

Do Variations in Institutional Characteristics Across Countries Affect ESG Reporting Ratings?

Ekin Alakent

M. Sinan Goktan

College of Business and Economics,
California State University-East Bay, USA

[Doi: 10.60154/jaepp.2025.v26n1p57](https://doi.org/10.60154/jaepp.2025.v26n1p57)

Submitted: 19 February 2024
Accepted: 28 March 2025
Published: 09 April 2025

Copyright 2025 Author(s)
Under Creative Commons CC-BY 4.0
OPEN ACCESS

Cite As:

Alakent E. & Goktan M.S. (2024). *Do Variations in Institutional Characteristics Across Countries Affect ESG Reporting Ratings?*. Journal of Accounting, Ethics & Public Policy, JAEPP, 26 (1), 57. <https://doi.org/10.60154/jaepp.2025.v26n1p57>

Abstract

We study how the institutional environment of a country affects firms' motivations to engage in ESG reporting. Drawing from the institutional theory (North, 1990), we argue that firms that are incorporated in countries with weaker institutions (defined by transparency, legality, anti-self-dealing enforcement measures) are more likely to report higher ESG scores due to low oversight. We also argue that greenwashing (as opposed to signaling) is an important motivation behind ESG reporting in countries with weaker institutions. We test our hypotheses using data from 2,354 companies across 38 different countries. We employ OLS models for our empirical analyses and find support for some of our hypotheses. Our study advances the literature on responsible investing by demonstrating that institutional differences across nations not only shape the quality of ESG reporting but also influence firms' underlying motivations, revealing the extent to which greenwashing may distort ESG assessments. Our study cautions managers and global investors against taking ESG ratings at face value, as high ESG scores do not necessarily indicate better ESG practices, particularly in low-transparency environments. Just as with financial reporting standards, stronger international reporting standards and oversight are needed to enhance the reliability of reported ESG data.

Keywords: Self-dealing, ESG reporting, Greenwashing, Responsible Investing

Introduction

There is a growing trend in the finance world towards using Environmental, Social and Governance (ESG) criteria to evaluate firms and include the ones with positive ratings in responsible investing portfolios (Babkin et al., 2023). The culture at Wall Street is changing and investors are increasingly looking for firms that combine financial performance with social and environmental performance. According to Laurence D. Fink, the founder and chief executive officer of BlackRock, “every company must not only deliver financial performance but also show how it makes a positive contribution to society” (The New York Times, 2022). ESG rating agencies orchestrate this change by evaluating firms based on environmental, social and governance criteria ranging from carbon emissions, pollution, data security and employment practices. Many scholars argue that ESG reporting improves social and environmental performance (Lee and Maxfield, 2015; Chen et. al., 2021) and leads to superior financial returns (Pucker and King, 2022).

However, the reliability of the ESG data that is being used to make socially responsible investment decisions is under scrutiny (Kotsantonis and Serafeim, 2019). There are several agencies such as Sustainalytics, S&P and MSCI who rate firms based on their ESG reporting and there is a divergence in their reporting criteria. This creates inconsistencies and casts doubt on the reliability of ESG data for firm evaluations. Some of the recent literature goes even further to suggest that ESG reporting is a form of greenwashing or superficial marketing (Lee and Maxfield, 2015). Greenwashing (Delmas and Burbano, 2011; Laufer, 2003) is a coined term to describe situations where the company promises more green practices to its stakeholders than it can deliver. According to Lydenberg (2002, p: 61) “although an increasing number of corporations publish environmental and health and safety reports, many are simply token efforts – greenwashing – and few address the full range of social issues necessary to assess adequately a corporation’s behavior”. These scholars argue that voluntary reporting on social and environmental performance is part of the firm’s marketing activity. Marketing materials used by the ESG funds make lofty comments about social and environmental goals although the real goal is to maximize shareholder returns (Pucker and King, 2022).

For example, Securities and Exchange Commission (SEC) penalized Goldman Sachs Asset Management for failing to follow its policies and procedures involving environment and socially oriented investments. In its report, SEC said “From April 2017 until June 2018, the company failed to have any written policies and procedures for ESG research in one product, and once policies and procedures were established, it failed to follow them consistently prior to February 2020”. Similarly, one of the pioneers of the

responsible investing funds, BlackRock, created its “U.S. Carbon Readiness Transition” fund to drive transition to low carbon emission economy but the fund includes firms like Exxon, Chevron and Conoco Phillips. This doublespeak regarding promising better social and environmental performance but actually targeting better shareholder returns is confusing for investors (Pucker and King, 2022). In fact, the topic of ESG investments became such a polarizing topic in the political arena that the CEO of BlackRock Larry Fink recently said that he would stop using the term “ESG” to shield themselves from this political backlash (Isla, 2023).

In light of the previous literature and recent events in ESG reporting quality, in this paper, we focus on the environmental, social and governance (ESG) information firms disclose to the public worldwide. Our main goal is to understand if countries’ institutional characteristics significantly contribute to the quality of the ESG scores that companies disclose in different countries. Specifically, we would like to see whether institutional mechanisms of transparency, legality and anti-self-dealing measures in countries contribute to the variation of the ESG scores reported across different nations. This research question is a significant contribution to the literature as we try to understand the drivers of ESG score discrepancies reported across companies around the world.

We base our arguments on Douglas North's (1990) theory of institutions that centers on the idea that institutions—both formal (laws, regulations) and informal (customs, traditions)—play a critical role in shaping economic performance. According to North, institutions create the rules of the game in a society, providing the structure that guides human interaction. These rules help reduce uncertainty, allowing individuals and organizations to engage in economic activities with more confidence in the outcomes. We argue that institutional measures across nations also effect the quality of ESG reporting because institutional context can affect the strategic choices and actions pursued by firms (Luxmore et al., 2018). Previous literature explores the effect of institutional factors on firms’ export behavior (Lu et al, 2009), entry modes (Meyer et al, 2009), as well as environmental performance (Rothenberg, 2007). Formal regulatory institutions set the standards for legally acceptable behavior and ethical norms determine whether to comply with higher or lower standards compared to legal standards (Luxmore, Hull and Tang, 2018). Both academic and practical approaches to corporate governance have increasingly focused on the problem of investor expropriation, sometimes also referred to as self-dealing or tunneling. Specifically, those who control a corporation, whether they are managers, controlling shareholders, or both, can use their power to divert corporate wealth to themselves (Shleifer and Vishny, 1997). In this paper, we argue that when greater motivation to supply ESG information by company

managers is coupled with lower standards of oversight on the quality of the supplied ESG information in various countries, we are more likely to witness greenwashing.

Our results suggest that after controlling for company specific, industry specific and legal origin factors that are known to have a significant impact on ESG, companies have significantly higher ESG scores in countries that have lower transparency scores, where the rule of law is weaker and where the efficiency of the judicial system is lower. In addition, when the self-dealing measures such as independent review and disclosure are weak, the ESG scores tend to be stronger. These results suggest that there might be greenwashing in countries where transparency and legality are relatively weak.

However, Wang et al., (2022) argue that in countries where transparency and legality are weak, companies might be more motivated to invest in ESG to signal quality. In order to test this possibility, we turn to an alternative measure to test actions rather than commitments. ESG controversies score captures firms' negative media coverage of social issues. Unlike ESG scores, this measure is not self-reported. When we analyze the ESG controversies score as an alternative dependent variable, we observe that lower disclosure and weaker rule of law in a country lead to lower ESG controversy scores (higher ESG violations). This result is contrary to the "signaling" argument which argues that companies in countries with lower disclosure and rule of law standards are investing more in ESG and acting accordingly. The results are more supportive of greenwashing behavior for these companies. Overall, our results suggest that the ESG policies are still in their early stages in terms of reporting quality and oversight and investors must be especially careful as they try to interpret the reported ESG scores across different countries.

We contribute to the literature in several ways. First, drawing from the institutional theory (North, 1990), we study how formal regulatory institutions affect ESG reporting quality by using cross-country data. Second, as we analyze the variation of ESG reporting quality across countries, we utilize three different country-specific institutional factors: transparency (La Porta et al., 2006), legality (La Porta et al., 1998), anti-self-dealing measures (Djankov et al., 2008). These legal enforcement measures have been widely used in business literature to explain cross-country variation in corporate decision-making. Third, Liang and Renneboog, 2017 have shown that legal origin is a significant predictor of ESG scores for companies and they find that civil law country companies have higher ESG scores compared to common law countries. However, once we control for legality and transparency civil law companies do not significantly outperform or they have low performances compared to other countries. One

explanation for this result can be that civil law countries tend to have lower legality scores compared to common law countries (La Porta et al., 1998) and the finding in Liang and Renneboog (2017) can be driven by the legality and transparency differences among civil and common law countries.

Literature has demonstrated that differences in countries' origin of law affect ESG reporting. Our results complement these studies by showing that the variation in ESG reporting across countries is not only explained by differences in the origin of law but also correlates with the corporate legal enforcement factors we introduce in this study. Fourth, we test the motivation behind ESG reporting and find support for the "greenwashing" argument rather than the "signaling" argument. Few studies have taken an international perspective on the greenwashing phenomenon using a cross-country sample.

