# AN EMPIRICAL STUDY ON THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND CORPORATE PERFORMANCE IN CHINA'S FOOD AND BEVERAGE INDUSTRY

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**ABSTRACT:** *The listed companies in China's food and beverage industry have good profitability and low risk. They have the characteristics of stable performance growth and broad space for development. These companies have always attracted the attention of many investors and have become a unique sector in the stock market. This paper firstly sort out literature review on impact mechanism between capital structure and firm performance, and then use 58 listed companies in China's food and beverage industry from 2011 to 2015 as sample, meanwhile dividing the companies into high-growth and low-growth companies. Finally, the empirical test was conducted with fixed effect regression respectively. The empirical results show that there is a weak degree of negative correlation between asset-liability ratio and performance of listed companies in China's food and beverage industry. It concludes that: China's food and beverage companies prefer equity financing, failing to make full use of financial leverage, meanwhile there is a structural imbalance in the development of capital markets.*

**KEYWORDS**: Capital Structure, Corporate Performance, Food ,Beverage Industry

## INTRODUCTION

Corporate performance is a key indicator of business operations and financial conditions and has always been a hot topic in corporate finance theory. Corporate performance is closely related to business status quo, employee benefits, the future development of enterprises and other aspects, meanwhile it is an important guarantee for return on investment of corporate shareholders and creditors. Besides, corporate performance involves many stakeholders such as employees, management, investors, market competition, etc., and affects the national tax revenue and even the economic prosperity of society as a whole. Therefore, as an important index to measure the company's operation and development capability, we should focus on its theoretical and practical fields in corporate performance.

Capital structure is also an important research area in the financial field of corporate governance. Optimized capital structure can make the business performance significantly improved. The optimization of corporate capital structure generally refers to the optimization of the proportion of equity financing and bond financing and the rational adjustment of the sources and composition of bond financing. Corporate financing can be divided into long-term and short-term according to the time. According to the financing forms, it can be divided into direct and indirect financing. According to the sources of financing, it can be divided into external financing and internal financing. And the company outside financing can be divided into the stock market financing and bond market financing. China's food and beverage industry enterprises, especially state-owned large-scale companies, raise funds in the bond market mainly by bank loans. Although corporate loans have advantages of financing convenience, lower capital costs, loan limits and flexibility, increases the financial risks of enterprises. China's state-owned enterprises have inherent advantages in loan financing due to their special status. Financing of equity through equity market does not require repayment of principal and interest, except dividends from after-tax profits. The disadvantage is higher costs compared with the financing of bonds, and the transfer of ownership leads the actual control of the company to be weakened, which is likely to cause the changes in company's board of directors and management. The key research issue in the field of capital structure is to find the optimal capital structure by weighing the costs, benefits and risks brought by the financing method. When making capital structure decisions, the company should carefully consider whether it meets the actual conditions of the company's development and whether it is conducive to the improvement of the company's performance.

At present, the reform of state-owned enterprises in our country has reached a crucial moment. The food and beverage industry is facing both opportunities and risks. Many large enterprises rely so heavily on equity financing, failing to take full advantage of financial leverage. For China's food and beverage industry enterprises, whether the existing enterprise capital institutions is reasonable, how to determine the optimal capital structure under the keen competition, and the most influential mechanism between capital structure and business performance, are a variety of real problems. Listed companies in China's food and beverage industry have good profitability and low risk, with stable performance growth and broad space for development. Due to their size, influence and business behavior, listed companies must regularly disclose the capital structure-related variables and their performance evaluation indicators and follow the laws of modern market economy. Therefore, selecting food and beverage companies as a research sample can make this article more realistic significance and reference value.

From a theoretical point of view, this paper draws conclusions through drawing up and absorbing the existing theoretical research results and making empirical analysis, and can make deeper development on the existing theoretical results. In practice, according to the empirical results of this paper, we can try to explain the current situation of Chinese companies based on western economic theory, and then analyze the shortcomings and deficiencies in the decision-making of capital structure of Chinese food and beverage enterprises so as to provide reference for improving their business performance.

## LITERATURE

### Theoretical Underpinning

The research on capital structure theory mainly includes the research on influencing factors, the research on the relationship between enterprise value and the optimal capital structure. In corporate finance, the research on capital structure can be traced back to 1952. American scholar David Durand summarized the theory of early capital structure systematically, including net operating income theory, net income theory and compromise theory. However, these assumptions and conclusions are extreme. At present, most scholars generally take the MM theory proposed by Modigliani and Miller in 1958 as the starting point of modern capital structure theory. The MM theory states that the value of a firm does not change in a perfect capital market (for example, without tax, no transaction costs, sufficient information, homogeneity expectations, and absence of bankruptcy costs), that is, corporate value has nothing to do with the capital structure. After considering the tax revenue, the modified MM theory considers that the company can raise its own value by raising the leverage ratio to lower its cost of capital. That is, the more debt, the more obvious the leverage and the greater the company's value. There is a big flaw in the MM theory: the basic assumptions are too strict, and some hypotheses are not in line with the company's actual operating conditions at all.

