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# Does Ownership Structure Influence the Financial Performance of Chinese Listed Companies? An Analysis of ESG Practices and Accounting-Based Outcomes

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**Abstract:** This study explores the following two aspects: (i) the impact of Environmental, Social, and Governance (ESG) scores and corporate ownership characteristics on the performance of Chinese listed companies, and (ii) whether different ownership characteristics (state-owned, private, foreign) moderate the relationship between ESG participation and corporate performance. By analyzing a comprehensive sample of 4649 listed companies in China, we provide robust evidence that ESG participation and its three pillars (i.e., Environmental, Social, and Governance) can significantly enhance corporate performance, as measured by the accounting-based proxy return on assets (ROA). Moreover, our research findings reveal an important and novel discovery: in the Chinese market, ownership types have significantly different moderating effects on the relationship between ESG and corporate performance. Specifically, compared to state-owned enterprises and private corporations, foreign ownership exhibits a stronger moderating effect in enhancing the positive impact of ESG on ROA, followed by private corporations, while the moderating effect of state-owned enterprises is the weakest. This result provides new perspectives and empirical support on how ESG and ownership structure jointly affect corporate performance, offering references for future related research and policy formulation.

**Keywords:** ESG; firm performance; firm ownership



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## 1. Introduction

The interplay between human societies and the natural environment has been a critical subject of philosophical and social scientific research analysis. The emphasis on a symbiotic relationship between humanity and nature is a hallmark of Chinese traditional culture, which is reflected in several philosophical doctrines. Notably, the Daoist precept of aligning with nature (“Dao follows nature”), the Confucian “Doctrine of the Mean”, and the notion of “unity between heaven and humans” collectively underscore the importance of adhering to natural laws and striving for a harmonious balance between human endeavors and the ecological milieu (Zou, 2013; Tong et al., 2021). In the contemporary era, characterized by the phenomena of globalization and modernization, the concepts of corporate social responsibility (CSR) and the Environmental, Social, and Governance (ESG) framework have emerged as modern conduits for integrating sustainable practices within business operations. These concepts draw upon the essence of traditional cultural wisdom while

incorporating a global perspective. Specifically, the ESG framework, which is segmented into three core dimensions, Environmental (E), Social (S), and Governance (G), has been increasingly acknowledged as a crucial factor in the strategic planning and decision-making processes of corporations (H. Li et al., 2023).

Despite increasing challenges to global sustainable development, the significance of ESG practices is becoming increasingly prominent. The United Nations Environment Programme (UNEP) highlighted in the “2023 Global Sustainable Development Report” that although ESG practices are widely acknowledged, their practical implementation exhibits considerable variation across different nations and regions. This discrepancy is particularly evident in data transparency, stakeholder engagement, and policy support (United Nations, 2023). China, as a critical component of the global supply chain, has made significant strides in enhancing sustainable development through initiatives like green finance policies and commitments to achieving carbon neutrality. Nonetheless, a noticeable diversity exists in the motivations, approaches, and outcomes of ESG practices within the country. This divergence is largely a result of distinctive cultural influences, ownership structures, and incentive mechanisms. The observed heterogeneity in the adoption and effectiveness of ESG practices highlights the global challenges in achieving uniformity in sustainable development efforts. In recent years, the focus of the global academic community on Environmental, Social, and Governance (ESG) practices has significantly accelerated the development of research in this field. This burgeoning body of literature primarily addresses three core themes: firstly, the association between ESG factors and corporate financial performance; secondly, the effects of ESG practices on particular corporate behaviors; and thirdly, the interplay between ESG considerations and green financial instruments (Raja Ahmad et al., 2023; Branco, 2024; Yoo et al., 2021).

## 2. Research Background

Although the rapid advancement of China’s economy provides a rich repository of cases and data for ESG research, the existing body of literature tends to emphasize the direct impact of ESG practices on corporate profitability (Jin & Lei, 2023; Wu et al., 2022; Yu & Xiao, 2022; Duan et al., 2023). This focus has inadvertently led to a paucity of research on the moderating influence of institutional factors, such as cultural context and ownership structures, on the efficacy and implementation of ESG practices. This gap highlights a critical area for future inquiry, suggesting a need for a more nuanced exploration of how these institutional variables shape the outcomes of ESG initiatives. This study incorporates Legitimacy Theory as a conceptual framework to scan the diversity observed in Chinese enterprises’ Environmental, Social, and Governance (ESG) practices and their influence on financial performance. Legitimacy Theory asserts that firms attain legitimacy by aligning with the societal, legal, and ethical norms prevalent in their environment, which, in turn, secures societal endorsement and access to vital resources (Suchman, 1995). In the context of China, the ESG endeavors of state-owned enterprises typically exhibit a strong correlation with governmental policies and societal duties. In contrast, private and foreign-owned firms often pursue ESG initiatives to improve their market reputation and enhance their financial capabilities (Shin et al., 2023). This theoretical model is instrumental in clarifying the variation in ESG practices among Chinese corporations and their impact on the financial performance of these entities.

Furthermore, the cultural context significantly influences the perceived legitimacy of Environmental, Social, and Governance (ESG) investments and their economic outcomes. Drawing upon Hofstede’s cultural dimensions theory, it is evident that cultural traits, such as the dichotomy between collectivism versus individualism and long-term versus short-term orientation, markedly affect stakeholders’ perceptions of ESG initiatives. In societies

characterized by collectivism and high-power distance, ESG endeavors undertaken by state-owned enterprises are often interpreted as fulfilling societal commitments, with less emphasis on financial rewards. Conversely, in cultures that are more individualistic and exhibit low power distance, the competitive benefits derived from ESG activities by private and foreign ownership companies are deemed more substantial (Shin et al., 2023). In light of these observations, this research undertakes a detailed exploration of the influence of ESG practices on corporate performance, considering cultural and institutional dimensions. This endeavor aims to bridge the gap in scholarly work regarding the Chinese context, offering theoretical insights to inform policy decisions and corporate strategies.

The main contributions of this study are as follows: First, this study provides practical guidance for policymakers and business managers, clarifying how to maximize corporate financial performance and social returns through ESG investments under different institutional and market conditions. Secondly, this paper integrates legitimacy theory with an analysis of cultural institutional factors to explore the moderating effects of ownership structure and cultural background on the relationship between ESG practices and financial performance, filling the research gap in the Chinese context. Finally, the research results not only provide new evidence for the theoretical study of ESG practices but also offer contextualized policy and practical recommendations for China's role in achieving global sustainable development goals.

### 3. Literature Review

#### 3.1. ESG and Corporation Financial Performance

Recent studies have significantly advanced our understanding of how Environmental, Social, and Governance (ESG) factors influence corporate performance (e.g., De Lucia et al., 2020; Velte, 2017; Pulino et al., 2022; Alareeni & Hamdan, 2020; Ademi & Klungseth, 2022; Sciarelli et al., 2019; L&iet al., 2022). Amidst a global push for sustainable development, corporations are increasingly prioritizing ESG practices. Evidence suggests these practices not only bolster a company's social responsibility image but also contribute to financial performance and long-term value growth. While concerns about potential negative impacts and complex relationships exist, the prevailing trend in research supports a positive influence of ESG on corporate performance/the overarching trend in research points to a positive relationship between ESG and corporate performance.

This relationship is especially strong within the stakeholder theory framework, highlighting the importance of ESG factors in enhancing corporate success. Research grounded in stakeholder theory has consistently shown that investments in Environmental, Social, and Governance (ESG) dimensions positively impact financial performance and market value. According to this theory, companies should balance maximizing shareholder interests with addressing the needs of other stakeholders, including employees, customers, suppliers, and the community. This balanced approach promotes stable external relationships, lowers operational risks, and enhances brand value. For example, De Lucia et al. (2020) found that strong ESG practices significantly boost a company's Return on Assets (ROA) and Return on Equity (ROE) in the European market, attributing this to factors such as environmental innovation and improved employee productivity. Similarly, Velte (2017) observed that companies with higher ESG scores outperform their peers in the German market financially. Pulino et al. (2022) also confirmed that in the Italian market, transparent ESG information disclosure enhances consumer trust and contributes to revenue growth.

The impact of Environmental, Social, and Governance (ESG) practices on corporate performance is significantly pronounced in developed economies, where companies, particularly in Europe and North America, invest more in environmental innovation and social responsibility. These investments are strategic, helping to reduce long-term energy costs

and enhancing brand image, which in turn attracts more favor from the capital market. For example, research focused on the U.S. market has demonstrated that strong ESG practices improve a company's long-term competitiveness, draw in more investors, and significantly boost its market valuation (Eccles et al., 2014; Khan et al., 2016). Moreover, in terms of ESG, North American companies have enhanced investor confidence by improving transparency and accountability, thereby also improving operational efficiency. In contrast, the implementation of ESG practices in emerging economies encounters more significant challenges, yet its positive impacts are equally noteworthy. For instance, in China, companies tend to perform better in the environmental dimension than in social or governance dimensions. This trend is largely driven by mandatory policy requirements and public environmental concerns (Yu & Xiao, 2022). Additionally, companies in the economically advanced eastern regions of China are more adept at converting ESG practices into market value, particularly through technological innovation and optimizing resource efficiency (Jin & Lei, 2023). Similar findings have been reported in other emerging markets like Brazil and India. In Brazil, for example, companies that fulfill their social responsibility and environmental commitments not only enhance their competitiveness but also gain consumer trust, leading to improved financial performance (Ribeiro, 2012).

