The effect of mandatory regulation on corporate social responsibility reporting quality: evidence from China

The Effect Of Mandatory Regulation On Corporate Social Responsibility Reporting Quality: Evidence From China

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ABSTRACT

Corporate Social Responsibility (CSR) disclosure has attracted attention from regulatory bodies and academics over the past few decades. Due to the unreliability resulted from CSR voluntary disclosure, an increasing number of researchers are calling for more government regulation on CSR disclosure. Based on 1830 standalone CSR reports disclosed by the Chinese-listed firms during 2009-2012, we examine the effect of mandatory regulation on CSR reporting quality. We further hypothesize and test for the moderating effect of firm size and other characteristics on the link between government regulation on CSR reporting quality. Our results suggest that government mandatory regulation leads to an overall improvement in CSR reporting quality. We also find that this positive effect is greater when firms are larger and have better financial performance, but less when firms are controlled by government. Our study provides a direct answer to the recent calling for mandatory disclosure on CSR reports, and helps to understand why recent studies of social disclosure regulation suggest that government interventions do not seem to resolve the problems that are generally attributed to voluntary disclosures. Our findings should be of interest to the academics, regulators, and investors.

Keywords: Corporate Social Responsibility (CSR) Report; Reporting Quality; Government Regulation

1. INTRODUCTION

$\mathcal{O}$ ver the past few decades, Corporate Social Responsibility (CSR) campaigns have developed extensively across the globe. An increasing number of firms have spent substantive efforts in preparing standalone CSR reports to disclose information on their social and environmental performance. For a long period, CSR report was regarded as a part of voluntary information disclosure and two different perspectives have been developed to explain the reason why firms are disclosing CSR reports in a voluntary context. On the one hand, firms with "good" social and environmental performance records might use standalone CSR reports as important signals of their superior commitment to CSR (Mahoney et al., 2012). On the other hand, "bad" corporate citizens are more likely to employ CSR disclosure to "greenwash" themselves (Clarkson et al., 2008) or use the report to influence and enhance stakeholders' perceptions of the appropriateness of their firms' pro social and environmental actions (Ramanathan, 1976; Lindblom, 1994; Patten, 1991; Lyon and Maxwell, 2011). Thus, a voluntary information disclosure model leads to information asymmetry about firms' CSR practices and makes the resources needed to gather the available information about firms' commitment to social and environmental activities difficult to find or not available (Belal and Cooper, 2011), and ultimately makes it difficult for stakeholders to determine which firms are "good" or "bad" (Gugerty, 2009). Mahoney et al. (2012) provide evidence that U.S. firms voluntarily issue standalone CSR reports because stakeholders cannot distinguish between "good" and "bad" corporate citizens in the absence of mandatory disclosure. Clarkson et al. (2011) express a similar opinion after comparing voluntary environmental disclosure with the actual environmental performance in a sample of Australian firms. They believe that "both the level and nature of environmental disclosure provided by a firm may not be indicative of its underlying environmental performance" (Clarkson et al., 2011) and call for enhanced mandatory reporting.

However, there is very little evidence regarding the impact of mandatory disclosure policy on the quality of CSR reporting. In addition, recent studies of social disclosure regulation suggest that government interventions do not seem to resolve the problems that are generally associated with voluntary disclosures (see, for example, Larrinaga et al., 2002; Criado et al., 2008). These findings could have at least two implications for us: they call for the researchers' attention to the role the government played in the process of business legitimacy through CSR reporting strategy; and ultimately the effect of mandatory regulation that government developed on CSR reporting practices. These are the two primary aspects that this research aims to fill.

Our empirical context is the introduction and spread of CSR reporting among all public listed Chinese firms from 2009 to 2012. Before 2008, the number of Chinese firms issuing CSR reporting is quite limited[1]. In May 2008, the Chinese Stock Regulatory Commission (CSRC) made the CSR report a mandatory requirement for three types of firms listed on the Shanghai Stock Exchange (SSE) (i.e., firms from the finance industry, firms listed on foreign stock exchanges[2], and firms in the SSE corporate governance composite index group[3]) and firms belonging to the Shenzhen 100 stock composite index of Shenzhen Stock Exchange (SZSE). Triggered by such mandatory disclosure initiation, the number of Chinese listed firms issuing CSR reports jumped from only 21 in 2006 to 371 in 2009. This provides us a quasi-natural experiment setting to investigate the effect of government's mandatory regulation on reporting quality of CSR disclosure, and thus can help us fill in the research gap with empirical evidence of the effects of mandatory CSR disclosure requirements.

In addition, a number of studies have demonstrated that CSR disclosure could be affected by many other characteristics, such as the size of firms. For example, Watts and Zimmerman (1978) argue that larger firms are more visible in the public eyes and more politically sensitive. There has hence made them more willing to disclose more CSR information than the smaller ones. Moreover, in many economies, there is significant number of governmental ownerships of firms, which is a key source of legitimacy and provides positional advantages for such firms (Faccio and Lang, 2002; La Porta et al., 1999). However, in terms of the effect of governmental ownership on corporate disclosure quality, no consensus conclusion has been reached. If also taking the influence of the government's mandatory disclosure requirement into account, its combined effects with state ownership have yet been extensively investigated.

By investigating the effect of government's mandatory disclosure on CSR reporting quality in Chinese market, this study contributes to the corporate social responsibility literature from the following three perspectives. *First of all*, *this paper provides an overview of CSR reporting development in China and empirical evidence on the development of CSR reporting quality in a more mandatory context*. Although there are a few studies have been conducted focusing on CSR development in China, their interests were on CSR responses (Xu et al., 2010), determinants of green practice adoption (Lin et al., 2011), and CSR information dispersal in annual reports (Wang et al., 2012). Instead of assessing the CSR information quantity and the extent in annual reports, this paper focuses on the quality of standalone CSR reports. Moreover, this study focuses on the fast development period of CSR reporting in China which began in 2009. As such, it provides an updation on the development of standalone CSR reporting and its quality in China.

Secondly, this study helps us understand the effect of some firm-specific characteristics and their possible interactions with government's mandatory regulation on CSR reporting quality. By using the accounting-based firm characteristics, we examine how the effect of government regulation varies across different types of firms, which offers insights on when government regulation becomes more salient. Our findings demonstrate the significant moderating effect of firm size and financial performance on the link between government regulation and CSR reporting quality. Results indicate that the positive effect of regulation is greater for firms who are larger in size and have better financial performance. Regulators can use these results to understand how regulation policy can be

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[1] According to CorporateRegister.com (2011), the total number of Chinese firms' CSR reporting is not more than 30 by the end of 2007.

[2] This kind of firms are required to disclose CSR reporting mainly because the international pressure faced by these firms when cross-listing on international stock market exchanges such as Hong Kong Stock Exchange (HKSE) or New York Stock Exchange (NYSE).

[3] The corporate governance composite index group was initiated by the Shanghai Stock Exchange to promote better corporate governance structure. The first index was issued on the first trading day in 2008. Corporations on the SSE can apply to be included. Applications are evaluated for inclusion by a special committee organized by the exchange. Firms on the composite index are reviewed each year. Corporation with bad behaviors would be removed from the index group. In general, firms in this group are often viewed as ones that have better corporate governance practices.

leveraged by the firms, and investors can use these results to understand how firms carry out their potential political strategies to optimize return on investment.

Lastly, this study enriches our understanding of the roles played by the government in influencing firms' CSR reporting quality and helps us identify the mechanisms that government could use to influence the CSR reporting quality in a more pluralist society. Although several studies have examined the role of government in CSR activities, they focus only on either the political function (i.e. on political cost (Watts and Zimmerman 1978), political dependence and political monitoring (Marquis and Qian 2013)), or the economic function (Ghazali 2007; Wang et al. 2012). Few researchers have examined both political function and economic function together in their studies. When a firm is subject to a mandatory regulation and its ownership is highly concentrated and controlled by the government, the government in fact concurrently assumes both political regulation and economic control on corporations. Our findings show that political regulation through issuing regulatory disclosure does improve CSR reporting quality as people anticipated, but governmental economic control on listed firms cancels out the positive link between regulation and CSR reporting quality, in particular for government controlled larger firms, which gives insights into the reasons why recent studies of social disclosure regulation suggest that government interventions do not seem to resolve the problems that are generally attributed to voluntary disclosures. This is important to the regulators, both in China and across the world.

The rest of this paper is organized as follows. Section 2 reviews relevant theories and develops the hypotheses to be tested. Section 3 outlines the study design and research methodology. Section 4 presents empirical results and their interpretation. Section 5 concludes the paper with a description of its limitations, and an outlook on further research.