Literature Review and Hypothesis Development

Socially responsible investing is growing together with the number of investors who prefer to invest capital in companies that have better Environmental, Social and Governance (ESG) policies. Especially millennial investors are increasingly more committed to ESG values and are investing a greater portion of their wealth in equity portfolios that exclusively choose to invest in companies with higher ESG scores (Gelfand, 2022)

Given the growing demand for "socially responsible" investment portfolios, it is easy to see why certain companies would choose to invest in ESG activities to improve their ESG score. Once a company is labeled as "socially responsible" due to a higher ESG score, it will have access to a broader set of investors, including socially responsible investors. ESG investing is also favored by asset management firms for its potential to deliver superior financial returns (Pucker and King, 2022). Among the key reasons behind this support are that firms with better ESG ratings have better managers, have lower costs of capital, and deliver better margins and attract and retain better talent (Pucker and King, 2022). Firms with high ESG scores mitigate ESG risks by using resources more effectively, having better human capital and innovative management mode, therefore, are more competitive than other firms in the same industry (Chen et. al, 2021; Gregory et al., 2014).

Even though the advantages of high ESG scores are substantial, improving the ESG score of a company is costly and requires both financial and human capital investment. The ESG disclosures are not standardized across the world and the reported information is not audited as strictly as financial reports. In contrast to financial information, ESG information is more complex, is often industry-specific, covers a wider range of topics, and

is often unstructured and only partly quantifiable (Christensen et. al, 2021). These factors make it difficult to create standardized one-size-fits-all reporting structures for nonfinancial disclosures. As a result, in many countries, there is no clear guidance on the metrics and information that firms have to provide in their ESG reports.

A particular issue that might arise in such an environment is that some firms may exploit the lack of guidance and adopt minimum disclosure criteria to just meet regulatory requirements, disclosing sub-par information. Furthermore, the willingness and commitment to enact and enforce mandatory ESG disclosure requirements likely vary across countries because of differences in measures that govern transparency, legality, and self-dealing. Weak enforcement could in turn hamper achieving the goal of improving the quality of reported ESG information.

The quality of ESG reporting likely varies by country based on institutional mechanisms. Regulatory institutions determine the operational rules and constraints for organizations (North, 1990). For instance, the EU's Sustainable Finance Disclosure Regulation (SFDR) enhances transparency in financial markets, requiring firms to disclose the environmental and social impacts of their investments. EU regulatory authorities enforce SFDR compliance, with non-compliant firms facing sanctions, fines, or reputational damage. This highlights that ESG reporting depends on the regulatory environment.

Countries with stringent financial market regulations produce different ESG reports compared to those without such regulations. La Porta et al. (1997, 1998) argue that legal codes are crucial for efficient financial markets, which are essential for economic development. They show that countries with different legal families (English common law, and French, German, and Scandinavian civil law) exhibit varying quality in shareholder and creditor protections.

Civil law and common law are two primary legal systems with distinct characteristics. Civil law, rooted in Roman law, relies on comprehensive legal codes that judges apply but do not create. Trials are typically inquisitorial, with judges actively investigating cases, and this system is prevalent in countries like France, Germany, and Japan. In contrast, common law, originating in England, emphasizes judicial precedents (case law) alongside statutes. Judges play a key role in shaping the law through their rulings, and trials are adversarial, focusing on oral arguments and cross-examinations. This system is common in the UK, the US, and former British colonies. While civil law is codified and rigid, common law is adaptable and evolves with judicial decisions.

Common law countries have the most investor-friendly laws, while French and German civil law countries have the least, with Scandinavian

countries in between. After controlling for Gross National Product (GNP) per capita, La Porta et al. (1997) conclude that countries with investor-friendly laws also have effective law enforcement. Applying legal origin to ESG performance, Liang and Renneboog (2017) and Castillo-Merino and Rodriguez-Perez (2021) find that firms in civil-law countries have higher ESG scores than those in common-law countries, linking more regulated environments to higher sustainability performance. Friede et. al., (2005) combines the results of more than 2000 studies on ESG and financial performance and finds that roughly 90% of studies find a nonnegative relationship between ESG ratings and financial performance.

In this paper, central to our inquiry is the recognition that institutional context shapes the behavior and choices of firms operating within a given jurisdiction (North, 1990). Drawing on the institutional theory framework developed by Douglas North (1990), we contend that institutions define and limit the set of choices of individuals (pg. 4) and exert an influence on corporate conduct and decision-making processes. Moreover, we posit that institutional pressures can manifest in various forms, influencing firms' strategic actions, including their ESG reporting practices.

A review of the literature on institutional theory reveals the multifaceted relationship between institutional factors and corporate behavior. Prior research has documented the impact of institutional pressures on firms' export behavior (Ipek and Tanyeri, 2021), entry modes (Lindsay et al., 2017), environmental performance (Li and Ramanathan, 2020), and governance practices (Witt, Fainshmidt, and Aguilera, 2022). Additionally, scholars have examined the phenomenon of investor expropriation, wherein corporate insiders exploit their positions of power to extract value from the firm, often at the expense of minority shareholders (La Porta et al., 2000). In the context of ESG, we hypothesize that depending on the institutional environment of the firm, insiders will have varying levels of incentives to overstate the amount of commitment a company makes to its ESG goals.

This tendency to overstate ESG performance is sometimes referred to as "greenwashing" and has gained prominence in discussions surrounding ESG reporting, highlighting the risk of firms embellishing or misrepresenting their sustainability efforts to appear more socially responsible (Yu et al., 2020). United Nations defines greenwashing as "misleading the public into believing that a company or entity is doing more to protect the environment than it actually is, promoting false solutions to the climate crisis that divert attention from and delay concrete and credible action." In this paper, we argue that greenwashing is likely to increase for firms that are incorporated in countries with poor institutional conditions (defined by transparency, legality, anti-self-dealing enforcement measures) since they face fewer repercussions if they don't fulfill their ESG commitments.

The imbalance between rules and discretion in corporate decision-making in various transparency and legality conditions is likely driven by supply- and demand-side considerations, which can lead to predictions about differences in ESG activity across nations. On the supply side, ESG may arise as an alternative response to market failures due to inefficiencies in the application of the rule of law and/or lack of transparency (e.g., de Bettignies and Robinson (2015)). The fact that a wide variety of stakeholders can more easily make claims, and benefit from stronger legality and transparency implies that there may be less need for firms to behave in a socially responsible way over and above meeting the law, in which case ESG strategies would be largely redundant in light of the constraints and requirements already in place coded in the law.

On the demand side, the level of ESG in a country may reflect consumers' and other citizens' preferences for corporations to be altruistic and pro-social (Benabou and Tirole (2006, 2010)). Based on this demand-side view, in countries that have better measures of transparency and legality, stakeholders may reflect stronger social preferences, in which case we would expect stronger ESG behavior because more is expected of firms in this environment. In sum, ESG performance is likely to be an equilibrium outcome reflecting the demand for voluntary "good behavior" and the motivation to supply such "costly" behavior. In this context, the relation between ESG and legality and transparency depends on which set of forces (supply- versus demand-side considerations) dominates.

In countries where there is a lack of transparency and legality measures, the "cost" of supplying ESG information might be relatively low since there is less pressure and oversight on the company to provide quality and reliable data on their ESG practices. In such an environment we might expect a greater supply of ESG data. On the demand side, there will be greater demand for ESG data, especially for large corporations that are more likely to attract foreign capital. International investment funds are increasingly taking ESG into consideration as they make their investment choices. Thus, large corporations around the world have greater motivation to report positive ESG performance to attract foreign investment. In addition, local citizens might expect the company to actively engage in such activities to make up for the lack of transparency and oversight in these markets due to inefficient regulations.

On the other hand, in countries where transparency and legality scores are high, the "cost" of supplying ESG information is high. These countries have stronger mechanisms to check on reporting frequency and quality and failure to deliver on the proposed improvements is likely to have more negative consequences. On the demand side, due to trust in the system and the transparency already in place, citizens might demand less from the

corporations. Also, companies in countries with more established institutional norms are more visible to investment funds since these nations already have a good reputation for best practices, and companies in such nations have less motivation to market themselves to potential investors.

H1a: Higher legality scores lead to lower ESG scores.

H1b: Higher transparency scores lead to lower ESG scores.

H1c: Higher anti-self-dealing scores lead to lower ESG scores.

In order to further investigate the motivation behind reporting better ESG scores we seek to understand if companies deliver on their ESG commitments in institutional contexts with lower transparency, legality, antiself dealing measures. ESG scores are based on self-reported information, making it hard to measure companies' commitment to their ESG goals. Laufer (2003) highlights the issues with self-reporting, especially without standardized external auditing. Recent studies (Giudice and Rigamonti, 2020; Mion and Adau, 2019) show that external validation improves ESG performance. Babkin et al. (2023) discuss evaluating ESG performance in a circular economy, where ESG commitments must be followed by sustainable actions. For example, a product made from recycled materials should not be a single-use product. Evaluating companies' actions, not just commitments, gives a better picture of their ESG contributions.

