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DOES FAMILY OWNERSHIP INFLUENCE ESG PERFORMANCE? ANALYZING THE IMPACT OF FAMILY FIRMS ON ESG RATINGS

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Abstract

This study examines the relationship between family ownership and ESG performance, analyzing a dataset of Nifty 500 companies from 2022 to 2024 to understand how ownership structures influence ESG performance. Using a fixed effects regression model, the study reveals that family ownership negatively impacts overall ESG scores, with the strongest effects seen in governance, followed by social and environmental performance. While firm size positively influences ESG adoption and liquidity constraints may hinder sustainability investments, these financial factors do not fully account for the ESG performance gap between family and non-family firms. While family firms often emphasize long-term value creation and stakeholder relationships, they tend to underperform in ESG compared to non-family firms, with the most significant shortcomings observed in governance. The findings suggest that concentrated ownership, financial conservatism, and a reluctance to cede control contribute to weaker governance mechanisms, lower ESG disclosure, and limited adoption of sustainability initiatives.

Keywords: ESG Performance, ESG Scores, Family Ownership, ESG Ratings, ESG Disclosure.

INTRODUCTION

Family-owned businesses play a crucial role in global economies, contributing significantly to employment, innovation, and long-term economic stability. Their unique governance structures, concentrated ownership, intergenerational leadership, and strong socioemotional wealth considerations, distinguish them from non-family firms.

As sustainability and ethical corporate practices gain prominence, the role of family ownership in shaping ESG performance has become a critical area of academic inquiry (Bang & Ramachandran, 2025). ESG performance is now widely recognized as a key determinant of corporate resilience, risk management, and investor confidence, yet its relationship with family ownership remains complex and contested.

The increasing global emphasis on ESG principles stems from rising concerns about climate change, social responsibility, and corporate transparency. Regulatory bodies, institutional investors, and other stakeholders demand greater accountability in corporate sustainability efforts, prompting firms to integrate ESG strategies into their business models (CRISIL's ESG Scoring Methodology, 2023).

While non-family firms often respond to these pressures by adopting structured ESG frameworks, family firms may exhibit varied responses due to their long-term orientation, governance practices, and financial constraints (Waldau, 2024). Some studies suggest that family-owned firms are more likely to engage in sustainable practices due to their emphasis on legacy and reputation preservation, while others argue that financial conservatism and risk aversion may lead to weaker ESG adoption (Espinosa-Méndez et al., 2024).

The governance structures of family firms introduce distinct challenges and advantages in ESG adoption. On one hand, their long-term strategic vision fosters a commitment to sustainability, corporate social responsibility (CSR), and ethical business practices. On the other hand, issues such as limited external oversight, resistance to change, and financial constraints may hinder ESG implementation.

(Bang & Ramachandran, 2025) found that while non-family firms tend to excel in the environmental dimensions of ESG, family business groups perform better in social aspects due to their deep-rooted community ties and philanthropic engagements. However, despite these potential strengths, family firms often face difficulties in balancing ESG commitments with financial performance, particularly in emerging markets where capital constraints and regulatory inefficiencies persist (Espinosa-Méndez et al., 2024).

Financial constraints play a significant role in determining ESG engagement levels in family firms. Compared to widely held corporations, family-owned businesses often rely on internal financing and exhibit conservative investment behavior. This can limit their ability to adopt costly ESG initiatives, such as transitioning to renewable energy or implementing extensive sustainability reporting frameworks (Mismetti et al., 2024). Additionally, agency problems within family firms, including conflicts between controlling family shareholders and minority investors, may impact ESG decision-making. Espinosa-Méndez et al. (2024) highlight that weak governance structures in some family businesses may lead to inconsistent ESG performance, where social initiatives are prioritized over environmental and governance improvements. The role of institutional investors and regulatory pressures further shape ESG performance in family firms. Research has shown that institutional investors increasingly consider ESG factors in their investment decisions, applying pressure on firms to enhance their sustainability efforts (CRISIL ESG Leadership Summit, 2021).

However, family firms, particularly those with entrenched ownership, may be less responsive to external pressures due to their preference for control over strategic decision-making (Ligård & Bernhardsen, 2022). This resistance can result in lower ESG scores compared to widely held corporations, where dispersed ownership structures encourage stronger governance and transparency (Oza & Patekar, 2024). Empirical research on the relationship between family ownership and ESG performance remains inconclusive. Some studies argue that family firms' strong relational networks and stakeholder commitments lead to superior ESG outcomes, while others suggest that their focus on financial prudence and risk minimization may hinder comprehensive ESG integration (Ligård & Bernhardsen, 2022).

The complexity of this relationship necessitates further exploration, particularly in markets where family-controlled enterprises dominate the corporate landscape. In India, where family firms constitute a significant portion of publicly listed companies, understanding the dynamics of ESG adoption within these entities is crucial for policymakers, investors, and business leaders (Oza & Patekar, 2024).

This study aims to bridge the gap in the existing literature by examining the influence of family ownership on ESG performance, with a specific focus on NIFTY 500 companies from 2022 to 2024. This research seeks to determine whether family firms demonstrate superior or weaker ESG performance relative to non-family firms.

LITERATURE REVIEW

Environmental, Social, and Governance (ESG) factors have gained significant importance in the corporate world as stakeholders increasingly demand responsible and sustainable business practices. ESG performance is now considered a key determinant of corporate financial stability, investment attractiveness, and long-term sustainability. Companies that integrate ESG considerations into their strategic decision-making processes are often better positioned to mitigate risks, enhance reputation, and secure long-term profitability (CRISIL's ESG Scoring Methodology, 2023).

The ESG framework encompasses three core dimensions: environmental sustainability, social responsibility, and governance effectiveness. The environmental component assesses a company's impact on climate change, resource usage, and pollution control. Companies with strong environmental policies often demonstrate lower carbon emissions, effective waste management, and efficient use of renewable energy sources. In the Indian corporate landscape, ESG adoption has been driven by increasing regulatory oversight and investor demand. Many firms have aligned their sustainability strategies with India's Net Zero target of 2070, incorporating climate change policies and emission reduction commitments within their ESG frameworks (CRISIL's ESG Scoring Methodology, 2023).

The social dimension of ESG focuses on workplace diversity, employee well-being, and corporate social responsibility (CSR) initiatives. Indian companies have made strides in incorporating social considerations into their business models, particularly in workforce diversity and community engagement.

The CRISIL ESG Leadership Summit (2021) highlighted that companies with strong social responsibility programs tend to attract a more engaged workforce and achieve higher customer loyalty. However, challenges persist, particularly in sectors with high labor intensity, where worker rights and safety remain areas of concern (CRISIL ESG Leadership Summit, 2021).

Governance, the third pillar of ESG, assesses corporate leadership, board composition, transparency, and ethical business practices. Strong governance structures ensure that companies operate with accountability and fairness, reducing risks related to financial misconduct or regulatory violations. In India, regulatory frameworks such as the Business Responsibility and Sustainability Reporting (BRSR) guidelines have enhanced corporate governance standards. These guidelines require firms to disclose key governance practices, including board diversity, executive compensation, and shareholder rights. A study by the Centre for Family Business & Entrepreneurship (2023) found that governance practices in Indian family businesses remain closely tied to ownership structures, with family-controlled firms exhibiting higher levels of long-term strategic planning but occasionally facing challenges in board independence (Centre for Family Business & Entrepreneurship, 2023).