2.　LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The focus of this study is on examining the effect of mandatory disclosure regulation on CSR reporting quality and what are the moderating factors which might impact on this issue. A number of researches have investigated the governmental and regulatory influence on organization's behavior. Freeman (1984) defines a stakeholder as "a person or group that can affect or is affected by the achievement of the organization's objectives, including shareholders, creditors, suppliers, employees and government as well". In particular, he discussed the role of government legislative bodies as corporate stakeholders. Watts and Zimmerman (1978) developed a political cost hypothesis to argue that firms employ social responsibility activities to reduce the risk of governmental intrusions, such as regulation, that may adversely affect firm value. The stakeholder concept and the political cost hypothesis both recognize the ability of government to have a direct impact on corporate strategy and performance. Accordingly, it is crucial to investigate the impact of governmental mandatory regulation on CSR reporting quality.

On the other hand, the effects of government mandatory regulation cannot be accurately identified without fully understanding how a firm's background, situation and position may affect its political dependence and associated pressures, and ultimately influence the business strategy in CSR reporting (Marquis and Qian, 2013). Governments control critical resources that could shape firms' competitive positions in various ways, for example, through regulations affecting a certain industry or through tax policies favoring certain regions (Baron, 1995; Schuler et al., 1997). Scholars have identified a number of ways that firms act strategically in managing their relationships with government or its affiliates, including political activities such as lobbying and advocacy (Hillman, 2003; Hillman et al., 2004). While this set of research has focused on how firms work to shape government rule-making processes actively, other researches have shown that in addition to setting rules and coercive processes, governments also utilize signaling process to create norms and standards of legitimacy for firms (Dobbin and Sutton, 1998). Marquis and Qian (2013) find that a firm's response to government regulation regarding CSR is not a simple process as it could be influenced by firm size or other factors (Holder-Webb et al., 2009; Branco and Rodrigues, 2008a, 2008b).

In addition, from the regulatory perspective, it is also crucial to understand the moderating factors that make government regulation more or less salient. In particular, we investigate how firm size moderates the effect of governmental regulation on CSR reporting quality. For investors, especially the investors engaging in social responsibility investment, it is important to know what kinds of firms are more likely to provide reliable CSR reports with high quality and who are box-checking the regulation requirement. Thus, an understanding of how the effect of regulation varies across different types of firms could help the investors to identify the firms with good investment

potential. In examining the impact of mandatory regulation on CSR reporting quality, we draw on CSR disclosure literature to identify key firm characteristics that can help in ascertaining the differential response among different firms and aid decision making, and focus on two sets of factors that can moderate this relationship: (a) firm size and (b) other related characteristics (i.e., ownership, financial performance and financial risk).

2.1 CSR Reporting Quality and Government Regulation

In the field of CSR activities and disclosure, whereas a Western company might "focus on its customers and community as its most vital constituencies, the government sits at the top of the CSR pyramid in China as the important stakeholders in a business" (ChinaCSR, 2009). Government acts as a strong driver of CSR activities by playing pull and push effects. Focusing on the pull effect, Lin et al. (2011) suggest that government support is significantly and positively related to the green practices adopted in China. This results from the close dependence of CSR on technical innovation, such as the adoption of alternative energy technologies and environmentally friendly technologies. Technical innovation relies on the availability of external resources. The government can meet an enterprise's needs by providing governmental subsidies or tax incentives for alternative energy technologies, and bank financing at lower rates for environmentally friendly technologies (Aragon-Correa and Sharma, 2003). Meanwhile, the government can also advance technical innovation by providing financial incentives, technical resources, pilot projects, and training programs (Scupola, 2003; Tornatzky and Fleischer, 1990).

The pull effect may not be universal, but the push effect is necessary for CSR development. Muthuri et al. (2011) investigate the development of CSR in Kenya and conclude that the slowness of CSR development can be attributed to the absence of government regulation. The Kenyan government is reluctant to impose regulations for fear of creating an unfavorable investment environment and discouraging domestic investment. Such concern has mitigated the introduction and enforcement of more stringent regulations for firms (Mwaura, 2005; Opondo, 2009). Campbell (2007) points out that firms are likely to act in socially responsible ways if there are strong and well-enforced state regulations, industry associations, and private independent organizations such as the NGOs who encourage, monitor, and enforce rules and regulations. Lin et al. (2011) report a significant positive relation between government regulation and the adoption of green practices in China.

With regard to the CSR information disclosure, mandatory disclosure of standalone CSR reports is on the rise over the past decades, though voluntary disclosure is more common among the developed nations with the exception of public corporations in Sweden, Norway, the Netherlands, Denmark, France and Australia (Frost, 2007). Looking at China, the role government played in CSR information disclosure is more likely to be related to the push effect. As noted above, several kinds of Chinese listed firms are required by the government regulatory agencies (i.e., CSRC, SSE and SZSE) to provide CSR reports. According to the stakeholder theory, pressures from the stakeholders are the main force in driving firms to issue CSR reports. Thus, firms that are required to disclose CSR reports will face additional regulatory pressure than the others.

Moreover, CSR information disclosure is not free. Firms need to not only balance the tradeoff between stakeholders, but also the costs of producing information and the benefits directly or indirectly arising from the disclosure of information. Given that the benefits arising from the information disclosure are not clear and are difficult to measure, reducing potential costs might be a primary consideration. Studies have demonstrated that political costs are closely related to CSR disclosure (Watts and Zimmerman, 1978), and provided evidence on the argument that environmental disclosure is an effective tool for reducing exposure to potential political costs (Patten and Trompeter, 2003). Consequently, we posit the following hypotheses:

H1: Mandatory disclosure regulation on CSR reporting will have a positive impact on the quality of CSR reporting.

2.2 Interaction Effect with Firm Size

CSR activities and disclosure are closely related to firm size. According to the stakeholder theory, firms should try to fulfill stakeholders' demands, which, at least in the long run, results in higher economic profits (Freeman, 1984; Donaldson and Preston, 1995; Freeman, 1999). This is because the performance information provided by corporations facilitates the understanding and support between stakeholders and company actions, improves corporate reputation,

and increases corporation value and operating performance (Roberts, 1992; Woodward et al., 1996). However, firms with different sizes face different stakeholders' pressure. Larger organizations such as BP and Shell are under intense public scrutiny due to the nature of their operations. Other studies have provided empirical evidence on the relationship between CSR information disclosure and firm size, and detected a positive direct relationship between the contents of CSR reports and the size of the firm (e.g. Trotman and Bradley, 1981; Belkaoui and Karpik, 1989; Patten, 1991; Deegan and Gordon, 1996; Hackston and Milne, 1996; Adams et al., 1998; Richardson and Welker, 2001; Abdul Hamid, 2004; Haniffa and Cooke, 2005). Marquis and Qian (2013) further argue that larger firms may have more staff and infrastructure which allow them to issue CSR reports in addition to other comprehensive information.

Although mandatory regulation on CSR reporting and firm size are expected to have a positive effect on CSR reporting quality in general, firms of different sizes might response to the regulations of the government differently. Compared with the smaller companies, larger firms usually suffer more rigorous scrutiny from the regulatory agencies. Watts and Zimmerman (1978) argue that larger firms falling into the mandatory requirements are more politically sensitive and more visible in the stakeholders' eye than the smaller ones. Accordingly, the magnitude of political costs arising from non-compliance with CSR regulation is expected to be higher for larger firms. For example, one would not expect a firm with $10 million asset to generate the same political cost as a firm with $10 billion asset. As a result, managers of larger firms may disclose social activities in a standalone CSR report partly as the strategy to manage or reduce political costs by satisfying the mandatory requirements (Patten, 1991; Andres, 1985). Consequently, facing government regulation on CSR reporting, larger firms are more likely to have a positive response to these regulations due to the rigorous scrutiny and provide better reports than smaller ones. As such, we posit the following hypothesis:

H2: The impact of mandatory regulation on CSR reporting quality will be greater for larger firms.

2.3 Interaction Effects with Firm Characteristics

As Marquis and Qian (2013) noted, the effects of government regulation cannot be accurately identified without fully understanding how a firm's background, situation and position affect its political dependence and associated pressures, and ultimately influence the organizational response or behavior in CSR reporting. This study further tries to capture the potential effects of firms' ownership, profitability and financial risk on the link between mandatory regulation and CSR reporting quality.

Corporate owner: Government is not only a key regulator and policymaker but also holds ownership stakes in many firms, both large and small (Marquis and Qian, 2013). Based on the ultimate ownership identity, all corporations can be divided into two groups: the government controlled firms and the non-government controlled firms (or private firms). Mahoney et al. (2012) indicate that firms use standalone CSR reports as an important signal of their superior commitment to CSR to obtain the benefits conferred upon "good" corporate citizens, e.g., reducing their capital cost or obtaining bank funding. Due to the existing political connections between government-controlled firms and the government, however, government-controlled firms do not have strong motivations to use high quality CSR reporting as a strategy to obtain the government resources. They do not endure severe funding pressures and can obtain financial supports more easily than private counterparts even if they experience a severe operating difficulty. In addition, the close political connection might reduce the potential political cost of the government-controlled large firms for non-compliance with government regulation. Thus, government-controlled firms do not have pressures to issue higher-quality CSR reports.

