ISSN 2959-6130

The financial and industrial situation of NVIDIA

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Abstract:

NVIDIA has been gaining the world's attention in recent years. Since its operation, it has shown great creativity and productivity. Most people in the world will come up with NVIDIA in mind when it comes to gaming GPUs. Thus, a brief introduction to this company seems significant. Previous studies have looked into technologies, investments and some specific ratios. However, few focus mainly on financial statements and the industrial environment. This passage gives insight into the income statements and balance sheets from the 2022-2024 fiscal years of NVIDIA, together with an environmental SWOT analysis. After these studies, NVIDIA has been stated to have a robust financial situation and a stable position among close competitors. NVIDIA owns the industry environment and a larger seller market. The passage also shows some of the strategies NVIDIA has adopted or is suitable for it to adopt. Further studies may be included afterwards in a more empirical way.

Keywords: NVIDIA, finance analysis, business environment.

1. Introduction

Founded in 1993, NVIDIA has been the most powerful technology company in GPUs. Those GPUs are used for edge-to-cloud computing and applications in architecture, engineering and construction, media and entertainment, and automotive [1]. The world has witnessed a surge in NVIDIA's stock price from early 2024 onwards. This signals strong investor confidence in the company. Meanwhile, NVIDIA's price-to-earnings ratio has not changed significantly, suggesting that this surge will not just be a bubble. Nowadays, the world's innovation mainly focuses on artificial intelligence (AI). In this way, strong graphics processing units (GPUs) are needed to support the process. NVIDIA was crucial in developing AI models like the Generative Pre-trained Transformer (GPT) series. People are familiar with GPT-3.5 and GPT4, and the latter now represents a significant step towards broadly useful and safely deployed AI systems [2].

In recent years, NVIDIA's financial performance has reflected its brilliant achievements in the technology industry. According to annual reports, NVIDIA's net income has increased in millions from USD 9,752 (2022) to USD 29,760 (2024). As of Aug 7, 2024, the company has USD 2.564 trillion in market capitalization, far beyond close competitors such as Intel and AMD. However, as its operation expands, greater risks and challenges will arise, especially in this era of rapid technological progress. AI technology is now developing at an exponential pace. If tech companies fail to provide enough support to keep up with these developments, there is a good chance they will fall behind the times. As a result, it is vital to study the financial data and NVIDIA's industry environment. When the performance and risks are fully discussed, the investment strategies, corporate equity, return on assets, and other factors have been studied through recent research [3, 4, 5]. Nevertheless, finding an article focused on general performance and company competitor analysis is hard. In this paper, financial and competitor analysis will be respectively discussed. Firstly, this paper will go briefly through the history of NVIDIA. Secondly, an analysis of the income and balance sheet will be presented. Thirdly, the SWOT analytical method will be used to evaluate the company. Conclusions will be drawn at the end. This paper aims to assess NVIDIA's performance from 2022 to 2024 (financial year), analyze the competing environment, and give financial suggestions.

2. Brief History of NVIDIA

NVIDIA was founded on Apr 5, 1993, in Sunnyvale, California, U.S., by Jensen Huang, who remains the company's CEO. He had worked briefly at AMD for approximately two years with Chris Malachowsky and Curtis Priem. Initially, NVIDIA did not have a name and all their files were named NV, as in 'next version'. The name NVIDIA was suggested by Huang, from 'invidia', the Latin word for 'envy' [6].

In May 1995, NVIDIA introduced its first graphics accelerator product, the NV1, the first commercially available graphics accelerator product capable of 3D rendering, video acceleration and integrated GUI acceleration. In June, NVIDIA received the first round of funding from Sequoia Capital and Sutter Hill Ventures. In July, a partnership was established with Sega to build the graphics chip for the Dreamcast video game console [7]. Due to insufficient funds, Huang fired over 50 employees and focused on developing a new graphics accelerator for the triangle primitives process [8]. In April 1997, the world's first 128-bit 3D graphics adaptor—— the RIVA 128 was released [9]. NVIDIA eventually sold about a million RIVA 128s. It is fair to say that the invention of RIVA 128 has consolidated NVIDIA's position today.

