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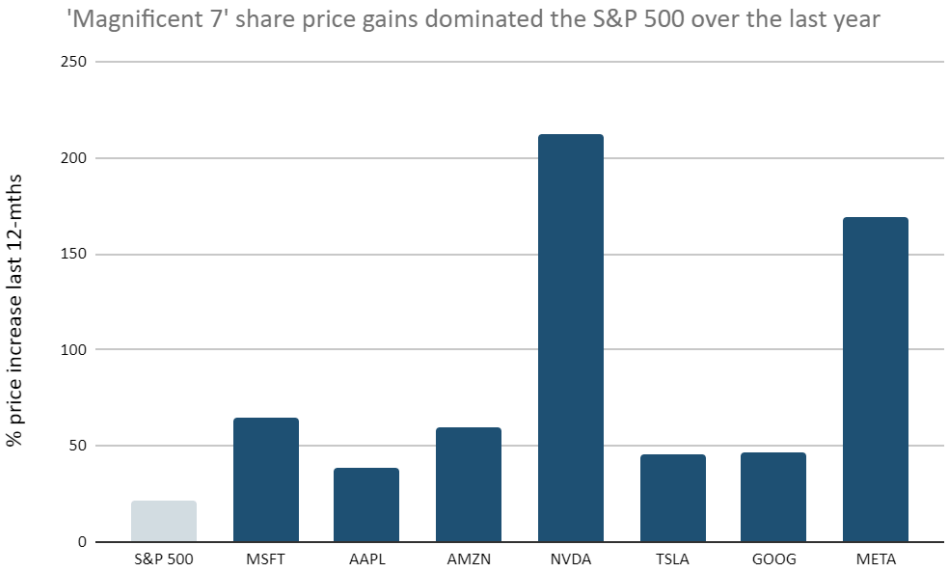
The next wave of AI winners

The rise of artificial intelligence (AI) kept the S&P 500 moving upwards last year despite rising interest rates, increasing global conflicts and concerns about the decoupling of the two largest economies. So far these returns have been concentrated in the hands of a few companies, but for the S&P 500 to keep rising into 2024 the technology will have to start showing meaningful boosts to productivity across multiple sectors. There are many Wall Street analysts betting their investment picks on this being the case.

Author: **Arthur Sants**

The fact the S&P rose 25 per cent last year in the face of myriad economic and political concerns shows the hype around AI technology. So far, the stock market returns have been concentrated in the hands of the 'magnificent seven'. The average return of **Microsoft (US:MSFT)**, **Apple (US:AAPL)**, **Amazon (US:AMZN)**, **Nvidia (US:NVDA)**, **Tesla (US:TSLA)**, **Alphabet (US:GOOG)** and **Meta (US:META)** was 111 per cent across the year as investors gained conviction these tech giants would lead as AI winners.



Source: FactSet

Analysts are comparing the importance of AI to technologies such as the steam engine and the internet. However, the story of both these technologies should act as a cautionary tale. Before

they could accelerate global economic growth, both resulted in investment bubbles that burst spectacularly, in the case of the 1840s 'railway mania' and the 1990s 'dot com bubble'.

The last time the S&P 500 was up more than 20 per cent in consecutive years was 1998 and 1999, the two years preceding the dot com crash. To avoid this fate again, AI will have to prove to the market that it can generate meaningful earnings for companies other than AI chip designer Nvidia.

Cloud computing investment

The positive news is that the cloud computing companies have already spent billions on AI servers. So, unlike in the 1990s, when the hype around the internet was mostly theoretical, this spending provides a durable base for AI use to proliferate from. "We are putting a lot of trust in these clouds to not only spend, but to develop and enable the Generative AI market for the masses," wrote Melius Research's Ben Reitzes.

Between Amazon, Alphabet, Microsoft and **Oracle (US:ORCL),** $122bn was spent on capex last year, an increase of 8 per cent from 2021, which was already a record year in terms of capital investment.

The main beneficiary of this dynamic in terms of earnings so far has been Nvidia with its near monopoly on graphics processing units (GPUs). These chips which enable parallel computing are essential for AI development and cloud companies have been scrambling to get their hands on them.

