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Effect of the Issuance of Convertible Bonds on the Company's Agency Costs

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Abstract

The separation of ownership rights and management rights on shares of a Joint-stock company leads to agency conflicts between shareholders and managers. With the separation of ownership and management of financing funds making the interests of shareholders contradict the interests of its creditors, the company's agency costs come into being as a result. Through an empirical research on agency costs of 79 non-financial listed companies who issued convertible bonds during the year 2002-2013 in China, whether the issuance of the convertible bond is beneficial to reduce agency cost of listed companies is examined. The empirical results show that the issuance of convertible bonds contributes to the reduction of agency costs, which supports the assumption concluded from the theoretical researches conducted by foreign researchers that convertible bonds can reduce agency costs in some extent.

Keywords

Convertible Bonds, Agency Costs, Listed Companies

1. Introduction

As an innovative hybrid financing instrument, convertible bonds has relatively lower interest cost than bonds and bears less risk than equity finance as well. Thus, it becomes a relatively favored way to refinance in the current capital markets. While in fact, the convertible bond is not only just a financing tool which acts as both debt and equity, but also a tool that can, to a certain extent, govern the company and can make the agent conflicts between shareholders and creditors, and agent conflicts between shareholders and managers less acute. However, judging from the current capital market situation, many domestic listed companies have ignored the role of convertible bonds in improving corporate governance mechanism, but merely see it as a kind of refinancing tool similar to additional issuance and allotment of refinancing. In fact, the convertible bonds not only have both

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functions of the creditor's rights and the equity stake, but also contain an inbuilt action of options. So it is not just a way to refinance. It can play a unique role in governance.

Due to the separation of ownership and management rights of enterprises, the interest of managers and the interest of owners (*i.e.* Shareholders) will often conflict, mainly shown as ineffective investment, namely underinvestment and overinvestment. Meanwhile, due to the ownership of the financing funds belongs to the creditors, while shareholders have the right to use the money, so such separation state of ownership and management will cause a conflict between the interests of creditors and shareholders as well. In general, creditors are risk-averse while shareholders are risk lovers. So there is contradiction in the ideas of using debt funds between the two parties. Shareholders want to have more debt funds invested in risky but high-yielding projects, which is so-called assets substitution behavior. Especially when companies are in financial difficulties, since the shareholders' right to claims for the company's liquidated assets is in the last, so they will invest in project with high risk and high returns to give it a go, and this will exacerbate the asset substitution behavior. As the respective interests of the company on its principal-agent chain, the vital interests of shareholders, creditors and managers will be under significant impact after the issuance of convertible bonds.

Western scholars' theory studies of convertible bond financing illustrated that convertible bond could decrease agency cost and improve the performance of corporate governance (Mayers, 1998 [1]; Schmidt, 1999 [2]; Green, 1984 [3]; Stein, 1992 [6]). However, can convertible bond in China decrease the agency cost and improve the performance of corporate governance as well as in the West? This paper tries to discuss the relationship between convertible bond and agency cost, and then provides reference on reducing agency conflict inside enterprises and improves the value of enterprises.

2. Literature Review and Commentary

Mayers (1998) [1] fully believed that convertible bonds can effectively reduce speculation and risk-taking behavior of managers, reduce unreasonably high investment risk due to the result of the equity financing by management. Convertible bonds can reduce the unreasonable high investment risk on the one hand while also remind investors of capital investment risk, which makes it a better way of corporate finance. Schmidt (1999) [2] built a model under the situation of Sequential investment and proved that convertible bonds can clearly motivate managers to work for the benefit of shareholders which in return effectively mitigate the conflict between shareholders and managers. Green (1984) [3] believed that there was a conflict of interest between the company's shareholders and the company's creditors, especially in the key point of making investment and financing decisions. But such behavior will allocate a greater part of investment risk to the creditor side, because the enterprise's shareholders bear only limited liability and risk by law. Black-Scholes (1973) [4] hold that the convertible bond financing may cause alternative assets problems: convertible bonds, which can act in the function of options, may result in damage to the interests of creditors. Because shareholders will likely to maximize its their interest at the expense of the interests of creditors. Jensen and Meckling (1976) [5] maintained that the "principal-agent" relationship is generally defined as a contract, and this contract exists between the principal and the agent. The agent makes decisions within the specified rights guaranteed by the principal, and the purpose of these decisions is to be able to realize the maximization of the interests of the principal. In general, since the targets of the principal and the target of the agent are never exactly the same, then under the assumption of rational economic man, the two sides will inevitably see deviation and conflicts of interest between them. And such deviation and conflicts are due to the fundamental contradiction that both the group itself always seek to maximize its interests. Stein (1992) [6] thought that under the circumstances of information asymmetry, investors would lose interest in equity investments. But the emergence of convertible bonds can alleviate this contradiction, because the convertible bond can be used as a delayed equity investments which allows investors to learn how the company operates in a certain time after the issuance of convertible bonds and then decide whether or not to make the conversion. But it also can make the management group more inclined to invest the projects which will increase the value of the company in order to attract investors to make the conversion decision.

