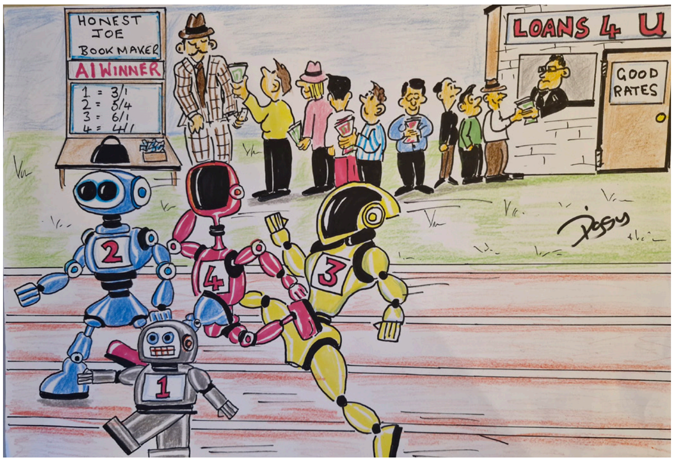
For professional investors only

Pyrspectives

Q4 2025

Bang! And the race is on for AI dominance

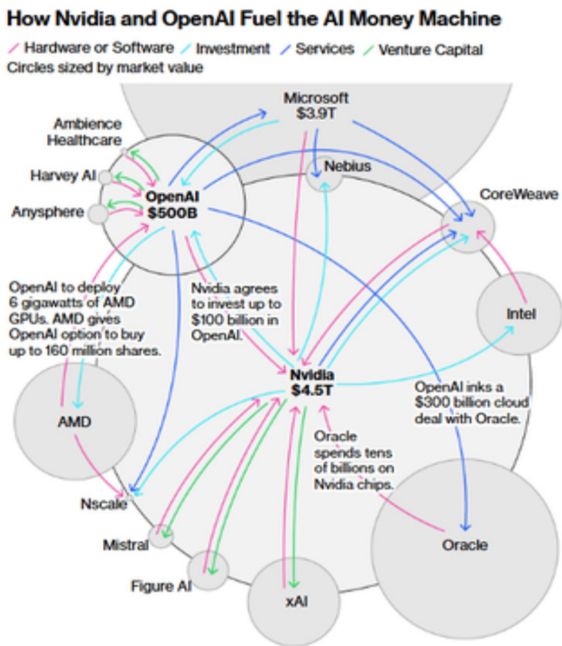


Unless you have been living in outer space, you cannot help but have noticed the headlines about the huge sums that have been invested in various Artificial Intelligence (AI) ventures. The sums are so huge it would be worthwhile delving behind the headlines to see what is really going on in the exciting world of AI.

Ever since ChatGPT hit the scene 3 years ago, investors have watched in awe as AI has promised to change the world. Large technology companies are spending many hundreds of billions of dollars to lead in the AI race. And while these investments will no doubt be made with the best intentions, the numbers indicate that the rewards to investors in these companies may be disappointing.

Let's delve into the numbers. In the arms race for AI dominance, it is the sheer proliferation of Large Language Models (LLMs) that are being refined, currently in excess of 10, that raises a number of issues. These LLMs are expensive to train with the cost of training successive LLMs increasing at a blistering pace and increasing in energy intensity. It is estimated that ChatGPT 3 cost approximately $10mn to train,[1] ChatGPT 4 was in the region of $100mn,[1] with the era of LLMs costing $1bn to train being not far off.[2] Many of these models will become obsolete in a very short space of time, even just a few months, as only the newest models will be used and the older, expensively trained models, are retired, evaporating billions of dollars of investment. Another issue is the raw energy consumption of an AI search compared to the cost of a simple Google search. A ChatGPT search consumes 10x the power of a normal internet search – the AI arms race consumes a great deal of power and costs.[3] OpenAI estimates that it will lose $1.69 for each $1 earned this year,[4] and when it finally lists on the stock market will have some of the highest cumulative losses of any start up in US stock market history at around $140bn.[5]

The following chart shows the network of relationships between the major AI players with the headlines certainly catching readers attention! "Nvidia agrees to invest $100bn in OpenAI". The stock prices reacted accordingly adding billions of dollars to the market capitalisation of these companies on the day of the announcement. The headline should continue to include the second part of the sentence, "…OpenAI agrees to buy $100bn of Nvidia chips". Here we have the circularity of these revenues. Once the excitement dies down and investors move onto the next shiny object, who tracks these transactions and if they are ever consummated? In the headlines above questions are already being raised as the deal has yet to be signed two months after being announced.[6]



