

# *Navigating the Technological Revolution: Unveiling the Drivers of Soaring Tech Stocks and Investment Opportunities*

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**Abstract:** This study conducts a comprehensive analysis of the factors influencing technology stock performance, a sector that captivates investors due to its rapid growth and innovation potential. By examining macroeconomic factors, industry-specific dynamics, and company-level management and governance, the research aims to elucidate their impacts on stock prices and returns. Macroeconomic indicators such as interest rates and economic growth cycles are assessed alongside industry trends like R&D intensity and competitive dynamics. Additionally, the study evaluates the role of corporate governance in shaping investor perceptions and stock performance. The findings offer investors deeper insights for informed decision-making and identify directions for future research, providing actionable recommendations for navigating the technology investment landscape.

**Keywords:** technology stocks, macroeconomic analysis, industry analysis

## 1. Introduction

The technology sector has long been a magnet for investors, captivated by its continuous and rapid development, as well as its vast potential for innovation. Technological advancements have reshaped industries, revolutionized consumer behavior, and driven economic growth, making technology stocks a significant focus for market participants[1]. As a result, technology stocks have garnered substantial attention and have become a focal point for investors seeking lucrative opportunities in the market. Understanding the performance of technology stocks requires a comprehensive analysis that takes into account a wide range of factors, from global market indices to the specific financial performance indicators within the banking sector[2], and the influence of financial technology on banking performance[3]. This study aims to delve into the intricate dynamics that influence the prices and returns of technology stocks, exploring the interplay of macroeconomic factors, technological industry trends, and the operational strategies of individual companies within the sector. We seek to explain the reasons behind the soaring prices of technology stocks, considering the impact of North American market indices on technology sectors in emerging markets[1], the role of IT investment in enhancing bank performance [2], and the effects of financial technology on the financial performance of Islamic banking [3]. Additionally, we will examine how cash flows within technology-based companies influence their market valuation[4], providing a holistic view of the factors that drive investment decisions and stock performance in the technology sector.

## 2. Macroeconomic factors

### 2.1. Resilient Rebounds: Tech Stocks' Historical Pattern of Bouncing Back After Bad Years

Over the past five decades, the tech sector has emerged as a dominant force in the stock market, with technology products and services becoming increasingly integral to our daily lives. This growth has been mirrored by the performance of tech stocks, which have exhibited a remarkable ability to bounce back swiftly after facing significant downturns. Examining the historical data since 1970 reveals a pattern where tech stocks, particularly those represented by the Nasdaq index, have consistently rebounded vigorously following a poor year. For instance, in 1984, the tech-heavy Nasdaq experienced an 11% decline, only to surge by an impressive 32% the following year. Similarly, in 1987, the index fell by 5% but rebounded with a 15% rise in the subsequent year. In 1990, a substantial 18% drop was followed by a remarkable 57% surge in the next year. This pattern continued with the years 1994/95, 2008/09, 2011/12, and 2018/19, where each time the Nasdaq experienced a decline, it was followed by a significant rebound in the subsequent year. While there were exceptions to this trend during the early 1970s and early 2000s, these deviations can be attributed to specific factors. In the early 1970s, consecutive declines were driven by rising inflation, which is not the prevailing condition in the present day. Similarly, during the early 2000s, tech stocks were trading at lofty price-earnings ratios, significantly higher than the current levels. The fact that today's tech stocks are trading below 25 times earnings suggests a more favorable valuation, making a rebound in 2023 more likely[5].

