Impacts of Financial Constraints on Social Security in the Corporate Management

Haizhu Zhao, Yuliang Zhou*
Zhaohaizhu130@163.com, *Corresponding Author: hefly_2007@126.com

School of Finance, Guangdong University of Finance & Economics, Guangzhou, China

Abstract—Financing is on the top list affairs in corporate management and bad financing could lead to bad effects on other management affairs. In our paper, we estimate the impacts of financing constraints on social security contributions generated of Chinese listed companies in the Shanghai and Shenzhen from 2007-2019. The findings support our hypothesis that when faced with greater financing constraints, the companies pay less social security contributions. And private enterprises are confronted with a much more severe situation while the state-owned enterprises are not. Our paper provides a new perspective and empirical evidence to explain corporate social insurance contribution misrepresentation, and provides policy implications to avoid corporate social insurance contribution evasion and on social insurance system reforms.

Keywords- Financial Constraints; Social Security; Corporate Management

1. INTRODUCTION

According to the Chinese Enterprise Social Security White Paper 2020, 31% of enterprises are fully compliant with their social security bases, a further increase compared to 2019. Nearly 1/3 of enterprises have achieved full compliance. However, there is still quite a ratio of unlawful ways for enterprises to pay social security. 17.3% of enterprises choose to start paying social security after the end of the probationary period. 28% of enterprises pay contributions according to the minimum limit, 18% of enterprises pay contributions according to the internal grades, 16% of enterprises pay contributions according to the fixed salary part without bonuses, and 7% of enterprises pay contributions according to the leaders' arrangement. Against the backdrop of an increasingly ageing population, enterprises with low social insurance participation rates and low contribution rates can lead to a lack of solvency of social insurance and stability of the social insurance system.

The 2019 Chinese Private Economy Report show that private enterprises contribute over 65% to the national economy with only around 35% of credit resources. in contrast to state-owned enterprises, private enterprises face discrimination in the financing. There are more difficulties for private enterprises to borrow money from banks and they face a higher price when they pay for the natural resources. Hence, their capability to pay for social insurance contributions is severely weakened for they are confronted with financial constraints. Our paper focuses on whether the financial constraints affect the enterprises' social security contributions and whether there is a difference between state-owned and private enterprises.

2. LITERATURE REVIEW

Corporate evasion is not unique to China, but is a common phenomenon in the operation of social insurance systems across all the countries (Nitsch & Schwarzer, 1995). Gillion et al. (2000) found that in the 1990s about 65% of premiums in Latin American countries were not collected as they should be. About 35% of premiums in European countries were not collected as they should be. He argues that the reason is that governments try to deregulate in order to increase employment and tax revenues in a competitive environment, thereby reducing the actual level of contributions paid by firms.

Feldstein & Liebman (2006) thought higher statutory contribution rates can reduce the probability of business participation. And due to government credit support and implicit guarantees in China, the financing costs of SOEs are significantly lower than those of private enterprises. Private enterprises face many difficulties in some public services and debt financing, they can only lower down the financial pressure by minimizing social insurance premiums. The non-neutrality of regulation allows private enterprises to enjoy a certain degree of regulatory immunity, giving them a strong incentive to avoid paying contributions.

However, the difference in contribution rates between SOEs and private enterprises resulted from financing constraints has not yet been empirically tested. Our paper attempts to empirically examine the impacts of financing constraints on social security contribution rates and examine the difference between state-owned and private enterprises. We try to provide a new perspective for a deeper understanding of the intricate drivers behind corporate social security evasion activities.

3. METHODOLOGY

3.1 Data sources

We choose all listed companies in the Shanghai and Shenzhen as our samples and we exclude the following types of samples: (1) ST companies; (2) companies in the financial sector; and (3) companies that have been listed for less than one year as of now; (4) companies with less than 200 employees. China's listed companies have disclosed the data of social security fees according to the new Requirements of Accounting Standards in 2007. Hence, the sample years are 2007-2019. And we conduct a two-sided tail reduction of 5% on all variables.

3.2 Variables setting

1) Explained variables

The RESSET database discloses the specific items of "payable salaries," including data about social security contributions and "wages, bonuses, and subsidies."　We calculate the sum of "social security fees", "endowment insurance fees" and "unemployment insurance fees". " Health insurance fees", " maternity insurance fees" and "industrial injury insurance fees" are excluded for limited samples. We take the "salaries, bonuses, allowances and subsidies" as the "wages". And the social security contribution rate has the following two statistical definitions:

$$ssr1 = \frac{increase\ of\ social\ security\ contributions\ for\ the\ year}{increase\ of\ wages, bonuses, allowances\ and\ subsidies\ for\ the\ year}$$

$$ssr2 = \frac{decrease\ of\ social\ security\ contributions\ for\ the\ year}{decrease\ of\ wages, bonuses, allowances\ and\ subsidies\ for\ the\ year}$$

