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**HOW NATIONAL-LEVEL BACKGROUND GOVERNANCE CONDITIONS SHAPE THE  
ECONOMIC PAYOFFS OF CORPORATE ENVIRONMENTAL PERFORMANCE**

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# HOW NATIONAL-LEVEL BACKGROUND GOVERNANCE CONDITIONS SHAPE THE ECONOMIC PAYOFFS OF CORPORATE ENVIRONMENTAL PERFORMANCE

## **Abstract**

**Purpose:** Companies develop and implement environmental initiatives in particular national governance and institutional contexts. In this paper we study how the background governance conditions of legal systems, economic policies, and national culture enable or impede the relationship between corporate environmental performance (CEP) and lagged corporate financial performance (CFP).

**Design/methodology/approach:** This is an empirical study of 427 MNCs headquartered in 22 different countries. We merged data from the SiRi database (also known as SustainAnalytics now), which contains ratings of stakeholder relations for 427 large corporations for 2004 and 2005, with publicly available data from *Datastream*.

**Findings:** Drawing on the new institutionalism in economics and sociology, we show that common-law systems and high economic freedom in a company's home country strengthened the CEP-CFP link. In addition, the home-country cultural variables of uncertainty avoidance, long-term orientation, and (to a lesser extent) masculinity may impede the deployment of CEP for maximum financial gain at the organizational level. Our macrolevel analysis starts to move the field toward an understanding of the particular governance configurations that provide the most supportive conditions for any CEP-CFP link.

**Originality/value:** One of the central questions in the field of Organizations and the Natural Environment is about the background conditions that may incentivize and reward firms to be more environmentally responsive. Our paper addresses this issue through a national-level investigation of the background governance conditions that may help or hinder the relationship between CEP and CFP.

**Keywords:** Corporate environmental performance; corporate financial performance; economic freedom; national governance; institutions; legal systems; market-to-book ratio; national culture; net profit margin; ROA; sustainability.

## Introduction

For several decades, societal and regulatory forces have been pushing businesses to demonstrate enhanced commitment to corporate environmental performance (CEP) (Bansal and Hoffman, 2012; Hoffman, 1997, 1999; Salma, 2016). According to the *Stern Review on the Economics of Climate Change* (Stern, 2006) and *The Economist* (2008), ecological sustainability could become the central social responsibility challenge for business. In line with these predictions, a 2010 study found that 93% of 766 CEOs, who were surveyed worldwide, regarded sustainability as being critical to their companies' future success (Accenture and UNGC, 2010). Similarly, according to a KPMG survey (2013), 81% of CEOs considered the prudent management of environmental risks a key strategic focus for their business.

Faced with these pressures, many companies—especially large and multinational corporations—have implemented a variety of activities (including disclosures) related to environmental performance. However, some answers are still unclear in this field of inquiry. There has been an ongoing, largely inconclusive debate about the causal relationship between CEP and corporate financial performance (CFP) (see for e.g., Belhaj and Damak-Ayadi, 2011; Busch and Hoffmann, 2011). Several literature reviews pointed to a small positive association between CEP and CFP, but also indicated that causality remains uncertain because of reciprocal relationships between these two variables (Orlitzky, 2008; Orlitzky *et al.*, 2003). More recent meta-analyses have been broadly supportive of these earlier findings (Dixon-Fowler *et al.*, 2013; Horvathova, 2012). Consistent with the cumulative evidence, CEP is now increasingly regarded as a risk management issue (Orlitzky and Benjamin, 2001; Porter and Reinhardt, 2007). Clearly, the field must go beyond the dichotomous question of whether or not CEP pays. Sometimes, higher CEP may help firms reduce their legal exposure in the future (Hoffman and Bansal, 2012). At other times, it may also raise social activists' expectations of ever greater organizational commitments to environmental

causes and distract executives from their fiduciary and broader economic responsibilities (Marcoux, 2003; Munk, 1999).

Many researchers now agree that the most pressing question is not *whether* CEP pays, but instead *when/under what circumstances* (see, e.g., Ambec and Lanoie, 2008; Dixon-Fowler *et al.*, 2013; Orlitzky *et al.*, 2011). In other words, how might specific moderator variables affect the financial payoffs from CEP? Dixon-Fowler *et al.*'s (2013) meta-analysis has started to address some of these questions. Dixon-Fowler and colleagues examined several moderators of the CEP-CFP relationship, such as types of environmental performance (reactive vs. proactive environmental performance), firm characteristics (large vs. small firms; public vs. private firms; US vs. international firms; industry—worst offenders vs. others), and methodological issues (measures of financial and environmental performance; self-report measures). In addition, nearly all types of firms appeared to benefit from CEP across different measures of CEP and CFP. Overall, they concluded that the criticism of CEP-CFP research regarding the choice and nature of variables was unfounded. Nonetheless, their meta-analysis does not shed light on possible national-level governance variables affecting the CEP-CFP link.

Our primary objective in this paper is to examine the national-level background governance conditions that may influence the association between CEP and CFP. To accomplish this goal, we develop new theory about several country-level variables in order to shed further light on the broader background governance forces that can enable or impede the way in which CEP may pay off instrumentally and strategically for individual organizations. More specifically, company strategic decisions, typically made at company headquarters, occur in particular legal systems (civil law versus common law systems), general national climates supporting or restraining economic freedom, trade policies, and national cultural dimensions, which may interact with CEP to shape the instrumental-strategic payoffs of organizational commitments to environmental sustainability. Note that, with our

proposals of interaction effects, we do not assume that there is a generalizable overall positive (or negative) association between CEP and CFP.

In theorizing these nation-level governance interaction effects, we focus on company headquarters and, thus, each company's home country. The influence of company headquarters is in line with previous research, which has established that practices and policies of multinational (MNC) headquarter (HQ) operations greatly mold the environmental performance of MNCs' subsidiaries operating abroad. For example, Ruud (2002) describes the influence of MNC HQ policies on environmental policies of subsidiaries in emerging economies (where environmental standards are often lax) as creating “islands of environmental excellence in a sea of dirt” (p. 103). Similarly, Ioannou and Serafeim (2012) show the significant influence of home country institutions on corporate social performance even after controlling for the impact of host country institutions. The importance of home country institutions is partly explained by Kostova and Zaheer’s (1999) liability-of-foreignness argument, which suggests that MNC subsidiaries have to live up to higher environmental standards than domestic firms—ostensibly to match HQ standards.

### **Hypothesis development**

Strategizing about environmental (and any other) initiatives does not occur in a vacuum. Instead, managerial decisions are developed, shaped, and changed in the context of particular institutional “background governance conditions” (Williamson, 1994, p. 79). These background national-level governance conditions include, but are not limited to, laws, economic policies, formal regulations, property rights, and informal conventions, which not only set the “rules of the game” (North, 1990, p. 5) exogenously, but are (sometimes) also internalized by social actors. Embedded in particular governance systems (and institutional changes), actors may reframe issues, problems, and emotional and substantive meanings (Lounsbury *et al.*, 2003; Scott, 2014). It is important to bear in mind that the law is not only a coercive force, but, according to law and society theory (Suchman and

Edelman, 1997), also affects social actors' cognitive sensemaking efforts (Weick, 1995). Culture, defined as the “collective programming of the mind that distinguishes one group [...] of people from others” (Hofstede *et al.*, 2010, p. 6), may establish norms of appropriateness (Scott, 2014). In the environmental arena, Hoffman (1997, 1999) shows how institutions change, coevolve, and lead to various adjustments in industry norms and strategic responses. Because of the importance of strategy implementation and the interdependence between strategy formulation and execution (Mintzberg and Waters, 1985; Welch and Welch, 2005), the effectiveness of particular strategic (environmental) initiatives cannot be understood without an analysis of these rules of the game and background conditions, including national culture.

Conceptualizing the way in which this national-level governance systems shapes strategic behavior is not always straightforward (e.g., Deephouse, 1999). Sometimes, the social milieu may act as a functional moderator that explains the effectiveness of CEP in a particular industry context, for example, high-growth environments (Russo and Fouts, 1997). Though the focal outcome variable is the same in our study as in Russo and Fouts's study (corporate financial performance), our theorizing also substantively differs from their functional industry focus: we emphasize the importance of three higher-level governance institutions (law, economic policy, national culture) as enablers of or impediments to strategy-making that links CEP and CFP causally and instrumentally. Despite these theoretical differences, both theoretical views (CEP as particularly helpful or functional in high-growth industries vs. macrolevel background enablers/impediments) result in an identical data-analytic approach: CEP interacts with the higher-level background governance condition, that is, the higher-level background condition is modeled as a (multiplicative) moderator effect.

