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# The Impact of ESG Scores of Listed Companies on Firm Value: A Dual Perspective Based on Management Practices and Controversial Events

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**Abstract:**

The regression analysis in this study examines the impact of ESG rating scores and other factors on firm value. The results show a mixed effect of ESG rating scores on firm value. This is a quantitative model. It incorporates the panel data regression. The present study also incorporates Wind ESG data. For Chinese enterprises looking for Environmental, Social, and Governance (ESG) ratings and data. The ESG Management Practices Score has a negative and significant impact. It indicates that higher scores in ESG management practices may lead to lower firm valuations. The ESG Controversies Score does not significantly affect firm value. Non-ESG factors such as return on equity (ROE), firm age, and market share show positive and significant relationships with firm value. However, firm size has a negative impact. These findings suggest that profitability, age, and market share positively influence firm valuation. Policy suggestions based on these findings include incentivizing firms to improve ROE and adopt sustainable practices. It supports transparent reporting in ESG initiatives, encouraging innovation and market expansion for older firms. It is promoting lean management practices for larger firms. These policies aim to enhance firm value while maintaining robust ESG standards. Hence, leading to sustainable growth.

**Keywords:** - Tobin's Q, ESG Controversies, Firm Value, Panel Data Regression, ROE

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## 1. Introduction

Environmental, social, and governance (ESG) aspects have been increasingly integrated into commercial media in the past decade. The awareness of ESG practices is the reason for this increased focus. It can improve liquidity and increase the value of the company. Businesses are increasingly realizing how important it is to follow ESG guidelines. Those who exhibit good ESG regulation, in particular, frequently reduce stakeholder disputes. It lessens the chance of failure and lowers the danger of insolvency (Melinda and Wardhani 2020) . Furthermore, astute investors are unwavering in their belief that non-financial components of investment are crucial. It is essential to building a healthy world economy. Buyers can avoid "sinful companies" by using ESG evaluations in their choices. those who use tobacco products, drink alcohol, or gamble may be in more danger financially. Their communal, social, and ecological activities are to blame for this. As a result, ESG performance becomes important for consumers and companies alike.

ESG management techniques may significantly affect a company's value. Non-financial metrics known as "ESG factors" are used to assess a company's ethical and sustainable effect. Company worth and ESG management techniques might have a complicated relationship. It is affected by several things. Businesses with robust ESG policies are typically more adept at recognizing and controlling risks. Governance, social, and environmental concerns may be connected to this risk. Reputational, regulatory, and operational risks

may decrease as a result. In the end, it protects and increases company value (Mendiratta et al . 2023). By increasing resource efficiency, adopting sustainable methods can result in cost savings. In addition, it decreased waste. Businesses that utilize resources effectively. It could see an improvement in its financial results. It positively impacts firm value. Notable corporate environmental, social, and governance (ESG) occurrences are referred to as ESG scandals. It involves controversies involving products or dubious social behavior. It draws a lot of press curiosity and piques investors' interest. These accidents can affect a company's total market worth, put its image at jeopardy, and throw doubt on its prospects for the future (Nirino et al. 2021) . There is much disagreement on corporate social performance (CSP), despite its growing importance. It focuses on how it affects market value. According to some academics, a firm's value is increased by good overall performance since it lowers expenses and unusual risk. Some people believe that CSR programs are a waste of resources and a way for management to take advantage of shareholders for their gain. Studies on CSR that have already been done have mostly concentrated on good social results.

The purpose of this study is to examine the relationship between financial success and corporate environmental, social, and governance (ESG) performance. It is from the perspective of a dual perspective that takes into account management practices and contentious events. The study will also examine the effects of the ownership hierarchy on the link between economic success and ESG performance. The analysis incorporates Chinese-listed companies between 2018 and 2022. To explore the impact of ESG rating scores on firm value from a dual perspective based on management practices and controversial events. The research objective of this study are as follows.

To assess the overall impact of ESG rating scores on the firm value of listed companies.

To investigate the heterogeneity in the impact of scores from different ESG dimensions on firm value.