Moreover, the close political connection also cripples the government monitoring function due to the low decoupling risk (Duan, 2012). According to Meyer and Rowan (1977), decoupling is a useful strategy, whereby firms deal with stakeholders' demands by symbolically complying with a demand without making substantive changes to make organizations maintain legitimate, and formal structures. If a firm's information disclosure is monitored, the decoupling risk is high and the decoupling degree would be reduced. As a matter of fact, however, the monitoring on CSR activities and information disclosure is inadequate due to the absence of a detailed mandatory disclosure guideline in China. As such, government-controlled larger firms are more likely to symbolically provide CSR reporting to satisfy with the mandatory requirements at the cost of reporting quality.

Additionally, government controlled firms enjoy more political legitimacy than private counterparts (Marquis and Qian, 2013). For instance, Li and Zhang (2007) argue that government-controlled firms "have legitimacy and receive support or even protection from the government agencies that have founded them". Marquis and Qian (2013) also suggest that since these government-controlled firms have been granted with the most political legitimacy, and thus, the least need to use activities such as high quality CSR reporting to seek preferred status and associated resources from the government (Ma and Parish, 2006). Furthermore, the political connections and political legitimacy both depend on firm size. The larger the corporations, the closer political connections, and the more political legitimacy they will have. Consequently, we posit the following hypothesis:

H3a: The joint impact of mandatory regulation and firm size on a firm's CSR reporting quality will be lower for government-controlled firms than private firms.

Profitability. With regard to the relationship between financial performance and social disclosure, prior literature documented a weak association between CSR disclosure and profitability (Belkaoui and Karpik, 1989; Patten, 1991; Hackston and Milne, 1996; Richardson and Welker, 2001). However, Balabanis et al. (1998) found some statistically significant evidence of a positive association between CSR disclosure and profitability. This is likely to happen in certain circumstance. First, prior studies have shown that firms with greater available financial resources are more likely to engage in political activities (Schuler et al., 1997) and capture a larger proportion of the associated benefits (Hillman et al., 2004). In a mandatory disclosure context, the purpose of providing CSR reporting is more likely to gain legitimacy from the government than others. Therefore, firms with higher profitability are also the ones that are more likely to mobilize the necessary resources to issue CSR reports. Second, greater financial resources may create higher external pressure for these firms to be more transparent and engage into more CSR related activities and finally, to produce a better standalone CSR report (Marquis and Qian, 2013). Accordingly, we posit the following hypothesis:

H3b: The joint impact of mandatory regulation and firm size on a firm's CSR reporting quality will be greater for firms with high profitability than those with low profitability.

Financial risk. The relationship between financial risk and corporate social disclosure has been focused in academic research. Depending on the type of conceptualisation and operationalisation of financial risk, previous findings on the relationship between financial risk and CSR disclosure have been largely inconclusive. One argument is that if a corporation perceives its stakeholders are concerned with social responsibility activities, the corporation will have greater incentives to disclose its activities from the legitimacy conceptual context (Ullmann, 1985). Richardson and Welker (2001) confirm that firms in high financial risk portfolios are more likely to provide more CSR information in order to gain support from the creditors. However, Hull and Rothenberg (2008) suggest that when the firms facing high leverage, it would be difficult for them to channel the limited resources towards corporate social performance. After all, high investment in social responsibility results in additional costs. Belkaoui et al. (1989) also provide evidence that firms which disclose social information are less financially levered.

In the context of governmental regulation, firms exposing to higher financial risk level might have stronger motivations to disclose CSR reporting. The underlying logic is that with the issuance of mandatory disclosure requirement, government becomes the primary stakeholder and political legitimacy becomes the principal task for those firms that are required to disclose CSR reports. In order to gain political legitimacy, firms facing higher financial risk would exhaust their ability to provide the CSR reports required despite the high costs incurred. Furthermore, the larger the firm, the higher political legitimacy pressures it may face. Hence, we posit the following hypothesis:

H3c: The joint impact of mandatory regulation and firm size on a firm's CSR reporting quality will be greater for firms with higher financial risk than for those with lower financial risk.

3. RESEARCH METHODOLOGY

3.1 Sample and Data Collection

The main focus of this study is the role of government played in the process of business strategy through standalone CSR reports and its influence on the quality of CSR reporting. CSR reporting quality is regarded as an overall

evaluation of the CSR activities portrayed in the CSR report. The CSR reporting quality evaluation scores was obtained from an independent CSR rating agency, Rankins (RKS) Inc.[4] Scores are measured with reference to the MCTi rating index, which is developed to evaluate the CSR reporting quality by using Structured Experts Scoring Method (SECM) to conduct a comprehensive evaluation across the following four dimensions: macrocosm, content, technique, and related industry characteristic. Macrocosm (M) is about the overall evaluation, which includes a firm's CSR strategy, corporate governance, and extent of stakeholders' participation in CSR activities. It contributes to 30% (with a full score of 30) of the total score. Content (C) focuses on specific metrics for economic, environment, and social responsibilities, and contributes to 45% (with a full score of 45) of the total score. Technique (T) relates to items such as the comparability, reliability, transparency, innovativeness, regularity, and availability of report information, and accounts for 15% (with a full score of 15) of the overall score. Industry (i) is mainly concerned with the industry variance and particularity, and contributes to 10% (with a full score of 10)[5] of the total score. The sum of M, C, T and i dimension is the final score, which ranges from 0 to 100. The higher the score, the better the CSR reporting quality is.

With regard to the validity of RKS score in evaluating CSR reporting quality, we perform a preliminary test to examine the relationship between CSR reporting quality scores by RKS and several variables that are related to CSR reporting disclosure levels in the prior literature. Specifically, we follow Richardson et al. (2001) and Patten (1991, 2002) and regress CSR reporting score on firm size, financial performance, debt ratio, and industry (results available upon request). The regression results indicate that nearly 40% of the variation of CSR reporting quality can be explained by the selected variables and the signs of coefficients are consistent with the prior literatures in general. It suggests that the CSR reporting rating scores provided by the RKS database are reliable for academic studies.

There are three major advantages of using the RKS rating score as the measure of CSR reporting quality. First, the RKS rating system focuses on the evaluation of standalone CSR reporting quality, rather than the information disclosed in the annual reports or CSR performance. This matches the purpose of this study well. Second, using all the available data related to multidimensional aspects of the corporate social responsibility reports, the RKS database is constructed by a group of professionals who are not directly connected with the firms. This hence reinforced the independence and reliability of the data. Third, the RKS database is objective. In previous studies, CSR disclosure levels are mostly measured by a certain researcher (group), and this could be affected by his/her special research themes. The CSR report score from RKS is more neutral and less likely to be favored or biased to a particular study.

Our initial sample consists of all Chinese listed A-share firms that received a CSR reporting quality score from the RKS database during 2009-2012. We exclude 39 companies listed on the Growth Enterprises Market (GEM) on the SZSE due to the particularity of the information disclosure and regulation system. Corporate ultimate ownership information was manually collected from the annual reports of the sample firms, which are available from the official websites of the SSE (http://www.sse.com.cn) and the SZSE (http://www.szse.cn). Seventy-three reports were removed due to missing data and this has resulted in a final sample size of 1,830 CSR reports, representing a total of 606 listed firms. During the four year period, 284 listed firms issued four CSR reports, 149 firms issued three CSR reports, 74 firms issued two CSR reports, and 99 firms issued only one CSR report. Among them, 464 sample firms have issued CSR reports in at least two consecutive years.

3.2 Measures

3.2.1 Independent Variables

We use the following basic independent variables: regulation related to the disclosure willingness, which is measured as a dummy variable, taking the value of "1" if firm i is a member in the mandatory group in year t, and "0" otherwise. Firm size is measured as the logarithm of total assets at prior year-end. Corporate owner, is also a dummy variable, taking the value of "1" if firm i is controlled by the government in year t, and "0" otherwise. Profitability is measured

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[4] Rankins (RKS) Inc. is a private and professional China-specific CSR rating agency established in Beijing in 2007. It is independent of the government, whose organization is modeled on US social investment rating agency KLD Research & Analytics, Inc. Like KLD, RKS Inc. is entirely independent of the companies it rates. All evaluation materials are from public CSR reports issued by listed firms.

[5] For firms falling in the conglomerate and other machinery industry, the weight of "M", "C" and "T" is 30, 50 and 20 respectively, due to the fact that "i" dimension is not measured.

as return on assets (ROA) at prior year-end. For financial risks, this study uses the debt ratio which is calculated as the ratio of "total debt to total assets" at prior year-end.

