

## Research on Effect of Implicit Taxes on China's Listed Companies

Xin Ling Zhang

Department of Accounting  
Central University of Finance And Economics  
39 South College Road, Haidian District, Beijing  
P.R. China 100081

### Abstract

*The extant research documents of implicit taxes mainly were in the developed countries and most has not addressed the potential impact of acts of government on the realization of implicit taxes. In this paper, a sample of Chinese listed companies 2001-2012 study found that implicit tax also exists in the Chinese market, that is to say, China's listed companies also bear the burden of hidden taxes. And in state-owned enterprises, which affected more by government, this implicit tax burden is weakened, which means state-owned enterprises enjoy more preferential tax benefits. In addition, after the 2008 tax reform, China's listed companies implicit tax burden increased, indicating that the 2008 tax reform has provided China's listed companies a more fair and effective tax environment and competitive market.*

**Keywords:** implicit taxes; government intervention; tax reform

### 1. Introduction

The implicit tax theory points out that in a perfectly competitive market, the asset prices with preferential tax will be raised due to the market competition with the increasing investment costs, leading to the lower pre-tax returns. The difference between the pre-tax returns with preferential tax and pre-tax returns of fully taxable assets is the implicit taxes cost of preferential-tax assets, while the explicit tax is the actual tax rate for company in accordance with the laws and regulations (Scholes and Wolfson, 1992). Some existing research in the western literatures confirmed the existence of implicit taxes (Callihan and White, 1999; Erickson and Maydew, 2007; Wilkie, 1992). In addition, Salvador and Vondryk (2006) studied and found that the perfectly competitive market almost does not exist in fact, so the implicit taxes will be weakened in the current market. These researches on the implicit tax theory provide a new thinking angle for the making of national tax policy and corporate governance, so that policymakers can make effective tax policies.

At present, there is less China literature about the research on the implicit taxes, as well as the empirical test of implicit taxes system in view of China's market data. Hen and Zhu (2006) studied the end-result of implicit taxes under different market structures, and pointed out that in the perfectly competitive market, the enterprise will bear all implicit taxes cost, and the government's preferential tax policy will be invalid, which is reasonably regulated by the market, achieving the optimal allocation of resources; in the monopoly market, the enterprise will bear less implicit taxes, bear more tax preference, so the preferential tax policy of the government can play a role. Chen and Hung (2010), through the negative relationship between pre-tax earnings and tax incentives, used the data of China's listed companies in 1996-2005 to confirm that the implicit taxes were also true in China. This paper will use the data of China's A-share listed companies in 2001-2012 to test the implicit taxes of China's listed companies again. As mentioned above, the previous research has found that the implicit tax theory is based on the perfectly competitive market, but will be blocked in imperfectly competitive market (Callahan and White, 1999; Salvador and Vondryk, 2006). One important difference of China's market from the western market is that the government intervention is powerful with a large number of state-owned enterprises. The state-owned enterprises are more controlled and regulated by the government with weaker market regulation effect. No consistent conclusion has been made in the current research on the relationship between the state-owned equity and company value (Shirley and Walsh, 2000).

In addition, Wu (2009) studied and thought that the more the state-owned equity the listed companies have, the higher the effective tax rate will be, and the lower tax preference will also be. That is to say, from the perspective of explicit taxes, the government's intervention on state-owned enterprises reduces the enterprise value. So considering the implicit taxes, what is the difference of the implicit taxes cost between China's state-owned enterprises and non-state-owned enterprises? In addition, from the perspective of the implicit taxes burden, is the government intervention on state-owned enterprises good or bad for the enterprise value? This is the second question studied in this paper.

China conducted the tax system reform in 2007, which is officially implemented on January 1, 2008. Before the tax reform, there were various income tax preferential policies in China, and lot of tax policies had great flexibility. Local governments had right to control the tax preference. The government intervention is very powerful, the tax market is unfair and imperfect, so the role of the market is weak (Wu, 2009). After the income tax reform, the tax market is fairer and perfect, and how the tax reform will change the implicit taxes, cost of the enterprises is the third question studied in this paper.

Based on the data of all A-share listed companies in China's Shanghai and Shenzhen Stock Exchange in 2001-2012, this paper studies the above questions. The results show that (1)the implicit taxes also exists in China's market; (2) in the state-owned enterprises with strong government intervention, the implicit taxes is weakened;(3) after the tax reform in 2008, the implicit taxes burden of China's listed companies is increased. This paper may have the following three contributions: firstly, there is less domestic research on the implicit taxes, and this paper studies the relationship among the government intervention, government's policy and implicit taxes, having enlightening significance for the government policy and corporate governance; secondly, the research in this paper provides a new thinking for the tax reform from the implicit taxes and tax market; thirdly, this paper enriches the literature research on the relationship between the company tax bearing and the nature of enterprise controller.

