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HOW DO FIRM CHARACTERISTICS AMPLIFY THE IMPORTANCE OF ESG RATINGS FOR INVESTORS?

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ABSTRACT. This study examines the moderating effects of firm characteristics on the relationship between ESG ratings and investor responses among companies listed on the Stock Exchange of Thailand (SET) by analyzing key firm attributes, namely profitability, leverage, firm size, firm age, and audit quality. The findings reveal that ESG ratings negatively affect both stock returns and stock price volatility. Furthermore, the role of firm characteristics indicates that highly profitable firms experience weaker stock return benefits from ESG improvements. This suggests that financially stable firms already command strong investor confidence, which diminishes the incremental impact of ESG ratings. Similarly, highly leveraged firms face declining stock returns as ESG ratings improve, suggesting that investors may perceive ESG investments as an additional cost rather than a risk-mitigating factor in financially constrained firms. In contrast, larger and older firms exhibit higher stock returns and lower price volatility in response to ESG ratings, likely due to their established market presence, stronger governance structures, and enhanced investor trust. Although audit quality does not appear to significantly moderate the ESG-stock return relationship, it contributes to reducing stock price volatility, emphasizing the importance of financial transparency in stabilizing market reactions. These findings underscore the differentiated impact of ESG ratings across firms, highlighting that investor responses to ESG performance are not uniform but rather contingent on firm-specific financial attributes. This study reinforces the necessity of integrating firm characteristics into ESG-related financial analyses and provides valuable insights for investors, corporate managers, and regulatory bodies seeking to enhance market stability and investment efficiency in the evolving landscape of sustainable finance.

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G30, M10, M41

Keywords: ESG ratings, firm characteristics, investor responses,
stock returns, stock price volatility

Introduction

The growing emphasis on environmental, social, and governance (ESG) factors has significantly influenced contemporary investment strategies. Investors are increasingly incorporating non-financial metrics alongside traditional financial indicators in their decision-making processes (Yu et al., 2024). This shift underscores the increasing recognition of sustainability as a crucial component of a firm's overall value, complementing financial and economic considerations (De Vincentiis, 2024). Consequently, firms face mounting pressure to enhance their non-financial performance and align with evolving societal expectations regarding environmental and social responsibility (Danisman & Tarazi, 2024). At the corporate level, ESG's importance lies in managers prioritizing ESG performance to attract conscientious investors, thereby bolstering investor confidence and enhancing the company's reputation for financial transparency and reliability (Gafni et al., 2024). Strong ESG performance has been shown to increase investor confidence, ultimately contributing to greater firm value (Tang et al., 2024). Numerous global studies suggest that ESG ratings influence stock prices, investor sentiment, and market stability by signaling a company's long-term sustainability and risk management capabilities. In Thailand, the Stock Exchange of Thailand (SET) introduced SET ESG ratings for the first time in 2023, marking a significant step toward integrating sustainability into the Thai stock market. This initiative reflects a broader trend in which regulators and investors increasingly demand greater transparency and accountability regarding corporate ESG performance. As a result, Thai firms are now more incentivized to improve their ESG scores, while investors are paying closer attention to the impact of ESG ratings on stock price movements and returns. However, despite the increasing importance of ESG in investment decisions, the actual impact of ESG ratings on stock performance in Thailand remains uncertain, particularly when considering the varying characteristics of different firms.

While numerous studies have examined the relationship between ESG ratings and stock market performance in developed economies, limited research has been conducted within the context of emerging markets such as Thailand. More importantly, it remains uncertain whether all firms benefit equally from high ESG ratings or whether firm-specific characteristics moderate this relationship. This uncertainty arises because each business organization possesses unique attributes that differentiate its management practices from others (Handoyo et al., 2023). Firm characteristics, therefore, distinguish one company from another in terms of functions and operations (Nkundabanyanga et al., 2020); however, empirical evidence on the role of these characteristics in shaping corporate social responsibility (CSR) practices remains inconclusive (Činčalová & Hedija, 2020). Furthermore, past studies confirm that CSR practices positively and significantly affect a firm's market performance; however, their impact on stock prices can differ according to firm characteristics (Yoon et al., 2018). For instance, highly profitable firms may be perceived as financially stable, leading investors to prioritize earnings potential over ESG performance. Similarly, large firms already attract substantial investor confidence and media attention, which may reduce the additional impact of an ESG rating upgrade. In contrast, firms with high debt levels may experience greater investor reliance on ESG ratings, as stronger ESG credentials are often associated with better risk management and lower credit risk. Additionally, companies with long operating histories may elicit different investor responses compared to younger firms, as traditional businesses may be perceived as slower to adapt to ESG-related changes. Lastly, firms audited by a Big Four accounting firm may enjoy greater financial credibility, potentially influencing how investors interpret ESG ratings. These factors suggest that the relationship between ESG ratings and stock market performance is not uniform but is instead shaped by firm-specific attributes.

This study aims to examine how firm characteristics amplify or mitigate the effect of ESG ratings on stock price volatility and stock returns in Thailand. Specifically, it investigates whether firms with certain attributes—such as high profitability, significant leverage, large size, long operational history, and Big4 auditing—experience stronger or weaker market reactions when ESG ratings are announced. By analyzing stock returns and stock price volatility following the release of SET ESG ratings, this research seeks to determine whether ESG ratings serve as a key determinant of stock market outcomes for all firms or if their impact varies depending on firm-specific factors. The study employs quantitative methods, utilizing regression analysis to assess how different firm characteristics influence reactions to ESG-related news and whether these reactions lead to significant shifts in stock volatility and returns.

The findings of this study will be valuable to multiple stakeholders, including investors, corporate managers, and policymakers. Investors can leverage these insights to refine their investment strategies by identifying which types of firms respond most strongly to ESG ratings, thereby enabling them to manage risk and optimize portfolio performance. Corporate managers can gain a better understanding of how their firm characteristics influence investor perceptions of ESG performance, allowing them to enhance ESG disclosures and communication strategies. Policymakers and regulatory bodies can use these findings to strengthen ESG reporting frameworks and promote sustainable investment practices. By shedding light on these critical issues, this research contributes to the ongoing discourse on ESG investing, corporate sustainability, and stock market efficiency in Thailand, providing timely insights into the evolving role of ESG in the financial sector.

1. Literature review

1.1. Theoretical analysis

The relationship between firm characteristics and investor perception of ESG ratings news can be analyzed through multiple theoretical lenses. This study primarily draws from Signaling Theory, Stakeholder Theory, Agency Theory, Resource-Based View Theory and Institutional Theory to examine how various firm attributes influence investor reactions to ESG-related information. Each of these theories provides critical insights into why ESG ratings may affect stock price volatility and stock returns differently across firms with distinct characteristics.

Signaling Theory (Spence, 1973) posits that ESG ratings serve as crucial signals to investors, particularly in firms where information asymmetry is pronounced. Investors often rely on ESG scores to assess a company's long-term sustainability and risk management capabilities. Large firms with strong profitability and audited financial statements from Big4 firms may already enjoy high investor confidence, potentially leading to a weaker impact of ESG news on their stock volatility. Conversely, highly leveraged firms or those with a long operational history but inconsistent financial performance may experience stronger market reactions to ESG news, as these ratings help investors reassess firm risk profiles. The signaling effect is particularly pronounced when ESG scores deviate significantly, either positively or negatively, from investor expectations.

Stakeholder Theory (Freeman & McVea, 2001) suggests that companies must consider the interests of all stakeholders, including investors, customers, employees, and regulators. Firms with strong ESG ratings are often perceived as more committed to corporate social responsibility (CSR), which can enhance their reputation and strengthen relationships with key stakeholders. This, in turn, can lead to increased investor trust and reduced stock price volatility. However, the magnitude of this effect may depend on firm size and profitability. Larger and

more profitable firms are often expected to uphold high ESG standards, potentially resulting in a muted stock market response. In contrast, firms with high debt levels or those not audited by Big4 firms may experience more pronounced investor reactions, as improvements in ESG ratings signal reduced financial or governance risks.

Agency Theory (Jensen & Meckling, 1976) explains how ESG ratings can mitigate agency conflicts between managers and shareholders. High ESG scores often indicate stronger corporate governance, reducing the likelihood of managerial opportunism and enhancing investor confidence. Investors may respond positively to ESG news in firms with historically weaker governance structures, such as those with high leverage or those lacking Big4 audit oversight. Conversely, in firms that are already well-governed, additional ESG disclosures may provide little new information, leading to a less significant stock market reaction. This theory also suggests that in highly leveraged firms, strong ESG ratings may reassure creditors and institutional investors, thereby lowering perceived financial risk and reducing stock price volatility.

Resource-Based View (RBV) (Barney, 1991) posits that ESG initiatives provide firms with a competitive advantage by differentiating them in the marketplace. ESG ratings can be considered intangible strategic resources that enhance a firm's reputation, operational efficiency, and long-term value creation. For highly profitable firms, ESG ratings may reinforce their competitive positioning, potentially leading to positive stock returns. However, for firms with lower profitability or those facing financial constraints, ESG investments may be perceived as a cost rather than a strategic asset, resulting in mixed investor reactions. Additionally, firms with a long operational history may experience varying ESG effects, as legacy corporate structures may either facilitate or hinder sustainable business transformations.

Finally, Institutional Theory (DiMaggio & Powell, 1983) provides a foundational framework for understanding how firm characteristics moderate the impact of ESG performance on stock market outcomes. The theory posits that firms adopt ESG practices not solely for financial gains but as a response to coercive, mimetic, and normative pressures, seeking legitimacy within institutional environments. Coercive pressures, such as regulatory mandates and investor expectations, compel firms - particularly larger ones - to enhance ESG disclosures, leading to greater market stability and lower stock price volatility. Mimetic pressures drive firms to emulate industry leaders in ESG practices, with firms of varying profitability responding differently; highly profitable firms may face reduced ESG return benefits due to their already strong investor confidence. Normative pressures, stemming from professionalization and governance standards, influence firms with high audit quality to enhance ESG credibility, although its direct impact on stock returns remains debated. Additionally, while leverage and firm age reflect structural differences in financial stability and operational history, their role in ESG adoption may be constrained by governance constraints or investor perceptions of financial risk. This theoretical perspective highlights that firms integrate ESG practices in response to institutional expectations rather than intrinsic financial motivations, reinforcing that ESG's market impact is shaped by firm-specific attributes, regulatory environments, and stakeholder engagement.

