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When Innovation Meets Leverage:

The Financial Architecture of the AI Boom

Imagine a world where everyone buys from everyone, and each purchase makes everyone richer.

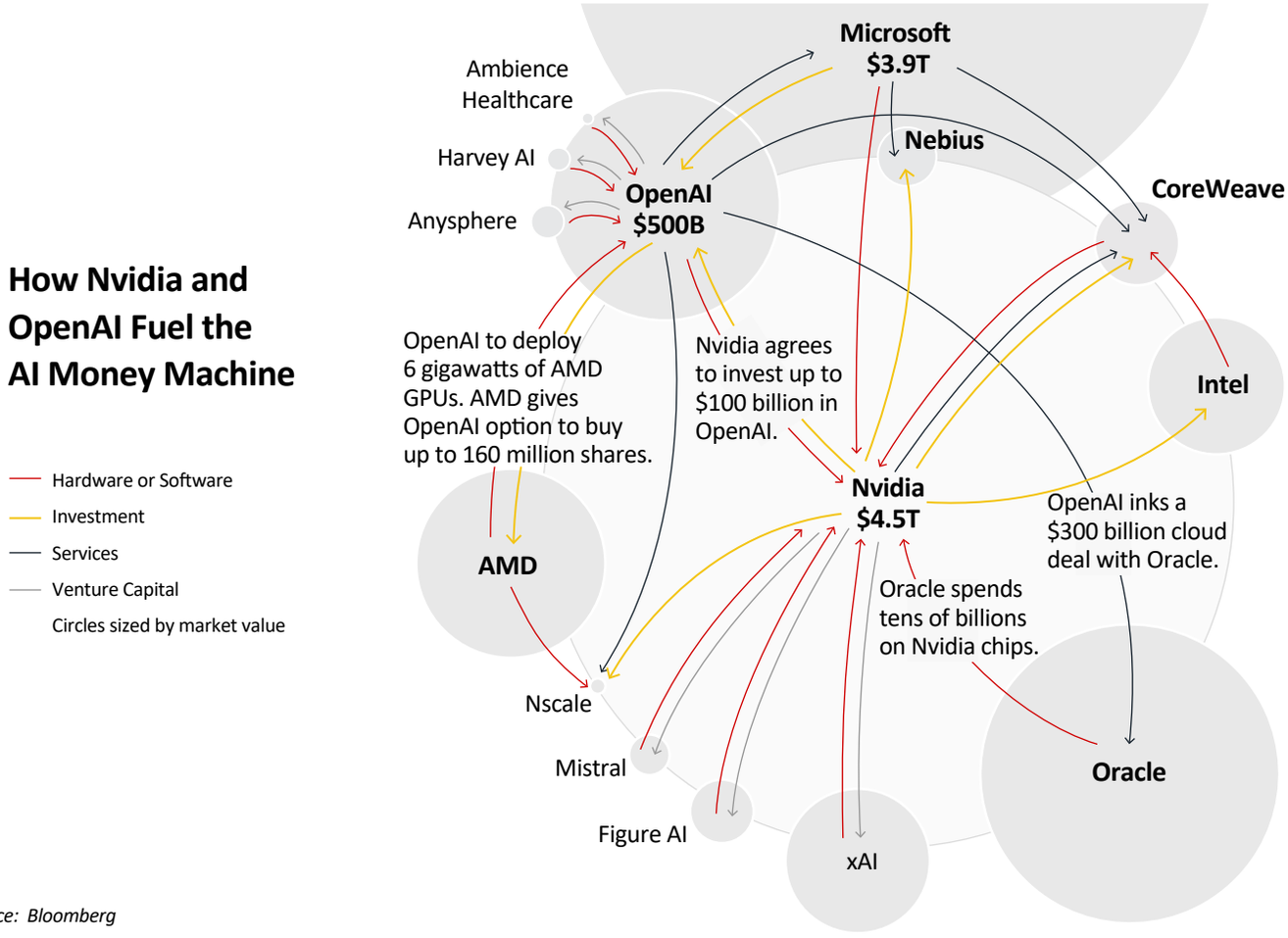
Sounds crazy, right? Welcome to the wonderful, circular, and self-serving world of AI.

While the excitement around AI is undeniable, its rise is often told as a purely technological story. However, in reality, understanding the financial mechanics, especially given the pace of expansion we are witnessing, is just as important. Before we look at valuations or long-term earnings, it helps to understand the architecture of the capital flows powering today's AI ecosystem, flows that increasingly reinforce one another.

Part 1: The Circular Money Machine

Oracle is borrowing billions[1] to buy Nvidia chips so it can expand its AI cloud infrastructure. OpenAI, partly funded by Nvidia's avalanche of profits, then signs a jaw-dropping $300 billion[2] cloud deal with Oracle to train even bigger models that will, naturally, need even more Nvidia chips. Nvidia cashes in again, its valuation ticking upwards, giving it fresh ammunition to reinvest in OpenAI[3] and every promising AI startup is claiming exponential demand. Meanwhile, Microsoft plugs OpenAI's models into every nook of its product suite, sending cloud usage through the roof and justifying another spree of data-centre spending.