## 2. Theoretical analysis and research hypothesis

### 2.1 Equity compensation gap and enterprise performance

How will the increase gap of top management's payments influence the enterprise performance? There are distinctly different opinions about this issue both in the

In the 1990s, Scholes and Wolfson first proposed the concept of implicit taxes, and they thought that in a perfectly competitive market, the asset prices with preferential tax would be raised due to the market competition with the increasing investment costs, leading to the lower pre-tax returns. The difference between the pre-tax returns with preferential tax and pre-tax returns of fully taxable assets is the implicit taxes cost of preferential-tax assets. They proved and explained the theory by S&W model. The hypothesis premise of S & W model is the perfectly competitive market, it introduced the benchmark assets (the tax rate is applicable to the maximum income tax rate without any deduction of assets) as the comparison foundation for different tax rates assets, and assumed the pre-

tax yield rate of the benchmark assets as  $R_b$ , and the pre-tax yield rate of adjusted investment assets as  $R_a$ , and the pre-tax yield of adjusted investment assets as  $r$ . Schools and Wolfson defined the implicit taxes rate and explicit tax rate as:

$$IMPRATE = \frac{R_b - R_a}{R_b} (1) \quad EXPRATE = \frac{R_a - r}{R_b} (2)$$

The total tax rate is:

$$TOTALRATE = IMPRATE + EXPRATE = \frac{R_b - r}{R_b} = 1 - \frac{r}{R_b} (3)$$

Scholes and Wolfs on proposed that in the perfectly competitive market, the after-tax yield of adjusted risky assets is the same, and the after-tax yield is defined as  $r^*$ , so in the perfectly competitive market, the after-tax yield of adjusted risk benchmark assets was  $r_b = r^* = R_b(1-t)$ , "t" is the maximum enterprise income tax rate. Substitute this formula into the total tax rate formula:

$$TOTALRATE = 1 - \frac{R_b(1-t)}{R_b} = t(4)$$

That is to say, in the perfectly competitive market, all company's actual total income tax rate is the same, the maximum income tax rate, because the explicit tax yield will be offset by the implicit taxes cost. However, in the imperfectly competitive market, the companies can keep the tax yield, and the actual total tax rate will not necessarily be the same as the maximum income tax rate. S & W model is the earliest and most basic model of implicit tax theory. But it is too difficult to apply the S&W, after all, the benchmark assets are not easy to be determined, and it is also hard to adjust the risk of each asset. Callihan and White (1999) further promoted based on S&W model and set up C&W model, the most widely used model so far, which is another important milestone in the development of implicit tax theory. C & W model proposes how to use the information provided by the financial statements to assess the implicit taxes, which opened a door for the empirical research of theory. The fully taxable benchmark asset pre-tax yield is defined as:

$$R_b = \frac{(PTI - CTE)/(1-t)}{SE} (5)$$

Where  $R_b$  is the fully taxable benchmark pre-tax yield, PTI is the book value of the pre-tax yield, CTE is the company's actual income tax expenses, t is the maximum income tax rate, and SE is the owner's equity. They define the pre-tax yield of investment assets  $R_a$  and tax yield rate  $r_a$  as:

$$R_a = \frac{PTI}{SE} (6) \quad r_a = \frac{(PTI - CTE)}{SE} (7)$$

Combined with the formula (1) and formula (2), the formula of implicit taxes and explicit tax in C&W model is:

$$IMPRATE = \frac{(PTI - CTE)/(1-t) - PTI}{(PTI - CTE)/(1-t)} = 1 - \frac{R_a}{R_b} (8)$$

$$EXPRATE = \frac{CTE}{(PTI - CTE)/(1-t)} (9)$$

C & W model defines the actual effective tax rate of companies as ETR, namely  $ETR = CTE / P$ , and due to the

perfectly competitive market, the assets tax yield rate is the same, so ,  $R_a = \frac{R_b(1-t)}{1-ETR}$  and according to the

$$IMPRATE = \frac{t - ETR}{1 - ETR} (10)$$

formula (8),

Callihan and White (1999) also pointed out that in the perfectly competitive market, all the company's total tax rate is equal to the maximum legal tax rate, but in the imperfectly competitive market, the effect of implicit taxes will be blocked, and the company may obtain the actual tax preference. Callihan and White (1999) conducted the empirical research on the model, used the data of American listed companies to test the relationship between the company performance and implicit taxes, and expected the negative correlation between them, and confirmed the conclusion finally. C&W model is the starting point of the empirical research on implicit tax theory, and the later empirical research on implicit taxes is based on the empirical research of Callihan and White (1999). Brian Wright (2001) further conducted the empirical research on the model of Callihan and White (1999), and also obtained the negative relationship between implicit taxes and company performance.

