THE HETEROGENEOUS EFFECTS OF CSR DIMENSIONS ON FINANCIAL PERFORMANCE – A NEW APPROACH FOR CSR MEASUREMENT

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Abstract. This paper investigates the differential effects of corporate social responsibility (CSR) dimensions on corporate financial performance (CFP) across sectors in China. This research uses a unique data set provided by China Stock Market and Accounting Research (CSMAR), showing expenditure on CSR programs from 568 Chinese publicly traded firm-year observations from 2008 to 2017. Compared to previous studies using scores produced by extra-financial rating agencies, this research quantifies CSR efforts by corporate expenditure on CSR practices, which offers quantitative and precise information in explaining the CSR-CFP link. The results show that the dimension of the environment has negative effects on financial performance in capital-intensive manufacturing industries. The impact of HR expenditure on CFP is negative in the tertiary sector and resource-intensive manufacturing industries. However, CSR investments in the community are positively related to financial performance in resource-intensive industries and other secondary sector (mining, construction, and utilities). Firms, in general, could gain benefits when spending more on business and financial stakeholders.

Keywords: corporate social responsibility, corporate financial performance, stakeholder theory, extra-financial rating agencies, human resources, community, environment, business and financial stakeholders.

JEL Classification: M14, M21, M41.

Introduction

The issue whether corporate social responsibility (CSR) contributes to corporate financial performance (CFP) has great implications on CSR decision makings in a firm (Kao et al., 2018). Hence, a great number of studies have been conducted to examine whether the market rewards firms undertaking CSR activities (Albuquerque et al., 2019; Bhattacharya et al., 2020;

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Cheung et al., 2012). Empirical research in this area mainly investigated developed countries (the United States and European countries) and usually revealed the positive link between CSR efforts and financial performance (Kao et al., 2018). However, differences in the corporate environment and national environment make the concept of CSR highly contextual (Fukukawa & Moon, 2004; Maignan & Ralston, 2002). In emerging markets, such as China, CSR has attracted increasing interest from academics and the business community (Li & Zhang, 2010; Reimsbach et al., 2018). Firms in emerging economies and developed markets vary in organisational behaviours (Fan et al., 2011). Therefore, mechanically applying CSR findings drawn from developed economies to emerging markets may not have a good fit. As the world largest emerging economy, China offers a different social and economic context to explore the relationship between "doing good" and "doing well". Given the diversity in markets and institutional circumstances in China (Wang & Qian, 2011), this study can identify potential factors that may affect the CSR-CFP link. This study can provide guidance to Chinese firms in the CSR campaign. Findings can also be relevant for firms in other emerging economies.

This study has three goals. Firstly, this research examines specific CSR activities of publicly listed firms in China from 2008 to 2017 and then group them into four dimensions to quantify the levels of the CSR involvement. Secondly, this study explores the link between different CSR dimensions and CFP to see whether "doing-good" will result in "doing-well" in the Chinese market. Characterising CSR efforts by corporate expenditure on CSR-related management practices enables us to evaluate CSR efforts more precisely. Thirdly, the study assesses the heterogeneous effects of different CSR dimensions on CFP across industries. In addition to constructing an overall model with industry as the control variable to capture industry effects, this study also investigates the CSR-CFP link in various industries, including manufacturing industries (resource-intensive, capital-intensive and labour-intensive industries), other secondary sector (mining, construction, utilities) and tertiary sector.

This research contributes to the literature in the following ways. First, the research uses a unique data set provided by China Stock Market and Accounting Research (CSMAR) CSR report details, showing expenditure on CSR programs by Chinese publicly listed firms from 2008–2017. CSR efforts are quantified by spending on CSR related management practices. Previous research relies on ratings or scores produced by extra-financial rating agencies, such as Vigeo in Europe or Kinder, Lydenburg, Domini (KLD) in the United States to measure CSR (Crifo et al., 2016). However, the evaluation on CSR was rated by Vigeo or KLD, not by the firms themselves (Cavaco & Crifo, 2014), which has been deemed not transparent (Chatterji et al., 2009). Instead, this paper quantifies CSR efforts by corporate expenditure on CSR practices, which offers quantitative and precise information in explaining the CSR-CFP link.

Second, this paper explores whether the effect of CSR on firm performance is heterogeneous across industries. The majority of previous research have controlled for industrial drivers of financial performance without considering industry influences on the CSR-CFP link (Hoepner & Yu, 2010). Although many studies targeted at certain industries, such as construction industry (Jiang & Wong, 2016), tourism-related industries (Inoue & Lee, 2011), hospitality industries (Rhou, & Singal, 2020), manufacturing industry (Torugsa et al., 2012), as well as restaurant industry (Rhou et al., 2016), this study presents an overall picture on various industry types, including manufacturing industries, other secondary sector and ter-

tiary sector. More importantly, this research investigates the industrial heterogeneity in the relationship between each CSR dimension and financial performance. This finding helps companies in different sectors carry out more targeted and effective CSR initiatives.

The remainder of the paper is structured as follows. Section "Theoretical Background" reviews theoretical framework and discuss insights from the literature on CSR dimensions and CFP. Section "Methodology and Data" explains the data and research method. Section "Empirical analysis" presents the findings on the effect of each CSR dimension on financial performance across industries, key findings are also discussed in this part. Section "Conclusions" provide summary of findings, practical implications, limitations, as well as offer possible avenues for future research.

