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Cross-listing and CSR performance: evidence from AH shares

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Abstract

This study investigates the association between corporate social responsibility (CSR) performance and cross-listing. In a clean setting where a change in CSR performance can be attributed to the cross-listing, we find a statistically significant and economically meaningful increase in CSR performance for the cross-listed firms. Moreover, such an increase comes mostly in technical CSR, which targets the firms' primary stakeholders. We also find that the positive association between cross-listing and CSR improvements is more pronounced for firms with weak corporate governance. The results hold under a variety of different robustness checks.

Keywords: Corporate social responsibility (CSR), Cross-listing, Bonding, Emerging markets, Corporate governance, Institutional CSR, CSR performance, Technical CSR

Introduction

Being increasingly aware of the importance, firms in emerging markets are now actively participate in corporate social responsibility (CSR) practices. A 2013 survey,¹ carried out jointly by Duke University and CFO Magazine, shows that CFOs in emerging markets are more concerned about CSR than are their counterparts in North America. Good CSR performance is found to improve employee relations (Yu, 2008) and customer satisfaction/loyalty (Deng, 2012; Lev, Petrovits, & Radhakrishnan, 2010; Luo & Bhattacharya, 2006; Tian, Wang, & Yang, 2011), to increase firm competitiveness (Greening & Gray, 1994), productivity (Sharma & Vredenburg, 1998) and product quality (Agle, Mitchell, & Sonnenfeld, 1999; Johnson & Greening, 1999), to lower the cost of capital (Ye & Zhang, 2011) and firm risk (Bansal & Clelland, 2004; Godfrey, Merrill, & Hansen, 2009; Muthuri & Gilbert, 2011; Wang, Qiu, & Kong, 2011), and to build reputation (Brammer & Pavelin, 2006; Fombrun & Shanley, 1990; Turban & Greening, 1997; Verschoor, 1998; Waddock & Graves, 1997), all of which may, in turn, increase firms' profitability.

While the above studies investigate the consequences of CSR, this paper focuses on its determinants. Specifically, we examine how the concept and practices of CSR have diffused from developed markets to emerging markets. In this study, we cast light on a channel through which firms from emerging markets improve their CSR practices via cross-listing into a developed market. We extend the scope of bonding theory (Stulz, 1999; Coffee, 1999, 2002) to include CSR and argue that cross-listing subjects firms to the monitoring of financial intermediaries, such as analysts, underwriters, and auditors,

and to institutional and retail investors in developed markets, who arguably demand better CSR performance and hence improve firms' CSR practices. We empirically test this hypothesis in a set of mainland firms cross-listed in Hong Kong.² Employing a novel dataset of CSR performance score for mainland listed firms, we find that cross-listed firms perform better than otherwise similar non-cross-listed firms in CSR do. Moreover, the increase comes mostly in technical CSR, which targets the firms' primary stakeholders. Such results are robust to a battery of robustness checks. Additional tests show that the positive association between cross-listing and CSR improvements is more pronounced for firms with weak corporate governance. We find no evidence supporting the relation between CSR performance and firms' future financial performance.

Our contribution is threefold. First, we contribute to the CSR diffusion literature by suggesting and confirming a new channel of CSR diffusion from developed markets to emerging markets. Our findings suggest that firms in an environment where the demand for CSR is relatively low can voluntarily bond themselves with higher standards of CSR practices by cross-listing into a developed market. Therefore, allowing firms from less developed markets to cross-list is one effective way to propagate the CSR concept into emerging markets. In a cross-country study, Boubakri, El Ghouli, Wang, Guedhami, and Kwok (2016) document that cross-listed firms have better CSR performance than non-cross-listed counterparts, where CSR performance refers to environmental and social performance. Our study supplements theirs by showing that cross-listing improves other dimensions of CSR performance, especially technical CSR.

Second the current study also contributes to the literature on the role of non-financial information in the capital market. According to a survey by ACCA,³ the most important sources of non-financial information for investors are sustainability/CSR reports. Our findings suggest that when non-financial performance (CSR performance) is more valued by foreign investors, firms tend to perform better in this aspect.

Finally, our study also has important policy implications. Our results show that CSR performance is not associated with higher valuation or improvements in the financial performance of the firm. Firms seeking cross-listing may face demands from host market investors to improve their CSR performance that are not fully appreciated by their home market investors. As such, firms seeking cross-listing need to trade off between the demands from their host and home markets.