3.2.2 Control Variables

In order to control for the influence of the market environment, we use a dummy variable "LIST" to capture the potential impact of different stock exchanges. Next, we select three dummy variables to control for the potential influence of the disclosure period. Finally, evidence from previous studies demonstrates that political and societal cost varies across industries (Verrecchia, 1983), and industry may relate to risks to society, competition and government interference (Gao et al., 2005). This paper uses 20 dummy variables to capture the potential impact of different industries on CSR reporting quality. All data related to the financial ratio and industry classifications are from the China Stock Market Accounting Research (CSMAR) database. Table 1 summarizes the independent and control variables, as well as explanations of their abbreviations and measurement.

Table 1. Independent variables and control variables

Variables	Abbreviation	Definition
Regulation	REG	Dummy variable, takes the value of "1" if firm j is a member falling in the mandatory group in year t, and "0" otherwise
Firm size	SIZE	Numerical variable, represented by the natural logarithm of total assets at the end of year t-1
Corporate owner	GOV	Dummy variable, takes the value of "1" if firm j is a member controlled by the government in year t, and "0" otherwise
Return on Asset	ROA	Numerical variable, represented by the ratio of profit before tax to total assets at the end of year t-1.
Debt ratio	DEBT	Numerical variable, represented by the ratio of total debt to total asset at the end of year t-1
Listing market	LIST	Dummy variable, takes the value of "1" if the firm listed in SSE, and "0" otherwise
Year 2012	Y2012	Dummy variable, takes the value of "1" if the CSR report was issued in 2012, and "0" otherwise
Year 2011	Y2011	Dummy variable, takes the value of "1" if the CSR report was issued in 2011, and "0" otherwise
Year 2010	Y2010	Dummy variable, takes the value of "1" if the CSR report was issued in 2010, and "0" otherwise
Industry	IND_j	Dummy variable, takes the value of "1" if the firm falls in a certain industry; and "0" otherwise; j=(1, 2…., 20)

3.3 Models

Equation (1) presents a generalized model for different specifications on the right hand side to test the proposed hypotheses:

$$CSRR_{it} = \alpha_0 + \sum \alpha_{it} ExplanatoryVariables_{it} + \sum \gamma_{it} ControlVariables_{it} + \varepsilon \qquad (1)$$

where *CSRR_{it}* refers to CSR Reporting quality score of company *i* in year *t*; *Explanatory Variables* basically refers to the independent variables, including regulation environment (*REG*), firm size (*SIZE*), corporate owner (*GOV*), profitability (*ROA*), and financial risk (*DEBT*), *Control Variables* basically refer to company listing market (*LIST*), 3 variables labeled disclosure period, *Y2012*, *Y2011* and *Y2010*, 20 industry dummy variables (*IND_j*); and *ε* is the error term.

In order to test whether there is a moderating effect of firm size on the link between government regulation and CSR reporting quality, we follow the approach suggested by Baron and Kenny (1986) and build the main effect model (e.g. Equation (2)) and interactive effect model (e.g. Equation (3)) to test the moderating effect of firm size.

$$CSRR_{it} = \alpha_1 + \lambda REG + \lambda_2 SIZE + \sum \gamma_{it} ControlVariables + \varepsilon_1 \qquad (2)$$

$$CSRR_{it} = \alpha_2 + \varphi_1 REG + \varphi_2 SIZE + \varphi_3 REG * SIZE + \sum \gamma_{it} ControlVariables + \varepsilon_2 \qquad (3)$$

Similarly, we further build the generalized models (4) and (5) to investigate the joint interactive effect of firm size and regulation on CSR reporting quality for the moderators (i.e. government ownership, financial performance, and financial risk):

$$CSRR_{it} = \alpha_3 + \eta_1 REG + \eta_2 SIZE + \eta_3 REG * SIZE + \eta_4 Moderator + \sum \gamma_{it} ControlVariables + \varepsilon_3 \qquad (4)$$

$$CSRR_{it} = \alpha_4 + \theta_1 REG + \theta_2 SIZE + \theta_3 REG * SIZE + \theta_4 Moderator + \theta_5 REG * SIZE * Moderator + \sum \gamma_{it} ControlVariables + \varepsilon_4 \qquad (5)$$

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 2 presents the sample distribution. Panel A in Table 2 presents the distribution of firms issuing CSR reports according to the Guideline of industry classification of CSRC (2001). Twenty-one industries have been covered in this study. With a total number of 269 firms from the Machinery, Equipment, and Meter industry provided the largest population of CSR reports, accounting for 14.70% of all sample firms. This is followed by the Metal, Nonmetallic Mineral Product industry. The Communication & Culture industry provided the fewest reports (14 in four years). In addition, from the trend-changing perspective, the number of CSR reports increased across time in all industries except the Communication & Culture industry. The small provision of CSR reporting and the relatively flat trend change in this industry perhaps reflect the lower level of environmental impact and proximity to consumers among these firms. The Machinery, Equipment and Meter industry had the largest increase during the four-year research sample period.

Table 2. Sample Distribution

Distribution Criteria	2009	2010	2011	2012	Total
Panel A: by industry					
Agriculture, Forestry, Fishing & Hunting	5	5	8	9	27
Mining	17	26	25	29	97
Food & Beverage	16	15	14	21	66
Textile, Apparel & Leather	10	10	12	15	47
Paper & Printing	6	9	8	11	34
Petroleum. Chemical Product, Plastics & Rubber	24	30	32	39	125
Electrical Equipment	16	17	18	19	70
Metal, Nonmetallic Mineral Product	45	46	49	55	195
Machinery, Equipment & Meter	52	63	72	82	269
Pharmacy, Biology Product	17	25	26	27	95
Other Machinery	4	5	5	5	19
Electricity, Gas & Water Supply	23	23	24	26	96
Construction	9	13	13	15	50
Transport Storage	25	32	35	37	129
Information Technology	22	26	31	31	110
Wholesale & Retail	12	21	25	26	84
Finance & Insurance	15	22	25	31	93
Real Estate	19	28	29	37	113
Social Service	6	7	8	10	31
Communication & Culture	3	4	4	3	14
Conglomerate	12	19	19	16	66
Total	358	446	482	544	1830

(Table 2 continued on next page)

(Table 2 continued)

Distribution Criteria	2009	2010	2011	2012	Total
Panel B: by disclosure willingness					
Mandatory	287	337	343	371	1338
Voluntary	71	109	139	173	492
Panel C: by Stock Exchange					
SSE	204	291	306	336	1137
SZSE	154	155	176	208	693
Panel D: by Listing Board					
Main Board	308	397	417	453	1575
SME Board	50	49	65	91	255

As seen in Panel B, the mandatory group provided the majority of CSR reports during the four sample years, accounting for 73% of the final sample. This suggests that the CSR reporting disclosure wave was largely driven by the mandatory disclosure requirement. The stock exchange distribution in Panel C indicates that nearly two-thirds of the CSR reporting activities issued in 2009 were provided by firms listed on the SSE, and these firms accounted for four-fifths of the total increase in CSR reports over the following three years.

In addition, two boards are covered in this study. One is the Main Board, which includes companies with more than 100 million outstanding shares and the other is the SME (Small-Medium Enterprises) Board. Panel D in Table 2 indicates that companies listed on Main Board tend to issue more CSR reports, with a final year's number of 1,575 reports of the 1,830 in the sample (the SME Board accounts for only 13.93% of the entire sample).

Table 3 presents the information descriptive of the CSR reporting quality scores during the sample years. Panel A in Table 3 shows an apparent increase in disclosure quality over time, with a yearly average increase of 2.55 (mean) and 1.97 (median) during the period 2009-2012. Panel B indicates that in average, CSR reporting quality scores 34.89 in the mandatory group, which is higher than that of the voluntary group. According to Panel C, CSR disclosure quality of firms listed on the SSE is marginally higher than that of firms listed on the SZSE. Finally, Panel D shows that the average quality of CSR reports provided by firms listed on the Main Board is better than those listed on the SME Board.

Table 3. Descriptive Statistics of CSR Reporting Quality Score

	N (%)	Mean	SD	Median	Minimum	Maximum
Panel A: by Year						
2009	358(19.56%)	29.38	9.69	27.03	15.20	72.09
2010	446(24.37%)	32.57	12.20	29.15	11.69	78.71
2011	482(26.34%)	34.76	13.80	30.86	13.33	81.46
2012	544(29.73%)	37.03	13.55	32.94	15.12	83.67
Panel B: by Disclosure Willingness						
Mandatory	1338(73.11%)	34.89	13.71	30.95	11.69	83.67
Voluntary	492(26.89%)	31.01	10.01	28.67	14.14	75.22
Panel C: by Stock Exchange						
SSE	1137(62.13%)	34.70	14.24	30.67	11.69	83.67
SZSE	693(37.87%)	32.46	10.29	29.74	13.33	76.07
Panel D: by Listing Board						
Main Board	1575(86.07%)	34.18	13.35	30.56	11.69	83.67
SME Board	255(13.93%)	31.79	9.76	29.21	15.56	67.01

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Table 4 provides distributional characteristics for the variables employed in the study with the exception of the dummy-variable proxies for industry and disclosure period, the descriptive characteristics of which can be obtained from Tables 2 and 3. CSR reporting score averages 33.85 (out of a possible full score 100), and ranges from 11.69 to 83.673, with a median score of 30.29, which shows that CSR reporting quality of Chinese listed firms is relatively low.

