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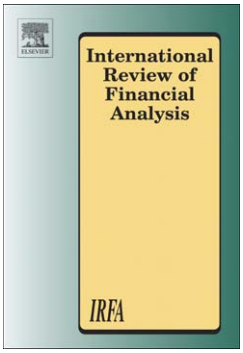

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The Social, Environmental and Ethical Performance of Chinese Companies: Evidence from the Shanghai Stock Exchange

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The Social, Environmental and Ethical Performance of Chinese Companies: Evidence from the Shanghai Stock Exchange

Abstract

We investigate the social performance of Chinese listed non-financial companies in the Shanghai Stock Exchange. We design a comprehensive social, environment and ethics disclosure index (CSPDI) and assess the bi-directional relationship between corporate social performance and financial performance using the three-stage least squares (3SLS). We find that the mean value of CSPDI is 53% and high social disclosure is associated more with environmentally sensitive industries. Moreover, the index results show that little attention has been paid to ethical issues. Interestingly, we find that the better the financial performance, the worse the corporate social performance disclosure. This result is consistent with the managerial opportunism hypothesis. Finally, the results of the 3SLS estimation show that the causality between the two endogenous variables runs from financial performance to the corporate social performance. This suggests that the corporate social performance is determined by financial performance.

***Key words**: Corporate social responsibility, ethics, social performance and financial performance, Chinese companies*

***JEL classification:** M14 and A13*

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The Social, Environmental and Ethical Performance of Chinese Companies: Evidence from the Shanghai Stock Exchange

1. Introduction

Ethical behaviour of organisations has become a cornerstone of corporate survival, sustainability and growth. Business ethics has attracted the attention of researchers, mass media and business press after a sequence of corporate scandals including, Enron and Worldcom, in addition to the Sanlu Group scandal and Zijin Mining Group pollution accident in China in 2008 and 2010 respectively[1]. Therefore, stakeholders impose more pressure on business organisations to disclose their corporate values, social responsibility, ethical behaviour and their overall corporate social performance [2] (CSP) (Waddock and Graves, 1997; Ponemon and Michaelson, 2000; Stevens et al., 2005 and Berrone et al., 2007).

China has different socio-economic and cultural frameworks compared with western countries; moreover it has an increasing importance in the world economy in terms of economic growth (9.2% and 8% in 2011 and 2012 respectively). Over the past few years there has been an increasing importance placed on social disclosure in China. In 2008 the Chinese Ministry of Environmental Protection and the China Securities Regulatory Commission (CSRC) launched the so called "Green Securities" policy. The latter imposes additional constraints (environmental assessment) on high- polluting industries to access capital markets[3]. Moreover, in 2008, the Shanghai Stock Exchange issued a notice to encourage listed companies to disclose and publish corporate social responsibility (CSR) reports along with their annual financial reports on the Shanghai Stock Exchange website.

Therefore studying the Chinese experience is timely, unique and adds to the existing literature on CSP. There are a few studies on Chinese CSP, see for instance Gao (2009), Zu

[1] Sanlu Group Company added melamine into the formula milk powder to increase the protein content, however it could lead to the development of kidney stones in infants. Zijing Mining Group pollution accident involved a leakage of 9100 cubic meters of acid into a river. This resulted in a serious pollution incident.

[2] Waddock and Graves (1997) describe CSP as *"A multidimensional construct, with behaviours ranging across a wide variety of inputs (e.g., investments in pollution control equipment or other environmental strategies), internal behaviours or processes (e.g., treatment of women and minorities, nature of products produced, relationships with customers) and outputs (e.g., community relation and philanthropic programmes)".*

[3] The approval of the Ministry of Environmental Protection is also required pre IPOs.

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and Song (2009), Li and Zhang (2010) and more recently, Ye and Zhang (2011), and Liu et al., (2012). However, they largely ignore ethics and environment protection dimensions and their impact on financial performance (FP) in China[4]. This paper has three main objectives; first, we attempt to identify and assess the degree of variation in the revealed social, ethical and environmental activities disclosed in the annual reports and the websites of a sample of Chinese non-financial companies listed in the Shanghai Stock Exchange (SSE) in 2011. To achieve this objective, we design a comprehensive CSP disclosure index for listed companies in the SSE 180 Index. Secondly, we investigate the main determinants of CSP and finally, we investigate the potential bi-directional relationship between CSP measured by CSPDI and FP.

Our results show that Chinese companies are most interested in shareholders' wealth maximisation. However, little attention has been paid to ethical issues. Our results are consistent with Gao (2009) as there are some limitations regarding social, ethical and environmental disclosure in China. We also find that the better the company's FP, the worse its CSP. Our results are consistent with the managerial opportunism hypothesis of Preston and O'Bannon (1997). Finally, the results of the 3SLS estimation show that the causality between the two endogenous variables runs from FP to CSP. This suggests that the social, ethical and environmental disclosure of the Chinese listed companies is determined by their FP.

The main contributions of this paper are threefold; first, this is the first study to design a comprehensive corporate social performance disclosure index that takes into account the Shanghai CSR Notice and the China Corporate Social Responsibility Reporting Guidelines issued by the Corporate Social Responsibility Research Center at the Chinese Academy of Social Science released in 2009. Moreover, our paper - to the best of our knowledge – is the first to investigate the broader definition of CSP including governance, ethics, environmental protection, energy saving and pollution control, and community involvement dimensions and their impact on the FP of Chinese companies. Finally, our paper is the first to investigate the bi-directional relationship between CSP and FP in the Shanghai Stock Exchange.

[4] Over the past 5 years, China was ranked the first country in the world in carbon dioxide emission; China alone is responsible for 80% of the growth in global carbon emission in 2011 (9.7 billion metric tons or 28% of the world carbon dioxide emission in 2011). For more details see, United Nations: Framework Convention on Climate Change; *http://unfccc.int/essential_background/kyoto_protocol/items/1678.php*

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The remainder of the paper is organised as follows: section 2 presents the literature review and hypotheses development. Section 3 describes the dataset used in the analysis. Sections 4 and 5 present the methodology and the empirical results respectively. Finally, section 6 summarises and concludes.

2. Literature review and hypotheses development

2.1 Previous research on the development of social disclosure in China

There are a few studies that have investigated the development of social disclosure and the overall social performance in China. Gao (2009) analyses the developments in the Chinese CSR of large companies in 2007. He shows that although China has an institutional background to develop CSR, many political, social and economic constraints are imposed and, as a result, CSR is in its early stage of development and CSR-related activities vary amongst different industries for large companies. By contrast, Cheung et al. (2012) find remarkable progress in social activities and practices in Chinese companies, as they find a substantial increase in the CSR disclosure over the period 2006-2007 and thus the stock market rewards those companies for improving their corporate governance and social performance. Zu and Song (2009) investigate how the Chinese top executives perceive and interpret CSR and how company's characteristics influence the attitude of managers towards their involvement in social activities. They find a high percentage of managers showing their willingness to engage more in social activities; however the nature of their association is linked to entrepreneurs' instincts of gaining economic benefits.

Li and Zhang (2010) investigate the relationship between ownership structure and social activities; they find that CSR in state-owned companies is negatively associated with the ownership structure due to the political interference in more developed areas in China. Marquis and Qian (2013) find that Chinese listed companies face a decoupling risk which leads to a high likelihood to enact substantive CSR actions in situations in which they are likely to be monitored. Ye and Zhang (2011) find a U shaped relationship between CSR and cost of debt finance. Therefore, enhancements in CSR reduce the cost of debt finance when investment in CSR is lower than its optimal level and the opposite is the case if CSR investment exceeds its optimal level.

Whilst a few studies have investigated the development of CSR in China, no other studies - to the best of our knowledge - have investigated the ethical, environmental and social

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performance of Chinese companies and the bi-directional relationship with FP in the Shanghai Stock Exchange; we are trying to fill this gap in the literature with this paper.