In summary, these theoretical perspectives suggest that firm characteristics significantly shape investor reactions to ESG ratings news. While ESG ratings generally enhance investor confidence, their effects on stock price volatility and returns depend on firm-specific factors such as profitability, leverage, firm size, firm age and audit quality. These relationships highlight the need to examine ESG impacts through a multidimensional theoretical framework, acknowledging that investor responses are not uniform across all firms.

1.2. ESG and investor responses

The growing emphasis on ESG factors in investment decisions has led to extensive research on their implications for stock market performance. ESG-aligned funds have been shown to offer a favorable risk-return profile, making responsible investment strategies increasingly attractive, particularly in volatile and innovation-driven sectors such as technology (Hasnaoui, 2025). Numerous studies suggest that ESG performance positively influences stock returns, playing a crucial role in shaping investor sentiment, stock price reactions, and overall market stability. Strong ESG disclosure has been found to be associated with better stock returns (Hussainey et al., 2025), reinforcing the idea that transparency in ESG practices enhances investor confidence. Moreover, past ESG scores serve as reliable indicators of future ESG performance (Taskin et al., 2025), suggesting that firms with a history of strong ESG practices are likely to maintain their commitment to sustainability. Research further highlights that in certain industries, such as thermal power enterprises, ESG efficiency has surpassed market performance efficiency (Ren et al., 2025), demonstrating the financial benefits of ESG integration.

During periods of economic uncertainty, ESG investments have gained prominence as a risk-mitigation strategy. Studies have shown that ESG indices in North America and Europe have served as safe investment havens during crises, including the COVID-19 pandemic and the Russia-Ukraine war, allowing investors to manage risks while achieving positive returns and supporting economic sustainability (Katsampoxakis et al., 2024). In particular, firms with strong ESG elements exhibited superior financial performance during the COVID-19 crisis (Wang et al., 2025), highlighting the resilience of ESG-oriented investments in times of market distress. Additionally, firms with high ESG ratings tend to experience a more favorable stock price response to credit rating upgrades while facing less severe penalties during downgrades (Leite & Uysal, 2023), indicating that ESG performance can provide financial stability and reduce downside risks. Past research also suggests that integrating ESG factors into investment strategies can mitigate exposure to ESG-related risks, leading to improved portfolio performance and enhanced long-term returns (Nicolas et al., 2024).

Investor sentiment has been found to be closely linked to ESG scores, as firms with strong ESG performance tend to benefit from higher asset prices, whereas uncertainty surrounding ESG can negatively impact financial indicators (Jin et al., 2024). Empirical studies further support the notion that ESG ratings positively influence stock returns (H. Wang et al., 2024), providing additional evidence of the financial benefits associated with high ESG performance. Similarly, Yin et al. (2023) found that ESG ratings have a direct and positive impact on stock returns, reinforcing the significance of ESG in driving market performance. The role of ESG ratings extends beyond returns, as firms with higher ESG scores also experience reduced idiosyncratic stock risk. This effect is particularly pronounced among companies with strong ESG ratings, as they are perceived as more stable and well-governed by investors. Even companies with lower ESG ratings demonstrate lower risk compared to firms without any ESG rating, suggesting that the presence of an ESG evaluation, regardless of score, contributes to reducing uncertainty about future stock risk and returns, thereby enhancing investor confidence (Horn, 2023). Research on the insurance sector further highlights that ESG rating upgrades and downgrades significantly impact stock prices (Di Tommaso & Mazzuca, 2023), underscoring the financial relevance of ESG assessments in capital markets.

Past research also highlights the potential negative impact of ESG on stock performance, suggesting that firms with lower ESG ratings may generate higher returns compared to their higher-rated counterparts (Luo, 2022). Additionally, studies have found that ESG scores have an insignificant effect on investor returns, with lower ESG-rated stocks

providing greater protection than those with higher ESG scores. This phenomenon may be driven by heightened investor interest in ESG stocks, leading to overvaluation, while lower-rated stocks may become undervalued (Asteriou et al., 2023). Moreover, an increase in the ESG index has been associated with a decline in investor sentiment, whereas a drop in ESG index performance corresponds with an increase in investor sentiment, indicating a level of investor indifference toward firms' ESG initiatives (Dhasmana et al., 2023). Furthermore, research suggests that firms with high ESG ratings do not consistently outperform lower-rated firms, regardless of market conditions (Long et al., 2024). While strong ESG practices can enhance public perception and support for a firm's policies, some stakeholders may view ESG initiatives as redundant and instead prioritize investments in innovation, potentially diminishing firm value (Bagh et al., 2024). Additionally, it is argued that investor engagement in ESG factors should not overshadow other critical value drivers, as investors ultimately seek exceptional companies rather than those solely excelling in ESG performance (Edmans, 2023).

Beyond financial performance, ESG practices contribute to stock price stability and market resilience. A strong ESG profile has been found to reduce stock price fragility, leading to more stable stock prices and reduced financial risk (H. Wang et al., 2023). Additionally, ESG performance has been linked to improved stock liquidity, as it mitigates corporate risk and attracts greater stakeholder support, ultimately enhancing market efficiency (K. Wang et al., 2023). Firms with higher ESG ratings demonstrate more pronounced responses to earnings news, as robust ESG practices help mitigate the negative impact of poor earnings reports on stock prices (R. Wang et al., 2024). Furthermore, strong ESG performance reduces stock price volatility triggered by the COVID-19 shock, enhancing market resilience and stabilizing stock prices (Zhou & Zhou, 2022). This finding aligns with Shakil (2022), who reported a negative relationship between ESG performance and stock price volatility. Additionally, ESG performance mitigates stock price volatility risk in listed companies by limiting corporate earnings management and strengthening corporate reputation, thereby reducing both idiosyncratic and extreme risks in stock prices (Xu et al., 2025). These results support the conclusion of Wu et al. (2024), who suggested that stronger ESG performance significantly reduces abnormal stock price volatility. Collectively, these findings indicate that ESG performance strengthens market stability, reduces volatility, and enhances a firm's ability to navigate financial challenges, ultimately reinforcing the importance of ESG integration in investment strategies. Based on the reviewed literature, this study formulates the following hypotheses regarding the impact of ESG ratings on investor responses:

H1a: ESG ratings have a positive effect on stock returns.

H1b: ESG ratings have a negative effect on stock price volatility.

1.3. Firm characteristics and investor responses

Empirical studies have demonstrated that various firm characteristics influence stock performance, financial stability, and firm value, particularly during market downturns and periods of economic uncertainty. Firms with higher debt ratios, greater levels of liquid assets, lower cash flow per share, and reduced asset profitability tend to experience greater losses during market crashes (Wang et al., 2009). Additionally, firm age has been identified as a key determinant of firm value, with an inverse relationship observed between firm age and the market-to-book equity ratio. As firms mature, profitability and capital expenditures generally decline, suggesting a potential decrease in firm value due to reduced investment opportunities and diminishing profitability (Chay et al., 2015). Furthermore, firm size has been found to have a positive effect on stock returns (Handayani et al., 2019), highlighting its role as a crucial factor in investment performance.

In the tourism industry, companies with lower cash reserves, higher leverage, restricted credit access, lower earnings, and larger workforces face heightened idiosyncratic risks, particularly during crises such as the COVID-19 pandemic (Khanna et al., 2024). More broadly, firm attributes such as the market-to-book value ratio, firm size, and price-to-earnings ratio have been widely examined for their influence on stock returns (Chaopricha et al., 2007). Stocks characterized by higher betas, larger market capitalizations, increased return volatility, higher debt ratios, lower levels of liquid assets, and reduced asset profitability are more vulnerable to value erosion during market downturns (Fauzi & Wahyudi, 2016). Leverage and cash flow have also been found to play significant roles in determining stock returns. Research on non-financial listed companies in Kenya indicates that both cash flow and leverage significantly impact stock performance, suggesting that leveraging strategies combined with firm size expansion may enhance stock returns and market share (M'muriungi et al., 2019). In the Chinese stock market, firm characteristics related to trading frictions, momentum, and profitability have been identified as strong predictors of future stock returns (Jiang et al., 2018). However, the effects of leverage, market capitalization, and sales growth on stock returns are not always statistically significant (Peter et al., 2020). Additionally, the timing of internal control report filings has been found to affect stock prices, particularly in firms with lower returns on assets, higher sales growth rates, and no prior disclosure of internal control weaknesses (Rezee et al., 2012).

Financial performance, measured by return on assets, has a positive effect on stock price volatility (Setyawati et al., 2020). Under certain conditions, a decrease in leverage ratios leads to lower stock price volatility (Guo et al., 2011). Moreover, firm size has a significant impact on stock price volatility, while leverage has an insignificant impact (Pertwi & Wiagustini, 2020). Additionally, firm age is negatively associated with realized idiosyncratic return volatility (Liu & Zhang, 2021). In the consumer goods sector, the independence of the board of commissioners and audit quality influence stock return volatility. Given that this sector is directly related to daily consumer needs, primary consumer goods companies tend to be highly responsive to shifting trends and consumer preferences (Sari & Zaitul, 2024). Furthermore, following the adoption of IFRS in Korea, stock price crash risk declines, particularly for firms audited by Big 4 auditors. Firms that continue to be audited by Big 4 firms experience a reduction in stock price crash risk, while those excluded from Big 4 auditors do not exhibit an increase in crash risk (Lim et al., 2016).

While firm attributes such as the book-to-market ratio, leverage, size, institutional ownership, earnings per share, and turnover help explain variations in idiosyncratic risk, they do not consistently predict fluctuations in idiosyncratic risk over time (Vozlyublenniaia, 2013). Behavioral-related factors, including investment growth, firm size, and value, have also been identified as key determinants of return premiums and stock returns (Prombutr & Phengpis, 2019). Furthermore, firms with illiquid stocks often exhibit specific characteristics, such as low promoter stakes, high leverage, weak financial health, small size, and low or negative profitability (Gakhar & Kundlia, 2018). Profitability and firm size have been shown to exert significant positive effects on firm value, while the effects of capital structure and liquidity may not always be statistically significant (Chabachib et al., 2019). Lastly, audit quality has been found to have a significant positive relationship with firm value, particularly in firms with shorter audit tenures (Saleh Aly et al., 2023). These findings underscore the complex interplay between firm characteristics, financial performance, and market behavior. Based on these reviewed literatures, this study formulates the following hypotheses regarding the impact of firm characteristics on investor responses:

H2a: Profitability has a positive effect on stock returns.