#### *The legal system as a background governance condition*

Countries can be classified into two main legal systems—common law and civil law (Aguilera and Cuervo-Cazurra, 2004). The common law is based on the English system, whereas the

civil law originates in Roman law[1]. The common law tradition, centered on judicial precedent, is the dominant legal system in Anglo-Saxon countries (Aguilera and Cuervo-Cazurra, 2004). Being based on judicial precedent, the common-law system is more flexible in its interpretation of regulations (Aguilera and Cuervo-Cazurra, 2004). In contrast, the civil-law tradition uses comprehensive statutes and codes for judicial decision-making. Countries such as Germany, France, Sweden, and Denmark have civil-law systems. *JuriGlobe* research group's World Legal Systems website (<http://www.juriglobe.ca/eng/index.php>) and Legal Context of Regulatory Reform website (<http://www.ictregulationtoolkit.org/6.3>) provide detailed information about common and civil legal systems across the world.

Civil-law systems tend to pass environmental regulations only after lengthy and extensive consultations with environmentalists, unions, consumers, and other stakeholders. This process often results in highly complex and formalized regulations that put considerable pressure on companies to enhance their CEP (Campbell, 2007). Thus, many civil-law societies, known for their highly codified command-and-control regulations, may impose greater cost burdens on business than common-law systems (Newell and Stavins, 2003; Orlitzky, 2013), even after accounting for the potentially positive impact of some regulations on business innovation (Lanoie *et al.*, 2011; Popp, 2003; Porter and van der Linde, 1995). This cost disadvantage in civil-law societies has a direct effect on profitability, compared to MNCs headquartered in common-law countries with less uniformity in environmental mandates.

At the same time, civil-law countries may also provide greater certainty around legislative interpretation and enforcement (Campbell, 2007; Porter and van der Linde 1995). This greater regulatory certainty runs counter to the idea that it is the heterogeneity of organizational practices that may enable some organizations to differentiate themselves from others (Barney, 1991; McGrath and MacMillan 2000). If every organization in an industry must follow and implement the same



regulatory baseline mandates, organizational practices are forced—by codified law—to converge over time. However, this organizational convergence undermines the strategic and profit opportunities that can only be realized in a context of diverse organizational practices (Hoopes *et al.*, 2003; Porter, 1996; Revilla and Fernández, 2013). Based on these expectations about the cost effects and diminution of differentiation opportunities from environmental initiatives under civil-law background governance conditions, we can derive the following hypothesis:

*H1: The association between corporate environmental performance and corporate financial performance is expected to be higher in common-law societies than civil-law societies.*

From an empirical perspective, the legal system is a relatively weak proxy of governance conditions because its coding is binary—common law vs. civil law—and thus relatively coarse-grained. So, the remaining interaction effects will rely on national-level variables whose measurement is continuous and thus more fine-grained.

#### *Economic freedom as a background governance condition*

Free-market systems are characterized by high levels of competition, free trade, and relatively low levels of government intervention in the economy (Friedman, 1962; Hayek, 2011). One of the ways in which reduced government intervention may manifest is through lower levels of industry regulation (Campbell, 2007). In other words, in free markets, stakeholder involvement is not strongly institutionalized by the State, and corporations often choose to fill this institutional void by adopting CEP policies and practices voluntarily (Jackson and Apostolakou, 2010). CEP in free-market economies may become a substitute for weak formal regulatory institutions (Jackson and Apostolakou, 2010). The absence of institutionalized stakeholder involvement coupled with high competition and institutional emphasis on private property rights leads firms to be more visible and vocal regarding their CEP (Ioannou and Serafeim, 2012). This explicit CEP (Matten and Moon, 2008) is often aimed at reputation management across multiple stakeholders (Mahon, 2002), which in

turn can enhance financial performance (Fombrun and Shanley, 1990; Orlitzky, 2008; Roberts and Dowling, 2002). Thus, business executives, whose pay often tracks stock price performance, will be incentivized to choose environmental initiatives with maximum reputational and financial pay-offs.

The forces of competition augment this effect of institutional embeddedness in systems of free enterprise because high levels of competition—both domestic and international—are, of course, the key characteristic of free markets. According to classical and neoclassical economics, high levels of competition will lead to higher levels of operational efficiency and higher rates of innovation (Porter and van der Linde, 1995; Schumpeter, 1934). In addition, previous research indicates that high levels of competition will result in higher levels of CEP (Flammer, 2014). Furthermore—and this point is particularly important in the context of our hypotheses about the background governance conditions helping or hindering a CEP-CFP link—a highly competitive environment also forces business executives to ensure a strategic payoff from their particular, voluntarily chosen environmental initiatives. In economies characterized by a relatively high degree of freedom, companies that make a string of poor investments and may thus ultimately fail economically, cannot be expected to be bailed out by the State (which was at least true until 2008). Hence, although high CEP is unlikely to be aligned with firms' internal efficiency mandates automatically (Hart and Ahuja, 1996), high levels of competition will encourage the maintenance of those organizational practices—including CEP—that allow firms to outcompete their rivals.

At the same time, high competition, especially from low-cost international producers, may over time reduce profit margins (Ioannou and Serafeim, 2012), which again compels managers to ensure financial payoffs from any voluntarily chosen environmental initiative. This happens because firms operating in highly competitive, less munificent environments will have relatively fewer resources to allocate towards CEP—or alternative uses. In addition, under conditions of high competition, firms become concerned about preserving their reputations with their stakeholders and

may respond by increasing their investments in environmental initiatives (Flammer, 2014), particularly in those areas that exhibit the most beneficial strategic payoffs for the firm (Porter and Kramer, 2006, 2011). This behavior may result from a strategic imperative; in highly competitive conditions, CEP may enable firms to differentiate themselves from their less environmentally responsible rivals (Flammer, 2014). Therefore, it seems that national environments that exhibit high levels of competition may not only enable high levels of CEP, but also force managers to keep an eye on the instrumentality of their environmental initiatives.

In contrast, firms headquartered in countries with strong regulatory frameworks will receive clear normative and regulatory signals about the level and related processes of CEP investments. In these systems, institutionalized stakeholder involvement is more likely (Matten and Moon, 2008). In nations with relatively high levels of government intervention in the economy, CEP results from compliance with formal laws and regulations (Jackson and Apostolakou, 2010). Thus, CEP will be largely in the form of *implicit* practices, in response to institutionalized regulations (Campbell, 2007; Matten and Moon, 2008). This implies that CEP in nations with high levels of government intervention is unlikely to be aimed at earning reputational or other strategic advantages from customers and other stakeholders. In those countries, government intervention typically takes the form of command-and-control regulations, which create a legal baseline and may undermine the opportunity for the kind of stark firm differentiation that allows customers, investors, and other stakeholders to distinguish between environmentally responsible and irresponsible firms. Hence, similar to the arguments already developed for H1 (see above), we expect firms in countries with high levels of government intervention to exhibit weaker links between CEP and instrumental financial pay-offs from CEP.

*H2: Higher levels of economic freedom are associated with a stronger link between corporate environmental and financial performance.*

### *National culture as a background condition*

Hofstede (1980) regards culture as a useful way for distinguishing the members of one human group (including at the national macro-level) from another. Country-level factor analyses allowed Hofstede (1980) to classify national culture along four distinct dimensions: uncertainty avoidance, masculinity-femininity, individualism-collectivism, and power distance. A fifth dimension, long-term (pragmatism) vs. short-term (normative) orientation, was added later (Hofstede *et al.*, 2010).

Hofstede's work has been the dominant model in cross-cultural research and has been cited over 25,000 times (Taras *et al.*, 2009; Venaik and Brewer, 2010). Recently, the GLOBE data, measuring cultural differences in 62 countries (House *et al.*, 2004), were offered as an alternative to Hofstede's cultural values framework. The GLOBE study has nine cultural dimensions, which include both practices and values. Nonetheless, Hofstede's cultural values framework remains influential in the conceptualization of cross-cultural differences (for a meta-analytic review, see Taras *et al.*, 2010). In fact, a detailed analysis of these two competing frameworks shows that three of the dimensions in GLOBE are identical or very similar to Hofstede's dimensions (Taras *et al.*, 2010). GLOBE uses referent shift questions (i.e., those based on societal referents) compared to Hofstede's personal reference (i.e., use of terms *I* and *me*); this referent shift can potentially reduce the reliability of GLOBE's measures (Taras *et al.*, 2012). In addition, Hofstede's cultural dimensions control for national wealth. Hofstede's matched sample of about 88, 000 IBM employees across 72 countries allowed him to systematically detect differences in cultural values across countries and enabled him to isolate effects of factors such as organizational culture and demographics. GLOBE's cultural dimensions, however, do not control for national wealth. According to Taras *et al.* (2012), it is inadvisable to study national cultures by comparing samples of wealthy people from one country with a sample of relatively poor people from another country, as this makes it difficult to determine whether the differences in cultural values are due to national or socio-economic differences.

