The Influence of Ultimate Ownership Structure on Trade Credit: Evidence from Listed Companies in China

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Abstract. This article analyses the mechanism of how the ultimate ownership structure which includes the control rights of the firm's largest ultimate owner, the cash-flow rights, the deviation between control rights and cash-flow rights, and the type of largest ultimate owner, influences the trade credit based on theoretical deduction from the point of agency cost theory. Generally speaking, after empirical study, the results show that the stronger the control rights of the largest ultimate owner, the more the cash-flow rights of the largest ultimate owner are, or the largest-owner is the state-owned property, the more trade credit companies can access to, vice versa. On the contrary, the greater the divergence between control and cash-flow rights, the more expensive the trade credit costs, and the less trade credit may be.

1. Introduction

Since the establishment of the first corporate, the financing problem has been a vital issue for firms' growth. In other words, inappropriate financing measures can directly lead to the death for firms. Generally, from the perspective of modern enterprise financing theory, retained earnings, debt financing and stock financing are the main financing channels. And "Pecking Order Theory" [1] shows that different kinds of financing ways have its own character and cost, which send various signals to the market. So retained earnings, the cheapest way, will be selected firstly, while debt financing follows closely and equity financing will be the last choice, because the most strict information restriction may underestimate firms' value.

In China, one of the most important emerging markets, the undeveloped financial system has been controlled by a few giant banks that related with governments, so that heavy government intervention is imposed on bank loans. For example, state-owned enterprises who have strong connection with government, are easier to get bank loans and have soft financial constraints [2]. In the meanwhile, due to the credit discrimination and the fact that bank loans and credit trade are the most important financing channels [3,4], trade credit, as a substitutional channel of bank loans, has played more and more important role in corporate financing.

The problem of how ultimate ownership structure influence trade credit actually is a part of the agency conflicts between shareholders and creditors. Jensen and Meckling [5] analyzed the situation and pointed that when investors invested risky projects, they could obtain higher profits correspondingly but creditors faced with the same risk without increase in interests, thus leading to that creditors required shareholders to invest low-risk projects rather than projects with high risk. This is how shareholders and creditors struggle for their own interests. Moreover, La Porta et al. [6] found that ultimate shareholders hidden in control chain can use a little cash flow rights to control the firm and accomplish exploitation and infringement on other interest-related parties to the most extent. If ultimate controlling shareholders have more control rights, less cash-flow right, then the

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chance and motivation of tunneling will rise, so the cost of agency conflicts will ascend as well as the possibility of financial degeneration, eventually causing damage on firms' trade credit financing.

In this paper, we find that firms' trade credit was affected by ultimate ownership structure that includes the control rights of the largest ultimate owner, the cash-flow rights, the type of the largest-owner and the divergence between control and cash flow rights. And according to the results we find, the stronger the control rights of the largest ultimate owner, the more the cash-flow rights of the largest ultimate owner are, or the largest-owner is the state-owned property, the more trade credit companies can access to, vice versa. On the contrary, the greater the divergence between control and cash flow rights, the more expensive the trade credit costs, and the less trade credit may be.

Therefore, this paper contributes to the literature on trade credit research in several ways. Firstly, varying from exiting literature, which always discuss that firms' characteristics like age, size, industry [7], market position [8], and external environment [9] are the main factors influencing trade credit, from the unique perspective of ultimate ownership, we provide empirical results that indicates various ultimate ownership has an influence on trade credit. Secondly, under the circumvent that there is a high ratio of ownership concentration in China's market, the theme that how ultimate ownership structure influence firms' debt is still in discussion, so there are opposite views and different theories are invoked. This paper aims to clarify the effect of ultimate ownership structure on trade credit, which can enrich the existing literature about the theme.

The rest of this paper is organized as follows. Section 2 describes the related literature and hypothesis. Section 3 shows our data and methodology. Section 4 and Section 5 report the empirical results and robustness test. Section 6 is the conclusion part.