ESG integration has also been increasingly linked to financial performance and risk management. Companies with robust ESG frameworks tend to have lower capital costs, improved investor confidence, and better risk resilience. CRISIL's ESG scoring methodology evaluates firms on over 600 key performance indicators (KPIs), measuring their ESG effectiveness in a standardized manner. The scoring framework assigns governance the highest weight (40%) in its ESG assessment, reflecting the belief that strong governance is fundamental to driving environmental and social agendas (CRISIL's ESG Scoring Methodology, 2023).

The ESG Leadership Summit (2021) report emphasized that institutional investors are integrating ESG factors into their decision-making, with nearly 80% of investors in India considering ESG criteria when evaluating corporate investments. This trend underscores the growing importance of ESG disclosures in accessing capital markets and attracting long-term investments (CRISIL ESG Leadership Summit, 2021).

Despite progress, challenges remain in ESG adoption, particularly in emerging markets like India. Data availability and standardization continue to be major hurdles in ESG integration. The ESG Leadership Summit (2021) noted that inconsistent reporting practices across industries make it difficult to compare ESG performance effectively.

Additionally, the high costs associated with ESG compliance pose financial constraints, particularly for small and medium-sized enterprises (SMEs). Many family-owned firms, which dominate India's business landscape, struggle with ESG integration due to limited resources and a focus on short-term profitability (Centre for Family Business & Entrepreneurship, 2023).

The future of ESG in India is likely to be shaped by regulatory developments, investor expectations, and corporate commitments to sustainability. As India moves towards achieving its Net Zero targets, companies will need to strengthen their ESG disclosures and align their operations with global sustainability standards. The evolution of ESG frameworks will require collaborative efforts from regulators, businesses, and investors to ensure effective implementation and long-term value creation (CRISIL's ESG Scoring Methodology, 2023).

(Waldau, 2024) conducted a systematic review of 127 peer-reviewed studies from 2000 to 2024 to assess ESG performance in family firms. The review highlights that family involvement plays a complex role in ESG outcomes, with mixed effects across different ESG dimensions. Methodological inconsistencies have contributed to inconclusive results. The study identifies future research opportunities, emphasizing the need for integrated frameworks to study ESG in family firms.

(Postiglione et al., 2025) examined the impact of ESG performance on corporate survival using a sample of non-financial firms in the STOXX 600 index from 2015 to 2023. The study applied Altman's Z-Score and Merton's Distance to Default models and found that ESG performance enhances corporate survival when moderated by firm size. While ESG scores initially showed a negative association with corporate survival, controlling for firm size revealed a significant positive effect.

(Bang & Ramachandran, 2025) studied ESG adoption in Indian family firms, using CRISIL ESG scores from 225 of India's largest listed companies. The study found that non-family firms perform better on ESG, especially in environmental metrics, while family business group-affiliated firms showed better social performance than standalone family firms. Foreign institutional investor ownership was identified as a key driver of ESG adoption.

(Hamid et al., 2015) investigated the relationship between capital structure and profitability in Malaysian family and non-family firms from 2009 to 2011. Using short-term debt ratio, long-term debt ratio, and total debt ratio as proxies, the study found a significant negative relationship between leverage and profitability, suggesting that more profitable firms rely less on debt financing.

(Oza & Patekar, 2024) examined the link between ESG performance and financial outcomes for NIFTY 500 companies from 2021 to 2022. Their regression analysis revealed a positive relationship between ESG scores and financial performance metrics such as ROE, ROA, and EPS in service-based firms, whereas the manufacturing sector exhibited mixed results, with some ESG components negatively affecting profitability.

(S. Sharma, 2023) studied the performance of ESG-based indices in India, particularly the NIFTY 100 Enhanced ESG and NIFTY 100 Sector Leaders Index. The study used Value at

Risk (VaR) models to assess ESG stock stability post-COVID-19 and found that firms with higher ESG risk management strategies exhibited more stable returns even in volatile markets.

(Thahira & Mita, 2021) analyzed ESG disclosure's impact on firm value across five ASEAN countries. Their regression analysis on 390 firms showed that ESG disclosure positively influences firm value, although the effect is weaker in family firms due to higher information asymmetry. The study suggests that family firms should enhance ESG transparency to improve investor confidence.

(Hughes et al., 2025) provided an extensive review of ESG regulations and best practices in family firms. The report highlights how family firms can leverage ESG initiatives as a competitive advantage while identifying challenges such as regulatory burdens and resource constraints. The study calls for policy frameworks that balance ESG compliance with business sustainability.

(Espinosa-Méndez et al., 2024) examined ESG performance in the world's 500 largest family firms from 2015 to 2021. Using a generalized method of moments (GMM) model, the study found that ESG performance positively correlates with firm value. During COVID-19, firms with strong ESG practices were less affected by market downturns, indicating ESG's role in resilience.

A study on family firms and risk-taking explored the relationship between ESG adoption and corporate risk-taking. The results revealed an inverted U-shaped relationship, where moderate ESG adoption reduces risk-taking but excessive ESG integration can limit growth. The study suggests that family firms should strategically integrate ESG to balance sustainability and innovation (Doucet & Requejo, 2022).

(Ligård & Bernhardsen, 2022) analyzed 528 publicly traded corporations in the Nordic market to investigate ESG ratings in family firms. Their findings indicate that family firms generally exhibit lower ESG ratings than non-family firms, primarily due to weaker performance in internal stakeholder-related ESG initiatives. The study suggests that family firms prioritize maintaining control over ESG engagement, particularly when a family member holds a CEO or board position, leading to lower ESG scores. However, family-founded firms tend to have better ESG ratings than other family firms. However, (Akkermans, 2024) examined the influence of family involvement on the relationship between capital structure and ESG performance in S&P 500 firms from 2010 to 2019. Using firm-level data and ESG ratings from LSEG Data & Analytics, the study found no significant relationship between capital structure and ESG performance, nor did family involvement have a significant moderating effect. The results challenge previous findings that linked capital structure with ESG outcomes, suggesting that firm-specific factors may play a larger role in determining ESG engagement.

(Espinosa-Méndez et al., 2023) investigated the impact of ESG performance on the value of family firms while considering financial constraints and agency problems. Using a sample of 254 of the world's largest family-owned firms from 2015 to 2021, the study found a positive association between ESG scores and firm value, with environmental and social factors playing a significant role. However, the presence of financial constraints and agency costs weakened this relationship, highlighting the importance of internal governance mechanisms in maximizing ESG benefits.

(Fiorillo & Santilli, 2024) explored the relationship between shareholder ESG performance and corporate sustainability. Using an international sample of 5,182 companies, the study found a strong positive link between shareholder ESG commitment and corporate ESG performance. The relationship was more pronounced in firms with dispersed ownership structures, where minority shareholders had greater influence. These findings underscore the role of shareholder activism in driving corporate ESG improvements.

(Gurusamy, 2024) analyzed the effect of corporate ownership structure on capital structure in BSE-listed manufacturing firms in India. Examining 357 firms across 16 sectors from 2006 to 2015, the study found that promoter and institutional ownership negatively influenced leverage, while corporate ownership had a positive impact. The study used fixed effects regression to confirm that ownership concentration plays a crucial role in capital structure decisions, shaping firms' financial stability and risk profiles.