Since then, different scholars have carried out different directions on the theory of capital structure for the next 50 years. The more mature theories mainly conclude trade-off theory, signaling theory and pecking order theory. The trade-off theory is a more complete theory than the MM theory because revised and relaxing hypothesis. Myers (1984) explores the impact of capital structure on firm value when income taxes and bankruptcy costs coexist, putting forward a trade-off theory. The theory holds that the capital structure of the company

is the result of weighing the benefits and costs brought about by increasing the debt. That is, the company computes the marginal cost of the financial distress caused by increasing the tax preferential marginal revenue generated by increasing the liabilities. When the debt ratio increases reach a certain critical value, the cost of financial distress completely offset the tax shield income, the capital structure at this time is the optimal capital structure that maximizes the company's own revenue. In addition, the trade-off theory suggests that the different size of financial distress costs can help to explain why there are differences in the capital structure of different industries. Stephen Ross (1977) proposed a new theory of capital structure based on the study of information asymmetry - information transmission theory. The theory holds that when the quality of a firm is high, its financial bankruptcy is less, and such a firm will choose to have a higher level of debt capital structure. When the firm's assets are in a poor state of operation, under the threat of bankruptcy, such enterprises will not choose a lot of debt financing. Therefore, investors can use their debt financing as a positive financial signal, that is, the debt-to-asset ratio is positively related to the company's performance. Myers and Majluf proposed the theory of optimal financing in 1984 based on the actual situation of transaction cost and information asymmetry. It is considered that the external financing is more expensive than the internal financing, stock or bonds, are subject to additional costs and expenses, and are bound by the contract and the use of funds, so follow the priority given to internal funds, and then consider low-risk debt financing, and finally consider the order of choice of equity financing way.

However, the mainstream of the research is centered on the MM theory, which focuses on the interaction between the company's capital structure and its cost and market value, forming the so-called theoretical school in the field of academic research on capital structure. This school has a great influence and the impact on the company's financial area for a long time.

**Literature Review and Hypothesis**

**Literature Review**

At present, the research on the relationship between domestic and foreign capital structure and corporate performance mainly analyzes problems from the perspectives of financial leverage and corporate governance. The conclusion of the research on the relationship between capital structure and corporate performance is inconsistent and there is no conclusion about the optimal capital structure.

The main empirical research abroad on the relationship between capital structure and

corporate performance is as follows. Modigliani and Miller (1958) examined the data of nearly 100 energy companies in 1947, 1948 and 1953 and analyzed the correlation between capital structure and cost of capital. The results show that the sample companies' changes in financial leverage will not significantly affect the company's weighted average cost of capital. The conclusion can be seen as a change in the company's capital structure does not significantly affect its market value, MM theory is based on this study. Masulis (1984) examines the relevance of the company's debt ratio to its market value, in particular the reaction of market value to the corresponding changes in capital structure variables. The research results show that: the company's operating performance and its asset-liability ratio showed a significant positive correlation. Rajan and Zingalas (1995) analyzed data from seven western nations (G-7, the western seven largest industrialized nations) such as the United States, the United Kingdom, France, Germany, Japan, Italy and Canada and found that the characteristics of firms in different countries decided the company's capital structure. Empirical results suggest that there is a clear reverse trend between the capital structure and firm performance, and the larger firms are more obvious in this trend. Jordan, Lowe and Taylor (1998) selected more than 200 UK companies with annual revenues of between £ 10 and £ 10 million as valid samples for a period of five years. Some of its research results show that the variables such as the company's profit rate and capital intensity show a significant positive correlation with the variables that reflect the company's capital structure. The cash flow and the variables that reflect the company's capital structure show a negative correlation, while there is no obvious correlation between the operating performance and growth rate and the variables that reflect the company's capital structure. Booth (2001) also finds that there is a reverse trend between the variables that represent the company's capital structure and the indicators that measure the company's performance. Beltratti and Paladino (2015) studied the relationship between capital structure and residual value through the establishment of GMM-based economic models using international bank data from 2005 to 2011 and found that there was a significant positive correlation between them. Boadi and Yao Li (2015) conducted an empirical study on Ghana's non-financial institutions' capital structure and performance proxy indicators and found that both long-term debt and short-term debt are negatively correlated with ROE.

Chinese empirical study on the relationship between capital structure and firm performance is as follows. Lu Zhengfei and Xin Yu (1998) selected more than 30 listed companies in the machinery and transportation equipment industry as their research objects. The results show that there is a clear trend of change in the company's capital structure and its management