2.2 Corporate social and financial performance nexus

The existing body of the literature on social disclosure introduces three fundamental theories namely, *agency theory, legitimacy theory and stakeholder theory*. Cormier et al. (2005) argue that as the main focus of agency theory is on wealth maximisation, there might be therefore some limitations regarding social, ethical and environmental disclosure. *Legitimacy theory* on the other hand, assumes that decisions made by a company should be consistent with its social norms, values and beliefs (Perrow, 1970). Failure to do so may threaten the company's legitimacy, resources, and, ultimately, its survival (Reverte, 2009). According to stakeholder theory, one way to satisfy stakeholders' demands is to adopt a policy of cost reduction and to increase investments in social activities (Freeman, 1984). Therefore, managers may disclose voluntary information as a signal to the powerful stakeholders to gain their support (Freeman, 1984).

The relationship between CSP and FP has been investigated in the literature. However, there is a controversy in the results due to the discrepancies in theoretical and methodological frameworks. The proponents of the *positive* CSP-FP relationship argue that the benefits from CSP are greater in comparison with its costs; see for instance Orlitzky (2001) and Waddock and Graves (1997)[5]. Neoclassical economists are the proponent of the *negative* association between CSP and FP (Simpson and Kohers, 2002). They argue that spending on social activities (e.g. investment in pollution control equipment) might be avoided or should be borne by governments or other stakeholders (Preston and O'Bannon, 1997). Finally, the *neutral (non-existent)* relationship argues that there are many other intervening variables; therefore there might not be a direct relationship between CSP and FP (Ullman, 1985).

There are a few studies on social activities and the link with financial performance in Chinese companies. However, no other studies have investigated the broader definition of CSP measured by governance, ethics, environmental protection, energy saving and pollution

[5] Waddock and Graves (1997) argue that there might be a conflict between explicit costs (payments to bondholders) and implicit costs (environment protection), however, if companies intend to minimise their implicit costs by socially irresponsible actions, this may result in higher explicit costs. They claim that the benefits from CSP are greater in comparison with its costs; for instance enlightened employee relations policy may have a (lower) cost but may lead to higher productivity.

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control, and community involvement dimensions and their impact on FP of Chinese companies. Zu and Song (2009) find a positive relationship between FP and the degree of involvement in social activities, but they did not show the direction of this causality. Chen and Wang (2011) also find that social disclosure can improve FP of Chinese companies. Su and He (2010) find a positive and significant relationship between philanthropy and charitable activities as a proxy for social performance and FP for private equity companies in China. They argue that private enterprises carried out philanthropy and charitable activities to better protect property rights and to strengthen the political connections which in turn lead to better FP. Wang and Qian (2011) find consistent results with Su and He (2010) as they argue that corporate philanthropy is positively related to FP because it helps companies gain socio-political legitimacy. Based on the above discussion, we formulate our first hypothesis as follows:

H1: There is a positive relationship between ethical, environmental and social performance of Chinese companies and their financial performance.

2.3 Bi-directional relationship between CSP and FP

There have been alternative interpretations of the direction of causality between CSP and FP. The "slack resources theory" assumes that available slack resources might be allocated into the social domain. This implies more opportunities for companies to engage in social activities and thus better CSP. By contrast, Preston and O'Bannon (1997) promote "the managerial opportunism hypothesis", in which managers try to increase their benefits by reducing the expenditures on social activities. However, managers may also justify their poor performance by engaging in noticeable social activities. Under the "slack resources theory" and "managerial opportunism hypothesis", the CSP- FP relationship runs from FP to CSP. This suggests that CSP is determined by FP (Waddock and Graves, 1997).

On the other hand, "good management theory" suggests that prior CSP is directly associated with subsequent FP simply because addressing CSP domains like environmental awareness, good employee and community relations may result in better FP[6] (Freeman, 1984 and McGuire et al., 1988). Similarly, the "social impact hypothesis" of Cornell and Shapiro

[6] For instance, good relationships among employees (including women and ethnic minorities) may lead to improvements in morale, productivity, and satisfaction and this has implications for FP. Moreover, good relationships may motivate local government to provide better tax regimes, improved education and health programmes and reduce regulations (Waddock and Graves, 1997).

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(1987) suggests that satisfying the different needs of stakeholders will improve the reputation of the company and lead to better FP[7]. Under the "good management theory," and social impact hypothesis, CSP would be a predictor of FP.

The existing literature on Chinese companies has investigated the influence of CSR on FP and found that companies involved in social and philanthropic activities have better FP; see for instance, Zu and Song (2009) Chen and Wang (2011), Su and He (2010) Wang and Qian (2011). However, there are no other studies – to the best of our knowledge – that analyse and interpret the potential bi-directional causality between social performance and FP in China. Our paper tries to fill this gap in the literature; hence we formulate our second hypothesis as follows:

H2: The relationship between corporate social performance and financial performance in Chinese listed companies is bi-directional.

3. Dataset and Variables Description

Our data is set up for a cross-sectional analysis of the relationship between the CSP and FP of the constituents of the Shanghai Stock Exchange (SSE) 180 Index in 2011[8]. The SSE 180 index reflects the performance of top companies listed in the Shanghai Stock Exchange. The constituents of this index are selected based on an overall rank of total market capitalisation, negotiable market capitalisation, trading values and turnover ratio across different industry sectors. We exclude financial companies as they are subject to a different regulatory framework. Therefore, our final sample includes 149 non-financial companies.

Our data is hand-collected from annual reports, social responsibility (sustainability) reports, financial statements and the websites of the respective companies. We also collected market information over the period 2009-2011 from the Thomson One Banker database and the China Stock Market and Accounting Research (CSMAR) database, which is designed and developed by GTA Information Technology Corporation.

We measure CSP by using the CSPDI disclosure index (more details are provided about the index design methodology in Section 4). We also use both market-based and accounting-

[7] The "trade-off hypothesis" of Vance (1975) indicates that the cost of the social programmes exceeds their potential benefits and that spending on such activities results in poor FP.
[8] We use cross–section regression rather than panel data as we could not find annual variation in the CSPDI across time in particular in 2009, 2010 and 2011.

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based ratios to measure companies' FP, namely Tobin's *Q*, annualized daily stock returns and return on assets. We argue that using a one year (contemporaneous or lagged) FP measure might not be the optimal choice, because it may lay the estimation open to performance bias in a particular year. Therefore, we use average Tobin's *Q*, annualized daily stock returns and ROA over the period 2009-2011 as a measure of FP. Moreover, we use contemporaneous and lagged FP measures as a robustness check.

We construct a number of firm-specific variables which are the primary determinants of CSP. A large strand of the literature on CSR finds an association between company size and CSR disclosure (see for example, Mallin and Michelon, 2011, Al-Tuwaijri *et al*., 2003 and Brammer *et al*., 2006). The larger the company, the more likely it is to engage in social activities as larger companies are subject to more social and political pressure than small companies, (Reverte, 2009). As companies evolve over their life cycle, their stakeholders expect much more involvement in ethical and social activities. Deviations from this expected social profile could have a negative impact on the stakeholders' perceptions (Roberts, 1992). We use companies total market capitalisation as a proxy for size.

One of the distinguishing features of the Chinese governance mechanism is the dominance of state ownership and control (Kato and Long, 2006). Wang et al. (2008) find a positive association between the level of disclosure and the proportion of state ownership. They argue that state-owned companies may disclose additional information to mitigate the severe information asymmetry and agency problems.

However the literature provides mixed evidence on the influence of state ownership on disclosure. Xiao et al. (2004) find that the higher the state ownership the less online disclosure. Li and Zhang (2010) find consistent results with Xiao et al. (2004) as they find that CSR in state-owned companies is negatively associated with the ownership structure due to the political interference in more developed areas in China. Therefore, we incorporate a state-owned (SO) dummy variable to control for the government ownership structure. We also use the proportion of state ownership as a robustness check.

The literature also offers inconclusive results on the relationship between company age and social disclosure. Roberts (1992) argues that the older the company the more involvement there will be in social activities which have a positive impact on its reputation accordingly. However Jaggi (1997) and Chen, and Firth (1999) find a negative relationship between

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company age and the extent of its disclosure. Therefore we may expect either a positive or a negative relationship between company age and its CSP disclosure. We also create a cross-listing (CL) dummy variable as cross-listed companies might be subject to more regulations and thus required to disclose their social activities in their annual reports.