1. Theoretical background

1.1. Corporate social responsibility

Corporate social responsibility can be defined as the voluntary commitment made by a firm to surpass the conventional explicit and implicit obligations society expects (Falck & Heblich, 2007). CSR consists of considerations given to customers, suppliers, employees, stockholders, environment, and community (Contini et al., 2020; Flammer et al., 2019; Girerd-Potin et al., 2014). To operationalize CSR, previous studies point out that CSR comprises several dimensions, and each dimension is composed by a group of voluntary activities (Clarkson, 1995; Godfrey & Hatch, 2007; Waddock & Graves, 1997). The most frequently used one is Carroll's division of corporate social responsibility into economic, legal, ethical and philanthropic responsibilities (Carroll, 1991). However, ethical and philanthropic dimensions are hard to be operationalized in empirical research due to ambiguous boundary (Clarkson, 1995; Schwartz & Carroll, 2003).

Avetisyan and Ferrary (2013) propose a new perspective, conceptualising CSR as an emerging area consisting of CSR rating agencies and stakeholders. A stakeholder refers to any person or group who can influence or be influenced by the attainment of corporate goals (Freeman, 1984). Primary stakeholders include creditors, shareholders, employees, suppliers, customers, public interest groups, and the natural environment (Clarkson, 1995; Freeman, 1984). There are different rights and interests among stakeholders (Clarkson, 1995). The main goal of a company is to acquire the capability to balance the competing demands of different stakeholders (Roberts, 1992). Hence, targeted measures and programs are required to meet the different expectations of stakeholders to accomplish excellent financial performance (Peloza & Papania, 2008). Voluntary activities targeted at different stakeholders should manifest distinct CSR dimensions (Clarkson, 1995; Peloza & Papania, 2008).

1.2. Extra-financial rating agencies and their dimensions

Extant studies measure CSR using dimensions provided by extra-financial rating agencies, such as Vigeo in Europe or the KLD in the United States (Crifo et al., 2016). Extra-financial rating agencies provide investors with more comprehensive CSR information by a number of sub-ratings (Girerd-Potin et al., 2014). While community, corporate governance, human

resources, environment, and human rights are five CSR dimensions both Vigeo and the KLD rating value, KLD pays special attention to diversity (Vigeo considers this in human rights) and product (Vigeo cares about business behaviour) (Girerd-Potin et al., 2014). Building on the stakeholder framework proposed by Clarkson (1995), five CSR dimensions in Vigeo or KLD data reflecting primary stakeholder issues have been widely used: environment, corporate governance, business behaviours towards customers and suppliers, community involvement, as well as human resources (Forget, 2012).

However, researchers hold divergent views on whether a number of categories should constitute one dimension or each category represents one dimension (Inoue & Lee, 2011; Johnson & Greening, 1999; Kacperczyk, 2009). Corresponding to main stakeholders identified by Clarkson (1995), Girerd-Potin et al. (2014) consider business stakeholder as a proxy for employees, customers and suppliers, and use financial stakeholders to represent stockholders and creditors. Although included by Girerd-Potin et al. (2014) in business stakeholders, employee issue shows corporate attention in human resources. Given the role it plays on business operation and financial performance, this paper regards it as another primary stakeholder issue and use human resources as a single CSR dimension. Since supplier and creditor items are not specified for all firms in this dataset, this study combines issues concerning customers, suppliers, stockholders and creditors into one dimension called business and financial stakeholders to include more companies in the sample. Based on prior research (Cavaco & Crifo, 2014; Forget, 2012; Girerd-Potin et al., 2014; Inoue & Lee, 2011), this paper proposes that CSR can be composed of four dimensions: (1) human resources (proxy for employees, denoted as HR), (2) community, (3) environment (4) business and financial stakeholders (proxy for customers, suppliers, stockholders, and creditors, denoted as BFS).

1.3. Multidimensionality of corporate financial performance

Different types of measures were used in examining corporate financial performance (Alshehhi et al., 2018). To capture short-term profitability and assess future profitability, extant studies often employ two kinds of indicators to represent CFP, accounting- and market-based measures (Inoue & Lee, 2011; Luo & Bhattacharya, 2006; McGuire et al., 1988).

Accounting-based performance measures, such as net profit margin (NPM) and return on assets (ROA) are backwards-looking indicators and reflect the historical financial performance (Cavaco & Crifo, 2014). NPM is the net income divided by sales revenue (Sroufe & Gopalakrishna-Remani, 2018). It shows the firm's capability to generate net profit from its sales. NPM has been commonly used in the literature studying the association between social and financial performance (Hermawan & Mulyawan, 2014; Kamatra & Kartikaningdyah, 2015; Sroufe & Gopalakrishna-Remani, 2018). Another proxy of profitability is ROA, which is the net income divided by the average total assets (Reimsbach et al., 2018; Wang et al., 2008; Xu & Zeng, 2016). It measures management efficiency in using assets to earn income and thus represents the firm's profitability (Forget, 2012).

Additionally, market-based measures, such as Tobin's Q, can serve as a substitute for accounting-based measures (Lee & Jang, 2007). Tobin's Q reveals the assessment investors make on the corporate capability to create future earnings (Cavaco & Crifo, 2014; Luo &

Bhattacharya, 2006; McGuire et al., 1988). The forward-looking measure can thus be adopted to identify the estimated future influence of CSR on financial performance (Cavaco & Crifo, 2014; Hillman & Keim, 2001). In this study, this paper uses three indicators to reflect different perspectives on financial performance, including accounting indicators, such as NPM and ROA, and a market-based measure, Tobin's Q.

1.4. Effects of CSR dimensions on financial performance

The study conducted by Daszynska-Zygadlo, Slonski, and Zawadzki (2016) proves the contingency of CSR performance across sectors. They use Thomson Reuters ASSET4 database to examine the impact of 3 CSR dimensions (environment, social and corporate governance) on financial performance in 10 Global Industry Classification System (GICS) sectors. This sample data cover 2428 companies from all over the world in the period of 2009–2012. They find the consumer staples sector is only sensitive to governance and environmental efforts; only environment initiatives are significant for healthcare and energy sector; and social dimension can positively affect financial performance in financials and utilities.