level. Yan Yanyang (2001), in his article on the study of corporate value and capital structure, conducted an empirical study of nearly 200 companies in five major industries listed in the Shanghai Stock Exchange (real estate, engineering, commerce, public utilities and general industries), the results of the study show that there is a negative correlation between the capital structure of the sample company and the performance of the company. Long Ying and Zhang Shiyin (2005) studied the relationship between capital structure and performance through the sample of 28 electricity-listed companies, using the total return on assets and net return on assets as explanatory variables. They got inverted "U" type of conclusion, that is, before reaching the critical point, the two are positive correlation; beyond the critical point, the two are negative correlation. Mo Shenghong (2006) studied all the companies listed on the A-share market of China's real estate industry in the Shanghai and Shenzhen Stock Exchanges for a period of three years. Empirical results show that the variables that represent the company's capital structure are significantly different from the performance level showing negative correlation. The debt ratio of listed companies with relatively good operating performance is basically between 30% and 40%. Based on the practice of state-owned holding companies in Liaoning Province, Song Li and Zhang Bingbing (2010) analyzed the impact of capital structure on firm performance and concluded that when 0 <asset-liability ratio <40%, there is a positive correlation between capital structure and firm performance; when the asset-liability ratio is more than 40%, the capital structure and corporate performance are negatively correlated. Chen Mengjia (2010) took the home appliance listed companies as the research sample. The research on the relationship between the corporate performance and the debt-to-asset ratio in the past three years shows that there is a certain degree of reverse trend between the capital structure variables of the sample companies and the corporate performance.

To sum up, foreign empirical research on capital structure and business performance, regardless of the sample from which industry, large or small enterprises, developed countries or developing countries, generally speaking, shows negative correlations between corporate performance and capital structure. The empirical research on capital structure and corporate performance in China mainly in this century. After finishing this series, we can find that the empirical results are dominated by reverse relations and there are also a few positive or no definite relations conclusions.

**Hypothesis**

The capital structure of this article is measured by the asset-liability ratio. Generally speaking,

the higher the debt-to-asset ratio is, the greater financial risks corporate is facing，conversely, the debt-to-asset ratio is too low, which is unfavorable to the profitability of capital and enterprise performance. According to the signal theory, investors in the market will lack confidence in companies with under-rated assets and liabilities. According to the theory of industrial organization, among the industries with high degree of market competition, competitors with lower gearing ratio tend to take the initiative to launch price warfare and marketing warfare. If companies with high financial leverage invest in price war, the interest of debt repayment pressure will make the enterprise's financial capacity not enough to meet the demand for large amounts of money price war, so companies with high financial leverage may be caught in a financial crisis earlier. According to the theory of optimal financing, the higher profitable the enterprises are, the more inclined to use endogenous financing the enterprises are, the lower the level of debt. It is expected that companies with higher profitability will have lower debt ratios in order to maintain their competitive advantage. In addition, McConnell and Servaes argue that excessive corporate liabilities leave managers with some net present value (NPV) projects, resulting in underinvestment and negatively impacting firm performance. The better the company grows, the more obvious this negative effect of debt on performance is, as high debt allows managers to relinquish a large net present value (NPV) project, increasing the chances of losing good investment opportunities and seriously affecting company performance. China's food and beverage industry as a result of many businesses, state-owned operations and other issues, over-reliance on bank loans, asset liability ratio will be high, heavy cash pressure, financial risks and bankruptcy risks will cause business performance to be negatively affected.

According to life-circle theory of western enterprises, when enterprises are in different stages of life cycle, the external financing environment they face is different due to their different financial characteristics, and their financial goals will be presented with different decision-making plans, which impacts their capital structure. This article divides the sample companies into high-growth companies and low-growth companies. Although debt raising can bring tax benefits to the company and reduce agency costs to a certain extent, the trade-off theory states that as the debt-to-capital ratio in the capital structure of the company increases, the financial distress costs will also increase. Compared with low-growth companies, for high-growth companies, due to their own development needs, will be more motivated to implement scale expansion (network construction, etc.), get access to new business qualifications and carry out a lot of investment and other business activities. Therefore, high-growth companies will be more motivated to improve their leverage ratio and

adjust their own capital structure, resulting in a rapid increase in the proportion of debt-to-capital ratio. Compared with low-growth corporates, high-growth companies have poorer financing channels due to their relatively unstable financial position, which could lead to the rapid amplification of liquidity risk resulting from the increase of debt-to-capital ratio, thus affecting its business performance.

Based on the above theoretical analysis, we make the **following assumptions：**

**H1:** Capital structure in the corporates of China's food and beverage industry have a negative impact on corporate performance.

**H1a:** The capital structure of a high-growth company is negatively correlated with the corporate performance.

**H1b:** The capital structure of low-growth companies has a positive correlation with corporate performance.

Through the previous theoretical analysis and literature review of debt capital and corporate performance, we can find that there is a close relationship between debt capital structure and corporate performance. In different stages of growth, the company will have different debt financing needs and financing decisions. For high-growth companies, due to their lack of ability to finance debt, their debt financing will be more monolithic. The long-term debt ratio Lower. Although short-term debt capital plays an important role for the company to replenish its liquidity on time, the use of short-term debt funds will be less flexible than the long-term debt capital and the company's future financing costs will be more uncertain. As a result, the long-term debt capital will have more benefit to high-growth company management development. So this article assumes:

**H2:** Long-term debt capital of high-growth companies is positively correlated with corporate performance.

**H3:** Short-term debt capital of high-growth companies is negatively correlated with corporate performance.

**H4:** Long-term debt capital of low-growth companies is positively correlated with firm performance.

**H5:** Short-term debt capital of low-growth companies is positively correlated with corporate performance.

## METHODOLOGY

### Sample Selection

This paper take China's food and beverage industry as the research object, exploring the impact company's capital structure bring to the performance of enterprises under different opportunities for growth. Therefore, the article chooses the data of 84 listed companies in China's food and beverage industry from 2011 to 2015 as the initial sample. The statistical standards are based on the food, beverage, and refined tea manufacturing industries in the manufacturing sector of the SFC industry classification.

