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The legacy of the dot-com bubble: Financial lessons on speculation and fundamentals

Muhammad Arsalan Khan[1], Sigit Kurnianto[1*], Atiqa Malik[2]

[1] Department of Accounting, Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia
[2] Department of Management, Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia
*Corresponding Author(s) Email: sigit.kurnianto-2021@feb.unair.ac.id

ABSTRACT

The dot-com bubble burst in the early 2000s marked a pivotal moment in financial market history, revealing the dominance of speculative investment behavior over traditional financial fundamentals. This study revisits the dot-com bubble era, focusing on the relationship between key financial metrics (total sales, total assets, net income, total debt, and share price) during a period of intense market speculation. By analyzing these fundamental indicators, the study provides insights that are still relevant modern speculative trends driven by technologies like AI, blockchain, and the metaverse. Examining 30 U.S. companies during the dot-com bubble (1995–2001) and its aftermath (2001–2011) using multiple regression analysis and the Wilcoxon test, we find that total sales, net income, and total debt positively influenced share prices, while total assets had a negative impact. These findings suggest that investor optimism prioritizes growth, profitability, and aggressive financing during speculative periods over traditional indicators like asset size, which are often associated with slower-moving business models. The Wilcoxon test further reveals significant differences in median stock prices between the bubble and post-bubble periods, underscoring the valuation shifts driven by speculative and fundamental factors. By examining historical market behaviors, this study highlights the lasting importance of aligning speculative enthusiasm with financial fundamentals, providing valuable lessons for understanding speculative markets.

Keywords: Total Sales; Net Income; Total Debt; Total Assets; Stock Price; Bubble; Recession

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Introduction

The dot-com era, spanning the mid-1990s to the early 2000s, marked a period of rapid expansion in the technology sector. Fueled by venture capital investments, technological advancements, and investor confidence, stock prices for dot-com companies soared, often trading at unprecedented earnings multiples or even with no earnings at all (Ghosh, 2015). Speculative behavior overshadowed traditional financial metrics as investors increasingly questioned the relevance of fundamental financial information for decision-making. However, the bubble's unsustainable growth eventually exposed the fragility of these inflated valuations, culminating in its collapse (Ofek & Richardson, 2023). The subsequent dot-com recession, lasting from March to November 2001, brought bankruptcies, job losses, and economic stagnation (Ljungqvist & Wilhelm Jr., 2003).

One critical factor contributing to the economic downturn was the overvaluation of total sales during the bubble. Many technology companies saw inflated sales figures drive their stock prices, creating an illusion of financial health not supported by sustainable operations (Sornette, 2017). When the bubble burst, investors reassessed these inflated sales, leading to dramatic declines in stock prices. Firms with the most overvalued sales suffered the most significant losses, revealing how unrealistic expectations destabilized the market. Similarly, exaggerated valuations of total assets further amplified market volatility during this period (Shiller, 2019).

As the dot-com bubble burst, investors began reevaluating the actual value of company assets, leading to steep declines in stock prices for firms with highly inflated valuations. This demonstrated how the speculative overvaluation of sales and assets contributed to widespread financial instability, as unrealistic expectations collapsed under market scrutiny. Compounding this instability was the era’s overwhelming focus on growth over profitability, where companies prioritized rapid expansion and market share over sustainable earnings (Goldfarb & Kirsch, 2019). This disconnect between stock valuations and financial performance created inflated investor expectations that were ultimately unsustainable when firms failed to deliver meaningful profits. The resulting declines in stock prices highlighted the critical relationship between net income and market valuation (Fama & French, 2020), showing the risks of chasing growth at the expense of long-term financial health. The dot-com bubble remains a clear reminder of the importance of balancing ambitious growth strategies with realistic valuations and sustainable profitability to avoid similar financial crises.

