

-RESEARCH ARTICLE-

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

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### **—Abstract—**

The present research investigates how Environmental, Social and Governance (ESG) performance relates to the enhancement of corporate value within Chinese enterprises. The analysis concentrates on the intermediary functions played by investment efficiency and risk management efficiency, and also examines the influence of ESG maturity as a moderating factor. The central premise is to determine the extent to which strong ESG performance contributes to higher corporate value through more effective investment allocation and strengthened risk control, and how differing levels of ESG maturity shape these dynamics. A quantitative methodological approach was adopted, drawing on survey responses obtained from a sample of 300 companies operating in China. Structural Equation Modelling (SEM) served as the primary analytical technique, enabling evaluation of direct effects, mediating pathways, and moderating influences among the core constructs. The survey instrument incorporated previously validated measurement scales covering ESG performance, investment efficiency, risk

management efficiency, corporate value, and ESG maturity. The empirical results demonstrate that ESG performance exerts a favourable impact on corporate value, both in a direct sense and indirectly through improvements in investment decision-making and risk management processes. In addition, the analysis indicates that ESG maturity strengthens the association between ESG performance and investment efficiency, thereby further contributing to enhanced corporate value. Overall, the study extends existing literature by clarifying how ESG performance affects corporate value through multiple organisational mechanisms, within the specific institutional and market setting of China. It provides new evidence regarding the dual mediating roles of investment efficiency and risk management efficiency, and underscores the significance of ESG maturity as a contextual factor.

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

## INTRODUCTION

As global businesses increasingly acknowledge the necessity of responsible and sustainable conduct, contemporary corporate strategies give growing prominence to ESG performance. ESG outcomes are now regarded as influential determinants of a firm's longer-term valuation. Organisations with strong ESG profiles are positioned to comply with ethical expectations and regulatory frameworks while continuing to expand and remain profitable. Investors, policymakers and broader stakeholder groups are placing rising emphasis on openness, fairness and ecological accountability, which has prompted a widespread expectation that firms disclose their ESG-related practices. Consequently, companies are encouraged to embed ESG considerations within strategic planning, as such integration is associated with improvements in financial outcomes, corporate reputation and competitive strength (D. Li et al., 2024).

Corporate value, which encompasses indicators such as market worth, returns and potential for future development, has traditionally served as a central measure of organisational performance (Chen et al., 2023). According to Chen and Zhang (2024), it reflects long-term financial stability, market reactions and investor confidence. Historically, assessments of firm value have focused mainly on metrics such as profit margins, revenue and market dominance. However, the increasing salience of ESG concerns has drawn attention to the importance of non-financial criteria in shaping business value (Bade et al., 2024). Investors are progressively favouring enterprises that demonstrate responsible environmental and social behaviour, as these companies tend to manage risk more effectively, operate more efficiently and sustain performance across extended periods. Firms with strong ESG records often exhibit superior financial outcomes, more robust stock valuations and enhanced credibility among stakeholders. This trend underscores the growing convergence between sustainability practices and

corporate valuation. The ability to identify and address ESG-related opportunities and risks has thus become an essential determinant of firm value (Koczar et al., 2023).

China's rapid industrial growth and its emergence as the world's second-largest economy have intensified discussions surrounding corporate value and ESG in recent decades. Sustained economic transformation has placed environmental and social pressures on institutions, prompting governmental commitment to sustainable development policies (Bai et al., 2022). As part of broader corporate social responsibility efforts, Chinese firms have been encouraged to enhance their ESG performance. Li and Zhu (2024) highlight that as China continues to expand, the relevance of sustainable business conduct increases correspondingly. The evolving landscape in which Chinese firms balance economic ambition with international sustainability norms presents a compelling context for examining the connection between ESG performance and corporate value. National initiatives, including the Belt and Road Strategy and programmes promoting green finance, further emphasise ESG considerations in organisational success (Zou et al., 2022). Understanding how ESG performance affects firm value is therefore essential for managers, regulators and investors aiming to navigate the region's changing sustainability environment.

Despite growing research interest, the relationship between ESG performance and corporate value remains only partially understood. While many studies confirm a positive association between ESG practices and financial outcomes, the underlying mechanisms require further clarification. In particular, the influence of investment efficiency and risk management efficiency in transmitting ESG benefits has received limited attention. Investment efficiency refers to the organisation's ability to allocate capital in alignment with long-term objectives to optimise return potential (Aluchna et al., 2023). Effective risk management entails identifying, evaluating and mitigating risks, including those arising from ESG shortcomings that may carry financial or reputational costs. Improvements in these areas can strengthen both firm performance and organisational value. Although ESG engagement has been shown to influence these efficiencies, the specific processes linking ESG practices to commercial value remain underexamined. Understanding these mediating pathways is crucial for managers seeking to design strategies that yield financial benefits alongside sustainability enhancements (Chen et al., 2023). ESG maturity, which reflects the extent to which ESG principles are embedded in the organisation's culture, governance structures and daily operations, has also attracted limited empirical investigation (Gao et al., 2023). Higher maturity often corresponds with integrated sustainability planning that enables firms to fully capitalise on the financial advantages of ESG investment. Alkatheeri et al. (2023) suggest that the degree of maturity influences how effectively ESG initiatives translate into improved corporate value. Yet, the moderating function of ESG maturity in shaping the relationship between ESG performance, investment efficiency and firm value remains insufficiently addressed. This represents an important direction for

further inquiry, especially for organisations seeking to design durable sustainability frameworks (Aluchna et al., 2023).

