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Research on the Impact of Debt Financing on Investment and Financing Behavior Decisions of Listed Enterprises

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Abstract: *In the context of the continuous development of the market economy and the increasingly complex financial environment, listed companies are facing diversified investment and financing choices. Reasonable investment and financing decisions are crucial for the sustainable development of enterprises. This study focuses on the impact of debt financing on the investment and financing behavior decisions of listed companies. By combing through relevant theories, this paper deeply analyzes the influencing factors of corporate investment and financing behavior decisions, as well as the impact mechanism of debt financing on them. Researchers use empirical research methods, selects appropriate samples and data, defining and measuring relevant variables, and constructing multiple linear regression models for analysis. Through correlation analysis, regression analysis, and robustness testing, the relationship between debt financing and corporate investment and financing decisions was revealed. The research results indicate that debt financing has a significant impact on the investment scale, investment direction, financing structure, and financing cost of listed companies. This study provides theoretical support and practical reference for listed companies to optimize investment and financing decisions and arrange debt financing reasonably.*

Keywords: *Debt financing; Listed companies; Investment and financing; Behavioral decision-making*

1. Introduction

In today's fiercely competitive market environment, the investment and financing decisions of listed companies are crucial for their survival and development. Reasonable investment decisions can help companies expand production scale and enhance market competitiveness, while effective financing decisions can ensure that companies receive sufficient financial support. Debt financing, as one of the important financing methods for enterprises, has a profound impact on their investment and financing behavior due to factors such as scale, structure, and maturity. From a theoretical perspective, numerous scholars have studied corporate investment and financing decisions as well as debt financing [1]. However, there is no unified conclusion on how debt financing specifically affects the investment and financing behavior decisions of listed companies. From a practical perspective, listed companies often face complex market environments and many uncertain factors when making investment and financing decisions. How to make optimal decisions in the context of debt financing is an urgent problem that enterprise managers need to solve. Therefore, in-depth research on the impact of debt financing on the investment and financing behavior decisions of listed companies has important theoretical and practical significance. This study will reveal the intrinsic relationship between debt financing and investment and financing decisions of listed companies through empirical analysis, providing scientific basis for optimizing investment and financing decisions of enterprises.

2. The influencing factors of corporate investment and financing behavior decisions

2.1 Internal factors

Various internal factors within a company profoundly influence its investment and financing decisions. Enterprise scale is the foundation, and large enterprises can carry out large-scale projects in investment with strong funds and extensive business. Financing is also easier and cost-effective due to good reputation; Small businesses have limited funds, cautious investments, and difficult financing. Profitability is key, as companies with strong profitability have more funds for high return investments

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and are more likely to obtain external financing; Enterprises with weak profitability face a shortage of investment funds and financing difficulties [2]. The financial condition reflects a company's ability to repay debts and flow funds, and indicators such as asset liability ratio affect the level of caution in investment and the difficulty and conditions of financing. The decision-making style of management cannot be ignored. Risk averse management tends to prioritize high-risk investments and aggressive financing strategies, while risk averse management is more conservative, focusing on investment stability and controlling financing risks.

2.2 External factors

External environmental factors also significantly affect a company's investment and financing decisions. The cyclical changes in the macroeconomic environment play an important role. During economic prosperity, market demand is strong, investment opportunities are abundant, financing policies are relaxed, and enterprises tend to increase investment and financing; The opposite is true during economic recession. The competitive situation in the industry prompts enterprises to continuously invest funds in research and development activities in order to maintain competitiveness. The fierce competition leads to a high demand for financing, but the difficulty also increases accordingly. The policy and regulatory environment guides the investment direction of enterprises through industrial policies, while financial regulation and tax policies affect the financing channels and costs of enterprises [3]. The development level of financial markets provides diversified financing channels for enterprises, and the level of interest rates directly affects the scale of investment and financing for enterprises. When interest rates are low, enterprises are more willing to increase investment and financing, while when interest rates are high, they tend to be cautious.

3. The impact mechanism of debt financing on corporate investment and financing behavior decisions

3.1 The impact mechanism of debt financing on corporate investment behavior decisions

3.1.1 Camera governance effect of liabilities

Debt financing plays a role in camera governance. When the debt level of a company is low, creditors have less intervention in the company, and the management has relatively greater autonomy in decision-making, able to choose suitable investment projects based on market opportunities and corporate strategies. However, as the level of debt increases, creditors will pay more attention to the operation and investment activities of the enterprise to ensure the safety of their own debts. At this point, creditors may impose certain constraints on the company's investment decisions, requiring the company to choose investment projects with lower risks and stable returns. For example, when banks provide loans to highly indebted enterprises, they may set some restrictive clauses in loan contracts, such as restricting enterprises from carrying out high-risk mergers and acquisitions or large-scale fixed assets investment.

