

Analysis Of Nvidia's Financial Performance Based on Dupont Analysis Method

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Abstract. This study employs the DuPont analysis method to evaluate the financial performance of NVIDIA Corporation from 2020 to 2025, focusing on its Return on Equity (ROE) and its key drivers: Net Profit Margin (NPM), Asset Turnover (TAT), and Equity Multiplier (EM). Amid the rapid growth of the AI, data center, and gaming industries, NVIDIA has emerged as a global leader in GPU and AI computing, with its revenue surging from \$10.918 billion in 2020 to \$130.5 billion in 2025. The analysis reveals that ROE increased from 25.82% to 119.18%, driven primarily by significant improvements in NPM (25.61% to 55.85%) and TAT (0.71 to 1.47), despite a conservative EM (1.42 to 1.45). The study highlights NVIDIA's strong profitability and operational efficiency in the AI boom, but also identifies risks such as supply chain disruptions, competitive pressures, and market volatility. Recommendations include optimizing supply chains, accelerating technological innovation, and diversifying market strategies to sustain long-term growth. Supported by comparative insights from studies on banking and insurance, this research provides valuable implications for investors and industry stakeholders.

Keywords: DuPont analysis; NVIDIA; financial performance; AI industry; supply chain management.

1. Introduction

In recent years, the rapid development of the global artificial intelligence, data center and gaming industries has promoted the prosperity of the semiconductor industry. Nvidia, as a leading global provider of graphics processor units (GPUs) and AI computing platforms, has been prominent in this technology wave, with revenue and market capitalization continuing to rise. However, the semiconductor industry faces supply chain tensions and geopolitical risks such as Sino-US trade frictions, which increase the operating pressure of NVIDIA.

DuPont analysis is chosen as the main tool in this study, which is a classical method to evaluate corporate profitability and return on shareholders' equity, and to evaluate corporate performance from a financial perspective. This method decomposes the return on net assets (ROE) into net Profit margin (NPM), asset turnover (TAT) and equity multiplier (EM), and then deeply analyzes the profitability, operational efficiency and financial leverage level of the enterprise.

This study focuses on Nvidia's financial performance between 2020 and 2025, aiming to evaluate its return on net assets and its key drivers through DuPont analysis, analyze the company's performance in asset efficiency, profitability, and other indicators, and then reveal its growth factors in the AI industry boom, and provide decision-making reference for investors and industry observers. The research motivation stems from the concern for the financial resilience of high-tech enterprises under global economic uncertainty, especially in the context of AI-driven growth, NVIDIA's profit model and asset management strategy have important reference value. Studies have shown that DuPont analysis is effective in assessing both bank profitability after mergers and acquisitions [1] and factors driving insurance sector stock returns [2], so it has theoretical and practical implications for Nvidia financial analysis. Additionally, comparative studies on firms like HUL and ITC highlight the importance of balancing ROE components, offering insights into how diversified financial strategies can enhance resilience in volatile markets [3].

The research content covers the following aspects: (i) An overview of NVIDIA's development history and current economic situation. (ii) Analyze financial ratios such as net sales rate, asset turnover rate and equity multiplier by DuPont analysis method. (iii) Evaluate trends in return on

equity (ROE) and their drivers. (iv) Take risk response measures. (v) Summarize the results of the study and make recommendations. Subject:

2. Nvidia's Basic Information

2.1. Nvidia's Development History

NVIDIA Corporation was founded in Santa Clara, California in 1993 by Jensen Huang, Chris Malachowsky and Curtis Priem. Nvidia has focused on graphics processing unit (GPU) development since its inception and strives to improve computer graphics performance to meet gaming and multimedia needs. In 1999, GeForce256 was introduced by the company and it was known as the "world's first GPU", thus pioneering modern graphics processing technology. Nvidia relies on this product to establish a leading edge in the game graphics market and become a benchmark company in the game hardware field.

In the 2000s, NVIDIA further broadened the application scenarios of GPU with technological innovation. In 2006, the company launched The Computer Unified Device Architecture (CUDA) is an architecture that transforms GPUs from graphics-only tools into general-purpose computing platforms, greatly increasing their potential in the high-performance computing space. The rise of AI and deep learning was laid by this technology. In the 2010s, artificial intelligence technology developed rapidly, so NVIDIA shifted its strategic focus to the AI and data center markets. In 2016, the company launched the DGX-1AI supercomputing platform, which is dedicated to deep learning model training and reasoning and widely used in scientific research and business fields, marking NVIDIA officially becoming a leader in AI computing.

