

# A Guide to The Magnificent 7 & AI

The US's magnificent 7 companies (Apple, Microsoft, Alphabet, Amazon, Meta, Nvidia and Tesla) have a combined market cap of \$16trn as of 18<sup>th</sup> October 2024, which is 55% of total US GDP¹. The combined revenue, gross profit and net profit of the magnificent 7 in 2023 amounted to \$1.8trn, \$930bn and \$357bn respectively. The magnificent 7 also spent a total of \$239bn for R&D in 2023, nearly 50% more than in 2021 when the mag 7 R&D spending already made up just over ¼ of total US R&D spending². The magnificent 7 are truly magnificent due to its size and impact on not only the US economy, but the world economy. What impact will the emergence of Al and future tax changes play? This note will take a closer look at these wide-ranging topics by starting with a quick breakdown of each of the magnificent 7. Our September intern, Max Pasley, has helped with the complex task of bringing all the information and numbers for this research together, a big "thank you" to him.

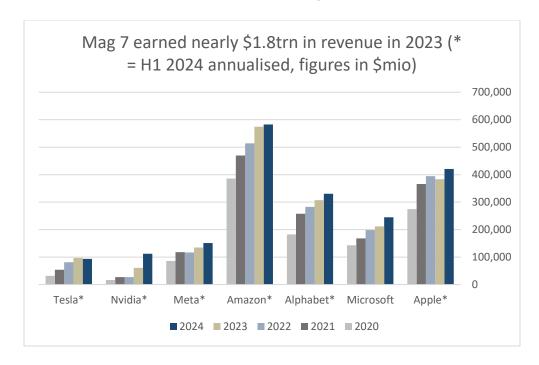
Magnificent 7 Market Cap 18th October 2024

Mag 7	Market Cap in \$bn as of 18th Oct 2024	P/E
Apple	3,570	31
Nvidia	3,380	54
Microsoft	3,110	35
Amazon	1,990	42
Alphabet	1,840	19
Meta	1,470	28
Tesla	707	134

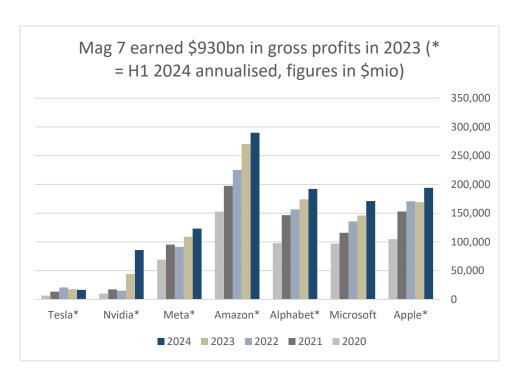
<sup>&</sup>lt;sup>1</sup> https://www.bea.gov/news/2024/gross-domestic-product-third-estimate-corporate-profits-revised-estimate-and-gdp-0

<sup>&</sup>lt;sup>2</sup> https://ncses.nsf.gov/pubs/nsb20246/u-s-business-r-d

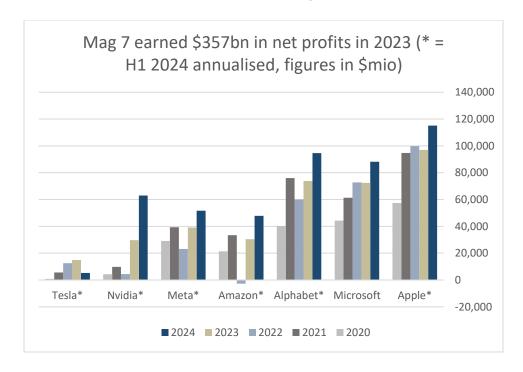




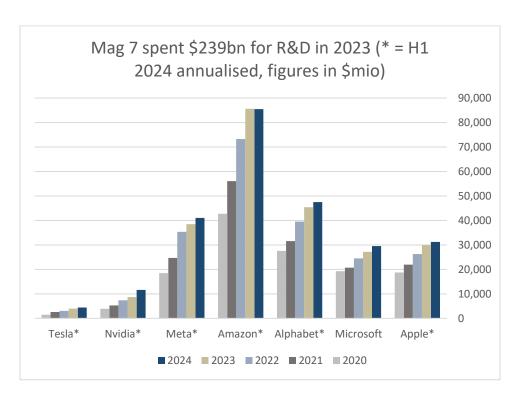
Source: Quarterly reports of individual companies







Source: Quarterly reports of individual companies





#### Apple: Rising valuation with lack of growth

Apple remains the most valuable company in the world with a market capitalization of nearly \$3.6tm, higher than the UK's \$3tm GDP. This is a multiple of well over 30x and given the stalling growth and lack of innovative new products, it is very fair to question this valuation. In fact, despite no major changes in net income, the valuation of Apple has increased by 80% since the beginning of 2023. With \$3,500, the Apple Vision Pro carries quite a high price tag and in light of the struggles Meta is having with their much lower priced Virtual Reality glasses, it could take years before the product becomes a success, if it can be mass-adopted. Other areas of growth could represent emerging markets, such as India, but a decoupling of China also bears very high risks. Apple is unlikely to benefit from the latest trend, however: Artificial Intelligence (AI). Apple has so far opted to use Google's chips to train its AI, steering clear of Nvidia. The company also used Google's Tensor Processing Unit (TPU), which in certain scenarios performs better than Nvidia's chips.

Apple's financials (in \$mio, fiscal year ending September 26)

\$millions Revenue	H1 2024	2023	2022	2021	2020
iPhone	115,665	200,583	205,489	191,973	137,781
Mac	15,231	29,357	40,177	35,190	28,622
iPad	12,582	28,300	29,292	31,862	23,724
Wearable, Home and Accessories	19,866	39,845	41,241	38,367	30,620
Services	46,984	85,200	78,129	68,425	53,768
Total Revenue	210,328	383,285	394,328	365,817	274,515
Products	100,864	189,282	201,471	192,266	151,286
Services	12,338	24,855	22,075	20,715	18,273
Total Costs	113,202	214,137	223,546	212,981	169,559
Gross Margin	97,126	169,148	170,782	152,836	104,956
R&D	15,599	29,915	26,251	21,914	18,752
Selling, general admin	13,254	24,932	25,094	21,973	19,916
Total Costs	28,853	54,847	51,345	43,887	38,668
Operating Profit	68,273	114,301	119,437	108,949	66,288
Other Income	108	-565	-334	258	803
Tax	10,829	16,741	19,300	14,527	9,680
Net Profit	57,552	96,995	99,803	94,680	57,411
Tax Rate	16%	15%	16%	13%	14%