A high leverage ratio may encourage companies to disclose more voluntarily in order to mitigate the information asymmetry problem between the company and its creditors. Barako et al (2006) find a positive link between the leverage ratio and the level of voluntary disclosure. Therefore, we also take into account the impact of financial risk by controlling for the ratio of total debt to total equity as a proxy for financial leverage.[9] Finally, we create a set of industry dummies - based on the industry classification in SSE - to control for the potential inter-industry differences in social disclosure. Table 1 presents a description of the main variables used in the analysis.

Insert Table 1 here

4. Methodology

4.1. Corporate social performance disclosure index (CSPDI) Design

In May 2008, the Shanghai Stock Exchange issued the "CSR Notice" and the Guidelines on Listed Companies' Environmental Information Disclosure. Accordingly, listed companies are required to issue CSR reports along with their annual reports to address the interests of stakeholders. Moreover, according to the CSR Notice, companies should commit themselves to promoting sustainable economic and social development[10]. The Shanghai Stock Exchange also encourages listed companies to improve and develop a strategy for CSR disclosure. Therefore, listed companies are encouraged to disseminate CSR information on their websites in addition to their annual reports and CSR reports.[11]

Furthermore, the Corporate Social Responsibility Research Center at the Chinese Academy of Social Science released the China Corporate Social Responsibility Reporting Guidelines (CASS-CSR 1.0) in 2009. The conceptual framework of the guidelines is based on Elkington's (1997) triple bottom line theory and Freeman's (1984) stakeholder approach.[12]

[9] Given the potential endogeneity in determining a firm's CSPDI disclosure, we used lagged company size and leverage.
[10] For more details see *http://www.world-exchanges.org/sustainability/m-6-7-1.php*
[11] Chinese listed companies are encouraged to disclose information on environmental protection policies; energy saving; environmental development and investment; environmental protection and waste recycling.
[12] Elkington's (1997) triple bottom line refers to a situation where companies harmonize their efforts in order to be economically viable, environmentally sound and socially responsible. Freeman (1984) indicates that

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We design a comprehensive disclosure index to measure social, ethical and environmental performance of Chinese companies. The philosophy of the index construction is mainly based on the guidelines issued by the Shanghai Stock Exchange in 2008 and the guidelines issued by CASS in 2009.

We augment this index by adding extra two dimensions namely ethics and governance. The ethics dimension is designed in the light of the study of Gao (2009). We also revised the other items/dimensions of the index following Waddock and Graves (1997) and Gao (2009) to reflect the broader definition of CSP including mandatory and voluntary disclosures. We refer to a similar strand of literature to construct our index including Gao (2009), Haniffa and Cook (2002, 2005), Aggarwal et al. (2011) and Mallin and Ow-Yong, (2012). Our index consists of 10 dimensions namely ethics; corporate governance; corporate social responsibility management; government; employees; community involvement; environment protection, energy saving and pollution control; customers; investors and finally, partners. Each dimension consists of several items. The total number of items is 97 as in Appendix 1. We deal with each item as a dummy variable which takes the value of one if the item is found in the annual reports/websites and zero otherwise. Our index is equally weighted - as in Equation 1- to avoid any potential scoring and scaling biases[13].

$$CSPDI_i = \frac{\sum_{n=1}^{n} X_i}{n_i} \qquad (1)$$

Where: $CSPDI_i$: Corporate social performance disclosure index for company (i), $0 \le CSPDI_i \le 1$

n_i : Number of items disclosed by company (i) $n = 97$

X_i : Dummy variables take the value of 1 if the item is disclosed and 0 otherwise.

We took precautionary measures to enhance the validity and the reliability of our analysis. To enhance the reliability, the index items are coded and checked twice and we discussed any potential discrepancies. To improve the index reliability, we carefully chose and developed the 10 dimensions of our CSPDI to suit the context of the Chinese environment[14]. It is worth mentioning that each company is coded by two different coders to ensure consistency. We

organizations are not only accountable to their shareholders but should also balance a multiplicity of stakeholders' interests that can affect, or are affected by, the achievement of an organisation's objectives.

[13] See for instance, GOV-Score 51 of Brown and Caylor (2006), G-index of Gompers et al. (2003), GOV41 of Aggarwal et al. (2011), GOV52 of Gupta et al. (2013), Mallin and Ow-Yong, (2012) and Farag et al. (2014).

[14] We also use Asset4 database – where data is available on SSE- to double check the items for CSPDI.

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make sure that the same coder is consistent over time when coding the same item of the index (stability), that the coders produce the same results when coding the same item (reproducibility) and accuracy as well (Beattie et al. 2004).

4.2 CSPDI & FP nexus in China

In this section we investigate the CSP-FP link for the constituents of the Shanghai Stock Exchange (SSE) 180 Index, we use the following cross sectional regression as in Equation 2:

$$CSPDI_i = \alpha_0 + \alpha_1 FP_i + \alpha_2 AGE_i + \alpha_3 SZ_i + \alpha_4 CL_i + \alpha_5 SO_i + \alpha_6 FL_i + \varepsilon_i \qquad (2)$$

where, *CSPDI* is the corporate social performance disclosure index; *FP* is financial performance measured by Tobin's *Q*, annualized daily stock returns and ROA; AGE and SZ are company age and size, respectively; CL and SO are dummies for cross-listed and state-owned companies, respectively; FL is financial leverage; and ε_i is the error term. Moreover, we investigate the potential reverse causality and the influence of CSPDI on FP. We use the following cross sectional regression as in Equation 3.

$$FP_i = \beta_0 + \beta_1 CSPI_i + \beta_2 AGE_i + \beta_3 SZ_i + \beta_4 CL_i + \beta_5 SO_i + \beta_6 FL_i + \nu_i \qquad (3)$$

Finally, we estimate both equations 2 and 3 using the ordinary least squares (OLS) estimators. We use the Huber/White/Sandwich estimator to control for heteroskedasticity which may be present in the firm-level data and to produce robust standard errors.

4.2 Bi-directional relationship between CSPDI and FP

In this section, we investigate the direction of causality between CSP and FP. As both CSP and FP can be considered as endogenous variables, the ordinary least squares (OLS) estimation of equations 2 and 3 might be subject to a potential reverse causality between the two endogenous variables. To address this endogeneity problem and to investigate the bi-directional relationship between CSP and FP, we use the three-stage least squares (3SLS) following Farag et al. (2014).[15] Although the 3SLS method is asymptotically more efficient, it is also more vulnerable to specification errors as compared to 2SLS. Therefore, we also estimate the 2SLS as a robustness check. We formulate the following system of simultaneous

[15] The main advantage of the 3SLS estimation technique is that it allows, not only for simultaneity among the corporate social performance and financial performance, but also for correlations among the error components. Thus, it is believed that 3SLS estimators are asymptotically more efficient than two-stage least squares (2SLS) estimators.

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equations. The simultaneous equations system explicitly allows for the interactions between CSPDI-as a proxy for CSP- and FP.[16]

$$CSPDI_i = f_1(FP_i, Z_{i1}, \varepsilon_{i1}) \qquad (4a)$$
$$FP_i = f_1(CSPDI_i, Z_{i2}, \varepsilon_{i2}) \qquad (4b)$$

Where, *CSPDI* is the corporate social performance disclosure index; *FP* is financial performance measured by Tobin's *Q*, annualized daily stock returns and ROA in 2011; Z_i are the vector of control variables and instruments influencing the dependent variables; and ε_i are the white noise error terms associated with the unobservable effects resulting from firm heterogeneity i.e. unobservable features of managerial behaviour that explain heterogeneity in the two endogenous variables (CSPDI and FP). Since the simultaneous equations system explicitly allows for the endogeneity of the dependent variables, we use contemporaneous CSPDI and FP.

All dependent variables are explicitly taken to be endogenous to the system and are treated as correlated with the disturbances in the system's equations. All other variables in the system are treated as exogenous to the system and uncorrelated with the disturbances. The exogenous variables are taken to be instruments for the endogenous variables[17].

5. Empirical results

5.1 Analysis of the CSPDI scores

Table 2 (*Panel A*) presents the descriptive statistics for the CSPDI by its dimensions. The mean value of CSPDI is 53% with a standard deviation of 19%. Among the 149 non-financial firms in our sample, the best performing company has a CSPDI score of 93%, while the worst performing one only achieves 25%. The ethics dimension (D1) has the lowest mean value of 32%, indicating that little attention has been paid to ethical issues. This result is consistent with Gao (2009) as he finds that CSP in China is in its early stage and largely differs across industrial companies. However, Chinese listed companies pay great attention to their responsibility to the investors as suggested by the mean value of 89%.

