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Corporate Social Responsibility, Institutional Environments, and Tax Avoidance: Evidence from a Subnational Comparison in China☆

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ABSTRACT

We examine the association between mandatory corporate social responsibility (CSR) disclosure and economic contribution (tax payments) in China, where we expect this association to be affected by a region's institutional attributes. Exploiting a dataset that shows cross-regional variations in institutions, we find that in regions with lower institutional quality, firms claiming to be socially responsible actually avoid taxes, whereas CSR disclosure in other regions is more aligned with the social responsibility aspect of tax compliance. Our study contributes to the literature by demonstrating that in the absence of proper institutions, CSR disclosure is likely to remain a form of window dressing.

1. Introduction

Do Chinese firms that claim social responsibly fully meet their economic responsibilities (in terms of tax payments) to society? Corporate social responsibility (CSR) and the social irresponsibility of corporate tax avoidance have separately attracted a great deal of scholarly attention.[1] Studies examining the relation between CSR and tax avoidance in Australia and the U.S. report mixed results ranging from a negative relation (e.g., Hoi, Wu, & Zhang, 2013; Lanis & Richardson, 2012) to a positive relation (Davis, Guenther, Krull, & Williams, 2016).[2] Watson (2015) further finds that the negative/positive relation depends on whether firms have surplus

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[1] Hanlon and Heitzman (2010) call for research on the relationship between tax avoidance and environmental or social responsibility constructs. Most of the scholarship on CSR has focused on firms' strategic management, marketing, and financial economics (Park, Chidlow, & Choi, 2014; Yang & Rivers, 2009). Studies on CSR within the Asia Pacific region have focused on voluntary disclosure and its association with financial performance and market valuation (Benson, Clarkson, Smith, & Tutticci, 2015). Li, Fetscherin, Alon, Lattemann, and Yeh (2010) observe that although extensive studies have been conducted on CSR in developed countries, much less is known about CSR in emerging markets. Given that corporate tax avoidance has increased significantly since 2000 and has severe negative effects on economic development and society in general, it can be reasonably argued that tax avoidance is at least as important to society as the environment (McIntyre, Gardner, Wilkins, & Phillips, 2011).

[2] Tax avoidance is the most widely used term in recent scholarship (Hope et al., 2013). To date, the definition of tax avoidance is still an unsettled issue. While some types of tax avoidance are legal, such as accelerating large purchases of depreciable property to increase tax deductible expenses, others are illegal, such as deliberately omitting income and overstating deductions. We refer to tax avoidance as a firm's (legal or illegal) underreporting of their tax liabilities (Hanlon & Heitzman, 2010). We focus on a *broad* measure of tax avoidance (i.e., effective tax rate) that is disclosed in financial statements and is relatively easy for the general public to calculate and interpret.

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resources with which to support CSR activities. Studies suggest that a country's institutional environment affects corporate reporting behavior (Atwood, Drake, Myers, & Myers, 2012; Ball, Kothari, & Robin, 2000). For example, it affects tax avoidance (Atwood et al., 2012), perceptions of the importance of corporate ethics and tax compliance (Demirbag, Frecknall-Hughes, Glaister, & Tatoglu, 2013; Riahi-Belkaoui, 2004; Shafer, Fukukawa, & Lee, 2007; Snell & Tseng, 2002), and attitudes toward CSR (Muller & Kolk, 2015). Marquis and Qian (2013) find that regional institutional development in China influences the extent to which reported CSR activities are symbolic or substantive in nature.

Making use of a dataset that displays substantial cross-regional variations in institutions within a single country, this study examines whether there is a difference in the association between mandatory CSR reporting, as measured by an independent CSR rating agency, and tax-based corporate economic contributions to society depending on the quality of the institutional environment in which the firms operate. We argue that firms are less likely to view tax payments as an important social obligation in regions with less developed market economies, insufficient legal infrastructure and professional intermediaries, less ethical awareness and commitment to social obligations, low faith in government, and low-cost consequences of misconduct. However, these firms may engage more in other, less expensive CSR activities as a counterbalance to any negative views associated with their aggressive tax reporting. Therefore, we expect that firms in these regions may adopt more aggressive tax positions while using a less substantive CSR strategy to window dress their CSR reports. In contrast, in regions where (1) stakeholder monitoring of corporate affairs is more active, (2) people are less accepting of unethical behavior and have more faith in government institutions, (3) economic costs imposed on noncompliance with laws and social norms are higher, and (4) managers are more likely to refrain from actions that deviate from the tax obligations expected of them by society, we expect CSR-minded firms to be more likely to view taxes as complementing their CSR activities and to pay fair taxes.

China provides a good setting in which to examine the issue of cross-jurisdictional effects on social responsibility reporting practices. First, although all firms operate within a common national environment and consequently share a common national culture, there exists considerable inter-regional disparity in market development, corruption and government monitoring in business, law enforcement and investor protection, corporate trustworthiness and business behavior, and the professionalism of business intermediaries in the reporting process (Cai, Fang, & Xu, 2011; Fan, Wang, & Zhu, 2011; Li & Ma, 2015; Sun, 2014; World Bank, 2006; Zhang & Ke, 2002; Zhou, Li, Sheng, & Shao, 2014). We expect these differences to influence corporate strategies toward CSR in general and toward tax as a CSR element in particular. Our single-country study is similar to the international studies in the sense that we also exploit institutional differences, but at the subnational level.[3]

Second, the transition from a command economy to a market economy in China has led to many business practices that are not ethical or socially responsible (e.g., Lu, 2009; Shafer et al., 2007; Snell & Tseng, 2002). Such unethical and irresponsible practices have been specifically attributed to weaknesses in the institutional environments (such as legal systems) in China that have persisted through the country's long economic transition (e.g., Snell & Tseng, 2002; Zhou & Poppo, 2010). Finally, the evolution of CSR remains at a preliminary stage in China (Yin & Zhang, 2012), and there are substantial differences in the amount of information disclosed on specific CSR activities by Chinese firms (China WTO Tribune, 2009) that enable us to determine whether a CSR report reflects a firm's symbolic exercises or is indicative of substantive activities.[4] These characteristics increase the likelihood that our statistical tests have sufficient power to assess the influence of the strength of a region's institutions on the association between CSR reporting and corporate action.

Following recent studies (Chen, Chen, Cheng, & Shevlin, 2010; Cheng, Lin, & Wong, 2016; Hasan, Hoi, Wu, & Zhang, 2014; Hope, Ma, & Thomas, 2013; Lanis & Richardson, 2012; Muller & Kolk, 2015; Robinson, Kises, & Weaver, 2010), we use the effective tax rate (ETR) less the firm's applicable rate as our primary measure of tax avoidance. Our use of the spread between a firm's ETR and its applicable tax rate captures deviations from the “fair share” of tax payable. To measure the level of CSR reporting, we rely on the CSR index scores from the Rankins CSR Ratings (RKS), an independent third-party social responsibility rating agency that evaluates Chinese listed firms' CSR reporting substantiveness using international reporting guidelines. We argue that the relationship between CSR reporting and corporate tax payments is moderated by the strength of the institutional environments in which firms operate.

To measure the quality of regional institutions, we use the most recent National Economic Research Institute (NERI) index of the economic marketization and legal environments of China's provinces. This index investigates the existence of market intermediaries and professionalism in a local population, the level of economic development across regions, the extent of government interference and monitoring in local economies, the maturity of debt and commodity markets, the efficiency and effectiveness of regulatory oversight and legal enforcement, and the adequacy of intellectual property and consumer rights protection. We classify a province with above-median (below-median) index scores as a region with strong (weak) institutions, and then interact this indicator variable with the firm's overall CSR rating score to examine whether the relation between *ETR* and *CSR* hinges on the quality of regional institutions.

[3] International studies have been criticized for correlated omitted variable problem. For example, given cross-country differences in currency, legal system, culture, religion, politics, and laws and regulations, it is difficult to attribute the effect on tax avoidance to a cross-jurisdictional difference in a specific institutional factor (Shackelford & Shevlin, 2001). Our within-country approach overcomes some of the inherent difficulties of between-jurisdiction studies because in China there is uniformity in the tax and accounting rules, currency, state laws, and political system across regions.

[4] For example, according to the Research Report on Corporate Social Responsibility of China issued by the national government in 2009, the top 100 Chinese enterprises received an average score of 31 (out of 100) for social responsibility, responsibility management, market responsibility, and environmental responsibility. Although 15% of the firms achieved 60 points, 40% had fewer than 20. Furthermore, during 2008–2009, only 2.4% of the CSR reports were verified by external auditors, and only 3.7% of these reports followed the GRI guidelines (Cheng et al., 2016). The lack of external verification of CSR implementation (although tax payments are subject to tax authority scrutiny) induces firms to use CSR reports for public relational purposes and thus enables us to determine whether these reports are informative.

