Vol. 13 (2026): Proceedings of the 3rd International Conference on Business, Management and Sustainability (ICBMS 2026)
E-ISSN: 3105-0522 P-ISSN：3105-0514
DOI: https://doi.org/10.70267/ icbms.2601.266272

Determinants of Stock Prices: A Quantitative Literature Review

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Abstract

Stock price behavior remains a central focus in financial economics, spanning macroeconomics, corporate finance, and behavioral finance. Traditional theory posits that stock prices reflect discounted future cash flows; however, empirical evidence shows that prices are also shaped by macroeconomic conditions, firm-level fundamentals, and investor sentiment. This paper provides a quantitative literature review of the determinants of stock prices, categorizing them into macroeconomic, microeconomic, and behavioral factors. Macroeconomic variables-such as interest rates, inflation, GDP growth, and policy interventions-affect market-wide valuations and volatility. Firm-specific fundamentals, including earnings, cash flow, leverage, and corporate governance, explain cross-sectional differences in returns, as captured by models like the Fama-French factor frameworks. Behavioral factors, such as overconfidence, herding, and loss aversion, account for deviations from fundamental values and market anomalies. Evidence suggests that no single factor alone fully explains stock price dynamics; instead, their interaction produces complex market behavior. The study highlights the need for integrated quantitative models that combine econometric, machine learning, and behavioral approaches to improve the understanding and modeling of stock price dynamics. Additionally, it identifies research gaps, including high-frequency data integration, cross-market spillovers, and the influence of algorithmic trading, pointing to future directions for more holistic frameworks in financial analysis.

Keywords

stock prices, macroeconomic indicators, firm fundamentals, investor sentiment, behavioral finance

1. Introduction

Stock prices are widely regarded as key indicators of economic health, corporate performance, and investor expectations [1]. They reflect both the perceived value of individual firms and aggregate information about broader market conditions. In modern financial markets, stock price formation has become increasingly complex, influenced by a dynamic interplay of macroeconomic fundamentals, firm-level characteristics, and investor behavior. Macroeconomic variables, such as interest rates, inflation, GDP growth, and monetary policy, shape expectations regarding future corporate earnings and risk-adjusted returns. Firm-specific fundamentals, including earnings, profitability, cash flow, leverage, and accounting quality, provide intrinsic signals about a company's operational efficiency, financial health, and growth potential. Meanwhile,

behavioural factors, such as investor sentiment, herding behavior, overconfidence, and reactions to news or social media, can drive short-term deviations from fundamental values [2].

Despite extensive empirical research, evidence on stock price determinants remains heterogeneous. Prior studies produce varying results due to differences in econometric models, market structures, time periods, and data frequency. Some research emphasizes macroeconomic conditions in shaping market-wide trends, while others highlight the predictive power of firm-level fundamentals. Behavioural finance studies show that psychological biases and sentiment can generate significant anomalies and short-term volatility, which cannot be fully explained by traditional models [3]. This divergence underscores the need for a comprehensive approach accounting for multiple dimensions simultaneously.

This study systematically reviews and synthesizes stock price determinants from a quantitative perspective, categorizing them into macroeconomic indicators, firm fundamentals, and behavioural factors. For each domain, it evaluates the explanatory power and directional effects of key variables, such as interest rates, inflation, GDP growth, earnings, book value, cash flow, investor sentiment, trading volume, and market volatility. Integrating these insights, the study develops a holistic framework for understanding stock price dynamics, bridging gaps between traditional asset pricing theory, empirical evidence, and behavioural finance.

The findings have significant implications for multiple stakeholders. For investors, understanding the combined influence of macroeconomic trends, firm fundamentals, and behavioural biases can inform portfolio allocation, risk management, and trading strategies. For corporate managers, insights into how fundamentals and market sentiment affect stock valuations guide financial planning, capital structure decisions, and performance evaluation. For policymakers and regulators, recognizing the interplay of macroeconomic conditions, market fundamentals, and investor behavior enhances market monitoring, policy design, and risk mitigation. Overall, this study contributes to a more nuanced understanding of stock price formation in complex and interconnected financial markets.