#### Apple's stalling growth by region

\$millions	2023	2022	2021
Americas	162,562	169,658	153,306
Europe	94,294	95,118	89,307
Greater China	72,559	74,200	68,366
Japan	24,257	25,977	28,482
Rest of Asia Pacific	29,615	29,375	26,356
Total	383,287	394,328	365,817

Source: Annual reports

#### Microsoft: The top of the three AI hyperscalers

Microsoft has had stalling revenues from its products for a few years now. However, its cloud services, Azure, is the key growth engine. Microsoft is one of the three hyperscalers, with the other two being Amazon and Alphabet, which uses data centers to provide services globally to anyone. 95% of Fortune 500 companies are using Azure (Intelligent Cloud)<sup>3</sup> – it is where business runs on, and its an area where Nvidia's AI chips will play a major role in. This requires high capital expenditure. Half of all capex is spent on land, buildings and leases and the other half is going on technology, including chips and servers. Analysts estimate that \$4bn was spent on Nvidia's chips last year. At the same time, Microsoft is developing its own hardware to use for its AI supercomputer Stargate (ETA 2028). Open AI and Microsoft are both pitching in on what will cost over \$115bn. This could make Microsoft compete directly with Nvidia. In Microsoft's latest quarterly report, they noted that: "We expect capital expenditures to increase in coming years to support growth in our cloud offerings and our investments in Al infrastructure." In Q4 24, Microsoft is expected to receive 1,400-1,500 racks of Blackwell chips<sup>4</sup> (1 rack costs around \$3mio, 1 Blackwell chip around \$70k<sup>5</sup>), which alone would cost \$4.2-4.5bn without the actual cost of the data center and the cooling. Keep that in mind as Microsoft is currently trading at a 35x multiple. However, together with owning ChatGPT, Microsoft is all in on AI and could benefit the most from it (after Nvidia). Below are a few bullet points to understand Microsoft's numbers better.

<sup>&</sup>lt;sup>3</sup> https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-azure

 $<sup>^{4} \, \</sup>underline{\text{https://medium.com/@mingchikuo/gb200-order-update-microsofts-demand-exceeds-total-orders-from-other-csps-4q24-orders-7fec4bbef4a8}$ 

<sup>&</sup>lt;sup>5</sup> https://www.tomshardware.com/pc-components/gpus/nvidias-next-gen-blackwell-ai-gpus-to-cost-up-to-dollar70000-fully-equipped-servers-range-up-to-dollar3000000-report



#### **Productivity and Business Processes**

- Office Commercial (Office suit, teams, security, copilot,...)
- Office Consumer (Office Suit for consumers)
- LinkedIn (Subscriptions, advertisements and sales solutions)
- Dynamic Business Solutions (Intelligent cloud based applications across Enterprise resource planning, Power Automate and CRM applications)

#### **Intelligent Cloud**

- Azure Cloud and other server products
- Enterprise and partner services (including enterprise support services, Industry solutions, etc)

## **More Personal Computing**

- Windows operating system licenses
- Devices including Surface laptops and PC accessories
- Gaming (Xbox hardware, content, services and subscriptions)
- Search and news advertising, Bing, Microsoft News, Edge

#### Microsoft's growth is driven by the Cloud

Revenue Breakdown	2024	2023	2022	2021	2020
Server Products and Cloud Services	97,726	79,970	67,350	52,589	41,379
Office Products and Cloud Services	54,875	48,848	44,970	39,872	35,316
Windows	23,244	21,507	24,732	22,488	21,510
Gaming	21,503	15,466	16,230	15,370	11,575
LinkedIn	16,372	14,989	13,631	10,289	8,077
Search and News Advertising	12,576	12,158	11,526	9,267	8,524
Enterprise and Partner Services	7,594	7,900	7,605	6,943	6,409
Dynamics Products and Cloud Services	6,481	5,437	4,687	0	0
Devices	4,706	5,521	7,306	6,791	6,457
Other	45	119	233	4,479	3,768
Total Revenue	245,122	211,915	198,270	168,088	143,015

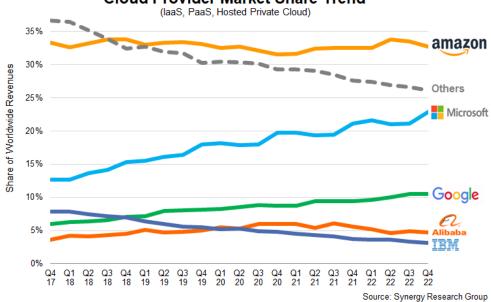


# Microsoft's financials (in \$mio, fiscal year ending June 30)

\$millions Revenue	2024	2023	2022	2021	2020
Productivity and Business Processors	77,728	69,274	63,364	53,915	46,398
Intelligent Cloud	105,362	87,907	74,965	60,080	48,366
More Personal Computing	62,032	54,734	59,941	54,093	48,251
Total Revenue	245,122	211,915	198,270	168,088	143,015
Productivity and Business Processors	15,272	17,804	19,064	18,219	16,017
Service and Other	58,842	48,059	43,586	34,013	30,061
Total Costs	74,114	65,863	62,650	52,232	46,078
Gross Margin	171,008	146,052	135,620	115,856	96,937
R&D	29,510	27,195	24,512	20,716	19,269
Sales and Marketing	24,456	22,759	21,825	20,117	19,598
General and Administrative	7,609	7,575	5,900	5,107	5,111
Total Costs	61,575	57,529	52,237	45,940	43,978
Operating Profit	109,433	88,523	83,383	69,916	52,959
Other Income	-1,646	788	333	1,186	77
Tax	19,651	16,950	10,978	9,831	8,755
Net Profit	88,136	72,361	72,738	61,271	44,281
Tax Rate	18%	19%	13%	14%	17%

Source: Quarterly reports

# **Cloud Provider Market Share Trend**



 $Source: \underline{https://techcrunch.com/2023/02/06/even-as-cloud-infrastructure-market-growth-slows-microsoft-continues-to-gain-on-amazon/}$ 



#### Amazon: A conglomerate & largest of the mag 7 in terms of revenue

Amazon, in my eyes, is one of the most fascinating magnificent 7, because it has developed into a real conglomerate that offers stores in both, physical and online format, advertising services, video subscriptions and not to forget AWS, which is the market leading cloud service provider with 1/3 of total market share. Amazon is competing against so many players, even outside of the mag 7, and this requires much higher capital expenditures (R&D, incl. infrastructure), which is higher than that of Apple and Microsoft combined. AWS is, as is Azure for Microsoft, Amazon's clear growth driver. AWS serves small businesses, while Azure is a more dominant platform for large businesses (Google's Cloud is more for retail clients). While no figures are available on how much Amazon spends on AI, Amazon cancelled an order for Nvidia's Grace Hopper superchip (GH200) in favour of the newly released Grace Blackwell chip (GB200), with the latter being twice as powerful. Although no value was confirmed for the order, GB200 chips include two B100 chips, which are estimated to cost over \$70k<sup>6</sup>. Amazon has ordered 300-400 racks for Q4 24, which would cost \$900mio-1.2bn, again excluding the data center and cooling costs. Similar to Meta's 2023 turnaround, I can imagine Amazon shifting towards profitability at one point by reducing capex.

