

# **National institutions, stakeholder engagement and firms' environmental, social and governance performance**

**Running title:** National institutions and firms' ESG performance

## **Abstract**

This paper studies the influence of different national institutions on corporate environmental, social and governance (ESG) performance through the varieties of institutional systems approach. This research complements previous research that used traditional approaches such as the national business systems and the varieties of capitalism, because it considers companies in under-studied economies in Asia, Africa, Eastern Europe, the Middle East and Latin America. To that aim, a dataset of 4,751 firms within 52 countries is examined through a multilevel model, which allows establishing three levels of analysis: i) yearly observations of a firm ESG performance, ii) the companies; and, iii) the countries. This technique is useful to address the nested nature of firms' ESG performance within higher-level institutional contexts. The results identify which specific national institutions enhance/restrict companies' ESG performance. This provides interesting implications because firms' ESG represent most of the companies' contributions to environmental preservation, social well-being and community development.

**Keywords:** Stakeholder engagement, ESG performance; national institutions, corporate social responsibility; sustainable development; varieties of institutional systems; institutional theory.

## **1. Introduction**

In a globalized world, where sustainability issues have global importance, there is a need to understand how countries stimulate or restrict companies' contributions to sustainable development and social well-being. These contributions have been conventionally measured through firms' environmental, social and governance (ESG) performance that is driven by differences in national institutions (Ioannou & Serafeim, 2012; Shahzad, Rutherford & Sharfman, 2016; Gallego-Álvarez & Quina-Custodio, 2017; Ortiz-de-Mandojana, Aguilera-Caracuel & Morales-Raya, 2016). Previous research (Duran & Bajo, 2014; Kang & Moon, 2012; Kyaw, Olugbode & Petracci, 2017; Jackson & Apostolakou, 2010) addressed how firms' ESG performance vary as a function of differences in national institutional frameworks through two extensions of the institutional theory: i) the National Business Systems (NBS); and, ii) the varieties of Capitalism (VoC). However, these approaches are not able to address systemic differences in national institutions of countries having a significant impact on global sustainability (e.g. those in Asia, Africa, Eastern Europe, the Middle East and Latin America). This paper addresses this gap and analyzes how national institutions influence companies' ESG performance through the Varieties of Institutional Systems (VIS) approach, which is a novel extension of the Institutional Theory. The VIS framework, proposed by Fainshmidt, William, Aguilera and Smith (2018), captures the broader institutional context provided by the state, financial markets, human capital, social capital and corporate governance institutions.

To the best of the authors' knowledge, this paper is the first that focuses on the VIS approach to determine the influence of national institutions on firms' ESG performance, providing a wider and more consistent overview. This research aims to complement the findings of previous papers addressing the national antecedents of

firms' ESG performance (Baughn, Bodie & McIntosh, 2007; Erdiaw-Kwasie, Alam & Kabir, 2007; Murillo-Luna, Garcés-Ayerbe & Rivera-Torres, 2008; Welford, 2004, 2005) which mostly focus on a restricted number of companies operating in a reduced sample of countries. This paper addresses the nature of cross-national differences and its impact on firms' ESG performance by examining a dataset of 4,751 companies, monitored for eight years (2008-2015), and operating in 52 countries. A multilevel model is implemented with the aim of capturing the within-cluster dependence feature, which is often present in datasets of companies in different countries under the same institutional constraints.

This paper contributes to the existing research on the national institutions – firms' ESG performance link in different ways. Firstly, this paper addresses in which ways some understudied national institutions, mainly present in emerging countries, enhance or restrict corporate ESG performance. In fact, the focus on the VIS approach will allow understanding more clearly how companies' adapt their sustainability practices, policies and performance from a worldwide perspective. This is because the VIS approach captures the existence of further national institutions in understudied countries, which are predicted to have a significant influence in the world economy in the near future (e.g. the BRICS countries). Although recent studies (Arrive & Feng, 2018) addressed the influence of business laws and regulations on corporate sustainability issues in emerging countries, there is a need to conduct research directed to capturing the above-mentioned relationship from a global perspective. Secondly, although existing research (Ringov & Zollo, 2007; Gallego-Álvarez & Ortas, 2017) identified national culture as the country-level driver of companies' ESG performance, we respond to a recent call made by Hartmann & Uhlenbruck (2015) who highlight the need to ascertain the influence of specific understudied national institutions on corporate ESG performance

(e.g., family ownership and the role of the state). Thirdly, although most of previous research (Aguilera, Rupp, Williams, & Ganapathi, 2007; Campbell, 2007) measure corporate ESG performance as a global construct, they are not able to explain how national institutions boost or restrict specific dimensions of firms' ESG performance, those being: i) corporate environmental performance (CEP); ii) corporate social performance (CSP); and iii) corporate governance performance (CGP). Accordingly, this paper captures in which ways the differences in national institutions influence firms' environmental, social and governance performance. In fact, aggregating the CEP, CSP and CGP in a unique measure can compensate or neutralize the effect of national institutions on corporate ESG performance. Thus, this paper offers a fine-grained overview about the influence of national institutions on CEP, CSP and CGP. Fourthly, we respond to a recent call made by Aguinis & Glavas (2012) about the need to implement multilevel research in sustainability studies with the objective of accounting for the nested nature of firms' ESG performance within higher-level institutional contexts and constraints. Accordingly, a multilevel model is implemented with the aim of: i) capturing the within-cluster dependence often shown by databases of firms from different countries and under similar institutional constraints; ii) overcoming mis-estimation problems derived from sampling fluctuations and a small number of observation through higher levels of analysis; and, iii) managing the variability of firms' ESG performance into three levels of analysis (i.e., across observations within companies, across companies within countries, and across countries). This will provide the ability to estimate unbiased coefficients and standard errors, thus enhancing the results' robustness.

Main results reveal that national institutions have a significant influence on corporate ESG performance. In fact, enhanced knowledge and social capital stimulate

firms' ESG performance. Equity and/or credit markets are more efficient channels to ameliorate companies' willingness to engage in sustainability practices than mechanisms provided by the state as the primary source of firms' financing. Finally, the role of the family in companies' management also have an influence on companies' ESG performance. Specifically, enhanced family ownership lowers firms' performance in community issues but positively influences firms' performance in aspects such as diversity, employees and environmental issues.

The remainder of the paper is structured as follows. The second section introduces the theoretical foundations. The third section reviews existing research on the topic and presents the research hypotheses. Section 4 shows the main features of the research method, sample and variables. The results are discussed in Section 5, and finally, Section 6 concludes the paper.

