



Hosking Partners®

# Hosking Post The AI Paradox: Capital Questions

September 2025

Hosking Partners is authorised and regulated by the Financial Conduct Authority and is registered with the Securities and Exchange Commission as an Investment Adviser. Hosking Partners LLP (ARBN 613 188 471) is a limited liability partnership formed in the United Kingdom and the liability of its members is limited. Hosking Partners is an authorised financial services provider with the Financial Sector Conduct Authority of South Africa in terms of the Financial Advisory and Intermediary Services Act, 37 of 2002. FSP no. 45612.

[www.hoskingpartners.com](http://www.hoskingpartners.com) | [info@hoskingpartners.com](mailto:info@hoskingpartners.com) | +44 (0) 20 7004 7850 | 11 Charles II Street, London, SW1Y 4QU



## THE AI PARADOX: CAPITAL QUESTIONS

***“When bubbles happen, smart people get overexcited about a kernel of truth. Are we in a phase where investors as a whole are overexcited about AI? My opinion is yes. Is AI the most important thing to happen in a very long time? My opinion is also yes.”***

Sam Altman, CEO OpenAI, August 2025

Coined in the 1950s, the phrase Artificial Intelligence (AI) has taken on a new meaning with the rise of generative AI, a technology that is decidedly futuristic. As an investment ‘theme’ it also presents something of an investment paradox. Large language models (LLMs), operated by companies such as OpenAI, have spawned the fastest growing consumer product in history. OpenAI’s core product, ChatGPT, is used daily by hundreds of millions of people, delivering superior results to standard search queries. And in specific industries, such as software development, LLMs are driving material productivity gains. Yet there is no clear evidence of how or when investors will see these businesses get anywhere close to profitability.

Costs for training the models are rising, and the energy intensity of the graphic processing units (GPUs) is an increasing concern. All the while these companies are raising ever more capital, at ever higher valuations, whilst posting ever higher losses as competitive intensity increases. OpenAI’s latest valuation of \$500bn makes it the 15<sup>th</sup> largest company in the MSCI All Country World Index and some 60% more valuable than ASML, Europe’s largest company.<sup>1</sup> OpenAI expects to burn through \$115bn of cash by 2029,<sup>2</sup> an increase of \$80bn from the estimate shared only six months ago. Jensen Huang, Nvidia CEO, expects an ‘industrial revolution’ that will see some \$3-4 trillion in broader AI infrastructure spend by the end of the decade. This unprecedented capital spend is now the primary driver of US GDP growth. To be clear, not all this capital is solely destined for LLMs. But with the major ‘hyperscaler’<sup>3</sup> companies promoting the potential of the technology whilst simultaneously reporting *falling* returns on capital, resolution of the capital questions underpinning the AI paradox is pressing. Formerly asset-light companies are rapidly shifting into the asset-heavy domain – just as they achieve the highest index weights of any companies in stock market history.

This deployment of LLMs has been achieved in a breathtakingly short period of just under three years. The unprecedented adoption has emboldened promoters of the industry to claim that the arrival of artificial general intelligence (AGI), or smarter-than-human super intelligence is ‘just around the corner’. As a natural contrarian and capital cycle investor, your author is wired to view such claims with a degree of scepticism. Especially when these comments are made in conjunction with

---

<sup>1</sup> Source: Bloomberg

<sup>2</sup> Source: Grant’s Interest Rate Observer, September 12, 2025

<sup>3</sup> Hyperscalers’ are defined as Amazon, Alphabet, Microsoft, Meta, Oracle, Apple, Coreweave, Lambda Labs and xAI.





billions of dollars of capital being raised, coupled with insider sales. Notably, OpenAI employees recently sold \$10.3bn in stock at the \$500bn valuation!

