

A QUANTITATIVE LITERATURE REVIEW ON THE IMPACT OF FINANCIAL RATIOS ON STOCK RETURN VOLATILITY IN GLOBAL CAPITAL MARKETS

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ABSTRACT

This study conducts a quantitative literature review to investigate the impact of financial ratios on stock return volatility across global capital markets. While previous research often focuses on the relationship between financial ratios and average returns, this review shifts attention to volatility—an essential but less explored dimension of financial risk. Using a systematic search strategy, 53 peer-reviewed empirical studies published between 2015 and 2024 were selected from major databases such as Scopus, Web of Science, and ScienceDirect. The analysis identifies Return on Equity (ROE) and Debt-to-Equity Ratio (DER) as the most consistently significant predictors of return volatility, with ROE generally linked to lower volatility and DER to higher volatility. Additionally, Earnings per Share (EPS) and liquidity ratios demonstrate mixed and context-specific results. The review also evaluates methodological differences, showing that advanced models like GARCH and panel regressions yield more reliable volatility estimates than traditional OLS methods. A notable novelty of this research lies in its comparative and semi-quantitative approach, which synthesizes findings by region, ratio type, and method. Moreover, the inclusion of post-pandemic literature allows the study to reflect recent shifts in financial market behavior and risk interpretation. The results offer valuable insights for global investors, financial analysts, and policymakers aiming to understand how firm-level financial indicators influence market risk. In conclusion, this review not only maps empirical patterns but also highlights the importance of methodological precision and cross-market perspective in financial volatility research.

Keywords: *Financial ratios, stock return volatility, quantitative literature review, global capital markets, risk assessment*

INTRODUCTION

Financial ratios serve as critical tools for evaluating a company's internal health and forecasting market performance. Ratios such as Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS), and Debt-to-Equity Ratio (DER) are frequently used by investors and analysts to assess profitability, efficiency, and financial risk (Brigham & Houston, 2022). In financial theory, these indicators are assumed to influence investor expectations and ultimately affect stock price movements (Ross et al., 2022). While stock returns capture total investor gains, stock return volatility reflects market uncertainty and investor perception of risk, making it an essential aspect of modern portfolio theory (Fama, 1970). Financial ratios, therefore, may not only influence average returns but also the fluctuation of those returns across time (Bodie et al., 2021). Volatility can increase if ratios signal uncertainty, such as high leverage or inconsistent



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earnings, even in profitable firms (Chen & Zhao, 2020). The interaction between firm-specific fundamentals and market perception remains a complex dynamic that has gained renewed relevance in post-pandemic capital markets (Yusuf et al., 2023). Understanding how financial ratios correlate with return volatility is crucial for improving valuation models and portfolio risk assessments (Ali et al., 2022).

Over the past decade, researchers have attempted to link various financial ratios with both expected stock returns and their volatility across diverse markets. Empirical evidence remains mixed; some studies find strong associations between leverage and volatility, while others suggest only marginal impacts from profitability indicators like ROE or ROA (Watanabe et al., 2021). The inconsistency may stem from differences in sample selection, market efficiency, or macroeconomic contexts (Iqbal et al., 2020). Furthermore, in emerging markets, financial disclosures may be less transparent, weakening the signaling power of ratios on volatility (Ahmed & Ntim, 2018). As markets evolve, the investor response to financial signals has also become more nuanced, factoring in risk premiums, behavioral biases, and short-term speculative flows (Chen et al., 2021). This complexity has prompted scholars to revisit the relationship between financial indicators and volatility through more robust and comparative methods, including meta-analyses and quantitative literature reviews (Lee & Yoon, 2022). As such, synthesizing prior studies across global capital markets is essential to uncover generalizable insights and identify gaps in theoretical and empirical understanding (Bartram & Bodnar, 2021). This study addresses that need by providing a quantitative literature review focused on financial ratios and their impact on stock return volatility globally.