Overall, what appears to tilt the balance towards continuing reliance on Hofstede's framework is that its five dimensions capture at least three of the nine GLOBE dimensions, making it more parsimonious (Taras *et al.*, 2010; Venaik and Brewer, 2010). Because of the continuing influence and validity of Hofstede's framework (Taras *et al.*, 2010; Venaik and Brewer, 2010), we will base our theoretical development of cross-cultural interaction effects on Hofstede's dimensions.

According to Taras *et al.* (2009) not every study needs to examine all the cultural dimensions proposed by Hofstede; instead, depending on the research question, the scholar must choose only those cultural dimensions that are most relevant for their study. Previous studies that explore the relationship between cultural differences and environmental management (Vastola *et al.*, 2017) have focused on only three of Hofstede's dimensions (uncertainty avoidance, masculinity-femininity, and long-term orientation). Vastola *et al.* (2017) explain that power distance (the degree to which people accept hierarchical order across society) and individualism-collectivism (the degree to which people in a country prefer to act as individuals rather than as members of group) are analogous to high masculinity scores. Therefore, the effect of these dimensions is theoretically captured through the masculinity-femininity dimension.

In addition, researchers have also identified problems with the definition and conceptualization of the individualism-collectivism dimension (Taras *et al.*, 2010). In their meta-analytic review, spanning 30 years, Taras *et al.* (2010) highlight that the unreliability about individualism-collectivism can lead to lower predictive power. As a result, researchers are being cautioned about the fuzziness associated with this particular construct, and there is a call for research on a moratorium on the individualism-collectivism dimension (Taras *et al.*, 2010). Accordingly, in the section below, we will focus only on the three dimensions (uncertainty avoidance, masculinity-femininity, and long-term orientation) that are relevant to our theorization.

#### *Uncertainty avoidance*

Hofstede *et al.* (2010) describe uncertainty avoidance as the extent to which the members of institutions and organizations within a society feel threatened by uncertain, unknown, ambiguous, or unstructured situations. In other words, uncertainty avoidance indicates the extent to which cultures program their members to feel comfortable in unstructured situations (Merkin *et al.*, 2014).

Unstructured situations are novel and take members outside their comfort zones. Cultures with high uncertainty avoidance try to minimize unstructured situations through strict laws and regulations. In cultures that are accepting of uncertainty, and are low in uncertainty avoidance, individuals tend to be more comfortable with fewer rules and contextual ambiguity (Hofstede *et al.*, 2010).

In sum, cultures with high uncertainty avoidance have greater formalization and higher prevalence of standardized procedures. To the contrary, cultures with low uncertainty avoidance tend to have less formalization and less standardization (Venaik and Brewer, 2010). Brown and Eisenhardt (1997) found that innovations were more likely to occur under situations that are not highly formalized. More specifically, flexibility and lower levels of formalization also appear to be more conducive to environmental innovations (Hart and Dowell, 2011). In turn, more innovative CEP is likely to have a stronger relationship with CFP (Dixon-Fowler *et al.*, 2013) because formalized rules can stifle the kind of market or process innovations required for managers to identify organizational tactics for making CEP pay off financially.

*H3: Uncertainty avoidance interacts with CEP negatively, so that companies headquartered in countries with relatively low uncertainty avoidance are expected to exhibit a stronger association between CEP and CFP than companies headquartered in countries with relatively high uncertainty avoidance.*

#### *Masculinity-femininity*

Another dimension applicable to our study context is masculinity-femininity (sometimes also known as competitive vs. cooperative values, or achievement-oriented vs. consensus-oriented).

Masculinity is the extent to which the dominant values in society are focused on assertiveness, competitiveness, and a single-minded focus on success—values which are traditionally seen as masculine. Femininity is defined as the opposite of masculinity, i.e., the dominant values are feminine-oriented values such as solidarity and caring for the weaker members of the society (Hofstede, 1994)[2].

According to Hofstede (1994), cultures that score high on the femininity dimension emphasize relationships and prefer to resolve conflict through compromise and negotiation. A feminine culture's emphasis on social ties and community is reminiscent of the ecologizing values proposed by Frederick (1995). The attunement of environmental and social initiatives to stakeholder and broader environmental demands requires such a cooperative value orientation (Swanson, 1995, 1999; Wicks *et al.*, 1994). The key in optimal CEP is not to *manage* stakeholders, but instead to engage the community, responsively listen to the community, develop trust, and create shared value (Calton and Lad, 1995; Calton and Payne, 2003; Johansen and Nielsen, 2011; Payne and Calton, 2004; Porter and Kramer, 2011). It is plausible to suggest that the less preferable technique of stakeholder *management* comes more naturally to those managers at home in masculine cultures, whose members may be tempted to impose their own values on others and manage stakeholders (Merkin *et al.*, 2014).

*H4: Masculinity-femininity interacts with CEP negatively, so that companies headquartered in relatively feminine cultures are expected to exhibit a stronger association between CEP and CFP than companies headquartered in relatively masculine cultures.*

#### *Long-term orientation*

This dimension, based on Confucian thinking and a later addition (Hofstede and Bond, 1988), has also been reconceptualized as the cultural dimension of pragmatism, based on research in 93 countries (Hofstede *et al.*, 2010). Long-term orientation (high scores on this dimension) refers to a

strong values orientation toward the future, including an emphasis on thrift and, more generally, societal efforts to prepare for the future (Hofstede and Bond, 1988). In contrast, short-term orientation (low scores) refers to a respect for tradition, a preference for time-honored norms (thus, these cultures are sometimes called “normative”), and a preference for the status-quo. In general, there is a lack of empirical research on this cultural dimension (Taras *et al.*, 2010), which makes it particularly interesting in the context of this study.

For managers in short-term oriented cultures, quick instrumental payoffs are important as they make investments. Because our study focuses on relatively short one-year time windows, we expect that organizations in cultures with a greater emphasis on the short run will exhibit stronger CEP-CFP linkages. Short-term CEP efforts that do not pay off may quickly be abandoned in short-term oriented cultures. Conversely, managers that work in countries with a greater emphasis on the long run and, in Hofstede's terminology, on “pragmatism” may work in contexts that have sufficiently institutionalized the “patience” to wait for the long-term payoffs of CEP (if they are considered at all). At the organizational level of analysis, this has already been shown to some extent; Flammer and Bansal's (2014) study suggests that organizations with a *long-term* orientation are more likely to invest in *long-term* projects. Their organizational-level findings also suggest that an exogenous increase in long-term orientation leads to an increase in *long-term* operating performance[3]. By implication, if the social milieu does not foster a long-term orientation, managers will be relatively impatient with payoffs from all their investments, including environmental initiatives.

*H5: Long-term orientation interacts with CEP negatively, so that companies headquartered in cultures that are more short-term oriented are expected to exhibit a stronger association between CEP and CFP than companies headquartered in cultures that are more long-term oriented.*

## **Methods**



## *Sample*

We merged data from the SiRi database (also known as SustainAnalytics now), which contains ratings of stakeholder relations for 427 large corporations for 2004 and 2005, with publicly available data from *Datastream*. We chose the years of 2004-2005 because, during this period, guidelines for data collection were in place to allow for standardized data and continuous improvement in data management. In addition, previous discussions of social rating agencies' data reliability and validity suggest that these organizations follow a learning curve, and the quality of their rating process can be shown to improve over time (Chatterji *et al.*, 2009). By focusing on data for the years 2004 to 2005, we excluded the first three years of data. Thus, we were able to benefit from the first three years of discussions between SiRi partners, trials and errors in the construction of the database, and other improvements. Also, data covering the years 2004-2005 include more companies and more countries than the previous years. It was also the most recent time period for which we had access to this proprietary database. However, with new environmental regulations being constantly enacted, across the world, we acknowledge and emphasize the temporality of our data.

The companies included in our sample are headquartered in 22 countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong (China), Ireland, Italy, Japan, Korea (South), the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK, and the USA. Table 1 provides an overview of the organization size and distribution of our sample companies in the different varieties of capitalism clusters (Amable, 2003). Comparing the smaller sample used in this study to the larger population of companies rated by SiRi, there were no significant differences in organization size (within each country). This suggests that we can consider this sample as representative of the pool of large MNCs, which are typically rated by social

investment rating agencies. In other words, although our sample may not be a random sample of all organizations, the sample is appropriate because it closely tracks the population of large organizations of interest to social rating agencies and typically the target of environmental and social activists.

(Insert Table 1 about here.)

### *Dependent variables*

Our outcome variables, lagged by one year and thus observed in 2005, consisted of three commonly used proxies of firm financial performance: return on assets (ROA), return on sales (i.e., a company's net profit margin, abbreviated NPM), and market-to-book (MTB) ratios. (1) ROA is defined as operating profit/total assets; (2) NPM is measured as net income/sales; (3) the MTB ratio is calculated as a company's market value (determined in the stock market through each firm's capitalization) divided by the firm's accounting value (historical costs). These financial performance data were obtained for each organization, whenever available, from *Thomson Datastream*.