The remainder of the paper is organized as follows. Section "[Literature review and hypotheses development](#)" reviews the relevant literature and develops our hypotheses. Section "[Measurement, methodology, and sample descriptions](#)" describes the data and methods used to test the hypotheses. Section "[Empirical results](#)" presents and interprets the results, and Section "[Conclusions and limitations](#)" concludes.

Literature review and hypotheses development

Determinants of CSR

There are various definitions of CSR. Davis (1973), for example, defines CSR as "the firms' considerations of, and response to, issues beyond the narrow economic, technical, and legal requirements for the firm to accomplish social and environmental benefits along with the traditional economic gains which the firms seek." CSR can also be described as integrating four components, including economic, legal, ethical, and

discretionary or philanthropic components (A.B. Carroll, 1979, 1991), and can be defined as the manner in which businesses engage their stakeholders, including shareholders, employees, customers, suppliers, governments, international organizations, and the natural environment through policies, processes, and procedures (Snider, Hill, & Martin, 2003; Waddock, Bodwell, & Graves, 2002). Regardless of the definition, typical CSR activities include providing products that have social and environmental features, adopting production methods that reduce negative environmental impacts, caring for employees, nurturing supplier relationships, investing in local communities, and pursuing philanthropic initiatives. As such, CSR activities enhance firms' relationships with various stakeholders, and without their participation the firms cannot survive (Clarkson, 1995).

Some studies examine the effect of CSR disclosure on financial performance. For example, Chen, Hung, and Wang (2018) find that mainland firms experience a decrease in profitability after the mandatory disclosure of CSR. However, our paper differs from theirs in that we are interested in CSR performance rather than CSR disclosure. Some other studies examine the effects of firms' CSR performance on their financial performance (Archie B. Carroll and Shabana (2010). However, relatively little research has attempted to explain the variation of CSR performance among different firms (Margolis & Walsh, 2003). Campbell (2007) provides an institutional theory of CSR and argues that the determinants of CSR include the general financial condition of the firm, the health of the economy, the intensity of competition faced by the firm, institutional factors (including public and private regulations) the presence of non-governmental and other independent organizations, institutionalized norms, associative behavior among corporations, and organized dialogue between corporations and their stakeholders. Archival and experimental studies confirm the role of external factors such as media (including social media) (Grafstrom & Windell, 2011; Lee, Van Dolen, & Kolk, 2013; Lyon & Montgomery, 2013), law (Jackson & Apostolakou, 2010; Shum & Yam, 2011), and politics (Zhao, 2012) as well as the roles of internal factors, such as ownership structure (Oh, Chang, & Martynov, 2011), and manager and owner characteristics, such as attitude (Roxas & Coetzer, 2012) or style (Du, Swaen, Lindgreen, & Sen, 2013). Pedersen and Gwozdz (2014) argue that the inconsistency within (rather than between) stakeholders groups creates pressure for CSR.

Most of the previous studies focus on the firms in developed markets. While studies on CSR in emerging markets are still sparse, such studies are becoming the driving force of CSR research (Bruton & Lau, 2008; Moon & Shen, 2010). However, very little effort has been devoted to explaining the convergence of CSR practices in emerging markets towards those in developed markets. Jamali and Neville (2011), for example, find convergence in explicit CSR among Lebanese firms. Bardy, Drew, and Kennedy (2012) argue that foreign direct investment (FDI) and international business ventures promote positive social and economic development in emerging nations.

Cross-listing, bonding, and CSR

Cross-listing allows firms to access to more developed capital markets and achieve better valuation (Lins, Strickland, & Zenner, 2005). Doidge, Karolyi, and Stulz (2004), for example, find that foreign firms with shares cross-listed in U.S. equity markets are

better valued than are their non-cross-listed peer firms from the same country. Chinese mainland firms cross-listed in Chinese Hong Kong are found to enjoy a similar premium (Sun, Tong, & Wu, 2013a; Sun, Tong, & Zhang, 2013). One reason for the firms' increased valuation is risk sharing: Cross-listing allows domestic investors to share the risk with foreign investors, and these investors, in turn, demand a lower risk premium (Foerster & Karolyi, 1999). Another reason for this is improved information disclosure and shareholder protection (Coffee, 1999, 2002; Doidge et al., 2004; Reese & Weisbach, 2002).

