Research on Debt Governance, Earnings Quality and Capital Allocation Efficiency

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Abstract. Debt financing is the company's main source of external funding. As the creditors provided funds to the company, in order to maintain their funds security, they should participate in the corporate governance, supervising and controlling the business management behavior of the enterprise, and exerting the debt governance. This study used the Shanghai-Shenzhen A-share listed companies from 2008 to 2017 as samples, examined the relationship between debt governance and the effect of earnings management on capital allocation in China's capital market. We found that debt governance is affected by the nature of property rights. Compared with non-state-owned enterprises, creditors have higher governance effects in state-owned enterprises and can effectively improve their capital allocation efficiency. Debt governance is also affected by the debt maturity structure. Creditors have higher governance effects in companies with a high short-term debt ratio, and it is difficult for creditors to take part in corporate governance through long-term debt. This study provides evidence for the effectiveness of China's debt market.

Keywords: Debt governance, Nature of property rights, Debt maturity structure

1 Introduction

Compared with developed countries, the low efficiency of capital allocation by listed companies is still an important issue in China. Debt is an important part of the company's capital. Creditors are closely linked to the interests of the company through Debt. In order to maintain their fund security, they should participate in corporate governance, supervise and control the business management behavior of enterprises, which is debt governance. Previous research has not fully considered the role of debt governance in corporate governance. This study explores the relationship between debt governance and earnings management on capital allocation efficiency in the context of China's capital market to test whether debt governance can improve the capital allocation efficiency of the capital market.

This study makes three contributions. First, we verified of the effectiveness of the Chinese debt market. Most of the previous researches suggest that debt governance does not function effectively in China, and debt market contracts cannot play a constraint role due to imperfect institutional environment. Financial reform has improved the institutional environment in which debt governance can be part of corporate governance. This study can provide new evidence for the validity of the debt market contract. Second, we investigate the impact of debt

governance on the company. Debt governance is influenced by ownership property. In state-owned enterprises with weaker accounting conservatism, the effect of debt governance is more significant. Finally, we contribute to more comprehensive description of how debt governance affects the efficiency of resource allocation of listed companies. We investigate the impact of debt governance on the efficiency of resource allocation of listed companies from the perspective of debt maturity structure.

2 Literature Review and Hypothesis Development

2.1 The Impact of Earnings Quality on Capital Allocation Efficiency

Corporate governance system is an organic control right system formed by the monitoring of shareholders, the supervision of the board of directors, and the supervision of creditors. Due to the conflict of interest and the asymmetry of information, insiders tend to make investment for their own interest which may violate the value of the enterprise, and lower the capital allocation efficiency of the company. Accounting conservatism can improve this situation, and disclosure of corporate financial information can greatly improve the efficiency of capital allocation. The higher the quality of financial reports, the better the investment efficiency of the company (Verdi, 2006)[1]. Accounting information, as an important source of internal information, has an important impact on the market supervision. It improves project selection by improving external supervision, reducing financing costs, and ultimately improves capital allocation efficiency. Reliable accounting information helps external investors assess corporate value and decide whether to invest, as well as ease the information asymmetry between the company and external investors.

2.2 The Impact of Debt Governance on Earnings Quality and Capital Allocation Efficiency

There are two different perspectives on the study of debt governance. One view is based on agency theory and incomplete contract theory. It believes that creditors can play a governance role and can supervise the enterprise and improve its corporate governance. The other view is based on the empirical research, that in some countries with poor financial environment, creditors can not play a governance role, and become the plundered target of insiders. Most of the theories such as incomplete contract theory are originated from developed countries, in which the legal system and enforcement mechanism for the protection of creditors are relatively sound, and the financial environment is relatively healthy. They believed that the creditor's rights depend on the perfection and enforcement efficiency of the creditor protection law. China's financial reform has improved the institutional environment since 2004, providing foundation for the research of debt governance.