2.2. Nvidia's Business Status

In 2020, Nvidia announced its intention to acquire ARM for \$40 billion, hoping to integrate ARM's low-power chip architecture to further expand its presence in the mobile device and Internet of Things markets. Although regulatory resistance prevented the deal from being negotiated, it reflected Nvidia's intention to expand in the chip industry. 2020-2025 In 2010, NVIDIA continued to focus on AI, gaming, autonomous driving, and meta-universes and introduced high-performance AI chips such as H100 and A100 to meet the huge training needs of generative AI (such as ChatGPT). The AI boom has driven Nvidia's market value up rapidly, with Yahoo Finance data showing that its market value reached \$2.71 trillion by January 26, 2025, making it one of the highest market capitalizations among global technology companies.

Nvidia's operating conditions (see Figure 1 and Figure 2):

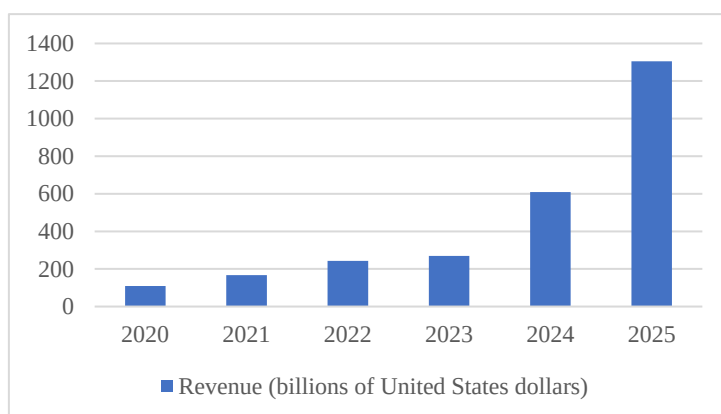


Fig. 1 Nvidia's Revenue From 2020 to 2025

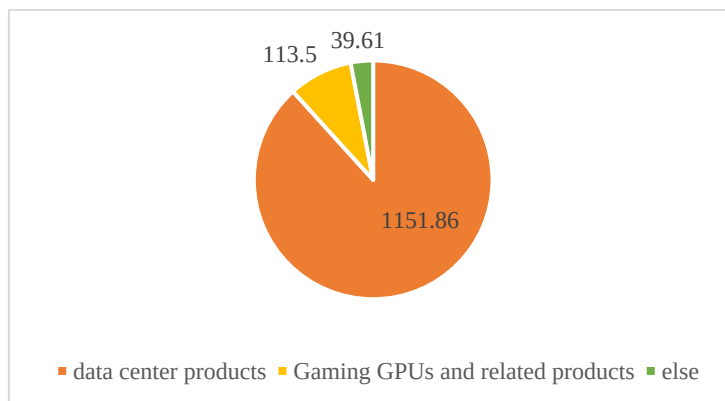


Fig. 2 Nvidia's Income Distribution

As of January 26, 2025, Nvidia is in strong business condition. According to Yahoo Finance data, companies' revenue for fiscal year 2025 reached \$130.5 billion, up 77.90% from the previous year, indicating significant growth momentum. 2020-2025 Nvidia's revenue grew rapidly from \$10.918 billion in 2020 to \$130.50 billion in 2025 at a significant CAGR of 64% over the course of 2020. AI and data center business growth is the main driver of this growth, revenue growth in 2024-2025 is particularly fast, reflecting the company's market leadership in the AI boom.

From the perspective of business structure, NVIDIA's revenue mainly comes from data center products, gaming GPU and related products, and other businesses. In FY2025, revenue from data center products accounted for 88.27% of total revenue, revenue from gaming GPU and related products accounted for 8.70%, and revenue from other businesses (such as autonomous driving and meta-universe related products) accounted for 3.04%. The absolute dominance of the data center business has expanded further, thanks to strong demand for AI chips such as the H100 and A100. According to Statista data, NVIDIA's share of the global GPU market remains above 80%, with major competitors including AMD and Intel. Although the proportion of gaming business has declined, it still provides a stable source of revenue for the company, while other businesses reflect the company's potential in emerging areas.

