

# The Impact OF Board Diversity ON Esg: The Moderating Effect OF Legal Origins

Ahmad Shatnawi<sup>1\*</sup>, Jassim Ahmad Al-Gasawneh<sup>2</sup>, Hasan Mansour<sup>3</sup>, Adel Alresheedi<sup>4</sup>, and Eyad Abdel Halym Hyasat<sup>5</sup>

<sup>1</sup>*Faculty of Business, Applied Science Private University, Accounting Department, Amman Jordan; [ah\\_shatnawi@asu.edu.jo](mailto:ah_shatnawi@asu.edu.jo).*

<sup>2</sup>*Faculty of Business, Applied Science Private University, Marketing Department, Amman Jordan; [j\\_algasawneh@asu.edu.jo](mailto:j_algasawneh@asu.edu.jo).*

<sup>3</sup>*Faculty of Business, Applied Science Private University, Accounting Department, Amman Jordan; [h\\_mansur@asu.edu.jo](mailto:h_mansur@asu.edu.jo).*

<sup>4</sup>*College of Business and Economics, Qassim University, Department of Accounting, Qassim Saudi Arabia; [a.alresheedi@qu.edu.sa](mailto:a.alresheedi@qu.edu.sa).*

<sup>5</sup>*Faculty of Business, Balqa Applied University, Accounting Department, Al-Salt Jordan; [hyasat.evad@bau.edu.jo](mailto:hyasat.evad@bau.edu.jo).*

\*Correspondence: [ah\\_shatnawi@asu.edu.jo](mailto:ah_shatnawi@asu.edu.jo).

**Abstract:** This study examines the impact of board diversity on ESG and its related sub-dimensions, including, environmental score, social score, and governance score. It also examines the effect of legal origins/traditions on the relationships mentioned above, a topic that is not yet explored in prior related literature. Using an international sample for the years 2010-2020 and fixed effect model, our results show that board diversity has a positive and significant impact on ESG score, environmental score, social score, and governance score. This happened in the two considered legal origins/traditions: common law countries and code law countries and for all considered scores: ESG score, environmental score, social score, and governance score. Additional and robustness analyses based on the GMM-IV approach point out that the coefficient of board diversity is still positive and significant. In general, the findings support the arguments in the literature that the greater the diversity of the board, the greater resources available at the board, which contribute, in turn, to enable the boards to effectively address the business environment challenges thereby improving firms' overall outcomes including ESG performance and its-related sub-dimensions.

**Keywords:** ESG Score, Environmental Score, Social Score, Governance Score, Board Diversity, Legal Origins.

## 1. Introduction

During recent years, growing attention has been paid to corporate social responsibility (CSR) in the academic literature. Existing studies on CSR have established that effective treatment of social and environmental issues enable the firms build a competitive strength that is directly associated with sustained financial success (Kim et al., 2017). Through CSR engagement, firms can avoid

inclusion on “environmental blacklists” publicized by environmental groups (Moussa et al., 2020), achieve social legitimacy (Zhuang et al., 2018), and build a good reputation (Hart, 1995; Porter & Kramer, 2006). Even though CSR engagement is becoming increasingly significant, modern firms have also taken further actions—adopting several proactive social and environmental, green investments initiatives, and ISO guidelines—to achieve the desired -social

and environmental results and differentiate its position from other firms (Amin et al., 2021). Of note, the long-running debate of whether CSR investments can generate economic benefit to firms has been answered in part, at least, with a meta-analysis study finding support for a positive impact of CSR investment on firms' economic success (Orlitzky et al., 2003). This has led scholars to not look at social and environmental-friendly activities/ investments as only the right thing to do ethically, but also as a potential source for building a competitive advantage, internal strength, and enhancing innovation opportunities for the firms. (Porter & Kramer, 2006). Hence, scholars' interests are moving from whether CSR investments benefit the firms, to rather what organizational factors influence the firms' CSR engagement decision (Aguilera et al., 2007).

Indeed, scholars have highlighted the importance of the boards and their influence on the firm CSR's engagement decision. Literature on the board-CSR relationship so far has focused on the board's composition and its influence on the decision-making process with respect to CSR involvement (Jo & Harjoto, 2012; Post et al., 2011; Zhang, 2012). It is well-argued that board structure (e.g., independence, size, gender, financial and nonfinancial expertise, directors with academic and professional backgrounds, and directors who belong to minorities, etc) has the possibility to improve firm's CSR engagement decision (Yousfi & Béji, 2020). Even though existing literature suggests that boards of directors have an important role to play, one of the emerging and rapidly growing areas for consideration in the board-CSR relationship literature is board diversity and board diversity attributes (Rao & Tilt, 2015, 2016). A diverse board is more likely to generate diverse alternatives and solutions, and therefore, make the decision from different viewpoints, as contrasted with the narrow-minded viewpoint which is often taken by the boardroom that includes members with similar opinions (Robinson & Dechant, 1997). Theoretically, particular from a resource dependency perspective (RDT, hereon), the board holds special importance as it provides a platform through which an entity can ensure that dependencies, uncertainties challenges caused by extrinsic influential constituents are well managed (Pfeffer & Salancik, 2003). For boards to be successful in this regard, they should include members with relevant experience, considering that each member in the boardroom can contribute differently to the boards based on his/her experiences and knowledge (Pfeffer, 1972). By

combining diverse directors together, the boards would have both the necessary human capital and relational capital resources, which are the core of managing the relationship between the firms and their external sources of dependency in effective manner (Hillman & Dalziel, 2003). Given the fact that corporations are continuously and growingly challenged by their extrinsic environment constituents to behave in a socially and environmentally accountable way (Shaukat et al., 2016; Yousfi & Béji, 2020), a board of directors, as a provider of resources, would help management as to how to manage relevant stakeholders interests effectively, satisfy external constituents needs; like those environmental and social issues (Helfaya & Moussa, 2017; Hillman & Dalziel, 2003; Shaukat et al., 2016). It is, thus, suggested that firms' CSR involvement is the outcome of the boards' decision (Rao & Tilt, 2015).