Table 4. Descriptive Statistics of Variables (excluding industry and disclosure period)

Variables	N	Mean	SD	Median	Minimum	Maximum
Panel A: Continuous variables						
CSRR	1830	33.850	12.934	30.290	11.690	83.673
SIZE	1830	22.862	1.730	22.622	18.266	30.370
ROA	1830	0.065	0.067	0.053	-0.318	0.759
DEBT	1830	0.520	0.202	0.529	0.037	1.842
Panel B: Categorical variables						
REG		1=Yes			0=No	
(Number/Percentage):		1338(73.11%)			492(26.89%)	
GOV		1=Yes			0=No	
(Number/percentage):		1235(67.49%)			595(32.51%)	
LIST		1=Yes			0=No	
(Number/percentage):		1137(62.13%)			693(37.87%)	

With respect to the influence of regulation, nearly three quarters of CSR reports are subject to the mandatory disclosure requirement. The willingness of Chinese companies to disclose CSR voluntarily is still very low, though the trend is increasing year by year. In terms of the corporate ultimate owner, approximately two thirds of the sample firms are controlled by the government, which shows that government control is a dominating form in China. As shown in Table 4, the average firm size scores range from 18.266 (equivalent to total asset with Renminbi (RMB) 86 million) to 30.37 (equivalent to total asset with RMB 15,476 billion), with a median of 22.862. The average ROA of sample firms is approximately 6%, and the average debt ratio for sample firms is nearly 52%, ranging between 3.7% and 184%.

4.2 Mean-T Test of Governmental Regulation on CSRR Quality

In 2008, CSRC required that three types of firms on the SSE issue CSR reports with their annual reports, and that firms in the SZSE 100 composite index stock issue CSR reports independently. There are 1338 firms that issued CSR reports mandatorily in our sample period, equivalent to nearly 73% of the total sample. In order to analyze the influence of the regulatory environment on CSR reporting quality, we divide the sample into two groups and a mean t-test is then employed to test the significance of differences of CSR report scores between the mandatory and the voluntary groups. Mean t-test results (Table 5) indicate that the average rating score of CSR reports from the mandatory group is higher than that from the voluntary group and the difference of CSR reporting quality score between the two groups is statistically significant. H1 is preliminarily supported.

Table 5. Mean T-test of Government Regulation Effect on CSRR Quality

	N		Mean
Mandatory firms	1338		34.89
Voluntary firms	492		31.01
T-test for equality of means	Mean difference		3.88
	Sig. (2-tailed)		0.000
	95% confidence Interval of the difference	Lower	2.556
		Upper	5.207

4.3 Regression Results

Before conducting the regression analysis, we carried out a series of tests including tests for multicollinearity and auto-correlation to ensure that the regression results are meaningful and reliable. Multicollinearity was tested based on the correlation matrix incorporating all potential determinants as well as computing the variance inflation factor (VIF). Table 6 provides a correlation matrix for all independent and control variables except for the industry variables used in the study. The highest correlation coefficient is 0.582 between SIZE and CSRR and the univariate correlations reveal no unexpected patterns. In addition, we computed the variance inflation factor (VIFs) for all variables in order to investigate whether there was a potential multicollinearity problem. The maximum VIF obtained in any of the models was 2.525, the mean VIF was 1.47, below the rule-of-thumb cutoff of 10 (Ryan, 1997). All results suggest that multicollinearity is not a serious issue. The Durbin-Watson (DW) test was used to check for auto-correlation between variables employed in the model, and the DW value is close to 2, which suggests that auto-correlation between variables employed in the model is not a problem.

Table 6. Correlation Statistics

Variables	CSRR	REG	SIZE	GOV	ROA	DEBT	LIST	Y2012	Y2011	Y2010
REG	0.133*** 0.000	1.000 .								
SIZE	0.582*** 0.000	0.361*** 0.000	1.000							
GOV	0.124*** 0.000	0.350*** 0.000	0.282*** 0.000	1.000						
ROA	0.003 0.907	-0.050** 0.031	-0.135*** 0.000	-0.167*** 0.000	1.000 .					
DEBT	0.178*** 0.000	0.161*** 0.000	0.510*** 0.000	0.178*** 0.000	-0.376*** 0.000	1.000 .				
LIST	0.084*** 0.000	0.396*** 0.000	0.208*** 0.000	0.228*** 0.000	-0.143*** 0.000	0.166*** 0.000	1.000			
Y2012	0.160*** 0.000	-0.072*** 0.002	0.078*** 0.001	-0.031 0.186	0.009 0.715	-0.005 0.814	-0.005 0.834	1.000		
Y2011	0.042*** 0.000	-0.026 0.260	0.024 0.295	-0.001 0.974	0.047** 0.046	0.000 0.991	0.017 0.475	-0.389*** 0.000	1.000	
Y2010	-0.056** 0.016	0.031 0.181	-0.030 0.196	0.033 0.163	-0.052** 0.028	0. 027 0.241	0.036 0.119	-0.369*** 0.000	-0.339*** 0.000	1.000

[1] This table reports Pearson coefficients for all independent and control variables except for the industry variables, which are correlated but not included in this table due to space limitations (results available upon request). Variable definitions are presented in Table 3.
[2] p-values are presented below each coefficient.
[3] *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively, based on a two-tailed t-test.

To further examine the effects of regulation environment on CSR reporting quality scores, we run regressions for independent and control variables using the full sample. The multivariate regression results are reported in Table 7.

Table 7. Multivariate Regression Results on Governmental Regulation and Firm Size

Variables	Predicted Sign	Model 1	Model 2	Model 3	Model 4
REG	(+)		0.073*** (3.057)	-0.080*** (-3.680)	-0.030 (-1.214)
SIZE	(+)			0.574*** (24.082)	0.547*** (22.391)
REG*SIZE	(+)				0.105*** (4.623)
LIST	(+)	0.019 (0.881)	-0.009 -0.781	-0.033 (-1.615)	-0.013 (-0.649)
Y2012	(+)	0.261*** (9.376)	0.271*** (9.694)	0.185*** (7.507)	5.382*** (7.762)
Y2011	(+)	0.178*** (6.454)	0.186*** (6.727)	0.124*** (5.118)	0.129*** (5.347)
Y2010	(+)	0.099*** (3.638)	0.105*** (3.834)	0.075*** (3.153)	0.076*** (3.224)
INDj		Yes	Yes	Yes	Yes
Constant		27.323*** (28.545)	25.954*** (24.610)	-65.510*** (-16.766)	-3.793*** (-4.410)
Sample size		1830	1830	1830	1830
Adjusted R²		0.202	0.206	0.399	0.405
D-W		1.938	1.932	1.971	1.963
F Sig.		20.293***	19.946***	47.639***	47.184***

[1] The industry dummy variables are regressed but not included in this table due to space limitations (results available upon request).
[2] Due to the introduction of two-way interaction term in Model 4, the continuous variables are centralized and then run regression to avoid the potential multicollinearity problem.
[3] T-statistics values are presented in parentheses below each coefficient.
[4] *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed t-test.

Model 1 in Table 7 is used to test the effect of selected control variables on CSR reporting quality. Consistent with our expectation, three proxies for disclosure year are significantly and positively related to CSR reporting quality score. The variable LIST does not have significant impact on CSR reporting quality. Moreover, consistent with prior literature, firms in finance industry tend to provide CSR reports with higher quality. Model 2 is employed to test hypotheses H1. The coefficient of REG in Model 2 is positive and statistically significant at the 5% level, consistent with the result in Table 5. Thus, H1 is supported, which suggests that government regulation is positively associated with the CSR reporting quality.

Hypothesis H2 posited that the impact of mandatory regulation on CSR reporting quality will be greater for larger firms. This includes two implications. One is that firm size would moderate the impact of governmental regulation on the CSR reporting quality, and the moderating effect of firm size is positive. The regression results for Equations (2)-(3) are reported in the Models 3 and 4 in Table 7. The coefficients of REG change from positive in Model 2 to negative in Model 3, and the interaction term REG*SIZE in Model 4 are statistically significant at 1% level, suggesting that firm size is a significant moderator and it can moderate the effect of government regulation on CSR reporting quality. By comparing the adjusted R^2 in Models 2, 3 and 4, we find that firm size and the interaction term REG*SIZE can explain 28% and 0.6% of the variance of CSR reporting quality, respectively. Furthermore, the coefficient of interaction term REG*SIZE in Model 4 is positive and significant at 1% level. This indicates that the effect of regulation on CSR reporting quality would increase with the increase of firm size, providing support for H2.

