**Academic Journal of Management and Social Sciences**
ISSN: 2958-4396 | Vol. 3, No. 3, 2023

# The Impact of Financing Structure on Enterprise' Overseas Direct Investment: A Case of A-share Listed Companies in China

**Jiaming Wang**

Master of Business Administration, Dhonburi Rajabhat University, Bangkok, 10600, Thailand

**Abstract:** This research analyzed the impact of financing structure on enterprises' overseas direct investment and its underlying mechanisms. It reviewed relevant literature and theories, used panel data of 1,725 Chinese A-share listed companies from 2000 to 2020, and employed the debt-to-equity ratio as a measure of financing structure. The study applied the Probit model for benchmark regression and conducted robustness tests using the Logit and negative binomial panel models. Additionally, it explored the influence mechanism through factors like innovation, research and development, productivity, and performed heterogeneity analysis and endogeneity tests. (1) The financing structure had an impact on enterprises' overseas direct investment. A higher proportion of equity financing in the structure positively contributed to the initiation of overseas investment projects and led to an expansion in scale. (2) The financing structure influenced enterprises' overseas direct investment by impacting factors such as innovation, research and development, and productivity. (3) The results of analyzing industry heterogeneity indicated that the financing structure of manufacturing enterprises had a limited impact on their overseas direct investment.

**Keywords:** Foreign Direct Investment; Corporate Financing Structure; Financing Stability; Financing Cost; Agency Cost; Hypotheses Development.

## 1. Introduction

### 1.1. Background and Significance of Research Problem

Since the 21st century, China is actively integrating into the globalization of the world economy. Although the current flow and stock of China's outward FDI are developing rapidly, its existing sequence of enterprise financing is exactly the opposite of that of developed Western markets. Some enterprises prefer equity financing before debt financing, leading to a high level of external capital. Therefore, enterprises are expected to adjust their financing structure to improve the efficiency of capital utilization.

Based on this background, this study utilizes micro data of Chinese enterprises to explore the impact of financing structure on enterprises' overseas direct investment.

### 1.2. Research Objectives

1. To analyses the financing structure of Chinese enterprises and identifying any problems that exist from a micro perspective.

2. To identify financing structure problems that enterprises encounter during foreign direct investment activities and providing guidance for these enterprises.

3. To examine the relationship between foreign direct investment behavior and financing structure, with a focus on identifying factors that influence equity financing.

### 1.3. Research Hypothesis

1. Financing structure affects overseas direct investment, favoring higher equity financing.

2. Innovation R&D acts as a transmission mechanism, linking financing structure to overseas investment. Greater equity financing promotes innovation input, driving overseas direct investment.

3. Productivity serves as another transmission mechanism. Equity financing enhances productivity, increasing the likelihood of overseas investment, particularly with a higher proportion of equity financing.

### 1.4. Scope of the Study

This study utilizes the debt-to-equity ratio as a measure of the financing structure in enterprises. Additionally, it examines whether the enterprise engages in overseas direct investment and the extent of such investment.

### 1.5. Conceptual Framework

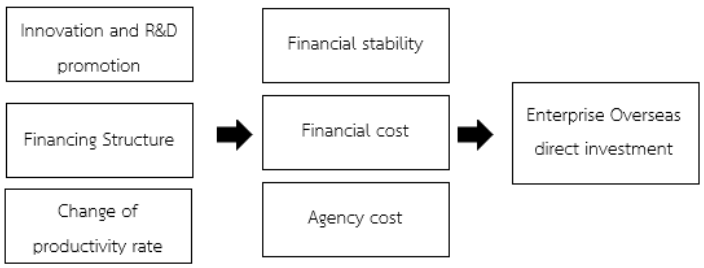



**Figure 1.** Conceptual framework

## 1.6. Definition of Terms

1. Financing structure pertains to how a company acquires funds for its operations and investments, encompassing the sources, types, and terms of financing agreements.

2. Financial stability denotes a company's ability to maintain its financial position despite external shocks or changes in market conditions.

3. Financing cost encompasses the expenses incurred by a company for capital acquisition, including both debt and equity financing costs.

4. Agency cost refers to the costs resulting from conflicts of interest between a company's managers and shareholders.

5. Enterprises' overseas investment behavior denotes the actions and decisions made by Chinese A-share listed companies when investing in foreign countries.

## 1.7. Expected Benefits

1. This research on financing structure provides valuable insights for policy-making, investment strategies, and improving financing channels for Chinese enterprises. It also supports the development of the private sector and helps diversify funding sources while mitigating risks.

2. Understanding the financing structure challenges during foreign direct investment guides enterprises in managing risks and returns associated with different financing structures in international investments.

3. Studying the relationship between financing structure and foreign direct investment behavior enhances our understanding of financing choices in overseas investments.

4. This research contributes to theoretical knowledge by potentially establishing new models or advancing existing ones from various perspectives.

# 2. Literature Review

## 2.1. Foreign Direct Investment Theory

Foreign direct investment refers to the economic activities where a domestic investor in a specific country or region acquires equity or voting rights in an overseas company, enabling operational control and management, and investing through cash, physical assets, or intangible assets.

