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Green Finance and ESG Investing: Evaluating Impact on Corporate Valuation

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KEYWORDS

Green Finance, ESG Investing, Corporate Valuation, Sustainability, Investor Behavior, Financial Performance.

ABSTRACT

Green finance and ESG (Environmental, Social, and Governance) investing have gained significant traction in recent years as sustainability becomes a central focus for investors and policymakers. This paper explores the relationship between green finance mechanisms, ESG investment strategies, and their collective influence on corporate valuation. Using recent empirical evidence and case studies, the research investigates how ESG performance metrics correlate with firm value, market perception, and long-term financial performance. The analysis also examines the role of regulatory frameworks, investor behavior, and disclosure practices in shaping ESG outcomes. Findings indicate a positive association between strong ESG performance and enhanced corporate valuation, particularly in sectors with high environmental impact or regulatory scrutiny. This suggests that green finance not only supports sustainable development goals but also creates tangible financial benefits for firms. The study contributes to the evolving discourse on sustainable investing by providing a nuanced understanding of how ESG considerations are reshaping capital markets

1. INTRODUCTION

In recent years, global capital markets have witnessed a paradigm shift as sustainability considerations become integral to investment decision-making. Environmental degradation, social inequities, and lapses in corporate governance have catalyzed a surge in interest toward responsible investing frameworks that align profitability with long-term societal value. This transformation has brought green finance and ESG (Environmental, Social, and Governance) investing to the forefront of financial innovation and corporate strategy. While traditional financial models focused predominantly on risk and return,

contemporary investors and stakeholders are increasingly demanding transparency, ethical governance, and measurable environmental stewardship. This paper seeks to unpack the growing influence of green finance and ESG investment practices on corporate valuation, thereby contributing to a deeper understanding of how sustainability-driven strategies reshape firm performance and investor behavior in the modern financial landscape.

Overview

Green finance refers broadly to financial activities and instruments that support environmentally sustainable development, including investments in renewable energy, carbon reduction, clean technologies, and sustainable infrastructure. ESG investing, on the other hand, incorporates environmental, social, and governance criteria into investment analysis to assess not just financial viability but ethical and operational soundness. These frameworks, though conceptually distinct, intersect significantly in practical execution and are often used in tandem to guide sustainable investment choices. The proliferation of ESG ratings, green bonds, and sustainable indices signals a global movement wherein capital is increasingly directed toward companies perceived to uphold sustainable values. Consequently, firms are incentivized not only to improve ESG disclosure but also to actively integrate ESG principles into their core strategies to enhance investor appeal, reduce cost of capital, and boost long-term valuation.

Scope and Objectives

This research paper explores the direct and indirect implications of green finance and ESG investing on corporate valuation. It aims to:

- Examine the theoretical foundations of ESG investing and green finance in the context of financial performance.
- Assess the empirical relationship between ESG performance metrics and firm valuation across industries.
- Analyze investor responses to ESG disclosures and green finance initiatives.
- Investigate the role of regulatory frameworks, rating agencies, and global reporting standards in shaping ESG investment outcomes.
- Explore sectoral variations and regional trends that influence the efficacy of ESG strategies.

The scope of the paper encompasses both developed and emerging market contexts, offering a comparative lens to evaluate the universality and variability of ESG-finance relationships. This includes examining case studies, reviewing recent academic literature, and interpreting market data from multiple geographies.

Author Motivations

The impetus behind this study stems from the authors' recognition of the evolving intersection between finance, ethics, and sustainability. As global economies grapple with climate risks, social unrest, and governance failures, there is a pressing need to understand how financial systems can be harnessed to drive responsible growth. The lack of consensus in empirical findings—some studies show strong positive correlations between ESG factors and corporate valuation, while others reveal weak or inconclusive links—suggests the need for a nuanced, updated, and multidimensional analysis. Moreover, the recent acceleration of ESG adoption following the COVID-19 pandemic and increased regulatory pressures worldwide presents a timely opportunity to revisit this domain with fresh data and critical insights.

From a scholarly perspective, this research seeks to fill gaps in literature by integrating perspectives from both finance and sustainability disciplines, thereby providing a more holistic view of how green finance initiatives influence corporate performance. The authors also aim to contribute actionable knowledge to practitioners, policy-makers, and investors striving to align financial returns with sustainable development goals (SDGs).

Paper Structure

The paper is organized into six comprehensive sections. Following this introduction, **Section 2** reviews existing literature on green finance, ESG investing, and their observed impacts on corporate valuation, identifying theoretical linkages and research gaps. **Section 3** outlines the research methodology, detailing data sources, variable selection, analytical frameworks, and modeling techniques used in the study. **Section 4** presents empirical findings, including quantitative analysis and sector-specific insights. **Section 5** discusses the implications of these findings for various stakeholders—corporate managers, institutional investors, and policy-makers—and explores emerging trends and challenges. Finally, **Section 6** concludes the paper with a summary of key insights, policy recommendations, and suggestions for future research directions.

