



An Empirical Study on the Impact of Debt to Equity Swap on Enterprise Performance

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Abstract. By collecting and sorting out the enterprises that officially launched debt to equity swap from 2016 to 2019, and using their company data, this paper empirically analyzes the relationship between debt to equity swap and financial performance. The study finds that debt to equity swap can significantly improve the financial performance of enterprises. By combing the impact path of debt to equity swap on financial performance, this paper makes an empirical test and enriches the relevant literature of market-oriented debt to equity swap, It is of great significance to deeply understand the impact of debt to equity swap on enterprise financial performance.

Keywords: Debt To Equity Swap · Financial Performance · Leverage Ratio

1 Introduction

In the 1980s, after the implementation of “changing allocation to loan”, the first debt to equity swap was carried out to deal with the non-performing loans of commercial banks. Since 2011, with the decline of real economic growth, the leverage ratio of non-financial enterprise sector and the non-performing loan ratio of commercial banks have been both high, the GDP growth rate has decreased year by year, and the leverage ratio of non-financial enterprise sector has been increasing year by year. In 2017, the leverage ratio was as high as 157%, an increase of 59.7% compared with 2008, and the non-performing loan ratio of commercial banks has been rising steadily since 2011.

Under the background of economic downturn, highly leveraged and over indebted Enterprises. The Department is facing problems such as declining profitability and prominent operational risks. In order to release the potential of economic growth, the state put forward the strategic deployment of supply side structural reform. In October 2016, the State Council issued the opinions on actively entrusting to reduce the leverage ratio of enterprises and the annex guidance on debt to equity swap of market-oriented banks, marking the beginning of a new round of debt to equity swap. The purpose is to resolve the enterprise debt risk and reduce the bank non-performing loans. Whether the new round of debt to equity swap can achieve the effect of “deleveraging” and make enterprises get rid of financial difficulties is worthy of attention.

The main contributions of this paper are as follows: the existing literature mostly focuses on the market-oriented debt transfer. Based on the theoretical research of debt to equity swap and the comparison of two rounds of debt to equity swap, this paper uses empirical methods to test whether market-oriented debt to equity swap can improve enterprise financial performance, which enriches the relevant literature of market-oriented debt to equity swap.

2 Literature Review and Research Hypothesis

[3] combined with the case of debt to equity swap to explore the relationship between debt restructuring and income, and found that it improved the operation of enterprises. [6] divided financial entities into state-owned banks, debt enterprises, financial asset management companies and the central bank, and analyzed the financial changes before and after the implementation of debt to equity swap. Before the implementation of debt to equity swap, state-owned commercial banks had a large number of bad loans, dead loans and overdue loans, interest receivable and bad debt reserves. After the implementation, the cash was recovered, the cash flow statement was improved, the creditor's rights of financial asset management companies were held, and the income statement was improved; For debt enterprises, there are a lot of loans, interest payable and interest burden after loan extension before the implementation. After the implementation of debt to equity swap, the liabilities are reduced, the capital structure is optimized and the balance sheet is improved; After the implementation of debt to equity swap, the financial asset management company has become the shareholder of the equity swap enterprise, part of which issues creditor's rights to the state-owned bank and part of which borrows from the central bank; For the central bank, it holds the equity of financial management companies before and after the implementation of debt to equity swap. [1] through the comparative analysis of the profitability, debt repayment and operating capacity of the case company before and after the implementation of debt to equity swap, it is concluded that debt to equity swap plays a great role in improving the value of enterprises with excessive financial leverage. [2] further divided debt to equity swap enterprises into non zombie enterprises and zombie enterprises. The results show that the profitability and operating efficiency of zombie enterprises have not been improved.

On the contrary, [4] believe that debt to equity swap may not be able to improve the operating performance of enterprises. When debt to equity swap enterprises do not significantly improve their profitability, they are likely to fall into financial crisis again, which does not mean the real improvement of enterprise efficiency.