Using a sample of 1438 firm-years with mandatory CSR reports from 2008 to 2012 in China, we find evidence consistent with our expectations. Separately, in jurisdictions with poor institutions, we observe a divergence between the level of CSR disclosure and the payment of tax, which apparently arises from the use of CSR reports primarily as an image- or risk-management tool (Godfrey, 2005; Hoi et al., 2013; Minor & Morgan, 2011; Preuss, 2010; Sikka, 2010). This is consistent with legitimacy theory, which suggests that when there is a disparity between corporate actions and societal expectations, a corporation seeks to legitimize its relationship with society by pursuing other, less costly CSR activities to alleviate community concerns about low tax payments (Davis et al., 2016; Deegan, 2002; Gray, Kouhy, & Lavers, 1995; Lanis & Richardson, 2013; Zucker, 1987).

Taxation is probably the most important component of CSR (Christensen & Murphy, 2004; SustainAbility, 2006; Tax Justice Network, 2012). Although tax is central to any notion of responsible citizenship, prior studies investigating the relation between CSR and tax payments find mixed results (e.g., Davis et al., 2016; Hoi et al., 2013; Lanis & Richardson, 2012). Moreover, prior studies tend to take a moral perspective when examining this issue at the individual level (e.g., Doyle, Hughes, & Glaister, 2009; McGee, Ho, & Li, 2008). In light of the increased concern over aggressive tax avoidance worldwide and particular concerns regarding the state of business ethics and social responsibility in China, study of this relationship in the Chinese context is clearly warranted (Hanlon & Heitzman, 2010). By testing whether high-CSR firms pay their fair share of taxes and whether institutional features moderate this relationship in a large, fast-growing, and transitional economy, we push the boundaries of traditional scholarship that examines CSR and tax avoidance separately in market-based economies in which views toward ethical and socially responsible conduct are assumed to be more homogeneous across regions in the country. We also attempt to explain the CSR–tax relation by considering an important moderator, i.e., the effect of institutions.

Our results have implications for academic researchers and policymakers. As country-level CSR regulations do not necessarily lead to homogeneous corporate reporting behavior, researchers examining the CSR–tax relation should consider a country's regional institutional environments in their models. Our findings are potentially useful in identifying the circumstances in which the risk of tax avoidance is higher, and thus may help tax authorities in allocating their auditing efforts in the future. For example, our results suggest that additional tax scrutiny of “socially responsible” firms in economically underdeveloped and low-trust regions is warranted. From a policy perspective, our findings imply that raising awareness of responsible tax practices should rely on not only formal mechanisms such as the power of authorities to enforce compliance, but importantly also informal institutional instruments that promote trust in authorities, build a clean government, enhance the transparency and understanding of tax laws, and establish fair play and cooperation in social dilemmas. CSR has emerged as a global trend in recent years. Although our single-country focus undermines the external validity of our results, our description of informal institutions and within-country disparities in institutional development, which are common in emerging economies such as Brazil, Russia, and India (Allen, Chakrabarti, De, Qian, & Qian, 2012; Bruno, Bytchkova, & Estrin, 2011), helps to alleviate this validity concern.

We organize the remainder of the paper as follows. Section 2 explains the background of the study, reviews the relevant literature, and develops our research hypothesis. Section 3 describes the research methodologies. Section 4 presents the empirical results, and Section 5 concludes the study.

2. Background, literature review, and hypothesis development

2.1. CSR reporting and the tax system in China

The Chinese government only recently established the CSR information disclosure system. Before 2002, CSR was an unfamiliar concept and there was little promotion of CSR awareness by the government. Over the past two decades, CSR issues such as child labor, food safety, and environmental pollution caused by rapid economic development have begun to draw government attention to corporate misconduct and moral standards. In January 2002, the China Securities Regulatory Commission first issued *The Code of Corporate Governance for Listed Firms* to remind firms to act responsibly toward their stakeholders and the environment. In September 2006, the Shenzhen Stock Exchange issued *The Social Responsibility Guidance for Listed Firms* to encourage firms to establish CSR systems and disclose CSR reports together with their annual reports. However, in 2006 and 2007, only 12 and 54 firms, respectively, of the approximately 1200 firms registered on the exchange voluntarily issued standalone CSR reports (He, Xiao, & Zhu, 2013; Xu, Yang, Quan, & Lu, 2015). The Shanghai Stock Exchange made a similar move in May 2008. However, the government's efforts do not seem to have significantly raised CSR awareness or improved practices, possibly because neither socially responsible activities nor the CSR reports were mandatory. The Shanghai Stock Exchange issued a notification in 2008 that required listed firms in the corporate governance sector, firms that are cross-listed abroad, and financial firms to disclose CSR reports concurrently with their 2008 annual reports.[5] The Shenzhen Stock Exchange issued a similar notification in the same year requiring listed firms constituting the Shenzhen Stock Exchange 100 Index to issue CSR reports. Both stock exchanges encouraged all firms to follow suit. As a result, the number of firms issuing CSR reports has been on the rise.

In their CSR reports, firms report activities regarding their responsibilities to customers (e.g., product safety, product quality, service quality, and a full disclosure of product-related risks), employees (e.g., safe and humane working conditions, non-discriminatory treatment, fair compensation, and opportunities for training and promotion), suppliers (e.g., fair contract terms, prompt payments, and hassle-free acceptance of timely and complete deliveries), the government (e.g., tax payments and employment), the

[5] Firms on the exchange can apply for inclusion in the corporate governance sector. Applications are evaluated by a special committee organized by the exchange. CSR-minded firms that are selected into this sector are thought to have better governance practices and can thus enjoy simplified auditing procedures for ad hoc announcements. We do not find that firms in this sector are clustered in more economically developed regions. In our sample, only 2.73% are cross-listed firms, and our main results are not affected if we exclude cross-listed firms.

community (child labor transparency and donations that support charities, schools, and civic activities), the environment (e.g., emissions of greenhouse gases and other pollutants, recycling, and resource conservation), and law abidance (e.g., prevention of corruption, extortion, and bribery). Firms that provide incorrect information are subject to penalties (Guo, 2005). Firms also disclose whether their reports are prepared in compliance with the international reporting guidelines set by organizations such as the Global Reporting Initiative (GRI) and the United Nations Global Compact and are verified by an independent third party. Appendix A provides excerpts from ZTE Corporation's 2010 CSR report in this regard.

Chinese domestic firms were subject to a single statutory tax rate of 30% during 1994–2007, which was reduced to 25% from January 1, 2008. However, the government offered preferential tax rates for firms operating in designated industries. For example, firms engaging in high-tech and new technology are now exempt from income tax for their first two profit-making years, while firms in the energy, transportation, and telecommunication industries then receive a 50% reduction in their applicable tax rate for another three years after the two-year tax exemption period.

2.2. Variation in institutional development in China

The development of China's economic and business environment is uneven across the country's regions (Fan et al., 2011; World Bank, 2006; Zhou et al., 2014). According to the NERI indices of marketization of China's provinces constructed by Fan et al. (2011), there is large disparity in law enforcement and economic and institutional development across regions based on a number of sub-indices measuring the degree of professionalism and availability of market intermediaries, the extent of government intervention, the effectiveness of lawsuit enforcement, and the protection of intellectual property rights and consumer rights. The World Bank (2006) survey report also shows substantial variation in government effectiveness and efficiency across 120 major cities in China. For example, using the average annual bureaucratic interaction days and firm expenditure on travel and entertainment as a measure of corruption, the report reveals that inland areas have a higher degree of corruption than the coastal areas. In general, the literature suggests that in less economically and legally developed areas, social trust is low and corruption is high (Cai et al., 2011; Li & Ma, 2015; Sun, 2014; World Bank, 2006; Wu, Firth, & Rui, 2014), unethical behavior is more likely to be accepted (Shafer et al., 2007; Zhang & Ke, 2002), governments have less incentive to monitor corporate reporting (Marquis & Qian, 2013), firms are more dependent on political and social networks to conduct business (Hung, Wong, & Zhang, 2015), professionalism in the workplace is less adequate (Fan et al., 2011), and the social and economic costs of noncompliance with laws and norms are low (Chen, 2005; Marquis & Qian, 2013).