2. Literature Related and Hypothesis

2.1 BACKGROUNDS

From the view of microscopic level, scholars concentrated on the motivation and factors of trade credit. The former one, after about half century's development, has several theories like price discrimination theory, quality assurance theory. Generally, researches on motivation can be divided into trading need and financing need. More specifically, using trade credit can provide service more effectively with other firms, which means it can optimize settlement methods and reduce transaction costs [10]. In addition, although price discrimination is not allowed, in order to promote product sales and stimulate the purchase of marginal customers, companies can set different trade credit conditions, such as adjusting the time limit for payment, and indirectly make price differentiation possible among consumers [11, 12]. Meanwhile, to some extent, trade credit is an assurance for goods' quality. However, when we consider trade credit from information asymmetry theory and credit rationing theory, trade credit can be considered as an efficient financing tool. Because compared with the relationship between bank and firms, the suppliers and demanders of trade credit have strong connection in their industries, and are able to grasp the trend of industry development as well as clearly know each other, indicating that the impact of information asymmetry is largely eliminated [7]. But credit rationing theory [13] points out that credit market is generally in short supply, considering that financial institutions such as banks tend to cooperate with large enterprises with more information for the security of assets. Inevitably, many enterprises suffer financing gap.

The research on the factors affecting trade credit financing mainly includes the characteristics of the company, the market status and external environment. In terms of company characteristics, Petersen and Rajan [7] found that size, age, industry, cash flow, and relationships with financial

institutions such as banks affect the company's trade credit financing. As for corporate market position, Wilson and Summers [8] believed that most companies viewed trade credit as a low-cost financing method, and companies with high market status could obtain more money; Fisman and Raturi [14] argued that firms with high market position had more bargaining ability have lower costs in contracts changing; Van Horen [9] argued that external financial and legal environments also played important role in trade credit financing.

The mechanism between the ultimate ownership structure and debt financing is of great concern. Song [15] and Chong [16] found that the debt ratio of enterprises was affected positively by the separation of control rights and cash flow rights, reflecting the fact that in the case of high concentration of shares, the “shareholder-creditor” agency conflict was intensified. The degree of agency conflict between shareholders and creditors caused by different sources of liabilities is also different [3]. Xiao [17] empirically found that that the stronger the control rights of the largest ultimate owner, the greater the divergence between control and cash flow rights, or the more the pyramid layers are, the tighter the bank loan contracts will be. But literature

The ultimate equity structure can aggravate or alleviate the related agency conflicts and affect the company's financing behavior to a certain extent. Therefore, so we start research with the ultimate equity structure as the cut-in point. However, most literature regard debt as homogeneity, ignoring the difference in the liabilities. At the same time, the impact of the complete ultimate ownership structure on liabilities is not fully considered. Hence, this paper attempts to clarify the true relationship between the ultimate ownership structure and trade credit, and broaden the research boundary of the ultimate ownership structure and trade credit.

2.2 TRADE CREDIT AND THE CONTROL RIGHTS

The ultimate control rights refer to that the largest ultimate controlling shareholder at the top of the equity control chain, establishing a complex shareholding structure in various ways, directly or indirectly acquired the power to impose influence on firms’ decisions. Cleassen et al. [18] pointed out that the control rights held by the ultimate controlling shareholder were positively correlated with the probability of moral hazard problems. LLS [19] also supported this view. The stronger the control rights of the largest ultimate owner, the greater the motivation for robbing external investors for private gain, the higher the financial risk of the enterprise, and the more financing cost of obtaining trade credit will be. Therefore, we postulate the first hypothesis as follow:

The control rights of ultimate shareholders are negatively correlated with trade credit.

2.3 TRADE CREDIT AND THE CASH FLOW RIGHTS

Cash flow rights refers to the shareholder's claim for the company's residual equity. And we multiply the share proportion of each layer in control chain and adds it to the total. LLSV [20] found that if the ultimate controlling shareholder's cash flow rights was higher, then the company's value would increase correspondingly, which suggested that the cash flow rights had entrenchment effects. Now that the ultimate controller's interests are consistent with the company's interests, those shareholders will try to decrease the financing cost and their motive for encroachment weaken consequently. Therefore, we postulate the first hypothesis as follow:

The control rights of ultimate shareholders are negatively correlated with trade credit.

