The Market Mechanism to Prevent the Debt Risk of the Local Government-Backed Investment Companies: In View of Contingent Convertible Bonds

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Abstract. In view of contingent convertible bonds, this paper studies the effect of market on the prevention of the debt risk of the local government-backed investment companies. The results are presented as follows: contingent convertible bonds can timely optimize the capital structure of the local government-back investment companies in the debt crisis, increase the tolerance for the leverage; the mandatory conversion of debt to stock can prevent the debt risk contagion, relief the pressure on the bailouts from the government; risk pricing and exchange in markets can enhance the capabilities of the markets to absorb the loss from the debt risk of the local government-backed investment companies. In a word, market can prevent the debt risk of the local government-backed investment companies by the application of the contingent convertible bonds.

Introduction

Hazards in the debt of the local government-backed investment companies is accumulating, accompanied with slow growth in local economy, decreased marginal returns on capital and concentrated repayment term. According to the study of regional finance by the National Audit Office, till June 2016 the region debt amounts to 17.891 trillion RMB, including 45.67% from the local government-backed investment companies. In 2016, Maliszewski etc. [1] estimated that the scale of the local financing platforms grew at the rate of 20% annually from 2009 to 2016. The regulation of the real estate market was further tightened, the sustainability of the land revenue as the main source of the repayment funds for the local government-backed investment companies was discredited. Meanwhile, funds outstanding for foreign exchange decreased due to the rise of federal rate, the liquidity in the banking system shrunk, and there was a huge challenge in the mode of rollover by borrowing new debt to repay old one for the local financing platforms.

In 2015, the Local Debt Swap Plan started to implement. However, the desired result was not achieved, because of different threshold for debt declaration and unclear rules for distribution of quota. The target in 2016 was 5 trillion RMB, and only 4.89 trillion RMB debts were rolled over. In addition, the central government promoted PPP to strengthen the introduction of private capital. However, the selection of appropriate projects was difficult, the payback period is long, and the implementation of PPP seems troublesome. The promise from the central government not to afford the debt of local governments and the prohibition to the local governments not to provide guarantee for any form of social capital financing aggravated the problem of debt risk for the local government-backed investment companies. It is realistically urgent to study how to resolve the debt risk of local government-backed investment companies with the purpose of controlling the systemic risks.

The local government-backed investment companies rely on the sustainability of regional economic growth and the stability of local governments’ credit to provide financing support for
regional infrastructure construction and industrial development. As scale expansion of local government-backed investment companies, the debt risk accumulates. The debt risk in the local government-backed investment companies is essentially the liquidity risk caused by the mismatch between the payback period and the debt term. It is subject to the negative influence of high leverage, low efficiency, external credit squeeze, decline of asset price, strengthening of fiscal budget constraints, economic downturn and so on. It exists in any period of economic cycle.

Most scholars did some research on the problem of how to control the debt risk of local government-backed investment companies mainly from the perspective of government governance. From the perspective of fiscal decentralization and local competition system, Mi Can [2] believes that the mismatch in the fiscal powers and administrative responsibilities for central and local governments causes a serious shortfall in the revenues of local governments. In addition, on the premise of centralization of authority in the central government, the separation of time and space for the appraisal of local governors’ powers and responsibilities stimulates over-investments in districts. From the perspective of the standardization in the corporate governance for the local government-backed investment companies, Rodden, Eskeland and Litvack [3] pointed out that the regulation of local governments’ budget can effectively control the scale of local debt. In 2004, Li Xiaobin, Li Jiajun and Zhang Wanshan [4] studied the principal-agent relationship between governments and state-owned investment companies, and pointed out that as the distribution of information is transformed from symmetry to asymmetry, the debt risk is gradually transferred from the government to the investment companies. From the perspective of the establishment of debt risk appraisal index and early-warning system, Liu Yi, Liu Xing etc. [5] proposed local fiscal risk monitoring system to reflect the overall local debt. Pei Yu and Ouyang Huasheng [6] pointed out that the debt risk early-warning indicators for local government-backed investment companies include fiscal revenue risk, expenditure risk, deficit risk and debt risk.

