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Research Article

# WHEN SUSTAINABILITY MEETS FINANCE: HOW ESG-LINKED INSTRUMENTS AND CAPITAL STRUCTURE OPTIMIZATION SHAPE CORPORATE FINANCIAL PERFORMANCE

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**Abstract**
This study investigates the relationship between ESG-associated financing and capital structure optimization, as well as their subsequent impact on corporate financial performance (CFP) within the financial services sector. It highlights the moderating role of market uncertainty and aims to fill existing gaps in the literature by empirically evaluating the effectiveness of sustainability-driven financial strategies in dynamic market environments. Employing a quantitative research design, this study surveyed 385 professionals from banks, insurance companies, and fintech firms located in Southeast Asia, utilizing stratified random sampling methods for data collection. The analysis employed descriptive statistics, Cronbach's Alpha for reliability assessment, Exploratory Factor Analysis (EFA) for construct validation, and multiple linear regression analysis via SPSS to test the research hypotheses. The findings indicate that ESG-associated investment has the most significant influence on CFP ($\beta = 0.534$), closely followed by capital structure optimization ($\beta = 0.427$). Additionally, market uncertainty serves as a moderator for both relationships ($\beta = 0.367$ and $\beta = 0.421$, respectively), with its effects becoming more pronounced during volatile conditions. These results highlight that ESG strategies and optimized capital structures are not only performance-enhancing but also crucial resilience mechanisms under uncertainty. The study contributes to signaling, trade-off, and institutional theories by contextualizing ESG-financial decisions in emerging markets. Practically, financial institutions and policymakers should integrate ESG-linked financing instruments and flexible capital planning to improve performance and stability under volatile market conditions.

Keywords: Capital Structure Optimization, Corporate Financial Performance, Emerging Markets, ESG-Linked Financing, Market Uncertainty

## INTRODUCTION

The financial services industry is shaped by the economic environment and internally adopted financial policies. Increased regulatory scrutiny, stakeholder vigilance, and intensified global rivalry render the enhancement of CFP reliant on the adequacy of capital structuring alongside the integration of sustainability (Lins et al., 2017; Asmaningrum et al., 2025). Many financial firms operate under high leverage and systemic risk; thus, performance is highly sensitive to capital costs, funding structures and overall market conditions (Athari & Bahreini, 2023). Firms engaging in ESG disclosures tend to receive greater investor support, especially by investors, because ESG (Environmental, Social, Governance) issues are increasingly being prioritized (El Ghoul et al., 2011; Itan et al., 2025). Many financial institutions face challenges when trying to properly integrate ESG factors into their performance metrics. This highlights an emerging research need to explore ESG-embedded finance and to examine capital structure optimization and corporate financial performance under market volatility (Fiorillo et al., 2025).

There are recent empirical studies demonstrating the impact of ESG-financed capital-related activities on corporate financial performance (CFP), however, findings across the financial services sector remain fragmented. In other words, ESG strategies are associated with lower capital costs and value creation (El Ghoul et al., 2011; Cheng et al., 2014). Optimizing capital structure may also improve efficiency and subsequent shareholder returns (Margaritis & Psillaki, 2010; Fetmirwati et al., 2025). Nevertheless, there is a lack of comprehensive research exploring the interdependence between ESG financing and capital structure decisions and even fewer studies that consider the moderating role of market uncertainty, a fundamental characteristic of today's economy (Athari & Bahreini, 2023; Hafiz et al., 2025; Le & Aye, 2025; Linh et al., 2025). Prior research has either examined these factors independently or in developed market contexts, overlooking their combined effects in financial services within emerging economies. The limited integration of ESG-linked financing with capital structure decisions under market uncertainty highlights a significant deficiency in the existing literature. Most existing studies are situated in developed economies, whereas emerging markets characterized by regulatory volatility, high leverage sensitivity, and systemic risk remain underexplored (Hagad & Riah, 2025; Pinillos et al., 2025). Equally important, although market uncertainty fundamentally shapes financial decision-making, it has seldom been theorized and empirically tested as a moderating factor in the ESG–capital structure–performance nexus (Li & Qiu, 2021; Islami et al., 2025; Jackson & Alfaki, 2025). The urgency of this research stems from the convergence of rising ESG demands, regulatory volatility, and heightened market uncertainty in emerging economies. Failure to address these issues risks perpetuating financial instability and limiting firms' ability to attract sustainable investment capital. At this critical juncture, timely evidence from emerging markets is essential to inform corporate strategies, guide policymaking, and ensure the resilience of financial institutions in volatile global conditions. These gaps collectively underscore the need for a comprehensive, context-specific model. This lack of an integrated and context-specific framework highlights a critical research gap that this study addresses. To address this gap, the research proposes a moderated framework model tailored to the financial services sector. This model shifts the analytical focus from viewing ESG as an isolated initiative to understanding its interaction with capital intensity in shaping CFP, thereby yielding deeper insights into corporate financial performance in volatile markets.

Beyond diagnosing these shortcomings, this study also advances a problem-solving pathway. By proposing a moderated framework that aligns ESG-linked financing with flexible capital planning under uncertainty, the research delivers actionable insights: firms can reduce financing frictions through credible ESG instruments, managers can design adaptive leverage strategies to withstand turbulence, and policymakers can establish standardized ESG disclosure systems to enhance comparability and transparency. This integrated approach positions the study not only as a response to fragmented evidence but also as a roadmap for building sustainable financial resilience in emerging economies. To deepen the theoretical insight into this topic, the study seeks to explore the following research questions:

1. To what extent does ESG-linked financing influence corporate financial performance in the financial services sector?
2. How does capital structure optimization impact corporate financial performance in financial services firms?
3. Does market uncertainty moderate the relationship between ESG-linked financing and corporate financial performance?

4. Does market uncertainty moderate the relationship between capital structure optimization and corporate financial performance?

This study attempts to bridge the noted gap in the literature by exploring three related goals that identify shortcomings of the existing literature. First, it examines if financing that is related to Environmental, Social, and Governance (ESG) issues contributes towards corporate financial performance (CFP), overcoming disjointed and often conflicting results that have often treated ESG as a peripheral exercise. Second, it considers the effect of optimal capital structure on CFP, throwing light on an aspect that has been overwhelmingly left out of consideration, particularly in emerging markets that feature remarkable regulatory volatilities and systemic hazards. Third, it considers the moderating effects of market uncertainty on both associations, a variable that is studied inadequately despite its crucial relevance for financial decisions. Collectively, these goals construct theoretical insights by employing signaling, trade-off, and institutional viewpoints while simultaneously providing managerial guidance for financial institutions with regard to harmonizing sustainable financing with flexible deployments of capitals. In the process, the paper seeks to construct a contextualized framework that inspires scholarly discourse while delivering planners, professionals, and administrators approaches crafted to prioritize financial strength while constructing sustainability that endures regardless of changing emerging market circumstances.