[16] The equations specified in the system have to be identified. Thus, we re-specify the financial performance equation by removing firm age and including a lagged FP variable instead, so that both equations become identified.

[17] Corporate governance characteristics may have an influence on CSR and can be used as alternative instruments. However, they are likely to be correlated with FP measures (Bhagat and Bolton, 2008). More importantly, corporate governance characteristics are included in our CSPDI (dimension 2). We also use - following Ye and Zhang (2011) - R&D intensity (the ratio of intangible assets to total assets) as alternative instruments for CSP and obtained similar results.

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Meanwhile, Table 2 (*Panel B*) presents the descriptive statistics for the CSPDI by industry. Among the seven major industries, real estate has the lowest CSPDI score (45%). However, Chinese listed companies in the construction industry have the highest CSPDI score of 71%. Transportation and mining industries also have relatively high scores of CSPDI, with the mean values of 60% and 59% respectively. This result is consistent with Reverte (2009) who found that environmentally sensitive industries have better social disclosure.

As state ownership is a prevalent feature for the Chinese companies, we present in *Panel C* of Table 2 the CSPDI scores for both State-owned enterprises (SOEs) and non- SOEs. The results show that the average CSPDI scores for SOEs and non-SOEs are 56% and 45% respectively. Although there is no significant difference between the CSPDI scores for SOEs and non-SOEs, this result suggests that SOEs may have a stronger sense of CSP disclosure compared with non-SOEs. We argue that state-owned companies may encourage investment in CSP and hence benefit from social activities e.g. excess employment and employees' social welfare compared with non-state-owned companies.

Insert Table 2 here

Table 3 presents the CSPDI items with the lowest scores across the 10 dimensions and across industries. The ethics dimension has the lowest CSPDI score of 32%. Moreover a closer analysis of the ethics dimension in Table 3 shows that the items of "issue guideline for business ethics" and "issue guideline for employees' behaviour" have the lowest CSPDI scores of 8% and 10% respectively.

The corporate governance dimension (*D*2) has been well disclosed by Chinese listed companies. It has a relatively high CSPDI score of 76% (see Table 2 *Panel A*). However, Table 3 shows that, surprisingly, listed companies in the SSE should disclose more information on board composition and committee membership as the index scores of "membership of committees" and "board composition: executive vs. non-executive" items have the lowest CSPDI scores of 12% and 16% respectively. On the social responsibility dimension (D3), Chinese listed companies in our sample have paid less attention to CSR training and the management mechanism for CSR. Their CSPDI scores are 12% and 19% respectively. Table 2 (*Panel A*) reports a relatively low CSPDI score (40%) of the "corporate social responsibility management" dimension.

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On the other hand, Chinese listed companies in our sample disclose a reasonable amount of information on the "Government" dimension (D4) as its CSPDI score is 59%. Our results also show that the overall CSPDI score for the "Employee" dimension (D5) is 53% and the proportion of companies that discloses information on "encouraging disabled employees" and the "amount spent on employees training" are 9% and 10% respectively. Moreover, we find that community involvement (D6) and environment protection, energy saving and pollution control dimensions (D7) have relatively low index scores of 39% and 40% respectively. For instance, Table 3 reports that the proportion of companies that discloses on "the nature of charitable and social activities financed" is 7%. However, the proportions of companies that disclose on "information on green office policy" and "the amount spent on environment protection" are 15% and 19% respectively.

Chinese companies disclose a reasonable amount of information on the "Customer" dimension (D8) as the mean value of its CSPDI score is 50%. However, more disclosure seems to be required on "customer private information protection" as the proportion of companies that discloses on this item is 8%. By contrast, the investor dimension (D9) has the highest mean value (89%). This suggests that Chinese listed companies pay greater attention to their responsibility to investors and that they mainly focus on shareholders' wealth maximisation. Table 3 also reports the items with the lowest CSPDI scores across industries. The results presented in Table 3 show that the worst performing industries are manufacturing and real estate. However, the best performing companies are in construction sector. Figures 1 and 2 present the mean values of CSPDI by dimensions and by industries respectively.

Insert Table 3 here

Insert Figures 1 and 2 here

5.2 Descriptive Statistics

Table 4 presents the descriptive statistics for the main variables used in the empirical analysis. The mean values of Tobin's *Q* and *ROA* are 1.64 and 0.07 respectively, whereas the mean value of the annualised daily stock returns is 36%. The average company age is 13.32 years with a range between 3 to 28 years. The average market capitalisation at the end of 2011 is RMB 46,844 million. Table 4 also shows that 16% of the sample firms are cross-listed, and 73% of them are effectively controlled by the government and its agencies with

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average state- ownership equal to 13%. Finally, the mean dividends payout and leverage ratios are 0.27 and 1.60 respectively.

Insert Table 4 here

Table 5 presents the correlation matrix for the main variables used in the analysis. It is clear from Table 5 that there is no evidence of multicollinearity problems[18]. *CSPDI* is negatively and significantly associated with Tobin's *Q*, annualised daily stock returns, *ROA* and company age, whereas it is positively and significantly correlated with company size, cross-listing and state-ownership.

Insert Table 5 here

5.3 CSPDI-FP nexus

The OLS estimation results for equations 2 and 3 are summarised in Table 6. Panel A reports the estimation results for the CSPDI equation. The three alternative measures of FP, namely Tobin's *Q*, *ROA*, and stock returns are used in models 1, 2 and 3 respectively[19]. Looking first at model 1, it shows that the coefficient of Tobin's *Q* is negative and statistically significant at the 1% level, suggesting that the better the company's FP, the worse its corporate social, environmental and ethical disclosure. Our results are consistent with the managerial opportunism hypothesis of Preston and O'Bannon (1997) in which managers are keen to increase shareholders' wealth and their benefits by reducing the expenditure on social activities. This result also suggests that Chinese managers are working in the best interest of their shareholders. This implies that there are some limitations regarding social, ethical and environmental disclosure in China.

Both company size and the cross-listing dummy have a positive and significant impact on CSPDI. This suggests that large companies engage more in social, environmental and ethical activities; meanwhile cross-listed companies are likely to be subject to stricter regulations to disclose their social, environmental and ethical activities in their annual reports. Moreover, Table 6 shows that the coefficient of company age is marginally significant with a negative sign. This suggests that older companies may engage more in social activities but in a more covert way, i.e. they do not disclose these activities. In addition, a well-established company

[18] We also use the variance inflation factors (VIF) to examine whether the independent variables are perfectly collinear and found that the VIF value (2.3) is well below 10; this suggests that our model is not subject to multicollinearity problems.

[19] We also use one year contemporaneous and lagged FP measures in equation 2 and obtained similar results. Results are not presented here but are available from the authors upon request.

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may have a slightly different set of stakeholders compared to newer companies[20]. The latter's stakeholders may demand that it engages in, and discloses, its social activities more so than the stakeholders of the established companies. The state-owned dummy and financial leverage are insignificant in the CSPDI equation.

Similar results are found in models 2 and 3 in which ROA and stock returns are used. However, the ROA and Stock returns coefficients turn out to be less significant at the conventional level of 5% and 10% respectively. We also include industry dummies in alternative estimations of equations 2 and 3. We find that industry dummies are jointly insignificant so that we do not present them in Table 6. We present this result in the robustness tests section. The models are well specified as the R^2s are 0.45, 0.38 and 0.37 for models 1, 2 and 3 respectively and the F statistics are highly significant for the three models.

Panel B of Table 6 reports the estimation results for the FP equation, in which Tobin's *Q*, ROA and stock returns are used as dependent variables in their respective regressions. The coefficients for CSPDI are found to be negative and statistically significant in models 4 - 6. This result is consistent with the neoclassical economists' view and the trade-off hypothesis (see Simpson and Kohers, 2002). They argue that CSP implies more spending on social activities and thus shareholders' wealth reduction. These costs (i.e. investment in pollution control equipment) might be avoided or should be borne by governments or other stakeholders (Preston and O'Bannon, 1997; Waddock and Graves, 1997). Therefore the costs of the social activities exceed their potential benefits and result in shareholder wealth reduction (Waddock and Graves, 1997).