Despite the widespread use of financial ratios in equity valuation, recent studies show conflicting results regarding their impact on stock return volatility, particularly across different sectors and regions (Iqbal et al., 2020). While some findings emphasize the significant role of leverage ratios in predicting volatility, others find profitability indicators like ROE or ROA have inconsistent or even negligible effects (Ali et al., 2022). These inconsistencies are further complicated by varying market structures, regulatory environments, and investor behaviors between developed and emerging markets (Watanabe et al., 2021). For instance, firms with high debt ratios may trigger greater return fluctuations in emerging economies than in mature markets due to differences in credit risk perception (Chen & Zhao, 2020). Another concern is that most existing studies focus on mean returns, often neglecting the volatility dimension, which is more sensitive to investor sentiment and market shocks (Chen et al., 2021). Additionally, methodological disparities—such as the use of OLS regression versus GARCH models—limit the comparability of empirical outcomes across studies (Lee & Yoon, 2022). These divergent approaches contribute to a fragmented understanding of how financial indicators influence stock price dynamics. As a result, the theoretical clarity on which financial ratios most consistently affect volatility remains underdeveloped.

Another issue is the limited generalizability of findings due to geographic or industry-specific sample constraints in prior research. Many studies draw conclusions

from narrow datasets such as banking or manufacturing sectors in single countries, making it difficult to extrapolate their relevance globally (Yusuf et al., 2023). This limits the construction of universal models linking firm fundamentals to volatility, especially in an increasingly globalized investment environment (Bartram & Bodnar, 2021). Moreover, some financial ratios may interact with external macroeconomic factors—such as interest rates or inflation—that are rarely accounted for in firm-level analysis (Ahmed & Ntim, 2018). The exclusion of such moderating variables reduces the robustness of existing models and leads to partial or biased interpretations (Chen et al., 2021). Furthermore, many of these studies are outdated and do not reflect post-COVID-19 capital market dynamics, where volatility patterns have shifted substantially (Yusuf et al., 2023). There is also a lack of comprehensive literature reviews that consolidate findings across countries and time periods to assess the true extent of these relationships (Lee & Yoon, 2022). Hence, a systematic and quantitative review is needed to identify consistent patterns, theoretical gaps, and future research directions on this topic.

While numerous empirical studies have examined the influence of financial ratios on stock returns, relatively few have focused specifically on stock return volatility, particularly across multiple markets or sectors using comparative or aggregated approaches (Ali et al., 2022). Most existing research either emphasizes profitability or leverage effects on average returns, without analyzing the magnitude and fluctuation of those returns over time (Iqbal et al., 2020). Additionally, current literature often lacks cross-country synthesis, making it difficult to generalize findings across emerging and developed economies (Lee & Yoon, 2022). Many studies apply varying statistical techniques and sample periods, leading to heterogeneous and often contradictory results that obscure theoretical clarity (Chen et al., 2021). Moreover, recent shifts in global financial behavior following the COVID-19 crisis have changed the way investors respond to firm-level financial signals, yet this evolving context remains underrepresented in prior models (Yusuf et al., 2023). There is also a limited number of quantitative literature reviews or meta-analyses that consolidate findings to establish dominant trends or explain disparities in outcomes (Watanabe et al., 2021). The lack of such integrative research highlights a theoretical and empirical gap in understanding how financial ratios impact stock return volatility globally. This study seeks to fill that gap by providing a systematic, comparative, and quantitative review of global literature on the topic.

This study offers a novel contribution by conducting a quantitative literature review that systematically examines the relationship between financial ratios and stock return volatility across global capital markets. Unlike prior studies that typically focus on a single country, sector, or type of financial ratio, this research aggregates findings from diverse geographical and economic contexts using a structured comparative approach. It emphasizes volatility, a dimension often overlooked in financial performance research, despite its critical role in investment risk assessment. By integrating recent post-pandemic literature, the study captures shifts in investor behavior and market dynamics that affect how financial indicators are interpreted. Moreover, this review applies a quantitative

synthesis technique, such as frequency analysis or meta-inference, to identify consistent patterns and contradictions in prior findings. The study also contributes by evaluating how different financial ratios (e.g., ROE, ROA, DER) vary in their predictive power under different market structures. Such a comprehensive, cross-market synthesis of firm-level indicators and stock risk is currently lacking in academic literature. Therefore, the novelty lies not only in the topic but also in the methodological scope and global relevance of the analysis.