Debt governance works in different ways from different theoretical perspectives. In information asymmetry theory, debt plays a role in information transmission. In financial intermediation theory, debt can play a role in supervising and controlling business operations. In agency theory, debt can play a role in reducing the cost of equity agency…These theories overlap each other to form a complete theoretical system of debt governance, in which debt governance can play a governance role. Nowadays, with the increasingly perfection of financial market environment, we believe that the debt governance in China is effective. Thus,

debt governance can effectively improve earnings quality. With the higher ratio of debt, the risk of bankruptcy faced by enterprises is greater, and creditors have more control over the enterprise. Thus creditors have greater motivation and ability to supervise enterprises to protect their own interests, requiring enterprises to improve their earnings quality (Defond and Jiambalvo, 1994[2]; Bushman et al., 2004[3]; Lu, 2008[4]).

Further considering the influence of the ownership property, due to internal control and government intervention, the accounting conservatism of state-owned enterprises is weaker than non-state-owned enterprises in China. On the other hand, non-state-owned enterprises have multi-party supervision over large and small shareholders compared to state-owned enterprises, so that corporate governance mechanisms are more effective than state-owned enterprises. The creditor obtains the information of the enterprise through the accounting information, whose the most important characteristics is the accounting conservatism (Lu, 2008[4]). Therefore, in order to obtain better accounting information, the firm's accounting conservatism can be effectively improved, when the creditor participates in corporate governance. Thus, the impact of debt governance on earning quality of state-owned enterprises is more significant. This leads us to our first hypothesis:

H1a: Compared with enterprises with low debt ratios, the higher the ratio of debt, the more significant of the improvement in earnings quality on capital allocation efficiency;

H1b: Compared with non-state-owned enterprises, the higher the ratio of state-owned enterprises' debt, the more significant the improvement of earnings quality on capital allocation efficiency.

2.3 The Impact of Debt Maturity Structure on Earnings Quality and Capital Allocation Efficiency

The effects of debt governance are affected by different debt maturity structures. Short-term debt has more constraints on enterprises, by which creditors have stronger control over enterprises. On one hand, enterprises face large repayment pressures when they have short-term debt, which helps creditors to more effectively supervise corporate investment behavior. At the same time, creditors only need to pay attention to the short-term cash flow of enterprises in the short-term debt, which will reduce their governance costs. On the other hand, enterprises need to disclose more information to borrow short-term debt. For enterprises with a large proportion of short-term debt, frequent signing of loan contracts will increase the requirements for earnings quality. Therefore, in the short-term debt contract, creditor governance has a greater impact on corporate earnings quality and capital allocation efficiency.

Long-term debt has less constraints to enterprises than short-term debt. On one hand, as the term of long-term debt is much more longer, the governance cost of creditors is higher, which leads to the weakening of the governance effect of creditors. On the other hand, when creditors choose long-term debt they tend to consider more conditions, such as corporate social reputation, business-government relationship, and legal environment. Under the unsound legal environment of creditors, the main external compliance mechanism of long-term debt is a reputation mechanism based on government intervention (Sun, 2005). Therefore, the long-term debt of creditors is often targeted at enterprises with good reputation, and the governance effect of creditors in such enterprises is weaker. This leads us to our second hypothesis:

H2a: The higher ratio of short-term debt, the more significant of the improvement in the efficiency of capital allocation;

H2b: Compared with short-term debt, the effect of long-term debt on earnings quality and capital allocation efficiency is not significant.

3 Research Methodology

3.1 Data

We use Shanghai-Shenzhen A-share listed companies from 2008 to 2017 as samples. (1) Excluded financial and insurance companies. (2) Excluded companies with less than 2 years of time to market and companies with missing data. The financial data and stock trading data are from the CSMAR database. To eliminate outliers interference, the main variable process Winsorize of 1%.