In terms of profitability, NVIDIA has demonstrated excellent performance. Figure 3: Gross margin chart shows that NVIDIA's gross margin has steadily increased from 62.32% in 2020 to 75.00% in 2025. This trend shows that companies have significantly improved profitability by increasing the proportion of high-value-added products such as AI chips. However, Nvidia also faces certain challenges: geopolitical risks (such as export restrictions to China) lead to some market constraints, and supply chain issues (such as TSMC capacity constraints) may affect production efficiency. In addition, the Company has cash reserves of \$4.321 billion ("Total Cash") and a low debt level ("Total Debt/Equity" of only 12.95%), demonstrating a sound financial position.

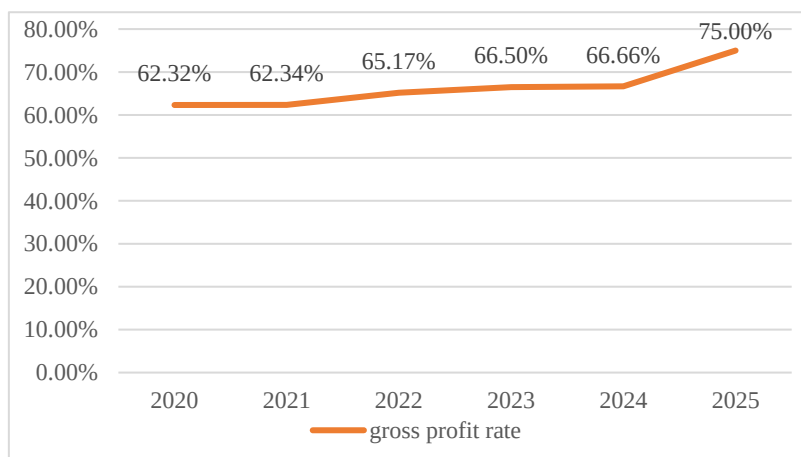


Fig. 3 Nvidia's Gross Profit Rate From 2020 to 2025

3. Nvidia's Financial Analysis

3.1. Analysis of Net Profit Margin on Sales

Net Profit Margin is an indicator of the profitability of an enterprise per unit of revenue. The calculation formula is: $\text{Net Profit Income} \div \text{Revenue}$.

Table 1. Net Profit Margin on Sales and Gross Profit Rate of Nvidia from 2020 to 2025

fiscal year	net profit margin on sales	gross profit rate
2020	25.61%	62.32%
2021	25.98%	62.34%
2022	40.19%	65.17%
2023	16.19%	66.50%
2024	48.85%	66.66%
2025	55.85%	75.00%

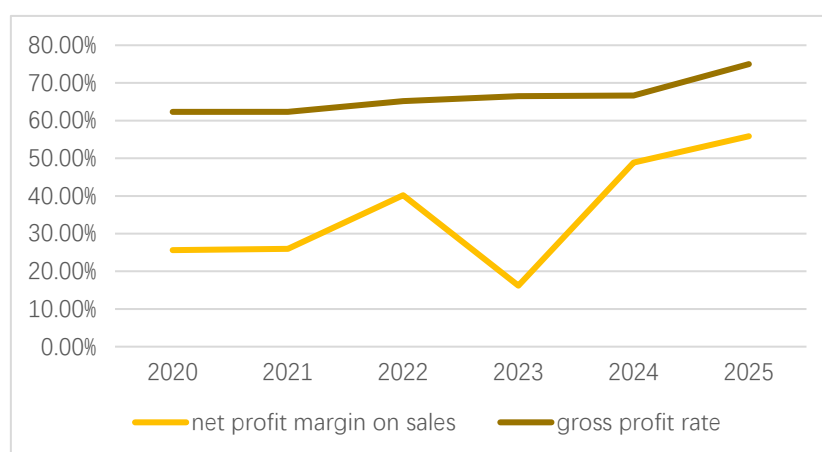


Fig. 4 The Trends of Net Profit Margin on Sales and Gross Profit Rate of Nvidia from 2020 to 2025