This study therefore concentrates on the connection between ESG performance and corporate value in Chinese firms, specifically examining the mediating roles of investment efficiency and risk management efficiency and the moderating role of ESG maturity. By identifying how these factors interact, the study aims to clarify how ESG engagement can enhance firm value through improved capital allocation and refined risk oversight. Additionally, the analysis considers how varying levels of ESG maturity alter the strength of these relationships. The relevance of this research is both theoretical and practical. Theoretically, it contributes to closing gaps in the literature concerning how ESG performance exerts its influence on firm value through internal operational mechanisms. While previous studies have demonstrated associations between ESG practices and financial results, the transmission through investment and risk management efficiency has been less thoroughly articulated. Moreover, assessing ESG maturity introduces a further dimension, revealing how deeply embedded ESG practices condition their financial impact. This study thus proposes a more integrated framework for analysing the relationship between sustainability initiatives and economic performance.

Practically, the findings hold significance for government authorities, investors and corporate leaders in China and beyond. Insights into how ESG performance promotes value creation via investment and risk management improvements can support firms in formulating ESG strategies that enhance both sustainability and profitability. The results may assist Chinese companies in strengthening their reputational standing, growth potential and revenue stability. The role of ESG maturity further highlights the advantages of embedding sustainable principles across organisational systems. Policymakers may apply these insights to design incentives and governance structures encouraging firms to incorporate ESG factors into strategic decisions, thereby contributing to the long-term competitiveness and environmental responsibility of China's economy.

## LITERATURE REVIEW

### ESG Performance and Corporate Value

The contemporary valuation of a company is increasingly influenced by its ESG performance, particularly among stakeholder groups that prioritise ethical responsibility and sustainable development. According to Shin et al. (2023), strong ESG performance enhances investor confidence, mitigates exposure to various risks and improves corporate reputation, which collectively contributes to higher firm value. ESG engagement signals a company's dedication to environmental stewardship, adherence to regulatory standards and the promotion of socially responsible investment. Policies

addressing labour relations, human rights and community participation contribute to a more committed and stable workforce (Kwilinski et al., 2023).

The governance dimension supports alignment between managerial actions and shareholder interests, limiting agency-related inefficiencies. It encourages transparent practices and informed strategic judgement. When these components operate together, they reinforce organisational stability and long-term performance while lowering financial and reputational vulnerabilities. Moreover, firms demonstrating strong ESG outcomes often benefit from easier access to capital and reduced financing costs. Sustainability credentials influence stock valuations and creditworthiness, with organisations that maintain robust ESG records typically displaying lower risk profiles and improved funding opportunities (Zhang et al., 2023). Operational advantages also arise from resource efficiency and reductions in waste, which not only improve profitability in the short term but also secure trust-based relationships with stakeholders over time. ESG frameworks also intersect with investment decision-making and risk governance processes, leading to better allocation of financial resources and stronger safeguards against uncertainty. Such efficiency gains can make ESG initiatives economically rewarding (Ren et al., 2023). In rapidly changing market environments, firms with more advanced ESG maturity frequently achieve superior performance compared with their peers, demonstrating that a coherent and well-integrated ESG strategy is essential for sustaining corporate value and maintaining a competitive position.

### **Efficiency Investment as a Mediator**

Companies that perform strongly in terms of ESG tend to use their resources more effectively, enabling higher returns on capital investments while reducing unnecessary waste. The emphasis on transparency and awareness of long-term risks embedded in ESG principles enables organisations to identify sustainable growth opportunities rather than simply prioritising immediate financial gains (Gao et al., 2023). Investments in energy-efficient operations and more sustainable supply networks contribute to lower operational expenditures and foster greater loyalty among consumers and partners, thereby benefiting both shareholders and broader stakeholder groups. These initiatives simultaneously limit exposure to regulatory sanctions and reputational damage, supporting stable and continuous operations and enhancing firm value (Ariwibowo et al., 2021).

Embedding ESG considerations into strategic decision-making demonstrates an organisation's commitment to long-term sustainability, which appeals to investors with longer investment horizons. Financial analysts increasingly highlight the role of ESG-oriented investment approaches in promoting market stability and operational efficiency. Investments aligned with ESG principles facilitate innovation and

organisational resilience, positioning firms to adapt to future market and environmental changes (Singhal et al., 2025). Sustainability efforts also improve risk management and reduce operating expenses, thereby elevating financial performance. Environmental initiatives reduce exposure to climate-related risks, while social and governance improvements strengthen stakeholder relations and enhance workforce engagement. These advantages are realised most fully when investment efficiency and resource allocation are structured to support long-term financial resilience, reinforcing the positive effects of ESG engagement on firm value (D. Li et al., 2024). Incorporating ESG performance into investment planning strengthens market positioning and value creation by converting intangible sustainability benefits into tangible financial outcomes.

### **Risk Management Efficiency as a Mediator**

Risk management enables firms to anticipate, assess and reduce operational and investment-related uncertainties, thereby improving both investment outcomes and ESG performance. Jaiswal et al. (2025) argue that organisations prioritising ESG employ more advanced risk mitigation frameworks to address regulatory, environmental and social challenges, which subsequently guides their investment choices. Firms with robust environmental strategies are better equipped to manage regulatory constraints such as emission limits or resource shortages, reducing the likelihood of disruptions in investment projects. The social and governance dimensions of ESG further strengthen oversight by promoting accountability and greater clarity in the use of resources. Directing capital towards initiatives that offer steady returns and lower uncertainty allows firms to decrease financial risk while improving capital allocation efficiency.

In rapidly shifting and unpredictable business environments, risk management assumes heightened importance, as adherence to ESG safeguards firms from unexpected disruptions. Incorporating ESG criteria into risk evaluation processes enables organisations to detect opportunities that align with their sustainability objectives while also reducing non-financial risks such as reputational harm and stakeholder disputes (Ikwue et al., 2023). Sound risk management ensures that ESG-related investments are well integrated and resilient against external shocks, supporting stronger organisational outcomes. Effective governance practices additionally help prevent misconduct and managerial failures that could compromise both investment performance and ESG goals (Li et al., 2023). Thus, risk management plays a central role in ensuring that sustainability strategies are embedded within a firm's broader financial systems and long-term value creation framework.