In the three months to October, Nvidia's revenue increased 206 per cent year on year, while its diluted earnings per share was up 1,274 per cent, and analysts consensus is for earnings to jump another 12 per cent next quarter. Given this rapid growth, Nvidia's price to earnings growth (PEG) ratio – based on estimates to January 2025 – is just 0.7 compared to 1.59 for the wider S&P 500.

The expectation this year is that companies will start to utilise this increased computing capacity to integrate AI into their businesses. Wedbush Securities analyst Dan Ives has called this the "year of AI '' and expects there to be a "tech bull market" as AI use cases start to proliferate through the rest of the market. Over 50 per cent of all the companies Wedbush has surveyed said they see over 20 use cases for generative AI in their businesses, while 80 per cent say they see at least 10.

To integrate AI, companies will need to pay for a lot more cloud computing services. Microsoft is already starting to see a tangible increase in growth. The investment in ChatGPT creator OpenAI gave it a jump on its rivals. In the three months to September, Microsoft's cloud computing division Azure grew 29 per cent year on year, of which three percentage points were directly from its AI services. The launch of Microsoft 365 Copilot, its AI enabled enterprise software product, should accelerate this growth further.

This has helped Microsoft to take market share from Amazon Web Services (AWS), which saw just 12 per cent year-on-year growth. Amazon has gone down a slightly different route with its AI strategy. Rather than developing enterprise software it has decided to focus on giving its customers access to foundational models, so they can develop their own software utilising Amazon's computing power.

In other words, they are customer agnostic. Theoretically, Amazon would be happy to let Microsoft use its platform to build AI software as they aren't in direct competition. Amazon's AI platform is known as Bedrock and its investment in OpenAI competitor Anthropic gives its customers access to a foundational large language model which they can use to develop their own generative AI software.

Oracle is smaller, but has moved quickly in establishing a strong relationship with Nvidia, with the company claiming its data centres are optimised for large-scale GPU clusters used to train LLM. "Demand for our Cloud Infrastructure and Generative AI services is increasing at an astronomical rate," said Oracle chief executive Safra Catz on the last results call.

AI consultants in demand

The problem for companies looking to integrate AI software into their business will be knowing which cloud computing and large language model options to choose. This opens up an opportunity for IT consultants that can advise on AI digital transformation. At least, this is the logic behind Melius Research's decision to add consultants IBM and Cisco to their coverage. In the note titled 'AI Halo Effect', Ben Reitzes argues that increased demand for AI will accelerate IT spending over the coming two years.

Cisco (US:CSCO) and **IBM (IBM)** are value AI plays as they trade on forward price to earnings ratios (for 2024) of just 13 and 17, respectively. Compared to the cloud computing companies, they are capital-light businesses, meaning they have strong cash generation, with both trading at just above 11 times free cash flow projections for the 2023 year results.

In the late 1990s, IBM was known as a hardware business. However, it lost market share in personal computers to Dell and HP before selling its PC business to Lenovo in 2005 and pivoting to now being a consultant and software company. Today, the revenue mix is 40 per cent software, 35 per cent consulting and 20 per cent systems related.

In 2019, IBM acquired open-source software business Red Hat. Alongside its cloud consulting business IBM can now provide a comprehensive IT transformation service. In the three months to September, consulting bookings were up over 20 per cent year on year as companies looked at the best ways to use AI. "We anticipate IBM is a beneficiary of the AI Halo Effect in the enterprise, which helps create more consulting activity and allows Red Hat to keep going at 10% plus pace," wrote Reitzes.

Intel playing catch-up

All of this is dependent on how many computer chips can be made. On the hardware side, **Intel (US:INTC)** has invested heavily to catch up with Taiwan's **TSMC (Taiwan:2330)** in semiconductor manufacturing capabilities. It has been aided by the US Chips and Science Act which is subsidising its US investment plans. Over the next five years it has pledged to invest over $100bn in fabrication plants, which the company refers to as its "five nodes in four years strategy".