## LITERATURE REVIEW

### *Corporate Financial Performance in Financial Services*

Corporate Financial Performance (CFP) is a core dimension of business performance, reflecting the extent to which a firm achieves its financial objectives through the effective management and utilization of resources (Türk, 2024). According to Venkatraman and Ramanujam (1986), CFP is commonly assessed using economic indicators such as profitability, revenue growth, and market-based performance, and serves as a central criterion in evaluating the effectiveness of a firm's strategic initiatives. In financial services, CFP is a multidimensional construct encompassing profitability, liquidity, and capital adequacy, reflecting the firm's financial resilience in regulatory-intensive environments (Gržeta et al., 2023). From a functionalist perspective, CFP helps maintain organizational stability amid economic and policy changes. It promotes adaptability, strategic responsiveness, and long-term sustainability in sectors characterized by high leverage. Recent studies suggest that financial institutions with robust Corporate Financial Performance (CFP) tend to outperform their peers during periods of economic volatility, particularly when these firms align Environmental, Social, and Governance (ESG) strategies with capital structure decisions. Lee and Koh (2024) found that strong ESG performance is associated with reduced firm risk in U.S. financial institutions, suggesting that integrating ESG into financial strategies enhances organizational resilience in uncertain market conditions. During the COVID-19 pandemic, Industrial Bank in China achieved a steady recovery in return on equity (ROE). This increased investor's trust due to its careful financial management and commitment to ESG principles. Since late 2019, improved ESG ratings have attracted investors focused on sustainability, enhancing the bank's financial stability amid economic challenges (Xu, 2023). Thus, CFP is a key metric that reflects both operational performance and a commitment to sustainability in the financial services sector.

### *Signaling Theory*

Signaling theory, first developed by Spence (1978) in the context of the labor market, offers a useful framework for examining how ESG-linked financing influences corporate financial performance by reducing information asymmetry between firms and external stakeholders. In traditional corporate finance, companies generally possess private information about their operational quality, sustainability efforts, and risk exposure that is not immediately obvious to investors. To bridge this knowledge gap, businesses employ signaling devices, such as green bonds and sustainability-linked loans, to credibly signal their long-term value and sustainable business intentions (Wu et al., 2025). These ESG-oriented finance instruments are reliable signals of a company's sustainable commitment, and they capture the core concepts of signaling theory (Connelly et al., 2011). However, their creation comes at real costs, such as third-party assurance, potential interest rate penalties for non-compliance, and increased regulatory scrutiny costs that will rarely be absorbed by lower-quality or less committed firms. Hence, only strongly committed and high-quality ESG firms have the incentive to create these instruments, reinforcing the credibility of their signals (Flammer, 2021; Chen et al., 2023).

Recent empirical research emphasizes the signaling role associated with ESG-related financing. El Ghoul et al., (2011) and Fiorillo et al., (2025) studies indicate that issuing firms in such financing instruments tend to enjoy lower bond spreads and lower financing costs. Investors perceive such firms as having lower default risk and better governance mechanisms. In the same vein, Cheng et al., (2014) illustrate how firms with better ESG performance experience fewer capital constraints and have a wider investor base, which eventually translates into superior financial performance. These results corroborate the argument that signaling ESG intentions through the deployment of financial instruments can result in more conducive capital circumstances, a lower weighted average cost of capital, and eventually, higher profitability.

Market uncertainty introduces another aspect to the signaling process. In times of turbulence, such as economic downturns or geopolitical tensions, the need for clear and coherent signals is heightened. Lins et al. (2017) demonstrated that firms with good ESG reputations had better financial resilience during the global financial crisis. Supporting this view, Shakil (2021) found that firms with strong ESG performance inspired greater investor confidence during periods of uncertainty. These findings suggest that ESG-based financing becomes a particularly effective signaling mechanism under uncertain market conditions. Thus, signaling theory provides a robust explanation of how ESG financing improves financial performance by mitigating financing frictions and enhancing market confidence, particularly in periods of uncertainty when the credibility of signals matters the most (Arhinful et al., 2025).

Signaling theory assumes that managers possess a superior knowledge of the quality of their firm compared to external investors, leading to information asymmetry (Spence, 1978). It proposes that signaling channels, including ESG-related financing, entail substantial expenditures, which make low-quality companies refrain from emulating high-quality companies' signals (Connelly et al., 2011). The theory presupposes that senders (firms) and receivers (investors) are rational actors, interpreting signals to shape investment choices. It also depends on the presence of sufficiently efficient financial markets, in which publicly available information is rapidly absorbed into asset prices. These theoretical foundations render ESG-linked financial instruments powerful indicators that can drive corporate financial performance.

### *Trade-off Theory*

The trade-off theory of capital structure offers a powerful analytical framework for examining how financial services firms maximize their capital structure in a bid to improve financial performance. Founded on fundamental principles of traditional finance, this theoretical framework contends that firms seek a trade-off between the benefits of utilizing debt, mainly the tax deductibility of interest payments, and the associated risks of financial distress, consequently determining an optimal debt-to-equity ratio (Berens & Cuny, 1995; Modigliani & Miller, 1963). To use the words of Kraus and Litzenberger (1973), the cost of capital will be minimized where incremental benefits of additional debt are equal to incremental expected costs of financial distress. In financial institutions, where leverage is directly connected with regulatory capital demands, this balance is especially crucial to maintain (Grill et al., 2015).

Empirical data supports the explanatory power of this theory. Jensen (1986) argues that an optimal level of indebtedness can be employed as a disciplinary device, discouraging managerial extravagance and guaranteeing the optimal use of resources. Consistent with this argument, Margaritis and Psillaki (2010) find that in circumstances characterized by significant agency problems, leverage is associated with improved firm performance. However, the advantages of debt financing diminish once the optimal threshold is exceeded. Zeitun and Haq (2015) state that high levels of debt hurt profitability in emerging markets largely because of higher risks caused by financial distress, including bankruptcy and credit rating downgrades. In the same way, Athari and Bahreini (2023) state that macroeconomic uncertainty exacerbates the negative impact of high leverage, which implies that optimal capital structures are based on general economic conditions. This sensitivity highlights the importance of considering market uncertainty as a moderating variable in capital structure decisions. In periods of stable market conditions, organizations are more able to move towards their target capital structures. While Shyam-Sunder and Myers (1999) do not explicitly measure the impact of volatility, their empirical validation of the pecking order theory would suggest that, during periods of uncertainty, companies would look towards more conservative financial policies and deviate from their target leverage. In line with the trade-off

hypothesis, firms that adjust their capital structure to adapt to new market situations will be more likely to report stable and sustainable financial performance (Kieschnick & Moussawi, 2018).

