Real Estate Capital Structure of Listed Companies and Business Performance of the Empirical Analysis

Lei Yang*, Yang Li
Institute of Accounting, Hebei GEO University, Shijiazhuang, Hebei Province, China
1456871816@qq.com, 515259074@qq.com

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Abstract: The operating performance of real estate enterprises directly reflects the company's financial status and operating results, is the performance of the company's development. Corporate capital structure affects corporate capital cost, reflects corporate internal governance structure, and indirectly affects corporate performance. By studying the literature achievements of predecessors, combining the current situation of real estate enterprises, and using the financial data of listed companies of real estate enterprises, this paper empirically discusses the relationship between capital structure and business performance of enterprises. Firstly, the factor analysis method is used to determine the financial indicators and their final scores that affect the business performance of enterprises. Secondly, through descriptive statistics, the financial indicators selected as the capital structure of enterprises are analyzed to understand the overall indicator data. Finally, correlation analysis and regression analysis are used to explore the relationship between capital structure and business performance of enterprises, so as to obtain the results of empirical analysis. The results are of practical significance to the optimization of the internal capital structure of listed real estate companies in China.

1 Introduction

Since the beginning of the 21st century, China's real estate industry has developed rapidly. The investment quota of real estate development enterprises has increased from 624.5 billion yuan in 2001 to 12026.4 billion yuan in 2018, with an average growth rate of 18.24%. This paper mainly adopts the method of empirical analysis, through reading a large number of relevant literature, on the basis of theory, combined with the status quo of listed real estate enterprises, real estate enterprises in the past two years of data empirical analysis. In this paper, 11 financial indicators are selected and the comprehensive performance level of listed companies is obtained by using factor analysis method, which paves the way for the empirical study in the following part. By using qualitative and quantitative analysis method, the collected data are summarized, compared and sorted out. By referring to the overall level of listed companies in China and the specific meaning of each financial index, the characteristics of capital structure and operating performance of listed real estate companies at the present stage are analyzed and summarized.

According to the current situation of capital structure and business performance of listed real estate companies in China, the average asset-liability ratio of listed real estate companies from 2016 to 2018 is 65%, which remains at a high level, but the overall fluctuation is not large and relatively stable. Due to the particularity of the real estate industry, listed companies can not only easily obtain credit funds from Banks, but also obtain a large number of accounts received in advance through housing presale, which leads to the financing mode of real estate listed companies to give priority to debt financing. The company will only consider internal financing or equity financing
when external financing cannot meet or meet the capital needs of the enterprise. The average payable liabilities of real estate listed companies are increasing year by year, and their dependence on long-term loans is relatively high. On the one hand, it is because enterprises need a lot of capital in the stage of rapid development, which leads to the continuous rise of debt ratio. On the other hand, due to the long construction period of real estate, short-term funds cannot meet the needs of real estate enterprises, so the long-term borrowing increases year by year.

2. Construction of Real Estate Listed Company Model

2.1 Research Hypothesis.

Asset-liability ratio is an important index of enterprise financing structure. According to the MM theory, under the condition of taking into account the income tax, the enterprise increases the debt, will increase its overall value. According to the tradeoff theory, in the early stage of a company's establishment, appropriately increasing its liabilities will promote the improvement of the company's market value, because liabilities have the function of tax shield. But that advantage will fade as the company's debt ratio rises. From the perspective of enterprise financing cost, the increasing debt ratio will inevitably cause the increase of debt cost and average weighted capital cost, offsetting the tax shield function of the original debt. Higher debt ratio will increase the risk of bankruptcy and reduce the performance of enterprises. Based on the above analysis, the following hypotheses are proposed in this paper:

Hypothesis 1: asset-liability ratio is positively correlated with business performance.

Hypothesis 2: current debt ratio is positively correlated with business performance.

2.2 Source of Sample Data.

The data selected in this paper are all from CSMAR database, supplemented by relevant data from juchao information network, to supplement the missing part of the company's data found in gutai 'an. In this paper, the real estate listed companies with a time span of 2016-2018 were selected as samples, and the real estate listed companies that appeared in S, ST, *ST and PT after January 1, 2015 were excluded. Finally, 116 real estate listed companies were selected as samples.

2.3 Variable Selection.

This study takes business performance as the explained variable (dependent variable), analyzes the correlation between capital structure and business performance, and provides empirical support for optimizing capital structure and improving business performance. Since the possibility of single index being manipulated is relatively large, and the measurement of business performance is not comprehensive enough, the multi-index method is adopted to measure the company's business performance.

The types, codes and calculation formulas of the 12 indicators selected from the four aspects are shown in table 1.

