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Empirical Analysis of Private Listed Companies' Debt Financing and Business Performance in Jiangsu Province

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***Abstract*—**According to the theory of capital structure, this paper uses principal component analysis and linear regression analysis to study the relationship between the debt characteristics of the private listed companies in Jiangsu Province and their business performance. The results show that the average debt ratio of the 29 private listed companies selected from the sample is lower. And it is found that for the sample whose debt ratio is lower than 80%, its debt ratio is negatively related to corporate performance, while for the sample whose debt ratio is beyond 80%, the relationship of debt financing and enterprise performance shows the different trends. The conclusions reflect the drawbacks may exist that the debt ratio is relatively low and having not take full advantage of debt governance effect of the private listed companies in Jiangsu Province.

***Keywords*—**private listed companies; debt financing; business performance

I. Introduction

THEORETIAL circles held the idea that the changes within capital structure will affect enterprise value, and prove the correlation between debt financing and corporate performance through a large number of empirical studies. However, it is still inconclusive whether debt financing may increase or decrease business performance. China's enterprises can be divided into state-owned enterprises, private enterprises and foreign-funded enterprises in accordance with the nature of ownership. We believe that the impact of debt financing on corporate governance is different for different types of enterprises. Private enterprises have unique nature in their development process, for instance, a lot of private enterprises are family business or have family business background and their scales are relatively small. The state has separate rules and regulations for private enterprises. This paper conducts empirical analysis to determine the effects debt financing governance paying in the private listed enterprises in Jiangsu Province.

II. Theoretical Analysis and Research Hypotheses

The performance of debt financing's influence on enterprise value shows in the following two aspects, debt income and cost of debt. Debt income includes the tax deductible formed by the pre-tax deduction of interest cost and the equity agent proceeds. Cost of debt is reflected by the bankruptcy resulting from the excess liabilities and excessive debt agency costs. Modigliani and Miller (1958) put forward the MM theory, which explains the impact of debt financing on corporate value from the point of view of cost of capital[1]. Cost of debt is lower than equity cost considering no corporate income tax, but the increase in debt forms risk premium, equity cost rises, and ultimately the weighted cost of capital of the debt equals to the equity cost without debt.

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The enterprise value is calculated in accordance with the future cash flow discounted method, while future cash flow stays invariably and there is no change in the cost of capital, so liability has no effect on enterprise value (Modigliani and Miller, 1958). MM theory of this phase is established on the premise of the perfect market and a large number of assumptions. Therefore, it is a far cry from the objective circumstances. The amendment of the MM theory considers the tax deductible effect of interest caused by debt financing in income tax[2]. From the revised theoretical MM model it can be seen: the weighted cost of capital with debt is less than the cost of equity without debt, and debt management can bring tax-saving value for enterprises (Modigliani and Miller, 1963).

The study by Jensen and Meckling (1976) gives the general meaning of the agency cost of equity financing, and points out that in the principal-agent relationship between shareholders and managers, there are moral hazards as no hard working, perquisite consumption, overinvestment and underinvestment of operators, resulting in the equity agency costs[3]. Townsend's high cost state verification model (1979) points out that the use of debt can help the client to monitor the manager[4]. Enterprise's having not paid a debt on schedule will expose a high agency cost, so debt can verify the profitability of the enterprise and restrains the agency cost of the manager. Considering the event of debt default, Harris and Raviv (1990) think the debtor is entitled to recommend the exercise of the liquidation proceedings forcing managers to liquidate inefficient business, and manager does not have the residual claims after the liquidation resulting in debt financing's constraints to enterprise manager[5].

The negative impact of debt financing on firm performance is reflected in the cost of bankruptcy and debt agency costs. Bankruptcy cost means excessive corporate debts making enterprises difficult to achieve financial stability results in low efficiency of business or bankruptcy. Bankruptcy costs include direct costs and indirect costs. Direct costs include fees as legal, accounting and other professional services costs, debt and reorganization costs. Indirect costs include profits decline resulting from sell decline, input costs increase, loss of key employees, managers' time and effort loss (Malu, 2004)[6]. Jensen and Meckling (1976) put forward another kind of agency cost is debt agency cost. Because the creditors are not directly involved in business management, business managers tend to choose the investment which can maximize their own interests. The interest of the manager is the residual claim, so managers tend to choose investment projects more risky and more profitable. This will lead to a transfer of risk behavior. If the investment is successful, creditors will not get additional benefits but managers will receive greater benefits, while the debtor bears the risk of insolvent creditors when the investment fails. So the creditor makes borrowing and lending agreement, limits the enterprise investment or increase the cost of debt when lending the debt, thus affecting the business performance.

The above theoretical analysis shows debt financing influence the corporate performance in the following three aspects: tax saving value, financial constraints and agency costs [7]. Agency costs are divided into equity agency costs and debt agency costs. For private enterprises, the impact of debt financing on firm performance is unique.