Nvidia's net margin on sales increased from 25.61% in 2020 to 55.85% in 2025 (see Table 1), but declined significantly in 2023 (16.19%). From 2020 to 2021, net profit margin on sales remained stable (25.61% to 25.98%) (see Figure 4), indicating that the company-maintained profitability through growth in its gaming and data center businesses in the early stages of the pandemic. There was a significant increase of 40.19% in 2022, which was due to the outbreak of AI demand, as revenue from the data center business (including A100 chips) grew rapidly and gross profit margin increased from 62.34% in 2021 to 65.17%, indicating that high value-added products contributed. The 16.19% decline in 2023 was mainly due to a global chip shortage and a decline in gaming revenue, as well as higher costs caused by supply chain disruptions in the late stages of the epidemic, which compressed profit margins. In 2024-2025, the new highs were achieved by the rapid recovery of net sales margin, reaching 48.85% and 55.85%, because the proportion of data center business further expanded, reaching 88.27% in fiscal year 2025, and the strong demand for high-end AI chips such as H100 promoted both revenue and profit growth, so gross profit margin also increased to 75%, which indicates that the company has strong competitiveness in high value-added areas. Studies found similar results for manufacturing firms, noting that the key driver of ROE growth is higher net profit margins on sales, particularly in high value-added product markets [4]. Additionally, research in the paper industry has demonstrated the effectiveness of DuPont analysis in assessing profitability across different sectors, providing a broader context for NVIDIA'S financial strategy [5]. However, high net sales margins are not without potential risks, as research and development costs remain high (almost 20%-25% of revenue) and supply chain issues need to be addressed. Research on Pfizer points out that high R&D spending may squeeze net interest rates, so Nvidia has to rely on cost control to ensure profitability sustainability [6]. A 2023 study further suggests that the impact of net profit margin on

equity returns may vary across sectors, as net profit margin (NPM) does not have a significant impact on returns in the insurance industry, so NVIDIA needs to focus on industry-specific earnings drivers [2].

3.2. Asset Turnover Analysis

The efficiency with which a firm's assets generate revenue can be measured by asset turnover, which is calculated by $\text{Revenue} \div \text{Average Total Assets}$. The asset turnover rate reflects the operational efficiency and asset management capability of an enterprise (see Table 2 and Figure 5).

Table 2. Nvidia's Asset Utilization Efficiency from 2020 to 2025

fiscal year	Revenue (billions of United States dollars)	Average total assets (billions of US dollars)
2020	109.18	153.04
2021	166.75	230.53
2022	242.68	364.89
2023	269.74	426.85
2024	609.22	534.55
2025	1305	886.65

