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WENZHOU-KEAN UNIVERSITY

**Corporate social responsibility (CSR): Focus on tax avoidance and financial ratio
analysis**

In Partial Fulfillment of the Requirements
for the Bachelor of Science in Accounting

by

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May, 2020



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ABSTRACT: The propose of this study is to discover the relationship between financial ratio and tax avoidance in firms participating in CSR activities. I adopt quantitative research methodology and use correlation and regression models developed by Kim and Im (2017). Using a sample of 365 Chinese listed firms in the Shanghai and Shenzhen Stock Exchange, I find that engaging in CSR activities discourages tax avoidance behaviors, especially in companies that actively participate in CSR activities. I also find that firms with higher profitability, higher cash flow, and higher sales growth are more likely to participate in tax avoidance. In contrast, firms with high liquidity are less likely to avoid tax. Basing on this study, tax authorities can predict whether a Chinese company will perform tax avoidance activities in future by referring to its financial ratios. Moreover, tax authorities can use corporate social responsibility activities to encourage companies to pay tax.

Keywords: Corporate Social Responsibility (CSR); Book-Tax Differences (BTD); Tax Avoidance (TS)

I. INTRODUCTION

Corporate social responsibility (CSR) is gradually becoming a vital element in today's dynamic business world. The World Business Council for Sustainable Development stated that CSR is essential to sustainable economic development and social welfare (Garde-Sanchez et al., 2018). CSR also can legitimize organization actions (Deegan et al., 2002), improve the company's image (Chen and Tsai, 2007), and attain financial benefits (Sial et al., 2018). Although financial performance remains the most valuable aspect of a firm, stakeholders pay growing attention to its performance on social responsibility (Goranova and Ryan, 2013). O'Rourke (2003) suggests that investors may not only focus on financial performance but also raise social responsibility issues, which reflect their concerns for social, environmental, and economic performance (Goranova and Ryan, 2013).

The growing interest in the relation between the corporate social responsibility and taxation can also be noticed in academia. Firms always try to minimize cash outflow, including tax expenses. Besides avoiding paying tax itself, corporations still has the motivation to manipulate earnings in the Book-Tax Difference (BTD) in order to reduce tax payable (Kim and Im, 2017). Tax avoidance refers to that a company can reduce its tax burden explicitly or implicitly in the short and long term without incurring additional costs due to tax investigations (Purwantini et al., 2017). When a tax authority determines that a company's tax avoidance is tax evasion rather than tax-saving activities, the company will have to pay the amount of the original tax and extra fines. Besides the direct financial loss, this could cause negative impact on its reputation and ultimately lead to a decline in the company value and revenue. For a company that is actively involved in CSR, if it is found to avoid tax, it will probably suffer a huge loss in corporate reputation. On the other hand, compared with companies that actively participate in CSR, companies with passive CSR commitment may be influenced less by negative corporate image.

Financial ratio analysis is an analytical method that evaluates the profitability, stability, liquidity, activity, growth, and productivity of a company through data extracted from financial statements (Salmi and Martikainen, 1994). This analysis can provide financial information for managers and investors to support their future decision making. Kim and Im (2017) stated that Korean companies that are less involved in CSR are motivated to increase their corporate value by reducing corporate taxes; Korean companies that are more involved in CSR are also motivated to avoid taxes even through not directly reduce tax expense. They also found that the current asset turnover, the noncurrent liabilities ratio, and the ROE ratio all have a positive and significant influence on the corporate tax avoidance. Conversely, shareholders' equity growth ratio was negatively related with corporate tax avoidance. Although there are various studies on corporate valuation, tax avoidance and CSR, none have studied the relationship between tax avoidance and the financial ratio of Chinese companies engaged in CSR.

The propose of this study is to discover the relationship between financial ratio and tax avoidance in firms participating in CSR activities in China. I conjecture that even though avoiding taxes can probably damage corporate image, corporates still have an incentive to avoid taxes, no matter how they participate in CSR activities. I also conjecture that there is a relationship between corporate tax avoidance and financial ratios.

This paper uses a quantitative research method based on Kim and Im's (2017) correlation and regression models and employs 365 listed firms on Shanghai and Shenzhen Stock Exchange as samples. The findings of this research are: (1) engaging in CSR activities discourages tax avoidance behaviors, especially in companies that actively participate in CSR activities; (2) firms with higher profitability, higher cash flow, and higher sales growth are more likely to participate in tax avoidance; (3) firms with high liquidity are less likely to avoid tax.

This study contributes to the existed academic researches that it demonstrates there is a casual relation between corporate tax avoidance and CSR activities in China, which used to be a knowledge gap, since no previous research studied on this in China. It enables tax authorities to establish a culture of encouraging taxation by using CSR activities and to predict whether a company will conduct tax avoidance activities in the long term. In addition, this study suggests that financial ratio analysis can provide market decision makers with more information on CSR and tax avoidance so that they can make more accurate and reasonable investing decisions.