A key mechanism through which cross-listed firms improve shareholder protection is the bonding effect (also known as functional convergence). Cross-listing subjects the firms to the provisions of securities law and the accounting standards of the host country. Therefore, to the extent that the host country's legal system and accounting standards are more stringent than those of the home country, the legal bonding hypothesis of Coffee (1999) and Stulz (1999) contends that cross-listing increases the expected costs of extracting private benefits for managers and, therefore, that cross-listed firms protect minority shareholders' interests better. On the other hand, Siegel (2005) finds that very few Securities and Exchange Commission (SEC) enforcement actions have been taken against foreign firms listed in US, which casts doubt on the legal bonding effects.

While cross-listing is typically found to be positively associated with corporate governance, the legal bonding hypothesis does not naturally extend to corporate social responsibility for at least two reasons. First, cross-listed firms generally carry out their business in their home countries (this is particularly true for our sample firms; see the details in the next section). Cross-listing does not subject them to the environmental regulations or labor laws in the host market. For example, it is unlikely for Baidu.com, a Chinese Internet content provider listed in NASDAQ (ticker: BIDU), to apply American labor laws to its employees in Beijing. Second, CSR calls for firms to go beyond the minimum requirements of law. Despite the various conceptualizations of CSR in the literature, CSR in general refers to firm actions that meet demands from stakeholders other than shareholders and creditors. This means that CSR activities are likely to be beyond the minimum requirement of law. Therefore, cross-listed firms may not improve their CSR practices through legal bonding.

However, there is another mechanism of bonding suggested by both Stulz (1999) and Coffee (1999, 2002), referred to as reputational bonding. They argue that bonding can also be achieved via the monitoring of other intermediaries, including analysts, underwriters, auditors, and institutional investors. Coffee (2002) argues that these intermediaries serve as financial watchdogs that supplement the monitoring already provided by public regulators such as the SEC. This mechanism of bonding is particularly relevant to CSR practices. Shareholders and the business press are now increasingly active in pushing firms toward social responsibility. In the spring of 2008, for example, dissident shareholders, including several descendants of John D. Rockefeller and a number of asset management firms and pension funds of the Exxon Mobil Corp., urged the firm to take action on climate change. Thus, if firms from emerging markets elect to cross-list in more developed markets, they face more demands on CSR performance from the shareholders and other financial intermediaries in the host markets, compared to their non-cross-listed peers.

Mainland firms cross-listed in Hong Kong

There are two ways through which a mainland firm can cross list in the Hong Kong Stock Exchange. The first is through back-door listing, in which a Hong Kong listed firm is taken over by a holding firm outside mainland (usually incorporated in Hong Kong) but is controlled by the central government or provincial/municipal government in mainland. These mainland-controlled and Hong Kong-incorporated firms are known as “red-chips”. The second way is through direct listing, where a mainland-incorporated firm directly lists its shares on the Hong Kong Stock Exchange. These stocks are known as “H shares”. The first H share was issued in July 1993, when Tsingtao Brewery was welcomed by a 111 times oversubscription. Many H share firms float their shares simultaneously in Hong Kong and one of the two mainland stock exchanges (Shanghai and Shenzhen) as A shares. With few exceptions, these firms are listed first in Hong Kong and then in mainland exchanges, in contrast to the general practices of cross-listing elsewhere.

Cross-listing subjects red-chips and H share firms to the monitoring of Hong Kong intermediaries and investors. While they may not be as demanding as their counterparts in US, the Hong Kong financial intermediaries and investors are more likely to demand more in terms of CSR than their mainland counterparts. In fact, prior studies find that CSR is still at a very early stage in Chinese mainland (Gugler & Shi, 2009; Ip, 2009) and that mainland managers and investors care more about financial performance than CSR performance (Cooke & He, 2010; Zu & Song, 2009). From the perspective of the supply side, the reputational bonding urges the managers of cross-listed firms to provide more CSR activities than non-cross-listed firms do. Taken together, the (reputational) bonding theory predicts that firms cross-listed in Hong Kong have better CSR performance than their non-cross-listed peers in Chinese mainland. We thus hypothesize the following:

H1: Cross-listed firms perform better in CSR than non-cross-listed firms do.