First, debt financing's equity agent income is not significant among private enterprises. Bao Yujun, the president of China Association of Private Enterprises, pointed out that until the end of 2010, among more than 8.1 million private enterprises, the real Co., LTD and partnership are less than 2%, and 98% of these enterprise are owned enterprises and limited liability companies, namely, the family business. This shows that for the majority of private enterprises, the owner is the manager, and basically the equity agency problems do not exist because of the separation of owner and operator. In addition, our current debt constraints are soft, and banks are unable to exercise ultimate control over those corporate assets which even fails to fulfill the obligation to pay the interest. The bank can't become shareholders of listed companies, so the company's debt doesn't bring much pressure to the operators (Xiao Zuoping, 2003)[8]. Therefore, agent proceeds of the debt financing in the private enterprises are not so obvious.

Secondly, it is difficult for private enterprises to lend loans, capital supply and demand imbalance leads to the low rate of borrower liabilities and high agency costs of debt. The government's support policies on private enterprises are less than those on state-owned enterprises relatively, so private enterprises' operating risk is big. For quite some time the Chinese commercial banks service for state-owned economy, and private enterprises lending mechanism is not perfect. Based on the above reasons, the cost of debt of the private enterprises and the threshold for loans for private enterprises will increase and the strict loan agreement will be developed when creditors lending the debt, leading to high agency costs of debt for the private enterprises. Private enterprises' borrowing liabilities rarely show interest's tax credit effect for business performance isn't influential.

Based on the above analysis, the hypothesis of this paper is raised: liability proportion and business performance is negatively related in Jiangsu Province's private listed companies.

III. Model Building and Variable Design

First, in order to test debt financing's impact on firm performance, the linear regression model is established: $F=a+bTDR+\varepsilon$. Secondly, to examine the impact of debt level on firm performance, the data are divided into two kinds: using X_1 to represent sample whose not excluded liabilities ratio is more than 80%;(2) Using X_2 to represent sample whose excluded liabilities ratio is more than 80%. Therefore, the following two models are established to examine two types of sample interval:

$$F_1 = a_1 + b_1 TDR + \xi_1 \quad \text{TDR} \in X_1 \qquad (1)$$

$$F_2 = a_2 + b_2 TDR + \xi_2 \quad \text{TDR} \in X_2 \qquad (2)$$

TDR = total book debt / total book assets.

To sum up, there are two points of view of the definition of corporate performance. The first view is that corporate performance means corporate achievements and fruits, which is a kind of result. The second view is that business performance includes corporate performance and management efficiency, of which the former refers to the results achieved by enterprise's development and survival and the latter refers to the profitability and development capacity demonstrated in process to obtain the operating performance (Malu, 2004). This paper adopts the second view, selects ten indicators of business performance results and development capacity (return on total assets, return on equity, sales growth, accounts receivable turnover, inventory turnover, current ratio, asset the debt ratio, growth rate of main business income, net profit growth rate) to measure corporate performance, and then use principal component analysis method to get the value of comprehensive evaluation of enterprise performance, as follows.

After Conducting KMO and Bartlett test to the ten indicators, the results show that the KMO test value is 0.704, the approximate chi-square is 300, and it is suitable to conduct PCA. Then four principal component factors are achieved by SPSS, and at this time, the cumulative explained variance achieves 84.459%, indicating that the four principal components factor can better explain the original ten indicators.

The enterprise performance evaluation function can be extracted by calculating $F=0.275X_1+0.179X_2+0.286X_3+0.261X_4+0.072X_5+0.065X_6+0.134X_7+0.068X_8+0.197X_9+0.209X_{10}$. Put the original data into the function, the evaluation value of enterprise performance can be obtained.

IV. Data and Empirical Analysis

The selected samples in this article come from the Statistical Yearbook of Jiangsu Province and CSMA database. In order to ensure the stability of the financial information, screen the sample data on the basis of sample selection: (1) In order to ensure the stability of corporate financing policy, the companies this paper selected are listed before 2005; (2) Exclude the ST company; (3) Because the situation of high accounts receivable turnover ratio or net profit dropping too much resulting from poor business as well as a higher debt ratio can't represent the status of the operation of most businesses, so outliers are removed, such as companies whose accounts receivable turnover ratio is more than 36 or net profit is more than 20% lower than last year. The final observation value is 29, so X_1 contains 29samples, X_2 contains 27 samples.

Sort and comparative analyze the debt situation of the 29 samples of private listed companies in Jiangsu Province from 2005 to 2009, and the result is shown in Table 2. It can be seen from Table1 that during the five years the 29 private listed companies' debt ratios in Jiangsu Province were between 50% to 54%, while the asset-liability ratio of China's listed companies was more than 80 %in 2006, 2007 and 2008 according to the study of Niu Dongmei and Chen Ruting (2011)[9]. It shows that the indebtedness level of the private listed companies in Jiangsu Province is very low, of which the current liabilities is about 91% of total corporate liabilities, while long-term liabilities accounts for only about 8%.