The structure of this article is as follows. In section 2, I briefly give a relevant literature review and hypotheses. In section 3, I describe the methodology and samples occupied. In section 4, I explain the results of the regression model and give the discussion. The conclusion is the last section.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Tax Avoidance and CSR

Hanlon and Heitzman (2010) stated that tax avoidance has no generally accepted definition, researchers can adopt different definitions basing on their understanding. Tax avoidance can be defined as a tax reduction attempt that reflects all transactions that affect a company's tax payable (Purwantini, 2017). Taxpayers always want to pay less. As a result, they practice tax avoidance both with and without violating the laws, which represents tax evasion and tax avoidance, respectively. Basing on Dyreng, Hanlon, and Maydew's work (2010), tax avoidance includes activities that are permitted by the tax and activities that are tax deductible. Tax avoidance often take advantage of the weaknesses of tax laws rather than breaking them.

Corporate social responsibility is always a hot topic among academic researchers and practitioners. Chamberlain (1973) defined CSR as the action that corporate should take as a matter of legal or illegal rights in specific situations and can only be fulfilled by performing obligations to particular individuals. In contrast, Frederick (1983) stated that CSR is required for a corporate' operation system to fulfill the expectations of the public. The productions of corporates should be employed that production and distribution can enhance the overall socioeconomic welfare. However, CSR was defined as a more complete concept later. Carrol (1999) concluded three elements, corporate social responsibility, corporate social responsiveness and social issues, as corporate social performance. He suggested that CSR should cover the entire corporate obligation to society such as economic, legal and ethical. Matten and Moon (2004) stated that CSR includes economic responsibility, public responsibility, and social responsiveness. All in all, defining CSR is difficult (Carrol, 1999). In summary, CSR reflects the duties of a company to its stakeholders, including shareholders, employees, customers, suppliers and communities (Orlitzky, Siegel and Waldman, 2011).

There are some studies that discussed the relation between tax avoidance and CSR. Grant and Roman (2012) have proven empirically that companies actively participate in CSR have less probability to avoid taxes. Watson (2011) used book-tax difference (BTD) to calculate tax avoidance, which is the difference between accounting profit and taxable income. He divided all corporate samples into three groups based on their CSR participating level. The results showed that the book-tax difference of the group with the highest CSR score has no significantly difference from the intermediate group. However, the book-tax difference of the lowest CSR group was larger than other two groups, which presented a higher tendency to avoid taxes. Ki (2012) indicated a negative correlation between corporate social responsibility activities and estimated tax avoidance. Kim and Im (2017) stated that CSR activities discourage tax avoidance based on the study in Korea.

Financial Ratio

Financial ratio analysis is an analytical method that evaluates the profitability, leverage, liquidity, activity, and growth of a company through data extracted from financial statements (Salmi and Martikainen, 1994). Profitability ratio measures the overall performance of a company and show its capacity to generate profits (Kim and Im, 2017). Leverage ratios show a firm's ability to convert its long-term liabilities. Liquidity ratio indicates the ability that an asset can be transformed into cash without a risk of loss and measures a company's ability to meet its short-term liability (Lin et al., 2011). It includes the current ratio, indicating a company's ability to cover its current liability by current assets, and solvency ratio, indicating a company's ability to cover its current liability by liquid resources (Edum-Fotwe, 1996). Activity ratios measure how effectively a firm is using its assets. Growth ratios measure the rate at which the company should grow, which reveal its competitiveness and profit generating potential (Kim and Im, 2017).

Hypothesis Development

The main motivation for tax avoidance is to maximize profit (Chen et al., 2010). Since taxes are considered as one of the main cash outflows of a company, reducing these expenditures will substantially increase corporate value (Landry et al., 2013). According to Friedman (Friedman, 1970), the sole obligation of a company is to maximize the wealth of shareholders, which indicates that as long as participating in tax avoidance activities can generate profit (reduce expences), the company should be involved in those activities. Similarly, according to Huseynov and Klamm (2012), tax evasion can be regarded as a company's obligation to shareholders in order to reduce its expenditures and thereby increase shareholders' value. In contrast, Sikka and Willmott (2010) consider that tax evasion is illegal because it has a significant impact on both developed and developing countries and their ability to supply social goods, such as education and infrastructure. According to Sikka and Willmott (2010), companies involved in tax avoidance cannot engage in CSR activities at the same time because they are not compatible with each other. Lanis and Richardson (2012) conducted a study of more than 400 Australian companies in 2008-2009 and found that companies with high CSR disclosures had less tax evasion or tax reduction strategies.

Different studies have shown that there is a different relationship between corporate social responsibility and taxation. Huseynov and Klamm (2012) studied a sample of 2337 firm-years of Standard and Poor's 500 corporations from 2000 to 2008. The results show that companies with active CSR activities have lower tax payments. Hoi and Wu (2013) tested a sample of 2620 US companies from 2003 to 2009 and found that companies that are less involved in CSR tend to participate in tax avoidance. However, according to Landry and Deslandes's (2013) study on 168 listed firms in the Toronto Stock Exchange from 2004 to 2008, they cannot find any relation between tax behavior and CSR.