2) Explanatory variables

The explanatory variable is financial constraints, which is represented by the following three indexes: KZ index, SA index and WW index. They are measured by the following functions:

KZ=-3.014*Cash-4.444*Cflow-62.626*Div+0.153*Lev

SA=0.737*log(Asset/1000000)+0.043*log(Asset/1000000)^2-0.04*Age

WW=-0.01*Cflow-0.062*Divpos+0.021*Ltltd-0.044*lnAsset+0.102*M_incgrow-0.035*Grow_inc

Cash is cash/total assets. Cflow is cash flow from operating activities/total assets. Div is cash paid for dividends, profits or interest payments/total assets. Lev is leverage ratio. Asset is the total assets. Age is the years from setting up. Divpos is whether cash dividends are paid. Ltltd is long-term debt/total assets, M_incgrow is industry revenue growth rate. Grow_inc is firm revenue growth rate.

The financial constraints are more severe when the indexes are higher. We conduct a two-sided tail reduction of 1% on three indexes. And we use KZ index in the basic regression result and SA index and WW index in the robust checks.

3) Control variables

We control micro and macro variables. The micro variables are logarithm of employees(employee), logarithm of wage(wage), logarithm of asset size (size), leverage rate (lev), tangible assets ratio (fix_ratio), current assets ratio(flow_ratio), return rate on equity (roe), enterprise age(age) and two dummy variables of whether the enterprise is state-owned (gy) or private (my). The macro variables are logarithm of per capita GDP (pergdp) and ratio of old-age population to working age population of the province where the enterprises are registered. And we also control the year dummy variables.

4. EMPIRICAL ANALYSIS

4.1 Model construction

We construct the basic fixed regression model as follows:

$$ssr_{it} = \alpha_1 + \beta_1 fc_{it} + \beta_2 X_{it} + year_t + \varepsilon_{it}$$

Where i represents the i-th enterprise, and t is the t-th year. α_1 is the intercept. ssr_{it} is the explained variable and fc_{it} is the explanatory variable.X_{it} are the control variables. $year_t$ is the dummy variable of years. β_1 and β_2 are the coefficients of explanatory variable and control variable. ε_{it} is the residual term.

4.2 Descriptive Results of Main Variables

Table 1 shows the descriptive results of main variables. The social security contribution rate ranges from 0 to 50% and the average rate is 5.5%. Apparently, quite a number of listed

companies did not pay enough social security contributions. The KZ index ranges from -8.416 to 0.641 and the average is -2.103, which proves quite a number of listed companies face the financial constraints. All the SA indexes are positive and all the WW indexes are negative.

Table 1. Descriptive Results of Main Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ssr1	13138	.055	.089	0	.499
ssr2	13138	.055	.089	0	.494
kz	13138	-2.103	1.183	-8.416	.641
sa	13138	3.724	.264	2.118	4.678
ww	13138	-1.009	.097	-1.341	-.466

4.3 Effects of financial constraints on social security contributions

Table 2 shows the impacts of financial constraints on social security contributions. In m1, financial constraints have negative impacts on labor demand with no other variables controlled. In m2, the impacts are still negative when years are controlled. In m3, m4 and m5, the impacts are still significant with only micro variables controlled and both micro and macro variables controlled. Hence, the conclusions from the models are inconsistent. We may conclude that financial constraints negatively affect social security contributions.

Table 2. Impacts of Financial Constraints on Social Security Contribution

	m1	m2	m3	m4	m5
kz	-0.0138***	-0.00720***	-0.00615**	-0.00630*	-0.00665**
	(-5.89)	(-3.63)	(-3.05)	(-2.51)	(-2.65)
employee			0.00918***	0.00784***	0.00867***
			(8.31)	(6.95)	(7.42)
wage			-0.00923***	-0.0102***	-0.0109***
			(-7.76)	(-7.02)	(-7.38)
lnasset				0.00158+	0.00145+
				(1.81)	(1.66)
lev				0.0112*	0.0123**
				(2.36)	(2.60)
fix_ratio				0.0100*	0.0107*
				(2.16)	(2.28)
flow_ratio				-0.00108+	-0.00103+
				(-1.89)	(-1.82)
roe				-0.0327***	-0.0340***
				(-4.03)	(-4.20)
age				-0.0000957	-0.000144
				(-0.68)	(-1.02)
old_ratio					0.00103***

					(4.45)
lnpgdp					0.00349*
					(2.23)
Year	No	Yes	Yes	Yes	Yes
_cons	0.0262***	0.119***	0.221***	0.211***	0.170***
	(5.26)	(22.25)	(16.26)	(13.30)	(8.42)
N	13138	13138	13138	13138	13138

Note: t statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

4.4 Heterogeneity analysis

Table 3 shows the heterogeneity analysis. With all controlled variables, financial constraints show no impacts on state-owned companies as we assumed. But private companies still pay less contributions as a result of financial constraints. Hence, to solve the insufficient problem of the social insurance fund, it is necessary to pay attention to the financial constraints in private enterprises.

