

Accepted Manuscript

Corporate Governance, External Control, and Environmental Information
Transparency: Evidence from Emerging Markets

Gady Jacoby, Mingzhi Liu, Yefeng Wang, Zhenyu Wu, Ying Zhang

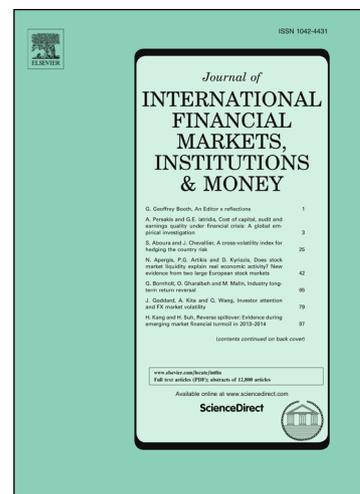
PII: S1042-4431(18)30446-3
DOI: <https://doi.org/10.1016/j.intfin.2018.11.015>
Reference: INTFIN 1081

To appear in: *Journal of International Financial Markets, Institutions & Money*

Received Date: 12 November 2018
Accepted Date: 26 November 2018

Please cite this article as: G. Jacoby, M. Liu, Y. Wang, Z. Wu, Y. Zhang, Corporate Governance, External Control, and Environmental Information Transparency: Evidence from Emerging Markets, *Journal of International Financial Markets, Institutions & Money* (2018), doi: <https://doi.org/10.1016/j.intfin.2018.11.015>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Corporate Governance, External Control, Public Governance, and Environmental
Information Transparency: Evidence from Emerging Markets**

Gady Jacoby, Ph.D.
Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada
Gady.jacoby@umanitoba.ca

Mingzhi Liu, Ph.D.
Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada
Mingzhi.liu@umanitoba.ca

Yefeng Wang*
Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada
wangy361@myumanitoba.ca

Zhenyu Wu, Ph.D.
Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada
Zhenyu.wu@umanitoba.ca
Tel. 204-474-8425

Ying Zhang, Ph.D.
Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada
Ying.zhang@umanitoba.ca

*Corresponding author. This paper was presented at the 2017 Cross Country Perspectives of Finance conferences held in Chengdu, China and Chiang Mai, Thailand. The authors thank the help comments from Guangzhong Li (the discussant) and participants at 2017 Journal of International Financial Markets, Institutions, and Money special issue conferences. Liu acknowledge funding support from the Institute of Chartered Professional Accountants of Manitoba.

**Corporate Governance, External Control, and Environmental Information Transparency:
Evidence from Emerging Markets**

Abstract

Using a sample of 4,195 observations from 19 emerging markets, we investigate how internal corporate governance, external monitoring, and legal and business environment jointly affect a firm's managerial effectiveness in environmental information transparency in an international setting. The empirical results show that in emerging economies, firms with stronger corporate governance mechanisms tend to adopt an external control strategy in order to mitigate owner-manager agency conflicts. Furthermore, internal corporate governance mechanisms are found to directly increase firm transparency concerning environmental damage and to indirectly do so through external control device. The legal and business environments of countries in which firms operate moderate these relationships.

Keywords: Corporate Governance, External Control, Legal Environment, Information Transparency

Introduction

Although emerging markets accounted for 37% of global Gross Domestic Product (GDP) in 2000, rising to 50% in 2013 (Euromonitor International Report 2013), their rapid growth and status as the engine of recovery from the most recent economic recession have begun to ring alarm bells over the potentially severe environmental consequences. Recognizing the importance of environmental protection and suffering from past environmental mistakes, the governments of emerging market economies have begun to allocate more resources and impose stricter regulations in an attempt to halt, or even overturn, environmental damage without sacrificing economic growth. They have also begun to realize that the implementation and effects of such regulations and enforcement efforts are largely dependent on their legal and business environments (Ding, Jia, Wu, & Yuan, 2016; Maung, Wilson, & Tang, 2015). More importantly, how well the environment is protected also depends on the corporate social responsibility (CSR) strategies that companies adopt and the strength of their corporate governance mechanisms (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010).

Despite their importance in economic and social sustainability as addressed in the CSR literature (Garriga, & Melé, 2004), however, environmental issues in emerging markets are underexplored to date (Chen, Ding, Wu, & Yang, 2016). Due to a lack of data, moreover, there is very little international evidence on environmental protection measures in these markets. Most of the extant studies on emerging markets focus on either the effects of firm characteristics such as family involvement, ownership structure, and political connections (Berrone et al., 2010; Maung et al., 2015) or on such external factors as subnational economic growth (Ding et al., 2016). However, it is also of importance to explore how to improve environmental protection both internally and externally, and one way to do so is to increase the transparency of environmental

information. In addition, while it is unclear whether the proxies for it, such as penalties and environmental fees, employed by extant research (Maung et al., 2015) accurately measure environmental performance, this study sheds light on managerial effectiveness in environmental information transparency. To address these gaps in the literature, we pinpoint both the direct effects of companies' internal corporate governance mechanisms and their indirect effects through external control device on managerial effectiveness in information transparency regarding environmental damage in emerging economies, because these two serve as internal and external drivers of managerial incentives to improve transparency of environment information especially when the legal environment in emerging markets is not as strong as their developed counterparts. External control device here refers to verification mechanism from an external third party, and managerial effectiveness refers to how well a managerial system works with respect to environmental protection. Furthermore, this study also explores the moderating effects of the legal and business environments of the economies in which the companies operate.

We apply the traditional agency theory by using two governance mechanisms, board monitoring and incentive compensation that are the most useful tools for mitigating agency conflicts (Eisenhardt, 1989; Fama & Jensen, 1983), and incorporate both legitimacy (Suchman, 1995) and resource dependence theories (Hillman, Withers, & Collins, 2009) to pinpoint the joint effects of corporate governance mechanisms, external control, and on managerial effectiveness in environmental information transparency. Doing so integrates theories spotlighting internal and external resources respectively into the agency theory which mainly link the internal and external mechanism to the transparency of environmental protection. By providing international evidence from emerging markets on the basis of a sample comprising information extracted from the Sustainalytics database, World Bank, and Compustat, this study shows that in emerging

economies, firms with stronger corporate governance mechanisms tend to adopt an external control strategy to mitigate owner-manager agency conflicts. Furthermore, internal corporate governance mechanisms, such as incentive-compatible compensation and board independence, are found to directly increase firm transparency concerning environmental damage and to indirectly do so through external control device such as external verification. In addition, the legal and business environments of countries in which firms operate are found to moderate these relationships.

This study makes at least three contributions to the literature. First, it adds to the corporate governance literature by shedding light on how such governance combines with external control device, such as external verification, and legal and business environment systems, such as country-level legal and business environments, to encourage managerial effectiveness in environmental information transparency. Second, our findings contribute to the agency theory literature by demonstrating that the interplay between internal monitoring and external control mechanisms depends on the institutional environment, which differs between emerging and developed economies. Third, we adopt the PROCESS Model to examine a complicated moderated mediation mechanism and to use other methods to check the robustness of our findings, thereby making methodological contributions to corporate governance research by applying advanced research methods from other fields. In addition, the conclusions drawn from the analysis herein have critical and timely implications for policymakers and regulators, providing them with a better understanding of how to encourage managers to adopt better environmental protection measures through a combination of internal and external mechanisms. These implications can be generalized to jurisdictions throughout the emerging market world.

The remainder of the paper is organized as follows. Section 2 addresses the institutional background to environmental protection issues in emerging economies. The theoretical framework is constructed in Section 3, which also outlines the hypotheses. Section 4 introduces the research methodologies adopted, and Section 5 presents our empirical results and discusses their implications. Section 6 concludes the paper with directions for future research.

Institutional Background

As a group, emerging markets do not currently meet all of the standards of developed markets, but they have the potential to become developed markets in the future. Emerging markets are home to 86% of the world's population and cover 75% of its land area. In recent years, emerging markets have played an increasingly important role in the global economy, accounting for 50% of global GDP at purchasing power parity (BlackRock Investment Institute, 2011). However, these markets as a country group are largely ignored in the academic literature (Chen et al., 2016; Chen, Hou, Li, Wilson, & Wu, 2014; Fan & Wong, 2005). Some studies focus only on developed economies (Faccio & Lang, 2002), although some international studies consider both developed and emerging markets (Ding, Qu, & Wu, 2015; Liu & Magnan, 2011), and others investigate a single emerging market (Fan, Huang & Zhu, 2013; Meyer & Nguyen, 2005). Emerging markets differ from developed markets in terms of economic growth (Waheeduzzaman, 2011), foreign direct investment (FDI) (Filatotchev, Strange, Piesse, & Lien, 2007), legal environment (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998), and so on. To enhance our understanding of emerging markets as a country group, this study investigated how the country-level legal and business environments, corporate governance, and external control jointly affect environmental information transparency.

International environmental agreements have been proposed as a solution to global environmental problems. However, in practice, cooperation among countries is difficult to accomplish. As countries are at different stages of economic development, the costs and benefits of resolving environmental problems differ widely (Barrett, 2003). Emerging markets generally pay less attention to environmental damage and solutions. Jorgenson (2009) investigates the association between water pollution and FDI in emerging markets and shows a positive relationship between them. Azadi, Ho and Hashiati (2011) compare the agricultural land conversion trends in developing countries. Their results suggest that developing countries, particularly those undergoing rapid economic development, are experiencing greater agricultural land loss. Emerging market countries face potential environmental harm when they seek to develop their economies rapidly. Hence, government intervention in developing and enforcing an environmental policy is a priority if a balance between economic development and environmental protection is to be found.