The data in this paper is obtained from the publicly available annual reports or financial statements of each company in CSMAR database. The data in this paper will be removed from the initial sample: (1) samples listed after 2011; (2) data on corporate performance and other variables are missing; (3) ST, PT and other special treatment of listed companies; (4) samples with outliers. The final data of 58 sample companies.

### Variable Design

### Explained Variable: Corporate Performance

The indexes used at home and abroad in research of business performance can be broadly divided into two categories: return on total assets (Zhang Hong (2013), return on equity (Lin Changqing (2015), Li Yang (2009)), earnings per share (Wang Ling (2010)) and other non-financial indicators such as Tobin's Q (McConnell and Servaes (1990)) and EVA (Economic Value Added).

Some scholars think Tobin's Q value uses the market value to evaluate the company's performance and also measures the value of the company's intangible assets. Compared with the accounting indicators, it can better reflect the future value of the company, so it is used to represent appropriate indicators of business performance. However, taking into account that the construction of capital market in our country is not yet perfect, there are more human interferences and the standard of foreign markets cannot be reached, and the stock price cannot meet the requirement of reflecting the enterprise value. Therefore, this paper does not use Tobin's Q as the index of securities firm performance. EVA represents an economic profit, which is the corporate value judged by the owner of the company. However, EVA requires a lot of tedious calculations, and what adjustments should be made to the net income and the determination of the cost of capital are still controversial. EVA's operational significance is

not high.

Taking into account the current market environment, ROE (return on net assets) reflect the company's overall operating conditions from different perspectives (such as asset turnover, net profit, etc.), so we choose ROE as a measure of corporate performance. In addition, based on the robustness, ROA is used as a secondary measure of corporate performance.

**Explanatory Variable：Capital Structure，Long-term Debt Capital，Current Debt Capital**

Capital structure refers to the composition of the company's various types of capital. Modern enterprises cannot rely solely on their own funds to operate, expanding production or supplement liquidity through various kinds of financing is crucial. A variety of ways of financing form different sources of capital for a company, including equity capital and debt capital, the ratio between them constitutes the company's capital structure. This article selects the gearing ratio (DAR) as a measure of capital structure.

The company's debt capital divided by time dimension can be divided into long-term debt capital and short-term debt capital. Therefore, this paper uses long-term debt capital ratio (LDAR) and current debt capital ratio (CDAR) to measure it, that is, the current debt capital ratio (CDAR) is defined as the book value of current debt capital / total asset book value; long- Proportion (LDAR) is defined as the book value of long-term debt capital / book value of total assets. The index selected to represent the liquidity liability in this paper mainly includes current liabilities, short-term loans, payables, employee benefits payable, taxes payable and so on. The indicators used to represent long-term liabilities mainly include long-term borrowings, bonds payable and other non-current liabilities.

**Control Variable**

The existing literature on the relationship between capital structure and firm performance provides a sufficient number of alternative variables for the selection of control variables in this paper. The scale, non-debt tax shield, actual tax rate, future growth, asset structure, asset liquidity , product uniqueness, cash flow, financial distress costs, industry ownership and other most representative. According to the characteristics of our country's food and beverage industry enterprises such as less dependence on bank loans, less impact of capital structure on performance, and obvious contribution of capital structure to performance, the paper selects scale (LNS), proportion of fixed assets (FA), current ratio (CR), growth of enterprises (GROWTH) and the shareholding ratio of the largest shareholder (SR) as the control

variables. Where FA measures the value of asset guarantees, CR measures short-term solvency. The statistical description of each variable in the study is shown in **Table 1**:

**Table 1. Variable Definition Table**

| Variable | Variable Name | Variable Sign | Variable Definition |
|---|---|---|---|
| Explained Variable | Corporate performance | ROE<br>ROA | Net profit / shareholders' equity<br>Net profit / total assets |
| Explanatory Variables | Capital structure<br>Current liabilities capital ratio<br>Long-term debt-to-capital ratio | DAR<br>CDAR<br>LDAR | Total liabilities / total assets<br>Total current liabilities / total assets<br>Long-term debt / total assets |
| Control Variables | Company size<br>The proportion of fixed assets<br>Current ratio<br>Company growth<br>The largest shareholder of the shareholding ratio | LNS<br>FA<br>CR<br>GROWTH<br>SR | The natural logarithm of total assets<br>Total fixed assets / total assets<br>Current assets / current liabilities<br>Main business revenue growth rate<br>The largest shareholder number of shares / total number of shares |

**Model Design**

In order to study the relationship between capital structure, debt capital structure and company performance in China's food and beverage industry, taking into account the specific conditions of the sample and data, this paper divide the sample companies into high growth and low according to the growth rate of main business revenue growth companies. Comparing relations between capital structure and business performance in two kinds of companies, we use multiple linear regression model, and select return on net assets as the explanatory variables, the relevant research factors as explanatory variables and the size of the company, the proportion of fixed assets and the current ratio as a control variable to build model. In addition, taking into account the robustness of empirical results test, this paper introduces ROA as a surrogate for ROE. The basic model is as follows:

（1）**Model1**：Study the relationship between capital structure and corporate performance.

$$ROE_{it}=C+\beta_1 DAR_{it}+\beta_2 LNS_{it}+\beta_3 FA_{it}+\beta_4 CR_{it}+\beta_5 GROETH+\beta_6 SR+\varepsilon_{it}$$

Prompt：i represents the individual company, t represents time; ROE is alternative indicator of ROA.

