STATE OWNERSHIP, AGENCY CONFLICT AND EFFECTIVE TAX RATES: EVIDENCE FROM CHINA

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Abstract

Agency conflict between minority and controlling shareholders in state owned firms has to be considered in order to examine the variability on effective tax rates. In China, state ownership helps the government to achieve its social objectives by optimizing corporate income tax. We provide a significant result to prove that state owned firms paid higher corporate income taxes than private firms. Our results also indicate that corporate effective tax rates are positively associated with firm sized and inventory intensity. However, we have no strong evidence to support the association with leverage, return on assets and capital intensity.

Keywords: Corporate Income Taxes, State Owned Firms, Agency Conflict, Effective Tax Rates

1. INTRODUCTION

Research on the variability of effective tax rates (ETR) shows inconsistent results. For instance, in studies of US firms on the association between ETR and firm size, Zimmerman (1998) concluded that firm size has a positive relationship on ETR. However, Porcano (1986) observed a negative association between these variables, and Gupta and Newberry (1997) found that there is no effect of firm size on ETR. Research studies on ownership structure also provide varied results; for instance, Chen et al. (2010) argued that family firms are less tax aggressive (lower ETR) than their non-family counterparts. In other studies, state-controlled firms showed a negative association on ETR (e.g., Derashid & Zhang, 2003; Adhikari et al., 2006). On the other hand, Zeng (2011) observed a positive result among Chinese firms.

We examine the determinants which have an impact on tax reporting such as ownership structure and financial factors at the firm level. We argue that each country has different tax collecting and economic systems; as a consequence, the studies on tax reporting also have different results depend on state characteristics. For example, Adhikari et al. (2006) explained that developing economies are likely to be relationship-based rather than market-based. The government role is important for achieving social and political goals by maximising tax revenues. State ownership is an important factor for explaining tax reporting behaviour among firms, especially in countries with relationship-based economies.

Our study focuses on countries where corporate governance mechanisms are less effective, such as China (Zhang et al., 2014). Controlling shareholders in China generally enjoy absolute control over firms. For instance, a firm's board composition and managerial incentives are controlled by controlling shareholders. Controlling shareholders can directly affect board composition by nominating board members (Cullinan et al., 2012). Then, the nominated directors would act for the controlling shareholders' interests by tunnelling activities.

For state-controlled firms, the managers would assist the controlling shareholder (government) to achieve social and political goals such as maximizing the tax revenues rather than maximizing the profit. The managers would try to increase the corporate tax burden to get a chance for career promotion. Chan et al. (2013) argued that managers with a reputation for paying more taxes can enhance their political capital and increase their chances for promotion in government. Zeng (2011) found that ETR are positively associated with government-related ownership in China.

In terms of its contribution, this study extends the existing literature in two ways: first, we examine the effects of state ownership on ETR in China; second, we also examine the determinants of ETR such as firm size, leverage, return on assets, and asset mix (capital intensity and inventory intensity) in a multivariate framework. Based on previous studies, we consider state ownership as an important factor on ETR variability in China. We provide evidence to support our hypothesis that state controlled firms have a positive impact on ETR.

The remainder of the paper is organized as follows: section 2 reviews the relevant literature and then develops the hypothesis; section 3 describes the research design; section 4 reports and discusses the results; finally, Section 5 provides a conclusion.

2. LITERATURE REVIEW

2.1. ETR and State Ownership

One of the ways for shareholders to enhance firm value is to decrease income taxes. The shareholders desire tax aggressiveness because of the significance of tax cost to the firm and shareholders. However, this argument ignores considerations of the characteristics of firms, especially the shareholder structure. Shackelford and Shevlin (2001) argued that insider control and other organizational factors as determinants of tax aggressiveness, such as ownership structure, are important, but understudied. Chen et al. (2010) provided empirical evidence regarding ownership structure on tax aggressiveness. Their studies pointed out that family firms are less tax aggressive than their non-family counterparts. The uniqueness of family firms is characterized by bigger agency conflicts between dominant and small shareholders. Family owners are more concerned with the potential penalty imposed by the IRS, and the potential damage on family reputation.

