to questions around monetisation and returns on investment more broadly, which was a common thread among many of our discussions. This revenue also comes at a heavy cost and unlike software-as-a-service (SaaS) which enjoys the benefits of strong operating leverage at scale, the cost of AI models for the likes of OpenAI increases with more users due to the need for more computing power (and the associated build and then energy costs).

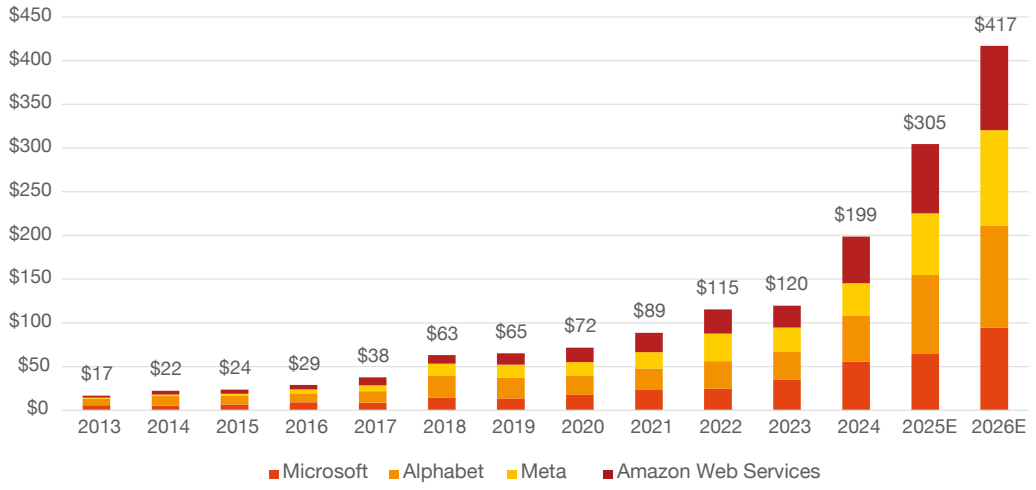
Figure 4: Number of months to achieve 100 million users



Source: UBS, Frontier Advisors

In terms of share price performance, the major beneficiaries of AI to date have primarily been on the hardware side given the billions of capital expenditure (capex) investment in AI infrastructure. This includes the chip designers and manufacturers along with companies involved in memory; servers; storage; networking; and cooling. Figure 5 demonstrates the AI-driven step change in annual capex from the hyperscalers who are on track to invest more than US$300 billion in 2025.

Figure 5: Hyperscaler annual capex (US$B)



Source: Bloomberg, Frontier Advisors. Data as of 10 November 2025.

Amplified by their prominence in respective indices, it has been a concentrated group of AI-related stocks driving market performance, led by Nvidia in global equities, which has become the first US$5 trillion company, and TSMC in emerging markets. Naturally, positioning in these stocks has also played a big role in active management outcomes. As seen in Table 1 and Table 2, not owning Nvidia in FY25 cost a global equities manager 1.3% in relative performance, while not owning TSMC cost an EM manager 2.4% in relative performance over the same period.

Table 1: Top five contributors to the MSCI ACWI ex AU Index in FY25

Stock	Total return (AUD)	Benchmark contribution to return
Nvidia	30.4%	1.3%
Broadcom	76.3%	0.7%
Meta	49.5%	0.7%
Tesla	63.6%	0.6%
Microsoft	14.0%	0.6%

Source: FactSet, Frontier Advisors

Table 2: Top five contributors to the MSCI EM Index in FY25

Stock	Total return (AUD)	Benchmark contribution to return
TSMC	25.9%	2.4%
Tencent	38.1%	1.6%
Alibaba	60.5%	1.3%
Xiaomi	268.7%	1.2%
China Construction Bank	58.2%	0.5%

Source: FactSet, Frontier Advisors

The continued case for US exceptionalism

There continues to be a case made for US exceptionalism and when looking at the prominent companies in the AI ecosystem in Figure 2, it is clearly dominated by US companies.

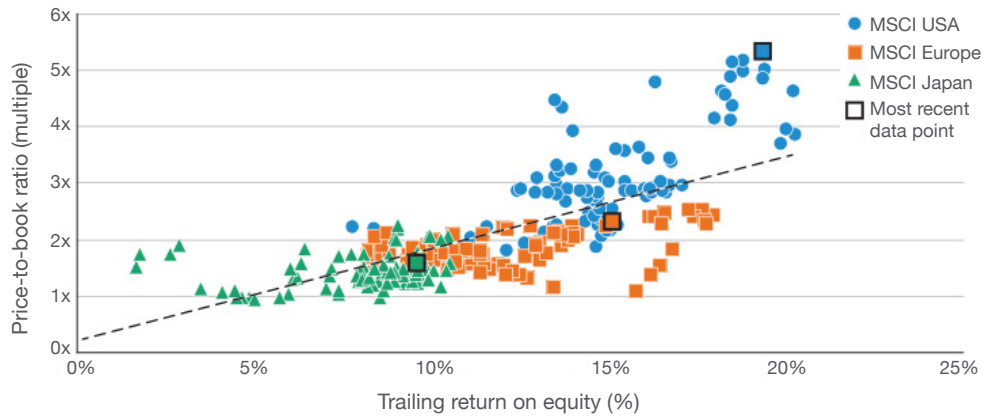
In turn, much of the US growth picture going forward depends on AI. Historically at least, US exceptionalism has, in part, been driven by fiscal policy, strong consumer spending and a resilient labour market.

