

SUSTAINABLE
DEVELOPMENT
PROJECT
MANAGEMENT: HOW
ESG PERFORMANCE
AFFECTS CORPORATE
VALUE THROUGH
INVESTMENT
EFFICIENCY

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ABSTRACT: This study aims to explore the impact of Environmental, Social, and Governance (ESG) performance on corporate value in Chinese firms. It focuses on the mediating roles of investment efficiency and risk management efficiency, as well as the moderating role of ESG maturity. The research seeks to understand how ESG performance enhances corporate value through efficient investment and risk management practices and how ESG maturity influences these relationships. The study employs a quantitative research design using survey data collected from 300 firms in China. Structural Equation Modeling (SEM) was used for data analysis to assess the direct, indirect, and moderating relationships among the variables. The survey measured key constructs, including ESG performance, investment efficiency, risk management efficiency, corporate value, and ESG maturity using validated scales. The study found that ESG performance positively influences corporate value both directly and indirectly through the mediating roles of investment efficiency and risk management efficiency. Furthermore, ESG maturity was found to moderate the relationship between ESG performance and investment efficiency, enhancing its effect on corporate value. The findings highlight the importance of ESG maturity in maximizing the financial benefits of ESG practices. This research contributes to the literature by exploring the complex mechanisms through which ESG performance impacts corporate value, particularly in the Chinese context. It offers novel insights into the mediating roles of investment and risk management efficiency and the moderating effect of ESG maturity, providing valuable implications for business leaders and policymakers.

Keywords: ESG Performance, Corporate Value, Investment Efficiency, Risk Management Efficiency, ESG Maturity, Sustainable Development Project Management.

1. Introduction

As companies globally recognize the need for sustainable and responsible practices, modern operations prioritize ESG performance. ESG performance is increasingly affecting a company's long-term worth. ESG-focused companies can meet ethical and regulatory requirements while growing and profiting. Company transparency, social fairness, and environmental responsibility are increasingly sought by investors, legislators, and stakeholders. Demand is making ESG disclosures more important. More companies should reveal their ESG operations to build stakeholder trust and transparency. Companies prioritize ESG in strategic decision-making for its positive influence on financial performance, reputation, and competitiveness (Li, Zhang, & Gao, 2024). Corporate value—market capitalization, profitability, and development potential—has long been a key company performance measure (Chen, Song, & Gao, 2023). Corporate value predicts market performance, financial stability, and investor confidence, according to Chen and Zhang (2024). Traditional organizational value measurements were profit, market share, and

revenue. ESG has raised the relevance of non-financial aspects in business value (Bade et al., 2024). Investors increasingly value ESG-compliant companies because they decrease risk, boost efficiency, and ensure long-term success. Companies with strong ESG performance have better financial results, higher stock prices, and greater investor trust, demonstrating the growing link between sustainability and company value. Effective ESG risk and opportunity management determines business value (Koczar, Zakhmatov, & Vagizova, 2023). China's fast industrialization and standing as the world's second-largest economy have shaped corporate value and ESG issues in recent decades. As environmental and social concerns rise, China's economic revolution has forced the government to implement sustainable development strategies (Bai et al., 2022). Chinese companies have received incentives to improve their ESG performance as part of their corporate social responsibility activities. As China's economy grows, Li and Zhu (2024) emphasize the importance of sustainable corporate practices. As Chinese companies reconcile economic growth with global sustainability norms, the situation is excellent

for studying corporate value and ESG performance. China's Belt and Road Initiative and Green Finance Policy emphasize ESG variables' importance in corporate success (Zou et al., 2022). Thus, domestic and foreign investors, managers, and regulators must understand how ESG performance affects corporate value in China to navigate the region's evolving sustainable business practices.

The relationship between ESG performance and corporate value is unclear despite continuous study. Research has found a link between financial success and ESG, although the mechanisms are unknown. Investment and risk management efficiency's impact on ESG performance and business value is overlooked. Investment efficiency is a company's capacity to deploy resources to meet long-term strategic goals and maximize revenues (Aluchna, Roszkowska-Menkes, & Kamiński, 2022). Risk management is effective when a corporation can detect, assess, and mitigate risks, especially ESG issues that can have serious financial and reputational consequences. Efficiency gains from ESG operations boost financial performance and organizational value. ESG performance affects efficacy and commercial value, but the processes remain unknown. Understanding these mediating processes helps managers develop strategies to improve financial and ESG performance by showing the financial effects of ESG policies (Chen et al., 2023). ESG maturity has not been extensively studied about ESG performance, investment efficiency, and business value. ESG maturity measures a company's integration of ESG practices into its culture, governance, and operations (Gao et al., 2023). Advanced ESG maturity is associated with systematic and holistic sustainability plans, which maximize the financial benefits of ESG initiatives. ESG maturity states that a company's ESG policies can successfully create commercial value the more comprehensive and integrated they are (Alkatheeri, Markopoulos, & Hamdan Al-qayed, 2023). There is little study on how ESG maturity affects business value, but several studies have examined specific ESG components like environmental or social performance. ESG maturity's impact on ESG performance, investment efficiency, and business value is a key area for future research for managers creating long-term ESG plans (Aluchna et al., 2022). ESG performance and corporate value in Chinese companies are the focus of this study. Investment and risk management efficiency and ESG maturity will be examined as mediators and moderators. By studying how these variables interact, the study hopes to explain how ESG performance might increase

business value by improving investment and risk management. Additionally, the study will analyze how ESG maturity regulates the relationship between ESG performance, investment efficiency, and corporate value. This research will clarify the complex links between ESG performance and firm results, with a focus on China, a rapidly changing nation where ESG issues are becoming more important.

This study is important theoretically and practically for Chinese firms. Its theoretical contribution is to fill gaps in the literature on ESG performance's mediating and regulatory mechanisms on company value. Prior research has shown a direct relationship between financial outcomes and ESG performance, but how investment and risk management efficiency affect this relationship is unclear. The study uses mediators to better understand how ESG performance affects business value. ESG maturation's moderating role reveals how integrating ESG principles into a company's culture and operations may affect its financial performance. This research will integrate these fundamental mechanisms and provide a more complete framework for assessing the relationship between sustainable practices and economic performance, expanding the ESG and corporate value literature. The study's findings will benefit Chinese and other governments, investors, and executives. By understanding how ESG performance, investment efficiency, and risk management efficacy create business value, managers may create more effective ESG strategies for sustainability and profitability. The study will teach Chinese companies how ESG practices may improve investment and risk management. This may boost growth, reputation, and revenue. The correlation between ESG maturity and these linkages suggests that sophisticated ESG procedures help firms capitalize on sustainability initiatives. Policymakers can use the findings to create laws and incentives that encourage ESG considerations in company strategy decisions, improving China's economic sustainability and competitiveness.