The business environment varies among countries around the globe due to different legal policies that countries have established. The literature documents a variety of links between country-level legal policies and firm-level outcomes (e.g., Acharya, Amihud, & Litov, 2011; Ding et al., 2015; Liu & Magnan, 2011). Acharya et al. (2011) investigate how creditor rights in bankruptcy cases influence investment-related corporate risk-taking behavior in various countries. Focusing on private-control mechanisms, Liu and Magnan (2011) demonstrate that firms have a higher valuation in countries with stronger policies for self-dealing behaviors. Ding et al. (2015) document an association between a country's governance environment and unethical or illegal behavior at the corporate level. More specifically, they find that firms

operating in a more developed and transparent legal and business environment pay less on bribes to government officials.

Besides the existence of legal policies, the enforcement mechanisms of those policies are also crucial to the success of legal and business environment (Bhattacharya & Daouk, 2002; Daouk, Lee, & Ng, 2006; Hail & Leuz, 2006; Jayaraman, 2012). Also, previous studies suggest that favorable country-level legal policies and enforcement mechanisms are associated with better corporate performance. Ding et al. (2015) investigate how macro-governance moderates the effect of family involvement on corporate bribery behavior, and show that family control constrains such behavior only in countries with weaker macro-governance. Consistent with Ding et al. (2015), this study investigates the moderating role of macro legal and business environment. In emerging markets, internal corporate governance and external control are complementary to legal and business environment, and the three mechanisms jointly influence management's environmental information transparency.

The existing literature largely focuses on legal enforcement of environmental damage on developed economies (e.g., Earnhart 2000; Langpap 2007; Blondiau, Billiet and Rousseau 2015). However, it seems that differences in enforcement associated with environmental damage among emerging markets are understudied, and these are closely related to the development of legal environment in various countries (Santhakumar 2003; Kochtcheeva 2013; Aklin, Bayer, Harish and Urpelainen 2014). Kochtcheeva (2013) summarizes environment-related damages in developing countries, such as China, India and Brazil. In addition, the study concludes that even though these developing countries have established environmental regulations and laws, they are still facing various challenges with regard to monitoring and enforcement. According to Santhakumar (2003) the weak enforcement of environmental regulation in India is due to the

institutional deficiencies and the delay in resolving conflicts through court interventions. Aklin et al. (2014) blame corruption for the lax enforcement of environmental laws in Brazil, which is largely due to the interaction between wealthy individuals and government officials. Overall, the environmental-related legal institutions in emerging economies are underdeveloped. Especially, these economies face lax enforcement of environmental regulations and laws due to different types of constraints.

In the following section, we discuss our hypotheses concerning the main effect of corporate governance mechanisms and external control device on environmental information transparency and the moderating effect of country-level legal and business environments on the association between them.

Hypotheses Development

[Insert Figure 1 about here]

Berle and Means (1932) were the first to describe the problem arising from the separation of ownership from control in large corporations. They argued that managers may pursue their own self-interest rather than act in the best interest of shareholders. Building on Berle and Means (1932) and Coase (1937), Jensen and Meckling (1976) developed an agency theory framework in which managers may not act in the best interests of shareholders due to potential conflicts of interest or interest misalignment. The agency relation is rooted in information asymmetry as managers can access more information than shareholders. To mitigate agency problems and minimize conflicts of interests, a variety of mechanisms have been suggested to align the interests of managers and shareholders, including compensation plans, board monitoring, and the creation of new legal standards (Fama, 1980; Fama & Jensen, 1983; Jensen, 2005).

The corporate governance literature has predominantly adopted the agency approach to answer the question of how managers can be driven to pursue the interests of shareholders (e.g., Shleifer & Vishny, 1997). Effective corporate governance helps to mitigate the agency costs associated with the separation of ownership from control. While monitoring the opportunistic behavior of managers (Jensen & Meckling, 1976) can help reduce information asymmetry, it is, however, not the only remedy. Another effective approach is signaling. Signaling theory was initially developed to address the problems of information asymmetry in the labor market (Ross, 1977; Spence, 1974). In corporate settings, information asymmetry exists between managers and shareholders. If shareholders have insufficient information about a firm's performance, the firm's managers can exploit that information asymmetry to benefit themselves, which gives rise to the moral hazard problem. Of course, managers may develop strategies for reducing the negative effects that information asymmetry can have on the firm and the market (Campbell, Chen, Dhaliwal, Lu, & Steele, 2014). Such information asymmetry can be reduced by the party with superior information signaling it to others (Morris, 1987). Voluntary disclosure is one of the signaling means, where managers have incentives to do so to assure investors and to enhance their firm's reputation (Sun, Salama, Hussainey, & Habbash, 2010).

Over the past decade, there has been increasing interest in corporate social responsibility (CSR) where irresponsible actions toward the society and environment are considered a cost to society (Miles & Covin, 2000). Firms are more willing to disclose their CSR performance when they are performing well. Signaling theory suggests that firms with better CSR performance want to differentiate themselves from inferior performers. Thus, they are willing to inform their shareholders of more information about their CSR performance while bad CSR performers tend to disclose less information. Because the disclosure of CSR is voluntary, the credibility of a

firm's CSR practices becomes critical. One way to provide stakeholders an impartial view and fair assessment of a firm's CSR record is to use external control device, such as external verification (Rana & Misra, 2010; Sutantoputra, 2009) like two international recognized standards: Assurance Standards (AA) 1000 and the International Standard on Assurance Engagements (ISAE) 3000. External verification enhances firm value by decreasing external uncertainty (Smith, 1986) as it is equivalent to a third-party certification. Thus, on one hand, firms with strong corporate governance mechanisms have more incentives to seek third-party certification in order to differentiate themselves and make it harder to be replicated. On the other hand, firms with weaker corporate governance mechanisms and poor CSR performance are less motivated to seek external verification. If such certification is used to provide outsiders with more credible information about a firm's performance, it helps to reduce information asymmetry.

In short, due to the specific characteristics of severe informational asymmetry between a firm's management team and its shareholders in emerging markets, the trust level of shareholders is low. Even if the management team has a strong corporate governance mechanism, it is worth employing an external verification to serve as a third party certification in order to further reduce information asymmetry between the two parties (King, Lenox, & Terlaak, 2005). For badly governed firms, however, it is very costly to seek external verification, given that the effects of information asymmetry are present anyway. Therefore, we develop our first hypothesis on the basis of the foregoing discussion:

H1: Firms with stronger corporate governance mechanisms are more likely to seek external control.

Environmental performance involves the principal-agent problem to the extent that shareholders and managers may prefer different environmental strategies. While shareholder

may demand for better environmental performance in emerging markets (Chen, et al., 2014; Su, Peng, Tan, & Cheung, 2016), managers may avoid environmental strategies because of the high-level uncertainty and long time to fruition (Aragon-Correa, 1998), and allocate resources to less risky investments (Berrone & Gomez-Mejia, 2009). According to the agency theory, the primary function of the board is to monitor and put pressure on managers to ensure that their actions are aligned with shareholder interests (Fama & Jensen, 1983). The board has a fiduciary duty to monitor management, including in the environmental arena, for the longer-term benefit of the firm (Miller, 1993). If boards are to fulfill their monitoring role effectively and protect the interests of shareholders, then boards of directors need to be independent from management. There is empirical evidence showing the benefits of independent directors, such as reduced managerial consumption of perquisites (Brickley & James, 1987), a greater probability of replacing poorly performing CEOs (Borokhovich, Parrino, & Trapani, 1996; Weisback, 1988), a lower probability of paying greenmail (Kosnik, 1990), and a lower probability of adopting a poison pill (Mallette & Fowler 1992). When there is a discrepancy in preferred environmental strategies between shareholders and managers, we argue that stronger board monitoring will enhance a firm's transparency concerning environmental damage, and this is based on the monitoring solution to agency problems rooted in information asymmetry (Healy & Palepu, 2001).

In addition to the monitoring the management, board also acts a provider of service and resources (Hillman & Dalziel, 2003). The theoretical framework of this role is based on resource dependence theory proposed by Pfeffer and Salancik (1978). According to the resource dependence theory, board of directors does not only provide advice and access to resources, but also provide legitimacy (Pfeffer & Salancik, 1978; Hillman et al., 2009). By providing access to

resources that are not available otherwise, boards contribute to the sustained value creation (Hillman et al., 2009). Whereas outside directors bring credibility and reputation to the board (Daily & Schwenk, 1996), stakeholder directors tend to improve firm's social performance (Johnson & Greening, 1999). Furthermore, legitimacy is an important motivation of firms' CSR activities because they help build firms', as well as boards' and managers', reputation in the market environment they are in (Du & Vieira, 2012; Meyer & Scott, 1983; Panwar, Nybakk, Hansen, & Thompson, 2014).

Another aspect of corporate governance is incentive mechanisms that serve as second-best solutions to agency problems caused by information asymmetry. Executive compensation packages can include incentives designed to resolve a divergence of interests between shareholders and managers. Compensation contracts usually link a proportion of a manager's compensation to specific performance criteria (Jensen & Meckling, 1976). Incentive-based compensation is positively associated with desirable managerial behaviors (Chng, Rodgers, Shih, & Song, 2012). With respect to environmental activities, Henriques and Sardosky (1999) propose that if a company wants to make environmental issues a priority, it may need to offer financial incentives and other rewards to encourage managers to act as environmental stewards. Berrone and Gomez-Mejia (2009) argue that structuring compensation around environmental performance enhances a firm's social legitimacy, which could result in improvements in corporate reputation, access to resources, and stakeholder relations. Accordingly, tying executive compensation to sustainability-related performance targets should encourage managers to engage in environmental activities that are likely to have a positive impact.