2.4 TRADE CREDIT AND THE SEPARATION BETWEEN THE CONTROL AND CASH FLOW RIGHTS

Controlling shareholders can hold control rights exceed their cash flow rights by tools like stock pyramids which the controlling shareholder take for separating cash flow rights and control rights, and then misappropriating the benefits of other interest-related parties through asset sale, transfer pricing and capital occupation, and eventually firms' value is damaged and agency cost consequently increases [21, 22]. Thinking about that trade credit suppliers have close cooperation with the demander, so based on the above analysis, we propose the following hypothesis:

The greater the divergence between control and cashflow rights, the lower the trade credit will be.

2.5 TRADE CREDIT AND TYPES OF ULTIMATE CONTROLLING SHAREHOLDERS

The purpose of different types of ultimate controlling shareholders varies. State-owned capital pays more attention to national stability and development, while private capital more focuses on exclusive private interests. Due to China's special institutional environment, state-owned enterprises can receive more government support and financial subsides than the other enterprises. When the ultimate controlling shareholder type is state-owned capital, companies is less likely to be in financial default [23], so we hypothesize the following:

When the type of largest ultimate owner is the state-owned property, the company can get more trade credit financing.

3. Data and Research Methodology

3.1 DATA AND VARIABLES

We used a dataset on non-financial Chinese A-share companies listed on the Main Board of Shenzhen stock exchanges from 2012 to 2016, which are all obtained from the China Stock Market and Accounting Research (CSMAR) database. In addition, we only obtain samples without missing data. Finally, our sample includes 3,250 firm-year observations.

(1)Measurement of the Trade Credit

Consistent with the literature [24], the definition of our main explanatory variables, trade credit (TC/A), is the sum of accounts payable, bill payable and advance from customers scaled by total assets. Moreover, we use accounts payable scaled by total asset to redefine trade credit to check the robustness of our results [25].

(2)Measurement of the Ultimate Ownership Structure

According to prior researches [17], the ultimate ownership structure is made up of control rights, cash flow rights and the separation of two rights. We calculate the control rights using the sum of the minimum shareholding ratios in each control chain, and we multiply the share proportion of each layer in control chain and adds it to the total as the cash flow rights. Moreover, this paper presents the separation of the rights by the ratio of control rights and cash flow rights. And Ultimate Owner (OWN), which measures whether the ultimate owner is state-related. It is coded 1 if the ultimate owner is the state and 0 otherwise.

(3)We add the following variables as controls, motivated by Xiao [24], including size, leverage, profitability and so on. All variables are presented in Table 1.

Table 1 Varieties Table

Variable Name	Variable Code	The Definition of Variables
Trade Credit	TC/A	(Accounts payable + bill payable + advance from customers) / total assets
The control rights of the ultimate owner	CON	The sum of the minimum shareholding ratios in control chains
The cash flow rights of the ultimate owner	CF	Multiply the share proportion of each layer in control chain and adds it to the total
The separation of the control rights and cash flow rights	SEP	The control rights / the cash flow right
Size	SIZE	Take the natural logarithm of the annual book total assets
Leverage	LEV	Annual book total liabilities / annual book total assets
Cash flows from operating activities	CFO	Cash flow from the company's operating activities for the year/year-end total assets
Profitability	ROA	Company's total return on assets
Mortgage Ability	MC	Net fixed assets / total assets for the year
Growth ability	GROWTH	Company's operating income growth rate for the year
The type of Ultimate Owner	UWN	1 means state-owned property, and 0 means private property
Corporate governance structure characteristic variable	SHARENO1	The shareholding ratio of the largest shareholder
	BDS	The size of broads