### *Independent variables*

*Corporate environmental performance (CEP)*. We rely on the *Detailed Rating Reports* of Sustainable Investment Research International (SiRi) to measure CEP, observed in 2004. To our knowledge, the SiRi data set is currently the only international cross-industry dataset that captures companies' CEP with satisfactory measurement characteristics (construct validity and reliability). As described below, we performed confirmatory factor analyses and reliability analyses on the SiRi data.

The SiRi database is particularly suitable for an international comparative study such as ours for several reasons. First, the SiRi data are based upon research provided by local rating agencies present in several countries under study. Our assessment of the SiRi data collection and data analysis processes highlights a high degree of cross-cultural equivalence for this database (Hult *et al.*, 2008).

The database categories have been elaborated by SiRi partners in order to capture stable and

meaningful aspects of stakeholder management across cultures and at a global level of analysis. Thus, this dataset relies on the cross-cultural application of common, absolute standards to capture the multifaceted nature of organizational performance in an international and stakeholder context. In addition, the data collection process of SiRi has numerous features that enhance cross-cultural equivalence. To ensure consistency across countries, SiRi has developed a Quality Management System, which aims for continuous improvement in data gathering, knowledge management, contacts with stakeholders and corporations, and incorporation of all organizational constituents' feedback. This quality process, supported by electronic data collection procedures, ensures data comparability and standardization. Thus, the collective effort of SiRi's rating agencies to construct a common coding process and consensus avoids, at least to some extent, the methodological limitations of other environmental ratings, such as large (or unknown or unreported) measurement error and lack of convergent validity (Chatterji and Levine, 2006; Chatterji *et al.*, 2009; Orlitzky, 2013).

Second, our confirmatory factor analyses confirmed the validity of studying the SiRi items on the natural environment as a separate factor. SiRi's 41 environmental items evaluate the company's commitment towards the establishment of sound and appropriate environmental management systems, increasing efficiency in the use of resources and energy, and avoidance of harm to the environment. In assessing each company's environmental record, consideration is given to, for example, its emissions of hazardous or toxic substances, the firm's impact on ecosystems, waste generation, resource consumption, and so on. The reliability of the 41 items capturing these different aspects of a company's environmental performance was very high (coefficient alpha of .91).

Finally, and perhaps most important, ratings of organizations' environmental initiatives by independent observers such as SiRi (with its fiduciary responsibilities to investors) are superior to self-reported data collected via surveys. Compared to the measures used in this study, survey methods have several disadvantages, including the possibility of social desirability bias (Fernandes

and Randall, 1992), unreliability of retrospective data (Golden, 1992, 1997), and common method bias (Podsakoff *et al.*, 2003). In addition, surveys may be affected by cross-cultural equivalence biases because respondents' understanding of questionnaire items may be influenced by cultural artifacts that are often ignored in the research design (Hult *et al.*, 2008).

*Control variables.* In order to avoid model misspecification, we included several other variables in the analyses. Previous research suggests that industry membership, corporate internationalization, business risk, research and development (R&D), and organization size may be important control variables (McWilliams and Siegel, 2000; Orlitzky, 2008; Orlitzky and Benjamin, 2001). The importance of the *industry sector* control was highlighted by the statistically significant chi-square statistics summarizing the cross-tabulation of companies by industry and type of capitalism (not reported in this paper). The Global Industry Classification Standard (GICS) was used for coding the industry sectors: energy, materials, industrials, consumer discretionary, consumer staples, healthcare, financials, information technology, telecommunication services/IT, utilities, and mining. In the dummy coding for the multiple regression, mining was the omitted category.

A company's *internationalization* was measured as the proportion (%) of percentage of foreign sales—gathered from *Datastream*—as a share of all sales revenues (Sullivan, 1994). The ratio of total debt/total assets was used as a proxy of *business risk*. Estimating R&D in an international comparison can be difficult because of lack of data availability and differences in accounting rules and procedures; however, the ratio of intangibles-to-total assets was used as a proxy of R&D, albeit an imperfect one[4]. *Organization size* was measured as the number of employees. To reduce the skewness of size, the natural logarithm (*ln*) was used.

#### *Background governance conditions*

For our background governance conditions (legal, economic, and cultural) interaction effects (with CEP), we added variables collected from Internet sources. First, the binary coding of countries'

legal systems into common law and civil law was accomplished via *JuriGlobe* research group's World Legal Systems website (<http://www.juriglobe.ca/eng/index.php>) and Legal Context of Regulatory Reform website (<http://www.ictregulationtoolkit.org/6.3>). Both these websites provide detailed information about different legal systems across the world. Common-law countries were coded as 0, civil-law countries as 1.

Second, each year the *Wall Street Journal* and the Heritage Foundation, one of Washington D.C.'s largest think tanks, rate 186 countries' levels of economic freedom. In countries that receive a high rating on this Index of Economic Freedom, individuals are free to pursue economic opportunities, work, produce, consume, and invest. In addition, in economically free countries, governments allow factors of production to move freely, and government intervention is held to a minimum necessary to protect and maintain liberty and abstain from coercion or constraint as much as possible. The four broad categories comprising the Index of Economic Freedom are: (1) rule of law (property rights, freedom from corruption); (2) limited government (fiscal freedom, government spending); (3) regulatory efficiency (business freedom, labor freedom, monetary freedom); (4) open markets (trade freedom, investment freedom, financial freedom). Each of the ten subcategories (listed in parentheses above and equally weighted in the overall index) is evaluated on scale of 0 to 100. Further details about the meaning, construct validity, and calculation of the subcategories can be gleaned from this website: <http://www.heritage.org/index/book/methodology>. As of December 2014, the five countries ranking highest on the Heritage Index of Economic Freedom are Hong Kong, Singapore, Australia, Switzerland, and New Zealand. The USA is currently ranked 12<sup>th</sup>. We used the scores of the year applicable to our study—2004.

Finally, scores on Hofstede's dimensions were collected from the Hofstede Centre's website, <http://geert-hofstede.com/index.php>, via the Cultural Tools Country Comparison menu tab.

*Data analysis*

Three-year averages were calculated for all the proxies (covering the years 2002-2004). The CEP-CFP time lag in our ordinary least-squares (OLS) regressions was one year, so covering a relatively short time horizon, in line with our earlier theorizing (e.g., H5). To examine our interaction hypotheses (H1-H5), we multiplied the value of CEP<sub>2004</sub> with the nation-level data that were described as background conditions above. As is typical, these interaction terms were highly correlated with its constituent variables, which may lead to the instability of regression coefficient estimates (see also Russo and Fouts, 1997). In order to minimize this multicollinearity, we standardized CEP and the interaction terms, which centers them (Aiken and West, 1991). In a way, the three different dependent variables (ROA, NPM, and MTB ratio) served as robustness checks for our hypotheses.

## **Results**

Table 2 shows the bivariate correlations  $r$  between the variables used in the hypothesis tests. Of particular note are the significantly positive correlation coefficients between foreign sales and organization size with many other predictors. Table 2 also shows that, in line with corporate international diversification theory, a company's internationalization reduces risk[5]. In addition, the very high correlations between the interaction, or moderator, terms suggest that it is advisable to test each hypothesis in a separate regression equation in order to minimize collinearity.

(Insert Table 2 about here.)

The first hypothesis, which proposed a higher CEP-CFP link in common-law than civil-law systems, was supported in all three different regressions—i.e., with all three operationalizations of CFP. Table 3 shows that, although the hypothesis was consistently supported with the different proxies of CFP, it was supported to a different extent. Note that, because of our coding (0=common law and 1=civil law), negative regression coefficients are considered support for H1. In the equation with NPM as the outcome variable (Model 2 in Table 3), the CEP-law interaction was negative and

significant at a probability level  $p$  of .01 (unstandardized regression coefficient  $B$  of -.04), whereas with ROA as DV (Model 1) it was significant at  $p=.05$  ( $B$  of -.01). With MTB ratio as the DV (Model 3), it was significant at only  $p=.10$  ( $B$  of -.123.30)[6]. Furthermore, the  $F$  value of this final model was nonsignificant, so that the results shown for Model 3 should be treated with great caution, even though the change in  $F$  ( $\Delta F$ ) was significant for the added interaction. Figure 1.a. graphically illustrates the extent to which a common-law system may enable greater economic instrumentality of CEP in terms of NPM payoffs. As depicted in the figure, while NPM (i.e., ROS) seems to increase slightly with increasing CEP in common-law systems (top solid line in Figure 1.a.), it decreases sharply in civil-law systems (bottom dotted line in Figure 1.a.).