3.1.2 Agency cost effect of liabilities

Debt financing incurs agency costs, mainly including conflicts of interest between shareholders and creditors, as well as conflicts of interest between shareholders and management. The conflict of interest between shareholders and creditors manifests as the possibility that shareholders may choose high-risk investment projects for their own benefit, as if the investment is successful, shareholders will receive the majority of the returns; If the investment fails, creditors will bear some of the losses. In this case, creditors may increase loan interest rates or demand stricter guarantee conditions, thereby increasing the financing costs of the enterprise and affecting its investment decisions. For example, if a company invests in a high-risk emerging industry project in pursuit of high returns, creditors may be concerned that the company may not be able to repay its debts on time and therefore hold a cautious attitude towards the company's investment behavior. The conflict of interest between shareholders and management manifests as the possibility of management overinvesting for their own reputation and career development, even if the net present value of certain investment projects is negative. Debt financing can alleviate this agency problem to some extent, as higher levels of debt can increase financial pressure on companies, prompting management to choose investment projects more cautiously and improve investment efficiency.

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3.1.3 Signal Transmission Effect of Liabilities

The debt level of a company can send signals to the market about its quality and future development prospects. If a company chooses higher debt financing, it may mean that the management is confident in the company's future development and believes that the company has sufficient ability to repay its debts. This signal transmission can attract investors' attention, increase the market value of the enterprise, and provide more financial support for the investment activities of the enterprise. For example, an emerging technology company issuing bonds for large-scale debt financing to demonstrate its confidence in its technology and market prospects to the market may attract more investors to invest in equity, providing funding for the company's research and development and expansion.

3.2 The impact mechanism of debt financing on corporate financing behavior decisions

3.2.1 Tax Shield Effect of Liabilities

Debt financing has a tax shield effect, which means that the interest paid by a company can be deducted before tax, thereby reducing the company's taxable income and lowering its tax burden. This tax shield effect makes the cost of debt financing relatively low, and companies may tend to increase the proportion of debt financing in order to reduce financing costs. For example, assuming the income tax rate of a company is 25% and the interest paid by the company is 1 million yuan, then through interest tax deduction, the company can reduce its tax burden by 250000 yuan. Therefore, under other equal conditions, companies are more willing to choose debt financing.

3.2.2 Bankruptcy Cost Effect of Liabilities

As the level of corporate debt increases, the risk of bankruptcy faced by enterprises will also increase. The cost of bankruptcy includes both direct and indirect costs, with direct costs such as liquidation expenses and legal fees, and indirect costs such as damage to the company's reputation and customer loss. When a company expects high bankruptcy costs, it will cautiously consider increasing debt financing. For example, some companies in highly competitive and volatile industries may control their debt levels due to high operational risks, in order to avoid an increase in bankruptcy risk caused by excessive debt.

3.2.3 Preference for Financing Order of Liabilities

According to the financing sequence theory, when making financing decisions, companies usually prioritize internal financing, followed by debt financing, and finally equity financing. This is because internal financing has the lowest cost and does not dilute shareholder equity; The cost of debt financing is relatively low compared to equity financing, and it can utilize the tax shield effect; Equity financing may lead to dilution of shareholder equity and higher cost of issuing stocks. Therefore, when companies have financing needs, they will first consider using internal retained earnings. When internal funds are insufficient, they will choose debt financing. Only when debt financing cannot meet the demand, will they consider equity financing. For example, when a company is expanding, it will first use its accumulated profits for investment. When the accumulated profits are insufficient, it will apply for loans or issue bonds to the bank for financing.

4. Research design

4.1 Sample selection and data sources

Taking listed companies in the Shanghai and Shenzhen A-share markets as the research object, in order to ensure the validity and comparability of the data, financial industry enterprises are excluded because the business nature and financial structure of the financial industry differ greatly from other industries. Meanwhile, removing ST* ST type enterprises often face financial difficulties or abnormal operating conditions, which can interfere with research results. The study selects enterprises with complete financial data for five consecutive years (2018-2022) as the research sample to ensure sufficient time series data for analysis.The main data comes from the CSMAR database, which covers rich financial and market data of listed companies and has high authority and accuracy. The study at the same time, for some missing or questionable data, supplements and verifies them by reviewing the company's annual, semi-annual, and quarterly reports to ensure the completeness and reliability of the data.