Table 1: The historical data of the tech-heavy Nasdaq index

Year	Return After Bad Year	Return Following Year
1981	-3%	19%
1984	-11%	31%
1987	-5%	15%
1990	-18%	57%
1994	-3%	40%
2008	-41%	44%
2011	-2%	16%
2018	-4%	35%
2022	-33%	Unknown

### 2.2. Inflation Peaks: Catalysts for Tech Stock Surges

Moreover, another influential factor supporting the projected rebound of tech stocks in 2023 is the historical correlation between peak inflation and tech stock rallies. Over the past five decades, the U.S. economy experienced three hyperinflationary periods: the mid-1970s, early 1980s, and early 1990s. In each of these instances, when inflation reached its peak in the respective cycle, tech stocks enjoyed significant growth in the subsequent 12 months. For instance, after inflation peaked in November 1974, tech stocks rose by approximately 25% in the following year. Similarly, after the peak in March 1980, tech stocks soared by about 70% within 12 months. The same pattern occurred after the peak in October 1990, with tech stocks rising by approximately 60% over the subsequent year. Given that inflation reached its peak in 2022, historical trends suggest that tech stocks should experience a substantial surge in 2023.

Table 2: The historical data between inflation peak and forward 12-month returns in Nasdaq

Inflation Peak	Forward 12-Month Returns in Nasdaq
Nov-74	~25%
Mar-80	~70%
Oct-90	~60%
Jun-22	Unknown

### 2.3. Fed Pause Phenomenon: Unleashing Mega-Rallies in Tech Stocks

Additionally, the Federal Reserve's monetary policy decisions have a considerable impact on the performance of tech stocks. As the Rashid, A. explained that stock prices, exchange rate, interest rate and consumer prices are closely linked[6]. In 2022, the sector faced significant challenges due to a series of interest rate hikes by the Fed. However, in 2023, it is widely expected that the Fed will pause its rate-hiking campaign, potentially providing a boost to tech stocks. Looking back over the past half-century, whenever the Fed has implemented a pause in interest rate hikes after a prolonged cycle of rate increases, tech stocks have consistently rallied. As the Rashid, A. says that there is a unidirectional causation running from interest rates to stock prices[7]. These post-Fed-pause rallies have been remarkable, with an average gain of 44% and notable instances of over 70% growth. The anticipation of a Fed pause in 2023 further strengthens the likelihood of a substantial tech stock rally. The presence of the long-run relationship between stock prices and the macroeconomic variables is supporting the hypothesis that the health of the stock market, in the sense of a rise in share prices, is a result of an improvement in the health of the economy.

## 3. Industry analysis

### 3.1. Technology industry Overview

No industry creates more value in today's economy than the technology industry. Its innovations fuel the digital world. But tech is also one of the most volatile industries, experiencing constant disruption that challenges even the strongest organizations. Incumbency is often a liability. And with its outsized impact, the tech industry is subject to increased scrutiny—which means leaders are in a state of always-on transformation, and must constantly examine how they contribute to society[8].

### 3.2. Industrial factors

#### 3.2.1. Market Size and Growth Trends

The tech industry has come a long way over the past few decades. As of today, the industry has become inseparable from many jobs, schooling, and everyday life. The U.S. tech industry reached a market value of \$1.8 trillion by the end of 2022. There were 264,500 tech industry jobs added to the market in 2022. The U.S. tech market accounts for 35% of the total world market. The U.S. tech industry is expected to grow by 5.4% in 2023. The U.S. tech industry employs roughly 12.2 million workers as of 2020. There are over 585,000 tech companies in the U.S [9].

#### 3.2.2. Legal and Regulatory factors

Policies can play a crucial role in boosting the technology industry by creating a favorable environment for innovation, investment, and growth. To raise awareness of science and technology jobs across the country and expand the scientific workforce, the U.S. Department of Commerce's Economic Development Administration on Friday launched a two-step Regional Technology

Innovation Hub program to support the development of emerging growth regions[10]. What is more, the CHIPS Act of 2022 is a law designed to enhance US competitiveness, innovation, and national security in the semiconductor industry[11]. It allocates \$280 billion in spending over the next decade, with a focus on scientific R&D, semiconductor manufacturing, workforce development, and tax credits for private investment. The law aims to address the decline in US semiconductor production and the impact of global supply chain shortages. It also emphasizes national security and 5G supply chain resilience, with funding allocated to defense research, semiconductor supply chain security coordination, and telecommunications competitiveness. The CHIPS Act supports STEM education, R&D, and establishes a program office for space exploration.