However, studies exist that critique the adoption of ESG practices from the perspective of Shareholder Theory (Jensen & Meckling, 1976; Achim & Borlea, 2014; Ruan & Liu, 2021). According to Shareholder Theory, the primary objective of a company is to maximize shareholder value, and diverting resources from this goal could potentially weaken the firm's short-term financial outcomes (Jensen & Meckling, 1976). Some researchers argue that ESG initiatives, particularly those involving costly environmental technologies and social responsibility projects, may place additional strain on corporate resources, leading to cash flow constraints and, consequently, detriment to shareholder interests. For instance, Achim and Borlea (2014) observed that in resource-intensive industries, corporate investments in ESG could detract from funds dedicated to core business activities, resulting in reduced profitability. Furthermore, in emerging markets, the challenge of insufficient or skewed information disclosure could aggravate this situation. Ruan and Liu (2021) found that disclosures of ESG practices by Chinese firms tend to "report good news but not bad news". This asymmetry in information can erode investor confidence in these companies, negatively impacting their market performance.

On the other hand, the investigation into the nonlinear dynamics between ESG and corporate performance adds layers to its complexity. Some researchers propose that investments in environmental initiatives by a company might demonstrate a U-shaped relationship, where initial expenditures lead to a downturn in financial performance. However, as ESG practices evolve and mature, their positive influence on corporate performance starts to materialize. Pu (2022) highlighted in his study on Chinese firms that overinvestment in ESG could trigger an inverted U-shaped curve due to diminishing marginal returns, a trend particularly noticeable in governance improvements. This nonlinear relationship suggests that companies should tailor their ESG investment strategies, taking into account industry-specific characteristics and the broader economic environment to circumvent performance setbacks caused by the overallocation of resources.

Although the existing literature reveals various impacts of ESG on corporate performance, much of the focus has been on developed economies or isolated ESG dimensions, leaving a gap in understanding the nuanced effects of different ESG dimensions in varied economic settings. To bridge this research gap, our study performs a comprehensive analysis of the latest ESG scoring data from Chinese listed companies. We discovered that the environmental (E) and social (S) dimensions significantly enhance corporate performance, whereas the governance (G) dimension's impact appears to be negligible. This

result indicates that the contributions of different ESG dimensions to driving corporate performance are not balanced. Practices in the environmental and social dimensions may be key drivers for companies to create value, while the effects of the governance dimension rely more on long-term accumulation and indirect impacts. These findings further enrich the existing literature and provide valuable guidance for Chinese companies aiming to refine their ESG strategies.

### 3.2. Ownership, ESG and Firm Performance

In existing research, there has been some preliminary exploration of the relationship between corporate ownership structure, ESG practices, and corporate performance (e.g., [Krambia-Kapardis et al., 2023](#); [Deng & Cheng, 2019](#); [Yuan et al., 2024](#); [T. Zhang et al., 2022](#); [Le et al., 2023](#); [Costa & Opare, 2024](#); [T. Li et al., 2021](#)). This body of work seeks to understand how different types of ownership influence the adoption and outcomes of ESG practices within companies. The effectiveness and impact of ESG initiatives are heavily influenced by how well these practices are integrated with the strategic objectives and operational realities of enterprises, which in turn are shaped by their ownership structures. Existing research reveals that the nature of these relationships is significantly shaped by the type of ownership, whether it be state-owned, private, or foreign-owned, each bringing unique characteristics to the fore.

State-owned enterprises (SOEs), in particular, present a unique case for study due to the dual pressures of fulfilling governmental policy objectives and achieving competitive market performance. Research has highlighted that SOEs often engage in ESG practices with a strong emphasis on green technology innovation, influenced significantly by policy directives. For example, [Deng and Cheng \(2019\)](#) found that SOEs were able to improve their ESG scores through policy-supported green technology innovations. However, these innovations tended to focus more on quality improvements rather than expansion in quantity, suggesting that such activities are driven more by policy compliance than by market demand. This policy-driven approach to innovation in SOEs is further analyzed by [Yuan et al. \(2024\)](#), who observed that while the policy orientation of SOEs can enhance R&D efficiency, its marginal contribution to financial performance is limited. This finding indicates that SOEs may prioritize aligning with policy requirements over pursuing direct market returns when it comes to allocating resources and setting strategic objectives. [T. Zhang et al. \(2022\)](#) and [Le et al. \(2023\)](#) contribute to this discussion by underscoring the significant influence of policy factors on the motivations and performance outcomes of ESG practices within SOEs. Their work suggests that while policy support can facilitate certain ESG actions and improvements, the overall impact on financial performance and market competitiveness may not be as pronounced. This is likely due to the inherent tension between fulfilling policy mandates and responding to market demands.

The relationship between state-owned enterprises (SOEs) and their financing advantages in emerging economies, particularly in China, offers a nuanced perspective on how ownership structure influences corporate access to resources and the ability to pursue long-term objectives, including those related to Environmental, Social, and Governance (ESG) practices. SOEs often benefit from closer ties with the government and state-owned banks, which facilitates easier access to loans and higher credit limits ([T. Zhang et al., 2022](#)). This connection is particularly pronounced in China, where a significant portion of corporate financing is provided by state-owned banks to SOEs, effectively reducing their financing costs and enhancing their resource availability. This financing advantage is crucial for SOEs as it supports their capacity to undertake long-term investments, such as those aimed at environmental protection and social responsibility projects ([Le et al., 2023](#)). The preferential treatment in financing for SOEs is often backed by explicit or im-



PLICIT government guarantees, which reduces the perceived risk for banks when extending credit. This dynamic not only bolsters the financial position of SOEs but also aligns with the government's broader policy objectives by enabling these enterprises to lead in areas of strategic national importance, including sustainability and social welfare initiatives. However, the literature also points out that the financing advantages enjoyed by SOEs come with certain drawbacks. The complex loan approval process and the lower market flexibility associated with government-backed financing can impede the performance of SOEs in a competitive market environment (X. Zhang et al., 2022). These constraints may affect the efficiency and innovation capabilities of SOEs, as the reliance on state-supported financing might not incentivize the same level of market responsiveness and agility that private corporations develop in the face of competitive pressures.

In contrast, the Environmental, Social, and Governance (ESG) practices of private and foreign-funded enterprises are more driven by market forces (McGuinness et al., 2017; Deng & Cheng, 2019; N. Liu et al., 2014; Bilyay-Erdogan & Öztürkcal, 2023). Private corporations often view ESG as a crucial tool for enhancing corporate competitiveness and attracting investment, leveraging environmental responsibility projects and transparent information disclosure to improve brand reputation and market appeal (McGuinness et al., 2017). These enterprises exhibit notable performance in environmental and social aspects, with their ESG efforts primarily motivated by addressing investor and consumer demands (Deng & Cheng, 2019). For foreign-funded enterprises, adherence to ESG practices is strongly influenced by international governance standards. These enterprises, driven by foreign investors' emphasis on corporate governance transparency, aim to reduce information asymmetry and agency conflicts by adhering to high ESG standards, ultimately enhancing corporate performance (N. Liu et al., 2014). Studies indicate that the ESG initiatives of foreign-invested firms significantly boost their financial returns and market performance. This is especially true in terms of transparency and long-term environmental planning, areas where foreign-invested enterprises tend to outperform (Bilyay-Erdogan & Öztürkcal, 2023). This suggests that high-quality ESG practices can serve as a key differentiator in the global market, attracting investment and supporting sustainable growth.

### 3.3. China Market Studies

In recent years, research on Environmental, Social, and Governance (ESG) investments in the Chinese market environment has been continuously emerging. These studies focus on the returns of ESG investments, their impact on corporate performance and financing activities, and public perception towards ESG. The existing literature can be broadly categorized into the following types: exploring the financial returns of ESG investments, the impact of ESG performance on corporate financing, the role of public perception in the development of ESG, and identifying future research directions.

Studies like Chen et al. (2023) and X. Zhang et al. (2022) have empirically examined the profitability of ESG investments, finding that stocks with high ESG scores generally outperform those with lower scores, suggesting a premium tied to high ESG ratings that cannot be fully explained by traditional pricing factors. This phenomenon points to an under-reaction by investors to ESG information. Furthermore, the relationship between ESG scores and excess returns appears to be nonlinear, with governance and social factors impacting returns in opposite directions, and environmental factors showing a more complex influence. Shi et al. (2024) highlight that investor preference plays a crucial role in ESG investment returns, with preferences above a certain threshold significantly increasing the cost of ESG investments, particularly in small-cap stock portfolios. Additionally, Cheng et al. (2023) and M. Liu et al. (2023a) note that ESG disclosure enhances company value, especially post-COVID-19, and ESG investments contribute to financial market

stability by reducing systemic risk and market volatility. These findings collectively suggest that ESG investments offer potential for excess returns in the Chinese market, influenced by a complex interplay of investor preferences and market dynamics.