（2）**Model2**:Study the impact of the term structure of debt capital on corporate performance.

$$ROE_{it}=C+\beta_1 CDAR_{it}+\beta_2 LDAR_{it}+\beta_3 LNS_{it}+\beta_4 FA_{it}+\beta_5 CR_{it}+\beta_6\ GROETH+\beta_7\ SR+\varepsilon_{it}$$

☐ Prompt：i represents the individual company, t represents time; ROE is alternative indicator of ROA.

**RESULTS**

**Descriptive Statistics of Variables**

**Table 2. Descriptive Statistics of Variables**

| Variable Name | Observations | Average Value | Minimum | Maximum | Standard Deviation |
|---|---|---|---|---|---|
| ROE | 288 | 0.073144 | -2.35733 | 0.76109 | 0.265824 |
| ROA | 288 | 0.056205 | -0.60042 | 0.350654 | 0.10014 |
| DAR | 288 | 0.379872 | 0.027656 | 1.063089 | 0.206258 |
| CDAR | 288 | 0.325049 | 0.027656 | 1.015306 | 0.180136 |
| LDAR | 288 | 0.054862 | 0 | 0.575212 | 0.090381 |
| LNS | 288 | 21.95552 | 19.24058 | 25.18111 | 1.120761 |
| FA | 288 | 0.266702 | 0.031181 | 0.633406 | 0.132104 |
| CR | 288 | 2.815198 | 0.33021 | 25.48155 | 3.385043 |
| GROWTH | 288 | 0.299716 | -1.08204 | 36.14082 | 2.230535 |
| SR | 288 | 0.3468378 | 0.0505 | 0.7904 | 0.1509726 |

According to descriptive statistics in table 2, the mean value of ROE is 7.31%, which is lower for high-growth companies, and maximum of ROE is 76.1% with a negative minimum, showing a large difference, indicating that China's food and beverage companies' profitability is still quite different; the mean value of alternative variables ROA is 5.62%, lower than ROE, there is a big gap between maximum and minimum. The average of debt-to-asset DAR is 37.99%, and the better debt-to-asset ratio is generally not higher than 60% in the world. Therefore, the average debt-to-asset ratio of China's food and beverage industry performed

well but the volatility ranges from 2.77% to 106.31 %. The average CDAR of circulating debt capital is 32.5%, which is much higher than the average long-term debt capital LDAR 5.49%, indicating that China's food and beverage industry enterprises rely more on short-term debt financing, and long-term debt capital average LDAR is lower than the average debt-to-asset ratio DAR, which can also illustrate this point. Fluctuations in debt ratio DAR, liquid debt capital CDAR and long-term debt capital LDAR are relatively large, indicating that the choice of capital structure of each company is very different. The average value of asset guarantee ability FA is 26.67%, indicating that our food and beverage industry's ability of debt financing through guarantee assets is not strong, with a maximum of 63.34% and a minimum of 3.12%. The current ratio CR average of 281.52%, indicates that China's food and beverage industry enterprises have a strong short-term solvency. The mean value of corporate growth GROWTH is 29.97%, which shows that China's food and beverage industry's main business revenue growth ability is better, of which the maximum value of 3614.08%, the minimum value of -108.2%, reflecting the growth capacity of China's food and beverage industry is in a huge difference. The average shareholding ratio of the largest shareholder, SR, is 34.68%, indicating that the ownership concentration of the food and beverage enterprises in China is high, with a maximum of 79.04%. There is a single dominant phenomenon.

**Correlation Analysis**

**Table 3. Correlation Coefficient Table**

|  | ROE | DAR | CDAR | LDAR | LNS | FA | CR | GROWTH | SR |
|---|---|---|---|---|---|---|---|---|---|
| ROE | 1 |  |  |  |  |  |  |  |  |
| DAR | -0.3345*** | 1 |  |  |  |  |  |  |  |
| CDAR | -0.2746*** | 0.6992*** | 1 |  |  |  |  |  |  |
| LDAR | -0.2162*** | 0.4901*** | 0.0594 | 1 |  |  |  |  |  |
| LNS | 0.2690*** | 0.1564 | 0.1557 | 0.0469 | 1 |  |  |  |  |
| FA | -0.1791 | 0.1642 | 0.0716 | 0.2318*** | -0.0343 | 1 |  |  |  |
| CR | 0.0601 | -0.6207*** | -0.5998*** | -0.2212*** | -0.2615*** | -0.2332*** | 1 |  |  |
| GROWTH | 0.0463 | 0.0081 | -0.0424 | 0.1029 | -0.143 | 0.0333 | -0.0177 | 1 |  |
| SR | -0.0048 | -0.0033 | -0.054 | 0.0994 | 0.2231*** | -0.0362 | -0.0006 | -0.0746 | 1 |

Notes: ***, **, * represent significance levels of 1%, 5%, and 10%.