1. To identify and analyze other factors (e.g., company size, leverage ratio) that may affect firm value.

Research questions offer a thorough framework. It was for examining possible variances throughout different categories and affecting factors as well as the effect of ESG ratings on business value**.**

RQ1 How do ESG rating scores significantly affect the firm value of listed companies?

RQ2 Apart from ESG what other factors affect the firm value?

## 2. Literature Review and Research Hypotheses

The financial condition of a company may be significantly impacted by the implementation of sustainability guidelines. These programs frequently require significant financial outlays for the purchase of eco-friendly machinery. It also entails creating safety measures and putting strict product standards into action. Even though a company may pay significant upfront expenditures, investing in sustainability can pay off in the long run. This establishes the framework for the company's existence (Brinette et al. 2023). By endorsing sustainable goods and services, they put it in a position to prosper in the marketplace. As a result, scholars have taken an active role in providing insights. It examines how sustainability efforts affect the value and performance of businesses. An increasing corpus of research in this area attempts to offer industry management advice, enabling improved management of sustainability concerns**.**

### 2.1 Historical Review of Corporate ESG Ratings

A growing number of people are interested in comprehending the complex relationship in recent years. It is a trade-off between financial results and the company's Environmental, Social, and Governance (ESG) performance. It has become clear how institutional holdings affect this relationship. It is the center of the investigation. It reveals complex dynamics in the business environment. It was once thought of as a non-financial element. ESG factors are becoming more and more well-known as significant indicators of company performance (Dorfleitner et al. 2020). This change in viewpoint is indicative of a wider understanding of the significant effects that moral and environmentally friendly company behavior have on the generation of long-term wealth. Many academics confirm that there is a favorable relationship between business value and ESG performance. According to a 2017 study by Liu and Zhang, environmental disclosure could not automatically increase profitability in the near run. It helps to increase value over time. Dorfleitner et al. (2020) further study revealed that companies included in the ESG Index had greater

enterprise value. a favorable relationship between business value as determined by Tobin's q and index ranking.

Additionally, it was shown by Cheng et al. (2024) that a firm's worth is favorably impacted by its ESG capabilities. Cheng et al. (2024) highlighted the beneficial impact of social as well as environmental information disclosure on corporate value in the context of Chinese listed enterprises. According to research by Wu et al. (2023), Tobin's Q is greatly increased and capital expenses are decreased with ESG certification. Sample US firm-years from 2002 to 2018 totaling 14,039 are examined. The three facets of social responsibility for businesses have a beneficial impact on business value, according to Wu et al. (2023). An additional investigation by Nguyen et al. (2022) examined 57 US non-financial companies included in the S&P 500. As determined by Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q, it was determined that better ESG practices increase business value. The majority of research indicates that corporate value and ESG performance are positively correlated. Some academics make the case that there is no effect at all or perhaps a negative one. According to Nguyen et al. (2022), a portion of the company's capital is used for corporate ESG investments. It implies that increasing a company's ESG performance might not always increase its value. According to Sassen et al.'s (2016) analysis of European businesses, improved ESG performance may impede the growth of company value. According to Atan et al. (2018), there are negligible correlations between ESG performance and net worth return. It has enterprise worth while researching businesses in Malaysia.

Drawing insights from the preceding analysis, this paper posits the following hypotheses.

H1: ESG rating scores significantly affect the firm value of listed companies.

**2.2 Heterogeneous Impact of ESG Rating Scores on Firm Value**

The relationship between trade esteem and natural, social, and administration (ESG) execution has picked up consideration in later a long time. ESG exercises illustrate the organization's commitment to natural assurance. We moreover center on solid administration hones and social obligation. This implies it contains a noteworthy affect on corporate esteem. Be that as it may, this impact changes over organizations and segments. This article audits the comes about of current investigate. This sheds light on the complex relationship between corporate esteem and natural, social, and administration (ESG) execution. The ponder centers on the structure of government, administration instruments, and the recurrence of struggle occurrences. The consider by Li et al. (2022) appears a significant impact of ESG execution on firm esteem. This can be particularly genuine in companies with tall levels of control. Investigate appears that administration features a critical affect on the relationship between natural, social and administration (ESG) results and corporate values. A more grounded relationship between CEO inspiration and moral corporate behavior may clarify why organizations with higher levels of best administration are more open to ESG concepts. Kim et al. (2023) consider the impact of valuation contrasts between companies, which makes a difference in getting it the effect of ESG. Considers appear that companies with distinctive ESG evaluations (distinctive scores issued by distinctive rating offices) have lower appraisals. This highlights the significance of straightforwardness and consistency in ESG detailing.