2.3. The effect of the interplay between social responsibility and institutions on taxes

There are two views on business responsibility. Friedman's (1962) stockholder view reflects a rather narrow understanding of corporate obligations that emphasizes shareholder wealth and profit maximization (e.g., through a reduction in tax payments) and discounts the importance of corporate ethics and social responsibility. Firms that endorse this view tend to dismiss the importance of CSR and accordingly are more likely to view CSR reporting as a strategic tool for impression management or marketing. Because of their weaker concern for ethics and social responsibility, these firms should also be more likely to adopt aggressive tax reporting positions. However, there are clearly risks that the discovery of such aggressive tax reporting may damage the firm's reputation and raise public concerns and media pressure, resulting in social and economic sanctions and even consumer boycotts (Hanlon & Slemrod, 2009; Wilson, 2009). To cover up or divert attention from such negative effects, firm managers may extol the firm's CSR activities as a form of window dressing and/or reputation building (Hoi et al., 2013; Minor & Morgan, 2011). This is consistent with legitimacy theory, which argues that a corporation seeks to legitimize its relationship with society by undertaking other (nontax) economic activities to meet community and societal expectations (Davis et al., 2016; Deegan, 2002; Gray et al., 1995; Yin & Zhang, 2012).

In contrast, Freeman's (1984) stakeholder view recognizes the importance of maintaining a balance between business ethics, economic interests, and social responsibility. Thus, if this view holds, firms will believe more strongly in CSR, both in principle and from a practical standpoint. Such firms should take their CSR reporting responsibilities more seriously and be less likely to engage in image management through such reports. Indeed, if a genuine belief in the stakeholder view is prevalent within an organization, aggressive tax avoidance may be perceived as a morally reprehensible business practice, and socially responsible firms are expected to avoid this practice by paying their fair share of taxes (e.g., Bird & Smucker, 2007; Hoi et al., 2013; Lanis & Richardson, 2012; SustainAbility, 2006). The public also expects firms to view taxation as an important component of their CSR (Christensen & Murphy, 2004), particularly since the tax avoidance scandals surrounding some high-profile firms around the world have come to light (e.g., BHP in Australia, GlaxoSmith-Kline in the U.K., and Google in the U.S.).

However, the stockholder and stakeholder views are not mutually exclusive (Smith, 2003), as some firms may be oriented toward both or possibly neither. The shareholder view does not prohibit the allocation of corporate funds to promote CSR activities that create incremental benefits to the firm; similarly, the stakeholder view must balance the interests of all stakeholders, including the shareholders, whose interests are usually addressed through profits. Therefore, firms rationally balance the costs and benefits of investment in CSR.[6] While the benefits of CSR engagement only materialize in the long run, the costs have an immediate cash flow

[6] Direct benefits include improvements in the workplace that increase productivity through a pool of more talented people who are attracted to the firm and in publicity and image that provide better market access and justify price premiums. The direct costs of undertaking CSR activities include sunk costs, such as investment in environmentally friendly community projects, and ongoing costs aimed at improving the social aspects of business operations, such as social insurance, human development and training, employee salaries and fringe benefits, and government taxes.

effect. Furthermore, not all CSR activities have equal costs (Davis et al., 2016). As income tax is the single most expensive recurring line item for most firms, firms make a tradeoff between tax payments and other economic activities that promote CSR. To the extent that (1) the CSR activities are voluntary and unverified, (2) the cash flow effects of the various CSR activities are dissimilar, (3) the income tax laws and regulations offer considerable leeway for interpretation, and (4) the intensity of external monitoring of corporate reporting varies across regions, some firms are more likely to opportunistically engage in certain CSR activities to achieve a win-win result by reducing their tax burden as far as possible while increasing investment in lower-cost CSR activities through improved after-tax cash flows to appear as good corporate citizens and offset any negative views associated with tax avoidance. This is consistent with evidence from Huseynov and Klamm (2012), who observe that some tax-aggressive firms have community commitments, and from Davis et al. (2016), who observe that socially responsible U.S. firms pay less tax because they view tax payments as detracting from social welfare and hence not the best way to accomplish social responsibility goals.

The institutional theory of organizations has long established that corporations are embedded within broader social structures, comprising both formal (e.g., government laws) and informal (e.g., cultural practices and norms and traditions) institutions that exert significant influence over their behavior and consequently impact organizational outcomes (e.g. Campbell, 2007; Hodgson, 2006). Institutions are important drivers of corporate social performance (Ioannou & Serafeim, 2012), which alter corporate reporting behavior through shared beliefs and practices (Atwood et al., 2012; Ball et al., 2000) that can influence individuals' perceptions of ethics and social responsibility (Singhapakdi, Karande, Rao, & Vitell, 2001) and corporate attitudes toward taxation as a vital part of social responsibility (Yin & Zhang, 2012). Government, as the most formal institutional organization, also affects public behavior by setting rules and regulations. The literature suggests that trust in government affects a broad set of social and economic outcomes. For example, a higher degree of trust in government leads to a higher tax morale that intrinsically motivates firms to be more sensitive to fairness considerations (Gabriel, 2011; Torgler, 2004). Favoritism and corruption erode trust in authorities, and as a result, firms tend to hide their business activities and avoid tax payment (DeBacker, Heim, & Tran, 2015; Kanagaretnam, Lee, Lim, & Lobo, 2013; Liu, 2016; Sun, 2014; Torgler, 2004). Therefore, in institutionally weak regions where trust is low and corruption is high (Cai et al., 2011; Li & Ma, 2015; Wu et al., 2014), firms may not view CSR as the best way to accomplish social responsibility goals.

We summarize our preceding discussions as follows. The association between CSR and tax avoidance is embedded in the conflicting interests of shareholders and stakeholders: a reduction in taxes benefits shareholders, but at the expense of society as a whole. This association is affected by regional institutions, both formal and informal, which exert significant influence over corporate reporting behavior. We argue that firms in institutionally strong regions tend to place a higher value on meeting societal expectations of responsibility, whereas firms in other regions are inclined to put more weight on economic performance. Nevertheless, given that the relation between CSR and tax payment itself is inconclusive, we state our non-directional hypothesis as follows.

H1. A Chinese region's institutional characteristics either moderate or magnify the relation between CSR and tax avoidance.

3. Research methodology

3.1. Sample selection

Our initial sample consists of all of the A-share non-financial firms for which data are available from the *China Stock Market and Accounting Research* (CSMAR) database for the 2008–2012 period. We start from 2008 because this is when the Shanghai and Shenzhen Stock Exchanges began to require some firms to disclose CSR activities. We end in 2012 because the CSR index for more recent years is not available. We include only firms that are mandated by the government to report CSR practices to reduce the possible adverse effects of self-selection in issuing CSR reports.[7] We delete firm-years in which the three-year sum of income tax expense and/or the three-year sum of pre-tax income is negative to obtain a meaningful measure of ETRs. Our final sample consists of 1438 firm-year observations.

Table 1 shows the sample distribution by year, industry, and region. Our sample encompasses 12 industries, with the manufacturing sector having the largest number of firm-years (57.71%), followed by transportation (8.69%), natural resources (6.54%), and information technology (5.35%). A breakdown of the manufacturing sector shows that general machinery, metal products, biological products, chemical materials, and product manufacturing account for about 75% of the manufacturing firms. The industry composition is similar in each year, and the untabulated results show that the industry composition of the sample firms is similar to that of all listed firms.[8] The last two columns show the industry distribution in the two regional categories: about 70% of firm-years are from institutionally strong regions, while the rest are from institutionally weak regions.

3.2. Measure of CSR

To measure the CSR disclosure of a firm as presented in its report, we obtain the overall CSR rating from the annual dataset of Rankins CSR Ratings (RKS), the first independent third-party social responsibility rating agency in China.[9] Following the GRI 3.0

[7] Our main results do not qualitatively change if we include the 132 firm-years for which firms voluntarily report their CSR activities.

[8] Utility firms are subject to energy regulation and legislation in China; however, our main results are qualitatively similar if we omit the utility industry.

[9] RKS (www.rksratings.com) is organized in a manner similar to that of the U.S. social investment rating agency Kinder, Lydenberg, Domini and Co. (KLD). It evaluates the level of CSR activities based on various sources, including corporate annual reports, websites, and newspapers. RKS's independence in evaluating CSR reports means that the data are less subject to selection bias. Further, as each CSR report is evaluated by at least three RKS experts with at least three years of CSR

Table 1
Sample distribution by year, industry, and region.