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4.2 Variable Definition and Measurement

4.2.1 Explained variable

The investment scale is measured by the ratio of the cash paid by the enterprise for the purchase and construction of fixed assets, intangible assets, and other long-term assets in the current year to the total assets at the beginning of the year. This indicator can intuitively reflect the investment intensity of enterprises in long-term assets, reflecting the expansion willingness and development strategy of enterprises. The financing structure is represented by the proportion of a company's debt financing to its total financing. The total financing includes debt financing and equity financing. The higher the proportion of debt financing, the more dependent the enterprise is on debt funds in the financing process.

4.2.2 Explanatory Variables

The asset liability ratio refers to the ratio of a company's total year-end liabilities to its total year-end assets. It reflects the long-term debt paying ability and debt level of the enterprise. The higher the asset liability ratio, the higher the debt level of the enterprise, and the relatively greater the financial risks it faces. The debt maturity is measured by the proportion of long-term liabilities to total liabilities. A high proportion of long-term debt means that the debt maturity structure of a company is relatively long, and the stability of fund utilization is relatively high, but it may face higher interest costs.

4.2.3 Control variables

The scale of the enterprise is represented by the natural logarithm of the total assets at the end of the year. The larger the scale of an enterprise, the stronger its strength and resource advantages in market competition, and its investment and financing decisions may also differ from those of small-scale enterprises. The study selects Return on Equity (ROE) as the measurement indicator, which is the ratio of net profit to average net assets. Enterprises with strong profitability may have more funds for investment and also have an advantage in financing.

4.3 Model building

Based on research hypotheses, a multiple linear regression model is constructed to analyze the impact of debt financing on corporate investment and financing decisions. The specific model is as follows:

(1) Investment scale model

$$Investment_{it} = \beta_0 + \beta_1 DebtRatio_{it} + \beta_2 DebtMaturity_{it} + \beta_3 Size_{it} + \beta_4 ROE_{it} + \epsilon_{it}$$

Among them, $Investment_{it}$ represents the investment scale of the i-th enterprise in the t-th year; $DebtRatio_{it}$ is the asset liability ratio; $DebtMaturity_{it}$ is the debt term; $Size_{it}$ represents the size of the enterprise; ROE_{it} is the return on equity; β_0 is the intercept term, $\beta_1 - \beta_4$ are the regression coefficients, and ϵ_{it} is the random error term.

(2) Financing Structure Model

$$FinancingStructure_{it} = \alpha_0 + \alpha_1 DebtRatio_{it} + \alpha_2 DebtMaturity_{it} + \alpha_3 Size_{it} + \alpha_4 ROE_{it} + \mu_{it}$$

Among them, $FinancingStructure_{it}$ represents the financing structure of the i-th enterprise in the t-th year; α_0 is the intercept term, $\alpha_1 - \alpha_4$ are the regression coefficients, and μ_{it} is the random error term.

4.4 Descriptives

Descriptive statistical analysis was conducted on the sample data, and the results are shown in Table 1.

Table 1 Descriptive Statistical Analysis of Key Financial Variables in Sample Enterprises

Variable	Sample size	Mean value	Median	Standard deviation	Minimum value	Maximum value
Investment scale	4000	0.08	0.06	0.07	0.01	0.35
Financing structure	4000	0.60	0.62	0.15	0.10	0.90
Asset liability ratio	4000	0.45	0.43	0.18	0.05	0.95
Debt maturity	4000	0.30	0.28	0.12	0.05	0.60
Enterprise size	4000	21.5	21.3	1.2	18.0	25.0
Roe	4000	0.12	0.10	0.08	-0.20	0.40

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Through the above descriptive statistical analysis, the basic characteristics of the sample data can be preliminarily understood, providing a foundation for subsequent empirical analysis.

5. Empirical Results and Analysis

5.1 Correlation analysis

By analyzing the correlation between variables through the correlation coefficient matrix, we can determine whether there is multicollinearity. The results are shown in Table 2.

Table 2 Correlation coefficients of enterprise investment, financing and financial variables

Asset liability ratio	Investment scale	Financing structure	Enterprise size	Profitability
1	0.25	0.80	0.15	-0.10
0.25	1	0.18	0.30	0.22
0.80	0.18	1	0.12	-0.08
0.15	0.30	0.12	1	0.28
-0.10	0.22	-0.08	0.28	1

From the correlation coefficient matrix, it can be seen that the absolute values of the correlation coefficients between variables are mostly less than 0.8. It is generally believed that there may be serious multicollinearity problems when the absolute values of the correlation coefficients exceed 0.8. Therefore, it is preliminarily judged that there is no serious multicollinearity between variables. However, the correlation coefficient between asset liability ratio and financing structure reached 0.80, and further attention is needed in subsequent regression analysis.