The CSR's impact on financial performance may also be contingent upon which CSR dimension is considered (Crifo et al., 2016). Some studies on the relationship between CSR dimensions and financial performance suggest mixed results, showing a positive, negative or neutral association between market value and each CSR dimension (Girerd-Potin et al., 2014). As for environment, the study conducted by Galema, Plantinga, and Scholtens (2008) find environment has positive impacts on market value. However, several studies reveal that the link between environment and firm performance is negative or insignificant (Barla, 2007; Filbeck & Gorman, 2004). Similar results are also found for employee and community dimensions. Human resource management seems to influence firm performance positively (Huselid, 1995) or exert a negative effect (Gimenez et al., 2012). Brammer, Brooks, and Pavelin (2006) point out that involvement in the local community is negatively associated with firm performance, while Kacperczyk (2009) identifies the positive effect of community on market-based performance. Furthermore, Galema et al. (2008) find the effect of community is insignificant.

There are also mixed results about business and financial stakeholders. The study done by Wen and Fang (2008) shows that financial stakeholders do not affect financial performance significantly. Forget (2012) reveals good business behaviour with customers and suppliers is linked with better financial performance. On the other hand, Reitzig and Wagner (2010) conclude that improving relations with suppliers can affect firm performance negatively because it gives rise to non-learning opportunity costs.

Based on the prior research, it can be seen that CSR is a multi-dimensional construct whose dimensions have variant impacts on firm performance (Crifo et al., 2016; Forget, 2012). Several factors may account for the differences. Firstly, different measurements are used for financial performance (Alshehhi et al., 2018). Some research focuses on investigating accounting-based indicators, such as ROA, NPM, ROE or ROI; while others look into market-based indicators, such as Tobin's Q or market-to-book ratio. Secondly, different dimensions are employed to represent the CSR construct. Studies examining European firms

mainly rely on Vigeo dimensions (Girerd-Potin et al., 2014), while research concerning US firms use KLD dimensions (Reimsbach et al., 2018; Turban & Greening, 1997; Waddock & Graves, 1997). Furthermore, findings vary with the country, industry, or company they investigate (Alshehhi et al., 2018). Although there appear mixed results, a positive influence of CSR on financial performance dominates the literature (Alshehhi et al., 2018). Thus, this research proposes the following hypotheses:

Hypothesis 1 (H1): CSR practices in human resources positively affect corporate financial performance

Hypothesis 2 (H2): CSR practices in community positively affect corporate financial performance

Hypothesis 3 (H3): CSR practices in environment positively affect corporate financial performance

Hypothesis 4 (H4): CSR practices in business and financial stakeholders positively affect corporate financial performance

Therefore, this paper aims to individually investigate the impacts of the four CSR dimensions on a firm's short-term and long-term profitability across industries (see Figure 1).
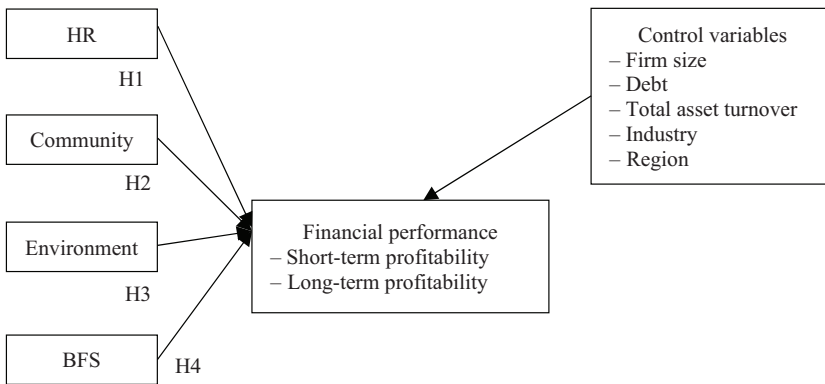

Figure 1. Theoretical model

2. Methodology and data

2.1. Data selection

This paper uses annual data from publicly listed firms of the Shanghai and Shenzhen stock exchanges in China. This sample covers a 10-year period from 2008 to 2017. CFP indicators and CSR report were taken from the China Stock Market and Accounting Research (CSMAR) database. This database established by Shenzhen GTA Education Technology (2000) is the main source for financial and non-financial information of public-listed firms in China.

The CSR report derived from CSMAR database lists 26527 CSR activity items which have been grouped into nine categories: corporate governance, employee relations, safety conditions, environment and sustainable development, public relations and philanthropy, the protection of stockholders' rights, the protection of creditors' rights, customer issues,

and supplier issues. These activities are measured in both financial and non-financial ways. Non-financial CSR activities take different forms and vary across companies, certain CSR programs conducted by one firm are not seen in others, which are not comparable and hard to compute. To compare CSR engagement with a unified standard, this paper only chooses financial contributions, which are CSR activities listing annual corporate expenditure. Compared to previous studies using scores produced by extra-financial rating agencies (Crifo et al., 2016), this study quantifies CSR efforts by corporate expenditure on CSR practices, which offers quantitative and precise information in explaining the CSR-CFP link. After the selection, corporate governance which lists no financial investments was excluded, 8 categories were left. This paper then merged CSR data with CFP indicators and removed missing observations, the unbalanced panel dataset comprises 568 firm-year observations.