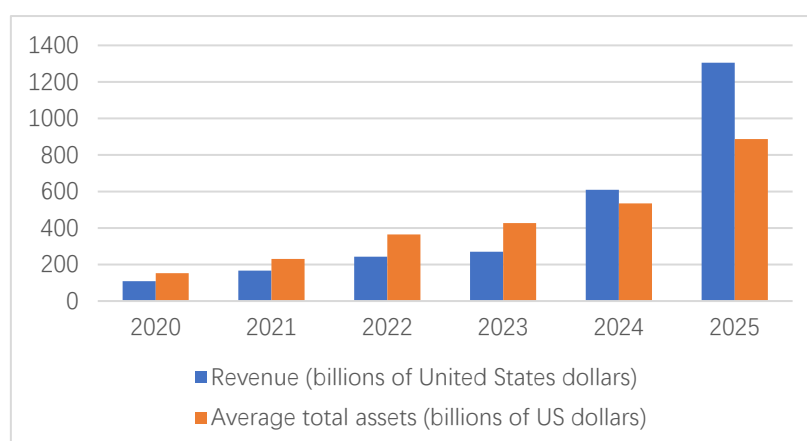


Fig. 5 Nvidia's Trends of Asset Utilization Efficiency from 2020 to 2025

Nvidia's asset turnover rose significantly after fluctuations between 2020 and 2025, falling from 0.71 in 2020 to a low of 0.63 in 2023, and then rising rapidly to 1.47 in 2025. From 2020 to 2021, asset turnover remained relatively stable (0.71 to 0.72), indicating that the company effectively utilized assets through the growth of its gaming and data center businesses in the early stages of the pandemic. In 2022-2023, turnover ratios decreased to 0.66 and 0.63 respectively, mainly due to production constraints caused by supply chain disruptions during the pandemic and a decrease in asset utilization efficiency. In 2024-2025, turnover rates climbed rapidly to 1.14 and 1.47, thanks to the rapid development of the data center business, with revenue reaching US\$60.922 billion in 2024 and soaring to US\$130.50 billion in 2025, while average total assets were US\$88.665 billion in 2025, and its growth trend was relatively flat, reflecting the significant improvement in asset utilization efficiency of the company. Research found that the increase of asset turnover rate in A-share catering enterprises has a significant positive effect on ROE, which is consistent with these results [7]. An insurance industry study also noted that asset turnover (TATO) has a significant positive impact on stock returns, and NVIDIA's high TATO again demonstrates its operational efficiency during peak AI demand periods [2]. Moreover, comparative studies on asset efficiency using DuPont analysis across industries, such as in the paper sector, reinforce the importance of optimizing asset turnover for sustained financial performance [5]. However, attention should be paid to supply chain risk and inventory backlog risk, and asset turnover may be under downward pressure if AI demand weakens in the future. A study noted in the Samsung case that supply chain disruptions can significantly affect

asset turnover and that NVIDIA needs to strengthen supply chain management to maintain efficiency [8].

3.3. Equity Multiplier Analysis

Equity multiplier measures the financial leverage of an enterprise and is calculated as: $\text{Average Total Assets} \div \text{Average Shareholders' Equity}$. Equity multiplier reflects the ability of a firm to amplify shareholder returns through debt financing, and also reveals the level of financial risk (see Table 3 and Figure 6).

Table 3. Nvidia's of Bebt Repayment Ability From 2020 to 2025

fiscal year	Average total assets (USD 100 million)	Average Shareholder Equity (USD billion)
2020	153.04	107.73
2021	230.53	145.49
2022	364.89	217.53
2023	426.85	243.57
2024	534.55	325.4
2025	886.65	611.53

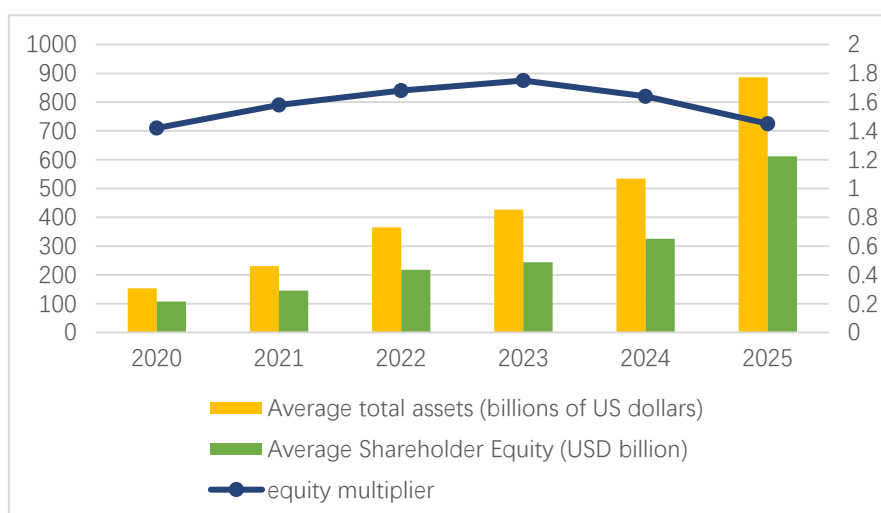


Fig. 6 Nvidia's Trends of Bebt Repayment Ability

NVIDIA's equity multiplier rose first and then fell between 2020 and 2025, rising from 1.42 in 2020 to 1.75 in 2023, then fell back to 1.45 in 2025. From 2020 to 2023, equity multipliers continued to rise, indicating that companies responded to funding needs by increasing debt financing during the pandemic, particularly peaking at 1.75 in 2023, likely to support R&D investment and supply chain adjustments. However, in 2024-2025, as shareholder equity grew rapidly (average shareholder equity reached \$61.153 billion in 2025), equity multipliers fell to 1.64 and 1.45, reflecting the company's greater reliance on internal cash flow and equity financing rather than debt financing.