This study examines the dot-com era, focusing on how key financial metrics—total sales, total assets, net income, and total debt—shaped the bubble's growth and the subsequent market collapse. While previous research has primarily focused on investor sentiment (Wurgler, 2002; Wheale & Amin, 2003; Teti & Maroni, 2021) and the overvaluation of tech companies (Chang et al., 2016; Delossantos, 2023), this study dives deeper into how the mispricing of these financial metrics exacerbated the economic downturn. Analyzing these metrics from multiple perspectives highlights the dangers of prioritizing growth over profitability, excessive reliance on debt, and neglecting sustainable financial strategies. Although the dot-com bubble may seem like ancient history, its lessons remain highly relevant today as emerging technologies like artificial intelligence, blockchain, and the metaverse fuel renewed investor enthusiasm (Marr, 2023). Recent market fluctuations and the volatility of tech stocks echo patterns seen during the dot-com era, underscoring the importance of learning from the past (Goldfarb & Kirsch, 2019). As we face a new wave of technological innovation, this study serves as a timely reminder of the need for prudent financial management, effective regulations, and a balanced approach to the transformative potential of these technologies. By understanding the role of financial fundamentals metrics in the dot-com bubble, we can better navigate the risks and opportunities of today's rapidly evolving markets, ensuring a more stable and informed financial future.

Literature Review

The Dot-Com Bubble

The dot-com bubble, one of the most significant financial events in history, emerged in the late 1990s, driven by a combination of technological optimism and speculative behavior. It began with Netscape's IPO in 1995, which symbolized the promise of the internet era, and gained momentum following Alan Greenspan's 1996 warning about "irrational exuberance" in the markets (Buckley et al., 2002). While Greenspan's caution caused brief global market corrections, investor enthusiasm remained strong, fueled by favorable economic conditions such as low interest rates and a booming economy (Ofek & Richardson, 2003; Hendershott, 2004). This enthusiasm attracted inexperienced investors, many opening online brokerage accounts for the first time, further inflating stock prices. At the same time, professional portfolio managers, under pressure to outperform benchmarks, invested heavily in overvalued internet stocks despite recognizing the risks. By March 2000, the NASDAQ Composite Index soared to over 5000 points, reflecting sky-high valuations increasingly disconnected from underlying business realities. The crash that followed later that month exposed the fragility of

these inflated valuations, leaving a lasting lesson on the dangers of unchecked market exuberance and speculative investing (Fama & French, 2020; Teti & Maroni, 2021).

Starting in March 2000, the dot-com bubble's collapse marked a turning point for the technology industry, with its effects rapidly spreading beyond a single sector to impact global markets. The NASDAQ Composite Index fell nearly 20% by the end of April 2000, and within a year, the index had lost half its value. By the end of 2002, after nearly two years of relentless decline, the NASDAQ had erased over $5 trillion in market value, reaching levels unrecognizable from its peak. The bubble's burst also highlighted the fragility of the IPO frenzy that defined the late 1990s; nearly 500 tech IPOs occurred in 1999, but by 2001, fewer than 80 companies went public, none achieving the returns of their predecessors. Many firms that had experienced explosive growth upon their IPOs were later delisted or declared bankruptcy (Malmendier & Nagel, 2016). The human toll was equally severe, with nearly 50,000 jobs lost in 2001 alone, illustrating the widespread consequences of the bubble's collapse (Kshetri, 2018; Foley & Greenwood, 2021).

The roots of this collapse lay in flawed business models, especially in the tech industry, where companies focused on non-financial metrics like website views and user numbers instead of traditional measures like profits, cash flow, or P/E ratios (Choong & Bacon, 2024). Investors, drawn by the promise of future earnings, placed high value on these metrics, believing they would eventually lead to significant profits (Floridi, 2024). This optimism was made worse by analysts who used inflated growth rates and unrealistic valuations to support soaring stock prices (Vogel, 2021; Shiller & Thompson, 2022). As excitement around the tech sector grew, investors stopped questioning the financial fundamentals of these companies. This cycle of overconfidence and speculation pushed stock prices too high, making the eventual market crash unavoidable.

