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Market Valuation Analysis of NVIDIA Stock

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Abstract. NVIDIA is a semi-conductor company that designs and sells graphics processors. In recent years, its shares have traded at a premium to peers. This essay aims to analyze the market valuation of NVIDIA stock from both quantitative and qualitative perspectives and make recommendations for the company's stock traders.

Keywords: NVIDIA; stock; capital market; valuation.

1. Introduction

The semi-conductor industry plays an magnificent role in the technological advancement and industrial restructuring in current society (Huang and Pan, 2015). Founded in January 1993, NVIDIA is a semiconductor company that designs and sells graphics processors, headquartered in Santa Clara, California, USA. The company owns 26,196 full-time employees and $65.728 billion in assets. In multimedia software design and manufacturing, NVIDIA's self-developed data centre and accelerated computing platform are the core technologies of the industry's products, symbolizing the cutting-edge technology of the construction and operation of the meta-universe of industrial Internet applications. Since the last three fiscal years, NVIDIA's stock price has been high compared to its peers. In fiscal 2021, the stock price rose slightly from a low of $129.90 to $329.85 as the company announced measures to mitigate the impact of a global chip shortage and reported better-than-expected earnings. In fiscal 2022, the share price fell sharply from a peak of $276.92 to $124.66 due to a broad economic downturn and increased competition from other technology companies. In fiscal year 2023, with the improvement of capital market conditions and the successful expansion of NVIDIA's emerging business market, the stock price climbed rapidly from a low of $146.14 to a peak of $893.98. This essay will analyze the market valuation of NVIDIA's stock from both quantitative and qualitative aspects, while putting forward relevant suggestions for traders of the company's stock by evaluating financial indicators such as balance sheet, price-to-earnings ratio, price-to-book ratio and operating strategies such as flat management structure, industry position and emphasis on AI technology application.

2. Quantitative Analysis

2.1. Researches

Regarding quantitative analysis, Vatin (2013) believes that valuation determines the present value of a company's assets. Determining a company's stock valuation can help investors make informed decisions, assist companies in formulating capital operation strategies and assist managers in business analysis. According to NVIDIA's financial report (2023), NVIDIA's operating income in fiscal year 2023 was $22.103 billion. Gross profit was $16.791 billion, while EBITDA reached $14.106 billion. The Chartmill platform (2024) shows earnings per share of $5.16 for the year ending December 2023, which is 11.28% higher than expected. The company's share price traded at a median price of $755.05. The market capitalization of NVIDIA continues to climb over $2.3 trillion at the same period. The above operating conditions fully show that from the investors' perspective, NVIDIA's stock is a valuable investment product, the company's market value and revenue continue to increase, and the low debt ratio of the operation is the source of investor confidence. In addition, NVIDIA's enterprise

value is calculated to be more than $2.2 trillion, which is the sum of the company's market capitalisation and total debt minus cash or cash equivalents. The P/E ratio is 73.93, which is the company's share price to its earnings per share. The P/B ratio is 50.71, which is the ratio of the company's stock price per share to its net asset value per share. Moreover, the ratio of enterprise value to company revenue is equal to 99.53, while the ratio of enterprise value to EBITDA is equal to 150.02. According to the financial report of TSMC (2023), the asset scale of TSMC, which is vital in the semiconductor field, reached 171.16 billion US dollars, the operating income was 19.495 billion US dollars, and the EBIT profit was 9.912 billion US dollars. According to Chartmill (2024), the market value of TSMC is $727.237 billion, the stock price is $140.22, the earnings per share is $1.43, the price-earnings ratio is 26.97, and the price-to-book ratio is 6.38. By calculation, TSMC's enterprise value is $1.06 trillion. As a result, TSMC's revenue and EBIT are lower than NVIDIA's; at the same time, TSMC's asset size is nearly twice that of NVIDIA, and TSMC's major evaluation market valuation indicators are significantly lower than NVIDIA's. According to INTEL's financial report (2023), INTEL, which operates similarly to NVIDIA in the semiconductor field, has assets of $191.572 billion, an operating income of $54.228 billion, and an EBIT profit of $16.401 billion. According to Chartmill (2024), INTEL's market value is $176.857 billion, its stock price is $41.83, its earnings per share is $0.63, its price-earnings ratio is 106.56, and its price-to-book ratio is 1.70. After calculation, INTEL's enterprise value is 233.43 billion US dollars. As a result, INTEL's EBIT is similar to NVIDIA's, and its operating income and asset size are higher than NVIDIA's, but its market capitalization and EPS are lower than NVIDIA's. Furthermore, the average price-to-book ratio, price-to-earnings ratio and EV/EBITDA of listed companies in the semiconductor industry are 60.88, 3.39 and 18.13, respectively. The EV and EBITDA values of NVIDIA, INTEL and TSMC are calculated, respectively, and the valuation multiples are 155.96, 14.23, and 100.95, respectively. Analysis of comparable companies based on valuation multiples for NVIDIA, INTEL, and Alcoa has a market capacity of $3.58 trillion, $0.25 trillion, and $1.07 trillion, respectively. Among these data, the market value of NVIDIA is significantly higher than the valuation of the other two companies, which may be because NVIDIA has mastered the core technology of building data centres and the cutting-edge technology of operating the meta-universe. However, while valuation methods based on ratios such as P/E, P/B, and EV/EBITDA are helpful for investors, valuation calculations heavily depend on the company's recent financial metrics. Changes in market demand and supply chain losses can affect valuation multiples in the short term, increasing the risk of investor behaviour. Therefore, NVIDIA is an overvalued high-tech enterprise with a certain degree of bubble valuation in the capital market. Investors have high risks in NVIDIA's investment behaviour.