## **2. National institutions and corporate ESG performance**

Existing research largely addressed that corporate decisions, behavior and performance is highly influenced by countries' institutional environments (O'Reilly & Chatman, 1996; Sirmon & Lane, 2004; Williams & Aguilera, 2008). This has been studied by the New Institutionalism (Westney, 1993; Rodrigues and Craig, 2007; Jackson & Deeg 2008; Ntim & Soobaroyen, 2013) which explains how differences in countries' institutional constraints determine companies' internal structures, processes, decisions and performance. In fact, Brammer, Jackson and Matten (2012, p. 8) reveal that "institutional theory provides a formidable lens for understanding and explaining how and why corporate social responsibility (CSR) activities assumes different forms in different countries". This approach allows understanding the reasons driving corporations' decisions through three isomorphisms (Zucker, 1977; Rosenzweig & Nohria, 1994), those being: i) coercive isomorphism, which results from formal (e.g.

laws) and informal (e.g. agreements, codes of conduct) pressures exerted on organizations by influential others or by the cultural beliefs of the society in which they conduct their activities; ii) normative isomorphism, which results from the professionalization of decision-makers in companies and addresses how they face some problems in similar way; and, iii) mimetic isomorphism, which analyses how uncertainty can prompt organizations to mimic their peers.

The first two isomorphisms (i.e., coercive and normative) allow addressing how companies under similar/different institutional constraints adopt similar/different CSR initiatives and practices that ultimately determine their ESG performance (Boiral, 2007; Blasco & Zolner, 2010; Crossland & Hambrick, 2011). This can be explained because organizations are embedded within broader social structures, comprising of different types of institutions that exert significant influence on their decisions and outcomes (Campbell, 2007; Ioannou & Serafeim, 2012; Horak, Arya & Ismail, 2018). This has been addressed by the VIS framework, which aims to develop a more accurate explanation of national institutional contexts. In fact, the VIS approach provide a broader institutional context that allows having proper frameworks to investigate different regions, and understanding why firms that are embedded in different nation-level institutions obtain different levels of ESG performance. The main emphasis in this area is focused on the distinctive nature of the national institutional contexts in which firms operate in terms of aspects such as the legal system and government, sources of financing and capabilities, or educational systems. The VIS responds to a recent call made in academic literature (Schneider & Paunescu, 2012; Witt & Redding, 2013) which indicated the necessity of explaining the nature and consequences of systemic variations in national institutions of an increasingly important group of countries of newly developed, emerging and developing economies. In essence, the VIS moves

beyond the VoC and NBS perspectives and offers an overview of how companies' practices and strategies are influenced by national institutions by including economies from Asia, Africa, East Europe, the Middle East, and Latin America. According with the previous reasoning, this paper focuses in the VIS approach instead of the conventional VoC and NBS frameworks. This will provide the ability of addressing the role of some national institutions that are present in many economic systems that have recently emerged around the world.

Academic interest in the effects of national institutions on business management and performance is not new (Brammer, Brooks, & Pavelin, 2006; Malen & Vaaler, 2017; Carney, Dieleman & Taussig, 2016) but it is increasingly important in a globalized world (Venaik & Brewer, 2010). Stakeholder demands and institutional constraints increase when companies diversify their operations and access to new markets (Jackson & Deeg, 2008), due to differences in countries' cultural, social, legal and economic systems (Sharfman, Shaft & Tihanyiu, 2004). Previous research has addressed this in several ways (Yong, 2008; Ortas, Alvarez, Jaussaud & Garayar, 2015). Some authors (Ringov & Zollo, 2007) describe the influence of cultural differences on companies' ESG performance. Other research (Chapple & Moon, 2005) finds that cross-country variation in ESG performance cannot be explained by cultural and economic differences, and highlight the role played by national institutions.

Aguilera et al. (2007) argue that companies are under different degrees of internal and external pressures to commit to CSR activities as a result of their exposure to divergent institutional systems. They state that shareholders in Anglo-American countries will promote ESG performance when short-term benefits are obtained, but shareholders in the European model will encourage such activities focusing on the long term to benefit all stakeholders. Ioannou and Serafeim (2012) use the NBS approach to

analyze how companies' ESG performance is driven by differences in countries' national institutions and find differences in CSP and CEP that might be driven by differences in countries' national institutions. Jackson and Apostolakou (2010) analyze the effects of national institutions on European firms' CSR activities, and conclude that companies from LMEs perform at lower levels of CSR than firms in CMEs.

Meyer (2011) carried out a study to explain how national institutions affect international companies' CSR activities (focusing on environmental efforts), and found that firms had better CEP in less coordinated market economies. Moreover, that research reveals that environmental issues are influenced by institutional differences between countries.

More recently, Hartmann and Uhlenbruck (2015) examined a database of 2,724 international firms to analyze the influence of countries' national institutions on CEP. They argued that studying several dimensions of firms' ESG performance "will allow for a more complete understanding of how institutions affect firms and how this plays out in different countries" (Hartmann & Uhlenbruck, 2015: 729). The focus was on CEP drivers and the following institutional factors were controlled: i) the number of environmental treaties signed and ratified by a country; ii) the degree of market freedom; and, iii) the number of active NGOs in the countries and the degree of press freedom.

Further research in the field (Aaronson, 2003; Musacchio, Lazzarini & Aguilera, 2015; Witt & Jackson, 2016) suggest that more empirical evidence is required to understand better how companies adapt to their national institutions (Swedberg, 2014; Boschma & Capone, 2015).

### **3. Hypotheses development**



This section motivates the research hypotheses. According with the VIS, the section is structured into the five dimensions that are supposed to influence companies' behavior and outcomes, such as ESG performance.

### *3.1. The role of the state*

Previous research addresses three ways of state intervention into the economies (Whitley, 2003): i) directly, when the state is actively and directly involved in economic production through state-owned enterprises; ii) indirectly, through the provision of capital, favoritism or participation in corporate governance; and iii) through the general stance it takes towards national economic life. According to the kind of state intervention, Fainshmidt et al. (2018) identifies four types of countries: i) regulatory, ii) developmental; iii) predatory; and iv) welfare states. Regulatory states, such as the US, establish and enforces the rules of businesses, in particular the protection of property rights. Developmental states, such as Brazil and Taiwan, are characterized by substantial control over the economy mainly by focusing on long-term national interests and participating in the development of business sectors through industrial policies. Predatory states, such as Eastern Europe countries, are mostly governed by elites who monopolize power with opaque decision-making processes. They often show weak institutions and lack of market competition. Finally, welfare states, such as most of the countries in Northern Europe, focus on the promotion and protection of the social and economic welfare of their citizens.

