Research on the Factors Influencing on the Selective Tendency of Financing Method—Based on the Listed Companies’ Empirical Evidence in China
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Abstract. This paper use stepwise regression to do empirical analysis of the factors influencing on the selective tendency of financing method, based on the sample of China’s listed companies in 2009-2013. Research findings show that profitability, information asymmetry, operating and financing risks, non-debt tax shield and cost of equity have different corresponding significance and correlation relationships with the degree of internal, debt or equity financing. Financing risk is the most factor influencing the tendency of internal and debt financing, and Profitability influences equity financing most.

1. Introduction

Selective tendency of financing method means enterprises’ selection and preference towards financing methods. Myers and Mailjuf (1984)’s pecking order theory states that, due to the information asymmetry between managements and shareholders, enterprise always choose internal finance first, then to debt, and finally equity finance [1]. Many Foreign academics verify the theory, such as Fama & French (2002)’s ‘in-out, debt-equity’ capital structure theory [2]. However, Noulas and Genimakis (2011) stated that capital structure influenced by country’s economic structure, market environment, regulation system and policy orientation [3].

China has such a special condition, with an imperfect capital market. It needs further discussion on the practical application of pecking order theory. Early academics, such as Shaoan Huang, Gang Zhang (2001) [4] and Zhengfei Lu, Kangtao Ye (2004) [5] thought, in Chinese market, there was a preference for equity finance. Debt was only thought when forced and internal funds were hardly considered. Xing Liu, Feng Wei (2004) clearly states China’s listed companies tend to choose equity first, and following short-term debt, long-term debt and internal funds [6]. Yang Li, Limin Xin (2012) thought that listed companies prefer external finance than internal finance, and prefer debt than equity, short-term than long-term[7]. What’s more, Tan Zhang, Yingguo Liu (2013) states that a company’s funds were most comprised by short-term debts, which had a strong preference for short-term debt financing [8]. These show that western pecking order theory cannot completely explain Chinese companies’ financing action. So, based on the background of economic developing translation published in 18th People’s Congress, this paper use stepwise regression to do empirical analysis of the factors influencing on the China’ listed companies’ selective tendency of financing, which has a great theoretical importance and practical value.

2. Research Design

2.1 Sample data

This paper extracts totally 350 listed companies who issues A-shares. They are comprised by 7 different groups, which is divided by geographical position, of 50 companies each respective Northeast, Northwest, Southwest, North China, Central China, East China and southern part of China. To guarantee the stability and continuity of sample data, this paper takes 2009-2013 as
research period to avoid the unusual value of an individual year, then get 276 samples after rejecting ST-stock companies, financing companies and those living period are not enough. All of data is from Wind and Hexun’s annual report, then manual sorted and analyzed by SPSS 17.0.

2.2 Variables

2.2.1 Explained variables

Based on the reality of our country’s capital market, this paper constructs following 3 explained variables in different selective tendency of financing methods (Yang Li, Limin Xin, 2012 [7]):

(1) IFD = retained earnings / total capital;
(2) DFD = total debt / total capital;
(3) EFD = (share capital + capital reserve) / total capital.

2.2.2 Explaining variables

Combined with the domestic similar literatures, referring to numerous viewpoints, this paper constructs following explaining variables:

(1) ROE = net profit / total equity. This is to measure profitability. Zhixiang Hu, Yufang Xu (2013) thought that ROE is the key index to evaluate listed companies’ profitability [9].

(2) Turnover = total trading volume in a year / total A-share stocks. This is to measure information asymmetry. Bing Li, Yuejing Sun (2013) states that turnover had a negative correlation with asymmetry [10]. And it is a important factor influencing equity finance.

(3) DOL is to measure operating risk. Due to the difficulty to directly get information about fixed cost and finance cost, this paper uses operating profit / (PBT + finance cost) as the formula.

(4) DFL is to measure financing risk. In a similar way, this paper uses (PBT + financing cost) / PBT as the formula.

(5) N-dts = depreciation / total assets. It is to measure non-debt tax shield. Yiqi He (2010) found that non-debt tax shield would create tax deduction [11]. And it has a significant negative correlation with the tendency of debt financing.

(6) Cost of equity. Based on CAPM, the formula is risk-free rate + \( \beta \times (\text{annual market return} - \text{risk-free rate}) \).

