Corporate Environmental Responsibility in Polluting Industries: Does Religion Matter?

Xingqiang Du · Wei Jian · Quan Zeng ·
Yingjie Du

Abstract Using a sample of Chinese listed firms in polluting industries for the period of 2008–2010, we empirically investigate whether and how Buddhism, China's most influential religion, affects corporate environmental responsibility (CER). In this study, we measure Buddhist variables as the number of Buddhist monasteries within a certain radius around Chinese listed firms' registered addresses. In addition, we hand-collect corporate environmental disclosure scores based on the Global Reporting Initiative (GRI) sustainability reporting guidelines. Using hand-collected Buddhism data and corporate environmental disclosure scores, we provide strong and robust evidence that Buddhism is significantly positively associated with CER. This finding is consistent with the following view: Buddhism can serve as social norms to evoke the consciousness of social responsibility, and thereof strengthen CER. Our findings also reveal that the positive association between Buddhism and CER is attenuated for firms with higher law enforcement index. The results are robust to various measures of Buddhism and a variety of sensitivity tests.

X. Du
Accounting Department, School of Management, Xiamen
University, Xiamen 361005, Fujian, China
e-mail: xqdu@xmu.edu.cn

W. Jian (✉)
Xiamen National Accounting Institute, Island-Coast Express,
Xiamen 361005, Fujian, China
e-mail: coauthordjl@gmail.com; jianwei@xnai.edu.cn

Q. Zeng
School of Management, Xiamen University, Xiamen 361005,
Fujian, China
e-mail: xmdxdxq@gmail.com

Y. Du
Accounting Department, School of Management, Shanghai
University, Shanghai 200444, China
e-mail: jasminedu@shu.edu.cn

Introduction

The recognition that firms should take corporate social responsibility (CSR) has spawned a vast body of academic research on the connotation, determinations, and economic consequences of CSR (Carroll 1979, 1991, 1999; Garriga and Melé 2004; Jo and Harjoto 2012; Porter and Kramer 2006). Environmental accountability is regarded as an important issue in CSR (Carroll 1999). Hence there are mounting studies which shed light on how corporations engage in environmental protection and how environmental performance can be evaluated (Al-Tuwaijri et al. 2004; Clarkson et al. 2008; Cormier and Magnan 1999; Rahman and Post 2012). Similarly, China, as the "world's factory", has shown spectacular economic growth and modernization, but environmental concerns are rising (Zeng et al. 2008) as polluted air, water, and soil threaten the health of Chinese residents. The central and local governments are expected to play a crucial role through laws and legislation to deter polluters. However, many laws, regulations, and rules fail to achieve their goals because of weak enforcement. Therefore, our study investigates whether religion (Chinese Buddhism in our case) can influence corporate environmental responsibility (CER), which to our knowledge, has rarely been examined.
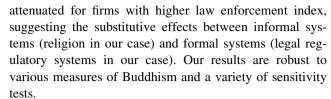
Beyond religious influence on individuals (Conroy and Emerson 2004; Longenecker et al. 2004; Pace 2012), prior studies also argue that religion in a district affects corporate behaviors (Du 2012; Dyreng et al. 2012; El Ghoul et al. 2012b; Grullon et al. 2010; Hilary and Hui 2009; McGuire et al. 2012; etc.). For example, Dyreng et al. (2012) and McGuire et al. (2012) argue that the local population is an important element of the environment in which managers live and operate. Therefore, when a firm is located in an area where religion represents an important social norm, managers themselves will nevertheless be affected by the religious norms although they may or may not be religious.

Buddhism is China's most influential religion, with about 185 million followers according to the 2011 annual official report on religion (Jin and Qiu 2011). Buddhist monasteries, temples, and pagodas abound throughout China, with effects spreading throughout almost all aspects in China. Buddhist philosophy includes deep respect for the natural world, in the belief that all life is interrelated and interdependent. Buddhism's fundamental axiom, the law of karma, encourages followers to respect energy flows and to minimize consumption and environmental exploitation (Daniels 2008). In modern times, Humanistic Buddhism has become a leading trend of Buddhism from the 1980s, which advocates to link authentic Buddhist meditation with social actions. Leaders in the Humanistic Buddhism are very active in preaching and spreading its doctrine to people in environmental protection. In short, Buddhism helps transform business toward a more ecological and human form (Zsolnai 2008; Magnuson 2008).

Inspired by recent studies considering the impacts of geographic proximity (Du 2012; El Ghoul et al. 2012a; John et al. 2011; Loughran 2007), we use a digital map to construct our Buddhism variables. We adopt the geographic proximity between nationally famous Buddhist monasteries and Chinese listed firms as the proxy for diffusion of Buddhism.[1] Moreover, similar to Clarkson et al. (2008), we evaluate environmental performance according to specific criteria in the Global Reporting Initiative (GRI) sustainability reporting guidelines, which has indicators of best practices in environmental conservation.

For empirical tests, we construct a sample of 2,104 firm-year observations in polluting industries from the Chinese stock market for 2008–2010 and then examine whether and how diffusion of Buddhism can influence CER. Briefly, we find strong and robust evidence that Buddhism is significantly positively associated with CER. We also find that the positive association between Buddhism and CER is

attenuated for firms with higher law enforcement index, suggesting the substitutive effects between informal systems (religion in our case) and formal systems (legal regulatory systems in our case). Our results are robust to various measures of Buddhism and a variety of sensitivity tests.

Our study contributes to the extant literature in several ways: First, to our knowledge, our study is the first to examine empirically the influence of religion, Chinese Buddhism in our case, on CER. Although some studies have enumerated beliefs and practices underlying attitudes of traditional religions toward nature (Georges 1997; Sobhani et al. 2011; Verma 2008), the empirical evidence is scanty. In this study, we provide strong evidence to show that Buddhism plays an active role in CER. Our study adds to recent studies that investigate the factors driving Chinese firms to engage in environmental protection (Liu and Anbumozhi 2009; Meng et al. 2012; Wang and Juslin 2009; Ye and Zhang 2011; Yin and Zhang 2012; Zeng et al. 2012).

Second, our study contributes to extensive research in economic and social science research on religious influence on micro corporate decisions (behaviors). Some studies have documented systematic evidence that firms located in more religious places display less risk exposure, engage in fewer financial reporting irregularities, have lower agency costs, and enjoy cheaper equity financing costs (Du 2012; Dyreng et al. 2012; El Ghoul et al. 2012b; Grullon et al. 2010; Hilary and Hui 2009; McGuire et al. 2012). Complementing those studies, we probe further into religion's specific impact on CER. Our study is consistent with the following views that religious beliefs generate more social responsibility and that religion bolsters social consciousness in modern society. It also echoes a new research paradigm (Georges 1997; Rice 2006; Wang and Juslin 2009) which claims that CER is affected by informal arrangement like culture (Hofstede 1980). Briefly, we argue that religion stands beside law and political strength as a social norm for strengthening CER.

Finally, we provide strong and robust evidence that the substitutive effect on CER exists between religion (one of informal systems and important social norms) and formal system such as law enforcement level. Thus religion, as an alternative mechanism, can urge corporate managers to pay attention to CER in emerging markets like China where laws are enforced less effectively and business ethics are still under construction.

In the next section, we review related literature, introduce the institutional background, and develop research hypotheses. Then we discuss the measurements of key variables as well as empirical model specifications, followed by a section of the sample construction and descriptive statistics. We then report empirical analysis

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[1] We acknowledge our great thanks to one referee for his/her valuable suggestion on this expression of "diffusion of Buddhism". According to this suggestion, we use the expression of "diffusion of Buddhism" as the substitution for the phrase of "Buddhism intensity" in our original version.

results and conduct a variety of robustness checks. Finally, we summarize our conclusions.

Institutional Background, Literature Review, and Hypotheses Development

Corporate Environmental Protection in China

Since the 1980s, people worldwide have been enjoying cheap and abundant merchandise made in China, the world second-largest economy since 2010. Inevitably, resource depletion, ecological imbalance, and environmental pollution have accompanied rapid agricultural and industrial production. In 2006, China overtook the United States as the world's largest emitter of greenhouse gases, which scientists link to global warming (NYTIMES 2007). Besides carbon emission, reckless manufacture exerts a range of detrimental effects on the environment. In some industrial districts, mountain areas are severely damaged, significantly dwindling flora and fauna resources and, even worse, severely contaminating water and air. During the 2008 Olympic Games in Beijing, the government had to restrict automobile use because the polluted air might threaten the health of the athletes. Environmental degradation triggers stark domestic and international repercussions, and pollution poses both major long-term burdens on the Chinese public and politically challenges the government.

The Chinese government has primarily relied on environmental law to promote environmental protection such as conservation and pollution control. Since 2007, the Ministry of Environmental Protection of China (previously the State Environmental Protection Administration) has enacted a series of measures concerning corporate environmental reporting. The Regulation on Environmental Information Disclosure, which took effect on May 1, 2008, mandated environmental agencies and heavy-polluting companies to publically disclose certain environmental information. Legal monitoring has had some effect and China made considerable progress under the 11th Five-Year Plan (2006–2010) (Seligsohn 2011).[2] In addition, the government has enacted stricter regulations requiring Chinese listed firms to take environmental responsibility because these firms are always pioneers of state reform. Shanghai and Shenzhen stock exchanges required a subset of listed firms to issue CSR reports from 2008 considering social, economic, and governmental sustainability and

recognizing that environmental protection is one of the most important aspects of CSR.[3]

However, these official rules give only rough guidance. The Guide to Environmental Information Disclosure for Listed Firms in Shanghai Stock Exchange says that firms should disclose total energy used and contamination discharged, but fails to provide detailed guidance on governance structure, stakeholder involvement, and environmental spending, which generates great variation in transparency, breadth, and explicitness of environmental information disclosures. In September 2010, the Ministry of Environmental Protection of China issued an exposure draft for the guide, but it is still under review. Thus China has many compliance problems with laws and regulations, such as difficulties with enforcement, frequent changes to laws and regulations, and interpretation of laws left up to regional governments (Tateisi 2004). Without strong enforcement, laws and regulations related to corporate environmental protection are only on paper.

Along with public awareness and legal requirements, firms are increasingly realizing the importance of environmental protection. The Chinese public now strongly criticizes companies that sacrifice the environment for economic goals. For example, environmental authorities confirmed that a listed firm, Zijin Mining Group Ltd., leaked mining acids that damaged the Tingjiang River in Fujian province in 2010. As a result, its share price slumped about 13 % after the crisis (Kong et al. 2012).[4]

Overall, compared with firms in developed countries, Chinese listed firms are still at preliminary and exploratory stages in establishing environmental practices.

Religion and Buddhism in China

Buddhism is China's oldest foreign religion. Buddhism began spreading into China about 2,000 years ago (Ling 2004). Buddhist teachings, translated from Sanskrit to Chinese, were combined with indigenous Taoism, Confucianism, and some folk religions. Chinese Buddhism has got its own eight major Buddhist sects, such as the Tiantai and Sanlun sects [see Ling (2004) for details]. After being localized for some time, Buddhism, as well as Taoism and Confucianism, permeated Chinese culture and became one

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[2] Take energy use for example, it came close to its energy intensity target, reducing energy intensity over the 5-year period by 19.1 %, and increasing non-fossil fuel use by 3.1 % per year. As a result, non-fossil energy now comprises 8.3 % of China's total energy use (Seligsohn 2011).

[3] (1) Notice of Supervising the Listed Firms in Shanghai Stock Exchange to Disclose the Annual Report of Year 2008 (SHSE 2008a); (2) Notice of Supervising the Listed Firms in Shenzhen Stock Exchange to Disclose the Annual Report of Year 2008 (SZSE 2008); and (3) Guide to Environmental Information Disclosure for Listed Firms in Shanghai Stock Exchange (SHSE 2008b).

[4] We thank a referee for the incisive comments on whether investors penalize companies because of their environmental awareness and/or economic considerations. We find that firms that disobeyed China's related environmental laws escaped significant economic sanctions. Therefore, we believe that angry investors punished firms by selling their stocks.
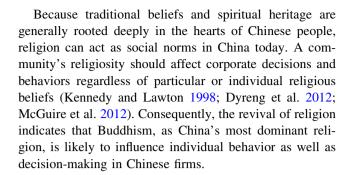
of the three pillars of Chinese civilization. "Its influence is everywhere felt, and it undoubtedly affects the whole religious condition" (Beal 1884). In fact, Buddhism affects many aspects of Chinese aesthetics, politics, literature, philosophy, and medicine, among others. The ordinary citizen is influenced by Buddhism, even if subconsciously. For instance, Chinese vocabulary reflects its influence in terms and phrases such as "shijie" (world) and "yinyuan" (karma), commonly used in daily life.