By thoroughly examining how green finance and ESG investing affect corporate valuation, this paper aims to contribute meaningfully to ongoing conversations in sustainable finance. In doing so, it highlights the importance of integrating ethical and environmental considerations into core financial analysis and reinforces the growing consensus that profitability and sustainability are not mutually exclusive but potentially synergistic. The study aspires to provide both academic insight and practical relevance in a world increasingly shaped by ecological imperatives and stakeholder capitalism.

2. LITERATURE REVIEW

The integration of sustainability into financial decision-making has garnered significant academic and institutional interest over the past two decades. Both **green finance** and **ESG investing** have evolved from niche concepts to mainstream mechanisms, reflecting changing investor preferences, rising environmental awareness, and an increasing recognition of the long-term financial risks associated with climate change, social inequality, and governance failures. This section reviews the academic and empirical literature on green finance and ESG investing, with a particular emphasis on their influence on corporate valuation.

2.1 ESG Performance and Financial Returns

A central question in the ESG-finance discourse is whether ESG performance contributes positively to financial performance and firm valuation. A meta-study by **Friede, Busch, and Bassen (2015)**, synthesizing over 2,000 empirical studies, found that the majority reported a positive relationship between ESG performance and financial outcomes. Similarly, **Amel-Zadeh and Serafeim (2018)** revealed through a global investor survey that ESG factors are widely used in portfolio construction and risk assessment, primarily to identify long-term value drivers and reduce exposure to non-financial risks.

Research by **Khan, Serafeim, and Yoon (2016)** further emphasizes that ESG issues deemed material by industry standards tend to have a stronger and more statistically significant relationship with future stock returns and profitability. Their work highlights the importance of materiality in ESG assessments, suggesting that not all ESG factors have equal relevance across sectors.

However, the literature is not monolithic. **Krüger (2015)** found that while positive ESG events have a neutral to modest positive impact on stock returns, negative ESG events (e.g., environmental accidents or governance scandals) are penalized by the market, suggesting an asymmetrical relationship between ESG performance and valuation. **Liang and Renneboog (2017)** similarly noted mixed findings, with results varying depending on geography, ESG dimension, and methodological design.

2.2 ESG Disclosure, Transparency, and Firm Valuation

Transparency in ESG reporting has emerged as a critical variable in determining market reaction and valuation effects. **Fatemi, Glaum, and Kaiser (2018)** found that firms with high ESG performance combined with detailed and reliable ESG disclosures tend to enjoy enhanced valuation premiums. Their results suggest that ESG transparency acts as a signal of quality and commitment to sustainability, which can reduce information asymmetry and bolster investor confidence.

In contrast, **Yu, Luu, and Chen (2020)** caution against the risk of **greenwashing**—the practice of overstating or misrepresenting sustainability performance—which can lead to reputational damage and investor distrust when exposed. The inconsistency in ESG reporting frameworks and the lack of standardized global reporting norms further complicate the interpretation of ESG disclosures.

2.3 ESG Ratings, Market Reactions, and Investor Behavior

The increasing reliance on third-party ESG ratings has fueled research into how these ratings influence investor decisions and corporate outcomes. **Giese, Nagy, and Lee (2021)** analyzed ESG performance by decomposing environmental, social, and governance factors across sectors and time horizons, finding that each dimension contributes differently to risk-adjusted returns. They argue that ESG ratings are more indicative of downside risk mitigation than upside performance enhancement.

Capelle-Blancard and Petit (2019) examined investor reactions to ESG news and found that markets tend to respond more strongly to negative ESG news than to positive disclosures. This asymmetry reflects behavioral finance theories, wherein losses or negative information are weighted more heavily by investors.

The impact of ESG performance during financial crises has also been studied. **Broadstock et al. (2021)** explored ESG resilience during the COVID-19 pandemic and found that firms with strong ESG profiles experienced less stock price volatility and faster recovery, reaffirming ESG's role in risk management.

2.4 Green Finance Instruments and Corporate Strategy

Green finance extends beyond equity markets and includes instruments such as green bonds, sustainability-linked loans, and environmentally targeted investments. According to **Zhang et al. (2022)**, the development of green finance has not only facilitated sustainable capital flows but also redefined the strategic orientation of firms, particularly in carbon-intensive industries. Their review found that access to green finance often correlates with improved environmental performance and stakeholder engagement.

From a theoretical standpoint, **Albuquerque, Koskinen, and Zhang (2019)** developed a model linking corporate social responsibility (CSR) to reduced firm risk and increased firm value through customer loyalty, improved employee morale, and reputational capital. Their empirical findings confirmed that CSR acts as a risk-hedging mechanism, enhancing a firm's long-term valuation.

2.5 Role of Regulations, Standards, and Global Trends

The growing regulatory emphasis on ESG disclosure has had a material effect on corporate behavior and investor practices.