Amazon's financials (in \$mio, fiscal year ending December 31)

\$millions Revenue	H1 2024	2023	2022	2021	2020
Online Stores	110,062	231,872	220,004	222,075	
Physical Stores	10,408	20,030	18,963	17,075	
Third-Party Seller Services	70,797	140,053	117,716	103,366	
Advertising Services	24,595	46,906	37,739	31,160	
Subscription Services	21,588	40,209	35,218	31,768	
AWS	51,318	90,757	80,096	62,202	
Other	2,522	4,958	4,247	2,176	
Total Revenue	291,290	574,785	513,983	469,822	386,064
COGS	146,418	304,739	288,831	272,344	233,307
Gross Margin	144,872	270,046	225,152	197,478	152,757
Fulfilment	45,883	90,619	84,299	75,111	58,517
Tech and Infrastructure (R&D)	42,728	85,622	73,213	56,052	42,740
Sales and Marketing	20,174	44,370	42,238	32,551	22,008

<sup>&</sup>lt;sup>6</sup> https://www.extremetech.com/computing/nvidia-blackwell-superchip-will-cost-around-70000-each-analyst



General and Admin	5,783	11,816	11,891	8,823	6,668
Other expenses	325	767	1,263	62	-75
Total Costs	114,893	233,194	212,904	172,599	129,858
Operating Profit	29,979	36,852	12,248	24,879	22,899
Interest	940	-233	-1,378	-1,361	-1,092
Other Income	-2,691	938	-16,806	14,633	2,371
Тах	4,234	7,120	-3,217	4,791	2,863
Equity Method Investment Activity	-78	-12	-3	4	16
Net Profit	23,916	30,425	-2,722	33,364	21,331
Tax Rate	15%	19%	54%	13%	12%

Source: Quarterly reports

#### **Alphabet: The advertising monopoly**

Alphabet is very much all about Google Search, where over half of its revenues and likely most of its profits are generated. While there is talk of breaking Alphabet up, which could have negative implications for the company<sup>7</sup>, Alphabet could still pull a few levers to improve profits. For example, in 2022 Alphabet paid Apple \$20bn to be the default search engine in the Safari browser<sup>8</sup>. Breaking up Alphabet over its search monopoly (90% global market share) and its \$31bn Google ad business<sup>9</sup>, would likely force Alphabet to increase its focus on its other business segments. Whilst Google Cloud is behind Microsoft and Amazon, they will be the first cloud service provider to receive Nvidia's Grace Blackwell chips and already offers a range of Nvidia products on its Google Cloud Service. The valuation multiple of 19x is also the lowest amongst the mag 7, likely as a result of the DOJ breakup threat. From a valuation perspective, this makes Alphabet attractive. Alphabet (as well as Meta) have also been busy cutting out the middleman, capturing more profits from business which was previously managed by ad and marketing agencies. Below are a few bullet points that help understand Alphabet's numbers better.

<sup>&</sup>lt;sup>7</sup> https://www.reuters.com/technology/us-plan-break-up-googles-search-dominance-threatens-profit-engine-ai-growth-2024-10-09/

 $<sup>{}^{8}\,\</sup>underline{\text{https://www.bloomberg.com/news/articles/2024-05-01/google-s-payments-to-apple-reached-20-billion-in-2022-cue-says?embedded-checkout=true}$ 

 $<sup>^{9}\,\</sup>underline{\text{https://edition.cnn.com/2024/09/09/business/googles-search-business-was-declared-to-be-a-monopoly-now-its-ad-business-is-on-trial/index.html}$ 



#### **Google Services Segment**

- Ads, Android, Chrome, Devices (Pixel family), Maps, Google Photos, Google Play, YouTube, Search Engine
- Subscription Based services such as YouTube, TV, YouTube Music,...

## **Google Cloud Segment**

- Google Cloud (Collaboration tools and other enterprise tools) providing services for enterprise customers. These services provide solutions for cybersecurity, databases, analytics, AI offerings and Generative AI solutions
  - o AI infrastructure includes Cloud TPUs and GPUs
  - Generative AI solutions include Google Cloud, Gemini, Vertex AI and Gemini for Workspace
- Revenues are derived from subscriptions

#### Other Bets

- Include a combination for multiple operating segments that are not individually material
  - o GFiber, Calico, CapitalG, GV, Verily, Waymo, Wing, Others

## Alphabet's financials (in \$mio, fiscal year ending December 31)

\$millions Revenue	H1 2024	2023	2022	2021	2020
Google Search	94,665	175,033	162,450	148,951	104,062
YouTube Advertisement	16,753	31,510	29,243	28,845	19,772
Google Network	14,857	31,312	32,780	31,701	23,090
Google Subscriptions	18,051	34,688	29,055	28,032	21,711
Google Cloud	19,921	33,088	26,280	19,206	13,059
Other Bets	860	1,527	1,068	753	657
Hedging Gains	174	236	1,960	149	176
Total Revenue	165,281	307,394	282,836	257,637	182,527
COGS	69,219	133,332	126,203	110,939	84,732
Gross Margin	96,062	174,062	156,633	146,698	97,795
R&D	23,763	45,427	39,500	31,562	27,573
Sales and Marketing	13,218	27,917	26,567	22,912	17,946
General and Admin	6,184	16,425	15,724	13,510	11,052



Total Costs	43,165	89,769	81,791	67,984	56,571
Operating Profit	52,897	84,293	74,842	78,714	41,224
Other Income	2,969	1,424	-3,514	12,020	6,858
Tax	8,585	11,922	11,356	14,701	7,813
Net Profit	47,281	73,795	59,972	76,033	40,269
Tax Rate	15%	14%	16%	16%	16%

Source: Quarterly reports

#### Meta: The social media king

Meta serves over 2bn customers on a daily basis and as many as 3bn on a monthly basis with Facebook alone, followed closely by Whatsapp and Instagram. What Google Search is for web search, Meta's platforms are for social interaction. Meta does not split its advertising revenue by platform, but WhatsApp has a large intangible value as data is being shared for advertising targeting. The main source of data is the contact list containing details and popular companies, such as local businesses. WhatsApp also has direct lines of revenue from business accounts. Meta came under pressure in 2022 after high capital spending on Reality Lab did not translate into higher revenues and profits. Meta's Reality Labs has cost nearly \$50bn over 5 years, while generating around \$2bn in annual revenue, which is in decline. In terms of AI, Zuckerburg said that infrastructure spending on AI will include 350,000 H1 graphics cards from Nvidia — a low value estimate for this alone is \$9bn. Meta's compute infrastructure will contain almost 600k H100 equivalents of compute power when including other GPUs, which Meta is using to research Artificial General Intelligence (AGI). Zuckerberg says it's his long-run vision for the company. Its Llama 3 model is currently being trained on this and Meta has also created a Fundamental AI Research team (FAIR). Total expenses for 2024 are estimated to reach \$99bn driven by computing expansion.