ESG relationships are very industrial. This is a negative relationship between corporate governance and ESG performance. According to the findings, some areas are more affected than others. To effectively navigate the ESG landscape, investors, governments and companies must understand the value of ESGs (Henriksson et al., 2024). Companies paying more attention to environmental, social and governance issues may need to update their sustainability strategies. The goal is to increase corporate value. A key thought is how administration hones act as a bridge between corporate values and ESG hones. Kim et al. (2023) found that organizations with great chance and responsibility administration have superior authority forms. They will be more open-minded to how ESG can be effective in moving forward corporate value.This stresses how critical it is to consolidate feasible hones into firm administration and generally methodology. The relationship between natural, social, and commerce standards is exacerbated by disagreeable occasions such as labor debate or normal catastrophes. Agreeing to Kim et al. (2023), organizations who confront such scenarios are more likely to involvement a negative affect on their firm esteem as a result of their ESG

execution. Companies must oversee emergencies successfully and lock in unreservedly in arrange to moderate the impacts and keep up solid ESG scores. In conclusion, a number of components, such as possession structure, authority fashion, and reactions to debated circumstances, decide how ESG rating rankings influence a company's valuation. These discoveries emphasize the significance of advanced instruments for understanding ESG variables

In this paper we propose the following hypothesis based on the previous review.

H2: There is heterogeneity in the impact of scores from different dimensions on firm value.

### 2.3 Other Factors Affecting Firm Value

Research on the factors that affect the value of the company involves several parameters, including sustainability factors. This includes the leverage ratio (Lev) and the size of the firm (Size). Managers, stakeholders, and investors must comprehend these variables. It is employed to evaluate a company's prospects for expansion and financial stability. Firm value is significantly influenced by the size of the company (Yu et al. 2022). Because of their size, larger enterprises sometimes fetch greater valuations. In addition, because of that, there is a larger market representation and possibility of generating income. Research has indicated that EBITDA multiples are often greater for larger organizations. It demonstrates their capacity to draw in more significant deals and produce higher returns on investment (Behl et al.2022). Furthermore, investors may value larger organizations more highly because they believe they have greater stability and resources.

Leverage ratios, which express a company's debt-to-equity ratio, are another important aspect that impacts business value. Businesses that have large leverage ratios might be more financially vulnerable. It is brought on by larger financial commitments, which might result in decreased values (Ting et al.2019). Conversely, businesses with lower leverage levels could be seen more positively. The investors are viewed as being more reliable financially and posing less danger. Leverage ratio and business size affect firm value, but they also depend on several other factors. For example, revenue patterns and the caliber of management teams. In addition, client concentration and profit margins are related. The valuation of a firm is influenced by factors such as sector focus and its competitive edge.

Drawing insights from the preceding analysis, this paper posits the following hypotheses

H3: Company size (Size) and Leverage ratio (Lev) affect the firm value.