Table 3. Heterogeneity analysis

	State-Owned	Private
kz	-0.000551	-0.0106***
	(-0.14)	(-3.61)
employee	0.0123***	0.00494***
	(6.48)	(3.70)
wage	-0.0140***	-0.0106***
	(-5.85)	(-6.18)
lnasset	0.00000932	0.00201*
	(0.01)	(1.96)
lev	0.00332	0.0203***
	(0.42)	(3.82)
fix_ratio	0.00980	0.00633
	(1.38)	(1.08)
flow_ratio	0.000294	-0.000806
	(0.25)	(-1.32)
roe	-0.0228+	-0.0324***
	(-1.74)	(-3.66)
age	-0.000538*	0.0000862
	(-2.01)	(0.59)
old_ratio	0.000655	0.00127***
	(1.51)	(5.66)
lnpgdp	0.00244	0.00795***
	(0.98)	(4.42)
Yes	Yes	Yes
_cons	0.279***	0.0829**
	(8.98)	(3.25)
N	6487	6651

Note: t statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

4.5 Robust checks

Table 4 shows the robust checks results. In m6, we replace the explained variable ssr1 with ssr2.

In m7 and m8, we replace the KZ index with the SA index and WW index. In m9, we exclude the samples before the year2015. Government began to lower the lawful contribution rate and listed companies had to disclose a higher contribution for they can get more decrease on contribution. As a result, the contributions after 2015 may reflect a more accurate social security cost. In m10 and m11, we divide the samples into three groups according to the total assets. And we exclude the smaller size samples in m10 and the larger size samples in m11. We can see that the coefficients are still significantly negative and the smaller companies' contributions are more easily affected by financial constraints.

Table 4. Robust Checks

	m6	m7	m8	m9	m10	m11
kz	-0.00770**			-0.00315*	-0.00609*	-0.0153***
	(-3.06)			(-2.46)	(-2.35)	(-4.04)
ww		-0.185***				
		(-3.92)				
sa			-0.0676*			
			(-2.03)			
employee	0.00771***	0.00686***	0.00808***	0.00829***	0.00605***	0.00699***
	(6.58)	(5.68)	(7.01)	(11.58)	(4.52)	(4.40)
wage	-0.0104***	-0.00992***	-0.00957***	-0.0109***	-0.00741***	-0.0136***
	(-6.98)	(-7.14)	(-6.98)	(-12.79)	(-4.44)	(-6.17)
lnasset	0.00160+	-0.00516**	-0.00123	0.00290***	0.00175	0.00321*
	(1.83)	(-2.71)	(-0.77)	(6.55)	(1.60)	(2.13)
lev	0.0108*	0.0147**	0.00757	0.00330	-0.000100	0.0155*
	(2.28)	(3.02)	(1.49)	(1.30)	(-0.02)	(2.55)
fix_ratio	0.00885+	0.0127**	0.0143***	0.00127	-0.00177	0.0153*
	(1.89)	(3.04)	(3.39)	(0.51)	(-0.33)	(2.31)
flow_ratio	-0.00127*	0.000000969	-0.000924	-0.000301	-0.00119	-0.00217**
	(-2.23)	(0.00)	(-1.52)	(-1.01)	(-1.41)	(-2.70)
roe	-0.0292***	-0.0204***	-0.0162**	-0.00791*	-0.0357***	-0.0400***
	(-3.59)	(-3.56)	(-2.81)	(-2.00)	(-3.70)	(-3.83)
age	-0.000155	0.0000694	0.00279*	0.00000628	-0.000383*	-0.0000732
	(-1.09)	(0.48)	(1.97)	(0.09)	(-2.28)	(-0.41)
old_ratio	0.00105***	0.00107***	0.00112***	0.000433***	0.000984***	0.000965***

	(4.54)	(4.57)	(4.73)	(4.18)	(3.61)	(3.29)
lnpgdp	0.00367*	0.00430**	0.00184	0.00214*	-0.00182	0.00640**
	(2.34)	(2.69)	(1.03)	(2.52)	(-0.97)	(3.15)
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.158***	0.131***	0.443**	0.0742***	0.184***	0.140***
	(7.81)	(6.34)	(3.09)	(6.16)	(7.53)	(3.92)
N	13138	13138	13138	6428	8759	8758

Note: t statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

5. CONCLUSION AND POLICY IMPLICATIONS

Our paper found that:(1) financing constraints have a negative impact on social security contributions; (2) private enterprises pay less social security contributions because of the financial constraints. And the state-owned enterprises do not have the same problem. As the Chinese government has announced taxes and fees reduction policies and the social insurance fund will be more challenging in pay the pensions for the retirees. It is urgent to improve the capability to pay the contributions and financial constraints should be prioritized.

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