<table>
<thead>
<tr>
<th>The index type</th>
<th>The index name</th>
<th>The index code</th>
<th>Express formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning power</td>
<td>Return on equity</td>
<td>L1</td>
<td>Average balance of net profit/owner's equity</td>
</tr>
</tbody>
</table>
The research variables are selected from the three perspectives of the debt level, debt term structure and equity structure of real estate listed companies, and the actual effect of specific factors of capital structure on corporate performance is studied as thoroughly as possible. Therefore, asset-liability ratio and current liability ratio are selected as explanatory variables in this paper. The selection of each variable is shown in the following table:

**Table 2. Table of study variables definition**

<table>
<thead>
<tr>
<th>Variable types</th>
<th>The variable name</th>
<th>Variable symbol</th>
<th>Calculation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explained variable</td>
<td>Business performance</td>
<td>P</td>
<td>Calculated by factor analysis method</td>
</tr>
<tr>
<td>Explanatory variables</td>
<td>Asset-liability ratio</td>
<td>DAR</td>
<td>Total liabilities/total assets</td>
</tr>
<tr>
<td></td>
<td>Current liability ratio</td>
<td>SDAR</td>
<td>Current liabilities/total liabilities</td>
</tr>
<tr>
<td>Control variables</td>
<td>The company size</td>
<td>SIZE</td>
<td>LN (Total assets at year end)</td>
</tr>
<tr>
<td></td>
<td>Growth indicator</td>
<td>GROWTH</td>
<td>Added value of business income this year</td>
</tr>
</tbody>
</table>

3 Empirical Analysis of Real Estate Listed Companies

3.1 Factor Analysis Method to Determine Business Performance.
Multivariate regression on the capital structure and business performance, this study will be the first to the factor analysis is adopted to reflect the real estate listed companies from 2016 to 2018, summarized the performance data, using dimension will integrate these 11 indicators into the main factors unrelated to each other, calculated using the weighted average of the most can reflect the comprehensive factor of enterprise operating performance.

3.1.1 KMO Test and Bartlett Test.

The significance of factor analysis can be determined by KMO value. In general, KMO value is kept above 0.6, so factor analysis is more appropriate. Bartlett's test is an important indicator to test the significance of factor analysis. The test rule is that if the Sig value is less than 0.05, the null hypothesis that all variables are irrelevant is rejected.

It can be seen from the analysis results of factor analysis that the KMO value in this model is 0.625, greater than 0.6. The chi-square approximation value of Bartlett test was 950.854, and the significance level was 0.00, lower than 0.05, which passed the significance test, indicating that it was feasible to calculate the company's business performance by factor analysis

3.1.2 Extract Common Factors.

Among the common factor extraction methods, principal component analysis (pca) has been widely used in this study. Common factor extraction can simplify the dimension of factors. When explaining the total variation, the fewer factors extracted, the better, and the higher the degree of explanation, the better. The ability of the common factor to interpret the original data can be measured by the total variance of the interpretation.

According to the statistical results of the maximum variance method, the first four factors are common factors, and the eigenvalues are all greater than 1. After rotation, these four factors explain the content of 84.072% of the total variance cumulatively, and the proportion of the total variance is 26.781%, 22.670%, 17.994% and 16.627% respectively. These four common factors contain 84.072% of the original 11 business performance indicators, which can replace the original indicators to measure business performance.

3.1.3 Factor Loading Matrix Analysis.

Usually, after extracting the initial common factors, the economic significance of common factors cannot be clarified, so it is necessary to rotate the factor loading matrix. In terms of the selection of rotation methods, the orthogonal rotation method with the largest variance was adopted in this study to minimize the relationship between the new generation factors, simplify the interpretation of each variable to the factors, and extract the variables with the least high load. The matrix obtained by orthogonal rotation shows that four common factors can be extracted from the original variables. Variables with higher loads make the economic significance of the common factor clearer. As can be seen from the table of rotating component matrix, factor 1 has a high load on the three indicators of quick ratio C3, current ratio C2 and cash ratio C1, which are 0.990, 0.985 and 0.984 respectively. Therefore, factor 1 is the embodiment of the company's solvency. Factor 2 has a higher load on the three indicators of return on equity L1, net profit margin L2 and return on total assets L3, which are 0.931, 0.914 and 0.868 respectively. Therefore, factor 2 is the embodiment of the company's profitability. Factor 3 has a high load on the two indicators of net asset growth rate F1 and total asset growth rate F2, respectively 0.955 and 0.918. Factor 3 is the embodiment of the company's development ability. The load of factor 4 in inventory turnover rate Y1 is relatively high at 0.801, and the load of total asset turnover rate Y3 is also up to 0.796. Factor 4 is the embodiment of the company's turnover capacity.
3.1.4 Measurement of Company Operating Performance.