Despite prolific consumer adoption and measurable productivity improvements, the industry remains minuscule vis-à-vis capital being deployed. The independent LLM players are estimated to generate approximately \$24bn of revenues in 2025,<sup>4</sup> broadly equal to that of failing consumer company Kraft Heinz.<sup>5</sup> Cumulative losses incurred by these companies will likely be at least \$16bn in 2025, which means for every \$3 of revenue generated, these companies burn some \$2 of cash.<sup>6</sup>

## Capital questions

So, whilst the growth in users of LLMs is of historic proportions, the economic model begs several questions. For instance, how many consumers and business users will actually pay for monthly subscriptions? What will be customer 'churn' to competing products, given switching appears relatively straightforward? Why haven't more business users adopted, and therefore paid for, these services? A recent MIT study found that "95% of organizations are getting zero return [on generative AI]" with "adoption high, but transformation low". On a structural level, a major question remains on whether this is a winner-take-all (or most) industry, or more of a commodity infrastructure. If the LLM market remains competitive and relatively commoditised, with switching between providers relatively simple, it would be logical to assume that returns fall toward marginal costs. Finally, what are the energy implications, and therefore, the ongoing costs of this \$4 trillion deployment. A ChatGPT query uses 10x the amount of electricity of a Google search, and the energy intensity of the ever-improving GPUs that power AI is increasing, not decreasing.<sup>7</sup>

While we cannot answer these questions definitively, as long-term, Capital Cycle investors we see a potential reckoning.

## Capital light butterflies turn into capital heavy caterpillars?

Underpinning the user adoption vs business model conundrum is a record-breaking capital boom. The hyperscalers will have deployed over \$800bn of predominantly datacentre LLM-supporting capex in just three years by December 2025.<sup>8</sup> This capital spend now accounts for some 1-1.5% of the US economy, overtaking the traditionally dominant consumer as the prime driver of US economic growth in 2025<sup>9</sup>. These companies will account for over a quarter of all S&P 500 capex in 2025,

---

<sup>4</sup> OpenAI disclosed \$1bn of July 25 ARR. Using OpenAI as a proxy for 50% of AI industry equates to \$24bn industry revenues in 2025.

<sup>5</sup> Bloomberg

<sup>6</sup> OpenAI, vanguard for the industry and owner of ChatGPT, reportedly burned \$5bn in 2024, which will increase to \$8bn in 2025. Source: The Information.com via the [www.wheresyoured.at](https://www.wheresyoured.at) Blog

<sup>7</sup> The NVIDIA Vera Rubin Ultra GPU, available in 2027, consumes 2.6x the electricity of the current Grace Blackwell 200. Source: Horizon Kinetics, September 2025.

<sup>8</sup> UBS note where hyperscalers are defined as Amazon, Alphabet, Microsoft, Meta, Oracle, Apple, Coreweave, Lambda Labs and xAI.

<sup>9</sup> Fortune, 6/8/2025



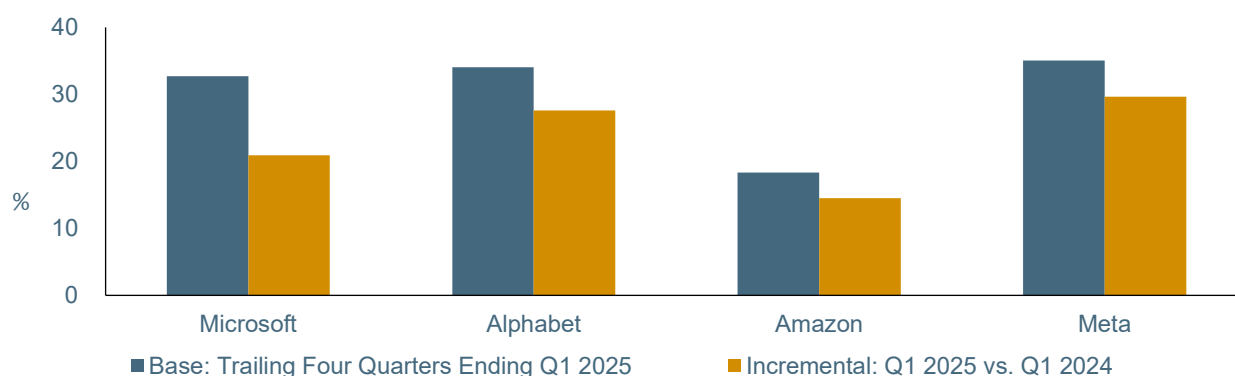
eclipsing that of the entire US energy industry.<sup>10</sup> A sector that – via a prior capital spending boom on shale technology – drove the US to become the world’s largest producer of hydrocarbons.