The prior CSR literature has differentiated between technical and institutional CSR based on the targeting stakeholder of CSR practices (Godfrey et al., 2009). Technical CSR refers to a firm’s CSR actions that target their primary stakeholders, i.e., those who are essential to the operation of the business. Primary stakeholders include customers, employees, and investors. Technical CSR activities include those products-related, employees-related, and corporate-governance-related activities. Institutional CSR instead covers a firm’s CSR activities that target their secondary stakeholders in the community and environment domains. We expect cross-listed firms to improve more in technical CSR than in institutional CSR for two reasons. First, reputational bonding works through the monitoring investors and financial intermediates, who either are primary stakeholders themselves (investors) or serve the primary stakeholders (intermediates). To the extent that primary stakeholders tend to have more power in making legitimate and urgent claims on the firm (Mitchell, Agle, & Wood, 1997), cross-listed firms are more likely to react to meet the demands from these stakeholders. In contrast, institutional CSR activities are more likely to result from discretionary decision-making by the firm. Second, unlike institutional CSR activities, technical CSR activities are often consistent with the firm’s profit-making interests and are therefore in the interest of the investors and financial intermediates. To summarize, we hypothesize the following:

H2a: Cross-listed firms perform better in technical CSR than non-cross-listed firms do.

H2b: Cross-listed firms do not perform better in institutional CSR than non-cross-listed firms do.

Measurement, methodology, and sample descriptions

Measurement of CSR performance

Our measure of CSR performance is obtained from Hexun,⁴ one of the leading Internet content providers of financial information in Chinese mainland. Hexun.com, founded in 1996, constructs a system of CSR scores for all the firms listed in the Shanghai and Shenzhen Stock Exchanges. Unlike the KLD Research and Analytics system in U.S., Hexun quantifies the CSR performance of firms with only five dimensions: the investor, the employee, the customer and supplier, the environment, and the community dimension.⁵ Hexun quantifies each of the five dimensions with multiple sub-dimensions. For example, to measure firms' performance from the employee perspective, Hexun quantifies firms' performance with regard to salary and training, working environment safety, and welfare. Hexun assigns different weights to the five dimensions for firms in different industries to reach an aggregate CSR score. Instead of directly using the Hexun CSR measure, we follow Kim, Park, and Wier (2012) and construct our own measure that excludes the investor's dimension. For each year from 2010 to 2012, we first rank the mainland listed firms into deciles based on the Hexun score within each industry for each of the four dimensions. For each firm in each year, we then take the average of the four ranks to obtain our measure of CSR performance, the *CSR score*. We also construct a measure of the technical CSR score as the average of a firm's employee and customer dimensions of CSR performance. The institutional CSR score is similarly constructed using the firm's environment and community dimensions.

Measure of cross-listing and control variables

Although there are two different types of cross-listed stocks (red-chips and H shares), we exclude red-chips from our sample. Red-chips are incorporated outside Chinese mainland, and their fundamentals may not be directly comparable to A shares. Hence, our empirical design compares the CSR performance of dual-listed AH share firms with that of the pure A-share firms. We obtain the list of AH shares from the China Stock Market and Accounting Research (CSMAR) database.

Theoretical (e.g., Campbell, 2007) and empirical works show that determinants of CSR include the general financial condition of the firm and the health of the economy. We thus include in our regression model a battery of firm-level control variables, such as firm size, leverage, market to book ratio (MTB), and return on assets (ROA), to account for the firm financial conditions. *Size* is the natural logarithm of total assets, *Leverage* is defined as total debt divided by total assets, *MTB* is the ratio between market value and book value of common stocks, and *ROA* is the return on assets, all of which are calculated based on accounting data obtained from CSMAR. We also control for industry-level competition and industry and time fixed effects.

Empirical design

To establish a causal relation between cross-listing and their CSR performance, the ideal design is to compare firms' CSR performance before and after cross-listing.