(Insert Table 3 and Figure 1 about here.)

Hypothesis 2 proposed that higher levels of economic freedom would be associated with a stronger relationship between CEP and CFP. As shown in Table 4, this second hypothesis was, like the first one, consistently supported across the three regression models—and this time with no probability levels ever rising above .05. In fact, the smallest  $p$  was observed for the impact of the CEP-economic freedom interaction on the MTB ratio (unstandardized regression coefficient  $B$  of 966.88;  $p=.009$ ), with both model  $F$  and  $\Delta F$  statistically significant in this MTB regression model (Model 8 in Table 4). A climate of economic freedom also seems supportive of CEP being associated with ROA ( $B$  of .05;  $p=.018$ ) and to NPM ( $B$  of .14;  $p=.044$ ). Although the main direct effect of CEP<sub>2004</sub> was not significantly positive in any of the models, the sign of the interaction still suggests that the greater the economic freedom in which a company is headquartered, the stronger the link between CEP and CFP. Figure 1.b., with both constituent variables in the interaction dichotomized and NPM as the dependent variable, reflects this finding as well. While, at low levels of CEP, economically free and highly regulated economies seem to show very similar marginal means of

NPM values, the lines diverge, in the expected direction based on the theory and the positive interaction term, at high levels of CEP.

(Insert Table 4 about here.)

To explore further whether it is specifically the free trade aspect of the firm's home country's economic freedom that matters the most, we also ran the regressions again with Heritage Foundation scores of trade liberalization for 2004 in the equation. As can be gleaned from Table 4, it does not seem to be the free trade/international competition aspect that strengthens the link between CEP and CFP because those interactions were nonsignificant in Models 3, 6, and 9 (Table 4). This suggests future research is warranted to pinpoint the true, specific background governance conditions within overall economic freedom that accounts for this strengthened CEP-CFP instrumentality.

Hypothesis 3, which predicted a negative interaction term for CEP and uncertainty avoidance as a cultural background condition, was supported in terms of ROA and MTB ratios. As shown in Table 5, the unstandardized  $B$  was  $-.02$  for the moderator effect of uncertainty avoidance on the CEP-ROA link ( $p=.027$ ), while  $B$  was  $-248.30$  for CEP-MTB, at  $p=.038$ . Unfortunately, Figure 2.a. does not show the same clear interaction as Figures 1.a. and 1.b., although the slightly diverging slopes are in line with the expectation that company home countries with high uncertainty avoidance may impede instrumental-strategic payoffs from CEP.

According to Hypothesis 4, we expected that companies headquartered in relatively feminine countries would exhibit a stronger association between CEP and CFP than companies headquartered in relatively masculine countries. This hypothesis was supported only with respect to ROA ( $B=-.012$ ) and only at  $p=.074$  (Model 3 in Table 5). When we estimated and plotted the marginal means in a general linear model that included only CEP and masculinity-femininity as fixed factors, the interaction is more discernible. As shown in Figure 2.b., ROA tends to improve more with increasing CEP in feminine cultures than masculine cultures (differences in the slopes between the two lines).



(Insert Table 5 and Figure 2 about here)

The final hypothesis predicted a negative interaction between CEP and long-term, or future, orientation in a company's home country. This hypothesis was strongly supported with respect to ROA (unstandardized  $B$  of  $-.03$ ;  $p=.000$ ; Model 4 in Table 5) and NPM ( $B$  of  $-.07$ ;  $p=.003$ ; Model 8), but not for the MTB ratio (Model 12). In addition, the two-way interaction in Figure 2.c. nicely illustrates the meaning of the predicted moderator effect: home countries that have a long-term orientation toward the future are not conducive at all to instrumental payoffs from CEP (lower, dotted line in Figure 2.c. with more negative slope than the solid line on top).

Finally, the direct main effect of CEP<sub>2004</sub> on CFP in 2005 warrants some attention. Across the 27 models we calculated (Tables 3-5), CEP was associated with the one-year lagged CFP only seven times at  $p<.05$ ; in five of these seven cases, the relationship was positive (Table 3: Model 4; Table 5: Models 2, 4, 6, and 8), in two others it was negative (Models 2 and 8 in Table 4). The bivariate correlation coefficients (shown in Table 2) were  $.06$ ,  $-.05$ , and  $-.06$  with ROA, NPM, and the MTB ratio, respectively. So, in line with previous meta-analytic reviews, the CEP<sub>t0</sub>-CFP<sub>t+1</sub> association (the main direct effect of CEP by itself) was negligible and not generalizable. The same conclusion can be drawn from Figures 1 and 2.

## **Discussion**

In this paper, we analyzed data from 427 large corporations headquartered in 22 countries to examine the national-level governance forces that moderate the link between CEP and CFP. Specifically, we investigated the legal systems, economic freedom, and national cultural dimensions as the background conditions in companies' home countries that shape the CEP-CFP link. Our analysis allows the field to move beyond the issue of whether it pays to be green toward establishing the *background governance conditions under which it pays to be green*.

Our findings, summarized in Table 6, suggest that countries with common-law legal systems (such as the UK and USA)—which are based on judicial precedent and do not have the high levels of regulatory certainty that characterize civil-law systems—enable firms to have stronger CEP-CFP associations. Interestingly, our findings run counter to some of the existing literature that suggests that higher regulatory certainty may sometimes facilitate the CEP-CFP relationship (Ambec *et al.*, 2013; Porter and van der Linde, 1995). It may certainly be true that civil-law countries (such as Germany and France), with their highly codified environmental regulations, may push firms towards higher levels of (implicit) CEP. However, when all organizations are forced to comply with the same regulations, it undermines, to some extent, their ability to use environmental initiatives as a differentiating strategy. In general, common-law systems are more flexible in their interpretation of regulations, which in turn will foster innovation and organizational differentiation.

(Insert Table 6 about here.)

The second background condition that we investigated is the extent of economic freedom. We hypothesized that higher levels of economic freedom will lead to stronger links between CEP and CFP. This hypothesis was consistently supported across all three financial outcomes. In free-market systems, the forces of competition weed out suboptimal investments (including CEP). At the same time, low levels of government intervention push firms to make *explicit* CEP investments that respond to stakeholder expectations—catalyzing higher returns.

The final background conditions we investigated were three dimensions of national culture: uncertainty avoidance (H3), masculinity-femininity (H4), and long-term orientation (H5). Our findings suggest that national cultures with low uncertainty avoidance have a stronger CEP-CFP association. This is consistent with the previous theoretical logic of H1 and H2. National cultures with low uncertainty avoidance have fewer rules and are more accepting of unstructured situations—providing conditions that are more conducive for environmental innovations. In turn, more innovative

CEP tends to result in higher financial payoffs (Dixon-Fowler *et al.*, 2013). Our fourth hypothesis about masculinity-femininity (feminine cultures are an enabler of a higher CEP-CFP link) was only partially supported. There was a weak positive association when CFP was operationalized as return on assets (ROA). But it was not supported for net profit margin (NPM) or market-to-book (MTB). It appears that there may be other dynamics at play; in feminine countries, failure is “a relatively minor accident” (Hofstede, 1994, p. 4). Assertiveness is not encouraged, and underselling achievements is the norm (Merkin *et al.*, 2014). Factoring in these additional dynamics, it may well be the case that, in feminine cultures, there is a lack of pressure for CEP investments to yield financial payoffs. Also, in feminine cultures—with their societal focus on nurturing values (Merkin *et al.*, 2014)—environmental investments may be viewed as creating public goods and, therefore might not be subject to rigorous return-on-investment analyses. Future research needs to investigate this further. Our final hypothesis was regarding short-term oriented cultures exhibiting a higher association between CEP and CFP. This hypothesis was strongly supported. In short-term oriented cultures, environmental (and indeed any other investments) need to demonstrate quick instrumental payoffs. Short-term oriented cultures thus provide conditions that facilitate a stronger association between CEP and CFP.

### *Theoretical implications*

One of the major issues that remains unaddressed in the literature is about the background governance conditions that help or hinder financial payoffs from CEP. Our macrolevel analysis starts to move the field toward an understanding of the particular governance configurations that provide the most supportive conditions for any CEP-CFP link. Our findings suggest that countries with common-law systems, relatively high economic freedom, low uncertainty avoidance, and a short-term orientation provide the most conducive conditions for environmental investments to have higher financial payoffs. Thus, countries such as the USA, UK, and Australia—which have these

background governance conditions—are more likely to provide a context for financial payoffs from environmental initiatives. Interestingly, femininity—the one background condition that was not strongly supported in our analysis—is also absent from these configurational effects (i.e., USA, UK, and Australia have at least above-average masculine cultures). To extend our research into examining complementary typologies of background governance conditions, future research could apply other methods particularly useful to answering questions about governance complementarities, such as qualitative comparative analysis (Fiss, 2007, 2011; Rihoux and Ragin, 2009).