Whether companies implement their ESG commitments is crucial. Liang and Renneboog (2017) and Castillo-Merino and Rodriguez-Perez (2021) find that firms in civil-law countries have higher ESG scores than those in common-law countries, suggesting a more regulated environment leads to better sustainability performance. However, this could also indicate greenwashing in countries with weaker legal protections (La Porta et al., 1998). Our study tests this by measuring transparency and legality after controlling for legal origin.

If companies in countries with weaker transparency and legality measures implement their ESG commitments, it supports the demand-side argument that firms are committed to better ESG policies to attract socially responsible investors. If commitments are not fulfilled, it supports the supply-side argument that weak institutional settings lead to greenwashing.

Chen, Song, and Gao (2023) find a positive relationship between higher ESG scores and corporate financial performance in developed countries, but not in underdeveloped countries, possibly due to strong institutions in developed countries. Companies in less developed markets may report higher ESG scores due to greenwashing, which does not necessarily lead to better financial performance. On the other hand, the "socially responsible" label might especially be valuable for companies

located in countries where local financial markets may not be as efficient and/or developed and access to foreign capital might be crucial for growth (Zhang, 2022). For example, when companies are cross-listed in more established financial markets, they tend to provide more ESG disclosure in order to reduce the liability of foreignness (Yu and Luu, 2021).

We argue that if the main motivation behind reporting better ESG scores in weaker institutional conditions is firms' need to signal better performance in ESG, then we would expect these firms to have fewer ESG violations. However, if they are inflating their ESG performance for greenwashing purposes, they should have more ESG violations. To disentangle these two possible explanations (signaling vs. greenwashing) as to why we might observe higher ESG scores in countries with weaker institutions, we use the *ESG controversies score* which measures exposure to environmental, social, and governance controversies in global media. This score relies less on self-reported data and more on ESG-related news. If companies report higher ESG scores to signal quality we would expect companies in countries with higher transparency, legality, and anti-self-dealing measures to have fewer ESG violations.

H2a: Higher legality scores lead to higher ESG controversies scores (fewer violations).

H2b: Higher transparency scores lead to higher ESG controversies scores (fewer violations).

H2c: Higher anti-self-dealing scores lead to higher ESG controversies scores (fewer violations).

Research Design

We construct our data from Refinitiv Eikon (ESG data), country-level transparency index from La Porta et al (2006), legality index from La Porta et al.(1998), and anti-self-dealing measures from Djankov et al. (2008). Our main dependent variables in this research are *ESG score* and *ESG controversies score*. We start with 4,180 company observations from different countries around the world that have ESG scores data available in Refinitiv Eikon as of February 2022.

Dependent Variables:

ESG score is an assessment of companies' relative ESG performance and capacity, integrating and accounting for industry materiality and company size biases. The score is based on verifiable reported data in the public domain. The category scores are rolled up into three pillar scores – environmental, social, and corporate governance. ESG scores from Refinitiv are designed to measure a company's relative ESG performance,

commitment, and effectiveness across 10 main themes based on publicly reported data. Environment (Resource use, Emission, Innovation), Social (Workforce, Human Rights, Community, Product Responsibility,) and Governance (Management, Shareholders, CSR strategy). ESG pillar score is a relative sum of the category weights which vary per industry for the 'Environmental' and 'Social' categories. For 'Governance', the weights remain the same across all industries.

ESG Controversies Score is collected from Refinitiv and is calculated based on 23 ESG controversy topics. During the year, if a scandal occurs, the company involved is penalized and this affects their overall ESG Controversies Score and grading. All new media materials are captured as the controversy progresses. The controversies score also addresses the market cap bias which large-cap companies suffer from, as they attract more media attention than smaller-cap companies.

Independent Variables

We merge Refinitiv Eikon data with country-specific data that is made publicly available by three seminal papers that analyzed institutional measures of different countries. These three datasets construct the independent variables in our research. Specifically, these seminal papers provide the transparency (La Porta et al., 2006), legality (La Porta et al., 1998) and anti-self-dealing measures (Djankov et al., 2008) of countries.

For country-specific legality measures, we rely on the following independent variables: disclosure requirements, rule of law, the efficiency of the judiciary system, corruption, repudiation of contracts by the government, and risk of expropriation. These are publicly available data made available by La Porta et al., 1998, <https://scholar.harvard.edu/shleifer/publications/law-and-finance>. These variables are on a scale from 0 to 10 and higher scores for each variable represent a better legal performance in each country.

For transparency, we rely on La Porta, Lopez-de-Silanes and Shleifer (2006) country-specific IPO prospectus disclosure requirements index as our independent variable. The index of disclosure equals the arithmetic mean of (1) prospectus; (2) compensation; (3) shareholders; (4) inside ownership; (5) contracts irregular; and (6) transactions. Higher score for these variables corresponds to higher disclosure requirements in each country.

For anti-self-dealing measure, we rely on Djankov et al., (2008) study that measures the effectiveness of private-enforcement mechanisms in each country. The index in this study is calculated for countries based on legal rules and focuses on private enforcement mechanisms, such as disclosure, approval, and litigation, that govern a specific self-dealing transaction in corporations. This theoretically grounded index predicts a variety of stock market outcomes. The independent variables we gather from this study are

dummy variables and take a value of one if the country has the anti-self-dealing measure in place, zero otherwise. The independent variables used are: Approval by disinterested shareholders, Disclosures by Buyer, Disclosures by Mr. James, Independent review, Standing to sue, Rescission, Ease of holding Mr. James civilly liable, Ease of holding the approving body civilly liable and Excess to evidence. All of these self-dealing measures can be effective in preventing agency problems as a deterrent force (ex-ante measures) or through punishment (ex-post measures). Thus, Djankov et. al., (2008) groups each of these measures into one of these two sub-indices as ex-ante and ex-post. The two sub-indices differentiate between these two different possible influences. We also use the anti-self-dealing index overall as an independent variable which is the average of all the independent variables relating to anti-self-dealing (ex-ante and ex-post combined). A summary of these variables and what each of these variables represents is defined in Appendix A. This data is publicly available (<https://scholar.harvard.edu/shleifer/publications/law-and-economics-self-dealing>).

Control Variables

Chen, Song, and Gao, (2023) show that a company's ESG rating is significantly related to its corporate financial performance. Thus, we employ the following control variables to control for the effect of financial performance on the ESG score of the company as of the year 2022. These variables are: *Multiple listing dummy*, *Log of Age of Company*, *Earnings Quality Region Rank*, *Credit Combined Country Rank*, *Log of Total Assets*, *Long Term Debt/Equity*, *P/E Ratio*, *Current Ratio*, *Private Equity Backed dummy* (see Appendix A for definitions).

Analytical Methods

Our final data includes 2,354 company observations from 38 different countries reported in 2022. We would like to note that the country-specific transparency measures are from the study published in 2006, legality measures are from the study published in 1998 and self-dealing measures are from the study published in 2008. Since corporate law in a country is relatively fixed and persistent and does not change much through time, we assume that the past measures we use from these studies will continue to proxy for the current regulatory environment in these countries. The advantage of using past country data is that since we are using lagged country-specific variables to explain current ESG data, we naturally address possible simultaneity bias given our research design.

ESG ratings reflect third-party evaluations of a firm's actual performance in environmental, social, and governance dimensions, based on

objective and subjective metrics. Greenwashing involves firms exaggerating their sustainability efforts or disclosing misleading information to appear more responsible than they are. Analyzing the gap between firms' legality, transparency, and anti-self-dealing measures (independent variables) and ESG ratings and controversies (dependent variables) can help identify potential greenwashing behaviors. In doing so,

We use OLS regression models for our analyses. ESG ratings are influenced by multiple firm-specific, industry-specific, and macroeconomic factors. OLS regression is a suitable method for analyzing cross-sectional or panel datasets, which are common in ESG studies. These datasets often feature ESG scores across firms and time, enabling the examination of structural patterns or temporal changes in ESG determinants. An OLS regression helps determine the significance and magnitude of these factors (Eccles et al., 2014).

Our main model is as follows:

$$\begin{aligned} \text{ESG Score} = & \alpha_0 + \beta_1 * \text{Multiple listing dummy} + \beta_2 * \text{Log of Age of Company} + \\ & \beta_3 * \text{Earnings Quality Region Rank} + \beta_4 * \text{Credit Combined Country Rank} + \\ & \beta_5 * \text{Log of Total Assets} + \beta_6 * \text{Long Term Debt/Equity} + \beta_7 * \text{P/E Ratio} + \\ & \beta_8 * \text{Current Ratio} + \beta_9 * \text{Private Equity Backed dummy} + \beta_{10} * \text{French origin} \\ & \text{dummy} + \beta_{11} * \text{Scandinavian origin dummy} + \beta_{12} * \text{German origin dummy} + \\ & \beta_{13} * \text{Country Anti-Self-dealing Index} + \beta_{14} * \text{Disclosure Requirements Index} + \\ & \beta_{15} * \text{Rule of Law} + \beta_{16} * \text{Risk of Expropriation} + \beta_{17} * \text{Risk of contract} \\ & \text{repudiation} + \beta_{18} * \text{Corruption} + \beta_{19} * \text{Efficiency of Judiciary system} + \\ & \beta_{20} * \text{Industry fixed effects} + u_i \end{aligned}$$

In subsequent analyses, we replace the *Country Anti-Self-Dealing Index* with the Index's sub-indices (*Ex-Ante and Ex-Post Self-Dealing Indices*) or the actual individual provisions that make up the index. In some regression models, we introduce the five provision variables related to Legality (*Rule of Law, Risk of Expropriation, Risk of Contract Repudiation, Corruption and Efficiency of Judiciary system*) separate from the Self-Dealing provision variables due to collinearity concerns. We present the results of these variations in the models in our Results section. The descriptions of all dependent and independent variables used in our analyses are available in Appendix A.