H2b: Profitability has a negative effect on stock price volatility.

H3a: Leverage has a negative effect on stock returns.

H3b: Leverage has a positive effect on stock price volatility.

H4a: Firm size has a positive effect on stock returns.

H4b: Firm size has a negative effect on stock price volatility.

H5a: Firm age has a positive effect on stock returns.

H5b: Firm age has a negative effect on stock price volatility.

H6a: Audit quality has a positive effect on stock returns.

H6b: Audit quality has a negative effect on stock price volatility.

1.4. Firm characteristics and ESG

Firm characteristics play a crucial role in shaping the significance of ESG ratings and investor responses, as the adoption of sustainability initiatives is significantly influenced by firm-specific attributes. Numerous studies have examined how factors such as profitability, leverage, firm size, firm age and audit quality impact ESG performance and sustainability practices.

Financial performance plays a crucial role in shaping corporate sustainability efforts. Empirical findings suggest that firms with strong financial performance, as measured by return on investment (ROI), price-to-earnings ratio (PER), price-to-book value (PBV), and operating profit margin (OPM), are more likely to adopt sustainable practices, which can, in turn, influence stock returns (Arraniri et al., 2024). In firms with lower profitability, financial downturns often drive a greater emphasis on ESG practices. However, firms facing significant ESG controversies are less likely to improve their ESG performance, despite the potential for such controversies to mediate the relationship between financial shortfalls and sustainability initiatives (DasGupta, 2022). Additionally, firms with higher profitability, as measured by return on assets (ROA) and return on equity (ROE), tend to enhance their ESG performance, as improved financial standing encourages further investment in sustainability to meet stakeholder expectations (Hamdi et al., 2022). Firms with substantial capital reserves are also more likely to achieve high ESG scores, thereby enhancing sustainability management (Chams et al., 2021).

The role of financing mechanisms in ESG performance has also gained attention. Al Amosh et al. (2024) suggest that debt financing enhances ESG performance across all dimensions, whereas equity financing does not exert a significant influence. Firms increasingly prioritize debt financing over equity to achieve both financial and non-financial objectives, as equity financing may incentivize shareholder opportunism, potentially undermining broader stakeholder interests. Furthermore, as parent company debt levels rise, corporate group ESG performance improves, particularly in non-state-owned enterprises, during periods of economic uncertainty, in non-heavy-pollution industries, in geographically dispersed subsidiaries, and in corporate groups with diversified industry operations (Zhang, 2025). Nevertheless, excessive debt pressure can weaken ESG performance by exacerbating financial constraints and limiting green innovation efforts (Nie et al., 2023).

The impact of firm characteristics and sustainability initiatives on the adoption of green building practices has been well-documented (Sahu et al., 2024). However, the relationship between firm characteristics and ESG disclosure remains nuanced. While Risal et al. (2023) found that firm size has no effect on ESG disclosure, they identified a significantly negative effect of profitability. In contrast, firms with large market capitalizations tend to exhibit higher ESG and environmental scores, along with stronger ESG-related performance, likely due to heightened scrutiny and expectations from investors, regulators, and the public. Despite this, Krishnan et al. (2024) found no significant association between changes in ESG scores and variations in fundamental firm characteristics such as market capitalization, growth options and profitability. Larger firms often engage more actively in ESG initiatives, leveraging economies

of scale to better align with stakeholder expectations (Bissoondoyal-Bheenick et al., 2023). Dremptic et al. (2020) further emphasized that firm size is significantly and positively correlated with ESG scores, raising concerns that the measurement of corporate sustainability may inherently favor larger firms with greater resources. Additionally, firms that participate in social and environmental activities tend to achieve higher financial efficiency, highlighting the financial benefits of sustainability engagement. Abdi et al. (2022) demonstrated that firm size serves as a key moderating factor in the relationship between sustainability disclosure and firm value in the air transport industry, suggesting that managerial strategies should consider total assets as a proxy for firm size. Conversely, they found that firm age was not a significant moderator. However, Nur and Korkmaz (2023) provided conflicting evidence, reporting that firm age positively and significantly moderates the relationship between ESG scores and firm performance, whereas firm size does not exhibit a significant moderating effect. Chauhan and Amit (2014) found that firm size, profitability, and sales significantly impact CSR expenditures, whereas firm leverage does not. Similarly, Modugu (2020) identified firm size, industry sensitivity, and liquidity as key determinants of ESG disclosure in United Arab Emirates. Additionally, Fadilah et al. (2022) found that both firm size and age positively influence sustainability reporting, reinforcing the importance of these factors in shaping corporate ESG decisions.

Audit quality also plays a critical role in ESG-related disclosures and their credibility. Del Giudice and Rigamonti (2020) emphasized the importance of third-party auditing in enhancing the reliability of ESG information. Zahid et al. (2023) identified a negative moderating effect of audit quality on the ESG–dividend relationship, particularly among firms audited by Big4 auditors. Conversely, Liu et al. (2023) found a positive association between auditor sustainability focus and client sustainability reporting, highlighting the role of auditors in promoting sustainable business practices.

Overall, these findings underscore the multifaceted impact of firm characteristics on ESG ratings and investor perception. The interaction between profitability, leverage, firm size, firm age, and audit quality significantly influences ESG performance, sustainability initiatives, and financial outcomes, thereby shaping investor responses to ESG-related information. Based on the reviewed literature, the following hypotheses are formulated:

H7a: Profitability moderates the relationship between ESG ratings and stock returns.

H7b: Profitability moderates the relationship between ESG ratings and stock price volatility.

H8a: Leverage moderates the relationship between ESG ratings and stock returns.

H8b: Leverage moderates the relationship between ESG ratings and stock price volatility.

H9a: Firm size moderates the relationship between ESG ratings and stock returns.

H9b: Firm size moderates the relationship between ESG ratings and stock price volatility.

H10a: Firm age moderates the relationship between ESG ratings and stock returns.

H10b: Firm age moderates the relationship between ESG ratings and stock price volatility.

H11a: Audit quality moderates the relationship between ESG ratings and stock returns.

H11b: Audit quality moderates the relationship between ESG ratings and stock price volatility.

This study examines the impact of ESG ratings on stock returns and volatility while assessing the moderating role of firm characteristics. By analyzing these effects, it aims to determine how ESG ratings influence stock performance across firms with varying attributes, offering insights into investor responses and market behavior.

2. Methodological approach

2.1. Sample selection

This study examines the impact of ESG ratings on investor responses, with a particular emphasis on the moderating role of firm characteristics. The research sample consists of 175 companies listed on the Stock Exchange of Thailand that received SET ESG ratings in 2023. To enhance the validity of the findings and minimize the influence of confounding variables, the study applies strict inclusion criteria. Only firms with fiscal years ending on December 31st are included, while companies with trading suspensions and incomplete data are excluded, resulting in a final sample of 157 firms. Data on SET ESG ratings and financial information were obtained from the official Stock Exchange of Thailand database. The study employs multiple regression analysis to test the proposed hypotheses, assessing both the direct effect of ESG ratings on investor responses and the moderating influence of firm characteristics. Given that SET ESG ratings were introduced in 2023, the study is limited to a short-term outcome analysis, focusing on market reactions on the day of the SET ESG rating announcement.

2.2. Variables

Table 1. The variable definitions

Symbols	Variables	Descriptions
Panel A: Dependent variables		
R	Stock returns	Natural logarithm of the ratio of the closing price on the current day to that on the previous day.
VOL	Stock price volatility	The difference between the high and low prices of the day, divided by the average intra-day price.
Panel B: Independent variable		
ESG	ESG ratings	Four SET ESG ratings, ranging from BBB to AAA, were assigned numerical values from 1 to 4 in ascending order.
Panel C: Moderator variables		
ROA	Profitability	Net income divided by total assets.
LEV	Leverage	Total liabilities divided by total assets.
SIZE	Firm size	Natural logarithm of total assets.
AGE	Firm age	Natural logarithm of firm age.
AQ	Audit quality	1 if the firm is audited by Big4, and 0 otherwise.
Panel D: Control variables		
EPS	Earnings per share	Net income divided by total number of common shares outstanding.
BVPS	Book value per share	Shareholder's equity minus preferred equity divided by total number of common shares outstanding.
CASH	Cash holdings	Cash and cash equivalents divided by total assets.
DY	Dividend yield	Dividend per share divided by price per share.
BETA	Systematic risk	The covariance between stock returns and market returns divided by the variance of market returns.
MCAP	Market capitalization	Natural logarithm of the market capitalization.
TVT	Trading volume turnover	Total trading volume divided by total number of shares outstanding and multiplied by 100.

Source: *own compilation*

Table 1 presents the definitions of the variables used in this study. The dependent variables, selected to capture investor responses, include stock returns and stock price volatility. These variables help assess how investors react to changes in ESG ratings (Hussainey et al., 2025; Shakil, 2022). The independent variable is ESG ratings, measured by the SET ESG ratings, which evaluate a firm's sustainability performance. ESG is not merely a score for firms and investors to observe and use in determining whether to finance additional capital; it also serves as a tool that can help many firms and investors identify growth opportunities and, in turn, create long-term value (Liu, 2024). The moderator variables include profitability, leverage, firm size, firm age, and audit quality. These firm-specific characteristics may influence the extent to which ESG ratings affect stock market performance (Yoon et al., 2018). Additionally, the study incorporates control variables to account for other factors that may influence stock price volatility and returns. These variables include earnings per share, book value per share, cash holdings, dividend yield, systematic risk (beta), market capitalization, and trading volume turnover. These controls help isolate the effect of ESG ratings and firm characteristics on stock performance by minimizing potential confounding influences.

To examine the impact of ESG ratings on investor responses, the following regression models are proposed, referred to as Models 1.1 and 1.2:

$$R_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_i Control_{it} + Industry\ Dummies + \varepsilon_{it} \quad (1.1)$$

$$VOL_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_i Control_{it} + Industry\ Dummies + \varepsilon_{it} \quad (1.2)$$

where, R_{it} represents the stock return of firm i in year t , and VOL_{it} denotes the stock price volatility of firm i in year t . Both R_{it} and VOL_{it} serve as proxies for investor responses. The variable ESG_{it} measures the corporate sustainability performance of firm i in year t , as indicated by the SET ESG ratings. The model also incorporates control variables, which are detailed in *Table 1*, to account for additional factors influencing stock returns and volatility. In this regression framework, β_0 represents the intercept term, while ε_{it} denotes the random error term.