The expected implicit tax theory in this paper is also true in China, that is, there is negative relationship between the company performance and tax preference, and the companies with preferential tax have poor performance. This paper proposes the first hypothesis:

**H1:** Only 1: companies with preferential tax have poor performance.

According to the previous research, the implicit taxes will be affected by the market structure (Salbador and Vendrzyk, 2006). In the imperfectly competitive market, the implicit taxes will be weakened. In China, the government intervention is stronger than that in western countries, especially for a large number of state-owned enterprises. In the face of stronger government intervention, the state-owned enterprises also face the weaker market regulation. This paper believes that its implicit taxes burden will also be weakened. So this paper expects that in the state-owned enterprises, the implicit taxes will be blocked with weaker degree of implicit taxes.

**H2:** in state-owned enterprises with stronger government intervention, the negative relationship between company performance and tax preference will be weakened.

Some foreign research found that after the American tax reform in 1986, the company's maximum legal income tax rate is decreased, the same is true for the implicit taxes cost (e.g., Collins and Shackelford 1992; Scholes, Wilson and Wolfson 1992; Harris 1993; Klassen, Lang, and Wolfson 1993; Maydew 1997). Mayew, Weaver and Jennings (2012) studied but found no relationship between the decline of implicit taxes and tax environment and market competition, but related to the company's the expansionary tax planning and tax avoidance after tax reform. In 2008, China also began to implement the new income tax laws and regulations, and the company's maximum rate of income tax is decreased from 33% to 25%, how China's implicit taxes cost would change is an interesting question. Li (2011) studied and argued that after the tax reform, the listed companies' income tax burden is reduced, weakening the regional differences and highlighting the industry guidance. The definition of income tax reform for tax preference is more detailed and rigorous, also stricter with the management regulations. It improves the overflow of original tax preference and too much regional preference, improves the enterprise's tax competition environment, and provides the enterprises with fairer competition market. Therefore, this paper expects that after the tax reform in China, the implicit taxes cost will be different from that in America; that is, the negative relationship between the enterprise tax preference and pre-tax yield will be enhanced. This paper proposes the third hypothesis:

**H3:** the income tax reform in 2008 provided the enterprises with better tax competition environment, and the negative relationship between company performance and tax preference is strengthened.

### **3. Research design**

#### **3.1 Research samples and data**

This paper selects the data of all A-share listed companies in China's Shanghai and Shenzhen Stock Exchange in 2001-2012, and most of the data comes from the CSMAR and CCER database, and some missing and uncertain data are inquired and summarized artificially, eventually obtaining 15948 samples.

This paper screens the samples obtained as follows: (1) eliminate the data of listed financial companies; (2) eliminate the ST, \*ST, suspension or termination of the listed companies; (3) eliminate the data of newly listed companies; (4) eliminate the data of missing variables; (5) eliminate the data of companies with negative pre-tax yield rate (ptroe); (6) eliminate the data of companies with negative tax preference (ts). Then this paper do winsorization for all the continuous variables (1%, 99%), so as to ensure the robustness of the results. After a series of screening, this paper obtains 8543 observation samples finally.

#### **3.2 Research model and variable definition**

MSR: used to measure the management's shareholding level, the calculation formula is the ratio of share number of the management to the whole number of the shares.

MODE: in China, the most common stock incentive models are stock option, restricted ballot, and stock appreciation right. The majority of the sample companies in this paper adopt the former two kinds. Therefore, this paper introduces a dummy variable MODE to measure the difference of the incentive effects. MODE=1 indicates the restricted ballot, MODE=0 represents the stock option.

#### **3.3 The selection of the control variable**

The selection of the control variable is very significant to the analysis results of the empirical research. Only by adding necessary control variable to the model can the reliability and veracity of the research conclusion be guaranteed. This paper refers to the practice of some scholars in China, chooses the following indexes--- enterprise scale, asset-liability ratio, turnover of account receivable, and the rate of stock turnover, as the control variable.

According to the previous research (Callihan, White 1999; Salbador, Vendrzyk 2006; Wilkie, 1992), the implicit taxes can be reflected through the negative relationship between company's pre-tax yield and company's tax preference. In order to test H1 in this paper, this paper first sets up the Model 1 to verify the implicit taxes in China's market. Model 1 is obtained after adjusting the C&W model of Callihan and White (1999).

$$ptroe = \beta_1 + \beta_2 ts + \beta_3 ctrl \text{ var } s + \varepsilon$$

According to the implicit tax theory, in the perfectly competitive market, the asset prices with tax preference will increase due to the market competition, thus reducing the pre-tax yield, so there is negative relationship between the pre-tax yield and tax preference, that is,  $\beta_2$  is negative. Next, this paper will define and explain the variables in the model.