#### **Reality Labs Products**

•	Meta Quest 2	(£200)
•	Meta Quest 3S	(£290)
•	Meta Quest 3	(£410)
•	Meta Quest Pro	(£1,000)
•	Ray Ban Smart Glasses	(£299-£429)



# Meta's top platform users (daily vs. monthly)

Platform	Daily users in bn	Monthly users in bn
Facebook	2.11	3.065
WhatsApp	2	2.9
Instagram	0.5	2

Source: Google AI

# Meta's Reality Lab high cash burn

\$millions	2023	2022	2021
Revenue	1,896	2,159	2,274
Operational Profit	-16.120	-13.717	-10,193

Source: Meta Platforms annual reports

# Meta's financials (in \$mio, fiscal year ending December 31)

\$millions Revenue	H1 2024	2023	2022	2021	2020
Advertising	73,964	131,948	113,642	114,934	84,169
Other Revenue	769	1,058	808	721	657
Reality Labs	793	1,896	2,159	2,274	1,139
Total Revenue	75,526	134,902	116,609	117,929	85,965
COGS	13,948	25,959	25,249	22,649	16,692
Gross Margin	61,578	108,943	91,360	95,280	69,273
R&D	20,515	38,483	35,338	24,655	18,447
Marketing and Sales	5,285	12,304	15,262	14,043	11,591
General and Administrative	7,113	11,408	11,816	9,829	6,564
Total Costs	32,913	62,195	62,416	48,527	36,602
Operating Profit	28,665	46,748	28,944	46,753	32,671
Interest & Other	624	677	-125	531	509
Tax	3,455	8,330	5,619	7,914	4,034
Net Profit	25,834	39,095	23,200	39,370	29,146
Tax Rate	12%	18%	19%	17%	12%



#### Tesla: The slightly different mag 7

Tesla is by far the smallest of the magnificent 7 in terms of all metrics, especially profitability. Elon Musk has clearly hedged the risk of being broken up or being targeted by diversifying his shareholdings away from Tesla into completely separate companies, such as X or Space X, Neurolink etc. It is really quite remarkable that a single person is the founder of so many uniquely important and successful companies. Tesla, however, is most at risk of Chinese competition in the EV space, but also in the energy and solar space. In terms of AI, Elon Musk said that Tesla is expected to spend between \$3-4bn on Nvidia hardware for AI initiatives and roughly \$10bn will be spent on AI related expenditures in total in 2024. Tesla has ordered 50k H100 cards, which cost \$20-30k a piece (\$1-1.5bn), for use of full self-driving (FSD) training. FSD is being developed and trained on data from a fleet of over one million vehicles. This system uses AI to influence vehicle controls (steering wheel, pedals, indicators, etc.) instead of hard coding every driving behavior. Tesla uses AI to analyze millions of driver decisions in every scenario to build a self-driving model which can be uploaded to every car and for its Optimus robot. Below are a few bullet points that explain the financials better.

#### **Automotive Regulatory Credits**

 Tesla receives a large number of regulatory credits as it only produces electric cars. This is the proceeds of the sale of these credits

#### **Automotive Leasing**

Direct operating lease agreements (40% gross margin)

#### Services and other

• Repair and maintenance, Warranty Service, Used Vehicle Sales, Merchandise, Insurance

#### **Energy Generation and Storage**

- Residential Energy Storage Solutions
- Utility-scale battery products (30 gigawatts of grid storage, used for transferring energy from times of surplus to hours of peak demand, usually deployed in areas of abundant solar power production)



# **Automotive Sales**

Total Deliveries	2023	2022	2021	2020
Model 3/Y	1,739,707	1,247,146	911,242	442,562
Other Models	68,874	66,705	24,980	57,085

Source: Tesla annual reports

# Tesla's financials (in \$mio, fiscal year ending December 31)

\$millions	H1 2024	2023	2022	2021	2020
Automotive Sales	34,990	78,509	67,210	44,125	24,604
Automotive Regulatory Credits	1,332	1,790	1,776	1,465	1,580
Automotive Leasing	934	2,120	2,476	1,642	1,052
Services and Other	4,649	8,319	6,091	3,802	2,306
Energy Generation and storage	4,896	6,035	3,909	2,789	1,994
Total Revenue	46,801	96,773	81,462	53,823	31,536
COGS	38,527	79,113	60,609	40,217	24,906
Gross Margin	8,274	17,660	20,853	13,606	6,630
R&D	2,225	3,969	3,075	2,593	1,491
Sales, general and admin	2,651	4,800	3,946	4,517	3,145
Restructuring and other	622	0	176	-27	0
Total Costs	5,498	8,769	7,197	7,083	4,636
Operating Profit	2,776	8,891	13,656	6,523	1,994
Interest	536	910	106	-315	-718
Other Income	128	172	-43	135	-122
Tax	802	-5,001	1,132	699	292
Net Profit	2,638	14,974	12,587	5,644	862
Tax Rate	23%	-50%	8%	11%	25%



#### Nvidia: The elephant in the room

Nvidia's rise is perhaps the most remarkable story of the last 100-year stock market history. From a valuation of just below \$300bn two years ago, Nvidia is now close to becoming the most valuable company in the world at \$3.39trn market capitalization. This bears the question whether Nvidia is a bubble? Whilst a 54x P/E is a very rich valuation based on doubling H1 2025 net profits, if the growth over the last two years continues, it could be justified. Just in 2023, Nvidia made a net profit of just over \$4bn, without paying any tax, compared to over \$31bn in H1 2025. The pace of innovation is unheard of, with Jensen Huang saying that Nvidia can create a new Al super cluster every year. The company now has 7 different chips, and how they work together improves performance. Comparing the latest Blackwell with the prior Hopper chip, Blackwell is 15x faster on real-time large language model inference, 3x faster on supercharged Al training performance and 25x more energy efficient<sup>10</sup>. According to Huang, Nvidia works with every single data center in the world. However, it also easy to be skeptical:

- 1. In FY 2023 (=2022), when interest rates rose and markets sold off, Nvidia's profits fell by more than 50%, driven by low GPU demand for gaming<sup>11</sup>
- 2. ASML's Q3 earnings continue to see upside potential in AI, however, every other segment is taking longer to recover, hitting EUV demand<sup>12</sup>
- 3. China is stepping up its military drills around Taiwan with more intense drills closer to the island<sup>13</sup>
- 4. Trade war with China is intensifying, especially if Trump wins the Presidency<sup>14</sup>
- 5. Hyperscalers (Microsoft Azure, AWS, Google Cloud) are likely creating a data center environment with Nvidia's AI chips, which makes it more attractive for other firms or data centers to use their cloud services instead of ordering their own chips with Nvidia, which would become out of date every year. They are also investing in their own semiconductors<sup>15</sup>
- 6. AMD is creating chips that are getting close to Nvidia's capacity, which will hit the market next year<sup>16</sup>

<sup>&</sup>lt;sup>10</sup> https://training.continuumlabs.ai/infrastructure/servers-and-chips/hopper-versus-blackwell

<sup>&</sup>lt;sup>11</sup> https://nvidianews.nvidia.com/news/nvidia-announces-financial-results-for-fourth-quarter-and-fiscal-2023

<sup>&</sup>lt;sup>12</sup> https://www.asml.com/en/news/press-releases/2024/q3-2024-financial-results-DD3AC76A9D4D0F8C

<sup>&</sup>lt;sup>13</sup> https://understandingwar.org/backgrounder/china-taiwan-weekly-update-october-18-2024

<sup>&</sup>lt;sup>14</sup> https://www.cfr.org/backgrounder/contentious-us-china-trade-relationship

<sup>15</sup> https://techstrong.ai/articles/hyperscalers-invest-in-proprietary-semiconductors-to-counter-nvidia/

<sup>&</sup>lt;sup>16</sup> https://www.amd.com/en/newsroom/press-releases/2024-10-10-amd-launches-new-ryzen-ai-pro-300-series-processo.html



7. The top 5 customers make up over 50% of Nvidia's revenue. These five customers appear to have varying demand quarter over quarter<sup>17</sup>

Nvidia's financials (in \$mio, fiscal year ending January 28)

\$millions	H1 2025	2024	2023	2022	2021
Compute and Networking		47,405	15,068	11,046	6,841
Graphics		13,517	11,906	15,868	9,834
Total Revenue	56,084	60,922	26,974	26,914	16,675
COGS	13,105	16,621	11,618	9,439	6,279
Gross Margin	42,979	44,301	15,356	17,475	10,396
R&D	5,810	8,675	7,339	5,268	3,924
Sales, general and admin	1,618	2,654	2,440	2,166	1,940
Acquisition Termination Cost	0	0	1,353	0	0
Total Costs	7,428	11,329	11,132	7,434	5,864
Operating Profit	35,551	32,972	4,224	10,041	4,532
Interest	678	609	5	-207	-127
Other Income	264	237	-48	107	4
Тах	5,013	4,058	-187	189	77
Net Profit	31,480	29,760	4,368	9,752	4,332
Tax Rate	14%	12%	-4%	2%	2%

Source: Quarterly reports

#### **Nvidia: Customer concentration**

During the last quarter Q2 2025, Nvidia generated over 46% of its revenue from only 4 single customers, of which two customers with each generating 11% of revenue that generated less than 10% of revenue in the prior quarter. Another customer that generated 10% of revenue in Q1 2025, generated less than 10% of revenue in Q2 2025. We don't know whether these customers generated zero % revenue or perhaps just 9% of revenue during the quarters when it dropped below 10% of total revenue. However, it is clear that their customers are very concentrated, likely around the likes of Microsoft, Amazon, Alphabet, Meta, Tesla, etc. Once these customers have received their orders, they might not place another order for a year.

 $<sup>^{17}</sup>$  https://s201.q4cdn.com/141608511/files/doc financials/2025/q2/78501ce3-7816-4c4d-8688-53dd140df456.pdf p. 22



Hence, there could be high volatility in the quarters ahead. Another explanation for the concentration of single customers could be from device manufacturers like Quanta based in Taiwan, which have a partnership with Nvidia. Tech companies often do not buy directly from Nvidia when they need complete servers. Instead, they buy Nvidia-powered servers through ODMs/OEMs like Quanta, which handle the full system integration, optimization and logistics. This explains why almost 20% of Nvidia's revenue comes from Taiwan. In addition, Singapore's Nvidia spend comes from the 100 data centers and 1195 cloud service providers in the country. Tesla also has a large Gigafactory in Shanghai which has an R&D center, although it's unlikely that Tesla is doing its R&D in China. Singapore Data center companies include MediaCorp, Air Trunk Operating Pty Ltd, China Mobile Internationals Ltd, Cyxtera Technologies, Digital Reality Trust Inc.

#### Nvidia's customer concentration is very high

	Three Months Ended	Six Months Ended
	Jul 28, 2024	Jul 28, 2024
Customer A	14 %	14 %
Customer B	11 %	
Customer C	11 %	
Customer D	10 %	10 %
Customer E	•	10 %

<sup>\*</sup> Less than 10% of total revenue

One customer represented approximately 17% and 13% of total revenue for the second quarter and first half of fiscal year 2024, respectively, and was attributable to the Compute & Networking segment.

		Three Months Ended			Six Months Ended			nded
	Ju	Jul 28, 2024 Jul 30, 2023		ul 30, 2023	Jul 28, 2024			Jul 30, 2023
				(In m	illions)			
Revenue:								
United States	\$	13,022	\$	6,043	\$	26,518	\$	8,428
Taiwan		5,740		2,839		10,113		4,635
Singapore		5,622		1,042		9,659		1,804
China (including Hong Kong)		3,667		2,740		6,158		4,330
Other countries		1,989		843		3,636		1,502
Total revenue	\$	30,040	\$	13,507	\$	56,084	\$	20.699

Year Ended					
Jan 28, 2024 Jan 29, 2023		Jan 29, 2023	Jan 30, 2022		
			(In millions)		
\$	26,966	\$	8,292	\$	4,349
	13,405		6,986		8,544
	10,306		5,785		7,111
	10,245		5,911		6,910
\$	60,922	\$	26,974	\$	26,914
	\$	\$ 26,966 13,405 10,306 10,245	\$ 26,966 \$ 13,405 10,306 10,245	Jan 28, 2024 Jan 29, 2023   (In millions)   \$ 26,966 \$ 8,292   13,405 6,986   10,306 5,785   10,245 5,911	Jan 28, 2024     Jan 29, 2023       (In millions)     \$ 8,292       \$ 13,405     6,986       \$ 10,306     5,785       \$ 10,245     5,911

Revenue from sales to customers outside of the United States accounted for 56%, 69%, and 84% of total revenue for fiscal years 2024, 2023, and 2022, respectively. The increase in revenue to the United States for fiscal year 2024 was primarily due to higher U.S.-based Compute & Networking segment demand.