### *Practical implications*

It is important to stress that our research examines the national-level background governance conditions which shape CEP-CFP associations in different countries. In this study, we did not examine the antecedents of CEP. These questions have been addressed elsewhere (see for example, Campbell, 2007; Ioannou and Serafeim, 2012). Accordingly, our research highlights the tension between the different goals of different societal actors (e.g., business goals vs government goals). Many firms are very concerned with the financial impact of CEP on their business, but any given governance system may not be as concerned with maximizing financial payoffs of CEP. Instead, public policy makers may be more concerned with maximizing CEP per se—and macrolevel incentives to improve CEP may require different legal structures, such as civil-law systems (see Campbell, 2007). Civil-law systems provide governance conditions that push firms to execute and be committed to CEP (Porter and van der Linde, 1995). Similarly, economic freedom and competition may have a curvilinear relationship with CEP (by itself) (Campbell, 2007); in fact, high levels of competition may *lower* CEP (Ioannou and Serafeim, 2012), but, as our findings suggest, *strengthen* financial payoffs from environmental investments. These are two very distinct questions—and voters in different nations may have different priorities. Our advice to policy makers is to acknowledge this

tension; governance systems that support high levels of CEP may not necessarily be supportive of CEP-CFP payoffs, and vice versa.

### *Limitations*

As all research, our study has a number of limitations. First, institutional theory suggests the role of macrolevel boundary conditions in shaping organizational environmental responses, but at the same time resource-based competencies and other factors can lead organizations to respond differently to the same institutions (Scott, 2014). Our study does not account for this heterogeneity in firm responses or firm-specific competencies. Second, although we had a sound theoretical basis for focusing on home country effects, we omitted company structure from our analyses. It is likely that our findings are more applicable to centralized companies, which adhere more closely to HQ policies (Campbell *et al.*, 2012). Third, though we controlled for industry main effects, industry structure (e.g., industry concentration) may in turn interact with national institutions. That is, there may be more complex, higher-order interactions (national level\*industry level\*org level). A longitudinal panel design—capturing repeated observations for each company—would increase the number of observations and may, thus, provide more definitive conclusions for these more complex questions.

### **Conclusion**

One of the central questions in the field of Organizations and the Natural Environment is about the background conditions that may incentivize and reward firms to be more environmentally responsive. Our paper addresses this issue through a nation-level investigation of the background governance conditions that may help or hinder the relationship between CEP and CFP.

### **Notes**

1. For the purpose of this discussion, we will ignore the historical complexities that emerge from distinguishing between classical Roman Law and post-Constantine and Justinian code Roman Law, in which "the state increased the control over economic life" (Hayek, 2011, p. 246). The latter became the model for Continental Europe.
2. This dimension is not to be confused with gender-based allocation of roles. Instead, these are national dimensions. In feminine countries, both men and women exhibit values such as modesty and caring. Similarly, in masculine countries, members of both genders demonstrate assertiveness and competitiveness.

3. Of course, one needs to be careful to generalize from observations of organizational cultures to relationships that emerge from an organizations' embeddedness in national culture. However, a meta-analytic review by Merkin *et al.* (2014) found that the cultural dimensions may indeed generalize across levels of analysis. Given the aforementioned lack of research on long-term versus short-term orientation at a national level, we tentatively draw on organizational level research in this area.
4. The ratio of intangibles-to-total assets is an imperfect proxy because what precisely is captured by “intangible assets” may differ from one industry to another and from one country to another.
5. We are aware that the aggregate evidence on risk and internationalization is not clear (Kwok and Reeb, 2000); what we suggest here is merely that our *bivariate* results point to the correctness of the original theory (internationalization reduces firm risk).
6. In the regression tables, we report unstandardized coefficients (*B*) and their associated standard errors, not standardized Betas. This explains why the magnitude of the regression coefficient is so much larger for MTB than the first two models because of differences in scaling of the DV.

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**TABLE 1**  
**SAMPLE SIZE AND ORGANIZATION SIZE**  
**WITHIN AND ACROSS VARIETIES OF CAPITALISM CLUSTERS**

| <b>Countries</b>   | <b>N</b>          | <b>Average Org. Size</b><br>(number of employees) |
|--|-------------------|---|
| <b><i>Market-Based Economies:</i></b>                          |                   |   |
| Australia  | 6                 | 32,042  |
| Canada   | 4                 | 2,634   |
| United Kingdom   | 79                | 39,551  |
| USA  | 115               | 181,158   |
| <i>Total:</i>  | <i>204</i>        | <i>118,971</i>                                    |
| <b><i>Coordinated Market Economies:</i></b>                    |                   |   |
| Austria  | 5                 | 13,066  |
| Belgium  | 9                 | 16,800  |
| France   | 35                | 95,614  |
| Germany  | 30                | 113,229   |
| Ireland  | 5                 | 21,298  |
| Netherlands  | 18                | 38,035  |
| Norway   | 5                 | 25,244  |
| Switzerland  | 19                | 103,366   |
| <i>Total:</i>  | <i>126</i>        | <i>78,105</i>                                     |
| <b><i>Scandinavian Social-Democratic Economies:</i></b>        |                   |   |
| Denmark  | 3                 | 14,975  |
| Finland  | 5                 | 25,796  |
| Sweden   | 10                | 38,781  |
| <i>Total:</i>  | <i>18</i>         | <i>31,207</i>                                     |
| <b><i>Asian Economies:</i></b>                                 |                   |   |
| Hong Kong (China)  | 6                 | 20,263  |
| Japan  | 27                | 49,912  |
| South Korea  | 1                 | 61,899  |
| <i>Total:</i>  | <i>34</i>         | <i>44,025</i>                                     |
| <b><i>Mediterranean (Mixed Market) Economies:</i></b>          |                   |   |
| Greece   | 3                 | 11,670  |
| Italy  | 21                | 17,334  |
| Portugal   | 5                 | 9,110   |
| Spain  | 16                | 46,939  |
| <i>Total:</i>  | <i>45</i>         | <i>26,569</i>                                     |
| <b><i>Overall total sample size and average org. size:</i></b> | <b><i>427</i></b> | <b><i>87,331</i></b>                              |

**TABLE 2**  
**CORRELATION MATRIX**

|                       | 1      | 2      | 3     | 4      | 5     | 6      | 7     | 8     | 9     | 10    | 11    | 12    |
|-----------------------|--------|--------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|
| 1. ROA 2005           |        |        |       |        |       |        |       |       |       |       |       |       |
| 2. NPM 2005           | .36**  |        |       |        |       |        |       |       |       |       |       |       |
| 3. MTB 2005           | -.00   | .01    |       |        |       |        |       |       |       |       |       |       |
| 4. Foreign sales      | .06    | -.11*  | .02   |        |       |        |       |       |       |       |       |       |
| 5. Risk               | -.33** | .01    | -.00  | -.14** |       |        |       |       |       |       |       |       |
| 6. R&D                | .09*   | -.11*  | -.04  | .21**  | .07   |        |       |       |       |       |       |       |
| 7. Org. size          | -.07   | -.22** | -.04  | .15**  | .16** | .09    |       |       |       |       |       |       |
| 8. CEP2004            | .06    | -.05   | -.06  | .25**  | .07   | -.16** | .30** | (.91) |       |       |       |       |
| 9. CEP*legal system   | -.05   | -.10*  | -.07  | .25**  | .02   | -.18** | .10   | .54** |       |       |       |       |
| 10. CEP*econ. freedom | .09    | -.03   | -.03  | .24**  | .06   | -.15** | .29** | .98** | .41** |       |       |       |
| 11. CEP*UA            | -.03   | -.07   | -.10* | .14**  | .07   | -.20** | .25** | .78** | .77** | .67** |       |       |
| 12. CEP*masculinity   | .03    | -.04   | -.01  | .05    | .02   | -.15** | .20** | .75** | .30** | .74** | .72** |       |
| 13. CEP*LTO           | -.04   | -.10*  | -.06  | .24**  | .03   | -.19** | .18** | .80** | .79** | .72** | .85** | .73** |

Note. 427 < n < 707.

ROA = return on assets. NPM = net profit margin (return on sales). MTB = market-to-book ratio. R&D = research and development (intangibles-to-total assets). Org. size = natural logarithm of number of employees per company. UA = uncertainty avoidance. LTO = Hofstede's dimension of long-term orientation.

\*  $p < .05$ ; \*\*  $p < .01$ .

