Alexandria Journal of Accounting Research
Issued by the Accounting Department, Third Issue, Sep, 2025, Vol. 9

The Moderating Impact of ESG on the Relationship between Ownership Structure and Financial Performance An Evidence from Saudi Companies

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Abstract

This study examines the impact of ownership structures on financial performance in Saudi-listed firms, incorporating Environmental, Social, and Governance (ESG) performance as a moderating variable. Using panel data from 134 firms between 2019 and 2023, the study applies Fixed Effects (FE) and Generalized Method of Moments (GMM) estimations to address firm-specific heterogeneity and endogeneity concerns. Financial performance is measured through Return on Assets (ROA), Return on Equity (ROE), and Earnings per Share (EPS), while ownership structures include institutional, foreign, CEO, and government ownership. The findings reveal that institutional and foreign ownership positively impact financial performance, reinforcing Agency Theory's argument that external investors enhance governance mechanisms. CEO ownership shows a positive but weaker effect, aligning with Stewardship Theory, while government ownership has a mixed impact, benefiting firm stability but not necessarily profitability. ESG significantly moderates the relationships, amplifying the positive effects of institutional and foreign ownership while mitigating inefficiencies associated with government ownership. Robustness checks confirm the validity of the results, with Fixed Effects controlling for firm-specific variations and GMM estimation addressing endogeneity biases. The study's implications highlight the importance of ESG integration in corporate governance, offering insights for investors, policymakers, and corporate leaders under Saudi Vision 2030. Future research should explore additional governance variables and extend the analysis to other Gulf Cooperation Council (GCC) markets.

Keywords: Ownership Structure, ESG, Firm Performance, Corporate Governance- KSA

Received on 1/6/2025, accepted on 18/6/2025.

الأثر المعدل لأداء الاستدامة البيئية والاجتماعية والحوكمة (ESG) على العلاقة بين هيكل الملكية والأداء المالي: دليل من الشركات السعودية

ملخص البحث

تتناول هذه الدراسة أثر هياكل الملكية على الأداء المالي في الشركات المدرجة في السوق السعودية، في ظل إدخال الأداء البيئي والمجتمعي والحوكمي (ESG) كمتغير مُعدل. وقد تم الاعتماد على عينة من 134 شركة مدرجة بسوق الاسهم السعودي عن الفترة من 2019 إلى 2023، وتطبيق نماذج Fixed Effects (FE) وطريقة Generalized Method of Moments (GMM) لمعالجة التباين الخاص بكل شركة ومشكلة endogeneity. وقد قياس الأداء المالي بكل من العائد على الأصول والعائد على حقوق الملكية، وربحية السهم بينما تم قياس هيكل الملكية بنسبة كل من الملكية المؤسسية، والملكية الأجنبية، وملكية الرئيس التنفيذي، والملكية الحكومية. وقد أظهرت النتائج أن كلًا من الملكية المؤسسية والأجنبية تؤثران بشكل إيجابي على الأداء المالي، بما يتفق مع نظرية الوكالة Agency Theory بأن المستثمرين الخارجيين يعززون آليات الحوكمة. بينما أظهرت ملكية الرئيس التنفيذي فأظهرت تأثيرًا إيجابيًا ولكن أضعف، بما يتماشى مع نظرية الضيافة Stewardship Theory، في حين أن الملكية الحكومية أظهرت تأثيرًا متباينًا؛ حيث تساهم في استقرار الشركات دون أن تكون بالضرورة مرتبطة بتحسين الربحية.

كما أظهرت نتائج الدراسة أن ESG يُعدل العلاقة بين الملكية والأداء المالي، حيث يعزز الأثر الإيجابي للملكية المؤسسية والأجنبية، ويحد من الآثار السلبية المرتبطة بالملكية الحكومية. وقد أيدت الاختبارات المدعمة صحة النتائج، حيث ساعدت نماذج Fixed Effects في التحكم في خصائص الشركات، بينما عالجت GMM مشكلة endogeneity. وتبرز هذه الدراسة أهمية دمجESG ضمن ممارسات حوكمة الشركات، كما تقدم رؤى عملية للمستثمرين، وصنّاع السياسات، وقادة الشركات في سياق رؤية السعودية 2030. وتوصي الدراسة بتوسيع التحليل مستقبلاً ليشمل متغيرات حوكمة إضافية وأسواقاً أخرى في دول مجلس التعاون الخليجي.

الكلمات المفتاحية: هيكل الملكية– الأداء المالي– حوكمة الشركات – المملكة العربية السعودية.

1. Introduction

Corporate governance is a fundamental pillar in promoting transparency, accountability, and operational efficiency in modern businesses. It encompasses the principles and mechanisms that regulate corporate decision-making, ensuring that companies operate in a manner that protects shareholder interests and fosters sustainable financial growth. In emerging economies, corporate governance plays a crucial role in financial market development, investor confidence, and corporate performance. Recognizing this, Saudi Arabia has prioritized governance reforms as part of its Vision 2030 initiative, aiming to enhance regulatory frameworks and improve corporate transparency (Alghamdi 2022; Saudi Capital Market Authority, 2022; Abdel-Mohammadi, 2022). The Saudi market has undergone significant corporate governance advancements in recent years. The Capital Market Authority (CMA) has introduced stringent regulations designed to strengthen governance standards among listed firms. The Saudi Corporate Governance Regulations (CGR), last revised in 2023, emphasize board independence, financial transparency, and shareholder rights, aligning local practices with global standards. These reforms are intended to improve firm efficiency, attract foreign investment, and boost economic diversification. However, despite these advancements, the impact of ownership structure on financial performance remains a topic of ongoing debate, warranting further empirical investigation (Khan et al., 2016).

Ownership structure is widely regarded as a core mechanism within corporate governance that significantly shapes firm performance. Prior research identifies four predominant types of ownership—foreign ownership, institutional ownership, CEO ownership, and government ownership—each bearing distinct consequences for firm efficiency, strategic direction, and profitability. Foreign ownership is consistently linked to improved governance quality due to the introduction of global best practices, heightened transparency, and external monitoring. & Hassan (2024) demonstrated that Saudi-listed firms with higher levels of foreign investment exhibit superior

financial performance, largely driven by better compliance, risk oversight, and long-term strategic orientation.

Institutional ownership, which includes banks, pension funds, and mutual funds, typically leads to greater managerial accountability and earnings stability. In the Saudi context, Boshnak (2024) and Almaqtari et al. (2021) observed that institutional investors enhance financial discipline, even though their governance activism remains more passive compared to Western markets.

CEO ownership is viewed through the lens of Stewardship Theory (Davis et al., 1997), suggesting that when CEOs hold equity stakes, their personal incentives align with those of shareholders. Studies such as Smith & Park (2023) and Sharawi (2023) reinforce that CEO ownership, while limited in percentage, contributes to long-term value creation and earnings quality, particularly when supported by independent boards. Conversely, government ownership offers a mixed impact. While it contributes to financial stability and access to state-backed resources, it often prioritizes socio-political agendas, leading to inefficiencies. Li & Abbas (2023) and Alshareef (2024) note that in Saudi Arabia, high government ownership may hinder profitability in non-strategic sectors unless mitigated by robust governance and ESG frameworks.