According to Godfrey and Merrill (2009), CSR can mitigate the negative impact of an adverse event by describing its active CSR activities, which is similar to the conclusion from Minor and Morgan (2011). Graham et al. (2013) analyzed survey responses from nearly 600 corporate tax executives and found that reputation issues were the one of the most important reason for not participating in tax avoidance. They stated that if the public know the firm is engaging in tax avoidance, it will negatively influence its stock. If a firm is revealed to have been involved in tax avoidance by tax authorities, the firm can suffer from both direct tax expenses and non-tax expenses, including damage to firm value, among which the latter is more critical to the firm (Kim and Im, 2017). Besides, Gulzar et al. (2018) suggested that companies with a more responsible corporate culture will be less likely to participate in corporate tax avoidance. Thus, I set the hypotheses as follows:

Hypotheses 1 (H1): *A firm actively engaged in CSR does not conduct a different level of tax avoidance.*

Hypotheses 2 (H2): *A firm passively engaged in CSR does not conduct a different level of tax avoidance.*

According to Manzon and Plesko (2002), companies with high profitability are able to use apply tax deductions to reduce tax expenditures. In those companies, managers tend to apply this tax benefits in order to reduce taxable income. As a result, the difference between accounting profit and taxable income has been widened (Sodan, 2012). Also, according to Khurana and Moser (2009), there is a positive and significant relationship between profitability and BTD. They suggested that firms with high profitability ratios generally have higher long-run effective cash tax rates and greater BTDs. Thus, I set the hypotheses as follows:

Hypotheses 3 (H3): *Profitability ratios and tax avoidance (TS) have a positive relation.*

Leverage ratio shows a firm's ability to convert its long-term liabilities and is an indicator that reflects the capital structure of a firm. A company can use two methods to raise funds: the owner's investment and debt financing. In debt financing, companies need to sign contracts with lenders, which clarify borrowers' obligation and protect the interests of creditors. Several studies have called for this ratio as a control variable that can be used to explain BTD. Frank, Lynch and Rego (2009) concluded that companies with high liabilities tend to manage their profit without violating contracts. Managers who are nearly breaking the clauses tend to make accounting choices that can greatly reduce the possibility of violating such terms (Watts and Zimmerman, 1986). As a result, highly leveraged companies tend to exhibit higher information risk, which may enhance the practice of earnings management. In other words, high leverage may partly explain the results of earnings management and the increase in the differences between accounting profit and taxable income. Therefore, it is likely to assume that there is a positive correlation between leverage ratios and BTD.

Hypotheses 4 (H4): *Leverage ratios have a positive relation with tax avoidance (TS).*

Liquidity ratio indicates the ability that an asset can be transformed into cash without a risk of loss and measures a company's ability to meet its short-term liability (Lin et al., 2011). Sodan (2012) investigated the relationship between BTDs and liquidity basing on samples in Croatian and suggested that the liquidity will affect the difference between accounting profit and taxable income. He stated that companies with lower liquidity ratios are considered to have liquidity problems and are more likely to manipulate earnings. On the other hand, since high income causes larger amount of tax base to a company, managers are likely to reduce this amount. Thus, I set the hypotheses as follows:

Hypotheses 5 (H5): *Liquidity ratios have a negative relation with tax avoidance (TS).*

Activity ratios measure how effectively a firm is using its assets. Kim and Im (2017) studied the relationship between tax avoidance and a firm's activity ratios by investigating 491 firms listed on the Korean Exchange from 2005 to 2007. They found a positive relation between activity ratios and BTD. They stated that high activity ratios indicate that the firm can reduce expenses, which will increase its taxable income. Therefore, managers tend to perform earnings management to reduce this amount which generates tax expenditures, a cash outflow of a corporate. Thus, I set the hypotheses as follows:

Hypotheses 6 (H6): *Activity ratios and tax avoidance (TS) have a positive relation.*

Growth ratios measure the rate at which the company should grow, which reveal its competitiveness and profit generating potential. Tang and Firth (2011) emphasized the

universality of a positive correlation between growth ratio and BTD. They suggested that growing companies may prefer to invest in assets which can causes BTD because of the different expense recognition rules. In addition, Kolay, Schallheim and Wells (2011) found that the accounting procedures in growing companies may have more freedom than in stable companies. Khurana and Moser (2009) emphasizes that large companies tend to show more BTDs, while fast-growing companies prefer to have more BTD-generating investments. Thus, I set the hypotheses as follows:

Hypotheses 7 (H7): *Growth ratios and tax avoidance (TS) have a positive relation.*

To investigate the relationship between financial ratios and tax avoidance, I performed empirical analysis with tax avoidance using the first financial ratios with the highest correlation among the representative financial ratios, which is also the method adopted by Kim and Im (2017): (1) PR (profitability ratio): return on ROE; (2) LVR (leverage ratio): leverage of non-current liability; (3) LQR (liquidity ratio): quick ratio; (4) AR (activity ratio): current asset turnover and (5) GR (growth ratio): growth of ROE.

III. RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

Data Source and Sample Collection

My sample consisted of 365 listed firms on the Shenzhen and Shanghai Stock Exchanges. All the financial data were collected from the China Stock Market and Accounting Research (CSMAR) database for the period 2010 to 2017. I adopted Rankins CSR Ratings (RKS) to indicate each corporate's CSR performance. Rankins Global is an authoritative third-party rating agency for corporate social responsibility in China. It is committed to providing objective and scientific CSR information for responsible investors, responsible consumers, and the public. After deleting the observations with missing values, my final sample was 2406 firm-year observations.

Tax Avoidance Measures

According to the previous researchers, the difference between the profit value (commercial profit) in the company's book and the profit (fiscal profit) in the tax calculation is called book tax difference (BTD). It reflects company tax avoidance. This was achieved by the company trying to report higher book profits in order to increase the interests of shareholders but obtain a low tax expenditure. According to Wilson (2009), outsiders can detect a company's long-term and short-term tax avoidance strategies via book tax differences. Even though each of the indicators in a company's financial report is flawed, it is helpful for researchers (Hanlon & Heitzman, 2010). According to Abdul Wahab & Holland (2015), book tax difference is the difference between accounting income and taxable income. Besides BTB, Desai and Dharmapala (2006) proposed corporate tax avoidance estimates (TS) based on the assumptions that BTB consists of earnings management and tax avoidance. They did regression analysis on total accruals and BTB in order to get abnormal BTB which is the flexible part of total accruals. This method can separate earnings management from BTB so that it can reduce measurement error. This study uses both two methods to measure corporate tax avoidance.

$$BTD_{i,t} = (\text{accounting profit} - \text{taxable income}) / \text{total asset} \quad (1)$$

$$BTD_{i,t} = \beta_1 TA_{i,t} + \varepsilon_{i,t} \quad (2)$$

$BTD_{i,t}$ = (Accounting profit - Taxable income) of firm i in t term / Total asset;

$TA_{i,t}$ = (Net income - Business activities of cash flows) of firm i in t term / Total asset;

$\varepsilon_{i,t} = TS_{i,t}$ = Estimated corporate tax avoidance of firm i in t term from Desai and Dharmapala (2006).

Model design

Equation (3) is the regression model that examines the impact of CSR activities on tax avoidance by examining BTD and TS.

$$BTD_{i,t}(TS_{i,t}) = \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 PPE_{i,t} + \alpha_6 CFO_{i,t} + \alpha_7 SG_{i,t} + \varepsilon_{i,t} \quad (3)$$

$BTD_{i,t}$ = (Accounting profit - Taxable income) / Total assets;

$TS_{i,t}$ = Estimated corporate tax avoidance from Desai and Dharmapala (2006);

$CSR_{i,t}$ = Rankins index (out of 100);

$ROA_{i,t}$ = Net income / Total assets;

$LEV_{i,t}$ = Total liabilities / Total assets;

$SIZE_{i,t}$ = Natural logarithm of total assets;

$PPE_{i,t}$ = (Tangible assets – Land - Assets under construction) / Total assets;

$CFO_{i,t}$ = Operating cash flow / Total assets;

$SG_{i,t}$ = (Current term sales - Previous term sales) / Previous term sales;

ε = Residuals.

The dependent variables in Equation (3) are BTD and TS, which both represent corporate tax avoidance. I use Rankins index to represent CSR activity. Other variables, except CSR, can influence corporate tax avoidance (Watson, 2011). High profit (ROA) companies are more likely to participate in tax avoidance activities. Highly leveraged (LEV) companies tend to exhibit higher information risk, which may enhance the practice of earnings management and therefore avoid taxes positively. Large companies can establish dominant tax plans, so they have less incentive to avoid taxes. Companies with a large percentage of property, plant and equipment (PPE) can reduce taxes in various ways, which means they avoid taxes passively. Companies with large operating cash flow (CFO) are more likely to avoid taxes. If the company has positive sales growth (SG), they probably participate in tax avoidance actively in order to decrease cash outflows.

Empirical Analyses and Results

Descriptive Statistics

Table 1 reports the descriptive statistics of the main variables. In panel A, the mean value of BTD is 0.0056 with the median is 0.0029, while the mean value of TS is -0.0005 with the median is 0.0010. It indicates a left tail normal distribution of BTD and TS. The standard deviation of BTD and TS is 0.1337 and 0.1342, respectively, which indicates there is a difference in the tax avoidance of corporates. There is a right tail normal distribution in CSR with the average value of 39.1696 and the median of 35.9915.

In panel B, we can find that the mean value of activity ratio (AR), which is current asset turnover, is 136.1268 with the median value of 111.04090. The liquidity ratio (LQR), which is quick ratio, is 13.7404 on average and the median is 111.0490. The mean of growth ratio (GR), which is the growth of shareholders' equity, is 15.5110 with a median of 7.3380. The leverage ratio (LVR), which is non-current liability ratio, is 110.4091 on average and the median is 92.8337. The mean of profitability ratio (PR), which is the return on ROE, is 8.8671 with a median of 7.6662. They all have a right tail normal distribution.