Empirical Results and Discussion

Descriptive statistics for the variables used in our analyses are presented in Table 1. *ESG Score, Earnings Quality Region Rank, and Credit Combined Country Rank* are from the Refinitiv ESG database and are standardized between the range of 0-100. The legality variables have a range of 0-10. The anti-self-dealing variables have a range of 0-1.

Table 1: Descriptive Statistics for Variables Used in Analyses
All variable definitions are in Appendix A

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>25th Percentile</i>	<i>75th Percentile</i>	<i>Std. Dev.</i>	<i>Num. Obs.</i>
ESG Score	59.1	60.5	47.6	71.8	16.8	2354
Multiple listing	0.3	0.0	0.0	1.0	0.5	2354
Log of Age of Company	3.4	3.5	2.9	4.1	0.9	2354
Earnings Quality Region Rank	57.1	59.0	35.0	81.0	27.1	2354
Credit Combined Country Rank	54.2	55.0	33.0	77.0	26.6	2354
Log of Total Assets	22.4	22.4	21.3	23.5	1.7	2354
Long Term Debt/Equity	1.1	0.4	0.2	0.9	8.3	2354
P/E Ratio	87.9	19.8	11.0	33.9	1943.2	2354
Current Ratio	1.8	1.5	1.1	2.1	1.6	2354
Private Equity Backed Dummy	0.2	0.0	0.0	0.0	0.4	2354
French origin dummy	0.1	0.0	0.0	0.0	0.4	2354
Scandinavian Origin dummy	0.0	0.0	0.0	0.0	0.1	2354
German Origin dummy	0.3	0.0	0.0	1.0	0.4	2354
English origin dummy	0.6	1.0	0.0	1.0	0.5	2354
Disclosure Requirements Index	0.8	0.8	0.8	0.9	0.2	2354
Rule of Law	8.3	9.0	8.2	10.0	2.4	2354
Risk of expropriation	9.2	9.7	9.1	10.0	1.0	2354
Risk of contract Repudiation	8.7	9.0	8.7	9.6	1.2	2354
Corruption	8.1	8.6	8.3	8.9	1.6	2354
Efficiency of Judiciary System	8.8	10.0	8.0	10.0	1.9	2354
Approval by disinterested shareholder	0.3	0.0	0.0	1.0	0.4	2354
Disclosure by buyer	0.7	1.0	0.3	1.0	0.4	2354
Disclosure by James	0.9	1.0	1.0	1.0	0.2	2354
Independent Review	0.4	0.0	0.0	1.0	0.5	2354
Standing to Sue	1.0	1.0	1.0	1.0	0.1	2354
Rescission	0.4	0.5	0.0	1.0	0.4	2354
Ease of Holding Mr. James liable	0.7	1.0	0.5	1.0	0.4	2354
Ease of holding approving body liable	0.7	1.0	0.5	1.0	0.3	2354
Access to evidence	0.7	0.8	0.5	0.8	0.3	2354

Table 2: ESG Scores and Legality Index Measures Across Nations

Country		G Score	Disclosure Requirements Index	Rule of Law	Risk of expropriation	Risk of contract Repudiation	Corruption	Efficiency of Judiciary System
Austria	Mean	59.82	0.25	10	9.69	9.6	8.57	9.5
	Median	61.27	0.25	10	9.69	9.6	8.57	9.5
	25th Percentile	51.97	0.25	10	9.69	9.6	8.57	9.5
	75th Percentile	69.08	0.25	10	9.69	9.6	8.57	9.5
	St. Dev.	11.27	0	0	0	0	0	0
	N	23.00	23	23	23	23	23	23
Canada	Mean	61.22	0.92	10	9.67	8.96	10	9.25
	Median	61.47	0.92	10	9.67	8.96	10	9.25
	25th Percentile	48.60	0.92	10	9.67	8.96	10	9.25
	75th Percentile	72.88	0.92	10	9.67	8.96	10	9.25
	St. Dev.	15.22	1.12E-16	0	0	0	0	0
	N	81.00	81	81	81	81	81	81
Finland	Mean	54.41	0.5	10	9.67	9.15	10	10
	Median	59.85	0.5	10	9.67	9.15	10	10
	25th Percentile	39.56	0.5	10	9.67	9.15	10	10
	75th Percentile	66.82	0.5	10	9.67	9.15	10	10
	St. Dev.	21.01	0	0	0	0	0	0
	N	21.00	21	21	21	21	21	21
Greece	Mean	69.69	0.33	6.18	7.12	6.62	7.27	7
	Median	71.23	0.33	6.18	7.12	6.62	7.27	7
	25th Percentile	62.45	0.33	6.18	7.12	6.62	7.27	7
	75th Percentile	76.93	0.33	6.18	7.12	6.62	7.27	7
	St. Dev.	9.80	0	0	0	0	0	0
	N							

Mexico	N	4.00	4	4	4	4	4	4
	Mean	70.64	0.58	5.35	7.29	6.55	4.77	6
	Median	70.53	0.58	5.35	7.29	6.55	4.77	6
	25th Percentile	59.47	0.58	5.35	7.29	6.55	4.77	6
	75th Percentile	86.81	0.58	5.35	7.29	6.55	4.77	6
	St. Dev.	13.38	0	0	0	0	0	0
	N	7.00	7	7	7	7	7	7
Turkey	Mean	67.33	0.5	5.18	7	5.95	5.18	4
	Median	68.20	0.5	5.18	7	5.95	5.18	4
	25th Percentile	59.15	0.5	5.18	7	5.95	5.18	4
	75th Percentile	76.63	0.5	5.18	7	5.95	5.18	4
	St. Dev.	11.70	0	0	0	0	0	0
	N	40.00	40	40	40	40	40	40
	United States	Mean	59.44	1	10	9.98	9	8.63
Median		62.00	1	10	9.98	9	8.63	10
25th Percentile		47.20	1	10	9.98	9	8.63	10
75th Percentile		72.15	1	10	9.98	9	8.63	10
St. Dev.		16.99	0	0	0	0	0	0
N		552.00	552	552	552	552	552	552
Total		Mean	59.12	0.7902082	8.30802	9.180438	8.707111	8.075268
	Median	60.50	0.75	8.98	9.67	9	8.63	10
	25th Percentile	47.55	0.75	8.22	9.12	8.71	8.33	8
	75th Percentile	71.79	0.92	10	9.98	9.63	8.92	10
	St. Dev.	16.83	0.1879552	2.374421	1.043993	1.160619	1.583877	1.85631
	N	2354.00	2354	2354	2354	2354	2354	2354

In Table 2, we break down the ESG and legality variables into different countries. We want to examine the relationship across different nations in terms of the ESG and the legality scores to test our hypotheses. For brevity, we only list the statistics for a handful of countries in our dataset in Table 2. For example, in countries such as Mexico, Turkey, and Greece, rule of law scores are 5.35, 6.18, and 5.18 out of 10, respectively, and the corresponding ESG scores are 70, 71, and 67 out of 100, respectively. Whereas in countries such as Austria, Finland, and Canada, where the rule of law scores are 10 out of 10, the *ESG scores* are 60, 61, and 54, respectively. The difference of means in these variables between these two groups of countries is consistent with our hypothesis 1 and suggests that there might be a negative relationship between ESG scores of companies and the legality scores of the nations in which they are incorporated.

We move to multivariate analyses to control for other factors that might play a role in ESG scores. In our multivariate results in Table 3, column 1, we control for industry and country fixed effects, and we only focus on company-specific variables. Our results suggest that *the logarithm of total assets, age of company, P/E ratio, earnings quality, credit score, and private equity backing* are all positively related to the *ESG score*. In other words, older and larger companies that have higher valuations and better reporting and credit quality and those that are private equity-backed have higher ESG scores. These results are consistent with prior literature and suggest that more valuable and more established companies that have greater resources and more diverse stakeholders are more likely to invest in better ESG policies.

In Table 3, column 2, we introduce the country-specific variables in addition to company variables. In this regression, we control for industry-fixed effects and the standard errors are clustered at the country level. We control for legal origin in these regressions since prior research (Liang and Renneboog, 2017) has shown that legal origin is a significant predictor of ESG scores for companies. Liang and Renneboog (2017) find that civil law country companies have higher ESG scores compared to common law countries. In our results in Column 3, we cannot find the same results and the origin of law variables does not seem to significantly affect ESG scores across countries.