3.2 DESCRIPTIVE STATISTICS

Table 2 Description Statistics

variable	mean	sd	min	p25	p50	p75	max
TC/A (%)	17.94	12.64	1.37	8.05	14.75	25.18	50.55
CON (%)	34.74	17.39	0.73	20.72	33.54	47.11	89.51
CF (%)	40.02	15.61	5.04	27.80	39.66	51.25	89.51
SEP	1.38	1.09	1.00	1.00	1.00	1.41	23.49
STATE	0.72	0.45	0.00	0.00	1.00	1.00	1.00
MC	0.25	0.19	0.00	0.09	0.20	0.38	0.69
CFO	0.04	0.07	-0.12	0.00	0.04	0.09	0.19
ROA	0.03	0.04	-0.10	0.01	0.03	0.05	0.13
SIZE (%)	22.75	1.48	16.83	21.78	22.61	23.60	28.51
LEV	0.53	0.20	0.14	0.38	0.53	0.68	0.85
GROWTH	0.08	0.25	-0.32	-0.07	0.05	0.18	0.76
BDS	9.13	1.88	3.00	8.00	9.00	9.00	18.00
SHARENO1(%)	38.37	15.28	12.04	25.75	37.34	50.14	72.15

Table 2 presents the descriptive statistics of main variables. According to the results, TC/A has a mean of 17.94%, proving that trade credit is important in Chinese firms' debt structure. And the

standard deviation of TC/A is 12.64, meaning that there is huge difference in firms. Meanwhile, the control rights of the largest ultimate owner have a mean of 0.35, the cash flow rights about 0.40 and the separation of the two 1.38, supporting the widespread existence of pyramid structure in Chinese Enterprises. And it is unignoring that about 72% firms has national color.

3.3 MODELS

To examine the effect of ultimate ownership structure on trade credit, we constructed models 1 to 4, testing Hypothesis 1 to Hypothesis 4, as follow:

$$TC_{it} = \alpha + \beta \times CON_{it} + \gamma \times (CV_{it}) + \mu_{it} \quad (1)$$

$$TC_{it} = \alpha + \beta \times CF_{it} + \gamma \times (CV_{it}) + \mu_{it} \quad (2)$$

$$TC_{it} = \alpha + \beta \times SEP_{it} + \gamma \times (CV_{it}) + \mu_{it} \quad (3)$$

$$TC_{it} = \alpha + \beta \times STATE_{it} + \gamma \times (CV_{it}) + \mu_{it} \quad (4)$$

4. EMPIRICAL RESULTS

After Wald test, B-P test and Hausman test, the four models were applied to the fixed effect model, and the time effect in likelihood test were found not significant. Moreover, since most of the industry of the sample companies did not change during the observation period, the industry dummy variables and annual dummy variables were not included in the model. The empirical results are shown in Table 4.

In the first model, we can observe that the control rights of the largest ultimate controlling shareholder are positively related to commercial credit, which indicates the more control rights, the more trade credit will be. However, this is different from the prediction, then we speculate that there is strong substitutional relationship between bank loans and trade credit. Because when the ultimate shareholders have more control rights, their incentive to plunder the interests of external investors grows stronger, so banks will consider loan contracts more seriously [17] and trade credit become more important for those firm.

In the second model, the cash flow rights of the ultimate controlling shareholder are significantly positively correlated with commercial credit, meaning that more cash flow rights indicate the growth of trade credit. Based on this, we can conclude that the second hypothesis is supported.

In the third model, we test the third hypothesis and find the separation of the two rights of the ultimate controlling shareholder is significantly negatively correlated with commercial credit, and the coefficient is the highest among the three explanatory variables, which is 18.3%. This means that the greater the divergence between control and cash-flow rights, the higher trade credit cost.

Finally, the fourth model presents that when the ultimate controlling shareholder are state-owned property, the sum of trade credit that the enterprise can obtain will rise, namely that the two are significantly positively correlated, confirming the previous theoretical analysis that state-owned identity can bring more convenience to enterprises.