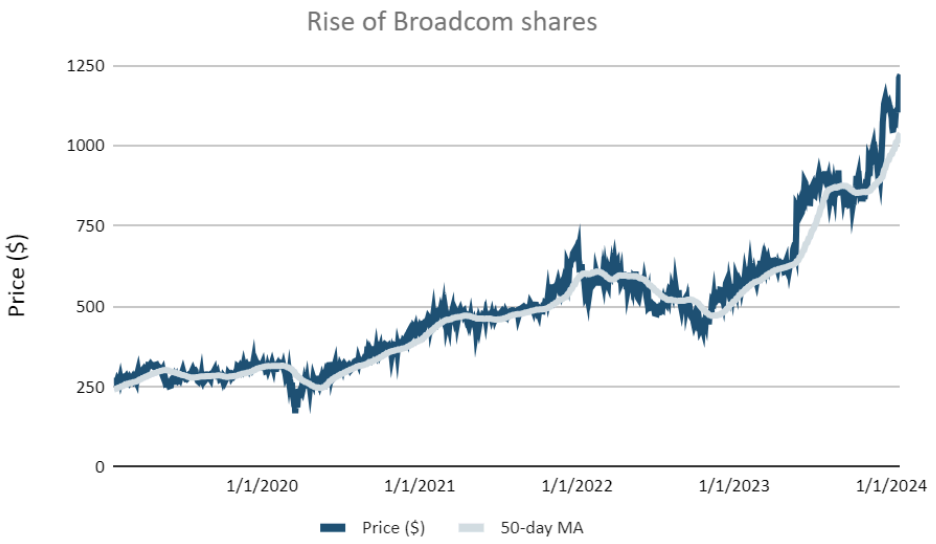
The last two years have been tricky as Intel has lost data centre market share to Nvidia and **AMD (US:AMD)**, with cloud companies shifting spending towards AI computing. Consumers have also been cutting back on consumer electronics, which hit Intel's PC sales. In the year to September, revenue was $52.8bn, down 33 per cent over two years. Meanwhile, it swung from a profit of $19.9bn to a loss of $1.6bn.

The semiconductor industry is notoriously cyclical, but there is hope that we have now reached the bottom of the cycles. The market certainly thinks Intel is past its trough with the share price up 48 per cent in the last six months. Reitzes believes Intel will benefit from a stabilisation in PC demand, which will boost earnings in the short term. "CPUs will start building momentum sequentially into 2024 as the PC market starts to "echo" the surge in demand from three years ago."

Over the longer term, Reitzes forecasts Intel will re-establish its manufacturing leadership by 2026 and benefit from chip designers needing to diversify their supply chain away from Taiwan-based TSMC. Intel will unlikely compete with AI chip designers Nvidia and AMD, but if it can't start manufacturing chips for them then Reitzes sees it being a beneficiary of the "AI tailwind".

Continued below: two more companies set up to benefit from the AI tailwind

Broadcom (US:AVGO)