To examine whether firm characteristics moderate the relationship between ESG ratings and investor responses, interaction terms are introduced, referred to as Model 2.1 and 2.2:

$$R_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_i ESG_{it} * Moderator\ Variables_{it} + \beta_i Control_{it} + Industry\ Dummies + \varepsilon_{it} \quad (2.1)$$

$$VOL_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_i ESG_{it} * Moderator\ Variables_{it} + \beta_i Control_{it} + Industry\ Dummies + \varepsilon_{it} \quad (2.2)$$

where $Moderator\ Variables_{it}$ represents firm characteristics, namely profitability, leverage, firm size, firm age, and audit quality. All variables incorporated in the model are defined in detail in *Table 1*. Here, β_0 signifies the intercept term, while ε_{it} represents the random error term. These regression models provide a structured approach to analyzing how ESG ratings influence stock returns and volatility, considering firm-specific factors that may amplify or mitigate these effects.

3. Conducting research and results

This study analyzed data using descriptive statistical analysis to elucidate the general characteristics of the variables, and regression analysis was employed to test the research hypotheses.

The descriptive statistics for the variables used in this study are presented in *Table 2*. For example, stock returns range from -0.024 to 0.110, with a mean of 0.008 and a standard

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deviation of 0.016, indicating relatively low fluctuations in returns. Stock price volatility varies from 0.005 to 0.111, with a mean of 0.028 and a standard deviation of 0.016, reflecting moderate variability in stock price movements. ESG ratings range from 1.000 to 4.000, with a mean of 2.720 and a standard deviation of 0.919, suggesting variations in corporate sustainability performance. Return on assets exhibits significant dispersion, ranging from -24.270 to 21.440, with a mean of 0.756 and a standard deviation of 3.579, reflecting the diverse profitability levels across firms. Leverage ranges from 0.066 to 0.891, with a mean of 0.526 and a standard deviation of 0.190, indicating a moderate spread in firms' capital structures. Firm size ranges from 21.337 to 29.118, with a mean of 24.380 and a standard deviation of 1.825, suggesting that most firms in the sample are relatively large. Firm age ranges from 0.693 to 4.949, with a mean of 3.178 and a standard deviation of 0.883, indicating that the sample consists of relatively mature firms. Audit quality is measured by a value of 0 or 1, with a mean of 0.930 and a standard deviation of 0.444, suggesting that a portion of firms employ high-quality auditors. These descriptive statistics provide a comprehensive overview of the variables, offering insights into their profitability, risk exposure, liquidity, and market presence.

Table 2. Descriptive statistics

Variables	Minimum	Maximum	Mean	SD
R	-0.024	0.110	0.008	0.016
VOL	0.005	0.111	0.028	0.016
ESG	1.000	4.000	2.720	0.919
ROA	-24.270	21.440	0.756	3.579
LEV	0.066	0.891	0.526	0.190
SIZE	21.337	29.118	24.380	1.825
AGE	0.693	4.949	3.178	0.883
AQ	0.000	1.000	0.930	0.444
EPS	-6.000	24.080	1.989	3.798
BVPS	1.150	329.610	23.465	51.807
CASH	0.000	0.362	0.070	0.071
DY	0.000	46.440	3.744	4.752
BETA	-0.110	2.500	0.955	0.501
MCAP	7.098	13.779	10.078	1.539
TVT	0.000	0.946	0.209	0.221

Source: *own compilation*

Table 3. Multicollinearity testing

Variables	R	VOL	ESG	ROA	LEV	SIZE	AGE	AQ	EPS	BVPS	CASH	DY	BETA	MCAP	TVT
R	1														
VOL	0.103	1													
ESG	-0.103	-0.160*	1												
ROA	-0.085	-0.124	0.042	1											
LEV	0.198*	-0.135	0.153	0.061	1										
SIZE	0.051	-.239**	0.481**	0.075	0.528**	1									
AGE	0.181*	-0.200*	0.135	-0.045	0.197*	0.124	1								
AQ	0.035	-0.087	-0.002	0.031	0.066	0.146	-0.060	1							
EPS	0.077	-0.084	.288**	0.086	0.189*	0.414**	0.172*	-0.018	1						
BVPS	0.081	-0.097	.294**	-0.024	0.169*	0.448**	0.215**	0.020	0.612**	1					
CASH	0.101	0.073	0.069	-0.140	-0.329**	-0.155	-0.080	0.030	-0.037	-0.067	1				
DY	0.185*	-0.143	0.116	-0.109	-0.169*	-0.042	0.151	0.061	-0.006	0.024	0.179*	1			
BETA	0.153	0.338**	-0.058	-0.010	0.097	0.078	-0.195*	-0.001	-0.141	-0.149	0.127	-0.112	1		
MCAP	0.011	-0.107	0.441**	0.094	0.298**	0.733**	0.067	0.146	0.366**	0.352**	-0.089	-0.134	0.146	1	
TVT	0.034	0.226**	0.068	-0.096	0.117	0.249**	0.068	0.072	0.065	0.043	0.031	-0.089	0.477**	0.358**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: *own compilation*

According to Senaviratna and A. Cooray (2019), multicollinearity is a concern when the Pearson correlation coefficient between two independent variables exceeds 0.80. To assess multicollinearity in this study, the Pearson correlation matrix was examined, and no pairwise correlation was found to exceed the threshold of 0.80, as shown in *Table 3*, suggesting that multicollinearity is not a severe issue among the variables in this study. The highest correlation was observed between market capitalization and firm size (0.733), which is expected, as larger firms tend to have higher market capitalization. Additionally, firm size exhibited strong positive correlations with environmental, social, and governance ratings (0.481) and leverage (0.528), suggesting that larger firms are more likely to have higher environmental, social, and governance ratings and greater financial leverage. Similarly, book value per share demonstrated a notable correlation with earnings per share (0.612) and market capitalization (0.352), reflecting the relationship between firm valuation and financial performance indicators. Furthermore, trading volume turnover and systematic risk (0.477), as well as market capitalization and earnings per share (0.366), were positively correlated, indicating that firms with higher systematic risk tend to have higher trading volume turnover, while larger firms tend to have higher earnings per share. Other variables, such as firm age and dividend yield (0.151), exhibited weaker correlations, suggesting that older firms tend to have higher dividend yields, although the relationship is not particularly strong. Overall, since no correlation coefficient exceeds 0.80, the findings indicate that multicollinearity is not a significant concern in this study.

The regression results in *Table 4* indicate a significant relationship between ESG ratings and stock returns, with ESG ratings exhibiting a negative and highly significant effect across all models ($p < 0.001$), suggesting that firms with higher ESG ratings tend to have lower stock returns. Profitability, measured by return on assets, also shows a significant negative relationship with stock returns ($p < 0.001$), while leverage exhibits a strong positive effect ($p < 0.001$), indicating that firms with higher debt levels experience increased stock returns. Firm size demonstrates a significant negative relationship, whereas firm age has a positive and significant impact on stock returns ($p < 0.001$), suggesting that older firms are perceived as more stable by investors. Audit quality is marginally significant, with a weaker impact on stock returns ($p < 0.05$). Earnings per share, book value per share, cash holdings, dividend yield, systematic risk, market capitalization, and trading volume turnover all exhibit positive and significant effects on stock returns ($p < 0.001$), highlighting their importance in explaining stock performance. The inclusion of industry fixed effects ensures robustness, and the adjusted R^2 values improve from 11.50% to 20.00%, indicating an increasing explanatory power of the regression models. These findings suggest that firm characteristics play a crucial role in shaping the relationship between ESG ratings and investor responses in the stock market.

The regression results align with prior research, highlighting the complex relationship between ESG ratings, firm characteristics, and stock returns. The findings indicate that ESG ratings have a negative impact on stock returns, consistent with previous studies (Luo, 2022; Bagh et al., 2024), suggesting that while strong ESG performance enhances firm stability, it may also lead to lower immediate returns due to increased compliance costs and a long-term investment horizon. The significant negative relationship between profitability and stock returns contrasts with prior research (Jiang et al., 2018), implying that firms with strong financial standing may experience lower returns as investors perceive them as safer investments with lower risk premiums. Conversely, the positive impact of leverage on stock returns aligns with past evidence (M'muriungi et al., 2019), suggesting that debt financing can signal investor confidence, provide firms with additional capital for expansion, and improve operational efficiency, ultimately driving higher stock returns. The observed negative relationship between firm size and stock returns is contrast with existing research (Handayani et al., 2019), indicating

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that while larger firms tend to be more stable, they often exhibit lower growth potential, resulting in relatively lower returns. In contrast, the positive effect of firm age on stock returns deviates from previous findings (Chay et al., 2015), suggesting that older firms, with their established reputations and operational stability, are perceived as lower-risk investments. The marginal significance of audit quality aligns with prior studies (Saleh Aly et al., 2023), underscoring its role in enhancing the credibility of ESG disclosures, although its direct impact on financial performance remains a subject of debate. Finally, the significant positive effects of earnings per share, book value per share, cash holdings, and trading volume turnover reinforce prior evidence linking these financial indicators to stock performance, emphasizing their importance in investor decision-making.

Table 4. ESG ratings and stock returns

Variables	R	R	R
ESG	-0.189*** (-13.110)		-0.202*** (-14.400)
ROA		-0.050*** (-4.095)	-0.044*** (-3.623)
LEV		0.314*** (19.190)	0.306*** (19.065)
SIZE		-0.233*** (-8.540)	-0.162*** (-5.921)
AGE		0.116*** (8.849)	0.125*** (9.739)
AQ		0.026* (2.089)	0.008* (0.689)
EPS	0.078*** (4.870)	0.048** (3.073)	0.057*** (3.677)
BVPS	0.093*** (5.817)	0.074*** (4.556)	0.081*** (5.136)
CASH	0.058*** (4.548)	0.115*** (8.796)	0.143*** (10.965)
DY	0.219*** (16.946)	0.210*** (16.219)	0.233*** (18.176)
BETA	0.144*** (10.420)	0.144*** (10.404)	0.128*** (9.387)
MCAP	0.033* (2.163)	0.066*** (2.773)	0.103*** (4.373)
TVT	0.099*** (7.378)	0.102*** (7.738)	0.095*** (7.323)
Industry	Yes	Yes	Yes
Obs.	157	157	157
adj. R ²	11.50%	17.10%	20.00%

Note: The t-statistics are calculated and reported in parentheses. *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$, respectively.

