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National institutional antecedents to corporate environmental performance

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ABSTRACT

Understanding what drives firms towards environmentally sound manufacturing practices is important. While we have learned in recent years about firm-level drivers of corporate environmental performance (CEP), we know little about country-level antecedents. Our objective is to investigate the extent to which firm-level variation in CEP is explained by country-level differences. We develop hypotheses building on the Varieties of Capitalism framework and find—using data on 2724 firms in 42 different countries—that CEP is driven by the degree of market freedom of a firm's home country, the non-governmental organizations active in the country and its freedom of the press.

1. Introduction

The protection of natural ecosystems is a global challenge and firms play a major role in the process of sustainable development. Firms may mobilize substantial resources and allocate them to environmental protection based on an assessment of risks and benefits. As a consequence, it is of high importance to expand our knowledge of the determinants of firm engagement in environmental protection as part of a more general understanding of firm behavior with regard to Corporate Environmental Performance (CEP). We define CEP as the set of firm policies and activities intended to protect the natural environment as well as their outcomes (Aguinis & Glavas, 2012).

Previous studies examined determinants of CEP at the firm-level (e.g., Buysse & Verbeke, 2003; Christmann & Taylor, 2001; Sharma & Henriques, 2005). Less is known about the role of country-level factors in shaping CEP. Across the globe, we can observe varying patterns of CEP in different countries (Emerson et al., 2010), suggesting that firm-level determinants alone do not fully explain firm behavior relative to CEP. In addition to the cultural context, a potential explanation may be that the importance attributed to the environmental cause differs across societies depending on their political, economic, and social context. This notion is captured in the Varieties of Capitalism perspective proposed by Hall and Soskice (2001) that suggests that "*firms are not essentially similar across nations*" (p. 56). According to this perspective, firms are actors that seek to develop and deploy competencies to achieve profitability, and governments provide the regulatory context within which firm behavior unfolds. When governments differ in their policies relative to environmental issues, we expect this likely translates into differences in firm-level CEP. Relatedly, firm choices depend on the leeway allowed by the economic context, but we do not yet fully comprehend how markets affect CEP. Furthermore, the social context may also be important as it determines the role of non-governmental organizations and the media in shaping firm behavior.

It is therefore critical that we study country-level in addition to firm-level determinants of CEP. Studying CEP determinants at the country level will allow for a more complete understanding of how institutions affect firms and how this plays out in different countries. Firms, in turn, may gain a comparative institutional advantage depending on their location when creating and implementing processes that improve their performance with respect to sustainability concerns. Governments too may better understand how to guide firm environmental performance.

The related literature so far has either focused on firms from a single country, on national culture as the only country-level antecedent of CEP, or on corporate social responsibility (instead of CEP) as the outcome variable. We extend this literature in several ways. First, most prior studies infer about the role of national

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institutions in shaping CEP by collecting survey data from firms in one country (e.g. Buysse & Verbeke, 2003; Christmann & Taylor, 2001; Christmann, 2004; Murillo-Luna, Garcés-Ayerbe, & Rivera-Torres, 2008). Based on their design, these studies allow for important conclusions about firm behavior in one specific institutional context. However, these studies cannot examine empirically firm behavior based on variation in the institutional context across countries, as is our goal. Relative to these studies, we extend the level of analysis from the firm to the country level.

Second, we shift the focus from cultural variables to include legal, market, and social institutions that are likely to play an important role for firm-level CEP. Earlier, Ringov and Zollo (2007) studied the effect of culture as a national-level factor influencing CEP, whereas we identify relevant institutions and develop associated hypotheses building on the Varieties of Capitalism framework (Hall & Soskice, 2001).

Third, we provide for a more fine-grained understanding of cross-country variation in corporate *environmental* performance. Most international studies to date tend to examine nation-level effects on corporate social responsibility—a summative term that also includes environmental performance. Yet, social and environmental performance are conceptually different and, therefore, are likely driven by different national institutions (Fransen, 2013).