## 3. Research Design

### 3.1 Data Source

The study makes use of panel data regression to do an empirical investigation of the relationship between ESG and corporate performance. The Shanghai Stock Exchange provided the information (SSE). Along with the Shenzhen Stock Exchange, the Shanghai Stock Exchange (SSE) is one of the two main stock markets in China (Dogru et al. 2022). China A-shares, or most Chinese equities, are listed on these exchanges. Shanghai Stock Exchange Composite Index (SSEC) management and supervision are under the purview of the SSE. The performance of every A-share listed on the Shanghai Stock Exchange is monitored by this benchmark index. The SSE provides a range of indexes. SSE 180, SSE 380, STAR 50, SSE 50, and SSE Composite are among them (Halid et al. 2023). It monitors the performance of different segments of the market. For instance, the achievement of the top 50 most traded A-shares on the Shanghai Stock Exchange is monitored by the SSE 50. The Shenzhen Stock Exchange has 2,179 more listed businesses than the other stock exchanges. It surpasses the 1,518 Shanghai Stock Exchange in size. In contrast to the Shanghai Stock Exchange, the Shenzhen Stock Exchange has a smaller market capitalization. Additionally, the SSE has updated the delisting guidelines for businesses that are listed on its major boards. We refer to it as the STAR Market. Its goals are to safeguard investors and raise the caliber of listed businesses. These regulations are a component of the SSE's continuous initiatives to improve the Chinese stock market's fundamental performance and reliability.

The present study also incorporates Wind ESG data. For Chinese enterprises looking for Environmental, Social, and Governance (ESG) ratings and data, Wind ESG is a well-known source. Transparent ESG ratings are provided by the firm (Boukattaya and Omri 2021). It allows users to incorporate quantitative and fundamental research with ESG considerations. Additionally, a risk assessment is conducted. The tracking rating index for Wind ESG has improved significantly. From a BBB rating in 2022 to an AA rating. The independence and dependability of Wind ESG's ratings have earned them acclaim. Investors are given important information about Chinese firms' ESG performance. In 2021, the business debuted its ESG ratings for Chinese equities. It uses both national and international ESG-related standards in its evaluation of businesses. This strategy has enhanced the legitimacy and applicability of Wind ESG's.

### 3.2 Variable Selection

#### 3.2.1. Dependent Variable

The market-based statistic used in this study, Tobin's Q, aligns with previous studies. To evaluate the success of the company. Tobin's Q is calculated by dividing the total assets at the end of the year by the market value of all outstanding shares, non-marketable shares, and net debt combined. It shows a robust positive association with the firm's relative worth (Boukattaya and Omri 2021).. Crucially, variations in the enterprise's book value do not affect Tobin's Q. It is the outcome of changes made to accounting guidelines.

#### 3.2.2. Independent Variable

ESG management performance score and ESG controversy score are used as key independent variables in the study. The ESG Management Practices Score assesses a company's compliance with environmental, social and governance (ESG) guidelines. They achieve this through policies, procedures and practices that aim to promote sustainable and ethical business practices. This score measures the effectiveness and breadth of a company's ESG strategy. This incorporates natural supportability programs, social duty programs and administration frameworks (Zhong et al.2022). Instep, the ESG Discussion Score surveys the frequency and degree of occasions that seem adversely influence a company's ESG execution. These incorporate natural infringement, labor issues, and government issues. It recognizes regions and areas where the company may involvement reputational or operational issues. The ESG Administration Hones Score and the ESG Discussion Score are utilized as key factors within the free ponder (Chang and Lee 2022). The ESG Administration Hones Score surveys a company's compliance with natural, social and administration (ESG) rules. They can do this through laws, directions and hones that point to advance economical and moral trade hones. This score measures the adequacy and breadth of a company's ESG procedure. This incorporates economical improvement plans, responsibility programs and government frameworks. Instep, the ESG Contention Score surveys the frequency and degree of occasions that seem adversely influence a company's ESG execution (Treepongkaruna et al. 2024). These include environmental violations, labor issues, and government issues. It identifies areas and areas where an organization may experience operational or reputational issues.

The Wind ESG, by and large, rating gives a comprehensive evaluation by consolidating both positive and negative rates connected to ESG perspectives (Yeh and Guo 2019) . It gives an objective assessment of an organization's natural, social, and administration (ESG) execution, emphasizing the noteworthiness of both successful administration and struggle determination. By combining these rankings, the think-about trusts supply a more nuanced see of how well companies oversee their ESG obligations and how these endeavors influence their by and large feasible and chance profile (Dziadkowiec and Daszyńska-Żygadło 2021). This coordinates procedure empowers investors, regulators, and shoppers to create superior choices based on an exhaustive understanding of natural, social, and administration (ESG) execution

#### 3.2.3. Control Variables

The framework includes control parameters to address potential issues such as latency. This is possible due to missing variables. In general, the size and location of the company is considered as the size of the different company (Aouadi and Marsat, 2018). They are often evaluated using metrics such as market value, earnings, and total assets. A firm's performance and behavior can be influenced by several factors, including the size

of the company. The leverage ratio shows how much of a company's funding is provided by debt. By dividing the entire debt by the total equity, it is computed. Leverage can affect the fiscal health and risk profile of a company.