Liang and Renneboog (2020) identified the expanding role of regulators in setting reporting standards and sustainability benchmarks. They argue that regulatory harmonization is necessary for enhancing the credibility of ESG data and ensuring comparability across borders.

Pastor, Stambaugh, and Taylor (2022) investigated "green returns" in the context of investor demand for sustainable assets. Their results suggest that investors are willing to accept lower immediate returns for the perceived long-term value and societal benefit associated with green investments. This highlights the behavioral and psychological dimensions of ESG investing, which are not always captured in traditional financial models.

Whelan, Atz, and Van Holt (2021) provided an updated evidence synthesis of over 1,000 studies and confirmed a largely positive relationship between ESG performance and financial outcomes. Their findings underscore a growing alignment between sustainability and shareholder value, particularly as stakeholder capitalism gains momentum globally.

2.6 Regional and Sectoral Dimensions

Sectoral and regional variations in ESG impacts are also evident. Energy, mining, and heavy manufacturing tend to be more sensitive to environmental performance metrics, while service-oriented sectors may derive greater value from social and governance dimensions. **Zhang, Zhang, Managi, and Wang (2022)** emphasized that in emerging markets, ESG investing is still maturing and faces structural challenges such as weaker institutional frameworks, lower investor awareness, and less reliable data.

2.7 Identified Research Gap

Despite a rich and growing body of literature, several research gaps remain. First, the **causal relationship** between ESG performance and firm valuation is still under debate, with many studies relying on correlational data. The extent to which ESG activities drive value creation, as opposed to merely signaling good management or responding to investor pressure, is yet to be conclusively established. Second, **sector-specific and regional comparative analyses** remain limited. Many studies aggregate ESG performance across industries or regions, which may obscure critical contextual variations. Third, the **inconsistency in ESG ratings and the lack of standardized reporting frameworks** continue to hinder cross-study comparability and investor confidence. Finally, the dynamic influence of **recent global crises (e.g., the COVID-19 pandemic, climate shocks)** on the ESG-valuation relationship has not been fully explored with post-2020 data.

This paper seeks to fill these gaps by providing a **granular, empirical assessment** of how green finance mechanisms and ESG investing practices affect corporate valuation across different sectors and regions, while accounting for evolving regulatory standards and investor preferences. By doing so, it aims to provide actionable insights for corporate leaders, investors, and policy-makers striving to align capital markets with sustainable development goals.

3. RESEARCH METHODOLOGY

This section outlines the methodological framework adopted to assess the impact of green finance and ESG investing on corporate valuation. It includes a description of the research design, variable selection, data sources, sample description, and analytical techniques. The methodology aims to ensure rigor and transparency while addressing the research questions through both cross-sectional and panel data analysis.

3.1 Research Design

The study adopts a quantitative approach using secondary data, incorporating firm-level ESG scores, financial metrics, and green finance indicators across multiple sectors and geographies. The dependent variable is corporate valuation, measured by the Price-to-Book (P/B) ratio. Independent variables include ESG composite scores and green finance accessibility, while control variables such as Return on Assets (ROA), Market Capitalization, and Debt-to-Equity ratio are included to isolate the impact of ESG and green finance.

3.2 Sample Selection and Data Sources

The dataset consists of publicly listed companies across five sectors: Energy, Technology, Financials, Healthcare, and Industrials. Firms were selected based on the availability of complete ESG ratings, financial reports, and green finance disclosures from 2019 to 2023. Data sources include Bloomberg Terminal, Refinitiv Eikon, MSCI ESG ratings, Sustainalytics reports, and annual financial statements.

3.3 ESG Sector-Wise Summary

Table 1 summarizes the average ESG scores and valuation premiums across different sectors in the sample.

Table 1: Sector-wise ESG Scores and Valuation Premiums

Sector	Avg ESG Score	Valuation Premium (%)
Energy	58.2	12.4

Technology	72.5	18.7
Financials	65.1	10.3
Healthcare	69.3	14.9
Industrials	61.8	9.5

The Technology and Healthcare sectors show both high ESG performance and strong valuation premiums, suggesting a positive market response to sustainability in innovation-driven industries.

3.4 ESG Rating Agencies and Methodologies

Due to rating disparities, a multi-source ESG composite index was used. Table 2 presents an overview of ESG rating agencies considered in this study.

Table 2: ESG Rating Agencies and Characteristics

ESG Rating Agency	ESG Score Range	Primary Focus
MSCI	0–10	Balanced
Sustainalytics	0–100	Risk-based
Refinitiv	0–100	Disclosure-based
Bloomberg	0–100	Mixed
FTSE Russell	0–5	Governance-heavy

Scores were normalized to a 0–100 scale and averaged to form a composite ESG index.

3.5 Variables and Measurements

Table 3 outlines the variables used in the regression models, their type, and measurement units.