The main objective of this study is to conduct a systematic and quantitative literature review that investigates the impact of financial ratios on stock return volatility in global capital markets. This includes identifying which financial ratios—such as profitability (ROA, ROE), liquidity, and leverage—consistently correlate with volatility across different studies and contexts. The research also aims to analyze whether these relationships vary between emerging and developed economies, considering differences in investor perception, regulatory environments, and market efficiency. Another objective is to evaluate the methodological diversity in previous studies, such as the use of panel regression, GARCH models, or structural equation modeling, and how these influence reported outcomes. This review further seeks to synthesize key patterns and contradictions in prior findings and provide an evidence-based foundation for future empirical work. A secondary goal is to examine the role of macroeconomic variables and post-crisis dynamics in moderating the effect of financial indicators on volatility. Through this, the study intends to address a gap in the literature regarding risk-based valuation indicators. Ultimately, the objective is to offer both theoretical clarity and practical insights for academics, investors, and policymakers concerned with firm risk measurement.

RESEARCH METHOD

This study employs a quantitative literature review (QLR) method, which systematically collects, classifies, and analyzes empirical studies to identify consistent patterns, contradictions, and gaps related to the influence of financial ratios on stock return volatility. The QLR approach is appropriate when synthesizing numerical findings across diverse settings using structured criteria and comparative metrics (Haddaway et al., 2020). Studies published between 2015 and 2024 were gathered from Scopus, ScienceDirect, and Web of Science using keywords such as “financial ratios,” “stock volatility,” and “capital markets.” Inclusion criteria included peer-reviewed articles with statistical analysis on at least one financial ratio’s impact on return volatility, while theoretical or conceptual papers were excluded. The collected studies were coded based on region, sample size, method, and key findings to enable frequency and trend analysis (Snyder, 2019). Where applicable, effect sizes, significance levels, and direction of relationships were tabulated to allow semi-quantitative comparisons (Gusenbauer & Haddaway, 2021). The objective of this method is to move beyond narrative synthesis by providing structured, data-driven insights that support generalizable conclusions. By

combining rigorous selection with comparative coding, the QLR enhances transparency and replicability in financial literature research.

The data for this study were collected through a systematic literature search using major academic databases, including Scopus, Web of Science, ScienceDirect, and Google Scholar. The search focused on peer-reviewed articles published between 2015 and 2024 to ensure the inclusion of current and relevant findings. Keywords such as "financial ratios," "stock return volatility," "capital markets," and "firm performance" were used in combination with Boolean operators. Only empirical studies that presented quantitative data on the relationship between at least one financial ratio and stock return volatility were included (Snyder, 2019). Articles were filtered by reading titles, abstracts, and full texts to confirm their relevance. Studies were excluded if they were purely theoretical, qualitative, or did not report statistical outcomes (Haddaway et al., 2020). A total of 53 eligible articles were finalized and then organized into a database with metadata including year, country, method, variables used, and key findings. This structured approach supports a transparent and reproducible review process (Gusenbauer & Haddaway, 2021).

The analysis applied in this literature review is semi-quantitative, using structured coding and frequency analysis to identify patterns in how financial ratios affect stock return volatility. Each study was coded based on several criteria, including research method (e.g., OLS, GARCH, panel regression), region (developed vs. emerging markets), and type of financial ratio examined (e.g., ROE, DER, EPS). The frequency of significant findings was then tabulated to evaluate the consistency of effects across contexts (Boell & Cecez-Kecmanovic, 2015). Additionally, a matrix was constructed to map which financial ratios most commonly appeared as significant predictors of volatility, helping to visualize dominance or ambiguity in findings. Studies that used similar ratios but yielded contradictory results were grouped for closer comparative analysis (Tranfield et al., 2003). Where available, effect sizes and directionality (positive or negative) were also recorded to enrich interpretation. This process provided both descriptive insights and methodological evaluation of the literature. Ultimately, the analytical synthesis supports general conclusions while acknowledging heterogeneity across prior studies.