Companies with strong ESG records commonly rely on advanced risk monitoring systems to detect environmental, social and governance risks and to manage them

proactively (Cao et al., 2025). Compliance with environmental regulations assists in mitigating climate-related threats and reducing disruptions caused by severe weather and ecological constraints. Likewise, strong social and governance practices reduce exposure to reputational and financial setbacks by encouraging transparent and responsible behaviour. Sustained operational reliability enhances organisational value, reduces capital costs and strengthens investor confidence (Wang & Esperança, 2023). Through these mechanisms, risk management contributes to improved ESG performance, greater financial returns and stronger resilience. The alignment of ESG actions with strategies that enhance firm value demonstrates the significance of risk oversight in achieving financial and sustainability objectives. Firms that actively manage ESG-related risks avoid costly interruptions and utilise resources more effectively, increasing competitiveness and profit margins (Ebirim et al., 2024). Addressing ESG concerns also strengthens relationships with employees, customers and regulators, enhancing corporate reputation and market positioning. By ensuring that sustainability initiatives yield both ethical and financial benefits, ESG performance contributes to the development of long-lasting organisational value (Barros et al., 2022). In this way, risk management efficiency enables ESG performance to translate into measurable financial outcomes in increasingly complex business environments.

By managing ESG-related challenges, firms can lower both financial and operational risks (Ren et al., 2023). Avoiding regulatory breaches, reputational harm and inefficient resource use allows companies to commit to long-term strategic investment. This stability improves confidence among investors and stakeholders, converting ESG efforts into tangible organisational value (Chen et al., 2023). ESG-focused risk evaluation reduces waste and directs capital towards projects with higher returns, strengthening business performance. Risk management and investment efficiency jointly reinforce the link between ESG performance and corporate value by ensuring that resources are used productively and returns are optimised. By controlling losses and supporting strategic investment, risk management enables firms to pursue innovative and sustainable opportunities with enduring benefits (Liao et al., 2024). Investment efficiency further minimises waste and supports profitability in ESG-aligned ventures. Streamlined operations reduce capital intensity, increase profitability and enhance both operational and financial performance, while improving market credibility (Afrin & Rahman, 2024). ESG performance therefore limits organisational risks and increases value by building a more resilient and efficient operating structure, positioning firms for sustained success in increasingly competitive and sustainability-focused markets.

### **ESG Maturity as Moderator**

ESG maturity refers to the extent to which environmental, social and governance

principles are embedded into an organisation's strategic systems, operational routines and cultural norms, and this level of integration influences investment choices (Gao et al., 2023). Firms with higher levels of ESG maturity possess a clearer understanding of sustainability-related risks and opportunities, enabling them to prioritise investments that support long-term strategic objectives. This deeper integration ensures that ESG initiatives are evaluated thoroughly in terms of expected returns and associated risks, guiding resource allocation towards projects that offer stronger strategic alignment and effectiveness (Cruz & Matos, 2023). As a result, organisations with more mature ESG practices are often more capable of converting ESG performance into tangible financial and operational advantages, demonstrating the critical role investment efficiency plays in corporate success.

ESG maturity therefore enhances internal coherence, helping to bridge the gap between ESG performance and investment outcomes. When ESG maturity is advanced, sustainability considerations are embedded into decision-making processes rather than simply being undertaken for regulatory compliance, leading to more consistent and meaningful investment outcomes. Firms with mature ESG systems utilise analytical tools and contemporary evaluation frameworks to assess the long-term benefits and profitability of potential investments. This capacity allows them to seize growth opportunities while reducing the risk of resource misallocation. By reducing uncertainty and meeting the expectations of stakeholders and markets, ESG maturity improves investment efficiency (Mazina et al., 2022). Strategically embedding ESG principles into core organisational activities influences investment efficiency by ensuring optimal use of financial resources to enhance returns and minimise losses. Strong financial governance, responsible social practices and environmental accountability reinforce confidence in the firm's investment decisions, particularly when ESG maturity is high (Zhang et al., 2024). Organisations with well-developed ESG maturity employ sophisticated assessment techniques to evaluate sustainability performance while remaining aligned with regulatory requirements and stakeholder expectations. This alignment reduces the likelihood of unproductive expenditure and fosters trust among investors and stakeholders, thereby enhancing organisational value (W. Li et al., 2024). Incorporating ESG maturity into investment activities strengthens long-term strategic value. Well-structured ESG policies demonstrate a genuine commitment to sustainability to both markets and stakeholders, which enhances the appeal of the firm's investment propositions (Nie & Ji, 2024). By attracting socially responsible investors, lowering funding costs and strengthening corporate credibility, ESG maturity improves both investment efficiency and firm value. It also supports organisational adaptability and innovative capacity, enabling firms to identify emerging sustainability trends and benefit from them (Eulerich et al., 2022). In this way, ESG maturity enables firms to achieve sustained financial performance while remaining resilient and competitive in an environment where ESG considerations increasingly shape market expectations.

## Conceptual Framework and Hypotheses Development

This research examines the interconnected influence of ESG performance on corporate value, specifically considering investment efficiency, risk management efficiency, and ESG maturity as core mediating and moderating components. Strong ESG performance contributes to enhanced financial and non-financial outcomes, such as improved investor trust, a strengthened corporate image, and reduced exposure to operational and environmental risks, thereby increasing overall firm value. These outcomes collectively support sustained financial stability and long-term corporate growth. Investment efficiency and risk management efficiency function as mediating mechanisms. Efficient investment decision-making and effective risk control promote optimal resource deployment and lower uncertainty, thereby supporting durable performance. It is expected that ESG performance positively contributes to corporate value through both mediators.