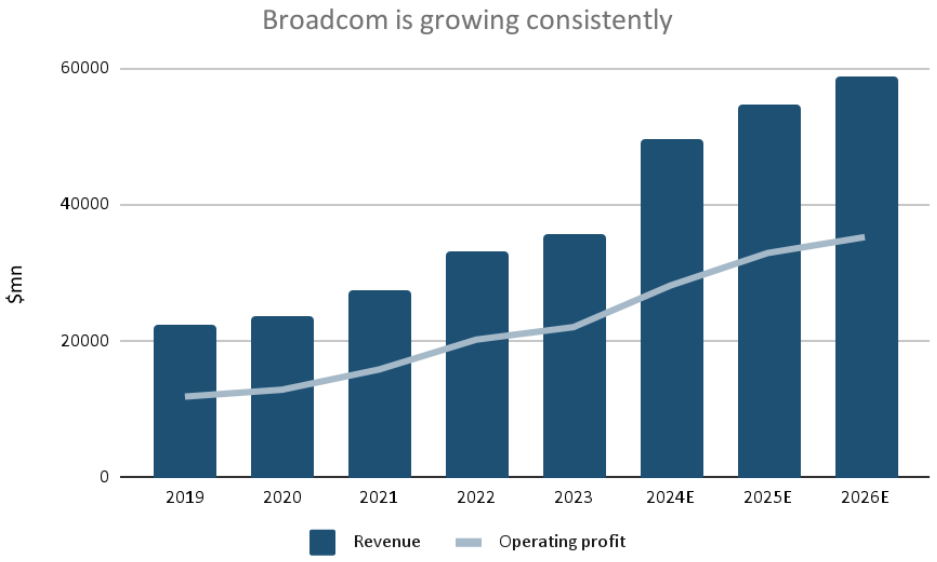
Source: FactSet

If the AI Halo Effect is going to provide tailwinds across the technology sector then software and hardware conglomerate **Broadcom (US:AVGO)** is well placed to prosper. In recent years, it has acted almost like a private equity company, building up a diversified portfolio of semiconductor and software businesses.

In 2023, semiconductors made up 79 per cent of Broadcom's revenue while the rest came from software. However, the recent acquisitions of VMware for $69bn, its largest to date, means software will now make up 40 per cent. VMware enables "cloud virtualisation". This means it can turn a physical computer into several virtual computers that run with their own operating systems.

Before virtualisation, each physical server would need to be configured for a specific task. For example, a company might have a server for emails, another for customer data and a third for hosting its website. This was usually inefficient because you would need some redundancy in the system. However, VMware allows all these servers to split up into virtual computers and in real time change the allocation of computing power to each task.

Management's aim will be to boost VMware's profit margin, something Broadcom managed to achieve with its previous acquisitions of cyber security company CA Technologies and cloud computing software business Symantec Corporation. At the time they were acquired, Citi analysts note that the two had a combined gross margin of 85 per cent and operating margin of 39 per cent. Within two years the gross margin had risen to 90 per cent, while the operating margin had almost doubled to 70 per cent.



Source: FactSet

CitiGroup analysts use this as evidence for their expectation that Broadcom will be able to achieve a similar expansion with VMware. Broadcom has already stated that it plans to drive efficiencies and reduce its cost of goods sold (COGS) by 40 per cent from $9bn to $5.6bn. Correspondingly, Citi has forecast its operating margin to expand from 31 per cent at the time of acquisition to 62 per cent.

On the semiconductor side of the business, Broadcom's growth is set to come from 'networking'. In other words, the chips and hardware that connects AI servers to each other. Of the semiconductor sales, 38 per cent of revenue came from networking, while 26 per cent came from wireless. Meanwhile, the wireless chips are mostly found in smartphones.

AI server growth

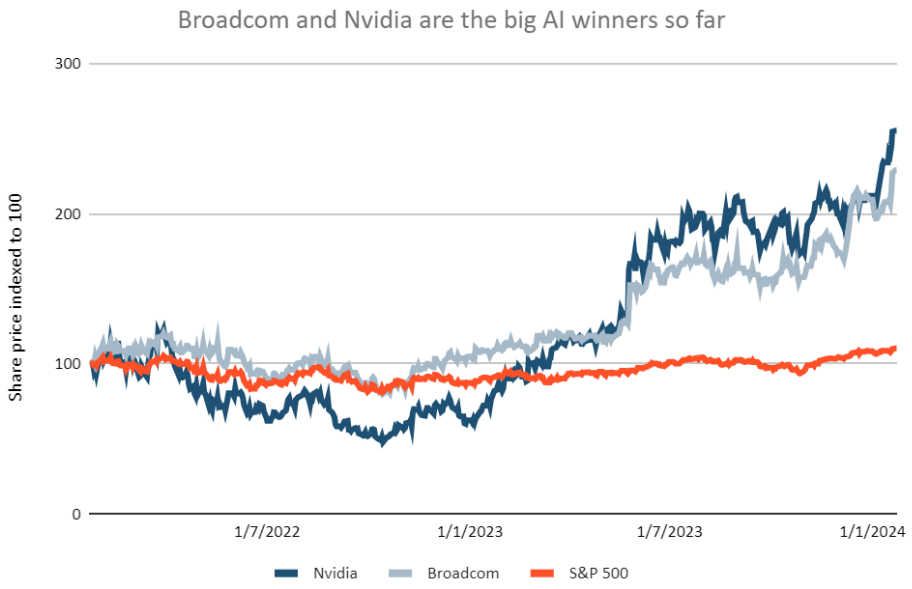
The semiconductors it designs are used in ethernet cables to connect data centres to each other. Last year, it launched a special chip called the Jericho3-AI, which specialises in connecting graphics processing units (GPUs) together, aimed especially at exploiting the demand for AI. In 2020, Nvidia acquired a company called Mellanox, which sells Infiniband cables that enable high speed communication between GPUs. Infiniband has 90 per cent of the market share, but Broadcom is aiming to become a direct competitor.