2. Literature Review

2.1. ESG Performance and Corporate Value

A company's worth now depends on ESG performance, especially among stakeholders that value ethics and sustainability. As Shin, Moon and Kang (2023) Note, that ESG performance boosts investor confidence, risk reduction, and reputation, increasing firm value. ESG shows a company's commitment to environmental protection, regulatory compliance, and socially responsible investing. Human rights, community involvement, and labor relations policies affect a productive and stable workforce (Kwilinski,

Lyulyov, & Pimonenko, 2023). Governance, the third pillar, helps managers satisfy shareholders and reduce agency issues. It promotes transparency and sensible decision-making. Combining these traits improves a company's long-term performance and resilience, decreasing financial and reputational risks. Corporate value and ESG performance are strengthened by capital accessibility and cost efficiency. Sustainability affects equity values and credit ratings, and organizations with strong ESG performance have lower risk profiles and better financing options (Zhang, Zhang, & Zong, 2023). Resource optimization and waste reduction boost operational efficiency and profitability in these companies. These enhancements boost short-term profits and long-term value by sustaining stakeholder trust. ESG guidelines connect investment and risk management, improving them. Efficiency advantages make ESG projects profitable (Ren, Zeng, & Zhao, 2023). In volatile and dynamic markets, organizations with advanced ESG maturity outperform their competitors, highlighting the need for a cohesive ESG strategy to retain corporate value and gain a competitive edge.

2.2. Efficiency Investment as a Mediator

ESG-performing companies maximize resource utilization, boosting capital investment returns and eliminating waste. ESG principles' transparency and risk-awareness assist organizations discover long-term value initiatives over short-term gains (Wang & Esperança, 2023). Energy-efficient technologies and sustainable supply chains lower operational costs and boost brand loyalty, benefiting shareholders and stakeholders. These expenditures reduce regulatory and reputational risks, boosting the firm's value by maintaining operational stability (Ariwibowo, Saputro, & Haryanto, 2021). Considering ESG issues in decision-making shows a company's commitment to sustainability. This technique attracts long-term investors. Analysts emphasize ESG-driven investing methods' role in market efficiency and financial stability. ESG-aligned investments promote innovation and resilience to meet future market and environmental needs (Singhal et al., 2025). Sustainability programs optimize risk management and save operational costs, improving financial performance. Active environmental investments reduce climate risk, while social and governance initiatives boost stakeholder trust and employee productivity. These advantages boost ESG performance and business value when investment efficiency and resource allocation for long-term profitability are evaluated (D. Li et al., 2024). Strategic integration of ESG performance into investment

decisions boosts the firm's market position and value proposition by turning intangible sustainability initiatives into financial gains.

2.3. Risk Management Efficiency as a Mediator

Risk management helps firms predict, evaluate, and minimize operational and investment risks, improving investment performance and ESGs. Jaiswal, Gupta and Tiwari (2025), claim that ESG-driven companies use sophisticated risk management tactics to handle regulatory, environmental, and social issues, which informs their investment decisions. Management of regulatory risks like emissions regulations and resource scarcity can avert investment disruptions for companies with strong environmental plans. Social and governance components of ESG increase risk supervision by encouraging resource allocation openness and accountability. Allocating investment to initiatives with lower uncertainty and higher returns reduces financial risk and maximizes capital use, increasing efficiency. Effective risk management is even more important in dynamic and uncertain markets since ESG protects against unexpected disruptions. ESG principles in risk assessment frameworks can help companies find investment opportunities that meet their long-term sustainability goals and reduce non-financial risks such as stakeholder conflicts and reputational damage (Ikwue et al., 2023). Effective risk management makes ESG investments strategically integrated and resistant to external disturbances, improving business performance. Strong governance frameworks may reduce ethical infractions and mismanagement, which could hurt investment efficiency and ESG goals (Li, Rong, & Wu, 2023). Risk management is critical for well-executed and efficient investment strategies and ESG performance, ensuring that sustainability activities are smoothly incorporated into the firm's financial architecture and long-term value development approach.

ESG-performing companies use sophisticated risk management systems to identify, assess, and mitigate environmental, social, and governance risks (Fenghua, Lingdi, & Wenyan, 2025). Environmental rules reduce climate-related risks extreme weather-related penalties and operational interruptions. Strong social and governance practices reduce financial and reputational risks while promoting accountability and openness. Operating consistency and continuity quickly increase organizational value and reduce capital expenditures, boosting investor trust (Wang & Esperança, 2023). Effective risk management boosts ESG performance, financial rewards, and resilience. Risk management's ability to combine ESG initiatives

with value-enhancing strategies shows its importance in financial success and sustainability. Companies that actively manage ESG risks avoid costly interruptions and use resources more efficiently, increasing profitability and competitiveness (Ebirim et al., 2024). Risk management solutions can help firms enhance their relationships with consumers, employees, and regulators by addressing ESG concerns, and boosting their market position and reputation. ESG performance ensures ethical and profitable sustainability activities, increasing organizational value (Barros et al., 2022). Risk management efficiency turns ESG performance's intangibles into financial rewards, proving that a company's commitment to sustainability can generate value in today's complicated business climate. ESG-performing companies can reduce financial and operational risks by tackling ESG issues (Ren et al., 2023). Eliminating regulatory non-compliance, reputational damage, and resource inefficiencies helps businesses make long-term strategic investments. Stability boosts investor and stakeholder confidence, turning ESG initiatives into organizational value (Chen et al., 2023). ESG risk assessment and management reduce waste and allocate cash to higher-return projects, improving business performance. ESG performance and company value are further linked by risk management and investment efficiency, which optimize resource allocation and financial returns. Risk management helps firms pursue innovative, sustainable projects with long-term advantages by limiting losses and promoting strategic investment (Liao et al., 2024). Investment efficiency cuts waste and boosts ESG-aligned profits. Efficient operations reduce capital expenditures, boost profitability, and improve operational and financial performance, according to Afrin and Rahman (2023). Additionally, they boost market credibility. ESG performance reduces risks and increases value by creating a more resilient and efficient operational framework, preparing organizations for long-term success in a competitive and environmentally concerned market.

2.4. ESG maturity as moderator

ESG maturity measures a company's strategic framework, procedures, and culture's integration of environmental, social, and governance principles, which affects investment decisions (Gao et al., 2023). Advanced ESG mature organizations comprehend sustainability concerns and prospects, allowing them to prioritize and pick investments that meet their long-term goals. This enhanced integration allows ESG initiatives to be extensively analyzed for returns and risks, allocating