In Table 3, and column 4, we introduce our transparency and legality variables, controlling for legal origin and company-specific factors. Our results suggest that the *ESG score* is significantly and negatively related to disclosure requirements (at 5% level), the *rule of law* (5% level), and the *efficiency of the legal system* (1% level). The *corruption* variable seems to be positively related to the *ESG score* but weakly significant at the 10% level. Overall, these results suggest that countries that have weaker legality and

transparency systems in place tend to have higher ESG scores, consistent with our Hypotheses 1a and 1b. Interestingly, once we control for legality and transparency, the *German legal system* has a negative and significant effect on the ESG score. Germany has a civil law system in place and this result contrasts with the findings of Liang and Renneboog (2017).

One explanation for this result can be that civil law countries tend to have lower legality scores compared to common law countries (La Porta et. al, 1998) and the finding in Liang and Renneboog (2017) can be driven by the legality and transparency differences among civil and common law countries.

Another possible explanation is that Germany has been a leader among the European Union countries in setting their own ESG reporting and behavior standards (Velte, 2017) which could explain why German origin might be significant in the tables. “Greenwashing” might be more challenging under a regulated environment.

Table 3: OLS Regression Results Analyzing Transparency and Legality Measures

All variables are defined in Appendix A. P-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

		<i>Dependent Variable: ESG Score</i>							
<i>Country Legality Measures</i>									
<i>(Independent variables)</i>									
Rule of Law		-0.58			-0.23				
		(0.04)**			(0.49)				
Risk of Expropriation		0.68				-0.22			
		(0.70)				(0.78)			
Risk of contract repudiation		1.08					0.38		
		(0.46)					(0.63)		
Corruption		1.34						0.33	
		(0.07)*						(0.54)	
Efficiency of Judiciary System		-1.64							-0.67
		(0.00)***							(0.06)*
<i>Country Transparency Measure</i>									
<i>(Independent variable)</i>									
Disclosure Requirements Index		-8.44			-9.13				
		(0.02)**			(0.06)*				
<i>Country Legal Origin (Control variable)</i>									
French origin dummy		2.88	-1.25	-0.02	2.59	2.81	3.40	3.52	1.24
		(0.14)	(0.41)	(0.99)	(0.24)	(0.16)	(0.09)*	(0.09)*	(0.49)
Scandinavian Origin dummy		3.52	0.12	0.68	4.47	4.28	3.79	3.59	4.70
		(1.40)	(0.97)	(0.82)	(0.15)	(0.18)	(0.23)	(0.26)	(0.14)
German Origin dummy		-3.82	-4.78	-3.09	-1.36	-1.15	-1.62	-1.17	-1.43
		(0.16)	(0.02)**	(0.21)	(0.54)	(0.61)	(0.49)	(0.62)	(0.47)
<i>Company Characteristics</i>									
<i>(Control variables)</i>									
Multiple listing		1.71	-2.38	-2.11	-2.05	-2.97	-2.88	-3.14	-3.01
		(0.34)	(0.21)	(0.03)**	(0.22)	(0.05)**	(0.11)	(0.07)*	(0.09)*

Log of Age of Company	1.26 (0.00)***	1.60 (0.03)**	1.14 (0.00)***	0.85 (0.00)***	0.69 (0.02)**	0.71 (0.02)**	0.77 (0.01)***	0.77 (0.01)***	0.75 (0.01)***
Earnings Quality Region Rank	0.04 (0.00)***	0.04 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***
Credit Combined Country Rank	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***
Log of Total Assets	5.98 (0.00)***	5.50 (0.00)***	5.80 (0.00)***	5.79 (0.00)***	5.69 (0.00)***	5.67 (0.00)***	5.64 (0.00)***	5.64 (0.00)***	5.73 (0.00)***
Long Term Debt/Equity	-0.01 (0.17)	-0.02 (0.03)**	-0.01 (0.75)	-0.01 (0.64)	-0.01 (0.67)	-0.01 (0.63)	-0.01 (0.58)	-0.01 (0.57)	-0.01 (0.72)
P/E Ratio	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***
Current Ratio	0.15 (0.35)	0.10 (0.47)	0.02 (0.93)	0.03 (0.90)	-0.03 (0.88)	-0.04 (0.84)	-0.06 (0.80)	-0.06 (0.78)	-0.02 (0.92)
Private Equity Backed Dummy	1.74 (0.01)***	0.76 (0.74)	1.42 (0.22)	1.17 (0.29)	1.30 (0.24)	1.26 (0.26)	1.23 (0.27)	1.22 (0.27)	1.28 (0.25)
Constant	-79.95 (0.00)***	-72.11 (0.00)***	-76.89 (0.00)***	-67.74 (0.00)***	-71.14 (0.00)***	-70.83 (0.00)***	-75.30 (0.00)***	-74.92 (0.00)***	-68.25 (0.00)***
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.39	0.31	0.356	0.34	0.34	0.34	0.34	0.34	0.34
N	2,569	2,569	2,368	2,368	2,368	2,368	2,368	2,368	2,368

Table 4: OLS Regression Results Analyzing Anti-Self-Dealing Measures
All variables are defined in Appendix A. Standard errors are adjusted for heteroskedasticity and clustered at the company's country level. P-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

		<i>Dependent Variable: ESG</i>	
		<i>Score</i>	
<i>Country Anti-Self-Dealing Index (Independent variables)</i>			-7.38 (0.00)***
<i>Country Ex ante Self-Dealing Measures (Independent variables)</i>			
Approval by disinterested shareholders	-0.57 (0.81)		
Disclosure by Buyer	3.46 (0.11)		
Disclosure by James	-7.08 (0.06)*		
Independent review	-3.76 (0.02)**		
<i>Country ex post Self-Dealing Measures (Independent variables)</i>			
Disclosure in periodic filings	2.10 (0.57)		
Standing to sue	0.73 (0.81)		
Rescission	-2.58 (0.44)		
Ease of holding Mr. James liable	1.08 (0.70)		
Ease of holding approving body liable	2.83 (0.64)		
Access to evidence	-2.54 (0.55)		
<i>Country Legal Origin (Control variables)</i>			
French origin dummy	-0.53 (0.82)	3.32 (0.33)	-0.11 (0.93)
Scandinavian Origin dummy	-3.56 (0.25)	3.48 (0.24)	0.71 (0.71)
German Origin dummy	-6.55 (0.02)**	-5.13 (0.10)*	-5.86 (0.00)***
<i>Company Characteristics (control variables)</i>			
Multiple listing	-6.30 (0.00)***	-2.42 (0.00)***	-3.18 (0.00)***
Log of Age of Company	1.52 (0.00)***	1.36 (0.00)***	1.51 (0.00)**
Earnings Quality Region Rank	0.05 (0.00)***	0.04 (0.00)***	0.04 (0.00)***
Credit Combined Country Rank	0.06 (0.00)***	0.06 (0.00)***	0.06 (0.00)***
Log of Total Assets	5.44	5.49	5.47

	(0.00)***	(0.00)***	(0.00)***
Long Term Debt/Equity	-0.02	-0.02	-0.02
	(0.01)**	0.05	(0.02)**
P/E Ratio	0.00	0.00	0.00
	(0.00)***	(0.00)***	(0.00)***
Current Ratio	0.04	0.06	0.07
	(0.84)	(0.79)	(0.68)
Private Equity Backed Dummy	0.79	0.81	0.61
	(0.45)	(0.40)	(0.38)
Constant	-62.25	-73.11	
	(0.00)***	(0.00)***	
Industry fixed effects	Yes	Yes	Yes
Adjusted R-squared	0.328	0.316	0.316
N	2,546	2,546	2,546

In Table 3 columns 5 to 9, we introduce the transparency and legality variables individually since these control variables might have a high degree of collinearity amongst each other. According to the results, the *disclosure requirement* and *efficiency of the legal system* continue to be significantly and negatively related to the ESG score.

In Table 4, we turn to private enforcement mechanisms. Djankov, et. al (2008) identify country-specific anti-self-dealing measures that would enhance private-enforcement mechanisms. In the paper, these measures are broken down into two ex-ante and ex-post measures to disentangle if such private enforcement measures have legal consequences before or after the corporate event. *Approval by disinterested shareholders*, *Disclosures by Buyer*, *Disclosures by Mr. James*, and *Independent review* are the ex-ante measures in place in a country that can deter self-dealing ex-ante. *Standing to sue*, *Rescission*, *Ease of holding Mr. James civilly liable*, *Ease of holding the approving body civilly liable*, and *Access to evidence* are ex-post measures that might deter self-dealing.

According to the results aggregate anti-self-dealing measure has a significant negative relationship with ESG scores, suggesting that more oversight leads to lower ESG scores, consistent with Hypothesis 1 c. When we turn to individual measures, *greater disclosure by Mr. James* and the existence of *Independent review* is negatively correlated with the ESG score. These results suggest that when ex-ante measures that might deter self-dealing behavior are lacking, ESG scores tend to be significantly higher. This is also consistent with Hypothesis 1c and suggests that greenwashing might be discouraged when deterrent measures are in place. In Table 4, column 2, we analyze the anti-self-dealing measures in a country that might deter such behavior ex-post. These measures are not significantly related to the ESG score.

Finally, in column 3 of Table 4, we use the *anti-self-dealing index* which is the average of ex-ante and ex-post self-dealing measures. This variable is significantly negatively related to the *ESG score*, further supporting Hypothesis 1c. Overall, our results suggest that when anti-self-dealing mechanisms are in place in a country, ESG scores tend to be more conservative and ex-ante measures seem to be more effective in ESG reporting compared to ex-post anti-self-dealing measures.