ESG maturity is introduced as a moderating construct. Grounded in the Resource-Based View, firms possessing rare, strategically meaningful, and difficult-to-imitate ESG capabilities are better positioned to enhance their competitive standing and corporate worth. ESG-related competencies, such as systematic risk oversight and responsible resource allocation, serve as strategic assets that support long-term value creation. [Figure 1](#) outlines the conceptual model illustrating the interconnected roles of each variable in reinforcing corporate value formation. This study proposes that ESG performance influences corporate value through multiple mediation channels. H1 establishes the direct effect of ESG performance on corporate value, suggesting that sustainability-oriented practices enhance reputation and operational outcomes, thereby increasing firm value. H2a posits that investment efficiency mediates the association between ESG performance and corporate value, as firms with strong ESG alignment are better equipped to utilise resources effectively, improving financial returns and organisational worth. H2b asserts that risk management efficiency acts as a mediator by reducing adverse exposures and increasing corporate stability. H2c proposes that risk management efficiency facilitates improved capital utilisation and more efficient resource use, mediating the link between ESG performance and investment efficiency. H2d suggests a serial mediation effect, where ESG performance influences investment efficiency and risk management efficiency sequentially, ultimately enhancing corporate value.

The moderating effect of ESG maturity is examined in the final stage. According to H3a, ESG maturity influences the association between ESG performance and investment efficiency, proposing that firms with advanced ESG maturity are more capable of converting sustainability commitments into effective investment choices. H3b proposes that ESG maturity shapes the relationship between investment efficiency and corporate value, indicating that well-developed ESG practices strengthen

investment impacts on firm value. Collectively, these hypotheses provide a structured framework to evaluate how ESG performance interacts with investment efficiency, risk management, and maturity to shape corporate value, ultimately supporting long-term value creation.

**H1:** *ESG performance positively impacts corporate value.*

**H2a:** *Investment efficiency mediates the relationship between ESG performance and corporate value.*

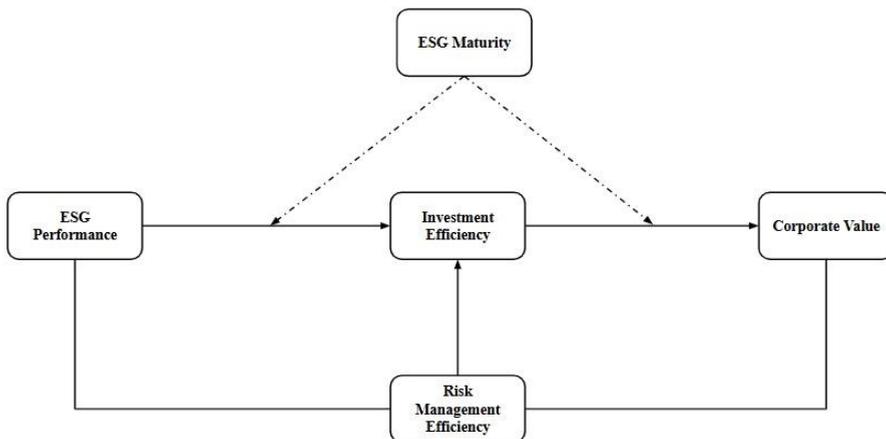
**H2b:** *Risk management efficiency mediates the relationship between ESG performance and corporate value.*

**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

## METHODOLOGY

### Research Design

The present research employed a quantitative approach to investigate the relationships among ESG performance, investment efficiency, risk management efficiency, and corporate value. The primary objective was to determine how investment efficiency and risk management efficiency act as mediating mechanisms, and how ESG maturity

functions as a moderating factor within these relationships. Data were obtained and analysed using numerical methods to test the proposed theoretical assumptions. A cross-sectional survey framework was used to assess organisational ESG practices and to evaluate both their immediate and indirect effects on firm value. This approach enabled the collection of data at a single point in time, making it suitable for assessing current organisational behaviours and outcomes. The cross-sectional design was particularly appropriate because it allowed data to be gathered from a diverse range of industries, providing a broad and contemporaneous overview without requiring long-term observation. Multiple analytical techniques were employed within this design to generate a more comprehensive understanding of how ESG-related strategies contribute to corporate value in contemporary organisational environments. Through this methodology, the study aimed to capture the current dynamics of ESG implementation and its influence on financial and operational outcomes across firms.

### **Population and Sample Size and Sampling Technique**

The investigation concentrated on Chinese firms listed on public exchanges, as such entities typically disclose more extensive ESG information and performance indicators than privately held companies. Publicly listed corporations are required by regulatory frameworks to report aspects of their sustainability practices and financial conditions, which made them a reliable source of secondary data for the study. To capture a realistic representation of the broader corporate environment in China, firms operating across multiple sectors were included, including manufacturing, finance, technology, and energy—industries that differ significantly in the level and maturity of ESG implementation.

The sample size was informed by the requirements of SEM, which generally necessitates between 200 and 300 valid observations to produce stable and meaningful estimates. Accordingly, the study targeted 300 listed corporations, accounting for the likelihood of incomplete responses or missing information, thus ensuring sufficient usable data for empirical testing. This volume was deemed adequate to evaluate the proposed conceptual relationships and to ensure the findings were reflective of the practices of publicly traded Chinese firms. A stratified random sampling approach was used to construct the sample. The population of listed firms was first classified according to sector (such as energy, manufacturing, financial services, and technology), after which companies from each category were randomly selected. This method ensured proportional representation of each industry, reduced the risk of sampling bias, and allowed differences in ESG involvement and firm value across sectors to be properly addressed. Random selection within each stratum further strengthened the validity of the sample by ensuring that each listed organisation had an equal opportunity to be included.

