

Financial Analysis of the Stock and Company Performance of the Technology Industry

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Abstract. Rapid advancements in artificial intelligence (AI) and big data fuel the technology industry's growth. Many technology companies find new opportunities to create groundbreaking technological innovations through AI. This paper offers a comprehensive financial analysis of three major technology companies- Meta Platforms Inc., Nvidia Corp., and Alphabet Inc. - to evaluate the best investment opportunities within the industry by interpreting company data and growth potential. These companies' growth potential and financial health are evaluated through ratio analysis, such as market, profitability, and risk ratios, and technical analysis, through momentum analysis. The findings highlight Meta's initiative of the Metaverse and the integration of its AI, Nvidia's dominance in AI-driven hardware and chips, and Alphabet's AI products and diverse revenue streams. The overall conclusion highlighted all three companies' long-term value, but Nvidia stood out among the three companies as it has shown expansive company growth and extensive future outlooks in a vastly AI-driven industry. This analysis aims to illustrate the changing technological landscape and to provide investors with informed investment decisions.

Keywords: Technology Industry, Stock Performance Analysis, Growth Analysis, Ratio Analysis, Artificial Intelligence.

1. Introduction

The technology industry is one of the fastest-growing industries [1]. With the new potential of artificial intelligence, many companies in the industry are finding new ways to push the limits and capitalize on initiatives and expansions [2]. This paper aims to evaluate and analyze the stock performance of three companies in the technology industry: Meta Platforms Inc., Nvidia Corp., and Alphabet Inc., three of the largest technology companies, to conclude the best investment decision based on various financial analysis methods. The methods used in this analysis include ratio analysis by analyzing the market ratios, profitability ratios, and risk ratios, as well as technical analysis using momentum investing. This analysis is important to help better understand the stock landscape of the technology industry.

2. Overview of Methodology

2.1. Ratio Analysis

Ratio analysis uses market, profitability, and risk ratios, such as the price-to-earnings ratio (P/E Ratio) or price/earnings-to-growth ratio (PEG Ratio), to determine a company's financial health and overall performance. By comparing financial data, a company's growth becomes clearer [3]. Investors can better understand the company's various aspects, such as its liquidity, solvency, profitability, and competition.

2.1.1. Market Ratios

Market ratios, such as the P/E Ratio and the price-to-book ratio (P/B Ratio), are used and analyzed by value investors who strive to find different stocks that are undervalued according to specific metrics [4]. Stocks with a P/E Ratio of less than ten or a P/B Ratio of less than 1 to 2 would be attractive to value investors. The P/E Ratio of a company is found by dividing the market price of a

stock by its earnings per stock, while the P/B Ratio is found by dividing the stock price by its book value of equity.

An income investor, a type of investor focused on generating regular income, would look at a company's dividend yield. For any stock, income investors generally look at those with around 3-4%, as the 10-year treasury yield is stagnant at around 4%, which, if greater than the dividend yield, would be more reliable.

Growth investors are interested in a company's PEG ratio. Growth investors invest in stocks expected to grow above the industry average and can gauge this growth to an extent if the PEG Ratio is less than 1 [5].

2.1.2. Profitability Ratios

Profitability ratios evaluate a company's ability to profit from certain aspects of its model. For instance, the Return on Assets (ROA) calculates the percent of profit a company makes based on its assets. In contrast, the Return on Equity (ROE) calculates the profit percent of a company based on its shareholders' equity. Typically, the market average for the ROA of a company is around 5%, and the market average for the ROE is around 10%. Thus, a ratio investor usually invests in a company with a higher ROA than 5% and a higher ROE than 10%.

The Asset Turnover Ratio of a company is another good indicator of its profitability. The Asset Turnover Ratio indicates the ability and effectiveness of a company to generate revenue using its assets. This ratio is calculated by dividing the total sales by the total assets. This calculation lets investors see how easily an asset can be converted into a sale.

A company's Profit Margin measures profitability by dividing the Net Income by the Net Sales. Thus, this calculates the profit a company maintains per dollar of revenue. A frequently used metric is to consider a Profit Margin of around 10% as usual and healthy, while 5% is considered low and 20% is considered high.

2.1.3. Risk Ratios

Risk ratios calculate a company's risk relative to the market. A company's market capitalization measures its total stock value and compares its size with others in the same industry. Those with a higher market cap have more market weight and thus have more influence on the market.

Another metric used in calculating the risk of a company is its debt ratio. A high debt ratio indicates that a company has financial risk and high leverage. The comparison between the debt and assets of a company illustrates the amount of debt a company owes, which increases the risk factor investors take into account.