The preferential tax rate  $ts$  use the difference between the maximum legal tax rate and company's effective tax rate ETR. China's maximum legal tax rate before the tax reform in 2008 is 33%, but reduced to 25% after that. The company's effective tax rate is the ratio of the income tax expenses in the financial statement and total pre-tax profits. Other variable are defined and explained in table 1.

**Table 1**

Variable	Definition	Specific calculation and explanation
ptroe	Pre-tax yield rate	Pre-tax profit/ owner's equity
ts	Tax preference	Maximum legal tax rate - actual tax rate of company
size	Company size	Natural logarithm of total assets
lev	Financial leverage	Liabilities /total assets
fixr	Fixed assets ratio	net value of fixed assets / total assets
state	Nature of final controller	State=0 indicates the state-owned enterprises; state=1 indicates the state-owned enterprises
top1	Proportion of the largest shareholder	The largest shareholder's share / total share
year	Annual control variable	2001-2012, 12 dummy variables
ind	Industry control variable	According to the industry classification of CSRC, define 21 industry dummy variables

To test H2 in this paper, this paper divides the data sample into two groups according to the nature of the enterprise controller, namely the state-owned enterprise and non-state-owned enterprise, and conducts the regression for both groups to Model. According to the hypothesis of this paper, the negative relationship between the pre-tax yields and preferential tax rate of state-owned enterprises is weaker, and the absolute value of  $\beta_2$  is smaller.

To test H3 in this paper, this paper conducts the packet processing for the data sample, namely one group of data before the income tax reform in 2008 (2001-2007) and the other group of data after the income tax reform (2008-2012). In addition, test the data through the Model 1. According to the theory of implicit taxes, the implicit taxes in perfectly competitive market can work fully, but the imperfectly competitive market will hinder the implicit taxes (Callihan and White, 1999). According to the hypothesis of this paper, the tax policy had more detailed for the tax preference after 2008, and no longer tended to the regional preference, but paid more attention to the support of industry and project with stricter and more standard management of taxation, providing fairer tax environment for the enterprises. So we expect that there will be fairer market competition environment after 2008, and the implicit tax theory can be better reflected, the negative relationship between tax preference and pre-tax yield will be enhanced and the absolute value of will be larger.

## 4. Empirical results and Analysis

### 4.1 Descriptive statistics

To investigate the degree of the statistical relation between all variables, and test whether there is multi co linearity among these variables that will lead to the loss of significance of the research conclusions, a correlation analysis of all variables should be conducted. Table 1 lists the Pearson correlation analysis results.

First of all, the paper conducts the descriptive statistics for the key variables in this paper, tax preference, according to the annual, regional, and industrial aspect, as shown in table 2. In terms of the annual aspect, the tax preference changed dramatically in 2008. It divides the data before and after 2008 into two groups, compares the average preferential tax rate, and the result is significantly different at 0.001 significant levels. From the data in the table, it can be seen that the preferential tax rates before the income tax reform is high, above 15% every year. Before the tax income tax reform, the tax rate is 33%, which is high for the preferential tax policy of China, reflecting the high and universal tax preference in China's listed companies before tax reform, not conducive for the fair competition in the market.

In addition, after the tax reform, the preferential tax rate dropped to a more reasonable range, indicating that the tax preference and tax management were stricter and targeted. In terms of regional aspect, the average tax preference is different in different regions. The preferential tax rate in Northeastern, Southern, Northwestern and Southwestern China is generally higher, while that in Northern, Central, and Eastern China is lower. Conduct the t test mean test for both groups, and the comparison result is significantly different at 0.001 significant levels. In terms of industrial aspect, the tax preference is also different in different industries and that of agriculture, forestry, animal husbandry and fishery, manufacturing and information technology is higher. The result reflects the regional preference and industrial preference principle in China's preferential tax policy.

