Research on the Influence of Capital Structure of China's Coal Listed Companies on Enterprise Value

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Abstract: The function of China's capital market is increasingly perfect. How to formulate a good financing policy for a company has a great impact on the market value of the company. In the current bottleneck of the coal industry, it is crucial for coal companies to have the good financing capacity and capital turnover. This paper explores the correlation between the capital structure of coal listed companies and their (corporation) value. Firstly, it analyzes the status of capital structure of domestic coal listed companies and its influencing factors. Secondly, it uses the capital structure data of coal listed companies from 2014 to 2016 to conduct descriptive statistics, and then it uses multiple stepwise regression methods to analyze the correlation between coal listed companies' capital structure and their corpaoration value. Finally, some optimization suggestions are proposed for the problem that the asset-liability ratio of China's coal listed companies is negatively correlated with the enterprise value, which is beneficial to improve the capital structure of coal listed companies and enhance the companies' corporation value

1. .Introduction

1.1. Research Background

"Enriched coal, lean oil, and less gas" is a problem in China's energy development. With the improvement of the national economic level and the rapid increase in the demand for crude oil and natural gas in China, the development of the coal industry has a positive role in promoting the adjustment of the domestic energy structure, which is conducive to the implementation of the oil substitution strategy, greatly guarantees China's energy security, and helps to achieve sustainable development of the energy industry. According to the analysis of China Investment Consulting's

1.2. Research purposes

The growth of the coal industry is an important driving force for China's social development and economic growth. Although the coal industry has optimized the capital structure of enterprises through listing, mergers and acquisitions, and restructuring, some enterprises still have shortcomings such as high asset-liability ratio and unreasonable debt structure. Especially in recent years, with the recession of the coal industry development, the problem of capital structure is becoming more prominent. Therefore, this paper takes the relevant financial data about the capital structure of China's coal listed enterprises as the research object, adopts multiple stepwise regression analysis method to study the correlation between the object and the value of the enterprise, and draws the conclusion based on the empirical analysis to provide effective basis for improvements of China's coal listed companies' capital structure and added econonic value.

1.3. Research methods

This paper mainly uses the empirical analysis method: taking the coal listed companies in Shanghai and Shenzhen as the research samples, collecting the financial information from 2014 to 2016, establishing the model of multiple regression, and using SPSS software to carry out multiple

regression methods for various variables to analyze the correlation between the capital structure of coal listed companies and their corporation value.

1.4. Research framework

(1) The research background, research significance and research methods of this paper.

(2) Explain the relevant theories and literature theories in this paper.

(3) An empirical analysis of the capital structure and corporation value of domestic coal listed companies.

(4) Draw conclusions and make relevant recommendations.

2. Literature review

Li Yaxing and Wu Shuang (2016) used the biopharmaceutical listed companies established in 2015 as research samples to show the result that the asset-liability ratio of listed companies of biological products is positively correlated with the value of the enterprise, while the interest-bearing liabilities/total assets is negatively related to corporation value. This is because the reduction in interest payments will reduce the value of the business. Lu Jingjing (2016) found through empirical analysis that there is a negative correlation between the capital structure of listed companies in Hunan Province and their corporation value, and the long-term liabilities and corporate value are negatively correlated. Meanwhile, Short-term liabilities also have a certain impact on corporation value. The listed companies in Hunan have weak profitability and a relatively high asset-liability ratio. For companies with low profitability and high asset-liability, high debt will exacerbate the financial risks of the company and lead to a decline in corporate performance. Wu Kejia (2012) used the data of 49 information technology listed companies listed in Shanghai and Shenzhen as the research object, and measured the value of the company with the return on net assets. Had used the indicators of capital structure that include asset-liability ratio, long-term debt ratio and current ratio to conduct empirical analysis -multiple regression analysis and correlation analysis, Wu found that there is a positive correlation between the long-term debt ratio of China's information technology companies and the companies' value.