2.2. Measurements of variables

2.2.1. CSR dimensions

Based on the stakeholder framework proposed by Clarkson (1995), along with CSR dimensions provided by KLD and Vigeo, this study further groups 8 CSR categories in this dataset into four broad dimensions representing primary stakeholder issue to reflect CSR efforts. Employee relations and safety conditions can be represented by the dimension human resources; public relations and philanthropy reflect the dimension community; environment and sustainable development concerns the dimension environment. This paper combines the protection of stockholders' rights, the protection of creditors' rights, customer issues, and supplier issues into one dimension called the business and financial stakeholders based on an earlier study conducted by Girerd-Potin et al. (2014). They consider business stakeholder as a proxy for employees, customers and suppliers, and use financial stakeholders to represent stockholders and creditors. This study puts business stakeholders and financial stakeholders together under one dimension to include more companies and have more data, because supplier and creditor items are not specified for all firms. Unlike Girerd-Potin et al. (2014), this study singles employee out as a CSR dimension (human resources) due to the importance it has on business operation and financial performance. The further integration of dimensions is motivated by the fact that not each company invest in all 8 types of CSR activities, and there are missing data over all 8 CSR categories. This is similar to the concern mentioned by Cavaco and Crifo (2014). Therefore, this paper proposes that CSR can be composed of four dimensions: (1) human resources (proxy for employees), (2) community, (3) environment, (4) business and financial stakeholders (proxy for customers, suppliers, stockholders, and creditors), which are among the most commonly measured dimensions of corporate social responsibility (Cavaco & Crifo, 2014; Forget, 2012; Girerd-Potin et al., 2014; Inoue & Lee, 2011).

   The CSR report from CSMAR lists the expenditure on each CSR activity independently. Since several activities can jointly represent one CSR dimension, this paper builds an aggregate measure for each of the four CSR dimensions. Drawing from approaches used by previous studies (Cavaco & Crifo, 2014; Inoue & Lee, 2011; Lanis & Richardson, 2012; Turban & Greening, 1997), this paper then constructed a measure of the summed expenditure for each dimension.

2.2.2. CFP indicators

CFP indicators were extracted from the CSMAR database. Following prior literature, this paper employed three CFP indicators which combines accounting and market-based perspectives. Net profit margin (NPM) (Hermawan & Mulyawan, 2014; Kamatra & Kartikaningdyah, 2015; Sroufe & Gopalakrishna-Remani, 2018), returns on assets (ROA) (Dixon-Fowler et al., 2013; Sroufe & Gopalakrishna Remani, 2018), and Tobin's Q (Delmas et al., 2015; Inoue & Lee, 2011; Kang et al., 2016; Surroca et al., 2010). Both NPM and ROA are common accounting-based indicators of firm profitability (Forget, 2012; Sroufe & Gopalakrishna-Remani, 2018). Tobin's Q shows the investors' assessment of a company's capability to generate earnings in the future and indicates growth opportunities (Cavaco & Crifo, 2014). These indicators have been widely used in research on CSR-CFP links (Cavaco & Crifo, 2014; Inoue et al., 2013; Wang & Qian, 2011).

2.2.3. Control variables

Firm characteristics are often employed as control variables (Waddock & Graves, 1997). Following prior studies, the following firm-specific control variables are used: firm size (Wang et al., 2008; Zhao, 2012), leverage (Kao et al., 2018; Li & Zhang, 2010; Xu & Zeng, 2016), and asset turnover rate (Tippayawong et al., 2015). To control for possible differences in financial performance across industries and regions (Forget, 2012; Reimsbach et al., 2018), this paper added industry dummies and region dummies. Companies in this sample engage in 47 industry categories. According to Industrial Classification for National Economic Activities (GB/T4754–2017) provided by National Bureau of Statistics as well as the Amendments in the Industry Categories in the Provisions on the Division of Three Sectors (2012), these 47 industry categories can be divided into primary sector, secondary sector and tertiary sector. Considering a large quantity of data in the secondary sector, this paper further breaks it down to the manufacturing industry and other secondary industries (mining, construction, and utilities).

2.3. Empirical model

Consistent with previous studies (Forget, 2012; Inoue & Lee, 2011), the model to estimate CSR-CFP link is shown as follows:

$$CFP = \beta_0 + \beta_1 HR + \beta_2 Community + \beta_3 Environment + \beta_4 BFS + \beta_5 Size +$$

$$\beta_6 Debt + \beta_7 TAT + \sum_{i=1}^{m} \alpha_i Industry_i + \sum_{i=1}^{n} \gamma_i Region_i, \tag{1}$$

where the dependent variable CFP is measured by ROA, NPM and Tobin's Q, while independent variables including human resources, community, environment as well as business and financial stakeholders represent corporate expenditure on CSR-related management practices. Moreover, this paper included company-, industry- and region-specific control variables. The company variables consist of firm size, debt-to-asset ratio and total asset

turnover. This research included 2 industry dummies representing 3 different industry categories (manufacturing industry, other secondary industries, and tertiary sector) and 6 region dummies representing 7 regions (east, south, north, middle, southwest, northeast, and northwest). Table 1 provides a description and measurement of the control variables and company variables. This research takes logarithmic forms to firm size, and CSR indicators to avoid potential normality issue.

Table 1. Definitions of variables (source: China Stock Market and Accounting Research (CSMAR) database)

Variables	Names	Definitions
Return on assets	ROA	net income divided by the average total assets (Wang et al., 2008; Xu & Zeng, 2016)
Net profit margin	NPM	net income divided by sales revenue (Sroufe & Gopalakrishna-Remani, 2018)
Tobin's Q	Tobin's Q	the market value of equity and debts divided by total assets (Hess et al., 2010; Ng et al., 2009; Wei & Li, 2003)
The size of company	Size	measured by a log of total assets (Kao et al., 2018)
debt-to-asset ratio	Debt	the total liabilities divided by the total assets (Li & Zhang, 2010; Wang et al., 2008; Xu & Zeng, 2016)
Total asset turnover	TAT	operating revenue divided by total assets (Kao et al., 2018).