The cryptocurrency bubble, particularly around Bitcoin and other digital currencies, shared similarities with the dot-com bubble but unfolded much faster. Bitcoin's rise from $1,000 in early 2017 to nearly $20,000 by December sparked a frenzy, driving up the value of many cryptocurrencies and fueling a surge in Initial Coin Offerings (ICOs), which resembled the dot-com era's IPO craze (Floridi, 2024). Opportunistic rebranding, with companies adopting "blockchain" in their names, echoed the ".com" trend. Unlike the dot-com bubble, retail investors, many new to investing, played a significant role in inflating the cryptocurrency bubble through accessible trading apps (Gschnaidtner et al., 2024). Bitcoin's price crashed to $3,000 by the end of 2018, with most cryptocurrencies losing over 90% of their value, accompanied by scandals, Ponzi schemes, and hacks (Vasek & Moorem, 2019;

Aliber et al., 2023). Meanwhile, the COVID-19 pandemic drove tech adoption across sectors, fueling a surge in tech stock prices as companies like Zoom and Peloton saw unprecedented growth during lockdowns. Platforms like Robinhood made stock market participation easier for retail investors, further inflating valuations (Mao, 2021). By mid-2021, concerns over inflation, interest rates, and the end of lockdowns led to a market correction, with many high-flying tech stocks experiencing sharp declines. Despite these setbacks, both cryptocurrencies and the tech sector have continued to evolve, with innovation, regulatory frameworks, and pandemic-driven changes like remote work lasting impacting the economy.

The similarities between the current AI hype and past tech bubbles, like the dot-com era, suggest we might be in the midst of an AI bubble. While AI holds transformative potential, caution is necessary as traditional financial metrics—such as ROI, P/E ratios, EBITDA, net profit margins, and cash flow—are replaced by unconventional measures like the number of model parameters. This shift echoes the overvaluation trends seen in previous bubbles, where speculative excitement overshadowed financial fundamentals. History shows that bubbles rarely deflate gently and often end with a sudden crash. Our study addresses this concern by revisiting the financial fundamentals of the dot-com bubble, offering a timely reminder of the risks linked to similar valuation trends in today's tech markets.

Total Sales and The Dot-Com Bubble

Total sales, reflecting the revenue a company generates from its products or services, is a key metric for evaluating financial performance and growth. Measured monthly, quarterly, or annually, total sales provide businesses with critical data to guide pricing strategies, marketing efforts, and operational decisions. Companies can identify strengths and areas needing improvement by analyzing sales by product, service, or customer segment. During the late 1990s and early 2000s dot-com bubble, total sales became a focal point as technology companies experienced rapid stock price increases and market capitalization, often without substantial revenue or profits. Razi et al. (2004) and Purcell (2018) note that while total sales reflected revenue growth during this period, they did not always indicate financial health or long-term sustainability. Companies like Amazon and eBay demonstrated genuine sales growth, but many others relied on inflated sales figures to attract investors. Morris & Alam (2012), Sovbetov (2018), and Teti & Maroni (2021) highlight how this overemphasis on sales metrics during the dot-com bubble fueled investor optimism and market valuations, creating an environment of excessive speculation. However, the lack of sustainable earnings ultimately led to the bubble's collapse, as high sales figures alone could not support the

inflated stock prices. This period underscores the importance of balancing sales growth with profitability and other financial fundamentals to ensure stability and long-term success. The lessons from the dot-com bubble remain relevant today, as they remind us of the risks of prioritizing revenue figures without focusing on sustainable earnings.

H_1: During the dot-com bubble, companies with rapidly increasing total sales experienced significantly higher stock prices and market valuations.

Total Assets and The Dot-Com Bubble

Total assets, which include tangible and intangible items such as cash, receivables, inventory, property, equipment, investments, patents, and trademarks, offer a broad view of a company's financial health and growth potential. These assets are essential for understanding a company's ability to meet financial obligations and are a key component of its balance sheet. During the dot-com bubble, total assets significantly shaped market valuations and fueled investor optimism. A previous study by Morris & Alam (2012) showed that companies with higher total assets experienced increased stock prices and market valuations, driven by expectations of future earnings rather than current financial performance. Crain (2014) similarly noted that during this speculative period, total assets were often used to justify high valuations, with potential growth taking precedence over profitability. Ljungqvist and Wilhelm Jr (2003) emphasized the excessive speculation surrounding total assets, which led to inflated stock prices and market capitalizations.

Companies focused on rapid expansion, often neglecting profitability, which eroded investor confidence over time (Mouzas & Bauer, 2022). As the bubble burst, these inflated valuations collapsed, highlighting the dangers of relying solely on assets without considering sustainable earnings (Firmansyah & Al Ayyubi, 2024). This period highlights the importance of balancing growth expectations with financial fundamentals to ensure long-term stability and avoid speculative market downturns. The role of total assets during the dot-com era serves as a reminder of the risks associated with prioritizing growth potential over actual financial performance. Companies that focus too heavily on expansion without building a solid foundation of profitability risk losing not only investor confidence but also their long-term viability.