One staring characteristics of modern Buddhism is that Humanistic Buddhism has become a leading trend since the 1980s. Some dignitary masters advocate linking authentic Buddhist meditation with social action (Wei 2010). Buddhists run more than 40 colleges and universities, and some offer master's degrees (Jin and Qiu 2011). Life for cloistered monks has been greatly expanded so that they enjoy modern facilities and new technology for propagating Buddhist ideas and for acting to alleviate worldwide social, political, economic, and environmental problems. The 1960s Cultural Revolution challenged Chinese religion. Soon the Chinese Communist Party realized that diversified spiritual demands could not be eradicated, and it began to take a proactive approach towards religious activities. Since then modern religion has revived quickly, far outpacing people's expectation in the recent 30 years. By the end of 2010, although China had 80.27 million Chinese Communist Party members, more than 1.2 billion people were actively participating in religious activities. Contemporary religious research has noticed the religious revival (Ashiwa and Wank 2006; Yang 2009), and attributed the change to the faith and devotion of the Chinese people (Overmyer 2003).

China's principal currently registered religions are Buddhism, Taoism, Islam, Catholicism, and Protestantism. In our study, we focus on the influence of Chinese Buddhism on CER because previous studies find that Buddhism has more pronounced impacts on corporate behavior than do other religions in China. For example, Du (2012) finds that only Buddhism reduces agency costs but Taoism does not.[5] However, no acknowledged religious polls reveal the accurate number of Buddhist adherents. One 2011 report on religion shows that about 185 million people are Buddhists (Jin and Qiu 2011). And the media has estimated about 300 million (Lim 2010).[6]

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[5] Unreported results, available from the author on request (*similarly hereafter*), suggest that Taoism does not impact environmental protection.

[6] It is difficult to obtain the exact number of Buddhists because thousands of Buddhists practice Buddhism at home. Buddhists are very conservative, discreet, and take part in rituals humbly and privately with others. Moreover, because of persecution in the Cultural Revolution, many prefer to keep their religious beliefs private.

Because traditional beliefs and spiritual heritage are generally rooted deeply in the hearts of Chinese people, religion can act as social norms in China today. A community's religiosity should affect corporate decisions and behaviors regardless of particular or individual religious beliefs (Kennedy and Lawton 1998; Dyreng et al. 2012; McGuire et al. 2012). Consequently, the revival of religion indicates that Buddhism, as China's most dominant religion, is likely to influence individual behavior as well as decision-making in Chinese firms.

Research Hypotheses

Researchers, officials, and the media are paying growing attention to CSR. Large firms, especially public firms, are concerned about their stakeholders when they pursue economic benefits. Similarly, most religions advocate that one should live with cares (e.g., Karunã) and responsibilities, which is consistent with the viewpoint of corporate stakeholder theory. A survey of 473 Christian business students finds a positive relationship between degree of religiousness with the economic and ethical components of CSR (Angelidis and Ibrahim 2004). Another study, using a large sample of 17,000 individuals from 20 countries, concludes that religious individuals differentiate between personal and corporate responsibility (Brammer et al. 2007). Also, interviews of senior managers in Bangladesh reveal that Islam is a vital force that motivates Islamic banks to disclose more sustainability information compared with conventional banks (Sobhani et al. 2011).

Corporate environmental responsibility is a component of CSR, and there is an inherent coincidence in religion and environmental protection. Before governmental regulations first tried to maintain ecological balance, religions had already established philosophical teachings on the issue. For instance, the Judeo-Christian tradition teaches that the world is God's creation, which undergirds Christian environmental stewardship (Georges 1997). Islamic environmental ethics have also been summarized (Rice 2006). Historically, monks, priest, nuns, and clergies have undertaken missions to both convert and educate the masses, and should be regarded as the first environmental campaigners. In addition, psychology researchers have found that religious people suffer stronger effect of guilty even when they do some erroneous things unintentionally (Quiles and Bybee 1997). Moral emotions play a role in reparative behavior: guilt increases the tendency to compensate for wrongdoing (Ghorbani et al. 2012). Admittedly, some environmental activities are reparative because industrial development cannot possibly occur without environmental consequences. Furthermore, even under legal supervision to alleviate detrimental environmental effects, religion raises social conscience. Some nonprofit

organizations attempt bridging work. In 1995, HRH Prince Philip founded the Alliance of Religions and Conservation.[7] It helps the world's major religions develop environmental programs and supports religious special events advocating environmental protection.

Specifically, beliefs and practices underlying Buddhism are consistent with environmental conservation. Most rudimentarily, the compassionate attitude means that one should help others (Gould 1995) or, at very least, do no harm. Buddhists value living simply, being satisfied with limited resources, avoiding struggles for material treasures, and narrowing the gap between unlimited human desire and limited natural resources. Second, Buddhism believes that all life is interrelated and interdependent so that each person should consider responsible work that has little negative social and environmental impact (Marques 2012). Buddhism's fundamental law of karma minimizes or moderates consumption of material and energy and hence environmental exploitation (Daniels 2008). Buddhist monks and nuns adhere to vows against killing sentient beings such as insects, birds, and animals and against endangering trees, particularly ancient ones. Finally, Buddhism's goal of enlightenment absorbs contemporary environmental protection science. Some Buddhists now dispense with long-standing conventions such as burning ghost money and incense because they pollute the air.[8] As a whole, Buddhism, with its benevolent environmental attitudes, helps transform businesses into more ecological and humanistic form (Zsolnai 2008; Magnuson 2008). Particularly, the leaders in the Humanistic Buddhism are very actively teaching Buddhist environmental philosophy. For example, Master Shengyan spoke about protecting living and natural environments by pursuing frugal and simple lifestyles and by protecting and managing natural ecosystems (Pacey 2005). Master Xuecheng often speaks publically about environmental conservation from Buddhist perspectives. As a member of National Committee of the Chinese People's Political Consultative Conference, he submitted an environmental protection proposal. He contended that culture work on the micro level is as important as macro institutional systems in environmental protection (longquanzs.org 2013).

A new strand of studies empirically test whether religion affects corporate behaviors (Du 2012; Dyreng et al. 2012; El Ghoul et al. 2012b; Grullon et al. 2010; Hilary and Hui 2009; McGuire et al. 2012; etc.). Overall, these extant studies find that firms in more religious locales have lower risk exposure, report fewer financial reporting irregularities, have lower agency cost, and enjoy cheaper equity

financing costs. For example, Hilary and Hui (2009) analyze the influence of religion on individuals as the starting point. They cite some literature in psychology, anthropology, management, and personnel psychology to argue that religious people share characteristics such as risk-aversion, and that those characteristics affect group behavior. People tend to choose career and environments that correspond with their individual characteristics. Consequently, firms located in more religious areas would hire a greater proportion of religious people at various firm levels. As a result, religious employees or managers introduce the religious attitude into the organization. Dyreng et al. (2012) and McGuire et al. (2012) explain the causality of religion and corporate decision by stressing on the role of religion as a social norm. Social norm theory predicts that individuals prefer to conform to their peer group. The local community is likely to reward companies that align with local beliefs and culture. Consequently, whatever their beliefs are, managers will be affected by geographic religious norms where they live and operate. Similarly, culture is a determinant of economic growth, prosperity, and development. Religion, as an important component of corporate culture in promoting ethical values, mitigates undesirable behaviors (Grullon et al. 2010).

Based on the above-mentioned discussions, we can infer the following four logically related arguments: (1) Religion has important impacts on CSR; (2) Religion influences CER, a subset of CSR; (3) Buddhism, China's most influential religion, can play an important role in strengthening CER; and (4) Religion, including Buddhism, can affect corporate decisions/behaviors. In a nutshell, religion affects district attitudes and judgments, whether individuals are adherents or not. Thus, we state our first hypothesis:

Hypothesis 1 Ceteris paribus, Buddhism is positively associated with corporate environmental responsibility.

Based on Carroll's four-dimensional CSR framework (economic, legal, ethical, and discretionary), some researchers have identified key factors and their interactions in specific contexts (Shum and Yam 2011). Case studies have shown that Chinese CSR understanding is largely grounded in ethical and discretionary domains, because of imperfect market and weak legal systems (Yin and Zhang 2012). In other words, recent regulations, policies, and guidance for corporate environmental protection have had some impact but have failed to solve all the problems. For example, an event study shows that listed firms in environmentally sensitive industries were proactive when a carbon emission rights trading scheme surfaced (Kong et al. 2012). It supports the argument that regulative pressure drives better environmental performance in China (Liu and Anbumozhi 2009; Zeng et al. 2012).

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[7] Please refer to the following website: http://www.arcworld.org/.

[8] See news at the following website: http://www.dadunet.com/html/2009/12/94-102-126085742812949.html.

Based on Hypothesis 1 and the aforementioned discussion, both Buddhism and law have positive impacts on corporate environment responsibility. Theoretically, the joint effects between Buddhism and law on CER may reciprocally reinforce or substitute.[9] However, in the Chinese context, it is more likely that the interactive effect between Buddhism and law on CER is substitutive for the following reasons: First, although religiosity could lead towards a higher compliance with rules and laws, in terms of specific situation, there might be some disparity under these two requirements. Second, in China, an independent and efficient judicial system is lacking, so existing laws, regulations, and rules are performed poorly. Even worse, China has not traditionally had a culture of utilizing lawyers, courts, or the law in general to resolve disputes. As for CER, Van Rooij and LO (2010) and Wang (2006) find that laws and rules related with environment protection in China do not work very effectively and just play a limited role. Finally, as previous studies argue, informal system can serve as an alternative to formal legal and regulatory systems (Allen et al. 2005; Du 2012; Pistor and Xu 2005). Thus Buddhism, as social norms and an informal system, can serve as an alternative mechanism to ineffective law enforcement to affect CER. Based on the aforementioned discussion, we conjecture that legal enforcement, as a formal system, can attenuate the positive relation between Buddhism and CER. That is, we predict that the influence of Buddhism and law on CER is substitutive, rather than reinforced. Therefore, we formulate the following Hypothesis 2:

Hypothesis 2 Ceteris paribus, the positive association between Buddhism and corporate environmental responsibility is weaker for firms with stronger law enforcement.

Sample, Variables, and Descriptive Statistics

Sample and Data Sources

Our initial sample consists of all Chinese A-share listed firms in polluting industries (e.g., mining, petroleum, chemical, and biological products; etc.) for 2008–2010. After excluding firm-year observations whose data are unavailable for measuring firm-specific control variables, we obtain 2,104 firm-year observations and the number of observations increases slightly by year. Then we winsorize the top and bottom 1 % of each variable to control the influence of extreme observations.[10] Table 1 reports

Table 1 Sample distribution by year and industry

Industry	Year			Total by industry	%
	2008	2009	2010		
Mining	31	34	38	103	4.89
Food and beverage	59	60	64	183	8.70
Papermaking	23	25	25	73	3.47
Petroleum, chemical, plastics, and rubber products	154	161	171	486	23.10
Metal and non-metal	138	136	140	414	19.67
Medicine and biological products manufacturing	89	89	101	279	13.26
Construction	34	34	35	103	4.90
Transportation and warehousing	63	61	63	187	8.89
Wholesale and retail	86	90	100	276	13.12
Total by year	677	690	737	2,104	
%	32.18	32.79	35.03		100

sample distribution by year and industry in detail. As shown in Table 1, year or industry cluster is not severe in our study.

The data sources are as below: (1) Following Du (2012), we hand-collect *BUD* data (i.e., Chinese Buddhism) first by identifying the location of the listed firms.[11] Please refer to the sub-section of "Diffusion of Buddhism" for details. (2) We also hand-collect the data of *ENV_SCORE* in light of the detailed procedure in Table 3. (3) The data of *LAW* are obtained from an annually updated index of legal enforcement (Fan et al. 2011). (4) Except for *BUD*, *ENV_SCORE* and *LAW,* other financial data and corporate governance information are obtained from the China Stock Market and Accounting Research (*CSMAR*) database and *WIND* database, both frequently used in China studies.

Corporate Environmental Responsibility

Performance-based metrics of CER are especially important because they enable cross-firm comparisons and provide decision-makers and stakeholders with more reliable, consistent, and accurate information (Ilinitch et al. 1998). Diverging from some studies that use proprietary databases z(e.g., KLD), some literature assesses environmental

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[9] We thank one referee for his/her constructive comment and insightful suggestion that we should discuss whether the influence of Buddhism and law on corporate environmental responsibility reciprocally reinforces or substitutes.

[10] The results are not qualitatively changed by deleting the top and the bottom 1% of the sample, by no deletion, or by no winsorization.