Insert Table 6 here

In addition, we find a negative and significant relationship between financial leverage and financial performance. Moreover, larger companies tend to be more profitable. The three models presented in Panel B are statistically significant with R^2 of 0.24, 0.23 and 0.20 respectively. Overall, the OLS estimation results presented in Table 6 show that CSP and FP are negatively associated. Therefore we find evidence to reject our first hypothesis. However, we investigate the direction of causality in the following section.

[20] Since *SZ* and *CL* are significantly correlated, we re-estimate the equations by dropping either *SZ* or *CL*. Our empirical results remain unchanged.

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5.3 Bi-directional relationship between CSPDI and FP

To this end, we estimate equations 4 (a) and (b) simultaneously using 3SLS estimations to address the potential endogeneity between CSP and FP. The 3SLS estimation results for the simultaneous equations systems are summarised in Table 7.

Insert Table 7 here

The results of system 1, in which Tobin's *Q* is employed, are reported in columns 1 and 4 of Table 7. The coefficient on Tobin's *Q* in the CSPDI equation remains negative and significant at the 1% level. However, the coefficient on CSPDI in the FP equation turns out to be statistically insignificant. This suggests that the causality between the two endogenous variables runs from FP to CSP. Moreover, company age becomes significantly negative in the CSPDI equation; however both company size and cross-listing variables remain highly significant. The lagged Tobin's *Q* is also highly significant in the FP equation, providing empirical evidence of the dynamic structure of profitability.

The results for systems 2 and 3 presented in Table 7 show that using both ROA and Stock return instead of Tobin's *Q* as FP measures does not alter our findings[21]. Overall, the simultaneous equations systems are jointly significant at the 1% level.[22] The 3SLS results strongly suggest that the CSP disclosure index of Chinese listed companies is determined by their financial performance and the opposite is not true. Therefore we can reject our second hypothesis.

5.4 Robustness Tests

In this section we present a set of robustness tests. Table 8 reports the results of the cross-sectional regressions of Equation 2 using the ordinary least squares (OLS). In model 1, we control for industry fixed effects, whereas in model 2, we use the lagged Tobin's *Q* ratio in 2010. In models 3 and 4, we control for the dividends pay-out ratio and the proportion of state ownership respectively. The results presented in Table 8 are consistent with those presented in Table 6 (Panel A). We find a negative and highly significant relationship between CSPDI and FP. We also find consistent results with regard to the influence of company size, age and the cross-listing on CSPDI. The results also show that there is no

[21] Note that ROA is still marginally significant in the CSPDI equation

[22] We use the 2SLS estimation as a robustness check. The 2SLS estimation results are quite similar to those obtained from 3SLS. Results are not presented but are available from the authors upon request.

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significant relationship between both the dividends payout ratio and the proportion of state ownership and the CSPDI.

To address the concern that our results may simply be driven by the impact of a particular dimension e.g. ethics and governance, we re-estimate equation 2 using the CSP index suggested by the Chinese Academy of Social Science and find similar results to those presented in Table 6.[23]

6. Summary and conclusion

The main objective of this paper is to design a comprehensive CSP disclosure index for a sample of Chinese listed companies in the Shanghai Stock Exchange to identify and assess the degree of variation in the revealed social, ethical and environmental activities. Moreover, we investigate the main determinants of CSP and the potential bi-directional relationship between CSP and FP. We design our index to capture the Chinese CSP based on the recommendations of the Shanghai Stock Exchange and the guidelines issued by the Corporate Social Responsibility Research Centre at the Chinese Academy of Social Science. We include two extra dimensions to capture ethics and corporate governance. We also revise the other items/dimensions of the index following Waddock and Graves (1997) and Gao (2009) to reflect the broader definition of CSP.

Our results show that Chinese companies are most interested in shareholders' wealth maximisation. The mean value of CSPDI is 53% and the ethical dimension has the lowest mean value of 32%, indicating that little attention has been paid to ethical issues. Community involvement and environment protection, energy saving and pollution control dimensions also have relatively low index scores of 39% and 40% respectively. This result is consistent with Gao (2009); he argues that CSP in China is in its early stage and largely differs across industrial companies. By contrast, Chinese listed companies pay great attention to their responsibility to investors as the mean value of the investors' dimension is 89%. Construction, transportation and mining industries have relatively high scores of CSPDI. This result is consistent with Reverte (2009) as high social disclosure is associated with more environmentally sensitive industries.

We also find that the better the company's FP, the worse its CSP. Our results are consistent with the managerial opportunism hypothesis of Preston and O'Bannon (1997) in which

[23] The results are not presented but available from the authors upon request.

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managers are keen to increase shareholders' wealth and their benefits by reducing the expenditures on social activities. This result is also consistent with agency theory and suggests that Chinese managers are working in the best interests of their shareholders. This implies that there are some limitations regarding social, ethical and environmental disclosure in China. Finally, the results of the 3SLS show that the causality between the two endogenous variables runs from FP to CSP. This suggests that the social, ethical and environmental disclosure index of the Chinese listed companies is determined by their FP.

Our findings have a number of policy implications. Firstly, as the results show that Chinese companies have relatively low ethics and environment disclosure index scores, we might expect Chinese companies to be setting higher ethical and environmental standards in future, given recent scandals e.g. the milk scandal of Sanlu Group Company and the Zijing Mining Group pollution accident. The latter is particularly important as China was ranked the first country in the world in carbon dioxide emissions (i.e. it produces the highest level of carbon dioxide emissions). Therefore, policy-makers and regulators may introduce incentive schemes (including tax incentives) to encourage Chinese companies to engage more in ethical, social and environmental activities. We also argue that policy-makers may consider forcing environmentally sensitive companies to issue a separate report on their environmental impact and how they control the sources, and impacts, of pollution. Finally, we argue that policy-makers may promote the role of investors and other stakeholders with regard to the importance and the quality of corporate social disclosure by encouraging more sustainable and socially responsible investments.

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Appendix 1: Corporate Social Performance Disclosure Index (CSPDI)

Dimension I: Ethics	
1.	Ethics policy
2.	Respect social culture
3.	Respect commercial culture
4.	Issue guideline for employees' behaviour
5.	Issue guideline for business ethics
6.	Advocate self-discipline
7.	Volunteer policy
8.	Anti-corruption and/or anti-commercial bribery policies
9.	Law and regulation compliance
10.	Equal opportunities policy
11.	Promoting fair competition
Dimension II: Corporate Governance	
1.	Vision and mission statement
2.	Profile and current position of board members
3.	Number of board of directors
4.	Number of board meetings
5.	Membership of committees
6.	Board composition: executive vs. non-executive
7.	Board composition: independent vs. non-independent
8.	Role duality: CEO is Chairman of board
9.	Picture of board members
10.	Shareholding of board members
11.	Multiple-directorships exist among board members
12.	Directors' fees and remuneration
13.	Corporate organizational structure
Dimension III: Corporate Social Responsibility Management	
1.	Main concepts and/or roles of social responsibility
2.	Strategy of corporate social responsibility
3.	Management mechanism of corporate social responsibility
4.	Promoting the concept of corporate social responsibility
5.	Communication of corporate social responsibility with related parties
6.	Training on corporate social responsibility
Dimension IV: Government	