	2008	2009	2010	2011	2012	2008–12 (%)		Institutionally strong regions (%)		Institutionally weak regions (%)	
1. Agriculture	1	1	1	1	2	6	(0.42)	6	(100)	0	(0.00)
2. Natural resources	10	21	19	21	23	94	(6.54)	37	(39.36)	57	(60.64)
3. Manufacturing											
Food products	9	14	11	14	16	64	(4.45)	40	(62.50)	24	(37.50)
Textiles	5	7	8	9	11	40	(2.78)	40	(100)	0	(0.00)
Wood processing & papermaking	2	2	3	4	5	16	(1.11)	15	(93.75)	1	(6.25)
Chemical materials & products	10	20	20	27	28	105	(7.30)	84	(80.00)	21	(20.00)
Electronic components & appliances	5	7	8	11	17	48	(3.34)	37	(77.08)	11	(22.92)
Metal products	30	35	36	41	38	180	(12.52)	122	(67.78)	58	(32.22)
General machinery	32	43	47	56	70	248	(17.25)	183	(73.79)	65	(26.21)
Biological products	15	22	21	22	27	107	(7.44)	64	(59.81)	43	(40.19)
Other manufacturing	4	5	5	4	4	22	(1.52)	19	(86.36)	3	(13.64)
4. Utilities	12	14	15	15	17	73	(5.08)	37	(50.68)	36	(49.32)
5. Construction	3	4	4	7	12	30	(2.09)	21	(70.00)	9	(30.00)
6. Transportation	17	22	25	27	34	125	(8.69)	111	(88.80)	14	(11.20)
7. Information technology	7	13	13	18	26	77	(5.35)	54	(70.13)	23	(29.87)
8. Wholesale & retail	8	13	14	15	21	71	(4.94)	53	(74.65)	18	(25.35)
9. Real estate	6	13	14	9	22	64	(4.45)	43	(67.19)	21	(32.81)
10. Services	3	4	4	6	7	24	(1.67)	19	(79.17)	5	(20.83)
11. Communication	1	2	1	1	1	6	(0.42)	5	(83.33)	1	(16.67)
12. Conglomerates	6	11	6	6	9	38	(2.64)	36	(94.74)	2	(5.26)
Total	186	273	275	314	390	1438	(100)	1026	(71.35)	412	(28.65)

guidelines, RKS evaluates the extent of a firm's CSR activities as revealed in its report based on three dimensions—overall evaluation (30%), content evaluation (50%), and technical evaluation (20%)—reflecting the full spectrum of the firm's CSR reporting substantiveness and disclosure quality. The overall evaluation has six first-tier and fourteen second-tier indicators that include the firm's CSR strategy and mission statement, the extent of its participation in CSR activities, the comparability of reported information over time, the relevance and reliability of information, the effectiveness of innovation, and the extent of external auditing. The content evaluation has six first-tier and forty-five second-tier indicators that focus on the extent of the leadership and organizational systems in place for implementing CSR and on specific metrics for social, environmental, and economic responsibility performance. Social responsibility performance includes compliance with tax laws and regulations, the disclosure of tax payments, charitable donations, and community and labor relations. The technical evaluation has four first-tier and eleven second-tier indicators that focus on reporting policies, information transparency, written criteria, presentation format and clarity, and external verification of the report. As these indicators capture various aspects of a firm's CSR practices, we use an aggregate (rather than a dimensional) measure of CSR activity.[10] Consequently, the higher the CSR rating, the higher the degree of substantive CSR activity.

3.3. Measure of institutional quality

To measure the quality of institutional environments across regions in China, we use the 2009 NERI Index of Marketization of China's Provinces, which contains a development score for each province and major municipality (Fan et al., 2011).[11] These scores are based on objective measures and then normalized to a value between 0 and 10 to measure a region's institutional development relative to other provinces. The index includes five sub-indices measuring (1) the number of market intermediaries and degree of professionalism (e.g., the number and percentage of lawyers and certified public accountants) in a local population; (2) the level of economic development and government involvement and monitoring in business; (3) the maturity of debt and commodity markets; (4) the efficiency and effectiveness of legal enforcement; and (5) the adequacy of intellectual property and consumer rights

(*footnote continued*)
experience and with no conflict of interest with the firm, we expect such evaluations to contain few measurement errors. The dataset has been widely used in CSR studies of China (e.g., He et al., 2013; Marquis & Qian, 2013; Xu et al., 2015). After performing tests, Marquis and Qian (2013) conclude that "the RKS data are a valid representation of the substantiveness of CSR reporting." Nevertheless, by no means do we suggest that our study uses an error-free dataset. The lack of external verification of CSR reports results in large variation in the level of CSR reporting, which offers a more powerful context in which to examine whether CSR reports are substantive.

[10] We determine the median CSR scores for the firms located in each province. Provinces with an above-median CSR score in our sample period include Anhui, Beijing, Fujian, Guangdong, Guizhou, Heilongjiang, Hubei, Jiangxi, Qinghui, Shanghai, Shannxi, Shanxi, Sichun, Tianjin, Xinjiang, Yunnan, and Zhejiang, 10 of which are located in regions with stronger institutions.

[11] The NERI index was first published in 2001 and updated in 2003, 2004, 2007, 2009, and 2011. As the index rankings have been quite stable over the years with no significant change in the ranking of the provinces over time (Fan et al., 2011), we use the 2009 index to proxy for each region's institutional environment for the 2009–2012 period. Our main results are qualitatively similar if we use the 2007, 2009, and 2011 indices' individual or averaged scores for the 2008–2012 period. Further, our examination of the data shows that the relative across-region ranking of all of the index items is stable from year to year, suggesting that our assumption is not unreasonable (see also Chen, Li, Su, & Sun, 2011 for a similar approach).

protection. It is the most reliable and widely cited index used in studies of China (see Chan, Lin, & Wang, 2012 and He et al., 2013, among others). To minimize measurement error, we average the scores of all five sub-indices for each province and label provinces with above-median (below-median) scores as institutionally strong (weak) regions (Chan et al., 2012; Chan, Lin, & Wong, 2010). Creating a binary variable allows us to examine whether the relation between the variables of interest varies for firms headquartered in regions with strong versus weak institutions.

3.4. Model specification

Our hypothesis predicts that the relation between a firm's CSR reporting and tax avoidance is moderated by the institutional quality of the region in which the firm is headquartered. To test this hypothesis, we estimate the following regression.

$$ETRDIFF = \beta_0 + \beta_1 CSR + \beta_2 Institution + \beta_3 CSR{*}Institution + \beta_k Control + Year\ \ fixed\ \ effects + Industry\ \ fixed\ \ effects + e$$

We define ETR as the three-year sum of the income tax expense divided by the three-year sum of pre-tax income over the years *t*-2 to *t*. We use a three-year measure to help alleviate unexplained yearly variations in the ETR (Dyreng, Hanlon, & Maydew, 2008). We then subtract the firm's applicable tax rate from this ratio to ensure that low tax payments arise from tax avoidance rather than from tax preferences. Thus, our dependent variable *ETR_DIFF* captures the deviation from the fair share of tax payable and provides an inverse indicator of tax avoidance (i.e., higher values suggest less tax avoidance).[12]

CSR is the index score of CSR information disclosure for each firm. We also use the log-transformed scores and obtain qualitatively similar results. *Institution* is an indicator variable that equals 1 if the average NERI score of a region is above the sample median and 0 otherwise. We include the interaction term for *CSR* and *Institution* to test whether the slope on *CSR* differs for firms headquartered in regions with strong versus weak institutions.

We are interested in the coefficients of β_1 and ($\beta_1 + \beta_3$). β_1 measures the relation between *CSR* and *ETR_DIFF* in institutionally *weak* regions (*Institution* = 0). If higher CSR rating scores are associated with lower *ETR_DIFF* in these regions, we expect β_1 to be negative. β_3 measures the *incremental* association between *CSR* and *ETR_DIFF* (or a shift of association) in institutionally *strong* regions (*Institution* = 1). If a higher CSR score is associated with incremental increases in *ETR_DIFF* in these regions, we expect β_3 to be positive. The linear combination of β_1 and β_3 captures the total effect of *CSR* on *ETR_DIFF* in institutionally strong regions. If the association between the two variables of interest is eliminated in these regions, we expect ($\beta_1 + \beta_3$) to be insignificantly different from zero.