resources to projects with the best strategy alignment and efficacy (Cruz & Matos, 2023). Thus, ESG-adopting organizations are better at translating performance into financial and operational benefits, stressing the importance of investment efficiency for corporate success. ESG maturity promotes organizational alignment to close the ESG performance-investment outcomes gap. Advanced ESG maturity means sustainable practices are intentionally integrated into decision-making rather than driven by compliance, resulting in more consistent and impactful investments. Mature ESG enterprises use contemporary techniques and analytics to evaluate investment prospects' long-term viability and profitability, allowing them to capitalize on growth opportunities and minimize resource misallocation. Minimizing uncertainty and meeting market and stakeholder expectations boost investment efficiency (Mazina et al., 2022). Thus, ESG maturity improves ESG performance's impact on investment efficiency, firm value, and competitiveness in a sustainability-focused market. ESG principles' strategic integration within the organization affects investment efficiency, which optimizes financial resources to maximize returns and minimize waste. Financial soundness, social and environmental accountability, and high ESG maturity boost investment credibility and impact (Zhang, Lai, & Guo, 2024). ESG-mature companies use complex frameworks and methods to assess investment sustainability while meeting legal and stakeholder commitments. This alignment reduces unsustainable expenditure risks and builds investor and stakeholder trust, boosting organizational value (Li, Padmanabhan, & Huang, 2024). ESG maturity integrates sustainability into every investment decision to boost strategic value. Effective ESG policies show stakeholders and markets that organizations are committed to sustainability, which boosts value and improves investment (Nie & Ji, 2024). By hiring socially responsible investors, lowering capital expenses, and improving the firm's reputation, corporate value, and investment efficiency are strengthened. ESG maturity also improves adaptation and creativity, helping companies spot and capitalize on sustainable trends (Eulerich, Bonrath, & Lopez-Kasper, 2022). ESG maturity allows companies to succeed financially while remaining competitive and resilient in an ESG-driven market.

2.5. Conceptual Framework and Hypotheses Development

This study explores the complex relationship between business value, investment efficiency, risk management efficiency, and ESG performance, focusing on investment efficiency, risk management efficiency, and ESG maturity as mediators and moderators. ESG performance improves financial and non-financial outcomes like

investor confidence, reputation, and risk exposure, enhancing the organization's value. These discoveries improve a company's financial stability and value over time. Mediators include investment and risk management efficacy. Investment and risk management efficiency optimize resource allocation and decrease uncertainty, enabling long-term success. ESG success should boost corporate value for both mediators. According to the notion, ESG maturity strengthens ESG performance, investment efficiency, and firm value. Moderation is based on ESG maturity. According to the Resource-Based View, organizations with valuable, scarce, and unique resources, such as good ESG practices, can increase corporate value and gain a competitive edge. ESG competencies like risk management and sound investing can create long-term value, according to RBV. Figure 1 shows how variables interact during value creation. ESG performance affects corporate value through many mediation pathways, according to this study. H1 shows how ESG performance affects corporate value. ESG policies boost corporate value because sustainability improves reputation and operations. H2a says investment efficacy mediates company value and ESG performance. ESG-performing companies can improve resource consumption, increasing financial returns and organizational value. Risk management helps firms reduce risks and increase value, says H2b. H2c further claims that risk management increases capital allocation and resource usage, mediating investment efficiency and ESG performance. Finally, H2d implies that investment and risk management efficacy serially mediate ESG performance and corporate value. ESG performance affects investment performance, risk management, and company value. The study analyzes how ESG maturity affects mediation. H3a suggests that ESG maturity affects ESG performance and investment efficiency because mature firms are better at turning ESG efforts into profitable investments. ESG maturity affects investment efficiency and firm value, according to H3b. This shows that ESG practices can improve investment efficacy and corporate value. These assumptions provide a framework for assessing how ESG performance, risk management, investment efficiency, and maturity affect corporate value. The goal of this method is long-term value creation.

- H1: ESG performance positively impacts corporate value.
- H2a: Investment efficiency mediates the relationship between ESG performance and corporate value.
- H2b: Risk management efficiency mediates the relationship between ESG performance and corporate value.
- H2c: Risk management efficiency mediates the relationship

between ESG performance and investment efficiency. H2d: Investment efficiency and risk management efficiency serially mediate the relationship between ESG performance and corporate value, such that ESG performance influences risk management efficiency, which then influences investment efficiency, ultimately impacting corporate value. H3a: ESG maturity moderates the relationship between ESG performance and investment efficiency, such that the relationship is stronger at higher levels of ESG maturity. H3b: ESG maturity moderates the relationship between investment efficiency and corporate value, such that the relationship is stronger at higher levels of ESG maturity.

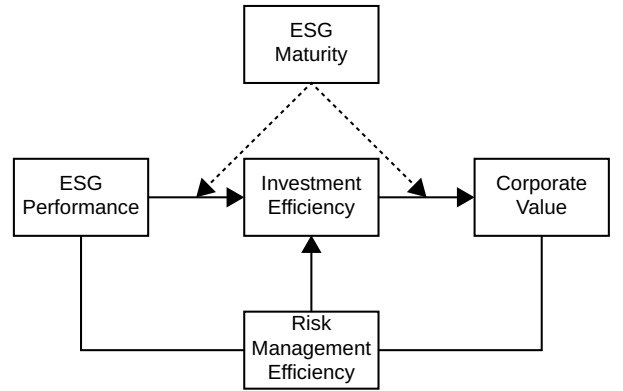


Figure 1: Conceptual Framework.

3. Methodology

3.1. Research Design

This quantitative analysis examined ESG performance, investment efficiency, risk management efficiency, and company value. The goal was to understand how investment efficiency, risk management efficiency, and ESG maturity mediate and moderate. The researcher quantitatively collected data and tested theories. The study examined ESG practices in organizations and their direct and indirect effects on company value using a cross-sectional survey design. This design is suitable for real-time data collection. Cross-sectional methods were chosen because they may collect data from enterprises in numerous industries, allowing for a complete view of the current situation without extensive follow-up. This design used numerous methods to better understand how ESG policies may affect corporate value in modern business.

3.2. Population and Sample Size and Sampling Technique

This study focused on publicly traded Chinese companies, which were more likely to have ESG data and performance measures. People choose publicly traded companies because they are more

transparent about their financial performance and ESG policies than private ones. Public corporations must declare their ESG operations by regulation, making them a vital secondary data source for the research. The study collected data from organizations across numerous industries to ensure the sample appropriately represented Chinese corporations. This industry encompasses manufacturing, banking, technology, and energy with varying ESG integration. Structural equation modeling (SEM) requires 200–300 replies for valid results, therefore this study's sample size was based on that. To avoid data loss from partial responses or missing information, 300 organizations were sampled. This amount was enough to test the postulated relationships statistically and validate that the results applied to publicly traded Chinese enterprises. A stratified random sample was taken from the population. This strategy allowed the researcher to stratify the population by industry (e.g., energy, manufacturing, finance, and technology) and randomly select enterprises within each sector. Due to stratified selection, the final sample included firms from all sectors to account for industry disparities in corporate value and ESG performance. Stratification ensured that each sector was adequately represented in the study, reducing sample bias. To ensure the survey accurately represented China's publicly listed companies, firms were randomly selected from each stratum.