The beta of a company measures its volatility in comparison to the market. A base value of 1 means that a company changes in price at the same rate as the market, while anything above 1 means it is more volatile and likely to change compared to the market. As a result, those with high beta values are more prone to market fluctuations.

2.2. Technical Analysis

Technical analysis evaluates stocks by considering a company's market trends, patterns, and signals to predict future prices [6]. One such method used is momentum investing, where investors compare the simple moving averages of a company, which is essentially the average price of a stock over a specific period. In particular, momentum investors compare the stock price or its 50-day moving average to the 200-day moving average. If either is more significant than the 200-day moving average, the stock is bullish or on an uptrend. On the other hand, if those values are lower than the 200-day moving average, the stock is in a bearish or downtrend.

3. Fundamental Analysis

3.1. Global Macroeconomic Environment

The global macroeconomic environment is critical in shaping financial markets [7]. During the 2020 pandemic, many families could save money and make large purchases through the aid of the U.S. government and limited spending opportunities. However, due to the ongoing political conflicts in Europe and the Middle East generating uncertainty, economic growth is hindered, and global food and fuel supplies are disrupted [8]. Additionally, the lockdowns in China are causing supply chain issues [9]. Along with economic disparities across different regions, the mismatch between the high consumer demand and constrained supply has caused increased inflation and a higher consumer price index.

3.2. Financial Industry Environment

The finance industry creates thousands of data daily from many financial businesses, such as crowdfunding platforms, wealth management and asset management platforms, and mobile payment platforms [10]. With more data every day, management and efficiency of finances are becoming a requirement. As a result, big data and AI improvements have allowed for improvements in financial data storage, management, and analytics [11]. Through the increased use of big data, insights and conclusions can be drawn from data models at an unprecedented rate, and the risks of such rewards have decreased [12]. Big data can improve the risk of financial models such as return predictions, volatility forecasts, and market valuations [10]. As a result, implementing big data has allowed for more accurate, informed, and data-driven results in financial markets and increased efficiency and robustness [13].

4. Company Overview

4.1. Meta Platforms Inc.

Meta Platforms, Inc. is a corporation that develops social media apps like Facebook, Instagram, and WhatsApp. Meta makes money by selling advertisement space on its platforms and products, such as Meta Quest. Like other technology companies, Meta has also become involved in the AI market by developing its own AI language model, LLaMA (Large Language Model Meta AI) [14]. From this model, they created an open-sourced AI called Meta AI. Meta has also implemented AI in its social media apps, such as Instagram, providing a better user experience. In terms of outlook, Meta has a vision to grow its Metaverse and create a virtual reality of the world. By blending virtual and augmented realities, users of the Oculus Quest can enter an immersive virtual world. A big-picture goal of Meta would be for everything to convert to the Metaverse, such as virtual workspaces. The vision of Meta creates an outlook that appears to have big things in store for the future.

4.2. NVIDIA Corp.

Nvidia Corporation has capitalized on the growing demand for artificial intelligence by leveraging its advanced GPU technology and becoming a leading force in the AI market. The company has reached over \$2 trillion market capitalization and is among the world's most valuable companies. Nvidia used to market to the video gaming industry, where they developed highly sophisticated and durable GPU chips needed for high-performance and smooth gaming. However, in the wake of the growing need for AI in most industries, Nvidia GPUs proved highly suitable for AI training and inference. Taking advantage of this, Nvidia expanded its data centre operations. By supplying GPUs to multiple data centres that house invaluable data, they were able to address the growing demand for its products. By doing this, Nvidia broadened its market reach and inserted itself into the evolving AI industry.

4.3. Alphabet Inc.

Alphabet Inc. has taken the initiative in the growing AI market as well. Through AI, they are trying to grow their revenue in three main areas: advertising, cloud services, and subscriptions. Alphabet is investing much money into AI infrastructure to support its plan. Due to their company size, they can secure Nvidia GPUs, which gives them a competitive edge in the AI market. Furthermore, they can utilize AI to improve existing products and services, such as Google Cloud, which now supports most generative AI startups and unicorns. Alphabet has also launched its AI model, Gemini, and a new AI premium plan with Gemini Advanced, a high-margin subscription-based initiative. Alphabet also purchased the right to data owned by Reddit to use this data to improve their AI technology. Through these opportunities, Alphabet is increasing its market share, improving customer service, and expanding profitability through AI-powered innovations.