The key reasons provided to support the continuation of US exceptionalism are:

- The USD, while weakened, remains the currency of choice and enjoys the power of reserve currency status (including lower borrowing costs and more liquid financial markets).
- The US is less regulated, with more business-friendly frameworks.
- The US is a leader in innovation, in turn aggregating global talent and capital.

There are clearly arguments to challenge the above reasons, particularly with current buying of gold and innovation in China (highlighted in the DeepSeek moment). From a valuation perspective, at the current time, the US market trades at a significant premium to the developed world.

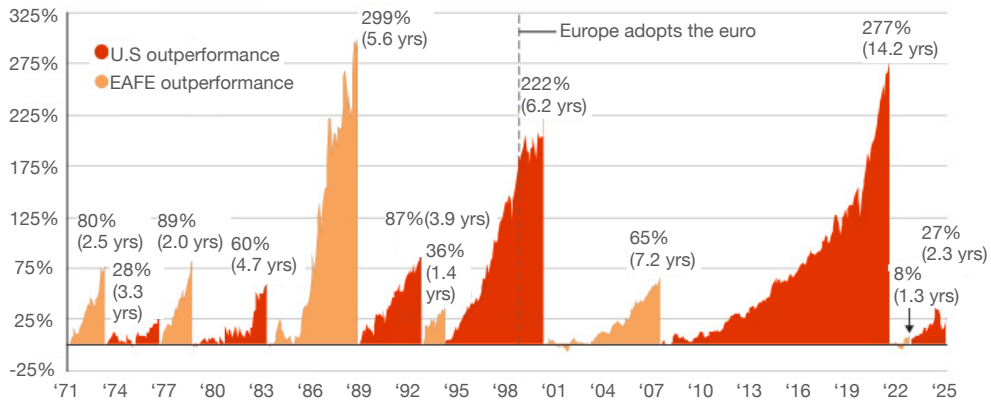
Figure 6: Quarterly return on equity and price-to-book ratios (2003-2005)[1]



Source: J.P. Morgan Asset Management. Data as of 31 July 2025

On top of high valuations, an interesting observation of US and European markets shows that historically they have alternated cycles of outperformance. Clearly the most recent cycle has been the longest and we have not seen a response from Europe which poses the questions “is it time” or “has something changed”?

Figure 7: Cumulative outperformance during each regime* – US versus EAFE Index[1]



* Regime change determined when cumulative outperformance peaks and is not reached again in the subsequent 12-month period
Source: J.P. Morgan Asset Management. Data as of 31 July 2025

[1] J.P. Morgan Asset Management | Narrowing the gap: U.S.

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Manager exposure to AI and broader beneficiaries

While the managers we met with had various perspectives, they were virtually unanimous in their belief that the winners and losers of the AI revolution aren't yet clear.

We found many managers are trying to align themselves to the most resilient and highest quality AI-exposed companies, even if they don't know what levels of return on investment (ROI) will be generated from the significant capex boom. While many managers are underweight Nvidia, which is almost a pure-play AI stock, the majority have some exposure to the hyperscalers and other big tech companies that are more diversified, with growth drivers that go beyond AI (e.g. Microsoft, Alphabet, Meta, Alibaba).

We collected holdings from a sample of 129 global equity managers in the Frontier Peer Set and found the most commonly held stock within the 'Magnificent Seven' and the broader AI ecosystem was Alphabet. Around 66% of managers had exposure to Alphabet at the end of June 2025 but on average, managers within the sample were 0.3% underweight compared to the MSCI ACWI benchmark. Microsoft wasn't far behind with 64% of ownership but the average position was 1.0% underweight, with Microsoft having a larger weight than Alphabet in the benchmark. Managers were notably underweight Nvidia by 2.5% on average, with 44% having exposure. Interestingly, TSMC was the only company among this cohort of AI stocks that managers were, on average, overweight (+0.6%). TSMC also had the third-highest ownership at 63% of managers. This confirms that managers appear to be favouring the more diversified players, which also come with more palatable valuations.

Table 3: Global equities manager positioning in AI stocks

Stock	No. of portfolios	% of total managers	Average weight	Benchmark weight	Active weight	FY25 return (AUD)	CYTD Sep 25 return (AUD)
Alphabet	85	65.9%	1.9%	2.3%	-0.3%	-1.1%	19.9%
Microsoft	82	63.6%	3.2%	4.2%	-1.0%	14.0%	15.5%
TSMC	81	62.8%	1.6%	1.1%	0.6%	25.9%	33.6%
Amazon	76	58.9%	2.1%	2.5%	-0.4%	15.7%	-6.5%
Meta	62	48.1%	1.6%	1.9%	-0.3%	49.5%	17.5%
NVIDIA	57	44.2%	2.1%	4.6%	-2.5%	30.4%	29.9%
Broadcom	38	29.5%	0.5%	1.5%	-0.9%	76.3%	33.9%
Apple	35	27.1%	0.8%	3.7%	-2.8%	-0.4%	-4.6%
Oracle	28	21.7%	0.4%	0.4%	0.0%	59.1%	59.0%
Tesla	22	17.1%	0.3%	1.1%	-0.8%	63.6%	2.9%
AMD	16	12.4%	0.1%	0.3%	-0.1%	-10.9%	25.2%
Magnificent Seven*			**12.0%**	**20.2%**	**-8.2%**	**26.1%**	**11.7%**
MSCI ACWI						**18.4%**	**10.7%**

* Magnificent Seven performance represented by the Bloomberg Magnificent Seven Total Return Index (BM7T)

Source: eVestment, Bloomberg, Frontier Advisors. Data as of 30 June 2025 unless otherwise stated.