Lastly, the trade-off theory not only describes the static relation between leverage and performance but also emphasizes how firms dynamically adjust their strategies in the face of uncertainty. For financial services firms, prudent management of capital structure allows them to minimize financing costs, mitigate agency issues, and strengthen their resilience to economic shocks, thereby fostering long-term financial wealth.

The trade-off theory preassumes that firms try to maximize value by trading off the tax advantages of debt against the financial distress costs (Berens & Cuny, 1995). The theory considers corporate taxation, potential bankruptcy costs, and agency problems under moderately efficient capital markets. It assumes firms have stable cash flows and can maintain an optimal capital structure. Management can anticipate changing financial circumstances and change leverage accordingly. These assumptions point out that effective capital structure management plays a vital role in enhancing the financial performance of a firm. Stable decision-making between debt and equity influences overall value and stability (Gao & Tsusaka, 2023).

### *Determinants of Corporate Financial Performance in Financial Services Impact of ESG-linked financing*

Environmental, Social, and Governance (ESG) practices reflect a firm's commitment to sustainable development, social responsibility, and sound governance elements increasingly recognized as influential factors in corporate financial performance (Shan et al., 2024; Al Azizah & Haron, 2025; Özgün, 2025). ESG-linked financing mechanisms, including sustainability-linked loans (SLLs) and green bonds, align a firm's financing terms with its ESG performance metrics (Anderson & Kish, 2024). This approach serves not only as a financial resource but also as a market-based incentive for companies to advance their sustainability objectives (Auzepy et al., 2023). Theoretically, ESG-linked financing is grounded in stakeholder theory and signaling theory. Stakeholder theory posits that firms must create value for all stakeholders, not just shareholders, to maintain their legitimacy and ensure long-term survival (Harrison et al., 2010). Signaling theory (Spence, 1978) asserts that companies use observable actions to communicate private information; therefore, linking financing to ESG outcomes signals both credibility and commitment to sustainable practices (Anderson & Kish, 2024). In the financial sector, ESG-linked lending has significantly advanced due to increasing regulatory demands, heightened investor interest, and essential risk management considerations. A study conducted by Friede et al. (2015) indicates that around 90% of empirical research shows a non-negative correlation between ESG practices and corporate financial performance (CFP), with most research revealing beneficial impacts. Notably, El Ghoul et al. (2011) found that companies with high ESG ratings experienced a reduced cost of capital, aligning with investor perceptions of decreased risk. Effective ESG-linked financing can enhance CFP within the financial services industry by lowering the weighted average cost of capital, appealing to sustainability-focused investors, and improving risk-adjusted returns. Furthermore, a comprehensive meta-analysis encompassing over 1,000 studies identified that 58% established a positive correlation between ESG initiatives and firm financial performance (Friede et al., 2015). For example, the Industrial Bank of China maintained a stable return on equity (ROE) and investor trust throughout the COVID-19 pandemic, attributed to its prudent ESG strategies and robust risk management (Xu, 2023). This strategy not only attracted sustainability-focused investors but also enhanced the bank's financial resilience (Xu, 2023). However, the strength of the ESG-firm value relationship is inconsistent. Zheng et al. (2022) highlight that ESG performance significantly boosts firm value, particularly in contexts where institutional investor ownership is low. Conversely, in highly uncertain environments, the link between ESG and corporate financial performance (CFP) seems to weaken, indicating a contingent relationship (Fu & Li, 2023). Such heterogeneity underscores the functionalist perspective, which suggests that ESG-linked financing enhances organizational resilience and adaptability in the face of external shocks. Despite predominantly positive empirical findings, some critics contend that ESG-linked financing may result in resource misallocation or greenwashing if not closely monitored (Auzepy et al., 2023). Moreover, "slack resource theory" posits that firms with high CFP may invest in ESG initiatives due to surplus capital rather than the performance-enhancing benefits of ESG itself (Barnett & Salomon, 2012). Thus, ESG-linked financing exhibits a dual role: signaling firm quality and promoting sustainable corporate finance within a regulated financial environment.

Building upon the established theoretical framework, the first hypothesis is derived by synthesizing the core perspectives outlined earlier as follows:
H1: ESG-linked financing positively impacts corporate financial performance in the financial services industry.

### *Impact of Capital Structure Optimization*

Capital structure optimization is a strategic financial decision aimed at achieving the most efficient mix of debt and equity to minimize the cost of capital and maximize firm value. According to trade-off theory, firms assess the tax advantages associated with debt alongside potential financial distress costs to determine an optimal capital ratio (Modigliani & Miller, 1963; Kraus & Litzenberger, 1973). Conversely, pecking order theory posits that firms prefer to utilize internal funding, resorting to external debt or equity only when necessary, primarily due to concerns over information asymmetry (Myers & Majluf, 1984). In the context of financial institutions, where regulatory capital requirements such as those stipulated by Basel III are rigorous, capital structure decisions must ensure compliance with solvency standards and risk management protocols (Gržeta et al., 2023). Insurers and banks typically navigate the balance between maintaining sufficient equity buffers for stability and maximizing return on equity through leverage (Fosu, 2013). The significance of capital structure optimization lies in its impact on financial flexibility, cost efficiency, and overall investor confidence. Research in the Vietnamese context illustrates that effective capital structuring substantially enhances firm value, leading to increased profitability, particularly in emerging economies (Bui et al., 2023). Firms that achieve optimal leverage can realize higher returns while mitigating excessive financial risk. Empirical evidence from the financial services sector supports the notion that moderate leverage contributes positively to corporate financial performance (Sakınç, 2024). For example, Fosu (2013) found that South African firms experienced improved performance with higher leverage up to a certain optimal threshold. Furthermore, El-Sayed Ebaid (2009) demonstrated that capital structure significantly influences performance metrics such as return on assets (ROA) and return on equity (ROE) in the Egyptian capital market. However, excessive leverage has been associated with poor performance, particularly in volatile markets (Pratomo et al, 2023). Bui et al. (2023) noted that high levels of debt adversely affect profitability, in line with trade-off theory. Additionally, agency theory suggests that debt can mitigate managerial opportunism by imposing discipline through mandatory repayments (Jensen, 1986). Nevertheless, some critics argue that the influence of capital structure on performance may vary by context. Ashraf et al. (2022) argue that policy and macroeconomic uncertainties can undermine the effectiveness of optimal capital structures, as external shocks substantially alter financing conditions and corporate decision-making models. Moreover, certain firms may maintain non-optimal structures due to strategic conservatism or regulatory limitations, thus diminishing the anticipated impact on performance (Tabash et al., 2022). Ultimately, the optimization of capital structure serves a stabilizing functional role within organizational systems, particularly in financial services, where institutions are sensitive to interest rates and funding costs (Abdymomunov et al., 2023).