[11] Following some U.S. studies using firm headquarters as firm locations (Hilary and Hui 2009), we use firm's registered place instead. A firm's registered place is usually the initial place where the business started and it is firm's headquarters in most cases.

performance by analyzing the patterns of publicly available voluntary environmental disclosures. Some early measures quantify the level of environmental disclosure in the annual report or standalone report, such as the number of pages (Gray et al. 1995; Guthrie and Parker 1989; Patten 1992), sentences (Ingram and Frazier 1980), and words (Deegan and Gordon 1996; Zeghal and Ahmed 1990). Some use a disclosure-scoring measure derived from content analysis (Al-Tuwaijri et al. 2004; Clarkson et al., 2008; Cormier and Magnan 1999; Wiseman 1982; etc.). The different data sources and data coding criteria lead to countervailing theoretical arguments on the relation between environmental performance and environmental disclosure. Recently, Clarkson et al. (2008) enhance prior literature by focusing on purely discretionary environmental disclosures and developing a content analysis index based on GRI sustainability reporting guidelines. This method is touted as being better than previously used indices to capture disclosures related to environmental protection commitment. For example, Rahman and Post (2012, p. 308) acknowledge the breadth, transparency, and validity of Clarkson et al.'s (2008) CER measure. In other words, environmental disclosure reflects CER if we measure it properly. Therefore, following Clarkson et al. (2008), we measure CER based on GRI sustainability reporting guidelines. We first extract environmental information in firms' annual report, CSR report, and other disclosure. Then we employ content analysis and conduct the scoring procedure by relying on the GRI sustainability reporting guidelines, which feature guidance on what should be reported in disclosures on management approach and performance indicators, such as economic, environment, labor, human rights, society, and product responsibility.

We obtain the raw score of corporate environmental disclosure (*ENV_RAW*) in light of procedure and principle in Table 3, including seven components: governance structure and management systems, credibility, environmental performance indicators, environmental spending, vision and strategy claims, environmental profile, and environmental initiatives. We then divide seven components into 45 subcomponents according to Clarkson et al. (2008). Based on the raw score of every subcomponent, we can calculate and obtain the score of seven components, and then the raw score of corporate environmental disclosure: *ENV_RAW*.

As shown in Table 2, *ENV_RAW* ranges from 0 to 40 points. Therefore, we convert *ENV_RAW* into *ENV_SCORE*, the min–max normalization of the raw score. We use the Tobit regression method and the Poisson regression approach for *ENV_SCORE* and *ENV_RAW* in our main tests and robustness checks, respectively, to provide more robust results.

Table 2 Descriptive statistics

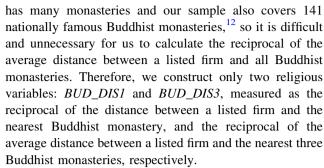| Variables	N	Mean	Std. dev.	Min	Q1	Median	Q3	Max
ENV_SCORE	2,104	0.0933	0.1426	0	0	0.0250	0.1250	1
ENV_RAW	2,104	3.7310	5.7024	0	0	1	5	40
BUD100	2,104	3.0038	3.4023	0	0	2	6	11
BUD200	2,104	7.6145	7.5091	0	2	4	13	27
BUD300	2,104	13.8099	12.3892	0	4	10	22	43
LAW	2,104	8.2744	3.9562	2.79	4.99	6.92	11.5	16.61
FIRST	2,104	0.3749	0.1577	0.0669	0.2516	0.3615	0.4933	0.7592
MANSHR	2,104	0.0250	0.0945	0.0000	0.0000	0.0000	0.0002	0.6819
INDR	2,104	0.3637	0.0523	0.2500	0.3333	0.3333	0.3750	0.5714
PLU	2,104	0.1402	0.3473	0	0	0	0	1
BOARD	2,104	2.2029	0.1943	1.6094	2.1972	2.1972	2.1972	2.7081
SIZE	2,104	21.8542	1.3013	18.2840	20.9201	21.6875	22.5914	26.7617
LEV	2,104	0.4454	0.2607	0.0000	0.2441	0.4872	0.6534	0.9076
ROA	2,104	0.0594	0.0979	−0.3678	0.0103	0.0452	0.0990	0.4486
TOBIN'Q	2,104	2.1356	1.4244	0.9024	1.2564	1.6682	2.4408	13.5112
FIN	2,104	0.3546	0.3335	0.0000	0.1187	0.3009	0.4980	2.9304
VOLAT	2,104	0.0546	0.0157	0.0249	0.0439	0.0524	0.0630	0.1385
CAPIN	2,104	0.1385	0.1978	0.0002	0.0274	0.0694	0.1624	1.2531
LISTAGE	2,104	10.1174	4.5513	1	7	11	14	20
STATE	2,104	0.6321	0.4823	0	0	1	1	1

Note All the variables are defined in Appendix

Diffusion of Buddhism

For measuring religiosity, extant studies have used well-developed data from professional entities. For example, Hilary and Hui (2009) adopt "Church and Church Membership" files in Glenmary Research Center's American Religion Data Archive. McGuire et al. (2012, p. 650) use a nationwide survey data by Gallup organization. They construct religiosity score on county or metropolitan level. However, similar information is not available in China. Buddhists neither go to temples weekly, nor do they attend regular religious services, so it is difficult to accurately estimate temple attendance. Moreover, religion research is just beginning, so authoritative statistics on the geographic distribution are scanty. To counter this problem, we construct a simple and objective measure.

As argued by Wines and Napier (1992) and Du (2012), county-/region-level religious measures tend to yield serious cross-sectional self-correlation of regression results. Quasi-firm-level religious variables were used creatively in the Chinese context by measuring religious level as the number of religious sites within a certain radius around a listed firm's registered address (Du 2012). In this study, we develop Du (2012)'s approach and use it in more strict sense to examine the impact of Chinese Buddhism on CER.

Our religious measures can also borrow support from prior studies that find geographic dissemination has special information content (Du 2012; El Ghoul et al. 2012a; John et al. 2011; Loughran 2007). Following Du (2012), we investigate religious sites around Chinese listed firms as the proxy for religious level. More specifically, we count the number of Buddhist monasteries within a certain radius, following the procedure of religious variables construction in Du (2012): (1) Using Google Earth, we locate the registered address of every firm-year and obtain its longitude and latitude, respectively. (2) We check the geographic location of every Buddhist monastery, and then obtain its longitude and latitude. (3) We calculate the distance between a firm and every Buddhist monastery according to their longitudes and latitudes, equaling the length of the minor arc across the earth's surface (Rising 2000). (4) We then use 100, 200, and 300 km as the distance criteria or the upper limits to identify the number of religious sites and measure our main independent variables: *BUD100*, *BUD200*, and *BUD300*, respectively. Please note that we also use other scales (e.g., 20, 40, 60, 80, 120 km) to reconstruct our independent variable for robustness checks.

Because two or more listed firms cannot have completely coincident registered addresses, we can obtain religious variables in the strict sense when we adopt the reciprocal of the distance between a listed firm and a Buddhist monastery (two or more Buddhist monasteries) as the positive proxy for Buddhism. However, as noted, China has many monasteries and our sample also covers 141 nationally famous Buddhist monasteries,[12] so it is difficult and unnecessary for us to calculate the reciprocal of the average distance between a listed firm and all Buddhist monasteries. Therefore, we construct only two religious variables: *BUD_DIS1* and *BUD_DIS3*, measured as the reciprocal of the distance between a listed firm and the nearest Buddhist monastery, and the reciprocal of the average distance between a listed firm and the nearest three Buddhist monasteries, respectively.

One may argue that Buddhist monasteries may locate in areas of relatively weaker industrial progress, and hence the areas would be positively correlated with social and environmental concerns. Certainly that was true in the past, but modern China's large emerging economy needs industrial development. Culture and economics thus collide, as do the past and present. Unreported results indicate that the presence of Buddhist temples has no negative correlation with the presence of polluting firms. Regular patterns have become disarranged in the Chinese context, stimulating our interest in this topic.

LAW

The variable of *LAW*, the annually updated legal environment index from Fan et al. (2011), measures the development of intermediary agencies and legal enforcement. The set of index presents the Marketilization in China's provinces and has been widely used in China studies (Chen et al. 2006; Jian and Wong 2010; Wang et al. 2008). The legal environment index covers several aspects. For example, it quantifies the efficiency of the local courts and protection of property rights, the protection of the producers, and the development of law firms. The greater the index, the higher is the extent of legal environment development for the provincial jurisdiction. Overall, this proxy is representative to capture the level of legal environment in a region.

Control Variables

For isolating Buddhism's incremental role in CER, we specify the following control variables: (1) *FIRST*, measured as the percentage of common share owned by the controlling shareholder (Claessens et al. 2002). (2) Top executives play an important role in CER (Bear et al. 2010; Meng et al. 2012; Pfeffer 1972; Pujari et al. 2004; Sharma 2000; Zhang et al. 2012), so *MANSHR*, *INDR*, *PLU*, and *BOARD* are included in our regression models to control the influence of top manager characteristics on CER. *MANSHR* is the percentage of manager-owned shares. *INDR* is the

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[12] See "The report on nation-widely famous Buddhist monasteries and Taoist temples in Han area."

ratio of the number of independent directors to the number of the board of directors. *PLU* is an indicator variable, which equals to 1 if the CEO and the chairman of the board are the same person, and 0 otherwise. *BOARD* is the natural log of the number of the board of directors. (3) *SIZE*, measured as the natural logarithm of total assets at the end of the year, because larger firms are more socially responsible and are better at environmental disclosure (Brammer and Pavelin 2008). (4) The debt ratio (*LEV*) captures the effects of resource constraint and creditor power on CSR and on CER (Hossain et al. 1994; Huang and Kung 2010; Roberts 1992). Firms consider lender as a factor when they engage in social activity in China (Ye and Zhang 2011). *LEV* in our study is measured as interest-bearing debt divided by total asset. (5) Firm performance is also included because profitable firms have more spare capital for social programs (Cochran and Wood 1984). Here we calculate *ROA*, equaling to operating income divided by total assets at the beginning of the year. (6) Following Clarkson et al. (2008), we also consider some other elements affecting voluntary environmental disclosure. *FIN* is the amount of equity capital or debt raised during the year divided by total assets at the beginning of the year. *VOLAT* and *TOBIN'Q* are included to control firm's information asymmetry. *VOLAT* stands for stock price volatility, measured as standard deviation of market adjusted weekly stock return. *TOBIN'Q* is measured as market value of the firm divided by total assets at the end of the year. Firms with higher sustaining capital expenditures are expected to have newer equipment and cleaner technologies and to be more environmentally friendly. *CAPIN* is capital intensity, measured as the ratio of capital spending (including fixed assets, intangible assets, and other long-term assets) divided by total sales revenue. (7) Firms listed in the Chinese stock market are relatively young, so the experience as public firms may differentiate their corporate strategy. *LISTAGE* is the number of years since a firm's IPO. (8) One salient feature of Chinese listed firms is that most of them are government-owned. The government has some additional requirement of the fulfillment of CSR reporting on central-government-owned firms. Also, prior literature finds that state-owned enterprises (SOEs) are more committed to environmental information disclosure (Kuo et al. 2012; Zeng et al. 2012). Hence we construct a dummy variable, *STATE*, which equals 1 when the ultimate controlling shareholder is a central or local government and 0 otherwise. (9) Industry and year effects are controlled.

Descriptive Statistics

Table 2 reports descriptive statistics results of our variables. As shown in Table 2, the raw score (*ENV_RAW*) of the environmental disclosure ranges from 0 to 40 points.

Our sample averages 3.7310, quite lower than the findings in Clarkson et al. (2008) because more than one quarter of firms discloses nothing in CER. Therefore, we convert the raw score of corporate environmental disclosure into the normalized score (see variable definition of *ENV_SCORE* in Appendix). Obviously, the environmental disclosure scores do not obey the standard normal distribution. Thus we employ the Tobit regression method to deal with the censoring value.[13]

Next, we turn to report descriptive statistics of the main independent variables (i.e., *BUD100*, *BUD200*, and *BUD300*) and the moderating variable (i.e., *LAW*). The mean (median) values of *BUD100*, *BUD200*, and *BUD300* are 3.0038, 7.6145, and 13.8099 (2.0000, 4.0000, and 10.0000), with standard deviations of 3.4023, 7.5091, and 12.3892, respectively, indicating some variation of Buddhism levels in the region where Chinese listed firms locate. The mean (median) value of *LAW* is 8.2744 (6.92), with a standard deviation of 3.9562, suggesting a skewed variable.

With reference to the descriptive statistics of control variables, Table 2 also reveals that most are reasonably distributed. We do not report each of them for brevity.

Moreover, following Clarkson et al. (2008) and GRI sustainability reporting guidelines, Table 3 reports the detailed procedures for our corporate environmental disclosure score, including seven components and 45 subcomponents. As shown in Table 3, for the raw score of corporate environmental disclosure (*ENV_RAW*) of all seven components, the high-religion subsample has significant higher scores than the low-religion subsample.