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The two far right columns in Table 3 also highlight the divergence in performance across some of these stocks, with Amazon notably being left behind in the calendar year to September. Apple has also been a laggard but isn't really viewed as an AI stock since it doesn't have exposure to the bottom three layers of the AI pyramid (chips, infrastructure and models). However, the company is developing its own custom chips internally to underpin future AI-powered devices, which could bear fruit in terms of applications. Interestingly, despite being the most widely held AI stock, there are major question marks around the future of Alphabet's dominant Google Search business in a world filled with LLMs. OpenAI has added more fuel to the fire in recent weeks with its launch of ChatGPT Atlas, a new web browser with built-in ChatGPT functionality. Discussing the threat of LLMs to Google, one analyst noted that these answer engines will be more incremental than competitive to the search market, expanding the overall market rather than being a zero-sum game. This was a view shared across a number of managers.

We also conducted a similar exercise for emerging markets, collecting holdings from a sample of 61 EM managers in the Frontier Peer Set. From our discussions with managers, there are five prominent stocks within the EM universe with AI exposure:

- TSMC – chip ecosystem (semiconductor foundry)
- Tencent – cloud infrastructure, models and applications
- Alibaba – cloud infrastructure, models and applications
- Samsung – chip ecosystem (memory) and applications
- SK Hynix – chip ecosystem (memory)

Across the board, ownership amongst these stocks was higher compared to developed markets, being highest for TSMC at 95% and lowest for SK Hynix at 72%, which is still higher than the most held AI stock among global equities managers (Alphabet). Given its 10% weighting in the EM benchmark, it is no surprise that an overwhelming majority of managers had exposure to TSMC, though on average this was held at a 2.2% underweight. Only three managers in the sample had no exposure to TSMC. The next most held stock was Tencent, which includes exposure to related investment groups in Naspers and Prosus, though on average managers were still underweight. In contrast, managers favoured SK Hynix, on average holding a 0.5% overweight which would have boosted benchmark relative returns. AI exuberance has well and truly spilt over into emerging markets this year, with notable outperformance led by Alibaba and SK Hynix which have doubled in the calendar year to September 2025. This has proven to be a major headwind to the relative performance of managers with little exposure to these stocks, which has been even more painful if they have instead held overweight positions in out-of-favour regions (e.g. India) or sectors (e.g. consumer staples and utilities).

Table 4: EM manager positioning in AI stocks

Stock	No. of portfolios	% of total managers	Average weight	Benchmark weight	Active weight	FY25 return (AUD)	CYTD Sep 25 return (AUD)
TSMC	58	95.1%	8.0%	10.2%	-2.2%	34.2%	33.6%
Tencent	53	86.9%	4.6%	5.3%	-0.6%	37.6%	49.6%
Alibaba	48	78.7%	2.4%	2.7%	-0.4%	60.0%	103.7%
Samsung	46	75.4%	2.5%	2.7%	-0.3%	-22.2%	58.2%
SK Hynix	44	72.1%	1.9%	1.3%	0.5%	29.0%	99.1%
MSCI EM						**17.5%**	**19.1%**

Source: eVestment, Bloomberg, Frontier Advisors. Data as of 30 June 2025 unless otherwise stated.

Broader beneficiaries

This year we have seen a broadening of stock market returns beyond US large-cap technology companies, with AI proving to be a pervasive theme across regions and sectors. While the AI-related exposure of some managers we met with was limited to the household names, many managers had exposure across the value chain, which spans different industries. We were particularly interested in the opportunities outside of the usual suspects, for example within emerging markets and down the market capitalisation spectrum.

Some of the examples we discussed with managers are summarised in Table 5. For example, Kioxia is one of only three players involved in hard disk drive (HDD) and solid-state drive (SDD) storage, which is a historically sleepy and cyclical industry that attracted low multiples. The data centre boom has given the industry a new lease on life given the vast amounts of data storage needed to power AI. Accordingly, two of these three players are among the top performers in the S&P 500 this year: Seagate Technology and Western Digital, which have both enjoyed returns of around 200% in the calendar year to 31 October 2025. However, Kioxia, which is far more under the radar as it trades in Japan and is roughly half the size in market cap, has eclipsed these returns, gaining more than 500% over the same period.

Table 5: Broader beneficiaries of AI

Company	Market cap (US$B)	Country	CYTD return (local currency)	Description
KIOXIA	37.9	Japan	560.1%	Flash memory and solid state drives
Meitu	5.1	China	201.0%	AI-driven beautifying app
Sanil Electronic	3.3	Korea	128.4%	Transformer manufacturer
Elite Material	15.6	Taiwan	123.0%	Manufacturer of substrates for AI servers
WiWynn	26.4	Taiwan	71.6%	Server and storage manufacturer
Tower Semiconductor	9.6	Israel (US-listed)	65.3%	Silicon photonics
Flex	23.1	Singapore (US-listed)	62.9%	AI infrastructure and data centre platform
Legrand	45.2	France	62.2%	Data centre equipment
C.H. Robinson	18.2	USA	51.7%	Logistics company leveraging AI
Modine Manufacturing	8.1	USA	32.2%	Liquid cooling solutions
AtkinsRéalis	11.7	Canada	30.0%	Leading designer of nuclear power plants
Nexans	6.2	France	20.2%	Subsea cables and interconnections

Source: Bloomberg, Frontier Advisors. Data as of 31 October 2025

While storage and memory stocks have already enjoyed big multiple re-ratings, a potential second order beneficiary is Nexans, which is much smaller at around US$6 billion market cap and has delivered more muted returns this year in comparison. Nexans taps into the theme of electrification, with many managers recognising the exponential growth in AI and, in turn, data centres, is substantially increasing the need for power. Specifically, Nexans is a leader in subsea cables and cross-border connections, enabling the transmission of electricity around the world.