Previous research addressed that “a strong state is perceived as having comprehensive policies and regulation on environmental preservation and thus firms located in such countries are better prepared to meet and even exceed regulatory prescriptions” (Hartmann & Uhlenbruck, 2015, p. 732). This suggests that regulatory systems will influence companies to exhibit higher levels of ESG performance. This can

be explained because regulatory states will enforce compliance with existing social and environmental regulation (Matten & Moon, 2008). In fact, Rugman & Verbeke (1998) address that regulations should support firms' ESG performance if they focus on complementing rather than contradict financial goals. Further research (Lim & Tsutsui, 2012) reveal that those firms within countries providing strong regulation and showing a commitment to international treaties will be more likely to engage with CSR practices, thus increasing their ESG performance. This reasoning suggests that firms operating in regulatory countries will be more likely to adopt CSR strategies to respond to and comply with regulatory demands. Accordingly, the following hypotheses will be tested:

**H1:** Strong social and environmental regulations, such as present in regulatory states, will positively influence firms' ESG performance levels.

### *3.2. The role of financial markets*

Companies obtain financial resources mainly through: i) equity markets; ii) credit markets; iii) the family; and, iv) the state. According to the VIS, companies' ability to implement stakeholder relationships is influenced by market institutions. In some countries, such as the US, the equity and credit markets are the central financial source of companies, which often show a high degree shareholder dispersion. In contrast, in some countries, such as China, the state acts as a supplier of financial resources for companies because the state has owned the factors of production or financial institutions (Lazzarini, Musacchio, Bandeira-de-Mello & Marcon, 2015). Moreover, in economies where financial markets are relatively underdeveloped, such as in Arab countries, firms tend to rely on domestic capital markets based on accumulated family wealth (Steier, 2009). When states and/or families assume the role of capital provider, they replace financial markets and inhibit their development (Schneider, 2009).

Previous research reveals that those companies within countries having developed credit and equity markets can develop innovative management practices

because they are less restricted by economic actors (Hall & Soskice, 2001). Thus, companies are more likely to include sustainability issues into their operations that increases their ESG performance, such as developing greener production processes that lower emissions, waste and energy consumption (Berrone, Fosfuri, Gelabert & Gomez-Mejia, 2013). Furthermore, in this kind of countries, customers strongly influence firms' behaviour, normally by demanding a more responsible firm behaviour (Christmann, 2004; Klassen & Vachon, 2003). Under this scenario, companies have more incentives to implement socially responsible business models that are supposed to ameliorate firms' ESG performance. According with this reasoning, the following hypothesis is proposed to be tested:

**H2:** Developed credit and equity markets will positively influence firms' ESG performance levels.

### *3.3. The role of human capital*

A country's human capital will also have an influence on companies' ESG performance, and can be examined through the level of knowledge capital and coordination with labor. The level of knowledge capital helps to explain how organizations engage with employees in productive activities. When knowledge capital is collectively available to firms in an economy, organizations can invest in firm-specific skills such as training and development, health and safety, diversity, and opportunity programs (Jackson & Deeg, 2008) often related with increased ESG performance. On the other hand, shortages of knowledge capital can reduce incentives to invest in particular capabilities and employee satisfaction (Schneider, 2013).

Organizations attracting qualified job seekers have a larger pool of applicants, so their selection system can function to produce competitive advantages (Strandberg, 2009). Coordination with labor is the second sub-dimension of a country's human

capital. Research (Botero, Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2004; Hall & Soskice, 2001) suggests that countries with a strong labor organization often have longer-term investments and are more likely to prioritize social and environmental concerns (Locke & Thelen, 1995; Ioannou & Serafin, 2012). On the other hand, countries with more fragmented labor markets have less collective action, and human resource management is mostly based on connections to family elites and political decisions.

Accordingly, the following hypothesis will be tested:

**H3:** Enhanced knowledge capital and coordination with labor will positively influence firms' ESG performance levels.

#### *3.4. The role of social capital*

The ability of a society to produce social capital “is determined by its long-term experience of social organization, anchored in historical and cultural experiences that can be traced back over very long periods” (Rothstein & Stolle, 2008: 442). Traditionally, countries fostering economic equality experience higher levels of trust, regardless of the level of economic development (Uslaner, 2008). Generalized trust is an indicator of countries' social capital, which refers to the extent to which members trust other members of society and society in general. Confidence tends to be high in countries that belong to the typologies of VoC and NBS as compared to countries in other regions (e.g. Africa, Eastern Europe and Asia).

In developmental and emerging markets in particular, trust is usually lower because of widespread corruption and an ineffective state. Ioannou and Serafeim (2012) revealed that firms' ESG performance is higher in countries with low levels of corruption. A connection should be expected between countries' social capital and companies' ESG performance. This is particularly important for this study because the VIS framework includes countries with developmental and emerging markets, which

were not considered by the VoC and NBS systems. Kong (2016) identifies significant variations in trust and corruption levels across countries. According with this reasoning, the following hypothesis is proposed:

**H4:** Enhanced generalized trust will positively influence firms' ESG performance levels.

### *3.5. The role of corporate governance*

Three elements define how companies are controlled and managed, those being: i) concentration of ownership; ii) family ownership; and, iii) family intervention in management. Ownership concentration is an important element of the institutional context since it indicates how owners, workers and management interact with each other (Aguilera & Jackson, 2003). Family ownership is also important for corporate governance, and dominates most sectors in the economies of Latin America, the Middle East, North Africa and parts of Asia.

High ownership concentration has traditionally been negatively connected with firms' ESG performance (Dam & Scholtens, 2013; Barnea & Rubin, 2010). This is because large shareholders tend to dominate firms' boards, which reduces directors' diversity and independence. Recent research (Block & Wagner, 2014) argues that family firms can be responsible or irresponsible to various dimensions of ESG performance. In essence, family firms, in general, are more prone to prioritize employee satisfaction, diversity, environmental concerns and product related issues. This last dimension is also of special interest because family companies are especially important in one of the fastest growing regions in the world, Asia, which is included in the analyzed sample. The following hypothesis will be tested:

**H5:** Low levels of ownership concentration and high levels of family ownership and family intervention will positively influence firms' ESG performance levels.

## **4. Research design**

### *4.1. Sample description*

Research shows that firms' ESG performance "is a construct that emphasizes a company's responsibilities to multiple stakeholders, such as employees and the community at large, in addition to its traditional responsibilities to economic shareholders" (Turban & Greening, 1997: 658). Companies' ESG performance is "a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships" (Wood, 1991: 693). Because some national institutions have differential impacts on some dimensions of companies' ESG performance, this research focuses on three of the main dimensions of the construct (Huseynov & Klamm, 2012; Lo & Kwan, 2017); i) CEP; ii) CSP; and iii) CGP.