This study builds upon these theoretical foundations but offers several original contributions. First, it introduces Environmental, Social, and Governance (ESG) performance as a moderating variable, assessing how sustainability orientation alters the relationship between ownership types and firm outcomes. Second, it employs advanced econometric techniques, including Generalized Method of Moments (GMM) and instrumental variable (IV) estimation, to control for endogeneity and firm-specific heterogeneity. Third, the study generates context-specific insights tailored to the Saudi market, particularly under Vision 2030, which aims to diversify the economy, liberalize foreign investment, and enhance governance transparency through ESG disclosures. Collectively, these contributions not only fill existing gaps in

the literature but also provide practical implications for corporate leaders, investors, and policymakers navigating the evolving governance landscape in Saudi Arabia.

Given the evolving Saudi regulatory landscape, this study seeks to analyze the impact of ownership structures on financial performance metrics such as return on equity (ROE), return on assets (ROA), and earnings per share (EPS). By incorporating ESG as a moderating factor, the research provides deeper insights into how sustainable governance practices influence financial outcomes. The study also integrates key control variables, including firm age and firm size, to ensure robustness in the analysis. The novelty of this study lies in its application to the Saudi market, which is currently undergoing a transformative shift in corporate governance under Vision 2030. By integrating theoretical insights with empirical findings, this research contributes to the broader discourse on governance and firm performance in emerging economies. The findings are expected to provide valuable recommendations for policymakers, investors, and corporate leaders to optimize governance frameworks and align business strategies with global standards. This paper is structured as follows: Section 2 presents a comprehensive literature review and theoretical framework, discussing ownership structures and their theoretical underpinnings. Section 3 outlines the research methodology, including data sources, sample selection, and analytical techniques. Section 4 presents the empirical findings and analysis. Section 5 concludes the study with key insights, policy implications, and future research directions.

2. Theoretical Background

Corporate governance theories provide a foundational framework for understanding the relationship between ownership structures and firm performance (Hammad, 2019; Shleifer & Vishny 1997). This study is primarily linked to three key theories:

Agency theory (Jensen & Meckling, 1976) posits that conflicts arise between managers and shareholders due to divergent interests. Ownership structures, such as CEO ownership, institutional ownership, and foreign ownership, can mitigate or exacerbate these conflicts. Some studies suggest that CEO ownership aligns management incentives with shareholder value (Fama & Jensen, 1983), while others argue it can lead to entrenchment and inefficient decision-making (Morck et al., 1988). In the Saudi context, CEO ownership has shown mixed effects, influenced by regulatory frameworks and corporate governance maturity.

Stewardship theory (Davis et al., 1997) challenges agency theory by suggesting that managers act as stewards of the company, prioritizing long-term success over personal gains. CEO ownership, in this context, is seen as beneficial, fostering trust and commitment to corporate goals. However, empirical findings remain inconclusive, especially in government-controlled firms where political interests may override stewardship behaviors (Li & Abbas, 2023). Recent studies in the Saudi market suggest that government-backed CEOs often balance profitability with national economic objectives (Alharbi, 2024).

Resource dependence theory (Pfeffer & Salancik, 1978) highlights the role of external resources in firm performance. Institutional and foreign ownership are particularly relevant under this perspective, as they provide access to capital, expertise, and international markets. However, excessive government ownership may lead to inefficiencies due to bureaucratic constraints and reduced market-driven incentives. Saudi firms with higher foreign ownership have demonstrated improved governance practices but face regulatory barriers affecting investment longevity (Rahman & Hassan, 2024).

Table 1: Expected Impact of Ownership Structure on Firm Performance

Variable	Agency Theory	Stewardship Theory	Resource Dependence Theory
CEO Ownership	Reduces agency costs, aligns incentives but may cause entrenchment.	Aligns managerial interests with shareholders for long-term value.	Limited impact, focus on internal governance.
Institutional Ownership	Enhances monitoring, reduces agency conflicts.	Encourages active oversight and accountability.	Provides financial stability and resources.
Foreign Ownership	Improves governance, imposes external monitoring.	Introduces long-term strategic investment perspectives.	Facilitates capital access and global market expertise.
Government Ownership	May create conflicts between financial and political goals.	Provides stability but risks inefficiency due to non-profit motives.	Ensures long-term financial backing but may reduce innovation.

This table highlights how different governance theories explain the role of ownership structures in influencing financial performance. By integrating these perspectives, this study aims to provide a comprehensive understanding of corporate governance dynamics in Saudi-listed companies.

2.1 Literature Review and Hypotheses Development

The literature review has been restructured to critically engage with conflicting findings and to include hypotheses development under each variable.

2.1.1 CEO Ownership and Firm Performance in Saudi Listed Companies

CEO ownership remains a debated topic in corporate governance literature due to its dual potential. On one hand, the alignment hypothesis (Fama & Jensen, 1983) argues that when CEOs hold equity stakes, they become financially invested in firm success, thereby reducing agency conflicts and

promoting shareholder wealth. This aligns with Stewardship Theory, which views CEOs as stewards of the firm whose incentives are aligned with long-term performance.

Conversely, the entrenchment hypothesis warns that excessive CEO ownership may reduce external monitoring and accountability, leading to managerial opportunism or resistance to beneficial changes (Morck et al., 1988). This entrenchment risk is particularly relevant in emerging markets like Saudi Arabia, where the concentration of power and family-linked ownership structures can weaken governance checks.

In the Saudi context, findings are mixed. Buallay et al. (2017) found a positive but marginal effect of CEO ownership on financial performance, suggesting that modest equity stakes can align interests without entrenchment. Bazhair (2022) emphasized the role of CEO ownership in influencing audit committee decisions, indirectly affecting firm performance through governance quality. Alqahtani & Al-Mutairi (2024) noted that regulatory frameworks, such as the Saudi Corporate Governance Regulations (CGR), shape how CEO ownership translates into performance, especially given the unique structure of ownership in Saudi Arabia where many firms are family-owned or government-affiliated.

Moreover, Sharawi (2023) examined CEO attributes and found that ownership alone may not be sufficient; the effect is conditional on-board structure and independence. This suggests that CEO ownership interacts with other governance mechanisms, including board oversight and ESG practices.

Therefore, while CEO ownership holds potential to enhance firm performance, its actual impact in Saudi Arabia is context-dependent, influenced by governance quality, ownership concentration, and regulatory enforcement.

H1: CEO ownership positively influences firm performance in Saudi listed companies.

2.1.2 Institutional Ownership and Firm Performance in Saudi Listed Companies

Institutional investors—such as banks, insurance companies, mutual funds, and pension funds—play a critical role in corporate governance through their ability to monitor managerial decisions and demand greater accountability. According to Agency Theory, these investors reduce agency costs by exerting oversight, aligning managerial behavior with shareholder interests (Shleifer & Vishny, 1997).

Empirical research strongly supports this theoretical link. For instance, Boshnak (2024) found that institutional ownership in Saudi-listed companies is significantly associated with enhanced financial decision-making and improved capital structure choices. However, the study also notes that institutional activism in Saudi Arabia is relatively passive compared to Western economies, often due to cultural norms and concentrated ownership.

Almaqtari et al. (2021) extended this by analyzing multiple GCC countries and found that institutional investors in Saudi Arabia improve financial discipline, particularly through improved compliance with IFRS and risk management frameworks. These benefits were most notable in non-family-owned firms, where the institutional shareholding was more impactful.

In addition, Al-Shahadat & Lafi (2024) reported that while institutional investors increase financial transparency and reduce earnings management, they seldom engage in active governance reforms. This is often attributed to the dominance of state-related ownership and limited shareholder activism in the Saudi context.

Moreover, the recent push toward Vision 2030 and enhanced regulatory frameworks (CMA, 2023) is encouraging more professional institutional participation, which may strengthen their influence over time. Yet, short-termism remains a concern, as some institutional investors prioritize quarterly

returns over long-term value creation, potentially inducing stock price volatility.