3.2 Variables and Model

3.2.1 Earnings quality

Earnings management level is an important indicator to measure earnings quality of corporate (Caramanis et al., 2008[5]; Cohen et al, 2010[6]). Jones (1991) provides a way to estimate the level of corporate earnings management by separating nondiscretionary accruals and discretionary accrual[7]. According to Dechow et al. (1995)[8], the modified Jones model's estimation of earnings management is better. In order to obtain a positive indicator, this paper uses the inverse of the absolute value of the discretionary accruals (earn_qu) to measure the earnings quality. The greater the inverse of the absolute value of the discretionary accruals (earn_qu), the higher earnings quality.

3.2.2 Capital allocation efficiency

The capital allocation efficiency is mainly the investment efficiency of listed companies in this study. The estimation method of investment efficiency of listed companies reference the residual estimation model in Richardson (2006)[9]. The positively residual obtained by this model is indicating the degree of over-investment of listed companies, and the negative residual is the degree of under-investment of listed companies. The absolute value of residual is used to estimate the capital allocation efficiency of listed companies. The larger the value, the lower the investment efficiency. [10]

3.2.3 Debt Governance

The degree of creditor's participation in corporate governance depends on the debt structure of the company. This study mainly uses debt ratio and debt maturity structure to measure creditor's governance. The debt ratio is the proportion of debt to total assets, and the calculation method of debt is (short-term debt + long-term debt + bonds payable + other payable + non-current liabilities due within one year). Considering the debt maturity structure, we can further distinguish the short-term debt ratio (*ratio_sdebt*) from long-term debt ratio (*ratio_long*), in which short-term debt ratio is short-term debt to total assets, and long-term debt ratio is long-term debt to total assets.

3.2.4 Control variables

The main control variables include: *Size*: company size, the natural logarithm of total assets of listed companies. *Lev*: asset-liability ratio. *Cfo*, cash flow, net operating cash flow of listed companies. *Top1*, the largest shareholder shareholding ratio. *Tunnel*, large shareholder share, net other receivables divided by total assets. *Age*, age of listed companies. *State*, the nature of property rights, for state-owned enterprises equal to 1, non-state-owned enterprises equal to 0. *Ind*, industry. And year. In addition, macroeconomic influences are controlled for annual GDP growth (*Dgdp*)

3.2.5 Model and empirical test procedure

The empirical test adopts multiple regression analysis model to test the hypothesis. To avoid the effects of extreme values, all continuous variables are winsorize at the 5% and 95% levels. Before the empirical test, the mean value, standard deviation, maximum value, median and other statistics of variables were described through descriptive analysis to observe the distribution of sample data. Further, the collinearity problem is eliminated by VIF collinearity test. The regression model to test the two hypotheses is as follows.

Formula (1) is used to test hypothesis H1a and H1b. If α_1 is significantly negative, it proves that earnings quality can significantly improve the efficiency of capital allocation. If α_3 in the sample of state-owned enterprises is significantly negative, it proves that the higher debt ratio, the effect of the earnings quality of listed companies on non-efficiency investment is more obvious.

$$Abinv=\alpha_0 + \alpha_1 Earn\_Qu + \alpha_2 Ratio\_Debt + \alpha_3 Earn\_Qu*Ratio\_Debt + \alpha_4 \Sigma control + \xi \qquad (1)$$

Formula (2) and (3)is used to test hypothesis H2a and H2b. If β_3 is significantly negative, it prove that the higher ratio of short-term debt, the more significant of the improvement in the efficiency of capital allocation. If γ_3 is not significantly negative, it prove that the effect of long-term debt on earnings quality and capital allocation efficiency is not significant.

$$Abinv=\beta_0 + \beta_1 Earn\_Qu + \beta_2 Ratio\_Sdebt + \beta_3 Earn\_Qu*Ratio\_Sdebt + \beta_4 \Sigma control + \xi \qquad (2)$$

$$Abinv=\gamma_0 + \gamma_1 Earn\_Qu + \gamma_2 Ratio\_Ldebt + \gamma_3 Earn\_Qu*Ratio\_Ldebt + \gamma_4 \Sigma control + \xi \qquad (3)$$