Source: Bloomberg News reporting Datastream

If one turns to the companies providing the computing infrastructure (Hyperscalers) for these LLMs, the numbers indicate a significant impact to profitability in future years. Based on current forecasts the Hyperscalers will spend an estimated $2.2tn on capital expenditures between 2025 and 2028 – think expensive servers and buildings with state-of-the-art cooling systems to house super expensive Nvidia chips. There has been a lot of debate about the depreciable life of these assets and in the fast moving world of AI, as we discussed above, models and hardware can become obsolete very quickly. However, to give these Hyperscalers the most optimistic scenario we will take the maximum depreciable life for these assets of 6 years. This means that the Hyperscalers will face a collective annual depreciation expense of around $367bn ($2.2tn/6 years) per annum from 2028. The most recent twelve-month accounting profit for these Hyperscaler companies was in the region of $379bn,[7] in effect, current profits will be wiped out by increased depreciation charges in future years – these companies will need to see a significant uplift in profitability in the years ahead to absorb the increased costs of their investments. The current CEO of IBM shares our view that the trillions of dollars spent on AI data centres will have a disappointing pay off at today's infrastructure costs.[8]

There is no doubt AI holds immense promise and will revolutionise industries and lives. The industry is seeing huge inflows of capital and investment, the only problem is that not all the companies will be winners, and the winners may well be the companies' investors least expect – who remembers Alta Vista or Lycos? Search engines that dominated but eventually faded as Google won the internet race. Investors will be well advised to avoid the excitement and focus on the fundamentals – something that Pyrford excels at. Microsoft recently took down its forecast for the number of its Agentic AI users by almost 50% in some cases, due to a slower than expected uptake of its AI tools.[9]

Inequality

Inequality is, like demographics, one of those slow-moving variables working in the background with profound implications for financial markets that many market participants choose to ignore until a crisis strikes. How does the distribution of income affect economic growth? The key mechanism has to do with different marginal propensities to consume and save between the rich and the poor. The rich save most of their income whilst the poor spend most of it. When income continues to accrue to the top 1% of households, savings increase and aggregate demand falls. Economies are then forced to rely on credit creation to sustain growth often through increased household borrowing or growing fiscal deficits.

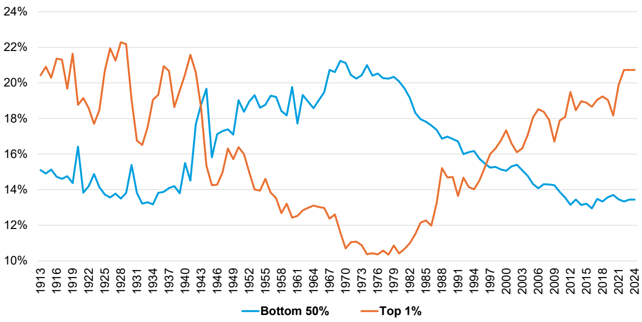
These dynamics were well documented in the lead up to the GFC and the Great Depression.[10] In both instances, extreme income and wealth polarisation suppressed mass purchasing power and encouraged leverage amongst households. When household consumption is maintained by borrowing and speculative asset appreciation, rather than wage growth, the economy is left vulnerable to a tightening in credit conditions.

The release of the 2026 World Inequality Report this December provides the most comprehensive and up to date picture of global wealth and income inequality.[11] The headline figures which are frequently mentioned in the news are always staggering to hear. The top 10% hold 75% of global wealth and capture 53% of income, with the top 1% alone capturing 37% of global wealth and 20% of income.

Perhaps the only good news in the report is that global wealth is now more evenly distributed across the world given the rise of East Asia in the last few decades. East Asia is now the wealthiest region, with its share of global wealth rising from 22% in 1995 to 36% in 2025. Europe's share over the same period has declined from 26% to 16% and North America & Oceania 20% to 17%.

The K-shaped dynamics in the US that have recently garnered much attention are well grounded in the historical data.