**Table 2**

Year	Mean (ts)	Region	Mean (ts)	Industry	Mean (ts)
2001	0.1799998	Northeastern	0.1425392	Agriculture, forestry, animal husbandry and fishery	0.2011006
2002	0.1574724	Northern	0.1355821	Mining	0.0779328
2003	0.1597924	Eastern	0.127486	Manufacturing	0.1395167
2004	0.1569693	Central	0.134832	Infrastructure	0.1316561
2005	0.1539819	Northwestern	0.1572827	Building	0.1170567
2006	0.1553477	Southwestern	0.1429143	Transportation industry	0.1255181
2007	0.1582254	Southern	0.1468379	Information technology industry	0.1588655
2008	0.1021688			Wholesale and retail industry	0.1097274
2009	0.1021688			Real estate	0.1003058
2010	0.0999094			Social service	0.127457
2011	0.0990612			Cultural communication	0.1675563
2012	0.0998859			Comprehensive	0.1415449

Next, the paper conducts the simple descriptive statistics for the data after the Winsor processing. In table 3, Panel A is the descriptive statistics of the basic features of variable data in the whole sample data period during 2001-2012, and the descriptive statistics of the basic features of variable data during 2001-2007, Panel B is the descriptive statistics for both groups divided by the Year 2008. In addition, Panel C summarizes the average variables according to the nature of the controller.

**Table 3****Panel A**

Variable	Mean	Std. Dev	Min	Max	Median
ptroe	0.1170071	0.0813168	0.0040694	0.4246765	0.0976661
ts	0.1365146	0.0829338	0.0000181	0.33	0.1322389
size	21.6688	1.113286	19.62365	25.16827	21.52974
top1	0.4010593	0.1646478	0.0996232	0.7592	0.3918
state	0.316924	0.4653453	0	1	0
lev	0.4818773	0.1820025	0.0108209	1.048323	0.4724609
fixr	0.2898097	0.1818638	0.0052391	0.7815994	0.2569085

From the Panel A, it the data of listed company samples in 2011-2012, the mean of pre-tax yield ptroe is 0.117, the median is 0.098, and the maximum and minimum value is 42.5% and 4%. The mean of preferential tax rate ts is 0.137, the median is 0.132, the minimum value is close to zero, and the maximum value is 33%. Size is the natural logarithm of company assets, and the descriptive characteristics were within a reasonable range. The mean of Top 1 is 0.4, the median is 0.39, and the maximum and minimum value is 0.1 and 0.76, respectively, so the first largest shareholders in China held more shares. The mean of debt ratio Lev is 487, the median is 47%, and the fixed assets ratio fixr is 29%, the median is 26%.

**Panel B**

Variable	<2008					≥2008				
	Mean	Std.Dev.	Min	Max	Median	Mean	Std.Dev.	Min	Max	Median
ptroe	0.109	0.076	0.004	0.425	0.168	0.129	0.088	0.004	0.425	0.109
ts	0.160	0.085	0.000	0.330	0.092	0.101	0.065	0.000	0.250	0.095
size	21.669	1.113	19.624	25.168	21.277	22.064	1.183	19.832	25.651	21.886
top1	0.422	0.167	0.100	0.759	0.417	0.370	0.156	0.096	0.750	0.357
state	0.223	0.416	0.000	1.000	0.000	0.317	0.465	0.000	1.000	0.000
lev	0.455	0.165	0.082	1.048	0.463	0.482	0.181	0.080	0.849	0.488
fixr	0.311	0.182	0.008	0.797	0.282	0.258	0.176	0.004	0.751	0.220

From Panel B, it can be seen that the size of China’s listed companies increased before and after 2008. The average pre-tax yield ptroe also increased from 10.9% to 12.9%, which is related to China's economic development, and the debt ratio Lev increased from 45.5% to 48%, indicating that the listed companies is paying more and more attention to the financial leverage, and the first largest shareholder's share is decreased from 42% to 37%., which might be related to China's equity division reform, and the preferential tax rate ts dropped from 0.16 to 0.1.

**Panel C**

	mean(ptroe)	mean(ts)	mean(lev)	mean(fixr)	mean(size)	mean(top1)
state=0	0.1136	0.1370	0.4704	0.3091	21.7925	0.4301
state=1	0.1268	0.1352	0.4524	0.2352	21.3183	0.3186

From Panel C, it can be seen that the pre-tax yield ptroe of state-owned enterprises is lower than that of non-state-owned enterprises with poorer profit ability, and the preferential tax rate ts is slightly higher than that of non state-owned enterprises, indicating the a small tax advantages of state-owned enterprises, the debt ratio lev is slightly higher than that of non state-owned enterprises, which might be related to the stronger financing ability, and the fixed assets ratio fixris higher than that of non state-owned enterprises, and the differences between both were large. The size of state-owned enterprises is larger than that of non-state-owned enterprises, and the first largest shareholder’s share is higher than that of the non-state-owned enterprises with the difference closer to 12%.

The correlation coefficient of variables used in this paper is as shown in the table 4.