3. Empirical Analysis

3.1 Correlation analysis

To distinguish the R-squared and multi-co linearity of different variables, this paper does correlation analysis on the variables which are proposed to regression analysis. Following is the correlation matrix results (table 1):

<table>
<thead>
<tr>
<th>Variables</th>
<th>IFD</th>
<th>DFD</th>
<th>EFD</th>
<th>ROE</th>
<th>Turnover</th>
<th>DOL</th>
<th>DFL</th>
<th>N-dts</th>
<th>Re</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFD</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFD</td>
<td>0.999**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFD</td>
<td>0.999**</td>
<td>1.000**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>0.270**</td>
<td>0.112**</td>
<td>-0.334**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover</td>
<td>-0.232**</td>
<td>-0.071</td>
<td>0.149**</td>
<td>-0.065</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOL</td>
<td>0.153**</td>
<td>-0.154**</td>
<td>0.057</td>
<td>0.256**</td>
<td>-0.019</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFL</td>
<td>-0.261**</td>
<td>-0.271**</td>
<td>0.098*</td>
<td>-0.219**</td>
<td>0.058</td>
<td>-0.533**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-dts</td>
<td>0.238**</td>
<td>-0.125**</td>
<td>0.099*</td>
<td>0.018</td>
<td>-0.044</td>
<td>-0.009</td>
<td>-0.022</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Re</td>
<td>0.234**</td>
<td>0.270**</td>
<td>-0.220**</td>
<td>-0.042</td>
<td>0.126**</td>
<td>0.093*</td>
<td>-0.100*</td>
<td>0.049</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: * significant correlative at the percentage of 5(two-tailed); ** significant correlative at the percentage of 1(two-tailed).

Seeing from table 1, IFD, DFD and EFD has high level of significant positive correlation. It means that 3 separate regression models are needed to do empirical analysis on their own financing
method. At the same time, DFD has no correlation with turnover, EFD and DOL. DOL has a coefficient of -0.533 with DFL, whose absolute value is more than 0.5. It means a significant negative correlation, which is from the reversed match policy between operating risk and financing risk. Among the rest variables, the absolute value of coefficient is less than 0.5, so they are not multi-co linearity and suited to do regression analysis.

3.2 Stepwise regression analysis

By using stepwise regression analysis, explained variables could be introduced into multiple regression equation separately, and be used to perform F-test. The explained variables that have significant influence on the explaining variables are remained. This paper uses SPSS17.0 to analyse sampling companies’ factors influencing on the selective tendency of financing method, to determine how deep that explaining variables could influence explained variables.

3.2.1 Regression model

Based on the researching variables in table 1, the regression model is structured as follow:

Model 1: \[ IFD = \beta_0 + \beta_1 \times ROE + \beta_2 \times Turnover + \beta_3 \times DOL + \beta_4 \times DFL + \beta_5 \times N-dts + \beta_6 \times R_0 + \xi \]

Model 2: \[ DFD = \beta_0 + \beta_1 \times ROE + \beta_2 \times Turnover + \beta_3 \times DOL + \beta_4 \times DFL + \beta_5 \times N-dts + \beta_6 \times R_0 + \xi \]

Model 3: \[ EFD = \beta_0 + \beta_1 \times ROE + \beta_2 \times Turnover + \beta_3 \times DOL + \beta_4 \times DFL + \beta_5 \times N-dts + \beta_6 \times R_0 + \xi \]

Note: \( \beta_0 \) is a constant term. \( \beta_i \) is the regression coefficient of each explained variable. \( \xi \) is the error term, representing the other factors not included in the regression models but could influencing on the selective tendency of financing, which is the variability could not be explained by the regression model’s linear relation.

3.2.2 Regression results

Based on the models above, SPSS17.0 exports the following multiple regression table 2 results:

<table>
<thead>
<tr>
<th>Model 1 (internal finance)</th>
<th>Model 2 (debt finance)</th>
<th>Model 3 (equity finance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.541***</td>
<td>1.475***</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>DFL</td>
<td>-0.457***</td>
<td>-0.650***</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>N-dts</td>
<td>4.494***</td>
<td>0.125***</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Turnover</td>
<td>-0.067***</td>
<td>0.035***</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Re</td>
<td>0.064***</td>
<td>-2.045***</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>ROE</td>
<td>0.013***</td>
<td>Turnover</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.010)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Adj. R2</td>
<td>0.864</td>
<td>Adj. R2</td>
</tr>
<tr>
<td>F-Value</td>
<td>44.326</td>
<td>F-Value</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
</tbody>
</table>

Note: * significant correlative at the percentage of 10; ** significant correlative at the percentage of 5; *** significant correlative at the percentage of 1. It is P value in the brackets.