Pearson Correlation Analysis

Table 4 reports the Pearson correlation among the variables. The *p* value is in parenthesis below the coefficient. As expected, our measure of corporate environmental disclosure score (*ENV_SCORE*) is significantly positively associated with religious variables: *BUD100* and, *BUD200* and *BUD300*, tentatively supporting Hypothesis 1. *LAW* has a positive correlation with *ENV_SCORE*, verifying that firms with stronger legal enforcement pay more attention to environmental

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[13] We conduct three tests to examine whether the corporate environmental disclosure score in our sample has standard normal distribution, respectively. Our results show that the null hypothesis that "corporate environmental disclosure score obeys the standard normal distribution" is rejected at the 1 % level regardless of used test approaches ($z = 19.38$, $z = 2.76$, and $\chi^2 = 5317.66$ for Kolmogorov–Smirnov test, Cramer-von Mises test, and Anderson–Darling test, respectively).

Table 3 Index assessing based on GRI Sustainability Reporting Guidelines

Items	Mean[a]			t-test
	All	High-Buddhism	Low-Buddhism	
A1: Governance structure and management systems (max score is 6)	0.4035	0.4599	0.3615	2.85***
1. Existence of a Department for pollution control and/or management positions for environment management (0–1)	0.1492	0.1704	0.1335	2.32**
2. Existence of an environmental and/or a public issues committee in the board (0–1)	0.0038	0.0033	0.0041	−0.30
3. Existence of terms and conditions applicable to suppliers and/or customers regarding environment practices(0–1)	0.0138	0.0245	0.0058	3.33***
4. Stakeholder involvement in setting corporate environmental policies(0–1)	0.0043	0.0056	0.0033	0.75
5. Implementation of ISO14001 at the plant and/or firm level(0–1)	0.1920	0.2038	0.1833	1.18
6. Executive compensation is linked to environmental performance(0–1)	0.0404	0.0523	0.0315	2.32**
A2: Credibility (max score is 10)	0.4701	0.5490	0.4113	3.41***
1. Adoption of GRI sustainability reporting guidelines or provision of a CERES report (0–1)	0.2182	0.2416	0.2007	2.23**
2. Independent verification/assurance about environmental information disclosed in the environmental performance report/web	0.0261	0.0367	0.0182	2.51**
3. Periodic independent verifications/audits on environmental performance and/or systems (0–1)	0.0442	0.0490	0.0406	0.91
4. Certification of environmental programs by independent agencies (0–1)	0.0304	0.0345	0.0274	0.93
5. Product Certification with respect to environmental impact (0–1)	0.0276	0.0334	0.0232	1.38
6. External environmental performance awards and/or inclusion in a sustainability index (0–1)	0.0822	0.0958	0.0721	1.92*
7. Stakeholder involvement in the environmental disclosure process (0–1)	0.0052	0.0067	0.0041	0.77
8. Participation in voluntary environmental initiatives endorsed by Ministry of Environmental Protection of China (0–1)	0.0109	0.0089	0.0124	−0.79
9. Participation in industry specific associations/initiatives to improve environmental practices (0–1)	0.0057	0.0089	0.0033	1.58
10. Participation in other environmental organizations/association to improve environmental practices (if not awarded under 8 or 9)	0.0195	0.0334	0.0091	3.68***
A3: Environmental performance indicators (EPI) (max score is 60)[b]	1.1754	1.4332	0.9834	3.51***
1. EPI on energy use and/or energy efficiency (0–6)	0.3322	0.4521	0.2430	5.50***
2. EPI on water use and/or water use efficiency (0–6)	0.1673	0.2038	0.1401	2.51**
3. EPI on green house gas emissions (0–6)	0.1060	0.1214	0.0945	1.27
4. EPI on other air emissions (0–6)	0.1687	0.1726	0.1658	0.27
5. EPI on TRI (land, water, air) (0–6)	0.0494	0.0635	0.0390	1.61
6. EPI on other discharges, releases and/or spills (not TRI) (0–6)	0.0699	0.0791	0.0630	1.01
7. EPI on waste generation and/or management (recycling, re-use, reducing, treatment and disposal) (0–6)	0.2039	0.2494	0.1700	2.86***
8. EPI on land and resources use, biodiversity and conservation (0–6)	0.0708	0.0813	0.0630	1.15
9. EPI on environmental impacts of products and services (0–6)	0.0052	0.0067	0.0041	0.46
10. EPI on compliance performance (e.g., exceedances, reportable incidents) (0–6)	0.0019	0.0033	0.0008	1.20
A4: Environmental spending (max score is 3)	0.2191	0.2394	0.2040	1.84*
1. Summary of dollar savings arising from environment initiatives to the company (0–1)	0.0114	0.0145	0.0091	1.11
2. Amount spent on technologies, R&D and/or innovations to enhance environmental performance and/or efficiency (0–1)	0.2048	0.2227	0.1915	1.74*
3. Amount spent on fines related to environmental issues (0–1)	0.0029	0.0022	0.0033	−0.48
A5: Vision and strategy claims (max score is 6)	0.9819	1.0624	0.9221	2.80***
1. CEO statement on environmental performance in letter to shareholders and/or stakeholders (0–1)	0.1901	0.1993	0.1833	0.93
2. A statement of corporate environmental policy, values and principles, environmental codes of conduct (0–1)	0.3817	0.4209	0.3524	3.21***
3. A statement about formal management systems regarding environmental risk and performance (0–1)	0.0585	0.0646	0.0539	1.02

Table 3 continued

Items	Mean[a]			t-test
	All	High-Buddhism	Low-Buddhism	
4. A statement that the firm undertakes periodic reviews and evaluations of its environmental performance (0–1)	0.0299	0.0256	0.0332	−1.02
5. A statement of measurable goals in terms of future environmental performance (if not awarded under A3) (0–1)	0.0176	0.0167	0.0182	−0.27
6. A statement about specific environmental innovations and/or new technologies (0–1)	0.3042	0.3352	0.2811	2.67***
A6: Environmental profile (max score is 4)	0.2281	0.2728	0.1949	3.27***
1. A statement about the firm's compliance (or lack thereof) with specific environmental standards (0–1)	0.0675	0.0846	0.0547	2.63***
2. An overview of environmental impact of the industry (0–1)	0.0675	0.0835	0.0556	2.46**
3. An overview of how the business operations and/or products and services impact the environment (0–1)	0.0779	0.0835	0.0738	0.82
4. An overview of corporate environmental performance relative to industry peers (0–1)	0.0152	0.0212	0.0108	1.84*
A7: Environmental initiatives (max score is 6)	0.2529	0.3218	0.2015	4.48***
1. A substantive description of employee training in environmental management and operations (0–1)	0.1298	0.1581	0.1086	3.27***
2. Existence of response plans in case of environmental accidents	0.0461	0.0601	0.0357	2.56**
3. Internal environmental awards (0–1)	0.0143	0.0212	0.0091	2.18**
4. Internal environmental audits (0–1)	0.0076	0.0089	0.0066	0.58
5. Internal certification of environmental programs (0–1)	0.0138	0.0178	0.0108	1.32
6. Community involvement and/or donations related to environment (if not awarded under A1.4 or A2.7) (0–1)	0.0413	0.0557	0.0307	2.74***

[a] We divide our sample into high-religion subsample and low-religion subsample according to the mean value of *BUD200*, and the results are not qualitatively changed if we use *BUD100* and *BUD300* as classifying criteria.

[b] In section A3, the scoring scale of environmental performance data is from 0 to 6. A point is awarded for each of the following items: (1) Performance data is presented; (2) Performance data is presented relative to peers/rivals or industry; (3) Performance data is presented relative to previous periods (trend analysis); (4) Performance data is presented relative to targets; (5) Performance data is presented both in absolute and normalized form; (6) Performance data is presented at disaggregate level (i.e., plant, business unit, geographic segment)

conservation. In addition, *LAW* is significantly positively correlated with *BUD100*, *BUD200*, and *BUD300*.

Next, we turn to the Pearson correlation between corporate environmental disclosure score and control variables. As shown in Table 4, significantly positive associations are seen between *ENV_SCORE* and *FIRST*, *BOARD*, *SIZE*, *LEV*, *ROA*, *CAPIN*, and *STATE*. We also find that *ENV_SCORE* displays negative and significant relations with *MANSHR*, *PLU*, *TOBIN'Q*, *VOLAT*, and *LISTAGE*. Those results suggest a need to control for these variables when examining the influence of Chinese Buddhism on CER.

Empirical Results

Multivariate Tests for Hypothesis 1

Hypothesis 1 predicts that Buddhism is positively associated with environmental responsibility after controlling for other determinants. To test Hypothesis 1, we estimate Eq. 1

to link CER and Buddhism, firm-specific variables, and industry and year dummies:

$$
\begin{aligned}
ENV = a_0 &+ \alpha_1 BUD + \alpha_2 FIRST + \alpha_3 MANSHR + \alpha_4 INDR \\
&+ \alpha_5 PLU + \alpha_6 BOARD + \alpha_7 SIZE + \alpha_8 LEV \\
&+ \alpha_9 ROA + \alpha_{10} TOBIN'Q + \alpha_{11} FIN + \alpha_{12} VOLAT \\
&+ \alpha_{13} CAPIN + \alpha_{14} LISTAGE + \alpha_{15} STATE \\
&+ \text{Year Dummies} + \text{Industry Dummies} + \varepsilon
\end{aligned}
$$

(1)

In Eq. 1, *ENV* is the dependent variable and stands for CER. *BUD*, the abbreviation of Buddhism, is our independent variable of interest. In Eq. 1, if the coefficient on *BUD* (i.e., α_1) is positive and significant, Hypothesis 1 is supported by our empirical evidence.

Table 5 reports Tobit regression results of how religion and other determinants affect the CER index, and all reported *t* statistics are based on Huber-White robust standard errors (*hereinafter*).

Table 4 Pearson correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) ENV_SCORE	1																		
(2) BUD100	0.0632 (0.0037)	1																	
(3) BUD200	0.0468 (0.0317)	0.7563 (0.0000)	1																
(4) BUD300	0.0610 (0.0051)	0.7125 (0.0000)	0.9203 (0.0000)	1															
(5) LAW	0.0592 (0.0066)	0.5476 (0.0000)	0.5825 (0.0000)	0.5932 (0.0000)	1														
(6) FIRST	0.2810 (0.0000)	0.0704 (0.0012)	0.0410 (0.0602)	0.0579 (0.0079)	0.0338 (0.1209)	1													
(7) MANSHR	-0.0476 (0.0291)	0.0395 (0.0703)	0.0819 (0.0002)	0.0671 (0.0021)	0.1349 (0.0000)	-0.1152 (0.0000)	1												
(8) INDR	-0.0022 (0.9198)	-0.0226 (0.3008)	-0.0285 (0.1919)	-0.0360 (0.0986)	0.0020 (0.9285)	0.0616 (0.0047)	0.0026 (0.9041)	1											
(9) PLU	-0.0811 (0.0002)	0.0169 (0.4397)	0.0432 (0.0478)	0.0489 (0.0250)	0.0890 (0.0000)	-0.0781 (0.0003)	0.1664 (0.0000)	0.0178 (0.4139)	1										
(10) BOARD	0.1610 (0.0000)	-0.0362 (0.0971)	-0.0759 (0.0005)	-0.0590 (0.0068)	-0.0743 (0.0006)	0.0616 (0.0047)	-0.0867 (0.0001)	-0.2759 (0.0000)	-0.1076 (0.0000)	1									
(11) SIZE	0.5102 (0.0000)	0.0559 (0.0104)	0.0185 (0.3961)	0.0301 (0.1672)	0.0293 (0.1793)	0.3657 (0.0000)	-0.1618 (0.0000)	0.1118 (0.0000)	-0.1488 (0.0000)	0.2660 (0.0000)	1								
(12) LEV	0.1143 (0.0000)	-0.0205 (0.3479)	0.0105 (0.6298)	-0.0118 (0.5894)	0.0121 (0.5798)	-0.0005 (0.9826)	-0.0005 (0.9829)	-0.0028 (0.8972)	-0.0066 (0.7624)	0.0496 (0.0228)	0.1862 (0.0000)	1							
(13) ROA	0.1187 (0.0002)	-0.0249 (0.2545)	-0.0055 (0.7998)	0.0104 (0.6342)	0.0313 (0.1515)	0.2037 (0.0000)	0.0698 (0.0014)	-0.0287 (0.1888)	0.0118 (0.5875)	0.0603 (0.0057)	0.1388 (0.0000)	-0.2663 (0.0000)	1						
(14) TOBIN'Q	-0.0874 (0.0001)	-0.0332 (0.1279)	-0.0361 (0.0977)	-0.0269 (0.2167)	-0.0161 (0.4601)	-0.1700 (0.0000)	-0.0058 (0.7886)	-0.0185 (0.3955)	0.0736 (0.0007)	-0.1068 (0.0000)	-0.3353 (0.0000)	-0.2674 (0.0000)	0.2411 (0.0000)	1					
(15) FIN	0.0313 (0.1517)	0.0718 (0.0010)	0.1140 (0.0000)	0.0897 (0.0000)	0.0951 (0.0000)	0.0559 (0.0103)	0.0587 (0.0071)	-0.0036 (0.8697)	0.0456 (0.0365)	0.0219 (0.3156)	0.1305 (0.0000)	0.4217 (0.0000)	0.0217 (0.3191)	-0.1959 (0.0000)	1				
(16) VOLAT	-0.0523 (0.0165)	-0.0921 (0.0000)	-0.0658 (0.0025)	-0.0728 (0.0008)	-0.1338 (0.0000)	0.0227 (0.2976)	0.0417 (0.0556)	-0.0260 (0.2330)	0.0130 (0.5526)	-0.0205 (0.3475)	-0.1398 (0.0000)	-0.0055 (0.8014)	0.0364 (0.0949)	0.1044 (0.0000)	0.0571 (0.0087)	1			
(17) CAPIN	0.0488 (0.0252)	-0.0740 (0.0007)	-0.0891 (0.0000)	-0.1086 (0.0000)	-0.0599 (0.0060)	0.0272 (0.2115)	0.0171 (0.4341)	-0.0480 (0.0278)	-0.0167 (0.4437)	0.0553 (0.0112)	0.1118 (0.0000)	0.2685 (0.0000)	0.0117 (0.5911)	-0.0799 (0.0002)	0.1450 (0.0000)	-0.0089 (0.6832)	1		
(18) LISTAGE	-0.1454 (0.0000)	-0.0108 (0.6193)	-0.0599 (0.0060)	-0.0625 (0.0041)	-0.0202 (0.3540)	-0.1843 (0.0000)	-0.3634 (0.0000)	-0.0192 (0.3775)	-0.1241 (0.0000)	-0.0292 (0.1807)	0.0096 (0.6600)	-0.0402 (0.0653)	-0.1211 (0.0000)	0.1028 (0.0000)	-0.0926 (0.0000)	-0.0619 (0.0045)	-0.0958 (0.0000)	1	
(19) STATE	0.1538 (0.0000)	-0.0336 (0.1231)	-0.0855 (0.0001)	-0.0742 (0.0007)	-0.1214 (0.0000)	0.2037 (0.0000)	-0.3148 (0.0000)	0.0074 (0.7347)	-0.1632 (0.0000)	0.2127 (0.0000)	0.3268 (0.0000)	0.0197 (0.3668)	-0.0605 (0.0055)	-0.1731 (0.0000)	-0.0702 (0.0013)	-0.0549 (0.0118)	0.0389 (0.0745)	0.1739 (0.0000)	1