Networking is currently the fastest growing part of the business thanks to the boost from AI tailwinds. Broadcom estimated that over $200mn of ethernet switches were deployed in AI computers in 2022 and this quadrupled to $800mn in 2023. It has forecast that this will double again in 2024. This momentum is expected to continue at pace as companies look for alternatives to Nvidia, with Citi forecasting a compound annual growth rate (CAGR) of 50 per cent through 2026.

Smartphone demand slowing

Total semiconductor growth is dampened by the flat growth in the wireless business. Broadcom's biggest customer is Apple, making up 20 per cent of the group's revenue. However, the global smartphone growth has slowed in the last year. In the 12 months to September, iPhone revenue fell 2 per cent and correspondingly Broadcom's wireless semiconductor sales dropped 2 per cent.

There is a belief that the smartphone market has become saturated now that almost everyone owns one. Unless the replacement cycle can be significantly shortened, wireless semiconductor sales won't outpace wider economic growth. Citi is forecasting wireless CAGR of just 1 per cent through 2026, but because of the strength of networking, total semiconductor growth is expected to be 9 per cent. "We believe AVGO is the second largest semiconductor company, after Nvidia, to benefit directly from the AI demand," wrote Citi analyst Christopher Danley.



Source: FactSet

The biggest concern is if Apple decides to design its own wireless chips. Bloomberg reported earlier this year that Apple was planning to replace the Broadcom chip that handles Wi-Fi and Bluetooth by 2025. Apple has already had success designing its own chips. The computer processing unit in its new iPhone 15 Plus, known as the A17, is the most advanced to be put in a smartphone.

Unsurprisingly, Broadcom chief executive Hock Tan is bullish that his company can continue to "out engineer" Apple. If that is the case, then Apple will presumably cut back on costly R&D spend. "They value technology to sell their hardware, so they will take the best technology," he told the *Financial Times* last year.

In terms of valuation, it is useful to think about the ratio of enterprise value (EV), which is the market capitalisation plus net debt, to earnings before interest, tax, depreciation and amortisation (Ebitda), which is a close proxy to cash profits.

Currently, Broadcom's forward EV/Ebitda ratio is 18, which is just above its previous five years' average. The share price fell during the interest rate rises in 2022, but like a lot of the tech industry, it has seen its valuation rise in the last year as inflation fears recede and the hype around AI grows.