From the above correlation coefficient table, it can be initially seen that the capital structure

(DAR) and business performance (ROE) are negatively significantly correlated, initially in line with our supposition. Both the CDAR and the LDAR in the overall sample have a negative relationship with the business performance (ROE), and the impact mechanism of the two types of debt capital needs to be further explored in different growth companies.

## Regression Analysis

**(1) Test H1**: Capital structure in the corporates of China's food and beverage industry have a negative impact on corporate performance.

**Table 4. The Overall Corporate Capital Structure and Corporate Performance Regression Results**

| Variable Name | | Explained Variable | |
|---|---|---|---|
| | | ROE | ROA |
| Model | | 1 | 2 |
| Explanatory Variable | DAR | -1.205*** | -0.271*** |
| | | （0.15） | （0.0483） |
| Control Variable | LNS | -0.176*** | -0.0365* |
| | | （0.0601） | （0.0193） |
| | FA | -0.776*** | -0.304*** |
| | | （0.226） | （0.0726） |
| | CR | -0.0256** | -0.00555* |
| | | （0.0101） | （0.00323） |
| | GROWTH | 0.00691 | 0.00281 |
| | | （0.00617） | （0.00198） |
| | SR | -0.00699*** | 0.000233 |
| | | （0.00269） | （0.000864） |
| Intercept Term | CONSTANT | 4.914*** | 1.048** |
| | | （1.354） | （0.436） |
| Observations | | 288 | 288 |
| Number of Samples | | 58 | 58 |
| R-squared | | 0.31 | 0.202 |
| F value | | 16.8 | 9.44 |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

For Model 1, P = 0.0004 for the F-test, that is, the model is not suitable for mixed least-squares regression; Hausman test P = 0.0000, so the random effects model should be rejected and the model 1 finally is set as the fixed effects model. Model 2 had an F test of P = 0.0001 and a Hausman test of P = 0.0000, so model 2 was eventually set as a fixed effect model.

According to the above table, we can see that the parameters of the two models are quite significant overall, indicating that the model is effective. The regression results of the two models show that the capital structure of the whole company has a significant negative impact on firm performance with an impact coefficient of -1.205, which is in line with the expectation. At the same time, we can see that the overall fitting degree of the model is obviously higher than that of the ROA as the explanatory variable (31%> 20.2%) when using ROE to represent the enterprise performance, but the empirical results are basically the same and no significant changes have occurred, which shows the model pass the robustness test. Therefore, the empirical results show that we can't reject the original hypothesis H1, for the current company in our country, excessive debt-to-asset ratio is not conducive to the growth of corporate performance. Among control variables, the company's largest shareholder holding ratio (SR) will have a negative impact on China's food and beverage industry business performance, which is consistent with the Wu Jia Li (2010) research results.

**Test H1a**：The capital structure of a high-growth company is negatively correlated with the corporate performance.**H1b**: The capital structure of low-growth companies has a positive correlation with corporate performance.

## Table 5. High and Low Growth Company's Capital Structure and Corporate Performance Regression Results

| Company Classification | | High-growth Company | | Low-growth Company | |
|---|---|---|---|---|---|
| Model | | 3 | 4 | 5 | 6 |
| Variable Name | | Explained Variable | | | |
| | | ROE | ROA | ROE | ROA |
| Explanatory Variable | DAR | -1.166*** | -0.326*** | -1.450*** | -0.223*** |
| | | （0.282） | (0.0963) | (0.209) | （0.0686） |
| Control Variable | LNS | -0.291*** | -0.0715*** | 0.0617 | 0.0319 |
| | | （0.0798） | （0.0272） | （0.0885） | （0.0291） |
| | FA | -0.825*** | -0.280*** | -1.127*** | -0.372*** |
| | | （0.306） | （0.104） | （0.323） | （0.106） |
| | CR | -0.0452* | -0.00774 | -0.017 | -0.00646* |
| | | (0.0244) | （0.00832） | （0.0108） | （0.00353） |
| | GROWTH | 0.0081 | 0.00267 | -0.0865 | 0.0176 |
| | | (0.00632) | （0.00216） | （0.0778） | （0.0256） |
| | SR | 0.00191 | 0.00137 | -0.0126*** | -0.00106 |
| | | (0.00417) | （0.00142） | （0.00341） | （0.00112） |
| Intercept Term | CONSTANT | 7.142*** | 1.778*** | 0.0101 | -0.398 |
| | | (1.823) | （0.622） | （1.98） | （0.651） |
| Observations | | 145 | 145 | 142 | 142 |
| Number of Sample | | 29 | 29 | 29 | 29 |
| R-squared | | 0.259 | 0.241 | 0.517 | 0.222 |
| F Value | | 6.41 | 5.83 | 19.6 | 5.09 |

Standard errors in parentheses      *** p<0.01, ** p<0.05, * p<0.1

In line with the tests of Model 1 and Model 2, Model 3-6 also pass the F-test and Hausman test, fitting the fixed effect model. First, the regression results show that the P values of the four models are basically less than 0.01, and the model is significant overall. Second, DAR, both for high-growth and low-growth companies, has a negative effect on firm performance, therefore, we should reject hypothesis H1b: The capital structure of low-growth companies has a positive correlation with corporate performance. The possible reason for this result is that all aspects of securities market supervision in our country are not perfect and the cost of equity financing is relatively low. Therefore, except for a few non-listed companies, the food

and beverage industry's low-growth enterprises in our country are more inclined to equity financing, that is, a lower gearing ratio means higher business performance. At the same time, we can see the same conclusion in the robustness test of the results when the explanation variables is replaced by ROA.