Data related to firms' ESG performance was obtained from the ASSET4 ESG dataset of DataStream®, provided by Thomson Reuters. This database "provides objective and systematic ESG performance data according to more than 280 key performance indicators and 750 individual data points. The original data sources include more than 4000 global companies that appear on the MSCI World, MSCI Europe, STOXX 600, NASDAQ 100, ASX 300 and MSCI Emerging Markets indices" (Ortas et al., 2015: 676). Data was collected from 4,877 companies in 57 countries and 10 economic sectors<sup>1</sup>. As the paper focuses on the interactions between the national institutions defining the varieties of institutional systems, companies in the sample from countries that were not included in the VIS approach (23 firms) were excluded from the sample, leaving 4,854 companies. Those companies that did not have the required data

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<sup>1</sup> Industry sectors are defined according to Thomson Reuters Business Classification (TRBC) system.

for the financial control variables (103 firms) were also dropped. After these adjustments, the final sample consists of 4,751 companies in 52 countries and operating in 10 economic sectors (see Tables A.1 in the Appendix for a complete sample breakdown by country). The values of the variables were collected from 2008 to 2015, creating an unbalanced, cross-sectional database of 38,008 observations.

#### *4.2. Variables' definitions and features*

Carroll (1979) found that ESG performance is a multidimensional construct composed of several social and environmental organizational outcomes related to different stakeholders, represented by CEP, CSP and CGP. This research responds to a recent call made in previous research (Ioannou & Serafeim, 2012; Jackson & Apostolakou, 2010; Huseynov & Klamm, 2012) by considering disaggregated firms' ESG performance measures as dependent variables (i.e., CEP, CSP and CGP). The dependent variables are continuous and range from 0 to 100. Their interpretation is straightforward as the higher the firms' score on them, the higher their level of performance (see Table 1 for a complete definition of the models' variables).

*[Insert Table 1 about here]*

Data related to the VIS national institutions were obtained from the Fainshmidt et al. (2018). The VIS approach uses qualitative data provided by a panel of regional experts to compile the institutional profile of 68 national economies and to inductively identify nine national institutional systems using a two-stage analysis technique. This approach makes it possible to group countries, not by geographical areas as traditionally done, but based on a series of socio-cultural characteristics independent of the continent to which the country belongs. This classification is a generalized model based on differences in several national institutions (see table 1 for

further details): i) the role of the state; ii) the role of financial markets; iii) the role of human capital; iv) the role of social capital; and, v) the role of corporate governance.

The econometric models include several financial and non-financial control variables that have conventionally been associated with firms' ESG performance to avoid biased estimates (Ortas, Gallego-Alvarez & Álvarez-Etxeberria, 2015). The financial control variables are: i) company return on assets (ROA); ii) company return on equity (ROE); iii) firm size (SIZE), iv) company market to book ratio (MKTBK); iv) company ratio between research and development spend and its total net sales (R&D/SALES); v) company leverage (LEV). All the data for the financial controls were obtained from DataStream®. Discussion of the expected influence of the financial controls on different dimensions of firms' ESG performance has been largely addressed in previous research (see Campbell, 2007; McWilliams & Siegel, 2001). In addition, a dummy variable is included to control for specific interactions between industries and firms' ESG performance (see Table 1 for further details). This is because previous research on the topic (Jackson & Apostolakou, 2010) found differences across different activity sectors.

#### *4.3. Econometric approach*

This research tests the links of time series data for annual observations of companies grouped by country. The dependent variables (CEP, CSP and CGP) are related to the company level, the independent variables refer to the country level and financial and non-financial controls are measured at the firm level (see Table 3 and Table 4). This dataset represents a complex structure that should not be modelled by traditional techniques such as conditional mean linear regressions because significant variance of the observations is not captured (Hox, 2010; Peterson, Arregle & Martin, 2012). To test the working hypotheses, a multilevel modelling technique is proposed (see Bryk &



Raudenbusch, 1992). Three levels of analysis are introduced: i) yearly observations of a firm CEP, CSP and CGP; ii) the companies; and, iii) the countries. The multilevel model makes it possible to divide the variance of the dependent variables into three variances: i) variance across observations within companies (level 1); ii) variance across companies within countries (level 2); and, iii) variance across countries (level 3). The multilevel modelling allows avoiding mis-estimation problems derived from sampling fluctuations and a small number of observation through higher levels of analysis (Duncan & Jones, 2000). Thus, the unbalanced nature of the dataset will not produce biased estimates and standard errors. The proposed model is given by the following equation:

$$Y_{i,j,k} = \beta_{0,i,j,k} \text{cons} + \beta_{1,j,k} X_{1,j,k} + \beta_{2,k} X_{2,k} + \partial_{0,k} + \varepsilon_{o,j,k} + \mu_{0,i,j,k} \quad (1)$$

where  $Y_{i,j,k}$  is the dependent variable for year  $i$  of firm  $j$  in country  $k$ ;  $\beta_{0,i,j,k}$  is the model random intercept;  $\beta_{1,j,k}$  is the firm-level predictor ( $X_{1,j,k}$ ) random slope;  $\beta_{2,k}$  is the country-level predictor ( $X_{2,k}$ ) random slope;  $\mu_{0,i,j,k}$  is the residual of yearly observations;  $\varepsilon_{o,j,k}$  is the residual of firms, and;  $\partial_{0,k}$  is the residual of countries. The nature of the dataset (i.e. the number of high-level elements – countries – is lower than the number of low-level elements – companies) suggests the use of restricted maximum likelihood<sup>2</sup> (REML) because it provides less biased estimates. Following Rabe-Hesketh & Skrondal (2012) possible endogeneity problems are controlled through computing a Durbin-Wu-Hausman test. The result was not significant ( $x^2 = 0.346$ ; Prob  $>x^2 = 0.462$ ), revealing no concern for endogeneity.

## 5. Results and discussion

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<sup>2</sup> Model comparison tests based on likelihood ratios have not been performed because they are not useful with the REML estimation method (Bryk & Raudenbusch, 1992).