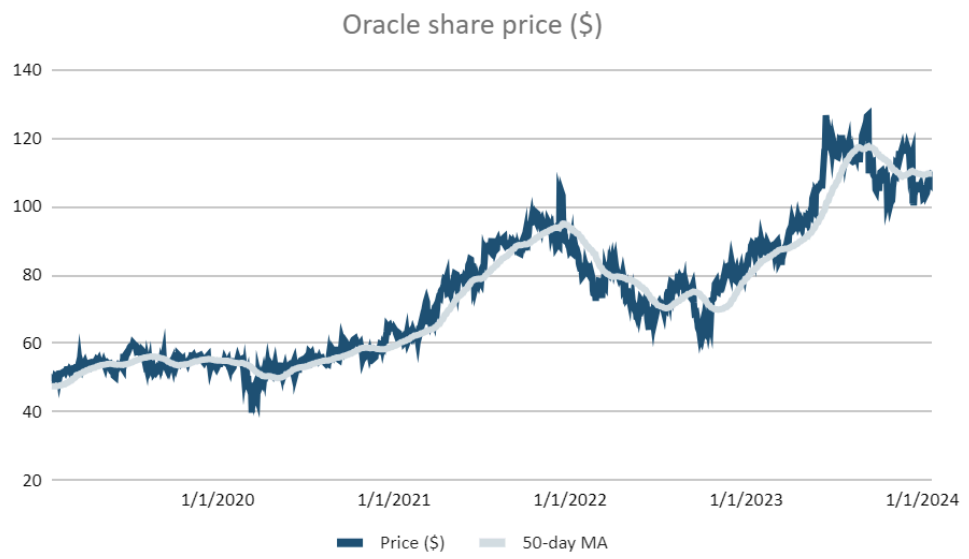
Compared to the wider S&P 500 index's forward EV/Ebitda ratio of 13, Broadcom looks expensive. However, when you compare it to the stock market's other perceived AI winners it starts to look more affordable. Semiconductor designer Nvidia is trading at 25 times, while its biggest competitor AMD is trading at 36 times. This is despite AMD's operating margin barely exceeding 20 per cent in the last five years. For comparison, analyst consensus is for Broadcom's margin to increase to around 50 per cent next year.

Broadcom (US:AVGO) key data

Company Details	Name	Mkt Cap	Price	52-Wk Hi/Lo
	Broadcom (AVGO)	$571bn	$1,220.50	$1231.33 / $569.78
Size/Debt	NAV per share*	Net Cash / Debt(-)*	Net Debt / Ebitda	Op Cash/ Ebitda
	5,124c	-$25.5bn	1.2 x	97%
Valuation	Fwd PE (+12mths)	Fwd DY (+12mths)	FCF yld (+12mths)	CAPE
	25	1.8%	4.1%	78.5
Quality/ Growth	EBIT Margin	ROCE	5yr Sales CAGR	5yr EPS CAGR
	45.9%	25.0%	11.4%	2.4%
Forecasts/ Momentum	Fwd EPS grth NTM	Fwd EPS grth STM	3-mth Mom	3-mth Fwd EPS change%
	-11%	17%	43.0%	5.5%
Year End 31 Oct	**Sales ($bn)**	**Profit before tax ($bn)**	**EPS (c)**	**DPS (c)**
2021	27.5	14.3	2,801	1,444
2022	33.2	18.8	3,764	1,645
2023	35.8	21.0	4,225	1,841
f'cst 2024	49.8	25.9	4,663	2,088
f'cst 2025	54.9	30.9	5,574	2,297
chg (%)	**+10**	**+19**	**+20**	**+10**

Source: FactSet

Oracle (US:ORCL)



Source: FactSet

It is accepted that cloud computing businesses will be some of the winners of the surge in AI adoption. Amazon is the market leader and has seen its share price rise 61 per cent in the last year, while Microsoft, with its Azure service the number two in the market, is up 66 per cent.

The thing with both these businesses, is they aren't just cloud computing specialists. Investors in Microsoft also have exposure to its cyclical gaming business while Amazon is one of the world's largest retailers.

Alternatively, Oracle makes three-quarters of its revenue from cloud services and, as a purely enterprise business, it has no exposure to notoriously cyclical consumers. All its revenue comes from providing software and computing services to companies, and in the last year it has been boasting about the demand for its new AI capabilities.

The company was founded in 1977 by Larry Ellison and was named after its first project which was a database management system commissioned by the Central Intelligence Agency (CIA) code named "Oracle". It then turned this database system into a commercial product and started selling it in the 1980s to companies and government organisations.

However, in the 2010s the market switched from on-premises servers to cloud computing. Amazon and Microsoft were the first movers in this market, investing billions in their computing infrastructure, and taking over 50 per cent of the market between them. Oracle was initially left behind in this new era of computing, but in the last few years Oracle has ramped up its capital expenditure and is positioning itself as an AI specialist.