3. Empirical analysis process

3.1 Research hypothesis

Reasonable liabilities will increase the value of the enterprise. Conversely, if a company's debt ratio is relatively high, it will increase the company's financial costs and debt repayment pressure, hinder the normal operation of the company, thereby reducing the performance of the company. Therefore, this paper proposes Hypothesis 1 saying that there is a negative correlation between the total asset-liability ratio and the enterprise value. Depending on short-term liabilities to complete investment are very risky for enterprises, because they need to refinance when short-term loans are due, which will increase the company's financial risk and is not conducive to the improvement of corporate value. Therefore, this paper proposes research hypothesis 2 holding that there is a negative correlation between the short-term liabilities rate and corporate value. If a company's short-term debt is too large, it will increase the pressure on the company's debt repayment, which must bring disadvantages for the long-term development of the company. Therefore, this paper proposes the assumption that the long-term debt ratio has a positive correlation with the enterprise value.

3.2 Selection of variables

3.2.1 Explained variable

The indicators of enterprise value mainly include Tobin's Q value, return on net assets, and price-to-book ratio. Since there is no specific parameter to measure the replacement cost of the enterprise, Tobin's Q value is difficult to obtain. At the same time, the stock price fluctuation of

China's securities market is large and the net rate can't accurately reflect the normal value of the company, so this paper selects the return on net assets as the measure of enterprise value. In the existing literature at home and abroad, many academic researchers (such as Zhang Xuelong in 2010) also used the ROE to represent the value of corporation value.

Return on net assets equals net profit or average return on equity *100%

3.2.2Explanatory variables

The total asset-liability ratio is difficult to fully reflect the company's financing and debt situation, so we also need to study the impact of long-term debt ratio and short-term debt ratio on corporation value. This paper measures the capital structure of an enterprise using three indicators: total asset-liability ratio, short-term debt ratio, and long-term debt ratio.

3.2.3 Controllable variable

There are other factors outside the capital structure that have an impact on corporation value. In order to make the results of empirical analysis more objective and more accurate to analyze the relationship between capital structure and corporation value, This paper uses the enterprise scale (the logarithm of total assets), operational capacity (total asset turnover rate), growth capacity (total asset growth rate) indicators as control variables.

3.3 Model construction

Domestic and foreign scholars usually use linear models because linear models can better fit linear relationships between variables. In this paper, the multivariate linear model is used to empirically analyze the capital structure and corporation value of China's coal listed companies. In the capital structure, the total asset-liability ratio, the short-term debt ratio and the long-term debt ratio are chosen as the explanatory variables. And the enterprise value selects the return on equity as explained variable while company size, operational capacity (total asset turnover) and growth capacity (total asset growth rate) are choosen to be controllable variables. The model is as follows:

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_3 + a_4 X_4 + a_5 X_5 + a_6 X_6 + \varepsilon$$

In the above mode, X1 to X6 respectively represents asset-liability ratio, long-term debt ratio, short-term debt ratio, company size, operational capability and growth ability. Y is the explained variable. a is the constant term and independent coefficient in the model. ε Is the error coefficientin the model.

3.4 Sample selection and research methods

This paper analyzes the financial information of coal listed companies from 2014 to 2016 listed on the Shanghai and Shenzhen Stock Exchanges. In order to ensure the rigor and accuracy of the empirical analysis, we have adopted the following treatments for the data: First, we remove the data of companies that have no definite information so that the conclusion of the empirical analysis will be more objective. Secondly, the coal listed companies marked by ST, * ST, S* ST in the past three years were deleted, because the financial situation of this type of company began to show abnormal. By doing that, we can guarantee the true validity of the data. During the analysis, this paper adopts multiple stepwise regression analysis method. The financial information of the 33 coal listed companies from 2014 to 2016 is regressed with SPSS software, and the results of the regression are studied to draw relevant conclusions.

3.5 Empirical results and analysis

Table.1. Model summary

Model	R	R^2	Adjusted R^2	Standard estimated error	Durbin-Watson
1	.480[a]	.231	.223	18.0080598	
2	.533[b]	.284	.269	17.4698782	
3	.559[c]	.312	.291	17.2053805	1.978

a. Predicted variables: (constant), total debt ratio

b. Predictors: (constant), asset-liability ratio, total asset growth rate

c. Predictors: (constant), asset-liability ratio, total asset growth, logarithm of total assets.

d. Dependent variable: Return on equity

In this paper, we use the empirical analysis method of multiple stepwise regression. From the model fitting degree test table, we can find that the goodness of fit of model 3 is significantly higher than that of model 2 and model 1. The correlation coefficient of model 3 is 0.559 and the R square is 0.312, which indicates that the change in the return on equity(31.2%) of the enterprise value can be linearly explained by current ratio of the capital structure, the long-term debt ratio, and the total asset turnover rate. In the D.W test, the test value of D.W is 1.978, which is close to 2, indicating that the goodness of fit of the model 3 is very high.