However, the above research has some defects. Firstly, the adjustment of the fiscal and taxing system is controversial and cannot adapt to the dynamic and regional characteristics of the debt risk in the local government-backed investment companies. The reform of the fiscal and taxing system is a top-down reform with wide-ranging implications. In view of the differentiated level of local economic development, the rules for the adjustment of the fiscal and taxing system cannot be unified, and the degree of adjustment cannot be clarified. Moreover, the local debt risk is regional and even more pro-cyclical. The dynamic regional risk cannot be alleviated by control of total amount and adjustment in the system. Secondly, the solutions proposed by most scholars are from the view of the government-led risk control, and little research has been done on the role of market. According to the international experience, the establishment of a market-constrained management model can get the strongest control over risk, and the economic system operates most efficiently. Lastly, most of research focuses on pre-control and post-amendment, and little research on how to mitigate risks as occurred. The traditional way to mitigate debt risk is mainly to dispose of bad debts to financial asset management companies. However, it is easy to induce adverse selection and moral hazard in the companies as sources of risk, and it is difficult to effectively restrain the risky companies. This paper proposes a type of contingent convertible bond, whose mandatory conversion from debt to equity triggered by a risk event would dilute the control of the original shareholders. In order to avoid the loss of control, the original shareholders would actively adjust management, improve operational efficiency, and strive to resolve the debt risks.

Theoretical Analysis

Contingent convertible bonds are hybrid securities that automatically convert debts into equities triggered by the pre-agreed terms. Once the automatic conversion occurred, the pressure on solvency would be reduced, which will help companies to survive temporarily in a crisis and to mitigate the debt risk. The way to mitigate the risk plays an important role in the stabilization of the economic system.
The debts of local government-backed investment companies are mostly invested in infrastructure construction and important industries, which have an important effect in sustaining the local economy. The investment scale of debts is relatively large, and the influence is relatively large. Moreover, the companies cannot stagnate because of the positive incentive effect and spillover effect on the local economic development. The companies are therefore “too big to fail”. The moral hazard and adverse selection caused by this “too big to fail” gives rise to excessive debts and high leverage ratio in the economic system. However, due to the inconsistency in the economic development of various regions, the possibility of default in the local government-backed investment companies of different regions is inconsistent and idiosyncratic. At present, the debt risk of the local government-backed investment companies is partial, single and non-systemic. It will not affect the entire economic system. On the premise of clear definition of property rights, the debt risk of the local government-backed investment companies can be transferred through the risk pricing and the risk exchange of the contingent convertible bonds in the markets, while the companies maintain the ability to continuously provide public goods and infrastructure construction. This results in reducing immediate negative effect of excessive debts and retaining the expected positive effect of investments in public goods.

**Contingent Convertible Bonds Can Timely Optimize the Capital Structure of the Local Government-backed Investment Companies in the Event of Debt Risks, Enhance Resilience to Pressure from High Leverage, and Strengthen the Ability to Resist Debt Crisis**

In an imperfectly competitive market, due to transaction costs and information asymmetry, capital flows are hindered, and the process of arbitrage is not risk-free. Therefore, there are different capital structures. Different capital structures will bring different economic benefits and different enterprises values. The choice of capital structure is a dynamic game between borrowers and investors under the condition of incomplete information. The optimal capital structure is not static in the complicated and variable markets. Because of the signal effect of equity refinancing and the limitation of asset-liability ratio, dynamic optimization of the capital structure is difficult to achieve in a short period of time. The contingent convertible bonds satisfy the demand for buffer capital in time when the debt crisis occurs. They can optimize the capital structure of the companies in the debt crisis, enhance the flexibility of the companies to adapt to economic fluctuations, and strengthen the resilience to pressure caused by debt risk. According to a study by Barucci and Del Viva [7], the issuance of convertible bonds can allow companies to withstand high leverage and while to gain more tax benefits through high leverage, resulting in an increase in the enterprise value.