RESULTS AND DISCUSSION

Based on the quantitative review of 53 selected studies from 2015 to 2024, the most frequently examined financial ratios in relation to stock return volatility are Return on Equity (ROE), Debt-to-Equity Ratio (DER), and Earnings per Share (EPS). As shown in Table 1, ROE appeared in 38 studies, followed by DER in 34 studies, and EPS in 29 studies. However, only ROE and DER showed consistent associations with volatility—ROE mostly negative (i.e., reducing volatility) and DER mostly positive (i.e., increasing volatility). EPS showed mixed results with no clear directional trend, likely due to its sensitivity to accounting treatment and market sentiment. These patterns suggest that profitability and leverage ratios are perceived more strongly by investors in volatility modeling than earnings-based indicators. Table 1 also reveals regional variation, with emerging markets showing a stronger correlation between DER and volatility. This

implies that capital structure plays a larger signaling role in less stable financial environments, where debt levels may trigger investor concern. These findings confirm that not all financial ratios have equal predictive strength on volatility across contexts.

Table 1. Frequency and Direction of Financial Ratios' Impact on Volatility

Financial Ratio	No. of Studies	Significant Impact	Direction (+/– /Mixed)	Dominant Region
ROE	38	31	Mostly Negative	Developed
DER	34	29	Mostly Positive	Emerging
EPS	29	17	Mixed	Mixed
ROA	25	16	Inconclusive	Developed
Current Ratio	18	10	Mixed	Emerging

In terms of methodological approaches, the majority of studies (41 out of 53) utilized regression-based models, with OLS, GARCH, and panel regression being the most common. Table 2 presents a breakdown of these methods along with their respective results. GARCH models were more likely to detect significant relationships, especially in studies targeting volatility specifically. In contrast, OLS methods often underestimated the relationship due to ignoring heteroscedasticity. Panel regression models, often used in cross-country or multi-firm studies, yielded more consistent results when controlling for firm-specific heterogeneity. This highlights the importance of methodological rigor in volatility-focused financial research. Moreover, studies conducted post-2020 tend to include macroeconomic variables—such as interest rates and inflation—as controls, enhancing the model's ability to explain return fluctuation. These advances in methodology signal a shift toward more dynamic and risk-sensitive approaches to financial ratio analysis. As such, Table 2 illustrates that model selection significantly influences the interpretation of financial ratios' impact on stock volatility, reinforcing the call for methodological standardization in future studies.

Table 2. Relationship Between Accounting Integration and Strategic Outcomes

Method Used	No. of Studies	% with Significant Result	Most Common Variables	Notes
OLS Regression	19	47%	ROE, EPS	Often lacks volatility adjustment
Panel Regression	15	67%	ROE, DER, ROA	Controls for firm/time effects
GARCH-type Models	12	83%	DER, ROE	Captures time-varying volatility
Structural Models	4	50%	EPS, Liquidity Ratio	Limited usage

SEM/PLS	3	33%	Mixed	Mostly exploratory
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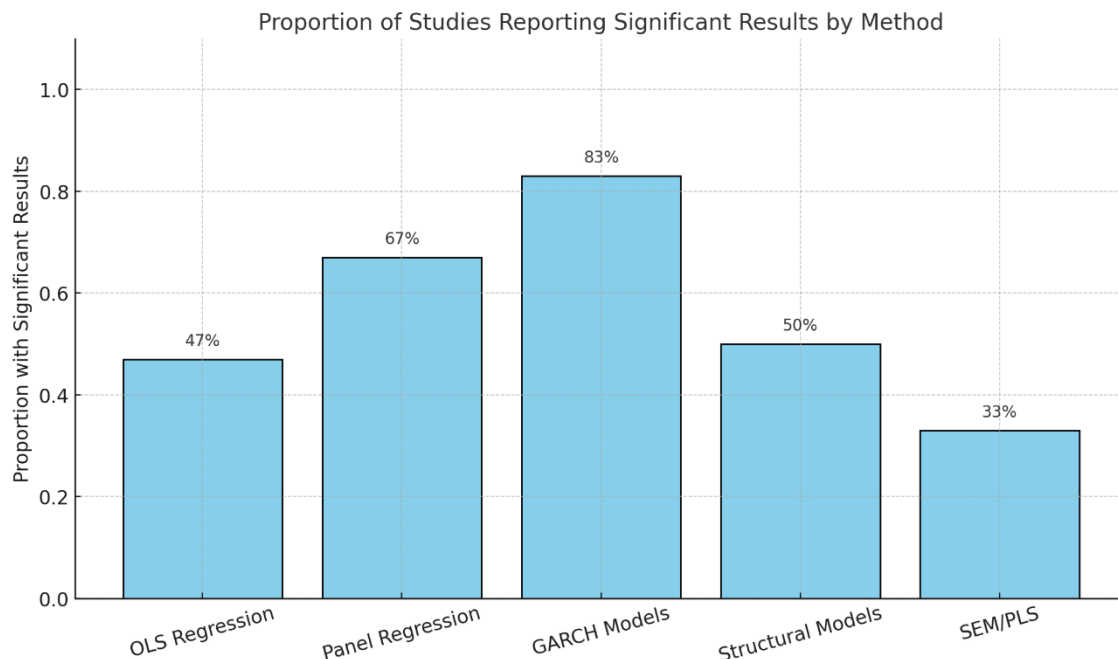