3.3 Descriptive Statistics

The descriptive statistics of the main variables in the model are shown in Table 1. From the statistical results of the measurement variables of earnings quality and capital allocation efficiency, the difference between mean, median and extreme value is large, indicating that the difference between earnings quality and capital allocation efficiency of listed companies is large. Further, the average short-term debt ratio (*Ratio_Sdebt*) is 0.115, and the median is 0.088. The long-term debt ratio (*Ratio_Ldebt*) averaged 0.0590 and the median was 0.0140. The average, median and maximum value of short-term debt of listed companies are higher than long-term debt, indicating that debt financing of listed companies is more inclined to adopt short-term debt financing. Compared with long-term debt, creditors of short-term debt will be the most important participants in the debt governance of listed companies.

Table 1. Variables' Descriptive Statistics

variable	N	mean	sd	min	p25	p50	p75	max
Earn_Qual	14512	-0.106	0.124	-0.786	-0.132	-0.070	-0.031	-0.001
Abinv	14512	0.033	0.036	0	0.010	0.022	0.042	0.215
Ratio_Debt	14512	0.255	0.177	0.001	0.102	0.242	0.384	0.706
Ratio_Sdebt	14512	0.115	0.112	0	0.0170	0.088	0.179	0.467
Ratio_Ldebt	14512	0.059	0.091	0	0	0.014	0.084	0.424
Size	14512	22.15	1.325	19.63	21.20	21.95	22.92	26.10
Cfo	14512	0.043	0.074	-0.186	0.002	0.042	0.086	0.250
Tunnel	14512	0.018	0.026	0	0.004	0.009	0.020	0.153
Lev	14512	0.478	0.208	0.058	0.319	0.486	0.640	0.905
Top1	14512	0.358	0.154	0.088	0.234	0.338	0.468	0.752
Age	14512	2.290	0.607	1.099	1.792	2.485	2.773	3.178
State	14512	0.500	0.500	0	0	0	1	1
Dgdp	14512	8.208	1.232	2.200	7.300	7.800	9.500	14.200

4 Empirical Analysis and Results

Table 2 shows the regression results of the impact of debt governance on the relationship between earnings quality and capital allocation efficiency. The results in column (1) indicate that the earnings quality of listed companies can significantly improve the efficiency of capital allocation. Columns (2) to (4) show the impact of debt ratio on the relationship between earnings quality and capital allocation efficiency. Although the coefficient of intersection in column (2) does not show statistical significance, in the group test in the (3) and (4) columns according to the nature of property rights, the coefficient of *Earn_Qu*Ratio_Debt* in the sample of state-owned enterprises is significantly negative. It shows that the higher debt ratio, the effect of the earnings quality of listed companies on non-efficiency investment is more obvious. And debt governance is affected by ownership property. Compared with non-state-owned enterprises, the higher ratio of state-owned enterprises debt, the more significant the improvement of earnings quality on capital allocation efficiency. Thus, Hypothesis1 is established.

Table 2. Regression Results of the Impact of Debt Governance on Earnings Quality and Capital Allocation Efficiency

	Abinv	*Abinv*	*Abinv*	*Abinv*
	whole sample	whole sample	Non-state	State-owned
	(1)	(2)	(3)	(4)
Earn_Qu	-0.0246***	-0.0193***	-0.0271***	-0.0037
	(-10.68)	(-4.95)	(-5.11)	(-0.62)
Ratio_Debt		0.0219***	0.0303***	0.0125***
		(6.68)	(5.54)	(3.05)
*Earn_Qu*Ratio_Debt*		-0.0187	-0.0101	-0.0431**