H_2: During the dot-com bubble, companies with higher total assets experienced significantly greater market valuations and stock price increases.

Net Income and The Dot-Com Bubble

Net income, or net profit, is the revenue remaining after deducting all expenses and taxes from a company's total revenue. This critical measure of profitability is calculated by subtracting costs such as operating expenses, interest, and taxes from total revenue, providing a snapshot of a company's financial health. During the dot-com bubble, many internet-based companies experienced rapid growth and soaring market valuations, driven by speculation and excessive investment. However, as the bubble burst, firms with weak or negative net income often faced financial distress and failure, leading to significant investor losses. Research by Lee and Kim (2009) highlighted that companies with higher net income during this period demonstrated more sustainable growth and better market performance. Similarly, Collins et al. (2017) emphasized the importance of focusing on net income as a long-term indicator of growth potential, cautioning against relying solely on short-term market valuations. Simsek (2021) argued that net income could help investors differentiate between genuine growth opportunities and speculative bubbles, with sustainable net income growth linked to long-term value creation. Furthermore, Eaton & Paye (2017), Ball & Nikolaev (2022), Gürkaynak et al. (2022) found that companies with positive cash flows were more likely to deliver positive stock returns, while those with negative cash flows were prone to declines, underlining cash flow as another key indicator of financial health. These studies collectively highlight that during speculative periods like the dot-com bubble, net income and cash flow are essential metrics for assessing the sustainability and long-term viability of companies. Understanding these fundamentals provides critical lessons for avoiding future speculative pitfalls.

H_3: Companies with higher net income levels during the dot-com bubble exhibited more sustainable growth and superior market performance, enabling them to better withstand the effects of the bubble's burst and the subsequent market downturn.

Total Debt and The Dot-Com Bubble

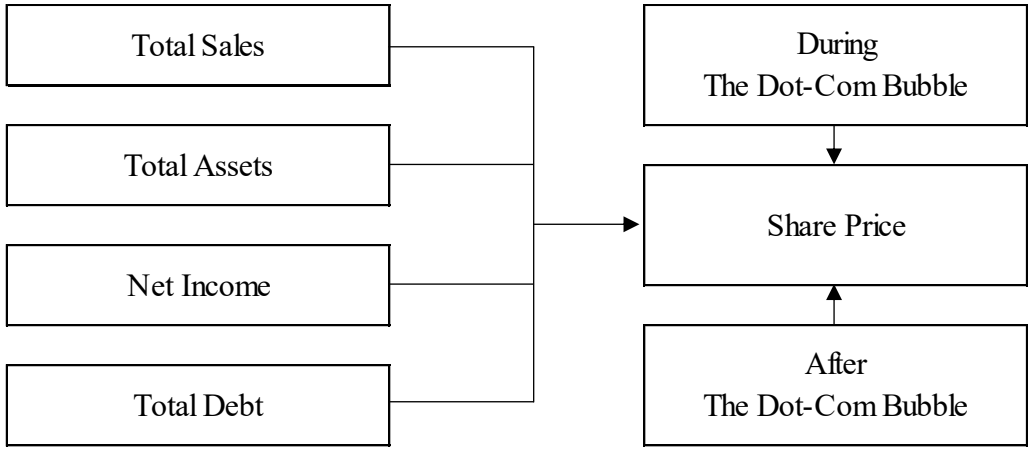
Total debt encompasses all financial obligations a company owes, including loans, bonds, and other forms of debt, and serves as a key metric for assessing financial leverage and solvency. Typically reported on the balance sheet alongside assets and equity, total debt is often evaluated using the debt-to-equity ratio, which helps gauge financial risk. During the dot-com bubble, the level of debt relative to equity played a critical role in understanding a company's financial health. Companies with higher debt levels were likelier to experience

negative stock returns and financial distress during the market downturn, reflecting the increased risk for investors (Graham et al., 2015). High leverage levels during this period were linked to heightened investor risk appetite and were often fueled by high-yield bonds and bank loans to support aggressive growth strategies (Şen, 2019). However, these strategies left many companies vulnerable, as those heavily reliant on debt financing faced greater chances of default when the bubble burst (Fahlenbrach et al., 2012). The collapse underscored the importance of considering leverage alongside other financial metrics and macroeconomic factors to assess financial stability fully. Investors should be cautious with high-leverage companies, mainly those dependent on debt financing, as they are more susceptible to market volatility and downturns. This period serves as a reminder of the risks associated with excessive reliance on debt and the need for balanced financial strategies to ensure long-term sustainability.