This study addresses the following research questions:

(1) What are the key macroeconomic variables that influence stock prices, and how do they affect stock price movements across different market conditions?

(2) To what extent do firm-level fundamentals, such as earnings, profitability, cash flow, and leverage, explain variations in stock prices from a quantitative perspective?

(3) How do behavioural factors, including investor sentiment, trading activity, and market volatility, contribute to short-term stock price fluctuations beyond fundamental information?

2. Macroeconomic Factors Influencing Stock Prices

Macroeconomic variables establish the broader financial environment in which firms operate and investors allocate capital. They influence stock prices through both direct channels-such as discount rate adjustments-and indirect channels, including expectations about corporate earnings and risk premiums. Quantitative evidence indicates that macroeconomic indicators are crucial for explaining both market-wide valuation trends and volatility, and they are widely incorporated into econometric and asset-pricing models.

2.1 Interest Rates and Monetary Policy

Interest rates are a central determinant of asset pricing. Higher interest rates increase the cost of capital, reduce the present value of future cash flows, and typically exert downward pressure on stock prices. Empirical studies, including Fama and Schwert (1977) and Bernanke and Kuttner (2005), demonstrate that both expected and unexpected monetary policy adjustments have immediate and measurable impacts on stock returns. Moreover, interest rates influence investor allocation across asset classes, altering capital flows between equities, bonds, and alternative investments. This channel underscores the importance of monetary policy for both short-term market fluctuations and long-term investment strategies [4].

2.2 Inflation and Price Stability

Inflation affects corporate profitability, real returns, and market risk. While early studies suggested a positive correlation between nominal stock returns and inflation (Fisher, 1930), subsequent research indicates that higher inflation generally depresses stock prices in the short run due to increased uncertainty and diminished purchasing power [5]. Inflation also impacts discount rates and risk premiums, which are central to modern asset-pricing models. Furthermore, persistent inflationary pressures can affect investor expectations and market sentiment, influencing trading behavior and equity valuation over both short- and long-term horizons.

2.3 Economic Growth and Industrial Production

Indicators of real economic activity, such as GDP growth and industrial production, provide important signals about future corporate earnings and overall market conditions. Chen, Roll, and Ross (1986) and Fama (1990) show a bidirectional relationship, where stock returns can both reflect and predict economic activity. High economic growth generally increases expectations of cash flow, profitability, and corporate investment, thereby raising stock valuations, while economic slowdowns reduce earnings prospects and investor confidence, exerting downward pressure on stock prices [6]. These dynamics highlight the crucial role of real economic activity in shaping both short-term market sentiment and long-term valuation trends.

2.4 Exchange Rates and Global Integration

In increasingly globalized financial markets, exchange rate fluctuations can materially affect multinational firms' stock prices. Appreciation or depreciation of domestic currency influences export competitiveness, input costs, and earnings translation effects [7]. Empirical studies show that exchange rate volatility can impact both sector-specific and market-wide equity performance, especially in export-oriented economies. Additionally, international capital flows, foreign investment exposure, and trade linkages amplify the transmission of exchange rate movements to domestic stock markets, highlighting the interconnectedness of global financial systems.

In summary, macroeconomic factors provide a structural foundation for understanding stock price dynamics, shaping discount rates, earnings expectations, and market sentiment. An integrated consideration of interest rates, inflation, economic growth, and exchange rate movements is essential for comprehensive quantitative asset-pricing models and for informing investment, corporate, and policy decisions.