Corporate governance, in the form of monitoring and incentive mechanisms, plays an important role in management's environmental activities (Kanashiro, 2013). However, only a

few studies have investigated the relation between corporate governance and environmental performance, and results are mixed so far (Berrone & Gomez-Mejia, 2009; Stanwick & Stanwick, 2001; Walls, Berrone, & Phan, 2012). Kock, Santalo, and Diestre (2012) find that greater stakeholder representation on the board of directors improves environmental performance, whereas Berrone and Gomez-Mejia (2009) find such enhanced representation exerts no effect on a firm's environmental performance. However, they find a positive relationship between CEO compensation and such performance. Stanwick and Stanwick (2001), in contrast, show the two to be negatively related because, they posit, shareholders view positive environmental performance as a financial burden and thus a hindrance to financial performance. Tying executive compensation to environmental performance and board monitoring of environmental performance together encourage managers to engage in more responsible environmental protection behavior. These monitoring and incentive mechanisms can also be complemented by external verification to mitigate the information asymmetry caused by the agency problem through the signaling of strong corporate governance.

Thus, our second hypothesis is as follows:

H2: Internal corporate governance mechanisms improve managerial effectiveness in environmental information transparency, both directly and indirectly through external control.

The traditional agency theory has long been criticized because it fails to accommodate the impact of social and institutional environment on principal-agent relationship (Aguilera & Jackson, 2003). Berrone and Gomez-Mejia (2009) show that institutional theory can reinforce the agency theory because firms strive to gain legitimacy under the institutional pressure by improving their environmental performance. However, firms in different legal and business

environments are likely to behave differently; according to the World Bank, a country-level legal and business environment is gauged by voice and accountability, political stability and violence, government effectiveness, regulatory quality, rule of law, and control of corruption (Kaufmann, Kraay, and Mastruzzi, 2003). For example, La Porta et al. (1997, 1998) suggest that law and legal enforcement play an important role in corporate governance, corporate external financing and investment, market developments, and economic growth. There are systematic differences among jurisdictions with different legal systems in which minority shareholders and creditors are protected. Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003) argue that countries with different legal traditions adopt different strategies for the social control of business. In an international setting, Claessens and Laeven (2003) find that firms in weaker legal environments get less financing and are less likely to invest in intangible assets. Shleifer and Vishny (1997) claim that differences in corporate governance in different countries are likely to be rooted in differences in regulatory and legal systems. The differences in corporate governance among Organization for Economic Co-operation and Development (OECD) countries tend to be smaller compared to those between these countries and the rest of the world.

Prior literature shows that firm-level corporate governance can be affected by country-level macro-governance (Li, Moshirian, Pham, & Zein, 2006). Li, et al. (2006) show that the macro environment impacts firm-level monitoring system. Ding et al. (2012) find that country-level business and legal environments significantly affect firms' engagement in unethical, and even illegal, behaviors. In less developed macro environment, firms tend to pay more to bribe local officials, and differences in the macro environment across countries moderate the relationship between family involvement and firm's unethical or illegal behaviors. In a more recent study, Chen et al. (2014) examine how family involvement and legal and business

environment jointly affect entrepreneurial growth, and find that legal and business environment moderates the association between family involvement and corporate governance; family involvement amplifies the negative impacts of less favorable regulatory environment on entrepreneurial growth. More importantly, Ding et al. (2014) find that, in an emerging market, institutional environment in sub-national provinces, mainly economic growth and legal strictness, affects the relationship between firm-level corporate governance and CSR measured by environmental performance.

As a result, we expect a country's macro-governance environment to moderate the relation between external control and internal corporate governance. When business environment is less favorable, firms tend to focus more on pursuing economic goals and place lower priority on CSR, so they are less likely to seek for external verification due to inferior CSR performance. In contrast, managers of firms with strong corporate governance and superior CSR performance are more likely to seek external verification for the signaling purpose when the business and legal environment is strong and society puts more pressure on irresponsible actions on society and environment. Furthermore, according to the institutional theory, firms operating in relatively weak legal and business environment, especially those under institutional pressure, are likely to seek external verification for window-dressing purposes (Ananchotikul, Kouwenberg, & Phunnarungsi, 2010; Westphal & Zajac, 2001). In countries with weak legal and business environment, in addition, it is likely that providers of external verification and firms may collude and the marginal cost for being caught is insignificant (Morck, Wolfenzon, & Yeung, 2004). Hence, we also expect the country-level legal and business environments to play a moderating role in the relation between external control and managerial effectiveness in environmental information transparency.

Therefore, we have the third set of hypotheses:

H3a: The macro-governance environment moderates the relation between firm-level corporate governance and external control such that better macro-governance environments strengthen this relationship.

H3b: The macro-governance environment moderates the relation between external control and managerial effectiveness in environmental information transparency such that better macro-governance environment strengthens this relationship.

Methodology

Sample

Following prior studies, we compiled a sample of firms from the Sustainalytics database to obtain our monthly firm-level governance variables and environment-related variables (Orij 2010; Surroca, Tribó, & Waddock, 2010; Wolf 2014). Similar to Kinder Lydenberg Domini, which provides CSR data on U.S. firms, Sustainalytics is recognized as a CSR data provider on firms worldwide. It provides time series of environmental, social and corporate governance scores rated on a scale from 0 (worst) to 100 (best) based on different indicators. Each indicator is assigned with a sector specific weight. The overall CSR score is calculated as the weighted average of all indicators and then demeaned. We merged Sustainalytics and Compustat data to obtain our firm-level financial variables. We also included country-level macro-governance variables derived from the World Bank's Worldwide Governance Indicators, which contains data on six dimensions of macro-governance for over 200 countries.

The primary focus of this study was emerging markets, and our classification of emerging markets was based on the classifications of the World Bank, International Monetary Fund, and OECD. A country was considered to be an emerging market if it was included in the developing country lists of at least one of these organizations. Determination of the country a firm belongs to is based on its headquarter. After removing observations with missing variables and firms from the financial industry, our final sample comprised 4,195 monthly observations between January 2009 and December 2013; the choice of this sample period is based on data availability from Sustainalytics. Table 1 summarizes the number of observations from each emerging market¹.

[Insert Table 1 about here]

Variables

External verification of CSR reporting (*ExtCert*) is measured as whether the firm's CSR reporting has been externally verified according to reputable international or national standards or not. Managerial effectiveness in information transparency regarding environmental damage (*MgrEff*) is proxied by whether the firm has received environmental fines or non-monetary sanctions in the last three years or not. A similar measure was used as a proxy for environmental performance, but in the meantime, it has casted some doubts on its accuracy (Ding et al., 2016; Maung, et al., 2015). This is mainly because this variable only covers those environmental damages that have been caught, and therefore creates selection biases by its nature. However, it gauges the information transparency regarding environmental damages in a more accurate way.

We have two proxies for internal corporate governance (*IntCG*): 1. executive compensation tied to sustainability performance (*Comp*). It measures the extent to which executive compensation is tied to sustainability performance targets (e.g. health and safety targets, environmental targets, etc.); and 2. board independence (*Board*). It captures the

¹ Note that more than half of the observations are from China and Singapore.

percentage of independent members on various boards. For example, whether up to one supervisory board member is non-independent in a two-tier board, or whether two-thirds or more of board members are independent in a one-tier board. Higher values of these variables are proxies for stronger corporate governance because they help protect minority shareholders' benefits.

The country-level governance score (*CountPG*) proxies for legal and business environments. It is measured as the sum of total score from six dimensions of country-level governance. The six dimensions include voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. Other country-level variables are annual GDP growth and educational level measured by adult literacy rate and gross enrollment ratio extracted from the World Bank. Please note that, due to missing values of education level, the number of observations drops dramatically when it is included in the analysis. Formal environmental policy (*EnvPoly*) measures whether or not the firm has a strong and detailed environmental policy. Return on assets (*ROA*) is measured as net income before interest, taxes, depreciation, and amortization (EBITDA) scaled by lagged total assets. *Leverage* is proxied by long-term liabilities scaled by lagged total assets. *Growth* captures sales growth rate, and *Liquidity* is measured by operating cash flows. Refer to Table 2 for the detailed definition and source of each variable.

[Insert Table 2 about here]

Empirical Models

Our empirical models are a combination of those used in prior research (e.g., Berrone & Gomez-Mejia, 2009; Kock et al., 2012; Walls et al., 2012). In addition, we used a newly developed quantitative method, the PROCESS Model, to test the predicted mediating and

moderating effects (Preacher, Rucker, & Hayes, 2007). Process model is a newly developed quantitative method in psychology and business studies (Hayes, 2013). It allows us to test multiple direct effects, intermediate mechanisms and contingencies among tested variables simultaneously. For example, it could examine complicated mechanisms such as moderated mediation (Preacher et al., 2007).

Our detailed models are as follows:

$$\begin{aligned} ExtCert = & \beta_0 + \beta_1 IntCG + \beta_2 CountPG + \beta_3 IntCG * CountPG + \beta_4 EnvPoly + \beta_5 EnvMgt \\ & + \beta_6 ROA + \beta_7 Leverage + \beta_8 Growth + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} MgrEff = & \beta_0 + \beta_1 ExtCert + \beta_2 IntCG + \beta_3 CountPG + \beta_4 ExtCert * CountPG + \beta_5 Env \\ & + \beta_6 EnvMgt + \beta_7 ROA + \beta_8 Leverage + \beta_9 Growth + \varepsilon \end{aligned} \quad (2)$$

Empirical Results and Discussion

Descriptive Statistics

Table 3 reports descriptive statistics for the full sample, as well as those of subsamples categorized by the quality of legal and business environment (*CountPG*). They indicate that emerging markets with below-mean *CountPG* have significantly lower *MgrEff* values and lower *ExtCert* and *Comp* values in the compare-means t-test. The compare-mean t-test results suggest that there is no significant difference in the *Board* measure between the two subsamples. To spare space, we do not repeat the information presented in Table 3 here.