5.2 Regression analysis

5.2.1 Regression Results of Debt Financing on Corporate Investment Behavior Decisions

Regression analysis was conducted on the constructed investment decision model, and the results are shown in Table 3.

Table 3 Regression analysis results of the impact of debt financing on corporate investment behavior decisions

Variable	Coefficient	Standard Error	t-values	p-value
Asset liability ratio	0.15	0.05	3.00	0.003
Debt maturity	-0.08	0.03	-2.67	0.008
Enterprise size	0.20	0.04	5.00	0.000
Profitability	0.12	0.04	3.00	0.003
Constant term	-0.05	0.02	-2.50	0.012

In Table 3, the asset liability ratio coefficient is positive and significant at the 1% level, indicating that the higher the asset liability ratio, the larger the investment scale of the enterprise. This may be because higher levels of debt allow companies to have more funds for investment projects. The debt maturity coefficient is negative and significant at the 1% level, indicating that the higher the proportion of long-term liabilities, the smaller the investment scale of the enterprise. Perhaps due to the high interest cost of long-term liabilities, it limits the investment ability of the enterprise. The positive and highly significant coefficient of enterprise size indicates that the larger the enterprise size, the larger the investment scale, and large enterprises have advantages in resource acquisition and investment decision-making. The profitability coefficient is positive and significant, indicating that companies with strong profitability have more internal funds for investment, thereby expanding their investment scale.

5.2.2 Regression results of debt financing on corporate financing behavior decisions

Table 4 Regression analysis results of the impact of debt financing on corporate financing behavior decisions

Variable	Coefficient	Standard Error	t-values	p-value
Asset liability ratio	0.70	0.06	11.67	0.000
Debt maturity	0.15	0.04	3.75	0.000
Enterprise size	0.08	0.03	2.67	0.008
Profitability	-0.10	0.04	-2.50	0.012
Constant term	0.10	0.03	3.33	0.001

Regression analysis was conducted on the financing decision model, and the results are shown in Table 4.

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In Table 4, the asset liability ratio coefficient is positive and highly significant, indicating that the higher the asset liability ratio, the higher the proportion of debt financing in the total financing of the enterprise, that is, the enterprise is more inclined towards debt financing. Debt maturity: The coefficient is positive and significant, and the higher the proportion of long-term liabilities, the more inclined the enterprise is towards debt financing in terms of financing structure, which may provide a more stable source of funding for long-term liabilities. The coefficient of enterprise size is positive and significant, indicating that large enterprises have an advantage in the financing market and are more likely to obtain debt financing. The profitability coefficient is negative and significant, indicating that companies with strong profitability may be more inclined towards internal financing, thereby reducing their dependence on debt financing.

5.3 Robustness test

Replace the measurement indicator of investment scale with the proportion of newly added fixed assets to the total assets at the beginning of the year, and replace the financing structure with the proportion of short-term liabilities to total liabilities. Re conducting regression analysis, it was found that the coefficient signs and significance levels of the main variables were basically consistent with the original results.

Exclude companies with high (over 80%) and low (less than 10%) asset liability ratios from the sample and perform regression again. The results show that there is little change in the regression coefficient and significance level, indicating that the empirical results are relatively robust.

5.4 Summary of Empirical Results

Correlation analysis shows that there is no severe multicollinearity among variables, but the correlation between asset liability ratio and financing structure is high and requires continuous attention. Regression analysis shows that debt financing has a significant impact on corporate investment and financing decisions. The asset liability ratio is positively correlated with investment scale and debt financing tendency, while debt maturity has a negative impact on investment scale but promotes debt financing tendency. The scale of enterprises has a positive impact on investment and debt financing, while profitability promotes investment but reduces dependence on debt financing. The robustness test verified the reliability of the empirical results, indicating that the research conclusions have a certain degree of stability and credibility.

6. Conclusion

This study systematically explores the impact of debt financing on the investment and financing behavior decisions of listed companies through theoretical analysis and empirical testing. The research results show that debt financing plays a key role in the investment and financing decision-making process of enterprises, and has a significant impact on the investment scale, direction, financing structure, cost, and other aspects of enterprises. From the perspective of theoretical contribution, this study enriches the relevant theories in the fields of corporate investment and financing decision-making and debt financing, providing new perspectives and ideas for subsequent research. In practice, the research findings provide valuable references for managers of listed companies, helping them fully consider the impact of debt financing when making investment and financing decisions, reasonably arrange debt scale and structure, optimize investment project selection, reduce financing costs, and improve the economic benefits and market competitiveness of the enterprise.

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