Exhibit: The merry-go-round of the AI economy



Source: Bloomberg

And so the flywheel spins: everyone funds everyone else, everyone buys Nvidia chips, and the only constant is that the AI ecosystem keeps inflating—powered by circular demand, sky-high valuations, and an arms race where no one wants to be the one to slow down. Each deal makes it seem like there is real growth. But underneath, it is the same money moving in a small circle, passed around by the same few players, gaining speed but not creating anything new. The system runs on belief, not cash flow, expecting tomorrow's demand to fund today's ambition. Debt makes up the difference.

This is not a story, this is how the AI economy works today. Circular deals, heavy borrowing, and high valuations are all mixing together to create a bubble.

The result: a trillion-dollar feedback loop that blurs the line between technological progress and financial engineering.

Circular demand alone would still be manageable; what changes the equation is the growing dependence on borrowed money to keep this cycle spinning.

1. https://www.reuters.com/business/oracle-buy-40-billion-nvidia-chips-openais-us-data-center-ft-reports-2025-05-23/
2. https://www.wsj.com/business/openai-oracle-sign-300-billion-computing-deal-among-biggest-in-history-ff27c8fe
3. https://www.reuters.com/business/nvidia-invest-100-billion-openai-2025-09-22/

Part 2: **Debt Is Now The Fuel**

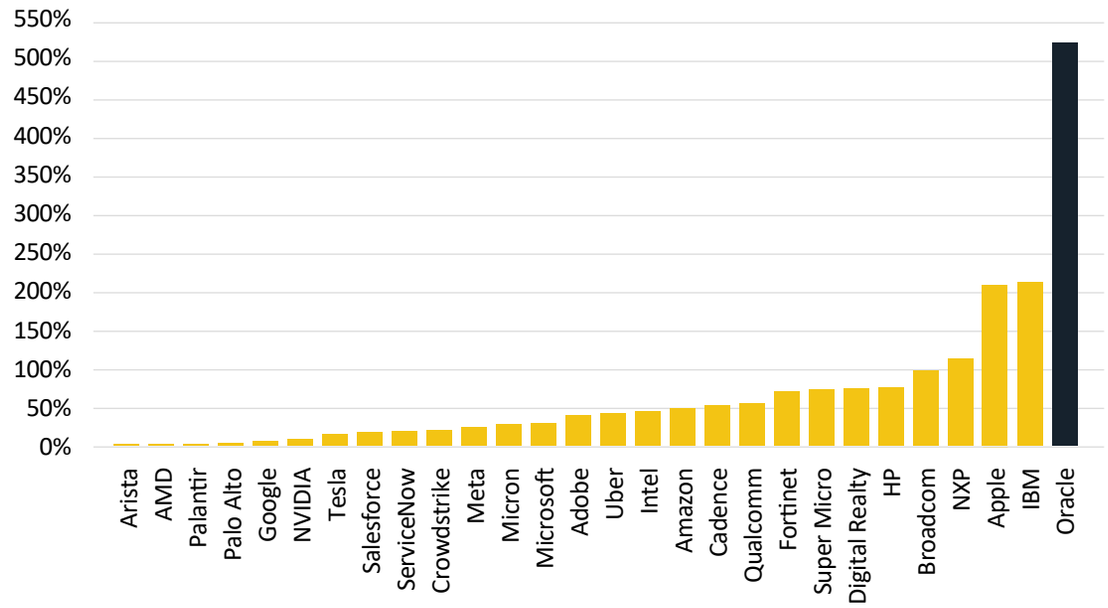
This time it truly is different. In the past, the tech cycles have largely been financed by equity, with the risks apparent. However, unlike past tech cycles, the current tech cycle is primarily led by debt capital and anchored solely to future promises and expectations of future cash flows.

Technological progress is real; models are improving, chips are advancing, and applications are expanding. But the way this growth is being financed is increasingly detached from the cash flows the technology currently generates.

This creates a pattern where rising expectations encourage more borrowing, and more borrowing reinforces those expectations. When sentiment cools, the same mechanism works in reverse, often far more quickly.

Until now, the AI infrastructure boom was largely self-funded by the strong cash flows of a few dominant hyperscalers (Amazon, Microsoft, and Google). Now, Oracle has changed the playbook - borrowing heavily to catch up.