Genming Zhang, Yonghua Fang (2004) [7], Dongnian Wang (2006) [8], Li Zheng, Qinghua Wang (2006) [9] used the similar research tools to study the effect of convertible bonds in terms of reducing agency costs. Based their research on the two types of internal conflict which are conflict of interests between management and shareholders of the enterprise and conflict of interest between shareholders of the enterprise and corporate creditors, as was pointed out at the beginning of this paper, they discussed the unique role of convertible bonds in

mitigating these two conflicts. Jia He, Hui Xia (2005) [10] made their analysis through the extended Stein's model, taking the factor that the shareholders are in the pursuit of the interests of being in charge into account, to analyze how the business will make its financing options in this case. Ling Zhang, Feng Zheng (2005) [11] made a great effort in the study of equity incentives. They believe that convertible bonds can fundamentally reduce the probability of corporate conflicts between shareholders and management in all aspects, because once convertible bonds are applied to the equity incentive, it can mobilize management initiative to a large degree thus reducing their offside behavior.

From the above studies we learned that both domestic researchers and foreign researchers have found that the cost of equity agency is directly affected by the equity structure and the enterprise management system. There are Empirical studies conducted both at home and abroad to prove the above theory. Those European and American researchers have made more thoroughly empirical studies, however, their study did not fully match the theory. Their study helps to reduce the corporate agent fees and to increase operational efficiency, which contributes mainly to deconstruct how the role of convertible bonds in the enterprise management construction through theories and models, such in order to enrich their theory of convertible bonds in the company's governance. While although the domestic industry researchers have done a lot of deep research to understand how the convertible bonds plays a role in reducing agency costs of the enterprise, their specific measurements of the agency costs do not have much difference, and there is little empirical studies to support their measurements. The ultimate goal of this paper is to provide companies, especially listed companies with more evidence and reference in terms of the financing methods and management structure.

3. Study Design

A) Sample Selection

This study selected all listed companies who has issued convertible bonds during the time period from 2002 to 2013 as the initial sample, and the samples were screened by following the steps below: 1) Exclude financial companies, due to their specialty; 2) exclude the companies with incomplete data during 2002-2013 years; and 3) eliminate companies issued duplicate convertible bonds. After the screening, the sample includes 79 listed companies who issued convertible bonds. Financial indicators data herein from CSMAR financial research database, the missing data in some individual years is from the China information site http//www.cninfo.com.cn, the securities regulatory commission (CSRC) site and other sites. In this paper, the data processing of all adopt the SPSS13.0 Wilcoxon signed-average rank test methods for statistical analysis.

B) Variable Definitions

There is no determined way to measure the agency cost neither At home nor abroad. Ang (2000) [12] used the cost of sales rate and asset utilization rate in their empirical research. In their research, cost of sales rate took the sales cost rate of companies to the same scale with zero agency costs as the reference, thus a company's agency cost is calculated by using the company's sales cost minus sales cost of company with zero agency costs. Since the managers know well of the performance of the usage of assets to a large extend, thus they have a lot of motivation to use the asset for their own interests in the absence of incentives and shareholders' regulatory. For example, they might give themselves more leisure time, conduct blind investment in order to get better performance and so on. It is possible to measure agency cost by measuring ineffective use of assets in a company. Singh and Davidson (2003) [13] calculated the agency cost by adding management expense ratio and financial expense ratio to the formula of Ang (2000). However, domestic scholars Changjiang Lv, Yanqiu Zhang (2002) [14] hold that the administrative costs is a reasonable measure of improper consumption of managers, so they conducted their measurement by using administrative expenses, sales expenses' utilization rate and the total asset utilization rate. Donghua Chen, Hsinyuan Chen and Wanhua Lin (2005) [15] simply measured the on-the-job consumption on management levels while determining the agency cost.