Even though board-level governance plays a significant role, the scale and magnitude of this role may vary according to the ideologies of legal origin by which the country adopts (Demirbag et al., 2017; Shatnawi, 2021). Porta et al. (1998) trace the purpose of two main legal systems that England and France developed centuries ago. As is well known, they identified two main business systems roots, namely Common and Code law. In their study, they indicated that such legal systems affect different issues; including, private property rights where Common law countries accord the greater right to the domination of shareholders and less attention to stakeholders' needs than Civil law countries do. Compared to Civil law countries, Common law countries have also a stronger legal protection system for investor rights. Kock and Min (2016) also emphasize that these distinct differences that exist between legal traditions could offer the necessary context to determine whether the business environment of a given country is oriented toward the considerations of stakeholders or shareholders. Such different orientations/classifications provide the most relevant approaches, especially when researchers analyze the CG systems and their functions across countries. In the context of the CSR-CG relationship, it is argued that CG in a stakeholders-business environment would accord greater attention toward CSR-related issues than CG in the shareholder-business environment does (Castillo-Merino & Rodríguez-Pérez, 2021; Shatnawi, 2021). As a matter of fact, if CSR activities, including environmental-related activities and social-related activities, are

considerably associated with shareholders' preference, corporate governance would hold a special attention toward CSR-related activities, especially in countries with a stakeholders-oriented business environment. On the contrary, scholars in classical economic schools adopting, the shareholder perspective, do not leave any space for CSR investments with the exception of the ones that satisfy the profit maximization agenda (Becchetti et al., 2020). It has been argued that the firm will consider socially responsible firms if it makes a profit constantly and only "... within the rules of the game, which is to say, engages in open and free competition without deception or fraud" (Friedman, 1970). According to this perspective, CSR activities may hold up the profit-making operations, and attainment of business objectives, eventually creating ambiguity about firms' actual objectives (Castillo-Merino & Rodríguez-Pérez, 2021; Kock & Min, 2016; Shatnawi, 2021). Subsequently, it is proposed that CG in countries with a stakeholder-oriented business environment is strongly related to CSR practice, as opposed to the ones that work in countries with a shareholders-oriented business environment (Kock & Min, 2016; Shatnawi, 2021). In this study we expand prior studies and investigate whether and to what extent variation in board-diversity and CSR across countries may be explained by variation in legal origins.

## 2. Theory, Literature Review and Hypothesis Development

### 2.1. Theory

Hussain et al. (2018) claim that no single theory could fully explain all hypothesized CG-CSR relationships. Existing studies on CG and its association with CSR is subject to a wide range of conflicting theoretical arguments (Frynas & Yamahaki, 2016). Theories underpinning CSR research range from it being related to external motivations (e.g., getting legitimacy, meeting the expectations of a wide group of stakeholders, securing the flow of critical resources the firm needs to operate), through to it being a part of internal motivations (e.g., satisfying managers' private needs, and developing new internal capabilities and resources) (Frynas & Yamahaki, 2016; Mellahi et al., 2016). This study adopts resource dependency theory (RDT) as a lens to understand the corporate CSR performance and board diversity relationship. According to the RDT, the board of directors is seen as an important resource that provides the necessary support for managing dependencies, uncertainties challenges

caused by external constituents, including social and environmental ones (Pfeffer & Salancik, 1978). Given the fact that corporations are continuously and growingly challenged by their extrinsic environment constituents to behave in a socially and environmentally accountable way (Shaukat et al., 2016; Yousfi & Béji, 2020), a board of directors, as a provider of resources, would help management as to how to manage relevant stakeholders interests effectively, satisfy external constituents needs; like those environmental and social issues (Helfaya & Moussa, 2017; Hillman & Dalziel, 2003; Shaukat et al., 2016). It is, thus, suggested that firms' CSR involvement is the outcome of the boards' decision (Rao & Tilt, 2015).

However, Hillman and Dalziel (2003), stress that without having the necessary human capital resources and relational capital resources at the board level, the board of directors are of little value. Resources of boards human capital essentially depend on the collective knowledge, experience, know-how, and skills that are held by directors in the boardroom. It is argued that when board members have diverse backgrounds experience, and skills, they are more likely to improve problem-solving skills, generate alternative solutions and innovation through boosting the resources available at the board level (Bantel & Jackson, 1989; Hillman & Dalziel, 2003). Thus, the greater the diversity of board resources, the greater resources available that, in turn, allow the boards to successfully handle the business environment challenges thereby improving firms' overall outcomes.

Despite the purported benefits of human capital resources, the "relational capital resources" of the boards would simultaneously streamline and facilitate the connection between the firms and their external influential parts (Hillman & Dalziel, 2003). Scholars posit that boards do matter, and that the resources they hold and use—social ties—translate into effective channels of communication with, and access to support from external organizations (Pfeffer & Salancik, 1978). As such, directors can help to build and develop relevance linkage mechanisms between companies and their external influential constituents (Boyd, 1990; Daily & Dalton, 1994; Pfeffer, 1972). Because the relational capital resources of the boards are associated with the size and types of relations the directors have, a well-diversified board is more likely to extend the

nexus of a firm and its external environment constituents (Hillman & Dalziel, 2003).

## 2.2. Literature Review

Board diversity is defined as “heterogeneity among board members according to wide dimensions” (Van Knippenberg et al., 2004). Some of these dimensions are observable (e.g., nationality, gender, age, and ethnicity), while others are not (e.g., educational, functional and occupational background, industry experience and multi membership) (Kang et al., 2007). Such diversity dimensions, as asserted by literature, are likely to improve reported information, the cognitive processes/functions involved, and the behavioural range of the directors in the boardroom (Ferrero-Ferrero et al., 2015). Through combining the experience of different knowledge domains, opinions, values and perspectives, the board of directors can offer the necessary human board capital resources, which is of vital importance to improve the decision-making process (Post et al., 2011).