Source: *own compilation*

The regression results in *Table 5* illustrate the moderating effects of firm characteristics on the relationship between ESG ratings and stock returns. The interaction between ESG ratings and return on assets (ESG*ROA) shows a significant negative effect ($p < 0.001$), indicating that firms with higher profitability experience a stronger reduction in stock returns as ESG ratings increase, suggesting that financially stable firms derive less return-based benefits from ESG

performance. Similarly, the interaction between ESG ratings and leverage (ESG*LEV) is significantly negative ($p < 0.001$), implying that highly leveraged firms face a more pronounced decline in stock returns when ESG performance improves, possibly due to investors' concerns about financial risk. In contrast, the interaction between ESG ratings and firm size (ESG*SIZE) reveals a significant positive effect ($p < 0.001$), suggesting that larger firms benefit from ESG performance in terms of higher stock returns, likely due to stronger investor confidence and better resource allocation. Similarly, the interaction between ESG ratings and firm age (ESG*AGE) is also significantly positive ($p < 0.001$), indicating that older firms experience higher stock returns when ESG ratings improve, possibly due to their established reputation and long-term stability. However, the interaction between ESG ratings and audit quality (ESG*AQ) does not exhibit statistical significance ($p > 0.05$), suggesting that audit quality does not play a major role in moderating the ESG-stock return relationship. These findings suggest that firm profitability and leverage amplify the negative impact of ESG ratings on stock returns, whereas firm size and age enhance the positive effects, reinforcing the notion that firm-specific characteristics influence how investors perceive and react to ESG performance.

Table 5. ESG ratings, stock returns and the moderating effect of firm characteristics

Variables	R	R	R	R	R
ESG	-0.183*** (-12.698)	-0.398*** (-20.856)	-0.181*** (-12.438)	-0.352*** (-16.890)	-0.194*** (-11.537)
ESG*ROA	-0.083*** (-6.599)				
ESG*LEV		-0.317*** (-16.246)			
ESG*SIZE			0.174*** (10.538)		
ESG*AGE				0.224*** (10.735)	
ESG* AQ					0.009 (0.574)
EPS	0.090*** (5.579)	0.050** (3.152)	0.065** (4.073)	0.072*** (4.492)	0.080*** (4.903)
BVPS	0.079*** (4.926)	0.089*** (5.654)	0.057*** (3.536)	0.064*** (3.937)	0.093*** (5.791)
CASH	0.052*** (4.014)	0.128*** (9.646)	0.073*** (5.681)	0.071*** (5.545)	0.058*** (4.501)
DY	0.212*** (16.425)	0.243*** (19.128)	0.205*** (15.970)	0.196*** (15.073)	0.218*** (16.780)
BETA	0.148*** (10.689)	0.122*** (8.997)	0.137*** (9.964)	0.162*** (11.753)	0.145*** (10.435)
MCAP	0.040** (2.576)	-0.006 (-0.415)	-0.139 (-6.214)	0.038* (2.493)	0.031 (1.944)
TVT	0.095*** (7.066)	0.111*** (8.459)	0.108*** (8.130)	0.081*** (6.069)	0.099*** (7.352)
Industry	Yes	Yes	Yes	Yes	Yes
Obs.	157	157	157	157	157
adj. R ²	12.10%	15.30%	13.10%	13.20%	11.50%

Note: The t-statistics are calculated and reported in parentheses. *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$, respectively.

Source: *own compilation*

The results align with prior research, emphasizing the moderating role of firm characteristics in the relationship between ESG performance and stock returns. The significant negative interaction between ESG ratings and profitability suggests that highly profitable firms experience diminishing return-based benefits from ESG performance. This finding contrasts with prior research (Arraniri et al., 2024), which suggests that financially stable firms are already perceived as lower-risk investments, thereby reducing the incremental impact of ESG improvements on returns. Additionally, the negative moderating effect of leverage on the ESG-stock return relationship suggests that, while Al Amosh et al. (2024) indicated that debt financing enhances ESG performance, investors may perceive ESG initiatives in highly leveraged firms as an additional cost rather than a strategic advantage, leading to weaker stock performance. Conversely, the significant positive interaction between ESG ratings and firm size aligns with research indicating that larger firms benefit from greater investor trust, economies of scale, and more effective ESG implementation, ultimately enhancing stock returns (Bissoondoyal-Bheenick et al., 2023). Similarly, the positive moderating effect of firm age supports prior findings (Nur & Korkmaz, 2023), suggesting that older firms, with their stronger reputations and operational stability, derive greater value from ESG investments in sustaining investor confidence and driving stock performance. Meanwhile, the non-significant moderating effect of audit quality indicates that while Liu et al. (2023) found a positive association between auditor sustainability focus and sustainability reporting, emphasizing the role of auditors in promoting sustainable business practices, their direct influence on stock returns remains inconclusive. This ambiguity may stem from factors such as market perceptions of sustainability efforts, the voluntary nature of ESG disclosures, and the time lag between enhanced sustainability reporting and its financial impact. These findings suggest that firm profitability and leverage constrain the stock return benefits of ESG performance, whereas firm size and age amplify its positive effects, underscoring the differential impact of firm characteristics on investor responses to ESG ratings.

The regression results in *Table 6* reveal a significant negative relationship between ESG ratings and stock price volatility, with ESG ratings consistently exhibiting a negative impact across all models ($p < 0.001$ and $p < 0.01$). This finding suggests that firms with higher ESG ratings tend to experience lower stock price volatility. Profitability, measured by return on assets, also demonstrates a strong negative association with stock volatility ($p < 0.001$), indicating that more profitable firms exhibit greater stock price stability. Conversely, leverage has a positive and significant impact on volatility ($p < 0.001$), implying that firms with higher debt levels tend to be more volatile. Firm size exerts a strong negative effect on stock volatility ($p < 0.001$), suggesting that larger firms benefit from greater financial stability and investor confidence, leading to reduced volatility. In contrast, firm age and audit quality do not exhibit statistically significant effects ($p > 0.05$), indicating that these factors do not strongly influence stock price fluctuations. Among the control variables, book value per share and cash holdings display mixed effects, with book value per share negatively affecting volatility, while cash holdings show a positive association in the first model but lose significance in subsequent models. Additionally, systematic risk and trading volume turnover exhibit strong positive relationships with stock price volatility across all models, suggesting that firms with higher market risk and trading activity experience greater fluctuations in stock prices. Market capitalization demonstrates a mixed effect, showing a significant negative relationship in the first model but turning positive in later models, indicating that firm size influences volatility differently depending on the inclusion of additional control variables. The incorporation of industry fixed effects further enhances the robustness of the models, while the adjusted R^2 values, ranging from 34.40% to 36.00%, indicate a high explanatory power of the regression models.

Table 6. ESG ratings and stock price volatility

Variables	VOL	VOL	VOL
ESG	-0.067*** (-5.386)		-0.040** (-3.147)
ROA		-0.060*** (-5.516)	-0.058*** (-5.398)
LEV		0.071*** (4.935)	0.069*** (4.837)
SIZE		-0.280*** (-11.647)	-0.266*** (-10.887)
AGE		-0.019 (-1.658)	-0.017 (-1.494)
AQ		-0.003 (-0.268)	-0.006 (-0.579)
EPS	-0.019 (-1.407)	-0.009 (-0.628)	-0.007 (-0.507)
BVPS	-0.054*** (-3.919)	-0.028* (-1.969)	-0.026 (-1.859)
CASH	0.036*** (3.288)	0.017 (1.498)	0.023 (1.944)
DY	-0.012 (-1.105)	0.003 (0.260)	0.007 (0.651)
BETA	0.285*** (23.946)	0.285*** (23.443)	0.282*** (23.129)
MCAP	-0.083*** (-6.270)	0.094*** (4.499)	0.101*** (4.819)
TVT	0.400*** (34.666)	0.397*** (34.336)	0.396*** (31.218)
Industry	Yes	Yes	Yes
Obs.	157	157	157
adj. R ²	34.40%	35.90%	36.00%

Note: The t-statistics are calculated and reported in parentheses. *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$, respectively.

Source: *own compilation*

The results align with prior literature suggesting that higher ESG ratings contribute to lower stock price volatility, reinforcing findings that ESG performance enhances financial stability and reduces market uncertainty (Zhou & Zhou, 2022; Shakil, 2022; Wu et al., 2024; Xu et al., 2025). The negative association between profitability and stock volatility contrasts with previous studies (Setyawati et al., 2020), suggesting that financially strong firms experience lower price fluctuations as they are perceived as more stable by investors. Conversely, the positive effect of leverage on stock volatility is consistent with prior research (Guo et al., 2011), indicating that firms with higher debt levels face increased financial risk, leading to greater market fluctuations. The observed negative impact of firm size on volatility aligns with past evidence (Pertwi & Wiagustini, 2020), suggesting that larger firms benefit from greater financial resilience and investor confidence, resulting in more stable stock prices. Additionally, the effects of firm age and audit quality on stock price volatility align with previous studies (Liu & Zhang, 2021; Sari & Zaitul, 2024), though both factors exhibit an insignificant effect. This finding suggests that while firm age and audit quality may enhance ESG disclosure credibility and improve corporate governance, they do not directly influence stock price fluctuations. The lack of significance may be attributed to investors prioritizing

more immediate financial indicators, such as profitability and leverage, over these structural characteristics when assessing stock price volatility. Collectively, these findings underscore the importance of ESG performance and firm-specific financial attributes in shaping stock price stability.