The paper, based on previous studies, also used the management expense ratio (administrative expenses/main business income) and total assets turnover (the main business income/average total assets) to measure the agency costs of listed companies. Because the agency cost is mainly caused by the fact that the shareholders could not fully regulate the behaviors of managers, and the creditor cannot monitor the use of funds. As a result, immoral behaviors of managers such as on-the-job consumption, laziness on work and other unethical behavior of managers and shareholders' misconduct of investment like over-investment or under-investment which lead to low efficiency in the use of assets may occur. Obviously, there is a positive correlation between management

expense ratio and agency costs, while asset turnover rate and agency costs change in the opposite direction, that is, the lower the asset turnover rate, the higher the administrative costs.

C) Research Methods

Domestic scholars Xuefang Zhang, Chunjie Liu (2006) [16], Xianping Yuan, Dagang Ke (2006) [17], etc used paired sample non-parametric test of Wilcoxon signed-average rank test in the study of performance changes before and after the convertible bonds issued, so this paper will mainly draw on methods used by these scholars to conduct the inspection of significant changes of agency costs in those listed companies before and after the issuance of convertible bonds. Wilocxon signed rank test method is used to inspect the difference value of paired samples through a signed rank under a situation where the distribution of overall sample is unclear. Wilcoxon signed-rank test evaluate the rank of paired samples in respect to their absolute value in descending order. Then the corresponding score difference of each sign is noted by a plus notation or a minus notation respectively. And then the ranks of two related undifferentiated samples with a plus notation and a minus notation were summed. If the value of the sum of the difference is very big, it shows a big difference between the two related samples. Wilcoxon signed rank test is a relatively high efficient method by utilizing plus and minus rank and the difference value.

D) Empirical Research Results and Analysis

1) Statistics descriptive of agency cost indicators before and after the issuance of convertible bonds of the sample.

In the general descriptive statistics study of the sample, the average is vulnerable to the worth of extreme, while the median is relatively more stable, so this paper chose the median to do the comparison. **Table 1** is a median summary of convertible bonds management fee rate and the total turnover rate of the sample.

According to the description in **Table 1**, we found that the management expense ratio decreased when comparing the ration of issuing year of the convertible bonds with the previous year and the year after the release with the issuing year, and the total turnover rate increased obviously. It supported the conclusion that the issuance of convertible bonds can reduce agency costs. Though a total turnover rate declined when the median of the agency costs variable index of issuing year was compared with the previous year, evidence to support the decline agency cost is more obvious on the whole.

2) Comparative Analysis of agency costs before and after the issuance of sample convertible bonds with Wilcoxon signed rank test method

Management expense ratio and total asset turnover are designed as paired samples respectively in the time period of three years (*i.e.*, the year before the issuance, the year of the issuance and the year after the issuance). Then Wilcoxon signed rank test method was used to do a differentiate inspection. The results are shown in **Table 2**.

The results in **Table 2** show that the management expense ratio and total asset turnover have significant differences between the issuing year and the previous year of the sample issuance of convertible bonds, while only the total turnover rate there are significant different when the year after the issuing year was compared with the issuing year.

Table 1. Descriptive statistics of sample convertible bonds median three-year before and after the issuance.

	Year before issuing	Issuing year	Year after issuing
Management expense ratio (GEL) (%)	5.53342	5.25249	4.98463
Total assets turnover ratio (AZL) (%)	49.53871	52.09264	50.89246

Table 2. Wilcoxon test results for agency costs change before and after the sample issuance of convertible bonds.

		Issuing year and the previous year	The following year and issuing year
Management expense ratio (GEL)	Z statistic	−1.908	−0.862
	Asymp.Sig (2-tailed)	0.056*	0.389
Total assets turnover (AZL)	Z statistic	−0.615	−1.015
	Asymp.Sig (2-tailed)	0.038**	0.003***

Notes: a: *, **, *** in the table denote statistic at the 10%, 5% and 1% significance level is significant. b: Asymp.Sig listed in the table represents the accompanied probability value of Z by statistics.