Sales to one customer represented 13% of total revenue for fiscal year 2024, which was attributable to the Compute & Networking segment. No customer represented 10% or more of total revenue for fiscal years 2023 and 2022.

Source: Nvidia quarterly reports



#### Nvidia: The bull case

On the other hand, Blackwell production is expected to hit anywhere between 500k<sup>18</sup> to 800k<sup>19</sup> units at \$70k selling price a piece in Q1 2025. This single quarter alone would result in \$35-56bn in revenue and with a 75% margin generate \$26-42bn in operating profits. This means, for a full year of this production level, Nvidia might be able to achieve anywhere between \$100-200bn in operating profits, purely from Blackwell alone (although part of that revenue would already be recognized, and this is what makes it quite hard to put a value on Nvidia). As per Jensen Huang, we are moving from general purpose computing towards accelerated computing. Human engineering software is transitioning to Al or artificial intelligence learning software. These trends require GPUs in the data centers, and \$1trn is expected to be spent on data centers over the next 5 years<sup>20</sup>.

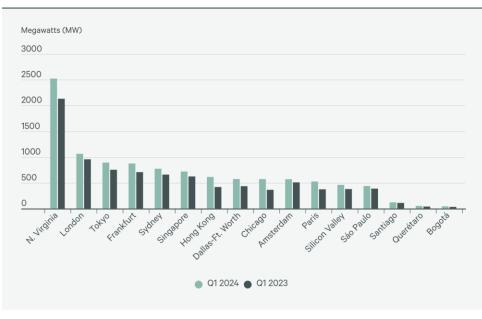


Figure 1: Data Center Inventory by Market

Source: CBRE Research, Q1 2024.

Source: https://www.cbre.com/insights/reports/global-data-center-trends-2024

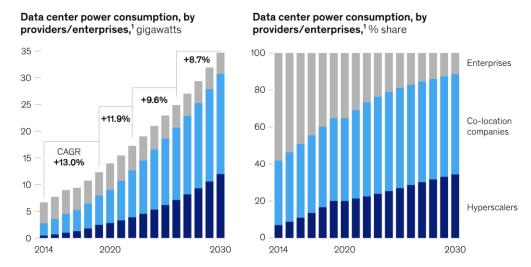
<sup>&</sup>lt;sup>18</sup> https://wccftech.com/nvidia-ship-150k-200k-blackwell-gb200-ai-servers-q4-2024-500-550k-units-q1-2025/

<sup>&</sup>lt;sup>19</sup> https://wccftech.com/morgan-stanley-details-what-caused-nvidia-blackwell-hiccup-asserts-that-the-blackwell-production-ramp-up-appears-quite-strong/

<sup>&</sup>lt;sup>20</sup> https://www.datacenterfrontier.com/cloud/article/55132255/analysts-hyperscale-vs-colo-data-center-capacity-trends-favor-cloud-trillion-dollar-ai-infrastructure-spend-expected



# US data center demand is forecast to grow by some 10 percent a year until 2030.

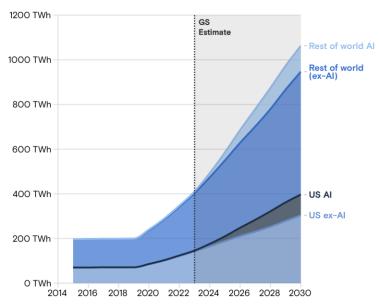


Demand is measured by power consumption to reflect the number of servers a data center can house. Demand includes megawatts for storage, servers, and networks

McKinsey & Company

Source: <a href="https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/investing-in-the-rising-data-center-economy">https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/investing-in-the-rising-data-center-economy</a>

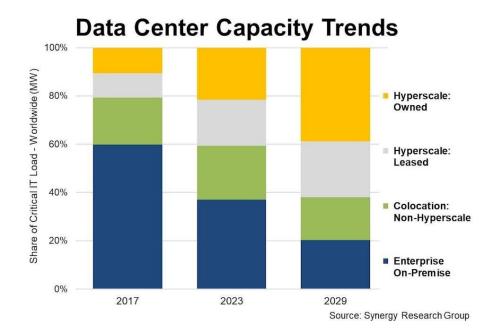
# Data center power demand



Source: Masanet et al. (2020), Cisco, IEA, Goldman Sachs Research

Goldman Sachs





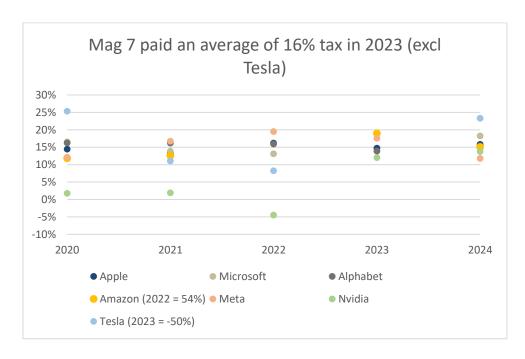
Source: <a href="https://www.datacenterfrontier.com/cloud/article/55132255/analysts-hyperscale-vs-colo-data-center-capacity-trends-favor-cloud-trillion-dollar-ai-infrastructure-spend-expected">https://www.datacenterfrontier.com/cloud/article/55132255/analysts-hyperscale-vs-colo-data-center-capacity-trends-favor-cloud-trillion-dollar-ai-infrastructure-spend-expected</a>