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1.	Identification of government's interest and/or expectation
2.	Contribution to job creation
3.	Tax contribution
4.	Social security contribution
5.	Responding to government policies
6.	Contribution to local economic development
Dimension V: Employees	
1.	Identification of employees' interest and/or expectation
2.	Employees appreciation
3.	Number of employees
4.	Encouraging female employees
5.	Encouraging disabled employees
6.	Labour union participation
7.	Social security coverage
8.	Employee recruitment and/or turnover
9.	Corporate policy on employee training
10.	Number of employees trained
11.	Amount spent on employees training
12.	Employee satisfaction, loyalty and welfare
13.	Work safety training
14.	Health and safety standards
Dimension VI: Community Involvement	
1.	Identification of community's interest and/or expectation
2.	Philanthropy policy
3.	Collaboration with charity foundations
4.	Political donation
5.	Sponsor students
6.	Donation to disabled and people/countries in disaster
7.	Donation for poverty alleviation
8.	Community programmes (health, education and sports)
9.	The amount spent on charitable and social activities
10.	The nature of charitable and social activities financed
Dimension VII: Environment Protection, Energy Saving and Pollution Control	
1.	Environment protection policy
2.	Raw materials conservation and/or recycling
3.	Environment protection programme
4.	Awards for environment protection
5.	Support for public/private action designed to protect the environment
6.	The amount spent on environmental protection
7.	Energy-saving policy
8.	Information on water usage
9.	Information on green office policy
10.	The projects financed by the company that may lead to harming the environment
11.	Emission of pollutants
12.	Amount of waste produced
13.	Pollution control procedures
Dimension VIII: Customers	
1.	Identification of customers' interest and/or expectation
2.	Customer relationship management
3.	Management of customer complaints
4.	Customer private information protection
5.	Customer satisfaction
6.	Picture of main types of products
7.	New product and/or new process
8.	Product quality assurance and safety

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9.	Distribution of marketing network
Dimension IX: Investors	
1.	Identification of shareholders' interest and/or expectation
2.	Identification of debtholders' interest and/or expectation
3.	Investor relationship management
4.	Financial risk management
5.	Growth opportunities
6.	Profitability forecasts
7.	Investment strategies
8.	Dividend policy
9.	Capital structure management
10.	Online reporting (disclosure)
Dimension X: Partners	
1.	Identification of partners' interest and/or expectation
2.	Management of partners' interest and/or expectation
3.	Suppliers management system
4.	Long-term cooperation strategies
5.	Responsible purchasing policy
6.	Participation in industry associations

Table 1: Description of main variables

Variable	Definition
CSPDI	Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1.
Tobin's Q (*Q*)	Market to book value of total assets at the end of the year.
Return on assets (*ROA*)	The ratio of total income before tax to total assets.
Stock return	Annualized daily stock returns.
Firm age (*AGE*)	The natural logarithm of the number of years since the establishment of a company until 2011.
Firm size (*SIZE*)	The natural logarithm of the market capitalisation of a company as observed at the end of 2010.
Cross-listing dummy (*LIST*)	A dummy variable equal to 1 if the company is cross-listed in Hong Kong stock exchange and 0 otherwise.
%State-owned (Perc*SOE*)	Proportion of state-owned shares to total shares as observed at the end of 2010.
State-owned dummy (*SOE*)	A dummy variable equal to 1 if the company is state-owned and 0 otherwise
Leverage	The ratio of total liabilities to total equity as observed at the end of 2010.
Dividends-pay-out (DivPayout)	The ratio of total dividends to net income as observed at the end of 2010.

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Table 2: Descriptive statistics of the corporate social performance index

Index	Mean	Median	Max.	Min.	Std	Skew	Kurtosis
Panel A: CSPDI by Dimension							
CSPDI	**0.532**	**0.536**	**0.928**	**0.247**	**0.186**	**0.229**	**1.922**
*D*1	0.323	0.273	1.000	0.000	0.222	0.767	2.662
*D*2	0.756	0.692	1.000	0.539	0.101	1.112	3.419
*D*3	0.402	0.333	1.000	0.000	0.336	0.319	1.904
*D*4	0.591	0.600	1.000	0.000	0.288	0.014	1.679
*D*5	0.529	0.500	0.929	0.143	0.216	0.119	1.929
*D*6	0.392	0.400	0.900	0.000	0.311	0.036	1.501
*D*7	0.406	0.385	0.923	0.000	0.251	0.106	2.118
*D*8	0.497	0.444	1.000	0.111	0.219	0.241	2.232
*D*9	0.886	0.900	1.000	0.700	0.076	0.149	1.936
*D*10	0.499	0.500	1.000	0.000	0.348	0.143	1.627
Panel B: CSPDI by Industry							
Construction	0.711	0.691	0.876	0.567	0.121	0.291	1.585
Real Estate	0.449	0.443	0.773	0.278	0.150	0.636	2.303
I.T	0.514	0.557	0.722	0.309	0.166	-0.103	1.500
Transportation	0.604	0.675	0.928	0.247	0.286	-0.211	1.339
Utilities	0.558	0.583	0.732	0.351	0.143	-0.433	1.807
Mining	0.586	0.629	0.907	0.329	0.202	0.031	1.549
Manufacturing	0.520	0.526	0.856	0.268	0.175	0.203	1.951
Panel C: CSPDI by Ownership							
SOE	0.55.6	0.56	0.93	0.00	0.20	2.429	2.733
Non SOE	0.45.4	0.43	0.87	0.27	0.16	-0.164	0.701

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Note: D1,…D10 are Ethics ,Corporate Governance, Corporate social Responsibility Management, Government, Employees, Community Involvement, Environment Protection, Energy Saving and Pollution Control, Customers, Investors and Partners dimensions of the CSPDI respectively as in Appendix 1. SOE and Non SOE are state-owned enterprises and non-state owned enterprises respectively.

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Table 3: CSPDI items with the lowest scores across the 10 dimensions and industries.

Dim #	Index item	CSPDI (%)	Industry Sectors						
			Ind 1	Ind 2	Ind 3	Ind 4	Ind 5	Ind 6	Ind 7
1	Issue guideline for business ethics	8.72	0.00	0.00	0.21	0.38	0.25	0.09	0.03
1	Issue guideline for employees' behavior	10.07	0.00	0.00	0.11	0.38	0.13	0.09	0.10
1	Promoting fair competition	16.13	0.57	0.00	0.00	0.50	0.38	0.36	0.16
1	Equal opportunities policy	21.48	0.71	0.29	0.16	0.38	0.13	0.23	0.17
2	Membership of committees	12.08	0.57	0.00	0.00	0.13	0.13	0.23	0.11
2	Board composition: executive vs. non-executive	16.11	0.57	0.43	0.42	0.00	0.13	0.00	0.08
3	Training on corporate social responsibility	12.08	0.14	0.14	0.00	0.50	0.13	0.14	0.10
3	Management mechanism of corporate social responsibility	18.79	0.43	0.29	0.11	0.50	0.13	0.23	0.14
5	Encouraging disabled employees	8.72	0.43	0.00	0.00	0.00	0.13	0.09	0.10
5	Amount spent on employees training	10.07	0.14	0.00	0.00	0.38	0.00	0.23	0.06
5	Employees appreciation	19.52	0.29	0.43	0.32	0.50	0.38	0.36	0.19
6	The nature of charitable and social activities financed	7.01	0.19	0.14	0.05	0.01	0.00	0.00	0.00
7	Information on green office policy	15.12	0.43	0.29	0.11	0.38	0.38	0.05	0.13
7	The amount spent on environment protection	19.49	0.43	0.00	0.11	0.00	0.25	0.41	0.27
8	Customer private information protection	8.05	0.14	0.14	0.05	0.25	0.00	0.09	0.06
8	Management of customer complaints	16.11	0.43	0.00	0.00	0.50	0.00	0.14	0.16

Note: D1,…D10 are Ethics ,Corporate Governance, Corporate Social Responsibility Management, Government, Employees, Community Involvement, Environment Protection, Energy Saving and Pollution Control, Customers, Investors and Partners dimensions of the CSPDI respectively as in Appendix 1. Ind1…Ind7 are Construction, Real Estate, Information Technology, Transportation, Utilities, Mining, Manufacturing

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Table 4: Descriptive statistics for the variables used in the empirical analysis

	Mean	Median	Max.	Min.	Std. dev.	Skewness	Kurtosis
CSPDI	0.532	0.536	0.927	0.247	0.186	0.228	1.921
Q	1.645	1.280	6.335	0.342	0.947	2.292	9.788
ROA	0.068	0.049	0.381	-0.056	0.062	1.797	7.966
Stock return	0.356	0.303	1.704	-0.978	0.424	0.369	3.772
AGE	2.59	2.708	3.332	1.098	0.464	-1.462	4.742
SIZE	24.57	23.631	27.992	21.248	0.949	1.032	5.891
LIST	0.161	0.000	1.000	0.000	0.369	1.844	4.400
SOE	0.732	1.000	1.000	0.000	0.444	-1.045	2.092
PercSOE	0.134	0.057	0.760	0.000	0.239	1.491	3.559
Leverage	1.601	1.242	5.879	0.085	1.218	1.399	4.717
DivPayout	0.267	0.208	0.937	0.000	0.246	0.839	2.857

CSPDI: Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1; *Q:* Tobin's Q calculated as market to book value of total assets at the end of the year; *ROA:* Return on assets calculated as the ratio of total income before tax to total assets; *Stock return*: Stock returns measured by the annualized daily stock returns; *AGE:* Company age measured by the natural logarithm of the number of years since the establishment of a company until 2011; *SIZE:* Company size measured by the natural logarithm of the market capitalisation of a company as observed at the end of 2010; *LIST:* Cross listing dummy variable equal to 1 if the company is cross-listed and 0 otherwise; *SOE:* A dummy variable equal to 1 if the company is state-owned and 0 otherwise*; PercSOE:* Proportion of state-owned shares to total shares as observed at the end of 2010*; Leverage:* Financial leverage calculated as the ratio of total liabilities to total equity as observed at the end of 2010; *DivPayout*: Dividends pay-out ratio calculated as the ratio of total dividends to net income as observed at the end of 2010.