Table 3 Regression results examining the relationship between trade credit and ultimate ownership structure

	-1	-2	-3	-4
VARIABLES	TC	TC	TC	TC
CON	0.0618***			
	-0.009			
MC	-5.759***	-5.794***	-5.944***	-5.928***
	-0.421	-0.421	-0.385	-0.375
CFO	16.39***	16.58***	16.57***	16.63***
	-1.302	-1.269	-1.267	-1.253
ROA	3.858	3.814	4.092	4.072
	-2.82	-2.836	-2.82	-2.838
SIZE	0.887***	0.861***	0.949***	0.949***
	-0.045	-0.035	-0.057	-0.058
GROWTH	1.994***	1.991***	2.041***	2.035***
	-0.092	-0.104	-0.117	-0.123
LEV	21.79***	21.96***	21.90***	21.84***
	-0.516	-0.509	-0.54	-0.531
BDS	0.217**	0.213**	0.212**	0.204**
	-0.099	-0.094	-0.095	-0.092
SHARENO1	-0.031	-0.037**	0.017	0.018
	-0.02	-0.015	-0.02	-0.02
CF		0.065***		
		-0.014		
SEP			-0.229***	
			-0.026	
OWN				1.498***
				-0.49
Constant	-16.18***	-15.87***	-16.96***	-18.26***
	-1.374	-1.046	-1.647	-1.933
F	1787.84	2052.63	1913.89	2025.2
R_sq	0.202	0.202	0.2	0.2
Observations	3250	3250	3250	3250
Number of groups	650	650	650	650

Note: Values in parentheses are standard error. * p<0.05, ** p<0.01, *** p<0.001

5. ROBUSTNESS TESTS

In order to confirm the stability and universality of the above experiments, we provide robustness tests for the four hypotheses. First, we expand the sample to the firms listed on the Main Board of Shanghai and Shenzhen stock exchanges, and four tests show the same results. Secondly, we apply accounts payable scaled by total assets as new way to represent trade credit. After empirical research, it is consistent with the conclusion of the article, indicating that conclusions of this paper have good stability. The specific results are shown in Table 4 and Table 5. Due to space limitations, part of the results of control variables was hidden.

Table 4 Regression results examining the relationship between trade credit and ultimate ownership structure (trade credit measured by accounts payable/ total assets)

	-1	-2	-3	-4
VARIABLES	TC	TC	TC	TC
CON	0.009***			
	-0.003			
CF		0.0309***		
		-0.00743		
SEP			-0.164***	
			-0.0149	
OWN				1.601***
				-0.227
Constant	-5.503*	-5.078*	-5.366*	-6.908**
	-3.01	-2.919	-2.97	-2.83
F	1787.84	2052.63	1913.89	2025.2
R_sq	0.182	0.183	0.183	0.183
Observations	4929	4929	4929	4929
Number of groups	987	987	987	987

Note: Values in parentheses are standard error. * p<0.05, ** p<0.01, *** p<0.001

Table 5 Regression results examining the relationship between trade credit and ultimate ownership structure (expanded sample)

	-1	-2	-3	-4
VARIABLES	TC	TC	TC	TC
CON	0.0301***			
	-0.00693			
CF		0.0234***		
		-0.00844		
SEP			-0.108***	
			-0.0308	
OWN				0.127
				-0.483
Constant	-4.442*	-4.435*	-4.818*	-4.961**
	-2.613	-2.594	-2.597	-2.377
F	168.53	215.92	277.4	147.01
R_sq	0.101	0.1	0.1	0.099
Observations	3251	3251	3251	3251
Number of groups	651	651	651	651

Note: Values in parentheses are standard error. * p<0.05, ** p<0.01, *** p<0.001

6. CONCLUSION

In the context of China's equity concentration, this paper constructs a mathematical model and through a series of theoretical deductions, that the ultimate control of the shareholding structure has an impact on commercial credit, mainly as the ultimate controlling shareholder has the power and opportunity to encroach on the interests of external investors, corporate finance The situation has

deteriorated, which in turn has affected corporate finance.

Through the collection and processing of 3,250 data of 650 listed companies in China's Main Board of Shenzhen stock exchanges, this paper has empirically analyzed the effect of ultimate structure on trade credit and found the following conclusions: (1) the stronger the control rights of the largest ultimate owner, taking the substitute relationship between bank loans and trade credit into account, the more trade credit firms can get; (2) higher cash flow rights is helpful to obtain trade credit; (3) the greater the divergence between control and cash-flow rights, the more expensive the trade credit costs, and the less trade credit may be; (4) that the largest-owner is the state-owned property state has a positive effect on trade credit financing.

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