3.3. Data Collection

This study collected primary data via structured questionnaires. The surveys measured ESG performance, investment efficiency, risk management efficiency, corporate value, and maturity. To ensure reliability and validity, questionnaire items were derived from validated instruments. Participants agreed or disagreed with each statement on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The researcher was able to quantify participants' ESG performance, investment, risk management, and corporate value opinions and practices using this method. 500 corporate governance, finance, and sustainability professionals from publicly traded Chinese corporations received the questionnaires. Participants were selected to guarantee that the study's data was relevant and appropriately reflected organizations' ESG policy decisions. With 300 valid and complete questionnaires returned, the response rate was 60%. The response rate is sufficient for statistical analysis, indicating that the sample size produced accurate data and sound conclusions. After collecting survey data, statistical analysis was

performed to determine correlations between the main variables and test hypotheses.

3.4. Data Analysis

The data was analyzed using SPSS (Statistical Package for the Social Sciences), which allowed regression, correlation, and descriptive statistics. Description statistics were used to summarize the data and reveal the distribution of key factors such as ESG performance, investment efficiency, risk management efficiency, and company value. Data comprehension was improved by computing each key variable's mean, median, and standard deviation/variance. Multiple regression analysis tested the mediation hypotheses by examining the direct correlations between ESG performance, investment efficiency, risk management efficiency, and business valuation. Mediation effects were assessed using Structural Equation Modeling (SEM), which can examine direct, indirect, and multiple associations. The serial mediation hypothesis (H2d)—that investment and risk management efficiency would mediate the relationship between ESG performance and corporate value—was best tested using structural equation modeling (SEM). In moderation analysis, hierarchical regression was used to study ESG maturity's moderating effect. To determine if ESG maturity significantly affected the correlations between ESG performance, investment efficiency, and corporate value, interaction terms were created between ESG maturity and the independent variables. Interaction effects and whether moderating variables significantly affected the dependent variable (corporate value) were analyzed using SPSS. Data reliability and validity were assessed using Cronbach's alpha for internal consistency and component analysis for concept validity. These tests increased results accuracy in reflecting projected constructions and measuring dependability.

4. Results of the Study

4.1. Descriptive Statistics

Table 1 contains descriptive statistics for the study's important variables, including central tendency, dispersion, and response range. On a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree), 300 respondents rate their attitudes for all categories. Due to their high mean values, organizations' ESG performance, investment efficiency, risk management efficiency, corporate value, and ESG maturity were generally viewed highly. ESG Performance scores average 3.85, indicating that respondents assess their firms' ESG efforts as fairly effective. Investment Efficiency, with an average score of 3.70, also rates corporate investment management well. A mean Risk Management Efficiency score of 3.80

indicates that the group regards risk management as effective. The average Corporate Value is 4.00, indicating that respondents are optimistic about their companies' financial performance and market worth. ESG practices are well integrated into organizations' operations, as shown by the average ESG Maturity score of 3.90. The variables' standard deviations range from 0.59 to 0.72,

indicating high variability. This suggests that while most organizations earn high evaluations, performance, and procedures vary within the sample. ESG practices, investment and risk management efficiency, business value, and ESG integration maturity were rated from 2.00 to 5.00 by respondents. This means the tests covered the entire Likert scale.

Table 1: Descriptive Statistics.

Variable	N	Mean	Std. Deviation	Minimum	Maximum
ESG Performance	300	3.85	0.65	1	5.00
Investment Efficiency	300	3.70	0.72	1	5.00
Risk Management Efficiency	300	3.80	0.68	1	5.00
Corporate Value	300	4.00	0.59	1	5.00
ESG Maturity	300	3.90	0.66	1	5.00

4.2. Normality Assessment

The study's primary variables' normality evaluation, including skewness and kurtosis, is shown in Table 2. Statistics measure data distribution symmetry and peakedness using skewness and kurtosis. Skewness values for all variables are close to 0, indicating symmetric distributions. ESG Performance (-0.12), Investment Efficiency (-0.04), Risk Management Efficiency (-0.05), Corporate Value (-0.11), and ESG Maturity (-0.09) show modest negative skewness, suggesting minimal deviations from perfect symmetry. Kurtosis values for all variables are close to zero, -0.42 to -0.55. This suggests that the distributions are flat, like a light-tailed platykurtic normal distribution. The results show that each variable's data is near normalcy with no substantial skewness or excess kurtosis. Many statistical studies, including regression and structural equation modeling, require normality. The results suggest the data can be used for further research without significant changes.

Table 2: Normality Assessment.

Variable	Skewness	Kurtosis
ESG Performance	-0.12	-0.51
Investment Efficiency	-0.04	-0.43
Risk Management Efficiency	-0.05	-0.47
Corporate Value	-0.11	-0.42
ESG Maturity	-0.09	-0.55

4.3. Correlation Analysis

The study's significant variables—ESG Performance (ESG P), Investment Efficiency (IE), Risk Management Efficiency (RME), Corporate Value (CV), and ESG Maturity (ESGM)—correlate in Table 3. All variables have strong positive correlations, indicating that

higher levels of one variable often lead to higher levels of others. ESG Performance is positively correlated with Investment Efficiency (0.53**), Risk Management Efficiency (0.49**), Corporate Value (0.55**), and ESG Maturity (0.62**). Companies with strong ESG performance are more likely to manage investment and risk efficiently, have higher corporate value, and be mature in ESG practices. Investment Efficiency is positively correlated with Risk Management Efficiency (0.60**), company Value (0.72**), and ESG Maturity (0.68**), showing how investment and risk management affect company performance. The strong positive correlations between Risk Management Efficiency and ESG Maturity (0.67** and 0.70**, respectively) demonstrate the importance of effective risk management in boosting ESG practices and business value. The correlation between a firm's ESG maturity and total corporate value is solid (0.75**). The data strongly suggest that ESG performance, investment and risk management efficiency, and maturity will increase organizational value.

Table 3: Correlation Analysis.

Variable	ESG P	IE	RME	CV	ESGM
ESG Performance	1.00				
Investment Efficiency	0.53**	1.00			
Risk Management Efficiency	0.49**	0.60**	1.00		
Corporate Value	0.55**	0.72**	0.67**	1.00	
ESG Maturity	0.62**	0.68**	0.70**	0.75**	1.00

Note: p < 0.01

4.4. Reliability Analysis

Table 4 shows the study's constructs' reliability analysis results for Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted. These metrics

often assess the internal consistency and reliability of construct evaluation scales. All structures have Cronbach's Alpha values above 0.70, indicating good internal consistency. ESG Performance has a Cronbach's Alpha of 0.87, followed by Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity. High results imply that each construct's elements dependably assess the same core concept. Composite dependability (CR) scores of 0.88 to 0.92 exceed the proposed threshold of 0.70, proving measuring scale dependability. The Corporate score has the highest CR score (0.92), indicating the most reliability. Each construct has sufficient convergent validity with AVE values above 0.50. These figures show the construct-explained variation versus measurement error variance. ESG Performance has an AVE of 0.74, whereas Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity have 0.72, 0.73, 0.75, and 0.70. The statistics show that the construct accounts for a large percentage of item variance, proving the measuring tools' validity. ESG performance, investment efficiency, risk management efficiency, corporate value, and ESG maturity scales in this study have high internal consistency, reliability, and convergent validity, indicating their robustness.

Table 4: Reliability Analysis.