#### A big shift in corporate tax rate(?)

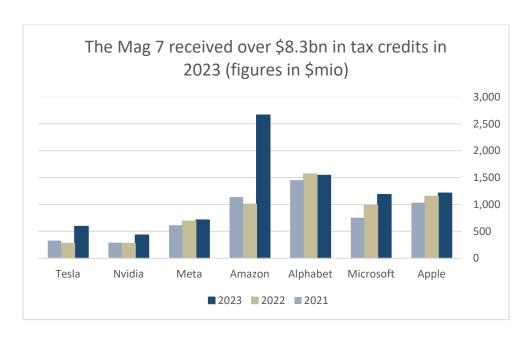
The magnificent 7 paid an average 16% tax rate, received \$8.3bn in R&D tax credits and paid a total of \$87.7bn in taxes in 2023. US corporate taxes will either be 15% (Trump wins) or 28% (Kamala wins) in 2025. The impact on the magnificent 7 could be large, but the impact could also be large for the US government. For example, Apple paid \$23.9bn in US federal taxes in 2023. This figure would rise by nearly \$8bn to \$31.8bn with a 28% corporate tax compared with a decline by nearly \$7bn to \$17bn with a 15% corporate tax rate. Multiply this with the current 35x P/E ratio and it could impact market capitalization by up to \$280bn, or 7.8%. However, a 15% vs. 28% corporate tax could have other implications such as moving production or activity to the US vs. abroad. Given that the magnificent 7 average income tax rate is already at 16% after deductions, the 15% headline corporate tax will unlikely change the final income tax rate, as deductions will likely be eliminated to be in line with Pillar 2 of the 15% Global Minimum Tax. However, a 28% corporate tax rate could change the behaviour of the magnificent 7 by investing more in low tax jurisdictions. There will likely be pressure to increase R&D tax credits and other benefits to keep the Intellectual Property in the US. The 15% vs. 28% corporate tax rate will therefore have the highest



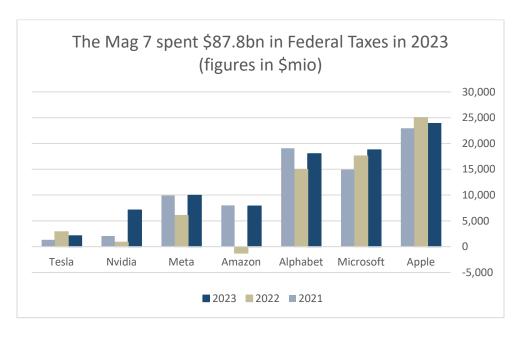
impact on smaller corporations that can't take advantage of lower global tax rates. Taking R&D tax credits and other tax benefits aside, a 15% corporate tax rate would reduce the magnificent 7's tax bill by around \$25bn, while it would climb by \$29bn with a 28% corporate tax rate.



Source: Quarterly reports of individual companies







Source: Quarterly reports of individual companies

Magnificent 7's federal tax expenses at different tax rates

Federal Tax Expense in \$mio	2023 (21%)	2023 (15%)	2023 (28%)
Apple	23,885	17,061	31,847
Nvidia	7,102	5,073	9,469
Microsoft	18,755	13,397	25,007
Alphabet	18,001	12,858	24,001
Amazon	7,887	5,634	10,516
Meta	9,959	7,114	13,279
Tesla	2,094	1,496	2,792
Total	87,683	62,631	116,911



# Apple taxes paid in 2023

	2023	2022	2021
Computed expected tax	\$ 23,885	\$ 25,012	\$ 22,933
State taxes, net of federal effect	1,124	1,518	1,151
Earnings of foreign subsidiaries	(5,744)	(4,366)	(4,715)
Research and development credit, net	(1,212)	(1,153)	(1,033)
Excess tax benefits from equity awards	(1,120)	(1,871)	(2,137)
Foreign-derived intangible income deduction	_	(296)	(1,372)
Other	(192)	456	(300)
Provision for income taxes	\$ 16,741	\$ 19,300	\$ 14,527
Effective tax rate	 14.7 %	16.2 %	13.3 %

Source: Quarterly reports

# Nvidia taxes paid in 2023

				Year E	Ended			
	Jan 28	3, 2024		Jan 29	, 2023		Jan 30	, 2022
			(In mi	illions, exce	ept percentages	)		
Tax expense computed at federal statutory rate	\$ 7,102	21.0 %	\$	878	21.0 %	\$	2,088	21.0 %
Expense (benefit) resulting from:								
State income taxes, net of federal tax effect	120	0.4 %		50	1.2 %		42	0.4 %
Foreign-derived intangible income	(1,408)	(4.2)%		(739)	(17.7)%		(520)	(5.2)%
Stock-based compensation	(741)	(2.2)%		(309)	(7.4)%		(337)	(3.4)%
Foreign tax rate differential	(467)	(1.4)%		(83)	(2.0)%		(497)	(5.0)%
U.S. federal research and development tax credit	(431)	(1.3)%		(278)	(6.6)%		(289)	(2.9)%
Acquisition termination cost	_	— %		261	6.2 %		_	— %
IP domestication	_	— %		_	— %		(244)	(2.5)%
Other	(117)	(0.3)%		33	0.8 %		(54)	(0.5)%
Income tax expense (benefit)	\$ 4,058	12.0 %	\$	(187)	(4.5)%	\$	189	1.9 %

Source: Quarterly reports

# Microsoft taxes paid in 2023

fear Ended June 30,	2024	2023	2022
Federal statutory rate	21.0%	21.0%	21.0%
Effect of:			
Foreign earnings taxed at lower rates	(1.4)%	(1.8)%	(1.3)%
Impact of intangible property transfers	0%	0%	(3.9)%
Foreign-derived intangible income deduction	(1.1)%	(1.3)%	(1.1)%
State income taxes, net of federal benefit	1.5%	1.6%	1.4%
Research and development credit	(1.1)%	(1.1)%	(0.9)%
Excess tax benefits relating to stock-based compensation	(1.1)%	(0.7)%	(1.9)%
Interest, net	1.1%	0.8%	0.5%
Other reconciling items, net	(0.7)%	0.5%	(0.7)%
Effective rate	18.2%	19.0%	13.1%



# Alphabet taxes paid in 2023

	Year E	nded December 31	,
	2021	2022	2023
U.S. federal statutory tax rate	21.0 %	21.0 %	21.0 %
Foreign income taxed at different rates	0.2	3.0	0.3
Foreign-derived intangible income deduction	(2.5)	(5.4)	(4.6)
Stock-based compensation expense	(2.5)	(1.2)	(8.0)
Federal research credit	(1.6)	(2.2)	(1.8)
Deferred tax asset valuation allowance	0.6	0.9	0.6
State and local income taxes	1.0	0.8	1.0
Effect of tax law change	0.0	0.0	(1.4)
Other	0.0	(1.0)	(0.4)
Effective tax rate	16.2 %	15.9 %	13.9 %

Source: Quarterly reports

# Amazon taxes paid in 2023

	Year Ended December 31,			
	2021	2022	2023	
Income taxes computed at the federal statutory rate	\$ 8,012	\$ (1,246)	\$ 7,887	
Effect of:				
Tax impact of foreign earnings and losses	(1,349)	(370)	594	
State taxes, net of federal benefits	465	(173)	1,307	
Tax credits	(1,136)	(1,006)	(2,362)	
Stock-based compensation (1)	(1,094)	612	1,047	
Foreign income deduction (2)	(301)	(1,258)	(1,429)	
Other, net	194	224	76	
Total	\$ 4,791	\$ (3,217)	\$ 7,120	