In Table 5, we turn to our second hypothesis which argues that the actions of companies might be more representative of their true effort compared to what they report, depending on the conditions present in the countries they are incorporated in. We are using the *ESG controversies* as our dependent variable in this regression since this variable captures the media news that is related to the ESG practices of companies across the world.

Before we analyze the transparency and legality variables in the regressions, we turn our attention to company-specific variables in Table 5, column 1. According to the results, smaller and younger companies with low accrual and credit rating scores are doing significantly better in terms of ESG controversies scores. This result is unexpected and signals a potential bias issue present in the ESG controversies reporting. A likely explanation for this result is that companies that are less transparent about their actions can get away with ESG controversies without being flagged in the media. This bias might cause our results to appear less significant than they actually are.

Table 5: OLS Regression Results for ESG Controversies Score

All variables are defined in Appendix A. Standard errors are adjusted for heteroskedasticity and clustered at the company's county level. P-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Dependent Variable: ESG Controversies Score	
<i>Country Legality Measures</i> (Independent variables)	
Rule of Law	2.14 (0.00)***
Risk of Expropriation	-8.78 (0.01)***
Risk of contract repudiation	4.74 (0.12)
Corruption	-0.98 (0.44)
Efficiency of Judiciary System	0.09 (0.91)
<i>Country Anti-Self-Dealing Index</i> (Independent variables)	1.70 (0.08)*
<i>Country Transparency Measure</i> (Independent variables)	

Disclosure Requirements index		15.26 (0.01)***	15.34 (0.00)***
<i>Country Legal Origin (control variables)</i>			
French origin dummy	4.33 (0.08)*	9.93 (0.00)***	12.38 (0.00)***
Scandinavian Origin dummy	3.85 (0.17)	8.07 (0.00)***	11.47 (0.00)***
German Origin dummy	8.71 (0.00)***	12.08 (0.00)***	14.34 (0.00)***
<i>Company Characteristics (control variables)</i>			
Multiple listing	0.36 (0.90)	3.76 (0.20)	0.48 (0.75)
Log of Age of Company	0.08 (0.89)	-0.07 (0.92)	-0.01 (0.99)
Earnings Quality Region Rank	-0.04 (0.00)***	-0.05 (0.00)***	-0.04 (0.02)**
Credit Combined Country Rank	-0.04 (0.02)**	-0.02 (0.31)	-0.03 (0.13)
Log of Total Assets	-6.76 (0.00)***	-7.20 (0.00)***	-7.16 (0.00)***
Long Term Debt/Equity	0.00 (0.77)	0.00 (0.90)	0.00 (0.99)
P/E Ratio	0.00 (0.54)	0.00 (0.64)	0.00 (0.76)
Current Ratio	-0.11 (0.73)	-0.15 (0.68)	-0.12 (0.60)
Private Equity Backed Dummy	0.03 (0.98)	0.26 (0.79)	0.03 (0.98)
Constant	234.63 (0.00)***	255.78 (0.00)***	222.76 (0.00)***
Industry fixed effects	Yes	Yes	Yes
Adjusted R-squared	0.22	0.25	0.24
N	2569	2354	2368

The results from the origin of the law also support this argument. In our previous regressions, where *ESG score* was the dependent variable, *German law origin* was negative and significant, suggesting that civil law is negatively related to the ESG score. In this regression, civil law origin variables (*German, Scandinavian, and French origin*) are both positive and significant. Since civil law origin generally leads to less government oversight and lower transparency in general (La Porta et. al, 2006), observing fewer ESG controversies under such an environment is consistent with what we observe in company-specific variable results.

When we turn to disclosure and legality variables in column 2, we see a significantly positive relationship with the dependent variable. This means that *lower disclosure, anti-self-dealing, and rule of law* lead to lower

ESG controversy scores (higher ESG violations). This result supports Hypotheses 2a and 2b since lower disclosure and legality scores lead to higher ESG violations. This result suggests that the positive ESG reporting we observe in lower legality/transparency environments is not necessarily leading to better ESG actions by companies. Contrary, the ESG violations in these countries tend to be greater, suggesting that “commitment” to ESG does not necessarily translate into “action.”

Finally, in Table 5 column 3, we analyze the effect of the *anti-self-dealing index* on the *ESG controversy score*. Consistent with the results on legality and transparency independent variables, this variable is also positively and significantly (weak significance at 10%) related to higher *ESG controversies score* (less controversy). This result supports Hypothesis 2c.

Overall, the inconsistencies in terms of how the control variables (company financial and country legal origin control variables) are in relation to the ESG controversies score points to a potential problem in transparency and reporting bias in using ESG controversies as an alternative score to evaluate companies. The actual ESG controversies might be much greater than what we can observe from this data. Nevertheless, even under a potential selection bias that works against our finding results, our results show that countries with better legality, transparency, and anti-self-dealing measures in place have better ESG controversy scores. This result is contrary to the argument which suggests that companies that are in countries with lower legality scores would perform better in signaling their ESG reporting quality. Instead, the results are more consistent with the greenwashing argument.

Summary and Conclusion

This paper contributes to the responsible investment and ESG literatures in an international setting. Our motivation to evaluate the ESG scores of companies across nations stems from the fact that the quality of ESG ratings has recently been under scrutiny. There are significant inconsistencies in the ESG reporting methods, even amongst different rating agencies such as Sustainalytics, S&P, and MSCI. Thus, it is important to understand the causes of variation in ESG reporting. According to North (1981, 1990), institutions play a critical role in shaping and constraining organizational strategies. Based on this theory, our main goal is to understand whether country-specific institutional factors significantly contribute to the quality of the ESG scores that companies disclose in different countries.

As we analyze the variation of ESG reporting quality across countries, we utilize three different country-specific institutional factors; transparency (La Porta et al., 2006), legality (La Porta et al., 1998), anti-self-

dealing measures (Djankov et al., 2008) as our independent variables. These legal enforcement measures have been widely used in business literature to explain cross-country variation in corporate decision-making. We explore the effect of these legal factors on ESG ratings to analyze if these three different institutional factors that define the boundaries of corporate law in a given country cause ESG reporting biases across countries.

According to our results, after controlling for company-specific, industry-specific and legal origin factors, companies report significantly higher ESG scores in countries that have lower transparency scores, where the rule of law is weaker and where the efficiency of the judicial system is lower. In addition, when the self-dealing measures such as independent review and disclosure measures are weak, the ESG scores tend to be stronger. These results are consistent with the institutional theory argument that a country's institutions determine the constraints and rules by which organizations operate. The results are also in line with the greenwashing arguments which highlight the risk of firms embellishing or misrepresenting their sustainability efforts to appear more socially responsible (Yu, et al., 2020).

In order to test the signaling theory (Wang et al., 2022) as an alternative explanation to greenwashing, we use an alternative dependent variable, *ESG controversies score* to observe the ESG performance of a firm. Our results suggest that lower disclosure, rule of law and anti-self-dealing measures lead to lower ESG controversy scores (higher ESG violations). This result suggests that the positive ESG reporting we observe in lower legality/transparency environments is not necessarily leading to better ESG actions by these companies. If companies in lower legality/transparency countries were committed to higher ESG strategies to signal their quality, we should have observed lower ESG controversies from these companies. However, our results do not support this argument.

Unlike financial reporting, ESG reporting has not yet been standardized and oversight on the frequency and quality of the reported information varies across companies and industries. In this paper, we show that this variation is especially salient across different countries and the fact that ESG scores are significantly higher in countries where accountability is lower supports the recent discussions on the credibility of the self-reported ESG scores in place. There is a lack of transparency among rating agencies about peer group components and observed ranges which creates inconsistencies and creates doubts about the reliability of the data (Kotsantonis and Serafeim, 2019). Overall, our results suggest that robust global standards are needed for comparable ESG and sustainability reports. However, satisfactory implementation is still lacking. The first GRI Guidelines in 2000 established the framework for sustainability reporting.

The 2004 ACCA report highlighted the need for Generally Accepted Accounting Principles and Assurance Standards for Sustainability. In 2021, the International Sustainability Standards Board (ISSB) was created, but more work is needed.

Our study provides valuable insights to practitioners. Managers should recognize that higher ESG scores in low-transparency countries may not equate to stronger ESG performance, and this could affect reputation and investor trust. Investors should critically assess ESG ratings, especially in countries with weak institutional oversight. They should not take ESG scores at face value but should look for independent verification, controversies, and actual corporate actions rather than commitments. Our study suggests that regulatory bodies and policymakers should push for globally standardized ESG reporting frameworks to enhance comparability and reliability. This can reduce the risk of greenwashing and make ESG ratings a more dependable investment criterion.

Our study has some limitations. We rely on country-level data that was collected in the early 2000s to measure the legality, transparency and anti-self-dealing measures of countries. Country-level corporate law expertise for each country is needed to update these variables and thus updating the measurements is quite difficult. In our research, we assume that these country-specific corporate laws are persistent and would proxy for the current legal conditions in these nations. A more recent measurement of these country specific variables would be more appropriate and would likely yield stronger results for our ESG findings.