Recently, a sizable body of literature on the boards of directors and their functions, suggests that diversity among board members has the potential to enhance the effectiveness of the board of directors and their functions, which expect to improve firms overall outcomes (Coffey & Wang, 1998; Rao & Tilt, 2015, 2016; Zhang, 2012). It has been argued that the members of the boards of directors typically work in a group and dissimilarity among group's members may result in increased skills, capabilities, knowledge, and information of the team as a whole (Nielsen & Huse, 2010), which contribute, in turn, to improve group performance, and generate better discussions and deliberations (Van Knippenberg et al., 2004; Watson et al., 1993). Moreover, according to Robinson and Dechant (1997), a diverse board is more likely to generate diverse alternatives and solutions, and therefore, making the decision from different standpoints, as contrasted with the narrow-minded standpoint which is often taken by the boardroom that includes members with similar opinions. This is greatly noticeable under high level of environmental uncertainty, rather than stable ones (Nielsen & Huse, 2010). Although it is thoroughly discussed in previous studies (Bonn et al., 2004; Carter et al., 2003) that board diversity has possible impact on companies financial performance; it is rarely considered to examine whether diversity also affect non-financial issues

in areas such as CSR activities (Jamal Mohammad et al., 2020; Rao & Tilt, 2016; Rose, 2007).

CSR agenda comprises numerous social and environmental dimensions such as social and environmental concerns, employee welfare, corporate philanthropy, human resource management, community relations and so on (Gray et al., 1995). CSR is usually voluntary in nature and not heavily regulated, thereby decisions in this area characterized by diversity and complexity. In this way, CSR is a complicated and multidimensional concept, and even the possibility of offering a consensus definition for CSR is become one of the most controversial issues in CSR-related literature (Dahlsrud, 2008). Matten and Moon (2008), while illustrating the difficulty of defining CSR, argue that CSR is “... an essentially contested concept because it is appraisive; internally complex; and their rules of application are relatively open”. Hence, heterogeneous teams will likely result in good decisions related to CSR, as heterogeneity is assumed to carry broad and heterogeneous viewpoints to the decision-making process and to generate different alternatives and solutions (Rose, 2007).

The relationship between board diversity and CSR is an emerging issue in CG research (Rao & Tilt, 2015, 2016). According to Hafsi and Turgut (2013), different types of diversity are examined in the CSR literature as board diversity. Although there are no unified definitions of board diversity, Hafsi and Turgut (2013), defined diversity and distinguished between two areas of diversity including diversity of the board and the diversity in the board. Diversity of boards explore the structural characteristics of the board (e.g., board independence, tenure, size, and duality) and its association with CSR, while diversity in boards typically focuses on the link between demographic attributes of directors (e.g., cultural background, age, gender, educational, qualifications level, race, skills, and multiple directorships) and CSR.

A comprehensive review of the literature on board diversity and CSR conducted by Rao and Tilt (2016a, 2016b) suggested a positive relationship between board diversity and CSR. In their study, they also highlighted some important gaps in previous research on board-CSR performance relationship, CSR decisions and, most notably, the diversity-CSR relationship at the level of the boards. Nevertheless, studies that do exist seem to

confirm a positive relationship. For instance, Post et al. (2011) studied the link between environmental corporate social responsibility and different characteristics of board diversity. The study established that a higher proportion of diverse board directors are positively associated with favourable environmental corporate social responsibility. Further, Kabongo et al. (2013) used a sample of U.S. firms and revealed that the existence of diversity among board members who control unique resources results in the organizational behaviour of corporate giving. These types of firms give more to the community as a strategic maneuver. Moreover, Haniffa and Cooke (2005) find that the ethnic backgrounds of board members are positively related to CSR disclosures in Malaysia. Zhang (2012) examines the relationship between demographic diversity and independence to corporate social performance using a sample of 475 publicly traded Fortune 500 companies between the years 2007 and 2008. In his study, he finds that gender and board racial diversity are positively related to CSR, while the proportion of outside directors and CEO non-duality were negatively associated with CSR. He also suggests further investigation in the international context and developing countries to achieve a better understanding of how, and to what extent, the board-CSR relationships are complicated, as well as providing more generalizable results in this field. In this study we extend prior research by using an international sample to exam the impact of overall diversity on CSR (ESG).

## 2.3 Hypothesis Development

### 2.3.1 Board Diversity and ESG Performance

Diversity among board members can offer the necessary human board capital resources to improve the decision-making process (Hillman & Dalziel, 2003). Therefore, aggregated diversity measure may be able to capture the effect of diversity on ESG and its related subdimensions than disaggregated measure does (Rao & Tilt, 2015). However, the evidence for the potential effect of board diversity through using aggregated measures or indexes (e.g., Blau Index, Shannon Index, and HHI index) in managerial decision-making regarding CSR is still limited (Rao & Tilt, 2015, 2016). These studies argued the need for firms to enhance the overall diversity of board in order to generate more robust and strategic decisions that reflect various alternative views (Beji et al., 2021; Hafsi & Turgut, 2013; Zaid et

al., 2020). This would be expected to improve board discussion and deliberation to involve diverse issue, including CSR ones. Consistent with this, the following hypothesis has been proposed:

Hypothesis 1: *Ceteris paribus*, there is a positive association between board diversity and ESGs and its-related subdimensions including social, environmental and governance scores.