[Insert Tables 3 and 4 about here]

Table 4 displays the correlation matrix of the key variables used in the regression analyses. Many of the variables are significantly correlated with each other. The correlation matrix indicates that the external verification of CSR reporting (*ExtCert*) is positively correlated

with internal corporate governance (*Comp* and *Board*), suggesting that firms with better such governance are more likely to have their CSR reports externally verified. In addition, we find that managers whose executive compensation is tied to sustainable performance (*Comp*) and whose CSR reporting is less likely to be externally verified (*ExtCert*) are less effective in the area of environmental information transparency (*MgrEff*). Country-level corporate governance (*CountPG*) is negatively correlated with effectiveness in information transparency (*MgrEff*), external verification of CSR reports (*ExtCert*), and board independence (*Board*), which confirms the potential moderating effect of country-level governance on firm-level outcomes. With regard to correlations with the control variables, we find that firms with a lower *ROA*, greater *Leverage*, and better environmental policy (*EnvPoly*) is more likely to have their CSR reports externally verified (*ExtCert*). Also, managers of firms with a higher *ROA* and sales growth rate (*Growth*), and a worse environmental policy (*EnvPoly*) is less effective in providing transparent information on environmental damage (*MgrEff*). To check for potential multicollinearity among the test and control variables, we conducted variance inflation factor (VIF) tests for both of our regression models. These tests produced VIF values ranging from 1.24 to 2.32, which are much lower than the threshold value of 10. As a result, multicollinearity was not a concern.

To ensure the robustness of our empirical findings, we have also employed Rogers' (1993) procedure and clustered standard errors in order to cope with potential heteroskedasticity and auto-correlation concerns. Furthermore, we have used the propensity score matching method (Lennox, Francis, & Wang, 2011) to mitigate potential selection biases rooted in the voluntary choices of implementing environmental policies. Firm with formal environmental policy (*EnvPoly*) may have better CSR and market performance. To address this potential selection issue, we have adopted a propensity score matching method to control differences of the formal

environmental policy quality. We first calculated the median of the EnvPoly in order to separate our sample into two subsamples. Then, we matched firm characteristics, such as return on assets, sales growth, and leverage, and conducted regression analysis using the propensity-score matched sample.

Main Results and Discussion

Table 5 presents the main findings for emerging markets. The Equation 1 results are presented in Columns 1, 3, and 5, and the Equation 2 results are presented in Columns 2, 4, and 6. We run the PROCESS Model using the two corporate governance measures, *Comp* and *Board*, individually and in combination. Year and industry dummies for fixed effects are included in all models. Results from robustness tests including a country-level variable measuring educational level, *Exponedu* proxied by the percentage of government expenditure on education, are presented on the right-hand side of Table 5. No qualitative change has been found.

[Insert Table 5 about here]

Results indicate that, the coefficients on internal corporate governance mechanisms, proxied by *Comp* and *Board*, are significantly positive in Stage 1 of all three models. This finding supports Hypothesis 1, which posits that firms with stronger corporate governance, measured by executive compensation tied to environmental, social, and governance (ESG) performance and board independence, are more likely to seek external verification.

Hypothesis 2 is about whether stronger corporate governance increases managers' environmental information transparency. As shown in those results presented in Table 5, the coefficients on internal corporate governance are significantly negative in Stage 2 of all three models, regardless of whether the two *IntCG* measures are used individually or in combination.

The results show that stronger internal corporate governance mechanisms such as incentive-compatible compensation and board independence render managers more likely to disclose information on environmental damage, thus leading to greater environmental penalties. Furthermore, the coefficients on external verification (*ExtCert*) are significantly negative in Stage 2 of all three models. These findings indicate that internal corporate governance improves information transparency on environmental damage indirectly through external control. Thus, Hypothesis 2 is supported.

Hypothesis 3a tests the moderation effect of legal and business environment on the relation between external verification and internal corporate governance. The interaction terms between firm-level governance and legal and business environment yield different results for the two proxies of corporate governance. The coefficients of the interaction based on *Comp* (*Comp x CountPG*) are significantly positive, whereas those of the interaction based on *Board* (*Board x CountPG*) are significantly negative. Plotting these results in Figure 2 we find that Hypothesis 3a is only partially supported. Tying executive compensation to ESG performance is more likely to encourage firms to adopt an external verification strategy in emerging markets with better legal and business environments. However, internal governance mechanism, as measured by board independence, in those emerging markets with better legal and business environments is complemented by external verification. On the contrary, in emerging markets with relatively poor legal and business environments, firms with independent boards are more likely to adopt such a strategy as external verification.

[Insert Figure 2 about here]

Hypothesis 3b investigates the moderation effects of legal and business environment on the relation between external verification and environmental information transparency. The

coefficients of the interaction *ExtCert* \times *CountPG* are significantly positive in all three models. As shown in Figure 3, in emerging markets with less favorable business and legal environments, as suggested by a low *CountPG* value, firms that seek external verification provide more transparent information on environmental damage, and thus pay more environmental penalties. However, when the favorability of these markets' business and legal environments is demonstrated by a high *CountPG* value, external verification no longer exerts a positive effect on information transparency. Instead, it reduces the effectiveness of environmental information disclosures, and in turn reduces environmental penalties. In other words, external verification only works effectively to improve manager's environmental information transparency in emerging markets with relatively poor business and legal environments. One explanation for this finding is that when a national policy or environmental enforcement regime is stringent, external verification tends to play a supplementary role in improving environmental information transparency. Thus, our results partially support Hypothesis 3b, echoing those of Ding et al. (2015), who find that the negative association between legal and business environment and environmental fees.

[Insert Figure 3 and Table 6 about here]

Results from robustness tests based on Rogers' (1993) procedures and propensity score matching methods are presented in Table 6. No qualitative changes have been found. This paper contributes to the environmental management literature by answering two research questions. (1) How does internal corporate governance directly or indirectly affect managers' environmental information transparency? (2) Does legal and business environment play a moderating role on the relation between such governance and transparency? Although recent years have witnessed increased interest in the role of corporate governance in a firm's environmental performance, the

empirical evidence is inconclusive and drawn from U.S. studies (Berrone & Gomez-Mejia, 2009; Kock et al., 2012; Walls et al., 2012). We add to the agency theory literature by investigating whether two proxies of internal corporate governance, namely, incentive-compatible compensation and board independence, directly or indirectly (through external verification) influence management's environmental information transparency. Our findings suggest that the use of both internal monitoring and external control mechanisms mitigates the agency costs caused by information asymmetry between managers and shareholders because it encourages managers to become more effective in disclosing firm information with respect to environmental issues. We also contribute to the signaling theory literature by showing that firms tend to send signals to the market through external verification, thereby providing investors with more credible information on the environmental damage they cause.

Theories suggest that environmental activities can be influenced by either external institutional constraints and pressures or a firm's own strategies. As shown in Table 7, results indicate that the joint effects of internal corporate governance and external verification on environmental information transparency are different between firms above and those below aspiration levels. Following Chrisman and Patel (2012), we use industry average ROA to gauge whether a firm is above or below the aspiration level. Impacts of internal corporate governance mechanisms are significantly smaller, while external verification has significantly larger effects, in firms above the aspiration levels than in those below the aspiration levels. Therefore, we also add a further dimension to institutional theory by examining the joint effect of legal and business environment and internal corporate governance on the effective disclosure of environmental issues among firms with various levels aspirations.

[Insert Table 7 about here]

Finally, by focusing on emerging markets, we believe their legal and business environments to be less favorable to investors than those in developed markets, thereby highlighting the importance of internal corporate governance mechanisms for firms' social business behavior. Contrary to Child and Tsai's (2005) finding that firms play a passive role in developing environmental protection strategies in emerging economies, our evidence suggests that internal corporate governance complements legal and business environment in increasing management's information disclosure in these economies.

Conclusions and Future Research Directions

Combining an international sample of firm-level data extracted from various sources, including Sustainalytics and Compustat, with country-level legal environment data acquired from the World Bank, we investigated the joint effects of internal corporate governance, external control, and legal and business environment mechanisms on managerial effectiveness in the realm of environmental information transparency. Our findings demonstrate that internal corporate governance mechanisms and external control device are more likely to be complementary in emerging markets, whereas those in developed countries tend to be supplementary. Furthermore, in emerging economies both the direct and indirect effects of internal corporate governance mechanisms, including incentive compensation and board independence, on managers' environmental information transparency are observed. Both corporate governance mechanisms and external control device help to boost such transparency. Although the moderating effects of the legal and business environments on the corporate governance-external control-information transparency relationship are observed in both emerging and developed economies, those effects appear to differ.

The findings of this study not only add to our knowledge of corporate governance and agency theory, but they also have important policy implications for environmental protection efforts in emerging markets. The study also makes methodological contributions to the corporate governance literature by adopting the PROCESS Model. Furthermore, this research opens up several avenues for future research. First, the personal attributes of management team members, CEOs in particular, have been cited as important factors in the effectiveness of information transparency. It would be worth collecting these attributes and including them in analysis to render the findings more convincing. Second, this paper presents results concerning managers' environmental information transparency. It would also be of interest to open the "black box" of the managerial decision-making process in relation to environmental damage by investigating how internal corporate governance and external mechanisms jointly influence that process. Third, an alternative proxy for managerial effectiveness in information transparency is market reactions. If information on stock market reactions to such effectiveness and to environmental penalties were collected, then an event study could be conducted to provide management teams and policymakers with further feedback. Such information can enable them to better understand how to encourage managers to have better environmental performance through both internal and external mechanisms.