Our study also pays attention to the shareholder structure which is characterized by state-controlled firms in China. The primary agency risk is the expropriation of minority shareholders by controlling shareholders. The controlling shareholder (government) has the objective to maximize social benefit while the goal of a firm is to maximize its profit. State ownership helps the government to achieve its social objectives by optimizing corporate income tax. For this reason, firms hire the managers who have government backgrounds to support their social objectives. Krueger (1990) stated that state-controlled firms often hire employees with government backgrounds rather than focusing on their competence. This would have an impact on a poor firm's performance and then negatively impact a firm's value. The contradiction exists between minority shareholders and controlling shareholders while minority shareholders desire a manager to commit to tax saving in order to maximise the firm's value; however, on the other hand, the government expects the managers to pay higher corporate income tax to help realise the government's social goals.

Wu et al. (2012) explained that the government may use state ownership power to direct a firm to contribute to achieving social goals, such as maximizing tax revenues, increasing employment rates and maintaining a stable society. Managers always act in the interests of the controlling shareholders by increasing their tax burden. Their promotion and career prospects are evaluated by various political and social objectives, not just financial objectives such as maximization of firm value (Fan et al., 2007; Chen et al., 2010; Chan et al., 2013). Managers with a reputation for paying more taxes can enhance their political capital and increase their chances for promotion in government (Chan et al., 2013).

Hypothesis 1: *ETR are positively associated with SOE*

2.2. ETR and firm size

Studies on the relationship between ETR and firm size are based on two competing theories: the political cost theory and the political power theory. The political cost theory (Watts & Zimmerman, 1978) suggests that the larger firms pay higher taxes; however, the political power theory explains that firm size and ETR have a negative correlation (Siegfried, 1972). Some empirical evidence on the relationship between ETR and firm size shows inconsistent results. In a US setting, Zimmerman (1983) found a positive relationship between ETR and firm size, but Porcano (1986) showed that the largest firms have a smaller average ETR. A negative association between ETR and firm size was also shown by Derashid and Zhang (2003) in Malaysia, Richardson and Lanis (2007) in Australia, and Wu et al. (2012) in Chinese state-controlled firms.

There are limited studies on the relationship between ETR and firm size in China. Wu et al. (2012) found a negative association between ETR and firm size on state-controlled firms, but private firms showed a positive association result. Wu et al. (2007) used size as a control variable and found no significant relationship between ETR and firm size. We expect to explain the relationship between ETR and firm size in a multivariate framework using the political cost theory. When larger firms pay more taxes than smaller firms, then ETR is positively associated with firm size.

Hypothesis 2: *ETR are positively associated with firm size*

2.3. ETR and firms' financing and investment decisions

Financing decisions have an important impact on ETR because a firm could be allowed to get tax treatment. A firm which considers choosing debt financing rather than equity financing for supporting business operations has an advantage, because the interest expenditure is tax deductible while dividends are not. Some studies show that ETR and leverage have a negative association (i.e., Stickney & McGee, 1982; Gupta & Newberry, 1997; Richardson & Lanis, 2007; Wu et al., 2012).

Studies on the variability of ETR also examined the impact of firms' investment decisions as an independent variable or control variable because tax statutes usually permit taxpayers to write-off the cost of depreciable assets over a shorter period than their economic lives (Stickney & McGee, 1982). Richardson and Lanis (2007) argued that leverage, capital intensity and R & D intensity have negative association with ETR, however, inventory intensity has a positive association. Gupta and Newberry (1997) found evidence that firms with a larger proportion of fixed assets have lower ETR due to tax incentives, while firms with a greater proportion of inventory have higher ETR.