Table 2. Coefficienta

Model		Non-standardized coefficient		Standardization coefficient	t	Sig.
		B	Standard error	trial version		
1	(constant)	31.084	6.643		4.679	.000
	Total debt ratio	-.624	.116	-.480	-5.396	.000
2	(constant)	28.780	6.502		4.426	.000
	Total debt ratio	-.612	.112	-.471	-5.451	.000
	Total asset growth rate	.328	.124	.230	2.659	.009
3	(constant)	-31.832	31.071		-1.024	.308
	Total debt ratio	-.688	.117	-.530	-5.883	.000
	Total asset growth rate	.292	.123	.204	2.372	.020

The significance test of the regression coefficient is mainly to test whether each independent variable has a significant influence on the dependent variable, and then to determine which independent variables are important to the dependent variable and which ones are not. t is the regression coefficient test statistic, sig is the accompanying probability value. From the above regression coefficient analysis table, we can find that the accompanying probability value P of the total asset-liability ratio and the total asset growth rate (the growth ability of the enterprise)- -the measurement of the capital structureand the control variable -is less than 0.05, so there is a significant linear relationship between the return equity, the dependent variable, and the total debt ratio,the independent variable. The change of the total asset-liability ratio of the independent variables and the growth rate of the total assets could effectively represent the linear variation of the dependent variable and should be retained in the regression equation. However, the independent variables including long-term debt ratio, short-term debt ratio, company size, and total asset turnover rate were screened out and excluded from the regression equation. Finally, the linear regression equation model that has been analyzed is:

$$Y = -31.832 - 0.688X_1 + 0.292X_6$$

In the model, Y is return on equity, X1 is total debt ratio X6 is the growth rate of total assets

Based on the empirical analysis of the above multiple stepwise regression, we can see the mode has a great goodness of fit and an overall linear relationship through the results of R square, D. W test and T value measurement test. Significantly, the scientific nature of the regression model is ensured, and the conclusion of the empirical analysis has strong reliability. When the hypotheses turned out be true, we can draw the conclusion that the total debt ratio is significantly positively related with the enterprise value, with a Beta coefficient of -0.688. Otherwise, the total asset growth rate also passes the significance test, and the beta coefficient is 0.292. It shows that the total asset growth rate is also remarkably positively correlated with enterprise value, which indicates that the strong development ability helps to promote the growth of enterprise value. The empirical results are consistent with the relevant theories about the relationship between capital structure and corporation value. By adjusting the capital structure of enterprises, the growth of corporation value can be promoted. For coal companies, what we need is to reduce their asset-liability ratio in order to achieve value-added.

4. Conclusions and related recommendations

This paper refers to the relevant domestic and foreign literature, puts forward the research hypothesis, and selects the financial data of coal listed enterprises from 2014 to 2016 as the research sample, and carries out the empirical process to finally verify the significant influence of the capital structure of coal listed companies on the enterprise value. The conclusions drawn in this paper are as follows:

First, there is a significant negative correlation between the total debt ratio of China's coal listed companies and corporation value. To achieve the purpose of increasing corporation value, coal listed companies can adjust their asset-liability ratio. Since the debt and total assets determine the size of the asset-liability ratio indicator, it is necessary to appropriately reduce this indicator by reducing the scale of the enterprise's liabilities or increasing the scale of the company assets, so as to reach the goal of enhancing the value of the enterprise.

Second, there is no significant correlation between China's coal listed companies' long-term debt ratio and the short-term debt ratio and their corporation value. But we still have to pay attention to the balance of the coal company's debt structure. The capital cost of short-term borrowing is higher than the long-term one, so coal enterprises should make a good plan for the medium and long term financial development, and should clarify the funding needs of each stage of the enterprise.

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