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Table 5: Correlation matrix for the main variables used in the study

	CSPDI	*Q*	*ROA*	*Stock return*	*AGE*	*SIZE*	*LIST*	*SOE*	*PercSOE*	*Leverage*	*DivPayout*
CSPDI	1.00										
Q	-0.36***	1.00									
ROA	-0.16*	0.42***	1.00								
Stock return	-0.23**	0.22***	0.33***	1.00							
AGE	-0.33***	0.09	0.10	0.42***	1.00						
SIZE	0.52***	-0.04	0.07	-0.33***	-0.43***	1.00					
LIST	0.52***	-0.24***	-0.07	-0.16*	-0.24***	0.54***	1.00				
SOE	0.21**	-0.16**	-0.12	-0.17*	-0.26***	0.29***	0.27***	1.00			
PercSOE	0.08	-0.16*	-0.18**	-0.11	-0.33***	0.06	-0.01	0.24***	1.00		
Leverage	0.11	-0.24***	-0.42***	-0.17	-0.10	-0.08	0.15*	0.11	0.13	1.00	
DivPayout	0.13*	0.03	-0.02	-0.16*	-0.23***	0.10	-0.04	0.11	0.12	-0.11	1.00

The Table presents the correlation matrix between the covariates used in the analysis. CSPDI: Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1; Q: Tobin's Q calculated as market to book value of total assets at the end of the year; ROA: Return on assets calculated as the ratio of total income before tax to total assets; Stock return: Stock returns measured by the annualized daily stock returns; AGE: Company age measured by the natural logarithm of the number of years since the establishment of a company until 2011; SIZE: Company size measured by the natural logarithm of the market capitalisation of a company as observed at the end of 2010; LIST: Cross listing dummy variable equal to 1 if the company is cross-listed and 0 otherwise; *SOE:* A dummy variable equal to 1 if the company is state-owned and 0 otherwise; PercSOE: Proportion of state-owned shares to total shares as observed at the end of 2010; Leverage: Financial leverage calculated as the ratio of total liabilities to total equity as observed at the end of 2010; DivPayout: Dividends pay-out ratio calculated as the ratio of total dividends to net income as observed at the end of 2010. * Significant at the 10% level; ** significant at the 5% level; and *** significant at the 1% level.

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Table 6: OLS estimation results for CSP and FP equations

	Panel A: CSP Equation			*Panel B: FP Equation*		
Dependent Variable	**Model 1 CSPDI**	**Model 2 CSPDI**	**Model 3 CSPDI**	**Model 4 *Q***	**Model 5 *ROA***	**Model 6 StRit**
CSPDI				-2.521***	-0.051*	-0.293*
				(-3.86)	(-1.84)	(-1.65)
Q	-0.053***					
	(-5.53)					
ROA		-0.571**				
		(-1.98)				
Stock return			-0.051*			
			(-1.64)			
AGE	-0.055*	-0.054	-0.044	-0.029	0.011	0.216***
	(-1.65)	(-1.59)	(-01.18)	(-0.18)	(1.43)	(3.41)
SIZE	0.063***	0.061***	0.054***	0.266*	0.010*	0.045
	(4.78)	(4.12)	(3.46)	(1.82)	(1.73)	(1.13)
LIST	0.114***	0.139***	0.145***	-0.221	-0.002	-0.022
	(2.80)	(3.57)	(3.52)	(-1.03)	(-0.14)	(-0.25)
SOE	-0.027	-0.014	-0.015	-0.359*	-0.008	-0.109
	(-0.95)	(-0.45)	(-0.48)	(-1.78)	(-0.83)	(-1.48)
Leverage	0.001	0.001	0.008	-0.135**	-0.014***	-0.002
	(0.06)	(0.10)	(0.93)	(-2.49)	(-4.32)	(-0.08)
Constant	-0.741**	-0.755*	-0.642	-2.494	-0.146	1.122
	(-2.07)	(-1.93)	(-1.56)	(-0.75)	(-1.05)	(1.15)
# observations	141	141	141	141	141	141
Industry dummies	No	No	No	No	No	No
R-squared	0.451	0384	0.371	0.238	0.228	0.201
F-statistic	30.49	24.03	21.23	7.42	4.90	7.74
	(*P=0.00*)	(*P=0.00*)	(*P=0.00*)	(*P=0.00*)	(*P=0.00*)	(*P=0.00*)

The Table presents the estimation of equations 1 and 2 separately. CSPDI: Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1; *Q*: Tobin's Q calculated as market to book value of total assets at the end of the year; *ROA*: Return on assets calculated as the ratio of total income before tax to total assets; *Stock return*: Stock returns measured by the annualized daily stock returns; AGE: Company age measured by the natural logarithm of the number of years since the establishment of a company until 2011; *SIZE*: Company size measured by the natural logarithm of the market capitalisation of a company as observed at the end of 2010; *LIST*: Cross listing dummy variable equal to 1 if the company is cross-listed and 0 otherwise; *SOE:* A dummy variable equal to 1 if the company is state-owned and 0 otherwise; Leverage: Financial leverage calculated as the ratio of total liabilities to total equity as observed at the end of 2010. * Significant at the 10% level; ** significant at the 5% level; and *** significant at the 1% level. t-statistic of each coefficient is reported in the parentheses. The Huber/White/Sandwich estimator is used to obtain robust standard errors.

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Table 7: 3SLS estimation results for CSPDI and FP equations

Dependent Variable	CSP Equation			FP Equation		
	System 1 *CSPDI*	System 2 *CSPDI*	System 3 *CSPDI*	System 1 *Q*	System 2 *ROA*	System 3 *StRit*
CSPDI				-0.807	-0.019	-0.915
				(-0.43)	(-0.12)	(-1.16)
Q	-0.073***					
	(-4.64)					
ROA		-0.432				
		(-1.57)				
Stock return			-0.059**			
			(-2.36)			
AGE	-0.053*	-0.055*	-0.057*			
	(-1.70)	(-1.71)	(-1.71)			
SIZE	0.059***	0.059***	0.052***	-0.046	-0.006	0.205
	(3.92)	(3.76)	(3.31)	(-0.30)	(-0.50)	(0.121)
LIST	0.114***	0.141***	0.149***	0.119	-0.006	0.601*
	(2.80)	(3.36)	(3.52)	(0.46)	(-0.24)	(1.85)
SOE	-0.030	-0.009	-0.013	-0.080	0.009	-0.121
	(-1.03)	(-0.29)	(-0.43)	(-0.76)	(1.07)	(-0.89)
Leverage	-0.002	0.003	0.011	-0.048	0.002	0.034
	(-0.20)	(0.33)	(1.11)	(-1.52)	(0.61)	(0.72)
Q_{-1}				0.509***		
				(6.26)		
ROA_{-1}					1.043***	
					(9.37)	
Stock return$_{-1}$						0.402***
						(3.07)
Constant	-0.615	-0.718*	-0.618	2.233	0.143	-2.355
	(-1.56)	(-1.77)	(-1.50)	(0.88)	(0.71)	(-0.80)
# observations	141	141		141	141	
Industry dummies	No	No	No	No	No	No
R-squared	0.422	0.383	0.354	0.741	0.616	0.747
Chi^2-statistic	110.57	85.96	86.27	410.68	125.03	151.29
	(*p = .000*)	(*p =.000*)	(*p =.000*)	(*p = .000*)	(*p = .000*)	(*p = .000*)