NVIDIA went public on Jan 22, 1999 [10]. GeForce 256—— the world's first GPU—— was introduced in the same year. In 2001, NVIDIA GeForce3, the first programmable GPU, was introduced, enabling developers to create customized visual effects. With annual revenues of $1 billion, NVIDIA became the fastest-growing semiconductor company in the U.S. and was included in the Nasdaq 100 and the S&P 500 [11]. From 2006-2014, in addition to maintaining the design and development of GPU products, NVIDIA began to conduct the research, development, promotion, and layout of CUDA technology to make GPU products support CUDA. Due to the vast mobile market, such as cell phones, NVIDIA attempted to open up a new market during this period, but the plan was suspended because of fierce competition. On May 6, 2016, the first GeForce 10 series GPUs were released. In May and July 2017, NVIDIA announced partnerships with Toyota and Baidu, respectively [12,13]. In recent years, NVIDIA has continued focusing on GPUs and cores. NVIDIA developed an open-source ventilator during the pandemic to deal with the shortage. In June 2024, the market capitalization of NVIDIA first reached USD 3 trillion.

3. Financial Analysis

3.1 Income Statement Analysis

Table 1. Income Statement data of NVIDIA (2022-2024) in million USD

Item	2022	2023	2024	Increase from 2022-2024 (%)	Ratios of items to revenue (2022)	Ratios of items to revenue (2023)	Ratios of items to revenue (2024)
Revenue	26,914	6,974	60,922	126.36%	100%	100%	100%
Cost of revenue	9,439	11,618	16,621	76.09%	35.07%	43.07%	27.28%
Gross profit	17,475	15,356	44,301	153.51%	64.93%	56.93%	72.72%
Operating expenses	7,434	11,132	11,329	52.39%	27.62%	41.27%	18.60%
Operating income	10,041	4,224	32,972	228.37%	37.31%	15.66%	54.12%
Net income	9,752	4,368	29,760	205.17%	36.23%	16.19%	48.85%

As for the income statement, this paper will use horizontal and vertical analysis.

3.1.1 Horizontal analysis

As shown in Table 1, it is easy to find the change in revenue, gross profit and net income from 2022 to 2024. Revenue grew by 126,36%, from USD 26,914 to 60,922 million. Gross profit grew by 153.51% from 17,475m to 44,301m. Meanwhile, operating income and net income will be more than three times as in 2024 as in 2022. These significant growths can be attributed to several factors. First, the significant revenue growth can be attributed to the strength of Data Center revenue, which is 47.5 billion dollars in 2024 and grew twice more year on year. Higher shipments of the NVIDIA Hopper GPU computing platform and InfiniBand can be an explanation. Second, the broader adoption of the NVIDIA DRIVE Orin AI car computer has earned about 1 billion in NVIDIA's automotive revenue. In addition, the notable rise in net income likely reflects effective cost management and operational efficiencies. NVIDIA's strategic decisions and strong performance in key areas drove its financial success between 2022 and 2024. Compared with its performance in 2024, the low revenue and income situation in 2023 should be noticed. Due to economic decline, geopolitical conflicts, and a product supply chain shortage, NVIDIA operated hard that year [14]. However, the recession has not been fatal to NVIDIA, so people can observe such great success in 2024.

3.1.2 Vertical analysis

The vertical analysis of NVIDIA's revenue composition from 2022 to 2024 shows distinguished improvements in financial efficiency. Gross margin has increased from 64.93% to 72.72%, reflecting its enhanced ability to control production costs and manage expenses effectively. High-margin segments like computing and networking went twice the revenue of 2023, which may contribute to the gross margin increase. Operating margin rose from 37.31% to 54.12%, indicating improved efficiency in generating profit from operations. Lastly, the profit margin grew from 36.23% to 48.85%, demonstrating NVIDIA's better sales conversion into net income. These gains underscore NVIDIA's successful strategies in cost management, revenue diversification, and operational optimization. As mentioned in the horizontal analysis, higher shipments of the NVIDIA Hopper GPU computing platform and InfiniBand have helped computing and networking earn a lot more revenue and income. From this, readers can tell that technological advances can bring a company back to life.