We include a set of firm-specific variables to ensure that our results are robust for commonly used control variables (e.g. Chen et al., 2010; Hoi et al., 2013; Hope et al., 2013; Lanis & Richardson, 2012; Rego & Wilson, 2012). These variables include *ROA* (net income over total assets)[13]; *Size* (the natural logarithm of year-end total assets); *Leverage* (total debt over total assets); *PPE* (plant, property, and equipment over total assets); *Intangible* (intangible assets over total assets); *Growth* (market value over book value of net assets); *Private* (1 if the firm is owned or controlled by private investors); and *Bonus* (1 if the management bonus is calculated based on the firm's after-tax earnings). We include these variables because more profitable firms tend to participate in CSR activities and pay more taxes, larger firms face higher political costs for paying lower tax, higher-leverage firms have more tax-deductible interest expenses, the effect of different asset mixes on tax payments differs, intangible-intensive firms have more tax planning opportunities, growing firms may make more investments in tax-favored assets that reduce taxable income relative to book income, private firms may be more aggressive in tax reporting, and executive compensation schemes induce firms to take aggressive tax positions. We also control for year and industry fixed effects.[14]

4. Empirical results

4.1. Univariate analysis

Table 2 shows the descriptive statistics for the variables used in the regression model. To mitigate the influence of outliers, we winsorize all of the scaled variables in our analyses at the top and bottom 1% of their distributions. In Panel A of Table 2, the sample firms' three-year mean ETRs (*GAAP_ETR*) of 13.2% are lower than the average applicable tax rates (*TAX_RATE*) of 19.4%. The lower ETRs may be due to industry-specific tax preferences (e.g., low-tax agriculture and high-tax real estate), firm-specific characteristics (e.g., highly leveraged firms enjoy lower taxes), and/or tax avoidance (e.g., firms increase discretionary expenses at year-end to

[12] We also use industry-adjusted ETRs that equal the firm's own ETR minus the corresponding industry average value in the same year and obtain qualitatively similar results. We do not calculate the cash ETR because a firm's cash flow statement does not separate out cash income tax from total taxes.

[13] The slack resources theory predicts that firms with higher earnings allocate more resources to meet stakeholders' needs, potentially resulting in higher CSR and higher tax payments (Campbell, 2007). Consistent with this theory, Watson (2015) finds that a lack of social responsibility is positively associated with tax avoidance in firms with slack resources, as indicated by low current or future earnings, but this effect is diminished when earnings are high. Thus, doubt may be cast on the result if the contributing factor (i.e., earnings) affecting both the dependent and experimental variables is omitted in the model. Furthermore, if firms with more CSR activities are more (less) profitable than their counterpart firms and we do not control for profitability, then these firms will appear to be less (more) able to reduce their tax burden.

[14] Industry choice is part of a firm's CSR decision-making because firms have the choice of whether to operate in certain industries. Although adding industry controls removes some of the effect of CSR, we include industry fixed effects to address concerns that CSR merely proxies for industry (Watson, 2015).

Table 2
Descriptive statistics.

Panel A: Descriptive statistics for firm characteristics

	N	Mean	Min	P25	Median	P75	Max	SD
GAAP_ETR	1438	0.132	0.000	0.071	0.126	0.172	0.844	0.090
TAX_RATE	1438	0.194	0.000	0.150	0.150	0.250	0.250	0.050
ETR_DIFF	1438	− 0.064	− 0.248	− 0.120	− 0.048	− 0.007	0.193	0.087
CSR	1438	0.348	0.117	0.269	0.317	0.386	0.824	0.121
Institution	1438	0.713	0.000	0.000	1.000	1.000	1.000	0.452
ROA	1438	0.061	− 0.086	0.024	0.048	0.084	0.279	0.055
Size	1438	22.478	19.814	21.570	22.347	23.279	25.792	1.259
Leverage	1438	0.421	0.008	0.291	0.428	0.557	0.839	0.186
PPE	1438	0.178	0.000	0.051	0.135	0.255	0.704	0.164
Intangible	1438	0.029	0.000	0.004	0.014	0.033	0.322	0.048
Growth	1438	3.576	0.694	1.797	2.766	4.420	18.071	2.689
Private	1438	0.323	0.000	0.000	0.000	1.000	1.000	0.468
Bonus	1438	0.345	0.000	0.000	0.000	1.000	1.000	0.476

Panel B: Descriptive statistics for firm characteristics by region

		Institutionally strong regions	Institutionally weak regions	Test of difference	
GAAP_ETR	Mean	0.136	0.121	− 0.014	***
	Median	0.127	0.123	− 0.004	**
TAX_RATE	Mean	0.198	0.185	− 0.013	***
	Median	0.200	0.150	− 0.050	***
ETR_DIFF	Mean	− 0.063	− 0.065	− 0.001	
	Median	− 0.048	− 0.047	0.001	
CSR	Mean	0.339	0.372	0.033	***
	Median	0.309	0.338	0.030	***
ROA	Mean	0.061	0.060	− 0.001	
	Median	0.050	0.043	− 0.007	
Size	Mean	22.402	22.666	0.263	***
	Median	22.335	22.406	0.072	***
Leverage	Mean	0.418	0.430	0.011	
	Median	0.424	0.435	0.011	
PPE	Mean	0.181	0.171	− 0.010	
	Median	0.130	0.141	0.011	
Intangible	Mean	0.031	0.023	− 0.008	***
	Median	0.015	0.011	− 0.003	**
Growth	Mean	3.444	3.903	0.459	***
	Median	2.654	3.035	0.382	**
Private	Mean	0.383	0.175	− 0.208	***
	Median	0.000	0.000	0.000	
Bonus	Mean	0.343	0.350	0.006	
	Median	0.000	0.000	0.000	

Definition of variables:
Institution = 1 if the firm resides in a region with an above-median NERI index score, and 0 otherwise.
GAAP_ETR = the ratio of 3-year sum of tax expenses to 3-year sum of pre-tax income.
TAX_RATE = the firm's applicable tax rate.
ETR_DIFF = the difference between GAAP_ETR and TAX_RATE for the firm.
CSR = the rating score of CSR activity and disclosure.
ROA = the ratio of pre-tax income to total assets.
Size = the natural logarithm of total assets.
Leverage = the ratio of total debt to total assets.
PPE = the ratio of property, plant, and equipment to total assets.
Intangible = the ratio of intangible assets to total assets.
Growth = the ratio of market value to book value of net assets.
Private = 1 if the firm is ultimately owned or controlled by private investors, and 0 otherwise.
Bonus = 1 if executive bonuses are calculated based on the firm's reported earnings, and 0 otherwise.
Two-sample *t*-tests of the difference in means; Wilcoxon test of the differences in medians.
** Indicates two-tailed significance at the 5% level.
*** Indicates two-tailed significance at the 1% level.

reduce current tax expenses). The mean *ETR_DIFF* is negative 6.4%, and its standard deviation of 8.7% suggests substantial variation among firms. *ETR_DIFF* at the 75th percentile is − 0.007, suggesting that the *GAAP_ETR* of > 75% of the sample firms is below their applicable tax rate. The range between the highest and lowest CSR index scores (*CSR*) varies substantially from 11.7% to 82.4% with

Table 3
Pearson correlation coefficients: Institutionally strong regions (lower left) and weak regions (upper right).

	1	2	3	4	5	6	7	8	9	10
1. ETR_DIFF		**− 0.243**	− 0.029	**− 0.300**	0.065	**0.269**	**0.174**	**0.126**	**− 0.181**	0.040
2. CSR	− 0.018		0.031	**0.589**	0.007	0.095	− 0.059	**− 0.230**	**− 0.113**	0.063
3. ROA	− 0.025	0.025		− 0.051	**− 0.391**	− 0.089	**0.108**	**0.410**	− 0.089	0.091
4. Size	**− 0.124**	**0.375**	**− 0.092**		**0.243**	**0.103**	− 0.056	**− 0.370**	**− 0.235**	**0.161**
5. Leverage	0.003	− 0.012	**− 0.431**	**0.375**		**0.238**	**− 0.102**	− 0.087	**− 0.153**	**0.159**
6. PPE	**0.274**	− 0.007	**− 0.122**	**0.092**	0.042		**0.117**	**− 0.108**	**− 0.207**	**0.111**
7. Intangible	**0.144**	0.047	**0.070**	0.031	**− 0.087**	**0.108**		0.071	0.009	− 0.039
8. Growth	− 0.039	**− 0.086**	**0.392**	**0.334**	**− 0.065**	**− 0.226**	**− 0.079**		0.063	− 0.054
9. Private	0.028	**− 0.010**	**0.082**	**0.366**	**− 0.113**	**− 0.153**	**− 0.095**	**0.206**		**− 0.190**
10. Bonus	**− 0.114**	0.021	**0.116**	**0.229**	0.014	− 0.018	**0.108**	− 0.037	**− 0.194**	

Variables are as defined in Table 2.
Significance at the 5% level (two-tailed tests) is shown in bold.

a median of 31.7%. About 71% of the sample firms are located in institutionally strong regions (*Institution*).[15] Return on assets (*ROA*) varies substantially from − 0.086 to 0.279 with a mean value of 0.061. The average total assets is USD3,106 million. The mean ratio of debt to total assets (*Leverage*) is 0.421; that of property, plant, and equipment to total assets (*PPE*) is 0.178; that of intangibles to total assets (*Intangible*) is 0.029; and that of market value to book value of net assets (*Growth*) is 3.576. Nearly 32% of firms are private firms, and 35% of firms include bonuses in their executive compensation schemes. Our descriptive statistics are generally comparable with those of prior studies on China. For example, using Chinese firms during 2003–2009, Chan, Mo, and Zhou (2013) report the mean values of the following variables: ETR, 0.162; leverage, 0.477; firm size, 21.453 (in log form); ROA, 0.079; and PPE, 0.292. Using the Rankins CSR Ratings dataset, He et al. (2013) report a mean CSR score of 31.16% based on a sample of 576 observations from 2008 to 2009.