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More broadly, physical infrastructure was one of the key themes we discussed with managers, which incorporates not just data centres but also everything required for data centres to run, and to run more effectively and efficiently. Some of the relevant companies discussed in meetings include Schneider Electric, ABB, Legrand, Eaton Corporation, Vertiv, nVent, Modine Manufacturing and Emcor; many of which have exposure to multiple touchpoints within the data centre ecosystem.

Power is a very important part of the equation and is a growing bottleneck, particularly given the historical underinvestment in electricity grids around the world. Notably, several managers pointed to electricity usage being flat over the past ten years as advancements in energy efficiency have been able to offset population growth and economic activity. However, this is set to grow significantly as the computational demands of AI are markedly increasing the requirements for power and as one manager emphasised, there is a large disconnect between these requirements and the growth the utilities companies will be able to provide. Healthcare is another industry outside of tech that managers identified as a likely beneficiary of AI. Within pharmaceuticals for example, computational power could allow researchers to analyse vast datasets to identify potential new molecules for drug discovery or new applications that would have otherwise been overlooked by traditional methods. Within hospitals, a company like Epic Systems is embedding AI into its electronic health record software to improve clinician efficiency and patient care. Other advancements, for example through wearables offered by Garmin and others, could lead to earlier detection and treatment of chronic diseases.

Another example can be seen in logistics, with C.H. Robinson being a relatively early adopter of industrial AI. The company has been deploying GenAI, and more recently agentic AI, to perform thousands of tasks per day (e.g. price quotes, process orders, trucking capacity and load tracking) for thousands of its customers.

However, C.H. Robinson is among a limited number of companies that have found revenue-generating use cases for AI. The posterchild so far is Meta who has been utilising AI to serve better targeted ads across its platform, which has resulted in higher click-through and conversion rates for advertisers. According to Meta, advertisers using its AI-powered tools generate, on average, $4.52 in revenue for every $1 spent, which is 22% higher compared to its traditional campaigns. Tencent is benefitting from a similar trend of increased click-through rates on its ads thanks to AI. However, in both cases, it is difficult to untangle the role of AI to quantify the specific revenue impact in dollars for Meta and Tencent (i.e. how much would customers otherwise have spent on ads).

Key to the findings from our discussions with managers was that while AI enables us to be more productive (e.g. proposal writing, chatbot summarising, easier to code); the path to monetisation is uncertain and there is not a clear revenue opportunity for most companies at this stage. These views varied from the potential for LLMs to become commoditised (in which case it could be a race to the bottom) to a common-held belief that spending has run ahead of monetisation, with some managers unable to make sense of the implied valuations. Many managers also agreed the hyperscalers are locked in an AI arms race being forced to spend because they perceive their own survival to be at stake. So far, the market has been welcoming the AI capex with little consideration for the associated ROI, but managers agree it is only a matter of time before these questions come. At the very least, these hyperscalers have shifted from being capital-light businesses to much more capital heavy, which could mean they will no longer enjoy the same levels of profitability compared to the past.

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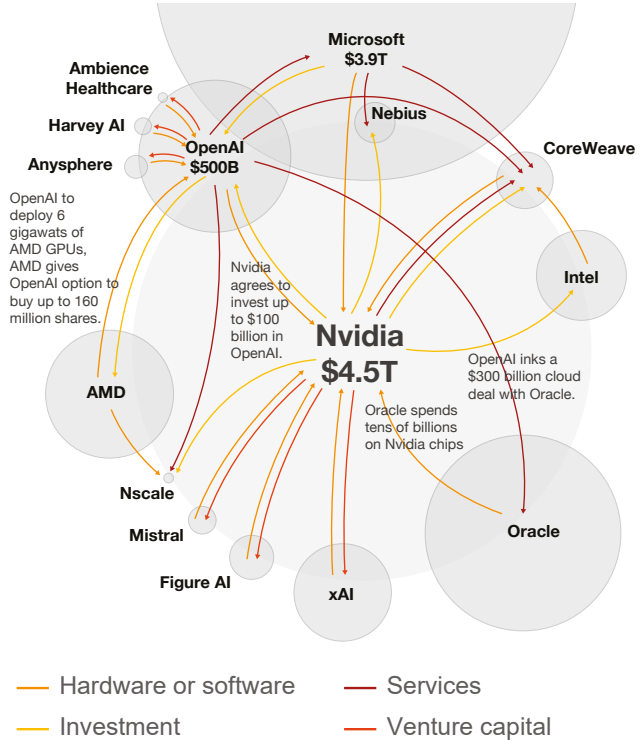
The circular economy

The circular economy that has formed with Nvidia at the centre has been widely publicised and those aligned with Nvidia have been rewarded through their share prices.