Since we are testing interactive effects in a multivariate regression model, it is important to acknowledge the controversy regarding the validity of computing and interpreting statistically significant interaction in these models. We follow the transfer strategy recommended by Jaccard and Turrisi (2003) and get the coefficients (φ_1) of the main factor REG at different size levels. Results are reported in Table 8. The coefficients of SIZE at different size levels are different significantly, suggesting that the effect of government regulation on CSR reporting varies across firms with different sizes. The relationship is negative for small firms, positive for large firms and insignificant for medium firms, respectively.

Table 8. The effect of firm size on CSR reporting quality at different size levels

SIZE	φ_1	SE	95% Confidence Interval for φ_1	t	p value
Small	-4.678	0.703	-6.058 ~ -3.299	-6.650	0.000
Medium	-0.670	0.686	-2.017 ~ 0.676	-0.977	0.329
Large	3.337	1.244	0.898 ~ 5.777	2.683	0.007

We further calculate the intercepts of Equation (3) at different size levels. Figure 1 is employed to capture the interaction effects between regulation and firm size and the pattern is consistent with our prediction.

Figure 1. Interaction Effect between Regulation and Firm Size on CSR Reporting Quality
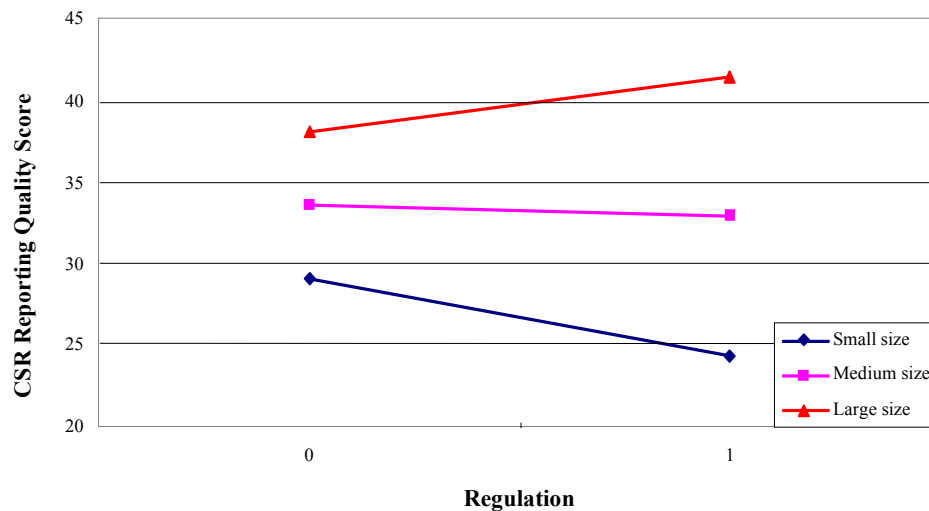
In order to test the moderating effect of other firm characteristics on the link between the interaction of regulation with firm size and CSR reporting quality, we create three-way interaction terms to observe the moderators. Results are presented in Table 9. Model 1 is employed to test the influence of potential moderators on CSR reporting quality (Equation (4)). Results indicate that the coefficients of government ownership and corporate financial performance are not significant, suggesting that government economic control and financial performance do not have a significantly direct impact on CSR reporting quality. However, consistent with the prior research (Hull and Rothenberg, 2008), corporate debt ratio is significantly and negatively related to the CSR reporting quality. Models 2-4 present the regression results that include the three way interaction term of REG*SIZE with potential moderators corporate owner, firm performance and financial risk, respectively. In Table 9, the adjusted R2 for Models 2-4 are higher than that of Model 1, suggesting that there might be significant three way interaction effects for three firm-specific characteristics. Result of Model 2 is summarized in Table 9 and it shows that the interaction term REG*SIZE*GOV is negative and statistically significant at 1% level. Thus, H3a is supported. The interaction term REG*SIZE*ROA in Model 3 is positive and significant at 1% level, providing support for H3b. Model 4 in Table 9 is employed to test the moderation of financial risk level on the influence of the joint effect of government regulation and firm size on the CSR reporting quality. The interaction term of REG*SIZE*DEBT in Model 3 is insignificant, indicating that H3c is not supported. Model 5 in Table 9 is a comprehensive test for the moderation role of corporate ownership identity, financial performance and financial risk. The results are mostly consistent with those in Models 2-4, except that the interaction term REG*SIZE*DEBT is only marginally significant at the 10% level, suggesting that H3c is partially supported. Moreover, the variable DEBT is negatively related to CSR reporting quality with an absolute coefficient of 0.099, higher than that of three-way interaction term REG*SIZE*DEBT of 0.055, suggesting financial risk is more likely to be a direct factor that has impact on CSR reporting quality, consistent with Hull and Rothenberg (2008).

Table 9. Regression results on firm-specific moderators and interaction terms

Variable	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5
REG	(+)	-0.029 (-1.214)	-0.021 (-0.882)	-0.026 (-1.057)	-0.029 (-1.157)	-0.031 (-1.214)
SIZE	(+)	0.596*** (22.585)	0.621*** (22.874)	0.620*** (22.867)	0.564*** (19.845)	0.596*** (20.334)
REG*SIZE	(+)	0.101*** (4.426)	0.096*** (3.937)	0.109*** (4.735)	0.093*** (3.654)	0.084*** (3.110)
REG*SIZE *GOV	(-)		-0.098*** (-3.688)			-0.078*** (-2.920)
REG*SIZE*ROA	(+)			0.103*** (3.845)		0.138*** (4.691)
REG*SIZE*DEBT					0.001 (0.031)	0.055* (1.707)
GOV	(+)	-0.024 (-1.111)	-0.003 (-0.131)	-0.030 (-1.425)	-0.019 (-0.883)	-0.007 (-0.332)
ROA	(+)	0.002 (0.101)	0.004 (0.199)	-0.018 (-0.751)	0.011 (0.502)	0.007 (0.287)
DEBT	(-)	-0.107*** (-4.398)	-0.112*** (-4.612)	-0.114*** (-4.571)	-0.091*** (-3.169)	-0.099*** (-3.379)
LIST	(+)	-0.001 (-0.065)	0.002 (0.087)	0.002 (0.117)	-0.002 (-0.079)	-0.002 (-0.077)
Y2012	(+)	0.184*** (7.542)	0.187*** (7.679)	0.183*** (7.524)	0.188*** (7.699)	0.188*** (7.739)
Y2011	(+)	0.125*** (5.229)	0.129*** (5.390)	0.123*** (5.139)	0.128*** (5.346)	0.126*** (5.296)
Y2010	(+)	0.078*** (3.299)	0.080*** (3.416)	0.076*** (3.223)	0.080*** (3.406)	0.079*** (3.414)
INDj		Yes	Yes	Yes	Yes	Yes
Constant	(?)	-3.905*** (-4.554)	-4.102*** (-4.764)	-3.988*** (-4.661)	-4.228*** (-4.883)	-4.592*** (-5.310)
Sample size		1830	1830	1830	1830	1830
Adjusted R²		0.412	0.417	0.416	0.414	0.426
D-W		1.963	1.963	1.969	1.963	1.962
F Sig.		43.746***	40.591***	40.556***	40.182***	35.839***

[1.] The industry dummy variables are regressed but not included in this table due to space limitations (results available upon request). Although we include the various relevant two way interaction variables in the above models 2-5, we do not present and discuss the results related to these two way interaction variables. More information is available from the authors upon request.
[2.] In addition, all variables are centralized and then run regression to avoid the potential multicollinearity problem. T-statistics are presented in parentheses below each coefficient.
[3.] *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed t-test.

With respect to the control variables, results in Table 7 and 9 related to the influence of control variables on CSR reporting quality are consistent. Disclosure period is positively related to CSRR, demonstrating an increasing trend over the past four years. The coefficients of LIST are insignificant consistently. Industry effects have not changed substantially in all regression models.