Furthermore, related studies that draw on data from multiple countries employed standard regression analysis techniques (e.g., Haxhi & van Ees, 2010; Jackson & Apostolakou, 2010; Ringov & Zollo, 2007). However, firms located in the same country tend to be more similar to each other than to firms from other countries because of the specific governmental, market and social institutional background shared by these firms (Hall & Soskice, 2001). This so-called within-cluster dependence violates the assumption in regression analysis that observations at the firm level are independent given the covariates. Hence, traditional regression analyses produce incorrect standard errors and, thereby, provide for misspecifications about the true role of nation-level institutions. This problem can be overcome by using multilevel models that allow disentangling the effect of variables operating at different levels by attributing variability to the different levels (Rabe-Hesketh & Skrondal, 2012; Snijders & Bosker, 2012). Thus, we respond to a recent call for multilevel research in sustainability studies to account for the nested nature of corporate environmental activity within higher-level institutional contexts (Aguinis & Glavas, 2012). Our study aids in understanding how firm-level CEP differs across countries because of differences in country-level institutions. The specific multilevel model used in the present study differentiates the three levels, time (level 1), firm (level 2) and country (level 3), allowing us to trace effects of country-level institutions on firm-level CEP over time.

We include a multitude of countries and country-types in our research, and use data that cover 2724 companies over a recent eleven-year time span. Finally, to the best of our knowledge, this study is the first that applies Varieties of Capitalism to examine corporate environmental performance.

2. Literature review

2.1. Research on national institutions and responsible firm behavior

To date, a limited number of studies empirically examine the link between country-level variables and firm level engagement in responsible behaviors (i.e. ethical, social and environmental responsibility). This literature is summarized in Table 1.

Table 1 allows for several important conclusions about the state of research in the area. First, the dependent variables examined in existing research are diverse and pertain to different dimensions of responsible firm behavior. Most studies seek to explain variation in social or ethical firm behavior across countries, while only three studies (Ioannou & Serafeim, 2012; Parboteeah, Addae, & Cullen, 2012; Ringov & Zollo, 2007) explicitly address environmental firm behavior. This difference is important as social, governance and environmental performance are different in nature: Firms, governments and other stakeholders likely need to adopt different measures, policies and activities to improve social, governance or environmental performance and, therefore, drivers for each of these likely differ too. For instance, the adoption of regulation to mitigate climate change would be expected to foster firm efforts to reduce carbon emissions, but is unrelated to corporate philanthropy, a typical social activity. Conversely, labor protection rights are designed to improve employee working conditions rather than carbon emissions. Studies that employ a composite measure of corporate social responsibility cannot make inference with respect to such differences (Fransen, 2013).

Our second critical conclusion based on Table 1 is that cultural differences are among the most prominent independent variables used to explain country-level differences in responsible firm behavior whereas those legal, market, and social factors that may more directly affect firm behavior received comparatively little attention—in particular when the dependent variable is CEP. For example, governments endorse regulations that force firms to improve their CEP, but whether these regulations lead to desired results has not been addressed in any of the previous studies. Similarly, customers are likely to influence firm behavior, but country differences with respect to customers' role in shaping CEP have not yet been studied. Ioannou's and Serafeim's (2012) conception of "promotion of competition" is a first step in this direction, yet they measure regulatory rather than market conditions. Social institutions, for instance non-governmental organizations (NGOs), have also been conceptually proposed to be drivers of CEP (Hendry, 2003), but extant empirical studies have focused on the impact of such social institutions on corporate social responsibility only (Lim & Tsutsui, 2012; Toffel, Short, & Quellet, 2012) rather than CEP. Hence, we do not yet have empirical evidence whether—across countries—social institutions also affect CEP.

In the present study, we seek to contribute to closing these gaps. Drawing on the Varieties of Capitalism framework (Hall & Soskice, 2001), we identify country-level institutions relevant to explaining cross-country variation in CEP. We assess the role of these institutions in shaping CEP across more than 40 developed, emerging, and transitioning economies during an 11 year period.

2.2. The Varieties of Capitalism framework

The *Varieties of Capitalism* perspective (Hall & Soskice, 2001) is a recent extension of institutional theory. *Varieties of Capitalism* was developed in political economy to understand institutional differences and similarities among economies while at the same time bringing firms into the center of analysis and recognizing what governments can and cannot accomplish. The framework seeks to explain why and how national legal, market, and social institutions shape firm behavior and performance. Hall and Soskice (2001) perceive firms as actors that develop and use core competences (Prahalad & Hamel, 1990) and dynamic capabilities (Teece, Pisano, & Shuen, 1997) for profitable development, production and distribution of goods and services. The authors also argue that firms' capacity to establish resilient relationships with governments, customers, social actors and other stakeholders is critical for firm success. However, firms' capacity to coordinate effectively across a range of different actors differs between countries resulting from differences in national institutional conditions. The concept of comparative institutional advantage, on which the authors draw, asserts that particular legal, social,