Although it is powerful, this empirical design is not feasible in our context. Most of the cross-listed firms were first listed in Hong Kong as early as the 1990s, providing us with few observations for a before-and-after comparison because our CSR score data are only available for the period of 2010 to 2012. Instead, we must compare the CSR performance of cross-listed shares with that of non-cross-listed A shares. We estimate the following model to test our main hypothesis:

$$CSRscore_{it} = \alpha + \beta \times cross-listing_i + \gamma \times controls_{it} + \varepsilon_{it} \quad (1)$$

In Eq. (1), i denotes the firm, and t denotes the year. *CSR score* is the average CSR performance, which we obtain as described in the previous subsection, and *Cross-listing* is a dummy variable that equals one if firm i is cross-listed in Hong Kong. Hypothesis H1 predicts a positive and significant value for β . Our dependent variable, *CSR score*, is censored between 1 and 10 by design. We therefore use the censored regression model of Tobin (1958) to estimate the model.

To test our hypotheses H2a and H2b, we replace the dependent variable with the technical and institutional CSR scores and estimate Eq. (1) separately for each of the two CSR constructs.

Sample construction and description

We may encounter a potential problem of sample selection bias when estimating Eq. (1). Instead of directly comparing cross-listed firms' CSR performance before and after cross-listing, we are essentially assuming that AH shares are randomly drawn from the population of non-cross-listed A share firms. However, this assumption is not guaranteed. We follow Ke, Rui, and Yu (2012) to filter the A share sample to consist of state-owned firms and firms with size greater than the 85% of pure A share firms. We also require that all the sample firms are covered by the Hexun CSR database. After filtering the sample, we have 626 observations in the three years from 2010 to 2012, of which approximately one third are cross-listed in Hong Kong. The summary statistics and correlation matrix of our variables are presented in Table 1.

The average *CSR score* of our sample is 7.31. By construction, the mean of *CSR score* for all mainland listed firms should be 5.5. Hence, our sample firms make better efforts on CSR than the excluded firms. As a result of our filtering process, our sample firms are large in size and have average total assets worth 39 billion *yuan*. They are also highly levered, with an average leverage ratio of 0.64. The average MTB and ROA are 1.78 and 0.04, respectively. Overall, our sample firms are large, highly levered and with relatively low market valuation and profitability.

Panel B of Table 1 presents the correlation matrix of our variables. The *Cross-listing* dummy is positively correlated with *CSR score*, with a correlation of 0.18, and is significant at the conventional level, providing preliminary support for the bonding hypothesis. The highest pairwise correlation between our variables is -0.52 (between *Leverage* and *ROA*). Hence, our analysis is less concerned about potential multicollinearity issues.

Table 1 Summary statistics and correlation matrix

	Mean	Std	Min	P25	Median	P75	Max
Panel A							
[1] <i>CSR score</i>	7.31	1.98	2.50	5.50	8.00	9.00	10.00
[2] <i>Cross-listing</i>	0.33	0.47	0.00	0.00	0.00	1.00	1.00
[3] <i>Size</i> (raw value)	0.39	1.58	0.00	0.02	0.03	0.09	11.83
[4] <i>Leverage</i>	0.64	1.78	0.17	0.51	0.66	0.77	0.95
[5] <i>MTB</i>	1.78	1.66	0.05	0.99	1.36	2.09	19.00
[6] <i>ROA</i>	0.04	0.45	-0.13	0.01	0.03	0.05	0.19
	[1]		[2]		[3]	[4]	[5]
Panel B:							
[1] <i>CSR score</i>	1.00						
[2] <i>Cross-listing</i>	0.18						
[3] <i>Size</i> (raw value)	-0.03		0.25				
[4] <i>Leverage</i>	-0.06		-0.08		0.33		
[5] <i>MTB</i>	-0.06		-0.05		-0.12	0.01	
[6] <i>ROA</i>	0.08		0.03		-0.12	-0.52	0.26

This table presents the summary statistics and the correlation matrix of *CSR score*, *Cross-listing*, *Size*, *Leverage*, *MTB*, and *ROA*

Empirical results

Main tests

Table 2 reports the empirical results of H1 with our filtered sample. Column 1 reports the results of our baseline regression, where we include only *Cross-listing*. The coefficient on *Cross-listing* is positive and statistically significant (0.76 with a *t*-value of 3.38). That is, holding all other things constant, the cross-listed firms' *CSR score* is 0.76 higher than that of non-cross-listed firms. Because the *CSR score* takes values from 1