### **Data Collection**

Primary data for this research was obtained through the use of structured survey instruments. These questionnaires assessed the extent of ESG implementation, efficiency in investment decisions, effectiveness of risk management, perceived corporate value, and the level of ESG maturity within firms. All measurement items were adapted from previously validated scales to maintain both reliability and construct validity. Responses were recorded on a five-point Likert continuum ranging from 1 (strongly disagree) to 5 (strongly agree), allowing participants to express the degree to which each statement reflected their organisation's practices and strategic orientation. This approach enabled the numerical representation of attitudes and behaviours connected to ESG performance and related organisational outcomes. The survey was distributed to 500 professionals working in publicly listed companies in China, particularly individuals involved in sustainability management, finance, or corporate governance, as these roles directly engage with ESG-related decision-making. Selecting respondents from these positions ensured that the information captured was accurate, informed, and relevant to organisational strategy. A total of 300 fully completed questionnaires were returned, yielding a 60% response rate. This level of participation is considered robust for organisational research and is sufficient to support reliable statistical testing.

## Data Analysis

The dataset was processed using SPSS, which facilitated the execution of descriptive analysis, correlation testing, and regression procedures. Descriptive statistics were first generated to provide an overview of the data and to illustrate the distribution patterns of the principal constructs, including ESG performance, investment efficiency, risk management efficiency, and corporate value. Measures such as mean, median, and standard deviation were calculated to enhance the interpretation of how these variables varied across the sample. To analyse the proposed mediation relationships, multiple regression techniques were applied to assess the direct associations among ESG performance, investment efficiency, risk management efficiency, and firm value. In addition, SEM was conducted to evaluate both direct and indirect effects, as well as sequential mediation linkages. SEM was particularly suitable for testing the serial mediation proposition (H2d), which posits that ESG performance influences corporate value through successive improvements in investment efficiency and risk management efficiency.

The moderating role of ESG maturity was examined using hierarchical regression analysis. Interaction terms were generated between ESG maturity and the focal independent variables to determine whether maturity altered the strength or direction of their influence on corporate value. These interaction effects were assessed within SPSS to establish whether the moderation was statistically significant. To ensure the robustness of the measurement model, internal consistency was evaluated using

Cronbach's alpha, while construct validity was examined through component analysis. These reliability and validity assessments confirmed that the measurement scales were coherent and accurately represented the theoretical constructs under investigation.

## RESULTS OF THE STUDY

### Descriptive Statistics

Table 1 presents the descriptive results for the core constructs, showing measures of central tendency, dispersion, and overall response distribution. All variables were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), based on responses from 300 participants. The results indicate generally favourable perceptions across all measured dimensions. The mean value for ESG Performance is 3.85, suggesting that firms are viewed as performing reasonably well in environmental, social, and governance-related activities. Investment Efficiency records an average score of 3.70, implying that investment decision processes are regarded as effective within most organisations.

**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

Risk Management Efficiency has a mean value of 3.80, reflecting confidence in firms' ability to identify and manage risks. Corporate Value reports the highest mean score at 4.00, indicating strong perceptions of financial strength and market standing. ESG Maturity, with an average of 3.90, suggests that sustainability considerations are meaningfully integrated into organisational structures and strategic routines. Standard deviations for the variables range from 0.59 to 0.72, signalling moderate variation among firms. This means that although many organisations demonstrate relatively high performance across these areas, there are noticeable differences between companies in the extent and consistency of ESG implementation and related outcomes. The observed response range (2.00 to 5.00 across all variables) shows that the entire scale was utilised, reflecting diverse levels of ESG engagement, investment efficiency, risk handling practices, perceived value, and maturity across the sample.

### Normality Assessment

**Table 2** reports the normality assessment for the core study variables, based on skewness and kurtosis indicators. Skewness reflects the symmetry of the distribution, while kurtosis indicates the sharpness or flatness of the distribution curve. The skewness statistics for all variables are close to zero, implying that the distributions are approximately symmetrical. ESG Performance (-0.12), Investment Efficiency (-0.04), Risk Management Efficiency (-0.05), Corporate Value (-0.11), and ESG Maturity (-0.09) show slight negative skewness, which suggests only minor departures from a perfectly balanced distribution. Similarly, the kurtosis figures fall within a narrow range between -0.42 and -0.55. These values indicate relatively flat, light-tailed distributions, comparable to platykurtic normal curves. Taken together, the skewness and kurtosis results confirm that the dataset follows an approximately normal distribution, with no extreme outliers or pronounced distortions. This near-normal pattern supports the suitability of the data for inferential statistical techniques used in the study, such as regression analyses and structural equation modelling, without necessitating corrective transformation procedures.

**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

### Correlation Analysis

**Table 3** presents the correlation coefficients among the key constructs of the study: ESG Performance (ESGP), Investment Efficiency (IE), Risk Management Efficiency (RME), Corporate Value (CV), and ESG Maturity (ESGM). The results show consistently strong and statistically significant positive associations across all variables, indicating that improvements in one area are generally accompanied by improvements in the others. ESG Performance shows a positive correlation with Investment Efficiency (0.53\*\*), Risk Management Efficiency (0.49\*\*), Corporate Value (0.55\*\*), and ESG Maturity (0.62\*\*). This pattern suggests that organisations demonstrating stronger ESG engagement tend to allocate resources more effectively, manage risks more proficiently, and achieve higher levels of both financial and non-financial value. Similarly, Investment Efficiency displays substantial positive correlations with Risk Management Efficiency (0.60\*\*), Corporate Value (0.72\*\*), and ESG Maturity (0.68\*\*), indicating that well-directed investment practices contribute directly to stronger operational stability and enhanced firm performance. The relationship between Risk Management Efficiency and ESG Maturity (0.67\*\*) and between Risk Management Efficiency and Corporate Value (0.70\*\*) reflects the critical role of effective risk oversight in

maintaining sustainable performance and stakeholder confidence. Moreover, the strongest association is observed between ESG Maturity and Corporate Value (0.75\*\*), suggesting that firms with deeply embedded ESG principles tend to achieve superior market and strategic outcomes.