5. Comparative Analysis

5.1. Market Ratios

Table 1. Market Ratios of the Three Companies

Company	P/E Ratio	P/B Ratio	Dividend Yield	PEG Ratio
META (Meta Platforms Inc.)	24.94	8.03	0.20%	1.18
NVDA (Nvidia Inc.)	48.28	43.38	0.02%	1.11
GOOGL (Alphabet Inc.)	21.65	6.17	0.13%	1.02

A value investor finds stocks that appear to be undervalued in price: they invest in a stock if the price-to-earnings (P/E) ratio is less than 10. According to the data in Table 1, all three companies have a P/E ratio way above 10. Thus, these stocks would not attract the value investor. Similarly, a value investor uses a price-to-book (P/B) ratio of less than 1 or 2. All three companies would not meet this criterion as they have a P/B ratio that is way larger than 2.

An income investor looks at the dividend yield to provide constant income through a company's dividends. However, looking at the current 10-year treasury yield, which is around 4% for the U.S., income investors would not be interested in all three companies as their dividend yields are minimal compared to the 10-year treasury yield.

A growth investor looks at a company's P/E-to-earnings per share growth (PEG) ratio, which shows a company's growth. Usually, a growth investor only invests in a stock with a PEG ratio lower than 1, and thus Meta and Nvidia would not attract the growth investor, but since Alphabet's PEG ratio is extremely close to 1, a growth investor would potentially look to invest in it.

5.2. Profitability Ratios

Table 2. Profitability Ratios of the Three Companies

Company	ROA (Return on Assets)	ROE (Return on Equity)	Asset Turnover Ratio	Profit Margin
META (Meta Platforms Inc.)	22.34%	33.58%	0.65	34.34%
NVDA (Nvidia Inc.)	55.26%	123.77%	0.93	55.04%
GOOGL (Alphabet Inc.)	15.96%	30.87%	0.76	26.70%

A company's return on assets (ROA) measures its profitability based on its assets. Typically, ratio investors are looking for companies with an ROA greater than 20%, considered phenomenal, while a 5% ROA is considered good. Thus, according to the data provided in Table 2, while Alphabet has a good ROA, Meta and Nvidia have outstanding ROAs.

Similarly, the return on equity (ROE) of a company calculates the efficiency of a company in generating profits through shareholders' equity. The market average for ROE is around 10%, and ratio investors look for companies with ROEs above 15%. Table 2 points out that all three companies have an ROE above 15%, so a ratio investor would be attracted to all three stocks.

The asset turnover ratio indicates the ability and effectiveness of a company to generate revenue using its assets. Table 2 concludes that Nvidia has the highest asset turnover ratio of the three companies, indicating its ability to generate sales using its resources. Meta and Alphabet have asset turnover ratios similar to their industry averages.

The profit margin represents a company's profitability by calculating the percent of profit it keeps per dollar of revenue. By noting the profit margins from Table 2, Nvidia has a high-profit margin of around 55%, meaning that they keep around half of their revenue as profit. Meta and Alphabet also have good profit margins at around 34% and 27%, respectively.

5.3. Risk Ratios

5.3.1. Market Cap Analysis (Meta)

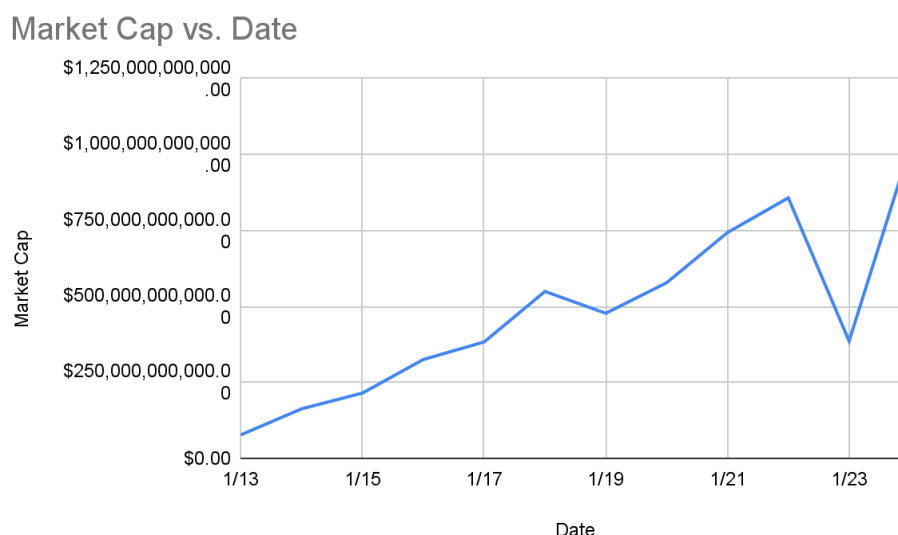


Figure 1. Market Cap of Meta Platforms Inc.