The low equity multiplier ("Total Debt/Equity" of only 12.95% in 2025) indicates Nvidia's strong financial soundness and adequate cash reserves (\$4.321 billion in 2025), but also limits the room to amplify ROE through leverage. Nvidia's leverage levels are conservative compared to the semiconductor industry average (equity multipliers typically range from 1.5 to 2.0), suggesting the company is more focused on financial soundness than aggressive expansion. A bank performance analysis notes that lower equity multipliers generally reflect prudent management of financial risk, consistent with NVIDIA's strategy [9]. A Greek bank M&A study found that high equity multipliers (such as Alpha Bank's 93.10) can lead to financial leverage runaway, and Nvidia's low leverage strategy helps reduce similar risks [1].

3.4. Analysis of Return on Net Assets

Return on equity (ROE) is the core index to comprehensively measure the profitability, asset efficiency and financial leverage of enterprises. The calculation formula is: $ROE = \text{net interest rate on sales} \times \text{asset turnover} \times \text{equity multiplier}$. By decomposing ROE, it is possible to clearly understand the contribution of each factor to shareholder returns (see Table 4 and Figure 7).

Table 4. Return om Equity and Its Components for Nvidia (2020-2025)

fiscal year	net profit margin on sales	asset turnover ratio	equity multiplier
2020	25.61%	0.71	1.42
2021	25.98%	0.72	1.58
2022	40.19%	0.66	1.68
2023	16.19%	0.63	1.75
2024	48.85%	1.14	1.64
2025	55.85%	1.47	1.45

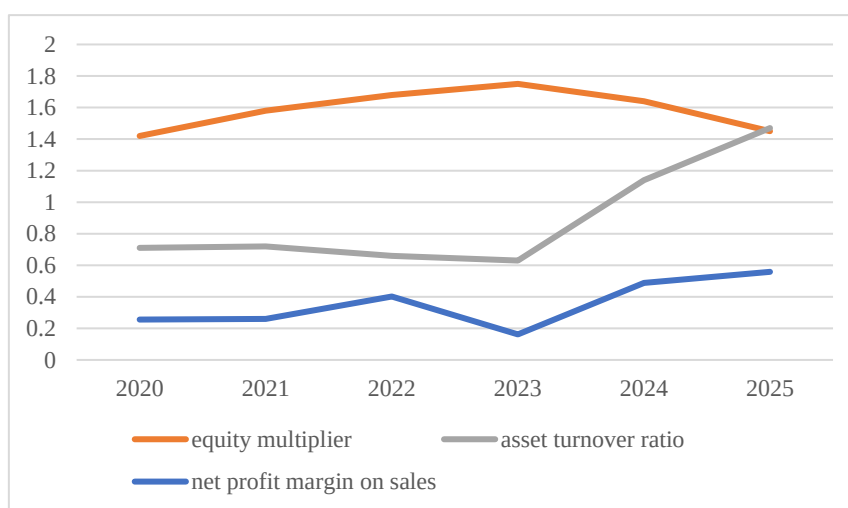


Fig. 7 Revenue Trends of Nvidia

NVIDIA'S ROE showed a significant growth trend between 2020 and 2025, from 25.82% in 2020 to 119.18% in 2025, but there was a low point in 2023 (17.85%). From 2020 to 2022, ROE increased from 25.82% to 44.55%, driven primarily by an increase in net margin on sales (25.61% to 40.19%), with a slight decrease in asset turnover (0.71 to 0.66), partially offset by an increase in equity multipliers (1.42 to 1.68). ROE fell to 17.85% in 2023, mainly due to a decline in both net profit margin on sales and asset turnover (16.19% and 0.63), despite an equity multiplier peak of 1.75, which could not withstand a decline in profitability and operational efficiency. In 2024-2025, ROE rebounded rapidly to 91.36% and 119.18%, mainly due to significant improvements in net profit on sales (55.85%) and asset turnover (1.47), with a small contribution from equity multiplier (1.45), indicating that the company maximized shareholder returns through profitability and operational efficiency rather than relying on high leverage.

Research suggests that social media use may indirectly increase net sales margins by increasing brand influence and market demand, and NVIDIA's brand effect in the AI segment may also drive its ROE growth [10]. An insurance industry analysis found that ROE increases are strongly correlated with synergies in asset turnover and equity multipliers, as evidenced by NVIDIA's high ROE [2].

4. Nvidia's Development Proposals

4.1. Consolidate Profitability

Nvidia's net margin on sales grows from 25.61% in 2020 to 2025 55.85%, gross profit margin also increased to 75%, reflecting the high value-added characteristics of data center business (AI chip).