The comparison with the energy sector and the shale revolution does not bode well. The US shale boom promised returns of 30-50% but has instead delivered “essentially 0% corporate level ROIC over the last decade” according to veteran oil industry analyst Arjun Murti.<sup>11</sup> As Capital Cycle investors we avoided the shale boom, but have found lowly-valued investment ideas in the post-shale-bust energy sector, which has consolidated, exercised capital discipline and become more cautious on supply growth – particularly in subsectors and support services like **shipping** and **offshore oil drillers**, which we have written about previously.

The build out of this infrastructure raises prosaic questions of asset wastage, technological redundancy, and depreciation costs associated with the capital heavy datacentre build out. Whilst the land and buildings may have asset lives of c20 years, the internal fit out, let alone the GPUs (which make up over one-third of the total spend) have much shorter asset lives. If we reach the \$3-4 trillion level of infrastructure build out envisaged by GPU-salesman Jensen Huang, revenues of close to \$3 trillion and FCF of c\$900bn will be required to make a 10% ROIC on this spend.<sup>12</sup> These are sobering numbers even when set against the extraordinary ‘game changing’ power of any AGI. For context, a 10% ROIC is broadly equal to the 9-11% of allowed regulatory return permitted by US utility regulators.

### A reversal in return on invested capital

Whilst returns on invested capital (ROIC) at the hyperscalers have historically resembled asset-light businesses, these businesses are *already* reducing their overall ROIC by investing their prodigious FCF into capital intensive datacentres.



<sup>10</sup> Empirical Research: AI Adoption: On Track? 25 June 2025. Empirical Research Partners Analysis. ROIC defined as EBIT divided by the average of beginning and end of period Invested Capital (Shareholders' Equity + Long-Term Debt). Incremental ROIC is the increase in EBIT from Q1 2024 to Q1 2025, divided by the change in invested capital over that same period.

<sup>11</sup> <https://arjunmurti.substack.com/>

<sup>12</sup> Based on \$2.8 trillion of revenue, 35% gross margin, a depreciation schedule of 11.3 years, no operating costs and 20% tax rate.