TABLE 1
Descriptive Statistics for the Control Variables (N=2406)

VARIABLES	Mean	STD	Min.	25%	Median	75%	Max.
A							
BTD	0.0056	0.1337	-1.6601	-0.0222	0.0029	0.0354	1.9196
TS	-0.0005	0.1342	-1.6622	-0.0309	0.0010	0.0334	1.9167
CSR	39.1696	13.1215	11.6900	30.2209	35.9915	45.2746	87.9478
ROA	0.0437	0.0407	-0.0094	0.0134	0.0323	0.0609	0.2917
LEV	0.5125	0.1897	0.0158	0.3702	0.3702	0.5330	0.6626
SIZE	23.3241	1.4739	19.5809	22.2221	23.1872	24.2110	28.5087
PPE	0.2512	0.1943	0.0002	0.0885	0.2071	0.3718	0.9363
CFO	0.0549	0.0697	-0.2665	0.0163	0.0541	0.0961	0.4382
SG	0.0221	0.3586	-0.9541	-0.0850	0.0738	0.2136	0.9981
B							
TS	-0.0005	0.1342	-1.6622	-0.0309	-0.0309	0.0334	1.9167
AR	136.1268	106.7747	1.2086	60.0049	111.0490	185.8463	589.8030
LQR	13.7404	21.5003	0.0314	3.9385	8.6771	17.0541	388.0610
GR	15.5110	31.9342	-36.5476	2.3974	7.3380	16.4640	477.3262
LVR	110.4091	71.9917	2.4769	59.7725	92.8337	142.2858	493.9974
PR	8.8671	6.9768	-3.4505	3.1701	7.6662	12.5966	46.4905

Correlation Analysis

Table 2 is the results of the Pearson and Spearman correlations among the main variables. According to the table, the correlation of CSR and total liabilities to total assets (LEV), size of total assets (SIZE), property, plant, equipment to total assets (PPE), operating cash flow to total assets (CFO), activity ratio (AR), and leverage ratio (LVR) are positive with the significant level of 1%. In contrast, the correlation of CSR and return on assets (ROA), sales growth ratio (SG), liquidity ratio (LQR), and shareholders' equity growth ratio (GR) are negative with the highest significant level of 5%. There is no significant correlation between CSR and BTD, as well as TS.