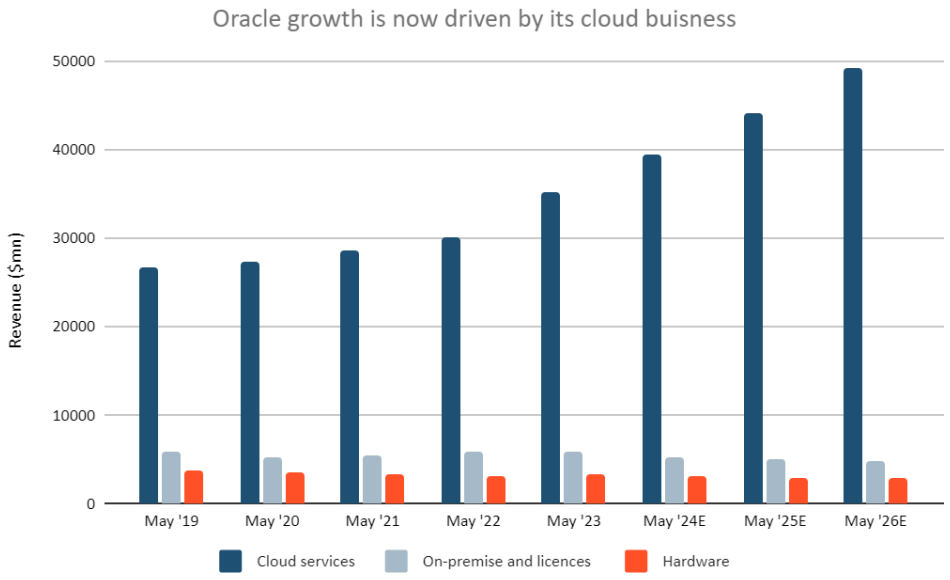
Capex ramp-up

In the last three full fiscal years it has spent $15.3bn on capex, more than in the previous 20 years. There are also no plans to slowdown with chief executive Safra Catz forecasting capex to be around $8bn this year, which might be slightly below last year's $8.7bn but would be 78 per cent ahead of the $4.5bn spent in 2022. "We continue to build capacity for booking and our customers' growing need, given the enormity of our pipeline," said Catz on a recent earnings call.

On the same call, Larry Ellison, the founder and now chief technology office, pressed Oracle's AI credentials. He cited the fact that tech consulting firm Gartner had named Oracle as the leader in cloud platform and infrastructure services. He also mentioned that Elon Musk's company xAI had used Oracle to train its large language model known as Grok. "They got that up and running, but boy did they want a lot more GPUs than we gave them," said Ellison. "They wanted more and we are in the process of getting them more."

Nvidia's close relationship

Oracle was the first cloud computing company to partner with Nvidia over the DGX Cloud. DGX is Nvidia's AI cloud computing product which aims to give "every enterprise instant access to an AI Supercomputer from a browser". Nvidia sold its GPUs to Oracle, but then pays in advance to reserve them for its customers. This deal helped push up Oracle's cloud infrastructure revenue by 52 per cent year on year in the three months to November.



Source: FactSet

However, there is concern that cloud infrastructure revenue growth was down from the 66 per cent year on year in the three months to August. Given we are at the beginning of the AI adoption