Note: P-value is presented in parentheses. All the variables are defined in Appendix I.

Table 5 Tobit regression results of Buddhism and other determination on environmental disclosure

Variable	Dependent variable: ENV_SCORE					
	(1)		(2)		(3)	
	Coefficient	t value	Coefficient	t value	Coefficient	t value
BUD100	0.0049***	4.01				
BUD200			0.0019***	3.32		
BUD300					0.0014***	4.16
FIRST	0.0904***	3.09	0.0958***	3.27	0.0931***	3.18
MANSHR	0.0581	1.27	0.0574	1.25	0.0596	1.30
INDR	−0.3209***	−3.97	−0.3213***	−3.96	−0.3161***	−3.92
PLU	−0.0280**	−2.26	−0.0279**	−2.24	−0.0287**	−2.30
BOARD	−0.0131	−0.54	−0.0101	−0.42	−0.0099	−0.41
SIZE	0.0820***	19.12	0.0822***	19.09	0.0819***	19.03
LEV	0.0560***	2.87	0.0549***	2.82	0.0553***	2.84
ROA	0.0184	0.38	0.0099	0.20	0.0091	0.19
TOBIN'Q	0.0170***	5.04	0.0175***	5.14	0.0173***	5.11
FIN	−0.0245	−1.60	−0.0246	−1.59	−0.0249	−1.63
VOLAT	−0.2020	−0.73	−0.2529	−0.91	−0.2319	−0.84
CAPIN	−0.0364	−1.43	−0.0347	−1.36	−0.0310	−1.22
LISTAGE	−0.0088***	−8.18	−0.0088***	−8.11	−0.0087***	−8.05
STATE	0.0144	1.51	0.0148	1.54	0.0155	1.61
Constant	−1.5818***	−14.51	−1.5943***	−14.58	−1.5938***	−14.59
Industry effect	YES		YES		YES	
Year effect	YES		YES		YES	
N	2,104		2,104		2,104	
Pseudo R^2	86.15 %		85.69 %		86.25 %	
Log likelihood	−70.6069		−72.9508		−70.1125	
F value	30.04***		29.46***		29.57***	
p value	<0.0000		<0.0000		<0.0000	

Notes ***,**, and * represent the 1, 5, and 10 % levels of significance, respectively, for a two-tailed tests. All reported t statistics are based on Huber-White robust standard errors. All the variables are defined in Appendix

As shown in Table 5, the coefficients on *BUD100*, *BUD200*, and *BUD300* are all positive and significant at the 1 % level (0.0049 with $t = 4.01$, 0.0019 with $t = 3.32$, and 0.0014 with $t = 4.16$, respectively),[14] providing strong support to Hypothesis 1. These results are also consistent with our argument that firms in regions with higher diffusion of Buddhism have better evaluation results in CER.[15] Moreover, the magnitude of the coefficient on *BUD100*,

BUD200, and *BUD300* declines when we expand the distance criterion to measure religious variables. These results verify that closer proximity between Buddhism monasteries and listed firms exerts stronger influence on strengthening CER. Moreover, these coefficient estimates imply that when *BUD100*, *BUD200*, and *BUD300* increase one unit of standard deviation, CER increases about 1.67, 1.43, and 1.73 %, equaling about 17.90, 15.33, and 18.54 % of the mean value of *ENV_SCORE* (0.0933), respectively. Obviously, these coefficient estimates are economically significant in addition to statistical significance.

Next, we turn to the control variables with conventional significance in Table 5. (1) The coefficients on *FIRST* are significantly positive with *ENV_SCORE* at the 1 % level, suggesting that the more shares held by the largest

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[14] We conduct multi-collinearity diagnostic tests for all the variables in the models and find that variance inflation factor (*VIF*) is less than 2 for all the variables, suggesting that multi-collinearity is not a serious concern in the estimation of our models.

[15] We thank a referee for the suggestion that we consider alternative explanations for empirical results. First, we find that our measure of Buddhism is not the proxy for urbanization or corporate governance. We also examine whether population density and urban/rural development simultaneously affect the religiosity level and firms' environmental attitudes. The untabulated results show that population density and regional development have no significant influence on the religiosity level. Moreover, when we include population density and
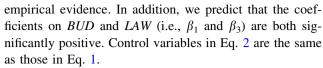
Footnote 15 continued
regional development, results in Table 5 still hold. The non-tabulated robustness checks are available from the author upon request.

shareholder, the more the firm engages in environmental protection. (2) The variable of *INDR* has a significantly negative coefficient, showing that firms with higher percentage of independent directors have significantly lower corporate environmental disclosure scores. (3) The coefficient on *PLU* is negative and significant at the 5 % level, revealing that a firm has significantly lower corporate environmental disclosure scores when its chairman of the board and CEO are the same person. (4) The coefficient on *SIZE* is positive and constantly significant at the 1 % level, suggesting that larger firms in polluting industries are more environmentally responsible, possibly because they have more regulatory and media pressure and have some technical and labor advantages in corporate social activities.[16] (5) The coefficient on *LEV* is significantly positive, revealing that firms with higher leverage show better environmental disclosure. This result is consistent with Ye and Zhang (2011). (6) As the proxy for information asymmetry, *TOBIN'Q* has a significantly positive coefficient, supporting that firms seek to lower information asymmetry through more voluntary disclosure (Clarkson et al. 2008). (7) The coefficient on *LISTAGE* is significantly negative at the 1 % level, indicating that younger firms engage more in environmental conservation.

Multivariate Tests for Hypothesis 2

Hypothesis 2 predicts that the positive association between Buddhism and corporate environment responsibilities is attenuated for firms with strong legal environments. To test Hypothesis 2, we introduce law enforcement index (*LAW*), the legal environment index used in the Report on Marketilization in China's Provinces (Fan et al. 2011), and the interaction item between Buddhism and law enforcement index (i.e., *BUD*LAW*) into Eq. 1, and examine their joint effect on CER.

$$
\begin{aligned}
ENV = &\beta_0 + \beta_1 BUD + \beta_2 BUD*LAW + \beta_3 LAW \\
&+ \beta_4 FIRST + \beta_5 MANSHR + \beta_6 INDR + \beta_7 PLU \\
&+ \beta_8 BOARD + \beta_9 SIZE + \beta_{10} LEV + \beta_{11} ROA \\
&+ \beta_{12} TOBIN'Q + \beta_{13} FIN + \beta_{14} VOLAT \\
&+ \beta_{15} CAPIN + \beta_{16} LISTAGE + \beta_{17} STATE \\
&+ \text{Year Dummies} + \text{Industry Dummies} + \delta
\end{aligned}
$$
(2)

In Eq. 2, if the coefficient on *BUD*LAW* (i.e., β_2) is negative and significant, Hypothesis 2 is supported by

empirical evidence. In addition, we predict that the coefficients on *BUD* and *LAW* (i.e., β_1 and β_3) are both significantly positive. Control variables in Eq. 2 are the same as those in Eq. 1.

As Table 6 shows, the coefficients on *BUD100*, *BUD200*, and *BUD300* are still significantly positive (0.0105 with $t = 3.04$, 0.0033 with $t = 2.05$, and 0.0025 with $t = 3.11$, respectively). These findings lend additional support to Hypothesis 1. Moreover, the coefficient estimates suggest that one standard deviation increase in *BUD100*, *BUD200*, and *BUD300* can increase CER by 3.57, 2.48, and 3.10 %, equivalent to 38.26, 26.58, and 33.23 % of the average *ENV_SCORE* (0.0933), respectively. Obviously, they are economically significant.

The coefficient on *LAW* is positive and significant in all columns (0.0075 with $t = 3.93$, 0.0076 with $t = 3.49$, and 0.0075 with $t = 3.24$, respectively), suggesting that legal environment can force firms to care more about ecology. Therefore, it aligns with the argument that legal progress plays a role in environmental protection (Kong et al. 2012; Liu and Anbumozhi 2009; Zeng et al. 2012).

More importantly, the coefficients on the interaction term, i.e., *BUD100*LAW*, *BUD200*LAW*, and *BUD300*LAW*, are negative and significant at the 5 % or 1 % level (−0.0008 with $t = -2.43$, −0.0003 with $t = -2.20$, and −0.0002 with $t = -2.69$, respectively) across all columns, strongly supporting Hypothesis 2. The coefficients imply that Buddhism's influence on CER decreases about 7.62, 9.10, and 8.00 % under the circumstance of considering law enforcement. Obviously, these amounts are economically significant and suggest that Buddhism and law enforcement have substitutive effects on CER.

As for control variables in Table 6, the signs and significances are qualitatively similar to those in Table 5 except that the coefficient on *STATE* is significantly positive, which supports assertions that SOEs have better environmental performance in extant studies (Kuo et al. 2012; Zeng et al. 2012).

Robustness Checks Using Other Buddhism Variables

In our main tests, we use 100, 200, and 300 km as upper limit to identify the number of religious sites and construct religious variables, *BUD100*, *BUD200*, and *BUD300*, respectively. Next, we employ a more precise check by using alternative religious measures.

First, the distance criteria are scaled from 20 to 280 km with an interval of 20 km when we estimate Buddhism variables. All control variables are included but not reported for brevity. Results in Columns (1)–(12) of Panel A in Table 7 show that the coefficient on *BUD* is always positive with conventional significance under every gauge. This shows a positive association between diffusion of

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[16] We thank one referee for his/her suggestion that we should discuss the potential influence of difference in firm size (e.g., larger firms *V.S.* smaller firms) on corporate environmental protection. The unreported tests show that the influence on corporate decisions holds for both smaller and larger firms.