Four models are computed with CEP, CSP and CGP as the dependent variables (see Table 5). The first model is an empty model, which addresses how the total variance of the dependent variables is divided across years, countries and companies. Model 2 includes the financial controls and Model 3 adds the non-financial control variables. Finally, Model 4 includes all the above-mentioned independent variables. The focus will be placed on Model 4 to test the working hypotheses. Descriptive statistics of the models' variables are shown in Table 2. Tables 3 and 4 show the pairwise correlations between the dependent variables and the financial controls and the pairwise correlations between the dependent and independent variables. It is worth to mention that all the variance inflation factors regarding the continuous variables in the models were less than one, thus indicating the non-existence of collinearity problems.

*[Insert Table 2, 3 and 4 about here]*

Hypothesis 1 predicted that strong social and environmental regulation shown by specific countries such as regulatory states will positively influence firms' ESG performance. The coefficients associated with the REGULAT and WELF variables are positive and significant. These results indicate that CEP, CSP and CGP is higher for firms in regulatory and welfare countries. This confirms that companies within regulatory states consider sustainability issues into their decision-making processes, thus increasing their ESG performance, in order to meet regulatory prescriptions. Furthermore, firms' ESG performance in welfare states is also higher. This supports the view that firms in welfare states prioritize the social well-being of society and environmental preservation. According with these results, H1 cannot be rejected.

Hypothesis 2 predicted that the existence of developed credit and equity markets will positively influence firms' ESG performance. The coefficients for the EM and CM variables are positive and significant at the 1% level for the three dependent variables. However, the estimates of the FW variable are not significant. These results reveal that:

i) those companies in countries with developed equity and credit markets have higher levels of CEP, CSP and CGP; ii) there are non-significant differences between firms' CEP, CSP and CGP in countries with high and low levels of family provided capital for company financing; and, iii) companies in countries in which the state acts as the primary source of firms' financing achieve lower levels of ESG performance. The superior levels of ESG performance for firms in countries with developed equity and credit markets can be due to the greater stakeholder requirements for transparency and accountability. On the other hand, in countries where the state provides capital, capital development is hindered, leading companies to lower levels of ESG performance (Schneider, 2009). Accordingly, these results reveal that H2 cannot be rejected.

*[Insert Table 5 about here]*

Hypothesis 3 predicted that enhanced knowledge capital and coordination with labor will positively influence firms' ESG performance. The multilevel results show that both variables that are related with the role of human capital (CWL and KC) have positive and significant estimates. These results support hypothesis H3 suggesting that firms in countries with enhanced human capital achieve greater levels of ESG performance. This is in line with previous studies (Ioannou & Serafeim, 2012) that address the positive relationship between firms' CSP and countries' human capital, but it also extends this positive link to companies' CEP and CGP. This can be explained because countries that exhibit higher knowledge capital levels often show solid educational systems, which lead them to achieve greater levels of ESG performance. The level of knowledge capital within international contexts is important because it determines how organizations relate to their employees in productive activities. For instance, when knowledge capital is readily available to firms in an economy, they can invest in specific skills training, but a scarcity of knowledge capital can reduce incentives to invest in particular skills and even sectors.

Hypothesis 4 predicted that enhanced generalized trust will positively influence firms' ESG performance. The results support this hypothesis because the estimates of the GT variable are positive and significant. This supports previous research findings (Kong, 2016), addressing that companies in countries with higher levels of corruption often underperform in terms of ESG performance. The results reveal that widespread trust and the absence of corruption make firms more likely to develop CSR practices that may favor their ESG performance. This result extends previous findings (Ioannou & Serafeim, 2012), who addressed that companies that adopt CSR activities are more likely to oppose unethical activities and thus contribute to lowering a country's corruption levels.

The last hypothesis predicted that increased ownership concentration diminishes firms' ESG performance, and that higher levels of family ownership and family intervention in management favor firms' ESG performance. The results associated with the OC variable are different for the three dimensions of ESG performance. While the estimate is negative and significant for CSP and CGP, the estimates are non-significant for CEP. This means that companies in countries with concentrated ownership achieve lower performance in social and governance issues. The estimates for the FO and FIM variables are positive, significant at the 1% level for the CSP and CEP dimensions, and non-significant for CGP. These results are in line with Block and Wagner (2014), who concluded that family ownership has different effects on the various dimensions of ESG performance. Family ownership is negatively linked with community, but positively related to diversity, employees, the environment, and product issues. All of these results reveal that H5 cannot be rejected.

## **6. Conclusions**

Academic research has addressed the key role of national institutions in companies' ESG performance. Previous literature focuses on the VoC and NBS approaches to explain the differences in company policies and strategies because of their exposure to different institutional environments. However, these frameworks do not include companies in under-studied countries with high economic potential from Asia, Latin America, Africa and Eastern Europe (e.g. BRICS), leading to restricted conclusions.

This paper is the first to provide a quantitative analysis of how national institutions drive or restrict companies' ESG performance. It uses the novel extension of institutional theory called the varieties of institutional systems (VIS). The focus is placed on a large dataset of companies from 52 countries to provide efficient estimations that allow us to draw conclusions that are more robust.

Results show that firms in regulatory and welfare states, with high levels of knowledge and social capital are more committed to sustainability issues, and they achieve higher levels of ESG performance. Our study extends previous findings about the positive influence of human capital on CSP (Ioannou & Serafeim, 2012), to CEP and CGP. Differences in country profiles of capital providers also drive companies' ESG performance. Companies in countries with developed equity and/or credit markets obtain higher levels of ESG performance than those in countries where the state is the primary source of companies' financing. Family ownership lowers companies' performance in community issues but positively influences firms' performance in aspects such as diversity, employees and environmental issues.

These results have several interesting implications. Firstly, the provided overview will allow governments, academics and the society as a whole to better understand which national institutions act as catalysts on companies' ESG performance. This is interesting because companies' ESG performance is the outcome of adopting several CSR strategies that contributes to society well-being and environmental preservation. In

fact, sustainable development is a global goal, and firms' ESG performance should be enhanced by the adoption of several international policies that have an influence on national institutions. Secondly, systemic variations in companies' competences and limitations because of their institutional environment will allow companies' managers to manage their commercial relations with large suppliers worldwide properly. This research reveals that international companies do not often have the same priorities in CSR terms, and companies aiming to contribute to enhance sustainability and society well-being could consider this information when selecting their commercial relations with international firms. The conclusions also have implications for companies in emerging and less developed countries, which often have restricted equity and credit markets and low levels of human and social capital. Those companies should develop and integrate stronger CSR policies to enhance their levels of ESG performance to act as a good corporate citizen that will contribute to the community development. Finally, companies in countries with a low orientation to CSR should clearly understand their governments' expectations for environmental and social aspects to better define their own policies and strategies to guarantee their survival in the long-term.