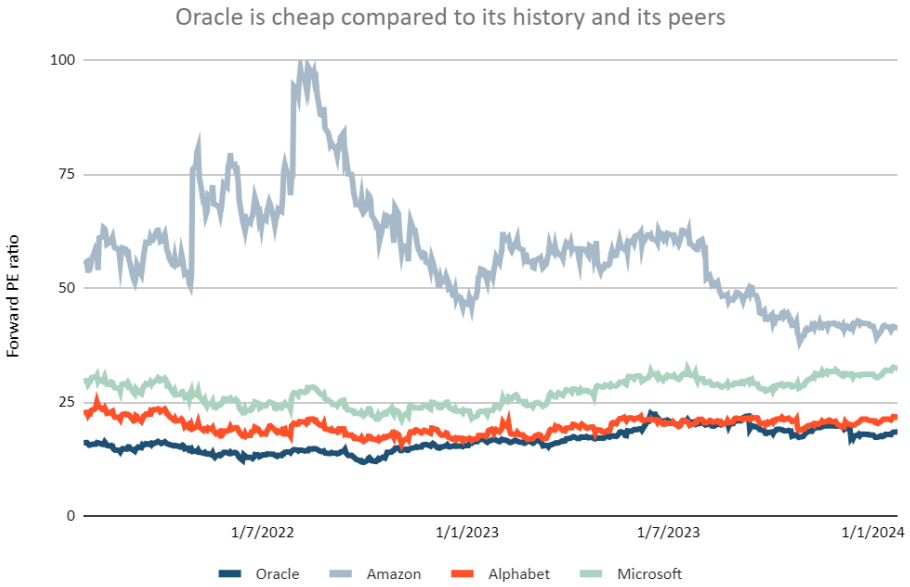
trend, we would expect this to be accelerating. This unexpected slowdown contributed to overall revenue growth of 5 per cent coming in just below analyst consensus.

Management was insistent the backlog was solid, but the limit was the amount of computer chips Oracle could get its hands on. "The only limiting factor is our ability to get the data centres handed over and filled up fast enough," said Safra Catz. "This quarter alone we are talking about hundreds of millions of dollars that we would have been able to recognise if our capacity was available."

The cloud services business, driven by AI, is performing well, but the rest of the company saw revenue decline in the last year. This includes the on-premise services business, its database software and the general services business. This is generally in line with the rest of the IT services sector, where companies have been trying to cut back on spending.

For comparison, Oracle's overall cloud services growth of 12 per cent was in line with Amazon Web Services but below the over 20 per cent figures posted by Amazon Azure and Google Cloud.

The pessimists would say that Oracle is not going to be able to catch up with its cloud computing competitors and this justifies the fact it trades on a next twelve months forward price to earnings ratio of almost 19, which is below the 33 times for Microsoft and 22 times for Alphabet.



Source: FactSet

The flip side is that Oracle is forecasting to reach $65bn in revenue by 2026, which is a 9 per cent annual growth rate. This is driven by the cloud infrastructure business which is reportedly heavily oversubscribed and growing over 50 per cent. Given this it should generate a significant return on the multiple billions of capex it has spent in the last two years.

On top of this, the company is also highly profitable. Its operating margin has been consistently over 30 per cent for the last decade, while its gross margin has been over 70 per cent. The gap between these two margins also leaves some space for operational leverage as the revenue grows. This level of profitability and exposure to AI leaves plenty of upside for a re-rating if it begins to deliver on its promises of an oversubscribed backlog.

Oracle (US:ORCL) key data

Company Details	Name	Mkt Cap	Price	52-Wk Hi/Lo
	Oracle Corporation (ORCL)	$303bn	$110.10	$127.54 / $82.04
Size/Debt	NAV per share*	Net Cash / Debt(-)*	Net Debt / Ebitda	Op Cash/ Ebitda
	57c	-$80.1bn	4.0 x	99%
Valuation	Fwd PE (+12mths)	Fwd DY (+12mths)	FCF yld (+12mths)	CAPE
	18	1.4%	3.7%	33.6
Quality/ Growth	EBIT Margin	ROCE	5yr Sales CAGR	5yr EPS CAGR
	28.8%	16.9%	4.9%	29.4%
Forecasts/ Momentum	Fwd EPS grth NTM	Fwd EPS grth STM	3-mth Mom	3-mth Fwd EPS change%
	-13%	13%	8.1%	2.8%
Year End 31 May	**Sales ($bn)**	**Profit before tax ($bn)**	**EPS (c)**	**DPS (c)**
2021	40.5	16.8	467	108
2022	42.4	16.3	490	114
2023	50.0	16.9	512	130
f'cst 2024	53.4	19.2	555	144
f'cst 2025	57.9	21.7	621	152
chg (%)	**+8**	**+13**	**+12**	**+6**

Source: FactSet

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