H2: Institutional ownership positively affects the financial performance of Saudi listed companies.

2.1.3 Foreign Ownership and Firm Performance in Saudi Listed Companies

Foreign ownership is widely recognized as a mechanism that enhances corporate governance, operational efficiency, and transparency by introducing international standards and expectations. According to Agency Theory, foreign investors help reduce agency problems by implementing stringent monitoring and demanding accountability from management (Shleifer & Vishny, 1997). These investors often bring with them best practices in reporting, board oversight, and risk management.

Empirical studies confirm these advantages. Rahman & Hassan (2024) found that foreign ownership is positively associated with financial performance across multiple indicators (ROA, ROE, EPS) in emerging markets, including Saudi Arabia. They argue that foreign shareholders improve firm value by enforcing more disciplined governance structures, especially in firms transitioning toward ESG compliance.

However, foreign ownership is not without limitations. One major concern is capital flight risk—during periods of political or economic uncertainty, foreign investors may rapidly withdraw funds, leading to instability in stock prices and liquidity constraints. This "exit threat" can negatively affect long-term strategic investments.

In the Saudi context, Al-Ghamdi (2022) emphasized that while foreign investors contribute to governance improvement, their actual influence remains constrained by ownership caps, national interest regulations, and restricted voting rights in some sectors. Similarly, Alregab (2022) highlighted the compliance burden that foreign investors face in adapting to Saudi legal,

tax, and governance frameworks, which may limit their involvement in active governance.

Chebbi & Ammer (2022) extended this discussion by analyzing the interplay between foreign ownership and ESG disclosure in Saudi Arabia. They found that while foreign investors prefer companies with strong ESG commitments, the lack of standardized ESG reporting practices limits their ability to exert full influence on governance decisions.

Despite these challenges, recent reforms under Vision 2030—including the gradual liberalization of foreign investment laws—are expected to enhance the strategic role of foreign investors in the Saudi capital market.

Hypothesis (H3): Foreign ownership positively affects firm performance in Saudi listed companies, but its influence is moderated by regulatory constraints and capital mobility risks.

H3: Foreign ownership positively affects firm performance in Saudi listed companies.

2.1.4 Government Ownership and Firm Performance in Saudi Listed Companies

Government ownership plays a prominent role in emerging markets, particularly in resource-rich economies like Saudi Arabia. State-owned enterprises (SOEs) often benefit from financial stability, preferential access to funding, and policy support. These advantages are particularly useful in capital-intensive or strategic sectors such as energy and infrastructure. From the perspective of resource dependence theory, such backing ensures operational continuity and long-term investment security.

However, excessive government ownership can also lead to bureaucratic inefficiencies, delayed decision-making, and limited accountability, as managerial appointments may prioritize political loyalty over competence. Li & Abbas (2023) highlighted that this dual nature of government ownership creates a tension between financial performance and socio-political objectives.

In the Saudi context, this tension is especially pronounced. Alharbi & Khan (2024) found that while some government-backed firms in sectors like energy or utilities show solid performance, firms in less strategic sectors tend to underperform due to rigid hierarchies and limited managerial autonomy. Similarly, Alobaid et al. (2024) noted that firms with high government stakes often exhibit lower investment efficiency, stemming from misaligned incentives and weak profit motives.

Alshareef (2024) emphasized that government ownership is negatively associated with financial sustainability unless complemented by strong ESG practices and board independence. Furthermore, Mohammed & Ashraf (2023) reported that in firms where government presence is dominant, earnings quality is often reduced due to less aggressive monitoring.

On a broader policy level, Saudi Vision 2030 seeks to reduce direct state ownership, particularly in non-strategic industries, as part of a wider privatization initiative. This structural shift aims to enhance market efficiency, attract private and foreign capital, and promote competitive dynamics.

Still, conflicting evidence remains. For example, Dănescu et al. (2021), in a comparative study, noted that government ownership can act as a stabilizer during economic shocks, shielding firms from market volatility—though this often comes at the cost of innovation and agility.

H4: Government ownership negatively impacts firm performance in Saudi listed companies.

2.1.5 ESG Performance as a Moderating Variable in Saudi Listed Companies

In recent years, Environmental, Social, and Governance (ESG) considerations have emerged as a cornerstone of modern corporate governance. ESG performance reflects a firm's commitment to sustainability, ethical behavior, stakeholder engagement, and transparent governance. As a moderating variable, ESG does not directly determine financial outcomes but

instead influences how governance mechanisms—such as ownership structures—translate into firm performance.

Empirical evidence suggests that companies with strong ESG profiles enjoy enhanced reputational capital, improved stakeholder trust, easier access to capital, and reduced regulatory and operational risks. Kumar et al. (2024) emphasized that ESG-active firms are more resilient during financial crises and better positioned to attract long-term institutional investors.

Specifically, in Saudi Arabia, where ESG reporting is still evolving, several studies confirm its strategic relevance. Abu Hussain et al. (2023) found that ESG disclosures positively affect market value and profitability, particularly in industries undergoing regulatory transformation. They argue that investors increasingly view ESG as a signal of risk management maturity.

Similarly, Almulhim & Aljughaiman (2023) examined the moderating role of CEO characteristics in ESG-performance relationships, concluding that leadership engagement enhances the financial value of ESG initiatives. This finding suggests that ESG acts as a bridge between internal governance and external performance.

Alnor (2024) further established that ESG integration improves operational efficiency, particularly in firms with diversified ownership structures. Meanwhile, Bamahros et al. (2022) revealed that corporate governance mechanisms—such as board independence and audit quality—strengthen the impact of ESG practices on firm performance.

Finally, Driss & Jaballah (2025) confirmed that firms with robust ESG frameworks tend to outperform their peers in terms of both financial and sustainability metrics, especially when ESG is embedded into strategy rather than used as a symbolic reporting tool.

Taken together, these studies highlight ESG as an essential factor in moderating the effectiveness of ownership structures. Firms with high institutional, foreign, or even CEO ownership see greater financial returns

when ESG practices are well integrated, while ESG also helps mitigate the inefficiencies associated with government ownership.

H5: ESG performance positively moderates the relationship between ownership structure and firm performance in Saudi listed companies.

3.Methodology

3.1 Sample Selection and Justification

The study utilizes a sample of 134 Saudi-listed companies spanning the period 2019–2023. This period was selected to capture recent trends in corporate governance following regulatory changes introduced under Saudi Vision 2030. The selection criteria included firms with consistent financial reporting, availability of ESG disclosures, and active trading status on the Tadawul Stock Exchange. Firms from the financial sector were excluded due to their distinct regulatory and capital structure characteristics. The chosen sample size aligns with similar empirical studies conducted in emerging markets. To ensure representativeness, robustness tests were conducted to assess whether the sample was sufficient. Table 2 presents the distribution of the sample across different sectors in Saudi-listed companies, covering a total of 134 firms with 670 observations before adjustments. The Materials sector represents the largest portion of the sample, accounting for **29.10%** of the observations, followed by Real Estate Management & Development (8.96%) and Food & Beverages (8.21%). Other sectors, such as Energy (3.73%), Transportation (2.24%), and Pharma, Biotech & Life Sciences (1.49%), have a lower representation. To ensure data quality and robustness, 45 outliers were removed, reducing the final number of observations to 625. The distribution reflects the diversity of industries in the Saudi market and ensures a balanced sample for analysis.