Exhibit: Debt-to-equity ratio of direct AI stocks

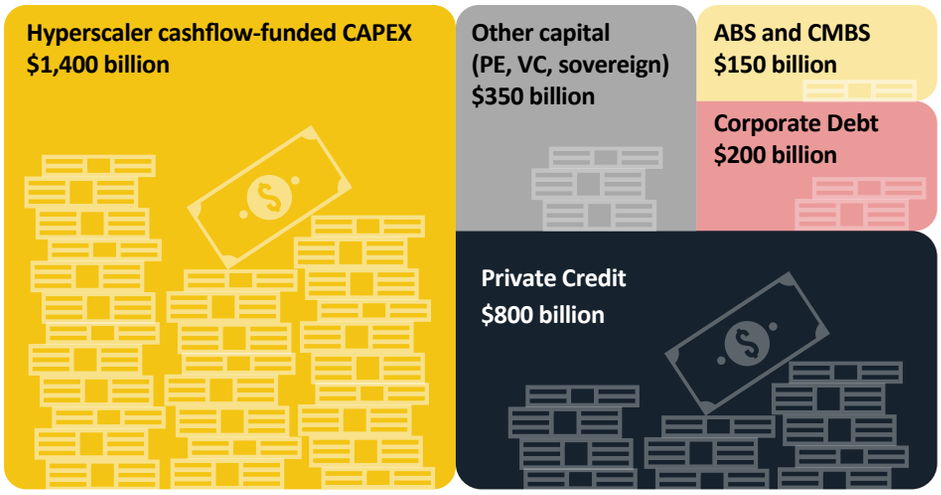


Source: Bloomberg, JPMAM, September 16, 2025

This shifts the game. Amazon, Microsoft, and Google can no longer treat AI infrastructure as a measured investment. What was once a cash-backed expansion is quickly turning into a debt-fueled arms race.

According to the Bank of England, between 2025–2028, AI infrastructure capex is projected at $2.9 trillion. Of this, $1.5 trillion will come from external financing, including $800 billion from private credit. Total AI-related investment by 2030 may exceed $5 trillion, much of it being funded by debt capital. **That's a staggering number - and it means that AI's growth is increasingly dependent on credit conditions. Any tightening in liquidity could slow this engine dramatically.**

Exhibit: Breakdown of AI Infrastructure Funding



Source: Morgan Stanley Research

Part 3: The BoE's Warning: "All Chips In"

These concerns are also being echoed by the Bank of England (BoE). It's October 2025 analysis[4], titled *"All Chips In: Would a fall in AI-related asset valuations have financial stability consequences?"*, is one of the first major central-bank warnings on the financial side of the AI boom.

The BoE made a simple point. The AI boom is no longer just about strong tech stocks. It is turning into a story about rising debt. Companies are spending significant amounts on AI, and many are borrowing more from banks and private lenders to fund it. This growing web of debt can link markets together and make any shock hit harder.

If one part of the AI chain breaks, like a chip shortage, power limits, or slower adoption, it could force a big rethink of asset prices linked to AI. Because these companies and lenders are now so connected, the shock could spread across stocks, debt markets, and even commodities at the same time.

It warned that:

> If the projected scale of debt-financed AI and energy infrastructure investment materialises over this decade, financial stability risks are likely to grow.

In other words, AI's risk profile is shifting from **market exuberance to macro vulnerability.**

Part 4: The Key Always Lies In Valuations

AI has become the market's gravity well, with AI-linked companies now making up 44% of the S&P 500's value—up from 26% in 2022. Giants such as Nvidia, Microsoft, Amazon, Oracle, and AMD have driven valuations to heights last seen in the dot-com era. The S&P 500's CAPE ratio is hovering near its 2000 peak, while AI-exposed firms trade at a hefty median forward P/E of 31x versus 19x for the broader index. It's a market powered by silicon dreams and priced for perfection.

4. https://www.bankofengland.co.uk/bank-overground/2025/all-chips-in-ai-related-asset-valuations-financial-stability-consequences

Exhibit: Valuation snapshot

Name	Market Cap (USD)	Trailing PE Ratio	Historical Median PE Multiple	Forward PE (2026)
Nvidia	4.44T	45.3	52.7	24.9
Microsoft	3.52T	33.7	33.4	28.8
Alphabet	3.84T	31.4	28.3	28.7
Broadcom	1.78T	96.4	38.3	40.6
Meta Platforms	1.55T	27.1	28.8	20.4
Amazon	2.42T	32.0	86.2	28.4
Oracle	0.57T	46.4	22.8	29.4

Source: Factset, Gurufocus

Valuations for stocks like Broadcom, and Oracle show that the market expects very high growth. But these stocks are priced for perfection, and even a small slowdown in AI demand could lead to a sharp drop in their valuations. On the other hand, valuations for stocks such as Microsoft and Alphabet are more or less in line with historical median P/E multiples.

Exhibit: The New Tech Bubble? CAPE Ratio Flashes 2000

Source: Professor Robert J Shiller, Yale University and BoE

Liquidity is increasingly crowding into AI assets, fueled by leverage and optimism, leaving other sectors and energy systems strained. Any slowdown or funding stress could trigger a broader market unwind. Thus, earnings catch-up becomes critical: Forward P/E compression relies on the delivery of explosive earnings growth in 2026.

For investors, the debate is no longer about whether AI will reshape industries - it undoubtedly will. The real question is whether today's financial system can sustain the speed and scale at which this ambition is being funded. When innovation begins leaning too much on borrowed momentum, prudence shifts from being a safeguard to a necessary discipline.

For long-term investors, the task is to distinguish genuine improvements in productivity from stories fuelled by sentiment, and position portfolios accordingly.

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