3. Firm Fundamentals and Stock Price Movements

Firm-specific characteristics capture the intrinsic value components of equity pricing and play a central role in explaining cross-sectional differences in stock returns. Empirical evidence consistently shows that financial performance, growth prospects, risk profiles, and corporate governance mechanisms are crucial determinants of stock price movements. Understanding these fundamentals is essential for both investors and corporate managers when assessing firm value and market behavior. Integrating these measures into quantitative models improves prediction accuracy and provides actionable insights for financial decision-making. Moreover, firm fundamentals interact with macroeconomic conditions and investor sentiment, meaning that comprehensive models must consider both internal and external influences to fully capture stock price dynamics.

3.1 Earnings and Profitability

Earnings per share (EPS), return on equity (ROE), and other profitability measures are key indicators of firm value. Studies after 2006 reinforce that high-quality earnings directly influence valuation precision and investor confidence. Strong profitability signals operational efficiency, sustainable cash flow, and growth potential, positively affecting stock prices. Firms with stable and predictable earnings also enjoy a lower cost of capital and higher valuation multiples across varying market conditions [8, 9]. Furthermore, consistently high earnings performance can attract institutional investors and improve market liquidity, amplifying the long-term impact of profitability on stock valuation.

3.2 Book Value, Cash Flow, and Growth Metrics

Book value, operating cash flow, and expected growth are central to quantitative valuation models. The residual income model shows that firm value depends on book value and abnormal earnings. Recent research finds that high book-to-market ratios and strong cash flows correlate with higher expected returns. Growth expectations influence investor perceptions, valuation multiples, and market pricing. Firms with robust cash flow and promising growth prospects are better positioned to withstand market shocks [10]. In addition, investors increasingly integrate forward-looking growth metrics, such as R&D intensity or strategic expansion plans, into valuation models, further enhancing the explanatory power of cash flow and book value measures.

3.3 Accounting Quality and Fundamental Signals

High-quality accounting reduces information asymmetry and improves valuation precision. Fundamental signals-including inventory levels, receivables, gross margins, R&D expenditures, and dividend policies-retain significant predictive power for stock returns. Transparent and reliable reporting attracts long-term investors and stabilizes valuations, demonstrating the interplay between disclosure, investor trust, and market efficiency. High-quality accounting also enables more accurate risk assessment and better portfolio allocation [11, 12]. Additionally, firms that adhere to high accounting standards tend to experience lower borrowing costs and improved governance ratings, reinforcing their overall financial stability and investor confidence.

3.4 Leverage and Capital Structure

Capital structure choices influence stock price volatility and sensitivity to macroeconomic shocks. Studies after 2006 show that high leverage increases financial risk and can amplify stock price fluctuations, especially in adverse market conditions. Prudent leverage management balances growth opportunities with risk mitigation, enhancing investor confidence and supporting sustainable long-term firm performance [13]. Moreover, optimal capital structure decisions can improve credit ratings and reduce the likelihood of financial distress, which in turn stabilizes stock prices and attracts long-term investment.

In a word, firm fundamentals-including earnings, cash flow, book value, accounting quality, growth metrics, and leverage-provide essential signals for intrinsic value estimation and cross-sectional return variation. Incorporating these metrics into quantitative models enhances predictive power, supports portfolio allocation, and guides effective corporate financial management. Importantly, the integration of these factors with macroeconomic and behavioral data enables a more holistic assessment of stock price movements, improving both investment decisions and strategic corporate planning.

4. Behavioral Factors and Market Sentiment

Behavioral finance highlights that psychological, social, and cognitive factors significantly influence stock price movements, particularly in the short term. Investor behavior can amplify price volatility, create persistent mispricing, and generate market anomalies that cannot be fully explained by fundamentals alone. Recent research emphasizes that integrating behavioral measures into quantitative models can improve explanatory power and predictive accuracy.

4.1 Investor Sentiment

Investor sentiment - reflecting aggregate optimism or pessimism beyond what fundamentals justify - has a measurable impact on stock returns. Recent global-scale evidence shows that elevated sentiment often precedes lower future returns, indicating possible overvaluation and subsequent correction [14]. In some markets, heightened sentiment is also associated with increased volatility in cash flows and discount rates, thereby affecting firm-level performance and valuation dynamics. This suggests that sentiment shocks can distort expected returns and undermine long-term performance, especially when sentiment is not anchored in fundamentals.