H_4: Companies with higher levels of total debt during the dot-com era experienced significantly greater negative stock returns and financial instability compared to firms with lower debt levels, amplifying the risk of collapse during the market downturn.

Figure 1 illustrates the relationship between the independent variables—Total Sales (X1), Total Assets (X2), Net Income (X3), Total Debt (X4)—and the dependent variable, Share Price (Y). The aim is to analyze the effect of these factors on share prices during the dot-com bubble period and its aftermath. Specifically, the study focuses on understanding how the bubble influenced share prices at its peak (mid-1990s to 2000) and the subsequent adjustments in share prices post-bubble (2001–2011). By examining these dynamics, the research aims to identify key financial metrics that shaped share price pattern behavior during and after this critical period in market history.

Figure 1. Research Framework



Methods

This study adopts a quantitative design, focusing on numerical data to explore the relationship between independent and dependent variables. The study utilizes secondary data sourced from financial statements and historical stock prices of U.S. companies that were active during the dot-com era and impacted by the bubble and subsequent recession. The sample includes companies of varying market capitalizations—large-cap, mid-cap, and small-cap—ensuring a diverse representation. Financial data, spanning from 1995 to 2011, was collected, including metrics such as total assets, net income, total debt, and share prices, alongside historical stock prices, to analyze the impact of the dot-com bubble and recession. The primary criteria for selection were the availability of comprehensive financial data and stock prices throughout the study period, enabling an in-depth examination of financial performance and stock price trends. Initially, 51 companies affected by the dot-com bubble were identified, with the final sample comprising 30 companies that met the inclusion criteria for a detailed and focused analysis, including Adobe Systems (ADBE), Amazon (AMZN), Apple (AAPL), Applied Materials, Inc. (AMAT), AT&T (T), Chevron (CVX), Cisco Systems (CSCO), Coca-Cola (KO), Dell Technologies (DELL), Eastman Kodak (KDK), ExxonMobil (XOM), General Electric (GE), Intel Corporation (INTC), International Business Machines (IBM), JDS Uniphase Corporation (JDSU), Johnson & Johnson (JNJ), JP Morgan Chase (JPM), Level 3 Communications Inc. (LVLT), Microsoft (MSFT), Motorola Solutions, Inc. (MOT), Oracle (ORCL), Pfizer (PFE), Procter & Gamble (PG), Qualcomm (QCOM), Texas Instruments (TXN), Verizon Communications (VZ), Walmart (WMT), Walt Disney Company (DIS), Xerox Holdings Corporation (XRX), and Yahoo (YHOO).

Furthermore, this study examines several key financial variables to understand their impact on market dynamics during the dot-com era. Share Price, measured in USD, reflects the market value per share of a company's stock and represents investors' perceptions of financial performance, growth potential, and market conditions. Share prices are influenced by factors such as earnings changes, market trends, and investor sentiment, often reacting to audited financial reports released after the fiscal year-end. Total Sales indicate the overall revenue generated from a company's operations, encompassing income from goods and services after accounting for discounts or returns. This metric, also measured in USD, is a vital indicator of financial health, growth potential, and market share, derived from financial statements or sales reports. Total Assets represent the total value of a company's tangible and intangible assets, such as buildings, equipment, patents, and trademarks, and are expressed in

USD. Total assets provide a measure of financial strength, liquidity, and the company's ability to generate future cash flows. Net Income, or profit, is calculated by subtracting all expenses, including operating costs, interest, and taxes, from total revenue. This profitability metric, measured in USD, indicates the company's capacity to provide returns to shareholders. Lastly, Total Debt includes all outstanding financial obligations, such as loans and bonds, and is measured in USD. It serves as an indicator of a company's leverage and financial risk, with high levels of debt potentially limiting the ability to pursue growth opportunities. Together, these variables provide a comprehensive view of the financial health and performance of companies during the dot-com bubble.