The results in Table 2 show that, despite all the models’ adjusted R2 is not high, their significance (P = 0.000) are less than the level of 0.05, corresponding to the test F values of the models, which are 44.326, 32.418, 31.55 respectively. So it can be concluded that explaining variables have a relative significance on explained variables, which is only in explaining part. It means that regression equation is significant as a whole. The explaining variables could influence the listed companies’ selective tendency of financing method.
Model 1 eliminated DOL, which has insignificant influence on IFD, and retained DFL, N-dts, Turnover, Re and ROE in the equation in the sequence of their significance to IFD. Among them, DFL and Turnover have significantly negative correlation with IFD, while N-dts, Re and ROE have significantly negative correlation with IFD. Model 2 excludes turnover and DOL which insignificantly influence debt financing, but sequentially retains DFL, Re, ROE and N-dts, according to the level of significance. DFD is significantly negative correlation to DFL and N-dts, but significantly positive correlation to Re and ROE. Similarly, Model 3 DOL but sequentially retains ROE, Re, DFL, N-dts and Turnover. EFD and ROE is significantly negative correlation to Re, but significantly positive correlation to DFL, N-dts and Turnover.

4. Conclusions

4.1 Factors that influencing on the selective tendency of internal finance

Factors that influence on our country’s listed companies’ selective tendency of internal finance are financing risk (negative correlation), non-debt tax shield (positive correlation), information asymmetry (negative correlation), cost of equity (positive correlation) and profitability (positive correlation), ranked by the level of significant.

Financing risk is the chiefly factor, which would happen if operates at a high debt level. Internal funds would pay off liabilities prior, leading to a deduction to the tendency of internal finance. Secondly, the more non-debt tax shield, the less incentive to get debt tax shield by increasing financing risk, which improves the selective tendency of internal finance. In China’s imperfect capital market, by cutting internal financing, managers could enrich their company-paid consumption in a greater degree, or invest inefficiently, which decrease the selective tendency of internal finance. However, those companies which have high cost of equity have to use retained reserves to offset the funding gap. So they prefer to internal finance. Besides, companies that have high profitability could invest by their internal funds, showing a high tendency to internal finance.

4.2 Factors that influencing on the selective tendency of debt finance

Factors that influence on our country’s listed companies’ selective tendency of debt finance are financing risk (negative correlation), cost of equity (positive correlation), profitability (positive correlation) and non-debt tax shield (negative correlation).

Same as internal financing, financing risk is the chiefly factor. High-risk companies would decrease their debt amount to avoid bankruptcy liquidation, so decrease their selective tendency to debt finance. Companies with high cost of capital would increase their selective tendency to both debt and internal finance, due to the decrease in tendency of equity finance. In addition, it is easier for corporations with higher profitability and liquidity to get debt financing. Non-debt tax shield has a good replacement effect on debt tax shield. To avoid financing risk, companies with high non-debt tax shield would decrease their selective tendency of debt finance.

4.3 Factors that influencing on the selective tendency of equity finance

Influencing factors on the choice trend of China’s listed company are profitability (negative correlation), the cost of equity capital (negative correlation), financial risks (positive correlation), non-debt tax shield (positive correlation) and information asymmetry (positive correlation), ordered by their significance.

The results reflect our country’s realistic national conditions. Profitability is the chiefly factor influencing on the selective tendency of equity finance. Companies have high profitability are easier to obtain external finance and gain more internal reserves, so are less reliance on additional issue or rights issue, leading to a decrease to selective tendency of equity finance. To avoid cash outflow, those have high cost of capital would increase their internal and debt finance to replace equity. And those have high financing risk would increase their equity finance due to the low tendency of internal and debt finance. Besides, non-debt tax shield leads to a decrease on the tendency of debt finance, and further improve equity finance tendency to meet investment requirement. Last but not
least, China’s capital market has a weak signalling effect. Equity financing does not transfer a negative signal. The higher level of information asymmetry, listed companies have higher suspicion to “money encirclement” from additional and rights issue, and their selective tendency of equity finance increase instead.

References