Hypothesis 3: *ETR are negatively associated with leverage*
Hypothesis 4: *ETR are negatively associated with ROA*
Hypothesis 5: *ETR are negatively associated with capital intensity*
Hypothesis 6: *ETR are positively associated with inventory intensity*

3. METHODOLOGY

Data are collected from the China Stock Market Financial Statement Database (CSMAR). This study use China 's A non-financial share during the 2009-2013 period. We eliminated several firms which did not comply with the following criteria: missing data for one or more of the panel years, and net operating loss carry-forward. We also deleted observations with ETR of more than one and a negative ETR for obtaining a meaningful measure (Table 1). Following Wang et al. (2008), Berkman et al. (2009), Luo et al. (2010), and Wu et al. (2012), we define a firm as state controlled if its ultimate controller is the state or local government agency. The ultimate controller is the ultimate owner of a firm with the largest stockholdings.

Table 1. Sample selection

All firms	1435
Less:	
Firms missing data for one or more of the panel years	(105)
Firms with net operating loss carry-forward	(100)
Firms with ETR of more than one	(35)
Final sample (number of firms)	1195
Final sample (firms years)	5975

3.1. Empirical Model

The model in our study consists of estimating ordinary least squares (OLS) regression models of the following general form:

$$ETR_{i,t} = \alpha + \beta_1 SOE_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CAPINT_{i,t} + \beta_6 INVINT_{i,t} + \varepsilon$$

ETR is commonly used to proxy corporate tax burden (Porcano, 1986; Shevlin & Porter, 1992; Gupta & Newberry, 1997). In many research studies, ETR are measured based on information collected from financial statements as tax liability divided by income. However, the measurement of ETR is still debatable (e.g. Shevlin & Porter, 1992; Wilkie & Limberg, 1993; Plesko, 2003). The issue of which taxes to include in the numerator of the equation is relevant because any significant omission can bias the overall tax burdens of firms. Although some researchers have chosen to ignore deferred tax (e.g., Porcano, 1986; Gupta & Newberry, 1997, Kim & Limpaphayom, 1998; Richardson & Lanis, 2007), others have suggested adding deferred tax into the ETR equation (Stickney & McGee, 1982; Zimmerman, 1983; Omer et al., 1993; Wu et al., 2012). Income tax expense is used as the numerator of our equation without any deferred tax adjustment.

The issue of how income should be measured in the denominator of the equation arises due to the difference between accounting (book) income and taxable income. Zimmerman (1983) argued that the use of cash flow as an alternative to operating income would eliminate the effects of different accounting treatments on income. We use book income as the primary income measure in the denominator and cash flow from operations as the alternative measure.

Omer et al. (1991) suggested that the use of more than one ETR measure can improve the robustness of results. The different ETR measures (either income or cash-flows based and with or without deferred tax) have produced conflicting results (e.g., Porcano, 1986; Zimmerman, 1983). We use two different measures of ETR as the dependent variable to enhance the robustness of our results. ETR 1 is defined as income tax expense divided by book income. ETR 2 is defined as income tax expense divided by operating cash flows.

Our research model has been developed to test the determinants of ETR. We consider SOE as an independent variable which is important for explaining the variability of ETR in China. SOE is the dummy variable for firms which equal 1 if the ultimate shareholder is the Chinese central/local government. SIZE is measured by total assets (at book value). LEV is a proxy for firms' capital structure, and is calculated as total debt divided by total assets (both at book values). Firms' asset mix is proxied by capital intensity (CAPINT) and inventory intensity (INVINT). CAPINT is measured as the net property, plant and equipment divided by total assets (both at book values). INVINT is measured as inventory divided by total assets (both at book values). We use ROA as a control variable which is measured as pre-tax income divided by total assets. We expect ROA to have a negative sign since higher ROA indicate that a firm has efficiency in performance.

4. RESULTS

Table 2 provides descriptive statistics of the variables. ETR1 showed a mean of 0.203 which indicates that, overall, firms paid taxes at the 20% level. ETR2 also showed a similar result with a mean of 0.199. The explanatory variables have a mean of 22.182 for SIZE, 0.477(LEV), 0.067(ROA), 0.220(CAPINT), and 0.184(INVINT). From Table 3 we provide strong evidence that state owned firms paid higher taxes than private firms based on the ETR1 measure (0.216 and 0.190, respectively, at the 0.01 level of significance). The mean difference using ETR2 showed that state owned firms paid lower taxes but the result is not significant statistically (0.198 and 0.201, respectively).