3. Empirical analysis

3.1. Diagnostic tests

Before the estimation, this research checked the existence of outliers using studentised residuals. If the detected studentised residuals are higher than 3.29, the corresponding observations are removed before being estimated, which follows Tabachnick, Fidell, and Ullman (2007). Additionally, this study conducts heteroscedasticity tests for all the regressions by the Breush-Pagan Lagrange test, which shows that almost all the regressions have heteroscedasticity problems. This problem is addressed by the Newey-West procedure, which provides heteroscedastic and autocorrelation-consistent (HAC) standard errors. By doing so, it also avoids potential autocorrelations.

3.2. Descriptive statistics

Table 2 shows descriptive statistics for all the variables in different industries, including overall data, the manufacturing sector, other secondary sector and tertiary sector. Totally 568 observations are matched and merged for regressions. There are 274, 148, 139 and 7 observations for the manufacturing industry, other secondary sector, tertiary sector and primary sector respectively. This research does not include primary sector data in this study due to inadequate observations.

Table 2. Descriptive statistics of all industries

Variable	Mean	SD	Min	Max	N
Overall					
HR	8.41	3.54	−3.72	20.29	568
Community	6.92	3.89	−1.35	20.52	568
Environment	9.70	4.19	−4.58	24.13	567
BFS	11.41	4.03	9.88	24.39	567
NPM	0.11	0.15	−1.19	0.63	568
Tobin's Q	1.00	1.09	0.05	8.66	568
ROA	0.04	0.06	−0.64	0.23	568
Size	24.79	2.35	20.85	30.66	568
Debt	0.59	0.21	0.11	0.95	568
TAT	0.66	0.45	0.02	2.24	568
Resource-intensive manufacturing industries					
HR	8.02	3.20	0.24	13.79	63
Community	5.50	2.30	0.18	12.88	63
Environment	9.00	2.27	5.21	13.34	63
BFS	9.57	3.62	−9.88	15.48	63
NPM	0.07	0.10	−0.13	0.34	63
Tobin's Q	1.13	0.99	0.19	4.58	63
ROA	0.05	0.06	−0.08	0.19	63
Size	24.09	1.32	21.19	26.18	63
Debt	0.52	0.18	0.13	0.83	63
TAT	0.89	0.41	0.32	2.24	63
Capital-intensive manufacturing industries					
HR	7.55	3.08	−1.39	13.38	198
Community	5.09	2.64	−1.34	12.92	198
Environment	7.77	3.23	−4.58	17.53	198
BFS	9.92	2.51	1.79	15.98	198
NPM	0.06	0.10	−0.65	0.30	198
Tobin's Q	1.38	1.26	0.27	8.66	198
ROA	0.05	0.06	−0.24	0.22	198
Size	23.31	1.38	20.86	26.96	198
Debt	0.52	0.16	0.15	0.83	198
TAT	0.84	0.45	0.11	2.21	198
Labour-intensive manufacturing industries					
HR	6.18	2.53	0.79	10.56	11
Community	3.42	2.09	−1.20	5.65	11
Environment	7.02	2.35	2.30	9.15	11
BFS	10.22	0.95	8.79	11.28	11
NPM	0.04	0.03	0.01	0.11	11
Tobin's Q	1.00	0.40	0.35	1.66	11

Variable	Mean	SD	Min	Max	N
ROA	0.04	0.02	0.01	0.07	11
Size	23.19	2.00	20.85	25.55	11
Debt	0.57	0.16	0.32	0.69	11
TAT	0.83	0.25	0.41	1.27	11
Other secondary sector: mining, construction, and utilities					
HR	9.53	3.59	−2.23	20.29	148
Community	8.29	3.49	−1.31	16.63	148
Environment	9.72	2.63	1.79	14.82	148
BFS	11.21	2.92	1.39	18.26	148
NPM	0.08	0.14	−1.19	0.33	148
Tobin's Q	0.79	0.74	0.10	5.71	148
ROA	0.05	0.08	−0.64	0.23	148
Size	25.29	1.66	21.23	28.04	148
Debt	0.57	0.18	0.11	0.89	148
TAT	0.63	0.29	0.10	1.94	148
Tertiary sector					
HR	8.89	3.94	−3.71	15.64	139
Community	9.17	4.66	−0.92	20.52	139
Environment	13.20	5.29	3.81	24.12	139
BFS	14.90	4.95	2.30	24.39	139
NPM	0.25	0.18	−0.13	0.63	139
Tobin's Q	0.54	1.02	0.05	7.61	139
ROA	0.03	0.02	−0.06	0.10	139
Size	26.95	2.65	21.41	30.66	139
Debt	0.75	0.23	0.12	0.95	139
TAT	0.29	0.42	0.02	2.16	139

As the manufacturing industry has the most of observations, this research further breaks it down to resource-intensive (63 observations), capital- intensive (198 observations) and labour-intensive manufacturing industries (11 observations) based on the Standard International Trade Classification (SITC) provided by United Nations. However, the number of observations in the labour-intensive industry is too small to produce any regression result.

3.3. Overall regression

Table 3 presents the regression results for the overall data, which shows community, environment and business and financial stakeholders are highly and positively significant in explaining NPM. It implies that if firms invest money in these aspects, they would benefit in

higher net profit generated as a percentage of revenue, which is similar to the ROA equation. However, in terms of long-term performance (Tobin's Q), only the investment spent on community and business and financial stakeholders are positively significant, which means that money spent on employees and environment does not increase Tobin's Q. Most of the control variables are significant except size and TAT in the NPM and Tobin's Q equation respectively. Table 3 shows that 1% growth of expenditure in community, environment, and business and financial stakeholders cause 0.38%, 0.84%, and 0.75% rise in NPM while contributing to 0.18%, 0.09%, and 0.14% increase in ROA. With 1% rise in the spending in community and BFS, Tobin's Q can increase by 1.37 and 2.39 respectively. Hence, H2, H3 and H4 are supported in overall data. Most of the industry and region dummy variables are significant. The overall R-squared is between 40% and 60%, compared with 18% in the study of Inoue and Lee (2011) and 20–49% in the research done by Cavaco and Crifo (2014). This implies the model can explain the data reasonably well.