### 3.2.3. Construction of Econometric Models

The econometric model that the paper employs to investigate the relationship between ESG rating scores and firm value**.**

$$Tobin'Qit = \beta i \cdot ESGit + \beta i\ Size_i + \beta i\ Lev_i + \beta i\ ROE_i + +\beta i\ FirmAge_i + \beta i\ MarketShareofEnterprises_i + \beta i\ ManagerialCapability_i + \beta i\ Dturn_i + \beta i\ INST_i + \ \mu i\ + \lambda t + \epsilon it$$

$Tobin'Qit$: Represents the firm value of company $i$ in period $t$. This is the dependent variable the study is trying to explain or predict.

$ROEi$: It is repesents company's profitability concerning shareholders' equity $i$ in period $t$.

$ESGit$: Denotes the ESG rating scores for the company $i$ in period $t$. This is the core explanatory variable, and the paper aims to understand how it influences firm value.

$Size_i$: Denotes the size of the firm

$Lev_i$: is leverage ratio. It is a financial metric that measures the amount of debt a company uses to finance its assets relative to its equity or other financial benchmarks.

$FirmAge_i$: Firm Age refers to the number of years a company has been in operation since its establishment. It is an important metric that can indicate the company's stability, experience, and market presence. Older firms often have more established reputations and customer bases, while younger firms may be more innovative but less tested over time.

$MarketShareofEnterprises$ :Market Share of Enterprises refers to the percentage of total sales in a particular market or industry. It is controlled by a specific company or group of companies. It is a key indicator of a company's competitiveness and market dominance. A high market share typically signifies a strong market position, influence, and consumer preference. A low market share may suggest a need for growth or improvement in competitive strategies

$ManagerialCapability_i$: Managerial Capability refers to the skills, competencies, and effectiveness of a company's management team in executing strategies, making decisions, and leading the organization toward its goals.

$Dturn_i$: It measures the average number of days a company takes to sell its entire inventory during a given period. It reflects inventory management efficiency and is crucial for assessing how well a company converts its inventory into sales.

$\beta i\ INST_i$: It refers to the percentage of a company's shares that are owned by institutional investors. This includes mutual funds, pension funds, and insurance companies.

$\beta i$: Represents the parameter to be estimated. It signifies the effect or relationship between ESG rating scores and firm value. The estimated value of $\beta i$ will provide insights into the strength and direction of this relationship.

$\mu i$: Represents individual effects or firm-specific characteristics that might influence firm value but are not explicitly measured. These could include unique attributes of each company that affect its value.

$\lambda t$: Represents time effects or year-specific factors that might impact firm value across all companies in a particular period. These factors could capture economic conditions, industry trends, or other time-specific influences.

$\epsilon it$: Represents the random error term, capturing unobserved factors or measurement errors that affect firm value but are not accounted for in the model**.**

The study uses panel data regression to provide empirical evidence on how ESG rating scores relate to firm value while accounting for individual and time-specific effects.

**4. Regression Results and Analysis**

**4.1 Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| **TobinQ** | 1,062 | 1.591 | 1.190 | 0.802 | 9.818 |
| **ROE** | 1,064 | 0.039 | 0.157 | -0.819 | 0.415 |
| **ESGControv~e** | 1,065 | 2.881 | 0.170 | 1.488 | 3.000 |
| **ESGManagem~e** | 1,065 | 2.771 | 0.820 | 1.043 | 6.279 |
| **Size** | 1,065 | 23.137 | 1.450 | 19.809 | 26.452 |
| **Lev** | 1,065 | 0.514 | 0.196 | 0.052 | 0.924 |
| **FirmAge** | 1,065 | 3.334 | 0.126 | 2.833 | 3.761 |
| **MarketShar~T** | 1,025 | 0.038 | 0.116 | 5.640 | 1.000 |
| **Managerial~y** | 1,022 | 0.737 | 0.075 | 0.611 | 1.162 |
| **Dturn** | 1,060 | 0.043 | 0.322 | -1.442 | 1.758 |
| **INST** | 1,065 | 0.479 | 0.178 | 6.350 | 0.976 |