**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:  $p < 0.01$

### Reliability Analysis

Table 4 presents the reliability assessment for the study's measurement constructs, using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

**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

These indices are commonly used to evaluate the internal consistency and convergent validity of multi-item scales. All constructs recorded Cronbach's Alpha values above the benchmark of 0.70, indicating strong internal consistency among scale items. ESG Performance shows an Alpha of 0.87, with similarly robust coefficients for Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity. These results confirm that the indicators within each construct coherently capture the same underlying dimension. Composite Reliability scores range between 0.88 and 0.92, surpassing the recommended minimum threshold of 0.70. Corporate Value displays the highest CR value (0.92), reflecting particularly dependable measurement. The AVE values for all constructs also exceed 0.50, demonstrating satisfactory convergent validity. Specifically, ESG Performance shows an AVE of 0.74, while Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity record AVE scores of 0.72, 0.73, 0.75, and 0.70 respectively. Overall, the reliability and validity results confirm that the measurement tools used to assess ESG performance, investment efficiency, risk management efficiency, corporate value, and ESG maturity

are both consistent and conceptually sound, supporting their suitability for subsequent statistical analysis.

### Outer Loadings

Table 5 reports the factor loadings for all measurement indicators under the constructs of ESG Performance, Investment Efficiency, Risk Management Efficiency, Corporate Value, and ESG Maturity. The results show that each item loads strongly on its respective construct, confirming adequate indicator reliability. The loading values fall within the acceptable threshold, demonstrating that the items consistently represent the intended latent dimensions.

**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
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

**Table 5: Outer Loadings (cont...)**

	Item Code	Outer Loading
	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

## R-Square Values

Table 6 provides the R-Square estimates for the main dependent constructs, indicating the proportion of variance explained by the independent variables and mediating mechanisms. Investment Efficiency shows an R-Square value of 0.57, meaning that 57 percent of its variation is accounted for by the predictors in the model. This reflects a moderate-to-strong explanatory relationship, suggesting that the factors examined meaningfully influence how efficiently firms allocate resources. Risk Management Efficiency has an R-Square value of 0.52, demonstrating that just over half of its variability can be attributed to the model's predictors. While the relationship is significant, this also implies that additional contextual or organisational conditions may affect risk management practices beyond those measured. Corporate Value exhibits the highest explanatory power, with an R-Square of 0.62. This indicates that 62 percent of the variation in firm value is explained collectively by ESG performance, investment efficiency, risk management efficiency, and ESG maturity. The relatively high figure underscores that the integrated effects of ESG-related practices and managerial processes play a central role in shaping firm value outcomes.

**Table 6: R-Square Values**

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

## Regression Analysis

**Table 7** reports the regression outcomes linking ESG Performance to Corporate Value. The estimated path coefficient ( $\beta = 0.45$ ) indicates a positive and meaningful association, showing that improvements in ESG performance are accompanied by corresponding increases in firm value. In practical terms, a one-unit increase in ESG Performance is associated with a 0.45 unit rise in Corporate Value, suggesting that firms exhibiting stronger sustainability, governance, and social responsibility practices tend to be valued more highly. The t-statistic of 6.23 surpasses the conventional significance threshold of 1.96, confirming the statistical robustness of the relationship. Additionally, the p-value (0.000) is well below the 0.05 significance criterion, further validating the effect. These results collectively highlight that ESG performance plays a substantive role in enhancing corporate value, reinforcing the idea that responsible and transparent business practices translate into favourable financial and market outcomes.

**Table 7: Regression Analysis**

Path	Coefficient ( $\beta$ )	t-Value	p-Value	Result
ESG Performance $\rightarrow$ Corporate Value	0.45	6.23	0.000	Significant

### Mediation Analysis

**Table 8** presents the mediation analysis, evaluating the indirect pathways through which ESG Performance influences Corporate Value via Investment Efficiency and Risk Management Efficiency, including the combined (serial) mediation structure. For H2a, the indirect path running from ESG Performance to Corporate Value through Investment Efficiency shows a coefficient of  $\beta = 0.34$ , with a t-value of 5.23 and a p-value of 0.000, indicating a strong and statistically significant effect. This result implies that firms with stronger ESG engagement tend to allocate capital more efficiently, and this enhanced investment efficiency, in turn, contributes to higher corporate value. Thus, investment decisions become more strategic and disciplined when aligned with ESG priorities, which strengthens both market perception and financial outcomes. In H2b, the indirect effect operating through Risk Management Efficiency yields  $\beta = 0.28$ ,  $t = 4.82$ , and  $p = 0.000$ , confirming statistical significance. This indicates that ESG-focused firms typically demonstrate more proficient risk management, which subsequently supports improved corporate valuation. Strong risk management practices help reduce exposure to operational, environmental, and regulatory risks, thereby reinforcing investor confidence and promoting long-term value creation.

The mediation effect assessed in H2c, where ESG Performance links Risk Management Efficiency to Investment Efficiency, reports  $\beta = 0.33$ ,  $t = 5.10$ , and  $p = 0.000$ . This finding reveals that organisations with effective risk management are better positioned to undertake well-informed investment decisions, which then contribute positively to corporate value. The pathway underscores risk management as a foundational capability that enhances the quality and outcome of investment strategies. Finally, the serial

mediation model (H2d), examining the joint influence of Investment Efficiency and Risk Management Efficiency in sequence, indicates a significant serial indirect effect ( $\beta = 0.38$ ,  $t = 6.05$ ,  $p = 0.000$ ). This suggests that ESG Performance advances corporate value partly by simultaneously strengthening both investment and risk management capacities. The results highlight a dynamic internal process, where ESG initiatives cultivate operational efficiencies that collectively underpin stronger financial performance and market valuation.