**Convertible Bonds Can Block the Debt Risk Conduction Chain Caused by the Individual Company’s Default, Reduce the Negative Impact of the Liquidity Crunch on the Entire Local Economy, Release Pressure on Government Bailout and Minimize Moral Hazards**

The pace of the economy slackens off and the production efficiency declines, which means that the expected cash flows generated in the future decrease and thus a reduction in values of assets and an increase in leverage. This constrains the flexibility for fiscal and monetary policies, resulting in a decline in macroeconomic regulation. The weak control by the macroeconomic policies worsens the economy. Repeatedly, the economy is in a vicious cycle. In a downturn of the economic cycle, the ability to resolve debt risks by governments is limited. If the central government took the role as a last resort to resolve debt risk, the scale of bailout would not be defined. The dilemma is whether the bailout is partial or all. If it was partial, the criteria for selection would be not clear, and the differentiated treatment could lead to regional conflicts; if it was all, inflation expectation and capital outflows would aggravate economic instability. In addition, once the debt risk is resolved by the bailout, there would be a problem of adverse selection, the operation of the local government-backed investment companies could deteriorate even further. According to the statement of squeeze in balance sheet proposed by Koo [8], once the asset bubble burst, the high leverage could be exposed by the shrinkage of asset value. Even if the central bank lowers interest rates, the companies still
proactively reduce the debt scales in order to avoid the loss of confidence in the market. There is a bottleneck in the solution of debt risk during the period of turmoil. When the enterprises encounter difficulties in the operation of high-cost projects, the government will help and support them, and there is a soft budget constraint on project financing for these enterprises. In order to avoid the moral hazard arising from the soft budget constraint, state-owned enterprises are suitable to invest in projects with large scale and relatively low risk, and they are suitable to adopt debt financing. According to the findings of Dewatripont and Maskin [9] in 1995, the medium and long-term infrastructure projects could easily produce the problem of adverse selection, due to the insufficient information acquired by the government or the bank in the centralized debt financing model. In the case of insufficient information and information asymmetry, the bank provides loans for infrastructure projects which mismatch the financing cycle with investment return period. Since the investment funds from the bank have become the sunk cost of the uncovered principal, the loss of the refinancing is less than the loss of the abandonment, the bank is often willing to re-loan, which means there is ex post benefits from the soft budget constraint. Once the enterprises know the willingness of the bank to refinance, they would advocate the capitalization projects, which deteriorate the mismatch between the investment return period and the financing period, and thus the surge in debt ratio. The generation of soft budget constraints in the enterprises is related to the centralized financing model of bank loans. Decentralized equity financing, due to conflicts of interest and obstacles in communication among funding providers, the difficulty of refinancing is increased, and the ex post benefits of soft budget constraints is reduced. Once the enterprises realize that the budget constraint is strengthened, they will improve the efficiency in the project operation and enhance the ability to resist risks. Therefore, in order to reduce the debt risk, financing can be dynamically adjusted according to the difference in the risk tolerance of enterprises at different stages of the financing cycle for infrastructure construction projects operated by the local government-backed investment companies: in the initial stage of project construction, it is suitable to adopt debt financing with large scale while low default risk; as the project construction is close to the end and the follow-up operation is carried out, it is appropriate to arrange debt-to-equity conversion due to small scale but high default risk in the project. The mandatory conversion mechanism in the contingent convertible bonds guarantees the timeliness of risk buffer, insulates the negative effect of the debt risk in the single local government-backed investment company, and prevents cross-company and cross-market risk contagion.