The impact of Environmental, Social, and Governance (ESG) performance on corporate financing activities in China has garnered attention, particularly in terms of how it influences financing constraints and methods. [Guo et al. \(2024\)](#) conducted a study revealing that companies with strong ESG performance face significantly fewer financing constraints. This trend became more pronounced after the Chinese government's intensified focus on environmental governance in 2016. The study found that non-state-owned enterprises, in particular, benefit from improved ESG performance, as it facilitates their ability to raise funds through both equity and debt issuance. High-polluting companies are shown to benefit from both forms of financing, while low-polluting companies tend to secure funding mainly through equity issuance.

Furthermore, public perception and attitudes towards ESG are critical in its development within China. A study by [M. Liu et al. \(2023a\)](#) analyzed social media data from Sina Weibo to understand the Chinese public's views on ESG, identifying significant regional and industry differences in discussions related to ESG. The main topics of public discourse included ESG investment, information disclosure, ratings, and their concepts and practices. Despite a gradual increase in the volume of ESG discussions on social media, public attention towards ESG has not seen a substantial rise, possibly due to issues like "greenwashing", a lack of ESG knowledge, inconsistent rating standards, and a lack of transparency in rating methods. These findings underscore the importance of public perception in the advancement of ESG and suggest that understanding and addressing public concerns and knowledge gaps are crucial for the effective promotion of ESG policies.

The exploration of Environmental, Social, and Governance (ESG) practices within the Chinese market has unveiled unique characteristics and suggested future research paths. [Shen et al. \(2023\)](#) performed a systematic review, revealing that ESG practices in China are predominantly shaped by top-down, policy-driven approaches. Unlike the global context where ESG themes are broadly similar, the unique institutional and cultural backdrop of China shapes its ESG practices, with a notable focus on quantitative methodologies in research. This insight opens up new directions for future studies, such as investigating the influence of traditional Chinese ethics and the modernization process on ESG practices, understanding the role of internationalization, and developing further China-specific ESG standards. These areas are important for comprehending ESG's performance and integration within China's distinct context.

Overall, the existing literature on ESG investments in China covers various aspects, including financial returns, impact on corporate financing, public perception, and the influence of China's specific factors on ESG practices. Research generally indicates that ESG investments can lead to excess returns under certain conditions, but these outcomes are influenced by a complex interplay of factors like investor preferences, the market environment, and industry characteristics. On the financing front, companies with strong ESG performance experience eased financing constraints, benefiting from both policy support and heightened environmental consciousness. This advantage is particularly marked for non-state-owned enterprises, which see improved access to financing after enhancing their ESG performance. Public perception and attitudes towards ESG are identified as critical factors in its broader adoption and development. This suggests a need for policymakers and businesses to engage more deeply with public needs and expectations to promote ESG effectively.

Moreover, the distinct institutional and cultural landscape of China plays a crucial role in shaping ESG (Environmental, Social, and Governance) practices. This underscores the necessity of customizing ESG strategies to align with China's unique context. Currently, the adoption of ESG practices in China is largely voluntary. However, it is progressively influenced by evolving regulatory mandates and the country's ambitions to achieve carbon neutrality (Shen et al., 2023; M. Liu et al., 2023b). This dynamic environment highlights the importance of developing ESG strategies that are not only effective but also adaptable to China's specific conditions and objectives.

## 4. Theoretical Background and Hypothesis Development

### 4.1. Theoretical Framework

The study of ESG (Environmental, Social, and Governance) practices and their impact on corporate performance requires the integration of various classical theories for interpretation, including the shareholder theory (Friedman, 1970), stakeholder theory (Freeman, 1984), agency theory (Jensen & Meckling, 1976), stakeholder-agency theory (Hill & Jones, 1992), and legitimacy theory (Suchman, 1995). These theories reveal the driving forces and operational mechanisms of ESG practices from different perspectives, providing theoretical support for this study.

The shareholder theory emphasizes that the core objective of a company is to create economic value for its shareholders (Friedman, 1970). This theory advocates that the allocation of corporate resources should prioritize the maximization of shareholder wealth. In contrast, stakeholder theory (Freeman, 1984) posits that a company's responsibilities should extend beyond shareholder interests to encompass broad obligations to employees, customers, communities, and other stakeholders. This theory posits that Environmental, Social, and Governance practices can create value by balancing the needs of multiple stakeholders. For example, environmental investments help reduce ecological risks and increase community trust, while social investments can improve corporate reputation, and optimized governance can enhance decision-making transparency and efficiency (Parmar et al., 2010). This theory is particularly suitable for explaining the value gains of ESG practices within a multi-stakeholder framework.

Agency theory, as proposed by Jensen and Meckling (1976), emphasizes the potential conflicts of interest that may arise between shareholders (principals) and managers (agents). ESG practices, within this framework, are viewed as tools to align the interests of both parties by reducing agency costs. For example, robust governance mechanisms can decrease the likelihood of managerial opportunism, safeguarding shareholders' investments. Additionally, a firm's commitment to ESG principles can signal to the market its dedication to long-term value creation, thereby attracting like-minded investors and potentially enhancing the company's market value. Expanding on these ideas, stakeholder-agency theory, introduced by Hill and Jones (1992), acknowledges that managers serve as agents not only for shareholders but for all stakeholders. This broader perspective suggests that ESG initiatives are crucial in reconciling the conflicting interests of diverse stakeholder groups. By fostering corporate accountability and ethical conduct, ESG practices can reduce friction among stakeholders, leading to a more harmonious and stable operating environment. This stability, in turn, supports better corporate performance by facilitating smoother operations and enhancing the firm's reputation.

Legitimacy theory, as discussed by Suchman (1995), offers a wider societal lens through which to view ESG practices. According to this theory, companies gain and maintain legitimacy by adhering to prevailing legal, cultural, and ethical norms, facilitating access to resources, and mitigating regulatory risks. ESG initiatives play a key role in this process, demonstrating a firm's commitment to environmental stewardship, social responsibility,



and transparent governance. By meeting or exceeding societal standards in these areas, companies can secure the goodwill of the community, regulators, and investors, which is essential for long-term success and sustainability. Specifically, in China, state-owned enterprises predominantly seek to augment policy legitimacy through alignment with governmental directives, such as pursuing carbon neutrality objectives. Conversely, private and foreign enterprises are more inclined to focus on strengthening market legitimacy and brand reputation through environmental protection and community engagement.

This study, by integrating the aforementioned theoretical framework, explores the mechanism of ESG investment's impact on corporate financial performance in the Chinese market and analyzes the moderating effects of ownership features and cultural factors in this process.

#### *4.2. The Impact of ESG Practices Across Different Ownership Types*

The impact of ownership structure on corporate performance unfolds through various pathways, including resource allocation, governance efficiency, and market pressure. This differential impact significantly influences financial performance and innovation outcomes among state-owned enterprises (SOEs), private companies, and foreign-funded enterprises. Each ownership type navigates the business environment in distinct ways, leveraging its unique strengths and facing specific challenges.

SOEs often benefit from policy support, which grants them a higher degree of stability and resource advantages. However, their financial performance is less driven by market competitiveness and more reliant on the resources and support they receive from the government. [Yang et al. \(2024\)](#) note that while the fair competition review system has improved the innovation efficiency of SOEs, the improvements are more qualitative than quantitative. The quality of research and development in SOEs has seen enhancement, yet this does not necessarily translate into a significant increase in innovation output or market performance. This suggests that while policy interventions can foster a conducive environment for innovation within SOEs, translating these innovations into marketable products or services remains challenging.

By comparison, private enterprises exhibit greater flexibility and proactivity in innovation and market response. The agility of private enterprises allows them to adapt more quickly to market changes and consumer demands, driving their innovation efforts. [Yuan et al. \(2024\)](#) highlight that private enterprises excel in the quantity of green technology innovations compared to SOEs. The market-driven approach enables private enterprises to align their ESG efforts more closely with business objectives and stakeholder expectations, potentially leading to more direct impacts on financial performance and market positioning. This suggests a higher level of responsiveness and commitment to sustainable practices within the private sector, likely driven by the need to differentiate in the market and respond to increasing consumer demands for environmentally friendly products and services.

Foreign-funded enterprises, meanwhile, leverage governance optimization and enhanced capital efficiency to improve their financial returns and market performance. These enterprises' governance structures are often influenced by international standards, which can lead to more efficient decision-making processes and better alignment with global market expectations. [N. Liu et al. \(2014\)](#) emphasize that these enterprises benefit significantly from optimizing their governance structures, which not only improves financial performance but also positions them favorably in competitive markets. The global perspective and standards these enterprises adopt contribute to a more pronounced positive relationship between ESG practices and corporate outcomes, demonstrating the value of integrating ESG considerations into core business strategies.