Drawing from the theoretical foundation and previously discussed viewpoints, the hypothesis is proposed:
H2: Capital structure optimization positively impacts corporate financial performance in the financial services industry.

### *Moderating role of market uncertainty*

Market uncertainty describes the ambiguity surrounding economic and financial conditions, which is often reflected in varying interest rates, stock market volatility, policy changes, and unforeseen external events (Baker et al., 2016; Adil et al., 2025; Rahajo & Kumyat, 2025). This uncertainty significantly influences strategic decision-making and risk evaluation within the financial services sector, particularly in times of market turbulence (Bendickson et al., 2018).

Additionally, market uncertainty can act as a moderating variable in the relationship between ESG-linked financing and corporate financial performance (CFP), which can be examined through the lens of institutional theory. Institutional theory asserts that organizations are constructed based on formal rules and informal norms and belief systems present within their broader institutional settings (Suchman, 1995). In this context, firms may adopt specific practices, such as ESG-linked financing, to enhance their legitimacy and garner acceptance among stakeholders. However, the pressure to adhere to ESG principles may vary depending on environmental stability. In periods marked by heightened market uncertainty,

external pressures, including investor expectations for resilience, regulatory scrutiny, and stakeholder demands for transparency, may intensify. This can enhance the signaling effects and legitimacy-building effect of ESG-linked financing (Feldhütter & Pedersen, 2024). This theoretical perspective is supported by empirical findings. For instance, Chu et al. (2018) demonstrate that firms engaged in environmental innovation experience enhanced performance during periods of market volatility, suggesting that actions aimed at achieving legitimacy are particularly valuable in unstable contexts. Similarly, financial instruments linked to Environmental, Social, and Governance (ESG) criteria signify both fiscal prudence and risk management capabilities in tumultuous times, ultimately fostering greater investor confidence. Thus, the effects of ESG financing on corporate financial performance (CFP) are contingent upon the prevailing environmental conditions (Yang et al., 2025; Zhang et al., 2025).

In the realm of behavioral finance, the presence of uncertainty intensifies the reliance on signals that diminish perceived risks for investors. Hussain et al. (2023) emphasize the mediating role of investment sentiment between firm value and policy uncertainty, illustrating that credible signals can significantly influence investor behavior. In this context, funding associated with ESG can serve as a compelling signal, particularly for institutional investors who prioritize long-term stability. Consequently, integrating insights from institutional theory and behavioral finance suggests that heightened market uncertainty magnifies the positive impact of ESG financing on CFP by enhancing perceived legitimacy and facilitating risk mitigation.

Anchored in the conceptual framework and informed by the key insights presented earlier, the study posits the third hypothesis as follows:

H3: Public market uncertainty moderates the influence of ESG-linked financing on corporate financial performance in financial services.

The relationship between capital structure optimization and corporate financial performance (CFP) can be effectively examined through the lens of real options theory (Lambrinoudakis et al., 2019). This theory conceptualizes investment and financing decisions as strategic options that managers may adaptively exercise, in response to fluctuating market conditions and uncertainties (Trigeorgis, 1996). Within this framework, optimizing capital structure by identifying the optimal mix of debt and equity allows firms to adjust their strategies based on market signals. In stable market conditions, companies often leverage high debt levels to capitalize on tax benefits and enhance returns (Gabrielli, 2023; Nguyen & Bui, 2025). Conversely, during periods of heightened uncertainty, maintaining flexibility becomes increasingly valuable, prompting firms to adopt lower leverage levels to preserve optionality, minimize financial distress costs, and ensure strategic agility (Pan et al., 2019; Schwarz & Dalmácio, 2020).

Empirical studies support this theoretical perspective. Hussain et al. (2023) found that economic policy uncertainty, moderates the relationship between leverage and firm value, indicating that companies with well-designed capital structures are better equipped to navigate uncertain environments compared to those that fail to adapt. Under the premise of real options theory, opting for lower leverage during uncertain times constitutes a “wait-and-see” strategy, which mitigates downside risk while retaining the capacity to seize potential opportunities. Furthermore, agency theory complements this view by suggesting that indebtedness can serve to discipline managerial behavior, albeit at the expense of constraining managerial flexibility (Ahmed et al., 2023). In volatile environments, excessive debt heightens adverse risks, while a soundly structured capital structure provides a buffer against such volatility (Jensen, 1986). Consequently, the optimization of capital structure exerts a contingent impact on corporate financial performance, which is influenced by prevailing market dynamics. Together, real options theory and agency theory elucidate how market uncertainty moderates the interplay between performance and capital structure by redefining the strategic significance of risk exposure and financial adaptability (Im et al., 2020).

Based on the integrated theoretical perspectives discussed above, the fourth hypothesis is articulated as follows:

H4: Market uncertainty moderates the influence of capital structure optimization on corporate financial performance in financial services.