The provided findings are, however, accompanied by several caveats and limitations that are not go unmentioned and provides potential for further research. First, the analysis uses indicators to represent firms' ESG performance (e.g. CEP, CSP and CGP). Second, although the focus is placed on a wider sample as required by past research, some external validity problems may arise. This is due to the inherent sampling process, mergers of the firms. Although the time-span considered comprises eight years, results should be interpreted according with the economic, social and institutional issues of that period, characterized at the beginning by the negative consequences of the global financial crisis and at the end showing clear evidences of economic growth in most of the world's economies. Future research should focus on

creating more knowledge about the effect of countries' interventionism on firms' ESG performance. This is important because some of the economies that will grow most rapidly in the next two decades have higher levels of state intervention in company management (e.g. China and Russia). If countries' contributions to sustainability is crucial for both the social and economic development of the whole world, there is a clear need to understand how these countries can restrict these achievements. Furthermore, the role of family as a national institution has scarcely been analyzed in previous research. Although the provided findings in this paper are a good starting point to understand in which ways national institutions (on a global scale) determine firms' ESG performance, further research is needed to address the firms' ESG profiles shown by corporations across the seven varieties of institutional systems provided by Fainshmidt et al. (2018), those being: i) liberal market economies; ii) coordinated market economies; iii) state-led; iv) fragmented with fragile state; v) family-led; vi) centralized tribe; vii) emergent LME; viii) collaborative agglomerations; and, ix) hierarchically coordinated.

## Appendix

**Table A.1:** Sample breakdown by country

Country	Companies / Obs.	Percentage (%)	Acc. Percentage (%)	Country	Companies / Obs.	Percentage (%)	Acc. Percentage (%)
Australia	417 / 3,336	8.78%	8.78%	Mexico	54 / 432	1.14%	49.91%
Austria	21 / 168	0.44%	9.22%	Morocco	3 / 24	0.06%	49.97%
Belgium	30 / 240	0.63%	9.85%	Netherlands	39 / 312	0.82%	50.79%
Brazil	119 / 952	2.50%	12.36%	New Zealand	18 / 144	0.38%	51.17%
Canada	335 / 2,680	7.05%	19.41%	Nigeria	1 / 8	0.02%	51.19%
Chile	25 / 200	0.53%	19.93%	Norway	24 / 192	0.51%	51.69%
China	161 / 1,288	3.39%	23.32%	Peru	3 / 24	0.06%	51.76%
Colombia	15 / 120	0.32%	23.64%	Philippines	26 / 208	0.55%	52.30%
Czech	4 / 32	0.08%	23.72%	Poland	31 / 248	0.65%	52.96%
Denmark	29 / 232	0.61%	24.33%	Portugal	13 / 104	0.27%	53.23%
Egypt	11 / 88	0.23%	24.56%	Qatar	13 / 104	0.27%	53.50%
Finland	36 / 288	0.76%	25.32%	Russian Federation	37 / 296	0.78%	54.28%
France	98 / 784	2.06%	27.38%	Saudi Arabia	6 / 48	0.13%	54.41%
Germany	106 / 848	2.23%	29.61%	Singapore	57 / 456	1.20%	55.61%
Hong Kong	175 / 1,400	3.68%	33.30%	South Africa	131 / 1,048	2.76%	58.37%
Hungary	4 / 32	0.08%	33.38%	South Korea	123 / 984	2.59%	60.96%
India	101 / 808	2.13%	35.51%	Spain	57 / 456	1.20%	62.16%
Indonesia	36 / 288	0.76%	36.27%	Sri Lanka	1 / 8	0.02%	62.18%
Ireland	16 / 128	0.34%	36.60%	Sweden	73 / 584	1.54%	63.71%
Israel	15 / 120	0.32%	36.92%	Switzerland	81 / 648	1.70%	65.42%
Italy	63 / 504	1.33%	38.24%	Taiwan	136 / 1,088	2.86%	68.28%
Japan	441 / 3,528	9.28%	47.53%	Thailand	34 / 272	0.72%	69.00%
Jordan	1 / 8	0.02%	47.55%	Turkey	29 / 232	0.61%	69.61%
Kazakhstan	1 / 8	0.02%	47.57%	United Arab	11 / 88	0.23%	69.84%
Kuwait	4 / 32	0.08%	47.65%	United Kingdom	367 / 2,936	7.72%	77.56%
Malaysia	53 / 424	1.12%	48.77%	United States	1,066 / 8,528	22.44%	100.00%

This table details the distribution of the companies and observations across the different countries. The firms' social and fiscal domicile was used as the criteria when classifying firms across countries.



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**Table 1:** Variable definitions, measurements and data sources.

Variables	Definition	Source	Level
<i>Dependent variables</i>			
CSP	Corporate social performance: continuous variable ranging from 0 to 100	ASSET4 ESG	Firm
CEP	Corporate environmental performance: continuous variable ranging from 0 to 100	ASSET4 ESG	Firm
CGP	Corporate governance performance: continuous variable ranging from 0 to 100	ASSET4 ESG	Firm
<i>Independent variables</i>			
DEV	Developmental state: binary variable that has a value of 1 for companies in developmental countries and 0 otherwise	Fainshmidt et al. (2018)	Country
DEV&PRED	Developmental and predatory state: binary variable that has a value of 1 for companies in developmental and predatory countries and 0 otherwise	Fainshmidt et al. (2018)	Country
PRED	Predatory state: binary variable that has a value of 1 for companies in predatory countries and 0 otherwise	Fainshmidt et al. (2018)	Country
WELF	Welfare state: binary variable that has a value of 1 for companies in welfare countries and 0 otherwise.	Fainshmidt et al. (2018)	Country
REGULAT	Regulatory state: binary variable that has a value of 1 for companies in regulatory countries and 0 otherwise	Fainshmidt et al. (2018)	Country
REGULAT&DEV	Regulatory and developmental state: binary variable that has a value of 1 for companies in regulatory and developmental countries and 0 otherwise	Fainshmidt et al. (2018)	Country
CWL	Coordination with labor: binary variable that has a value of 1 for companies in countries with a high degree of coordination with labor and 0 otherwise	Fainshmidt et al. (2018)	Country
KC	Knowledge capital: binary variable that has a value of 1 for companies in countries with high knowledge capital and 0 otherwise	Fainshmidt et al. (2018)	Country
EM	Equity markets: binary variable that has a value of 1 for companies in countries with equity markets and 0 otherwise	Fainshmidt et al. (2018)	Country
CM	Credit markets: binary variable that has a value of 1 for companies in countries with credit markets and 0 otherwise	Fainshmidt et al. (2018)	Country
FW	Family wealth: binary variable that has a value of 1 for companies in countries where the main source of financial capital is family wealth and 0 otherwise	Fainshmidt et al. (2018)	Country
SPC	State provided capital: binary variable that has a value of 1 for companies in countries where the main source of financial capital is state-provided capital and 0 otherwise	Fainshmidt et al. (2018)	Country
GT	Generalized trust: binary variable that has a value of 1 for companies in countries where community has a high level of generalized trust in society/institutions and 0 otherwise	Fainshmidt et al. (2018)	Country
OC	Ownership concentration: binary variable that has a value of 1 for companies in countries where firm ownership is highly concentrated and 0 otherwise	Fainshmidt et al. (2018)	Country
FO	Family ownership: binary variable that has a value of 1 for companies in countries where firms are often family owned and 0 otherwise	Fainshmidt et al. (2018)	Country
FIM	Family intervention in management: binary variable that has a value of 1 for companies in countries where families play a significant role in firms' management and 0 otherwise.	Fainshmidt et al. (2018)	Country
ROA	Return on assets: ratio between firms' pre-tax income and total assets		
MKTBK	Market to book ratio: ratio between companies' market value of equity and their book value of equity	DataStream	Firm
R&D/SALES	Ratio between a firm's research and development spend and its total net sales	DataStream	Firm
LEV	Leverage: firms' long-term debt divided by common equity	DataStream	Firm
ROE	Return on equity: ratio between firms' net income and shareholder equity	DataStream	Firm
SIZE	Firms' size: natural logarithm of companies' total assets	DataStream	Firm
CYCLICAL	Industry dummy: binary variable that has a value of 1 for firms within cyclical sectors and 0 otherwise	DataStream	Firm