It can be seen that whether the implementation of debt to equity swap can significantly improve the financial performance of enterprises has not reached a consistent conclusion. Based on the trade-off theory and principal-agent theory, this paper believes that debt to equity swap can improve the financial performance of enterprises by improving the capital structure and ownership structure respectively. One way is to reduce the asset liability ratio by converting creditor's rights into shares, so as to improve the financial performance of the enterprise. Accordingly, the following assumptions are made:

H1: the implementation of debt to equity swap will improve the financial performance of enterprises.

3 Model and Data

3.1 Sample Selection and Data Source

As for the screening of debt to equity swap sample enterprises, we collected and sorted them by hand. Since most of the objects of debt to equity swap are group companies, we screened out the group companies whose debt to equity swap funds were officially implemented from 2016 to 2019 through Baidu search and major financial news websites. Excluding the sample enterprises with missing data, we obtained the annual data of 20 enterprises as regression samples. Limited by the sample enterprises, the relevant data required are from the company's annual report of Shanghai clearing network (Table 1).

3.2 Variable Definition

- (1) Explained variable
- (2) Refer to [5] to measure the financial performance of enterprises with the total net asset interest rate (ROA).
- (3) Explanatory variable
Set the explanatory variable debt to equity swap implementation (treat) as a virtual variable, with a value of 0 before implementation and 1 after implementation.
- (4) Control variable.

According to the existing literature, select operating income (ROI), enterprise age (age), enterprise nature (SOE) and operating cash flow (Inocf) (Table 2).

3.3 Model Building

In order to test the hypothesis, taking the enterprise financial performance as the explanatory variable, the implementation of debt to equity swap as the explanatory variable,

Table 1. list of sample enterprises.

Serial number	Enterprise name	Serial number	Enterprise name
1	Shandong energy	11	Huaneng Group
2	Shanxi Coking Coal	12	Lu'an Group
3	Tongmei group	13	Jinmei group
4	Huainan Mining	14	Jizhong energy
5	HuaiBei Mining	15	TISCO group
6	Henan energy	16	Shandong gold
7	Pingmei	17	Yuntianhua
8	Shaanxi coal gasification	18	Henan Nenghua
9	Jinneng group	19	China Guodian
10	Wanbei Coal	20	Yanchang oil

Table 2. variable definition.

Variable type	Variable name	Variable symbol	Variable definitione
Explained variable	Financial performance	Roa	Net profit after tax/total assets
Explanatory variable	Implementation of debt to equity swap	Treat	Take 0 before implementation and 1 after implementation
Control variable	business income	Roi	Logarithm of operating income at the end of the period
	Enterprise age	Age	Ln (years of incorporation + 1)
	Nature of enterprise	Soe	Take 1 for state-owned enterprises, otherwise it is 0
	Operating cash flow	Lnocf	Ln (difference between cash inflow and cash outflow)

and adding the control variable, this paper constructs the following model to analyze the impact of debt to equity swap on the enterprise financial performance impact on business performance:

$$Roa = \beta_0 + \beta_1 \text{Treat} + \beta_2 \text{Roi} + \beta_3 \text{Age} + \beta_4 \text{Soe} + \beta_5 \text{Lnocf} + \varepsilon$$

4 Dataempirical Results and Analysis

4.1 Descriptive Statistics

Descriptive statistics of the variables show that the average financial performance of enterprises is 0.003, the minimum value is -0.042 , the maximum value is 0.036, and the standard deviation is 0.015. The dispersion of the data is small, indicating that the enterprises that convert debt into equity are enterprises with poor financial performance, and the standard deviations of enterprise age, net cash flow from operating activities and operating income are 0.720, 1.413 and 0.619 respectively, indicating that the enterprises are in age There is little difference between net cash flow from operating activities and operating income (Table 3).