Table 4 provided ETR comparison results for state and local level government firms. Local level firms paid higher taxes than state level firms (0.226 and 0.201, respectively, at 0.01 level of significance). The results indicate that state level firms enjoy a greater tax preferential from the authorities than local level firms. The Chinese government provides tax incentives to stimulate regional and industrial development at central and local levels. Based on the Acting Regulation on Corporate Income Tax in China (1993), the regular corporate income tax is 33%. However, the central government affords

preferential tax rates of approximately 15% which it applies in various regions and for specific industries. Local governments also provide various tax refunds to stimulate local economic development.

We used Pearson Product-moment to examine the correlation among variables. Table 3 described the correlation coefficient results. Overall, the matrix demonstrated low correlation results among explanatory variables. This suggests that the problem of multi-collinearity is not serious in our data. ETR1 and ETR2 exhibit a positive correlation to SOE, consistent with our hypothesis.

Table 6 exhibits OLS regression results for testing of our model which incorporate two ETR measures as comparison. We provide strong evidence to prove that SOE has a positive association to ETR. Based on ETR1 measures, SOE has a positive coefficient of 5.285, and is significant at the 0.01 level. For comparison, we used ETR2 as a dependent variable, and we also had a consistent result. SOE also has a positive coefficient of 2.548, and is

significant at the 0.05 level. These results indicate that state owned firms paid higher taxes than private firms. Hypothesis 1 is supported statistically, and this is consistent with previous studies (i.e., Zeng, 2011; Bradshaw et al., 2013); however, this contrasts with others studies (i.e., Derashid & Zhang, 2003; Adhikari et al., 2006; Liu & Liu, 2013).

SIZE has a positive coefficient of 3,593, and is significant at the 0.01 level (dependent variable: ETR2); however, SIZE has a negative coefficient and no significant result when ETR1 is the dependent variable. These results support hypothesis 2, and indicate that big firms paid higher taxes than small firms. Political cost theory explains that big firms become victims of greater regulatory actions by government and are vehicles for wealth transfers (Watts and Zimmerman, 1978). Our evidence supports previous research on the relationship between firm size and ETR (i.e., Zimmerman, 1983; Omer et al., 1993).

Table 2. Descriptive statistics

	ETR1	ETR2	SIZE	LEV	ROA	CAPINT	INVINT
Mean	0.203	0.199	22.182	0.477	0.067	0.220	0.184
Minimum	0.000	0.000	16.340	0.007	0.026	0.000	0.000
Maximum	0.967	0.995	30.570	6.348	12.823	0.971	0.943
Std. Dev	0.116	0.174	1.528	0.227	0.177	0.175	0.182

ETR is effective tax rate. ETR1 is calculated by income tax expense divided by book income in the 2009-2013 period. ETR2 is calculated by income tax expense divided by operating cash flows in the 2009-2013 period. ROA is return on assets, which is calculated as pre-tax income divided by total assets. LEV is leverage, which is calculated as total debt divided by total assets. SIZE is total assets. CAPINT is capital intensity, which is calculated as net property, plant and equipment divided by total assets. INVINT is inventory intensity, which is calculated as inventory divided by total assets.

Table 3. ETR comparison on SOE and Private firms

	SOE	Private	Significance
ETR1	0.216	0.190	***0.000
ETR2	0.198	0.201	0.478

Table 4. ETR comparison on state and local government firms

	State Government	Local Government	Significance
ETR1	0.201	0.226	***0.000
ETR2	0.196	0.194	0.912

Table 5. Correlation matrix

	ETR1	ETR2	SOE	SIZE	LEV	ROA	CAPINT	INVINT
ETR1	1							
ETR2	0,018 0,237	1						
SOE	***0,110 0,000	0,016 0,291	1					
SIZE	***0,112 0,000	-0,002 0,879	***0,279 0,000	1				
LEV	***0,240 0,000	*-0,025 0,099	***0,207 0,000	***0,475 0,000	1			
ROA	***-0.095 0,000	-0,016 0,290	*-0,022 0,092	***-0,076 0,000	***0,044 0,001	1		
CAPINT	**-0.033 0,012	***-0,193 0,000	***0,158 0,000	-0,005 0,716	***-0,044 0,001	-0,006 0,637	1	
INVINT	***0,205 0,000	***0,107 0,000	-0,005 0,683	***0,053 0,000	***0,314 0,000	***-0,058 0,000	***-0,411 0,000	1