### 3.2.3. Future Outlook

Investing in the technology industry in 2023 presents a compelling opportunity for several reasons. Firstly, organizations increasingly recognize the significance of digital transformation for maintaining competitiveness. Technology investments can enhance efficiency, reduce costs, improve customer experiences, and foster innovation. Secondly, the technology sector is seen as having long-term growth potential, despite economic uncertainties. Continuous technological advancements and innovations offer opportunities for sustained growth and profitability. Thirdly, investing in technology enables businesses to adapt to uncertain environments. The industry's flexibility and innovation allow companies to swiftly adjust strategies in response to economic fluctuations and market changes. Fourthly, technology-driven efficiency gains can be achieved through automation, data analytics, and cloud computing, leading to cost reductions, process optimization, increased productivity, and resource utilization. Lastly, investing in technology addresses critical concerns such as cybersecurity and risk management in the digital age. Robust technology investments help establish robust cybersecurity measures, mitigate risks, and safeguard sensitive information for both businesses and customers. In summary, investing in the technology industry in 2023 offers the potential for gaining a competitive edge, driving long-term growth, and adapting to evolving business environments[12].

## 4. Company's operational factors

### 4.1. Benchmark—Dupont Financial Analysis

$ROE = \text{Net Income} / \text{Sales} * \text{Sales} / \text{Assets} * \text{Assets} / \text{Shareholders' Equity} = \text{Net Profit Margin} * \text{Total Asset Turnover} * \text{Equity Multiplier}$

DuPont financial analysis is an effective tool to understand how the profitability, efficiency, and leverage of a company can influence its stock prices. By conducting an in-depth analysis of a company's financial data, we can reveal how these factors made the tech-company's stock prices soar. The DuPont ratio can be used as a compass in this process by directing the analyst toward significant areas of strength and weakness evident in the financial statements[13].

### 4.2. Profitability (Net Profit Margin)

Firms that can lower their costs and enhance their differentiation through the effective management of their human resources have a competitive advantage[14]. Profitability measures a company's ability to generate profits, and it is a critical factor influencing stock prices. In the DuPont analysis, the net profit margin reflects the profit generated by the company for each unit of sales revenue. A company with a strong profitability is likely to attract more investors, leading to an increase in its stock price. A high net profit margin indicates effective cost control, higher sales prices, or improved

products and services, instilling investors' confidence in the company's future earnings potential and driving the stock price upwards.

Microsoft Corporation has consistently attracted investor attention due to its strategic prowess and innovative capabilities. In recent years, the company executed a diversified and innovative transformation strategy, achieving significant progress in areas such as cloud computing, artificial intelligence, and enterprise software, driving the introduction of market-leading products and services. This translated into consistent revenue and profit growth, reflecting Microsoft's robust business performance and the effectiveness of its diverse product portfolio. By optimizing cost structures and improving operational efficiency, the company enhanced its net profit margin, demonstrating its ability to convert sales revenue into higher net profits and thereby strengthening its profitability. The cloud computing business, particularly Azure services, played a significant role as a growth driver, securing considerable market share and contributing substantially to the company's revenue. As Microsoft's profitability improved, investors gained confidence in its future growth prospects, resulting in increased demand for its stock and a rise in its stock price. The company's leadership position in the technology industry and its continuous business growth made it an attractive choice for long-term investment, providing investors with substantial returns[15].

#### **4.3. Efficiency (Total Asset Turnover)**

Efficiency refers to how effectively a company utilizes its assets to generate sales revenue. In the DuPont analysis, the total asset turnover measures the company's efficiency in using its assets. A high total asset turnover implies that the company achieves more sales revenue on relatively fewer assets, which is generally seen as a positive sign. Efficient asset utilization results in higher profits, motivating investors to purchase the company's stock and causing the stock price to rise.