Table 7. ESG ratings, stock price volatility and the moderating effect of firm characteristics

Variables	VOL	VOL	VOL	VOL	VOL
ESG	-0.064*** (-5.190)	-0.045** (-2.680)	0.366*** (4.151)	-0.069*** (-3.791)	-0.040*** (-2.801)
ESG*ROA	-0.031*** (-2.863)				
ESG*LEV		-0.033 (-1.919)			
ESG*SIZE			-0.449*** (-5.036)		
ESG*AGE				0.002 (0.138)	
ESG*AQ					-0.050*** (-3.541)
EPS	-0.015 (-1.086)	-0.017 (-1.186)	-0.014 (-1.010)	-0.020 (-1.411)	-0.026 (-1.853)
BVPS	-0.059*** (-4.262)	-0.054*** (-3.885)	-0.039** (-2.787)	-0.054*** (-3.884)	-0.052*** (-3.791)
CASH	0.034** (3.047)	0.029* (2.493)	0.030** (2.743)	0.037** (3.287)	0.039*** (3.513)
DY	-0.015 (-1.331)	-0.015 (-1.324)	-0.007 (0.599)	-0.013 (-1.113)	-0.008*** (-0.711)
BETA	0.287*** (24.048)	0.288*** (24.023)	0.288*** (24.223)	0.286*** (23.781)	0.283*** (23.711)
MCAP	-0.081*** (-6.084)	-0.079*** (-5.883)	-0.012 (-0.605)	-0.083*** (-6.262)	-0.071*** (-5.160)
TVT	0.399*** (34.501)	0.399*** (34.508)	0.397*** (34.328)	0.400*** (34.832)	0.402*** (34.806)
Industry	Yes	Yes	Yes	Yes	Yes
Obs.	157	157	157	157	157
adj. R ²	34.50%	34.50%	34.70%	34.40%	34.60%

Note: The t-statistics are calculated and reported in parentheses. *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$, respectively.

Source: *own compilation*

The regression results in *Table 7* highlight the moderating effects of firm characteristics on the relationship between ESG ratings and stock price volatility. The interaction term between ESG ratings and return on assets (ESG*ROA) exhibits a significant negative effect ($p < 0.001$), indicating that firms with higher profitability experience a stronger reduction in volatility as ESG ratings improve, suggesting that financial stability reinforces the risk-mitigating role of ESG performance. The interaction between ESG ratings and leverage (ESG*LEV) is negative but not statistically significant ($p > 0.05$), implying that financial leverage does not strongly moderate the ESG-volatility relationship. In contrast, the interaction between ESG ratings and firm size (ESG*SIZE) reveals a highly significant negative effect ($p < 0.001$), suggesting that larger firms benefit more from ESG performance in terms of reduced stock price volatility, likely due to stronger governance structures and investor confidence. Firm age (ESG*AGE)

does not exhibit a statistically significant effect ($p > 0.05$), indicating that the relationship between ESG ratings and volatility remains largely unaffected by a firm's operating history. Finally, the interaction between ESG ratings and audit quality (ESG**AQ*) is significantly negative ($p < 0.001$), implying that firms audited by high-quality auditors, such as Big Four firms, experience greater reductions in volatility when ESG ratings improve, likely due to enhanced credibility and transparency in financial reporting. These findings suggest that firm profitability, size, and audit quality serve as key moderating factors that amplify the risk-reducing impact of ESG performance, while leverage and firm age play less significant roles in this context.

The results align with prior literature, emphasizing the moderating role of firm characteristics in the relationship between ESG ratings and stock price volatility. The significant negative interaction between ESG ratings and profitability supports previous findings that financially strong firms experience greater stock stability as ESG performance improves, likely due to increased investor confidence and reduced financial uncertainty (Arraniri et al., 2024). The non-significant effect of leverage in moderating the ESG-volatility relationship is consistent with research suggesting that while debt financing can enhance ESG performance (Al Amosh et al., 2024; Zhang, 2025), its direct influence on stock price stability remains unclear (Pertiwi & Wiagustini, 2020). The strong negative interaction between ESG ratings and firm size aligns with studies indicating that larger firms benefit from economies of scale, improved governance, and greater stakeholder trust, leading to reduced stock volatility (Bissoondoyal-Bheenick et al., 2023; Pertiwi & Wiagustini, 2020). The lack of a significant moderating effect of firm age on stock price volatility contrasts with prior evidence (Nur & Korkmaz, 2023), suggesting that older firms may have already established market credibility and investor trust, reducing the additional impact of ESG performance on volatility. Additionally, older firms often operate within rigid corporate structures and long-standing business models, potentially limiting their ability to rapidly integrate ESG initiatives in ways that significantly influence stock price movements. Finally, the significant negative interaction between ESG ratings and audit quality reinforces prior research highlighting the role of high-quality auditors in enhancing ESG disclosure credibility and financial transparency, which, in turn, helps mitigate stock price fluctuations (Del Giudice & Rigamonti, 2020; Lim et al., 2016). Collectively, these findings suggest that firm profitability, size, and audit quality play crucial roles in amplifying the risk-reducing effects of ESG performance on stock price volatility, whereas leverage and firm age exhibit limited moderating influence.

The research findings provide important theoretical implications regarding the moderating role of firm characteristics in the ESG-stock return and ESG-volatility relationships, reinforcing multiple theoretical perspectives. The significant negative interaction between ESG ratings and profitability aligns with Signaling Theory (Spence, 1973), suggesting that financially stable firms already possess strong investor confidence, diminishing the additional return-based benefits of ESG performance. The negative moderating effect of leverage on stock returns supports Agency Theory (Jensen & Meckling, 1976), indicating that investors may perceive ESG initiatives in highly leveraged firms as risk mitigation rather than value creation, leading to weaker stock performance. Conversely, the significant positive interaction between ESG ratings and firm size in both stock returns and volatility aligns with Stakeholder Theory (Freeman & McVea, 2001), as larger firms with extensive stakeholder networks and stronger governance structures are better positioned to leverage ESG performance for investor trust and market stability. The positive interaction between ESG ratings and firm age in stock returns supports the Resource-Based View (RBV) (Barney, 1991), suggesting that older firms, with their established reputations and accumulated resources, can effectively integrate ESG initiatives as strategic assets to enhance financial performance. Meanwhile, the

significant negative interaction between ESG ratings and audit quality in stock volatility highlights the relevance of Institutional Theory (DiMaggio & Powell, 1983), reinforcing the role of high-quality auditors in enhancing ESG disclosure credibility and transparency, which in turn reduces market uncertainty. However, the non-significant moderating effects of leverage and firm age on volatility suggest that financial risk and operating history may not strongly influence how ESG performance translates into stock price stability. These findings underscore the necessity of adopting a multidimensional theoretical approach to understand the firm-specific conditions under which ESG performance influences investor behavior, emphasizing that ESG impacts are contingent on financial, structural, and governance attributes.

Conclusion

This study contributes to the existing literature by providing empirical evidence on the moderating role of firm characteristics in the relationship between ESG ratings and stock performance, with a specific focus on the Thai market. Unlike prior studies conducted in Western economies, where ESG performance is often associated with consistent financial benefits, the findings reveal that in Thailand, the impact of ESG on stock returns and volatility is significantly influenced by firm-specific attributes. The negative moderating effect of profitability and leverage on stock returns suggests that financially stable firms in Thailand derive limited additional benefits from ESG improvements, possibly due to the market's perception that these firms are already low-risk investments. Additionally, the strong positive effect of ESG on stock returns for larger firms highlights the importance of firm size in shaping investor confidence in emerging markets, where regulatory frameworks and corporate governance structures may vary from developed economies. The significant role of audit quality in reducing stock price volatility further reinforces Institutional Theory (DiMaggio & Powell, 1983) by demonstrating that external assurance mechanisms, such as high-quality audits, enhance ESG disclosure credibility and market stability. These insights provide a more nuanced understanding of how ESG performance interacts with firm characteristics in emerging markets, contributing to the ongoing theoretical discourse on ESG's financial implications across different economic contexts.

The findings offer valuable implications for investors, policymakers, and corporate executives in Thailand. For investors, the study suggests that ESG-driven investment strategies should account for firm-specific attributes, as ESG benefits on stock returns and volatility are not uniform across all firms. Specifically, larger firms with strong ESG performance present more stable and attractive investment opportunities, whereas ESG improvements in highly profitable or highly leveraged firms may not yield significant financial gains. For policymakers, the significant role of audit quality in moderating ESG's impact on stock volatility underscores the need for regulatory frameworks that enhance ESG disclosure credibility through independent assurance mechanisms. Strengthening sustainability reporting standards and ensuring greater transparency can enhance investor confidence and promote sustainable capital markets. Lastly, for corporate executives, the findings highlight the importance of tailoring ESG strategies based on firm size, financial health, and governance structures. Large firms can leverage ESG initiatives to strengthen investor trust, while smaller and less established firms may need to focus on improving ESG communication and transparency to maximize financial benefits. By integrating ESG practices strategically, firms can enhance long-term sustainability while mitigating stock price volatility risks.

Despite its contributions, this study has certain limitations. A key constraint is its short-term analysis, as the SET ESG ratings were first introduced in 2023, limiting the availability of long-term data. The brief observation period may not fully capture the evolution of investor

perceptions of ESG ratings, particularly in response to global and regional economic conditions. Additionally, this study focuses exclusively on firm characteristics such as profitability, leverage, size, age, and audit quality, without considering other potential factors, including industry-specific ESG impacts, ownership structure, and corporate governance mechanisms. Moreover, the study is confined to the Thai capital market, and its findings may not be directly generalizable to markets with different regulatory environments, investor behaviors, and ESG disclosure practices. Future research should address these limitations by incorporating a longer time horizon, expanding the scope of firm characteristics, and conducting cross-country comparisons to provide a more comprehensive understanding of the financial implications of ESG performance.

To build upon these findings, future research should explore additional dimensions of ESG performance and its impact on stock markets. Given the increasing emphasis on sustainability, studies should examine the influence of climate change policies, air pollution regulations, and carbon reduction initiatives on the ESG-stock return relationship. The growing role of digital transformation, AI governance and sustainability reporting also presents a promising avenue for future investigation. Additionally, workforce diversity and inclusion - particularly gender and ethnic diversity - could be analyzed as potential moderating factors influencing ESG-driven investor responses. As global ESG frameworks continue to evolve, research on the effectiveness of ESG regulations, sustainability-linked financial instruments, and investor sentiment analysis using big data would offer valuable insights. Furthermore, considering the dynamic nature of financial markets, integrating behavioral finance approaches could enhance the understanding of how different investor groups perceive and react to ESG information. By expanding on these areas, future research can contribute to a more comprehensive understanding of ESG's role in driving sustainable finance and corporate value creation.

