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Research on the Relationship between Debt Financing and Corporate Growth of Logistics Listed Companies---The Intermediary Role based on Executive Incentives

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ABSTRACT

Taking A-share logistics listed companies on the Shanghai and Shenzhen stock markets from 2020 to 2025 as the research object, this study empirically analyzes the impact of debt financing on corporate growth using structural equation modeling (SEM) and mediation effects. The results indicate that debt financing is significantly negatively correlated with corporate growth; Executive incentives have a significant positive causal relationship with corporate growth, while debt financing has a significant negative correlation with executive incentives, and debt financing can indirectly affect corporate growth through the mediating effect of executive incentives. The direct effect of debt financing on corporate growth is -0.277, the mediating effect is -0.041, and the total effect is -0.318.

KEYWORDS

Logistics listed companies; Debt financing; Executive incentives; Corporate growth; Intermediary role; Structural equation model

1. INTRODUCTION

The continuous advancement of technology requires sufficient financial support for the development of enterprises, especially for logistics companies. In order to ensure the normal operation of enterprises, various types of financing are needed, among which debt financing is the most common and important financing channel. If debt financing can be used reasonably, it will be very beneficial for the rapid growth of logistics enterprises. Moreover, the higher the level of financing, the better the reputation of the enterprise, and the lower the probability of financial risk or bankruptcy faced by the enterprise. Therefore, as senior managers with important positions in the enterprise, they will definitely tend to choose more debt financing considering the further development and growth of the enterprise in the future. However, at the same time, due to their self-centered thinking, senior managers may choose debt financing that is beneficial to themselves, which may not necessarily be beneficial to the development of the enterprise and may even hinder its growth to some extent. Therefore, the level of executive incentives will affect what financing methods and channels executives make, which in turn will affect the growth of the enterprise. Therefore, this article takes A-share logistics listed companies in the Shanghai and Shenzhen stock markets from 2020 to 2025 as the research object, studies the relationship between debt financing and corporate growth, and indirectly affects corporate growth through the mediating effect of executive incentives. This has a significant promoting and enhancing effect on promoting the further development and growth of logistics listed companies.

2. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

(1) The Relationship between Debt Financing and Corporate Growth

If a company always engages in various degrees of debt financing, the probability of facing financial crisis or bankruptcy will greatly increase. This means that while debt financing promotes the further development and growth of the company, it will also increase the cost of debt financing, reduce the profitability of the company, and ultimately have a very unfavorable impact on its growth performance. Therefore, the first hypothesis is proposed:

H1: There is a negative causal relationship between debt financing and corporate growth of logistics listed companies

(2) The Relationship between Executive Incentives and Corporate Growth

According to motivation theory, the higher the level of motivation for executives, the more they will have a sense of belonging and loyalty, and the more they will continue to work hard for the further development of the enterprise, and there will be fewer behaviors that are detrimental to the development of the enterprise for their own benefit. Enterprises with higher executive compensation or higher executive shareholding ratios will have their executives greatly satisfied and protected due to their own interests. Therefore, as their needs are met, they will work more wholeheartedly to improve the company's performance and continue to meet their various needs. This kind of dedicated work will further promote the growth of the enterprise. Therefore, the first hypothesis is proposed:

H2: There is a positive causal relationship between executive incentives and corporate growth in logistics listed companies

(3) The mediating effect of executive incentives on debt financing and corporate growth

The higher the incentive level of executive compensation or the higher the incentive level of senior management shareholding ratio, the inseparable relationship between their income and corporate performance. The higher the performance, the higher the actual salary or shareholding ratio of executives. Therefore, in this situation, executives tend to choose more debt financing to increase leverage returns. Therefore, the third hypothesis is proposed:

Q3: Incentives for executives of logistics listed companies can reduce the strength and intensity of the negative causal relationship between debt financing and corporate growth

3. EMPIRICAL RESEARCH DESIGN

(1) Indicator selection

Design latent and observational variables for the model in this article based on relevant literature. The endogenous latent variables are the growth of the enterprise (asset liability ratio, long-term debt ratio, short-term debt ratio), executive incentives (sum of the top three directors' compensation, sum of the top three supervisors' compensation, and proportion of the top three shareholders' shareholding), and the exogenous latent variables are debt financing (revenue growth rate, total asset growth rate, net profit growth rate).