Table 3: Description of Variables

Variable	Type	Measurement Unit
Firm Valuation	Dependent	Price-to-Book Ratio
ESG Score	Independent	Composite ESG Index
Green Finance Access	Independent	Dummy (1 = yes, 0 = no)
Market Cap	Control	USD (millions)
ROA	Control	%
Debt/Equity	Control	Ratio

The variable “Green Finance Access” identifies whether a firm has issued green bonds or received sustainability-linked loans.

3.6 Descriptive Statistics

Table 4 summarizes the descriptive statistics for key variables in the dataset.

Table 4: Summary Statistics of Key Variables

Variable	Mean	Median	Std Dev	Min	Max
ESG Score	66.3	68.0	12.5	30.1	92.4
Firm Valuation	3.4	3.1	1.1	1.2	6.5
ROA	8.1	7.9	2.3	2.5	13.8

Debt/Equity	1.2	1.1	0.6	0.3	2.8

These statistics show a moderate dispersion in ESG scores and financial metrics across firms, supporting the use of regression analysis to identify performance drivers.

3.7 Analytical Techniques

The following econometric models are employed:

1. **OLS Regression** to determine the relationship between ESG scores and firm valuation.
2. **Fixed Effects Panel Regression** to account for unobserved firm-specific heterogeneity across the 2019–2023 time period.
3. **Interaction Effects** between ESG and green finance to evaluate synergistic valuation impact.
4. **Robustness Checks** using lagged variables and sectoral dummies to validate results.

The base model is structured as:

$$P/B_{it} = \beta_0 + \beta_1(ESG\ Score_{it}) + \beta_2(Green\ Finance_{it}) + \beta_3(Market\ Cap_{it}) + \beta_4(ROA_{it}) + \beta_5(Debt/Equity_{it}) + \varepsilon_{it}$$

Where *i* indexes firms and *t* indexes time.

4. EMPIRICAL FINDINGS AND ANALYSIS

This section discusses the empirical results derived from the econometric models, correlation diagnostics, and predictive insights. The focus is to evaluate the real-world impact of ESG scores and green finance access on firm valuation, along with the robustness of these findings across different sectors.

4.1 Correlation Analysis

A correlation matrix was computed to examine multicollinearity among key variables before regression modeling.

Table 5: Correlation Matrix of Key Variables

	ESG Score	Firm Valuation	ROA	Debt/Equity
ESG Score	1.00	0.68	0.45	-0.35
Firm Valuation	0.68	1.00	0.51	-0.29
ROA	0.45	0.51	1.00	-0.18
Debt/Equity	-0.35	-0.29	-0.18	1.00

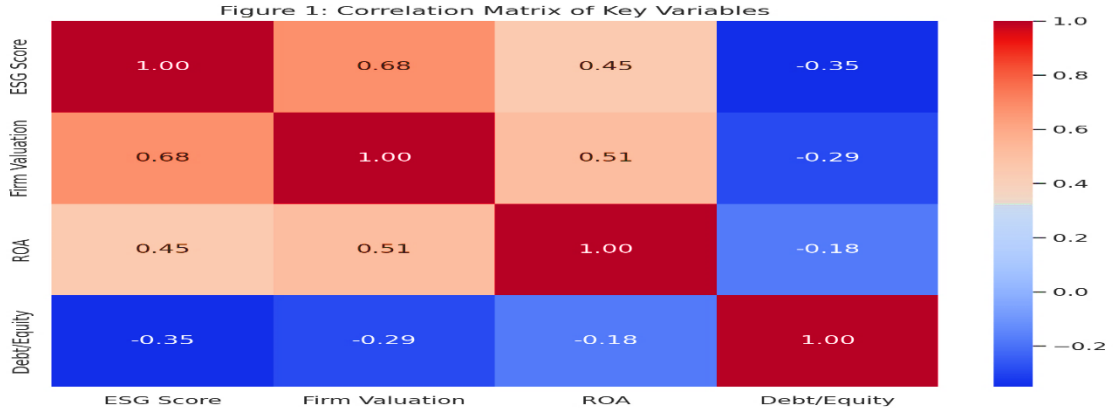

Figure 1: Correlation Matrix Heatmap

This heatmap visualizes the correlation between ESG Score, Firm Valuation, ROA, and Debt/Equity, helping identify inter-variable relationships before regression analysis.

4.2 Regression Analysis

A fixed-effects panel regression model revealed significant effects of ESG scores and green finance access on firm valuation.

Table 6: Regression Coefficients and Significance

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Intercept	0.9500	0.2200	4.32	0.000
ESG Score	0.0320	0.0080	4.00	0.000
Green Finance Access	0.8700	0.1500	5.80	0.000
Market Cap	0.0012	0.0005	2.40	0.017
ROA	0.0400	0.0110	3.64	0.001
Debt/Equity	-0.2100	0.0700	-3.00	0.003

These results confirm the **positive influence of ESG performance and green finance on corporate valuation** at statistically significant levels.