Construct	Number of Items	Cronbach's Alpha	CR	AVE
ESG Performance	8	0.87	0.91	0.74
Investment Efficiency	10	0.85	0.89	0.72
Risk Management Efficiency	10	0.86	0.90	0.73
Corporate Value	8	0.89	0.92	0.75
ESG Maturity	10	0.84	0.88	0.70

4.5. Outer Loadings

Table 5 presents the outer loadings for each measurement item across the constructs of ESG Performance, Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity, all indicating satisfactory indicator reliability;

Table 5: Outer Loadings.

	Item Code	Outer Loading
ESG Performance	ESG1	0.82
	ESG2	0.79
	ESG3	0.85
	ESG4	0.80
	ESG5	0.78
	ESG6	0.84
	ESG7	0.76
	ESG8	0.81

	Item Code	Outer Loading
Investment Efficiency	IE1	0.77
	IE2	0.80
	IE3	0.79
	IE4	0.81
	IE5	0.78
	IE6	0.83
	IE7	0.82
	IE8	0.76
	IE9	0.79
	IE10	0.77
Risk Management Efficiency	RM1	0.80
	RM2	0.83
	RM3	0.79
	RM4	0.82
	RM5	0.84
	RM6	0.75
	RM7	0.80
	RM8	0.81
	RM9	0.83
	RM10	0.78
Corporate Value	CV1	0.85
	CV2	0.81
	CV3	0.88
	CV4	0.82
	CV5	0.87
	CV6	0.79
	CV7	0.84
	CV8	0.80
ESG Maturity	EM1	0.79
	EM2	0.80
	EM3	0.81
	EM4	0.77
	EM5	0.82
	EM6	0.80
	EM7	0.78
	EM8	0.84
	EM9	0.76
	EM10	0.83

4.6. R-Square Values

Table 6 shows the R-Square values for the study's key constructs, illustrating how much the independent factors and mediators explain each dependent variable's variance. An R-Square score of 0.57 for Investment Efficiency demonstrates that the study's independent variables and mediators explain 57% of the variance in investment efficiency. This shows a moderate to considerable association between the predictors and investment efficiency, proving the model can explain firm investment efficiency. An R-Square score of 0.52 for Risk Management Efficiency indicates that the model's variables explain 52% of variance. This complex explanation suggests that while certain factors affect risk management efficacy, unexpected factors may also affect its variability. The model explains 62% of corporate value fluctuation with an R-Square value of 0.62. This high

R-Square suggests that ESG performance, investment efficiency, risk management efficiency, and maturity strongly affect corporate value. The study's predictors, including direct and indirect effects via mediation, are significant to the perception and appraisal of corporate value in relation to ESG-related behaviors, as shown by its high R-Square value. The R-Square values indicate that the model clearly links ESG performance, investment efficiency, risk management efficiency, and company value. The independent and mediating variables explain all important constructs.

Table 6: R-Square Values.

Construct	R-Square Value
Investment Efficiency	0.57
Risk Management Efficiency	0.52
Corporate Value	0.62

4.7. Regression Analysis

The regression results for ESG Performance and Corporate Value are in Table 7. A positive correlation exists between company value and ESG performance, as indicated by the regression coefficient (β) of 0.45. ESG performance increases corporate value by 0.45, therefore organizations with good ESG practices have higher corporate value. This path's t-value is 6.23, exceeding the 1.96 criterion for statistical significance, proving the link is significant. ESG performance greatly affects corporate value, as the p-value of 0.000 is below 0.05. In conclusion, ESG performance is vital for increasing corporate value, illustrating the positive impact that good ESG practices may have on financial success and market valuation.

Table 7: Regression Analysis.

Path	Coefficient (β)	t-Value	p-Value	Result
ESG Performance → Corporate Value	0.45	6.23	0.000	Significant

4.8. Mediation Analysis

In Table 8, the mediation analysis examined the indirect effects of ESG Performance on Corporate Value through

various mediators and serial mediation. The association between ESG Performance, Investment Efficiency, and Corporate Value in H2a is shown by the coefficient (β) of 0.34, t-value of 5.23, and p-value of 0.000. This discovery is crucial because Investment Efficiency affects Corporate Value and ESG Performance. ESG-compliant organizations are more likely to improve investment efficiency, increasing their value. ESG policies affect a firm's financial success and market perception through investment efficiency, as the data show. The mediation between ESG Performance, Risk Management Efficiency, and Corporate Value in H2b has a beta of 0.28, t-value of 4.82, and p-value of 0.000. This study shows that Risk Management Efficiency indirectly affects ESG Performance and Corporate Value. Strong risk management in ESG projects can reduce financial losses and improve decision-making, creating company value. The positive and strong link emphasizes the importance of adopting robust risk management measures within the overall ESG framework to improve organizational performance and valuation. The coefficient (β) of 0.33, t-value of 5.10, and p-value of 0.000 in H2c show that ESG Performance mediates the relationship between Risk Management Efficiency and Investment Efficiency. The impact of Investment Efficiency and Risk Management Efficiency on Corporate Value and ESG Performance is demonstrated by this discovery. The discovery highlights the importance of risk management in improving investment performance and corporate value. Effective risk management allows businesses to make smart investments and flourish over time. Finally, H2d studies the serial mediation effect, which shows how ESG Performance affects Corporate Value, Investment Efficiency, and Risk Management Efficiency. Statistics show significant serial mediation ($\beta = 0.38$, $t = 6.05$, $p = 0.000$). This study uses complex mediating elements to show how ESG practices may affect corporate value. Better investment and risk management can boost company value. The serial mediation model's significant t-value and p-value show that efficiency and management improve a corporation financial performance and valuation.

Table 8: Mediation Analysis.

	β	t-Value	p-Value	Result
ESG Performance → Investment Efficiency → Corporate Value	0.34	5.23	0.000	Significant
ESG Performance → Risk Management Efficiency → Corporate Value	0.28	4.82	0.000	Significant
ESG Performance → Risk Management Efficiency → Investment Efficiency	0.33	5.10	0.000	Significant
ESG Performance → Risk Management Efficiency → Investment Efficiency → Corporate Value	0.38	6.05	0.000	Significant

4.9. Moderation Analysis

The moderation study, shown in Table 9, examines how ESG Maturity affects ESG Performance, Investment Efficiency, and Corporate Value. First path: ESG Maturity and ESG Performance moderate investment efficiency with a coefficient of 0.42, t-value of 4.99, and p-value of 0.000. The association between investment effectiveness and ESG performance strengthens with ESG maturity. Organizations with advanced ESG practices have higher investment efficiency, demonstrating the importance of a strong ESG strategy in making smart investments. The maturation of ESG practices improves investment efficiency and may improve financial results for firms, as shown by the positive and significant moderating

effect. A second path examines how ESG Maturity affects Corporate Value and Investment Efficiency. Moderation in this interaction is evident with a coefficient (β) of 0.36, a t-value of 5.25, and a p-value of 0.000. ESG-matured enterprises are more susceptible to investment efficiency's impact on corporate value. A company's market value is synergistic with investment efficiency and ESG maturity because sophisticated ESG procedures increase the likelihood that investment efficiency will increase corporate worth. The findings show that ESG maturity boosts investment efficiency and business value. ESG policies' significant moderating effects in both directions demonstrate their importance in improving ESG performance, investment efficiency, and company value.