2.2. Data Analysis

Table 1. Three scale data comparing

Company Name	Industry	Market Capitalization (Billion $)	Asset (Billion $)	Sales (Billion $)	Reason for Selection
NVIDIA	Semi-conductor & Technology	2,300.00	65.73	22.10	Subject Company
INTEL	Semi-conductor & Technology	176.85	191.57	54.23	Similar Market Presence
TSMC	Semi-conductor & Technology	727.24	171.16	19.50	Comparable Product Lines

Table 2. Three financial data comparing

Company Name	Earnings Per Share (Dollar)	Price Per Share (Dollar)	P/E Ratio	P/B Ratio	EBITDA (Billion $)	EV (Billion $)	EV/EBITDA
NVIDIA	5.16	755.05	73.93	50.71	14.10	2200.00	155.96
INTEL	0.63	41.83	106.56	1.70	16.40	233.43	14.23
TSMC	1.43	140.22	26.97	6.38	9.91	1060.00	100.95

Table 3. Three quantitative data and industry average comparing

Metric	NVIDIA	INTER	AA	Industry Average
P/E Radio	73.93	106.56	42.37	60.88
P/B Radio	50.71	1.70	1.28	3.39
EV/EBITDA	155.96	15.28	-17.45	18.13
Market Valuation	3580.00	250.00	1070.00	-
Conclusion	Overvalued	Undervalued	Undervalued	N/A

3. Qualitative Analysis

In terms of qualitative analysis, Favero et al. (2020) proposed that the quality of a company's internal management is reflected in the current stock price. Beyond the traditional hierarchical enterprise management system, NVIDIA has set the industry standard for flat management. As the company's founder, Mr Jen-hsun Huang (2020) believes that a flat management structure allows NVIDIA to spread information quickly and react more efficiently when technological change comes, which is essential for a technology-driven company. A flat management structure dramatically reduces the communication distance between a technology-driven company and front-line employees. Improving the speed of information transmission is the key to improving the efficiency of internal operations, which is conducive to improving the company's reaction speed and decision-making ability in the face of major events. Yasir et al. (2017) stated that buyers in the capital market are more likely to favour a flat management structure because such an organisational structure tends to mean higher productivity. As a result, flat management could lead to an inflated valuation for NVIDIA. However, INTEL is also in the semi-conductor industry, advocates creating an accessible working environment but pays more attention to ensuring the discipline of employees (Yik et al.,2019). The hierarchy of upper and lower positions in INTEL has not negatively affected the organisation's operational efficiency. In contrast, INTEL has managed itself well despite the global recession and industry regulation, with no loss of efficiency. In addition, although the signature design of a flat management structure such as group discussions that replace the supervisor relationship, can be effective in the short term to make everyone on the same level of understanding of information, it does not seem very easy to achieve sustainable goals in the long term. Additionally, NVIDIA focuses on the application of artificial intelligence technology in programming, and AI is considered the most critical application technology in the 21st century (Naphade et al., 2017). The company's design team is keen to combine AI with applications such as games, an innovative move in the AI industry to integrate the upstream and downstream industry chains. At the same time, the company's public relations team has worked hard to make NVIDIA the flagship enterprise of the 21st-century AI industry, and these technical achievements and publicity effects have extensively promoted the company's stock price. In addition, investors' fanatical pursuit of rapid profit growth and the public's curiosity about the AI industry have further promoted the rise of NVIDIA's share price. However, although the growth of NVIDIA's share price reflects NVIDIA's technical leadership and market leadership in AI, this short-term rapid growth comes from the industry dividend brought by the current capital market. It may highlight the risk of overvaluation caused by speculative investments, as it is still determined how long the capital dividend from AI technology will be sustainable. In addition, the strengthening of regulation on the application of AI technology by government functional departments and the weak global economic growth may promote the development of the AI industry to face more uncontrollable factors, further increasing the risk brought by speculative investment. As a result, NVIDIA's overvalued market cap could pose decision-making challenges for investors and capital markets for a more extended period.

4. Summary

In conclusion, this essay argues that NVIDIA's market value is overvalued. It applies the financial indicators and market comparison of INTEL and TSMC as an example, combined with the flat management structure, AI technology innovation, NVIDIA's industry position, and other

management hot spots through quantitative and qualitative analysis. It is worth noting that NVIDIA's high market capacity is undoubtedly a positive and valuable achievement. However, it also faces some challenging valuation bubble risks and should appropriately reduce its market valuation in the future. Regulatory tightening and the global economic downturn may cause NVIDIA's market value to oscillate in the next few years. However, due to the significance of the semiconductor industry to technological advancement and NVIDIA's leading role in the industry, the company's market value will remain considerably.

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