Meanwhile, this study suffers from some limitations. First, in the data extracted from Sustainalytics, only 5% of the observations are from emerging markets, with the rest collected from developed economies. Thus, it is likely that comparing the joint effects of internal corporate governance mechanisms and external control device within certain legal and business environment between emerging and developed markets is potentially not meaningful. As a result, this study focuses on the emerging markets only, and makes a contribution on these effects in

these particular markets by taking into consideration the differences in their legal and business environments. A future research direction is to collect more observations from emerging markets and build matched samples between them and developed countries in order to avoid potential biases rooted in the dominance of observations from developed countries in the sample.

ACCEPTED MANUSCRIPT

References

- Acharya, V. V., Amihud, Y., & Litov, L. 2011. Creditor rights and corporate risk-taking, *Journal of Financial Economics*, 102: 150-166.
- Aguilera, R. V., & Jackson, G. 2003. The cross-national diversity of corporate governance: Dimensions and determinants, *Academy of Management Review*, 38: 447-465.
- Aguilera, R. V., Williams, C. A., Conley, J. M., & Rupp, D. E. 2006. Corporate governance and social responsibility: A comparative analysis of the UK and the US, *Corporate Governance: An International Review*, 14: 147-158.
- Aklin, M., Bayer, P., Harish, S.P., and Urpelainen, J. 2014. Who blames corruption for the poor enforcement of environmental laws? Survey evidence from Brazil. *Environmental Economics and Policy Studies*, 16: 241-262.
- Ananchotikul, N., Kouwenberg, R., & Phunnarungsi, V. 2010. Do firms decouple corporate governance policy and practice, *European Financial Management*, 16: 712-737.
- Aragon-Correa, J. A. 1998. Strategic proactivity and firm approach to the natural environment, *Academy of Management Journal*, 41: 556-567.
- Azadi, H., Ho, P., & Hasfiati, L. 2011. Agricultural land conversion drivers: A comparison between less developed, developing and developed countries, *Land Degradation & Development*, 22: 596-604.
- Barrett, S. 2003. *Environment and statecraft: The strategy of environmental treaty-making: the strategy of environmental treaty-making*. Oxford University Press.
- Berle, A. A., & Gardiner, C. 1968. Means. 1932. *The Modern Corporation and Private Property*: 204-205.
- Berrone, P., & Gomez-Mejia, L. R. 2009. Environmental performance and executive compensation: An integrated agency-institutional perspective, *Academy of Management*

Journal, 52: 103-126.

Bhattacharya, U. & Daouk, H. 2002. The world price of insider trading, *Journal of Finance*, 57: 75-108.

Biancardi, M., & Villani, G. 2014. International environmental agreements with developed and developing countries in a dynamic approach, *Natural Resource Modeling*, 27: 338-359.

BlackRock Investment Institute. 2011. Are emerging markets the next developed markets? <http://www.blackrock.com/corporate/en-us/literature/whitepaper/are-emerging-markets-the-next-developed-markets-us.pdf>

Blondiau, T., Billiet, C.M., and Rousseau, S. 2015. Comparison of criminal and administrative penalties for environmental offenses. *European Journal of Law and Economics*, 39: 11-35.

Borokhovich, K. A., Parrino, R., & Trapani, T. 1996. Outside directors and CEO selection, *Journal of Financial and Quantitative Analysis*, 31: 337-355.

Brickley, J. A., & James, C. M. 1987. The takeover market, corporate board composition, and ownership structure: The case of banking, *Journal of Law and Economics*: 161-180.

Burritt, R. L., Schaltegger, S., & Orij, R. 2010. Corporate social disclosures in the context of national cultures and stakeholder theory, *Accounting, Auditing & Accountability Journal*, 23: 868-889.

Campbell, J. L., Chen, H., Dhaliwal, D. S., Lu, H.-m., & Steele, L. B. 2014. The information content of mandatory risk factor disclosures in corporate filings, *Review of Accounting Studies*, 19: 396-455.

Chen, Q., Ding, S., Wu, Z., & Yang, F. 2016. Family control, international accounting standards, and access to foreign banks: Evidence from international entrepreneurial firms, *Journal of Small Business Management*, 54: 598-621.

Chen, Q., Hou, W., Li, W., Wilson, C., & Wu, Z. 2014. Family control, regulatory environment,

and the growth of entrepreneurial firms: International evidence, *Corporate Governance: An International Review*, 22: 132-144.

Child, J., & Tsai, T. 2005. The dynamic between firms' environmental strategies and institutional constraints in emerging economies: Evidence from China and Taiwan, *Journal of Management Studies*, 42: 95-125.

Chng, D. H. M., Rodgers, M. S., Shih, E., & Song, X. B. 2012. When does incentive compensation motivate managerial behaviors? An experimental investigation of the fit between incentive compensation, executive core self-evaluation, and firm performance, *Strategic Management Journal*, 33: 1343-1362.

Chrisman, J., & Patel, P. 2012. Variations in R&D investments of family and non-family firms: Behavioral agency and myopic loss aversion perspectives, *Academy of Management Journal*, 55: 976-997.

Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. 2002. Disentangling the incentive and entrenchment effects of large shareholdings, *The Journal of Finance*, 57: 2741-2771.

Claessens, S., & Laeven, L. 2003. Financial development, property rights, and growth, *The Journal of Finance*, 58: 2401-2436.

Coase, R. H. 1937. The nature of the firm, *Economica*, 4: 386-405.

Daily, C. M., & Schwenk, C. 1996. Chief executive officers, top management teams, and boards of directors: congruent or countervailing forces, *Journal of Management*, 22: 185-208.

Daouk, H., Lee, C.M.C. & Ng, D. 2006. Capital market governance: How do security laws affect market performance, *Journal of Corporate Finance*, 12: 560-593.

Ding, S., Jia, C., Wu, Z., & Yuan, W. 2014. Environmental management under subnational institutional constraints, *Journal of Business Ethics*, 134: 631-648.

- Ding, S., Qu, B., & Wu, Z. 2012. Family control, socioemotional wealth, and governance environment: The case of bribes, *Journal of Business Ethics*, 1: 1-16.
- Djankov, S., Glaeser, E., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. 2003. The new comparative economics, *Journal of Comparative Economics*, 31: 595-619.
- Du, S., & Vieira Jr, E. T. 2012. Striving for legitimacy through corporate social responsibility: Insights from oil companies, *Journal of Business Ethics*, 110: 413-427.
- Earnhart, D. 2000. Environmental “Citizen Suits” in the Czech Republic. *European Journal of Law and Economics*, 10: 43-68.
- Eisenhardt, K. M. 1989. Agency theory: An assessment and review, *Academy of Management Review*, 14: 57-74.
- Faccio, M., & Lang, L. H. 2002. The ultimate ownership of Western European corporations, *Journal of Financial Economics*, 65: 365-395.
- Fama, E. F. 1980. Agency problems and the theory of the firm, *The Journal of Political Economy*, 88:288-307.
- Fama, E. F., & Jensen, M. C. 1983. Separation of ownership and control, *Journal of Law and Economics*, 26: 301-325.
- Fan, J. P., Huang, J., & Zhu, N. 2013. Institutions, ownership structures, and distress resolution in China, *Journal of Corporate Finance*, 23: 71-87.
- Fan, J. P., & Wong, T. J. 2005. Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia, *Journal of Accounting Research*, 43: 35-72.
- Filatotchev, I., Strange, R., Piesse, J., & Lien, Y.-C. 2007. FDI by firms from newly industrialised economies in emerging markets: corporate governance, entry mode and location, *Journal of International Business Studies*, 38: 556-572.

- Garriga, E., & Melé, D. (2004). Corporate social responsibility theories: Mapping the territory, *Journal of Business Ethics*, 53: 51-71.
- Hail, L. & Leuz, C. 2006. International differences in the cost of equity capital: Do legal institutions and securities regulation matter, *Journal of Accounting Research*, 44: 485-531.
- Hayes, A. F. 2013. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31: 405-440.
- Henriques, I., & Sadorsky, P. 1999. The relationship between environmental commitment and managerial perceptions of stakeholder importance, *Academy of Management Journal*, 42: 87-99.
- Hillman, A. J., & Dalziel, T. 2003. Boards of directors and firm performance: Integrating agency and resource dependence perspectives, *Academy of Management Review*, 28: 383-396.
- Hillman, A. J., Withers, M. C., & Collins, B. J. 2009. Resource dependence theory: A review, *Journal of Management*, 35:1404-1427.
- Jayaraman, S. 2012. The effect of enforcement on timely loss recognition: Evidence from insider trading laws, *Journal of Accounting and Economics*, 53: 77-97.
- Jensen, M. C. 2005. Agency costs of overvalued equity, *Financial management*, 34: 5-19.
- Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3: 305-360.
- Johnson, R. A., & Greening, D. W. 1999. The effects of corporate governance and institutional ownership types of corporate social performance, *Academy of Management Journal*, 42: 564-576.