3.2 Financial Statement Analysis

Table 2. Key Information in balance sheet of NVIDIA

				Increase or (Decrease) During 2022-2023		Increase or (Decrease) During 2023-2024	
ITEMS	2022	2023	2024	Amount	Percentage	Amount	Percentage
Total current assets	28829	23073	44345	-5756	-19.97%	21272	92.19%
Intangible assets, net	2339	1676	1112	-663	-28.35%	-564	-33.65%
Total assets	44187	26772	65728	-17415	-39.41%	38956	145.51%
Accounts payable	1783	1193	2699	-590	-33.09%	1506	126.24%
Long-term debt	10946	9703	8459	-1243	-11.36%	-1244	-12.82%
Total liabilities	17575	19081	22750	1506	8.57%	3669	19.23%
Total shareholders' equity	26612	22101	42978	-4511	-16.95%	20877	94.46%

Table 2 shows that current assets reduced by -19.97% from 2022-2023, mainly due to decreasing marketable securities. NVIDIA said 2023 was a challenging year, and the decrease might make it more difficult to raise funds. In 2024, the situation improved, and current assets experienced a surge. In both years, intangible assets saw a modest decrease. This reduction might reflect amortization or impairment of certain intangible assets, calling NVIDIA to focus more on innovation. Total assets fell slightly but rose significantly during the process, which shows NVIDIA's great energy. For liabilities, NVIDIA has paid a lot payable in 2023 and gained more in 2024. However, As a company grow in size and operation, such an increase is inevitable. Long-term debt has continued declining in these years, helping with NVIDIA's capital structure. Eventually, total liabilities did not grow significantly. Because of the fierce environment in 2023, shareholders' equity saw a horrible decline. Fortunately, NVIDIA managed to turn the corner. NVIDIA's balance sheet from 2023 to 2024 shows robust asset and equity growth, revealing successful expansion and a healthy financial situation.

3.3 Financial Ratio Analysis

3.3.1 Profitability ratios

From Table 1, vertical analysis shows great growth in gross profit margin, operating margin, and net margin. So details will not be repeatedly discussed. These figures show that NVIDIA's profitability has improved recently and can also increase investor confidence.

3.3.2 Liquidity ratios

Table 3. Liquidity ratios of NVIDIA

Liquidity	2022	2023	2024
Current ratio	6.65	3.52	4.17
Quick ratio	6.05	2.73	3.67

For current and quick ratios (Table 3), 2022 ranks first, and 2023 remains the lowest. A high current and quick ratio can mean good liquidity, but sometimes, the company has too much money stranded in current assets, which may affect its profitability. It is widely believed that 2.0 is a healthy value for the current ratio, but sometimes it depends on the industry.

3.3.3 Solvency ratios

Table 4. Solvency ratios of NVIDIA

Solvency ratio	2022	2023	2024
Operating cash flow ratio	6.65	3.52	4.17

The operating cash flow ratio is used to describe NVIDIA's solvency. (Table 4) It equals the quotient of net cash flow from operating divided by current liabilities. In all three years, the ratio is far beyond 1, suggesting it is easy for NVIDIA to cover the debts by operation.

3.4 Competitor Analysis

Table 5. Liquidity and solvency ratios of NVIDIA, AMD and Intel

Company name	Current ratio	Quick ratio	Operating cash flow ratio	Debt to asset ratio
NVIDIA	4.78	4.15	1.86	40.24%
AMD	2.66	1.93	0.51	17.21%
Intel	1.74	1.35	0.63	43.08%

In this passage, AMD and Intel are chosen as close competitors of NVIDIA. They all focus on core technology and AI fields. As is shown in the table 5, NVIDIA outpaces its competitors in current and quick ratios, which means it may have better liquidity (if not too much) than AMD and Intel. Regarding the operating cash flow ratio, AMD and Intel are below 1, suggesting it is hard for them to pay current debts with simple operations. It is a dangerous signal. AMD's debt-to-asset ratio is the lowest among the three companies, and times interest earned is the highest. This means AMD has a robust financial situation with lower risk than the others.

Table 6. Profitability ratios of NVIDIA, AMD and Intel

Company name	Net margin	Asset turnover	ROE
NVIDIA	48.85%	1.14	91.46%
AMD	3.43%	0.17	0.69%
Intel	-8.18%	0.13	-1.80%

NVIDIA shows unbelievable competence towards AMD and Intel in all three profitability ratios. (Table 6) A high rate of return on common stockholders' equity suggests that NVIDIA's stockholders get good rewards on equity. A high net margin can contribute to this. Besides, the relatively high asset turnover shows that NVIDIA takes on lower risk, resulting in higher output.

4. SWOT Analysis on NVIDIA

SWOT (strengths, weaknesses, opportunities, threats) analysis includes four dimensions to evaluate a company internally and externally [15].