**Table 8: Mediation Analysis**

	$\beta$	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

### Moderation Analysis

Table 9 reports the moderation analysis, which tests the extent to which ESG Maturity alters the relationships among ESG Performance, Investment Efficiency, and Corporate Value. The first interaction pathway indicates that ESG Maturity significantly strengthens the effect of ESG Performance on Investment Efficiency, with a coefficient of  $\beta = 0.42$ ,  $t = 4.99$ , and  $p = 0.000$ . This suggests that the positive influence of ESG Performance on a firm's ability to allocate capital efficiently becomes more pronounced as the organisation advances in its ESG development. Firms with more mature ESG systems appear better positioned to translate ESG commitments into disciplined and strategically aligned investment decisions. In other words, the presence of a well-established ESG framework amplifies the operational benefits of ESG Performance, leading to superior investment outcomes. The second interaction examines the moderating role of ESG Maturity in the relationship between Investment Efficiency and Corporate Value. The results show a significant moderating effect ( $\beta = 0.36$ ,  $t = 5.25$ ,  $p = 0.000$ ), demonstrating that the contribution of efficient investment practices to corporate valuation is stronger in firms with higher levels of ESG maturity. Organisations with sophisticated ESG governance structures are more likely to convert investment efficiency into tangible enhancements in corporate value, partly because market participants perceive such firms as more credible, transparent, and committed to sustainable growth.

**Table 9: Moderation Analysis**

Path	$\beta$	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

## DISCUSSION

This analysis clarifies the interdependencies among Corporate Value, ESG Maturity, Investment Efficiency, Risk Management Efficiency, and ESG Performance. The results demonstrate that ESG Performance exerts a substantial positive influence on Corporate Value, while Investment Efficiency and Risk Management Efficiency operate as central mediating mechanisms. Furthermore, ESG Maturity modifies the relationships linking ESG Performance, Investment Efficiency, and Corporate Value, indicating that more advanced and institutionally embedded ESG practices strengthen the value-generating effect of efficient investment decisions. Collectively, the findings reinforce the broader empirical consensus connecting sustainable corporate practices with improved financial outcomes.

The direct effect of ESG Performance on Corporate Value is confirmed by a coefficient of 0.45 ( $t = 6.23$ ), which aligns with existing studies suggesting higher market valuation among firms that commit to strong ESG standards (Lu et al., 2024). This relationship suggests that stakeholders increasingly evaluate firms not solely on financial metrics but also on ethical, social, and environmental conduct. This aligns with stakeholder theory, which posits that creating value for employees, customers, investors, and the wider community ultimately enhances corporate reputation and financial performance. Investment Efficiency plays a key mediating role, with the mediation pathway ( $\beta = 0.34$ ,  $t = 5.23$ ) indicating that strong ESG Performance helps firms allocate resources more strategically, thereby enhancing long-term value. Daugaard and Ding (2022) note that firms with clear ESG oversight tend to attract more patient capital, face reduced financing costs, and benefit from disciplined resource allocation. Firms that invest responsibly typically demonstrate long-term growth potential, lower volatility, and improved market confidence. Thus, ESG Performance contributes to Corporate Value partly by enabling investment decisions that are aligned with sustainability and strategic growth objectives.

Risk Management Efficiency also mediates the ESG–Corporate Value relationship ( $\beta = 0.28$ ,  $t = 4.82$ ). Organisations with stronger ESG integration tend to anticipate and mitigate operational, regulatory, and reputational risks more effectively. As highlighted by Ebirim et al. (2024), firms prioritising sustainability and risk controls are less likely to experience major disruptions stemming from environmental or social crises. Effective risk governance reduces exposure to fines, market shocks, or brand damage, thereby contributing to stable, long-term value preservation. The serial mediation result

( $\beta = 0.38$ ,  $t = 6.05$ ) indicates a layered mechanism: ESG Performance enhances Risk Management Efficiency, which in turn supports stronger Investment Efficiency, ultimately increasing Corporate Value. This sequential pathway highlights the need for holistic ESG integration, where sustainability considerations inform both defensive (risk mitigation) and proactive (investment planning) decision-making.

The moderation results show that ESG Maturity intensifies the positive effect of ESG Performance on Investment Efficiency ( $\beta = 0.42$ ,  $t = 4.99$ ) and amplifies the influence of Investment Efficiency on Corporate Value. Firms with mature ESG systems are more capable of converting sustainable practices into financial benefits. Drawing on the resource-based view (Fang et al., 2023), ESG capability can be understood as a strategic asset that is valuable, difficult to imitate, and organisationally embedded. Firms with advanced ESG maturity can convert responsible behaviour into reputation gains, competitive resilience, and enhanced market trust. Overall, the results confirm that ESG Performance contributes to Corporate Value through multiple reinforcing channels. Investment Efficiency and Risk Management Efficiency operate as key mechanisms, while ESG Maturity strengthens the transmission of these effects. The evidence underscores the strategic relevance of ESG: firms with comprehensive and well-developed ESG frameworks are better positioned to create enduring value for shareholders and stakeholders alike.

## **THEORETICAL AND PRACTICAL IMPLICATIONS**

The findings carry substantial practical relevance for policymakers, institutional investors, and corporate leadership, particularly in the context of embedding ESG considerations into strategic decision-making. ESG Performance should be interpreted not merely as a regulatory or ethical obligation, but as a core strategic determinant of organisational competitiveness and long-term value. The results demonstrate that stronger ESG Performance is associated with enhanced Corporate Value, signalling to executives that advancing ESG standards can generate tangible financial and reputational returns. High-quality ESG practices can elevate market confidence, reduce exposure to external shocks, and attract stable, long-horizon investment, collectively reinforcing organisational value. Thus, management must treat ESG initiatives as integral to corporate strategy rather than peripheral or symbolic additions. Embedding ESG objectives within strategic planning ensures that sustainability is recognised as a pathway for value creation rather than a compliance exercise.