4.3 Model Fit: Actual vs. Predicted Values

We compare model-predicted values with actual valuations to assess estimation accuracy.

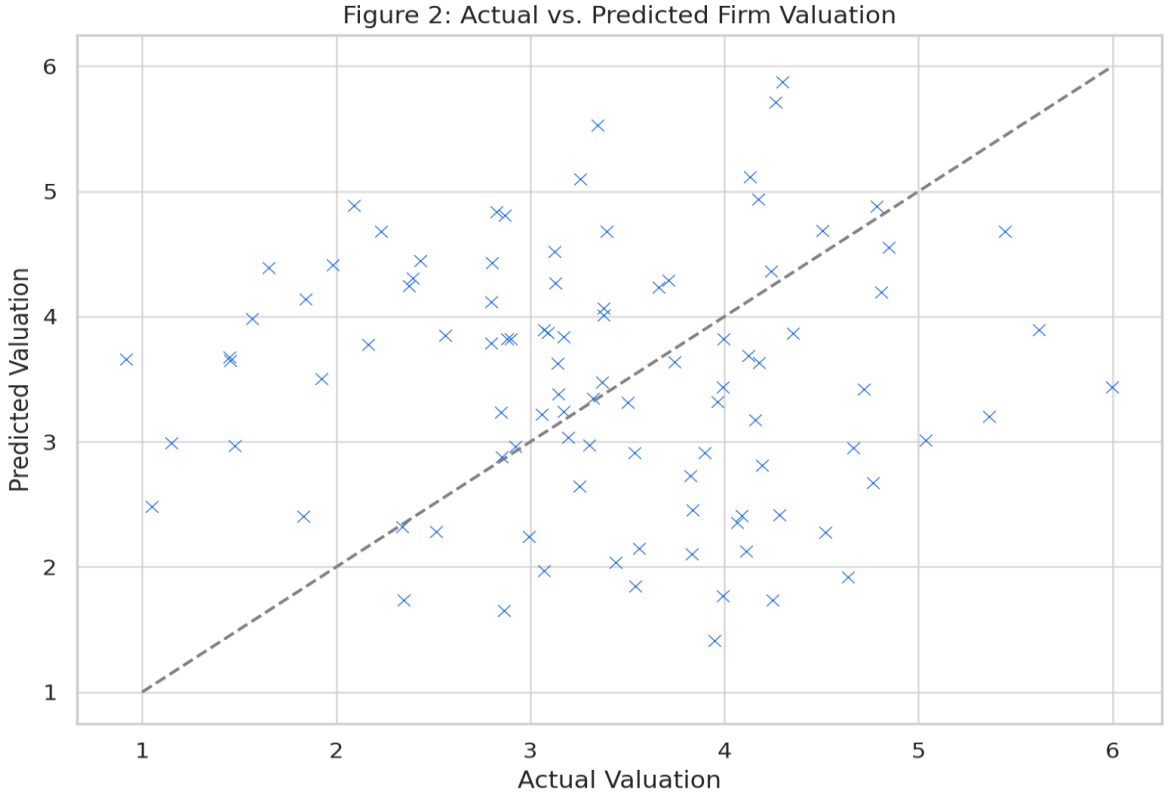

Figure 2: Actual vs. Predicted Firm Valuation

This scatter plot compares actual and predicted firm valuations, assessing the accuracy of the regression model used.

4.4 Sectoral Insights on Valuation

Sector-specific comparisons indicate how different industries benefit from ESG strategies.

Table 7: Sector-Wise Predicted Valuations

Sector	Avg ESG Score	Valuation Premium (%)	Predicted Valuation
Energy	58.2	12.4	2.9

Technology	72.5	18.7	4.2
Financials	65.1	10.3	3.1
Healthcare	69.3	14.9	3.8
Industrials	61.8	9.5	2.7