The data analysis for this study was performed using EViews, a widely used statistical software in finance, economics, and business. The analysis focused on understanding the relationships between financial metrics and stock prices during the study period (1995-2011), which includes the dot-com bubble and the years following its collapse. A multiple regression analysis was conducted to explore the influence of key financial metrics—total sales (Tot. Sales), total assets (Tot. Assets), net income, and total debt (Tot. Debt)—on the dependent variable, share price (Sh. Price).

To complement the regression analysis, the Wilcoxon test was applied to compare the financial performance of companies during the dot-com bubble period (1995-2000) with the post-bubble period (2001-2011). This non-parametric test, ideal for smaller sample sizes and non-normally distributed data, assessed significant differences in stock prices between the two periods. Using EViews, data inputs included share prices for both periods, and the resulting Wilcoxon test statistics and p-values highlighted the changes in market valuations before and after the bubble burst. By integrating multiple regression analysis and the Wilcoxon test, this study provides a comprehensive view of how financial metrics influenced stock prices during the dot-com bubble and its aftermath. These methods also offer insights into significant shifts in market dynamics following the bubble's collapse, contributing to a deeper understanding of financial performance during this critical period.

Result and Discussion

Table 1 provides an overview of the descriptive statistics for the financial metrics analyzed in this study: share price, total sales, total assets, net income, and total debt. The share price shows an average of $26.59 and a median of $17.90, with a wide range from $0.08 to $292.75. This significant variation, reflected by a standard deviation of 30.72, shows the disparity among companies, with the data skewed heavily to the right due to a few greatly

Table 1. Descriptive Statistics

Constructs	Sh. Price	Tot. Sales	Tot. Assets	Net Income	Tot. Debt
Mean	26.58651	51,310,672	105,000,000	5,078,701	78,080,544
Median	17.89500	24,453,500	32,920,000	3,061,500	17,657,500
Maximum	292.7500	467,000,000	2,270,000,000	45,220,000	2,080,000,000
Minimum	0.080000	511.00000	1084.000	-4,244,000	107.0000
Skewness	3.838361	2.992168	5.685079	2.503336	5.985021
Kurtosis	23.28630	13.13637	41.31610	12.16360	44.42768

exceptionally high values. For total sales, the mean is $51.31 million, while the median is notably lower at $24.45 million, indicating that most companies generated lower revenues, but a few outliers with sales up to $467 million pushed the average higher. Similarly, total assets reveal a mean of $105 million and a median of $32.92 million, with some companies reporting assets as high as $2.27 billion, resulting in extreme variability and a high standard deviation of 250 million. Lastly, the net income data shows an average of $5.08 million and a median of $3.06 million, but some companies incur losses of up to $4.24 million. This highlights the financial struggles of several firms, even as others reported profits as high as $45.22 million. Total debt, with an average of $78.08 million and a median of $17.66 million, also varies widely, ranging from just $107 to a massive $2.08 billion, reflecting significant differences in how companies managed their financial obligations.

Overall, these statistics reveal significant variability across all metrics, with some companies exhibiting extreme values far above the averages. This dispersion highlights the diverse financial profiles of companies during the dot-com era, with a few giants influencing the overall trends. High skewness and kurtosis for most metrics suggest that the data contains outliers, underscoring the speculative nature of the market during this period. The presence of negative net income and minimal share prices indicates financial distress among some firms, aligning with the challenges faced during the dot-com bubble.