The Table presents the estimation 3SLS as in system of equations 4. CSPDI: Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1; *Q*: Tobin's Q calculated as market to book value of total assets at the end of the year; *ROA*: Return on assets calculated as the ratio of total income before tax to total assets; *Stock return*: Stock returns measured by the annualized daily stock returns; *AGE*: Company age measured by the natural logarithm of the number of years since the establishment of a company until 2011; *SIZE*: Company size measured by the natural logarithm of the market capitalisation of a company as observed at the end of 2010; *LIST*: Cross listing dummy variable equal to 1 if the company is cross-listed and 0 otherwise; *SOE:* A dummy variable equal to 1 if the company is state-owned and 0 otherwise; *Leverage*: Financial leverage calculated as the ratio of total liabilities to total equity as observed at the end of 2010; Q_{-1}: Lagged Q ratio (2010); ROA_{-1}:Lagged return on assets (2010); *Stock return* $_{-1}$: Lagged stock returns (2010).* Significant at the 10% level; ** significant at the 5% level; and *** significant at the 1% level. z-statistic of each coefficient is reported in the parentheses.

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Table 8: Robustness Tests

	Model 1	Model 2	Model 3	Model 4
Dependent Variable	***CSPDI***	***CSPDI***	***CSPDI***	***CSPDI***
Q	-0.056***	-0.0421***	-0.041***	-0.041***
	(-5.28)	(-4.73)	(-4.55)	(-4.41)
AGE	-0.046	-0.045	-0.038	-0.022
	(-1.22)	(-1.23)	(-1.01)	(-0.54)
SIZE	0.063***	0.064***	0.064***	0.065***
	(4.52)	(4.48)	(4.41)	(4.12)
LIST	0.115**	0.114***	0.116***	0.115***
	(2.56)	(2.65)	(2.72)	(2.65)
SOE	-0.027	-0.028	-0.030	
	(-0.85)	(-0.87)	(-0.95)	
PercSOE				0.047
				(0.75)
Leverage	0.002	0.005	0.006	0.002
	(0.81)	(0.45)	(0.59)	(0.22)
DivPayout			0.058	0.054
			(1.13)	(1.02)
Constant	-.717*	-0.809**	-0.837**	-0.927**
	(-1.92)	(-2.11)	(-2.16)	(-2.23)
# observations	141	141	141	141
Industry dummies	Yes	Yes	Yes	Yes
R-squared	0.459	0.463	0.468	0.456
F-statistic	13.49	12.44	11.53	11.41
	(*P=0.000*)	(*P=0.000*)	(*P=0.000*)	(*P=0.000*)

CSPDI: Corporate social performance disclosure index constructed for each sample firm based on the items listed in appendix 1; *Q:* Tobin's Q calculated as market to book value of total assets at the end of 2010; *AGE:* Company age measured by the natural logarithm of the number of years since the establishment of a company until 2011; *SIZE:* Company size measured by the natural logarithm of the market capitalisation of a company as observed at the end of 2010; *LIST:* Cross listing dummy variable equal to 1 if the company is cross-listed and 0 otherwise; *PercSOE:* Proportion of state-owned shares to total shares as observed at the end of 2010; *FL:* Financial leverage calculated as the ratio of total liabilities to total equity as observed at the end of 2010; *DivPayout*: Dividends pay-out ratio calculated as the ratio of total dividends to net income as observed at the end of 2010. * Significant at the 10% level; ** significant at the 5% level; and *** significant at the 1% level. t-statistic of each coefficient is reported in the parentheses. The Huber/White/Sandwich estimator is used to obtain robust standard errors.

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Figure 1: Corporate social performance index by dimension

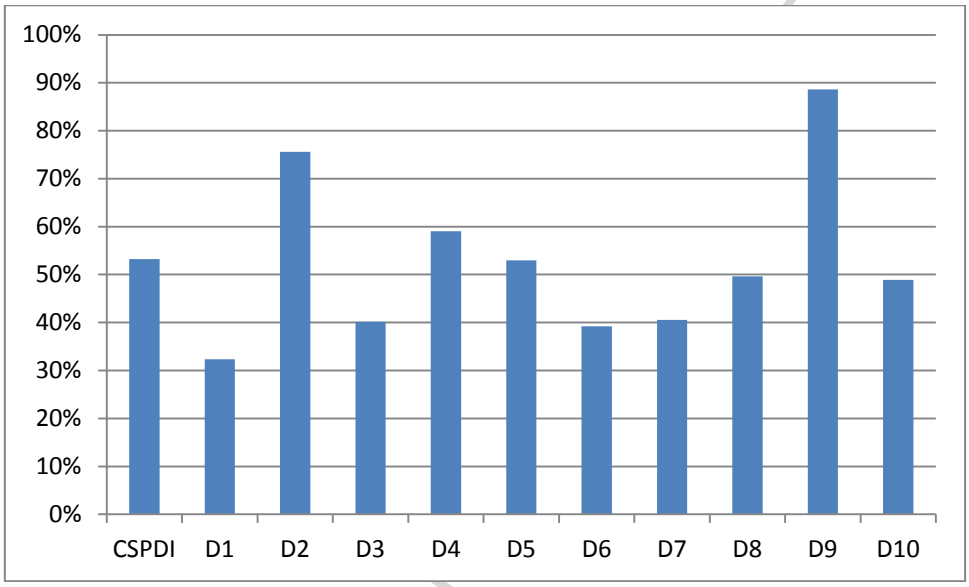
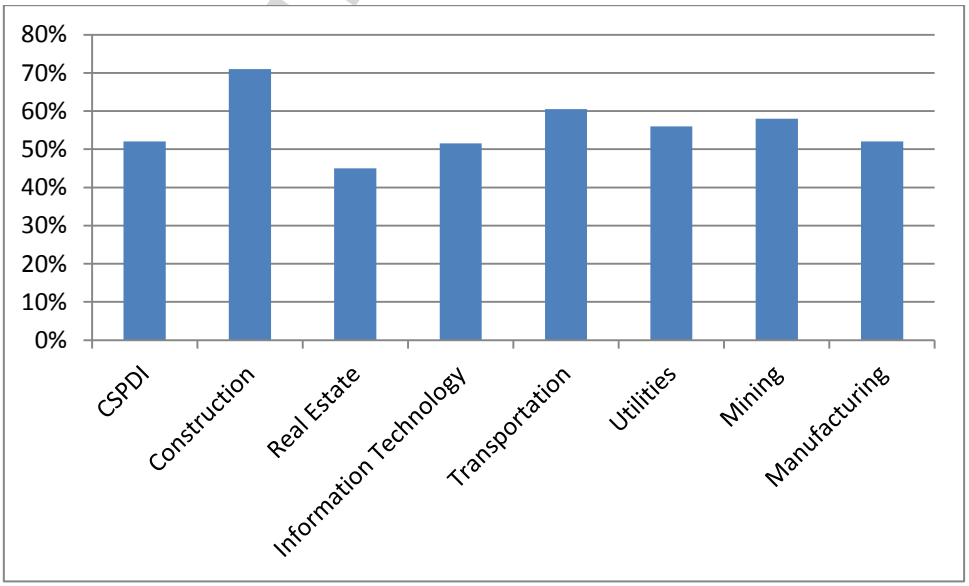


Figure 2: Corporate social performance index by industry



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Highlights

MS. Ref. FINANA-D-14-00072R1 'The Social, Environmental and Ethical Performance of Chinese Companies: Evidence from the Shanghai Stock Exchange'

- Examine social performance (CSP) and financial performance (FP) of Chinese firms
- Design a social, environment and ethics disclosure index (CSPDI)
- CSPDI investors dimension has highest score; ethics dimension the lowest score
- Find that the better the FP, the worse the CSP disclosure
- Use 3SLS for bi-directional relationship of CSP and FP; CSP is determined by FP

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