**Table 1: Descriptive Statistics of Pooled Data set**

The descriptive statistics provided summarize the key variables in the regression analyses. Tobin's Q, a measure of firm value, averages 1.59 with a standard deviation of 1.19. It indicates moderate variability among firms. This is with values ranging from 0.80 to 9.82. ROE, reflecting the firm's profitability. It has a mean of 0.039 and a high standard deviation of 0.157. Hence, suggesting substantial variation in firms' profitability, with a range from -0.82 to 0.42. ESG Management Practices Score averages 2.77, with moderate variability, ranging from 1.04 to 6.28. It indicates differences in how firms manage their environmental, social, and governance responsibilities. The ESG Controversies Score is more tightly clustered with a mean of 2.88 and a standard deviation of 0.17. It suggests that most firms experience similar levels of controversies.

Firm Size, with a mean of 23.14 and a range from 19.81 to 26.45. Hence, shows some variability across firms. Leverage averages 0.51. Hence, indicates that, on average, firms have slightly more debt than equity, with a range from 0.05 to 0.92. Firm Age has a narrow range with a mean of 3.33, indicating that most firms are of similar age. Market Share is quite low on average at 0.038 with a high standard deviation. Hence, indicating significant differences in market presence among firms. Managerial Capability averages 0.74 with a narrow range, suggesting similar management quality across firms. Dturn, with a mean of 0.043 and a high standard deviation, indicates varying efficiency in asset turnover. Lastly, Institutional Ownership has averages 0.48. This showed that the data is scattered with some firms having almost no institutional ownership and others having nearly full institutional ownership.

**4.2 Regression Results Analysis**

**4.2.1.Empirical Test**

| | (b) | (B) | (b-B) | sqrt(diag(V_b-V_B)) |
|---|---|---|---|---|
| | **fixed** | **random** | **Difference** | **S.E.** |

| | | | | |
|---|---|---|---|---|
| **ROE** | 0.406 | 0.213 | 0.193 | 0.073 |
| **ESGControv~e** | -0.104 | -0.308 | 0.204 | 0.0405 |
| **ESGManagem~e** | -0.098 | -0.035 | -0.063 | 0.019 |
| **Size** | -0.829 | -0.427 | -0.402 | 0.101 |
| **Lev** | 0.4377 | -0.179 | 0.618 | 0.200 |
| **FirmAge** | 3.587 | 1.428 | 2.158 | 0.391 |
| **MarketShar~T** | 1.235 | 0.241 | 0.994 | 0.427 |
| **Managerial~y** | -1.862 | -0.369 | -1.493 | 0.647 |
| **Dturn** | 0.180 | 0.185 | -0.006 | 0.006 |
| **INST** | 0.929 | 0.929 | -0.0006 | 0.135 |

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 55.71

Prob>chi2 = 0.0000

Table 2 Hushman Test

The Hausman test results in Table 2 compare the fixed effects (b) and random effects (B) models to determine if the individual effects are correlated with the regressors. The test statistic, chi-squared (10) = 55.71 with a p-value of 0.0000. It indicates a significant difference between the fixed and random effects estimators. This result strongly suggests that the random effects model is inconsistent, and the fixed effects model should be preferred. Examining the coefficients, study see differences between the fixed and random effects estimates. For instance, the ROE coefficient shows a notable difference (0.193) between the fixed (0.406) and random (0.213) effects models. It suggests that ROE's impact on the dependent variable varies significantly between the two models. ESG Management Practices Score and ESG Controversies Score also exhibit differences (-0.063 and 0.204, respectively). It implies that ESG factors may have varying impacts under different assumptions about individual effects.