It is recommended that the company continue to increase investment in R & D of AI and high-end computing products and optimize product portfolio to maintain high gross profit margin. At the same time, R & D and operating costs are controlled to avoid margin declines due to supply chain fluctuations or geopolitical constraints, such as export restrictions to China. Earnings stability can be enhanced by reducing dependence on a single supplier, such as TSMC, by working with multiple suppliers, such as expanding with Samsung or Intel.

4.2. Improved Asset Efficiency

The asset turnover ratio increased from 0.71 in 2020 to 1.47 in 2025, indicating that the company significantly improved asset utilization efficiency through rapid expansion of its data center business in 2024-2025. However, the low turnover rate for 2020-2023 suggests that the risk of supply chain disruption remains a concern. It is recommended to further optimize inventory management and production processes to reduce overstock caused by demand fluctuations; shorten accounts receivable cycles and improve cash flow turnover through flexible credit policies; and invest in automated production equipment to reduce labor and logistics costs, thus maintaining efficient asset operation capacity during peak AI demand periods.

4.3. Prudent Management of Leverage

NVIDIA's equity multiplier remains low (1.45 in 2025), indicating that the company relies on internal cash flow and equity financing rather than debt, and financial risk is low. However, low leverage also limits the room to amplify ROE through debt. On the basis of maintaining low leverage, it is suggested to moderately use low-cost debt financing to support long-term strategic projects, such as building new chip manufacturing plants or acquiring technology-based enterprises, so as to accelerate market layout. However, it is necessary to be alert to the possibility that rising global interest rates may increase the financial burden, and it is recommended to hedge risks through fixed-rate loans or interest-rate derivatives to ensure financial flexibility.

4.4. Diversified Market Layout

Geopolitical risks (such as Sino-US trade friction) pose a threat to Nvidia's export business, especially in the China market, where the revenue share is still high. It is suggested to accelerate the production and sales layout in Southeast Asia (such as Vietnam and Thailand) and Europe (such as Germany and Netherlands), establish localized supply chain and R & D center, and reduce dependence on single market. At the same time, explore cooperation with local governments or enterprises to obtain policy support, diversify geopolitical risks and ensure stable growth of global market share.

4.5. Strengthen Competitive Response:

In the face of increasing competition from AMD, Intel and AI chip startups, NVIDIA needs to maintain its technology leadership. It is recommended to accelerate technology iteration and launch higher performance AI chips (next generation H200 or new architecture) to consolidate market dominance. At the same time, explore emerging fields such as meta-universe, quantum computing and edge computing, expand application scenarios through mergers and acquisitions or strategic alliances (such as cooperation with Meta or Google), and seize future growth points. In addition, intellectual property protection should be strengthened to prevent technology from being imitated by competitors and maintain long-term competitiveness.

5. Conclusion

NVIDIA's financial performance from 2020 to 2025 was evaluated in this study using DuPont analysis, focusing on return on equity (ROE) and the factors driving it. The study showed that NVIDIA's ROE increased from 25.82% to 119.18%, which is much higher than the semiconductor industry average (generally between 20% and 30%). This growth was driven mainly by improvements in net profit margin on sales and asset turnover.

The data center business accounted for 88.27% in fiscal year 2025, which has strong profitability, leading to an increase in net profit margin from 25.61% to 55.85% and a simultaneous increase in gross profit margin to 75% in 2025. Asset turnover increased from 0.71 to 1.47, indicating significant improvement in asset utilization efficiency through efficient operations in 2024-2025. Equity multipliers have been low (1.45 in 2025), reflecting reliance on internal cash flow and equity financing, ensuring financial soundness but limiting leverage-driven ROE growth.

In general, Nvidia has demonstrated strong profitability and operational efficiency to establish its leadership position in the market during the AI boom. However, high ROE and market expectations pose valuation risks, and increased competition and geopolitical uncertainty may challenge future development. High R&D costs could squeeze profit margins, while controlling indirect costs could enhance profitability. Strengthening brand marketing could further solidify its market position. Based on this analysis, Nvidia is advised to stabilize profitability by optimizing cost structure, improve asset efficiency through supply chain management, manage leverage with low-cost debt for strategic projects, diversify market layout to mitigate geopolitical risks, and accelerate technology iteration to maintain leadership. These recommendations aim to ensure Nvidia's competitive advantage and long-term growth in a rapidly changing market environment.

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