(M. Sharma et al., 2020) investigated the relationship between ESG disclosures and market valuation in Indian family and non-family firms. Using a sample of 245 firms over five years, the study found that while ESG disclosures were higher in family firms, they did not significantly impact firm value as measured by Tobin's Q. The findings suggest that family firms' proactive ESG engagement may be driven more by reputational concerns than direct financial benefits.

(Aragon-Amonarriz et al., 2025) analyzed the persistence of export relationships in family firms, arguing that socioemotional wealth (SEW) and network closure contribute to stronger international ties. Using a dataset of family and non-family exporters, the study found that family firms maintain more durable export relationships, particularly in times of economic crisis or when operating in culturally distant markets. These findings suggest that long-term orientation and relational trust give family firms an advantage in sustaining international partnerships.

(Osakwe et al., 2022) examined asset market equilibrium and the cost of capital in family firms, proposing a model that incorporates nonpecuniary socioemotional benefits, ownership concentration, and information asymmetry. The study found that family firms face different capital costs compared to non-family firms, as their investment strategies are influenced by long-term orientation and a preference for control over liquidity. These findings suggest that traditional corporate finance models may not fully capture the financial behavior of family firms.

(Pieper, 2003) conducted a literature review on corporate governance in family firms, emphasizing the differences between governance structures in family-controlled businesses and large publicly traded firms. The study highlighted that best practices from corporate governance research may not directly apply to family firms due to factors such as succession planning, concentrated ownership, and family influence over decision-making. The review calls for governance models specifically tailored to family business dynamics.

(Rehman et al., 2023) explored the relationship between corporate social performance (CSP) and shareholder protection in family firms across 46 countries. The study found that family firms tend to have lower CSP than non-family firms, but this gap narrows in countries with strong minority shareholder protection. In contrast, stronger shareholder rights in corporate governance increase the CSP gap, as they allow family owners to prioritize control over broader stakeholder interests. These findings highlight the regulatory environment's role in shaping ESG engagement in family firms.

(Delgado-García et al., 2023) investigated how the emotional traits of family CEOs influence R&D investment decisions. The study found that positive affect in family CEOs was associated with lower R&D investments, whereas negative affect led to higher R&D expenditures. Additionally, the effect of the CEO effect was moderated by ownership structure, with family CEOs who have higher ownership stakes exhibiting stronger risk aversion. The findings suggest that emotional and psychological factors significantly impact innovation strategies in family firms.

(Borsuk et al., 2023) examined carbon emissions in family firms, using a dataset of 6,610 non-financial companies from 2010 to 2019. The study found that family firms emit less carbon than non-family firms, particularly after the Paris Agreement, suggesting a stronger commitment to environmental responsibility. However, despite their lower emissions, family firms receive lower ESG scores due to reduced public commitments and transparency in sustainability reporting. These findings indicate that family firms may be less engaged in greenwashing but also less communicative about their environmental efforts.

(Diéguez-Soto et al., 2019) analyzed the moderating effect of R&D intensity on the relationship between family management and firm performance in Spanish manufacturing firms. The study found that when R&D intensity is low, family-managed firms perform similarly to non-family firms. However, at high R&D intensity levels, family-managed firms experience a decline in performance, likely due to risk aversion and governance challenges. These findings suggest that family firms need to adapt their management structures to fully capitalize on innovation.

(Ashwin et al., 2015) explored the impact of family involvement on innovation in Indian family firms, focusing on R&D investments and patents. The study found that family ownership and control over CEO and board positions positively influence R&D investment, supporting the stewardship theory perspective. Additionally, business group affiliation enhances innovation performance, suggesting that network effects play a crucial role in sustaining long-term innovation strategies. These findings highlight the need to consider ownership structures when evaluating innovation outcomes in family firms.

(Lauterbach, 2024) investigated the relationship between family firms, founders, and stock returns, analyzing whether family ownership influences financial performance. The study found that firms led by founder-CEOs exhibit stronger stock return predictability, while family-controlled firms do not demonstrate a significant performance advantage. These findings suggest that founder leadership, rather than family ownership alone, is a key determinant of firm performance in financial markets.

(Sun et al., 2024) investigated how family ownership and control influence ESG engagement in family firms. Using a sample of 1,151 publicly listed Chinese firms, the study found that both family ownership and control positively affect ESG performance. However, market competition and institutional environments negatively moderate these relationships. The findings suggest that while family firms prioritize sustainability due to socioemotional wealth concerns, external pressures can limit the extent of ESG engagement.

(Panicker & Georgiadou, 2025) examined the role of family ownership in M&A activity within emerging markets, focusing on 3,209 Indian firms from 2006 to 2017. The study found that family firms are more likely to engage in M&A compared to non-family firms. However, institutional ownership negatively moderates this relationship, suggesting that external shareholders may discourage risky acquisitions. The study highlights the influence of corporate governance structures on M&A strategies in family businesses.

(Godlewski & Nhung Le, 2024) explored the impact of family ties on firm performance in East Asia. The study found that firms operating in societies with strong family ties outperform those in cultures with weaker family networks.

The results suggest that shared values and familial loyalty provide competitive advantages in family firms. However, weak family ties were associated with lower firm performance, indicating that cultural context plays a crucial role in family business success.

(Sadiq & Gebba, 2022) analyzed financial performance, firm value, and corporate governance practices in UAE-based family businesses. Their study found that public family firms outperform private family firms in terms of revenue generation.

However, corporate governance practices did not show a significant relationship with financial performance. The findings highlight the importance of transparency and investor access in determining firm success.

(Doucet & Requejo, 2022) examined the relationship between financing constraints and business growth in private family firms across different legal systems. Their study found that family-controlled firms are less reliant on internal financing due to their ability to secure external funding more effectively. The findings suggest that strong institutional environments complement family ownership, facilitating business expansion and financial stability.

(Chatterjee et al., 2018) explored how ownership structure affects the cost of debt in Chinese firms. Their study found that institutional and foreign ownership reduce borrowing costs, whereas state ownership increases them. The results indicate that market-oriented ownership structures can improve credit access and lower financial risks for family firms operating in regulated markets.

(Comino-Jurado et al., 2021) reassessed debt-financing decisions in family firms, focusing on the role of family involvement in corporate boards and generational stages. Their study found that firms with high family involvement on boards tend to have higher debt levels. Additionally, first-generation family firms were more likely to rely on external debt compared to later generations, who exhibited a more conservative financial approach.

(Mismetti et al., 2024) conducted a comprehensive review of risk in family firms, analyzing 291 studies from 1992 to 2022. Their findings suggest that family firms exhibit both risk-averse and risk-seeking behaviors depending on external threats and internal governance factors. The study provides a framework for understanding risk-taking tendencies in family firms and their implications for long-term sustainability.