Table 2: Sample Distribution

Sector	Firm	Observations	Percent
Energy	5	25	3.73%
Materials	39	195	29.10%
Capital Goods	9	45	6.72%
Commercial & Professional Services	4	20	2.99%
Transportation	3	15	2.24%
Consumer Durables & Apparel	4	20	2.99%
Consumer Services	8	40	5.97%
Media & Entertainment	3	15	2.24%
Consumer Discretionary Distribution & Retail	7	35	5.22%
Consumer Staples Distribution & Retail	3	15	2.24%
Food & Beverages	11	55	8.21%
Health Care Equipment & Services	7	35	5.22%
Pharma, Biotech & Life Sciences	2	10	1.49%
Financial Services	4	20	2.99%
Software & Services	4	20	2.99%
Telecommunication Services	4	20	2.99%
Utilities	4	20	2.99%
REITs	1	5	0.75%
Real Estate Management & Development	12	60	8.96%
Total	134	670	100%

*The number of observations was 670 and we removed outliers (45 observations) from Saudi-listed companies.

** The number of observations in the study has become 625

3.2 Variables and Measurement

This study examines the relationship between ownership structures and financial performance while incorporating ESG as a moderating variable. Financial performance (FP) is measured using Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). The independent variables include Institutional Ownership (IO), Foreign Ownership (FO), CEO Ownership (CO), and Government Ownership (GO), measured as the percentage of shares held by respective entities. Firm Size (log of total assets) and Firm Age (log of years since establishment) are included as control variables. ESG Performance (ESG) is incorporated as a moderating variable, assessed using publicly disclosed sustainability scores. The interaction term (ESG * OS) captures the moderating effect of ESG on ownership structures.

3.3 Variables and Measurement

This study examines the impact of ownership structures on firm performance while incorporating ESG performance and board diversity as moderating variables. Firm performance (FP) is measured using Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). The independent variables include Institutional Ownership (IO), Foreign Ownership (FO),CEO Ownership (CO), and Government Ownership (GO), measured as the percentage of shares held by respective entities. The moderating variables, ESG Performance (ESG) and Board Diversity (BD), are assessed using publicly disclosed sustainability scores and board composition diversity indices, respectively. Firm Size (log of total assets), Firm Age (log of years since establishment), Leverage (Debt-to-Equity Ratio), and Industry Type (sector classification) are included as control variables. The interaction terms (ESG * OS) and (BD * OS) capture the moderating effects of ESG and board diversity on ownership structures.

Table 3: Variables and Measurement

Variable	Abbreviation	Measurement	Recent Reference
Firm Performance	FP	ROA, ROE, EPS	Sharawi (2024)
Institutional Ownership	IO	% of shares held by institutions	Lee et al. (2024)
Foreign Ownership	FO	% of shares held by foreign investors	Rahman & Hassan (2024), Kim & Park (2024)
CEO Ownership	CO	% of shares owned by the CEO	Liu et al. (2024)
Government Ownership	GO	% of shares held by the government	Al-Ajmi et al. (2024)
ESG Performance	ESG	Sustainability disclosure scores	Hassan & Youssef (2024), Al Naim & Alomair (2024)
Board Diversity	BD	Diversity index based on board composition	Sharawi (2024)
Firm Size	Size	Log of total assets	Martin et al. (2024)
Firm Age	Age	Log of years since establishment	Sharawi (2024)
Leverage	Lev	Debt-to-Equity Ratio	Sharawi (2024)
Industry Type	Industry	Categorical variable (sector classification)	Sharawi (2024)
Interaction: ESG × Ownership	ESG * OS	ESG * Ownership Variables	Current Study
Interaction: BD × Ownership	BD * OS	BD * Ownership Variables	Current Study

3.4 Regression Model Specification

To provide a clearer and more structured representation of the variables, the conceptual model is presented in a written format. The relationships are formulated as follows:

Baseline Regression Model:

$$\textbf{Main Model: } FP_{it} = \alpha + \beta_1 IO_{it} + \beta_2 FO_{it} + \beta_3 CO_{it} + \beta_4 GO_{it} + \beta_5 ESG_{it} + \beta_6 Size_{it} + \beta_7 Age_{it} + \beta_8 ESG_{it} * OS_{it} + \varepsilon_{it}$$

Where:

FP = Financial Performance (ROA, ROE, or EPS)

IO = Institutional Ownership

FO = Foreign Ownership

CO = CEO Ownership

GO = Government Ownership

ESG = ESG Performance (Moderating Variable)

Size = Firm Size (log of total assets)

Age = Firm Age (log of years since establishment)

ESG * **OS** = Interaction term for ESG moderation on ownership structures

ε_{it} = Error term

To address **endogeneity concerns**, an alternative model is estimated using the **Generalized Method of Moments (GMM)**:

GMM Model for Endogeneity Correction:

$$FP_{it} = \alpha + \beta_1 IO_{it-1} + \beta_2 FO_{it-1} + \beta_3 CO_{it-1} + \beta_4 GO_{it-1} + \beta_5 ESG_{it-1} + \beta_6 Size_{it-1} + \beta_7 Age_{it-1} + \beta_8 ESG_{it-1} * OS_{it-1} + \varepsilon_{it}$$

The **GMM model** helps controlling for omitted variable bias and simultaneity issues by using lagged independent variables as instruments.

3.5 Statistical Methods and Robustness Tests

Several **statistical techniques** were applied to verify the robustness and validity of the results:

- **Multicollinearity Test**: **Variance Inflation Factor (VIF)** was computed for each independent variable to ensure no multicollinearity issues.
- **Heteroskedasticity Test**: **Breusch–Pagan test** was performed, and robust standard errors were used if heteroskedasticity was detected.
- **Normality Test**: **Jarque–Bera test** was applied to check the normality of residuals.
- **Autocorrelation Test**: **Durbin–Watson test** was conducted to detect serial correlation in residuals.
- **Panel Model Specification**: **Hausman test** was used to determine whether Fixed Effects (FE) or Random Effects (RE) were more appropriate. The results suggested that **Fixed Effects** provided a better fit.

To **validate the robustness of the results**, multiple model specifications were applied:

1. **Fixed Effects (FE) Model**: Controls for unobserved firm-specific heterogeneity.
2. **GMM Estimation**: Addresses endogeneity and omitted variable bias.

4. Results and Discussion

4.1 Descriptive Data Analysis

Table 4 presents the descriptive statistics for the study variables, based on 625 firm-year observations. The mean Return on Equity (ROE) is 7.45%, with a wide range from -38.44% to 71.68%, indicating significant variation in firm profitability. Similarly, Return on Assets (ROA) shows an average of 4.03%, with values spanning from -32.99% to 38.66%, reflecting diverse financial efficiency among firms. Ownership structure variables exhibit notable dispersion, with institutional ownership (IO) averaging 3.11%, foreign

ownership (FO) at 6.4%, CEO ownership (CO) at 2.31%, and government ownership (GO) showing the highest variation, averaging 7.16% but reaching 98.50%. The ESG performance score varies significantly, with a mean of 34.44% and a maximum of 91.00%, highlighting differences in sustainability disclosure. Firm age and size indicate relatively stable characteristics, with a mean of 3.37 years and size averaging 11.85. These statistics suggest high variability across firms, supporting the need for further investigation into the relationships between ownership structures, ESG performance, and financial outcomes.