Panel B of Table 2 presents the mean and median values of the subsample firms partitioned by the median value of the institutional index scores (*Institution*). Firms in institutionally strong regions report a higher mean and median *GAAP_ETR* than firms in other regions, and are also subject to higher statutory tax rates. There are no significant differences in the mean or median *ETR_DIFF* between the two groups of firms. Furthermore, firms located in regions with better institutions have lower CSR scores, larger tangible and intangible assets, slower firm growth, and more private ownership than other firms.

Table 3 presents the Pearson correlations between the variables used in the regression models. None of the correlations or variance inflation factors (VIFs) exceeds 0.80 or 10, respectively, which are the points beyond which the threat of multicollinearity becomes a concern (Judge, Hill, Griffiths, Lutkepohl, & Lee, 1988). In regions with stronger institutions (lower left), the Pearson correlation between *ETR_DIFF* and *CSR* is − 0.018 (p-value > 0.10); however, in other regions (upper right), the same correlation is − 0.243 (p-value < 0.01). This result is consistent with our expectation that in regions with poorer institutions, there is a discrepancy between tax payments and CSR reporting. However, as simple correlations do not control for a number of firm-specific variables expected to affect tax reporting, we base our conclusions on the multivariate tests reported as follows.

4.2. Multivariate analysis

As mentioned earlier, we exclude firms that voluntarily disclose their CSR undertakings to minimize selectivity bias. However, because the extent to which firms report CSR activities is endogenously determined, a firm intending to pay lower taxes may choose to engage in more CSR and to disclose more CSR-related information.[16] To correct for this problem in the main tests, we conduct the Heckman (1979) two-step procedure. The first step involves a probit model in which the reporting dummy (1 if the CSR index score is above the sample median and 0 otherwise) is regressed against the same control variables used, plus an instrumental variable that is related to CSR reporting but uncorrelated with income taxes. We use *Industry*, an indicator variable that equals 1 if the firm operates in environmentally sensitive industries (e.g., oil and gas exploring, chemicals, steel and other metals, and electricity, gas, and water supply and distribution) and 0 otherwise, as an instrument, as prior evidence suggests that these industries tend to disclose more environmental CSR information than others (e.g., Gao, 2009; Patten, 1991). Table 4 reports the results of the first-stage probit model. Consistent with prior research, we find that *Industry* is significantly correlated with the level of CSR reporting (coeff. = 0.214, t = 2.90) but uncorrelated with the tax avoidance measure, providing some assurance that it is a valid instrument (Lennox, Francis, & Wang, 2012).

In the second step of the Heckman procedure, we add the inverse Mills ratios (*MILLS*), which we obtain from the first-stage

[15] The skewed distribution may pose a problem if high-CSR firms (i.e., firms with CSR index scores above the sample median) are clustered in institutionally strong regions while low CSR firms are concentrated in other regions. However, the sample distribution in our study does not show that this is the case. Specifically, in regions with better institutions, the percentage of high-CSR firms is smaller than that of low-CSR firms (48% vs. 52%), while in other regions, it is the opposite: high- (low-) CSR firms account for 62% (38%) of the total.

[16] Firms also select the region in which to locate their headquarters. However, corporate location decisions are more likely to be driven by exogenous factors (e.g., proximity to customers, suppliers, and production inputs) than by a decision to avoid tax. Endogeneity is less of a concern for *Institution*, which measures the quality of institutions at the provincial level.

Table 4
First-stage probit model: determinants of CSR reporting.

	Predicted sign	Dependent variable = CSR dummy
Industry	+	0.214 (2.90)***
ROA	+	− 0.213 (− 0.35)
Size	+	0.362 (12.55)***
Leverage	+	− 0.785 (− 4.36)***
PPE	?	− 0.364 (− 1.94)*
Intangible	?	1.538 (2.26)**
Growth	?	0.033 (2.57)**
Private	?	− 0.098 (− 1.53)
Bonus	?	0.014 (0.21)
Intercept	?	− 7.731 (− 12.35)***
Year effects		Yes
N		1438
Pseudo R^2		0.085

Definition of variables:
CSR = 1 if the CSR index score is above the yearly sample median, and 0 otherwise.
Industry = 1 if the firm operates in environmentally sensitive industries (e.g., oil and gas exploring, chemicals, steel and other metals, and electricity, gas and water supply and distribution), and 0 otherwise.
Other variables are as defined in Table 2.
The *Z*-statistics (two-tailed test) are reported in parentheses.
* Indicates two-tailed significance at the 10% level.
** Indicates two-tailed significance at the 5% level.
*** Indicates two-tailed significance at the 1% level.

regression, to the model to control for potential self-selection bias. Table 5 provides the regression results. We start with a baseline model in which *ETR_DIFF* is regressed on *CSR*, *MILLS*, and the control variables. Column 1 shows that the coefficient on *CSR* is positive and significant at the 10% level, which means that the higher the level of CSR reporting, the closer the firm's actual tax rate is to its applicable rate, and hence the fairer the share of taxes paid. The coefficient on *CSR* is weakly significant, perhaps because of the offsetting effect of firms in “strong” versus “weak” institutional regions. The significance of the *MILLS* coefficient indicates that self-selection bias is a potential issue; however, the Heckman procedure corrects for this bias.

Next, we add *Institution* and interact it with *CSR* to test whether the slope on *CSR* differs for firms headquartered in strong versus weak institutional environments. Column 2 shows the results of regressing *ETR_DIFF* on *CSR*, *Institution*, and their interaction. The *CSR* coefficient (β_1) is negative and significant at the 10% level. This suggests that in areas in which market-supporting institutions

Table 5
The effect of institutions on the relation between taxes and CSR reporting.

	Predicted sign	Baseline	All regions	Institutionally strong regions	Institutionally weak regions
CSR (β_1)	+/−/+/−	0.039 (1.87)*	− 0.055 (− 1.66)*	0.073 (2.79)***	− 0.060 (− 1.84)*
Institution (β_2)	?		− 0.043 (− 3.00)***		
CSR * Institution (β_3)	+		0.119 (3.17)***		
ROA	+	− 0.001 (− 0.02)	0.002 (0.04)	0.009 (0.14)	− 0.077 (− 1.05)
Size	+	− 0.072 (− 5.64)***	− 0.028 (− 2.97)***	− 0.066 (− 3.48)***	− 0.069 (− 4.16)***
Leverage	–	0.171 (5.80)***	0.070 (2.93)***	0.161 (3.78)***	0.129 (3.07)***
PPE	?	0.188 (9.80)***	0.137 (8.12)***	0.192 (7.83)***	0.142 (4.43)***
Intangible	–	0.005 (0.07)	0.186 (3.22)***	0.039 (0.43)	− 0.030 (− 0.25)
Growth	–	− 0.006 (− 3.59)***	− 0.002 (− 1.34)	− 0.007 (− 2.97)***	− 0.003 (− 1.32)
Private	–	− 0.001 (− 0.11)	− 0.007 (− 1.07)	0.008 (0.90)	− 0.023 (− 2.08)**
Bonus	–	− 0.017 (− 3.72)***	− 0.010 (− 2.11)**	− 0.023 (− 3.84)***	0.002 (0.29)
MILLS	?	− 0.261 (− 4.54)***	− 0.052 (− 1.22)	− 0.246 (− 2.93)***	− 0.241 (− 3.11)***
Intercept	?	1.588 (4.96)***	0.513 (2.14)**	1.445 (3.04)***	1.510 (3.63)***
Year effects		Yes	Yes	Yes	Yes
Industry effects		Yes	Yes	Yes	Yes
N		1438	1438	1026	412
Adj. R^2		0.221	0.188	0.212	0.323
F-value		13.335***	13.356***	9.372***	7.313***
$\beta_1 + \beta_3$			0.064		
F-statistics			7.31***		

* Indicates two-tailed significance at the 10% level.
** Indicates two-tailed significance at the 5% level.
*** Indicates two-tailed significance at the 1% level.

are less developed, firms that claim to engage in substantive CSR activities do not pay their fair share of taxes.[17] This evidence is consistent with the idea that CSR reporting can become a cosmetic and compensatory tool for firms to pursue self-interested goals (e.g., advancement of their careers or other personal agendas), polish their image, or alleviate public concern arising from their socially irresponsible actions. However, it may also indicate that some firms trade low tax payments for investment in less costly activities that promote CSR. The coefficient on the interaction term shows that the effect of *CSR* on *ETR_DIFF* shifts from negative ($\beta_1 = -0.055$) to positive ($\beta_1 + \beta_3 = 0.064$, *F*-value = 7.31), and the incremental difference in the coefficients (0.119) is statistically significant at the 1% level. Consistent with our prediction, this result suggests that in regions with higher levels of professionalism, ethics awareness, market forces, legal enforcement, and investor protection and higher personal costs for breaking trust and norms, there is less divergence between overall CSR reporting and corporate views of taxation as a CSR element.