**TABLE 3**  
**MULTIPLE REGRESSIONS RESULTS**  
**TESTS OF HYPOTHESIS 1**

|                                      | ROA as DV                        |                                  | NPM as DV                        |                                  | MTB ratio as DV                  |                                  |
|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|                                      | Model 1<br><i>B</i> (Std. Error) | Model 2<br><i>B</i> (Std. Error) | Model 3<br><i>B</i> (Std. Error) | Model 4<br><i>B</i> (Std. Error) | Model 5<br><i>B</i> (Std. Error) | Model 6<br><i>B</i> (Std. Error) |
| Constant                             | .18*** (.04)                     | .19*** (.04)                     | .51*** (.13)                     | .57*** (.13)                     | 147.52<br>(715.01)               | 355.56<br>(723.44)               |
| Foreign sales                        | .00 (.00)                        | -.00 (.00)                       | .00 (.00)                        | .00 (.00)                        | 4.25 (3.24)                      | 5.37 (3.30)                      |
| Risk                                 | -.11*** (.02)                    | -.11*** (.02)                    | -.06 (.07)                       | -.06 (.07)                       | 219.72<br>(384.13)               | 229.03<br>(382.96)               |
| R&D                                  | .00 (.03)                        | -.01 (.03)                       | .03 (.11)                        | -.01 (.11)                       | -557.89<br>(586.13)              | -709.63<br>(591.23)              |
| Org. size                            | -.01 (.00)                       | -.01 (.00)                       | -.04*** (.01)                    | -.04*** (.01)                    | -8.18 (57.78)                    | -11.12<br>(57.63)                |
| Corp. env. performance<br>(CEP 2004) | .01 (.01)                        | .01 (.01)                        | .03 (.02)                        | .05* (.01)                       | -132.05<br>(100.96)              | -75.74<br>(106.08)               |
| CEP <sub>2004</sub> *legal system    |                                  | -.01* (.00)                      |                                  | -.04** (.01)                     |                                  | -123.30 <sup>†</sup><br>(73.42)  |
| <i>R</i> <sup>2</sup>                | .23                              | .24                              | .10                              | .12                              | .05                              | .06                              |
| <i>F</i>                             | 6.25***                          | 6.18***                          | 2.35**                           | 2.74**                           | 1.10                             | 1.22                             |
| $\Delta R^2$                         |                                  | .01                              |                                  | .02                              |                                  | .01                              |
| $\Delta F$                           |                                  | 4.24*                            |                                  | 7.50**                           |                                  | 2.82 <sup>†</sup>                |

Note. Industry controls were included, but omitted from this table.

DV = dependent variable; ROA = return on assets; NPM = net profit margin; MTB = market-to-book. Common law coded as 0, civil law coded as 1.

<sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**TABLE 4**  
**MULTIPLE REGRESSIONS RESULTS**  
**TESTS OF HYPOTHESIS 2**

|  | ROA as DV      |                |                | NPM as DV      |                |                | MTB ratio as DV     |                        |                      |
|--|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|------------------------|----------------------|
|  | Model 1        | Model 2        | Model 3        | Model 4        | Model 5        | Model 6        | Model 7             | Model 8                | Model 9              |
|  | B (Std. Error) | B (Std. Error) | B (Std. Error) | B (Std. Error) | B (Std. Error) | B (Std. Error) | B (Std. Error)      | B (Std. Error)         | B (Std. Error)       |
| Constant   | .18*** (.04)   | .18*** (.04)   | .18*** (.04)   | .51*** (.13)   | .52*** (.13)   | .51*** (.13)   | 147.52<br>(715.01)  | 205.34<br>(708.18)     | 126.75<br>(717.53)   |
| Foreign sales                                    | .00 (.00)      | .00 (.00)      | .00 (.00)      | .00 (.00)      | .00 (.00)      | .00 (.00)      | 4.25 (3.24)         | 4.78 (3.22)            | 4.36 (3.26)          |
| Risk   | -.11*** (.02)  | -.11*** (.02)  | -.11*** (.02)  | -.06 (.07)     | -.05 (.07)     | -.06 (.07)     | 219.72<br>(384.13)  | 272.11<br>(380.80)     | 252.07<br>(391.49)   |
| R&D  | .00 (.03)      | -.00 (.03)     | -.00 (.03)     | .03 (.11)      | -.01 (.11)     | .03 (.11)      | -557.89<br>(586.13) | -715.98<br>(583.37)    | -576.45<br>(587.34)  |
| Org. size  | -.01 (.00)     | -.01 (.00)     | -.01 (.00)     | -.04*** (.01)  | -.04** (.01)   | -.04*** (.01)  | -8.18 (57.78)       | 2.54 (57.35)           | -7.05 (57.92)        |
| Corp. env.<br>performance (CEP <sub>2004</sub> ) | .01 (.01)      | -.04* (.02)    | -.01 (.08)     | .03 (.02)      | -.11 (.07)     | .10 (.24)      | -132.05<br>(100.96) | -1109.99**<br>(386.35) | -724.26<br>(1335.81) |
| CEP <sub>2004</sub> *Economic<br>Freedom (2004)  |                | .05* (.02)     |                |                | .14* (.07)     |                |                     | 966.88**<br>(368.97)   |                      |
| CEP <sub>2004</sub> *Free Trade<br>(2004)        |                |                | .02 (.07)      |                |                | -.07 (.24)     |                     |                        | 592.91<br>(1333.55)  |
| $R^2$  | .23            | .24            | .23            | .10            | .11            | .10            | .05                 | .07                    | .05                  |
| $F$  | 6.25***        | 6.31***        | 5.82***        | 2.35**         | 2.49**         | 2.19**         | 1.10                | 1.50*                  | 1.03                 |
| $\Delta R^2$                                     |                | .02            | .00            |                | .01            | .00            |                     | .01                    | .00                  |
| $\Delta F$                                       |                | 5.68*          | .06            |                | 4.10*          | .10            |                     | 6.87**                 | .20                  |

Note. Industry controls were included, but omitted from this table.

DV = dependent variable; ROA = return on assets; NPM = net profit margin; MTB = market-to-book.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .



**TABLE 5**  
**MULTIPLE REGRESSIONS RESULTS**  
**TESTS OF CULTURAL DIFFERENCE HYPOTHESES (H3-H5)**

|  | ROA as DV                           |                                     |                                     |                                     | NPM as DV                           |                                     |                                     |                                     | MTB ratio as DV                     |                                      |                                      |                                      |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|  | Model 1<br><i>B</i> (Std.<br>Error) | Model 2<br><i>B</i> (Std.<br>Error) | Model 3<br><i>B</i> (Std.<br>Error) | Model 4<br><i>B</i> (Std.<br>Error) | Model 5<br><i>B</i> (Std.<br>Error) | Model 6<br><i>B</i> (Std.<br>Error) | Model 7<br><i>B</i> (Std.<br>Error) | Model 8<br><i>B</i> (Std.<br>Error) | Model 9<br><i>B</i> (Std.<br>Error) | Model 10<br><i>B</i> (Std.<br>Error) | Model 11<br><i>B</i> (Std.<br>Error) | Model 12<br><i>B</i> (Std.<br>Error) |
| Constant   | .18*** (.04)                        | .18*** (.04)                        | .18*** (.04)                        | .19*** (.04)                        | .51*** (.13)                        | .51*** (.13)                        | .51*** (.13)                        | .54*** (.13)                        | 147.52 (715.01)                     | 130.29 (710.96)                      | 155.08 (713.96)                      | 172.46 (717.76)                      |
| Foreign sales                                    | .00 (.00)                           | -.00 (.00)                          | -.00 (.00)                          | -.00 (.00)                          | .00 (.00)                           | .00 (.00)                           | .00 (.00)                           | .00 (.00)                           | 4.25 (3.24)                         | 4.03 (3.23)                          | 5.63 (3.40)                          | 4.41 (3.27)                          |
| Risk   | -.11*** (.02)                       | -.11*** (.02)                       | -.11*** (.02)                       | -.11*** (.02)                       | -.06 (.07)                          | -.05 (.07)                          | -.06 (.07)                          | -.06 (.07)                          | 219.72 (384.13)                     | 265.65 (382.57)                      | 226.19 (383.59)                      | 223.10 (384.70)                      |
| R&D  | .00 (.03)                           | -.00 (.03)                          | -.01 (.03)                          | -.00 (.03)                          | .03 (.11)                           | .02 (.11)                           | .03 (.11)                           | .01 (.11)                           | -557.89 (586.13)                    | -701.13 (586.83)                     | -598.13 (585.99)                     | -582.26 (589.01)                     |
| Org. size  | -.01 (.00)                          | -.01 (.00)                          | -.01* (.00)                         | -.01 (.00)                          | -.04*** (.01)                       | -.04** (.01)                        | -.04*** (.01)                       | -.04*** (.01)                       | -8.18 (57.78)                       | 1.89 (57.65)                         | -5.37 (57.73)                        | -10.76 (58.10)                       |
| Corp. env. performance (CEP 2004)                | .01 (.01)                           | .02* (.01)                          | .02† (.01)                          | .03** (.01)                         | .03 (.02)                           | .05* (.02)                          | .03 (.03)                           | .08** (.03)                         | -132.05 (100.96)                    | 35.25 (128.65)                       | -274.62† (145.19)                    | -84.21 (140.57)                      |
| CEP <sub>2004</sub> * uncertainty avoidance (H3) |                                     | -.02* (.01)                         |                                     |                                     |                                     | -.03 (.02)                          |                                     |                                     |                                     | -248.30* (119.40)                    |                                      |                                      |
| CEP <sub>2004</sub> * masculinity (H4)           |                                     |                                     | -.01† (.01)                         |                                     |                                     |                                     | -.00 (.02)                          |                                     |                                     |                                      | 166.76 (122.21)                      |                                      |
| CEP <sub>2004</sub> * long-term orientation (H5) |                                     |                                     |                                     | -.03*** (.01)                       |                                     |                                     |                                     | -.07** (.02)                        |                                     |                                      |                                      | -61.41 (125.37)                      |
| <i>R</i> <sup>2</sup>                            | .23                                 | .24                                 | .24                                 | .27                                 | .10                                 | .11                                 | .10                                 | .13                                 | .05                                 | .07                                  | .06                                  | .05                                  |
| <i>F</i>   | 6.25***                             | 6.24***                             | 6.09***                             | 7.05***                             | 2.35**                              | 2.74**                              | 2.18**                              | 2.87***                             | 1.10                                | 1.32                                 | 1.15                                 | 1.04                                 |
| $\Delta R^2$                                     |                                     | .01                                 | .01                                 | .04                                 |                                     | .01                                 | .00                                 | .03                                 |                                     | .01                                  | .01                                  | .00                                  |
| $\Delta F$                                       |                                     | 4.92*                               | 3.22*                               | 14.32***                            |                                     | 1.65                                | .01                                 | 9.82**                              |                                     | 4.32*                                | 1.86                                 | .24                                  |