Table 3.[1] Overall data

Variable	NPM		ROA		Tobin's Q	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
HR	−0.1690	0.1234	0.0053	0.0454	0.15839	0.7023
Community	0.3835***	0.1435	0.1762***	0.0481	1.3728*	0.7259
Environment	0.8423***	0.1657	0.0934*	0.0568	−0.8452	1.1214
BFS	0.7453***	0.1392	0.1400***	0.0428	2.3915***	0.7577
Size	0.1083	0.4381	0.1728***	0.1823	−14.3410***	2.5035
Debt	−13.883***	2.9307	−16.429***	1.2949	−175.499***	19.708
TAT	−9.7352***	0.9880	1.9160***	0.3910	−2.8961	6.0200
R-squared	57.31		40.94		55.54	

3.4. Regressions across industries

3.4.1. Secondary sector: manufacturing

Table 4 shows the regression of the resource-intensive manufacturing industries. The expenditure on human resources is negatively correlated with firm performance. Therefore, H1 is not supported in resource-intensive industries. Community and business and financial stakeholders positively affect ROA and Tobin's Q respectively, which supports H2 and H4. With an extra one percent more HR expenses, NPM, ROA and Tobin's Q decline by 0.51%, 0.41% and 6.15 respectively. If there is 1% increase in the community expenses, ROA will rise by 0.55%.

Looking at the capital-intensive manufacturing industries in Table 5, spending in human resources is all positively significant in NPM, ROA and Tobin's Q, while environment expenditure is negatively in these equations. Hence, H1 is supported while H3 is not proven in capital-intensive manufacturing industries. Additionally, the spending on business and

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[1] Please note that all the numbers in the regressions are multiplied by 100.* , **, and *** represent 10%, 5% and 1% significance level in this paper.

financial stakeholders is negatively significant in explaining Tobin's Q, not supporting H4. For the capital-intensive manufacturing industries, with an extra 1% more HR expenses, NPM, ROA and Tobin's Q increase by 0.37%, 0.27% and 4.54 respectively. If there is 1% increase in the environment expenses, NPM, ROA and Tobin's Q drop by 0.39%, 0.20% and 7.14 respectively. Tobin's Q drops by 2.66 with one percent more expenditure in BFS.

Table 4. Resource-intensive manufacturing industries

Variable	NPM		ROA		Tobin's Q	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
HR	−0.5125*	0.2724	−0.4078*	0.2346	−6.1486**	2.6439
Community	0.4903	0.4155	0.5530*	0.3093	−1.0545	2.3303
Environment	−0.2837	0.3204	−0.2609	0.2619	−1.4624	2.3204
BFS	0.2014	0.1318	0.3392	0.2242	11.5466***	4.1797
Size	−0.4432	0.7599	−0.9049	0.6303	−35.2716***	8.4679
Debt	−15.3649	4.6556***	−13.9135***	4.2823	−296.2026***	34.6159
TAT	1.6947	2.172	4.7782*	2.5129	65.6229	22.5573
R-squared	84.19		67.37		87.30	

Table 5. Capital-intensive manufacturing industries

Variable	NPM		ROA		Tobin's Q	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
HR	0.3705*	0.1414	0.2713*	0.1038	4.5427**	1.8047
Community	0.3591	0.3297	0.1178	0.1323	−0.3774	2.1703
Environment	−0.3870***	0.1469	−0.1994*	0.1218	−7.1366***	2.3333
BFS	0.1029	0.1631	−0.1101	0.1051	−2.6621*	1.5708
Size	1.7346***	0.5736	1.2607***	0.4181	−11.2102*	5.9849
Debt	−36.8231***	4.6974	−25.8925***	2.5262	−292.5646***	52.3445
TAT	−2.6705***	0.9547	3.1110***	0.6799	21.3531**	8.9210
R−squared	56.27		54.07		67.19	

3.4.2. Other secondary sector

Regarding the other secondary sector, such as mining, construction, and utilities, this research finds that community expenditure has a positive impact on firm performance (see Table 6), which supports H2. With 1% rise in community expenditure in these secondary sectors, NPM, ROA and Tobin's Q increase by 0.32%, 0.20% and 1.62 respectively. All the other CSR dimensions are not significant except the environment in the Tobin's Q equation, thus H3 is supported. If firms spend 1% more on environment, they would benefit in getting 3.14 higher Tobin's Q. Firm will get benefits in a longer term if they invest more in environment in the mining, construction and utility industries. The control variables are all significant except size in NPM and ROA equation with R-squared between 40% and 57%.

Table 6. Other secondary sector

Variable	NPM		ROA		Tobin's Q	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
HR	0.2537	0.1790	0.0256	0.1105	0.5521	1.3832
Community	0.3187**	0.1546	0.1964**	0.0872	1.6160*	0.8497
Environment	0.1245	0.2181	0.1799	0.1325	3.1442*	1.6311
BFS	0.1391	0.2808	0.1175	0.0882	0.0321	0.9818
Size	0.2022	0.5772	−0.4535	0.3132	−23.0062***	3.9898
Debt	−30.126***	4.0602	−16.9737***	2.2122	−133.530***	23.4251
TAT	−0.2261	2.3946	5.7748***	1.4035	40.0682***	12.0020
R-squared	47.13		56.20		54.32	

3.4.3. Tertiary sector

In terms of the tertiary sector in Table 7, the expenditures in human resources, environment and business and financial stakeholders are significant in describing NPM, while only environment is significant in explaining ROA. However, no CSR dimensions are significant in Tobin's Q equation in this sector. Environment and business and financial stakeholders are positively related to NPM, causing 1.47% and 0.82% rise in NPM respectively. H3 and H4 are supported. If firms spend 1% more in human resources, it is likely to create a fall of 0.78% in NPM. Additionally, if firms spend 1% more percent in the environment in the tertiary sector, it would create extra 0.08% of ROA at the same time.