- Jorgenson, A. K. 2009. Foreign Direct Investment and the Environment, the Mitigating Influence of Institutional and Civil Society Factors, and Relationships between Industrial Pollution and Human Health: A Panel Study of Less-Developed Countries. *Organization & Environment*.
- Kanashiro, P. 2013. Corporate environmental strategy: institutional and governance perspectives. Ph. D thesis, The George Washington University. Retrieved from ProQuest Dissertations and Theses. (Publication No. 3591919)
- Kaufmann, D., Kraay, A., & Mastruzzi, M. 2003. Governance matters III: Governance indicators for 1996-2002. *WBER*, 12(12).
- Kim, H., Park, K., & Ryu, D. 2015. Corporate environmental responsibility: A legal origins perspective, *Journal of Business Ethics*: 1-22.
- King, A. A., Lenox, M. J., & Terlaak, A. (2005). The strategic use of decentralized institutions: Exploring certification with the ISO 14001 management standard. *Academy of Management Journal*, 48: 1091-1106.
- Kochtcheeva, L.V. 2013. Globalization and the environment in the emerging economies: Increased imbalance, new momentum, or stalemate? *New Global Studies*, 7(3): 57-86.
- Kock, C. J., & Min, B. S. 2013. Legal origins, corporate governance, and environmental outcomes, *Journal of Business Ethics*: 1-18.
- Kock, C. J., Santalo, J., & Diestre, L. 2012. Corporate governance and the environment: What type of governance creates greener companies, *Journal of Management Studies*, 49: 492-514.
- Kosnik, R. D. 1990. Effects of board demography and directors' incentives on corporate greenmail decisions, *Academy of Management Journal*, 33: 129-150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 1998. Law and finance, *Journal of Political Economy*, 106: 1113-1155

- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 1997. Legal determinants of external finance, *Journal of Finance*, 52: 1131-1150.
- Langpap, C. 2007. Pollution abatement with limited enforcement power and citizen suits. *Journal of Regulatory Economics*, 31: 57-81.
- Lennox, C. S., Francis, J. R., & Wang, Z. 2011. Selection models in accounting research, *The Accounting Review*, 87: 589-616.
- Li, D., Moshirian, F., Pham, P., & Zein, J. 2006. When financial institutions are large shareholders: The role of macro corporate governance environments, *Journal of Finance*, 61: 2975–3007.
- Liu, M., & Magnan, M. 2011. Self - dealing regulations, ownership wedge, and corporate valuation: International evidence, *Corporate Governance: An International Review*, 19: 99-115.
- Mallette, P., & Fowler, K. L. 1992. Effects of board composition and stock ownership on the adoption of “poison pills”, *Academy of Management Journal*, 35: 1010-1035.
- Maung, M., Wilson, C., & Tang, X. 2015. Political connections and industrial pollution: Evidence based on state ownership and environmental levies in China, *Journal of Business Ethics*, 1-11.
- Meyer, K. E., & Nguyen, H. V. 2005. Foreign investment strategies and sub - national institutions in emerging markets: Evidence from vietnam, *Journal of Management Studies*, 42: 63-93.
- Meyer, J. W., & Scott, W. R. 1983. Centralization and the legitimacy problems of local government, *Organizational environments: Ritual and rationality*, 199: 215.
- Miller, H. R. 1992. Corporate governance in chapter 11: The fiduciary relationship between directors and stockholders of solvent and insolvent corporations, *Seton Hall Law Review*, 23:

1467.

Morck, R., Wolfenzon, D., & Yeung, B. 2004. *Corporate governance, economic entrenchment and growth* (No. w10692). National Bureau of Economic Research.

Morris, R. D. 1987. Signalling, agency theory and accounting policy choice, *Accounting and Business Research*, 18: 47-56.

Panwar, R., Paul, K., Nybakk, E., Hansen, E., & Thompson, D. 2014. The legitimacy of CSR actions of publicly traded companies versus family-owned companies, *Journal of Business Ethics*, 125: 481-496.

Pfeffer, J., & Salancik, G. R. 1978. *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. 2007. Addressing moderated mediation hypotheses: Theory, methods, and prescriptions, *Multivariate Behavioral Research*, 42: 185-227.

Qi, Y., Roth, L., & Wald, J. K. 2010. Political rights and the cost of debt, *Journal of Financial Economics*, 95: 202-226.

Rana, S., & Misra, P. 2010. Operational dimension of csr: An empirical assessment of BSE and NSE listed companies, *Vision: The Journal of Business Perspective*, 14: 57-66.

Ross, S. A. 1977. The determination of financial structure: The incentive-signalling approach, *The Bell Journal of Economics*: 23-40.

Santhakumar, V. 2003. Citizens' actions for protecting the environment in developing countries: An economic analysis of the outcome with empirical cases from India. *Environment and Development Economics*, 8: 505-528.

Shleifer, A., & Vishny, R. W. 1997. A survey of corporate governance, *The Journal of Finance*, 52: 737-783.

- Smith, C. W. 1986. Investment banking and the capital acquisition process, *Journal of Financial Economics*, 15: 3-29.
- Spence, M. 1974. Competitive and optimal responses to signals: An analysis of efficiency and distribution, *Journal of Economic Theory*, 7: 296-332.
- Stanwick, P. A., & Stanwick, S. D. 2001. CEO compensation: does it pay to be green, *Business Strategy and the Environment*, 10: 176-182.
- Su, W., Peng, M. W., Tan, W., & Cheung, Y. L. (2016). The signaling effect of corporate social responsibility in emerging economies. *Journal of Business Ethics*, 134: 479-491.
- Suchman, M. C. 1995. Managing legitimacy: Strategic and institutional approaches, *Academy of Management Review*, 20: 571-610.
- Sun, N., Salama, A., Hussainey, K., & Habbash, M. 2010. Corporate environmental disclosure, corporate governance and earnings management, *Managerial Auditing Journal*, 25: 679-700.
- Surroca, J., Tribó, J. A., & Waddock, S. 2010. Corporate responsibility and financial performance: The role of intangible resources, *Strategic Management Journal*, 31: 463-490.
- Waheeduzzaman, A., & Waheeduzzaman, A. 2011. Competitiveness and convergence in G7 and emerging markets, *Competitiveness Review: An International Business Journal*, 21: 110-128.
- Walls, J. L., Berrone, P., & Phan, P. H. 2012. Corporate governance and environmental performance: Is there really a link, *Strategic Management Journal*, 33: 885-913.
- Weisbach, M. S. 1988. Outside directors and CEO turnover, *Journal of Financial Economics*, 20: 431-460.
- Westphal, J. D., & Zajac, E. J. 2001. Decoupling policy from practice: The case of stock repurchase programs, *Administrative Science Quarterly*, 46: 202-228.
- Widiarto Sutantoputra, A. 2009. Social disclosure rating system for assessing firms' CSR reports,

Corporate Communications: An International Journal, 14: 34-48.

Wolf, J. 2014. The relationship between sustainable supply chain management, stakeholder pressure and corporate sustainability performance, *Journal of Business Ethics*, 119: 317-328.

ACCEPTED MANUSCRIPT

Table 1 Number of Observations in Each Country in the Sample

Country	Obs.
Bermuda	209
Brazil	178
Chile	15
China	1351
Colombia	45
Hungary	42
India	328
Indonesia	30
Malaysia	154
Mauritius	26
Mexico	166
Papua New Guinea	52
Poland	54
Russia	235
Singapore	1051
South Africa	189
Thailand	8
Turkey	14
United Arab Emirates	48
Total	4195

Table 2 Variable Definition and Sources

Variables	Definitions	Sources
<i>ExtCert</i>	External verification of CSR reporting. It measures whether the firm's CSR reporting has been externally verified according to reputable international or national standards or not (e.g., For example, AA1000 Assurance Standards and The International Standard on Assurance Engagements (ISAE) 3000).	Sustainalytics
<i>MgrEff</i>	Managerial effectiveness in information transparency regarding environmental damage. It measures whether the firm has received environmental fines or non-monetary sanctions in the last three years or not.	Sustainalytics
<i>Comp</i>	Executive compensation tied to sustainability performance. It measures the extent to which executive compensation is tied to sustainability performance targets (e.g. health and safety targets, environmental targets, etc.).	Sustainalytics
<i>Board</i>	Board independence measures the percentage of independent members on various boards. Whether up to one supervisory board member is non-independent in a two-tier board, or whether two-thirds or more of board members are independent in a one-tier board.	Sustainalytics
<i>EnvPoly</i>	Formal environmental policy. It measures whether or not the firm has a strong and detailed environmental policy that addresses the following three issues: 1. support a precautionary approach to environmental challenges; 2. undertake initiatives to promote social and environmental responsibility; and 3. encourage the development and usage of environmentally friendly technologies.	Sustainalytics
<i>CountPG</i>	Country-level governance score proxies for legal and business environments. It is measured as the sum of total score from six dimensions of country-level governance. The six dimensions include voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.	World Bank
<i>ROA</i>	Return on assets. It is measured as net income before interest, taxes, depreciation, and amortization (EBITDA) scaled by lagged total assets.	Compustat
<i>Leverage</i>	Long-term debt scaled by lagged total assets.	Compustat
<i>Growth</i>	Sales growth rate.	Compustat
<i>GDPgrw</i>	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	World Bank
<i>Liquidity</i>	Operating cash flow	Compustat