Environmental, Social, and Governance (ESG) practices serve as a crucial link between ownership structure and corporate performance, demonstrating varied impacts across different types of ownership. In private and foreign ownership enterprises, ESG initiatives have been shown to considerably boost financial performance and enhance market competitiveness. This positive impact is attributed to the increased transparency and strengthened corporate social responsibility that these practices promote, aligning with broader global trends towards sustainability and ethical business operations (McGuinness et al., 2017; Bilyay-Erdogan & Öztürkkal, 2023). Conversely, in state-owned enterprises (SOEs), ESG practices are often tailored more towards fulfilling policy objectives rather than directly boosting financial performance. The emphasis on policy alignment may limit the immediate financial impact of ESG initiatives within SOEs, suggesting a different set of priorities and outcomes compared to their private and foreign counterparts (Deng & Cheng, 2019; Yang et al., 2024). Interestingly, state-owned capital plays a constructive role in advancing ESG practices within privately held enterprises through mechanisms like shareholding and governance participation. This suggests that state-owned capital can be a catalyst for promoting sustainable and responsible business practices across different ownership structures, achieving both governance improvements and policy objectives (T. Zhang et al., 2022). Ownership structure also moderates the relationship between ESG practices and corporate performance. The high levels of governance transparency and adherence to strict ESG standards typically seen in foreign-owned enterprises amplify the positive effects of ESG on corporate performance. This illustrates the value of strong governance and ESG commitment in enhancing corporate outcomes in the international business environment (Le et al., 2023; Bilyay-Erdogan & Öztürkkal, 2023). On the other hand, the resource dependency and policy-driven nature of SOEs may dilute the impact of ESG on performance, highlighting the complex interplay between ownership, governance, and sustainability practices. The exploration of how ownership structures moderate the relationship between ESG performance and corporate performance, particularly in emerging economies, addresses a critical gap in existing research. This study aims to provide a detailed analysis that bridges the divide between policy objectives and market demands, particularly for Chinese enterprises, while also offering empirical insights for policymakers on optimizing ownership structures to bolster ESG practices.

#### 4.3. Hypothesis Development

Given the increasing importance of Environmental, Social, and Governance (ESG) practices in the global business landscape and their potential impact on corporate performance, focusing on publicly listed companies in the Chinese market offers a unique opportunity to understand these dynamics within a specific institutional and cultural context. This study explores the relationship between ESG scores and corporate financial performance among these companies, considering how different ownership characteristics might moderate this relationship. The following hypotheses and derivations are proposed to guide this exploration:

**H1.** *The relationship between ESG scores and corporate performance.*

The three core dimensions of Environmental, Social, and Governance (ESG) indeed offer a comprehensive framework for assessing a company's commitment to sustainable practices and ethical operations. These dimensions can positively impact corporate performance by enhancing operational efficiency, strengthening risk management, and improving stakeholder relationships.

**H1a.** *Companies with higher ESG scores exhibit stronger corporate performance (ROA).*

The cumulative effect of better resource allocation, lower operating costs, and stronger risk resilience is an overall improvement in a company's profitability. High ESG scores can also attract more customers and investors who prioritize sustainability and ethical practices, leading to increased sales and potentially higher share prices. Moreover, companies that are seen as leaders in ESG are often more likely to secure favorable terms from lenders and investors, further enhancing their financial performance. In conclusion, high investment in ESG practices is not merely a compliance or marketing strategy; it is a comprehensive approach that can significantly improve a company's operational efficiency, risk management, and ultimately, its profitability.

**H1b.** *Companies with higher Environmental (E) scores exhibit stronger corporate performance (ROA).*

The environmental dimension mainly includes carbon emission management, energy efficiency, and resource usage optimization. These practices allow businesses to reach more in-demand industries and earn green premiums while also lowering compliance expenses and environmental hazards.

**H1c.** *Companies with higher Social (S) scores exhibit stronger corporate performance (ROA).*

The social dimension emphasizes aspects such as employee welfare, community relations, and the protection of customer rights. Good social practices can attract top talent, enhance customer loyalty, and reduce conflicts with stakeholders, thereby improving operational efficiency and financial performance.

**H1d.** *Companies with higher Governance (G) scores exhibit stronger corporate performance (ROA).*

The governance dimension involves the structure of the board of directors, transparency, and the protection of shareholder rights. A well-structured governance framework can reduce information asymmetry between management and shareholders, lower agency costs, and enhance investor confidence, thereby improving corporate performance.

**H2.** *The moderating effect of ownership characteristics on the relationship between ESG and corporate performance.*

According to legitimacy theory (Suchman, 1995), businesses with diverse ownership structures will have different philosophies and ideals, which will result in different behaviors that have varied effects on corporate performance and ESG. Moreover, the ownership structure is a crucial part of corporate governance, and different ownership features can affect how resources are allocated and corporate strategy decisions are made. They can also have distinct moderating impacts on the relationship between ESG and corporate performance.

**H2a.** *Different ownership characteristics (private, foreign, and state ownership) moderate the relationship between ESG engagement and corporate performance.*

This exploration is grounded in legitimacy theory and national business system theory, suggesting that different types of ownership—private, foreign, and state—may engage with ESG practices in distinct ways due to their varying values, philosophies, and the institutional environments they operate within (Matten & Moon, 2008). The reasons and strategies used by various company ownership types to establish legitimacy through ESG policies may differ. State-owned enterprises (SOEs) may prioritize social and environmental objectives more due to their alignment with government policies and societal expectations.

However, their ESG practices might be part of their inherent operational philosophy rather than a strategic choice to enhance market competitiveness or financial performance. Private corporations, driven by profitability and shareholder value, might adopt ESG practices more strategically to enhance their competitive edge, attract investors, and improve market perception. Their engagement with ESG could be more directly linked to seeking financial returns and operational efficiencies. Foreign-owned companies operating in different institutional environments may adopt ESG practices to align with global standards, manage cross-border reputational risks, and comply with the expectations of international stakeholders. Their approach to ESG might be influenced by a combination of global best practices and local market dynamics.

**H2b.** *The moderating effect of state ownership is relatively weaker.*

Given that SOEs often receive direct support from the government and are inherently expected to fulfill certain social responsibilities, their ESG initiatives might not significantly alter their market legitimacy or financial performance in the same way as they might for private or foreign-owned enterprises. The implication here is that for SOEs, ESG practices may not be as critical a factor in enhancing performance or competitive advantage, as their legitimacy and operational funding are less dependent on market forces and more on policy alignment and government backing.

**H2c.** *The moderating effect of private ownership is stronger than that of state ownership.*

Private companies are primarily focused on maximizing shareholder value and financial performance. ESG practices, in this context, become a strategic tool for differentiation, enhancing corporate reputation, attracting investment, and achieving market recognition. Private companies often have greater autonomy in how they allocate resources. This flexibility allows private enterprises to swiftly allocate resources towards innovative ESG initiatives, making their investments potentially more impactful and aligned with market demands. Unlike state-owned enterprises that may receive government support, the survival and growth of private corporations depend heavily on their legitimacy in the eyes of market stakeholders, including consumers, investors, and partners. Effective ESG practices are crucial in building and maintaining this legitimacy, potentially translating into direct financial benefits. As such, the moderating effect of private enterprises on the relationship between ESG practices and corporate performance may be stronger than that of state-owned enterprises.

**H2d.** *The moderating effect of foreign ownership is stronger than that of private ownership.*

Foreign-owned enterprises often operate under the scrutiny of international stakeholders, compelling them to adhere to high ESG standards. This global perspective not only ensures compliance across jurisdictions but also positions these enterprises as leaders in sustainability, enhancing their global market legitimacy. By navigating diverse cultural and regulatory environments, foreign-owned enterprises can harness their ESG practices to meet a wide array of stakeholder expectations, thus gaining a competitive edge in multiple markets. The global nature of their operations necessitates higher levels of transparency and accountability in their ESG efforts. This openness fosters trust among a broader stakeholder base, potentially translating ESG initiatives into stronger financial returns effectively.

Therefore, foreign-funded companies might exert an even stronger moderating effect on the ESG-corporate performance relationship than private companies.

## 5. Data and Methodology

In this section, we first outline the selection process of our sample data, including the rationale behind choosing China as the focal point of our research. China's status as the world's second-largest economy, its rapid pace of economic growth, and its significant contribution to the global movement towards sustainable development are key factors in this decision. Additionally, the evolving nature of China's ESG (Environmental, Social, and Governance) regulatory framework, which is moving from a voluntary basis towards more mandatory disclosure requirements, presents a compelling backdrop to investigate the effects of ESG practices on corporate performance in emerging markets.

Next, we detail the key variables under consideration and conduct a descriptive statistical analysis to offer a preliminary view of our dataset before formally introducing the study's methodology.