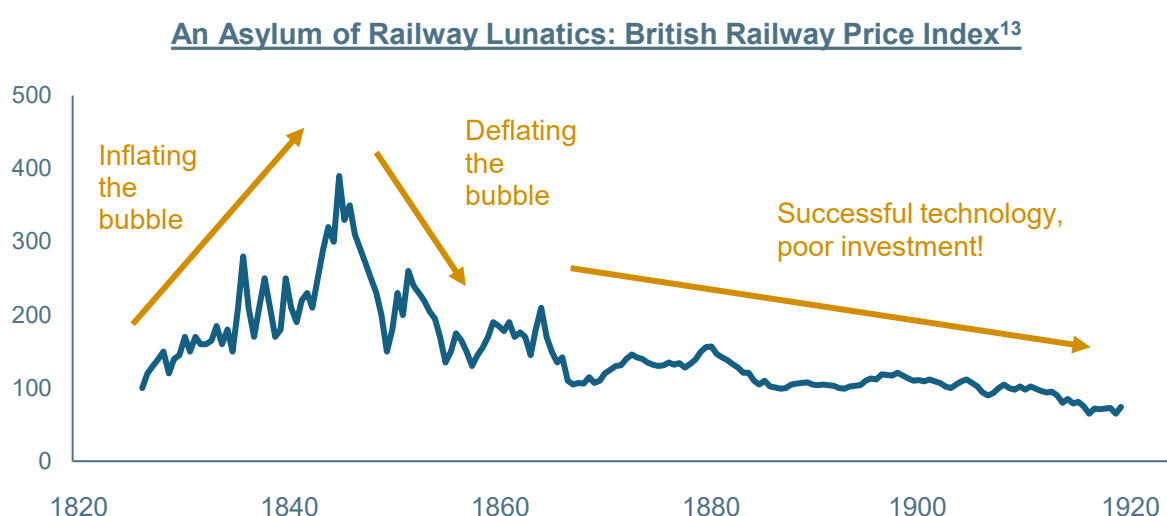


Where and when the decline in returns will end is of great importance to the direction of equity markets in general. A future in which returns for these previously sainted businesses decline to say 15-20% ROIC – vs the past decade average of 25%+ – is now conceivable. Such a move toward lower returns would be entirely consistent with classical economics and a framework of mean-reverting returns, driven by the power of competition and a ‘trees can’t grow to the sky’ scale effect which sees large business run into the law of large numbers.

## UK rail boom prologue?

A historical analogy with the capital-intensive roll out of LLMs and generative AI-supporting datacentres is the railway boom in the UK during the mid-19th century. Here the technology was, like AI, revolutionary. The railways reconfigured social and economic life, literally creating the ‘rails’ for an industrial revolution and huge productivity gains. In an echo of many of today’s fears around AI, the railways were viewed by some as a dangerous new technology. And whilst the technology that was rail transport eventually won over critics and succeeded, investors who backed the companies deploying the technology failed miserably. The poet William Wordsworth famously summed up the national mood with the quip, “the country is an asylum of railway lunatics”.

Despite extraordinary levels of growth in railway usage from the period of installation (9% passenger CAGR for decades), the boom saw capital catastrophically misallocated and competition far higher than anticipated. Actual cost per mile to build-out the track proved to be 50% higher than projected. And actual revenue yields per mile fell far short of a projected 15% to just 3.3%. Share prices plummeted as shown in the chart below, despite society-wide adoption.



<sup>13</sup> Source: Chart reconstructed from - The Growth and Fluctuation of the British Economy 1790-1820 (2 vols.), Oxford: Oxford University Press, 1953. K.C. Smith and G. F. Horne, An Index Number of Securities, 1867-1914, London and Cambridge Economic Service Special Memorandum, no.37. Banker's Magazine and Railway Times (various issues 1849 to 1868). "Engines That Move Markets" by Alasdair Nairn. D.G. Gayer, W.W. Rostow and A. J. Schwartz.



The spigot of equity capital that gushed into the railways famously saw multiple competing “mainlines” running north of London. Sensible questions about over-build were lost in the hullabaloo of the bubble. One question posted by this prologue is: if LLMs prove to be a ‘winner takes all’ industry, with one ‘super intelligent’ LLM model beating all the others, what would that mean for the (trillions?) of dollars deployed into the also rans? The risk here would be a repeat of the ‘dark fibre’ of the 1990s telco boom, with LLM datacentres having to be repurposed, weighing on returns of the remaining cloud compute hyperscalers.

### **The stock market’s bet**

This AI paradox presents a challenge to the current extreme market leadership. At the nexus of this stock market conundrum is Nvidia. A stock that has risen an astonishing 347 times over the past decade, an 80% compound annual growth rate. Nvidia has the largest index weight of any company in the history of the S&P 500 at 8%. It represents 5% of the MSCI ACWI. Passive investors now have an outsized bet on its continued success. What is puzzling about Nvidia’s valuation and index prominence is that it was historically a deeply cyclical stock. Over the past 10 years it has suffered five major drawdowns of 30-60% as it weathered the slings and arrows of various industry cycles.