*ETR is effective tax rate. ETR1 is calculated by income tax expense divided by book income in the 2009-2013 period. ETR2 is calculated by income tax expense divided by operating cash flows in the 2009-2013 period. ROA is return on assets, which is calculated as pre-tax income divided by total assets. LEV is leverage, which is calculated as total debt divided by total assets. SIZE is total assets. CAPINT is capital intensity, which is calculated as net property, plant and equipment divided by total assets. INVINT is inventory intensity, which is calculated as inventory divided by total assets. SOE is the dummy variable for firms which equal 1 if a firm belongs to the government, and zero otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.*

Table 6. OLS regression result

Variables	Expected sign	ETR1	ETR2
SOE	+	***5.285	**2.548
SIZE	+	-0.947	***3.593
LEV	-	***12.249	***-7.138
ROA	-	***-7.409	***7.030
CAPINT	-	**2.104	***-11.041
INVINT	+	***10.401	***4.840
Adjusted R Square		0.090	0.067
F-value		98.187	54.751
Two-tailed p-value		0.000	0,000

ETR is effective tax rate. ETR1 is calculated by income tax expense divided by book income in the 2009-2013 period. ETR2 is calculated by income tax expense divided by operating cash flows in the 2009-2013 period. ROA is return on assets, which is calculated as pre-tax income divided by total assets. LEV is leverage, which is calculated as total debt divided by total assets. SIZE is total assets. CAPINT is capital intensity, which is calculated as net property, plant and equipment divided by total assets. INVINT is inventory intensity, which is calculated as inventory divided by total assets. SOE is the dummy variable for firms which equal 1 if a firm belongs to the government, and zero otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

We find conflicting results on the relationship between LEV and ETR. LEV shows a positive coefficient of 12.249 when we use ETR1 measures, however, LEV shows a negative coefficient of 7.138 when ETR2 is used for measurement, and both are significant at the 0.01 level. We have less evidence to support hypothesis 3. Other similar conflicting results are also found for ROA and CAPINT when we use ETR1 and ETR2 as dependent variables. ROA shows a negative coefficient of 7.409 for ETR1, and has a positive coefficient of 7.030 for ETR2 - both are significant at the 0.01 level. CAPINT shows a positive coefficient of 2.104 for ETR1, and has a negative coefficient of 11.041 for ETR2 - significance is at 0.05 and 0.01, respectively. We lack evidence to support hypothesis 4 and 5. INVINT has a positive coefficient of 10.401 for ETR1, and has a positive coefficient of 4.048 for ETR2 - both are significant at the 0.01 level. This evidence supports hypothesis 6: *inventory-intensive firms have higher ETR.*

5. CONCLUSION

This study examined the determinants of variability in ETR in China using two measurements of ETR (ETR1 and ETR2). We find a significant positive association between state owned firms and ETR. Research on ETR variability should consider ownership structure, especially for state owned firms, because each country has different tax treatments and political conditions. Our results explain the uniqueness of tax reporting in China where state owned firm managers carry out tunnelling tax activities to gain a chance for promotion. Minority investors should pay attention to agency conflict among shareholders in state owned firms.

The financial determinants of ETR show various results. We observed that SIZE and INVINT have a significant positive association with ETR. However, LEV, ROA and CAPINT show mixed results on ETR1 and ETR2, so we have no strong evidence to support the hypothesis.

Our study has several limitations. First, we did not split our sample to examine the determinants based on central and local government in China. We only tested the differences of ETR between central and local government. Second, we only used two kinds of ETR measurement. We suggest adding other ETR measures to enhance the robustness of results.

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