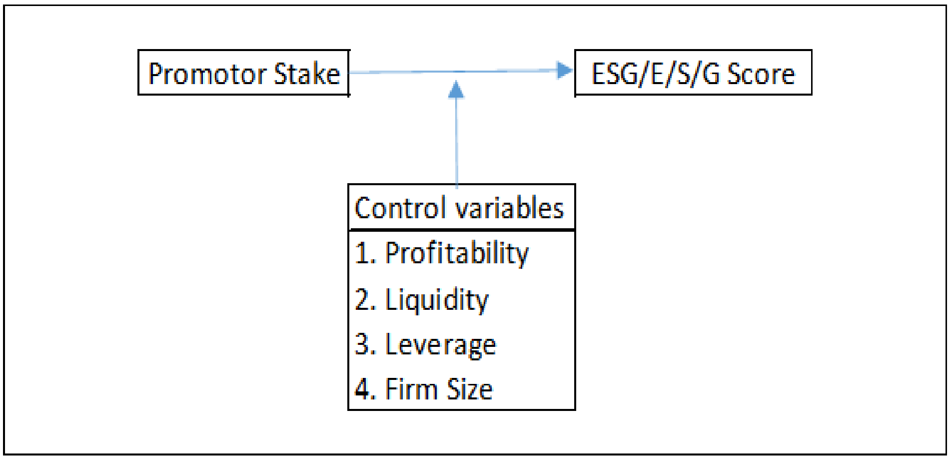
(Nhung Le, 2024) examined the impact of family ownership on capital structure, borrowing costs, and firm performance in East Asia. The study found that family firms tend to have higher leverage levels but also pay higher loan spreads compared to non-family firms. However, firms with strong family ties demonstrated superior financial performance, highlighting the competitive advantage of closely knit family businesses.

Given the increasing regulatory focus on ESG disclosures and the growing importance of sustainability in investment decisions, the findings of this study will provide valuable insights for corporate governance frameworks and ESG policy development in family-owned enterprises. As ESG continues to shape the corporate landscape, understanding how ownership structures influence sustainability performance remains a key area of academic and practical significance. The study's findings will enhance theoretical understanding and inform strategic decision-making for family businesses, investors, and regulators in their efforts to drive sustainable corporate development.

RESEARCH METHODOLOGY

The primary objective of the study is to comprehend the relationship between family-owned firms and the company's ESG performance. To analyze and draw conclusions from the study, and to address the main research questions, the following testable hypothesis is formulated:

There is a negative relationship between ESG scores and family firms.



Data and Sample

The data for this study includes Nifty 500 companies, excluding 36 firms for which ESG scores were not found (so effectively 464 companies), and covers the period from 2022 to 2024. The promoter stake data was obtained from the BSE website and Screener, while ESG, E, S, and G scores were sourced from the CRISIL website. Additional financial data for control variables (profitability, firm size, leverage, and liquidity) was collected from Bloomberg.

i. Dependent variable: ESG score, E score, S score, and G Score

The dependent variable in this study, the ESG score, is a composite measure evaluating a firm's environmental, social, and governance performance through a structured, weighted methodology. It provides a standardized assessment of corporate sustainability efforts, risk management, and ethical business practices. CRISIL's ESG scoring framework, for example, evaluates companies using over 600 data points derived from public disclosures, regulatory filings, and sustainability reports (CRISIL's ESG Scoring Methodology, 2023). The E-score assesses a firm's environmental impact by measuring factors such as carbon emissions, water usage, waste management, and renewable energy adoption, reflecting its commitment to climate action and resource efficiency. The S-score captures social responsibility by analyzing labor policies, workplace diversity, human rights initiatives, and community engagement, highlighting a firm's role in fostering an ethical workforce and inclusive business practices (Centre for Family Business & Entrepreneurship, 2023). The G-score evaluates corporate governance structures, focusing on board composition, shareholder rights, executive compensation, and financial transparency, ensuring accountability and regulatory compliance (CRISIL ESG Leadership Summit, 2021). Each component—E, S, and G—is assigned a specific weight based on industry relevance, with governance typically carrying the highest weight (around 40%), followed by environmental and social factors, which vary according to sector-specific risks. The final ESG score is derived by aggregating the individual E, S, and G scores, incorporating adjustments for regulatory compliance, risk exposure, and industry benchmarks. To ensure comparability across firms and industries, these scores undergo a normalization process, making them a reliable metric for assessing corporate sustainability performance.

ii. Independent Variable: Promotor shareholding percentage (dummy variable)

To account for the influence of promoter ownership, we introduce a dummy variable for promoter shareholding. This variable takes a value of 1 if a company's promoter shareholding exceeds 50%, indicating majority control, and 0 otherwise. This classification helps distinguish firms with significant promoter influence from those with more dispersed ownership structures, allowing for a clearer analysis of its impact on ESG scores.

iii. Control Variables:

In line with earlier research, we account for variables such as return on equity, leverage (debt-equity Ratio), current ratio, and firm size that may have an impact on the firm's financial success.

We define control variables as follows:

1. Return on equity for the firm is calculated by dividing net income by shareholder's equity measuring a firm's profitability relative to its equity base
2. Current ratio for the firm is calculated as the firm's current asset divided by current liabilities
3. Leverage is defined as the ratio firm's total debt divided by shareholder's equity
4. Firm size is the log of firm's total assets

Regression Model & Robustness Testing

This study employs panel data regression analysis to examine the relationship between ESG scores and the promoter's shareholding stake. To ensure the robustness of the regression model, three key econometric tests were conducted: the Multicollinearity Test, the Hausman Test, and the Fixed Effects Regression Analysis.

Multicollinearity Test

To assess multicollinearity, a correlation test was conducted. This test evaluates the degree of association between the promotor's shareholding percentage dummy variable, the control variables (return on equity, current ratio, log of total assets, and debt-equity ratio), and dependent variables (ESG Scores, E score, S score, G score). If the correlation coefficients among these variables were excessively high, it would indicate potential multicollinearity issues, which could distort the reliability of the regression estimates.

Hausman Test for Model Selection

To determine whether a fixed effects or random effects model is more appropriate for panel data analysis, the Hausman test was performed. The null hypothesis of the Hausman test suggests that the random effects model is the preferred specification, whereas the alternative hypothesis favors the fixed effects model.

Fixed Effects Regression Model

Fixed effects regression is a widely used statistical technique for analyzing panel data, particularly when the unobserved heterogeneity across entities is correlated with explanatory variables. Unlike the random effects model, which assumes that individual-specific effects are uncorrelated with independent variables, the fixed effects model controls for time-invariant characteristics of each entity, thereby mitigating omitted variable bias (deHaan, 2021). This makes it especially useful for studying corporate financial performance, ESG impact, and governance structures across firms over time.

The fundamental assumption in fixed effects regression is that individual-specific effects (such as firm culture, leadership styles, or long-term strategies) remain constant over time. The model achieves this by differencing out or demeaning these effects, allowing researchers to isolate the impact of time-variant explanatory variables on the dependent variable. This within-entity transformation eliminates potential bias stemming from unobservable characteristics that do not change over the study period (Imai & Kim, 2019). However, this approach also means that fixed effects models cannot estimate the impact of time-invariant predictors, such as industry classification or geographic location, as these are absorbed by the entity-specific effects.