To provide results parallel to those of the pooled regression, columns 3 and 4 show the results of by-region regressions. This approach allows the coefficients of the control variables and fixed effects to vary depending on institutional quality. We perform a chi-square test of the difference in the magnitude of the two intercepts (1.445 vs. 1.510) and find that the difference is insignificant ($\chi^2 = 0.01$, $p = 0.904$). The results of the by-region analysis, consistent with those based on the pooled testing, suggest that views toward tax avoidance likely depend on the social, economic, and institutional environment in which firms operate. Three control variables are consistently significant in all models. Specifically, firms that report higher effective taxes have smaller asset sizes (*Size*), higher ratios of total debt to total assets (*Leverage*), and higher fixed assets to total assets (*PPE*).[18]

4.3. Additional analysis

Compared with the seemingly conflicting results of Hoi et al. (2013) and Davis et al. (2016), we find a positive relation between CSR and tax avoidance in regions with weaker institutions, and a negative relation in other regions. To determine why socially responsible firms in institutionally stronger regions pay more tax (not less, as in Davis et al., 2016), we follow Watson (2015) and partition the firms in these regions into two groups: high-profit firms (pre-tax ROA greater than or equal to the annual median) and low-profit firms (ROA at least 0 but less than the annual median). We interact the indicator variable with the *CSR* variable to identify the effects of CSR under high- and low-profit conditions. We find (not tabulated) that *CSR* is positively associated with *ETR_DIFF* in regions with better institutions when the firm's pre-tax earnings are high (coeff. = 0.095, $t = 3.18$), but that this effect fades when the earnings are low (coeff. = 0.067, $t = 1.39$). This result is consistent with slack resources theory, which argues that when firms face scarce resources, they allocate fewer resources to meet the needs of stakeholders, potentially resulting in lower CSR and tax payments (Campbell, 2007; Park, Sine, & Tolbert, 2011; Wang, Choi, & Li, 2008; Watson, 2015).

4.4. Sensitivity tests

We evaluate the sensitivity of our main results for different definitions of our dependent and experimental variables and the specifications of the research model. To save space, we report only the coefficients on the variables of interest in Table 6.

First, we consider three alternative dependent variables. The first is total book–tax differences (*BTD*), computed as pre-tax income less estimated taxable income scaled by total assets at the beginning of the year (Panel A). We estimate taxable income by dividing the income tax expense by the firm's applicable tax rate. Higher *BTD* values indicate higher avoidance levels. The second measure of tax avoidance is the three-year raw *GAAP_ETR*, unadjusted by the firm's applicable tax rate (Panel B). The last alternative measure is the three-year *GAAP_ETR*, adjusted for industry effects. It is calculated as the firm's own ETR minus the corresponding industry average ETR in the same year (Panel C). Although the coefficients on *CSR* in the baseline regression model lose significance when *BTD* and industry-adjusted or unadjusted ETR is used as the dependent variable, the coefficients on *CSR* ∗ *Institution* are all significant in the pooled regressions, with the expected signs across all three panels. The results of the by-region regressions (last two columns) are all consistent with our main results in Table 5.

Second, we partition the regions based on the societal trust index constructed by Zhang and Ke (2002), who find that societal trust varies considerably across regions in China. They argue that cross-regional variation in trust is reflective of the marketization of economies—that is, the more marketized a region, the higher its trust level. Using an international sample of firms and a country-level index for societal trust, Kanagaretnam et al. (2013) find strong evidence that societal trust is negatively associated with corporate tax avoidance. We label provinces with above-median (below-median) index scores as high-trust (low-trust) regions. A comparison of the two partitions, one based on the NERI index of economic marketization constructed by Fan et al. (2011) and the other based on the trust index adopted by Zhang and Ke (2002), suggests that the two indices are highly correlated (e.g., 11 out of the

[17] Although our argument suggests that institutions moderate or magnify the extent to which firms engage in tax avoidance activities, we do not form a specific hypothesis about its main effect. When *CSR* is interacted with *Institution*, the coefficient of β_2 itself is not the main effect of *Institution* on *ETR_DIFF* but the effect conditional on *CSR* = 0. Therefore, the effect of *Institution* on *ETR_DIFF* is distributed between the *Institution* and *CSR* ∗ *Institution* terms. $\beta_2 + \beta_3 = -0.043 + 0.119 = 0.076$, which suggests that for a given level of CSR, firms in institutionally stronger regions pay higher, not lower, taxes than firms in other regions. To test the main effect of institutions, we regress (book or cash) *ETR_DIFF* on *CSR* and *Institution* and find that the coefficient on *Institution* is positive and significant.

[18] We do not find significant differences between private and non-private firms. In our sample, around 68% of the firms are controlled by the government. Descriptive statistics show that government ownership is more concentrated in less developed regions. The coefficient on our *Private* variable is not significant in all of the tests except in one model, as the result indicates that private firms pay less tax in less developed regions. We also partition the sample into state-owned enterprises (SOEs) and non-SOEs and run separate regressions. Our baseline regression results hold for the SOE subsample with a positive coefficient (at 10%) on CSR; however, for the non-SOE group, the coefficient on CSR is insignificant.

Table 6
Sensitivity tests.

	Pred. sign	Baseline	All regions	Institutionally strong regions	Institutionally weak regions
Panel A: Dependent variable is the total book-tax difference					
CSR (β_1)	−/+/−/+	−0.019 (−2.58)***	0.012 (1.01)	−0.026 (−2.92)***	0.003 (0.25)
Institution (β_2)	?		0.014 (2.79)***		
CSR * Institution (β_3)	+		−0.041 (−3.06)***		
Control variables		Included	Included	Included	Included
N		1435	1435	1023	412
Adj. R^2		0.424	0.381	0.418	0.458
F-value		32.978***	33.746***	23.220***	12.181***
Panel B: Dependent variable is the three-year raw GAAP_ETR					
CSR (β_1)	+/−/+/−	0.011 (0.52)	−0.060 (−1.77)*	0.053 (1.99)**	−0.094 (−2.61)***
Institution (β_2)	?		−0.019 (−1.25)		
CSR * Institution (β_3)	+		0.095 (2.44)**		
Control variables		Included	Included	Included	Included
N		1438	1438	1026	412
Adj. R^2		0.180	0.177	0.203	0.216
F-value		10.552***	12.410***	8.911***	4.643***
Panel C: Dependent variable is the three-year ETR adjusted for industry effects					
CSR (β_1)	+/−/+/−	0.011 (0.50)	−0.051 (−1.53)	0.050 (1.87)*	−0.082 (−2.31)**
Institution (β_2)	?		−0.016 (−1.07)		
CSR * Institution (β_3)	+		0.088 (2.30)**		
Control variables		Included	Included	Included	Included
N		1438	1438	1026	412
Adj. R^2		0.092	0.091	0.118	0.123
F-value		5.43***	6.31***	5.14***	2.86***
Panel D: Institution measured by societal trust					
CSR (β_1)	+/−/+/−		−0.057 (−1.24)	0.073 (3.10)***	−0.090 (−1.88)*
Institution (β_2)	?		−0.055 (−3.25)***		
CSR * Institution (β_3)	+		0.124 (2.50)**		
Control variables			Included	Included	Included
N			1438	1117	321
Adj. R^2			0.228	0.233	0.254
F-value			13.09***	11.56***	4.51***
Panel E: Fama-MacBeth approach used (2008–2012)					
CSR (β_1)	+/−/+/−	0.033 (1.79)*	−0.041 (−1.63)	0.074 (2.64)*	−0.039 (−0.90)
Institution (β_2)	?		−0.038 (−2.22)*		
CSR * Institution (β_3)	+		0.113 (3.83)**		
Control variables		Included	Included	Included	Included
N		1438	1438	1026	412
Average Adj. R^2		0.196	0.174	0.184	0.296
F-value		3.46***	3.37***	2.63***	2.83***
Panel F: Propensity score matching approach used					
CSR (β_1)	+/−/+/−	0.009 (2.00)**	−0.005 (−0.50)	0.013 (2.25)**	−0.090 (−1.88)*
Institution (β_2)	?		−0.015 (−1.83)*		
CSR * Institution (β_3)	+		0.018 (1.70)*		
Control variables		Included	Included	Included	Included
N		1034	1034	760	274
Adj. R^2		0.221	0.234	0.247	0.276
F-value		10.17***	10.00***	8.56***	4.35***
Panel G: Sample based on non-manufacturing firms					
CSR (β_1)	+/−/+/−	0.029 (0.91)	−0.091 (−1.84)*	0.070 (1.73)*	−0.096 (−1.76)*
Institution (β_2)	?		−0.063 (−2.89)***		
CSR * Institution (β_3)	+		0.173 (3.14)***		
Control variables		Included	Included	Included	Included
N		608	608	422	186
Adj. R^2		0.256	0.266	0.243	0.395
F-value		9.72***	9.47***	6.62***	6.25***
Panel H: Sample based on firms that are not cross-listed					
CSR (β_1)	+/−/+/−	0.036 (1.70)*	−0.058 (−1.73)*	0.069 (2.61)*	−0.063 (−1.88)*
Institution (β_2)	?		−0.044 (−3.01)***		
CSR * Institution (β_3)	+		0.118 (3.09)***		
Control variables		Included	Included	Included	Included
N		1406	1406	1009	397
Adj. R^2		0.223	0.190	0.215	0.319