In September 2025, Nvidia agreed to invest as much as US$100 billion in OpenAI to help the leading AI startup fund a data-centre buildout so large it could power a major city. OpenAI in turn committed to filling those sites with millions of Nvidia chips. The arrangement has been criticised for its 'circular' nature and this can be extended across the AI supply chain, where companies are propping each other up in a loop of capital.

Figure 8: The circular economy: How Nvidia and OpenAI fuel the AI money machine



Source: Bloomberg

As the handful of companies build out the technology and infrastructure, each deal ties one player to the next where there are blurred lines between customer, supplier and partner. There is an element of interconnected contagion (positive at this stage) within this system. Nvidia CEO, Jensen Huang, summarised the five layers that constitute the make-up of the AI ecosystem: energy at the bottom of the stack, then computer chips, then infrastructure (data centres and cloud providers), then the large language models, and then the applications that sit on top.

The deal between Nvidia and OpenAI isn't just a simple contract, but for Nvidia ensures long-term demand for its hardware. OpenAI also did a deal with AMD for chip supply with the option to acquire a 10% equity stake in the company. This represented a big win for AMD in securing critical computational power and some influence over the roadmap, strengthening its competitive position. Conversely, those that haven't partnered with the key players of Nvidia and OpenAI have seen their shares left behind in the AI rally. An example of this can be seen in Amazon prior to the company's announcement (3 November 2025) of a US$38 billion deal with OpenAI to provide its cloud computing infrastructure. Amazon shares jumped 4% on the day of the announcement, adding more than US$100 billion to the company's market cap.

OpenAI has also partnered with Broadcom to co-develop custom AI accelerators, bringing chip design directly into OpenAI's strategic planning. Another example can be seen through neocloud provider CoreWeave, which counts Nvidia as a part owner and supplier. Nvidia also recently invested US$1 billion in Nokia (in exchange for a stake in the business), which will see the two companies work together to incorporate AI into telecom networks and collaborate on data centre infrastructure. Even just keeping up with the pace of these partnerships is a task in and of itself, with new deals being announced every week that are met with strong support by the market.

There are advantages to the circular economy in terms of long-term partnerships allowing greater certainty on production and demand. What's more, the closer integration between software and hardware improves efficiency and performance, with the idea that better chips and more infrastructure brings down the cost of tokens, which allows AI to get better and better. That said, there are also risks associated with the circular nature, notably if one link in the chain slows down. Given the interconnectedness, this will impact the whole network of suppliers, customers and partners. In addition, those that haven't partnered with Nvidia, or aren't part of the network, may have difficulty getting access to computational power, chips and cloud capacity.

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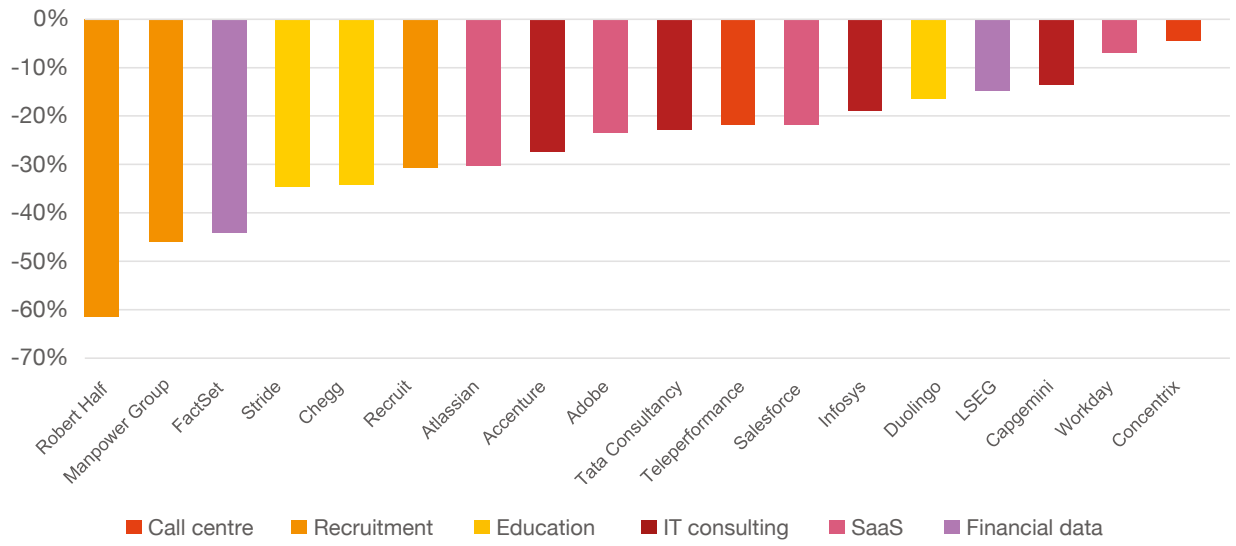
AI disruption

While the disruption risk of AI is still largely uncertain, the market has already identified some industries that could be vulnerable.

For example, call centre operators such as Teleperformance and Concentrix have seen their share prices slashed, while recruitment companies like Robert Half and Manpower Group have suffered a similar fate. Online education is another industry that appears vulnerable to AI, with shares in Chegg and Duolingo being penalised by the market. More broadly, aggregators of publicly available data and word-based processes will be under attack given this is the sweet spot for AI.

Figure 9: Potential AI 'losers' – CYTD performance



Source: Bloomberg, Frontier. Returns in local currency. Data as of 31 October 2025.