Mathematically, the fixed effects model is represented as:

$$Y_{i,t} = \beta 0 + \beta 1(X_{i,t}) + \varepsilon_{i,t}$$

where:

- $Y_{i,t}$ = Dependent variable for firm i at time t
- $\beta 0$ = Intercept
- $\beta 1(X_{i,t})$ = Explanatory variables
- $\varepsilon_{i,t}$ = Idiosyncratic error term

A key advantage of fixed effects regression is its ability to control for confounding factors that remain unchanged over time, ensuring that the estimated coefficients reflect within-entity variation. This is particularly relevant for ESG studies, where firm-specific characteristics such as corporate mission, ownership structures, or management practices may influence sustainability strategies but remain relatively stable over time (Imai & Kim, 2020). One limitation of the fixed effects model is the potential loss of efficiency due to the elimination of cross-sectional variation. Since only within-firm variations contribute to the estimation of coefficients, the model may suffer from reduced statistical power, particularly in datasets with limited periods. Additionally, the strict assumption that all omitted variables are time-invariant may not always hold, leading to potential biases if key confounders change over time. To address such concerns, researchers often employ two-way fixed effects models, which incorporate time-fixed effects to control for economy-wide shocks or policy changes affecting all firms simultaneously (Imai & Kim, 2019).

Hypothesis

The estimated model regressed using fixed effects regression in panel data consists of time series and cross-section for the above-mentioned listed companies.

A. The impact of promoter's shareholding on firms' ESG scores:

$$ESG\_Score_{i,t} = \beta 0 + \beta 1{*}Return\_on\_equity_{i,t} + \beta 2{*}Current\_Ratio_{i,t} + \beta 3{*}Leverage_{i,t} + \beta 4{*}Log(Total\_Assets)_{,t} + \beta 5{*}Promoter\_shareholding\_dummy_{i,t} + U_{i,t} + \varepsilon_{i,t}$$

B. The impact of promoter's shareholding on firms' E scores:

$$E\_Score_{i,t} = \beta 0 + \beta 1{*}Return\_on\_equity_{i,t} + \beta 2{*}Current\_Ratio_{i,t} + \beta 3{*}Leverage_{i,t} + \beta 4{*}Log(Total\_Assets)_{i,t} + \beta 5{*}Promoter\_shareholding\_dummy_{i,t} + U_{i,t} + \varepsilon_{i,t}$$

C. The impact of promoter's shareholding on firms' S scores:

$$S\_Score_{i,t} = \beta 0 + \beta 1{*}Return\_on\_equity_{i,t} + \beta 2{*}Current\_Ratio_{i,t} + \beta 3{*}Leverage_{i,t} + \beta 4{*}Log(Total\_Assets)_{i,t} + \beta 5{*}Promoter\_shareholding\_dummy_{i,t} + U_{i,t} + \varepsilon_{i,t}$$

D. The impact of promoter's shareholding on firms' G scores:

$$G\_Score_{i,t} = \beta 0 + \beta 1{*}Return\_on\_equity_{i,t} + \beta 2{*}Current\_Ratio_{i,t} + \beta 3{*}Leverage_{i,t} + \beta 4{*}Log(Total\_Assets)_{i,t} + \beta 5{*}Promoter\_shareholding\_dummy_{i,t} + U_{i,t} + \varepsilon_{i,t}$$

ANALYSIS & DISCUSSION

The summary of descriptive statistics has been provided in the table below.

Table 1: Descriptive Statistics

Descriptives	ESG	E	S	G	Dummy	ROE	DE	CR	LN(TA)
N	994.0	994.0	993.0	994.0	994.0	994.0	994.0	994.0	994.0
Missing	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean	56.0	44.4	55.1	66.6	0.7	15.3	103.0	6.6	11.3
Median	56.0	44.0	56.0	67.0	1.0	14.6	14.2	1.4	11.2
Standard deviation	6.1	10.2	8.0	6.0	0.5	20.6	1344.0	64.6	2.4
Minimum	33.0	20.0	19.0	40.0	0.0	-197.0	0.0	0.0	0.0
Maximum	77.0	78.0	75.0	81.0	1.0	148.0	42110.0	1165.0	17.9

Source: Author Generated Jamovi

To identify multicollinearity, a correlation test was conducted. This test evaluates the association between the independent, dependent, and control variables. The correlation coefficients between the variables are shown in the below table. The results showed that all correlation coefficients remained below the critical threshold, confirming the absence of multicollinearity and ensuring that the regression results are not affected by highly correlated predictor variables.

Table 2: Test for Multicollinearity

Correlation	E	S	G	ESG	ROE	CR	DE	LN(TA)
E	—	0.499	0.38	0.898	0.08	0.016	0.019	0.225
S	0.499	—	0.116	0.664	0.123	0.023	0.004	0.232
G	0.38	0.116	—	0.651	0.141	0.012	-0.028	-0.08
ESG	0.898	0.664	0.651	—	0.143	0.02	0.001	0.176
ROE	0.08	0.123	0.141	0.143	—	-0.041	-0.368	0.053
CR	0.016	0.023	0.012	0.02	-0.041	—	-0.007	-0.037
DE	0.019	0.004	-0.028	0.001	-0.368	-0.007	—	0.048
LN(TA)	0.225	0.232	-0.08	0.176	0.053	-0.037	0.048	—

Source: Author Generated Jamovi

Hausman Test

Hausman test is used to determine whether a fixed effects or random effects model is more appropriate for your panel data analysis. The null hypothesis of the Hausman test is that the preferred model is random effects, while the alternative hypothesis is that the preferred model is fixed effects.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Probability	Hypothesis
Cross-section random effect	38.628620	5	0.0000	ESG
Cross-section random effect	37.814826	5	0.0000	E
Cross-section random effect	43.799257	5	0.0000	S
Cross-section random effect	17.879603	5	0.0000	G
Cross-section random effect test comparison:				
Variable	**ESG**	**E**	**S**	**G**
	Probability	**Probability**	**Probability**	**Probability**
Dummy	0.1681	0.1422	0.8177	0.0746
ROE	0.0787	0.5857	0.0713	0.0021
CR	0.4945	0.7878	0.1008	0.3043
DE	0.5435	0.5355	0.5476	0.9693
LN(TA)	0.0001	0.0000	0.0000	0.1144

Source: Author Generated E-views

Since the p-value (Probability) for all the hypotheses is 0.0000, which is less than the significance level of 0.05, we reject the null hypothesis. This implies that the fixed effects regression model is preferred over the random effects model for all the hypotheses.

Fixed Effects Model Regression

The results of the Random effect model regression are given in the following table:

Variable	Coefficient	ESG	Coefficient	E	Coefficient	S	Coefficient	G
Constant	55.740	0.000	42.929	0.000	53.842	0.000	68.253	0.000
Dummy	-0.711	0.040	-0.210	0.028	-0.795	0.031	-1.335	0.032
ROE	0.005	0.394	-0.002	0.804	0.002	0.894	0.008	0.081
CR	-0.002	0.000	-0.002	0.033	-0.005	0.000	-0.001	0.000
DE	0.000	0.755	0.000	0.615	0.000	0.886	0.000	0.930
LN(TA)	0.041	0.049	0.118	0.043	0.112	0.048	-0.068	0.041
Effects Specification		**ESG**	**E**	**S**	**G**			
R-squared		0.907275	0.91916	0.771995	0.941422			
Adjusted R-squared		0.860259	0.87817	0.656261	0.911721			
Prob (F-statistic)		0.00000	0.00000	0.00000	0.00000			

Source: Author Generated E-views

The models for ESG score, E-score, S-score, and G-score all demonstrate strong explanatory power, as reflected in their respective R-squared values of 90.73%, 91.92%, 77.19%, and 94.14%. The adjusted R-squared values also confirm the robustness of these models (p = 0.0000) in all cases indicating the overall significance of the regression models.