### *Conceptual Framework*

Grounded in robust theoretical foundations, this study enhances its academic contribution by presenting the following conceptual framework:

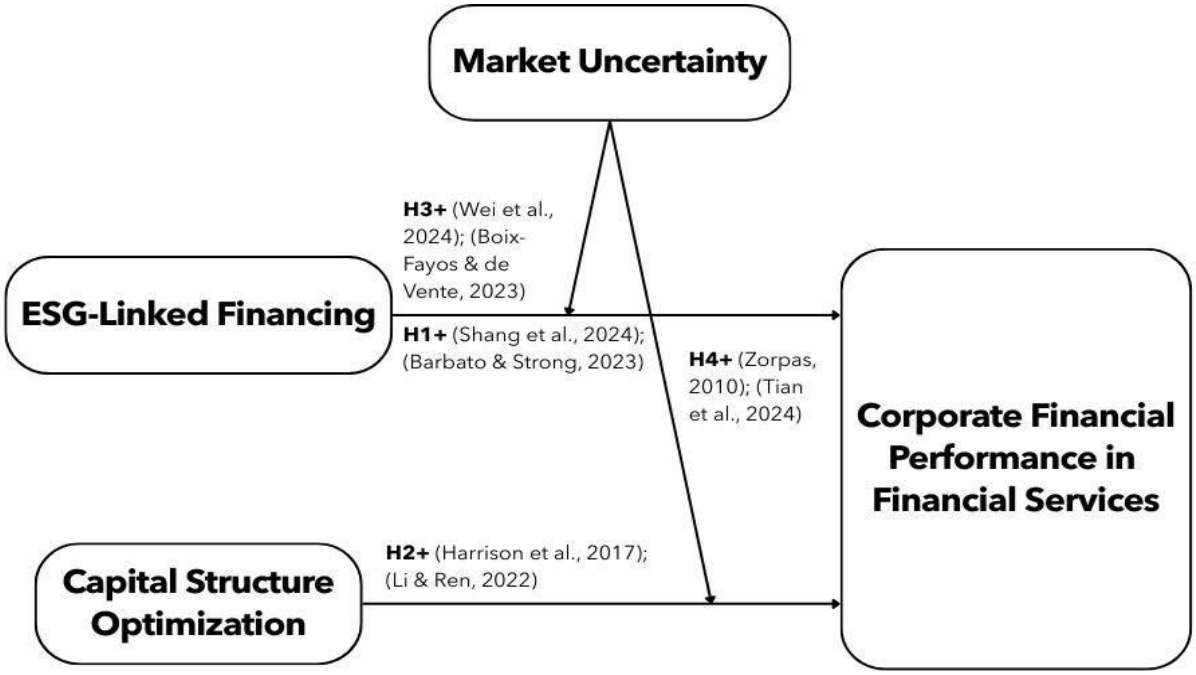


Figure 1. The Paper's Conceptual Framework

## RESEARCH METHOD

This study adopts a quantitative, explanatory research design with a cross-sectional survey approach. The purpose is to empirically test the relationships between ESG-linked financing, capital structure optimization, market uncertainty, and corporate financial performance in the financial services sector of emerging markets. This research adopted a probability sampling approach, specifically employing a stratified sampling technique to ensure representative coverage across key stakeholder groups in the financial services sector of Southeast Asian emerging markets (Bryman, 2016). A structured survey questionnaire was developed based on existing literature, utilizing a 5-point Likert scale to collect attitudinal and perceptual data regarding ESG-related financing, capital structure decisions, market uncertainty, and firm financial performance (Brown, 2011). Each item was measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), which was chosen for its ability to capture attitudinal and perceptual data. The study sampled four primary respondent categories to capture both strategic and operational perspectives related to financial decision-making within the industry: (1) mid-level corporate finance managers involved in structuring and managing capital issuances and sustainable finance products; (2) investment analysts and credit officers responsible for evaluating ESG metrics and capital risk; (3) senior-level finance professionals working in banks, insurance companies, and fintech organizations and (4) academic experts and policy advisors specializing in sustainable finance, risk management, and corporate governance. Each subgroup contributed approximately 25% of the total valid sample, ensuring a balanced representation of perspectives among corporate practitioners, institutional assessors, and academic experts.

To enhance representativeness and contextual depth of the sample, data collection was conducted through both online and in-person methods. Online questionnaires were distributed via professional networks, including LinkedIn, finance-focused local discussion forums, and academic mailing lists targeting professionals in Vietnam, Thailand, and Indonesia. In-person surveys were conducted at various financial institutions and universities in Vietnam, primarily among employees of multinational corporations and firms engaged in ESG finance and capital structuring, such as Standard Chartered Vietnam, AIA Vietnam, Techcombank, and HSBC.

The final sample size for this study comprised 385 respondents, consistent with established methodological guidelines found in scholarly literature. According to Saunders et al. (2016), large populations necessitate a minimum of 385 observations when employing a 95% confidence level ($z = 1.96$) and a 5% margin of error. The calculation for this sample size derives from the formula for sample

size estimation: $n = (Z^2 \times p \times (1 - p)) / e^2$, where n represents the sample size, Z denotes the z-value corresponding to the desired confidence level (1.96 for 95%), p indicates the assumed population proportion reflecting maximum variability (0.5), and e stands for the acceptable error margin (0.05). Substituting these parameters into the equation confirms a requisite sample size of 385.

Exceeding this benchmark enhances the generalizability of findings within a 95% confidence interval and a 5% margin of error. Concerning the number of predictors included in the regression models, this sample size adequately captures medium effect sizes. Thus, the sample size of 385 not only demonstrates methodological rigor but also provides sufficient strength for hypothesis testing throughout this research.

Then, a total of 682 responses were collected for the study. Following thorough data screening procedures to remove incomplete or inconsistent entries, 385 valid responses were retained through simple random sampling with 25% of each group to ensure statistical reliability and mitigate selection bias. The final sample consists of individuals from firms operating within the ASEAN region, thereby reflecting the conditions of emerging markets and their associated regulatory frameworks. This sampling strategy aligns with the research objective of empirically examining the relationships between ESG-related financial strategies, capital structure optimization, and corporate financial performance amidst evolving market uncertainties in the financial services sector.

Statistical computations of the survey data utilized SPSS to ensure the integrity of the analysis. Initial generation of descriptive statistics provided insights into the characteristics of the sample and responses related to the primary constructs. Reliability assessment followed, employing Cronbach's Alpha, with all constructs exceeding the established threshold of 0.70, indicating robust internal consistency (Hair et al., 2009). Validation of the measurement model occurred through Exploratory Factor Analysis (EFA), retaining items with factor loadings surpassing 0.50 (Hair et al., 2009). Subsequent application of multiple linear regression analysis investigated the direct influence of ESG-related financing and capital structure optimization on firm financial performance, corresponding to hypotheses H1 and H2 (Shrestha, 2020). Moderation analysis explored the mediating role of market uncertainty, addressing hypotheses H3 and H4. Inclusion of interaction terms facilitated the examination of conditional effects, with all models assessed at a significance level set at 0.05 (Hayes, 2022).