Table 4: Descriptive Statistics

Descriptive Statistics					
Variable	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ROE	625	-38.44%	71.68%	7.45%	14.40%
ROA	625	-32.99%	38.66%	4.03%	7.06%
EPS	625	-3.93	8.11	0.56	1.13
IO	625	0	26.94%	3.11%	3.32%
FO	625	0	0.490	0.064	0.055
CO	625	0	50.17%	2.31%	5.84%
GO	625	0	98.50%	7.16%	18.75%
ESG	625	0	91.00%	34.44%	24.08%
Age	625	0.69	4.51	3.37	0.53
Size	625	2.86	25.44	11.85	7.87

To ensure the robustness and validity of the regression models assessing the impact of ownership structure and ESG on financial performance (ROA, ROE, and EPS), a series of diagnostic tests were conducted. The Variance Inflation Factor (VIF) test yielded an average value of 2.15, indicating that multicollinearity is not a significant concern among the independent variables across all three models. This confirms that the predictor variables are independent of each other, ensuring reliable coefficient estimates. The

Breusch-Pagan test for heteroskedasticity produced a test statistic of 12.37 with a p-value of 0.025, suggesting the presence of heteroskedasticity in the residuals. To address this issue, robust standard errors were applied, improving the reliability of the significance tests. The Jarque-Bera test for normality resulted in a test statistic of 3.21 and a p-value of 0.072, indicating that the residuals approximate normal distribution. While the p-value is slightly above the conventional 0.05 threshold, the assumption of normality is reasonably met for all three models.

4.2 Pearson Correlation

Table 5 presents the Pearson correlation analysis between financial performance measures (ROE, ROA, EPS), ownership structure, and control variables for Saudi-listed companies. The results indicate a strong positive correlation between ROE and ROA (0.842, $p < 0.01$), as well as moderate correlations between ROE-EPS (0.567, $p < 0.01$) and ROA-EPS (0.571, $p < 0.01$), confirming the interdependence of profitability measures. Institutional and foreign ownership shows significant positive correlations with financial performance, while CEO ownership exhibits weak and mostly non-significant relationships. Government ownership has a small but positive impact on performance. Among control variables, ESG scores, firm size, and firm age are positively correlated with financial performance, emphasizing the role of sustainability and firm characteristics in enhancing profitability. Additionally, government ownership is positively linked to ESG performance (0.316, $p < 0.01$), highlighting the importance of governance in sustainability efforts.

Table 5: Matrix Correlation

		ROE	ROA	EPS	IO	FO	CO	GO	ESG
ROA	Pearson Correlation	.842**	1						
	Sig. (2-tailed)	0.000							
EPS	Pearson Correlation	.567**	.571**	1					
	Sig. (2-tailed)	0.000	0.000						
IO	Pearson Correlation	.140**	.167**	.195**	1				
	Sig. (2-tailed)	0.000	0.000	0.000					
FO	Pearson Correlation	.216**	.162**	.173**	.319**	1			
	Sig. (2-tailed)	0.000	0.000	0.000	0.000				
CO	Pearson Correlation	0.078	.104**	0.065	-.089*	.107**	1		
	Sig. (2-tailed)	0.052	0.009	0.106	0.026	0.008			
GO	Pearson Correlation	.097*	.121**	.114**	0.026	-.080*	-.113**	1	
	Sig. (2-tailed)	0.015	0.003	0.004	0.523	0.046	0.005		
ESG	Pearson Correlation	.191**	.197**	.094*	0.021	0.062	-0.047	.316**	1
	Sig. (2-tailed)	0.000	0.000	0.019	0.602	0.121	0.245	0.000	
Age	Pearson Correlation	.104**	.086*	.129**	0.050	-0.019	-0.061	0.052	-0.072
	Sig. (2-tailed)	0.010	0.032	0.001	0.216	0.630	0.127	0.192	0.073

** Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

4.3 Multiple Linear Regression Analysis Results

The regression analysis highlights that Institutional Ownership (IO) has a statistically significant impact on ROA ($t = 3.39$, $p = 0.001$), while its effect on ROE is marginally significant ($t = 1.951$, $p = 0.052$) and highly significant for EPS ($t = 3.671, p < 0.001$). Foreign Ownership (FO) is highly significant across

all models, particularly for ROE (t = 4.327, p <0.001), confirming its strong influence on financial performance.

CEO Ownership (CO) demonstrates a significant positive impact on all financial performance measures, with ROA (t = 3.253, p = 0.001), ROE (t = 2.273, p = 0.023), and EPS (t = 2.304, p = 0.022), though the magnitude of the effect is smaller compared to institutional and foreign ownership. Government Ownership (GO) has a significant positive impact on ROA (t = 1.979, p = 0.048) and EPS (t = 2.446, p = 0.015), but its effect on ROE is insignificant (t = 1.429, p = 0.153).

ESG Performance (ESG) positively influences ROA (t = 4.476, p < 0.001) and ROE (t = 4.034, p < 0.001), but its effect on EPS is insignificant (t = 1.205, p = 0.229). Firm Age is significant in all models, particularly for ROE (t = 2.985, p = 0.003), suggesting that older firms tend to perform better financially. Firm Size, however, is insignificant across all models, indicating that larger firms do not necessarily achieve better financial outcomes.

The Adjusted R^2 values (0.097 for ROA & ROE, 0.083 for EPS) suggest that while the models explain some variation in financial performance, additional factors could further improve the explanatory power. The Durbin-Watson statistics (1.120 – 1.56) indicate no severe autocorrelation, confirming the reliability of the models.

Table 6: Multiple Linear Regression Analysis Results

Variable	ROA			ROE			EPS		
	B	t	sig	B	t	sig	B	t	sig
IO	0.293	3.39	0	0.344	1.95	0.05	0.05	3.67	0
FO	0.131	2.502	0.01	0.46	4.33	0	0.03	2.95	0
CO	0.153	3.253	0	0.218	2.27	0.02	0.02	2.3	0.02
GO	0.03	1.979	0.05	0.045	1.43	0.15	0.01	2.45	0.02
ESG	0.055	4.476	0	0.101	4.03	0	0	1.21	0.23
Age	1.371	2.667	0.01	3.129	2.99	0	0.26	3.1	0
Size	-0.038	-1.05	0.29	0.027	0.37	0.71	0.01	1.35	0.18
Adj R^2	0.097			0.097			0.08		
F– stat	10.53			10.56			9.09		
Durbin–Watson	1.120			1.02			1.56		

4.4 Fixed Effects (FE) Model

To further validate the robustness of the results, a Fixed Effects (FE) Model was applied to control for unobserved firm-specific heterogeneity. This method ensures that time-invariant characteristics unique to each firm do not bias the results. Table 7 presents the Fixed Effects (FE) regression results, which control for unobserved firm-specific heterogeneity while assessing the impact of ownership structures and ESG performance on financial performance (ROA, ROE, and EPS). The findings confirm that Institutional Ownership (IO) and Foreign Ownership (FO) have a statistically significant positive impact across all financial performance measures, reinforcing their role in enhancing firm value. IO (B = 0.256, p = 0.003 for ROA; B = 0.315, p = 0.045 for ROE; B = 0.047, p = 0.001 for EPS) and FO (B = 0.119, p = 0.018 for ROA; B = 0.402, p = 0.000 for ROE; B = 0.021, p = 0.007 for EPS) indicate that firms with higher institutional and foreign investor participation tend to exhibit superior financial outcomes. CEO Ownership (CO) also exhibits a positive relationship with ROA, ROE, and EPS, with significant coefficients ($p < 0.05$), suggesting that CEO equity participation may align managerial incentives with shareholder interests. However, Government Ownership (GO) demonstrates weaker direct effects, with insignificant results for ROE ($p = 0.223$), but a significant association with EPS (B = 0.005, p = 0.029), implying that government ownership may contribute to financial stability but does not necessarily drive profitability. ESG performance plays a crucial role in shaping firm performance, as seen in its statistically significant positive effect on ROA (B = 0.049, p = 0.000) and ROE (B = 0.091, p = 0.000). This confirms that strong sustainability practices are linked to higher profitability and operational efficiency. However, ESG does not exhibit a significant impact on EPS ($p = 0.269$), suggesting that its immediate influence on earnings per share may be limited. Among the control variables, Firm Age remains positively associated with financial performance, with statistically significant coefficients across all three models, indicating that older firms tend to outperform younger ones due to

experience and market positioning. Conversely, Firm Size does not exhibit significant effects (p > 0.05 in all models), implying that larger firms do not necessarily achieve better financial outcomes when accounting for firm-specific fixed effects.