TABLE 2
Correlation Analysis for All Variables

Variables	BTD	TS	CSR	ROA	LEV	SIZE	PPE	CFO	SG	AR	LQP	GR	LVR	PR
BTD	1.000 (0.000)	0.996*** (0.000)	-0.014 (0.496)	0.121*** (0.000)	-0.056*** (0.006)	-0.026 0.2087	0.109*** (0.000)	0.024 (0.232)	0.123*** (0.000)	0.128*** (0.000)	-0.018 (0.384)	0.019 (0.356)	0.042** (0.038)	0.089*** (0.000)
TS	0.996*** (0.000)	1.000 (0.000)	-0.002 (0.9340)	0.103*** (0.000)	-0.056*** (0.006)	-0.018 0.3689	0.142*** (0.000)	0.095*** (0.000)	0.101*** (0.000)	0.147*** (0.000)	-0.031 (0.131)	0.007 (0.746)	0.067*** (0.001)	0.067*** (0.001)
CSR	-0.014 (0.496)	-0.002 (0.9340)	1.000 (0.000)	-0.053** (0.010)	0.079*** (0.000)	0.514*** (0.000)	0.062*** (0.002)	0.103*** (0.000)	-0.158*** (0.000)	0.111*** (0.000)	-0.062*** (0.002)	-0.044** (0.032)	0.147*** (0.000)	-0.032 (0.113)
ROA	0.121*** (0.000)	0.103*** (0.000)	-0.053** (0.010)	1.000 (0.000)	-0.452*** (0.000)	-0.142*** (0.000)	-0.071*** (0.001)	0.380*** (0.000)	0.327*** (0.000)	0.129*** (0.000)	0.392*** (0.000)	0.135*** (0.000)	-0.293*** (0.000)	0.846*** (0.000)
LEV	-0.056*** (0.006)	-0.056*** (0.006)	0.079*** (0.000)	-0.452*** (0.000)	1.000 (0.000)	0.468*** (0.000)	-0.068*** (0.001)	-0.260*** (0.000)	0.062*** (0.002)	0.033 (0.102)	-0.286*** (0.000)	-0.024 (0.235)	0.434*** (0.000)	-0.032 (0.114)
SIZE	-0.026 0.2087	-0.018 0.3689	0.514*** (0.000)	-0.142*** (0.000)	0.468*** (0.000)	1.000 (0.000)	0.063*** (0.002)	-0.003 (0.888)	-0.075*** (0.000)	0.141*** (0.000)	-0.025 (0.221)	-0.013 (0.526)	0.308*** (0.000)	0.060*** (0.003)
PPE	0.109*** (0.000)	0.142*** (0.000)	0.062*** (0.002)	-0.071*** (0.001)	-0.068*** (0.001)	0.063*** (0.002)	1.000 (0.000)	0.317*** (0.000)	-0.030 (0.140)	0.520*** (0.000)	-0.088*** (0.000)	-0.075*** (0.000)	0.590*** (0.000)	-0.139*** (0.000)
CFO	0.024 (0.232)	0.095*** (0.000)	0.103*** (0.000)	0.380*** (0.000)	-0.260*** (0.000)	-0.003 (0.888)	0.317*** (0.000)	1.000 (0.000)	-0.050** (0.014)	0.277*** (0.000)	0.085*** (0.000)	-0.055*** (0.007)	0.094*** (0.000)	0.262*** (0.000)
SG	0.123*** (0.000)	0.101*** (0.000)	-0.158*** (0.000)	0.327*** (0.000)	0.062*** (0.002)	-0.075*** (0.000)	-0.030 (0.140)	-0.050** (0.014)	1.000 (0.000)	0.289*** (0.000)	-0.023 (0.262)	0.227*** (0.000)	-0.017 (0.415)	0.426*** (0.000)
AR	0.128*** (0.000)	0.147*** (0.000)	0.111*** (0.000)	0.129*** (0.000)	0.033 (0.102)	0.141*** (0.000)	0.520*** (0.000)	0.277*** (0.000)	0.289*** (0.000)	1.000 (0.000)	-0.164*** (0.000)	-0.023 (0.268)	0.405*** (0.000)	0.145*** (0.000)
LQR	-0.018 (0.384)	-0.031 (0.131)	-0.062*** (0.002)	0.392*** (0.000)	-0.286*** (0.000)	-0.025 (0.221)	-0.088*** (0.000)	0.085*** (0.000)	-0.023 (0.262)	-0.164*** (0.000)	1.000 (0.000)	0.060*** (0.003)	-0.057*** (0.005)	0.275*** (0.000)
GR	0.019 (0.356)	0.007 (0.746)	-0.044** (0.032)	0.135*** (0.000)	-0.024 (0.235)	-0.013 (0.526)	-0.075*** (0.000)	-0.055*** (0.007)	0.227*** (0.000)	-0.023 (0.268)	0.060*** (0.003)	1.000 (0.000)	-0.071*** (0.001)	0.167*** (0.000)
LVR	0.042** (0.038)	0.067*** (0.001)	0.147*** (0.000)	-0.293*** (0.000)	0.434*** (0.000)	0.308*** (0.000)	0.590*** (0.000)	0.094*** (0.000)	-0.017 (0.415)	0.405*** (0.000)	-0.057*** (0.005)	-0.071*** (0.001)	1.000 (0.000)	-0.165*** (0.000)
PR	0.089*** (0.000)	0.067*** (0.001)	-0.032 (0.113)	0.846*** (0.000)	-0.032 (0.114)	0.060*** (0.003)	-0.139*** (0.000)	0.262*** (0.000)	0.426*** (0.000)	0.145*** (0.000)	0.275*** (0.000)	0.167*** (0.000)	-0.165*** (0.000)	1.000 (0.000)

***, **, * indicates statistical significance at level 1%, 5% and 10%, respectively.

Regression Analysis of CSR Activities

Table 3 is the results of the two regression analysis models of CRS activities, in which the dependent variable is BTD and TS, respectively. It shows that CSR can negatively influence BTD and TS with the both values of -0.0011 under the significant level of 1%. Besides, the result also demonstrates that return on assets (ROA), operating cash flow to total assets (CFO), and sales growth (SG) have significantly positive impact on both BTD and TS. On the other hand, total liabilities to total assets (LEV), firm size (SIZE), and property, plant, equipment to total assets (PPE) have no significant relation with BTD and TS.

TABLE 3
Results for Regression Analysis

VARIABLES	Tax avoidance			
	BTD	VIF	TS	VIF
CSR	-0.0011**	1.45	-0.0011**	1.45
	-0.0005		-0.0005	
ROA	0.4153***	1.85	0.1298*	1.85
	-0.1455		-0.1455	
LEV	0.0102	1.85	0.0102	1.85
	-0.0614		-0.0614	
SIZE	-0.0067	1.87	-0.0067	1.87
	-0.0169		-0.0169	
CFO	0.0780*	1.43	0.2075***	1.43
	-0.0472		-0.0472	
PPE	-0.0518	1.20	-0.0518	1.20
	-0.0497		-0.0497	
SG	0.0251**	1.29	0.0251**	1.29
	-0.0107		-0.0107	
Constant	0.2005		0.1912	
	-0.3742		-0.3742	
Observations	2,406		2,406	
R-squared	0.042		0.0313	
F	16.69***		10.25***	

***, **, * indicates statistical significance at level 1%, 5% and 10%, respectively.

Regression Analysis of Active-CSR corporates and Passive-CSR corporates

Table 4 is the results of the regression analysis on active-CSR and passive-CSR firms, in which the dependent variable is BTD and TS, respectively. I first divided the sample in to two subsamples basing on their CSR scores. The 50% samples with higher CSR index are HIGH CSR subsamples and the rest are LOW CSR subsamples.