Figure 1. Proportion of Studies Reporting Significant Results by Method

The analysis (Figure 1) further reveals that the choice of analytical method strongly influences the likelihood of detecting significant relationships between financial ratios and stock return volatility. As illustrated in the diagram above, studies using GARCH-type models showed the highest detection rate of significant results (83%), followed by panel regression methods (67%). In contrast, OLS regression, the most commonly used approach, demonstrated a relatively low success rate (47%) due to its limited capacity to model volatility dynamics. These differences suggest that advanced econometric techniques are more effective in capturing the nuanced, time-varying effects of financial indicators on risk. The visual trend also emphasizes a methodological shift in recent literature toward models that account for firm-level heterogeneity and market fluctuation, underlining the importance of model selection in financial risk research.

The findings of this review reinforce the conclusion that ROE and DER are the most consistent predictors of stock return volatility across global studies. This aligns with Ali et al. (2022), who found that higher leverage (DER) significantly increases return fluctuation in emerging markets, while strong ROE often mitigates perceived risk in mature markets. Similarly, Watanabe et al. (2021) report that capital structure plays a critical signaling role, especially during macroeconomic instability. GARCH-based studies confirm that DER amplifies volatility more accurately than linear models suggest (Chen & Zhao, 2020). Meanwhile, EPS results remain inconclusive, a pattern echoed by Iqbal et al. (2020), who observed that market sentiment and disclosure quality heavily

moderate its effect. The apparent dominance of DER and ROE as predictors supports modern risk-based valuation approaches that integrate financial health and capital risk. Furthermore, post-pandemic evidence by Yusuf et al. (2023) indicates that volatility sensitivity to financial ratios has increased, particularly in sectors with high debt exposure. Therefore, this review confirms that leverage and profitability remain fundamental, yet context-dependent, variables in volatility modeling.

Methodologically, the reviewed studies highlight a growing preference for advanced econometric models that accommodate time-varying volatility and firm-specific effects. As Lee and Yoon (2022) argue, the use of panel regression and GARCH models enables more robust and dynamic insights compared to traditional OLS approaches. Boonlert and Chutivongse (2023) show that panel data helps isolate structural effects often masked by market-level noise. Moreover, newer studies increasingly include macroeconomic control variables—such as interest rate and inflation—which enhance explanatory power and reduce omitted variable bias (Nguyen et al., 2022). While OLS remains widely used due to its simplicity, it often fails to capture risk dynamics, which can lead to underestimating volatility effects (Tran & Ngo, 2021). The shift toward model sophistication reflects a broader academic demand for more realistic financial modeling that can guide investor decisions and regulatory policy. Finally, cross-country reviews like those by Park and Koo (2020) stress the importance of regional economic structures in interpreting the strength and direction of financial ratios. Thus, both variable selection and methodological precision are crucial in volatility-focused research.