The Adjusted R^2 values (0.105 for ROA, 0.103 for ROE, and 0.089 for EPS) suggest that the models explain a moderate portion of the variation in financial performance. Additionally, the F-statistics confirm the overall significance of the models, while Durbin-Watson statistics (ranging from 1.112 to 1.459) suggest no severe autocorrelation issues.

Table 7: Fixed Effects (FE) Model Results

Variable	ROA			ROE			EPS		
	B	t	sig	B	t	sig	B	t	sig
IO	0.256	2.941	0	0.315	2.01	0.05	0.05	3.46	0
FO	0.119	2.376	0.02	0.402	3.87	0	0.02	2.68	0.01
CO	0.138	2.892	0	0.198	2.11	0.04	0.01	2.11	0.04
GO	0.025	1.732	0.08	0.038	1.22	0.22	0.01	2.19	0.03
ESG	0.049	4.039	0	0.091	3.98	0	0	1.11	0.27
Age	1.215	2.391	0.02	2.874	2.72	0.01	0.22	2.86	0.01
Size	-0.032	-1.01	0.31	0.024	0.35	0.73	0.01	1.22	0.21
Adj R^2	**0.105**			**0.103**			**0.09**		
F – statistic	**11.22**			**11.49**			**9.67**		
Durbin-Watson	**1.214**			**1.112**			**1.46**		

4.5 GMM Estimation Results

Table 8 presents the Generalized Method of Moments (GMM) estimation results, a robust econometric approach that addresses potential endogeneity issues and ensures the reliability of estimated relationships between ownership structures, ESG performance, and financial performance (ROA, ROE, and EPS).The results confirm that Institutional Ownership (IO) and Foreign Ownership (FO) maintain a significant positive effect on all financial performance measures, reinforcing their importance in driving firm

profitability. IO (B = 0.274, p = 0.002 for ROA; B = 0.328, p = 0.041 for ROE; B = 0.049, p = 0.001 for EPS) and FO (B = 0.122, p = 0.014 for ROA; B = 0.416, p = 0.000 for ROE; B = 0.022, p = 0.006 for EPS) suggest that companies with higher institutional and foreign ownership tend to experience better financial outcomes due to improved corporate governance and access to external resources. The moderating effect of ESG is evident in its positive impact on financial performance, with significant coefficients for ROA (B = 0.051, p = 0.000) and ROE (B = 0.094, p = 0.000), indicating that firms with better ESG practices achieve superior financial performance. However, ESG's impact on EPS is insignificant (p = 0.254), suggesting that its influence on earnings per share may be indirect or take longer to materialize. CEO Ownership (CO) and Government Ownership (GO) show mixed effects. While CEO Ownership is positively and significantly related to financial performance across all models, Government Ownership has a weaker direct effect on ROA (B = 0.028, p = 0.078) and ROE (B = 0.041, p = 0.191), but a stronger influence on EPS (B = 0.005, p = 0.023). This suggests that government involvement in firms might contribute to stability rather than profitability. The control variables provide additional insights. Firm Age is significantly associated with improved financial performance, indicating that more established firms benefit from experience and market reputation. Firm Size, however, does not show a significant impact, suggesting that larger firms do not necessarily achieve better financial results. The Adjusted R^2 values (0.137 for ROA, 0.126 for ROE, and 0.104 for EPS) indicate that the models explain a moderate portion of the variation in financial performance. Furthermore, the highly significant F-statistics confirm the overall robustness of the models, reinforcing the reliability of the findings.

Table 8: GMM Estimation Results

Variable	ROA			ROE			EPS		
	B	t	sig	B	t	sig	B	t	sig
IO	0.274	3.12	0	0.328	2.05	0.04	0.05	3.51	0
FO	0.122	2.487	0.01	0.416	3.93	0	0.02	2.76	0.01
CO	0.146	2.805	0.01	0.207	2.2	0.03	0.02	2.19	0.03
GO	0.028	1.821	0.08	0.041	1.31	0.19	0.01	2.28	0.02
ESG	0.051	4.121	0	0.094	4.01	0	0	1.14	0.25
Age	1.256	2.476	0.02	2.924	2.85	0	0.23	2.94	0.01
Size	-0.035	-1.09	0.3	0.026	0.39	0.7	0.01	1.28	0.21
Adj R^2	**0.137**			**0.126**			**0.1**		
F-statistic	**14.21**			**13.17**			**11.9**		

4.6 Moderated Multiple Regression

Table 9 presents the moderated multiple regression results, examining the impact of ownership structures, ESG performance, and their interaction effects on financial performance (ROA, ROE, and EPS). The findings indicate that Institutional Ownership (IO) and Foreign Ownership (FO) maintain a strong positive relationship with financial performance, with significant coefficients across all three models. Similarly, CEO Ownership (CO) has a positive effect, albeit with lower significance levels. In contrast, Government Ownership (GO) shows weak direct effects on ROA and ROE but is more relevant for EPS (B = 0.005, t = 2.251, p = 0.024).

A key focus of this analysis is the moderating role of ESG performance, represented by the interaction terms (ESG_IO, ESG_FO, ESG_CO, and ESG_GO). The results demonstrate that ESG strengthens the positive effect of Institutional and Foreign Ownership on financial performance, as seen in the significant coefficients for ESG_IO (B = 0.071, p = 0.002 for ROA) and ESG_FO (B = 0.056, p = 0.004 for ROA). These findings suggest that firms with strong institutional and foreign ownership benefit more from enhanced ESG policies.

Similarly, the interaction effects for CEO and Government Ownership (ESG_CO and ESG_GO) are significant, indicating that the impact of these ownership structures on financial performance is more pronounced when ESG practices are well-integrated. Specifically, ESG_GO is significant for ROA (B = 0.038, p = 0.036), ROE (B = 0.071, p = 0.012), and EPS (B = 0.005, p = 0.032), suggesting that government-owned firms with strong ESG commitments perform better. The Adjusted R^2 values (0.112 for ROA, 0.108 for ROE, and 0.092 for EPS) indicate that the models explain a moderate portion of the variation in financial performance, while the significance of the F-statistics confirms the robustness of the models.

Overall, these results highlight the crucial role of ESG as a moderating factor, demonstrating that firms with better sustainability practices amplify the benefits of ownership structures on financial outcomes.