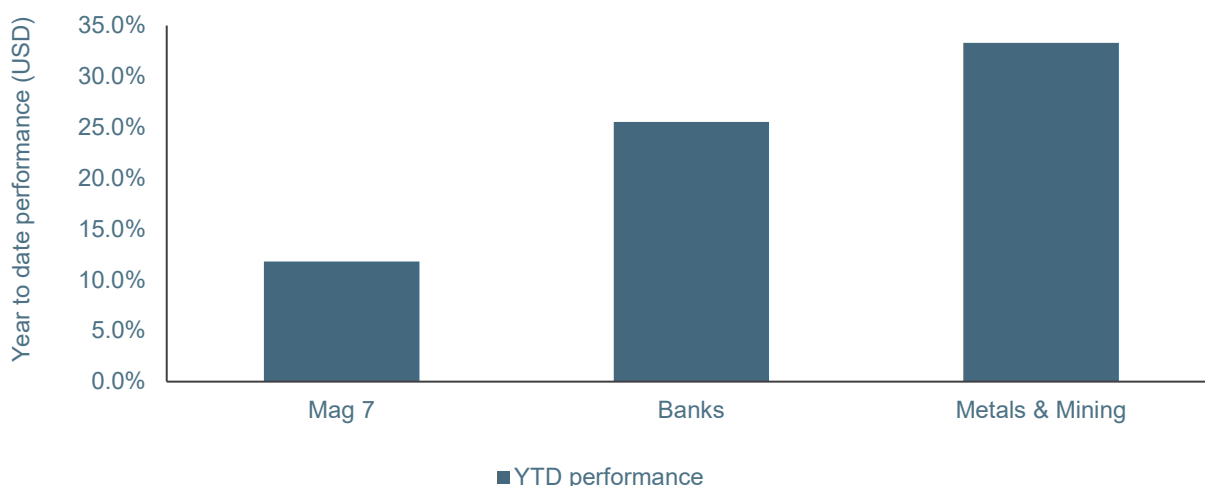
Nvidia is, for now, a quasi-monopoly provider of 80% of the GPUs used in the development and training of LLMs. But that demand is highly concentrated among a handful of companies, suggesting a degree of fragility not just in competitive terms – Alibaba recently declared they were building their own inference chips<sup>14</sup> – but also to the continued AI capex cycle. More than 40% of Nvidia’s revenue comes from just six customers – Apple, Amazon, Microsoft, Alphabet, Meta, and Tesla. Should the AI boom go through a period of ‘capex indigestion’, the ramifications for Nvidia – and by extension, global stock market indices – are serious.

The market’s 8% index bet on Nvidia is compounded by the concentration of the remaining market in the hyperscalers, which combined total over one-third of the S&P 500 and over one-fifth of the MSCI ACWI. And whilst we cannot handicap the odds of potential winners of any AI superintelligence race, the declining ROIC of the hyperscalers taking part in this race are starting to weigh on their performance. Year-to-date the Magnificent 7 stocks are up just 12%, substantially underperforming old economy sectors where returns are inflecting upwards, such as Banks (+26%) and Metals and Mining (+33%), both areas where the Hosking Partners portfolio is materially overweight the index.<sup>15</sup>

---

<sup>14</sup> <https://www.wsj.com/tech/ai/alibaba-ai-chip-nvidia-f5dc96e3>

<sup>15</sup> Source: FactSet. Mag 7 index cap weighted. MSCI AC World/Banks Index, MSCI AC World/Metals & Mining Index.



This is a profound change of market dynamics and one which we see as firm evidence of a regime change.

The weight of these hyperscaler stocks in global indices is now such that the AI 'bet' must pay off. The flip side is that all the investor attention that has been focussed on the narrow set of US, mega cap, technology companies will now migrate to areas where capital has been rationed and returns are starting to rise, not fall. This will likely focus on underinvested, asset-heavy areas of the market that have already weathered a downturn. Indeed, at Hosking Partners we are seeing our more idiosyncratic exposures in small-to-mid cap, non-US (in many cases emerging markets), non-tech companies driving strong absolute and relative YTD returns. These heretofore unfashionable companies are seeing ROIC improve at just the time the handful of stocks that have dominated markets for the last decade are seeing a reverse. The established market butterflies are turning into caterpillars – at just the same time as the caterpillars turn into butterflies.