Corporate short-term loan proportion is small, and there is a declining trend: from 44.63% in 2005 to 35.28% in 2009. However, the long-term borrowing ratio is very low, and there have been many enterprises with no long-term loans that from 2005 to 2008 there were 12 long-term loans enterprises averagely, up to 41.38% of the sample enterprises, while there were 11 in 2009. From the above analysis, we can see that asset-liability ratios are generally low among the private listed companies in Jiangsu Province, and most of the debt is generated in the process of business operations to cope with the operation, so short-term borrowings and long-term borrowings are rare. Conduct regression analysis on the two types of samples by SPSS17.0 Software investigated the relationship between debt ratio and corporate performance, the results are as follows: for the sample overall X_1, the regression equation is F_1=-3.287TDR+3.817; for the sample overall X_2, the regression equation is F_2 =-4.607TDR+4.315.

Comparing the regression results of X_1 and X_2 we can find, no matter consider the significance of the relationship between debt ratio and corporate performance of private listed companies in Jiangsu Province or the fitting degree of the function, equation(2) has greatly improved compared to equation(1). That means for the enterprise whose debt ratio is less than 80%, there is a significant negative correlation relationship between business performance and the corporate debt ratio. But there is no significant negative correlation relationship between business performance and the corporate debt ratio to the sample enterprises whose debt ratio is greater than 80%, so X_2's regression results are affected. This result is similar with Chu Chengbing's empirical results (2010)[10], that is, there isn't a simple linear relationship between the company's proportion of debt financing and corporate performance, but shows different correlation in different asset-liability ratio intervals. Because the private listed companies whose debt ratios are around 80% in Jiangsu Province are rare, we can't study such enterprises separately.

TABLE I
DEBT STRUCTURE OF PRIVATE LISTED COMPANIES IN JIANGSU PROVINCE

	2005	2006	2007	2008	2009
Asset-liability ratio: total liabilities/total assets	51.35%	53.08%	52.52%	51.13%	50.75%
Current liabilities scale: current liabilities/total liabilities	91.43%	90.80%	92.08%	92.70%	92.12%
Short-term borrowing scale: short-term loan/current liabilities	44.63%	43.43%	40.66%	39.76%	35.28%
Long-term liabilities scale: long-term liabilities/total liabilities	8.37%	9.18%	7.02%	6.74%	6.56%
Zero Long-term loan company quantity (a)	12	12	12	12	11

TABLE II
REGRESSION OF ENTERPRISE PERFORMANCE AND TOTAL LIABILITIES RATIO

The dependent variable (enterprise performance F)		
	X_1	X_2
Explain variables(total liabilities scale TDR)	-3.287	-4.607
R2	0.393	0.754
Adj-R2	0.370	0.744
F	17.472	76.639
t(TDR)	4.18	8.754
Sig.	0.000	0.000

Shown in Table II, to the sample overall whose not excluding debt ratio is 80%, the coefficient b1 is -3.287 passing the F test and t test, and there is a significant negative correlation relationship between business performance and the corporate debt ratio. The assumption is valid, but the fitting degree of the equation is low, and the adjusted R2 is only 0.370, which means that the established linear model can't well predicted the relationship between the two.

To the sample overall whose excluding debt ratio in more than 80%, the regression coefficient b2 is -4.607, t is the 8.754, R2 is 0.754, adjusted R2 is 0.744, F is 76.639, and Sig is 0.000, indicating that there is a significant negative correlation relationship between business performance and the corporate debt ratio, so the assumption is proved that to the most of the private listed company in Jiangsu Province, debt financing will reduce the fruits of enterprises. The equation's good fitting degree makes it able to fully explain the relationship between the variables explanatory variables and explained variables.

V. CONCLUSIONS AND RECOMMENDATIONS

From the above analysis we can see, for private listed companies whose debt ratios are below 80% in Jiangsu Province, excluding the impact of high account receivable turnover ratio, debt financing will have a serious negative impact on firm performance. So the author makes recommendations in two directions. First of all, private enterprises in Jiangsu Province shall increase loan debt financing, that is, government shall provide policy support to reduce the loan limit on the business direction, reduce the cost of debt and enterprises should increase the transparency of the company's financial information, improve the financial system, and improve their own credit. Second, improve the effect of debt management, that is, in the governance process the enterprises shall be merit-based, try to deliver enterprise management to competent person to reduce the negative impact of debt management effects on family business, and conduct innovation in the bank loan system so that corporate liabilities can be "hard constraints" of business management.

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