4.2 Empirical Analysis

The direct relationship between debt to equity swap and financial performance is tested. The total asset net interest rate (ROA) is used to measure the financial performance

Table 3. Descriptive statistics of variables.

variable	average value	median	standard deviation	minimum value	Maximum	sample size
Roa	0.003	0.003	0.015	-0.042	0.036	107
Treat	0.458	0	0.501	0	1	107
Lnocf	22.66	22.83	1.413	18.35	25.42	107
Age	3.408	3.178	0.720	2.197	4.762	107
Soe	0.514	1	0.502	0	1	107
Roi	25.64	25.86	0.619	24.01	26.61	107

Table 4. regression results of debt to equity swap and financial performance.

VARIABLES	Roa
Treat	0.011*** (4.18)
Lnocf	0.002** (2.38)
Age	0.001 (0.63)
Soe	-0.001 (-0.34)
Roi	0.002 (0.72)
Constant	-0.100* (-1.82)
Observations	107
R-squared	0.285

Note: * * * means significant at the 1% level, * * means significant at the 5% level, * means significant at the 10% level

of enterprises, and the virtual variable debt to equity swap implementation (treat) is used to measure the changes of enterprise financial performance before and after the implementation of debt to equity swap. The results show that the coefficient of debt to equity swap is 0.011 and the corresponding t value is 4.18, which is significant at the level of 1%, indicating that the implementation of debt to equity swap can significantly improve the financial performance of enterprises (Table 4).

Table 5. Regression results of debt to equity swap on financial performance.

VARIABLES	Roe
Treat	0.042*** (3.19)
Lnocf	0.011** (2.21)
Age	0.004 (0.38)
Soe	0.000 (0.01)
Roi	0.011 (1.03)
Constant	-0.560** (-2.03)
Observations	108
R-squared	0.212

Note: * * * means significant at the 1% level, * * means significant at the 5% level, * means significant at the 10% level

4.3 Robustness Test

For the measurement of the financial performance of the explained variable, referring to the practice of (Lin 2018), the return on net assets (ROE) is used to replace the total net asset interest rate (ROA) for regression, and the conclusions obtained by controlling the variables of operating income, enterprise age, enterprise nature and operating cash flow are consistent with the above (Table 5).

5 Conclusions

Based on MM theory and trade-off theory, this paper empirically investigates the relationship between debt to equity swap and financial performance by using the enterprise data of the formal implementation of debt to equity swap from 2016 to 2019. The study finds that debt to equity swap can significantly improve the financial performance of enterprises.

Based on the above analysis results, two suggestions are put forward:

First, for enterprises with high leverage and great potential debt risks, especially industries with overcapacity, we should adhere to the direction of marketization in debt disposal. The selection of implementation objects, pricing, equity management and withdrawal of equity from debt to equity swap fully reflect the characteristics of marketization and rule of law. Balance the capital and debt structure of enterprises, and then improve their financial situation.

Second, the implementation of market-oriented debt to equity swap has improved the direct financing channels of enterprises. In the process of equity swap, the capital market should improve the quality of information disclosure so that the shareholders of equity swap can really participate in corporate governance, so as to improve the performance of the company.

References

1. Li Zhimeng, The influence of debt to equity swap on enterprise value and the proportion of debt to equity swap Analysis. *Times finance*, 2016 (24): 183–184.
2. Li Yao, Wealth effect and enterprise performance change of debt to equity swap. *Financial research*, 2020 (07): 107–121.
3. Mishnaakrn, S. C. (1988). Earing Expectations and Capital Restructing. *J. Jonrnal of Accounting Research*. 26 (02), 273–299.
4. Sun Li, Restart of debt to equity swap: Historical Mirror, practical problems and countermeasures. *south Party Finance*, 2016 (11): 24–30.
5. Zhong Peng, Corporate social responsibility report and social responsibility of listed companies An empirical study on the relationship between deficiency and financial performance. 2021, 40 (01): 17–23.
6. Zhang Yonghui, Policy thinking on the way of converting non-performing asset debt into equity. *China collective economy*, 2007 (06): 121–122.

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