Nvidia Corporation, a leading global manufacturer of computer graphics processors (GPUs), has consistently captured investor attention through its technological innovations and business expansion efforts. In recent years, Nvidia's progress in areas like artificial intelligence, gaming, and data centers has propelled its performance and stock price growth. The company's asset turnover efficiency improved as it increased sales revenue through market expansion and enhanced product competitiveness, especially in high-performance computing and AI applications. Moreover, Nvidia successfully enlarged its market share through product performance improvements and innovative technologies, strengthening its position in the GPU market and boosting business efficiency. By optimizing supply chain management, Nvidia ensured efficient production and delivery processes, reducing inventory backlog, and improving asset turnover rate. As Nvidia's asset turnover efficiency continued to rise, investor confidence in the company's operational capabilities and future growth prospects increased, resulting in increased demand for Nvidia's stock and driving its stock price upwards. Investors widely recognize Nvidia's leadership in high-performance computing and AI, along with its growing market share, making it an appealing choice for long-term investment and generating substantial returns. With Nvidia's expanding business prospects, investor confidence in its future remains high, further supporting the rise in its stock price[16].

#### **4.4. Leverage (Equity Multiplier)**

Leverage reflects the extent to which a company uses debt financing. High leverage indicates that the company borrows more funds to expand its operations, potentially yielding higher returns in good times. However, high leverage also brings higher financial risks as the company needs to service debt interest and principal payments. When investors become concerned about a company's leverage, it may lead to a decline in the stock price. Conversely, lower leverage may reassure investors and possibly drive the stock price higher.

Tesla, a prominent electric vehicle manufacturer, borrowed substantial debt to invest in expanding production capacity, conducting research, and developing new technologies, including a global supercharging network. While Tesla's successes in the electric vehicle market and its strong fan base are noteworthy, the company's high debt and research investments have raised concerns among certain investors. The rising debt-to-equity ratio has increased financial risk, leading to fluctuations in Tesla's stock price. Despite achieving breakthroughs in its performance, uncertainty persists among investors regarding Tesla's potential for technological advancements and market performance[17].

## 5. Conclusion

In this study, we have undertaken a comprehensive analysis of the factors that influence technology stocks, focusing on macroeconomic factors, technological industry trends, and individual company operational factors. Our research has yielded valuable insights that shed light on the dynamics driving the technology stock market.

Firstly, our analysis of macroeconomic factors revealed a historical pattern of resilient rebounds in tech stocks after bad years, as well as a correlation between peak inflation and tech stock surges. Additionally, the expected Fed pause in interest rate hikes in 2023 further supports the likelihood of a substantial tech stock rally.

Secondly, our exploration of the technology industry highlighted its significance in today's economy and its potential for long-term growth. Legal and regulatory factors, such as the Regional Technology Innovation Hub program and the CHIPS Act of 2022, are driving the growth of the technology industry, fostering innovation, domestic semiconductor production, and national security.

Thirdly, we delved into the operational factors of individual technology companies, considering their profitability, efficiency, and leverage.

However, like any research, our study has its limitations. Firstly, the data used in our analysis was based on historical trends up to 2022, and market conditions can evolve rapidly, potentially affecting the accuracy of our projections for 2023. Secondly, the technology industry is highly dynamic, and new developments and disruptive technologies can emerge unexpectedly, impacting the performance of individual companies and the sector as a whole. Thirdly, while we have considered various factors influencing technology stocks, other variables not covered in this study may also play significant roles.

To improve future research in this area, researchers should consider incorporating real-time data and continuously monitoring market developments to provide more accurate and up-to-date insights. Additionally, exploring the impact of emerging technologies, such as AI and blockchain, on the technology stock market could offer new avenues for investigation. Furthermore, conducting comparative studies of different technology sectors or global markets could offer a broader perspective on technology stock performance.

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