4.4 Robustness Tests

4.4.1 CSRR Rating as Dependent Variable and Alternative Control Variables

In order to test the robustness of the regression results further, we performed the following additional tests. First, we replaced CSRR score with CSRR rating as an alternative dependent variable. The RKS database not only determines the score of CSR reporting quality, but also provides a rating for CSR reports ranging from the lowest (C) to the highest (AAA) level since 2010. Each level can be marginally adjusted by using "-" and "+" except the AAA and CCC and lower levels. We numbered the lowest level "C" as "1", "CC" as "2, up to the highest "AAA" as "20". Then

we ran regressions covering all selected independent variables on CSRR rating using 1,472 sample companies. The regression results still hold. In addition, we replaced ROA with ROCE (Return on Capital Employed) as the proxy of firms' profitability, and used two dummy industry variables to represent the finance industry and the environment-sensitive industries. Environment-sensitive industries are defined according to Guideline to Environmental Information Disclosure of Listed Firms issued by The Ministry of Environmental Protection (MEP) of China in September 2010. This document defines 16 industries as environment-sensitive industries, including industries such as textile, mining, and pharmacy etc. In our sample, about 5% of the sample firms come from the Finance and Insurance industry and 37% of sample firms belong to the environmental-sensitive profile. The multivariate regression results are consistent with the prior findings. The coefficients of ROCE and the environment-sensitive industry variable are insignificant while the coefficient of the Finance industry variable is significant at 1% level.

4.4.2 Tests on Three CSRR Quality Dimensions

As noted above, the RKS database determines the CSRR score based on 4 dimensions: macrocosm, content, technique, and industry. Given our interest in assessing the influence of government on CSR reporting quality, an alternative to using RKS's composite measure (all four dimensions) would be to focus only on the "macrocosm", "content" and "technique" sections. We ran regressions on the three main dimensions separately as the dependent variables, CSRRM (macrocosm), CSRRC (content), and CSRRT (technique). The results are fairly consistent.

4.4.3 Sub-Sample Tests for Three Firm-Specific Characteristics

To test the robustness of the three-way interaction terms, we divided the full sample into different sub-samples according to the three firm-specific characteristics and ran regressions, respectively. Specifically, with regard to the government owner, we employed regressions on the government-controlled sub-sample and non-government controlled sub-sample, respectively. Results indicate that the interaction term REG*SIZE is not significant for the government-controlled sub-sample, while it is positive and significant at 1% level for the non-government controlled sub-sample. Regarding the variables ROA and DEBT, we first use their medians to split the sample into high profitability (risk) sample group (higher than the median) and low profitability (risk) sample group (lower than the median). And then, regress the two-way interaction term REG*SIZE and all other potential explanatory variables. The results are fully consistent with those in Table 9, suggesting that all results are robust.

5. SUMMARY AND CONCLUSIONS

CSR campaign and related information disclosures have been developed for several decades across the world. However, CSR reporting and disclosure remained fairly new in China. Based on a total sample of 1,830 observations from 606 Chinese listed firms, we investigate the development of CSR reporting in China, and explore the effect of government mandatory disclosure regulation on CSR reporting quality in an attempt to identify whether government regulation could improve the quality of CSR reporting. Our results indicate that CSR reporting has developed rapidly in China with a dramatic increase in the number of firms issuing CSR reports over the past four years. However, in terms of quality, despite improved significant over years, the overall quality remained low.

We can make several observations from our empirical findings. First, government regulation on CSR reporting has really helped to improve CSR reporting quality, and the relationship is moderated by firm size. Although prior studies report that government regulation strives to force firms to undertake CSR reporting, the relationship between CSR reporting quality and government regulation is unclear. Our findings suggest that the impact of government regulation on CSR reporting quality is positive, and the effect of regulation on CSR report quality varies across firms of different sizes. Specifically, the effect of mandatory regulation on CSR reporting quality will be greater for larger firms than for smaller ones. This suggests that firm size is a significant moderator in the process of government regulating CSR reporting quality, which is helpful to understand the mechanism of mandatory regulation on CSR and related accounting reporting quality.

Second, the effect of government mandatory regulation on CSR reporting quality could be further moderated by a series of firm characteristics, such as the ownership structure and financial performance. With regards to the relationship between government owner stake on corporations and CSR disclosure, a prevalent perception is that firms

controlled by the government disclose more CSR information (Ghazali 2007; Wang et al. 2012). However, our results indicate that in a mandatory context, the quality of CSR reporting provided by government-controlled large firms is lower than that of private large firms. This mainly resulted from two perspectives. One is the close political connection between government-controlled firms and government agencies, and the other is the most political legitimacy granted for the government controlled firms. The former makes the government-controlled firms obtain government funds more easily than the private counterparts, cripples the monitoring risk for the low decoupling risk, and lowers the potential political cost of the government-controlled large corporations for non-compliance with government regulation. The latter would create the least need to use high quality CSR reporting to seek associated resources from the government. They both ultimately reduce the quality of CSR reports provided by government-controlled large firms.

Third, in terms of the effect of financial performance on CSR disclosure quality, the conclusions reached by the previous researches are inconsistent (Preston et al. 1978; Ingram and Frazier 1983; Hackston and Milne 1996). Similar to Hackston and Milne (1996), our results indicate that corporate performance does not influence CSR report quality directly, but can moderate the interactive effect of mandatory regulation and firm size on CSR report quality significantly.

Several implications can be drawn based on our findings. First, mandatory regulation on CSR disclosure plays an important role in the process of Chinese CSR development. In China, CSRC requires certain firms to issue CSR reports with their annual reports. This regulation policy has impacted on the number of CSR reports disclosed directly. Moreover, our results indicate that mandatory disclosure regulation leads to an improvement in the quality of CSR reports in general. The result also has implications for the other related regulatory fields. For example, IFRS has been adopted mandatorily in many countries in recent years. Whether the mandatory adoption improves financial reporting quality is still unclear. Our results would have some implications for the adoption of mandatory adoption of IFRSs.

Second, firms of different sizes have diversified attitudes to the mandatory regulation, which is further moderated by corporate owner and financial performance. Empirical results indicate that government-controlled larger firms are less likely to provide better CSR reports than private counterparts in the face of government regulation. That is to say, government controlled larger firms are more likely to legitimize themselves by decoupling or mechanical box checking CSR reports in a mandatory context to achieve their political legitimacy. Hence, given a fast increase in the number of CSR reports due to the mandatory CSR disclosure requirement, how to improve CSR reporting quality should be a stringent task for Chinese government in the near future. However, with an increasing number of researches indicating that there is significant government ownership of firms, this finding is of significance to all regulators, both from emerging China and other developed countries.

Third, this paper demonstrates the significant moderating effect of firm size and financial performance on the link between government regulation and CSR reporting quality. Results indicate that the positive effect of regulation is greater for firms who are larger in size and have better financial performance, offering insights on when government regulation becomes more salient, and providing helpful empirical evidence and implications for investors engaged in corporate social responsibility investment activities. Investors can use these results to understand how firms carry out their potential political strategies to optimize return on investment.

It is important to acknowledge, though, that one way to investigate the effect of government regulation is to observe the change of quality before and after the regulation. However, due to the absence of CSR reporting rating data before 2008, it is unable to carry out this method. Making use of a quasi-natural experiment setting to observe such effect of regulation on CSR reporting quality, we may not capture the whole substance of government regulation by using dummy variables to measure government regulation. Future research might explore the dynamic interaction between them more deeply. In addition, the RKS rating system is a newly developed database and we could only collect CSR report rating data for four years. With the increase in the number of firms disclosing CSR reports as they expedite the achievement of their corporate goals, future studies could concentrate on a much larger sample of Chinese listed firms from a wider range of listing board backgrounds.

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REFERENCES

Abdul Hamid, F.Z. (2004). Corporate social disclosure by banks and finance companies, *Corporate Ownership and Control*, 1(4), 118-130.

Adams, C.A., Hill, W. Y., & Roberts, C. B. (1998). Corporate social reporting practices in Western Europe: legitimating corporate behavior. *The British Accounting Review*, 30(1), 1-21.

Andres, G.J. (1985). Business involvement in campaign finance: Factors influencing the decision to form a corporate PAC. *PS: Political Science*, 18(2), 213-220.

Aragon-Correa, J A. & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review*, 28(1), 71–88.

Balabanis, G., Phillips, H.C., & Lyall, J. (1998). Corporate social responsibility and economic performance in the top British companies: are they linked?. *European Business Review*, 98(1), 25-44.

Baron, D.P. (1995). Integrated strategy: Market and nonmarket components. *California Management Review*, 37(2), 47-65.

Baron, R.M., & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Belal, A.R., & Cooper, S. (2011). The absence of corporate social responsibility reporting in Bangladesh. *Critical Perspectives on Accounting*, 22(7), 654-667.

Belkaoui, A., & Karpik, P.G. (1989). Determinants of the corporate decision to disclose social information. *Accounting, Auditing & Accountability Journal*, 2(1), 36-51.

Branco, M.C., & Rodrigues, L.L. (2008a). Social responsibility disclosure: A study of proxies for the public visibility of Portuguese banks. *The British Accounting Review*, 40(2), 161-181.

Branco, M.C. & Rodrigues, L.L. (2008b). Factors influencing social responsibility disclosure by Portuguese companies. *Journal of Business Ethics*, 83(4), 685-701.