According to the result, both high and low CSR have statistically significant and negative relation with BTD and TS at the significant level of 1%. Besides, in HIGH CSR group, the coefficients of profitability (ROA) and sales growth (SG) are 0.4228 (0.1373) and 0.0247 (0.0247), respectively, significant at 5% level. However, they are insignificant in LOW CSR group. On the other hand, operating cash flow to total assets (CFO) has a significant and negative relation with tax avoidance in the HIGH CSR subsample, but insignificant in the LOW CSR subsample. Total liabilities to total assets (LEV), size of total assets (SIZE), and property, plant, equipment to total assets (PPE) have no significant relation with BTD and TS in both subsample, which match with the result in table 3.

TABLE 4
Regression Analysis for Different CSR Activity Firms

VARIABLES	Tax avoidance							
	BTD				TS			
	High Group	VIF	Low Group	VIF	High Group	VIF	Low Group	VIF
High CSR	-0.0007*	1.40			-0.0007*	1.4		
	-0.0008				-0.0008			
Low CSR			-0.0018*	1.07			-0.0018*	1.07
			-0.0009				-0.0009	
ROA	0.4228***	2.03	0.4617	1.74	0.1373**	2.03	0.1762	1.74
	-0.126		-0.1857		-0.126		-0.1857	
LEV	-0.0776	2.01	0.0208	1.73	-0.0776	2.01	0.0208	1.73
	-0.057		-0.1117		-0.057		-0.1117	
SIZE	-0.0108	1.91	0.0051	1.36	-0.0108	1.91	0.0051	1.36
	-0.0121		-0.0327		-0.0121		-0.0327	
CFO	-0.0853**	1.46	0.0634	1.41	-0.2002***	1.46	0.2221***	1.41
	-0.0418		-0.0648		-0.0418		-0.0648	
PPE	0.0114	1.24	-0.1256	1.19	0.0114	1.24	-0.1256	1.19
	-0.0665		-0.1025		-0.0665		-0.1025	
SG	0.0247***	1.40	0.0256	1.17	0.0247***	1.40	0.0256	1.17
	-0.009		-0.0205		-0.009		-0.0205	
Constant	0.3184		-0.0512		0.3091		-0.0605	
	-0.2679		-0.7074		-0.2679		-0.7074	
Observations	1,203		1,203		1,203		1,203	
R-squared	0.0503		0.0311		0.0346		0.0291	
F	14.69***		6.27***		9.44***		5.48***	

***, **, * indicates statistical significance at level 1%, 5% and 10%, respectively.

Regression Analysis of Financial Ratios

Table 5 displays the results of the regression of tax avoidance on financial ratios of CSR corporates, including profitability ratio, leverage ratio, liquidity ratio, activity ratio, and growth ratio.

$$TS_{i,t} = \alpha_0 + \alpha_1 AR_{i,t} + \alpha_2 LQR_{i,t} + \alpha_3 GR_{i,t} + \alpha_4 LVR_{i,t} + \alpha_5 PR_{i,t} + \varepsilon_{i,t}$$

$TS_{i,t}$ = Estimated corporate tax avoidance from Desai and Dharmapala (2006);

$AR_{i,t}$ = Sales / Current asset *100;

$LQR_{i,t}$ = Current assets/ Current liability;

$GR_{i,t}$ = (current equity - previous equity) / previous equity *100;

$LVR_{i,t}$ = (Noncurrent assets / Total shareholder's equity) *100;

$PR_{i,t}$ = (Net income / Shareholder's equity) *100;

ε = Residuals.

The regression analysis results from financial ratios show that the activity ratio (current asset turnover) and profitability ratio (return on ROE) have positive coefficient of 0.0001 and 0.0016, which are significant at 1%, 1% and 5% level, respectively. In contrast, the coefficient

of liquidity ratio (LQR) is -0.0004, which is significant at 10%. Growth ratio (GR) and leverage ratio (LVR) have no significant relation with TS.

TABLE 5
Regression Results of Financial Ratios

VARIABLES	TS	VIF
AR	0.0001***	1.96
	0	
LQR	-0.0004* -0.0002	2.51
GR	0.0002 -0.0001	1.72
LVR	-0.0001 -0.0001	1.39
PR	0.0016** -0.0007	1.08
Constant	-0.0252** -0.0125	
Observations	2,406	
R-squared	0.0207	
F	10.69***	

***, **, * indicates statistical significance at level 1%, 5% and 10%, respectively.

IV. DISCUSSION

According to the result of correlation analysis that total liabilities to total assets (LEV), size of total assets (SIZE), property, plant, equipment to total assets (PPE), operating cash flow to total assets (CFO), activity ratio (AR), and leverage ratio (LVR) are positive correlation with CSR at the significant level of 1%, the corporates with higher leverage, larger size, larger portion of fixed assets, higher operating cash flow, and higher leverage tend to have active CSR performance. In contrast, the negative correlation of CSR and return on assets (ROA), sales growth ratio (SG), liquidity ratio (LQR), and shareholders' equity growth ratio (GR) indicates that corporates with higher profit, faster sales growth, higher liquidity, and faster shareholders' equity growth have passive CSR performance. However, Kim and Im (2017) studied samples in Korea and suggested that firms with higher profit tend to have superior CSR performance, which is conflict with my results. Companies with high profitability usually want to maintain a high profit level, so that they tend to avoid tax expenditure as a cash outflow which can reduce its profitability. Profitability has a positive influence toward tax avoidance of manufacturing companies (Irianto et al., 2017).