Additionally, Table 2 of the regression result reveals that total sales, with a coefficient of 0.282 and a highly significant p-value of 0.00, show a strong positive relationship with share prices. This highlights that revenue growth was a critical driver of market valuations during the dot-com bubble. Investors appeared to reward companies with increasing sales, associating them with future potential and market dominance. This aligns with previous studies (Goodnight & Green, 2010; Sovbetov, 2018), which emphasize that in extra-ordinary

Table 2. Hypothesis Testing (Regression Result)

Hypothesis	Coefficient	t-Value	p-Value	Decision
H_1: Tot. Sales -> Sh. Price	0.282	6.570	0.000	Accepted
H_2: Tot. Assets -> Sh. Price	-7.65E-09	-3.449	0.001	Accepted
H_3: Net Income -> Sh. Price	3.38E-08	2.681	0.008	Accepted
H_4: Tot. Debt -> Sh. Price	9.22E-09	4.071	0.000	Accepted
R-squared	0.238	F-statistic		39.450
Adjusted R-squared	0.232	Prob. (F-statistic)		0.000

Table 3. Wilcoxon Result

Hypothesis	df	Value	Probability
Wilcoxon/Mann-Whitney		3.963	0.000
Wilcoxon/Mann-Whitney (tie-adj.)		3.964	0.000
Med. Chi-square	1	9.517	0.002
Adj. Med. Chi-square	1	8.954	0.003
Kruskal-Wallis	1	15.709	0.000
Kruskal-Wallis (tie-adj.)	1	15.713	0.000
van der Waerden	1	13.320	0.000

Code	> Overall				
	Count	Median	Median	Mean Rank	Mean Score
0	180	2.693	73	220.481	-0.212
1	330	2.981	181	274.602	0.115
All	510	2.886475	254	255.5000	-0.000209

moments, revenue often takes precedence over other financial metrics. The significant impact of total sales reflects the speculative optimism that characterized the dot-com era. In contrast, total assets have a negative coefficient of -7.65E-09, with a p-value of 0.000, indicating a statistically significant inverse relationship with share prices. This suggests that asset-heavy companies were less favored during the bubble, possibly due to a perception that agility and innovation mattered more than physical assets. The finding aligns with the dot-com era's speculative nature, where intangible factors often drove valuations (Dugar & Pozharny, 2021; Hartsema et al., 2021). Investors may have viewed large asset bases as burdensome or less

aligned with the high-growth narrative. This negative relationship underscores the market's focus on perceived growth potential over stability.

Net income, with a positive coefficient of 3.38E-08 and a significant p-value of 0.008, demonstrates that profitability contributed positively to share prices. This finding highlights the importance of sustainable earnings during the bubble period, even amidst the speculative frenzy. Companies reporting higher net income were likely perceived as more reliable and capable of long-term growth. This positive association suggests that while speculative optimism dominated, profitability still played a role in shaping investor sentiment. The results reaffirm the importance of balancing growth aspirations with profitability. This aligns with studies (Bose, 2006; Collins et al., 2017) emphasizing the importance of net income in assessing the financial health and sustainability of companies during the dot-com bubble. This finding is also consistent with Chen et al. (2002), Billah et al. (2023), and Dwimayanti et al. (2023) studies, which found that total sales and net income have a positive effect on the share price. Additionally, total debt, with a positive coefficient of 9.22E-09 and a highly significant p-value of 0.000, shows that leverage was viewed favorably by investors during the dot-com bubble. Companies utilizing debt to fuel growth may have been seen as aggressive and ambitious, aligning with the speculative appetite of the era (Huerta-Sanchez et al., 2020). However, this preference for leveraged growth came with heightened financial risk, as evidenced by the bubble's eventual collapse (Qin et al., 2023). The positive relationship between total debt and share prices reflects the speculative market's focus on rapid expansion, often at the expense of financial stability.

Furthermore, the model's R-squared value of 0.238 indicates that approximately 23.80% of the variance in share prices is explained by the independent variables. While this suggests a moderate level of explanatory power, it also points to the influence of external factors like market sentiment and speculative behavior. The F-statistic of 39.450, with a p-value of 0.000, confirms that the model is statistically significant overall, meaning the financial metrics collectively affect share prices.

Lastly, Table 3 of the Wilcoxon test results reveals significant differences in stock prices between the dot-com bubble period and the post-bubble period, with the median stock price increasing after the dot-com bubble burst, as shown by a change from 2.693 to 2.981. The Wilcoxon/Mann-Whitney test statistic of 3.963 (p-value = 0.000) and its tie-adjusted value of 3.964 (p-value = 0.000) confirm that these differences are statistically significant. Additionally, the Median Chi-square test (value = 9.517, p-value = 0.002) and the Adjusted

Median Chi-square test (value = 8.954, p-value = 0.003) further support the conclusion that the median stock prices changed significantly between the two periods. The Kruskal-Wallis test, with a value of 15.709 (p-value = 0.000), and its tie-adjusted version (value = 15.713, p-value = 0.000) reinforce these findings by highlighting differences in rank-based distributions.