		(-1.56)	(-0.58)	(-2.55)
Lev	0.0012	-0.0146***	-0.0186***	-0.0099***
	(0.66)	(-5.54)	(-4.49)	(-2.89)
Size	-0.0017***	-0.0016***	-0.0023***	-0.0011***
	(-5.83)	(-5.70)	(-4.71)	(-3.02)
Cfo	0.0084**	0.0145***	0.0129**	0.0172***
	(2.04)	(3.49)	(2.10)	(3.05)
Top1	-0.0025	-0.0017	0.0024	-0.0047*
	(-1.24)	(-0.81)	(0.74)	(-1.76)
Tunnel	-0.0109	-0.0092	0.0042	-0.0263
	(-0.92)	(-0.78)	(0.24)	(-1.59)
Age	-0.0035***	-0.0034***	-0.0034***	-0.0024***
	(-5.88)	(-5.88)	(-4.06)	(-2.69)
State	-0.0036***	-0.0033***		
	(-5.12)	(-4.67)		
Dgdp	-0.0002	0.0094	0.0112	0.0084
	(-0.43)	(0.89)	(0.69)	(0.61)
Ind	Control	Control	Control	Control
Year	Control	Control	Control	Control
Constant	0.0773***	0.0117	0.0136	0.0004
	(9.38)	(0.16)	(0.12)	(0.00)
R^2	0.0902	0.0946	0.0958	0.0976
F	27.5829	27.9680	14.4090	14.6995
N	14512	14512	7260	7252

Table 3 shows the impact of long-term debt and short-term debt on debt governance. From the regression coefficient of *Earn_Qu*Ratio_Sdebt*, and *Earn_Qu*Ratio_Ldebt*, the coefficient of *Earn_Qu*Ratio_Sdebt* is significantly negative, indicating that the higher the proportion of short-term debt, the more significant the improvement in earnings quality on capital allocation efficiency. The coefficient of *Earn_Qu*Ratio_Ldebt* does not show statistical significance. Compared with short-term debt, the long-term debt has no significant effect on earnings quality and capital allocation efficiency. Thus, Hypothesis 2 is established.

Table 3. Regression results of the impact of debt maturity structure on earnings quality and capital allocation efficiency

	Abinv	*Abinv*
	(1)	(2)
Earn_Qu	-0.0188***	-0.0244***
	(-6.02)	(-7.76)
Ratio_Sdebt	-0.0117***	
	(-2.84)	
*Earn_Qu*Ratio_Sdebt*	-0.0551***	
	(-2.74)	
Ratio_Ldebt		0.0297***
		(8.56)

*Earn_Qu*Ratio_Ldebt*		0.0043
		(0.32)
Lev	0.0031	-0.0081***
	(1.43)	(-3.99)
Size	-0.0018***	-0.0020***
	(-6.02)	(-6.94)
Cfo	0.0074*	0.0104**
	(1.77)	(2.53)
Top1	-0.0027	-0.0018
	(-1.32)	(-0.90)
Tunnel	-0.0110	-0.0122
	(-0.93)	(-1.03)
Age	-0.0034***	-0.0037***
	(-5.86)	(-6.28)
State	-0.0037***	-0.0036***
	(-5.23)	(-5.11)
Dgdp	0.0109	0.0092
	(1.03)	(0.87)
Ind	Control	Control
Year	Control	Control
Constant	0.0799***	0.0217
	(12.59)	(0.30)
R2	0.0902	0.0963
F	26.5481	28.5316
N	14512	14512

5 Conclusion

We investigate the impact of debt governance and earnings management on capital allocation efficiency, and verify the effectiveness of China's debt market. As the debt ratio increases, the effect of the earnings quality of listed companies on non-efficiency investments is more obvious. Further consider the ownership property and the debt maturity structure: debt governance is affected by the nature of property rights. Compared with non-state-owned enterprises, creditors have higher governance effects in state-owned enterprises and can effectively improve their capital allocation efficiency. Debt governance is also affected by the debt maturity structure. Creditors have higher governance effects in companies with a high short-term debt ratio, and it is difficult for creditors to participate in corporate governance through long-term debt. This study provides support for verifying the effectiveness of China's debt market.

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