**Table 4**

	Ptroe	ts	fixr	lev	size
ptroe	1.0000				
ts	-0.1700*	1.0000			
	(0.0000)				
fixr	-0.0831*	0.0477*	1.0000		
	(0.0000)	(0.0000)			
lev	0.1242*	-0.1605*	-0.0493*	1.0000	
	(0.0000)	(0.0000)	(0.0000)		
size	0.2589*	-0.2337*	0.0978*	0.3775*	1.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	

From the perspective of the correlation coefficient, there is negative relationship between the preferential tax rate and tax yield rate, and positive relationship between the debt ratio and the company size and pre-tax yield rate.

#### 4.2 Empirical results and analysis

Table 5 is the regression results of Model 1 in this paper. We control the annual and industry variables, the total sample size is 8543, and it can be observed from the table that the main variable and control variable are significant, size coefficient is 8126, t value is 0.017, levy coefficient is 0.015 and the t value is 17.95. Both size and leverage have certain positive correlation with the pre-tax yield rate, and the coefficient value is also smaller. The coefficient of state and top 1 is 0.024 and 0.034, respectively, significant at 0.001 significant levels. The regression coefficient of main variable preferential tax ts is -0.087, t value is -7.98, significant at 0.001 significant level with great statistics significance, indicating the negative relationship between tax preference and pre-tax yield, and the absolute value of coefficient -0.087 is the largest among all the variable coefficients, which shows that the pre-tax yield rate is declined by 0.087% with the increase of 1% preferential tax rate. From the perspective of coefficient, it is a more important relationship. The result in table 1 verifies H1 in this paper: companies with preferential tax have poorer performance.

**Table 5**

Pre-tax ROE regression in results

variables	Coeff.	t-Stat.
ts	-0.087***	(-7.98)
size	0.017***	(17.95)
lev	0.015***	(2.91)
fixr	-0.049***	(-8.70)
state	0.024***	(11.79)
top1	0.034***	(6.22)
_cons	-0.278***	(-14.29)
Controlled industries variables		
Controlled years variables		
N	8543	
Adj. $R^2$	0.156	
F-value (p-value)	42.49	

(t statistics in parentheses \*p<0.10, \*\*p<0.05, \*\*\*p<0.01 )

In order to test H2 in this paper, this paper divides the data sample into two groups according to the nature of enterprise controllers for regression using Model 1. State=0 indicates that the nature of ultimate controller is the state-owned enterprises; while state=1 indicates that the nature of ultimate controller is the non-state-owned enterprises. There are a total of 6315 samples of the state-owned enterprises, and 2228 samples of the non-state companies. The regression result is as shown in the table 6. From the data in the table, the regression coefficient of all variables is very significant, and the control variable coefficient is also more reasonable. When state=0, ts coefficient is -0.074, t value is -5.96; when state=1, ts coefficient value is -0.115, t value is -5.11. The result shows that the implicit taxes exists in state-owned enterprises and non-state-owned enterprises, but in the state-owned enterprises, the negative relationship between tax preference and pre-tax yield is weak, while in the non-state enterprises, the relationship is more obvious, and the differential coefficient of both groups is 0.041, relatively large. The regression result in table 6 verifies H2 in this paper, in state-owned enterprises with stronger government intervention, the negative relationship between company performance and tax preference will be weakened. The less the implicit taxes the state-owned enterprises have, the more tax reference they will enjoy.



**Table 6**

variables	state=0	state=1		
	Coeff.	t-Stat.	Coeff.	t-Stat.
ts	-0.074***	(-5.96)	-0.115***	(-5.11)
size	0.015***	(15.68)	0.017***	(8.34)
lev	0.020***	(3.36)	0.004	(0.39)
fixr	-0.049***	(-7.75)	-0.061***	(-4.67)
state	0.023***	(8.80)	0.026***	(7.94)
top1	0.025***	(4.11)	0.053***	(4.29)
_cons	-0.253***	(-12.14)	-0.265***	(-6.15)
Controlled industries variables				
Controlled years variables				
adj. $R^2$	0.155		0.161	
N	6315		2228	

(t statistics in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$  )

To test H3 in this paper, this paper divides the data sample into two groups according to the time before and after the tax reform for regression. There is a total of 5114 data before the tax reform, while there is a total of 3429 data after the tax reform. The regression result is as shown in the table 7 and 8. In table 7, all variables are basic significant at 0.001. Size coefficient of control variables changed from 0.018 to 0.015 after the tax reform, lev rose from 0.016 to 0.024. This may indicate that the influence of on pre-tax yield is reduced, but the financial leverage and debt ability still influence the pre-tax yield rate much. The fixed assets ratio coefficient also changes much, but state and top 1 coefficients do not change significantly with stable influence on the pre-tax yield rate.

ts coefficient changes the most significantly before and after the tax reform from -0.052 with t value of -4.44 to -0.163 with t value of -7.18. The coefficient is small before the tax reform but large after that, indicating that after China's tax reform in 2008, the tax preferential policy has improved, giving companies the fairer and freer tax competition environment, so the implicit tax theory can be better reflected. The regression result in table 7 verifies H3 in this paper, that is, the income tax reform in 2008 provided the enterprises with better tax competition environment, and the negative relationship between company performance and tax preference is strengthened.