## RESULTS AND DISCUSSION

### *Descriptive Statistical Analysis*

Table 1. Cross-Tabulation of Respondent Characteristics

| Characteristic | Category | Percentage (%) |
|---|---|---|
| Organization | Commercial Bank | 25 |
| | Insurance Company | 20 |
| | Fintech Organization | 18 |
| | Financial Advisory/Investment Firm | 15 |
| | Academic Institution | 12 |
| | Other | 10 |
| Professional Level | Entry-level Staff | 15 |
| | Finance/Analyst Level | 20 |
| | Mid-level Manager | 25 |
| | Senior Manager/Executive | 18 |
| | Academic/Policy Advisor | 16 |
| | Other | 6 |
| Experience | < 2 years | 18 |
| | 2–5 years | 22 |
| | 6–10 years | 28 |
| | > 10 years | 32 |
| Country | Vietnam | 30 |
| | Thailand | 25 |
| | Indonesia | 20 |
| | Philippines | 15 |
| | Other | 10 |

Table 1 illustrates a varied sample of survey participants across multiple organizations, levels of professional expertise, years of experience, and countries. The largest organizational segments included commercial banks at 25% and insurance companies at 20%. Mid-level managers comprised 25%, while finance and analyst professionals accounted for 20% of the participants. A significant portion of respondents possessed extensive experience, with 36% exceeding ten years and 28% having between six to ten years. Regionally, Vietnam represented the highest proportion of respondents at 30%, succeeded by Thailand at 25%, Indonesia at 20%, and the Philippines at 15%. This distribution ensures a credible representation of financial professionals within emerging Southeast Asian markets.

### *Reliability Analysis*

Table 1. Reliability Analysis of the Dependent Variable "Corporate Financial Performance"

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| CFP1 | 7.681 | 9.226 | .609 | .638 |
| CFP2 | 8.756 | 9.767 | .656 | .668 |
| CFP3 | 8.255 | 8.553 | .527 | .544 |
| CFP4 | 10.031 | 7.896 | .561 | .593 |

As presented in Table 2, all dependent variables exhibited adjusted item–total correlation coefficients of 0.3 or higher, indicating acceptable internal consistency (Tavakol & Dennick, 2011). The overall Cronbach's alpha was 0.787, exceeding the standard threshold of 0.7 and remaining higher than the alpha values that would result if any item were removed (Hair et al., 2009). Furthermore, for each dependent variable, the Cronbach's alpha consistently surpassed the adjusted item–total correlations, even under hypothetical item exclusion scenarios. Therefore, all items were retained for further analysis. Comparable reliability trends were also observed in the Cronbach's alpha coefficients of the remaining variables.

### *Exploratory Factor Analysis (EFA)*

Table 2. Loading Factors Matrix

| Rotated Component Matrix[a] Component with loading factors | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 2 | | 3 | | 4 | | 5 | | |
| CFP1 | .752 | ESG1 | .617 | CSO1 | .535 | MU1 | .555 | MU'1 | .535 | |
| CFP2 | .668 | ESG2 | .517 | CSO2 | .536 | MU2 | .600 | MU'2 | .522 | |
| CFP3 | .750 | ESG3 | .700 | CSO3 | .652 | MU3 | .565 | MU'3 | .527 | |
| CFP4 | .769 | ESG4 | .622 | CSO4 | .697 | MU4 | .529 | MU'4 | .607 | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Where ESG1 to ESG4; CSO1 to CSO4; MU1 to MU4, MU'1 to MU'4 are coded for survey questions 1 to 4 of two moderators and two independent variables respectively. As illustrated in Table 3, the rotated component matrix successfully categorized all 20 observed variables into five distinct factors, aligning with the dependent variable, the two independent variables, and the two moderators. Notably, no observed variables were excluded, as each demonstrated a factor loading exceeding 0.5 (Hair et al., 2009).

### *Multiple Linear Regression Analysis*

Table 3. Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 9.231 | .589 | | 3.181 | .000 |
| | ESG | .566 | .562 | .534 | 3.471 | .024 |
| | CSO | .445 | .828 | .427 | 3.777 | .000 |

a. Dependent Variable: CFP
Where CFP: mean of CFP1 to CFP4; ESG: mean of ESG1 to ESG4; CSO: mean of CSO1 to CSO4.

As presented in Table 4, the significance (Sig.) values derived from the t-tests are .024 and .000, both of which fall below the conventional alpha threshold of 0.05. This confirms that the independent variables, ESG-linked financing and capital structure optimization, exert a statistically significant impact on the dependent variable, corporate financial performance in the financial services sector (Shrestha, 2020). Consequently, both hypotheses are supported.

### *Moderator Analysis*

Table 5. Moderator Results Analysis Of "Market Uncertainty & ESG"

| R | R-sq | MSE | F | dl1 | dl2 | p |
|---|---|---|---|---|---|---|
| .711 | .506 | .502 | 5.153 | 3.0 | 381.0 | .000 |

| | coeff | se | t | p | LLCI | ULCI |
|---|---|---|---|---|---|---|
| constant | 7.204 | .537 | 79.962 | .000 | 6.338 | 6.212 |
| ESG | .554 | .667 | 4.200 | .000 | .366 | .325 |
| MU | .526 | .612 | 4.369 | .000 | .394 | .371 |
| Int_1 | .367 | .507 | 5.019 | .000 | .375 | .349 |

Where MU: mean of MU1 to MU4

As shown in Table 5, the p-value for the interaction term (Int_1) is 0.000, which is significantly below the 0.05 threshold, indicating a statistically significant moderating effect of the market uncertainty on the relationship between ESG-Linked Financing and corporate financial performance. The interaction coefficient of 0.367 further implies that the healthcare system strengthens the positive impact of ESG-Linked Financing on corporate financial performance in the financial services sector (Hayes, 2018). Thus, hypothesis H3 is confirmed.

Regression results indicate that ESG-linked financing has the strongest influence (β=0.534) on corporate financial performance in financial services, followed by and capital structure optimization (β=0.427). The research indicates that lending linked to environmental, social, and governance (ESG) factors significantly enhances business financial performance more than optimizing core capital structure. Instruments emphasizing sustainability contribute not only to cost efficiency but also to enhancing corporate reputation. Although less impactful, optimizing capital structure remains vital for achieving a balance between operational efficiency and leverage, particularly in contexts influenced by systemic risk. Furthermore, market uncertainty moderates the influence of ESG-linked financing and capital structure optimization on corporate financial performance in financial services with a measure of 0.367 and 0.421 respectively. The findings indicate that market uncertainty significantly moderates the relationship between ESG funding and capital structure decisions, intensifying these factors during turbulent periods. In environments characterized by heightened uncertainty, regulators and investors favor firms that demonstrate stability through genuine ESG initiatives and effective capital management. Consequently, the influence of market uncertainty amplifies the beneficial effects of these strategies on the financial performance of firms. In light of this, each of the four research questions has been affirmatively resolved.