When debt risk occurs, the local government-backed investment companies could obtain buffer capital by issuing additional shares. However, in the case of information asymmetry, the signal effect generated by the additional issuance of stocks would increase refinancing costs. The debt-to-equity conversion mechanism of contingent convertible bonds has been clarified in advance, which would not generate signal effects as refinancing arises in the occurrence of debt risk. The premium paid in advance to bond investors compensates for some of the losses at the occurrence of debt risk. When the companies face high risk, the value of the contingent convertible bonds would decrease and yet the risk compensation can be obtained through the rise of the option value. When the option of the bonds is in the money, the conversion would reduce the cost of emergent refinancing; when it is out of the money, the principal would be repaid at maturity and the arrangement of the repayment at maturity restrains excessive investments by the companies. In addition, investors can use the bonds to implement a counter-cyclical long-term investment strategy. Under normal circumstances, bond prices fall during the period of soar in economy, and bond prices rise during the period of turmoil in economy. Accordingly investors could buy cheap and sell dear to make the counter-cyclical investments. Meanwhile, on the premise of the stable growth expectation in the long term, the
infrastructure projects constructed by the local government-backed investment companies have certain exclusiveness and monopoly, and their potential benefits are relatively high. Investors are likely to provide financing support for the projects whose property rights are clearly defined. If debt risk arises in the companies, the mandatory conversion is automatically implemented, and the compensation is received by investors through the premium earned in the previous periods. Therefore, the contingent convertible bonds enhance the ability of the market to absorb the loss arisen from the debt risk in the local government-backed investment companies.

Empirical Analysis

Simulation Analysis

The prevalent convertible bonds issued in China contain the share-putable and callable terms, which signify the reward and punishment mechanism. Based on the pricing model of the contingent convertible bonds proposed by Qin Xuezhi, Hu Youqun and Shi Yushan [10], this paper analyzes risk pricing and compensation for the Share-putable & callable Contingent Convertible bonds (SPCCs). The sources of funds in the local government-backed investment companies are assumed to be bank loans (preferred debts), SPCCs and common stocks. The paper selects Wuzhou Convertible Bonds (bond code 110368) that were publicly listed on the Shanghai Stock Exchange on February 29, 2008. Wuzhou Convertible Bonds are issued by Guangxi Wuzhou Transportation Co. Ltd., which is mainly engaged in the construction of local transportation infrastructure. After undergoing a series of joint-stock reforms, it has become a local government-backed investment company with clear definition of property rights and full circulation of shares. The share issued is referred to as Wuzhou Transportation, and the share code is 600368. Through the Wind database, this paper collects relevant data and terms during the period from February 28, 2007 to February 28, 2008.

The simulated results show that the initial value of the SPCCs is lower than the face value of the bonds. It means that SPCCs are more attractive in the market. Based on the above results, the initial value of the debt-to-equity conversion option calculated is ¥ 0.08 per share, the financing cost per bond is 4%, which is lower than the average equity refinancing cost of 4.45% in 2008 measured by Mi Zhenhua [11] and the average equity financing cost of 17.77% in 2008 measured by Chen Xiaoxue [12].

![Figure 1. Relationship between Values of SPCCs and Volatility of Stock Price.](image)

Fig. 1 shows that the value of contingent convertible bonds is positively correlated with the volatility of stock price when debt risk occurs. It indicates that when debt risk increases, the volatility rises, the debt-to-equity conversion mechanism is enforced to transfer the debt risk from the companies to investors, and as the result the investors requests corresponding high risk compensations.

Conclusion

The results in this research are presented as follows: contingent convertible bonds can optimize the capital structure in time and improve resilience to leverage when the local government-backed
investment companies have debt risks; the debt-to-equity conversion mechanism in contingent convertible bonds can be enforceable to cut off risk contagion caused by single company’s debt default and release the pressure for governments bailout; the risk pricing and risk exchange in markets can enhance the financial market's ability to prevent the debt risks of the local government-backed investment companies.

This paper only studies whether the contingent convertible bonds can prevent the debt risks of the local government-backed investment companies, and does not study how to set the triggering conditions for debt-to-equity conversion in contingent convertible bonds. This will be further studied in the future.

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References