Table 7. Tertiary sector

Variable	NPM		ROA		Tobin's Q	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
HR	−0.7750***	0.2440	0.0067	0.0243	0.5787	0.7590
Community	0.1279	0.2479	0.0297	0.0337	0.1614	0.7165
Environment	1.4731***	0.3742	0.0761**	0.0384	−0.3256	1.0140
BFS	0.8222***	0.2823	−0.0086	0.0321	1.0486	0.7790
Size	−2.9732***	1.1068	−0.6721***	0.1802	−12.7101***	3.2396
Debt	16.3017*	6.2195	−1.5441	1.5900	−61.7863**	27.6117
TAT	−21.5088***	4.0471	0.4211	0.4641	3.0471	13.0342
R-squared	65.46		62.36		67.19	

3.5. Discussion

The research results show that the CSR-CFP link in Chinese publicly listed firms is positive on the whole, which is consistent with prior empirical studies targeting at developed countries (Kao et al., 2018). However, the financial impacts of CSR dimensions are contextual, varying from sector to sector (see Table 8).

Table 8. Summary of all the regressions

Sector	Dependent variables	HR	Community	Environment	BFS
Overall	NPM		+	+	+
	ROA		+	+	+
	Tobin's Q		+		+
Resource-intensive manufacturing industries	NPM	–			
	ROA	–	+		
	Tobin's Q	–			+
Capital-intensive manufacturing industries	NPM	+		–	
	ROA	+		–	
	Tobin's Q	+		–	–
Other secondary sector	NPM		+		
	ROA		+		
	Tobin's Q		+	+	
Tertiary sector	NPM	–		+	+
	ROA	–		+	
	Tobin's Q				

    Regarding human resources, this research finds the impact of HR on CFP is negative in the tertiary sector and resource-intensive manufacturing industries. The results differ from the previous study done by Berman, Wicks, Kotha, and Jones (1999) which indicates a positive relationship between human resources and firm performance. It also contradicts with the result concluded by Bravo, Buil, de Chernatony, and Martínez (2017), who use bank employees in the United Kingdom as sample data, and find a positive perception of CSR initiatives among employees can enhance organisational commitment. The improved employee-employer relationship can thus contribute to the financial performance of a firm. The data from Chinese firms produce a different result. This may happen because human resources are the key resources for tertiary sector in China. Firms spend a significant amount of money on training employees with the necessary skills, but employees may leave the company after accumulating enough experience and skills. High employee turnover will cause more recruiting and training (Hancock et al., 2013), which can lead to poor short-term profitability. For resource-intensive manufacturing industries, raw materials are viewed as crucial. More investment in HR would take away company resources and increase cost, thus undermining financial performance in both the short and long run. However, a positive relationship between human resources and firm performance is found in capital-intensive manufacturing industries. In China, these industries are where the capital, technology and talented people are gathered. Skilled professionals have higher requirements for human resources policies. Improvement of workplace conditions, career development and training, equity incentive programs, can attract motivated employees, reduce employee turnover (Portney, 2008), improve productivity (Berman et al., 1999), encourage extra efforts made by employees (Khattak et al., 2019) and ensure firm performance (Brekke & Nyborg, 2008).

CSR investments in the community are positively related to financial performance in resource-intensive industries and other secondary sector (mining, construction, and utilities). These industries create many jobs opportunities but may also cause environmental damage. Companies in these industries are faced with more public claims for the environment and social concern (Jiang & Wong, 2016). In general, traditional Chinese values including Buddhism, Taoism and Confucianism are ingrained in the minds of Chinese people, teaching them to be benevolent, and compassionate to others (Wang & Qian, 2011). Thus, Chinese consumers commend and reward firms that contribute generously, which has a positive impact on corporate financial performance (Wang & Qian, 2011). However, this is not the case in the study conducted by (Inoue & Lee, 2011). The sample data of their research use the KLD STATS database consisting of annual ratings of around 3600 publicly traded U.S. companies in tourism-related industries. Inoue and Lee (2011) find that CSR investment in the community is negatively related to short-term profitability for airline firms, because there is indirect relationship between airline firms and community, expenditure incurred outweighs gains from community engagement.

In terms of environment, a negative link is found in the capital-intensive manufacturing industries for both short profitability and long-term performance. This is likely because the development of these industries relies heavily on capital, entailing a large amount of input. With low resource exchanges (Kacperczyk, 2009; Mattingly & Berman, 2006), CSR efforts in the environment are more likely to be driven by normative expectation than instrumental goals (Donaldson & Preston, 1995), hardly generating any financial gains (Kacperczyk, 2009). On the other hand, environment expenditure affects firm performance positively in other secondary sector in the long run and in the tertiary sector in the short term. This may be attributed to the fact that the Chinese government has attached great importance to environmental protection in recent decades. The government can provide tax incentives (Yin & Zhang, 2012) and other financial incentives to deliver corporate net benefits (Yin, 2017) to reward firms making efforts to protect the environment. The effect of government compensation can be noticeable in these industries, but negligible in industries requiring huge capital investment.