Table 9: Moderation Analysis.

Path	β	t-Value	p-Value	Result
ESG Maturity x ESG Performance → Investment Efficiency	0.42	4.99	0.000	Significant
Investment Efficiency x ESG Maturity → Corporate Value	0.36	5.25	0.000	Significant

5. Discussion

This analysis shows how Corporate Value, ESG Maturity, Investment Efficiency, Risk Management Efficiency, and ESG Performance relate. The findings show that ESG performance significantly affects organizational value, with investment and risk management efficiency as key mediators. ESG maturity has redefined the links between ESG performance, investment efficiency, and corporate value, underscoring the relevance of advanced ESG practices in amplifying investment efficiency's impact on corporate value. These findings add to the expanding body of research on enterprise financial performance and ESG policies. A significant coefficient of 0.45 (t-value = 6.23), confirming the direct and positive effect of ESG Performance on Corporate Value. This supports previous findings suggesting ESG-focused enterprises are worth more (Lu et al., 2024). The positive correlation shows that investors and stakeholders value companies with high environmental, social, and governance standards. This study suggests that organizations are judged on their corporate responsibility, ethics, and sustainability as well as their financial performance. Stakeholder theory states that firms that create value for all stakeholders—shareholders, employees, consumers, and the community—improve financial performance and reputation. The study emphasizes Investment Efficiency's role in connecting ESG performance with business value. ESG performance boosts investment efficiency and corporate value.

Strong ESG performance helps organizations make informed investment decisions and manage resources efficiently, as shown by the indirect channel coefficient of 0.34 (t-value = 5.23). Daugaard and Ding (2022) found that organizations with stricter ESG rules attract long-term investors, cut capital costs, and improve capital allocation decisions. Environmental, social, and governance (ESG) friendly companies are less risky, more transparent, and more likely to succeed. A company's value depends on its ability to deploy resources properly, as wise investments can boost development and profitability. This mediation shows the strategic importance of ESG performance in financial results, as sustainable organizations are more likely to make long-term value-creating investments. Risk Management Efficiency mediated the ESG performance-business value association with a coefficient of 0.28 (t-value = 4.82). This study shows that organizations with effective ESG strategies manage risk better, increasing their value. Effective risk management is essential for corporate sustainability in the current global economy, especially as environmental and social challenges rise. According to Ebirim et al. (2024), companies that prioritize risk mitigation through sustainable practices are less likely to suffer significant financial losses due to environmental or social issues. Environmentally responsible companies are less susceptible to regulatory penalties, supply chain disruptions, and reputational damage. Thus, risk management protects companies from financial

and reputational damage, ensuring their long-term existence and growth. Serial mediation analysis, notably H2d, illuminates the intricacies of firm value and ESG performance. ESG performance increases risk management efficiency, investment efficiency, and business value in a serial mediation process with a coefficient of 0.38 (t-value = 6.05). This suggests that ESG performance indirectly affects corporate value through more complex intermediaries. The serial mediation model emphasizes Investment Efficiency and Risk Management Efficiency as sequential processes that boost ESG performance and company value. Improved risk management helps companies make better investment decisions, increasing market valuation and financial success. This emphasizes the need for a holistic ESG implementation plan that improves risk management and investment efficiency to increase company value. ESG Maturity moderates ESG performance, investment efficiency, and company value. The moderation analysis shows that ESG Maturity enhances the positive effect of ESG Performance on Investment Efficiency (coefficient = 0.42, t-value = 4.99) and Corporate Value. A company's ESG maturity increases the favorable impact of ESG performance on investment efficiency and corporate value. Companies with strong ESG practices are more likely to use sustainability to increase shareholder value and improve investment decisions. According to the resource-based approach (Fang, Nie, & Shen, 2023), enterprises can increase their market value and gain a competitive edge by employing precious, scarce, and unique resources, including ESG practices. Organizations that have effectively integrated ESG principles into their operations and business plans are more likely to earn high returns on investment because investors value resilience, creativity, and foresight. The results show that ESG Maturity is necessary to turn ESG performance into investment efficiency, stressing the importance of organizational skills in ESG activities. The fact that ESG Maturity changes the relationship between Corporate Value and Investment Efficiency suggests that the impact of investment efficiency on corporate value is greater in organizations with higher levels of ESG maturity. This suggests that ESG policies instantly improve investment efficiency and allow enterprises to capitalize on their efficient investments. The moderating impact emphasizes the importance of integrating ESG principles within a company's culture, strategy, and governance to maximize financial returns. Finally, this analysis shows how ESG performance affects corporate value. Sustainability initiatives affect financial returns through ESG performance, investment

efficiency, and risk management efficiency. The serial mediation study shows how these interactions affect business value and how investment efficiency and risk management can increase it. Moderate ESG maturity emphasizes the importance of advanced ESG procedures in enhancing ESG performance on firm value. The study underlines ESG's strategic role in financial performance improvement. It claims that companies with good ESG strategies create long-term benefit for shareholders and stakeholders. **5.1. Theoretical and Practical Implications** The study's findings are relevant for policymakers, investors, and company executives, especially considering ESG in corporate strategies. ESG Performance must be seen as a strategic business issue, not only an ethical or regulatory issue. This has major practical implications. This study shows that ESG performance increases firm value, suggesting to executives that increasing ESG standards may yield financial benefits. Exemplary ESG practices can boost market perception, reduce risks, and attract long-term investments, improving financial performance and organizational value. business leaders must emphasize the development and implementation of ESG initiatives as a vital part of their organizational goals to ensure that sustainability activities are seen as inherent to business value creation rather than ancillary. Investment Efficiency and Risk Management Efficiency mediate ESG performance and business value, according to study. ESG principles may improve a company's financial and operational performance and capability for informed and efficient investment decisions. ESG-driven companies invest on long-term sustainability rather than short-term profit. Integrating ESG aspects into investment decisions should help corporate managers enhance their strategy. This strategy would improve resource allocation, risk management, and long-term investment profitability. The risk management implications are significant: Companies that incorporate ESG into their risk management frameworks are better at identifying and mitigating environmental, social, and governance issues that could hurt financial performance. The results show that ESG Maturity considerably moderates the link between ESG performance, investment efficiency, and company value. This has major consequences for corporate executives seeking to improve sustainability. The report claims that organizations that integrate sustainability into their culture, governance, and operations are more likely to maximize ESG benefits. This has a stronger ESG strategy. This means corporations must embrace