Size and Leverage show substantial differences (-0.402 and 0.617, respectively). It indicates that firm size and leverage effects are more pronounced under the fixed effects model. Firm Age and Market Share have large differences (2.158 and 0.994, respectively). Hence, highlighting significant variations in their impacts between models. Given the significant Hausman test result the fixed effects model is preferable for this analysis

| **Variable** | **VIF** | **1/VIF** |
|---|---|---|
| **Size** | 2.95 | 0.339 |
| **Managerial~y** | 2.41 | 0.415 |
| **Lev** | 1.56 | 0.639 |
| **ESGManagem~e** | 1.26 | 0.791 |
| **ROE** | 1.25 | 0.800 |

| | | |
|---|---|---|
| **INST** | 1.22 | 0.821 |
| **MarketShar~T** | 1.14 | 0.877 |
| **FirmAge** | 1.09 | 0.920 |
| **ESGControv~e** | 1.08 | 0.922 |
| **Dturn** | 1.03 | 0.973 |
| **Mean VIF** | 1.5 | |

Table 3: Multicollinearity Test

The provided data in Table 3 shows Variance Inflation Factor (VIF) values for various variables in a regression model. It indicates multicollinearity levels. Here, all VIFs are below 3, with Size having the highest VIF at 2.95. It suggests low multicollinearity overall. The mean VIF is 1.5, reinforcing the conclusion of low multicollinearity. Consequently, the regression model's estimates are reliable. The independent variables do not excessively correlate with each other.

**4.2.2.Regression Results**

| **TobinQ** | **Coef.** | **Std. Err.** | **t** | **P>t** | **[95% Conf.** | **Interval]** |
|---|---|---|---|---|---|---|
| **ROE** | 0.406* | 0.188 | 2.16 | 0.031 | 0.036442 | 0.774948 |
| **ESGControversiesScore** | -0.104 | 0.145 | -0.72 | 0.471 | -0.38787 | 0.179482 |
| **ESGManagementPracticesScore** | -0.098* | 0.044 | -2.22 | 0.026 | -0.18398 | -0.01145 |
| **Size** | -0.829*** | 0.113 | -7.36 | 0.000 | -1.05035 | -0.60798 |
| **Lev** | 0.438 | 0.316 | 1.39 | 0.166 | -0.18232 | 1.05761 |
| **FirmAge** | 3.586*** | 0.515 | 6.96 | 0.000 | 2.57437 | 4.597673 |
| **MarketShareofEnterprisesinT** | 1.235* | 0.573 | 2.16 | 0.031 | 0.110228 | 2.359818 |
| **ManagerialCapability** | -1.862* | 1.021 | -1.82 | 0.069 | -3.86597 | 0.141762 |
| **Dturn** | 0.180** | 0.059 | 3.06 | 0.002 | 0.064489 | 0.295558 |
| **INST** | 0.929*** | 0.252 | 3.69 | 0.000 | 0.434964 | 1.423635 |
| **cons** | 10.045*** | 2.400 | 4.19 | 0.000 | 5.333521 | 14.75633 |

Standard errors are reported in parenthesis, ***,**, and * represents 1%, 5%, and 10% significant level

Table 4: Regression Results

The fixed-effects regression analysis presented in Table 4 investigates the impact of various predictors on Tobin's Q. The study is based on 1,016 observations across 205 groups. The R-squared values indicate the model's explanatory power. It is 13.14% within groups, 21.84% between groups, and 19.11% overall. The significant F-statistic ($F(10, 801) = 12.11$, $p < 0.0000$) confirms that the model is statistically significant. It implies that the predictors collectively influence Tobin's Q. Key findings include a positive and significant coefficient for ROE (0.4057, $p = 0.031$). It indicates that a higher return on equity is associated with higher firm valuation. ESG Management Practices Score has a negative and significant impact (-0.0977, $p = 0.026$). It suggests that better ESG management practices might paradoxically correlate with lower firm value in this sample. Firm Age (3.5860, $p < 0.000$) and Market Share (1.2350, $p = 0.031$) are positively and

significantly related to Tobin's Q. It highlights that older firms and those with larger market shares tend to have higher valuations. Size shows a significant negative impact (-0.8292, $p < 0.000$). It indicates that larger firms might be less valued by the market. Other variables, such as ESG Controversies Score, Leverage, and Managerial Capability, do not show significant impacts. It suggesting that these factors may not directly influence Tobin's Q within this model. The intra-class correlation (rho = 0.8376) suggests that 83.76% of the variance in Tobin's Q is due to differences across firms. It emphasizes the importance of firm-specific effects. Overall, the model demonstrates significant relationships between certain firm characteristics and market valuation.