4.2 Trading Volume, Liquidity, and Volatility

High trading volume and low liquidity are often linked to increased price volatility. Shifts in investor attention, risk perception, and reactions to news events or external shocks frequently amplify these effects.

Recent studies using high-frequency market data and sentiment indices show that sudden sentiment changes can drive liquidity shortages and higher intraday volatility, particularly in emerging markets. Recognizing these behavioral drivers is critical for accurate volatility modeling and risk management [15].

4.3 Media, Social Networks, and Data-Driven Sentiment

Advances in machine learning and natural language processing enable extraction of real-time sentiment from news, financial reports, and social media. Positive or negative media coverage strongly influences investor perceptions and market behavior. Studies demonstrate that social media sentiment can predict short-term market movements and identify periods of irrational trading or herding behavior. Incorporating these alternative data sources into quantitative models enhances prediction accuracy and timeliness [16, 17].

4.4 Herd Behavior and Cognitive Biases

Herding occurs when investors follow the actions of others, often disregarding fundamentals, while cognitive biases like overreaction or underreaction contribute to short-term price misalignments. Recent evidence shows that institutional and retail investors alike exhibit stronger herding during high-sentiment or high-uncertainty periods, amplifying volatility and deviations from intrinsic value. Recognizing these behaviors is essential for modeling short-term anomalies and risk management in modern financial markets [18, 19].

To summarize, behavioral factors - including investor sentiment, trading volume and liquidity, social media-driven sentiment, herding, and cognitive biases - play a crucial role in stock price dynamics, especially in the short term. Integrating these behavioral determinants into quantitative models complements macroeconomic and firm-level fundamentals, enabling more accurate prediction of volatility, price deviations, and market anomalies across different time horizons.

5. Conclusion

This study integrates macroeconomic, firm-specific, and behavioral determinants to provide a comprehensive quantitative understanding of stock price dynamics. Macroeconomic factors-including interest rates, inflation, GDP growth, and exchange rate fluctuations-establish the broad market environment, shaping discount rates, earnings expectations, and investor sentiment. Firm fundamentals, such as earnings, cash flow, book value, accounting quality, and leverage, serve as intrinsic value signals, explaining cross-sectional variations in returns and providing guidance for corporate financial management. Behavioral factors, including investor sentiment, herding, overreaction, and media-driven information, account for short-term deviations from fundamental values, volatility, and market anomalies [20].

The integration of these determinants into unified quantitative models enhances forecasting accuracy and provides actionable insights for multiple stakeholders. Investors can improve portfolio allocation and risk management by accounting for macroeconomic shifts, firm-level signals, and behavioral patterns. Corporate managers benefit from understanding how fundamentals and market sentiment interact to influence valuation, informing capital structure and strategic decision-making. Regulators can strengthen market oversight and policy design by monitoring the interplay of economic conditions, corporate fundamentals, and behavioral drivers.

Future research should focus on incorporating high-frequency trading data, cross-market spillovers, algorithmic trading effects, and alternative data sources such as social media sentiment to refine predictive models. Additionally, exploring the dynamic interactions among macroeconomic shocks, firm fundamentals, and investor behavior can reveal complex systemic patterns, further improving both theoretical modeling and practical financial decision-making. Advancing interdisciplinary approaches that combine econometrics, machine learning, and behavioral finance will be critical for developing adaptive, real-time predictive frameworks capable of capturing evolving market dynamics and supporting sustainable market growth.

Ultimately, a holistic approach that integrates macroeconomic conditions, firm-specific fundamentals, and behavioral insights provides a robust foundation for resilient investment strategies, informed corporate governance, and effective financial market policies in increasingly interconnected global markets.

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Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflict of interest.

Acknowledgment

This paper is an output of the science project.

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