(2) Sample determination and data sources

Logistics enterprises include chain retail and wholesale enterprises, transportation enterprises, postal and telecommunications enterprises, etc. Therefore, according to industry standards, companies with B-shares, H-shares, ST or * ST, as well as companies with abnormal or missing data, were excluded. Finally, 63 logistics listed companies were obtained, and the effective range of data is from 2020 to 2025. The data sources mainly come from Wind database, Juchao Information website, and manually organized annual reports of various companies.

(3) Construction of Structural Equation Modeling

Structural equation modeling is a statistical method for exploring causal relationships between variables, which can be divided into two parts: structural modeling and measurement modeling.

$$\eta=B\eta+\Gamma\xi+\zeta \quad (1)$$

$$X=\Lambda X\xi+\delta \qquad Y=\Lambda Y\eta+\varepsilon \quad (2)$$

ηis an endogenous latent variable, which refers to the growth potential of the enterprise and executive motivation; B is the coefficient of the endogenous latent variable η and the coefficient of the exogenous latent variable ξ; ξ is an exogenous latent variable, namely debt financing; Zeta is a random error term. X is a vector of exogenous measurable variables; Y is a vector of endogenous measurable variables; ΛX is the coefficient between the exogenous measurable variable and the exogenous latent variable; ΛY is the coefficient between endogenous measurable variables and endogenous latent variables; The error of δ is X; ε is the error of Y.

4. EMPIRICAL ANALYSIS

(1) Measurement model verification

Measurement model testing, also known as confirmatory factor analysis, generally has a standardized factor loading coefficient greater than 0.3, and through statistical testing, it is considered that the convergence relationship between latent variables and measurable variables is good. This article uses AMOS 17.0 to conduct confirmatory factor analysis on the measurement model. The results show the convergence of each observed variable to the corresponding latent variable. The convergence relationship between executive incentives and their observed variables is as follows: the factor loading coefficient of the top three shareholders' shareholding ratio (X3) is 0.98, the factor loading coefficient of the sum of the top three directors' compensation (X1) is 0.96, and the factor loading coefficient of the sum of the top three supervisors' compensation (X2) is 0.80. The factor loading coefficients of all three observed variables are greater than the minimum limit of 0.3, and they also satisfy the statistical significance of P value less than 0.05 and T value greater than 1.96; The convergence relationship between debt financing and its observed variables is as follows: the loading coefficient of the asset liability ratio (X4) factor is 0.93, the loading coefficient of the short-term debt ratio (X6) factor is 0.67, and the loading coefficient of the long-term debt ratio (X5) factor is 0.36. The loading coefficients of the three observed variables are all greater than the minimum limit of 0.3, and they satisfy the statistical significance of P value less than 0.05 and T value greater than 1.96; The convergence relationship between enterprise growth and its observed variables is as follows: the factor loading coefficient of total asset growth rate (Y5) is 0.95, the factor loading coefficient of net profit growth rate (Y6) is 0.93, and the factor loading coefficient of operating revenue growth rate (X5) is 0.80. The factor loading coefficients of the three observed variables are all greater than the minimum limit of 0.3, and they also satisfy the statistical significance of P value less than 0.05 and T value greater than 1.96. And all the fitting indicators meet the standards, the data and model have a high degree of fit, and the model can explain the statistical problem studied in this article well.

(2) Structural model validation

Structural modeling is the exploration of latent variable path relationships and causal relationships. This article uses AMOS17.0 software to empirically test the path analysis of the structural model. The results are shown in the table below.