**Table 7**

variables	year < 2008		year ≥ 2008	
	Coeff.	t-Stat.	Coeff.	t-Stat.
ts	-0.052***	(-4.44)	-0.163***	(-7.18)
size	0.018***	(15.08)	0.015***	(10.04)
lev	0.016***	(2.94)	0.024***	(2.72)
fixr	-0.028***	(-4.17)	-0.081***	(-8.33)
state	0.023***	(8.80)	0.026***	(7.94)
top1	0.033***	(5.09)	0.032***	(3.31)
_cons	-0.321***	(-12.96)	-0.198***	(-6.30 )
Controlled industries variables				
Controlled years variables				
adj. $R^2$	0.164		0.156	
N	5114		3429	

(t statistics in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$  )

### 4.3 Robustness test

The listed companies, in order to obtain higher tax preference, may reduce the pre-tax yield through the earnings management. To rule out negative relationship between company performance and tax preference due to the earnings management, this paper divides the sample data into two groups according to the company's earnings management level. In the weaker earnings management group, conduct the regression for the model in this paper, and the result is as shown in the table 8.

The measurement index of earnings management used in this paper is the manipulated discretionary accruals DA in modified Jones model. The regression result shows that ts coefficient is -0.077, significant at 0.001 significant level, indicating that under the condition of the weak earnings management, there is still negative relationship between the company performance and tax preference, and the regression coefficient value is not much different from that when verifying H1 in this paper, and the robustness test results support the hypothesis.

**Table 8**

variables	Coeff.	t-Stat.
ts	-0.077***	(-3.86)
size	0.009***	(5.52)
lev	0.035***	(3.76)
fixr	-0.009	(-0.89)
state	0.011***	(3.17)
top1	0.043***	(4.24)
_cons	-0.166***	(-4.76)
Controlled industries variables		
Controlled years variables		
N	1922	
adj. $R^2$	0.142	

(t statistics in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$  )

The financial crisis occurred in 2008, and in order to avoid the influence of financial crisis on the company's performance, the data in 2008 is removed with regression later. The result is as shown in table 9. After removing the data in 2008, there is a total of 7919 data, and the variables are very significant, and the major variables are still significantly negative, and the regression coefficient is -0.086, which is consistent with the result in table 10, and the robustness test results support H1. The robustness test results of H2 and H3 is as shown in table 10. Before 2008, ts regression coefficient was -0.052, and -0.177 after 2008, significant at the 0.001 level. The negative relationship between pre-tax yield and tax preference is enhanced, supporting H3. When state=0, ts regression coefficient is -0.074, when state=1, ts regression coefficient is -0.116, indicating that the implicit taxes cost of state-owned enterprises is reduced, consistent with the regression result of H2.

**Table 9**

variables	Coeff.	t-Stat.
ts	-0.077***	(-3.86)
size	0.009***	(5.52)
lev	0.035***	(3.76)
fixr	-0.009	(-0.89)
state	0.011***	(3.17)
top1	0.043***	(4.24)
_cons	-0.166***	(-4.76)
Controlled industries variables		
Controlled years variables		
N	1922	
adj. $R^2$	0.142	

(t statistics in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$  )

**Table 10**

variables	Coeff.	t-Stat.
ts	-0.077***	(-3.86)
size	0.009***	(5.52)
lev	0.035***	(3.76)
fixr	-0.009	(-0.89)
state	0.011***	(3.17)
top1	0.043***	(4.24)
_cons	-0.166***	(-4.76)
Controlled industries variables		
Controlled years variables		
N	1922	
adj. $R^2$	0.142	

(t statistics in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ )

## 5. Conclusion

To sum up, compared with the western developed capital market, China's stock incentive system in listed companies are still in the start stage, needing active, cautious, and gradual implementation. The listed companies in China, especially the listed companies of the manufacturing industry in the leading position should gain a deep insight into the fundamental realities of China, and learn from the international experience, keep researching on the original basis. It is imaginable that with the development of the capital market of China, the improvement of the professional manager market, and the laws and regulations related with stock ownership incentive, and the increasingly scientific performance appraisal systems, more reasonable business structure and stock incentive plan design, the stock incentive system of China will surely exert its incentive effect, and deal with the principle-agent issue effectively, improve the overall competition of the listed companies, and promote the development of the listed companies. The implicit tax theory provides a new train of thought for the tax policy makers and corporate managers for tax planning. This paper, through the research on data of China's A-share listed companies, finds that the implicit taxes also exist in China's market, and China's listed companies also undertake the implicit taxes burden. However, in the state-owned enterprises with stronger government intervention, such implicit taxes burden is weakened, that is, the state-owned enterprises enjoy more tax preference.