Table 2 Cross-listing and CSR

	(1)	(2)	(3)
<i>Cross-listing</i>	0.76 ^c (3.38)	0.69 ^c (2.66)	0.75 ^c (2.99)
<i>Size</i>		0.02 (0.23)	0.58 ^c (3.95)
<i>Leverage</i>		-0.12 (-0.12)	-1.24 (-1.17)
<i>MTB</i>		-0.08 (-0.72)	0.05 (0.49)
<i>ROA</i>		4.46 (1.24)	-0.21 (-0.06)
Constant	7.07 ^c (45.05)	6.55 ^c (2.96)	-8.09 ^b (-2.39)
Industry and Year fixed effects	NO	NO	YES
Observations	626	626	626
Pseudo <i>R</i> -squared	0.01	0.01	0.10

Heteroskedasticity-consistent *t*-statistics adjusted for firm level clustering are reported in parentheses. ^a, ^b, and ^c represent statistical significance at 10%, 5%, and 1%, respectively

to 10, this difference is also economically significant. In columns 2 and 3, we include the full set of controls as well as industry and year fixed effects in the regression. Consistent with the previous literature, large firms have more resources to allocate to CSR and thus perform better in CSR. More importantly, the coefficient on *Cross-listing* remains significantly positive in all columns.

We then differentiate the effects of cross-listing on technical and institutional CSR performance and test our hypotheses 2 (a and b). We construct a measure of technical CSR score as the average of a firm’s employee and customer dimension of CSR performance. The institutional CSR score is similarly constructed with the firm’s environment and community dimensions of CSR performance. The Tobit regression estimates are then reported in Table 3. The coefficient on *Cross-listing* is 1.10 and is statistically significant for the technical CSR score. In contrast, the coefficient on the institutional CSR score is only 0.42 and is not significantly different from zero. A Chow test of the difference between the two coefficients strongly rejects the hypothesis that the two are equivalent. Hence, our empirical results show that cross-listing improves firms’ technical CSR more than their institutional CSR, which is consistent with our hypothesis 2.

Additional test

Cross-listing and CSR: impact of corporate governance

Our results so far show that cross-listed firms exhibit better CSR performance than their non-cross-listed counterparts do. However, we do not assume that all the cross-listed firms subject themselves to the same degree of reputational bonding. Firms with weaker corporate governance are arguably more likely to be under the scrutiny of investors and financial intermediates. Hence, firms with weaker corporate governance may exhibit more improvement in CSR performance after cross-listing. We partition our sample into two subsamples based on their corporate governance metrics and

Table 3 Technical vs. Institutional CSR

	Technical CSR score	Institutional CSR score
<i>Cross-listing</i>	1.10 ^c (3.86)	0.42 (1.47)
<i>Size</i>	0.60 ^c (3.84)	0.52 ^c (3.73)
<i>Leverage</i>	-2.27 ^a (-1.88)	-0.03 (-0.03)
<i>MTB</i>	0.09 (0.97)	0.00 (0.03)
<i>ROA</i>	-3.67 (-0.93)	3.27 (0.88)
Constant	-9.46 ^c (-2.59)	-7.80 ^b (-2.46)
Industry and Year fixed effects	YES	YES
Observations	626	626
Pseudo <i>R</i> -squared	0.09	0.07

Heteroskedasticity-consistent t-statistics adjusted for firm level clustering are reported in parentheses. ^a, ^b, and ^c represent statistical significance at 10%, 5%, and 1%, respectively

re-estimate eq. (1) separately for each subsample. We measure corporate governance with two proxies: *West* and *Earnings management*. The first is an exogenous measure. Arguably, firms in more developed provinces in Chinese mainland exhibit better corporate governance. The Tobit regression results for these two groups are reported in the first row of Table 4. We only report the coefficients on *Cross-listing*. The coefficient is positive at 0.46 but is not significantly different from zero for the firms from more developed provinces. In sharp contrast, the coefficient is significantly positive (1.45 with a *t*-value of 3.61) for firms from less developed provinces.

The second measure that we employ is the degree of earnings management. We obtain the discretionary accrual from the modified Jones model and use its absolute value as our measurement of *Earnings Management*.⁶ Our sample firms are then partitioned into two groups based on the median level of absolute discretionary accrual level. The Tobit regression results for these two groups are reported in the second row of Table 5. The coefficient is positive at 0.49 but is not significantly different from zero for firms with a lower level of earnings management, while the coefficient is significantly positive for firms with a higher level of earnings management. Taken together, our results suggest that the positive impact of cross-listing on CSR performance is more pronounced for firms with weaker corporate governance.