Future research can extend our study in several dimensions. First, although our study includes industry-fixed effects, it doesn't fully explore industry-specific drivers of ESG practices, which could be an important moderating factor in ESG practices. Industry characteristics can heavily influence both the motivation and capacity for ESG efforts. Second, we employ institutional theory to understand the effects of country-specific factors on companies' ESG reporting. Future research can also incorporate contingency theory to better capture how firms may adapt their ESG strategies based on both internal (firm-level) and external (country-level) pressures by examining the interaction of these two effects. Third, future research can do an event study to measure the effect of regulatory changes on the ESG scores of companies in each nation. For example, in 2021 The European Union introduced the European Union Sustainable Finance Disclosure Regulation (SFDR) to enhance transparency and sustainability in financial markets. This regulation requires financial market participants to disclose information about the environmental and social impacts of their investment decisions. An event study that compares the ESG scores of companies before and after the regulation would contribute to the literature

on the effect of regulation on ESG reporting and would complement our study.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

References:

1. Babkin, A., Shkarupeta, E., Tashenova, L., Malevskaia-Malevich, E., & Shchegoleva, T. (2023). Framework for assessing the sustainability of ESG performance in industrial cluster ecosystems in a circular economy. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100071
2. Bénabou, R., & Tirole, J. (2006). Incentives and prosocial behavior. *American Economic Review*, 96(5), 1652-1678.
3. Bénabou, R., & Tirole, J. (2010). Individual and corporate social responsibility. *Economica*, 77(305), 1-19.
4. Castillo-Merino, D.; Rodríguez-Pérez, G. (2021). The Effects of Legal Origin and Corporate Governance on Financial Firms' Sustainability Performance. *Sustainability*, 13, 8233.
5. Chen G., Firth M., Gao D. N., Rui O. M. (2021). Ownership structure, corporate governance, and fraud: Evidence from China, *Journal of Corporate Finance*, 12 (3), 424-448,
6. Chen, S., Song, Y., & Gao, P. (2023). Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management*, 345, 118829.
7. Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies*, 26(3), 1176-1248.
8. Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, 54(1), 64-87.
9. De Bettignies, J. E., & Robinson, D. T. (2015). When is social responsibility socially desirable? (No. w21364). Cambridge, MA: National Bureau of Economic Research.
10. Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2008). The law and economics of self-dealing. *Journal of Financial Economics*, 88(3), 430-465.

11. Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management science*, 60(11), 2835-2857.
12. Gelfand, A. (2022) The ESG Generation Gap: Millennials and Boomers Split on Their Investing Goals. *Insights by Stanford Business*. Retrieved May 15, 2024, from <https://www.gsb.stanford.edu/insights/esg-generation-gap-millennials-boomers-split-their-investing-goals>
13. Goldman Sachs. (2007). *Introducing GS SUSTAIN*. New York: Goldman Sachs.
14. Gregory, A., Tharyan, R., & Whittaker, J. (2014). Corporate social responsibility and firm value:
15. Disaggregating the effects on cash flow, risk and growth. *Journal of Business Ethics*, 124(4), 633-657.
16. Ipek, I., & Tanyeri, M. (2021). Home country institutional drivers and performance outcomes of export market orientation: the moderating role of firm resources. *International Journal of Emerging Markets*, 16(4), 806-836.
17. Isla, Binnie (2023, June 26). BlackRock's Fink says he's stopped using 'weaponised' term ESG. *Reuters*, <https://www.reuters.com/business/environment/blackrocks-fink-says-hes-stopped-using-weaponised-term-esg-2023-06-26/>
18. Kotsantonis, S., & Serafeim, G. (2019). Four things no one will tell you about ESG data. *Journal of Applied Corporate Finance*, 31(2), 50-58.
19. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, 58(1-2), 3-27.
20. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2006. What Works in Securities Laws? *The Journal of Finance*, 61, 1-32
21. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. *Journal of Finance*, 52, 1131-1150.
22. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. *Journal of Political Economy*, 106, 1113-1155.
23. Laufer, W. S. (2003). Social accountability and corporate greenwashing. *Journal of Business Ethics*, 43(3), 253-261.
24. Lee J., Maxfield, S. (2015). Doing well by reporting good: Reporting corporate responsibility and corporate performance. *Business and Society Review*, 120(4), 577-606. <https://doi.org/10.1111/basr.12075>
25. Li, R., & Ramanathan, R. (2020). Can environmental investments benefit environmental performance? The moderating roles of

- institutional environment and foreign direct investment. *Business Strategy and the Environment*, 29(8), 3385-3398.
26. Liang, H. & Renneboog, L. (2017), On the foundations of corporate social responsibility. *The Journal of Finance*, 72: 853-910. <https://doi.org/10.1111/jofi.12487>
 27. Lindsay, V., Rod, M. & Ashill, N. (2017), Institutional and resource configurations associated with different SME foreign market entry modes. *Industrial Marketing Management*, Vol. 66, pp. 130-144.
 28. Luxmore, S. R., Hull, C. E., & Tang, Z. (2018). Institutional determinants of environmental corporate social responsibility: Are multinational entities taking advantage of weak environmental enforcement in lower-income nations? *Business and Society Review*, 123(1), 151-179.
 29. Lydenberg, S. D. (2002). Envisioning socially responsible investing: A model for 2006. *Journal of Corporate Citizenship*, 7, 57–77.
 30. Meyer, K. E., Estrin, S., Bhaumik, S. K. & Peng, M. W. (2009). Institutions, resources, and entry strategies in emerging economies. *Strategic Management Journal*, 30: 61-80.
 31. Mion, G., Cristian R., & Aduai L. (2019). Mandatory nonfinancial disclosure and its consequences on the sustainability reporting quality of Italian and German companies. *Sustainability*, 11, 17: 4612.
 32. North D. C. (1981) Structure and change in economic history. Norton
 33. North D.C. (1990) Institutions, institutional change, and economic performance. Cambridge University Press, New York
 34. Pucker, K. P. & King, A. (2022). ESG investing isn't designed to save the planet. *Harvard Business Review*. <https://hbr.org/2022/08/esg-investing-isnt-designed-to-save-the-planet?autocomplete=true>
 35. Rothenberg, S. (2007). Environmental managers as institutional entrepreneurs: The influence of institutional and technical pressures on waste management. *Journal of Business Research* 60: 749-757.
 36. Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.
 37. Shleifer, A., Wolfenzon, D., (2002). Investor protection and equity markets. *Journal of Financial Economics*, 66, 3–27.
 38. Taparia, H. (2022, September 29) One of the Hottest Trends in the World of Investing Is a Sham. *The New York Times*. <https://www.nytimes.com/2022/09/29/opinion/esg-investing-responsibility.html?smid=url-share>

39. Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of global responsibility*, 8(2), 169-178.
40. Wang, W., Yu, Y., & Li, X. (2022). ESG performance, auditing quality, and investment efficiency: Empirical evidence from China. *Frontiers in Psychology*, 13, 948674.
41. Witt, M. A., Fainshmidt, S., & Aguilera, R. V. (2022). Our board, our rules: Nonconformity to global corporate governance norms. *Administrative Science Quarterly*, 67(1), 131-166.
42. Yu, E. P. Y., Van Luu, B., & Chen, C. H. (2020). Greenwashing in environmental, social and governance disclosures. *Research in International Business and Finance*, 52, 101192.
43. Yu, E. P. Y., & Luu, B. V. (2021). International variations in ESG disclosure – Do cross-listed companies care more? *International Review of Financial Analysis*, 75, 101731.
44. Zhang, D. (2022). Are firms motivated to greenwash by financial constraints? Evidence from global firms' data. *Journal of International Financial Management & Accounting*, 33, 459– 479.

Appendix A

Dependent Variable Definitions:

ESG Score: Refinitiv ESG Score is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars as of year 2022.

ESG Controversies Score: ESG controversies category score measures a company's exposure to environmental, social and governance controversies and negative events reflected in global media.

Independent Variable Definitions:

Country Legality Measures:

Efficiency of judicial system: Assessment of the “efficiency and integrity of the legal environment as it affects business, particularly foreign firms” produced by the country-risk rating agency Business International Corporation. Average between 1980-1983. Scale from 0 to 10, with lower scores lower efficiency levels. Source: La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)

Rule of law: Assessment of the law-and-order tradition in the country produced by the country-risk rating agency International Country Risk (ICR). Scale from 0 to 10, with lower scores for less tradition for law and order. Source: La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)

Corruption: ICR’s assessment of the corruption in government. Lower scores indicate “high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” in the form of “bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans”. Scale from 0 to 10, with lower scores for higher levels of corruption. Source: La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)

Risk of expropriation: ICR’s assessment of the risk of “outright confiscation” or “forced nationalization”. Scale from 0 to 10, with lower scores for higher risks. Source: La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)

Repudiation of contracts by government: ICR’s assessment of the “risk of a modification in a contract taking the form of a repudiation, postponement, or scaling down” due to “budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities.” Scale from 0 to 10, with lower scores for higher risks. Source: La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)

Country Transparency measures:

These measures are from La Porta, Lopez-de-Silanes and Shleifer (2006) country-specific disclosure requirements index. The index of disclosure equals the arithmetic mean of (1) prospectus; (2) compensation; (3) shareholders; (4) inside ownership; (5) contracts irregular; and (6) transactions. Higher score for higher disclosure requirements. Description of each index component is below. In the description text, The Supervisor is the main government agency in charge of supervising stock exchanges. The Issuer is a domestic corporation that raises capital through an initial public offering of common shares. The Distributor advises the Issuer on the preparation of the prospectus and assists in marketing the securities. The accountant audits the financial statements.