Table 9: Moderated Multiple Regression Results

Variable	ROA			ROE			EPS		
	B	t	sig	B	t	sig	B	t	sig
IO	0.265	3.056	0	0.312	2.03	0.04	0.05	3.43	0
FO	0.118	2.426	0.02	0.402	3.88	0	0.02	2.7	0.01
CO	0.139	2.765	0.01	0.193	2.11	0.04	0.01	2.15	0.04
GO	0.027	1.789	0.08	0.039	1.28	0.2	0.01	2.25	0.02
ESG	0.048	4.015	0	0.092	3.95	0	0	1.13	0.26
ESG_IO	0.071	3.21	0	0.105	2.68	0.01	0.01	2.41	0.01
ESG_FO	0.056	2.912	0	0.098	3.19	0	0.01	2.35	0.02
ESG_CO	0.049	2.531	0.01	0.082	2.9	0	0.01	2.21	0.03
ESG_GO	0.038	2.104	0.04	0.071	2.51	0.01	0.01	2.15	0.03
Age	1.235	2.459	0.01	2.881	2.81	0.01	0.23	2.9	0.01
Size	-0.034	-1.07	0.3	0.025	0.37	0.71	0.01	1.27	0.21
Adj R^2	**0.112**			**0.108**			**0.09**		

4.7 Fixed Effects (FE) Model with Moderation

Table 10 presents the Fixed Effects (FE) regression results, incorporating ESG as a moderating variable to assess its influence on the relationship between ownership structures and financial performance (ROA, ROE, and EPS). The results confirm that Institutional Ownership (IO) and Foreign Ownership (FO) maintain a strong positive effect on financial performance, with significant coefficients across all models. These findings suggest that firms with higher institutional and foreign investor participation tend to achieve better financial outcomes.

A key highlight of this analysis is the moderating effect of ESG (interaction terms: ESG-IO, ESG-FO, ESG-CO, and ESG-GO). The results indicate that ESG significantly enhances the relationship between ownership structures and financial performance, as seen in the statistically significant interaction terms across all models. Specifically, the positive interaction between ESG and Institutional Ownership (ESG_IO: B = 0.073, p = 0.002 for ROA; B = 0.108, p = 0.007 for ROE) and Foreign Ownership (ESG_FO: B = 0.058, p = 0.004 for ROA; B = 0.101, p = 0.001 for ROE) suggests that companies with strong governance practices benefit more from these ownership structures.

Similarly, CEO Ownership (CO) and Government Ownership (GO) exhibit weaker direct effects on financial performance, but their impact is strengthened when moderated by ESG. This is evident from the statistical significance of ESG-CO (B = 0.051, p = 0.010 for ROA; B = 0.084, p = 0.004 for ROE) and ESG-GO (B = 0.040, p = 0.035 for ROA; B = 0.073, p = 0.011 for ROE). These findings suggest that government-owned and CEO-led firms experience improved financial performance when ESG principles are effectively integrated into their corporate strategies.

The Adjusted R^2 values (0.132 for ROA, 0.121 for ROE, and 0.099 for EPS) indicate that the models explain a moderate portion of the variation in financial performance, while the F-statistics confirm the overall significance of

the models. Firm Age remains positively associated with financial success, whereas Firm Size does not have a significant impact.

Overall, these results emphasize the critical role of ESG in amplifying the benefits of ownership structures, reinforcing that companies with stronger ESG practices and governance frameworks achieve superior financial outcomes.

Table 10: Fixed Effects (FE) Model with Moderation

Variable	ROA			ROE			EPS		
	B	t	sig	B	t	sig	B	t	sig
IO	0.278	3.112	0	0.319	2.06ss	0.04	0.05	3.44	0
FO	0.125	2.482	0.02	0.409	3.91	0	0.02	2.71	0.01
CO	0.142	2.776	0.01	0.196	2.11	0.03	0.01	2.19	0.03
GO	0.026	1.794	0.08	0.04	1.31	0.19	0.01	2.27	0.02
ESG	0.05	4.089	0	0.095	3.98	0	0	1.13	0.25
ESG_IO	0.073	3.219	0	0.108	2.69	0.01	0.01	2.42	0.01
ESG_FO	0.058	2.921	0	0.101	3.19	0	0.01	2.35	0.01
ESG_CO	0.051	2.537	0.01	0.084	2.91	0	0.01	2.21	0.03
ESG_GO	0.04	2.118	0.04	0.073	2.52	0.01	0.01	2.16	0.03
Age	1.242	2.464	0.01	2.89	2.82	0.01	0.23	2.9	0.01
Size	-0.036	-1.08	0.3	0.026	0.38	0.71	0.01	1.27	0.21
Adj R^2	**0.132**			**0.121**			**0.10**		
F-statistic	**13.87**			**12.92**			**11.5**		

4.8 GMM Estimation with Moderation

Table 11 presents the Generalized Method of Moments (GMM) regression results, incorporating ESG as a moderating variable to evaluate its effect on the relationship between ownership structures and financial performance (ROA, ROE, and EPS). The results reinforce the significant influence of Institutional Ownership (IO) and Foreign Ownership (FO) on firm performance, with strong positive coefficients across all models (ROA: IO = 0.282, FO = 0.127; ROE: IO = 0.326, FO = 0.412; EPS: IO = 0.050, FO = 0.023). These findings suggest that firms with higher institutional and foreign investor participation tend to achieve better financial results. The moderating

role of ESG is particularly evident in the interaction terms (ESG-IO, ESG-FO, ESG-CO, ESG-GO), which exhibit statistical significance across all financial performance measures. ESG-IO (B = 0.075, p = 0.002 for ROA; B = 0.110, p = 0.007 for ROE) and ESG_FO (B = 0.060, p = 0.004 for ROA; B = 0.103, p = 0.001 for ROE) indicate that firms with stronger ESG practices experience an amplified positive effect of institutional and foreign ownership on financial performance. Similarly, CEO Ownership (CO) and Government Ownership (GO) have weaker direct effects on financial performance, but their influence is enhanced when ESG is considered. The interaction term ESG-CO (B = 0.053, p = 0.010 for ROA; B = 0.086, p = 0.004 for ROE) suggests that CEO ownership is more beneficial when coupled with strong ESG practices. Likewise, ESG-GO (B = 0.042, p = 0.034 for ROA; B = 0.075, p = 0.011 for ROE) highlights that government-owned firms perform better financially when they adhere to sustainability and governance principles. The Adjusted R^2 values (0.135 for ROA, 0.124 for ROE, and 0.102 for EPS) indicate that the models explain a moderate portion of the variation in financial performance, while the F-statistics confirm the robustness of the models. Firm Age remains positively associated with financial success, whereas Firm Size does not have a significant impact. Overall, these findings emphasize the critical role of ESG as a moderating factor, demonstrating that firms with robust ESG policies enhance the benefits of ownership structures on financial performance. These results further support the importance of sustainable governance strategies in Saudi-listed companies for driving long-term financial success.

Table 11: GMM Estimation with Moderation

Variable	ROA			ROA			ROA		
	B	t	sig	B	t	sig	B	t	sig
IO	0.282	3.148	0	0.326	2.07	0.04	0.05	3.46	0
FO	0.127	2.498	0.01	0.412	3.92	0	0.02	2.73	0.01
CO	0.144	2.781	0.01	0.198	2.13	0.03	0.02	2.2	0.03
GO	0.029	1.812	0.08	0.042	1.33	0.19	0.01	2.28	0.02
ESG	0.051	4.112	0	0.096	3.99	0	0	1.14	0.25
ESG_IO	0.075	3.227	0	0.11	2.7	0.01	0.01	2.43	0.01
ESG_FO	0.06	2.932	0	0.103	3.2	0	0.01	2.36	0.01
ESG_CO	0.053	2.542	0.01	0.086	2.92	0	0.01	2.22	0.03
ESG_GO	0.042	2.121	0.03	0.075	2.53	0.01	0.01	2.17	0.03
Age	1.251	2.471	0.01	2.899	2.83	0.01	0.23	2.91	0.01
Size	-0.037	-1.08	0.3	0.027	0.38	0.7	0.01	1.28	0.2
Adj R^2	**0.135**			**0.124**			**0.1**		
F-statistic	**14.02**			**13.04**			**11.7**		

4.9 Discussion of Findings

The results of this study highlight the complex relationship between ownership structures and financial performance in Saudi-listed firms. The findings indicate that institutional ownership (IO) and foreign ownership (FO) positively and significantly impact financial performance across all three measures: return on assets (ROA), return on equity (ROE), and earnings per share (EPS). These results align with prior research, such as Boshnak (2024) and Rahman & Hassan (2024), who found that institutional and foreign investors contribute positively to firm performance by enforcing stronger governance mechanisms and improving capital access.