Note. Industry controls were included, but omitted from this table.

DV = dependent variable; ROA = return on assets; NPM = net profit margin; MTB = market-to-book.

†*p*<.10; \**p*<.05; \*\**p*<.01; \*\*\**p*<.001.

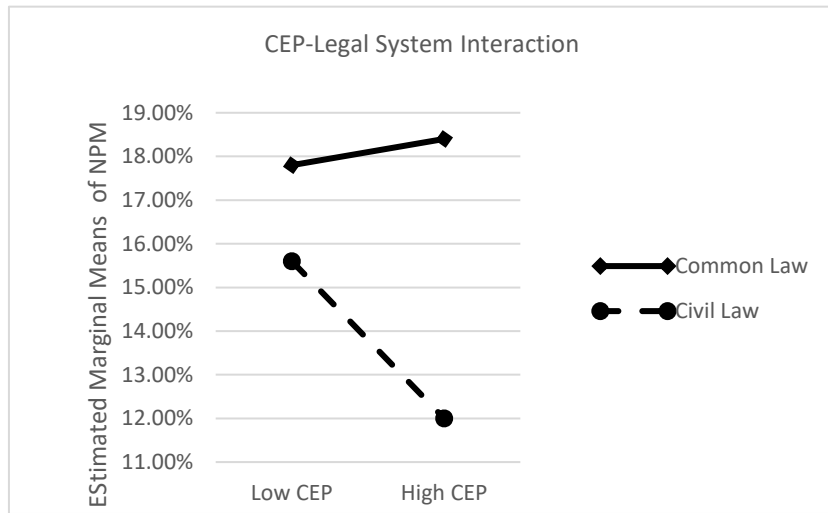
**TABLE 6**  
**SUMMARY CONCLUSIONS: SUPPORT FOR HYPOTHESES**

| <u>Hypotheses:</u>  | Operationalization of CFP |     |           |
|---|---------------------------|-----|-----------|
|   | ROA                       | NPM | MTB ratio |
| 1. The link between corporate environmental performance and corporate financial performance is expected to be stronger in <i>common-law societies</i> than <i>civil-law societies</i> (H1).   | √                         | √   | (√)       |
| 2. Higher levels of <i>economic freedom</i> are associated with a stronger link between corporate environmental and financial performance (H2).   | √                         | √   | √         |
| 3. <i>Uncertainty avoidance</i> interacts with CEP negatively, so that companies headquartered in countries with relatively low uncertainty avoidance are expected to exhibit a stronger association between CEP and CFP than companies headquartered in countries with relatively high uncertainty avoidance (H3). | √                         | .ns | √         |
| 4. <i>Masculinity-femininity</i> interacts with CEP negatively, so that companies headquartered in relatively feminine cultures are expected to exhibit a stronger association between CEP and CFP than companies headquartered in relatively masculine cultures (H4).  | (√)                       | .ns | .ns       |
| 5. <i>Long-term orientation</i> interacts with CEP negatively, so that companies headquartered in cultures that are more short-term oriented are expected to exhibit a stronger association between CEP and CFP than companies headquartered in cultures that are more long-term oriented (H5).                     | √                         | √   | .ns       |

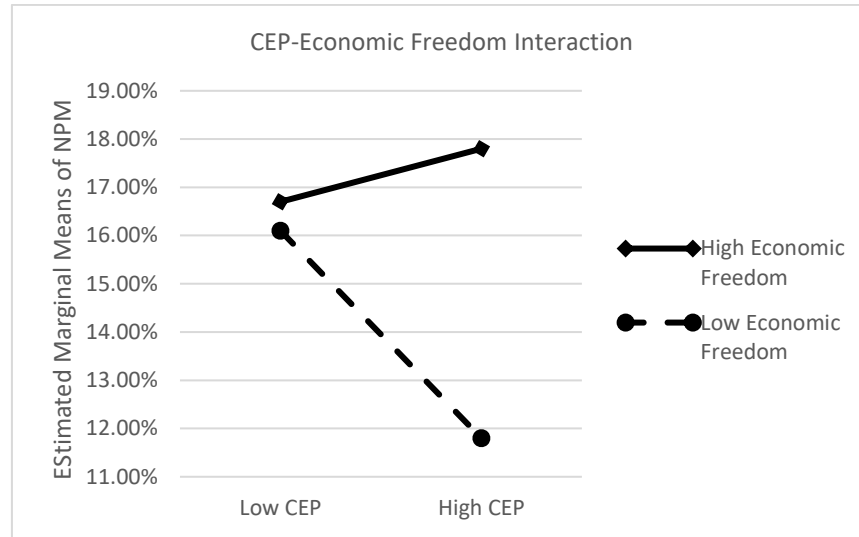
Note. .ns = statistically nonsignificant (no support).

**Figure 1**  
**Home Country Legal System and Economic Freedom as Background Conditions**  
**(Hypotheses 1 and 2)**

**Figure 1.a.**

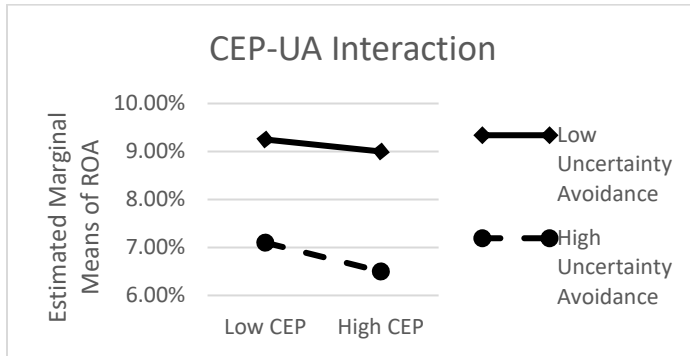


**Figure 1.b.**

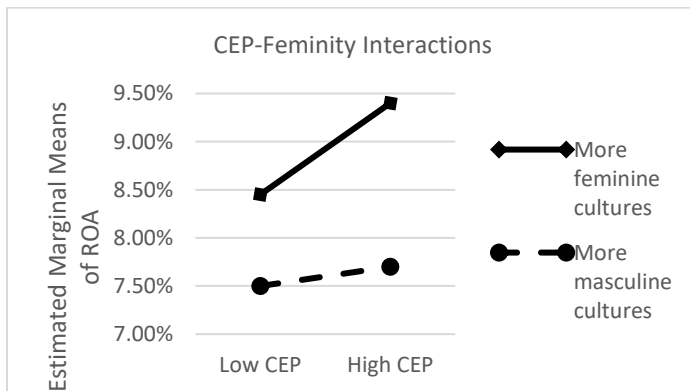


**Figure 2**  
**National Culture as Background Condition**  
**(Hypotheses 3-5)**

**Figure 2.a.**



**Figure 2.b.**



**Figure 2.c.**