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References

- Abdi, Y., Li, X., & Càmara-Turull, X. (2022). Exploring the impact of sustainability (ESG) disclosure on firm value and financial performance (FP) in airline industry: the moderating role of size and age. *Environment, Development and Sustainability*, 24(4), 5052-5079. <https://doi.org/10.1007/s10668-021-01649-w>
- Al Amosh, H., Khatib, S. F. A., Alkurdi, A., & Bazhair, A. H. (2024). Capital structure decisions and environmental, social and governance performance: insights from Jordan. *Journal of Financial Reporting and Accounting*, 22(4), 972-989. <https://doi.org/10.1108/JFRA-12-2021-0453>
- Arraniri, I., Maulana, Y., Komarudin, M. N., & Gunawan, W. H. (2024). The Influence of Financial Performance on Returns with ESG as an Intervening Variable. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 8(2). <https://doi.org/10.29040/ijebar.v8i2.13192>
- Asteriou, D., Pilbeam, K., & Pouliot, W. (2023). Does ESG investing pay-off? An analysis of the Eurozone area before and during the Covid-19 pandemic. *International Journal of Finance & Economics*, 29(4), 4157-4181. <https://doi.org/10.1002/ijfe.2865>

- Bagh, T., Fuwei, J., & Khan, M. A. (2024). Corporate ESG investments and Firm's value under the real-option framework: Evidence from two world-leading economies. *Borsa Istanbul Review*, 24(2), 324-340. <https://doi.org/10.1016/j.bir.2024.01.002>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bissoondoyal-Bheenick, E., Brooks, R., & Do, H. X. (2023). ESG and firm performance: The role of size and media channels. *Economic Modelling*, 121, 106203. <https://doi.org/10.1016/j.econmod.2023.106203>
- Chabachib, M., Hersugondo, H., Ardiana, E., & Pamungkas, I. (2019). Analysis of Company Characteristics of Firm Values: Profitability as Intervening Variables. *International Journal of Financial Research*, 11, 60. <https://doi.org/10.5430/ijfr.v11n1p60>
- Chams, N., García-Blandón, J., & Hassan, K. (2021). Role Reversal! Financial Performance as an Antecedent of ESG: The Moderating Effect of Total Quality Management. *Sustainability*, 13(13). <https://doi.org/10.3390/su13137026>
- Chaopricha, P., Chan, P., & Pollard, D. (2007). Firm characteristics and stock return. *International DSI/Asia and Pacific DSI*.
- Chauhan, S., & Amit. (2014). A Relational Study of Firm's Characteristics and CSR Expenditure. *Procedia Economics and Finance*, 11, 23-32. [https://doi.org/10.1016/S2212-5671\(14\)00172-5](https://doi.org/10.1016/S2212-5671(14)00172-5)
- Chay, J. B., Kim, H., & Suh, J. (2015). Firm Age and Valuation: Evidence From Korea. *Asia-Pacific Journal of Financial Studies*, 44(5), 721-761. <https://doi.org/10.1111/ajfs.12111>
- Činčalová, S., & Hedija, V. (2020). Firm Characteristics and Corporate Social Responsibility: The Case of Czech Transportation and Storage Industry. *Sustainability*, 12(5). <https://doi.org/10.3390/su12051992>
- Danisman, G. O., & Tarazi, A. (2024). ESG activity and bank lending during financial crises. *Journal of Financial Stability*, 70, 101206. <https://doi.org/10.1016/j.jfs.2023.101206>
- DasGupta, R. (2022). Financial performance shortfall, ESG controversies, and ESG performance: Evidence from firms around the world. *Finance Research Letters*, 46, 102487. <https://doi.org/10.1016/j.frl.2021.102487>
- De Vincentiis, P. (2024). ESG news, stock volatility and tactical disclosure. *Research in International Business and Finance*, 68, 102187. <https://doi.org/10.1016/j.ribaf.2023.102187>
- Del Giudice, A., & Rigamonti, S. (2020). Does Audit Improve the Quality of ESG Scores? Evidence from Corporate Misconduct. *Sustainability*, 12(14). <https://doi.org/10.3390/su12145670>
- Dhasmana, S., Ghosh, S., & Kanjilal, K. (2023). Does investor sentiment influence ESG stock performance? Evidence from India. *Journal of Behavioral and Experimental Finance*, 37, 100789. <https://doi.org/10.1016/j.jbef.2023.100789>
- Di Tommaso, C., & Mazzuca, M. (2023). The stock price of European insurance companies: What is the role of ESG factors? *Finance Research Letters*, 56, 104071. <https://doi.org/10.1016/j.frl.2023.104071>
- DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(2), 147-160. <https://doi.org/10.2307/2095101>
- Drempetic, S., Klein, C., & Zwergel, B. (2020). The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review. *Journal of Business Ethics*, 167(2), 333-360. <https://doi.org/10.1007/s10551-019-04164-1>
- Edmans, A. (2023). The end of ESG. *Financial Management*, 52(1), 3-17. <https://doi.org/10.1111/fima.12413>

- Fadilah, F., Uzliawati, L., & Mulyasari, W. (2022). The Effect of Firm Size and Firm Age on Sustainability Reporting and The Impact on Earnings Management. *Jurnal Riset Akuntansi Terpadu*, 15, 84. <https://doi.org/10.35448/jrat.v15i1.14510>
- Fauzi, R., & Wahyudi, I. (2016). The effect of firm and stock characteristics on stock returns: Stock market crash analysis. *The Journal of Finance and Data Science*, 2(2), 112-124. <https://doi.org/10.1016/j.jfds.2016.07.001>
- Freeman, R., & McVea, J. (2001). A Stakeholder Approach to Strategic Management. *SSRN Electronic Journal*.
- Gafni, D., Palas, R., Baum, I., & Solomon, D. (2024). ESG Regulation and Financial Reporting Quality: Friends or Foes? *Finance Research Letters*, 105017. <https://doi.org/10.1016/j.frl.2024.105017>
- Gakhar, D. V., & Kundlia, S. (2018). Stock Illiquidity and Firm Characteristics. *Market Microstructure and Liquidity*, 04(03n04), 1950009. <https://doi.org/10.1142/S2382626619500096>
- Guo, W.-C., Wang, F. Y., & Wu, H.-M. (2011). Financial leverage and market volatility with diverse beliefs. *Economic Theory*, 47(2), 337-364. <https://doi.org/10.1007/s00199-010-0548-8>
- Hamdi, K., Guenich, H., & Ben Saada, M. (2022). Does corporate financial performance promote ESG: Evidence from US firms. *Cogent Business & Management*, 9(1), 2154053. <https://doi.org/10.1080/23311975.2022.2154053>
- Handayani, M., Farlian, T., & Ardian, A. (2019). Firm size, market risk, and stock return: Evidence from Indonesian blue chip companies. *Jurnal Dinamika Akuntansi Dan Bisnis*, 6(2), 171-182.
- Handoyo, S., Mulyani, S., Ghani, E. K., & Soedarsono, S. (2023). Firm Characteristics, Business Environment, Strategic Orientation, and Performance. *Administrative Sciences*, 13(3). <https://doi.org/10.3390/admsci13030074>
- Hasnaoui, A. (2025). ESG ratings and investment performance: evidence from tech-heavy mutual funds. *Review of Accounting and Finance*, 24(1), 59-70. <https://doi.org/10.1108/RAF-02-2024-0069>
- Horn, M. (2023). The Influence of ESG Ratings On Idiosyncratic Stock Risk: The Unrated, the Good, the Bad, and the Sinners. *Schmalenbach Journal of Business Research*, 75(3), 415-442. <https://doi.org/10.1007/s41471-023-00155-1>
- Hussainey, A., Umayah, Z., Uzmany, H., & Ismail, R. (2025). Impact of ESG Disclosure on Stock Returns: Evidence from Egypt Firms with Tax and Governance Effects. *Journal Economic Business Innovation*, 1(4), 461-478. <https://doi.org/10.69725/jebi.v1i4.136>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Jiang, F., Tang, G., & Zhou, G. (2018). Firm Characteristics and Chinese Stocks. *Journal of Management Science and Engineering*, 3(4), 259-283. <https://doi.org/10.3724/SP.J.1383.304014>
- Jin, Y., Yan, J., & Yan, Q. (2024). Unraveling ESG Ambiguity, Price Reaction, and Trading Volume. *Finance Research Letters*, 61, 104972. <https://doi.org/10.1016/j.frl.2024.104972>
- Katsamposakis, I., Xanthopoulos, S., Basdekis, C., & Christopoulos, A. G. (2024). Can ESG Stocks Be a Safe Haven during Global Crises? Evidence from the COVID-19 Pandemic and the Russia-Ukraine War with Time-Frequency Wavelet Analysis. *Economies*, 12(4). <https://doi.org/10.3390/economies12040089>