ESG processes and refine them. As ESG maturity increases, organizations can better utilize these principles, enabling better investment decisions and increasing company value. Corporate executives must realize that ESG requirements alone are insufficient. Firms must constantly improve and modify their ESG initiatives to achieve financial success. This study improves corporate finance knowledge, particularly on ESG and firm value theory. The findings support Stakeholder Theory (Freeman, 1984), which states that organizations that create value for shareholders, employees, consumers, and society are more likely to succeed. The data show that ESG aspects are essential to sustainable wealth generation, not a necessary compromise for profit maximization. This study reinforces stakeholder theory by showing how ESG practices boost finances. ESG performance increases organizational value through investment and risk management efficacy. The benefits of adopting ESG into firm strategy include improved investment efficiency, lower risk, and lasting shareholder value. The study emphasizes the Resource-Based View (RBV) (Barney, 1991) for ESG practice strategic value assessment. In the Resource-Based View (RBV), enterprises with unique resources and competencies, like excellent ESG practices, can gain a competitive edge. This study shows that ESG performance is a scarce, precious, and unique resource that improves investment efficiency and corporate value. As investors, consumers, and regulators scrutinize firms' sustainability initiatives, well-developed ESG processes are believed to give them a competitive edge that is hard to replicate. Thus, the research improves theoretical knowledge of the strategic application of ESG practices to improve corporate performance by refining the resource-based perspective that prioritizes sustainable practices in current corporate strategy.

5.2. Limitations and Future Directions

This study sheds light on the relationship between ESG performance, investment efficiency, risk management efficiency, and business value, but it has limitations that future research could solve. The study relies on cross-sectional data, which makes causal inferences difficult. Cross-sectional studies show variable interactions at a certain time but cannot determine causality. ESG performance favorably influences company value through numerous mediating mechanisms, but it does not prove that ESG practices directly increase corporate value. In future studies, longitudinal research methods that follow ESG performance and associated factors over time may help overcome

this barrier and analyze causal relationships. The study's concentration on Chinese enterprises may limit its applicability to other industries. The study's background is important because of China's economic and regulatory system. The conclusions may not apply to firms in other cultural or governmental circumstances, especially where ESG values are devalued or corporate governance frameworks change significantly. Future research should examine ESG performance, investment efficiency, and business value across more countries and industries, including developed and emerging markets, to determine their consistency. ESG performance may also be examined sector-specifically to determine if ESG performance affects corporate value differently among enterprises confronting different environmental, social, and governance issues. Our third restriction is that unobserved variables may affect ESG performance, investment efficiency, and company value. The study focused on risk management and ESG maturity as mediators, although company culture, leadership attributes, and market conditions may also significantly impact ESG activities' ability to create corporate value. By adding mediating variables like the firm's social reputation or corporate governance, future study could improve knowledge of ESG performance and corporate outcomes. Future research may examine how ESG practices affect firm success by examining stakeholder roles like employees and consumers. This would clarify the importance of company sustainability actions.

6. Conclusion

This paper explains the complicated relationships between Corporate Value, ESG Maturity, Investment Efficiency, Risk Management Efficiency, and ESG Performance. ESG Performance directly and positively affects Corporate Value, supporting recent research showing sustainable practices and good corporate governance boost market valuation and investor confidence. ESG performance's impact on corporate value has become increasingly important to investors and stakeholders as organizations prioritize long-term sustainability. The report stresses the importance of Investment Efficiency and Risk Management Efficiency in ESG performance and organizational value. The findings imply that organizations with effective ESG policies improve resource allocation and risk management, improving financial performance and company value. Mediation analyses, particularly serial mediation, emphasize these intermediary processes. Organizations can increase the beneficial effects of their ESG performance on company value through increased risk management and investment

efficiency with a robust ESG integration plan. The investigation showed that ESG Maturity moderates ESG performance, investment efficiency, and firm value. Advanced ESG practises may turn sustainability into financial results for organisations. Moderating effect of ESG maturity supports the idea that the depth and integration of ESG activities within a firm's strategy greatly impact their effectiveness in improving investment efficiency and corporate value. To maximize long-term sustainability benefits, firms must build strong ESG frameworks, according to this study. This study highlights ESG's strategic importance in corporate finance. It emphasizes how ESG principles improve investment efficiency and risk management, increasing corporate value. The report emphasises ESG maturation because firms with mature ESG processes may better employ sustainability efforts for long-term financial success. This study helps firm managers, investors, and policymakers understand how sustainable business practices boost financial performance as ESG acquires relevance in the global economy.

References

Afrin, S., & Rahman, M. M. (2023). Does CSR affect investment efficiency? The moderating role of company reputation. *PSU Research Review*, 8(3), 774-793. <https://doi.org/10.1108/prr-03-2023-0024>

Alkatheeri, H., Markopoulos, E., & Hamdan Al-qayed, H. (2023). An organizational and operational capability and maturity assessment for SMEs in emerging markets towards the ESG criteria adaptation. In T. Ahram & R. Taiar (Eds.), *Human Interaction & Emerging Technologies (IHET 2023): Artificial Intelligence & Future Applications* (pp. 682-692). AHFE International. <https://doi.org/10.54941/ahfe1004075>

Aluchna, M., Roszkowska-Menkes, M., & Kamiński, B. (2022). From talk to action: the effects of the non-financial reporting directive on ESG performance. *Meditari Accountancy Research*, 31(7), 1-25. <https://doi.org/10.1108/medar-12-2021-1530>

Ariwibowo, P., Saputro, F. B., & Haryanto, H. (2021). Analysis of Strength & Weakness, Using the Concept of Resource-Based View with the VRIO Framework in Sharia Cooperatives. *Jurnal Manajemen Strategi dan Aplikasi Bisnis*, 4(1), 279-294. <https://doi.org/10.36407/jmsab.v4i1.313>

Bade, C., Olsacher, A., Boehme, P., Truebel, H., Bürger, L., & Fehring, L. (2024). Sustainability in the pharmaceutical industry—An assessment of sustainability maturity and effects of sustainability measure implementation on supply chain security. *Corporate Social Responsibility and Environmental Management*, 31(1), 224-242. <https://doi.org/10.1002/csr.2564>

Bai, X., Han, J., Ma, Y., & Zhang, W. (2022). ESG performance, institutional investors' preference and financing constraints: Empirical evidence from China. *Borsa Istanbul Review*, 22(Supplement 2), S157-S168. <https://doi.org/10.1016/j.bir.2022.11.013>

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>

Barros, V., Verga Matos, P., Miranda Sarmiento, J., & Rino Vieira, P. (2022). M&A activity as a driver for better ESG performance. *Technological Forecasting and Social Change*, 175, 121338. <https://doi.org/10.1016/j.techfore.2021.121338>

Chen, S., Song, Y., & Gao, P. (2023). Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management*, 345, 118829. <https://doi.org/10.1016/j.jenvman.2023.118829>

Chen, Y., & Zhang, Y. (2024). The impact of digital transformation on firm's financial performance: evidence from China. *Industrial Management & Data Systems*, 124(5), 2021-2041. <https://doi.org/10.1108/imds-07-2023-0507>

Cruz, C. A., & Matos, F. (2023). ESG Maturity: A Software Framework for the Challenges of ESG Data in Investment. *Sustainability*, 15(3), 2610. <https://doi.org/10.3390/su15032610>