**5. Conclusion and Policy Suggestions**

The regression analysis reveals mixed effects of ESG rating scores on firm value, as measured by Tobin's Q. Specifically, the ESG Management Practices Score has a negative and significant impact on Tobin's Q (-0.0977, $p = 0.026$). This finding suggests that higher scores in ESG management practices may paradoxically correlate with lower firm valuations in this sample. This unexpected result could be due to various underlying factors, such as the costs associated with implementing ESG practices. It can be market skepticism about the actual benefits of such practices. Conversely, the ESG Controversies Score did not show a significant effect on Tobin's Q. It indicating that controversies alone do not significantly impact firm value in this model. Several non-ESG factors significantly influence firm value. The return on equity (ROE) has a positive and significant effect on Tobin's Q (0.4057, $p = 0.031$). It indicates that higher profitability is associated with higher firm valuations. Firm age (3.5860, $p < 0.000$) and market share (1.2350, $p = 0.031$) are also positively and significantly related to Tobin's Q. It suggests that older firms and those with larger market shares tend to be more highly valued. However, firm size shows a negative and significant impact on Tobin's Q (-0.8292, $p < 0.000$). It implying that larger firms may be less valued by the market. Other variables, such as leverage and managerial capability, did not exhibit significant impacts on firm value. It suggesting that these factors may not directly influence Tobin's Q within this model. The high intra-class correlation (rho = 0.8376) emphasizes that a substantial portion of the variance in firm value is due to differences across firms. It highlights the importance of firm-specific effects. Overall, the model underscores the significant relationships between certain firm characteristics. It is particularly profitability, age, market share, and size—and market valuation, alongside the complex role of ESG factors

Based on the findings, several policy suggestions can be made to enhance firm value through effective management of ESG practices and other key factors. Firstly, companies should aim to improve their return on equity (ROE) by optimizing operational efficiency and profitability. Policymakers and regulators should provide incentives for firms to adopt practices that enhance profitability without compromising long-term sustainability.

Second, ESG management methods are crucial. The negative link with business value shows that companies should carefully weigh the costs and advantages of these actions. Policymakers should encourage transparent reporting and reasonable goal-setting in ESG programs. It guarantees that enterprises are not overloaded with compliance costs, which may repel investors. Third, the beneficial effect of business age and market share on valuation demonstrates the significance of stability and presence in the marketplace. As a result, policies that promote development and expansion of markets, particularly for older enterprises. It may increase their market worth. Subsidies, tax benefits, and research funding can all help achieve this goal. Finally, the detrimental effect of business size implies that larger companies may experience bottlenecks that lower their market worth. Governments should encourage large companies to implement lean management methods and develop an agile and innovative culture. Overall, these policy recommendations seek to create an environment in which businesses can succeed commercially while adhering to rigorous ESG requirements. It finally leads to long-term growth and higher business value.

Although the study provides helpful details, there are a few downsides. The investigation's reliance on a specific collection and ESG evaluation approach limits its generalizability. To confirm and expand on the results, future research might examine a variety of datasets and other ESG frameworks. Furthermore, the study doesn't explore subtleties unique to the business. In order to identify sector-specific consequences,

future research may take industry-specific studies into account. Regressions using panel data capture relationships across time. Causal conclusions are limited, though. The research must make use of sophisticated econometric methods. Approaches using instrumental variables are included. might thereby improve causal identification. Moreover, the chronological span of the investigation is constrained. The longer-term longitudinal studies may provide a more thorough knowledge of the relationship between corporate value and ESG practices.

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