The link between improved CSR and financial performance

In this subsection, we test whether an improved CSR for cross-listed firms is associated with higher equity market valuation or better financial performance. Stakeholder theory argues that CSR practices can improve financial performance since the success of a firm depends on the extent to which it satisfies the various stakeholders’ needs (Clacher & Hagendorff, 2012; Donaldson & Preston, 1995). Alternatively, a socially responsible management may possess the requisite skills to run a superior firm (Moskowitz, 1972) or ethically provide high accounting quality (Chih et al., 2008), which may cause investors to value the firms with better CSR performance more.

We regress the financial performance measures (*Tobin’s Q* and *ROA*) on lagged *CSR score* and a set of control variables (*Size*, *Leverage*, industry and year fixed effects). We do not find a significant association between firm *CSR score* and future financial performance, which is inconsistent with the stakeholder theory. Our results, however, cannot be generalized because our sample firms are dominated by large state-controlled firms. A related study by Chen, Hung and Wang (2018) finds that mainland firms experience a decrease in profitability after the mandatory

Table 4 Cross-listing and CSR: Impact of corporate governance

	<i>Cross-listing</i>	
	Strong corporate governance	Weak corporate governance
<i>West</i>	0.46 (1.48)	1.45 ^c (3.61)
<i>Earning management</i>	0.49 (1.46)	0.81 ^c (2.77)

The sample is partitioned on corporate governance, where corporate governance is measured by *West* and *Earnings management*. Firms domiciled in western provinces (*West*) and firms with a high level of earnings management (*Earnings Management*) are defined as weak corporate governance subsamples. Only the coefficients on *cross-listing* are reported. Heteroskedasticity-consistent *t*-statistics adjusted for firm level clustering are reported in parentheses. ^a, ^b, and ^c represent statistical significance at 10%, 5%, and 1%, respectively

Table 5 CSR and financial performance

	Tobin's Q_{t+1}	ROA_{t+1}
CSR score	-0.00 (-0.01)	-0.00 (-0.30)
Size	-0.37 ^a (-1.76)	0.00 ^c (2.67)
Leverage	3.23 ^a (1.81)	-0.01 (-0.60)
Constant	13.29 ^c (3.90)	0.87 ^c (15.64)
Industry and Year fixed effects	YES	YES
Observations	391	392
R-squared	0.10	0.22

This table presents the regression estimations of the following model:
 $Financial\ performance_{it+1} = \alpha + \beta \times CSR\ score_{it} + \gamma \times controls_{it} + \epsilon_{it}$
 Heteroskedasticity-consistent t-statistics adjusted for firm level clustering are reported in parentheses. ^a, ^b, and ^c represent statistical significance at 10%, 5%, and 1%, respectively

disclosure of CSR. However, we are interested in whether CSR performance is associated with financial performance.

Robustness checks

Our results reported in the previous sections may suffer from two sources of bias. First, our sample filtering process may not completely solve the sample selection bias, and the choice of 85% is rather arbitrary. We hence try to filter the sample at the 25th percentile and the median and without filtering. The results are reported in Panel A of Table 6. Moreover, Sun, Tong, and Wu find that firms elect to cross-list in Hong Kong since H shares differ significantly in size, leverage, growth, and industry from the non-cross-listed firms in Chinese mainland. We attempt to address this sample selection bias issue by employing the propensity score matching methodology (Rosenbaum & Rubin, 1983; Imbens & Wooldridge, 2009). In particular, we first estimate the following logistic model:

$$Logit(Cross-listing_i) = \alpha + \gamma \times controls_{it} + \epsilon_{it} \tag{2}$$

Table 6 Robustness checks

Panel A: Different filtering			
	Full sample	Top 3 quartiles	Above median
Cross-listing	0.73 ^c (3.12)	0.62 ^b (2.36)	0.52 ^a (1.95)
Panel B: Different specifications			
	PSM	Including Lagged Dependent	
Cross-listing	0.52 ^b (2.05)	0.17 ^a (1.97)	