As shown in Fig. 1, Meta's market cap has grown extensively from 2013 to 2024. It has solidified itself as one of the world's biggest and, thus, least risky stocks, crossing the \$1T market cap range early in 2024. Other than a big drop in 2022, Meta's market cap has grown steadily due to the good management of its resources and constant growth. Meta's growth has also been due to its involvement in AI. Implementing open-source AI in its social media platforms adds a new level to the possibilities it can implement into its apps—the growth potential of Meta as a company has allowed it to expand continually.

5.3.2. Market Cap Analysis (Nvidia)

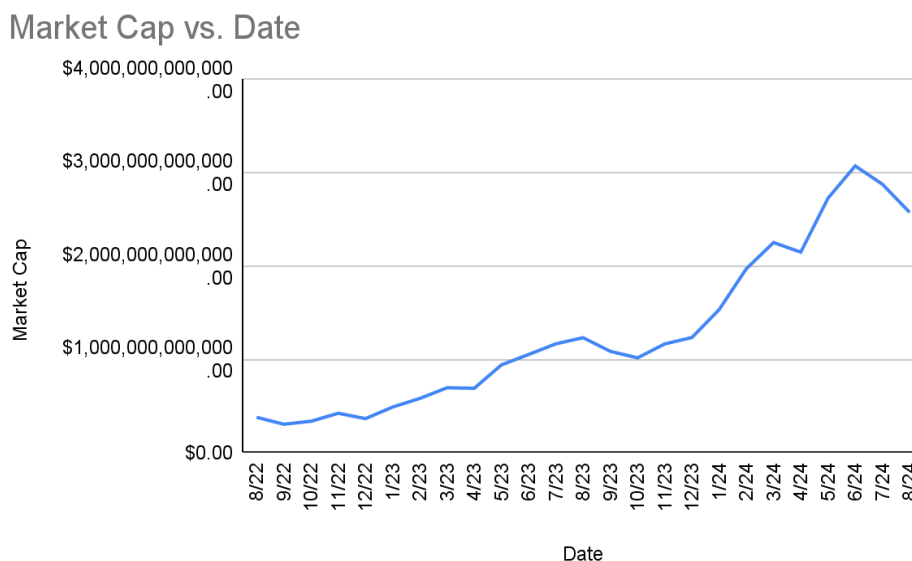


Figure 2. Market Cap of Nvidia Corp.

As illustrated by Fig. 2, over two years, Nvidia's market cap has grown from around \$380 billion to over \$2.5 billion, totalling a compound annual growth rate of approximately 160.3%. Furthermore, their year-over-year (YoY) revenue growth is over 200%, and many of their financial reports have grown immensely compared to their industry average. Nvidia's continuing investments in research and development (R&D) have allowed the company to grow and innovate in AI, deep learning, and GPU architecture.

5.3.3. Market Cap Analysis (Alphabet)

Alphabet Inc. vs. S&P 500

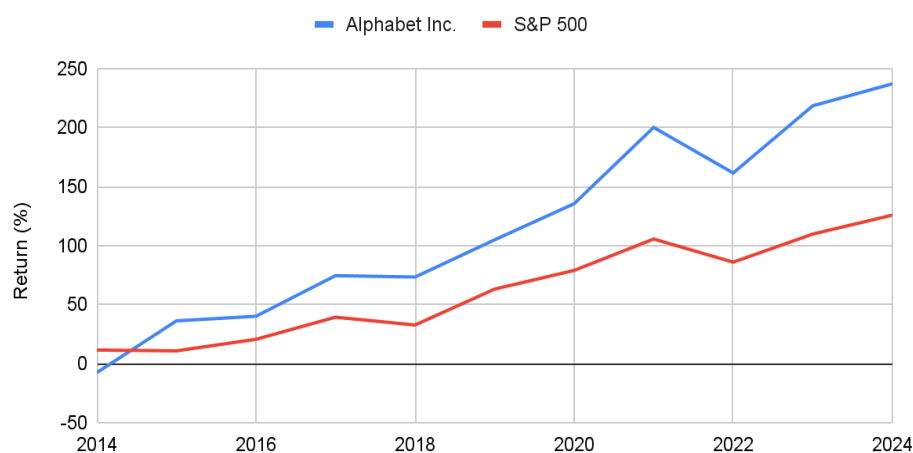


Figure 3. Alphabet Inc. vs. S&P 500 Return Comparison

In Figure 3, the stock return rate of Alphabet is compared to the S&P 500 return rate. By 2024, the return rate of Alphabet's stock is almost double that of the S&P 500, showing immense growth. Especially since 2022, when the AI market began to grow exponentially, did Alphabet show growth? Alphabet shows enormous investments in the AI market, such as the highlighted acquisition of Reddit's data to bolster its data capabilities for AI. Alphabet's future shows promise, as not only is its market share in the AI market expanding, but it also shows massive potential with Google Cloud, which has amassed a good portion of the market share within this initiative.