### 2.3.2 Legal origins and Board-CSR Relationship

Up until now, scholars have examined the board-CSR relationships, overlooking the potential implication of the differential ideologies of legal origins among countries, although it has been reported that the economic environment has a particular influence on the effectiveness of the boards of directors (Shatnawi, 2021). Legal origin theory is based on the work of La Porta et al. (2008), which “traces the different strategies of common and civil law to different ideas about law and its purpose that England and France developed centuries ago”. Under this perspective, these ideas and strategies affect considerable issues—specifically general regulations at the level of a given country, and the orientation, thoughts, and beliefs of people who participate in the setting of such a legal enforcement system. According to La Porta et al. (2008), most countries' legal systems in the world were shaped through one of such legal origins/traditions (common law or code law). Consequently, it is assumed that the foundation of the institution's system at the level of industries and corporations, in particular, and country, in general, varies from one country to another according to legal origins/traditions by which a country adopts. Moreover, La Porta et al. (2008) state that “in civil law countries, unlike in common law ones, freedom of contract is counterbalanced by the exercise of public power for the protection of workers in the French tradition, and the communitarian conception of the enterprise in the German one,” whereas in common law frame “contractual freedom is unencumbered by social conditionality” (La Porta et al., 2008). In their study, La Porta et al. (2008) argued that Common law countries accord a great right to the domination of shareholders and less attention to stakeholders' needs than Civil law countries do. Compared to Civil law countries, Common law countries have also a stronger legal protection system of investor rights. Moreover, and according to La Porta et al. (2008), legal traditions

do not only influence country, industrial and corporation regulations, but also private property rights. In principle, what this signifies is that shareholders, in Civil law countries, would not be able to direct and monitor overall business operations, and ensure that company is successful in attaining its objectives in line with shareholders' value maximization notion/agenda only, as opposed to shareholders, in Common law countries, who are often able to do so. Consistent with this, Kock and Min (2016) emphasize that these distinct differences that exist between legal traditions could offer the necessary context to determine whether the business environment of a given country is oriented toward the considerations of stakeholders or shareholders. Such different orientations/classifications in the business environments among different nations, as also suggested by Garcia-Torea et al. (2016), provide the most relevant approaches, especially when researchers analyze the CG systems and their functions. To put this in context, Garcia-Torea et al. (2016) emphasized that while shareholders perspective "considers that the key aim of CG is the protection of shareholder interests", the stakeholder perspective "advocates that the main objective of CG is to guarantee the interests of all of the firm's stakeholders. This approach extends the scope of CG by considering shareholders as a type of stakeholder with rights equal to those held by the others" (Garcia-Torea et al., 2016).

In the context of the CSR-CG relationship, it is argued that CG in a stakeholders-business environment would accord greater attention toward CSR-related issues than CG in the shareholder-business environment does (Castillo-Merino & Rodríguez-Pérez, 2021; Kock & Min, 2016; Shatnawi, 2021). As a matter of fact, if CSR activities, including environmental-related activities and social-related activities, are considerably associated with shareholders' preference, corporate governance, in countries with a stakeholders-oriented business environment, would hold a special attention toward CSR-related activities. On the other hand, scholars in classical economic schools adopting, the shareholder perspective, do not leave any space for CSR investments with the exception of the ones that satisfy the profit maximization agenda (Becchetti et al., 2020). It has been argued that the firm will consider socially responsible firms if it makes a profit constantly and only "... within the rules of the game, which is to say, engages in open and free competition without

deception or fraud" (Friedman, 1970). According to this perspective, CSR activities may hold up the profit-making operations, and attainment of business objectives, eventually creating ambiguity about firms' actual objectives (Friedman, 1970). Subsequently, it is proposed that CG in countries with a stakeholder-oriented business environment is strongly related to CSR practice, as opposed to the ones that work in countries with a shareholders-oriented business environment (Castillo-Merino & Rodríguez-Pérez, 2021; Kock & Min, 2016; Shatnawi, 2021). In this study we expand prior studies and investigate whether and to what extent variation in board-diversity and CSR across countries may be explained by variation in legal origins. In line with previous argument, we propose the following hypothesis:

**Hypothesis 2:** *Ceteris paribus*, the positive association between board diversity and ESGS and its related sub-dimensions social, environmental and governance is stronger for firms in countries with a stakeholder-oriented business environment than for firms in countries with a shareholders-business environment.

### 3. Methods

#### 3.1. Sample and Data sources

The data on the board of directors was collected from the BoardEx database which is listed on the WRDS database for 74 countries over 10 years from 2010 to 2020. BoardEx database provides information on each board and its related members in terms of their, gender, tenure, nationality, multi-directorship, and education level. While ESGS and its related sub-dimensions scores, and control variables were collected from the Thomson database (EIKON ESG database). Thomson ESG database offers data on ESGS along with its-related subdimensions; the EPS, SPS, and GPS, which ranges from 0 to 1 (Shatnawi, 2021; Shaukat et al., 2016). Moreover, data on legal traditions/origin by which the countries adopt were extracted from La Porta et al. (2008). Legal Origin is a dummy variable where countries with common law origin take 0, and countries with civil law origin take 1.

#### 3.2. Model and Research Variables

Dependent variable used in this study is ESGS, and such variable has been disintegrated into its subdimensions-social, environmental and governance ones. The independent variables have been collected from the BoardEx database. To compute board diversity, we used Shannon Index-

calculated by the following formula  $-1 \sum_{i=1}^n \text{PilnPi}$ , where: Pi is "the percentage of directors with a particular category in the boardroom and n is the number of categories in the boardroom" ( see, for example, Shannon, 1948). Further information could be found in table 1 of appendix. Additionally, this study controls for the influence of several firms attributes. Since large firms are likely to be more visible and have more resources to improve and maintain their ESG performance score, this study controls for firm size (Garcia-Torea et al., 2016). Similarly, we control for firm performance by using 2 proxies including return on assets and financial leverage because the implementation of CSR activities requires significant financial resources (Rao & Tilt, 2020; Zhuang et al., 2018). This study also accounted for capital expenditure ration-computed as capital expenditure divided by total revenue, as extent prior-related studies have done so, and reveal a positive association between CSR and capital expenditure (Shaukat et al., 2016). In this study the effect of company age is also included in control variables. In line with prior studies, this study accounts for other proxies for CG attributes such as board independence, size, and CEO duality (Harjoto et al., 2015; Qiu et al., 2016). The operational definition of each variable, however, is presented in table 1 of appendix. To test the effect of board diversity on ESG score and its related sub-three-dimensions scores, we developed research model which is specified as follows.