Table 6 Tobit regression results of Buddhism, law enforcement index, and other determination on environmental disclosure

Variable	Dependent variable: ENV_SCORE					
	(1)		(2)		(3)	
	Coefficient	t value	Coefficient	t value	Coefficient	t value
BUD100	0.0105***	3.04				
BUD200			0.0033**	2.05		
BUD300					0.0025***	3.11
BUD100 × LAW	−0.0008**	−2.43				
BUD200 × LAW			−0.0003**	−2.20		
BUD300 × LAW					−0.0002***	−2.69
LAW	0.0075***	3.93	0.0076***	3.49	0.0075***	3.24
FIRST	0.0893***	3.06	0.0894***	3.06	0.0885***	3.03
MANSHR	0.0372	0.82	0.0363	0.81	0.0375	0.83
INDR	−0.3237***	−4.02	−0.3280***	−4.06	−0.3270***	−4.05
PLU	−0.0324***	−2.62	−0.0329***	−2.66	−0.0331***	−2.68
BOARD	−0.0088	−0.36	−0.0055	−0.23	−0.0052	−0.21
SIZE	0.0809***	18.99	0.0810***	18.97	0.0807***	18.82
LEV	0.0541***	2.78	0.0535***	2.75	0.0544***	2.80
ROA	0.0058	0.12	0.0020	0.04	0.0042	0.09
TOBIN'Q	0.0171***	4.99	0.0170***	4.98	0.0167***	4.92
FIN	−0.0290*	−1.93	−0.0275*	−1.82	−0.0280*	−1.87
VOLAT	−0.0701	−0.25	−0.1108	−0.40	−0.1132	−0.41
CAPIN	−0.0291	−1.15	−0.0290	−1.15	−0.0266	−1.05
LISTAGE	−0.0086***	−8.03	−0.0088***	−8.14	−0.0087***	−8.04
STATE	0.0194**	2.05	0.0182*	1.90	0.0182*	1.90
Constant	−1.6217***	−15.09	−1.6252***	−15.06	−1.6215***	−15.05
Industry effect	YES		YES		YES	
Year effect	YES		YES		YES	
N	2,104		2,104		2,104	
Pseudo R^2	87.95 %		87.39 %		87.65 %	
Log likelihood	−61.4232		−64.3108		−62.9923	
F value	29.44***		28.40***		28.36***	
p value	<0.0000		<0.0000		<0.0000	

Notes ***,**, and * represent the 1, 5, and 10 % levels of significance, respectively, for a two-tailed tests. All reported t statistics are based on Huber-White robust standard errors. All the variables are defined in Appendix

Buddhism in a district and environmental conservation, again supporting Hypothesis 1.

Columns (1)–(12) of Panel B report the results of revisiting Hypothesis 2. The coefficient on the term of interest, *BUD*LAW*, is negative and significant in most estimation except the distance criterion of 60 km is used. These results strongly support Hypothesis 2. Moreover, the coefficient on *BUD* is positive and significant, additionally supporting Hypothesis 1. The coefficient on *LAW* is constantly positive and significant, which is consistent with the findings in Table 6. Taken together, after applying more explicit measures, results support the two hypotheses.

Second, we use a more rigorous measurement of the distance between the Buddhism monastery and the firm. *BUD_DIS1* is the reciprocal value of the distance between

the nearest Buddhism monastery and the firm's registered address, and *BUD_DIS3* is reciprocal value of the distance between the nearest three Buddhism monasteries and the firm's registered address. Accordingly, every firm gets a unique religious value; the higher the value, the stronger the religious influence.

As shown in Columns (13) and (14) of Panel A in Table 7, the coefficients of *BUD_DIS1* and *BUD_DIS3* are positive and significant (0.0131 with t = 1.93 and 0.1933 with t = 4.11, respectively), suggesting that environmental protection activity is influenced by the religious atmosphere, and that nearby religious sites have particular effect. In Columns (13) and (14) of Panel B, we still observe a significantly negative sign of the coefficient on the interaction terms: *BUD_DIS1*LAW* and *BUD_DIS3*LAW* (-0.0039

Table 7 Robustness checks using other Buddhist variables (Tobit regression)

Variable	Other Buddhist variables based on different distance criteria						
	(1) 20 km	(2) 40 km	(3) 60 km	(4) 80 km	(5) 120 km	(6) 140 km	(7) 160 km
Panel A: Robustness checks for Hypothesis 1 using other Buddhist variables							
BUD	0.0070***	0.0067***	0.0061***	0.0072***	0.0052***	0.0033***	0.0019**
	(3.13)	(3.43)	(4.37)	(4.27)	(3.66)	(3.12)	(2.21)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−1.5524***	−1.5496***	−1.5594***	−1.5594***	−1.5720***	−1.5785***	−1.5851***
	(−14.14)	(−14.15)	(−14.28)	(−14.25)	(−14.39)	(−14.44)	(−14.45)
Industry/Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,104	2,104	2,104	2,104	2,104	2,104	2,104
Pseudo R^2	85.53 %	85.71 %	86.39 %	86.20 %	85.76 %	85.57 %	85.08 %
F value	30.09***	30.10***	30.39***	30.45***	30.22***	29.64***	29.31***
Panel B: Robustness checks for Hypothesis 2 using other Buddhist variables based on different distance criteria							
BUD	0.0100*	0.0130***	0.0138***	0.0128***	0.0067**	0.0048**	0.0032**
	(1.69)	(2.40)	(2.85)	(2.93)	(2.22)	(2.32)	(2.46)
BUD × LAW	−0.0006*	−0.0010**	−0.0010	−0.0011**	−0.0006**	−0.0005**	−0.0003**
	(−1.83)	(−2.05)	(−1.38)	(−2.36)	(−1.99)	(−2.01)	(−2.49)
LAW	0.0058***	0.0067***	0.0069***	0.0079***	0.0078***	0.0084***	0.0079***
	(3.88)	(4.21)	(4.00)	(4.21)	(3.78)	(4.01)	(3.74)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−1.5869***	−1.5949***	−1.6042***	−1.6172***	−1.6253***	−1.6263***	−1.6200***
	(−14.67)	(−14.77)	(−14.87)	(−15.04)	(−15.15)	(−15.13)	(−15.08)
Industry/Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,104	2,104	2,104	2,104	2,104	2,104	2,104
Pseudo R^2	87.45 %	87.73 %	88.07 %	87.93 %	87.50 %	87.43 %	87.28 %
F value	29.05***	29.35***	29.72***	29.65***	28.74***	28.25***	28.40***

Variable	Other Buddhist variables based on different distance criteria					The Reciprocal of the Distance	
	(8) 180 km	(9) 220 km	(10) 240 km	(11) 260 km	(12) 280 km	(13) BUD_DIS1	(14) BUD_DIS3
Panel A: Robustness checks for Hypothesis 1 using other Buddhist variables							
BUD	0.0018**	0.0020***	0.0019***	0.0017***	0.0017***	0.0131*	0.1933***
	(2.50)	(3.25)	(3.66)	(3.97)	(4.63)	(1.93)	(4.11)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−1.5880***	−1.5915***	−1.6014***	−1.6046***	−1.5963***	−1.5781***	−1.5582***
	(−14.48)	(−14.53)	(−14.65)	(−14.69)	(−14.62)	(−14.41)	(−14.15)
Industry/Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,104	2,104	2,104	2,104	2,104	2,104	2,104
Pseudo R^2	85.20 %	85.60 %	85.94 %	86.15 %	86.72 %	84.68 %	86.16 %
F value	29.32***	29.47***	29.52***	29.54***	29.64***	29.59***	31.52***
Panel B: Robustness checks for Hypothesis 2 using other Buddhist variables based on different distance criteria							
BUD	0.0039**	0.0029**	0.0035***	0.0035***	0.0032***	0.0520**	0.3307***
	(2.30)	(2.05)	(2.72)	(3.00)	(2.99)	(2.13)	(2.62)
BUD × LAW	−0.0004**	−0.0002**	−0.0003***	−0.0003***	−0.0002***	−0.0039**	−0.0172***
	(−2.14)	(−2.09)	(−2.65)	(−3.15)	(−3.12)	(−2.31)	(−2.66)
LAW	0.0081***	0.0071***	0.0078***	0.0078***	0.0074***	0.0060***	0.0056***
	(3.83)	(3.13)	(3.53)	(3.52)	(3.25)	(4.91)	(4.24)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled

Table 7 continued

Variable	Other Buddhist variables based on different distance criteria					The Reciprocal of the Distance	
	(8) 180 km	(9) 220 km	(10) 240 km	(11) 260 km	(12) 280 km	(13) BUD_DIS1	(14) BUD_DIS3
Constant	−1.6302***	−1.6262***	−1.6349***	−1.6317***	−1.6252***	−1.6072***	−1.5822***
	(−15.15)	(−15.05)	(−15.12)	(−15.10)	(−15.06)	(−14.89)	(−14.55)
Industry/Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,104	2,104	2,104	2,104	2,104	2,104	2,104
Pseudo R^2	87.51 %	87.40 %	87.71 %	87.92 %	88.04 %	87.17 %	88.09 %
F value	28.55***	28.36***	28.39***	28.38***	28.44***	28.58***	30.60***

Notes The t statistics are in parentheses. ***,**, and * represent the 1, 5, and 10 % levels of significance, respectively, for a two-tailed tests. All control variables are included but not reported for brevity. All reported t statistics are based on Huber-White robust standard errors. All the variables are defined in Appendix

with $t = -2.31$ and -0.0172 with $t = -2.66$, respectively). Thus legal enforcement attenuates the interpenetration of religion on corporate behavior. Moreover, *BUD_DIS1*, *BUD_DIS3*, and *LAW* have significantly positive coefficients in Columns (13) and (14). Overall, our results are robust when alternative specifications of the key variable are used.

Other Robustness Checks

To ensure robust results, we conduct three checks: First, we use the raw evaluation score for environmental conservation as dependent variables to re-estimate Eqs. 1 and 2 using the Poisson regression method. The results are presented in Panel A of Table 8, and all control variables are included but not reported for brevity. As shown in Columns (1)–(3) of Panel A, the coefficients on our religion measure *BUD* are positive and significant at the 1 % level (0.0235 with $t = 2.76$, 0.0125 with $t = 3.15$, and 0.0076 with $t = 3.18$, respectively), all statistically indistinguishable compared with those in Table 5. Similar to results in Table 6, the coefficients on *BUD*LAW* in Columns (4)–(6) are negative and significant (-0.0036 with $t = -2.02$, -0.0019 with $t = -2.61$, and -0.0013 with $t = -2.85$, respectively). Collectively, the model produces expected results and supports Hypothesis 1 and 2.

Second, we use the reduced sample excluding observations with statutory requirement to re-estimate Eqs. 1 and 2 because Shanghai and Shenzhen stock exchanges required a subset of listed firms to issue CSR report (Meng et al. 2012). Specifically, about 200 of firms were mandated according to the requirement of Shanghai stock exchange, because they were firms in corporate governance section, with dual listings, or in the finance industry. Meanwhile, about 100 of firms had to issue CSR report according to the requirement of Shenzhen stock exchange, because they

were sample firms in the 100 Index of the Shenzhen Stock Exchange. We identify the firms mandated by those regulations and delete them in our sample. We drop 502 firm-years, reducing the number of firms to 1,602. Table 8 reports the regression results based on the reduced sample.

Columns (1)–(3) of Panel B in Table 8 show that the coefficients on our religion measure *BUD* are positive and significant (0.0027 with $t = 2.18$, 0.0010 with $t = 1.85$, and 0.0009 with $t = 2.55$, respectively). Additionally, as shown in Columns (4)–(6) of Panel B, we find that *BUD* is still positive and significant. Moreover, the coefficients on *BUD*LAW* are negative and significant (-0.0013 with $t = -4.52$, -0.0006 with $t = -3.46$, and -0.0003 with $t = -3.12$, respectively) in Columns (4) to (6). Our findings are consistent with the main test after we exclude firms with compulsory disclosure.

Finally, following previous studies (Hilary and Hui 2009; Du 2012; Loughran and Schultz 2005; Loughran 2007; El Ghoul et al. 2012b), we conduct an additional test using panel data to address concerns about potential endogeneity between Buddhism and CER. A major advantage of using the panel data method is to resolve or reduce the magnitude of the omitted variables problem correlated with explanatory variables. The balanced panel data help eliminate possibilities that missing observations are from causes endogenous to the model.[17] After excluding firms listed after 2008, we obtain 2,051 firm-year observations. The regression results are reported in Panel C of Table 8.

As shown in Columns (1)–(3) of Panel C, the coefficients on *BUD* are positive and significant at 1 % level (0.0052 with $t = 4.28$, 0.0021 with $t = 3.65$, and 0.0015 with $t = 4.40$, respectively), which mirror the results in Table 5. Furthermore, in Columns (4)–(6) of Panel C, the coefficients on the interaction term *BUD*LAW* are always

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[17] Du (2012) and El Ghoul et al. (2012b) argue that panel data regression can alleviate the potential endogeneity between religion and corporate behavior.