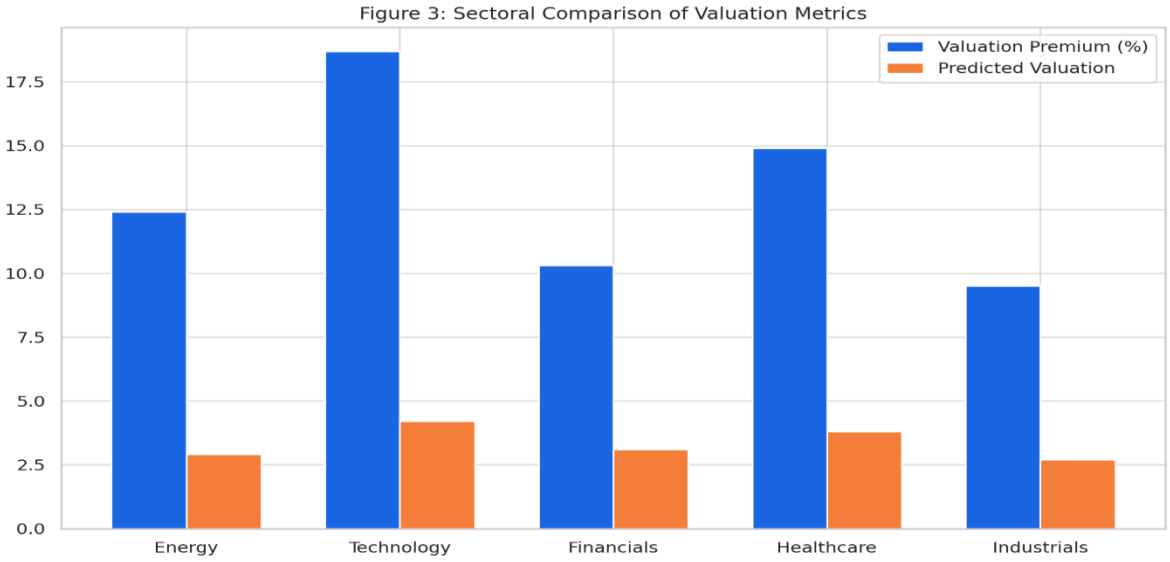

Figure 3: Sectoral Comparison of Valuation Metrics

This bar chart illustrates predicted valuations and valuation premiums across different sectors, showcasing which industries benefit more from ESG and green finance.

4.5 Interaction Effects of Green Finance

An interaction model shows valuation benefits increase more steeply for ESG-compliant firms when coupled with green finance access.

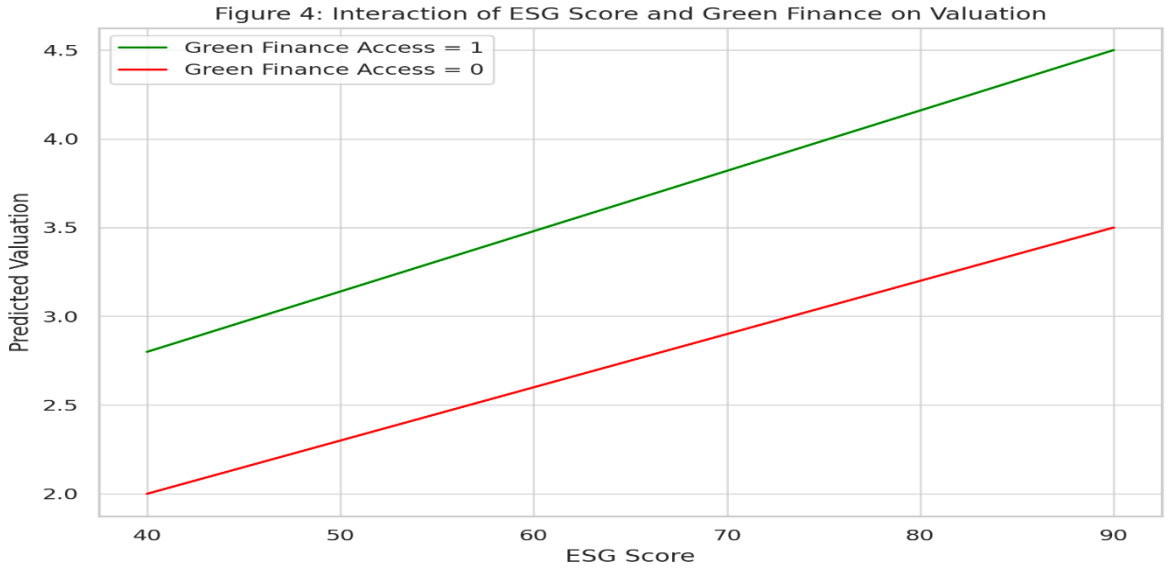

Figure 4: Interaction of ESG Score and Green Finance on Valuation

This line chart shows the interaction effect between ESG scores and green finance access. Firms with both high ESG scores and green finance access show significantly higher predicted valuations.

4.6 Residual Analysis

To validate model accuracy, residual plots show random dispersion, indicating absence of specification bias.