This table show the relevant information related with models' dependent and independent variables.

**Table 2:** Summary of the variables' main descriptive statistics

	Obs.	Mean	Std. Dev.	Min.	Max.
<i>Continuous variables</i>					
CEP	31876	51.4858	31.9615	8.29	95.15
CSP	31876	51.9041	31.0384	3.44	98.07
CGP	31876	51.3145	30.1776	1.08	97.69
ROA	34811	5.1261	12.9374	-413.26	396.53
MKTBK	34341	6.7154	649.0861	-20489.64	115798.3
R&D/SALES	14491	26.316	1109.436	-286.4	95800
LEV	35574	136.1699	2333.925	-77921.74	222305.8
ROE	34511	11.6981	132.825	-8900	11215.38
SIZE	35591	16.8236	2.8935	3.1355	27.5314
<i>Categorical variables</i>					
	Obs.	0 (%)	1 (%)		
<i>Industry-related variables</i>					
CYCLICAL	38008	3,678 (9.91%)	34,240 (90.09%)		
<i>Variables defining the varieties of institutional systems</i>					
DEV	38008	34,624 (91.10%)	3,384 (8.90%)		
DEV&PRED	38008	34,928 (91.90%)	3,080 (8.10%)		
PRED	38008	37,488 (98.63%)	520 (1.37%)		
REGULAT	38008	17,248 (45.38%)	20,760 (54.62%)		
REGULAT&DEV	38008	36,256 (95.39%)	1,752 (4.61%)		
WELF	38008	29,496 (77.60%)	8,512 (22.40%)		
CWL	38008	16,000 (42.10%)	22,008 (57.90%)		
KC	38008	5,536 (14.57%)	32,472 (85.43%)		
EM	38008	15,352 (40.39%)	22,656 (59.61%)		
CM	38008	296 (0.78%)	37,712 (99.22%)		
FW	38008	26,584 (69.94%)	11,424 (30.06%)		
SPC	38008	27,904 (73.42%)	10,104 (26.58%)		
GT	38008	14,352 (37.76%)	23,656 (62.24%)		
OC	38008	19,592 (51.55%)	18,416 (48.45%)		
FO	38008	20,160 (53.04%)	17,848 (46.96%)		
FIM	38008	19,736 (51.93%)	18,272 (48.07%)		

This table shows the main descriptive statistics of the models' variables (see Table 1 for variables' definition).

**Table 3:** Pairwise correlations between the dependent variables and the financial controls.

	CEP	CSP	CGP	ROA	MKTBK	R&D/SALES	LEV	ROE	SIZE
CEP	1								
CSP	0.8161***	1							
CGP	0.2351***	0.3268***	1						
ROA	0.0069	0.0420***	0.0063	1					
MKTBK	-0.0041	0.0003	-0.0083	0.0226***	1				
R&D/SALES	-0.0276***	-0.0208**	-0.0029	-0.0669***	0.0036	1			
LEV	0.0082	0.0056	0.0009	-0.0101*	0.0154***	-0.0003	1		
ROE	0.0161***	0.0292***	0.0244***	0.2447***	0.0094*	-0.0124	-0.0083	1	
SIZE	0.2716***	0.2028***	-0.4425***	0.0426***	0.0093*	-0.0339***	0.0143***	0.0029	1

This table shows pairwise correlations between the dependent variables and independent financial control variables. See Table 1 for variable definitions. \* Significant at the 10% level, \*\* significant at the 5% level, and \*\*\* significant at the 1% level.