3) Comparative analysis of agency cost growth before and after the samples issuance of convertible bonds

According to the results of the above study, there is preliminary evidence to support that the company's agent coasts will be reduced after the issuance of the convertible bond, but in order to fully support the results, we calculated the index growth rate to determine the increase or decrease of agency costs. The Growth formulas of management fee rate and the total turnover rate of the sample are as follows:

$$\text{The growth of management fee rate the year} = \frac{\text{management fee rate the year} - \text{management fee rate last year}}{\text{management fee rate last year}} \times 100\%$$

$$\text{The growth of management fee rate next year} = \frac{\text{management fee rate next year} - \text{management fee rate the year}}{\text{management fee rate the year}} \times 100\%$$

$$\text{The growth of total turnover rate the year} = \frac{\text{total turnover rate the year} - \text{total turnover rate last year}}{\text{total turnover rate last year}} \times 100\%$$

$$\text{The growth of total turnover rate next year} = \frac{\text{total turnover rate next year} - \text{total turnover rate the year}}{\text{total turnover rate the year}} \times 100\%$$

It is clear from the definition of the calculation formula that the plus or minus sign of the growth rate of a given indicator can explain this indicator's growing or declining state before and after the issuance of the convertible bonds. The results obtained according to the formula are as follows in **Table 3**.

Obviously, the management expense ratio declined in the year of the sample issuance of convertible bonds compared with the previous year, the total turnover rate has increased, agency costs were significantly decreased. In the following year of the issuance of the convertible bonds, the growth rate of management expense ratio is greater than zero. The total asset turnover growth rate is 2.89% in the year after the issuance, which is less than the growth rate of the total asset turnover in the issuing year, which may be due to the less effective governance function of convertible bonds in the year after the issuance compared to the issuing year.

Genming zhang, Yonghua fang (2004) [7], Dongnian Wang (2006) [8], Li Zheng, Qinghua Wang (2006) [9] analyzed how convertible bond decreased agency cost between shareholders and creditors, shareholders and managers. The empirical results of this article which is consistent with the theory research conclusions of predecessors, support the theory on empiricl side that convertible bond can reduce agency cost.

Based on a few empirical researches on the theory that convertible bond can reduce agency cost, the indices of agency cost and statistical analysis used in this paper are probably not so perfect, and we wish that more accurate indices can be digged up in later work. At the same time, the development of convertible bond financing in China's capital market came later, which lead to the selection of data is not large, and the certain error can hardly be avoided. Due to space constraints, just the result of the theory that convertible bond can reduce agency cost are studied, and no mechanisms of action of the result are analyzed in this paper, which can be used as a research direction to continue in future.

4. Conclusion and Recommendations

In this paper, the median of the management fee rate and the total asset turnover rate were utilized in the descriptive statistic analysis. Through Wilcoxon average signed rank test, sample agency cost variables have undergone

Table 3. Growth rate statistics of agency cost before and after the issuance of convertible bonds.

	Management expense ratio growth rate (GELZ)	Total asset turnover growth rate(AZLZ)
Growth rate in issuing year	−4.38%	5.32%
Growth rate in the following year	1.09%	2.89%

Note: The data obtained in the table are medians of variable growth rates.

the paired test, and finally the judgment was made by calculating the growth rate of the variable index. After this comprehensive examination of the effect that the issuance of convertible bonds of listed companies has on agency costs before and after the issuance in China, a conclusion can be drawn: agency costs of listed companies will indeed change before and after the issuance of convertible bonds, which has a basic downward trend, thus support, to a certain extent, the theoretical study on the function of convertible bond to reduce agency costs of the company. Thus, the convertible bonds can be used as a priority of financing source to refinance in the case of a listed company which has well designed the terms of the issuance of convertible bonds. While besides its role in solving the financing problem that a company faces, convertible bonds can also alleviate, to some extent, the agency conflicts between shareholders and creditors, between shareholders and management, and can reduce agency costs and improve the company's governance structure.

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