Prospectus: Equals one if the law prohibits selling securities that are going to be listed on the largest stock exchange of the country without delivering a prospectus to potential investors; and equals zero otherwise.

Compensation: An index of prospectus disclosure requirements regarding the compensation of the Issuer's directors and key officers. Equals one if the law or the listing rules require that the compensation of each director and key officer be reported in the prospectus of a newly listed firm; equals one half if only the aggregate compensation of directors and key officers must be reported in the prospectus of a newly listed firm; and equals zero when there is no requirement to disclose the compensation of directors and key officers in the prospectus for a newly listed firm.

Shareholders: An index of disclosure requirements regarding the Issuer's equity ownership structure. Equals one if the law or the listing rules require disclosing the name and ownership stake of each shareholder who, directly or indirectly, controls 10% or more of the Issuer's voting securities; equals one half if reporting requirements for the Issuer's 10% shareholders do not include indirect ownership or if only their aggregate ownership needs to be disclosed; and equals zero when the law does not require disclosing the name and ownership stake of the Issuer's 10% shareholders. We combine large shareholder reporting requirements imposed on firms with those imposed on large shareholders themselves.

Inside ownership: An index of prospectus disclosure requirements regarding the equity ownership of the Issuer's shares by its directors and key officers. Equals one if the law or the listing rules require that the ownership of the Issuer's shares by each of its director and key officers be disclosed in the prospectus; equals one half if only the aggregate number of the Issuer's shares owned by its directors and key officers must be disclosed in the prospectus; and equals zero when the ownership of the Issuer's shares by its directors and key officers need not be disclosed in the prospectus.

Irregular contracts: An index of prospectus disclosure requirements regarding the Issuer's contracts outside the ordinary course of business. Equals one if the law or the listing rules require that the terms of material contracts made by the Issuer outside the ordinary course of its business be disclosed in the prospectus; equals one half if the terms of only some material contracts made outside the ordinary course of business must be disclosed; and equals zero otherwise.

Transactions: An index of the prospectus disclosure requirements regarding transaction between the Issuer and its directors, officers, and/or large shareholders (i.e., "related parties"). Equals one if the law or the listing rules require that all transactions in which related parties have, or will have, an interest be disclosed in the prospectus; equals one half if only some transactions between the Issuer and related parties must be disclosed in the prospectus; and equals zero if transactions between the Issuer and related parties need not be disclosed in the prospectus.

Disclosure requirements index: The index of disclosure equals the arithmetic mean of (1) prospectus; (2) compensation; (3) shareholders; (4) inside ownership; (5) contracts irregular; and (6) transactions. Higher score for higher disclosure requirements.

Anti-self-dealing measures:

These measures are from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) anti self-dealing measure index. A hypothetical business transaction that involves self-dealing is proposed to test the variables used to create the index and lawyers in 102 countries are asked to describe in detail how each country's legal system regulates this transaction. The hypothetical transaction is as follows: Mr. James owns 90% of Seller and 60% of Buyer, and that Buyer is a publicly traded firm. James is a director of Buyer and in addition has appointed two directors to Buyer's five-member board of directors, and his son is Buyer's CEO. Seller operates a chain of retail hardware stores and has recently shut down many stores. As a result, there are idle trucks in Seller's fleet. James proposes that Buyer purchase Seller's idle trucks for a cash payment equivalent to 10% of Buyer's assets (the transaction). He argues that Buyer could use additional trucks to expand its sales. All required approvals are obtained and all mandatory disclosures are made. If allowed to vote, James casts the deciding vote in favor of the transaction. James is on both sides of the transaction and could benefit if Buyer overpays for Seller's trucks. In fact, under our case facts, a \$100 wealth transfer from Buyer to Seller would reduce the value of James' equity in Buyer by \$60 but increase the value of his equity in Seller by \$90. Although the proposed transaction has a possible business purpose, it

involves an obvious conflict of interest. Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).

Ex-ante anti-self-dealing measures:

Approval by disinterested shareholders: Equals 1 if the transaction must be approved by disinterested shareholders, and zero otherwise.

Disclosures by Buyer: Index of disclosures that Buyer must make before the transaction can be approved. Ranges from 0 to 1. One-third point for each of the following disclosures: (1) Mr. James owns 60% of Buyer; (2) Mr. James owns 90% of Seller; and (3) all material facts or the following three items: (a) description of the assets, (b) nature and amount of consideration, and (c) explanation of the price.

Disclosures by Mr. James: Index of disclosures that Mr. James must make before the transaction can be approved. Ranges from 0 to 1. Equals 0 if no disclosure is required. Equals 1/2 if only the existence of a conflict of interest must be disclosed, without details. Equals 1 if all material facts must be disclosed.

Independent review: Equals 1 if a positive review is required (e.g., by a financial expert or independent auditor) before the transaction can be approved and zero otherwise.

Ex-post anti-self-dealing measures:

Standing to sue: Equals 1 if a 10% shareholder can sue derivatively either Mr. James or the approving bodies or both for damages that the firm suffered as a result of the transaction, and zero otherwise.

Rescission: Index of the ease in rescinding the transaction. Ranges from 0 to 1. Equals 0 when rescission is unavailable or only available when there is bad faith or when the transaction is unreasonable or causes disproportionate damage. Equals 1/2 when rescission is available when the transaction is oppressive or prejudicial. Equals 1 when rescission is available when the transaction is unfair or entails a conflict of interest.

Ease of holding Mr. James civilly liable: Ranges from 0 to 1. Equals 0 when the interested director is either not liable or liable only in cases of bad faith, intent, or gross negligence. Equals 1/2 when the interested director is liable if he either influenced the approval or was negligent. Equals 1 if the interested director is liable if the transaction is unfair, oppressive, or prejudicial.

Ease of holding the approving body civilly liable: Ranges from 0 to 1. Equals 0 when members of the approving body are either not liable or liable in only cases of intent, bad faith, or gross negligence. Equals 1/2 when members of the approving body are liable if they act negligently. Equals 1 if

members of the approving body are liable if the transaction is unfair, oppressive, or prejudicial.

Access to evidence: Ranges from 0 to 1. One-quarter point for each of the following: (1) a shareholder owning at least 10% of the shares can request that the Court appoint an inspector to investigate Buyer's affairs; (2) the plaintiff can request any documents relevant to the case from the defendant (without specifying which ones); (3) the plaintiff can examine the defendant without the Court approving the questions in advance; and (4) the plaintiff can examine non-parties without the Court approving the questions in advance. One-eighth point for each of the following: (1) the plaintiff can examine the defendant but questions require prior Court approval; and (2) the plaintiff can examine directly the non-parties but questions require prior Court approval.

Anti-self-dealing Index: Average of ex-ante and ex-post self-dealing measures

Control Variables

Multiple listings dummy: A variable that takes the value of 1 if the company is trading in a stock exchange different than its country of incorporation, 0 otherwise. Source: Refinitiv Database

Earnings Quality Region Rank: A percentile rank based on the Earnings Quality Model algorithm in which a security is compared to all other securities trading in the same region. Scores of 100 indicate the highest rated stocks in the region; scores of 1 indicate the lowest rated stocks in the region as of year 2022. Source: Refinitiv Database

Credit Combined Country Rank: The current country-level 1-100 percentile rank of a company's 1-year default probability based on the StarMine Combined Credit Risk Model. The Combined Model blends the Structural, Smart Ratios and Text Mining Credit Risk models into one final estimate of credit risk at the company level. Higher scores indicate companies that are less likely to go bankrupt, or default on their debt obligations, within the next 1-year period as of year 2022. Source: Refinitiv Database

Log of Total Assets: Natural logarithm of total assets of the company as reported in Eikon database for the year 2022. Source: Refinitiv Database

Long term debt/equity: The ratio of long-term debt to common equity of the company as reported in Eikon data for the year 2022. Source: Refinitiv Database

P/E ratio: A valuation ratio of a company's current share price relative to its EPS as of the year 2022. EPS is LTM Earnings per Share from Continuing Operations. Source: Refinitiv Database

Current Ratio: The ratio of a company's current assets to current liabilities as of year 2022. Source: Refinitiv Database

Private Equity Backed dummy: A variable that takes the value of 1 if the company received private equity in the past, 0 otherwise. Source: Refinitiv Database

Legal Origin: Identifies the legal origin of the Company Law or Commercial Code of each country. For **English Origin Dummy**, the variable equals 1, zero otherwise; for **French Origin Dummy**, the variable equals 1, zero otherwise; for **German Origin Dummy**, the variable equals 1, zero otherwise; and For **Scandinavian Origin Dummy**, the variable equals 1, zero otherwise. (Foreign Law Encyclopedia Commercial Laws of the World.)