Discussing the potential AI losers with managers, two groups of companies were the most debated: IT consulting and outsourcing businesses (e.g. Accenture, Capgemini, Infosys and Tata Consultancy Services) and SaaS businesses (e.g. Salesforce, Adobe, Atlassian and Workday).

With respect to IT consulting and outsourcing businesses, investors are worried AI could reduce demand for their services, while their traditional billable-hours pricing model will likely be disrupted by the efficiency gains from AI. At the same time, these companies have been hurt by a slowdown in client spending due to macroeconomic uncertainty. Disruption is already occurring, with Accenture and Tata Consultancy each recently laying off more than 10,000 employees. However, some managers highlighted these IT consultants are best placed to support companies with their AI strategy and implementation. More broadly, managers agreed enterprise adoption of AI will be particularly lucrative but is currently still nascent. Several managers referenced a recent MIT study[2], which found 95% of enterprise GenAI projects have failed, delivering zero measurable returns on billions of dollars of investment in AI. The report noted that while 80% of organisations had explored LLMs, and 40% had deployed these tools, they primarily enhance individual productivity but not the organisation's profitability.

[2] MIT Media Lab | State of AI in Business 2025

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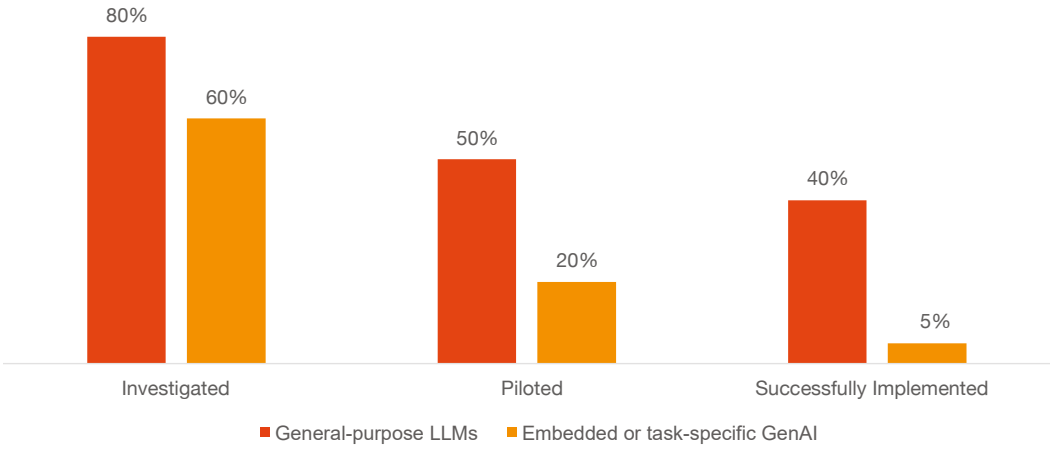
Figure 10: MIT study – enterprise AI projects



Source: MIT Media Lab

Enterprise adoption will also shape the future of software. In 2011, renowned venture capitalist Marc Andreessen famously declared software was eating the world. Six years later, Nvidia CEO Jensen Huang updated that metaphor, predicting "software is eating the world, but AI is going to eat software". Fast forward to today and that prediction appears spot on, with incumbent SaaS businesses, in particular, being faced with the dilemma where, in order to survive, they likely must embrace agentic AI and cannibalise their legacy products. At the same time, their seat-based pricing models are under threat from AI, not to mention they'll be facing increasing competition from new AI-native companies with modern tech stacks and more seamless integration (compared to incumbents who may retrofit AI onto old systems). In our discussions with managers, Salesforce was one of the most divisive. While some managers were staying away from Salesforce and software more broadly due to heightened uncertainty and disruption risk, others viewed Salesforce's sell-off as a buying opportunity, believing the company will ultimately be a beneficiary of AI as it is monetising some related tools (e.g. Agentforce and Data Cloud).

While sentiment toward software stocks varied, many managers agreed the strength of competitive moats is even more important in the face of AI, which is lowering barriers to entry and reducing data advantages. The quality of management teams is also particularly important in times of disruption and change. A common thread from our discussions was a preference for vertical software (rather than horizontal), which is believed to be less vulnerable to AI as these companies specialise in niche industry verticals (e.g. auto insurance, public safety) and therefore offer more tailored products.

Other managers also highlighted the potential for AI to expand the addressable markets for software companies, made possible by the displacement of labour. Given labour represents around half of global GDP, the potential opportunity is enormous if AI can attack and capture even a sliver of labour budgets.

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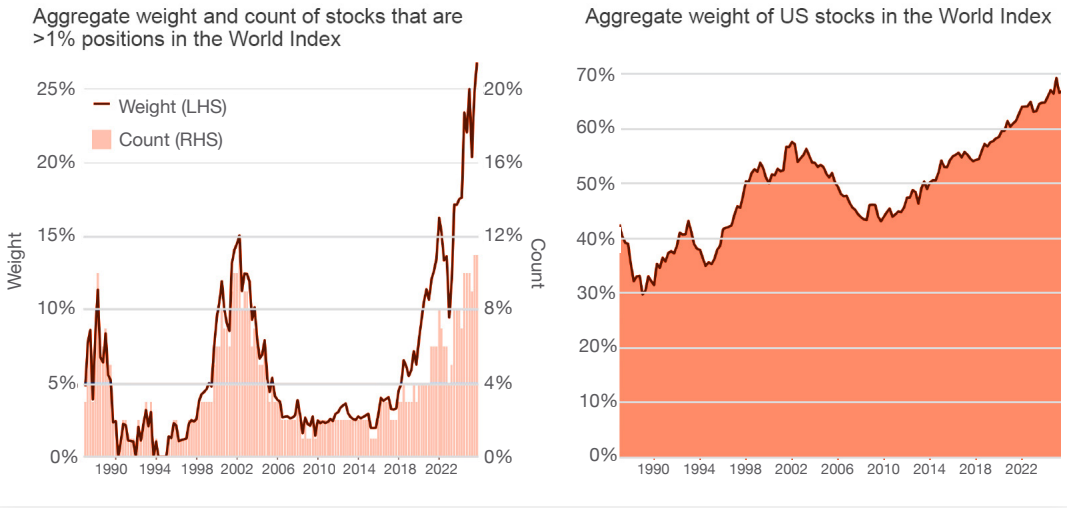
Is this a dotcom-type bubble?