Table 1. Fitting test results

CMIN/DF	GFI	IFI	CFI	RMSEA
2.631	0.932	0.980	0.979	0.074
1<CMIN/DF<5	>0.9	>0.9	>0.9	<0.1
support	support	support	support	support

The results in the table above indicate that the fitting degree indicators fully meet the normal fitting standards. The degree of adaptation between the model and the data is high, and the model selection effect is relatively appropriate.

Table 2. Results of Structural Model Validation

Variable relationship			Coefficient	T value	P value	Verification result
Executive Incentives	<---	Debt financing	-.154	-1.897	.058	Support
Enterprise growth potential	<---	Executive Incentives	.232	3.974	***	Support
Enterprise growth potential	<---	Debt financing	-.278	-3.738	***	Support

Note: The significance level is 0.1.

Table 2 shows that debt financing is negatively correlated with corporate growth, with a P-value less than 0.01 and a T-value of -3.738, indicating statistical significance. Moreover, for every unit increase in debt financing, corporate growth actually decreases by 0.32 units; Executive incentives are positively correlated with corporate growth, with a P-value less than 0.01 and a T-value of 3.974, indicating statistical significance. Additionally, for every unit increase in debt financing, corporate growth increases by 0.28 units; Debt financing is negatively correlated with executive incentives, with a P-value less than 0.058 and a T-value of -1.897, indicating statistical significance. Additionally, for every unit increase in debt financing, executive incentives decrease by 0.15 units.

(3) Analysis of intermediary role

The effect of structural models reflects the strength and degree of the influence of one latent variable on another latent variable, and the effect can be divided into total effect, direct effect, and indirect effect (mediating effect). Through the analysis of the mediating effect of AMOS17.0 software on the model, it was found that the direct effect of debt financing on corporate growth was -0.277, and through the mediating effect of -0.041 on corporate growth, the total effect, which is the sum of direct and mediating effects, was -0.318.

Table 3. Mediation Effect Results

Debt financing	Intermediary effect	Direct effect	Total effect
	Executive Incentives		
	-0.150*0.277=-0.041	-0.277	-0.318

5. CONCLUSIONS AND DISCUSSIONS

This article uses structural equation modeling and mediation effects to empirically analyze the impact of debt financing on the growth of logistics listed companies. The following research conclusions are drawn: there is a clear negative causal relationship between debt financing and corporate growth; Executive incentives have a significant positive causal relationship with corporate growth, while debt financing has a significant negative causal relationship with executive incentives. Moreover, debt

financing can indirectly affect corporate growth through the mediating effect of executive incentives. The direct effect of debt financing on corporate growth is -0.277, the mediating effect is -0.041, and the total effect is -0.318. Based on the above research conclusions, the following countermeasures and suggestions are proposed.

(1) Optimize the debt financing structure

The empirical results show that there is a significant negative causal relationship between debt financing and corporate growth in logistics listed companies. Therefore, logistics listed companies with very low levels of debt financing should choose debt financing that is in line with their business development; For logistics listed companies with high levels of debt financing, it is necessary to reduce their high debt financing to a certain extent in order to increase profitability and achieve rapid growth of the enterprise.

(2) Improve the executive incentive system

The empirical results indicate that executive incentives in logistics listed companies can reduce the strength and intensity of the negative causal relationship between debt financing and corporate growth. The more debt financing there is, the more likely the enterprise is to experience financial crisis or bankruptcy, which reduces the equity value of executives and cannot protect their own interests. Due to their own selfish considerations, when executive compensation and equity incentives are high, they tend to choose reduced debt financing, which can hinder the rapid growth of the enterprise. Therefore, logistics listed companies should increase the level and intensity of executive compensation incentives and equity incentives, which is conducive to strengthening the profitability of the enterprise and ultimately promoting its healthy and rapid growth.

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