- Khanna, R., Sharma, C., & Pant, A. (2024). COVID-19, firm characteristics and stock volatility: new evidence from the Indian tourism sector. *International Journal of Emerging Markets*, 19(6), 1563-1585. <https://doi.org/10.1108/IJOEM-12-2021-1877>
- Krishnan, C. N. V., Yang, J., & Tan, X. (2024). Do Environmental, Social, and Governance (ESG) Factors Matter? Analyzing the Relationships Between Firm Characteristics and ESG Scores. *Businesses*, 4(4), 566-581. <https://doi.org/10.3390/businesses4040034>
- Leite, B. J., & Uysal, V. B. (2023). Does ESG matter to investors? ESG scores and the stock price response to new information. *Global Finance Journal*, 57, 100851. <https://doi.org/10.1016/j.gfj.2023.100851>
- Lim, H., Kang, S. K., & Kim, H. (2016). Auditor Quality, IFRS Adoption, and Stock Price Crash Risk: Korean Evidence. *Emerging Markets Finance and Trade*, 52(9), 2100-2114. <https://doi.org/10.1080/1540496X.2016.1184142>
- Liu, C. (2024). ESG, Operational Guidance, and Long-term Value Creation. *Journal of Economics, Business and Management*, 12(3), 230-238. <https://doi.org/10.18178/joebm.2024.12.3.802>
- Liu, H., & Zhang, Q. (2021). Firm age and realized idiosyncratic return volatility in China: The role of short-sales constraints. *International Review of Financial Analysis*, 75, 101745. <https://doi.org/10.1016/j.irfa.2021.101745>
- Liu, M., Tang, J., Walton, S., Zhang, Y., & Zhao, X. (2023). Auditor sustainability focus and client sustainability reporting. *Accounting, Organizations and Society*, 101512. <https://doi.org/10.1016/j.aos.2023.101512>
- Long, H., Chiah, M., Cakici, N., Zaremba, A., & Bilgin, M. H. (2024). ESG investing in good and bad times: An international study. *Journal of International Financial Markets, Institutions and Money*, 91, 101916. <https://doi.org/10.1016/j.intfin.2023.101916>
- Luo, D. (2022). ESG, liquidity, and stock returns. *Journal of International Financial Markets, Institutions and Money*, 78, 101526. <https://doi.org/10.1016/j.intfin.2022.101526>
- M'muriungi, C. K., Muturi, W., & Oluoch, O. (2019). Effect of firm characteristics on stock returns of non-financial listed companies in Kenya. *International Journal of Business Management and Economic Research*, 10(2), 1561-1573.
- Modugu, K. P. (2020). Do corporate characteristics improve sustainability disclosure? Evidence from the UAE. *International Journal of Business Performance Management*, 21(1-2), 39-54. <https://doi.org/10.1504/IJBPM.2020.106106>
- Nicolas, M. L. D., Desroziers, A., Caccioli, F., & Aste, T. (2024). ESG reputation risk matters: An event study based on social media data. *Finance Research Letters*, 59, 104712. <https://doi.org/10.1016/j.frl.2023.104712>
- Nie, S., Liu, J., Zeng, G., & You, J. (2023). Local government debt pressure and corporate ESG performance: Empirical evidence from China. *Finance Research Letters*, 58, 104416. <https://doi.org/10.1016/j.frl.2023.104416>
- Nkundabanyanga, S. K., Mugumya, E., Nalukenge, I., Muhwezi, M., & Najjemba, G. M. (2020). Firm characteristics, innovation, financial resilience and survival of financial institutions. *Journal of Accounting in Emerging Economies*, 10(1), 48-73. <https://doi.org/10.1108/JAEE-08-2018-0094>
- Nur, T., & Korkmaz, T. (2023). The Effect of ESG Sustainability on Firm Performance: A View under Size and Age on BIST Bank Index Firms [ESG Sürdürülebilirliğinin Firma Performansına Etkisi: BİST Banka Endeksinde Büyüklük ve Yaşa Bağlı Bir İnceleme]. *Ekonomi Politika ve Finans Araştırmaları Dergisi*, 8(2), 208-223. <https://doi.org/10.30784/epfad.1278491>
- Pertiwi, P., & Wiagustini, N. (2020). The impact of dividend payout ratio (DPR), leverage and firm size on stock price volatility in manufacturing companies listed on the Indonesia

- Stock Exchange. *American Journal of Humanities and Social Sciences Research*, 4(3), 399-405.
- Peter, A. K., Ojo, O. M., & Adewoye, O. A. (2020). Firm characteristics and stock returns of Nigerian quoted firms: a two-sector comparative Analysis. *Journal of Economics and Business*, 3(1).
- Prombutr, W., & Phengpis, C. (2019). Behavioral-related firm characteristics, risks and determinants of stock returns. *Review of Accounting and Finance*, 18(1), 95-112. <https://doi.org/10.1108/RAF-03-2017-0060>
- Ren, F., Liu, X., Charles, V., Zhao, X., & Balsalobre-Lorente, D. (2025). Integrated efficiency and influencing factors analysis of ESG and market performance in thermal power enterprises in China: A hybrid perspective based on parallel DEA and a benchmark model. *Energy Economics*, 141, 108138. <https://doi.org/10.1016/j.eneco.2024.108138>
- Rezee, Z., Espahbodi, R., Espahbodi, P., & Espahbodi, H. (2012). Firm Characteristics and Stock Price. *Abacus*, 48(4), 473-501. <https://doi.org/10.1111/j.1467-6281.2012.00377.x>
- Risal, R., Giriati, G., Wendy, W., & Malini, H. (2023). Firm Size, Profitability, and ESG Disclosure in Indonesia: Geographical Location As Moderating Variable. *International Journal of Economics Development Research (IJEDR)*, 4(5), 2333-2348. <https://doi.org/10.37385/ijedr.v5i2.5002>
- Sahu, A., Pahi, D., Dwibedi, P., Mishra, A. P., & Mishra, B. (2024). Examining the role of ESG disclosure and firm characteristics in promoting global green building adoption: a panel probit approach. *Socio-Ecological Practice Research*. <https://doi.org/10.1007/s42532-024-00209-6>
- Saleh Aly, S. A., Diab, A., & Abdelazim, S. I. (2023). Audit quality, firm value and audit fees: does audit tenure matter? Egyptian evidence. *Journal of Financial Reporting and Accounting, ahead-of-print(ahead-of-print)*. <https://doi.org/10.1108/JFRA-04-2023-0203>
- Sari, D. M., & Zaitul, Z. (2024). Corporate Governance and Stock Return Volatility. *AKADEMIK: Jurnal Mahasiswa Ekonomi & Bisnis*, 4(2), 904-919. <https://doi.org/10.37481/jmeh.v4i2.790>
- Senaviratna, N. A. M. R., & A. Cooray, T. M. J. (2019). Diagnosing Multicollinearity of Logistic Regression Model. *Asian Journal of Probability and Statistics*, 5(2), 1-9. <https://doi.org/10.9734/ajpas/2019/v5i230132>
- Setyawati, I., Alamsyah, D., & Khotimah, K. (2020). Profitability, dividend policy and stock price volatility: Indonesia stock exchange. In *Advances in Business, Management and Entrepreneurship* (pp. 338-342). CRC Press.
- Shakil, M. H. (2022). Environmental, social and governance performance and stock price volatility: A moderating role of firm size. *Journal of Public Affairs*, 22(3), e2574. <https://doi.org/10.1002/pa.2574>
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355-374. <https://doi.org/10.2307/1882010>
- Tang, H., Xiong, L., & Peng, R. (2024). The mediating role of investor confidence on ESG performance and firm value: Evidence from Chinese listed firms. *Finance Research Letters*, 61, 104988. <https://doi.org/10.1016/j.frl.2024.104988>
- Taskin, D., Sariyer, G., Acar, E., & Cagli, E. C. (2025). Do past ESG scores efficiently predict future ESG performance? *Research in International Business and Finance*, 74, 102706. <https://doi.org/10.1016/j.ribaf.2024.102706>
- Vozlyublennaiia, N. (2013). Do firm characteristics matter for the dynamics of idiosyncratic risk? *Journal of International Financial Markets, Institutions and Money*, 27, 35-46. <https://doi.org/10.1016/j.intfin.2013.07.006>
-

- Wang, H., Jiao, S., Ge, C., & Sun, G. (2024). Corporate ESG rating divergence and excess stock returns. *Energy Economics*, 129, 107276. <https://doi.org/10.1016/j.eneco.2023.107276>
- Wang, H., Shen, H., & Li, S. (2023). ESG performance and stock price fragility. *Finance Research Letters*, 56, 104101. <https://doi.org/10.1016/j.frl.2023.104101>
- Wang, J., Meric, G., Liu, Z., & Meric, I. (2009). Stock market crashes, firm characteristics, and stock returns. *Journal of Banking & Finance*, 33(9), 1563-1574. <https://doi.org/10.1016/j.jbankfin.2009.03.002>
- Wang, K., Li, T., San, Z., & Gao, H. (2023). How does corporate ESG performance affect stock liquidity? Evidence from China. *Pacific Basin Finance Journal*, 80, Article 102087. <https://doi.org/10.1016/j.pacfin.2023.102087>
- Wang, R., Wang, X., & Yan, Z. (2024). Sustainable Success: How High ESG Ratings Affect Stock Market Responses to Earnings Surprises. *Finance Research Letters*, 105131. <https://doi.org/10.1016/j.frl.2024.105131>
- Wang, S., Cheng, H. C., Wang, J., & Yick, H. Y. (2025). The performance of ESG portfolios: Evidence from the Chinese market under COVID-19. *Economic Modelling*, 143, 106958. <https://doi.org/10.1016/j.econmod.2024.106958>
- Wu, F., Zhu, B., & Tao, S. (2024). Can good ESG performance of listed companies reduce abnormal stock price volatility? Mediation effects based on investor attention. *PLOS ONE*, 19(9), e0307535. <https://doi.org/10.1371/journal.pone.0307535>
- Xu, Z., Liu, D., Li, Y., & Guo, F. (2025). ESG and Stock Price Volatility Risk: Evidence from Chinese A-share Market. *The North American Journal of Economics and Finance*, 75, 102277. <https://doi.org/10.1016/j.najef.2024.102277>
- Yin, X.-N., Li, J.-P., & Su, C.-W. (2023). How does ESG performance affect stock returns? Empirical evidence from listed companies in China. *Heliyon*, 9(5), e16320. <https://doi.org/10.1016/j.heliyon.2023.e16320>
- Yoon, B., Lee, J. H., & Byun, R. (2018). Does ESG Performance Enhance Firm Value? Evidence from Korea. *Sustainability*, 10(10). <https://doi.org/10.3390/su10103635>
- Yu, Z., Farooq, U., Alam, M. M., & Dai, J. (2024). How does environmental, social, and governance (ESG) performance determine investment mix? New empirical evidence from BRICS. *Borsa Istanbul Review*, 24(3), 520-529. <https://doi.org/10.1016/j.bir.2024.02.007>
- Zahid, R. M. A., Taran, A., Khan, M. K., & Chersan, I.-C. (2023). ESG, dividend payout policy and the moderating role of audit quality: Empirical evidence from Western Europe. *Borsa Istanbul Review*, 23(2), 350-367. <https://doi.org/10.1016/j.bir.2022.10.012>
- Zhang, Y. (2025). Debt distribution and ESG performance: Evidence from Chinese listed companies. *Research in International Business and Finance*, 73, 102589. <https://doi.org/10.1016/j.ribaf.2024.102589>
- Zhou, D., & Zhou, R. (2022). ESG Performance and Stock Price Volatility in Public Health Crisis: Evidence from COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 19(1). <https://doi.org/10.3390/ijerph19010202>