(*continued on next page*)

Table 6 (*continued*)

	Pred. sign	Baseline	All regions	Institutionally strong regions	Institutionally weak regions
F-value		13.20***	13.22***	9.39***	6.99***

t-Statistics are reported in parentheses.

* Indicates two-tailed significance at the 10% level.

** Indicates two-tailed significance at the 5% level.

*** Indicates two-tailed significance at the 1% level.

15 regions overlap at the level of institution/trust). The results (Panel D) of replicating the analysis of Table 5 suggest that firms in high-trust regions are more consistent in actually achieving what they say they will.

Third, to mitigate statistical concerns arising from the serial dependence of regression errors, we apply the Fama and MacBeth (1973) approach by running annual regressions and making statistical inferences according to the distribution of the yearly regression coefficients. We present the Fama-MacBeth regression results in Panel E. The coefficients on *CSR* in the baseline regression are positive in four out of the five sample years, but the mean coefficient on *CSR* is not significantly different from zero in the *t*-test. The coefficients on *CSR* ∗ *Institution* are positive in all five years, and the mean is also significantly positive in the *t*-test, suggesting that in institutionally strong regions, high-CSR firms pay their fair share of taxes. Overall, the annual regression results are consistent with those from the pooled regression.

Fourth, following prior studies (e.g., Hoi et al., 2013; Lennox et al., 2012; Li & Prabhala, 2007), we use the propensity score matching (PSM) procedure to cross-check the results of the Heckman procedure reported in Table 5. The PSM procedure involves a logistic regression with the same specification as the first-stage regression in the Heckman procedure. Using the predicted propensity score from this logistic regression, we match a treatment observation (without replacing a firm-year observation with the CSR dummy equaling 1) with a control observation, another firm-year observation with the CSR dummy equaling 0. We use the caliper matching method and match within a caliper of 3%, where caliper refers to the difference in predicted probability between the treatment observation and the control observation. The PMS procedure addresses the concern that our treatment firms are not randomly selected (i.e., they tend to be larger, have better performance, and be located in institutionally strong regions). With this method, we are able to match 72% of the treatment observations. We then pool the treatment and match observations to perform the regression analyses. Column 1 of Panel F shows that compared with the benchmark firms with lower CSR index scores, the treatment firms have higher ETRs. Consistent with our main findings, the coefficient on *CSR* ∗ *Institution* is significantly positive. Finally, we replicate our analysis of Table 5 using nonmanufacturing firms and non-cross listing firms and report the results in Panels G and H, respectively. The results show that the coefficients on *CSR* ∗ *Institution* are significantly positive at the 1% level, which is consistent with our main findings in Table 5.

5. Conclusion

Motivated by a lack of scholarship on the CSR–tax relation in developing-country settings, this paper examines the association between CSR reporting and corporate economic contribution (in terms of tax payments) to society in an environment in which we believe the level of market and institutional development shapes this association. Using a sample of 1438 firm-years with mandatory CSR reports from 2008 to 2012 in China, we find a divergence between the corporate self-reporting of CSR and actual business practice for some firms. Specifically, in regions with relatively weak institutional development, firms that issue more substantive CSR reports do not pay their fair share of taxes on their profits to the government. In contrast, for firms in regions with relatively higher-quality institutions, we observe greater convergence between CSR reporting and actual practice—that is, highly socially responsible firms pay their fair share of taxes.

Our study pushes the boundaries of prior scholarship that separately examines CSR and CSR-embedded tax obligations or examines this relation in mature economies in which firms are likely to have a greater shared belief that paying a fair share of corporate taxes is morally and socially responsible. Our results have implications for government authorities and academic researchers. Our finding that CSR rules can become window dressing to allow some firms to pursue self-interest or economic egoism suggests that, in institutionally weak regions, additional tax scrutiny of firms that claim to engage in substantive CSR activities is warranted. Given that country-level CSR regulations do not necessarily lead to homogeneous corporate reporting behavior and that differences in social responsibility perceptions and business environments can result in differences in corporate tax strategies, researchers examining the CSR–tax relation in international settings should consider country-specific institutions in their models. Specifically, they should consider the effects of both formal (e.g., law enforcement and information environment) and informal (e.g., social norms and trust) institutions in shaping corporate reporting behavior. Overall, our findings support the view that the promotion of CSR awareness and sensitivity in isolation is unlikely to lead to more ethical and socially responsible business conduct in developing economies unless the institutional environment is sufficiently developed.

The internal validity of our findings is subject to the condition that our measures of the dependent and experimental variables accurately capture the intended constructs. Despite the benefits of using an independent professional agent to evaluate the CSR reports of firms, we recognize that such evaluation is based on a firm's self-reported, unverified CSR information, and we consider this a potential limitation of our analysis. Furthermore, to the extent that variations in the NERI data over our sample period are not as stable as we assume, using single-year data to proxy for other years may be problematic. Finally, it is possible that the unbalanced

sample size may bias our results, as over 70% of our sample firms are located in regions with better institutions; thus, our results should be interpreted with some care.

Appendix A. ZTE Corporation

Corporate Social Responsibility Report 2010 (Excerpts).

ZTE Corporation was incorporated in 1985 and is listed on both the Shenzhen and Hong Kong Stock Exchanges. It is the largest mobile phone terminal manufacturer in China and one of the top five telecommunications equipment providers in the world.

The firm's 63-page CSR report is divided into seven parts: strategy of corporate social responsibility; protection of rights of shareholders and creditors; serving with dedication and being committed to our customers; people; environment; supply chain; and social welfare. The report is prepared following the instructions set out in the GRI.

ZTE's mission includes to "strive for the best return on its shareholders' investments and assume social responsibilities proactively". CSR has become one of the most important and integral parts of ZTE culture. Its CSR vision is to "conduct all business in an ethical and sustainable way that protects and advances the human rights, health, safety, well-being and personal development of all the people working directly or indirectly for ZTE; operate always in an environmentally responsible manner and actively contribute towards solving the world's current and future challenges; and help all its customers by taking advantage of the opportunities of a changing world and positively impact societies on a local level around the world." In 2010, ZTE was awarded the honorary title of The Best Corporate Citizen in China.

ZTE's CSR strategy is to "pro-actively develop, implement and improve CSR compliance throughout ZTE and its supply chain based on industry best practices, continuous learning and efforts for improvement." Its objective is "to develop into a global CSR leader in the long-term."

Economic contribution to China is a major topic in the CSR reports. It is expressed in the *Stakeholders Engagement* section of the report in general, and in the *Relationship with the Government* in particular. Indicators of economic contribution include: infrastructure investment, number of facilities, job creation, R&D, technological innovation and patents, taxes paid, and employee salaries paid. With regard to tax obligations, ZTE will "by virtue of and by observing all laws and regulations, pay taxes according to the law, provide employment opportunities, and win over national and governmental trust." ZTE paid over RMB8 million in taxes in 2010.

ZTE places great emphasis on sincere construction and internal supervision of resistance to business bribery. It has worked out the *Prohibition of Conduct Code* for Employees. The prohibitions include willful false statement of accounts, taking commissions, disclosure of the firm's business secrets, undertaking acts with the firm's business competitors, and covering up any breach of laws or discipline. The firm imposes severe sanctions against employees in breach of laws, discipline, and rules.

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