The mediating roles of Investment Efficiency and Risk Management Efficiency further clarify the mechanisms through which ESG Performance contributes to Corporate Value. Firms that incorporate ESG principles tend to allocate capital more judiciously, invest with longer-term objectives, and achieve superior operational discipline. This orientation allows decision-makers to prioritise investments that support enduring

growth and mitigate the risks associated with short-termism. Therefore, managers should systematically integrate ESG evaluation into investment selection criteria, as doing so enhances the strategic quality of capital allocation and contributes to sustained performance. Similarly, incorporating ESG factors into risk management frameworks strengthens organisational capacity to anticipate, assess, and respond to emerging environmental, regulatory, and social risks. Such firms are better positioned to avoid reputational crises, regulatory sanctions, and operational disruptions, thereby safeguarding long-term value.

The moderating role of ESG Maturity highlights the importance of organisational capability and depth of integration. The results show that the impact of ESG Performance on investment and corporate value is more pronounced in firms where ESG practices are deeply embedded in governance structures, workplace culture, and operational routines. This suggests that merely adopting ESG policies is insufficient; continuous refinement and strategic alignment are essential to fully realise the benefits. Senior leaders should therefore prioritise the institutionalisation of ESG frameworks, ensuring that sustainability principles guide routine decision-making rather than existing as isolated initiatives. Over time, greater ESG maturity enhances the organisation's ability to convert sustainability commitments into competitive differentiation and financial advantage.

The findings also extend theoretical understanding within corporate finance and sustainability scholarship. The results reinforce Stakeholder Theory (Freeman, 1984), which argues that firms that create value for multiple stakeholder groups are more likely to achieve lasting success. The evidence demonstrates that ESG practices support value creation by improving investment effectiveness and strengthening risk control. Thus, ESG is not a trade-off against profitability; instead, it is a driver of sustainable wealth creation. Furthermore, the Resource-Based View Barney (1991) is strengthened by showing that advanced ESG capability functions as a valuable, rare, and difficult-to-imitate organisational resource. Firms with sophisticated ESG integration are endowed with strategic advantages in market legitimacy, operational resilience, and stakeholder trust. As external actors—investors, regulators, and consumers—place increasing emphasis on sustainability, ESG maturity becomes a differentiating capability that can produce durable competitive advantage.

## LIMITATIONS AND FUTURE DIRECTIONS

This research provides useful insights into how ESG performance, investment efficiency, risk management efficiency, and corporate value are interlinked; however, several limitations must be acknowledged and addressed in future work. The analysis was based on cross-sectional data, which restricts the ability to draw causal conclusions. While the findings illustrate that stronger ESG performance is associated with increased

corporate value through various mediating channels, such a research design does not confirm that ESG activities directly cause value enhancement. To overcome this limitation, future studies should adopt longitudinal designs that track firms over time, enabling a clearer assessment of directionality and causal influence between ESG policies and long-term value outcomes.

Another limitation concerns the research context, which focused exclusively on publicly listed firms in China. Given the distinct regulatory frameworks, cultural expectations, and economic structures in China, the findings may not transfer consistently to other regions. Firms operating in environments where ESG standards are either more deeply institutionalised or considerably less prioritised may experience different dynamics between ESG initiatives and corporate outcomes. Future scholarship should therefore extend the analysis to multiple national and sectoral settings, including both advanced and emerging economies, to determine the extent to which the observed relationships hold across varied institutional landscapes. Likewise, sector-specific investigations could clarify whether industries facing acute environmental or social pressures experience stronger or weaker ESG–value linkages. A further limitation arises from the potential influence of other unobserved organisational or market characteristics. Although this study examined investment efficiency, risk management efficiency, and ESG maturity, factors such as leadership quality, organisational culture, stakeholder engagement, social legitimacy, and market volatility may also shape how ESG efforts translate into corporate value. Future research could incorporate these additional mediating and moderating variables to deepen understanding of the mechanisms through which ESG activities influence firm outcomes. Examining stakeholder groups directly—such as employees, consumers, or community actors—could also reveal how perceptions and responses to ESG initiatives contribute to value creation. Such extensions would offer a more comprehensive explanation of how sustainability practices operate within the broader corporate and societal environment.

## CONCLUSION

This study clarifies the interconnected dynamics among corporate value, ESG maturity, investment efficiency, risk management efficiency, and ESG performance. The findings confirm that ESG performance exerts a direct and positive influence on corporate value, aligning with contemporary evidence that responsible governance and sustainability-driven practices enhance market valuation and strengthen stakeholder and investor confidence. As firms increasingly shift towards long-term sustainability objectives, the contribution of ESG performance to organisational value creation has gained pronounced strategic importance. The results highlight the central role of investment efficiency and risk management efficiency in shaping the relationship between ESG performance and corporate value. Firms that effectively embed ESG principles into their management systems tend to allocate resources more judiciously and mitigate

operational and strategic risks more effectively, which subsequently reinforces financial outcomes and enhances organisational value. Mediation tests, particularly the serial mediation pathway, illustrate how ESG performance strengthens value creation when improved risk control enables sounder investment decisions. This emphasises that a coherent and well-structured ESG integration approach can amplify the value impact of sustainability efforts. The analysis further establishes that ESG maturity moderates the relationships between ESG performance, investment efficiency, and corporate value. Firms with a more advanced ESG maturity level demonstrate a greater ability to convert sustainability initiatives into measurable financial advantages. This moderating effect underscores that the depth, consistency, and strategic embedding of ESG practices within the organisation determine how effectively investment efficiency and corporate value can be enhanced. Thus, developing a sophisticated and institutionally rooted ESG framework is essential for maximising the long-term benefits of sustainability initiatives. Overall, the study reinforces the strategic importance of ESG considerations in corporate financial management. It demonstrates that ESG practices are not peripheral ethical commitments but constitute operational competencies that improve investment quality, strengthen risk control, and increase corporate value. The emphasis on ESG maturity highlights that meaningful value enhancement requires continuous refinement, integration, and alignment of ESG policies across all organisational functions.

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