Table 7. SWOT matrix of NVIDIA

		Strengths	Weaknesses
		1.Good innovation, with the most powerful GPUs all over the world	1 Revenue depends too much on gaming and data centre, whose market fluctuation may result in serious effects
		2. Businesses include a wide range of gaming, professional visualization,automotive, and data centers	2. The complex supply chain is vulnerable to geopolitical and trade tensions, which could affect NVIDIA's production capacity.
Opportunities		Strategies	
Threats			

Readers can easily see the strengths and weaknesses of NVIDIA in Table 7. The strengths are mainly internal. Besides, a super strong financial situation is also a comparable strength (not mentioned in the matrix). Meanwhile, weaknesses include both internal and external (political) factors. According to these Ss and Ws, NVIDIA may carry out strategies that will eventually open up opportunities or avoid threats. For example, NVIDIA may develop applications suitable for other favored industries, such as healthcare, to avoid relying too much on gaming or databases. It did. NVIDIA has introduced cloud-native services to help developers with AI and accelerated applications, including healthcare NIMs for drug discovery, medical technology, and digital health. This is called an opportunity-weakness strategy. Additionally, NVIDIA can take threat-weakness strategies such as saving healthy inventories to avoid sudden shortages. However, readers should be aware that SWOT is more of a tool for people to gain knowledge of the environment. It cannot be the basis for strategic planning [16].

5. Conclusion

This study finds that NVIDIA has shown excellent robustness in recent years regarding liquidity, solvency, and profitability, although there will be a shortfall in 2023 for various reasons. Unlike the previous impression, NVIDIA's various financial indicators stand out among its competitors with a definite advantage over its rivals rather than an even competitive relationship. In addition, this study finds that apart from geopolitics, which can affect NVIDIA's production, all other determinants lie in NVIDIA's creative ability. Thus, it can be claimed that NVIDIA is a veritable technology company.

This paper uses a financial analysis to analyze NVIDIA's financial position for the fiscal year 2022-2024 and to gather NVIDIA's strengths and weaknesses to complete a SWOT analysis. These ways of research, on the one hand, allow the reader to understand the environment NVIDIA faces more quickly; on the other hand, the results are more intuitive.

This paper does not use empirical analysis and other ways to produce a detailed treatment of the data, nor does it analyze the financial data of competitors one by one. Meanwhile, the industry in which NVIDIA is located is also volatile. Future research can be further refined on the above research to conduct research.

References

[1] Jiawen Zhang. Research on Development Strategy of NVIDIA Company . Lanzhou: Lanzhou University, 2012.

[2] Achiam J, Adler S, Agarwal S, et al. Gpt-4 technical report. arXiv preprint arXiv:2303.08774, 2023.

[3] Chen, S. Research on Nvidia Investment Strategies and Analysis. Highlights in Business, Economics and Management, 2024, 24, 2234-2240.

[4] Gameiro, Pedro Miguel Rodrigues. Equity Research: Nvidia Corporation. MS thesis. Universidade de Lisboa (Portugal), 2018.

[5] Yun Qian, Teh. A Study on Nvidia Corporation in United States: Performance and Its Determinants. SSRN 4694757, 2024.

[6] Nusca Andrew. This Man Is Leading an AI Revolution in Silicon Valley—And He's Just Getting Started. Fortune. 2017.

[7] Cohen, Ben. The 84-Year-Old Man Who Saved Nvidia. The Wall Street Journal. 2024.

[8] Witt, Stephen. How Jensen Huang's Nvidia Is Powering the A.I. Revolution. The New Yorker. 2023.

[9] Tilley, Aaron. The New Intel: How Nvidia Went From Powering Video Games To Revolutionizing Artificial Intelligence. Forbes. 2023

[10] NVIDIA. NVIDIA Corporation Announces Initial Public Offering of 3,500,000 Shares of Common Stock. nvidia.com.

1999.
[11] NVIDIA. Nvidia Corporate Timeline. nvidia.com. 2024
[12] Alexandria Sage. “Nvidia says Toyota will use its AI technology for self-driving cars”. Reuters. 2017.
[13] Vena, Danny. “NVIDIA and Baidu Join Forces in Far-Reaching AI Partnership”. The Motley Fool. 2017.
[14] NVIDIA. 2024 NVIDIA Corporation Annual Review. https://investor.nvidia.com/financial-info/annual-reports-and-proxies/default.aspx. 2024.
[15] Pickton D W, Wright S. What’s swot in strategic analysis?. Strategic change, 1998, 101-109.
[16] Sammut-Bonnici, Tanya, David Galea. SWOT analysis. Wiley Encyclopedia of management. 2015, 1-8.