**(1) TestH2**:Long-term debt capital of high-growth companies is positively correlated with corporate performance.

**(2) TestH3**:Short-term debt capital of high-growth companies is negatively correlated with corporate performance.

**(3) TestH4**:Long-term debt capital of low-growth companies is positively correlated with corporate performance.

**(4) TestH5**:Short-term debt capital of low-growth companies is positively correlated with corporate performance.

**Table 6.   High and Low Growth Companies Debt Capital Maturity Structure and Corporate Performance Regression Results**

| Company Classification | | High-growth Company | | Low-growth Company | |
|---|---|---|---|---|---|
| Model | | 7 | 8 | 9 | 10 |
| Variable Name | | Explained Variable | | | |
| | | ROE | ROA | ROE | ROA |
| Explanatory Variable | CDAR | -1.160*** | -0.235** | -1.570*** | -0.255*** |
| | | （0.331） | （0.112） | （0.21） | （0.0698） |
| | LDAR | -1.178*** | -0.452*** | -0.424 | 0.0512 |
| | | （0.369） | （0.125） | （0.471） | （0.156） |
| Control Variable | LNS | -0.291*** | -0.0655** | -0.00509 | 0.014 |
| | | （0.081） | （0.0273） | （0.0909） | （0.0302） |
| | FA | -0.825*** | -0.286*** | -1.146*** | -0.377*** |
| | | （0.308） | （0.104） | （0.316） | （0.105） |
| | CR | -0.0452* | -0.00584 | -0.0196* | -0.00715** |
| | | （0.0248） | （0.00835） | （0.0106） | （0.00351） |
| | GROWTH | 0.00816 | 0.00354 | -0.0713 | 0.0217 |
| | | （0.00656） | （0.00221） | （0.0763） | （0.0253） |
| | SR | 0.0019 | 0.00131 | -0.0115*** | -0.000761 |

| | | | | | |
|---|---|---|---|---|---|
| | | （0.00419） | （0.00141） | （0.00337） | （0.00112） |
| Intercept Term | CONSTANT | 7.127*** | 1.625** | 1.459 | -0.0103 |
| | | （1.853） | （0.625） | （2.028） | （0.673） |
| Observations | | 145 | 145 | 142 | 142 |
| Number of Sample | | 29 | 29 | 29 | 29 |
| R-squared | | 0.259 | 0.258 | 0.542 | 0.249 |
| F value | | 5.45 | 5.43 | 4.13 | 5.02 |
| Standard errors in parentheses，*** p<0.01, ** p<0.05, * p<0.1 | | | | | |

As above, the F-test and the Hausman test for the model 7-9 are finally set as the fixed-effect model.

For high-growth companies, Models 7 and 8 both show that there is a significant negative correlation between current debt capital and long-term debt capital for both ROE and ROA. Therefore, H3 cannot be rejected and H2 should be rejected. From the coefficient point of view, the absolute value of the coefficient of the current debt capital is significantly less than the absolute value of the coefficient of the long-term debt capital, indicating that for the high-growth companies, the long-term debt capital has a greater negative impact on firm performance. Comparing with Model 9, we can find that the absolute value of the current debt-to-capital ratio of the high-growth companies is smaller than that of the low-growth companies, which shows that the negative impact of the current liabilities on the low-growth companies is greater.

Models 9 and 10 show the regression results for low-growth companies. For low-growth companies, liquid debt capital has a significant negative impact on business performance, while the negative impact of long-term debt capital is not significant. Therefore, H5 should be rejected and H4 should not be rejected. This reflects that the companies in our country rely on too much short-term debt financing at the moment and have a high current liability ratio, but the excessively high short-term debt ratio may have a negative impact on corporate performance.

**Robustness Test**

In order to enhance the persuasiveness of the conclusions of the study and to take into account the costs associated with data collection, a robustness test using alternative variables was conducted. By replacing the agency variable of enterprise performance with the total return on assets (ROA), the data of 2011-2015 sample companies are re-tested empirically,

and the regression analysis results are basically the same as the previous ones (as shown in the regression results in Tables 4 、 5 and 6). Seen in this light, the model of this paper and empirical conclusions are pretty robust.