This table presents the Tobit regression estimations of the following model:
 $CSR\ score_{it} = \alpha + \beta * cross-listing_i + \gamma * controls_{it} + \epsilon_{it}$
 Panel A presents the results with different filtering of sample firms and Panel B presents the results with different model specifications. Only the coefficients on *Cross-listing* are reported. Heteroskedasticity-consistent t-statistics adjusted for firm level clustering are reported in parentheses. ^a, ^b, and ^c represent statistical significance at 10%, 5%, and 1%, respectively

In Eq. (2), we follow Sun et al. (2013) by including *Size*, *Leverage*, *MTB*, *ROA*, *State* and industry fixed effects, and *State* is defined as a dummy variable that takes the value of one if the ultimate controller of the firm is state-related and zero otherwise. Estimations of Eq. (2) are not tabulated for parsimonious reasons. Consistent with Sun et al. (2013), cross-listed firms are larger in size, hold less debt, and are more likely to be controlled by the state. Surprisingly, the cross-listed firms are less profitable, consistent with Hung et al. (2008). Industry fixed effects are mostly significant, thus confirming the important role of industry in firms' decisions to be cross-listed in Hong Kong. The coefficient on *Cross-listing* based on the propensity score matched sample is reported in the first column of Panel B of Table 6. As shown, the results are consistent with our main findings.

While we have accounted for the selection bias, one may argue that we have omitted an important factor that determines firm's CSR performance. Our estimation for the coefficient on *Cross-listing* is still valid if the omitted variable is not correlated with the cross-listing dummy. If, however, the omitted variable is correlated with *Cross-listing*, it causes an endogeneity issue, and our estimates reported in Table 3 will be biased. We resolve this bias by using lagged *CSR score* as the dependent variable (Wooldridge, 2002). The results are reported in the second column of Panel B of Table 6. Again, the coefficient on *Cross-listing* remains positive and significant.⁷

Conclusions and limitations

We study the association between CSR performance and cross-listing in this paper. In a clean setting where the change in CSR performance can be attributed to the choice of cross-listing, we find a statistically significant and economically meaningful increase in CSR performance for the cross-listed firms compared with the non-cross-listed firms. Moreover, the increase can mostly be attributed to technical CSR, which targets the firms' primary stakeholders. We also find the positive association between cross-listing and CSR improvements to be more pronounced for firms from less developed provinces and firms with a higher degree of earnings management. These results are robust to a series of different robustness checks.

Our conclusions need to be generalized with cautions though. First, our study only covers a small sample of 265 unique firms from 2010 to 2012. All the cross-listed firms are from one country only. Future research can extend our study to a multinational setting. Second, despite our efforts in addressing the endogeneity problem, the causal relation between cross-listing and CSR performance should be interpreted with caution.

Endnotes

¹<https://www.cfosurvey.org/13q3/PressRelease.pdf>

²Starting from December 2008, the two stock exchanges in China (the Shanghai Stock Exchange and the Shenzhen Stock Exchange) required certain types of listed firms to issue stand-alone CSR report. The mandatory requirement covers the following types of firms: (i) firms included in the "Corporate Governance Index"; (ii) cross-listed firms; (iii) financial firms; and (iv) firms included in the "Shenzhen 100 Index".

³Available at: <http://www.accaglobal.com/content/dam/acca/global/PDF-technical/sustainability-reporting/tech-tp-wdir.pdf>

⁴www.hexun.com.

⁵Compared with the KLD, the missing dimensions are diversity and corporate governance.

⁶See Dechow (1994) and Kim et al. (2012) for more details.

⁷By including the lagged dependent variable, the coefficient on *CSR score* is downward biased. However, this bias suggests that our estimation is conservative.

Acknowledgements

We thank participants of the 2018 FBR Symposium on New Development in Accounting & Finance and research workshop at Fudan University, for their helpful comments. Special thanks goes to Kai Zhong, the discussant of our paper, the referee, and the editor.

Funding

The authors acknowledge financial support from the National Natural Science Foundation of China (Grant Numbers: 71202056, 71572047, and 71502095).

Availability of data and materials

All the data used in this study can be found in the China Stock market and Accounting Research (CSMAR) database.

Authors' contributions

The authors contribute equally. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

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Received: 4 March 2018 Accepted: 17 May 2018

Published online: 07 June 2018

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