Table 8 Other robustness checks

Variable	Hypothesis 1			Hypothesis 2		
	(1) BUD100 Coefficient (*t* value)	(2) BUD200 Coefficient (*t* value)	(3) BUD300 Coefficient (*t* value)	(4) BUD100 Coefficient (*t* value)	(5) BUD200 Coefficient (*t* value)	(6) BUD300 Coefficient (*t* value)
Panel A: Robustness checks using raw environmental disclosure score (i.e., ENV_RAW) and Poisson regression						
BUD	0.0235***	0.0125***	0.0076***	0.0371***	0.0207***	0.0132***
	(2.76)	(3.15)	(3.18)	(2.60)	(2.59)	(2.65)
BUD × LAW				−0.0036**	−0.0019***	−0.0013***
				(−2.02)	(−2.61)	(−2.85)
LAW				0.0536***	0.0578***	0.0606***
				(4.03)	(3.62)	(3.63)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−7.7901***	−7.9341***	−7.8744***	−8.1851***	−8.2363***	−8.1870***
	(−11.65)	(−11.92)	(−11.75)	(−12.47)	(−12.50)	(−12.50)
Industry/Year effect	YES	YES	YES	YES	YES	YES
N	2,104	2,104	2,104	2,104	2,104	2,104
Pseudo R^2	27.81 %	27.87 %	27.88 %	28.48 %	28.51 %	28.51 %
χ^2 value	1162.11***	1207.57***	1169.50***	1257.86***	1285.09***	1265.18***
Panel B: Robustness checks using reduced sample excluding firm-years with statutory requirement (Tobit regression)						
BUD	0.0027**	0.0010*	0.0009**	0.0120***	0.0052***	0.0027***
	(2.18)	(1.85)	(2.55)	(4.20)	(3.57)	(2.92)
BUD × LAW				−0.0013***	−0.0006***	−0.0003***
				(−4.52)	(−3.46)	(−3.12)
LAW				0.0087***	0.0091***	0.0096***
				(3.81)	(3.33)	(3.40)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−0.3569**	−0.3582**	−0.3653**	−0.4306***	−0.3956***	−0.3865***
	(−2.36)	(−2.37)	(−2.42)	(−2.91)	(−2.64)	(−2.59)
Industry/Year effect	YES	YES	YES	YES	YES	YES
N	1,602	1,602	1,602	1,602	1,602	1,602
Pseudo R^2	62.14 %	61.93 %	62.53 %	67.33 %	64.63 %	64.26 %
F value	7.03***	6.94***	6.90***	6.83***	6.50***	6.43***
Panel C: Robustness checks using panel data (Tobit regression)						
BUD	0.0052***	0.0021***	0.0015***	0.0101***	0.0032**	0.0024***
	(4.28)	(3.65)	(4.40)	(2.91)	(2.01)	(2.68)
BUD × LAW				−0.0007**	−0.0003**	−0.0002***
				(−2.27)	(−2.05)	(−2.61)
LAW				0.0076***	0.0078***	0.0078***
				(4.13)	(3.72)	(3.52)
Other variables	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Constant	−1.5875***	−1.6026***	−1.6021***	−1.6268***	−1.6296***	−1.6269***
	(−14.89)	(−15.01)	(−15.01)	(−15.42)	(−15.37)	(−15.37)
Industry/Year effect	YES	YES	YES	YES	YES	YES
N	2,051	2,051	2,051	2,051	2,051	2,051
Pseudo R^2	91.40 %	90.93 %	91.50 %	93.38 %	92.82 %	93.11 %
F value	29.25***	28.68***	28.75***	28.81***	27.77***	27.68***

Notes ***,**, and * represent the 1, 5, and 10 % levels of significance, respectively, for a two-tailed tests. All control variables are included but not reported for brevity. All reported *t* statistics are based on Huber-White robust standard errors. All the variables are defined in Appendix

significantly negative (-0.0007 with $t = -2.27$, -0.0003 with $t = -2.05$, and -0.0002 with $t = -2.61$, respectively), qualitatively similar to those in Table 6. The coefficients on *BUD* and *LAW* are positive and significant as ever. Overall, the re-examination by balanced panel data further supports Hypotheses 1 and 2.

Summary and Conclusions

As environmental deterioration becomes increasingly alarming, the public is reaching the consensus that rapid economic development is desirable only if environmental quality can be sustained. Consequently, individuals, corporations, governments, and nonprofit organizations have undertaken some efforts to restore natural resources and control pollution. In response, we focus on the role of Buddhism in enhancing CER. We find that religion, as a social force, positively impacts corporate environmental protection. Moreover, we also find an interesting relationship (i.e., the substitutive effect) between religion and legal system on CER. We believe that managers, governments, educators, and researchers will be interested in this relationship between religion, legal systems, and CER.

Our study has several implications. First, research on the impact of religious norms on corporate outcomes, although in its infancy, is revealing that the pervasiveness of religion in regions where firms are located affects top management decisions. Firms that have more religious influence enjoy lower equity costs, have less-severe agency problems, and have higher-quality financial reporting (Du 2012; Dyreng et al. 2012; El Ghoul et al. 2012b; Grullon et al. 2010; Hilary and Hui 2009; McGuire et al. 2012; etc.). Regarding the impact of religious influence in promoting environmental conservation and social stability, we call for more communication among different religions, religious believers, and nonbelievers. Modern Buddhist activity has shown its positive attitude toward social actions, which promises an exciting trend. We suggest that managers look to Buddhist philosophy and respect for Buddhist followers for inspiration and extensive, profound knowledge in dealing with complexities.

Second, the Chinese government aims to create an ideally harmonious society with sustainable development. Top state leaders, recognizing that religion may play an important role in reaching those goals, are attempting to support traditional Chinese religious practice, e.g., sponsoring the World Buddhist Forum in 2006. This is an inspiring sign promising that as religious roles develop, everyone will benefit, including the nation as a whole. In addition, environmental laws are weakly enforced. Provision enforcement could be enhanced by closing legal loopholes and increasing penalties.

Finally, from the perspective of educators, we suggest that Western economics could be expanded as a more compound system that includes some Buddhist features. However, the concept of Buddhism economics will encounter difficulty in penetrating stabilized courses on socialist and Western economics. Popularizing Buddhist economics hinges on the engagement of educators through seminars, salons, and reading parties as proper educational forums.

Our study has two limitations. First, this study measures Buddhist variables as the number of Buddhist monasteries within a certain radius around a listed firm's registered address. China has thousands of Buddhist monasteries (Chen 2003; Du et al. 2013), but we define Buddhist variables based on 141 *nationally famous* Buddhist monasteries due to data limitation. Second, our study is conducted in the context of China, the biggest developing country, so our findings may not generalize to other countries due to different institutional settings. Future research may examine the relationships between Buddhism and CER in different countries.

In closing, attending to the cultural-cognitive dimension of institutions is a new distinguishing feature of research on the behavior of firms. In China, the research on the economic implications of religion is especially at the initiation stage and thus is worth deeper research.

Appendix

See Table 9.

Table 9 Variable definitions

Variable	Definition	Pred. sign
Variables for main tests		
ENV_SCORE	The normalized corporate environmental disclosure score, measured as "(the raw score of corporate environmental disclosure − the minimum score of corporate environmental disclosure)/(the maximum score of corporate environmental disclosure − the minimum score of corporate environmental disclosure)"	
ENV_RAW	The raw score of corporate environmental disclosure	
BUD100	The number of Buddhist monasteries within a radius of 100 km around a listed firm's registered address (Du 2012)	+
BUD200	The number of Buddhist monasteries within a radius of 200 km around a listed firm's registered address (Du 2012)	+
BUD300	The number of Buddhist monasteries within a radius of 300 km around a listed firm's registered address (Du 2012)	+
LAW	Legal environment index from Fan et al. (2011) which measures the development of the intermediary agencies and legal enforcement	+
FIRST	The percentage of common share owned by controlling shareholder (Claessens et al. 2002)	+
MANSHR	The percentage of shares owned by a firm's managers (Meng et al. 2012; Pujari et al. 2004; Sharma 2000)	+
INDR	The ratio of the number of independent directors to the number of the board of directors (Bear et al. 2010; Zhang et al. 2012)	−
PLU	A dummy variable, equaling to 1 if the CEO and the chairman of the board are the same person, and 0 otherwise	−
BOARD	The natural logarithm of the number of the board of directors (Bear et al. 2010; Pfeffer 1972; Zhang et al. 2012)	+
SIZE	The natural logarithm of the total asset at the end of the year (Brammer and Pavelin 2008)	+
LEV	Interest-bearing debt/total asset (interest-bearing debt = short-term loan +long-term loan + bond payable + long-term loan due within one year) (Hossain et al. 1994; Huang and Kung 2010; Roberts 1992; Ye and Zhang 2011)	+
ROA	Return on total assets, measured as operating income divided by total assets at the beginning of the year (Cochran and Wood 1984)	+
TOBIN'Q	Market value of the firm divided by total assets at the end of the year (Clarkson et al. 2008)	+
FIN	The amount of equity capital or debt raised during the year divided by total assets at the beginning of the year (Clarkson et al. 2008)	−
VOLAT	Stock price volatility, measured as standard deviation of market adjusted weekly stock return (Clarkson et al. 2008)	−
CAPIN	Capital intensity, measured as the ratio of capital spending (including fixed assets, intangible assets and other long-term assets) divided by total sales revenue (Clarkson et al. 2008)	−
LISTAGE	The number of years since a firm's IPO	−
STATE	A dummy variable, equaling to 1 when the ultimate controlling shareholder of a listed firm is a (central or local) government agency or government controlled SOE and 0 otherwise (Kuo et al. 2012; Zeng et al. 2012)	+
Variables for robustness checks		
BUD_N	The number of Buddhist monasteries within a radius of *N* kilometer around a listed firm's registered address (Du 2012)	+
BUD_DIS1	The reciprocal value of the distance between the nearest Buddhist monastery and a listed firm's registered address	+
BUD_DIS3	The reciprocal value of the average distance between the nearest three Buddhist monasteries and a listed firm's registered address	+

References

Allen, F., Qian, J., & Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics, 77*(1), 57–116.

Al-Tuwaijri, S. A., Christensen, T. E., & Hughes, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations and Society, 29*(5–6), 447–471.

Angelidis, J., & Ibrahim, N. (2004). An exploratory study of the impact of degree of religiousness upon an individual's corporate social responsiveness orientation. *Journal of Business Ethics, 51*(2), 119–128.

Ashiwa, Y., & Wank, D. L. (2006). The politics of a reviving Buddhist temple: State, association, and religion in southeast China. *The Journal of Asian Studies, 65*(2), 337–359.

Beal, S. (1884). *Buddhism in China*. Great Britain: Society for Promoting Christian Knowledge.

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics, 97*(2), 207–221.

Brammer, S., & Pavelin, S. (2008). Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment, 17*(2), 120–136.

Brammer, S., Williams, G., & Zinkin, J. (2007). Religion and attitudes to corporate social responsibility in a large cross-country sample. *Journal of Business Ethics, 71*(3), 229–243.

Carroll, A. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review, 4*, 497–505.

Carroll, A. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons, 34*(4), 39–48.

Carroll, A. (1999). Corporate social responsibility. *Business and Society, 38*(3), 268–295.

Chen, H. (2003). Brief overview of law and religion in the People's Republic of China, A. *Brigham Young University Law Review*, 465–474.

Chen, G., Firth, M., Gao, N., & Rui, O. (2006). Ownership structure, corporate governance, and fraud: Evidence from *China. Journal of Corporate Finance, 12*(3), 424–448.

Claessens, S., Djankov, S., Fan, J. P. H., & Lang, L. H. P. (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *Journal of Finance, 57*(6), 2741–2771.

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

Cochran, P. L., & Wood, R. A. (1984). Corporate social responsibility and financial performance. *Academy of Management Journal, 27*(1), 42–56.

Conroy, S. J., & Emerson, T. L. N. (2004). Business ethics and religion: Religiosity as a predictor of ethical awareness among students. *Journal of Business Ethics, 50*(4), 383–396.

Cormier, D., & Magnan, M. (1999). Corporate environmental disclosure strategies: Determinants, costs and benefits. *Journal of Accounting, Auditing and Finance, 14*(3), 429–451.

Daniels, P. (2008). *Buddhism and sustainable consumption in the book edited by Zsolnai Laszlo, Sustainability and sufficiency: Economic development in a Buddhist perspective* (pp. 35–60). Akadémiai Kiadó, Budapest: Society and Economy.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research, 26*(3), 187–199.

Du, X. (2012). Does religion matter to owner-manager agency costs? Evidence from China. *Journal of Business Ethics*. doi:10.1007/s10551-012-1569-y.