## DISCUSSION

This paper aims to study the relationship between the company's capital structure and firm performance. Firstly, it sorts out the development of the theory about capital structure, and summarizes the previous studies on the relationship between capital structure and firm performance, and then puts forward the hypothesis based on theoretical research. In addition to studying the overall capital structure, the debt capital is also divided into the current debt capital and the long-term debt capital. According to the introduction of the enterprise life-cycle theory, 58 valid samples are divided into 29 high growth and 29 A low-growth companies to build a regression model needed for regression testing. Several conclusions are as follows:

The capital structure of China's food and beverage industry enterprises has a negative impact on the performance of enterprises. For both high-growth companies and low-growth companies, the capital structure is negatively correlated with corporate performance. This is in line with the conclusion of Wang Xuhui and Xu Jian (2009).They take the Chinese listed companies in the circulation service industry as the research sample and analyze that the capital structure and ownership structure of listed companies have an impact on the performance of the company. Due to the particularity of China's securities market, contrary to the theory of optimal financing, the food and beverage enterprises in our country prefer equity financing and the overall debt-to-asset ratio is too low to effectively utilize the financial leverage of debt financing to increase the corporate value.

In the term structure of debt capital, we find that, for high-growth companies, long-term debt capital and liquid debt capital all have a negative impact on firm performance, while long-term debt capital has a greater negative impact. A reasonable explanation is that for companies with higher growth, financing channels and methods are not completely mature, too much debt, especially long-term debt will bring greater repayment pressure to the enterprise, so the lack of financial capacity will make the corporate under-invest and reduce business performance. For low-growth companies, there is a significant negative correlation between current liabilities and corporate performance, while the relationship between

long-term liabilities and corporate performance is insignificant.

## CONCLUSION

In China's food and beverage industry's financing structure, the proportion of internal financing is generally low, the proportion of external financing is absolutely high, and even part of the company's financing structure is entirely dependent on external financing; long-term debt and total debt levels are low, and the owner's equity is higher in the proportion of the total assets. Under overall low level of assets and liabilities, there is still a strong impulse to equity expansion for these companies, not effectively using the financial leverage of debt financing to increase corporate value. In the choice of financing order, the first is external financing, of which the enterprises prefer equity financing, and the second choice is debt financing, which reflects the more obvious or even strong equity financing preferences. This can be attributed to the abnormal development of the current stock market in our country and the backwardness of the bond market. In addition, the shareholding structure of China's food and beverage industry is characteristic. Most of the food and beverage industry enterprises in our country are transformed from state-owned enterprises and the state has a high degree of concentration equity, meanwhile a large number of small and medium-sized investors, decentralized ownership, and low shareholding ratio and lack of supervision motives and conditions of the company results in the owner's lack of control over the operator. Moreover, the debt financing has the characteristics of hard debt and debt service, which may make the enterprises' "free cash" depletion, exacerbate the risk of bankruptcy and threaten the manager's non-monetary income. Therefore, managers prefer equity financing more and aggravate the negative correlation between asset-liability ratio and corporate performance in China's food and beverage industry.

## Implication to research and practice

In order to improve the capital structure of food and beverage enterprises in China, on a macro level, state should strengthen the construction of domestic financial market and financial system reform, strongly encourage the development of bond market and the issuance of emerging bond products, and improve the imbalance of capital market development. On a micro level，food enterprises in China should start from the specific conditions of China's food and beverage industry, should actively issue corporate bonds and encourage corporate managers to use funds to create revenue through debt financing, which

will improve corporate performance and market value, in turn can increase the attractiveness of the bond to investors in the bond market. At the same time, these enterprises will get rid of dependence on state-owned bank credit, and truly benefit from marketization of debt financing. And company owners urge the company operators to operate soundly through the hard constraints of credit and debt management. In addition, it is pivotal to use financial leverage to significantly reduce financing costs while taking effective measures to sidestep international financing risks and avoiding destabilizing world monetary and financial systems that have a negative impact on China's economic development. In this way, we can maximize the effective impact of offshore financing on China's business operations so as to prompt the ultimate realization of corporate performance maximization.

**Future Research**

First of all, the time and source of the sample are limited. In this paper, only 84 companies in the food and beverage industry were selected as the initial samples, and only 58 valid samples were finally obtained. Only 5 years of their performance were studied. Since it is impossible to expand the samples without restriction and collect data for all enterprises in our country, the research results cannot absolutely judge the relationship between the capital structure and firm performance of all Chinese companies and do not have the representativeness of the whole industry.

Second, in this paper, for the index selection, although the concept of capital structure cannot be equated with the asset-liability ratio, because the debt-to-asset ratio is the most commonly used indicators of the company's capital structure, almost in all companies' balance sheet and the company annual report. This paper still select the asset-liability ratio as the empirical model of the dependent variable for the convenience of research. In the selection of indicators of business performance, taking into account the sample contains non-listed companies, China's capital market is still not perfect and other factors, we use ROE to measure business performance, but ROE focuses on the profitability of corporate performance, lack of consideration about the company's security and liquidity.

Finally, the paper focuses on the debt capital level in the research content of capital structure but does not discuss the company's equity capital. Although the empirical evidence shows that there is a negative correlation between the capital structure and firm performance in the current China's food and beverage industry, the mechanism of the interaction between the two and how to draw the optimal capital structure remains to be further studied. What is the difference in the formation of the optimal capital structure among different industries and

different sizes of enterprises points out the direction for further research.

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