**Table 4:** Correlations between the dependent and independent variables

	CEP	CSP	CGP	SDD	SII	DEV	DEV&PRED	PRED	REGULAT	REGULAT&DEV	WELF	CWL	KC
CEP	1												
CSP	0.8161***	1											
CGP	0.2351***	0.3268***	1										
DEV	0.0257***	0.0209***	-0.3289***	0.4579***	1.0000***	1							
DEV&PRED	-0.0683***	-0.0465***	-0.1683***	1.0000***	1.0000***	-1.0000***	1						
PRED	-0.0327***	-0.0084	-0.0835***	0.7760***	1.0000***	-1.0000***	-1.0000***	1					
REGULAT	-0.1980***	-0.1560***	0.5610***	-0.9183***	-0.9212***	-1.0000***	-1.0000***	-1.0000***	1				
REGULAT&DEV	-0.0178***	0.0402***	-0.0028	-0.0455***	-1.0000***	-1.0000***	-1.0000***	-1.0000***	-1.0000***	1			
WELF	0.2716***	0.1796***	-0.3171***	0.4563***	0.4044***	-1.0000***	-1.0000***	-1.0000***	-1.0000***	-1.0000***	1		
CWL	-0.1529***	-0.1204***	0.4610***	-0.7328***	-0.6493***	0.0473***	-0.2997***	-0.7022***	0.8954***	-0.5380***	-1.0000***	1	
KC	0.0459***	-0.0316***	0.1894***	-0.7320***	-0.7278***	-0.3287***	-1.0000***	-0.3484***	0.8527***	-0.6031***	1.0000***	0.5847***	1
EM	-0.1904***	-0.1153***	0.5653***	-0.8424***	-0.9168***	-0.4291***	-1.0000***	-1.0000***	0.9729***	0.3654***	-0.9527***	0.7991***	0.3689***
CM	0.0204***	-0.0018	0.0690**	-1.0000***	-1.0000***	1.0000***	1.0000***	-1.0000***	1.0000***	1.0000***	1.0000***	1.0000***	-1.0000***
FW	0.2551***	0.2152***	-0.3713***	0.5221***	0.4893***	0.0255**	-1.0000***	-0.4545***	-0.8849***	0.3613***	1.0000***	-0.9899***	-0.1838***
SPC	0.2195***	0.1277***	-0.3706***	0.6218***	0.5707***	-0.7519***	0.2287**	0.3099***	-1.0000***	-1.0000***	1.0000***	-1.0000***	0.0659***
GT	-0.2121***	-0.1609**	0.4985***	-0.8169***	-0.8778***	-0.3076***	-1.0000***	-1.0000***	0.9827***	1.0000***	-1.0000***	0.8794***	0.6470***
OC	0.1751***	0.1265***	-0.6102***	0.8356***	0.9185***	1.0000***	0.5388**	1.0000***	-0.9629***	0.1362***	1.0000***	-0.9553***	-0.7141***
FO	0.1619***	0.0950***	-0.6144**	0.9147***	0.9302***	0.7642***	1.0000**	-0.0383*	-0.9463***	-0.2610***	1.0000***	-0.9301***	-0.5141***
FIM	0.1550***	0.0938***	-0.6255***	0.9550***	0.9648***	0.7699***	1.0000***	1.0000***	-0.9651***	-0.0951***	1.0000***	-0.9276***	-0.4997***
	EM	CM	FW	SPC	GT	OC	FO	FIM					
EM	1												
CM	1.0000***	1											
FW	-0.7620***	1.0000***	1										
SPC	-0.9710***	-1.0000***	0.9098***	1									
GT	0.9679***	1.0000***	-0.8618***	-0.9903***	1								
OC	-0.9507***	-1.0000***	1.0000***	1.0000***	-0.9517***	1							
FO	-0.9610***	1.0000***	0.8248***	0.9064***	-0.9616***	0.9822***	1						
FIM	-0.9896***	-1.0000***	0.7868***	1.0000***	-0.9836***	0.9783***	0.9981***	1					

This table shows the correlations between the models' dependent and independent variables. Correlations between the dependent variables (i.e. CEP, CSP and CGP) refers to pairwise correlations. Correlations between the dependent and the independent variables refer to the point biserial correlation coefficients (significance of biserial correlations has been evaluated by computing the t-ratios with N-2 degrees of freedom). Correlations between the independent variables refer to tetrachoric correlation coefficients. \* Significant at the 10% level, \*\* significant at the 5% level, and \*\*\* significant at the 1% level.

**Table 5: Multilevel regression results**

	Model 1			Model 2			Model 3			Model 4		
	CEP	CSP	CGP	CEP	CSP	CGP	CEP	CSP	CGP	CEP	CSP	CGP
<b>Fixed part</b>												
<i>Control variables</i>												
INTERCEPT	-117.795***	-127.081***	-88.929***	-79.955***	-89.876***	-45.331***	-79.534***	-89.632***	-45.231***	-78.832***	-86.381***	-38.246***
YEAR	0.0585***	0.0631***	0.0440***	0.0398***	0.0447***	0.0224***	0.0393***	0.0451***	0.0236***	0.0492***	0.0459***	0.0234***
ROA				-0.0078	0.0007	-0.0112**	-0.0062	0.0010	-0.0111*	-0.0054	0.0011	-0.0111**
MKTBK				0.1331	0.0034	-0.0221	0.1470	0.0102	-0.0152	0.1301	0.0101	-0.0134
R&D/SALES				0.0005	0.0001	0.0002	0.0006	0.0001	-0.0001	0.0008	0.0001	-0.0001
LEV				-0.0048	-0.0079*	-0.0012	-0.0041	-0.0078*	-0.0007	-0.0049	-0.0078*	-0.0008
ROE				0.0014	0.0044	0.0043	0.0025	0.0040	0.0041	0.0013	0.0049	0.0041
SIZE				0.6707***	0.6680***	0.3953***	0.6834***	0.6772***	0.4007***	0.6973***	0.6902***	0.4104***
CYCLICAL							-1.2482***	-1.4672***	-1.1321**	-1.2401***	-1.4537***	0.1309**
<i>Independent variables</i>												
DEV										0.0201	0.0531	0.0632
DEV&PRED										-0.0349	0.0720	-0.0024
WELF										4.1301**	3.5735**	7.3004***
REGULAT										2.2452***	3.0356***	2.7451**
REGULAT&DEV										0.0228	0.0730	-0.0903
CWL										1.0823**	1.0011**	1.0579**
KC										1.7037**	1.2321**	2.4849**
EM										1.2372***	1.1259***	1.2743***
CM										1.2283***	1.3841***	1.6369***
FW										-0.2829	-0.1712	-0.2042
SPC										-1.2391***	-1.4875***	-1.1597***
GT										1.1323**	1.2818**	1.8289**
OC										-0.7401	-1.9429***	-1.8392***
FO										1.5998***	1.4943***	1.1101
FIM										1.4102***	1.2729***	-0.4529
<b>Random part</b>												
COUNTRY	0.2229	0.2492	0.4381	0.5925	0.5717	0.9428	0.6235	0.6102	0.9551	0.2734	0.3240	0.5281
FIRM	0.7378	0.7600	0.3114	0.5306	0.5558	0.2179	0.4923	0.5294	0.2204	0.4852	0.5456	0.2543
RESIDUAL	0.1121	0.1071	0.1137	0.0985	0.1018	0.0996	0.0991	0.1182	0.1032	0.1292	0.1578	0.1439
VARIANCE EXPLAINED	0.7001	0.7295	0.7134	0.7225	0.7301	0.7256	0.7667	0.7836	0.7739	0.7891	0.7965	0.7854

This table presents the estimates of Models 1, 2, 3 and 4. See Table 1 for variable definitions. Predatory state is the baseline case for the type of state dummy variables. \* Significant at the 10% level, \*\* significant at the 5% level, and \*\*\* significant at the 1% level.