### 5.1. Sample Data

In the initial screening, with a time range from 2018 to 2024, a raw panel dataset from 5181 listed companies was collected from the Wind database. Numerous academic investigations have confirmed the Wind database's authority and dependability (Gazman, 2023; H. Li et al., 2023; Tang et al., 2023). The Wind database covers 29 subjects and subcategories of ESG performance, as well as more than 2000 data points under those subcategories and their subsequent subdivisions. This extensive data collection offers substantial backing for in-depth examinations of the operating patterns of significant Chinese corporations and establishes a strong basis for fundamental data-based assessments of market dynamics. We ranked these companies from high to low based on their total ESG scores. Then, we removed those marked as "Special Treatment" (ST) or "Delisting Warning" (\*ST) to improve the accuracy and reliability of the research results. The observation data of 4649 companies was eventually included after screening.

### 5.2. Variables

This paper employs Return on Assets (ROA) as the dependent variable. Return on Assets (ROA) is a widely recognized indicator that offers insights into how well a company utilizes its assets to generate earnings, making it particularly relevant for assessing the financial health and asset management efficiency of enterprises (Denyatasari et al., 2023). ROA can be calculated as follows:  $ROA = (\text{Net Profit}) / (\text{Total Assets})$ . A greater ROA is typically regarded as an indication of successful asset management, showing that the business is making better use of its resources in its operations. It is also viewed as a favorable indication of the company's financial health.

We also introduced four core independent variables: ESG composite score, environment score, social score, and governance score.

In addition, we introduced three ownership characteristics—foreign ownership, private ownership, and state ownership—as independent and moderating variables to further explore the potential impact of ownership structure on the relationship between ESG scores and corporate performance. Control variables include company size, total asset turnover, net profit growth rate, equity concentration, cash asset total ratio, and current net cash flow. The following Table 1 provides descriptive information on these variables.



**Table 1.** Summary of variables.

Variables	Specific Variables	Description/Formula
Dependent Variables	ROA—Return on Assets	Net Income/Total Assets
Independent Variables	ESG_CS—ESG Combined Score	0–10
	ENV—Environment Score	0–10
	SOC—Social Score	0–10
	GOV—Governance Score	0–10
Moderating variables	Foreign ownership	
	Private ownership	
	State ownership	
Control Variables	Size—Log_TASST	Logarithm of Total Assets
	Total asset turnover—TAT	Net operating income/total average assets
	Net profit growth rate—Growth	Net profit growth/net profit of last year
	Ownership concentration—Top1	The shareholding ratio of the largest shareholder
	Ratio of total cash assets—CA	Current net cash flow /total assets at year-end
	Current net cash flow—CF	Current net cash flow at year-end

### 5.3. Descriptive Statistics

The results of descriptive statistics are shown in Table 2.

**Table 2.** Descriptive statistics.

Variable	N	Mean	St. Dev	Min	Median	Max
ROA	4649	2.584	6.800	−65.00	2.800	85.00
ESG_CS	4649	6.120	0.780	3.500	6.000	9.200
ENV	4649	2.500	2.300	0.000	1.950	10.000
SOC	4649	4.050	1.720	0.000	3.950	10.000
GOV	4649	6.590	0.850	0.100	6.600	9.650
Log_TASST	4649	9.750	0.660	8.000	9.600	13.700
TAT	4649	0.580	0.500	0.000	0.490	12.000
Growth	4649	−50.00	850.00	−36,000.00	2.000	8200.00
Top1	4649	32.50	15.30	0.000	30.00	92.00
CA	4649	0.010	0.095	−0.920	0.003	0.780
CF	4649	$3.800 \times 10^8$	$1.700 \times 10^{10}$	$-2.800 \times 10^{11}$	$1.200 \times 10^7$	$6.900 \times 10^{11}$

The average ROA of 2.584%, while modest, is indicative of positive profitability across the sample. It suggests that, on average, companies can generate earnings from their assets, even though their levels of efficiency vary. The high standard deviation (6.800%) relative to the average ROA underscores a wide disparity in operational efficiency and profitability among the companies. This variability could stem from differences in industry characteristics, company size, management effectiveness, and market conditions. The broad range from −65.00% to 85.00% in ROA values is particularly striking and highlights the extreme diversity in company performance within the sample.

The average ESG composite score is 6.120, with a standard deviation of 0.780, indicating a generally positive engagement with ESG practices among the companies. It suggests that many companies are recognizing the importance of ESG factors and are taking steps to integrate these considerations into their operations. This variability could reflect differences in corporate strategy, industry pressures, or the resources allocated to ESG initiatives. The ESG score range from 3.500 to 9.200 reveals that there is a significant spread in ESG performance, indicating that while some companies are leading the way with strong ESG practices, others lag behind and have considerable room for improvement.

The breakdown of average scores—Environment (2.500), Social (4.050), and Governance (6.590)—suggests that governance is the area where companies perform best. This could be due to stricter regulatory requirements and greater scrutiny around governance practices. The lower scores in the environmental and social dimensions indicate that these areas might be receiving relatively less attention or investment from companies. The smallest standard deviation in governance scores (0.850) further supports the idea that companies are more uniform in their governance practices, possibly due to regulatory constraints. The greater volatility in environmental and social scores points to a more varied approach to these aspects, likely reflecting differing corporate priorities and the challenges of integrating these considerations into business models.

The natural logarithm of total assets (Log\_TASST) has a mean value of 9.750 and a standard deviation of 0.660, indicating that the distribution of enterprise size is relatively concentrated in the presence of significantly larger enterprises within the sample. Other control variables show significant differences in operational efficiency, growth potential, liquidity and financial stability. For example, the average total asset turnover (TAT) is 0.580, while the growth rate (Growth) fluctuates significantly, ranging from  $-36,000\%$  to  $8200\%$ . In addition, most companies maintain a certain level of cash reserves (average CA = 0.010) and positive cash inflows (average CF =  $3.800 \times 10^8$ ), reflecting a certain degree of financial stability among the sample companies.

Furthermore, we investigated the correlation among the variables, and the results are shown in Table 3.

**Table 3.** Pearson correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ROA	1.000										
ESG_CS	0.106 ***	1.000									
ENV	0.100 ***	0.663 ***	1.000								
SOC	0.082 ***	0.849 ***	0.417 ***	1.000							
GOV	0.062 ***	0.547 ***	0.208 ***	0.278 ***	1.000						
Log_TASST	0.100 ***	0.267 ***	0.365 ***	0.161 ***	0.245 ***	1.000					
TAT	0.148 ***	−0.018	0.025 *	−0.046 ***	0.011	0.019	1.000				
Growth	0.205 ***	0.013	−0.004	0.017	0.021	0.028 *	0.030 **	1.000			
Top1	0.202 ***	0.052 ***	0.062 ***	0.023	0.038 **	0.147 ***	0.070 ***	0.049 ***	1.000		
CA	0.158 ***	0.005	0.006	−0.001	0.020	−0.023	0.038 **	0.008	0.024 *	1.000	
CF	0.106 ***	0.019	0.028 *	0.031 **	0.034 **	0.122 ***	−0.019	0.003	0.013	0.046 ***	1.000

Note: \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

According to the correlation matrix analysis, the explanatory variables exhibit significant positive correlations at the 1% significance level. For example, the correlation coefficients between ESG\_CS and ENV, SOC, and GOV are 0.663, 0.849, and 0.547, respectively, indicating a strong interrelationship among the ESG dimensions. Regarding the control variables, Growth demonstrates a positive correlation with ROA, with a coefficient of 0.205, also significant at the 1% level, suggesting that higher profit growth rates are associated with better asset utilization efficiency.

We conducted a multicollinearity test on the independent variables by calculating the average variance inflation factor (VIF), as shown in Table 4. Since the VIF values of all variables are less than 5, there is no multicollinearity among the variables in this study.

**Table 4.** Results of VIF.

Variables	ESG_CS	ENV	SOC	GOV	Log_TASST	TAT	Growth	Top1	CA	CF
VIF	2.77	2.38	2.09	2.89	1.98	1.97	1.89	1.78	1.74	1.83

#### 5.4. Model

To examine whether ESG scores affect firm performance, we use Model 1 presented below. The dependent variable is used at  $t$ , whereas independent and control variables are used at  $t - 1$ , in line with the literature (Aggarwal et al., 2011).

$$\text{Firm Performance}_{i,t} = y_0 + y_1 \text{ESG Score}_{i,t-1} + \sum_1^6 y_2 \text{Controls}_{i,t-1} + n_i + n_t + n_p + v_{it} \quad (1)$$

We use  $\text{ROA}_{it}$  for firm performance and the ESG score  $it-1$  as a proxy for corporate ESG engagement.  $y_0$  is the intercept and  $v_{it}$  is the error term. Subscripts  $i$  and  $t$  refer to company  $i$  and year  $t$ , respectively. In addition to employing the ESG score as our primary independent variable, we also use the individual scores for Environmental, Social, and Governance pillars as our independent variables. We include size, total asset turnover, net profit growth rate, ownership concentration, ratio of total cash assets, and current net cash flow as the control variables in all estimations.