US Pre-tax share of National Income %



Source: World Inequality Database

After a big jump post 2020, the pre-tax share of national income earned by the top 1% is just shy of levels reached before the Great Depression in 1929, at 20.73%. A post-tax measure does improve the distribution slightly, however latest data to 2024 are not available. The bottom 50% meanwhile are earning a similar share of income as they did in 1929, around 13.5%. It is well known that the US scores poorly on this metric relative to its advanced economy peers with European economies having a more equal distribution of income. More surprisingly it also ranks below its peers in terms of social mobility (i.e., the ability for individuals over their lifespan and over generations to move across income groups).[12]

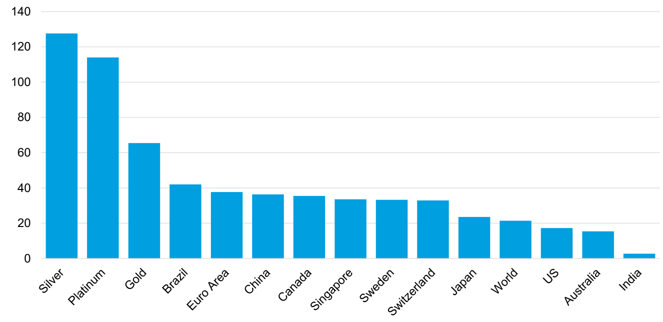
The report goes on to highlight the ability of the ultra-rich to escape taxation. Effective tax rates climb steadily for most of the population but drop sharply for billionaires and centi-millionaires. The effective tax rate for billionaires in the US for instance is around the same as the 70-80% percentile income group.

With taxes failing to address growing income inequality, governments are left turning to unconventional policies such as President Trump's latest – a $2000 rebate to low-and middle-income Americans. This one-time stimulus boost would use up all the tariff revenue collected this year wiping out any progress made in curbing the fiscal deficit. Should the bottom of the 'K' fall by the wayside, it is unclear how much deeper fiscal deficits and household borrowing can go to sustain growth. History suggests policymakers only wake up to the systemic risks of inequality after an economic or social crisis forces their hand.

The Final Word

It's been a stellar year for equities, particularly outside of the US.

Select Assets Total Returns in USD (%), YTD



Source: Refinitiv Datastream, Datastream Total Market Indices

A 21% return for world equity markets is quite the performance but enter the 'real' world and the numbers look less impressive. Real assets such as gold, silver and platinum have outpaced stocks and bonds by orders of magnitude. Government liabilities (private sector assets) whether in the form of bills and bonds or spot currency and reserves continue to be debased. After abandoning the gold standard in 1971, the world searched for 10 years for a new standard that would anchor fiat currency. The answer came in the form of independent central banks targeting inflation, a promise to devalue the currency by 'only' 2% a year. This anchor has been broken for the last 4 years and the search for a new one has begun. Meanwhile, 'affordability' for the average household has become a pressing issue with several food items at multiples of their pre-2020 levels including beef, eggs, cocoa and coffee.

With inflation still above target and equity markets at all-time highs, Chair Powell announced the Fed would begin purchasing $40bn worth of treasury bills a month. Of course, this was stressed as not QE, but 'Reserve Management Purchases'. Ultimately, this aids the private sector in funding the government, leaving them more room to engage in other lending activities such as providing leverage to private credit funds. The wheels keep turning and the credit keeps flowing. So far, these actions have focused on pushing down short-term interest rates with the long end of the curve still out of the Fed's control. Thus, we expect further dollar weakness in 2026 amid steadily climbing inflation and long-term bond yields. Equities should continue to benefit from this high nominal GDP environment, until the squeeze from higher bond yields threatens a credit event.

Season's Greetings to all our readers!

Pyrford International

31 December 2025

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[1] https://www.nownextlater.ai
[2] https://www.tomshardware.com/
[3] https://www.sciencedirect.com/
[4] OpenAI says it plans to report stunning annual losses through 2028—and then turn wildly profitable just two years later | Fortune
[5] DB through Lisa Abramowicz @lisaabramowicz1
[6] https://fortune.com/2025/12/02/nvidia-openai-deal-not-signed-yet-100-billion-rally-colette-kress/
[7] Pyrford estimates, Trailing twelve month net profit, US GAAP
[8] https://www.msn.com/en-us/money/other/ibm-ceo-says-there-is-no-way-spending-trillions-on-ai-data-centers-will-pay-off-at-today-s-infrastructure-costs
[9] https://tech.yahoo.com/ai/copilot/articles/microsoft-scales-back-ai-goals
[10] Atif R. Mian, Ludwig Straub, and Amir Sufi, "The Saving Glut of the Rich," NBER Working Paper 26941 (2020), https://doi.org/10.3386/w26941.
[11] https://wir2026.wid.world/wwwsite/uploads/2025/12/World_Inequality_Report_2026.pdf
[12] https://worldpopulationreview.com/country-rankings/social-mobility-by-country

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