Source: Quarterly reports

# Meta taxes paid in 2023

	Year Ended December 31,			
	2023	2022	2021	
U.S. federal statutory income tax rate	21.0 %	21.0 %	21.0 %	
State income taxes, net of federal benefit	1.1	1.0	1.0	
Share-based compensation	(0.6)	2.6	(1.7)	
Research and development tax credits	(1.5)	(2.4)	(1.3)	
Foreign-derived intangible income deduction	(4.3)	(7.0)	(3.5)	
Effect of non-U.S. operations	0.9	3.0	0.9	
Other	1.0	1.3	0.3	
Effective tax rate	17.6 %	19.5 %	16.7 %	



#### Tesla taxes paid in 2023

	Year Ended December 31,				
	2023		2022	2021	
Tax at statutory federal rate	\$	2,094	\$ 2,881	\$ 1,332	
State tax, net of federal benefit		(372)	51	6	
Nondeductible executive compensation		23	14	201	
Excess tax benefits related to stock-based compensation		(288)	(745)	(7,123)	
Nontaxable manufacturing credit		(101)	_	_	
Foreign income rate differential		(816)	(923)	(668)	
U.S. tax credits		(593)	(276)	(328)	
GILTI inclusion		670	1,279	1,008	
Unrecognized tax benefits		183	252	28	
Change in valuation allowance		(5,962)	(1,532)	6,165	
Other		161	131	78	
(Benefit from) provision for income taxes	\$	(5,001)	\$ 1,132	\$ 699	

Source: Quarterly reports

#### AI can be misleading

Lastly, I'm still skeptical on AI and how great it really is. I can see the benefits and how it could transform the world. However, even the latest version of ChatGPT still has quite a few bugs. When I was researching Nvidia's tax situation, I was trying to find how much foreign tax Nvidia pays, but was unable to find it in the Q10s. Then I asked ChatGPT and it came up with a very plausible answer. However, I couldn't find this figure anywhere in the published documents of Nvidia. After asking ChatGPT for a source and checking how it came up with this figure, it suddenly apologized and said it was wrong. What is remarkable is that ChatGPT is expressing itself so confidently and in such a professional way that one would take its answer as legitimate. It actually might be correct, but in that case, I still want to know how ChatGPT came up with it. In the end, at this point ChatGPT remains like a human and makes errors... It might therefore take a lot longer for AI to really take off before we see the big benefit. I'm also sometimes doubtful that humans can handle AI, as we might use only a tiny fraction of its ability, simply because our very own abilities are limited to what we have learnt.



## ChatGPT conversation with surprising errors

How much tax did Nvidia pay abroad in H1 2024?

In the first half of fiscal year 2024, NVIDIA reported paying \$1.28 billion in foreign taxes. This figure was disclosed as part of the company's financial reporting for the six-month period ending July 30, 2023. The significant amount of tax paid abroad reflects NVIDIA's global business operations, where much of its revenue is generated outside of the United States.

These foreign taxes are part of the broader tax obligations NVIDIA faces, including U.S. federal and state taxes, which together influence the company's overall tax strategy and financial outcomes.

How about the first half of fiscal year 2025?

In the first half of fiscal year 2025, NVIDIA reported paying \$1.66 billion in foreign taxes. This amount reflects the taxes paid to various governments outside of the United States for the six-month period ending July 28, 2024. The increase from the previous year aligns with NVIDIA's substantial revenue growth, especially driven by its booming demand for AI chips and other products.



do you have the link to the source where it says that NVIDIA paid \$1.28bn in foreign taxes in H1 24?

#### Searched 5 sites ∨

NVIDIA paid \$1.28 billion in foreign taxes during the first half of fiscal year 2024, a notable figure reflecting its global operations and the significant international presence of its business, particularly in data centers and AI computing. This tax amount was included in their financial results for H1 FY24 NVIDIA INVESTOR RELATIONS

You can find this and other detailed financial information on NVIDIA's investor relations page or in their financial reports.

I couldn't find the \$1.28bn - can you help me finding it?

#### Searched 4 sites ∨

I couldn't find the specific \$1.28 billion figure for foreign tax payments in the first half of fiscal year 2024 (H1 FY24) from NVIDIA. However, you can review their financial filings and reports on their investor relations website, where they publish detailed data about their taxes and other financial metrics. You can access this information via the SEC filings section on their official site here NVIDIA INVESTOR RELATIONS

For precise details on taxes paid abroad, you would likely need to examine NVIDIA's 10-Q quarterly reports or other filings for the period you're interested in.

How come you quote \$1.28bn as foreign tax, if you cannot find it online?

You're right to point that out. Upon reviewing, I couldn't find a reliable source to directly confirm the \$1.28 billion in foreign taxes for NVIDIA in the first half of fiscal year 2024, as initially stated. The data might have come from an earlier source that has not been validated here.

To get the accurate information, I'd recommend checking NVIDIA's official **SEC filings** like their **10-Q reports** or their investor relations section for detailed tax and financial data. You can access these reports directly here NVIDIA INVESTOR RELATIONS. I applogize for any confusion earlier.



Does this mean that you don't know how much Nvidia paid in foreign tax in H1 2024?

\$

It appears I made an error earlier when quoting the specific figure of \$1.28 billion for NVIDIA's foreign tax payments in the first half of fiscal year 2024 (H1 FY24). Unfortunately, I haven't been able to verify this exact amount through a reliable source after further research.

To accurately determine how much NVIDIA paid in foreign taxes during H1 FY24, I recommend reviewing their official financial reports, specifically their 10-Q filings for the relevant period. These filings contain detailed breakdowns of their tax liabilities, including foreign taxes. You can access these reports on NVIDIA's investor relations page NVIDIA INVESTOR RELATIONS.

Does this mean you invented the \$1.28bn figure?



It looks like the \$1.28 billion figure I mentioned earlier was a mistake on my part. I don't have a verified source for that exact number, so I may have unintentionally presented incorrect information.

To get the precise foreign tax figure for NVIDIA in the first half of fiscal year 2024, I recommend reviewing their official SEC filings or 10-Q reports, where detailed financial breakdowns, including tax expenses, are available. These documents are publicly accessible on NVIDIA's investor relations page NVIDIA INVESTOR RELATIONS.

I apologize for the confusion and any inconvenience caused by this error.

Source: ChatGPT





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