$$\text{ESG}_{it} / \text{EP}_{it} / \text{SP}_{it} / \text{GP}_{it} = \beta_0 + \alpha_i + \beta_1 \text{BOD}_{it} + \beta_2 \text{BI}_{it} + \beta_3 \text{BS}_{it} + \beta_4 \text{CEO}_{it} + \beta_5 \text{Size}_{it} + \beta_6 \text{ROA}_{it} + \beta_7 \text{FL}_{it} + \beta_8 \text{CEXP}_{it} + \beta_9 \text{Age}_{it} + \beta_{10} \text{Year\_Dummy}_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where i denotes firm, t the period of time, ESG is index-measured corporate social and environmental responsibility; EP: environmental performance score; SP: social performance score; BOD: is an index of heterogeneity among board members-calculated based on Shannon Index; BI: percentage of non-executive directors on the boardroom; BS: number of directors on the boardroom; CEO: dummy variable which takes 1 if chairman of board is not executive team members, 0 otherwise; Size: the natural logarithm of total assets; ROA: return on assets; FL: total debts divided by total assets (financial leverage); CEXP: capital expenditure ration-computed as

capital expenditure divided by total revenue; Age: is a company age; Year: dummy variable.

To compute board diversity, we used Shannon Index-calculated by the following formula:

Where: Pi is the percentage of directors with a particular category in the boardroom and n is the number of categories in the boardroom.

#### 4. Data Analysis and Results

The summary statistics of the main variables used in the empirical analysis have been presented in Table 1. On average, descriptive statistics display that boards have about 9 members, where 76% of board members are independent (non-executive directors) of management, and 36% of boards are chaired by executive directors. The statistics further show that the mean values of board diversity in terms of gender, tenure, nationality, multi-directorships, and education are 17%, 49%, 10%, 45%, and 45%, respectively. It is also evident that the average of board overall diversity is 33%. Moreover, the results show that while the ESGS, on average, is 43%, the average of EPS, SPS and GPS are 32%, 46% and 50%, respectively. The firms in our sample, on average, have an assets value (computed as natural log of total assets) of 22.8 or approximately \$289 billion, a return on asset (ROA) of 3%, a financial leverage (FL) of 79% of total equity, a capital expenditure ration of 6%, and age of 18 years. In addition, untabulated results of descriptive statistics show that our sample includes 3827 firms with 17086 observation from 9 industries (Communication , Consumer Sectors, Energy Sector, Financials Services, Health Care, Industrials, Information Technology, Materials, Real Estate, Utilities, and Consumer Discretionary), and 74 countries, where 23 countries adopt English legal origin (common law) with 2408 firms and 11934 observation, and 52 countries adopt French legal origin (civil law) with 1418 firms and 5152 observation.

The correlation results are presented in Table 2. It is found that BOD is positively correlated with ESGS, EPS, and SPS. It further indicates that while legal tradition is positively correlated with ESG and its related subdimensions, board diversity is significantly correlated, but negatively. As for control variable, the results show that firm size, ROA, FL, CEXP, firm size and age are positively correlated with ESGS and its-related subdimensions. In addition, the ESGS and its related subdimensions are positively

**Table 1. Descriptive statistics**

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All variables are defined in table 1 of appendix.

As for control variables, the results show that large (size), old (age), and more profitable firms (ROA) have positive and significant impact on ESGS and its related sub-scores (EPS, SPS, and GPS). Similar result for BI is also found. In contract, BS is positively related to ESGS and its related sub-scores, though not to GPS. It is further found that when the chairman of the board is executive director, he/she would not only have negative influence on GPS, but also a positive effect on EPS. Finally, CEXP is positively related to EPS and SPS, though not to ESGS, and GPS.

[illegible]



<b>BI</b>	0.19*	0.08	0.16	0.23*	0.21*	1.000								
	**	***	***	**	**									
<b>BS</b>	0.37*	0.38	0.31	0.20*	0.30*	0.01	1.00							
	**	***	***	**	**		0							
<b>CEXP</b>	0.24*	0.29	0.16	0.14*	-	-	0.30	1.000						
	**	***	***	**	0.1**	0.20*	***							
					*	**								
<b>CEO</b>	-	-	0.01	-	0.1**	0.01	0.05	-	1.00					
	0.03*	0.04	1	0.10*	*		***	0.03*	0					
	**	*		**				**						
<b>Size</b>	0.43*	0.49	0.32	0.27*	0.1**	-	0.51	0.70*	-	1.00				
	**	***	***	**	*	0.14*	***	**	0.01	0				
						**		**	**					
<b>ROA</b>	0.18*	0.20	0.11	0.14*	0.1**	-	0.13	0.14*	0.02	0.21	1.000			
	**	***	***	**	*	0.06*	***	**	**	***				
						**								
<b>FL</b>	0.15*	0.17	0.12	0.10*	0.02*	0.05*	0.17	0.14*	0.03	0.29	-	1.000		
	**	***	***	**	**	**	***	**	*	***	0.08*			
										**	**			
<b>Age</b>	0.30*	0.29	0.23	0.23*	0.3**	0.15*	0.24	0.10*	0.09	0.22	0.16*	0.05*	1.000	
	**	***	***	**	*	**	***	**	**	***	**	**		
<b>LT</b>	0.16*	0.24	0.12	0.04*	-	-	0.04	0.28*	-	0.31	0.09*	0.06*	-	1.0
	**	***	***	**	0.2**	0.16*	***	**	0.10	***	**	**	0.10*	00
					*	**			**		**	**	**	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1; All variables are defined in table 1 of appendix.