The most notable bear in Frontier's coverage is Rajiv Jain (GQG).

GQG's view has been informed by a mosaic of research from companies, suppliers, competitors and industry experts using their differentiated approach that includes investigative journalism-type research. GQG concludes the sector exhibits dotcom-era overvaluation and slower earnings growth, and the tech sector no longer represents forward-looking quality due to decelerating revenue growth, collapsing free cash flow, and increasing competition. The manager has owned Nvidia (a large buyer in 2023) and companies in the AI ecosystem over the past few years but believes the sector is now at a significant inflection point with investors ignoring alarming fundamental issues where momentum could reverse at any moment.

Beyond GQG, there have been no shortage of headlines and discussions over whether we are in an "AI bubble", with many comparisons being drawn to the late 90s dotcom bubble. Both of these periods involve a capex boom behind revolutionary technologies with the potential to transform the way we live and work, but they both also involve plenty of hype and speculation. Much like how investors rallied behind companies adding '.com' to their names during the dotcom bubble, AI is now having a similar effect in boosting the share prices of companies deemed to have an 'AI halo'. As a result, both periods exhibit heightened market concentration in tech (or tech-adjacent) companies with seemingly stretched valuations, though concentration is now sitting at record highs.

Figure 11: Concentration in the FTSE World Index through time



Source: Orbis. Data as of 30 September 2025

However, there are also reasons why this time could be different. The key differences between now and the dotcom bubble include:

- The key players in AI (the hyperscalers) are hugely profitable companies, therefore the AI capex has largely been funded by the cashflows generated from their core businesses (as opposed to mostly debt in the dotcom bubble). That said, more recently, the tech firms have turned to the debt markets to meet their spending, notably Oracle, Meta and Alphabet, emphasising the fact the cost of AI is expensive. The question remains given the amount of capex, will ROE be depleted over time if these companies can't show profitability in the future.
- The key driver of outperformance in many AI-related stocks has been earnings growth, rather than pure multiple expansion, and some managers argue valuations aren't yet at the extremes observed during the dotcom bubble.

Figure 12: Tech valuations now versus dotcom bubble

		Size		Valuation	
		S&P 500 weight	Market cap (US$b)	FY2 Fwd P/E	FY2 Fwd EV/Sales
Big tech*	NVIDIA	8.5%	4,921	30.4	16.9
	Apple	6.9%	3,995	29.8	8.3
	Microsoft	6.6%	3,849	27.6	10.3
	Alphabet	5.1%	3,397	21.2	7.6
	Amazon	4.1%	2,611	25.3	3.0
	Broadcom	3.0%	1,746	30.7	16.2
	Meta	2.4%	1,635	19.4	6.0
	Big tech	**36.6%**	**22,152**	**26.3x**	**9.8x**
		Aggregate		Average	
Tech bubble*	Microsoft	4.5%	581	53.2	19.2
	Cisco	4.2%	543	101.7	17.5
	Intel	3.6%	465	42.1	11.5
	Oracle	1.9%	245	84.6	19.0
	IBM	1.7%	218	23.5	2.3
	Lucent	1.6%	206	37.9	4.1
	Nortel Networks	1.5%	199	86.4	6.4
	Tech bubble	**19.0%**	**2,457**	**61.3x**	**11.4x**
		Aggregate		Average	

* Big tech data as of 31 October 2025 and Tech bubble data as of 10 March 2000
Source: T Rowe Price, Bloomberg, Frontier Advisors