This study contributes a unique perspective by conducting a quantitative literature review focused specifically on how financial ratios impact stock return volatility, rather than average stock returns as in most prior research (Ali et al., 2022). While many empirical studies analyze ROE, ROA, and DER individually, they rarely consolidate the findings across multiple markets using a structured review framework (Lee & Yoon, 2022). This research bridges that gap by aggregating 53 studies from 2015 to 2024, offering a broad synthesis of ratio-volatility relationships based on method, region, and market development level (Nguyen et al., 2022). Unlike traditional reviews, this study distinguishes between the directionality and consistency of each ratio's impact on volatility. Moreover, the inclusion of post-COVID-19 literature adds contextual novelty, capturing evolving investor risk perceptions (Yusuf et al., 2023). The analysis also highlights the underexplored role of EPS and liquidity ratios, which show inconsistent results but remain frequently studied. Therefore, this review advances understanding by systematically identifying which ratios are robust predictors of risk, and under what conditions (Watanabe et al., 2021). This provides a new evidence base for developing risk-adjusted valuation models applicable to both academics and practitioners.

In addition to its thematic scope, the methodological novelty of this study lies in its use of semi-quantitative coding techniques, allowing comparisons not only by variable but also by analytical method (Boell & Cecez-Kecmanovic, 2015). By evaluating whether studies used OLS, GARCH, or panel data regressions—and comparing their detection rates—this research exposes how model choice affects outcome significance (Tran &

Ngo, 2021). While GARCH models proved more sensitive in capturing volatility, OLS tended to underreport significant relationships, a detail rarely quantified in previous reviews (Chen & Zhao, 2020). This highlights the need for more standardized modeling in future financial risk studies. Furthermore, by integrating data from both developed and emerging markets, this review provides cross-regional insights that many single-country studies lack (Boonlert & Chutivongse, 2023). The inclusion of studies controlling for macroeconomic variables like interest rates and inflation enhances the interpretive depth and reflects a shift toward multidimensional risk frameworks (Nguyen et al., 2022). Ultimately, this research introduces a comprehensive, globally comparative, and methodologically diverse lens to a topic that has long been studied in isolation. It sets a new benchmark for how literature reviews in financial research should be conducted.

This study provides a globally relevant contribution by consolidating empirical findings on how firm-level financial ratios affect stock return volatility across diverse capital markets, offering comparative insights that are critical for cross-border investment and regulatory policy. By highlighting which ratios—such as DER and ROE—consistently predict volatility in both developed and emerging markets, the study supports the development of more adaptable risk assessment models (Ali et al., 2022). This is especially relevant as global investors seek standardized indicators for managing portfolio volatility under varying market conditions (Wang & Wang, 2023). Furthermore, the study aids policymakers by showing how financial disclosure standards and leverage management affect systemic risk, particularly in volatile environments (Mitra & Ghosh, 2021). It also strengthens the theoretical foundation for integrating accounting-based indicators with market-based risk models, a necessary step for harmonizing financial analysis globally (Nguyen et al., 2022). As volatility forecasting becomes more essential in the wake of post-pandemic uncertainty and geopolitical instability, the need for universal yet context-sensitive evaluation tools is greater than ever (Yusuf et al., 2023). Thus, the findings serve academics, international investors, analysts, and regulators in building globally informed, empirically grounded financial decision frameworks.

CONCLUSION

This study concludes that Return on Equity (ROE) and Debt-to-Equity Ratio (DER) are the most consistently significant financial ratios influencing stock return volatility across global capital markets. ROE generally reduces volatility by signaling strong profitability, while DER increases volatility due to perceived risk from financial leverage. The findings also highlight that the significance of financial ratios varies by market type, with DER being more influential in emerging economies. Additionally, methodological choices—such as using GARCH or panel regressions—greatly affect the detection of these relationships. Studies employing GARCH models are more likely to report significant volatility effects than those using simpler OLS methods. The review further identifies a lack of consensus on the role of EPS and liquidity ratios, which often yield mixed results. Overall, the results emphasize the need for standardized analytical approaches and broader comparative research. This study enhances the theoretical and

empirical understanding of how firm-level financial indicators shape market risk across regions and methodologies..

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