The results of regression analysis of CSR activities that CSR can significantly and negatively influence BTD and TS, which indicates that participating in CSR activities can discourage tax avoidance behavior. Besides, the result also demonstrates that return on assets (ROA), operating cash flow to total assets (CFO), and sales growth (SG) have significantly positive impact on both BTD and TS. This results match with the regression analysis of financial ratios. In other words, firms with higher profitability, higher cash flow, and higher sales growth are more likely to participate in tax avoidance.

According to the result of regression analysis of high low CSR corporates, both high and low CSR have statistically significant and negative relation with BTD and TS. It suggests that companies that are actively committed to corporate social responsibility tend to have less tax avoidance, while companies that are passively involved in corporate social responsibility have no tendency to avoid tax.

The regression analysis results from financial ratios show that the activity ratio (current asset turnover) and profitability ratio (return on ROE) are positive and significant. Thus, I suggest that firms with high profits and high activity, are more possible to avoid tax. In contrast, the coefficient of liquidity ratio (LQR) is negative and significant at 10%. It implies that firms with high liquidity are less likely to avoid tax. The relation of growth ratio and leverage ratio with tax avoidance cannot be found in this research since they have no significant relation with TS.

Limitation

This study only contains 365 listed firms with Rankins CSR index in China as samples, which is only a little portion of Chinese listed companies. If this study can get a larger sample size, the results can be more universal. This study examines each financial ratio by using one ratio in each category to represent them, which is more likely to generate biases. I suggest future studies to occupy more ratios so that can get more convincing results. Besides, this study covers the data from 2010 to 2017 but does not take annual difference into consider. However, the economy is dynamic over the years.

Validity and Reliability

This study attempts to find a casual relation between corporate tax avoidance and CSR activities. The data are collected from the China Stock Market and Accounting Research (CSMAR) database. Rankins CSR Ratings (RKS) is adopted to indicate each corporate's CSR performance, which is an authoritative index. Besides, I use correlation analysis and regression analysis and generate the results with a significant level of at least 10%. I also run the variance inflation factor test with all the VIF indexes under 10, which implies a low multicollinearity of independent variables in the models. Thus, external validity is established. Basing on Kim and Im's (2017) work, participating in CSR activities can discourage corporate tax avoidance, and financial ratios can somehow reflect corporate tax avoidance. Thus, internal validity is established. Besides, I also get some similar findings with previous studies. Lanis and Richardson (2015) concluded that the higher the level of CSR performance of a firm, the lower the likelihood of tax avoidance. Wilson (2009) stated that the current asset turnover, the noncurrent liabilities ratio, and ROE all have a positive and significant influence on the corporate tax avoidance.

Theoretical Contribution

This study contributes to the existed academic researches that it demonstrates there is a casual relation between corporate tax avoidance and CSR activities in China, which used to be a knowledge gap, since no previous research studied on this in China. It enables tax authorities to establish a culture of encouraging taxation by using CSR activities and to predict whether a company will conduct tax avoidance activities in the long term. In addition, this study suggests that financial ratio analysis can provide market decision makers with more information on CSR and tax avoidance so that they can make more accurate and reasonable investing decisions.

V. CONCLUSION

This study attempts to find the relationship between financial ratios and tax avoidance. In addition to direct financial influences, I believe that the company will also be confronted with indirect negative financial effects, such as passive corporate image in the investment market. Corporate social commitment and the benefit of investors' investment are reflected in corporate social responsibility activities. Between the two conflicting drivers of tax avoidance and corporate social responsibility activities, I find that there is an interaction between financial ratios. Through this study, tax authorities can supervise companies that are involved in tax avoidance and encourage to carry out corporate social responsibility activities.

The sample data are collected from the China Stock Market and Accounting Research (CSMAR) database, relating to corporates listed in Shanghai and Shenzhen Stock Exchange with Rankins CSR index available, covering from 2010 to 2017. I use book tax difference and the estimated corporate tax avoidance (Desai and Dharmapala, 2006) to represent tax avoidance. This study adopts quantitative method, including correlation analysis and regression analysis.

This study finds that corporate social responsibility discourages tax avoidance behaviors, especially in companies that actively participate in CSR activities. Firms with higher profitability, higher cash flow, and higher sales growth are more likely to participate in tax avoidance. In contrast, firms with high liquidity are less likely to avoid tax.

Basing on this study, tax authorities can predict whether a Chinese company will perform tax avoidance activities in future by referring to its financial ratios. Moreover, tax authorities can use corporate social responsibility activities to encourage companies to pay tax.

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