Taken together, the presented findings significantly enhance finance theory by illustrating the interconnectedness of ESG-based lending and capital structure optimization in affecting corporate financial performance. This study diverges from existing literature, which predominantly focuses on

developed markets (El Ghoul et al., 2011; Cheng et al., 2014; Margaritis & Psillaki, 2010), by offering novel evidence from emerging markets characterized by elevated systemic risks, regulatory ambiguities, and heightened sensitivity to leverage.

Insights gained through this research reinforce signaling theory, demonstrating that ESG initiatives serve as credible quality indicators even in volatile contexts. Additionally, they affirm trade-off theory, revealing that optimal leverage retains its efficacy when adapted to challenging environments. More broadly, the analysis reveals that financial performance relies on the alignment of sustainability practices with flexible capital structures, implying that foundational finance theories remain applicable yet necessitate adjustments for uncertain economies. Overall, this research positions ESG financing and capital structure as synergistic strategies vital for fostering corporate resilience amidst market fluctuations.

The results of this study provide robust evidence that ESG-related financing significantly enhances corporate financial performance (CFP) within the financial services sector, consistent with the prevailing views in the literature (Cheng et al., 2014; El Ghoul et al., 2011; Fiorillo et al., 2025). This finding is supported by signaling theory, which posits that sustainability-linked financial instruments serve as indicators of firm quality (Spence, 1978; Connelly et al., 2011). Additionally, it aligns with stakeholder theory, suggesting that adherence to ESG principles signifies legitimacy and long-term value creation (Harrison et al., 2010). However, the results partially contrast with the viewpoints of Barnett and Salomon (2012), who contend that the positive impacts of ESG initiatives are primarily attributable to resource slack in highly profitable firms. This research also addresses the skepticism articulated by Auzepy et al. (2023), who raised concerns regarding greenwashing and inefficiencies associated with ESG practices. The substantial coefficient of $\beta = 0.534$ reinforces the assertion that ESG financing contributes fundamentally, rather than insignificantly, to improvements in financial performance. Consequently, this study reclassifies ESG financing as an essential strategic tool in the financial services industry, rather than merely a symbolic action. This research enhances theoretical discourse by demonstrating that ESG finance is not universally applicable; its significance amplifies in developing economies characterized by weaker financial stability factors. In such environments, ESG practices contribute not only to corporate legitimacy but also to greater systemic resilience in inherently unstable markets.

The empirical findings of this study support trade-off theory, which posits that an optimal capital structure enhances organizational performance by balancing the benefits of tax deductions against the costs associated with financial distress (Modigliani & Miller, 1963; Kraus & Litzenberger, 1973). With a significant coefficient of $\beta = 0.427$, these results corroborate the conclusions of Margaritis and Psillaki (2010) as well as Fosu (2013), which highlight the performance benefits of optimal leverage within the financial sector. However, this study diverges somewhat from the pecking order theory articulated by Myers and Majluf (1984), which minimizes the importance of strategically selecting optimal debt levels in contrast to preferences for internal financing. Additionally, this study offers a measured counterargument to the findings of Ashraf et al. (2022), who assert that the effects of capital structure diminish when confronted with macroeconomic shocks. In contrast, the findings suggest that firms operating in emerging markets that adopt an optimal capital structure can still enhance their financial performance. Thus, while acknowledging contextual limitations, the present research reaffirms the critical role of capital structure optimization as a strategic driver of performance in the financial services sector. This study highlights a contingency, thereby broadening the scope of trade-off theory in contexts of intense regulatory pressure, indicating that optimal capital structure decisions persist despite heightened leverage sensitivity.

This study empirically substantiates the theoretical perspective that market uncertainty amplifies the impact of ESG-based financing on corporate performance, aligning with institutional theory and behavioral finance rationale (Suchman, 1995; Hussain et al., 2023). The coefficient for the moderating effect ($\beta = 0.367$) underscores that during periods of uncertainty, ESG-financed initiatives serve as robust signals of legitimacy, which can alleviate uncertainty and bolster investor confidence (Lins et al., 2017; Shakil, 2021). While the findings partially affirm the stance of Fu and Li (2023), which posits ESG may lose its attractiveness in highly uncertain environments, this study reveals that in risk-prone financial services sectors, where regulatory obligations are heightened, ESG-related financing retains and even gains importance. This challenges the passive signaling assertions of Barnett and Salomon (2012), suggesting that market uncertainty enhances rather than diminishes the perceived value of ESG alignment. Therefore, the research supports the notion that ESG tools are particularly effective in conditions of

heightened market uncertainty. The findings suggest a more comprehensive theoretical perspective: uncertainty should not be regarded as merely a boundary condition; rather, it acts as a force that influences the intensity of the ESG–performance relationship.

The results indicate that market uncertainty plays a critical role in reshaping the relationship between corporate financial performance (CFP) and capital structure optimization, thereby enhancing the strategic flexibility associated with real options theory (Trigeorgis, 1996). The moderation effect ($\beta$ = 0.421) illustrates the necessity for firms to dynamically adjust their leverage strategies in response to macroeconomic volatility. This is consistent with the findings of Hussain et al. (2023), who indicate that effectively structured capital frameworks act as safeguards against policy-related risks and market fluctuations. Furthermore, the results corroborate Jensen's (1986) agency theory, which posits that moderate levels of debt can impose discipline, whereas excessive leverage may inhibit operational flexibility. In contrast, these findings challenge the pecking order theory posited by Shyam-Sunder and Myers (1999), which suggests that optimal capital decisions remain largely unaffected by external market conditions. This study demonstrates that financial institutions can significantly benefit from maintaining flexible capital structures when confronted with market volatility, emphasizing the contingency of capital structure and the essential role of market uncertainty in moderating financial strategies. By identifying moderation effects, this research offers a theoretical insight by positing capital structure decisions as contingent choices that adapt in reaction to external shocks and fluctuations in uncertainty.