Daugaard, D., & Ding, A. (2022). Global Drivers for ESG Performance: The Body of Knowledge. *Sustainability*, 14(4), 2322. <https://doi.org/10.3390/su14042322>

Ebirim, W., Ninduwezuor-Ehiobu, N., Usman, F. O., Olu-lawal, K. A., Ani, E. C., & Montero, D. J. P. (2024). Project Management Strategies for Accelerating Energy Efficiency in HVAC Systems Amidst Climate Change. *International Journal of Management & Entrepreneurship Research*, 6(3), 512-525. <https://doi.org/10.51594/ijmer.v6i3.841>

Eulerich, M., Bonrath, A., & Lopez-Kasper, V. I. (2022). Internal auditor's role in ESG disclosure and assurance: an analysis of practical insights. *Corporate Ownership & Control*, 20(1), 78-86. <https://doi.org/10.22495/cocv20i1art7>

Fang, M., Nie, H., & Shen, X. (2023). Can enterprise digitization improve ESG performance? *Economic Modelling*, 118, 106101. <https://doi.org/10.1016/j.econmod.2022.106101>

Fenghua, C., Lingdi, L., & Wenyan, S. (2025). Reducing sustainable supply chain risks: a digital technology-enabled risk management framework for ESG-oriented engineering procurement. *Hepatology Research*, 5(3), 10. <https://doi.org/10.20517/ces.2025.35>

Freeman, R. E. (1984). Corporate Views of the Public Interest. *Academy of Management Review*, 9(2), 366-368. <https://doi.org/10.5465/amr.1984.4277733>

Gao, S., Meng, F., Wang, W., & Chen, W. (2023). Does ESG always improve corporate performance? Evidence from firm life cycle perspective. *Frontiers in Environmental Science*, 11, 1105077. <https://doi.org/10.3389/fenvs.2023.1105077>

Ikwue, U., Ekwezia, A. V., Oguejiofor, B. B., Agho, M. O., Daraojimba, C., & Obiki-Osafiele, A. N. (2023). Sustainable Investment Strategies in Pension Fund Management: A Comparative Review of ESG Principles Adoption in the US and Nigeria. *International Journal of Management & Entrepreneurship Research*, 5(9), 652-673. <https://doi.org/10.51594/ijmer.v5i9.547>

Jaiswal, R., Gupta, S., & Tiwari, A. K. (2025). Environmental, social and governance-type investing: a multi-stakeholder machine learning analysis. *Management Decision*. <https://doi.org/10.1108/md-04-2024-0930>

Koczar, J., Zakhmatov, D., & Vagizova, V. (2023). Tools for considering ESG factors in business valuation. *Procedia Computer Science*, 225, 4245-4253. <https://doi.org/10.1016/j.procs.2023.10.421>

Kwilinski, A., Lyulyov, O., & Pimonenko, T. (2023). Unlocking Sustainable Value through Digital Transformation: An Examination of ESG Performance. *Information*, 14(8), 444. <https://doi.org/10.3390/info14080444>

Li, D., Zhang, Z., & Gao, X. (2024). Does artificial intelligence deter greenwashing? *Finance Research Letters*, 67, 105954. <https://doi.org/10.1016/j.frl.2024.105954>

Li, W., Padmanabhan, P., & Huang, C.-H. (2024). ESG and debt structure: Is the nature of this relationship nonlinear? *International Review of Financial Analysis*, 91, 103027. <https://doi.org/10.1016/j.irfa.2023.103027>

Li, W., Rong, M., & Wu, J. (2023). Does executives' overseas experience improve firms' labor investment efficiency? *China Journal of Accounting Research*, 16(4), 100332. <https://doi.org/10.1016/j.cjar.2023.100332>

Li, Y., & Zhu, C. (2024). Regional digitalization and corporate ESG performance. *Journal of Cleaner Production*, 473, 143503. <https://doi.org/10.1016/j.jclepro.2024.143503>

Liao, F., Hu, Y., Sun, Y., & Ye, S. (2024). Does digital empowerment affect corporate green investment efficiency? *Environment, Development and Sustainability*, 26(9), 23085-23111. <https://doi.org/10.1007/s10668-023-03591-5>

Lu, Y., Xu, C., Zhu, B., & Sun, Y. (2024). Digitalization transformation and ESG performance: Evidence from China. *Business Strategy and the Environment*, 33(2), 352-368. <https://doi.org/10.1002/bse.3494>

Mazina, A., Syzdykova, D., Myrzhykbayeva, A., Raikhanova, G., & Nurgaliyeva, A. M. (2022). Impact of Green Fiscal Policy on Investment Efficiency of Renewable Energy Enterprises in Kazakhstan. *International Journal of Energy Economics and Policy*, 12(5), 491-497. <https://doi.org/10.32479/ijeep.13437>

Nie, S., & Ji, Q. (2024). "Good medicine is bitter" or "drinking poison to quench thirst"? The impact of maturity mismatch on corporate ESG performance. *Finance Research Letters*, 69, 106126. <https://doi.org/10.1016/j.frl.2024.106126>

Ren, X., Zeng, G., & Zhao, Y. (2023). Digital finance and corporate ESG performance: Empirical evidence from listed companies in China. *Pacific-Basin Finance Journal*, 79, 102019. <https://doi.org/10.1016/j.pacfin.2023.102019>

Shin, J., Moon, J. J., & Kang, J. (2023). Where does ESG pay? The role of national culture in moderating the relationship between ESG performance and financial performance. *International Business Review*, 32(3), 102071. <https://doi.org/10.1016/j.ibusrev.2022.102071>

Singhal, N., Goyal, S., Khan, M., Singhal, T., & Afjal, M. (2025). Environmental, Social, and Governance (ESG) Investing. In M. Afjal & R. Birau (Eds.), *Financial Innovation for Global Sustainability* (pp. 495-527). Scrivener Publishing LLC. <https://doi.org/10.1002/9781394311682.ch20>

Wang, S., & Esperança, J. P. (2023). Can digital transformation improve market and ESG performance? Evidence from Chinese SMEs. *Journal of Cleaner Production*, 419, 137980. <https://doi.org/10.1016/j.jclepro.2023.137980>

Zhang, F., Lai, X., & Guo, C. (2024). ESG disclosure and investment-financing maturity mismatch: Evidence from China. *Research in International Business and Finance*, 70, 102312. <https://doi.org/10.1016/j.ribaf.2024.102312>

Zhang, N., Zhang, Y., & Zong, Z. (2023). Fund ESG performance and downside risk: Evidence from China. *International Review of Financial Analysis*, 86, 102526. <https://doi.org/10.1016/j.irfa.2023.102526>

Zou, L., Shen, J. H., Zhang, J., & Lee, C.-C. (2022). What is the rationale behind China's infrastructure investment under the Belt and Road Initiative. *Journal of Economic Surveys*, 36(3), 605-633. <https://doi.org/10.1111/joes.12427>

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