The results significantly enhance our understanding of how the dot-com bubble and its aftermath influenced stock market behavior. By comparing median stock prices during the bubble period (1995–2000) and the post-bubble years (2001–2011), the test reveals a notable difference in stock valuations across these two phases. Speculative enthusiasm initially drove stock prices to lofty heights before the bubble burst, leading to a substantial decline and lasting effects on market confidence. This shift in stock prices was not solely due to changing investor sentiment (Kurov, 2008; Chen & Sabherwal, 2023; Wang & Zhang, 2024) but also resulted from increased pressure from governments and regulatory bodies to stabilize financial markets (Teti & Maroni, 2021), alongside market corrections driven by reassessments of company valuations (Bonaparte, 2021; Kubick & Lockhart, 2021). Over time, stock prices began to recover as market dynamics adjusted and investor sentiment shifted towards more sustainable growth strategies. These findings align with our research objective to determine how the dot-com bubble shaped long-term stock price trends. Ultimately, the Wilcoxon test confirms a significant change in stock prices across the two periods, highlighting the combined effects of speculative behavior, regulatory intervention, and market adjustments in shaping market valuations.

Conclusion and Suggestion

The dot-com era, from the mid-1990s to the early 2000s, had a major impact on the U.S. economy, driven by speculative investments in technology stocks. This study examines how financial metrics—total sales, net income, total debt, and total assets—affected share prices during and after the bubble. The findings show that total sales, net income, and total debt positively influenced share prices, reflecting investor optimism about growth and profitability. In contrast, total assets exhibited a negative relationship, signaling overvalued metrics and a preference for speculative growth over traditional fundamentals. These findings emphasize the risks of prioritizing growth-focused metrics, which contributed to inflated valuations and eventual market corrections during the bubble.

Furthermore, this study provides important lessons for today’s markets by showing the dangers of ignoring financial fundamentals during times of excitement. Overvalued sales and

assets during the dot-com bubble remind us of how speculative investment can create unsustainable market conditions. Many companies were also highly in debt, making them vulnerable to changes in investor confidence, which caused bankruptcies and business failures. Investors should focus on a healthy balance between growth and profitability to avoid similar problems. Stronger regulations in fast-growing industries can also help reduce risks and create more stable markets for the future. Future research should explore the behavior of recent players in the technology sector, utilizing updated datasets from contemporary companies like those in artificial intelligence, blockchain, and fintech, to examine how speculative trends influence their valuations. Comparative studies between the dot-com bubble and more recent bubbles, such as the cryptocurrency surge, could provide deeper insights into recurring patterns of speculative investment. Additionally, cross-country analyses could reveal how different regulatory approaches and market structures influence the resilience of technology firms during speculative periods, contributing to a more global understanding of market dynamics.

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During the preparation of this work, the author(s) used Grammarly-AI to translate, paraphrase, and correct the grammar. After using these tools/services, the author(s) reviewed and edited the content as needed and take full responsibility for the final content of the publication.

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About the Authors

Muhammad Arsalan Khan is a Pakistani citizen and a PhD student at the Faculty of Economics and Business, Universitas Airlangga, Indonesia. His research interests include taxation, sustainability accounting, and corporate governance. He contributed to conceptualizing the study, conducting the financial and share price analyses, and drafting the initial manuscript.

Sigit Kurnianto is a PhD student at the Faculty of Economics and Business, Universitas Airlangga, and a lecturer at Faculty of Economics and Business, Universitas Airlangga, Indonesia. His research interests include public sector accounting, sustainability accounting, and corporate governance. He was involved in guiding the research design, ensuring methodological rigor, reviewing the statistical analysis, and drafting and structuring the manuscript.

Atiqa Malik is a Pakistani citizen and holds a master's degree in management from the Faculty of Economics and Business, Universitas Airlangga. Her research interests include financial management and corporate governance. She contributed by providing insights from a management perspective, refining the interpretation of results, and ensuring coherence and clarity in the final draft.