In addition, after the tax reform in 2008, the implicit taxes burden of China's listed companies is increased, indicating that the tax reform in 2008 provided a fairer and more effective tax environment and competition market for the listed companies. The author suggests that the tax policy makers consider the joint effect of both implicit taxes and explicit tax, consider the specific influence of market structure and government intervention on implicit and explicit taxes, so as to develop the more targeted and more efficient tax preferential policies, and impose rational government intervention. At the same, it is suggested that the enterprise managers combine the industry and market structure and relations with government to comprehensively consider the influence of implicit and explicit taxes on enterprise performance, so as to realize the better corporate governance and tax planning.

## References

- Adhikari , A. , C. Derashid , H. Zhang . Public Policy , Political Connections , and Effective Tax Rates : Longitudinal Evidence from Malaysia. *Journal of Accounting and Public Policy*, 2006(25).
- Atwood, T. J. Implicit taxes: Evidence from taxable, AMT, and tax-exempt state and local government bond yields. *Journal of American Taxation Association*, 2003,25(1).
- Chen ,M. , and C. Hung. T he effects of macroeconomic factors on implicit taxes: Evidence from an emerging economy. *Journal of International Accounting, Auditing and Taxation*, 2010,(19).

- Callihan, D., and R. White. An application of the Scholes and Wolfson model to examine the relationship between implicit and explicit taxes and firm market structure. *Journal of the American Taxation Association*, 1999, 21 (1).
- Chen Xiao, Li Jing, Role of Local Fiscal Behavior in Promoting the Listed Companies Performance, *Accounting Research*, 2010 (12)
- Chen Xiaoyun, Zhu Junsheng, End-result Analysis of Implicit taxes under Different Market Structures, *Tax and Economic*, 2006 (1)
- Erickson, M. M., and E. Maydew. Implicit taxes in high dividend yield stocks. *The Accounting Review*, 1998, 73(4).
- Gai Di, Hu Guoqiang, Research on Tax Avoidance and Financial Reporting: Evidence from China's Tax Reform in 2008, *Accounting Research*, 2012 (03)
- Gao Peiyong, Mystery of Fast-growing Taxes in China, *Economic Studies*, 2006 (12)
- Li Tao. State-owned Equity, Management Risk, Soft Budget Constraints and the Company Performance: Empirical Findings of China's Listed Companies, *Economic Research*, 2005 (7)
- Jennings, R., C. Weaver., and W. Mayew. The Extent of Implicit Taxes at the Corporate Level and the Effect of TRA86. *Contemporary Accounting Research*, 2012, 29(4).
- Salbador, D., and V. Vandrzyk. An examination of the relations among tax preferences, implicit taxes and market power in a non-competitive market. *Journal of the American Taxation Association*, 2006, 28 (1).
- Shackelford, D. A., and T. Shevlin. Empirical tax research in accounting. *Journal of Accounting and Economics*, 2001, 31 (1–3).
- Shevlin, T., and S. Porter. The corporate tax comeback in 1987: Some further evidence. *Journal of the American Taxation Association*. 1992, 14 (1).
- Shen Kunrong, Fu Wenlin, Tax Competition, Regional Game and Growth Performance, *Economic Research*, 2006 (6)
- Wilkie, P. Empirical evidence of implicit taxes in the corporate sector. *Journal of the American Taxation Association*. 1992, 14 (1).
- Wright, B. An Application of the Scholes and Wolfson Model to Examine the Relation between Implicit and Explicit Taxes and Firm Market Structure: An Analysis. *Journal of the American Taxation Association*, 2001, 23(2).
- Wu Liansheng, State-owned Equity, Preferential Tax and Corporate Tax, *Economic Research*, 2009 (10)
- Wu Liansheng, Li Chen, Tax Return, Company Tax and Effectiveness of Tax Policy, *China Social Science*, 2007 (4)
- Wu Wenfeng, Wu Chongfeng, Rui Meng, China's Listed Company Executives' Government Background and Preferential Tax, *Management World*, 2009 (03)
- Xia Lijun, Review of Foreign Earnings Management Measurement, *Foreign Economics and Management*, 2004, 24 (10)
- Zhang Yan, Gong Liutang, Tax Reform, Fiscal Decentralization and Economic Growth of China, *Economics*, 2005, 5 (01)
- Zhao Yixin, Role of Local Fiscal Behavior in the Listed Company's Earnings Management, Hangzhou: Zhejiang University, 2011