The research findings reveal that funding associated with environmental, social, and governance (ESG) factors has a substantial direct effect on the financial performance of firms ($\beta$ = 0.534) (H1). This underscores the importance of integrating sustainability-oriented financial instruments, such as green bonds and sustainability-linked loans, into the core financial strategies of financial institutions. Besides enhancing brand reputation, these instruments contribute to support capital preservation and bolster investor confidence. Consequently, regulators and institutional investors operating within emerging markets should promote robust disclosure practices and seek third-party verification of ESG-related financing mechanisms (Flammer, 2021). Policymakers receive encouragement to establish standardized ESG reporting frameworks within ASEAN markets. This initiative aims to mitigate information asymmetry and enhance the comparability of data across borders. To optimize capital structure (H2, $\beta$ = 0.427), companies ought to closely monitor their debt-equity ratios to leverage tax benefits and mitigate exposure to risks, especially important for banks and insurers subject to Basel III regulations and fluctuating interest rates (Gržeta et al., 2023). Moreover, organizations are encouraged to employ dynamic capital allocation frameworks that rigorously test leverage levels. Financial managers should incorporate stress-testing protocols mandated by regulators to enhance resilience to variations in interest rate environments.

Furthermore, the association between ESG financing and corporate performance is influenced by market uncertainty (H3, $\beta$ = 0.367), indicating that the relevance of ESG indicators increases during economic volatility. To foster investor trust, financial institutions must establish proactive ESG disclosure systems that adapt to the evolving market landscape (Shakil, 2021). The application of digital ESG platforms alongside AI-driven reporting dashboards enhances transparency in real time, which allows investors and regulators to evaluate sustainability risks with increased accuracy. Additionally, the role of market uncertainty in moderating organizational performance and capital structure (H4, $\beta$ = 0.421) emphasizes the necessity of flexible capital planning approaches. Businesses should incorporate real options analysis and scenario forecasting within their capital budgeting processes (Trigeorgis, 1996), enabling them to adjust between aggressive and conservative leverage strategies in response to macroeconomic signals. It is recommended that boards of directors integrate scenario-based financial planning into their corporate governance frameworks. This integration will facilitate flexibility and adaptability in capital structure decisions amidst periods of increased volatility. Together, these findings advocate for aligning financial structures with sustainability objectives during uncertain periods.

This analysis acknowledges several limitations that may impact its findings. Firstly, the data employed in this analysis are cross-sectional, which restricts the ability to establish causal relationships and capture the temporal dynamics involved. The relationships among environmental, social, and governance (ESG) financing, capital structure, and corporate financial performance exhibit significance; however, the exact sequencing and long-term stability of these relationships remain uncertain. Future research utilizing longitudinal or panel data methodologies is necessary to address this limitation. Secondly, while the sample adequately represents various Southeast Asian nations, the geographical limitation of data collection to Vietnam might impede broader generalizability across the region. The

financial services sector in Vietnam exhibits unique characteristics, characterized by significant state ownership and a dynamic regulatory environment, aspects that may not accurately reflect the circumstances present in other ASEAN nations. Conducting comparative studies across various emerging markets would significantly contribute to the enhancement of external validity. Thirdly, relying on self-reported survey responses introduces potential biases stemming from social desirability or subjective perceptions. Respondents may have exaggerated their level of Environmental, Social, and Governance (ESG) adoption or minimized financial vulnerabilities, potentially leading to inflated correlations. Future research should consider utilizing secondary sources, including audited financial statements or ESG ratings, to triangulate findings and reduce potential biases. Lastly, the analysis focuses exclusively on the financial sector, which limits its relevance to non-financial sectors that possess unique capital and Environmental, Social, and Governance (ESG) structures. Capital intensity and ESG factors exhibit significant variability across industries, including energy, manufacturing, and technology. Expanding the model to encompass these sectors in future research can facilitate a comprehensive assessment of its applicability and contribute to the refinement of the theoretical framework.

Future investigations should consider employing longitudinal methodologies to explore how fluctuations in market uncertainty over time may further influence the effects of ESG-related financing and capital structure. Utilizing panel data that spans various time periods facilitates robust causal inference and elucidates whether the impacts of ESG factors and capital structure amplify, diminish, or remain unchanged during periods of crisis and subsequent recovery. Additionally, cross-sector research would be beneficial, particularly in capital-intensive sectors such as energy and manufacturing, to determine the broader applicability of the financial-sustainability framework. Distinct environmental externalities and leverage constraints characterize these sectors, presenting a significant opportunity to investigate the applicability of integrating ESG principles with financial strategies, either as a universal approach or one that depends on specific contexts. Incorporating elements of digital transformation, such as the integration of financial technology (fintech), AI-driven ESG analysis, or blockchain-enhanced transparency, could provide a more comprehensive understanding of how innovation shapes these relationships. Subsequent studies must investigate the convergence of digitalization and governance, given that algorithmic decision-making and automated disclosures have the potential to transform the perception and valuation of ESG signals within capital markets. Finally, integrating aspects of behavioral finance, such as investor sentiment and cognitive biases in decision-making, may strengthen the model's explanatory capacity, particularly in environments marked by significant market volatility. An investigation into the interactions between behavioral biases, specifically overconfidence, loss aversion, and herding, and their influence on ESG practices and capital structure decisions may uncover fundamental dynamics overlooked by traditional finance theories.

## CONCLUSION

The research offers empirical evidence demonstrating that both ESG-connected financing and the optimization of capital structure positively influence corporate financial performance within the financial services industry. Notably, ESG instruments have a pronounced effect during periods of market turbulence. The moderating influence of market volatility underscores the necessity for strategic adaptability and comprehensive financial-sustainability planning. By validating this moderated model, the research enriches the ongoing discourse at the intersection of finance and sustainability. Furthermore, the study provides strategic insights for corporate leaders, investors, and policymakers in emerging markets, particularly those navigating increasingly volatile financial environments. It emphasizes that optimal financial resilience is attained through adaptable, transparent, and sustainability-oriented financial frameworks. This study explores the primary research problem and introduces a comprehensive conceptual hypothesis, positing that the interplay between ESG financing and capital structure decisions creates a "financial sustainability nexus," particularly impactful in uncertain environments. This viewpoint reshapes conventional finance theories by positioning sustainability as a fundamental element within performance models, rather than as a supplementary feature. The implications arise on two fronts. On a theoretical level, the findings enrich signaling, trade-off, and institutional theories by emphasizing their relevance during volatile market conditions. On a practical level, they encourage firms and regulators to establish ESG disclosure standards, adapt leverage regulations, and develop scenario-based strategic frameworks to strengthen financial resilience. Collectively, these insights contribute to advancing a more integrated theory of financial sustainability, particularly in emerging markets.

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## AUTHOR CONTRIBUTIONS

Both authors declare equal contribution to the project.

## CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

## USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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