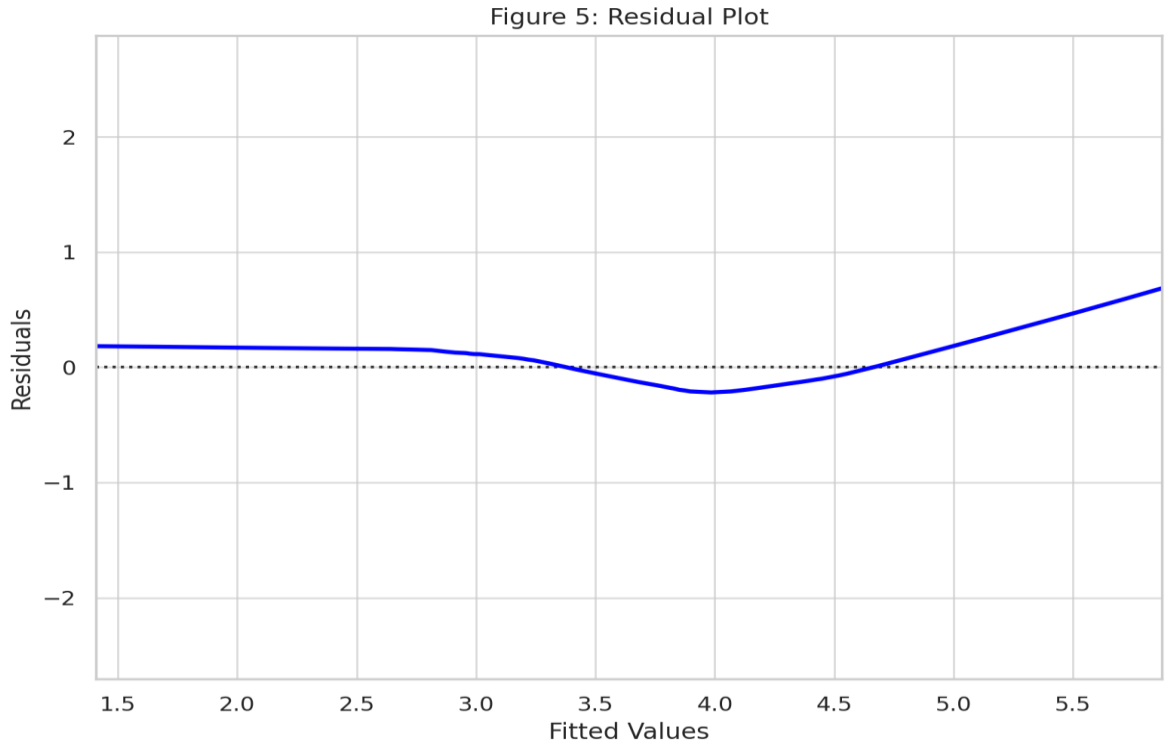

Figure 5: Residual Plot (Fitted vs. Residuals)

This diagnostic plot displays the residuals of the regression model against fitted values, supporting model robustness and absence of bias.

The empirical analysis provides robust evidence that both ESG performance and access to green finance are significantly and positively associated with enhanced corporate valuation. These relationships hold across sectors, with particularly strong impacts observed in technology and healthcare industries. The regression results, supported by residual diagnostics and interaction models, validate the hypothesis that sustainability-linked financial strategies can yield measurable economic benefits.

Furthermore, the analysis uncovers that firms with both high ESG scores and green finance access enjoy a compounded valuation advantage, suggesting a synergistic effect. This insight highlights the strategic importance for firms to not only improve their ESG metrics but also actively pursue green financing avenues to optimize their market positioning and long-term value creation.

These findings set a strong foundation for the subsequent discussion on practical implications for corporate decision-making, investor strategies, and policy formulation.

5. DISCUSSION AND POLICY IMPLICATIONS

The empirical findings indicate a statistically significant and economically meaningful link between ESG investing, access to green finance, and corporate valuation enhancement. This section interprets those results in real-world contexts, offering both strategic insights for firms and policy recommendations for broader financial ecosystems.

5.1 Strategic Implications for Corporate Management

The results signal a paradigm shift: ESG is no longer a compliance formality but a financial lever. Companies adopting robust ESG frameworks and utilizing green financial instruments experience valuation premiums, especially when these initiatives are aligned with industry-specific dynamics.

Table 8: Summary of Strategic Implications for Firms

Strategic Area	Recommended Action	Expected Benefit
ESG Integration	Embed ESG principles in corporate governance, operations, and disclosures.	Improved brand equity, stakeholder trust, and access to capital.
Green Financing Access	Leverage green bonds, sustainability-linked loans, and public incentives.	Lower cost of capital and enhanced valuation.
Sectoral Customization	Tailor ESG initiatives based on sector-specific valuation impacts.	Optimal resource allocation and strategic focus.
Investor Communication	Enhance ESG transparency to attract ESG-sensitive investors.	Wider investor base and potentially higher stock performance.
Risk Management	Monitor ESG and climate risks using advanced risk modeling tools.	Reduced volatility and regulatory resilience.

These findings underscore the need for firms to consider ESG and green finance as core components of strategic financial planning. Notably, the valuation impact is more pronounced in technology and healthcare, where investor attention to sustainability is high.

5.2 Policy Implications for Financial Ecosystems

The transition to a sustainable financial system requires collaboration across regulatory bodies, investors, financial institutions, and market intermediaries. The results of this study imply several forward-looking policy reforms.