The dummy variable for family ownership has a negative and significant effect across all four models, suggesting that family firms consistently underperform in ESG compared to non-family firms. The impact is strongest in governance (β = -1.335, p = 0.032), followed by social (β = -0.795, p = 0.031), environmental (β = -0.210, p = 0.028), and overall ESG performance (β = -0.711, p = 0.040). These findings indicate that while family firms may uphold certain social values, their governance structures are often weaker due to concentrated ownership, lack of independent oversight, and potential conflicts of interest. The environmental underperformance may stem from financial conservatism and a lack of external investor pressure driving sustainability initiatives.

Current Ratio (CR) exhibits a negative and highly significant relationship with ESG performance (β = -0.002, p = 0.000), indicating that firms with higher liquidity tend to underinvest in sustainability initiatives. The effect is particularly pronounced for social performance (β = -0.005, p = 0.000), suggesting that firms prioritizing financial flexibility may allocate fewer resources to corporate social responsibility programs, labor welfare, and diversity initiatives. The negative impact extends to environmental (β = -0.002, p = 0.033) and governance (β = -0.001, p = 0.000) performance, implying that firms with strong liquidity positions may focus on short-term financial stability rather than long-term ESG commitments. But since the co-efficient is too low which indicates it doesn't have that much of an impact on the scores.

Firm size (LN(TA)) shows a positive and significant effect on overall ESG performance (β = 0.041, p = 0.049), confirming that larger firms are more engaged in sustainability efforts. This relationship is robust for environmental (β = 0.118, p = 0.043) and social (β = 0.112, p = 0.048) performance, suggesting that bigger firms have the financial and operational capacity to invest in ESG-related initiatives. However, the negative association with governance (β = -0.068, p = 0.041) suggests that as firms grow, governance challenges may increase due to complex ownership structures and reduced board independence.

CONCLUSION

This study provides valuable insights into the relationship between family ownership and ESG performance, highlighting how ownership structure shapes sustainability efforts. The findings indicate that family-owned firms tend to underperform in ESG compared to non-family firms, with governance being the most affected.

While family businesses often emphasize long-term sustainability and stakeholder relationships, their governance structures frequently lack transparency, independent oversight, and regulatory compliance, which can hinder effective ESG adoption. Additionally, financial conservatism and a focus on maintaining control may limit their willingness to invest in comprehensive sustainability initiatives, particularly in environmental aspects.

Family firms often prioritize legacy, reputation, and intergenerational wealth preservation, which can drive socially responsible practices but may also lead to resistance toward regulatory compliance and external influence. The reluctance to dilute ownership control can result in weaker governance mechanisms, fewer independent board members, and lower levels of ESG disclosure.

While firm size positively influences ESG adoption and liquidity constraints may limit sustainability investments, these factors alone do not fully explain the underperformance of family firms in ESG. The fundamental challenge lies in balancing tradition with the evolving demands of corporate sustainability and governance.

These findings contribute to the broader discourse on corporate sustainability, governance, and family business management, offering practical insights for investors, policymakers, and corporate leaders. Enhancing regulatory oversight, improving ESG transparency, and fostering sustainability-driven investment strategies can help bridge the ESG performance gap between family and non-family firms. As ESG regulations continue to evolve, family businesses must proactively adapt to changing sustainability standards to ensure long-term resilience and stakeholder confidence.

Limitations & Future Scope

While this study offers important insights into the relationship between family ownership and ESG performance, several limitations must be acknowledged. ESG adoption and performance can vary significantly across industries and countries, as different sectors face unique sustainability challenges and regulatory requirements.

Manufacturing firms, for example, tend to have lower ESG ratings compared to BFSI firms, as the former faces higher environmental risks related to carbon emissions, resource consumption, and pollution control, while BFSI firms are more governance-driven and subject to stringent financial regulations.

Similarly, country-specific regulatory frameworks, investor expectations, and economic conditions influence ESG commitments, which may limit the generalizability of these findings beyond NIFTY 500 companies. For future research, expanding the dataset to include smaller firms, cross-country comparisons, or sector-specific analyses could offer a more nuanced understanding of how family firms approach ESG integration under different institutional settings.

Finally, exploring the role of non-financial factors such as board independence, and managerial incentives could provide deeper insights into governance challenges and sustainability strategies unique to family-owned firms.

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Annexures

Annexure 1: Nifty 500 Companies List (Sample)

S.No.	Ticker	Name	Market Cap	Price
1	RELIANCE IN Equity	RELIANCE INDUSTRIES Limited	1,66,20,28,02,91,161	1,228
2	TCS IN Equity	Tata Consultancy Services Limited	1,36,98,07,93,43,148	3,786
3	HDFCB IN Equity	HDFC BANK Limited	1,29,47,95,79,94,298	1,693
4	BHARTI IN Equity	BHARTI AIRTEL Limited	98,08,34,91,87,800	1,639
5	ICICIBC IN Equity	ICICI BANK Limited	87,08,05,05,42,129	1,233
6	INFO IN Equity	INFOSYS Limited	75,36,37,86,63,990	1,815
7	SBIN IN Equity	STATE BANK OF INDIA	64,43,57,56,64,548	722
8	HUVR IN Equity	HINDUSTAN UNILEVER Limited	52,66,96,12,52,462	2,242
9	BAF IN Equity	BAJAJ FINANCE Limited	52,04,94,64,12,793	8,397
10	ITC IN Equity	ITC Limited	50,16,25,30,31,951	401
11	LICI IN Equity	Life Insurance Corporation of India	49,39,19,07,04,711	781
12	HCLT IN Equity	HCL TECHNOLOGIES Limited	46,15,13,02,28,767	1,701
13	LT IN Equity	LARSEN & TOUBRO Limited	45,58,84,26,92,227	3,315
14	SUNP IN Equity	Sun Pharmaceutical Industries Limited	39,43,81,05,16,750	1,644
15	KMB IN Equity	KOTAK MAHINDRA BANK Limited	38,83,03,47,82,223	1,953
16	MSIL IN Equity	MARUTI SUZUKI INDIA Limited	38,74,52,44,00,560	12,323
17	MM IN Equity	Mahindra and Mahindra Limited	33,19,41,36,85,030	2,669
18	UTCEM IN Equity	ULTRATECH CEMENT Limited	32,21,09,87,44,435	11,157
19	WPRO IN Equity	WIPRO Limited	32,07,75,25,88,723	306
20	NTPC IN Equity	NTPC Limited	31,63,53,73,26,218	326
21	AXSB IN Equity	AXIS BANK Limited	31,23,72,26,58,384	1,009
22	ONGC IN Equity	Oil and Natural Gas Corporation Limited	30,18,00,89,81,519	240
23	BJFIN IN Equity	BAJAJ FINSERV Limited	30,00,68,68,73,016	1,879
24	TTAN IN Equity	Titan Company Limited	28,23,07,12,10,184	3,180
25	TTMT IN Equity	TATA MOTORS Limited	28,20,50,07,29,125	673
26	ADE IN Equity	ADANI ENTERPRISES Limited	24,61,98,30,25,743	2,133
27	PWGR IN Equity	POWERGRID Infrastructure Investment Trust	24,35,82,80,83,430	262
28	JSTL IN Equity	JSW STEEL Limited	24,01,19,13,08,919	982
29	BJAUT IN Equity	BAJAJ AUTO Limited	23,75,37,91,76,528	8,506
30	DMART IN Equity	AVENUE SUPERMARTS Limited	23,40,49,16,25,676	3,597
31	ADSEZ IN Equity	Adani Ports & Special Economic Zone Limited	23,39,97,05,12,171	1,083
32	COAL IN Equity	COAL INDIA Limited	22,79,90,14,19,802	370
33	HNAL IN Equity	HINDUSTAN AERONAUTICS Limited	22,52,76,85,87,500	3,369
34	ZOMATO IN Equity	ZOMATO Limited	22,23,05,47,75,043	230
35	APNT IN Equity	ASIAN PAINTS Limited	21,65,48,49,30,704	2,258
36	NEST IN Equity	NESTLE INDIA Limited	21,35,55,99,01,542	2,215
37	BHE IN Equity	BHARAT ELECTRONICS Limited	18,72,03,44,02,722	256
38	ADANI IN Equity	ADANI POWER Limited	18,46,12,38,24,110	479
39	HZ IN Equity	HINDUSTAN ZINC Limited	18,02,73,23,25,561	427
40	TRENT IN Equity	TRENT Limited	17,94,57,18,00,620	5,048
41	TATA IN Equity	TATA STEEL Limited	17,57,26,03,56,501	141
42	SIEM IN Equity	SIEMENS Limited	17,52,59,24,16,944	4,921
43	INDIGO IN Equity	INTERGLOBE AVIATION Limited	17,43,05,92,11,717	4,511
44	VEDL IN Equity	VEDANTA Limited	17,13,53,20,46,577	438
45	IOCL IN Equity	Indian Oil Corporation Limited	17,13,32,98,53,009	121
46	DLFU IN Equity	DLF Limited	16,98,68,26,58,243	686
47	GRASIM IN Equity	GRASIM INDUSTRIES Limited	16,54,17,24,54,860	2,431
48	IRFC IN Equity	Indian Railway Finance Corporation Limited	16,35,00,07,85,660	125
49	VBL IN Equity	VARUN BEVERAGES Limited	16,15,17,82,59,620	478
50	TECHM IN Equity	TECH MAHINDRA Limited	16,14,58,93,37,046	1,650