**Table 3. The impact of board overall diversity on ESG score, and its-related environmental, social and governance score using fixed-effect model**

Variables	ESG	EP	SP	GP
<b>BOD</b>	<b>.471***</b> <b>(9.194)</b>	<b>.476***</b> <b>(5.799)</b>	<b>.488***</b> <b>(10.05)</b>	<b>.496***</b> <b>(6.37)</b>
BI	.176*** (6.961)	.077** (2.471)	.105*** (4.685)	.338*** (8.578)
BS	.008*** (4.857)	.012*** (4.943)	.01*** (4.223)	-.001 (-.814)
CEO	-.011*** (-2.743)	.006 (.947)	.003 (.535)	-.049*** (-8.843)
Size	.049*** (13.783)	.078*** (12.64)	.048*** (11.979)	.033*** (10.543)
ROA	.186*** (4.236)	.22*** (3.681)	.113 (1.467)	.214*** (4.791)
FL	-.003 (-.878)	-.005 (-.874)	-.007 (-1.346)	-.001 (-.225)
CEXP	0 (.062)	0 (.549)	0 (.905)	0 (-1.298)
Age	.001*** (4.255)	.002*** (5.092)	.001*** (2.654)	.001*** (2.861)
Constant	-1.10*** (-15.146)	-1.86*** (-14.502)	-1.04*** (-12.031)	-.656*** (-10.119)
Obs	17086	17086	17086	17086
Adj R <sup>2</sup>	.398	.364	.299	.205
Year effects	YES	YES	YES	YES

Note: t-values are in parentheses: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01; All variables are defined in table 1 of appendix.

To test hypothesis 2, we divided the firms being studied into two sub-groups: Code law countries group and Common law countries group, and then we re-run regression analysis for each group separately. However, hypothesis 2 suggests that board-level governance in Code law countries would have a greater influence on ESGS and its

related sub-dimensions social and environmental than do the ones that belong to Common law countries. The results are presented in table 4. Contrary to our expectations, it is found that ESGS, EPS, SPS, and GPS are positively and significantly related to board overall diversity both legal origins.

**Table 4. The impact of board overall diversity on ESG score, and its-related environmental, social and governance score based on legal origin**

Variables	Common law				Civil law			
	ESG	EP	SP	GP	ESG	EP	SP	GP
BOD	.437*** (6.626)	.444*** (4.16)	.512*** (8.759)	.367*** (3.943)	.489*** (7.785)	.529*** (5.195)	.388*** (5.021)	.698*** (7.569)
BI	.23*** (8.215)	.096** (2.357)	.123*** (4.688)	.458*** (11.685)	.095** (2.56)	.055 (1.166)	.078** (1.978)	.161*** (3.331)
BS	.007*** (3.521)	.011*** (3.57)	.008*** (2.766)	-.002 (-1.025)	.008*** (3.095)	.012*** (3.543)	.012*** (4.145)	-.002 (-.449)
CEO	-.013*** (-3.029)	.006 (.801)	0 (-.042)	-.05*** (-8.585)	-.01 (-1.069)	-.002 (-.116)	.006 (.613)	-.047*** (-3.146)
Size	.052*** (11.549)	.085*** (10.934)	.051*** (10.205)	.034*** (9.754)	.037*** (6.778)	.054*** (7.139)	.034*** (5.412)	.029*** (4.125)
ROA	.173*** (3.029)	.188** (2.427)	.064 (.677)	.247*** (5.295)	.181* (1.938)	.28** (2.303)	.228** (2.36)	.061 (.495)
FL	-.006 (-1.409)	-.011 (-1.51)	-.009 (-1.297)	-.004 (-.669)	.006 (.889)	.011 (1.153)	-.002 (-.2)	.004 (.517)
CEXP	0 (1.067)	0 (.788)	0** (2.24)	0* (-1.685)	0 (.124)	0 (1.091)	0 (.297)	0 (-.187)
Age	.001*** (4.604)	.002*** (4.9)	.001** (2.368)	.001*** (3.852)	0 (-.069)	0 (.666)	0 (.557)	-.001 (-1.149)
Constant	-1.20*** (-13.639)	-2.01*** (-12.59)	-1.12*** (-10.51)	-.736*** (-10.08)	-.757*** (-6.025)	-1.25*** (-7.348)	-.68*** (-4.898)	-.48*** (-3.264)
Obs	11934	11934	11934	11934	5152	5152	5152	5152
Adj R <sup>2</sup>	.461	.422	.344	.256	.238	.201	.195	.115
Year Dummy	YES	YES	YES	YES	YES	YES	YES	YES

Note: t-values are in parentheses: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ; All variables are defined in table 1 of appendix.

## 5. Robustness Tests

We conducted several additional tests to the reliability and validity of our research outcomes in the preceding tables. First, we used two techniques—specifically lagged value of the independent variables (variables of interest) and the instrumental variable approach (IV)—to test for endogeneity-related concerns. The results of lagged values test are presented in table 5. The results of lagged values test in table 6 are quantitatively similar to the main results reported in the main tables. Moreover, and regarding legal traditions, the results indicate that BOD have a positive and significant impact on ESGS and its-

related subdimensions regardless the legal origin in which the country adopts.

**Panel A of table 6. The impact of lagged values of board overall diversity on ESG score, and its-related environmental, social and governance scores.**

	ESGS	EPS	SPS	GPS
<b>L.BOD</b>	<b>.479***</b>	<b>.507***</b>	<b>.517***</b>	<b>.449***</b>
	(8.474)	(5.495)	(9.752)	(5.391)
Constant	-1.106***	-1.8***	-1.043***	-.641***
	(-13.308)	(-12.9)	(-11.02)	(-8.587)
Obs	12810	12810	12810	12810
Adj R <sup>2</sup>	.392	.362	.296	.188
Year Dummy	Yes	Yes	Yes	Yes

**Panel B of table 5. The impact of lagged values of board overall diversity on ESG score, and its-related environmental, social and governance scores based on legal origins by which countries adopt**

	Common Law				Code Law			
	ESGS	EPS	SPS	GPS	ESGS	EPS	SPS	GPS
<b>L.BOD</b>	<b>.445***</b>	<b>.481***</b>	<b>.52***</b>	<b>.32***</b>	<b>.509***</b>	<b>.57***</b>	<b>.43***</b>	<b>.682***</b>
	(6.307)	(4.091)	(8.59)	(3.352)	(7.191)	(4.99)	(4.7)	(5.83)
Constant	-	-	-1.1**	-	-.55***	-	-.5***	-0.276
	1.20***	2.04***	(-9.8)	.73***	(-3.61)	.95***	(-3.1)	(-1.492)
	(-12.3)	(-11.7)		(-9.1)		(-4.5)		
Obs	9257	9257	9257	9257	3553	3553	3553	3553
Adj R <sup>2</sup>	0.451	0.418	0.334	0.24	0.219	0.169	0.195	0.091
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: t-values are in parentheses: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ; All variables are defined in table 1 of appendix; L.BOD: lagged value of board overall diversity.