After extracting common factors, in order to calculate the final performance score of each sample, the score of each common factor needs to be calculated first. The scoring functions of four common factors can be derived from the factor scoring coefficient matrix:

\[
M_1 = -0.023L1 + 0.012L2 + 0.015L3 + 0.032F1 + 0.000F2 + 0.031F1 + 0.005F2 \\
+ 0.003Y3 + 0.337Y4 + 0.337C1 + 0.334C2 + 0.339C3 \quad (1)
\]

\[
M_2 = 0.380L1 + 0.389L2 + 0.335L3 + 0.016F1 + 0.027F2 - 0.069F1 - 0.040F2 \\
+ 0.000Y3 + 0.003Y4 + 0.003C1 + 0.008C2 - 0.007C3 \quad (2)
\]

\[
M_3 = 0.007L1 + 0.049L2 - 0.078L3 + 0.515F1 + 0.486F2 - 0.211F1 + 0.077F2 \\
+ 0.012Y3 + 0.017Y4 + 0.017C1 + 0.004C2 + 0.019C3 \quad (3)
\]

\[
M_4 = -0.047L1 - 0.155L2 + 0.109L3 - 0.102F1 - 0.069F2 + 0.526F1 + 0.336F2 \\
+ 0.432Y3 + 0.023Y4 + 0.023C1 - 0.006C2 + 0.024C3 \quad (4)
\]

Combined with the contribution rate of four common factors, the final score expression of business performance was determined:

\[
P = (26.781M_1 + 22.670M_2 + 17.994M_3 + 16.627M_4) / 84.072 \quad (5)
\]

\[
P = 0.319M_1 + 0.270M_2 + 0.214M_3 + 0.198M_4 \quad (6)
\]

3.2 Regression Analysis Of Capital Structure And Business Performance.

Using SPSS19.0 statistical software, the capital structure and business performance of sample companies were regressed to obtain the regression estimation results of the model as shown in the following table. It can be seen from the data in the table that the R square of the model is 0.068 and the adjusted R square is 0.052, indicating that the 6.8% change in operating performance can be explained by the combination of explanatory variables capital structure and control variables, and the fitting effect of the model is relatively ideal. At the same time, it can also be seen that the test value of F is 4.135 and the significance level is Sig. The value is smaller than 0.05 and 0.018, indicating that the model is meaningful and can be used to clarify the relationship between variable elements. At the same time, through DW test, its DW value is 2.096, indicating that there is no autocorrelation between the error terms set, and the model is established.

Through model regression coefficient table can be concluded: asset-liability ratio b1 (DAR) regression estimate coefficient of 0.171, standard error is 0.074, t test value of 2.314, the significance level Sig. The value is smaller than 0.05 and 0.022, shows that the current domestic real estate asset-liability ratio (DAR) and operating performance of listed companies (P), and a significant relationship, namely the more debt financing, the easier it is to improve business performance. That's exactly what hypothesis 2 says. Flow ratio (SDAR) b2 regression estimate coefficient of 0.140, standard error is 0.072, t test value of 1.952, significance level Sig. A value of
0.053, can be seen, the current domestic real estate listed company flow ratio (SDAR) and operating performance of enterprises (P), and a significant relationship at the 0.1 level, the current liabilities accounts for the proportion of total debt is higher, the better the performance. This is consistent with hypothesis 2 proposed.

4. Research Conclusions

From the perspective of China's specific development, real estate has made a great contribution to China's economic development, especially since 2000, when the real estate industry entered the boom period. Real estate plays an important role in improving people's living conditions and plays an important role in social and economic development. At the present stage, the financing channels of China's real estate industry are gradually diversifying. Influenced by the operating environment, bank loans have become the main source of funds, which leads to a high asset-liability ratio. The rise of bond financing in recent years has further increased this ratio. With the continuous restructuring of real estate listed companies, its equity properties are also quietly changing, the proportion of state-owned shares is getting lower and lower, equity gradually tends to disperse. Under the influence of many factors, in recent years, the real estate listed companies show the phenomenon of weak solvency and low operating capacity. According to the balance theory, agency theory and other capital structure theories, China's listed real estate companies may have bankruptcy risk, agency problems, which will have an important impact on the performance of the company. Therefore, it is of great theoretical and practical value to explore the capital structure of real estate listed companies and its relationship with business performance.

References