Du, X., Jian W., Du, Y., Feng, W., & Zeng, Q. (2013). Religion, the nature of ultimate owner, and corporate philanthropic giving: Evidence from China. *Journal of Business Ethics*. doi:10.1007/s10551-013-1804-1.

Dyreng, S. D., Mayew, W. J., & Williams, C. D. (2012). Religious social norms and corporate financial reporting. *Journal of Business Finance & Accounting, 39*(7–8), 845–875.

El Ghoul, S., Guedhami, O., Ni, Y., Pittman, J. A., & Saadi, S. (2012a). Does information asymmetry matter to equity pricing? Evidence from firm's geographic location. *Contemporary Accounting Research*, Forthcoming, available at: SSRN. http://ssrn.com/abstract=1676023.

El Ghoul, S., Guedhami, O., Ni, Y., Pittman, J. A., & Saadi, S. (2012b). Does religion matter to equity pricing? *Journal of Business Ethics, 111*(4), 491–518.

Fan, G., Wang. X. L., & Zhu, H. P. (2011). NERI index of Marketilization of China's provinces 2011 report. *Economics Science Press* (in Chinese).

Garriga, E., & Melé, D. (2004). Corporate social responsibility theories: mapping the territory. *Journal of Business Ethics, 53*(1), 51–71.

Georges, E. (1997). In search of a common ethical ground: Corporate environmental responsibility from the perspective of Christian environmental stewardship. *Journal of Business Ethics, 16*(2), 173–181.

Ghorbani, M., Liao, Y., Cayköylü, S. & Chand, M. (2012). Guilt, shame, and reparative behavior: The effect of psychological proximity. *Journal of Business Ethics*. doi:10.1007/s10551-012-1350-2.

Gould, S. J. (1995). The Buddhist perspective on business ethics: Experiential exercises for exploration and practice. *Journal of Business Ethics, 14*(1), 63–70.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Accounting Auditing and Accountability Journal, 8*(2), 47–77.

Grullon, G., Kanatas, G., & Weston, J. P. (2010). Religion and corporate (mis) behavior. Rice University, Working paper.

Guthrie, J., & Parker, L. (1989). Corporate social reporting: A rebuttal of legitimacy theory. *Accounting and Business Research, 19*(76), 343–352.

Hilary, G., & Hui, K. W. (2009). Does religion matter in corporate decision making in America? *Journal of Financial Economics, 93*(3), 455–473.

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage.

Hossain, M., Tan, L. M., & Adams, M. B. (1994). Voluntary disclosure in an emerging capital market: Some empirical evidence from companies listed on the Kuala Lumpur stock exchange. *The International Journal of Accounting, 29*(4), 334–351.

Huang, C.-L., & Kung, F.-H. (2010). Drivers of environmental disclosure and stakeholder expectation: Evidence from Taiwan. *Journal of Business Ethics, 96*(3), 435–451.

Ilinitch, A. Y., Soderstrom, N. S., & Thomas, T. E. (1998). Measuring corporate environmental performance. *Journal of Accounting and Public Policy, 17*(4–5), 383–408.

Ingram, R., & Frazier, K. B. (1980). Environmental performance and corporate disclosure. *Journal of Accounting Research, 18*, 612–622.

Jian, M., & Wong, T. J. (2010). Propping through related party transactions. *Review of Accounting Studies, 15*(1), 70–105.

Jin, Z., & Qiu, Y. (2011). *Annual report on religions in China*. Social Sciences Academic Press (in Chinese).

Jo, H., & Harjoto, M. A. (2012). The causal effect of corporate governance on corporate social responsibility. *Journal of Business Ethics, 106*(1), 53–72.

John, K., Knyazeva, A., & Knyazeva, D. (2011). Does geography matter? Firm location and corporate payout policy. *Journal of Financial Economics, 101*(3), 533–551.

Kennedy, E. J., & Lawton, L. (1998). Religiousness and business ethics. *Journal of Business Ethics, 17*(2), 163–175.

Kong, D., Liu, S. & Dai, Y. (2012). Environmental policy, company environment protection, and stock market performance: Evidence from China. *Corporate Social Responsibility and Environmental Management*. doi:10.1002/csr.1306.

Kuo, L., Yeh, C. C. & Yu, H. C. (2012). Disclosure of corporate social responsibility and environmental management: Evidence from China. *Corporate Social Responsibility and Environmental Management*. doi:10.1002/csr.1276.

Lim, L. (2010). Chinese run to religion to fill a spiritual vacuum. Retrieved 05 January 2013 from http://www.npr.org/templates/story/story.php?storyId=128544048.

Ling, H. (2004). *Buddhism in China*. Beijing: Chinese Intercontinental Press.

Liu, X., & Anbumozhi, V. (2009). Determinant factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *Journal of Cleaner Production, 17*(6), 593–600.

Longenecker, J. G., McKinney, J. A., & Moore, C. W. (2004). Religious intensity, evangelical Christianity, and business ethics: An empirical study. *Journal of Business Ethics, 55*(4), 373–386.

longquanzs.org. (2013). Environmental protection needs both macro institutional system and micro culture work, Retrieved 26 May 2013 from http://www.longquanzs.org/b/54600.html.

Loughran, T. (2007). Geographic dissemination of information. *Journal of Corporate Finance, 13*(5), 675–694.

Loughran, T., & Schultz, P. (2005). Liquidity: Urban versus rural firms. *Journal of Financial Economics, 78*(2), 341–374.

Magnuson, J. C. (2008). *Pathways to a mindful economy in the book edited by Zsolnai Laszlo, Sustainability and sufficiency: Economic development in a Buddhist perspective* (pp. 79–107). Budapest: Society and Economy, Akadémiai Kiadó.

Marques, J. (2012). Consciousness at work: A review of some important values, discussed from a Buddhist perspective. *Journal of Business Ethics, 105*(1), 27–40.

McGuire, S. T., Omer, T. C., & Sharp, N. Y. (2012). The impact of religion on financial reporting irregularities. *The Accounting Review, 87*(2), 645–673.

Meng, X. H., Zeng, S. X., Tam, C. M., & Xu, X. D. (2012). Whether top executives' turnover influences environmental responsibility: From the perspective of environmental information disclosure. *Journal of Business Ethics*. doi:10.1007/s10551-012-1351-1.

NYTIMES. (2007). China overtakes U.S. in greenhouse gas emissions. Retrieved 20 May 2013 from http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html.

Overmyer, D. L. (2003). Religion in China today: Introduction. *The China Quarterly, 174*(2), 307–316.

Pace, S. (2012). Does religion affect the materialism of consumers? An empirical investigation of buddhist ethics and the resistance of the self. *Journal of Business Ethics*. doi:10.1007/s10551-012-1228-3.

Pacey, S. (2005). A Buddhism for the human world: Interpretations of renjian fojiao in contemporary Taiwan. *Asian Studies Review, 29*(1), 61–77.

Patten, D. M. (1992). Intra-industry environmental disclosures in response to the Alaskan oil spill. *Accounting, Organizations and Society, 17*(5), 471–475.

Pfeffer, J. (1972). Size and composition of corporate boards of directors: The organization and its environment. *Administrative Science Quarterly*, 218–228.

Pistor, K., & Xu, C. (2005). Governing stock markets in transition economics: Lessons from China. *American Law and Economics Review, 7*(1), 184–210.

Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard business review, 84*(12), 78–92.

Pujari, D., Peattie, K., & Wright, G. (2004). Organizational antecedents of environmental responsiveness in industrial new product development. *Industrial Marketing Management, 33*(5), 381–391.

Quiles, Z. N., & Bybee, J. (1997). Chronic and predispositional guilt: Relations to mental health, prosocial behavior, and religiosity. *Journal of Personality Assessment, 69*(1), 104.

Rahman, N., & Post, C. (2012). Measurement issues in environmental corporate social responsibility (ECSR): Toward a transparent, reliable, and construct valid instrument. *Journal of Business Ethics, 105*(3), 307–319.

Rice, G. (2006). Pro-environmental behavior in Egypt: Is there a role for Islamic environmental ethics? *Journal of Business Ethics, 65*(4), 373–390.

Rising, B. (2000). SPHDIST: Stata module to compute spherical distances. Statistical Software Components S372502. Boston College Department of Economics. http://ideas.repec.org/c/boc/bocode/s372502.html#refs.

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

Seligsohn, D. (2011) *The transformation of China's energy system: Challenges and opportunities*. World Resources Institute 2011. Retrieved 05 January 2013 from http://www.wri.org.cn/files/wri/documents/seligsohn_testimony_energy_and_commerce_2011-04-04.pdf.

Sharma, S. (2000). Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal, 43*(3), 681–697.

SHSE. (2008a). Notice of supervising the listed firms in Shanghai stock exchange to disclose the annual report of year 2008. http://www.sse.com.cn/aboutus/hotandd/ssenews/c/c_20121024_51173.shtml.

SHSE. (2008b). Guide to environmental information disclosure for listed firms in Shanghai stock exchange. http://www.sse.com.cn/lawandrules/sserules/listing/stock/c/c_20120918_49642.shtml.

Shum, P. K., & Yam, S. L. (2011). Ethics and law: Guiding the invisible hand to correct corporate social responsibility externalities. *Journal of Business Ethics, 98*(4), 549–571.

Sobhani, F. A., Zainuddin, Y., & Amran, A. (2011). Religion as an emerging institutional factor behind sustainability disclosure practices in Bangladesh: The case of an Islamic bank. *World Journal of Social Sciences, 1*(1), 69–85.

SZSE. (2008). Notice of supervising the listed firms in Shenzhen stock exchange to disclose the annual report of year 2008. http://www.szse.cn/main/disclosure/bsgg/2008123139739051.shtml.

Tateisi, N. (2004). Corporate social responsibility leads to sustainable economic growth in China-observations from the leader of the CBCC dialogue mission on CSR in the People's Republic of China. Retrieved 05 January 2013 from http://www.keidanren.or.jp/CBBCC/english/report/2004.

Van Rooij, B., & LO, C. W. H. (2010). Fragile convergence: Understanding variation in the enforcement of China's industrial pollution law. *Law & Policy, 32*(1), 14–37.

Verma, N. (2008). Religion: A savior for environment with particular emphasis on Hinduism. Working paper, Retrieved 05 January 2013 from: http://www.iitk.ac.in/infocell/announce/convention/

papers/Context%20and%20Human%20Resource-04-Nandita%20Verma.pdf.

Wang, A. (2006). Role of law in environmental protection in China: Recent developments. *The Vermont Journal of Environmental Law, 8*, 195–216.

Wang, L., & Juslin, H. (2009). The impact of Chinese culture on corporate social responsibility: The harmony approach. *Journal of Business Ethics, 88*, 433–451.

Wang, Q., Wong, T. J., & Xia, L. (2008). State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics, 46*(1), 112–134.

Wei, D. R. (2010). Buddhism in China and Modern Society: An introduction centering around the teachings of Taixu and Yinshun. *The Journal of Oriental Studies, 20*, 171–182.

Wines, W. A., & Napier, N. K. (1992). Toward an understanding of cross-cultural ethics: A tentative model. *Journal of Business Ethics, 11*(11), 831–841.

Wiseman, J. (1982). An evaluation of environmental disclosures made in corporate annual reports. *Accounting, Organizations and Society, 7*(1), 53–63.

Yang, F. (2009). Religion in China under communism: A shortage economy explanation. *Journal of Church and State, 52*(1), 3–33.

Ye, K., & Zhang, R. (2011). Do lenders value corporate social responsibility? Evidence from China. *Journal of Business Ethics, 104*(2), 197–206.

Yin, J., & Zhang, Y. (2012). Institutional dynamics and corporate social responsibility (CSR) in an emerging country context: Evidence from China. *Journal of Business Ethics, 111*(2), 301–316.

Zeghal, D., & Ahmed, S. (1990). Comparison of social responsibility information disclosure media by Canadian firms. *Accounting, Auditing, and Accountability Journal, 3*(1), 38–53.

Zeng, S. X., Liu, H. C., Tam, C. M., & Shao, Y. K. (2008). Cluster analysis for studying industrial sustainability: An empirical study in Shanghai. *Journal of Cleaner Production, 16*(10), 1090–1097.

Zeng, S. X., Xu, X. D., Yin, H. T., & Tam, C. M. (2012). Factors that drive Chinese listed companies in voluntary disclosure of environmental Information. *Journal of Business Ethics, 109*(3), 309–321.

Zhang, J. Q., Zhu, H. & Ding, H.-B.. (2012). Board Composition and Corporate Social Responsibility: An Empirical Investigation in the Post Sarbanes-Oxley Era. *Journal of Business Ethics*. doi:10.1007/s10551-012-1352-0:1-12.

Zsolnai, L. (2008). *Sustainability and sufficiency: Economic development in a Buddhist perspective*. Akadémiai Kiadó, Budapest: Society and Economy.