Regarding the instrumental variable approach (IV), we conduct the DurbinWu-Hausman test for the endogeneity concerns, and the results indicate that variables of interest are endogenous-explanatory variables are associated with the residuals. Following Cai et al. (2011), Shatnawi (2021) and Feng et al. (2020), we created instrumental variables, measured by the sector median of board diversity based on the Global The first stage-IV regression results of the effect of instrumental variables on ESG and its related sub-dimensions are reported in panel A of table 6. The results indicate that there are highly significant and positive coefficients on each instrumental variable. Moreover, the statistical value of F (F-statistic) of proposed instrumental variables, as pointed out by Staiger and Stock (1994) and Aldomy et al. (2020), must be above 10 in the first-stage estimation. Panel A of table 6 reveals that the F-statistic of the first-stage estimation on proposed instrumental variable is higher than the expected threshold of 10. Thus, we conclude that all proposed instrumental variables used in this study are valid. Panel B of Table 6

Industry Classification System (GICS). Such proposed instruments are expected to be highly correlated with the variables of interests, but unlikely to be correlated with dependent variables (ESGS and its-related subdimension scores). In addition, we test for instrument relevance; weak instruments, and deidentification instruments, and the results indicate that all proposed instrumental variables are valid.

shows the second stage of GMM-IV estimation where the predicted independent variable is derived from the first stage estimation to examine its impact on the dependent variables. However, the findings display that the coefficient of BOD is still positive and significant. The effect of legal traditions does exist, and the results are presented in panel C of table 6. However, the results indicate that BOD is positively and statistically related to ESGS and its related sub-dimensions regardless of legal traditions by which the country adopts.

**Panel A of table 6: First stage of IV-GMM test**

	BOD
BOD.iv	.897*** (94.699)
Constant	-.152*** (-19.617)
Obs	17086
Adj R <sup>2</sup>	.496
First-stage F-test	561.045
Year Dummy	YES
Sector Dummy	YES

Note: t-values are in parentheses: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01; All control variables are included and defined in table 1 of appendix; BOD.iv: is instrumental variable measured by the sector median of board diversity attributes based on the Global Industry Classification System (GICS).

**Panel B of Table 6. The result of second stage of IV-GMM test of examining the impact of board overall diversity on ESG score, and its-related environmental, social and governance scores.**

Variables	ESGS	EPS	SPS	GPS
BOD	.375*** (10.776)	.423*** (8.139)	.422*** (10.14)	.287*** (6.816)
Constant	-.913*** (-43.69)	-1.659*** (-51.937)	-.848*** (-33.22)	-.506*** (-19.136)
Obs	17086	17086	17086	17086
Adj R <sup>2</sup>	0.38	0.38	0.272	0.214
Year Dummy	Yes	Yes	Yes	Yes

Note: t-values are in parentheses: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01; All control variables are included and defined in table 1 of appendix

**Panel C of Table 6. The result of second stage of IV-GMM test of examining the impact of board overall diversity on ESG score, and its-related environmental, social and governance scores based on legal origin by which the country adopts**

	Common law				Civil law			
	ESGS	EPS	SPS	GPS	ESGS	EPS	SPS	GPS
BOD	.375*** (10.776)	.423*** (8.139)	.422*** (10.14)	.287*** (6.816)	.407*** (7.507)	.514*** (6.251)	.642*** (10.629)	.324*** (5.466)
Constant	-.913*** (-43.69)	1.659*** (-51.937)	.848*** (-33.22)	.506*** (-19.136)	1.069*** (-45.051)	1.852*** (-50.211)	.316*** (-5.839)	-.37*** (-7.028)
Obs	17086	17086	17086	17086	11934	11934	5152	5152
Adj R <sup>2</sup>	0.38	0.38	0.272	0.214	0.47	0.468	0.199	0.121
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: t-values are in parentheses: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01; All control variables are included and defined in table 1 of appendix; BOD.iv: is instrumental variable measured by the sector median of board diversity attributes based on the Global Industry Classification System (GICS).

## 6. Discussion, Implications, and Conclusion

This study advances our understanding of the impact of BOD on corporate ESGS and its-related subdimensions (EPS, SPS, and GPS). It also sheds a light on the legal origin (common law countries vs code law countries) as a moderator variable on the relationship mentioned above, a topic that is not yet examined. In general, the results show support for proposed relationship. Using an international sample for 10 years from 2010 to 2020, we found that board overall diversity is positively related to overall ESGS and its related sub-dimensions. This happened in the two considered legal origin traditions: common law countries and code law countries and for the three considered sub-scores: SPS, EPS, and GPS. Non-significant differences that were found between legal origin/traditions (common law countries and code law countries) could be explained based on the strategic perspective of CSR investment-suggesting that firms tend to strategically invest in CSR activities to build and attain sustained competitive advantage (Hart, 1995; McWilliams & Siegel, 2011). Since sustained economic advantage would be in favour of shareholders, the boards are more likely to prioritize CSR investments regardless of the legal tradition that a country adopts. Additional and robustness analyses based on the GMM-IV approach point out that the coefficient of BOD is still positive and significant. In general, the evidence supports the need for firms to enhance the overall diversity of the board in order to improve board human capital resources which lead to generate more robust and strategic decisions that reflect various alternative views.