51	LTIM IN Equity	LTIMINDTREE Limited	15,69,86,89,44,287	5,299
52	DIVI IN Equity	DIVI'S LABORATORIES Limited	15,28,31,58,36,640	5,757
53	SBILIFE IN Equity	SBI Life Insurance Company Limited	14,98,52,38,90,600	1,495
54	JIOFIN IN Equity	JIO FINANCIAL SERVICES Limited	14,84,53,86,03,046	234
55	HNDL IN Equity	HINDALCO INDUSTRIES Limited	14,68,67,48,94,107	654
56	PIDI IN Equity	PIDILITE INDUSTRIES Limited	14,22,02,17,75,964	2,796
57	EIM IN Equity	EICHER MOTORS Limited	13,60,45,74,53,982	4,962
58	BJHI IN Equity	Bajaj Holdings & Investment Limited	13,58,65,44,76,054	12,208
59	ADANIGR IN Equity	ADANI GREEN ENERGY Limited	13,45,39,79,85,189	849
60	HDFCLIFE IN Equity	HDFC Life Insurance Company Limited	13,40,87,32,30,831	623
61	POWF IN Equity	Power Finance Corporation Limited	12,86,04,96,55,872	390
62	LODHA IN Equity	MACROTECH DEVELOPERS Limited	12,12,25,30,79,537	1,216
63	CIPLA IN Equity	CIPLA Limited	11,91,83,64,19,530	1,476
64	ACEM IN Equity	AMBUJA CEMENTS Limited	11,87,10,23,60,222	482
65	CIFC IN Equity	Cholamandalam Investment & Finance Company Limited	11,63,85,57,52,086	1,384
66	BRIT IN Equity	BRITANNIA INDUSTRIES Limited	11,63,85,15,19,442	4,832
67	TPWR IN Equity	Tata Power Company Limited	11,41,37,52,86,188	357
68	ABB IN Equity	ABB INDIA Limited	11,21,29,19,75,475	5,291
69	TVSL IN Equity	TVS Motor Company Limited	11,04,55,37,85,694	2,325
70	SHFL IN Equity	SHRIRAM FINANCE Limited	11,00,15,99,06,208	585
71	BPCL IN Equity	Bharat Petroleum Corporation Limited	10,90,26,64,29,134	251
72	BOB IN Equity	BANK OF BARODA	10,87,38,23,25,378	210
73	PNB IN Equity	PUNJAB NATIONAL BANK	10,83,20,99,03,009	94
74	GAIL IN Equity	GAIL INDIA Limited	10,79,69,71,12,377	164
75	IH IN Equity	The Indian Hotels Company Limited	10,78,32,10,83,564	758
76	GCPL IN Equity	GODREJ CONSUMER PRODUCTS Limited	10,76,40,88,56,613	1,052
77	RECL IN Equity	REC Limited	10,62,63,75,45,200	404
78	TRP IN Equity	TORRENT PHARMACEUTICALS Limited	10,28,60,79,49,944	3,039
79	SRCM IN Equity	SHREE CEMENT Limited	10,24,89,89,03,464	28,406
80	TATACONS IN Equity	TATA CONSUMER PRODUCTS Limited	9,93,44,76,56,792	1,004
81	MAXHEALT IN Equity	MAX HEALTHCARE INSTITUTE Limited	9,82,10,65,09,043	1,010
82	INFOE IN Equity	INFO EDGE INDIA Limited	9,76,68,84,70,852	7,537
83	DRRD IN Equity	Dr. Reddy's Laboratories Limited	9,61,06,77,65,385	1,152
84	MANKIND IN Equity	MANKIND PHARMA Limited	9,60,35,25,99,147	2,328
85	HAVL IN Equity	HAVELLS INDIA Limited	9,53,13,95,15,160	1,520
86	UNITDSPR IN Equity	UNITED SPIRITS Limited	9,50,28,38,89,445	1,307
87	APHS IN Equity	Apollo Hospitals Enterprise Limited	9,08,36,67,31,747	6,318
88	MOTHERSO IN Equity	Samvardhana Motherson International Limited	9,06,10,54,38,829	129
89	CGPOWER IN Equity	CG Power and Industrial Solutions Limited	9,01,92,99,80,738	590
90	DABUR IN Equity	DABUR INDIA Limited	9,01,48,80,36,449	509
91	JSP IN Equity	Jindal Steel and Power Limited	8,98,03,45,56,194	880
92	ZYDUSLIF IN Equity	ZYDUS LIFESCIENCES Limited	8,90,86,92,63,047	885
93	PSYS IN Equity	PERSISTENT SYSTEMS Limited	8,89,95,02,55,000	5,710
94	MUTH IN Equity	MUTHOOT FINANCE Limited	8,88,07,82,73,281	2,212
95	INDUSTOW IN Equity	INDUS TOWERS Limited	8,87,47,79,51,455	336
96	UNBK IN Equity	UNION BANK OF INDIA	8,83,05,54,96,618	116
97	IOB IN Equity	INDIAN OVERSEAS BANK	8,81,04,14,46,789	47
98	POLYCAB IN Equity	POLYCAB INDIA Limited	8,78,47,02,65,642	5,840
99	LPC IN Equity	LUPIN Limited	8,69,75,60,80,971	1,905
100	JSW IN Equity	JSW ENERGY Limited	8,67,94,18,23,434	497