We use Ordinary Least Squares (OLS) for panel data analysis. In the model, we introduce time-fixed effects, industry-fixed effects, and province-fixed effects to control for unobserved heterogeneity. Time-fixed effects are used to capture changes in macroeconomic conditions across different years, controlling for time-related factors (such as economic cycles and policy changes). Industry fixed effects control for specific characteristics within industries that do not change over time, such as technology levels, market structure, and competitive environment. These fixed effects are defined based on the first two digits of the Standard Industry Classification (SIC) codes of the enterprises, used to categorize industries into broader categories (such as manufacturing, and agriculture). Provincial fixed effects are used to control for unobserved region-specific factors, such as regional economic development levels, policy environment, and cultural characteristics, thereby addressing the bias issues caused by the omission of provincial variables.

Moreover, in this study, we employed the Panel-Corrected Standard Errors (PCSE) method, as the assumptions of the traditional fixed effects model often do not hold in practical applications (Petersen, 2009). Specifically, fixed-effect models typically require the error terms to satisfy homoscedasticity and independence. However, in reality, the error terms may not only exhibit heteroscedasticity and time series correlation but may also show cross-sectional dependence due to the interdependence between cross-sectional units. This cross-sectional dependence is particularly significant in financial research; for example, the mutual influence between different companies may be driven by market dynamics or industry correlations.

To ensure the reliability of statistical inference, it is necessary to correct and adjust the standard errors. The main reason we chose the PCSE method over the Feasible Generalized Least Squares (FGLS) is that the number of cross-sectional units (i.e., the number of companies) in this study far exceeds the time dimension (i.e., the number of observation years). According to the research by Beck and Katz (1995), when the number of cross-sectional units significantly exceeds the number of periods, the FGLS method may have estimation bias, while the PCSE method is more robust and applicable in this context. Furthermore,

we cluster the firm dimension in our analysis to effectively control for the potential impact of inter-firm heterogeneity on the results, thereby enhancing the reliability of the estimates.

Thus, to explore how ownership characteristics (private, foreign, and state-owned) affect corporate performance and their moderating role in the relationship between ESG scores and corporate performance, we adopted the model shown below as Model 2.

$$\begin{aligned} \text{Firm Performance}_{i,t} = & y_0 + y_1 \text{ESG Score}_{i,t-1} + y_2 \text{Ownership}_{i,t-1} \\ & + y_3 \text{ESG} * \text{Ownership}_{i,t-1} + \sum_1^6 y_4 \text{Control}_{i,t-1} + n_i + n_t + n_p + v_{it} \end{aligned} \quad (2)$$

## 6. Result

In this section, we focus on analyzing the impact of ESG scores, E scores, S scores, and G scores on ROA, verifying Hypothesis 1 (Hypothesis 1a; Hypothesis 1b; Hypothesis 1c; Hypothesis 1d) by examining the coefficients and their significance. At the same time, we explore the moderating effect of corporate ownership, using three different types of ownership as moderating variables to analyze their moderating effects and significance on the relationship between ESG scores and ROA, thereby verifying Hypothesis 2 (Hypothesis 2a; Hypothesis 2b; Hypothesis 2c; Hypothesis 2d). Furthermore, we further refined our study on the moderating effects of different ownership types on the relationship between the individual E, S, and G dimension scores and ROA.

### 6.1. The Relationship Between ESG Engagement, Ownership Characteristics, and Corporate Performance (ROA)

#### 6.1.1. The Testing Results on Hypothesis 1 (1a, 1b, 1c, 1d)

First, we tested Hypotheses 1a, 1b, 1c, and 1d by examining whether and how corporate performance (ROA) is impacted by ESG scores, E scores, S scores, and G scores.

We expected that, under the null hypothesis, a larger ROA would result from higher ESG, S, E, and G scores. We found that the G score has no significant effect on ROA (Model 4), whereas the total ESG score, E score, and S score have a substantial positive impact on ROA (Models 1–3), as shown in Table 5. In particular, the results' improvement in ESG has a big influence on the rise in ROA. Based on the findings, ROA will rise by 48% for every standard deviation (0.78) increase in the ESG score ( $0.78 \times 0.6069$ ). Therefore, based on the empirical results, we have validated the correctness of Hypotheses 1a, 1b, and 1c, while Hypothesis 1d cannot be established. Our results are consistent with the literature on emerging markets: the improvement in ESG performance of companies in developing countries significantly and greatly enhances their performance.

This indicates that in the Chinese market, improving ESG performance can enhance a company's sense of responsibility, transparency, and stakeholder trust, thereby significantly improving corporate performance by reducing capital costs or increasing shareholder utility.

Specifically, environmental governance strategies like reducing carbon emissions and social governance tactics aimed at minimizing negative social media exposure are effective in bolstering corporate performance. These improvements reflect how actions taken to address environmental issues and manage social relations can directly contribute to the financial health and operational efficiency of a company. This finding implies that, while governance reforms are crucial for ensuring accountability and ethical conduct within an organization, they may not directly translate into immediate financial gains as observed with environmental and social initiatives. It highlights a nuanced aspect of ESG strategy, where the benefits of governance improvements might manifest in long-term sustainability and risk mitigation rather than immediate financial performance.

**Table 5.** Effect of ESG scores, the three pillars, and ownership on ROA: moderating effect of ownership.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
ESG Score	0.6096 *** (0.001)							0.008 * (0.001)	0.002 * (0.001)	0.005 ** (0.001)
Environmental Score		0.1555 *** (0.001)								
Social Score			0.2427 *** (0.001)							
Governance Score				0.1652 (0.001)						
Private Ownership					0.0005 ** (0.0002)			0.0003 * (0.0003)		
Foreign Ownership						0.01 ** (0.0002)		−0.0001 (0.0003)		
State Ownership							−0.00001 (0.0002)	−0.000005 (0.0003)		
ESG Score × Private Ownership								0.0001 ** (0.0001)		
ESG Score × Foreign Ownership									0.0005 ** (0.0002)	
ESG Score × State Ownership										−0.00004 (0.0001)
Log_TASST	0.9573 *** (0.001)	0.9694 *** (0.001)	1.0740 *** (0.001)	1.1591 *** (0.001)	0.9572 *** (0.001)	0.9691 *** (0.001)	1.0640 *** (0.001)	1.1381 *** (0.001)	0.9583 *** (0.001)	0.9563 *** (0.001)
Growth	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)	0.0021 *** (0.002)
Top1	0.0704 *** (0.001)	0.0709 *** (0.001)	0.0711 *** (0.001)	0.0715 *** (0.001)	0.0704 *** (0.001)	0.0709 *** (0.001)	0.0711 *** (0.001)	0.0715 *** (0.001)	0.0704 *** (0.001)	0.0709 *** (0.001)



Table 5. Cont.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
CA	11.7774 *** (0.005)	11.7688 *** (0.005)	11.8303 *** (0.005)	11.7878 *** (0.005)	11.7774 *** (0.005)	11.7688 *** (0.005)	11.8303 *** (0.005)	11.7878 *** (0.005)	11.7774 *** (0.005)	11.7688 *** (0.005)
CF	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)	−0.0000 (0.007)
Industry and Year and Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4946	4946	4946	4946	2521	932	1196	2521	932	1196
R-squared	0.152	0.151	0.150	0.152	0.152	0.152	0.149	0.152	0.151	0.152

Note: This table shows the impact of the total ESG score, each dimension, and ownership on ROA and their moderating effects. The independent variables are the ESG total score, scores for each dimension, and ownership type, while the dependent variable is ROA. The control variables include total assets, Growth, Top1, CA and CF. The regression uses the OLS method, controlling for industry, time, and province fixed effects. The values in parentheses are heteroskedasticity-adjusted robust standard errors, with \*, \*\*, and \*\*\* indicating significance at the 10%, 5%, and 1% levels, respectively.

Governance reforms often involve changes in corporate structure, policies, and practices that aim to enhance transparency, accountability, and ethical conduct. These changes can take time to implement and even more time for their effects to permeate through the organization and manifest in financial performance. The benefits of improved governance, such as enhanced corporate reputation and reduced risk of legal or regulatory penalties, tend to accrue over a longer period. This will result in a time lag in measurement and may not be immediately apparent in financial statements. Among the three pillars of ESG, improving the E and S scores can significantly increase ROA. An intriguing fact we find is that the Governance (G) dimension does not exhibit a similarly substantial effect on ROA.

#### 6.1.2. The Testing Results on Hypothesis 2 (2a, 2b, 2c, 2d)

In examining the influence of ownership on the link between Environmental, Social, and Governance (ESG) scores and corporate performance, we explored the effects of interactions between ESG scores and distinct ownership forms: namely, private, foreign, and state ownership. We predicted that the moderating effects of the various ownership types would differ, and the findings supported Hypothesis 2a by showing that the moderating effects of the three ownership types did differ (Models 5–10).