Compared with the mixed results produced from data in China, Daszynska-Zygadlo et al. (2016) reveal the negative role of environment dimension from global data. Based on 2428 companies around the world, they find environmental efforts negatively affect Tobin's Q in 8 sectors, and Price/Earnings ratio in 7 sectors (materials, consumer discretionary, financials, healthcare, industrials, information technology, and utilities). One possible reason is provided by Derwall, Guenster, Bauer, and Koedijk (2005) and Semenova and Hassel (2008), it is hard for environmentally sensitive industries to enjoy positive CSR impacts because of the higher cost of environmental performance.

Moreover, firms, in general, could generate benefits in spending more in business and financial stakeholders, because meeting the expectations of stakeholders can foster a favourable business environment and help firms to accomplish excellent financial performance. However, a negative relationship is found in the capital-intensive manufacturing industries in the long run. This may also because the growth of these industries depends heavily on capital. Expenditure in business and financial stakeholders may increase cost and affect investors' evaluation of future profitability.

Certain CSR dimensions affect firm performance in the short run but not in the long run, such as HR in the tertiary sector, the environment in the tertiary sector, and BFS in the tertiary sector. This may be because Tobin's Q can be more responsive to macroeconomic changes, government policies or to industry-related factors, such as price fluctuation caused by changes in industry demand and supply (Cavaco & Crifo, 2014). However, the case might be a bit different in China and other emerging markets. Private firms abound in the tertiary sector. The majority of private companies in emerging economies are owned or run by family members (Fan et al., 2011). This is also the case in China where over three-quarters of China's private firms is family-owned (Yang, 2011). Different from family businesses in the U.S. and the U.K with diffused ownership and professional leadership after being publicly listed, it is common for emerging markets firms to still have highly-concentrated ownership and employ non-professional family members as managers (Fan et al., 2011). Under this circumstance, investment decisions might be made arbitrarily by the family business owner, making it hard for investors to have a positive assessment of a firm's ability to yield earnings in the future.

In some cases, CSR affects Tobin's Q but has no effects on short-term accounting measures, such as the environment in the other secondary sector and BFS in the resource-intensive and capital-intensive manufacturing industries. This is likely because carrying out CSR programs shows a firm's care for society. The strong influence of traditional values spur Chinese stakeholders of the firm to welcome and reward generous firms (Wang & Qian, 2011). CSR efforts can improve corporate reputation and image, thus boosting investors' confidence about a firm's future profitability despite no significant financial impacts on short-term profitability.

Conclusions

This research aims to investigate the heterogeneity of CSR's effect on corporate financial performance across industries. This study employs four dimensions including human resources, community, environment, as well as business and financial stakeholders to represent CSR and examine the effect of each CSR dimension on a firm's short-term profitability and long-term marketed-based profitability across industries, including manufacturing industry (resource-intensive, capital-intensive and labour-intensive industries), other secondary sector (mining, construction, utilities) and tertiary sector.

Findings from this study show that CSR has a positive impact on CFP as a whole, which is consistent with the research done in developed countries. However, the research also reveals that various CSR dimensions have different influence on CFP across analysed industries as the research context is China, an emerging market with different cultural context and various sectors. Therefore, the paper can conclude that CSR's influence on CFP is of context related. The findings confirm that CSR-CFP link in China is contingent upon which CSR dimension is considered and which industry is examined. Therefore, this research suggests managers in different sectors should make CSR decisions carefully because each industry can benefit or suffer from certain CSR efforts, and some sectors remain unaffected by CSR investment.

Based on research results, this research can draw a number of practical implications to help managers in China to invest in CSR activities which can benefit firm performance. Since capital-intensive manufacturing industries react positively to human resources initiatives and negatively to environment efforts, firms in these industries can conduct CSR activities around human resources rather environment to deliver a good financial outcome. Investments can be made to improve workplace conditions, social security coverage, payment systems, equity incentive programs, employee participation, and career development and training. Companies in resource-intensive manufacturing industries can make CSR efforts in the community for the short-term benefit and improve relations with business and financial stakeholders for long-term performance. However, they need to be careful when investing in human resources, given the negative impacts on financial performance. The other secondary sector, such as mining, construction and utilities is sensitive to community actions, firms in this sector can focus the CSR efforts on community issues. Engaging in community campaigns and volunteer programs, donating to charity can help firms build harmonious relationship with the community and benefit both the short-term and long-term profitability. Additionally, firms in the tertiary sector seeking short-term profitability should make CSR investments in environment, such as providing eco-friendly services, holding training on green development, recycling, and adopting paper-free office systems. Caution should be made when investing in human resources in the tertiary sector as results of this research suggest negative financial impacts.

The limitation of this research is that it mainly focuses on CSR dimensions which represent stakeholders without considering human rights or diversity issues. Future research can include these dimensions to explore the impacts on financial performance in Chinese firms. Secondly, this research only chooses CSR activities listing annual corporate expenditure to measure CSR efforts. Non-financial CSR activities take different forms and vary across companies. Future research can compare and contrast voluntary programs conducted by different companies and assess the effects on firm performance. Moreover, this sample only includes publicly listed companies. Some companies which are not listed also have invested in CSR significantly but not presented in the data. Therefore, further research may explore ways that listed and non-listed firms choose to conduct CSR activities. Finally, the way that CSR expenditure is reflected in the accounting statements has different implications on performance. If the CSR expenditure is counted in the income statement, the profit margin will be smaller. While if it is counted in the balance sheet, the profit margin will be higher. The link between CSR expenditure and firm's performance can be better understood if this paper could find out the accounting practice about how CSR expenditure is counted. However, there is no unified way to categorise all the CSR items in the accounting statement. For example, donations to the community (community) are counted in the non-operating expenses in the income statement, while investment in the equipment to reduce emission is counted in the capital expenditure in the balance sheet. Therefore, the analysis is limited in identifying this differentiation. However, the paper does provide a platform for future research to explore how this differentiation affects financial ratios in CSR-CFP link and possible to analyze the link with each individual sector in China and other emerging markets.

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