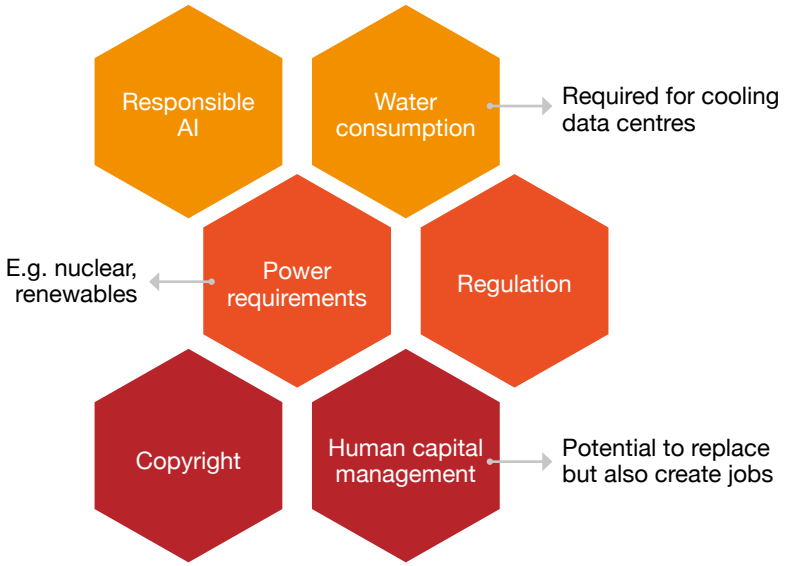
- The late 1990s saw a massive investment in fibre optic infrastructure in anticipation of an exponential increase in internet and data traffic. Therefore, while this spending spree was in response to projected demand, the AI buildout has been met with current demand. In fact, some managers are highlighting that demand is running well ahead of supply, pointing to combined order backlogs that exceed US$1 trillion and an explosion in tokens, the base unit for AI outputs (equivalent to a small piece of text). In April 2025, Google announced 5,000% year-on-year growth in monthly tokens processed by Gemini models, which had soared to 480 trillion. Two months later, this figure had doubled and most recently in October, Google reported it was processing 1.3 quadrillion monthly tokens.
- Energy is a significant constraint on AI development, particularly as it is dependent on grid upgrades and will require a mix of nuclear (more coming online), renewables and fossil fuels. One manager pointed to the changing depreciation schedules of the hyperscalers as being alarming, where companies used to depreciate network and data centre assets on a two-year basis but starting in 2023, have extended this out to five or six years even though they'll likely need to replace GPUs every two years. In the dotcom bubble, bandwidth was the bottleneck which is why Cisco did well at the time. Many managers pointed to physical infrastructure as being the bottleneck in today's economy and the global issue of underinvestment. One manager stated that AI has rendered current data centres almost obsolete and innovation needs to shift beyond the chip (to the server, rack, etc.). Power, physical infrastructure, and water are all critical for AI evolution.

ESG considerations

There was consensus during this trip that renewables will be part of the generation solution of energy.

In addition, there have been deals signed for new nuclear plants. Water will also be key. In 2023 alone, semiconductor giant TSMC reported consumption of a significant 101 million cubic metres of water (equivalent to 40,000 Olympic-sized swimming pools) and usage is forecast to double by 2035[3] as demand continues to rise.

Figure 13: ESG considerations in the face of AI



Source: Frontier Advisors

Responsible AI and what this means is a work in progress. The AI Act was the first legal framework for AI globally, designed to regulate the development and use of AI systems in Europe. China appears also to be on the front foot in terms of regulation. Key to this is protecting citizens' rights and safety and has gradual implementation to ensure businesses can adapt. This phased approach leads to some uncertainty on timing and one manager noted they don't expect regulation in the short term with the belief you can't shortchange what companies are doing in AI because of the risk of falling behind. There is a geopolitical risk with the country that wins expected to have substantial long-term advantages. Another argued AI will have to be regulated if it is to be as transformative as people think, so views are varied. At the company level, Microsoft has said it will adhere to a code of practice while Meta will not and what this means, remains to be seen.

[3] IDTechEx

The final word

While clear that AI will be transformative for many industries, there will be winners and losers and other questions remain unanswered:

- What will the impact be from the power bottleneck?
- Productivity gains versus AI-related job losses?
- Will there be another DeepSeek moment where China disrupts the market?
- Which incumbents will be disrupted?
- To what degree will AI be monetised, and how long will it take for the AI capex to be paid back?

Clearly, we are only in the early stages of this story and we will continue to question managers on their AI related exposure. Another member of the Equities Team is visiting cities in China seeking similar on-the-ground perspectives on AI thematics. We will continue to provide these research insights to clients.

In reality, it is difficult for managers to precisely quantify their exposure to AI in portfolios because, as we've discussed here, there are and will continue to be companies across many different industries that utilise and benefit from AI. The concentration in the market (which we have discussed in prior research papers) is an important observation and it might only take a small piece of negative news on one of these companies for investors to be more nervous and to see a collapse in US equities, which some argue could be bigger than the dotcom bust.

An eventual unwinding will be amplified given the number of investors in the market, and the rise of passive investing. In the US, data shows that 32%[4] of households had some stock ownership in 1989 and this increased to 58% in 2022 and it is reasonable to assume this has continued to grow. What is clear is that AI is another material risk that has to be studied and debated by managers, just like risk of regulation, and risk of competition. In addition, the energy constraint, water requirements and necessary upgrades to physical infrastructure were highlighted as significant bottlenecks in growth plans.

The future is highly uncertain, with risks of a bubble matched by the potential that this AI-driven market rally could have many more legs of growth. Volatility is inevitable, therefore we remind investors to rebalance back to strategic asset allocations from an overall portfolio perspective and within the equities allocation. AI exposure is an important risk to try to manage; however, it is challenging to precisely quantify given the potential for many industries to benefit (or suffer) from AI. As highlighted in Frontier's recent active management paper, high growth managers have been strong participants in the AI rally due to their exposure to technology but value managers have also benefitted as the market has broadened out. We believe that as AI evolves, skill in stock selection will be critical, irrespective of style. For quantitative approaches, risk constraints and momentum/sentiment factors have led to strong performance and we will continue to test how these managers assess AI beneficiaries in their models (for example linkages). Ultimately, we continue to advocate for diversification across different styles and investment approaches, by region (e.g. EM) and market cap.

Learn more

If you are interested in learning more, please reach out to your consultant or a member of the Equities Team.

[4] Federal Reserve Board Survey of Consumer Finances

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