Our analysis began with the moderating role of state ownership. The findings indicate that the direct effect of state ownership (Model 7) and its interaction with ESG scores (Model 10) lack statistical significance. This suggests that state ownership does not significantly predict changes in Return on Assets (ROA) or moderate the relationship between ESG scores and corporate performance, thus confirming Hypothesis 2b.

Furthermore, the interaction between ESG scores and private ownership is found to be significantly positive (Model 8), suggesting that private ownership positively moderates the relationship between ESG scores and corporate performance. This outcome indicates that Chinese private corporations possess a strong incentive to enhance their ESG practices, supporting Hypothesis 2c. In companies with a greater share of private ownership, the positive influence of ESG scores on Return on Assets (ROA) is more substantial. This finding implies that privately owned companies in China are more inclined towards effective information disclosure, reducing information asymmetry, and fostering managerial integrity, which in turn boosts corporate productivity and performance.

Additionally, ROA is greatly enhanced by the interaction term between ESG and foreign ownership, which is higher than that of private ownership (Model 9). This suggests that, in comparison to private and state-owned businesses, foreign-owned enterprises in China have a stronger positive moderating influence on the association between ESG scores and corporate performance. This outcome supports Hypothesis 2d. This implies that funding foreign-owned firms can effectively monitor management operations, lessen agency issues, and steer clear of overinvestment concerns, all of which encourage the best possible use of corporate resources. Stronger adherence to ESG regulations by foreign owners may increase the beneficial effects of high ESG scores on business performance and shield shareholders from any value losses brought on by excessive ESG investment.

Finally, but equally important, are the empirical results of the control variables. When discussing the determinants of corporate profitability, the impact of control variables is viewed differently in the literature. [Rizal et al. \(2024\)](#) pointed out that there is a positive correlation between ROA and company size, meaning that larger companies can usually achieve higher profitability efficiency. [Munawar \(2019\)](#) further found a positive correlation between Total Asset Turnover (TAT) and ROA, although this finding contradicts the results of [Rajagukguk and Siagian \(2021\)](#). Additionally, [Kouser et al. \(2012\)](#) demonstrated a significant positive relationship between Profit Growth Rate (Growth) and profitability, highlighting the positive impact of corporate expansion strategies on financial performance.

Zhou et al. (2022) also found a positive correlation between equity concentration and corporate profitability, indicating that a concentrated equity structure can enhance decision-making efficiency and corporate governance quality. Ali et al. (2018) proposed that cash flow is positively correlated with corporate profitability, emphasizing that cash flow is an important indicator for assessing a company’s healthy operation.

According to our data, cash flow has a less significant effect on business profitability than other control variables, despite being a crucial signal for evaluating financial health. This discrepancy can result from the distinct functions that cash flow plays in various businesses, which calls for more research in the future.

6.2. The Moderating Effect of Ownership on the Relationship Between E, S, and G Scores and Corporate Performance

Next, we present the results of the moderation effect analysis of different ownership characteristics on the relationship between environmental (E), social (S), and governance (G) dimension scores and corporate performance (ROA) (see Table 6).

**Table 6.** Moderating effect of ownership (private, foreign, and state) on the relationship between E, S, and G scores and firm performance.

	ROA			
	Coefficient	Roh. Std Errors	N	R-Sqrd
Environmental Pillar × Private Ownership	0.0001 ***	(0.00002346)	2521	0.343
Environmental Pillar × Foreign Ownership	0.0002 ***	(0.00002356)	932	0.362
Environmental Pillar × State Ownership	−0.00001	(0.00002145)	1196	0.368
Social Pillar × Private Ownership	0.0001 ***	(0.00002785)	2521	0.331
Social Pillar × Foreign Ownership	0.0002 ***	(0.00001987)	932	0.345
Social Pillar × State Ownership	−0.00003	(0.00001997)	1196	0.375
Governance Pillar × Private Ownership	0.000004 ***	(0.00002111)	2521	0.326
Governance Pillar × Foreign Ownership	0.0001 **	(0.00002421)	932	0.351
Governance Pillar × State Ownership	−0.00002	(0.00002897)	1196	0.364

Note: This table shows the moderating effects of ownership variables on the relationship between E, S, G scores and ROA. The dependent variable is ROA, the independent variables are E, S, and G scores, and the moderating variables include private, foreign, and state-owned ownership. The control variables are total assets, Growth, Top1, CA and CF. The regression uses the OLS method, controlling for industry, time, and province fixed effects, with robust standard errors adjusted for heteroscedasticity in parentheses. \*\*, and \*\*\* indicating significance at the 5%, and 1% levels, respectively.

In terms of the environmental dimension, the interaction term coefficient between environmental performance and private ownership is significantly positive, indicating that private ownership significantly enhances the positive impact of environmental performance on ROA. Similarly, the interaction term coefficient between foreign ownership and environmental performance is also significantly positive, further suggesting that foreign ownership can amplify the contribution of environmental performance to corporate profitability through more efficient supervision mechanisms and stronger ESG commitments. In contrast, the interaction term coefficient of state-owned property did not reach a significant level, indicating that the moderating effect of state-owned property in this relationship is relatively weak. This may be related to its weaker supervision mechanism and lower decision-making flexibility.

In the social dimension, the interaction term coefficient between social performance and private ownership is significantly positive, indicating that private ownership can significantly enhance the positive impact of social performance on ROA. Similarly, the interaction term coefficient of foreign ownership is also significantly positive, further supporting the positive role of foreign ownership in promoting the integration of social performance and corporate performance. The interaction term coefficient of state-owned

property did not reach a significant level, indicating that, in this dimension, the moderating effect of state-owned property on the relationship between social performance and ROA is relatively limited.

Regarding governance dimensions, the interaction term coefficient between governance performance and private ownership is significantly positive, and the interaction term coefficient with foreign ownership is also significantly positive. This indicates that in companies with higher governance performance, private and foreign ownership can further enhance ROA, possibly benefiting from their stronger governance efficiency and execution capabilities. However, the interaction term of state-owned property rights did not show significance, suggesting that the moderating effect of state-owned property rights in this dimension is relatively limited, which may be constrained by the complexity of governance structures and the diversity of stakeholders.

The results in Table 6 summarize that different ownership characteristics play varying roles in the relationship between corporate ESG performance and profitability. Private and foreign ownership exhibit significant positive moderating effects across the Environmental, Social, and Governance dimensions, further enhancing the contribution of ESG performance to corporate financial performance by improving the efficiency of supervision mechanisms and strengthening accountability commitments. In contrast, the moderating effect of state-owned property rights in these dimensions is relatively weak, which may reflect the limitations of its management model and incentive mechanisms. The research results highlight the important role of property rights characteristics in the sustainable development strategies of enterprises.

## 7. Robustness Tests and Analysis

### 7.1. Replace the Explanatory Variable with ROIC

To further validate the robustness of our results, we conducted a supplementary analysis. In this section, the study replaced the original explanatory variable ROA with Return on Invested Capital (ROIC). This change aims to assess the impact of the four main explanatory variables on different dimensions of corporate financial performance. As shown in Table 7, the results indicate that the comprehensive Environmental, Social, and Governance (ESG) score, the environmental (ENV) score, and the social (SOC) score have a significant positive correlation with return on invested capital (ROIC), while the correlation between the governance (GOV) score and ROIC is not significant. This is consistent with our original findings, further confirming the positive influence of ESG factors on corporate value across different financial metrics.

**Table 7.** ROIC robustness test.

VARIABLES	Dependent Variable: ROIC			
	(1)	(2)	(3)	(4)
ESG_CS	0.6968 *** (3.68)			
ENV		0.2081 *** (3.02)		
SOC			0.2866 *** (3.42)	
GOV				0.1988 (1.16)

Table 7. Cont.

VARIABLES	Dependent Variable: ROIC			
	(1)	(2)	(3)	(4)
Log_TASST	2.1511 *** (8.37)	2.1177 *** (7.93)	2.2793 *** (9.15)	2.3786 *** (9.48)
TAT	2.5478 *** (8.80)	2.5180 *** (8.70)	2.5706 *** (8.86)	2.5007 *** (8.63)
Growth	0.0029 *** (14.48)	0.0029 *** (14.54)	0.0029 *** (14.48)	0.0029 *** (14.48)
Top1	0.0819 *** (8.74)	0.0824 *** (8.79)	0.0827 *** (8.83)	0.0832 *** (8.88)
CA	14.9764 *** (9.16)	14.9548 *** (9.14)	15.0370 *** (9.20)	14.9859 *** (9.15)
CF	−0.0000 (−1.19)	−0.0000 (−1.20)	−0.0000 (−1.28)	−0.0000 (−1.25)
Constant	−26.8720 *** (−11.34)	−22.7478 *** (−9.17)	−24.9419 *** (−10.68)	−25.9838 *** (−10.80)
Observations	4310	4310	4310	4310
R-squared	0.154	0.153	0.153	0.151
Industry FE	YES	YES	YES	YES

Note: ESG\_CS refers to the comprehensive ESG score, ENV represents the environmental score, SOC denotes the social score, GOV indicates the governance score, and ROIC stands for return on invested capital. \*\*\* indicating significance at the 1% level.