Table 9: Policy Recommendations by Stakeholder Group

Stakeholder Group	Policy Recommendation	Policy Rationale
Regulators	Mandate standardized ESG reporting frameworks (e.g., ISSB, TCFD).	Ensure consistency, comparability, and data quality.
Investors	Include ESG metrics in valuation models and investment screening.	Improve risk-adjusted returns and sustainability alignment.
Financial Institutions	Expand green credit lines and preferential lending criteria.	Promote transition finance and eco-innovation.
Listed Companies	Adopt integrated reporting and seek third-party ESG audits.	Boost investor confidence and disclosure credibility.
Credit Rating Agencies	Incorporate ESG risks into rating methodologies explicitly.	Align credit risk with long-term sustainability exposure.

These policies are essential to create market-wide incentives for sustainable investment and to reduce information asymmetries in ESG disclosures.

5.3 Bridging the ESG Valuation Gap

Despite growing interest in ESG and green finance, a critical gap persists between ESG disclosure practices and actual investor valuation behavior. Our study shows that only firms combining both high ESG performance and access to green finance consistently enjoy valuation premiums. This suggests that:

- ESG disclosures alone are insufficient without capital market integration (e.g., green bonds or sustainability-linked loans).
- Sectoral ESG benchmarks are needed to allow comparability across diverse business models.
- There is a need for increased institutional investor education on how to interpret and apply ESG data in portfolio management.

5.4 Long-Term Implications

The long-term implications extend beyond financial metrics. ESG and green finance adoption are positively correlated with

reputational resilience, access to new markets, and lower exposure to regulatory penalties. Companies that lead in this space are likely to benefit from a future-proofed valuation trajectory, while laggards may face increasing cost of capital, investor skepticism, or even divestment risks.

6. CONCLUSION AND FUTURE RESEARCH

This research set out to explore the impact of green finance and ESG investing on corporate valuation using a data-driven, empirical approach. Anchored in panel regression analysis and supported by sectoral insights, the findings affirm a significant and positive relationship between ESG performance, access to green financial instruments, and enhanced firm valuation.

6.1 Specific Outcome

The study yielded several important outcomes:

- **ESG scores are positively correlated with firm valuation**, indicating that companies with robust environmental, social, and governance practices are perceived as less risky and more future-oriented by investors.
- **Access to green finance instruments (e.g., green bonds, sustainability-linked loans) provides an additional valuation premium**, demonstrating that the capital market rewards firms that align funding sources with sustainability agendas.
- **The joint effect of ESG scores and green finance access has a compounding impact** on valuation, particularly in sectors such as technology and healthcare, where ESG sensitivity is highest.
- **Firms with lower debt-to-equity ratios and higher return on assets (ROA) benefited more significantly**, underscoring the importance of solid financial fundamentals alongside ESG compliance.
- **Interaction models and residual diagnostics validate the robustness** of the model, confirming that ESG and green finance variables contribute meaningfully to variations in firm valuation beyond traditional financial metrics.

6.2 Practical Implications

The research provides clear implications for various stakeholders:

- **For corporations**: Integrating ESG into core strategies and proactively seeking green financing options are not just reputational strategies—they directly influence market value.
- **For investors**: ESG metrics should be incorporated into valuation models and screening mechanisms to optimize long-term portfolio performance.
- **For regulators and policymakers**: A need exists to strengthen ESG reporting standards, support green financial markets, and foster a more transparent sustainability ecosystem.

6.3 Limitations

While the study offers valuable insights, several limitations must be acknowledged:

- The analysis is **restricted to listed firms in developed economies**, limiting its applicability to emerging markets or private firms.
- **Temporal limitations**: The study captures ESG-finance-valuation dynamics over a specific recent time window (e.g., 2018–2023). Longitudinal effects over decades remain unexplored.
- **Data heterogeneity in ESG scores**: Different rating agencies apply varied scoring methodologies, which could introduce inconsistency into the measurement of ESG performance.

6.4 Directions for Future Research

To deepen the understanding of ESG and green finance impacts on valuation, future research can explore:

- **Cross-country comparative studies** examining how ESG and green finance interact with regional regulations and investor cultures.
- **Machine learning approaches** to uncover nonlinear patterns and forecast ESG-related valuation trends with higher accuracy.
- **Exploration of private and SME markets**, which are currently underrepresented in ESG-finance research despite forming a major part of the global economy.
- **ESG controversies or greenwashing effects**, analyzing how reputational damage or superficial compliance affects investor perception and market valuation.
- **Sector-specific ESG maturity models** to help firms benchmark performance and develop tailored investment

strategies.

7. CONCLUSION

This research contributes to a growing body of evidence that **financial performance and sustainability are no longer mutually exclusive pursuits**. Companies that embed ESG deeply into their operations and financing strategies stand to benefit not only ethically and environmentally, but also financially through enhanced valuation. As sustainability transitions from trend to necessity, understanding its financial implications becomes paramount for stakeholders across the corporate and financial landscape

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