5.3.4. Debt Ratio Analysis

Table 3. Debt Ratios of the Three Companies

Company	Debt Ratio
META (Meta Platforms Inc.)	0.165
NVDA (Nvidia Inc.)	0.168
GOOGL (Alphabet Inc.)	0.071

All three of these companies have low debt ratios. A debt ratio is considered good if it is below 0.4, and all three of these companies have extremely low debt ratios, signifying low leverage and financial risk. Thus, analyzing the data in Table 3, there is little risk involved when investing in each of these three companies.

5.3.5. Beta Analysis

Table 4. Betas of the Three Companies

Company	Beta
META (Meta Platforms Inc.)	1.21
NVDA (Nvidia Inc.)	1.67
GOOGL (Alphabet Inc.)	1.04

All three companies have a higher beta than 1, indicating their stock price is more volatile than the market average. Table 4 illustrates that while Meta and Google have betas slightly above the market average, Nvidia's beta is much larger, raising concerns about its volatility.

5.4. Market Position and Growth Drivers

Meta Platforms Inc. has grown its social media presence immensely. By implementing AI in its apps, Meta increases its dominance in the social media landscape. Furthermore, with the increase in the popularity of many of its products, such as Instagram, Meta can generate and grow its advertisement revenue [15].

Nvidia Corporation has established itself as an AI and data centre market leader [16]. As one of the most suitable and durable GPUs, many large companies, including Alphabet, rely on Nvidia as a supplier. With the AI outlook limitless, Nvidia's potential as a company seems to continue to grow.

Alphabet has also positioned itself well in the growing market of AI through advertising, cloud services, and subscriptions. Using Nvidia GPUs, Alphabet has a competitive edge over other companies trying to gain market share in the AI market. Gemini, Google's own generative AI model, is used by millions globally, as Google already has a large audience of users using its search engine.

5.5. Stock Performance

Meta has shown its ability to rebound from lows and capitalize on opportunities. Since its low in 2022, Meta has been able to recover from its low and grow its business by starting new initiatives. Now, it is at a high once again and has solidified itself as a top technology company. Its initiatives in creating a Metaverse have allowed unlimited potential in the coming years. By analyzing Meta's 200-day and 50-day moving averages and its current stock price, a momentum investor would conclude that Meta's stock price is bullish because both its 50-day moving average and current price are above the 200-day moving average price.

Nvidia's stock and financial growth over the last few years heavily outnumber the market average. The company's investments in research and development further highlight its willingness to continuously innovate and improve its GPU architecture and capabilities, instilling confidence in insiders and institutional investors. While the lofty expectations set by investors may become risky, the continuous demand for their products will likely aid in its strong financial results. Like Meta, Nvidia's 200-day moving average is less than the 50-day moving average and current price, indicating that Nvidia's stock price is bullish according to a momentum investor.

Alphabet's stock has also shown growth. It has a highly diverse revenue model with multiple revenue streams, so Alphabet's ability to generate high-margin revenue sustains its growth. This can be highlighted by institutional holders, which have increased their positions in the company more than decreased, showing their confidence in the outlook of Alphabet. Alphabet's investments in the AI market set up its future and continue improving its products for more users. The resources and data available to the company will allow it to continue to grow its market share. While its 50-day moving average is above the 200-day moving average, Alphabet's current price is below the 200-day moving average. Thus, a momentum investor would have to decide whether Alphabet's stock is a buy. Usually, Alphabet's stock is still a buy for momentum investors.

5. Conclusion

This paper has analyzed the financial health and stock performance of three big technology companies - Meta Platforms Inc., Nvidia Corp., and Alphabet Inc. While all three have faced challenges in the past, they have shown their resilience and growth despite these hardships. The purpose of this paper is to provide data-driven and informed investment decisions through the use of ratio and technical analysis. As a result, if we consider all things evaluated in this paper, Nvidia's immense growth in the past two years and its superiority in the AI market have backed up its stock performance and given it the edge in terms of growth outlook, although both Meta and Alphabet also offer considerable long-term value.

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