**DJANGO DAVIDSON**

September 2025



## LEGAL & REGULATORY NOTICE

Hosking Partners LLP ("Hosking") is authorised and regulated by the Financial Conduct Authority and is also registered as an Investment Adviser with the Securities and Exchange Commission. Hosking Partners LLP (ARBN 613 188 471) is a limited liability partnership formed in the United Kingdom and the liability of its members is limited. Hosking is exempt from the requirement to hold an Australian financial services licence under the Corporations Act 2001 (Commonwealth of Australia) ("Corporations Act") in respect of the financial services it provides to Wholesale Clients in Australia. Hosking accordingly does not hold an Australian financial services licence. Hosking is authorised under United Kingdom laws, which differ from Australian laws.

The information contained in this document is strictly confidential and is intended only for use by the person to whom Hosking has provided the material. No part of this report may be divulged to any other person, distributed, and/or reproduced without the prior written permission of Hosking.

The investment products and services of Hosking Partners LLP are only available to persons who are "Professional Clients" for the purpose of the Financial Conduct Authority's rules and, in relation to Australia, who are also "wholesale clients" as defined in the Corporations Act of Australia ("Wholesale Clients") and this document is intended for Professional Clients and, where applicable, Wholesale Clients only.

This document is for general information purposes only and does not constitute an offer to buy or sell shares in any pooled funds managed or advised by Hosking. Investment in a Hosking pooled fund is subject to the terms of the offering documents of the relevant fund and distribution of fund offering documents restricted to persons who are "Professional Clients" for the purpose of the Financial Conduct Authority's rules and, for US investors, "Qualified Purchasers" or, for Australian investors, Wholesale Clients and whom Hosking have selected to receive such offering documents after completion of due diligence verification.

This document is not intended for distribution to, or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation. Distribution in the United States, or for the account of a "US persons", is restricted to persons who are "accredited investors", as defined in the Securities Act 1933, as amended, and "qualified purchasers", as defined in the Investment Company Act 1940, as amended.

"Hosking Partners" is the registered trademark of Hosking Partners LLP in the UK and on the Supplemental Register in the U.S.

Opinions expressed are current as of the date appearing in this document only. This document is produced for information purposes only and does not constitute advice, a recommendation, an offer or a solicitation to purchase or sell any securities (including shares or units of any pooled fund managed or advised by Hosking) or any other financial instrument or to invest with Hosking or appoint Hosking to provide any financial services, nor shall it form the basis of or be relied upon in connection with any contract or commitment whatsoever. In addition, this document does not constitute legal, regulatory, tax, accounting, investment or other advice.

Opinions included in this material constitute the judgment of the author at the time specified and may be subject to change without notice. Hosking is not obliged to update or alter the information or opinions contained within this material. Hosking has taken all reasonable care to ensure that the information contained in this document is accurate at the time of publication; however it does not make any guarantee as to the accuracy of the information provided. While many of the thoughts expressed in this document are presented in a factual manner, the discussion reflects only the author's beliefs and opinions about the financial markets in which it invests portfolio assets following its investment strategy, and these beliefs and opinions are subject to change at any time.

Any issuers or securities noted in this document are provided as illustrations or examples only for the limited purpose of analysing general market or economic conditions and may not form the basis for an investment decision nor are they intended as investment advice. Such examples will not necessarily be sold, purchased or recommended for portfolios managed by Hosking. Nor do they represent all of the investments sold, purchased or recommended for portfolios managed by Hosking within the last twelve months; a complete list of such investments is available on request. Partners, officers, employees or clients of Hosking may have positions in the securities or investments mentioned in this document.

Certain information contained in this material may constitute forward-looking statements, which can be identified by the use of forward-looking terminology such as "may," "will," "should," "expect," "anticipate," "target," "project," "projections," "estimate," "intend," "continue," or "believe," or the negatives thereof or other variations thereon or comparable terminology. Such statements are not guarantees of future performance or activities. Due to various risks and uncertainties, actual events or results or the actual performance may differ materially from those reflected or contemplated in such forward-looking statements.

Please note that different types of investments, if contained within this material, involve varying degrees of risk and there can be no assurance that any specific investment may either be suitable, appropriate or profitable for a client or prospective client's investment portfolio.

This document may include statistical data and other information received or derived from third party sources, and Hosking makes no representation or warranty as to the accuracy of that third party data or information.