Table 3 Descriptive Statistics - Full Sample and Subsamples Categorized by the Quality of Legal and business environment

variable	Emerging Markets						Above mean value of CountPG				Below mean value of CountPG				Compare- mean <i>t</i> -test
	Obs.	Mean	Median	S.D.	25 Pc.	75Pc.	Obs.	Mean	Median	S.D.	Obs.	Mean	Median	S.D.	
MgrEff	4195	-0.044	-0.232	0.380	-0.794	-0.019	2873	-0.023	-0.215	0.392	1322	-0.089	-0.177	0.347	-5.261***
Comp	4195	0.074	0.000	0.248	0.000	0.000	2873	0.085	0.000	0.266	1322	0.049	0.000	0.204	-4.298***
Board	4195	0.281	0.000	0.379	0.000	0.500	2873	0.283	0.000	0.395	1322	0.276	0.200	0.341	-0.551
CountPG	4195	4.539	8.364	4.970	-0.774	8.844	2873	5.143	8.364	4.656	1322	3.226	3.848	5.364	-11.792***
ExtCert	4195	-0.035	-0.126	0.277	-0.180	-0.053	2873	-0.014	-0.126	0.313	1322	-0.080	-0.120	0.167	-7.254***
EnvPoly	4195	0.227	0.136	0.267	0.000	0.275	2873	0.235	0.200	0.264	1322	0.211	0.134	0.273	-2.692**
ROA	4195	0.154	0.131	0.115	0.083	0.198	2873	0.111	0.099	0.097	1322	0.248	0.224	0.092	43.116***
Growth	4195	0.129	0.079	0.331	-0.010	0.216	2873	0.124	0.074	0.380	1322	0.139	0.116	0.186	1.352
Leverage	4195	0.202	0.178	0.170	0.062	0.302	2873	0.234	0.215	0.168	1322	0.133	0.099	0.151	-18.542***
GDPgrw	4195	4.706	4.400	4.365	2.700	6.600	2873	4.292	4.000	4.365	1322	5.606	5.100	4.227	9.147***
Liquidity	4195	0.116	0.104	0.105	0.055	0.157	2873	0.087	0.084	0.083	1322	0.178	0.162	0.120	28.456***

* p<0.05; ** p<0.01; *** p<0.001

Table 4 Correlation Table

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) MgrEff	1.000										
(2) Comp	0.076***	1.000									
(3) Board	-0.037*	0.237***	1.000								
(4) CountPG	-0.037*	-0.002	-0.075***	1.000							
(5) ExtCert	-0.094***	0.290***	0.063***	-0.105***	1.000						
(6) EnvPoly	-0.130***	0.024	0.009	-0.200***	0.260***	1.000					
(7) ROA	0.168***	0.136***	0.007	-0.278***	-0.080***	0.060***	1.000				
(8) Growth	0.042**	-0.031*	-0.007	-0.022	-0.041**	-0.064***	-0.048**	1.000			
(9) Leverage	-0.027	-0.088***	0.021	0.104***	0.068***	0.018	-0.208***	0.065***	1.000		
(10) GDPgrw	-0.066***	-0.023	0.020	-0.048**	-0.118***	-0.087***	0.036*	0.213***	-0.111***	1.000	
(11) Liquidity	0.075***	0.093***	0.058***	-0.140***	-0.017	0.104***	0.675***	0.124***	-0.111***	0.118***	1.000

The table presents the correlation matrix among all the variables employed in this study. Refer to Table 1 for detailed variable descriptions.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 5 Main Results

VARIABLES	Main Tests						Robustness Tests with Country-Level Education					
	Comp		Board		Comp & Board		Comp		Board		Comp & Board	
	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Comp	0.177*** (0.000)	-0.081*** (0.001)			0.143*** (0.000)	-0.050* (0.052)	0.171*** (0.000)	-0.031 (0.214)			0.106*** (0.009)	-0.008 (0.760)
Comp*CountPG	0.018*** (0.000)				0.024*** (0.000)		0.016*** (0.001)				0.026*** (0.000)	
Board			0.084*** (0.000)	-0.092*** (0.000)	0.056*** (0.000)	-0.086*** (0.000)			0.135*** (0.000)	-0.075*** (0.000)	0.109*** (0.000)	-0.074*** (0.000)
Board*CountPG			-0.016*** (0.000)		-0.017*** (0.000)				-0.021*** (0.000)		-0.022*** (0.000)	
CountPG	-0.004*** (0.000)	0.014*** (0.000)	0.002 (0.164)	0.013*** (0.000)	0.000 (0.837)	0.014*** (0.000)	-0.002 (0.165)	0.020*** (0.000)	0.004** (0.029)	0.019*** (0.000)	0.003* (0.092)	0.019*** (0.000)
ExtCert		-0.439*** (0.000)		-0.445*** (0.000)		-0.439*** (0.000)		-0.711*** (0.000)		-0.703*** (0.000)		-0.702*** (0.000)
Excert*CountPG		0.066*** (0.000)		0.064*** (0.000)		0.064*** (0.000)		0.100*** (0.000)		0.098*** (0.000)		0.098*** (0.000)
EnvPoly	0.207*** (0.000)	-0.232*** (0.000)	0.206*** (0.000)	-0.238*** (0.000)	0.208*** (0.000)	-0.240*** (0.000)	0.263*** (0.000)	-0.002 (0.945)	0.246*** (0.000)	0.003 (0.922)	0.253*** (0.000)	0.002 (0.940)
ROA	-0.550*** (0.000)	0.099 (0.161)	-0.559*** (0.000)	0.028 (0.690)	-0.579*** (0.000)	0.038 (0.587)	-0.108* (0.082)	-0.322*** (0.000)	-0.095 (0.140)	-0.385*** (0.000)	-0.149** (0.017)	-0.383*** (0.000)
Growth	-0.002 (0.880)	0.028* (0.096)	-0.011 (0.373)	0.023 (0.184)	-0.009 (0.488)	0.023 (0.183)	0.016 (0.194)	0.031* (0.059)	0.009 (0.482)	0.025 (0.118)	0.010 (0.401)	0.025 (0.117)
Leverage	-0.015 (0.563)	-0.105*** (0.003)	-0.040 (0.1323)	-0.086** (0.014)	-0.016 (0.530)	-0.089** (0.011)	0.088*** (0.003)	-0.175*** (0.000)	0.070** (0.022)	-0.167*** (0.000)	0.097*** (0.001)	-0.167*** (0.000)
GDPgrw	-0.002* (0.052)	-0.003** (0.050)	-0.001 (0.288)	-0.003** (0.049)	-0.002 (0.107)	-0.003* (0.058)	-0.004*** (0.001)	0.002 (0.173)	-0.003** (0.044)	0.003 (0.105)	-0.003** (0.019)	0.003 (0.104)
Liquidity	0.065 (0.224)	-0.210*** (0.005)	0.138** (0.012)	-0.199*** (0.007)	0.092* (0.084)	-0.192** (0.010)	-0.119** (0.046)	-0.057 (0.456)	-0.045 (0.464)	-0.040 (0.600)	-0.081 (0.170)	-0.038 (0.617)
Exponedu	- (0.000)	- (0.004)	- (0.005)	- (0.012)	- (0.012)	- (0.012)	-0.008*** (0.000)	0.008*** (0.004)	-0.006*** (0.005)	0.007** (0.012)	-0.008*** (0.000)	0.007** (0.011)
Constant	0.113*** (0.000)	0.033 (0.212)	0.098*** (0.000)	0.036 (0.172)	0.090*** (0.000)	0.035 (0.187)	0.216*** (0.000)	-0.191*** (0.001)	0.150*** (0.001)	-0.167*** (0.003)	0.176*** (0.000)	-0.169*** (0.003)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes						
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes						
Observations	4,195	4,195	4,195	4,195	4,195	4,195	3,221	3,221	3,221	3,221	3,221	3,221
R-squared	0.246	0.241	0.207	0.246	0.257	0.247	0.320	0.259	0.281	0.264	0.334	0.264
F-test	64.66***	60.09***	51.81***	61.85***	62.68***	59.37***	68.41***	48.49***	56.83***	49.74***	66.65***	47.66***

*** p<0.01, ** p<0.05, * p<0.1

Table 6 Results from Robustness Tests - Rogers' Procedure and Propensity Score Matching

VARIABLES	Rogers' Procedure						Propensity Score Matching					
	Comp		Board		Comp & Board		Comp		Board		Comp & Board	
	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Comp	0.177*** (0.000)	-0.081*** (0.001)			0.143*** (0.000)	-0.050** (0.048)	0.178*** (0.000)	-0.093*** (0.001)			0.143*** (0.000)	-0.064** (0.016)
Comp*CountPG					0.024*** (0.000)		0.018*** (0.000)				0.024*** (0.000)	
Board			0.084*** (0.000)	-0.092*** (0.000)	0.056*** (0.000)	-0.086*** (0.000)			0.088*** (0.000)	-0.086*** (0.000)	0.058*** (0.000)	-0.078*** (0.000)
Board*CountPG			-0.015*** (0.000)		-0.017*** (0.000)				-0.015*** (0.000)		-0.016*** (0.000)	
CountPG	-0.004*** (0.000)	0.014*** (0.000)	0.002 (0.146)	0.013*** (0.000)	0.000 (0.826)	0.014*** (0.000)	-0.003*** (0.010)	0.010*** (0.000)	0.003** (0.011)	0.010*** (0.000)	0.002 (0.166)	0.010*** (0.000)
ExtCert		-0.439*** (0.000)		-0.445*** (0.000)		-0.439*** (0.000)		-0.432*** (0.000)		-0.439*** (0.000)		-0.430*** (0.000)
Excert*CountPG		0.066*** (0.000)		0.064*** (0.000)		0.064*** (0.000)		0.072*** (0.000)		0.069*** (0.000)		0.071*** (0.000)
EnvPoly	0.207*** (0.000)	-0.232*** (0.000)	0.206*** (0.000)	-0.238*** (0.000)	0.208*** (0.000)	-0.240*** (0.000)	0.225*** (0.000)	-0.205*** (0.000)	0.226*** (0.000)	-0.209*** (0.000)	0.228*** (0.000)	-0.213*** (0.000)
ROA	-0.550*** (0.000)	0.099 (0.159)	-0.559*** (0.000)	0.028 (0.688)	-0.579*** (0.000)	0.038 (0.591)	-0.545*** (0.000)	0.229*** (0.002)	-0.547*** (0.000)	0.157* (0.033)	-0.569*** (0.000)	0.171* (0.023)
Growth	-0.002 (0.865)	0.028** (0.029)	-0.011 (0.310)	0.022* (0.061)	-0.009 (0.469)	0.023* (0.061)	-0.002 (0.842)	0.030*** (0.000)	-0.012 (0.197)	0.025*** (0.002)	-0.008 (0.393)	0.025*** (0.001)
Leverage	-0.015 (0.537)	-0.105*** (0.000)	-0.040* (0.088)	-0.086*** (0.000)	-0.016 (0.519)	-0.089*** (0.000)	-0.049* (0.065)	-0.059*** (0.000)	-0.079*** (0.004)	-0.044*** (0.003)	-0.052* (0.056)	-0.049*** (0.001)
GDPgrw	-0.002*** (0.000)	-0.003*** (0.004)	-0.001** (0.020)	-0.003*** (0.003)	-0.002*** (0.001)	-0.003*** (0.006)	-0.003*** (0.000)	-0.005*** (0.000)	-0.002*** (0.000)	-0.005*** (0.000)	-0.002*** (0.000)	-0.005*** (0.000)
Liquidity	0.065 (0.200)	-0.210*** (0.005)	0.138*** (0.004)	-0.199** (0.013)	0.092* (0.089)	-0.192** (0.011)	0.048 (0.376)	-0.154* (0.083)	0.122** (0.016)	-0.153 (0.105)	0.070 (0.215)	-0.143 (0.110)
Constant	0.113*** (0.000)	0.033*** (0.000)	0.098*** (0.001)	0.036*** (0.000)	0.090*** (0.004)	0.035*** (0.000)	0.146*** (0.000)	0.004 (0.668)	0.131*** (0.000)	0.010 (0.272)	0.122*** (0.000)	0.008 (0.393)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes						
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes						
Observations	4,195	4,195	4,195	4,195	4,195	4,195	3,863	3,863	3,863	3,863	3,863	3,863
R-squared	0.245	0.241	0.207	0.246	0.257	0.247	0.268	0.251	0.226	0.255	0.279	0.256
F-test	712.06***	6567.51***	943.33***	3401.05***	999.53***	6909.97***	735.96***	3983.87***	880.11***	3515.66***	1062.88**	3630.31***