Campbell, J.L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Academy of Management Review*, 32(3), 946–967.

ChinaCSR. (2009). CSR in China 2009 Review [in Chinese]. Shenzhen, China: Corporate Social Responsibility Alliance.

Clarkson, P., Li, Y., Richardson, G., & Vasvari, F. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting Organization and Society*, 33(4-5), 303-327.

Clarkson, P., Overell, M. & Chapple, L. (2011). Environmental reporting and its relation to corporate environmental performance. *Abacus*, 47(1), 27-60.

Criado, I., Fernandez, M., Husillos, F.J., & Larrinaga-Gonzelez, C. (2008). Compliance with mandatory environmental reporting in financial statements: the case of Spain (2001-2003). *Journal of Business Ethics*, 79(3), 245-262.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and*

　　　Business Research, 26(3), 187–199.

Dobbin, F., & Sutton, F.R. (1998). The strength of a weak state: the rights revolutions and the rise ofhuman resources
　　　management divisions. *The American Journal of Sociology*, 104(2), 441-476.

Donaldson, T., & Preston, L.E. (1995). The stakeholder theory of corporation: Concepts, evidence, and implications. *Academy of
　　　Management Review*, 20(1), 65-91.

Duan, H. (2012). Institutional environment, political connection and financial constraints: Evidence from private enterprise in
　　　China. *Business and Management Research*, 1(1), 133-140.

Faccio, M., & Lang, L.H.P. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*,
　　　65(3), 365-395.

Freeman, R.E. (1984). Strategic management: A stakeholder approach. Boston: Pitman.

Freeman, R.E. (1999). Response: Divergent stakeholder theory. *Academy of Management Review*, 24 (2), 233-236.

Frost, G.F. (2007). The introduction of mandatory environmental guideline: Australian evidence. *Abacus*, 43(2), 190-216.

Gao, S.S., Heravi, S., & Xiao, J.Z. (2005). Determinants of corporate social and environmental reporting in Hong Kong: A
　　　research note. *Accounting Forum*, 29(2), 233-242.

Ghazali, N.A.M. (2007). Ownership structure and corporate social responsibility disclosure: Some Malaysian evidence.
　　　Corporate Governance, 7(3), 251-266.

Gugerty, M.K. (2009). Signaling virtue, voluntary accountability programs among nonprofit organizations. *PS: Policy Science*,
　　　42, 243-273.

Hackston, D., & Milne, M.J. (1996). Some determinants of social and environmental disclosures in New Zealand companies.
　　　Accounting, Auditing & Accountability Journal, 9(1), 77-108.

Haniffa, R.M., & Cooke, T.E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting
　　　and Public Policy*, 24 (5), 391–430.

Hillman, A.J. (2003.) Determinants of political strategies in U.S. multinationals. *Business & Society*, 42(4), 455-484.

Hillman, A.J., Keim, G.D., & Schuler, D. (2004). Corporate political activity: A review and research agenda. *Journal of
　　　Management*, 30(6), 837-857.

Holder-Webb, L., Cohen, J.R., Nath, L., & Wood, D. (2009). The Supply of corporate social responsibility disclosures among
　　　U.S. firms. *Journal of Business Ethics*, 84(4), 497-527.

Hull, C.E., & Rothenberg, S. (2008). Firm performance: The interactions of corporate social performance with innovation and
　　　industry differentiation. *Strategic Management Journal*, 29(7), 781-789.

Ingram, R.W., & Frazier. K.B. (1983). Narrative disclosures in annual reports. *Journal of Business Research*, 11(1), 49-60.

Jaccard, J., & Turrisi, R. (2003). *Interaction effects in multiple regression* (2nd ed). Sage University Paper Series on Quantitative
　　　Applications in Social Sciences, 07-072, Thousand Oaks, CA: Sage

La Porta, R., Lopez-de-Silanes, F., & Shleifer. A. (1999). Corporate ownership around the world. *Journal of Finance*, 54(2),
　　　1113-1155.

Larrinaga, C., Carrasco, F., Correa, C., Llena, F., & Moneva, J.M. (2002). Accountability and accounting regulation: the case of
　　　the Spanish environmental disclosure standard. *The European Accounting Review*, 11(4): 723-740.

Li, H., & Zhang, Y. (2007). The role of managers' political networking and functional experience in new venture performance:
　　　Evidence from China's transition economy. *Strategic Management Journal*, 28(8), 791-804.

Lin, C., & Ho, Y. (2011). Determinants of green practice adoption for logistics companies in China. *Journal of Business Ethics*,
　　　98(1), 67–83.

Lindblom, C. K. (1994). The implications of organizational legitimacy for corporate social performance and disclosure. *Critical
　　　Perspectives on Accounting Conference*, New York.

Lyon, T., & Maxwell, J. (2011). Greenwash corporate environmental disclosure under threat of audit. *Journal of Economics and
　　　management Strategy*, 20(1), 3-41.

Ma, D. & Parish, W.L. (2006). Tocquevillian moments: charitable contributions by Chinese private entrepreneurs. *Social Forces*,
　　　85(2), 943-964.

Mahoney, L.S., Thorne, L. Cecil, L., & LaGore, W. (2013). A research note on standalone corporate social responsibility reports:
　　　signaling or greenwashing? *Critical Perspectives on Accounting*, 24(4-5), 350-359.

Marquis, C., & Qian, C. (2013). Corporate social responsibility reporting in China: Symbol or Substance? *Organization Science*,
　　　forthcoming.

Meyer, J.W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *The American
　　　Journal of Sociology*, 83(2), 340-363.

Muthuri, J.N., & Gilbert, V. (2011). An institutional analysis of corporate social responsibility in Kenya. *Journal of Business
　　　Ethics*, 98(3), 467–483.

Mwaura, K. (2005). Reality and prospects of the proposed constitutional changes in Kenya. in M. Huniche et al. (eds.),
　　　Corporate Citizenship in Developing Countries: New Partnership Perspectives, Copenhagen Business School Press,
　　　Denmark.

Opondo, M. (2009). The impact of Chinese firms on CSR in Kenya's garment sector. Working Paper Series No. 7. *The
　　　International Research Network on Business and Development Society.* Downloaded from http://bdsnetwork.cbs.dk.

Patten, D.M. (1991). Exposure, legitimacy, and social disclosure. *Journal of Accounting and Public Policy*, 10(4), 297-308.

Patten, D.M. (2002). Media exposure, public policy pressure, and environmental disclosure: An examination of the impact of Tri data availability. *Accounting Forum*, 26(2), 152-171.

Patten, D.M. & Trompeter, G. (2003). Corporate responses to political costs: An examination of the relation between environmental disclosure and earnings management. *Journal of Accounting and Public Policy*, 22(1), 83-94.

Preston, L.E., Rey, F., & Dierkes, M. (1978). Comparing corporate social performance: Germany, France, Canada, and the U.S.. *California Management Review*, 20(4), 40-49.

Ramanathan, K.V. (1976). Toward a theory of corporate social accounting. *The Accounting Review*, 51(3), 516-528.

Richardson, A.J. & Welker, M. (2001). Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organizations and Society*, 26(7-8), 597–616.

Roberts, R.W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society*, 17(6), 595-612.

Ryan, T.P. (1997). *Modern regression methods*. J. Wiley, New York.

Schuler, D.A., Rehbein, K., & Cramer, R.D. (2002). Pursuing Strategic advantage through political means: A multivariate approach. *The Academy of Management Journal*, 45(4), 659-672.

Scupola, A. (2003). The adoption of internet commerce by SMEs in the South of Italy: An environmental, technological and organizational perspective. *Journal of Global Information Technology Management*, 6(1), 52–71.

Tornatzky, L.G., & Fleischer, M. (1990). *The process of technological innovation*. Lexington Books, Lexington, MA.

Trotman, K.T., & Bradley, G.W. (1981). Associations between social responsibility disclosure and characteristics of companies. *Accounting, Organizations and Society*, 6(4), 355-362.

Ullmann, A.A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of U.S. firms. *Academy of Management Review*, 10(3), 540-558.

Verrecchia, R.E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-94.

Wang, P., Wang, F. Zhang, J., & Yang. B. (2012). The effect of ultimate owner and regulation policy on corporate social responsibility information disclosure: Evidence from China. *African Journal of Business Management*, 6(20), 6183-6193.

Watts, R.L., & Zimmerman, J.L. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review*, 53(1), 112-134.

Woodward, D.J., Edwards, P., & Birkin, F. (1996). Organizational legitimacy and stakeholder information provision. *British Journal of Management*, 7(4), 329-347.

Xu, S., & Yang, R. (2010). Indigenous characteristics of Chinese corporate social responsibility conceptual paradigm. *Journal of Business Ethics,* 93(2), 321–333.