This study makes numerous positive contributions to the existing literature. First, we extend the stream of research on board-diversity-ESG relationships, as it, the first, to the best of our knowledge, to examine the impact of board diversity and board diversity attributes on ESGS and its-related all sub scores, simultaneously. Second, this study through using international sample respond the call of recent literature in this filed suggesting further investigation in the international context (Zhang, 2012), and developing countries to achieve a nuanced understanding of how, and to what extent, the board-ESG relationships are complicated, and provide more generalizable results in this field (Rao & Tilt, 2015, 2016; Zhuang et al., 2018).

This study essentially contributes to the resource dependency perspective, and legal origin perspective, simultaneously, by modelling the impact of board overall diversity on ESGS and its-related sub scores. Consistent with this perspective, the results contend that diversity, notably at the level of the board, has an important influence on firms' CSR decision involvement. As the legal origin perspective suggests, the CG system and its role, nature and orientation are considerably varied among legal traditions, the modelling factors in this research would achieve a nuanced understanding of the impact of legal traditions on the relationship between board diversity and ESGS and its-related sub scores. Therefore, this study among the first to move above and beyond traditional analysis regarding diversity-performance relationships, and explicitly test the impact of legal origins/traditions on diversity-CSR relationships.

The outcomes of this study are of interest to several parts such as management, academics, and policymakers. For managers, the results highlight the role of diversity, at the level of boards, in improving the board ability to enhance the corporate social responsibility performance of firms. This study also draws the attention of academics to not only consider board diversity attributes (individual measure), but also overall diversity measure, especially when examining board-diversity-CSR associations. For legislators, this research provides evidence proposing that increased board overall diversity, in general, may result in improved firms' CSR engagement decisions.

This research has some limitations. Throughout this study, we argued that a firm's CSR decision involvement is considerably related to board diversity, while prior studies in the field of CSR point out that the implementation and the extensiveness of CSR practice are more likely to be associated with other organizational factors. These factors may include, among other things, technical managers (Fogarassy et al., 2018), firms orientation toward shareholders, the existence of a sustainability committee (Mansur, 2020; Shatnawi, 2021), diversity beyond the board level, and board CSR strategy level (Shaukat et al., 2016). Therefore, future research could consider board diversity and other internal factors beyond the board level, which would provide a greater understanding of the implications, limitations of CSR engagement. This study also used the ESGS constructed by Thomson Reuters ASSET4,

however, such score, as asserted by (Ioannou & Serafeim, 2012), is directly associated with big and public-traded corporations. Given this, our theoretical and empirical outcomes are less likely to be relevant for privately owned firms. Therefore, future research could seek to examine whether the issue of diversity influences private firms' orientation toward CSR engagement. Due to use fixed-effect model, this study did not consider country-level factors beyond legal traditions, while prior studies indicate that other country-level factors such as legal enforcement, ownership structure, investor right, corruption level, have the potential to affect board effectiveness. Therefore, care should be exercised in generalizing our results with respect to the effect of legal traditions on the diversity-CSR relationships. However, future research could use different country-level factors— legal enforcement, corruption level, and investors right level— that fall outside the scope

of the current study, when examining the relationship between board diversity and CSR.

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## Appendix

**Table 1 of Appendix: Summary of the measurements.**

Variables	Definition
ESG performance score (ESGS)*	“ESG performance score is aggregated measure that reflects the company’s environmental, social and governance scores”.
Environmental performance score (EPS)*	“measures a company’s impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities.”
Social performance score (SPS)*	“measures a company’s capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It covers issues like employee turnover, accidents, training hours, donations, and health and safety controversies”
Governance performance score (GPS)*	"measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities"
Tenure diversity (TD)	is the index of heterogeneity based on Shannon Index for directors’ tenure, measured by the time in board for each director across six categories: 1 (less than 3 years), 2 (less than 6 years),3 (less than 8 years), 4 (less than 11 years), 5 (less than 14 years), and 6 (for 15 years and more). This diversity index is calculated by Shannon Index.
Nationality diversity (ND)	The percentage of directors from different countries (proportion directors who have nationalities different from the location of the corporate headquarters), which is measured by (Shannon Index),

Gender diversity (GD)	Gender diversity is measured by (Shannon Index) and calculated by using the following formula $-1 \sum_{i=1}^n P_i \ln P_i$ , where: $P_i$ is the percentage of female directors in the boardroom and $n$ is the number of categories.
Multiple directorships (MD)	Multiple directorships is the index of heterogeneity for directors with multiple directorships, classified based on the number of other directorship positions that each director currently holds. We use five categories: 0,1,2,3, 4 and 5 for five positions or above. This diversity index is calculated by Shannon Index.
Education Diversity (ED)	the index of diversity for the educational level that each board member has within 4 classifications: 0 (certificate), 1 (post-graduate), 2 (master), 3 (Doctoral of Philosophy), and 4 (certified in financial issues).
Diversity (BOD)	Measures as the sum of all individual measures; including, gender diversity, tenure diversity, nationality diversity, multidirectorships diversity, and educational diversity divided by the number of the same measures.
Firm size (Size)	The natural logarithm of total assets at the end of year.
Return on assets (ROA)	Return on assets is computed as net income of year- $t$ divided by total assets of year- $t$ .
Board independence (BI)	The percentage of independent directors is measured as the proportion of independent/non-executive/outside directors on the board to the total number of directors on board.
Board size (BS)	The number of directors serving on the board
CEO duality (CEO)	CEO duality is a dummy variable which takes 1 if CEO holds the position of
Firm size (Size)	The natural logarithm of total assets
Return on assets	computed as net income divided by total assets
Financial leverage (FL)	computed as total debts divided by total assets
Capital expenditure	computed as capital expenditure divided by net sales
Age	Company age
Legal traditions (LT)	is a dummy variable, which takes 1 when country follows English legal

**\*Adopted from Thomson Reuters database**

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