*** p<0.01, ** p<0.05, * p<0.1

Table 7 Robustness Test – Above vs. Below Aspiration levels (Process Model)

VARIABLES	<i>Comp</i>				<i>Board</i>			
	Above Aspiration		Below Aspiration		Above Aspiration		Below Aspiration	
	Eq.1	Eq. 2	Eq.1	Eq.2	Eq.1	Eq.2	Eq.1	Eq.2
Comp	0.273*** (0.000)	-0.047 (0.111)	-1.037*** (0.000)	-0.282*** (0.000)				
Comp*CountPG	0.025*** (0.000)		0.119*** (0.000)					
Board					0.052** (0.014)	-0.075*** (0.000)	0.097*** (0.000)	-0.240*** (0.000)
Board*CountPG					-0.008*** (0.001)		-0.014*** (0.000)	
CountPG	-0.006*** (0.000)	0.020*** (0.000)	-0.001 (0.424)	-0.004 (0.162)	-0.001 (0.472)	0.021*** (0.000)	0.003*** (0.008)	-0.008*** (0.001)
ExtCert		-0.480*** (0.000)		-0.194*** (0.003)		-0.491*** (0.000)		-0.085 (0.199)
ExCert*CountPG		0.067*** (0.000)		0.041*** (0.000)		0.067*** (0.000)		0.022** (0.047)
EnvPoly	0.235*** (0.000)	-0.107*** (0.000)	0.149*** (0.000)	-0.399*** (0.000)	0.244*** (0.000)	-0.115*** (0.000)	0.137*** (0.000)	-0.421*** (0.000)
ROA	-1.398*** (0.000)	0.141 (0.192)	0.352*** (0.000)	0.810*** (0.000)	-1.360*** (0.000)	0.072 (0.502)	0.448*** (0.000)	0.549*** (0.000)
Growth	-0.030** (0.033)	0.043** (0.018)	0.004 (0.875)	-0.083 (0.121)	-0.022 (0.138)	0.038** (0.037)	-0.007 (0.792)	-0.084 (0.110)
Leverage	-0.040 (0.230)	-0.203*** (0.000)	0.160*** (0.000)	-0.173*** (0.006)	-0.055 (0.113)	-0.201*** (0.000)	0.134*** (0.000)	0.004 (0.952)
GDPgrw	-0.003* (0.093)	-0.003 (0.137)	-0.001 (0.358)	-0.008*** (0.003)	-0.003** (0.040)	-0.003 (0.191)	-0.002 (0.130)	-0.011*** (0.000)
Liquidity	0.065 (0.460)	-0.292** (0.010)	-0.194*** (0.000)	0.272*** (0.009)	0.165* (0.079)	-0.264** (0.020)	-0.172*** (0.000)	0.288*** (0.005)
Constant	0.204*** (0.000)	-0.001 (0.984)	-0.070*** (0.005)	-0.288*** (0.000)	0.198*** (0.000)	0.003 (0.912)	-0.121*** (0.000)	-0.165*** (0.003)
Year dummy	Yes							
Industry dummy	Yes							
Observations	2,873	2,873	1,322	1,322	2,873	2,873	1,322	1,322
R-squared	0.345	0.307	0.323	0.269	0.263	0.311	0.320	0.289
F test	71.55***	57.43***	32.75***	23.96***	48.33***	58.51***	32.21***	26.41***

*** p<0.01, ** p<0.05, * p<0.1

Figure 1 Theoretical Framework

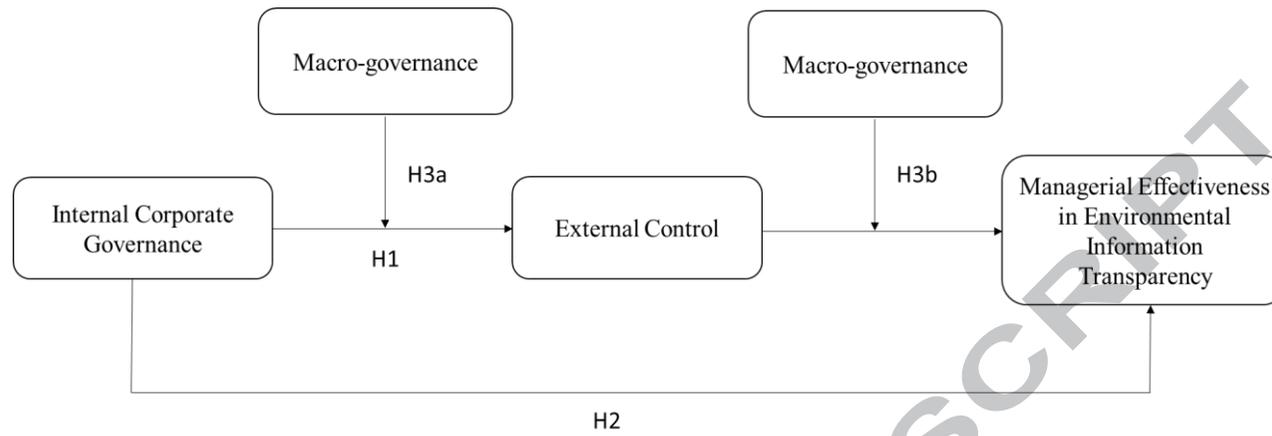
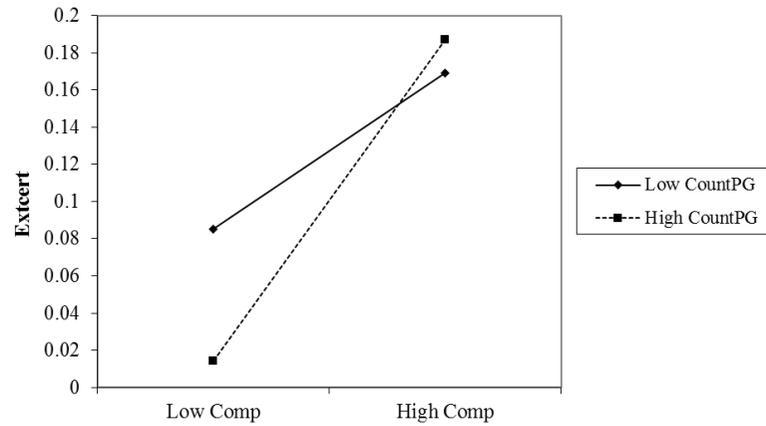


Figure 2 Interactions in Equation (1)

Interaction between Compensation and Legal and business environment



Interaction between Board independence and Legal and business environment

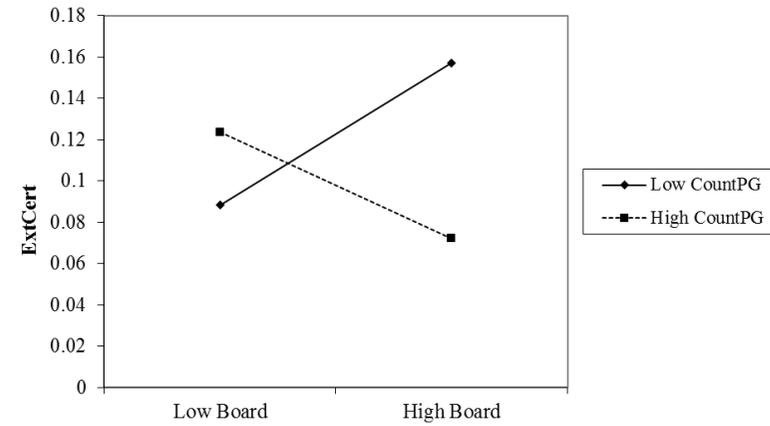


Figure 2 Interactions between External Verification and Legal and business environment in Equation (2)