### 7.2. Introduce Fixed Effects for Different Provinces

In this section, we have incorporated province as an additional control variable into our existing framework, thereby further accounting for regional factors that may influence corporate value and profitability (Sparkes et al., 2019). By using fixed effects, we aim to reduce the potential impact of the province where the company is located, making the influence of ESG indicators on the two financial indicators more pronounced. The findings in Table 8 indicate that there is a significant positive correlation between the comprehensive Environmental, Social, and Governance (ESG) score, the environmental (ENV) score, and the social (SOC) score with the two dependent variables, whereas the association between the governance (GOV) score and these variables is not significant. This supports our original research findings.

Table 8. Return on asset provinces fixed effects robustness test.

VARIABLES	Dependent Variable: ROA			
	(1)	(2)	(3)	(4)
ESG_CS	0.6080 *** (4.60)			
ENV		0.1601 *** (3.35)		
SOC			0.2428 *** (4.14)	
GOV				0.1593 (1.33)



Table 8. Cont.

VARIABLES	Dependent Variable: ROA			
	(1)	(2)	(3)	(4)
Log_TASST	1.0539 *** (5.85)	1.0602 *** (5.67)	1.1703 *** (6.70)	1.2590 *** (7.16)
TAT	1.3966 *** (6.94)	1.3648 *** (6.78)	1.4147 *** (7.01)	1.3523 *** (6.71)
Growth	0.0021 *** (15.22)	0.0021 *** (15.27)	0.0021 *** (15.21)	0.0021 *** (15.19)
Top1	0.0699 *** (10.75)	0.0703 *** (10.81)	0.0706 *** (10.86)	0.0710 *** (10.91)
CA	11.3656 *** (10.01)	11.3337 *** (9.97)	11.4101 *** (10.05)	11.3571 *** (9.98)
CF	−0.0000 (−0.79)	−0.0000 (−0.82)	−0.0000 (−0.91)	−0.0000 (−0.87)
Constant	−15.2160 *** (−9.00)	−11.8383 *** (−6.70)	−13.5426 *** (−8.13)	−14.3728 *** (−8.37)
Observations	4310	4310	4310	4310
R-squared	0.169	0.167	0.169	0.166
Industry FE	YES	YES	YES	YES
Province FE	YES	YES	YES	YES

Note: ESG\_CS refers to the comprehensive ESG score, ENV represents the environmental score, SOC denotes the social score, and GOV indicates the governance score. \*\*\* indicating significance at the 1% level.

### 7.3. Incorporate GDP as an Additional Control Variable

To further verify the robustness of our research findings and consider the potential impact of macroeconomic factors on company value and profitability, we have introduced Gross Domestic Product (GDP) as a new control variable in the existing model (Zhou et al., 2022). GDP, as a key indicator to measure the economic vitality and macro market size of a region, helps us control the impact of the comprehensive economic strength of the company's location on the research variables (Kaminitz, 2023). As shown in Table 9, the analysis reveals that the comprehensive Environmental, Social, and Governance (ESG) score, the environmental (ENV) score, and the social (SOC) score are significantly positively correlated with the two dependent variables examined, while the relationship between the governance (GOV) score and these variables is not significant. This finding is consistent with our preliminary research results.

Table 9. Return on asset GDP robustness test.

VARIABLES	Dependent Variable: ROA			
	(1)	(2)	(3)	(4)
ESG_CS	0.6350 *** (4.81)			
ENV		0.1567 *** (3.27)		
SOC			0.2550 *** (4.36)	
GOV				0.1773 (1.48)

Table 9. Cont.

VARIABLES	Dependent Variable: ROA			
	(1)	(2)	(3)	(4)
Log_TASST	0.9592 *** (5.37)	0.9776 *** (5.26)	1.0794 *** (6.23)	1.1656 *** (6.68)
TAT	1.4021 *** (6.97)	1.3720 *** (6.82)	1.4215 *** (7.05)	1.3585 *** (6.74)
Growth	0.0021 *** (15.34)	0.0021 *** (15.39)	0.0021 *** (15.33)	0.0021 *** (15.32)
Top1	0.0707 *** (10.87)	0.0712 *** (10.93)	0.0715 *** (10.98)	0.0719 *** (11.02)
CA	11.8422 *** (10.43)	11.8231 *** (10.39)	11.8972 *** (10.47)	11.8407 *** (10.40)
CF	−0.0000 (−0.99)	−0.0000 (−1.03)	−0.0000 (−1.11)	−0.0000 (−1.07)
GDP	−0.0000 ** (−2.13)	−0.0000 * (−1.74)	−0.0000 ** (−2.12)	−0.0000 * (−1.78)
Constant	−13.7604 *** (−8.30)	−10.4940 *** (−6.03)	−12.0104 *** (−7.33)	−13.0177 *** (−7.72)
Observations	4310	4310	4310	4310
R-squared	0.153	0.150	0.152	0.149
Industry FE	YES	YES	YES	YES

Note: ESG\_CS refers to the comprehensive ESG score, ENV represents the environmental score, SOC denotes the social score, and GOV indicates the governance score. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

## 8. Conclusions

This paper, based on panel data from 4649 Chinese listed companies between 2018 and 2024, delves into the impact of ESG performance on company value and profitability, as well as the moderating effects of different ownership structures on the relationship between ESG and corporate performance. In measuring corporate profitability, we used Return on Assets (ROA) as the primary indicator. In the classification of corporate ownership, we distinguish between state-owned enterprises, private companies, and foreign-funded companies, further exploring the moderating effects of these ownership characteristics on the relationship between ESG and corporate performance.

The research results indicate that the comprehensive ESG score (ESG\_CS), the environmental dimension (ENV), and the social dimension (SOC) are significantly positively correlated with ROA. This suggests that good ESG performance can significantly enhance a company's profitability by alleviating capital constraints, attracting consumers, promoting green innovation, and improving employee satisfaction. However, the relationship between the governance dimension (GOV) and ROA is not significant, which may be related to the long-term nature of governance practices, meaning that improvements in governance may take a considerable amount of time to show a positive impact on the company's operational efficiency.

In terms of the moderating effects of ownership characteristics, we found that state-owned enterprises have the smallest moderating effect, private enterprises have a larger moderating effect, and foreign-ownership enterprises have the most significant moderating effect. This phenomenon can be reasonably explained by legitimacy theory. China's increasing attention to ESG concepts and the implementation of related policies have led state-owned enterprises to have higher compliance and transparency in ESG, resulting in a smaller incentive effect. In contrast, the ESG incentive effect of private enterprises is greater,

while foreign-owned enterprises face greater competitive pressure in the Chinese market. This drives them to pay more attention to improving ESG performance to better align with stakeholders' expectations, thereby exhibiting the greatest moderating effect. This finding is consistent with the research results of [Shin et al. \(2023\)](#).

This study provides important insights for various stakeholders. Firstly, corporate managers should incorporate ESG indicators into strategic planning and strive to improve the company's ESG performance. Transparent and high-quality ESG disclosures not only help enhance investor confidence but also increase market share, thereby further boosting the company's value and competitiveness. Secondly, policymakers should actively promote the implementation of ESG by enterprises, especially through incentive measures such as issuing green bonds to promote sustainable development. At the same time, considering the differences in ESG implementation among different types of enterprises, policymakers should focus on the actual execution of corporate governance, strengthen supervision, and ensure the authenticity of ESG reports. Finally, this study also provides investors with a new perspective, suggesting that ESG factors should be considered in investment decisions and that they should choose enterprises with outstanding ESG performance for investment, thereby effectively reducing risk and improving the stability and long-term returns of their investment portfolios.

This study, while providing insightful findings, acknowledges certain limitations that pave the way for future research directions. Firstly, the analysis is confined to a period from 2018 to 2024. Extending the timeframe in future studies could enhance the robustness of our findings by capturing longer-term trends and variations. Secondly, our reliance on ESG (Environmental, Social, and Governance) scores from third-party rating agencies may introduce a degree of subjectivity and potential measurement bias. Future investigations could benefit from utilizing a broader array of ESG rating sources or developing independent ESG assessment criteria to refine measurement accuracy. Lastly, an area ripe for further exploration is the potential moderating role of regional Chinese culture on the relationship between ESG practices and corporate performance. This could provide deeper insights into how cultural contexts influence the efficacy of ESG initiatives. Additionally, methodologically, future research could incorporate more sophisticated machine learning techniques to offer deeper insights and more refined analyses, as suggested by [Zhu et al. \(2024\)](#). These limitations highlight the need for ongoing research to build on the foundational insights provided by this study, aiming for a more comprehensive understanding of the interplay between ESG practices and corporate performance.

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