Annexure 2: Companies whose ESG data was not found

S.No.	Companies for which ESG data was not found
1	Akums Drugs & Pharmaceuticals
2	Bharti Hexacom Limited
3	BLS International Services Limited
4	Cello World Limited
5	Concord Biotech Limited
6	CRISIL Limited
7	DOMS Industries Limited
8	Emcure Pharmaceuticals Limited
9	Federal Bank Limited
10	GMR AIRPORTS Limited
11	Go Digit General Insurance Limited
12	Honasa Consumer Limited
13	INDEGENE Limited
14	Indian Renewable Energy Development Agency Limited
15	INOX India Limited
16	Jammu & Kashmir Bank Limited
17	Jio Financial Services Limited
18	JSW Infrastructure Limited
19	Jupiter Wagons Limited
20	Jyoti CNC Automation Limited
21	Karur Vysya Bank Limited
22	KPR MILL Limited
23	Netweb Technologies India Limited
24	New India Assurance Company Limited
25	NMDC Steel Limited
26	Nuvama Wealth Management Limited
27	Olectra Greentech Limited
28	Piramal Pharma Limited
29	RR KABEL Limited
30	SBFC Finance Limited
31	Signatureglobal (India) Limited
32	Supreme Industries Limited
33	Tata Technologies Limited
34	TBO TEK Limited
35	Vijaya Diagnostic Centre Limited
36	Zensar Technologies Limited

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Annexure 3: Data for the variables used in the analysis from 2022 to 2024 (Sample)

NSE Ticker	Year	Industr	E	S	G	ESG	PROMC	PUBLIC	Dumm	ROE	CR	DE	Total Asse	LN(TA
360 ONE WAM Limited	2024	BFSI	60	57	74	65	18	82	0	28	0	35	49175	11
360 ONE WAM Limited	2023	BFSI	57	57	69	62	22	78	0	21	0	52	40506	11
360 ONE WAM Limited	2022	BFSI	52	57	71	61	23	77	0	17	0	31	41266	11
3M India Limited	2024	Automotiv	48	60	73	61	75	25	1	25	2	1	33985	10
3M India Limited	2023	Automotiv	48	60	73	61	75	25	1	19	2	1	29144	10
3M India Limited	2022	Automotiv	37	47	72	53	75	25	1	11	3	1	32574	10
AADHAR HOUSING FINANCE Limited	2024	BFSI	46	47	67	55	75	25	1	0	0	0	0	0
AADHAR HOUSING FINANCE Limited	2023	BFSI	46	47	67	55	75	25	1	0	0	0	0	0
AADHAR HOUSING FINANCE Limited	2022	BFSI	46	47	67	55	75	25	1	18	0	313	190857	12
Aarti Industries Limited	2024	Chemicals	38	59	64	54	43	57	0	8	1	61	96429	11
Aarti Industries Limited	2023	Chemicals	43	61	63	56	44	56	0	12	1	59	85901	11
Aarti Industries Limited	2022	Chemicals	43	61	63	56	44	56	0	30	1	57	78303	11
Aavas Financiers Limited	2024	BFSI	52	56	71	61	26	74	0	14	0	329	165195	12
Aavas Financiers Limited	2023	BFSI	52	56	71	61	39	61	0	14	0	302	134105	12
Aavas Financiers Limited	2022	BFSI	52	56	71	61	39	61	0	14	0	285	110204	12
ABB India Limited	2024	Industrials	51	57	68	60	75	25	1	0	0	0	0	0
ABB India Limited	2023	Industrials	59	54	67	61	75	25	1	0	0	0	0	0
ABB India Limited	2022	Industrials	59	54	67	61	75	25	1	23	2	1	110012	12
ABBOTT INDIA Limited	2024	Healthcare	49	51	67	57	75	25	1	35	2	2	51935	11
ABBOTT INDIA Limited	2023	Healthcare	46	55	68	57	75	25	1	32	3	4	45555	11
ABBOTT INDIA Limited	2022	Healthcare	38	49	68	53	75	25	1	29	3	5	42241	11
ACC Limited	2024	Constructi	45	55	59	53	57	43	1	0	0	0	0	0
ACC Limited	2023	Constructi	45	55	59	53	57	43	1	14	2	2	228997	12
ACC Limited	2022	Constructi	45	55	59	53	55	45	1	14	1	1	204085	12
Action Construction Equipment Limited	2024	Industrials	35	42	65	49	67	33	1	31	1	0	21554	10
Action Construction Equipment Limited	2023	Industrials	35	42	65	49	67	33	1	19	1	1	15853	10
Action Construction Equipment Limited	2022	Industrials	29	38	66	46	67	33	1	17	1	4	12794	9
Adani Energy Solutions Limited	2024	Power & E	55	66	64	61	73	27	1	6	1	47	163952	12
Adani Energy Solutions Limited	2023	Power & E	55	66	64	61	72	28	1	3	2	25	129664	12
Adani Energy Solutions Limited	2022	Power & E	55	66	64	61	75	25	1	-28	1	215	126664	12
Adani Enterprises Limited	2024	Metals & M	36	56	57	50	73	27	1	19	1	35	421804	13
Adani Enterprises Limited	2023	Metals & M	36	56	57	50	69	31	1	17	1	22	401373	13
Adani Enterprises Limited	2022	Metals & M	30	58	57	48	75	25	1	15	1	74	216519	12
Adani Green Energy Limited	2024	Power & E	67	66	64	66	56	44	1	-8	1	306	413830	13
Adani Green Energy Limited	2023	Power & E	67	66	64	66	57	43	1	-8	1	240	286640	13
Adani Green Energy Limited	2022	Power & E	67	66	64	66	61	39	1	-2	1	762	279630	13
Adani Ports & Special Economic Zone Limite	2024	Logistics a	47	63	61	57	66	34	1	6	1	170	827554	14
Adani Ports & Special Economic Zone Limite	2023	Logistics a	47	63	61	57	61	39	1	-2	1	165	797260	14
Adani Ports & Special Economic Zone Limite	2022	Logistics a	46	61	59	55	66	34	1	1	2	149	782496	14
Adani Power Limited	2024	Power & E	41	61	64	55	72	28	1	53	2	65	751720	14
Adani Power Limited	2023	Power & E	41	61	64	55	75	25	1	44	1	117	728320	13
Adani Power Limited	2022	Power & E	41	61	64	55	75	25	1	28	1	219	717662	13
Adani Total Gas Limited	2024	Energy and	54	56	64	59	75	25	1	20	1	44	65239	11
Adani Total Gas Limited	2023	Energy and	51	64	61	58	75	25	1	20	0	48	56360	11
Adani Total Gas Limited	2022	Energy and	51	64	61	58	75	25	1	23	0	43	44290	11
Adani Wilmar Limited	2024	Consumer	49	48	65	55	88	12	1	3	1	29	188029	12
Adani Wilmar Limited	2023	Consumer	49	48	65	55	88	12	1	8	1	28	196188	12
Adani Wilmar Limited	2022	Consumer	49	48	65	55	88	12	1	15	1	36	202513	12