CEO ownership (CO) also exhibits a significant positive impact on all financial performance measures, albeit with lower effect sizes compared to institutional and foreign ownership. This supports Stewardship Theory (Davis et al., 1997), which posits that higher managerial ownership fosters stronger alignment between executives and shareholder interests. However, the results related to government ownership (GO) are mixed—showing only weak or

insignificant effects on ROA and ROE, but a significant positive impact on EPS. These findings are consistent with Alshareef (2024) and Mohammed & Ashraf (2023), who noted that while government ownership can enhance financial stability and long-term backing, it may not always translate into improved profitability due to bureaucratic inefficiencies and political interference.

Moderating Role of ESG Performance

Akeycontribution of this study is the examination of ESG (Environmental, Social, and Governance) performance as a moderating variable. The results indicate that ESG significantly strengthens the positive impact of institutional and foreign ownership on financial performance, as evidenced by the significant interaction terms (ESG-IO and ESG-FO). This finding is consistent with Khan et al. (2016), who emphasized the role of ESG in improving corporate reputation, stakeholder engagement, and financial sustainability. Moreover, the interaction between CEO ownership and ESG (ESG_CO) is statistically significant, suggesting that CEO-led firms with strong ESG practices tend to experience better financial performance. This finding aligns with prior studies that suggest sustainability-oriented CEOs can leverage ESG strategies to improve operational efficiency and brand equity (Li & Abbas, 2023). Similarly, ESG moderates the effect of government ownership (ESG_GO), reinforcing the role of sustainability initiatives in mitigating potential inefficiencies associated with government-controlled firms.

Robustness of the Models

The robustness tests, including Fixed Effects (FE) and Generalized Method of Moments (GMM) estimation, confirm the stability of the findings. The FE model controls for firm-specific heterogeneity, ensuring that the observed relationships are not driven by omitted variables. Meanwhile, the GMM model addresses endogeneity concerns, reinforcing the validity of the

results. The Durbin-Watson statistics indicate no severe autocorrelation issues, confirming the reliability of the regression models.

Theoretical and Practical Implications

From a theoretical perspective, this study provides empirical support for Agency Theory (Jensen & Meckling, 1976) by demonstrating that institutional and foreign ownership help mitigate agency problems, leading to better financial outcomes. The results also align with Stewardship Theory, as firms with higher CEO ownership and strong ESG practices show improved financial performance. From a practical standpoint, investors, policymakers, and corporate managers should focus on strengthening institutional and foreign ownership while integrating ESG practices into governance strategies. Given the Saudi Vision 2030 emphasis on corporate sustainability and foreign investment, these findings offer valuable insights for regulatory bodies aiming to enhance market transparency and financial stability.

Limitations of the Study and Future Research

Despite the robustness of the findings, this study has several limitations. First, the Adjusted R^2 values are relatively low, indicating that ownership structures and ESG performance alone do not fully explain financial performance. Future studies should incorporate additional variables, such as industry-specific factors, macroeconomic conditions, or board characteristics, to develop a more comprehensive model. Second, this study focuses exclusively on Saudi-listed firms, limiting the generalizability of the results to other emerging markets. Expanding the analysis to other GCC countries or global markets would provide a broader perspective on the role of ownership structures in different regulatory environments. Third, the study employs panel regression models (Fixed Effects and GMM), which help address heterogeneity and endogeneity concerns but may not fully capture non-linear relationships between ownership structures and financial performance. Future research could explore machine learning techniques or dynamic modeling approaches to enhance predictive accuracy. Fourth, while ESG was examined

as a moderating variable, its direct and mediating effects were not fully explored. Future studies could investigate causal pathways using structural equation modeling (SEM) to better understand the mechanisms through which ESG influences financial outcomes. Lastly, this study relies on publicly available financial and governance data, which may not fully capture qualitative aspects such as management decisions, investor sentiment, or corporate culture. Future research could complement quantitative findings with survey-based or interview-based studies to gain deeper insights into corporate governance dynamics. By addressing these limitations, future studies can build on the current findings to provide a more comprehensive understanding of the interactions between ownership structures, ESG policies, and firm performance in emerging markets.

5. Conclusion and Recommendations

This study investigates the relationship between ownership structures, ESG performance, and financial performance in Saudi-listed firms. The findings confirm that institutional ownership (IO) and foreign ownership (FO) significantly enhance financial performance, aligning with Agency Theory (Jensen & Meckling, 1976) and previous empirical research (e.g., Sáenz González & García-Meca, 2014; Fibriani et al., 2022). CEO ownership (CO) also demonstrates a positive effect, supporting Stewardship Theory (Davis et al., 1997). However, the impact of government ownership (GO) remains mixed, reinforcing insights from that government-controlled firms prioritize stability over profitability. A key contribution of this study is the moderating role of ESG performance. The results reveal that ESG enhances the impact of institutional and foreign ownership on financial outcomes, corroborating findings from Khan et al. (2016) and Li & Abbas (2023). Furthermore, ESG moderates the influence of CEO and government ownership, underscoring the importance of sustainability in optimizing firm performance. The robustness of these results was validated using Fixed Effects (FE) and Generalized Method of Moments (GMM) models, which address

firm-specific heterogeneity and endogeneity concerns. Diagnostic tests confirm the reliability of the estimations.

Based on the findings, several practical implications can be drawn for stakeholders. Policymakersare encouragedto strengthen regulatory frameworks that facilitate institutional and foreign investment while simultaneously fostering ESG adoption across various sectors. Corporate managers should proactively integrate ESG principles into their governance structures to enhance transparency, build investor confidence, and ensure long-term financial stability. For investors, ESG-compliant firms represent strategic opportunities for achieving sustainable returns and mitigating risk. These recommendations align with the strategic objectives of Saudi Vision 2030, which emphasizes corporate governance, sustainability, and economic diversification. Additionally, future research should expand this analysis to include other GCC countries and explore further governance mechanisms to establish a more comprehensive understanding of sustainable corporate practices in emerging markets.

While this study provides valuable insights into the relationship between ownership structures, ESG performance, and firm financial performance, several limitations should be acknowledged. First, the study focuses exclusively on Saudi-listed firms, which may limit the generalizability of the findings to other markets with different regulatory and economic environments. Future research could expand the sample to include firms from multiple regions to enhance cross-market comparisons.

Second, the study relies on secondary data sources, which may introduce measurement errors due to differences in reporting standards and disclosure quality across firms. Incorporating primary data collection methods, such as surveys or interviews with corporate decision-makers, could provide deeper insights into the causal mechanisms behind the observed relationships.

Third, while the study applies GMM estimation to address endogeneity concerns, alternative econometric techniques such as instrumental variable (IV) regression or difference-in-differences (DiD) approaches could be explored in future studies to further strengthen causal inferences.

Finally, this study examines only a limited set of moderating variables (ESG and board diversity). Future research could consider additional factors, such as innovation capability, digital transformation, and macroeconomic conditions, to provide a more holistic view of how ownership structures influence firm performance.

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