### 2.1.1. The Theory of Monopoly Advantage

### 2.1.2. Life Cycle Theory

### 2.1.3. Internalization Theory

### 2.1.4. Eclectic Theory of International Production

### 2.1.5. Foreign Direct Investment Theory of Developing Countries

## 2.2. Corporate Financing Structure Theory

The financing structure of a company refers to how it allocates capital from the perspective of corporate financing methods. It involves both internal financing and external financing, with the latter including equity financing and debt financing.

## 2.3. Financial Stability

Financial stability denotes the capability of a company to uphold its financial standing amidst external shocks or fluctuations in market conditions.

## 2.4. Financing Cost

Financing cost pertains to the expenses incurred by a company for acquiring capital, encompassing both the cost of debt financing and the cost of equity financing.

## 2.5. Agency Cost

Agency cost signifies the expenses incurred due to conflicts of interest between a company's managers and shareholders.

## 2.6. Hypotheses Development

### 2.6.1. The Influence of Financing Structure on Enterprises' Overseas Direct Investment

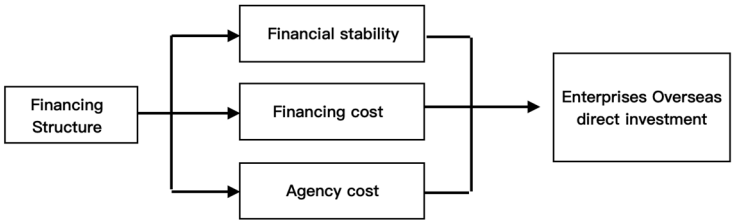



**Figure 2.** The influence of financing structure on enterprises' overseas direct investment

*Hypothesis 1: The financing structure influences enterprises' overseas direct investment, with a higher proportion of equity financing favoring such investments.*

### 2.6.2. Innovative Research and Development Transmission Mechanism

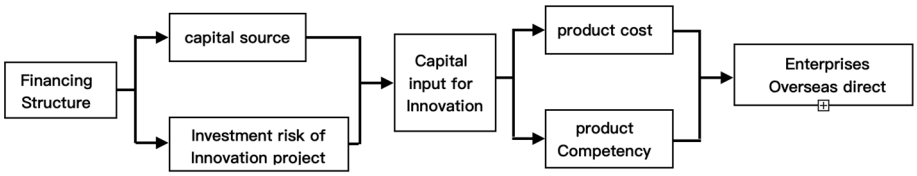



**Figure 3.** Innovation research and development as transmission mechanism of financing structure affecting enterprises' overseas direct investment

*Hypothesis 2: The presence of innovation research and development serves as a transmission mechanism through which the financing structure influences enterprises' overseas direct investment. A higher proportion of equity financing in the external financing structure leads to increased innovation input by enterprises, consequently promoting their engagement in overseas direct investment activities.*

#### 2.6.3. Productivity Transmission Mechanism

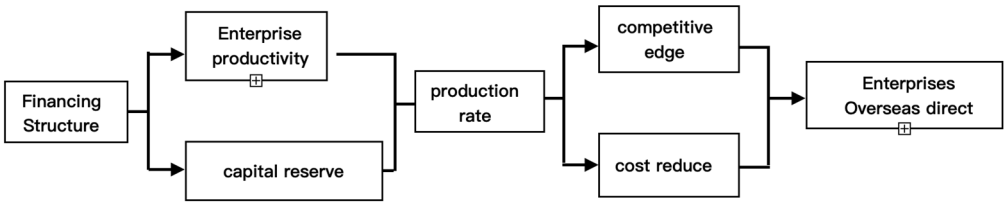



**Figure 4.** Productivity as transmission mechanism of financing structure affecting enterprises' overseas direct investment

*Hypothesis 3: Productivity acts as a transmission mechanism through which the financing structure influences enterprises' overseas direct investment. Under similar circumstances, equity financing exerts a greater promotional effect on enterprise productivity. In other words, a higher proportion of equity financing in the external financing structure leads to stronger enterprise productivity, which in turn facilitates enterprises' engagement in overseas direct investment.*

# 3. Research Methodology

## 3.1. Research Design

The research design incorporates four primary methods: literature analysis, induction and summary method, quantitative analysis method, and productivity estimation method.

## 3.2. Population and Sample Size

The research utilizes data from 2000 to 2020 of A-share listed companies as samples. Excluded are companies from the financial industry, facing delisting risk or having negative equity. The final sample comprises 1,725 listed companies with 18,975 data points.

## 3.3. Research Methods

#### 3.3.1. Literature Analysis

#### 3.3.2. Induction and Summary Method

#### 3.3.3. Quantitative Analysis Method

The Probit and Logit models are employed for estimation in this study.

#### 3.3.4. Productivity Estimation Method

This paper employs the LP method to estimate enterprise total factor productivity. A convenient Stata command for the LP method is available, facilitating the operational convenience of this study.

Assuming that the production function is in the form of C-D, the estimation equation of LP method is:

$$y_{it} = \beta_0 + \beta_{li} l_{it} + \beta_{ki} k_{it} + \beta_{mi} m_{it} + \omega_{it} + \eta_{it}$$

The equation calculates the productivity of enterprise i in year t, where y is the logarithm of total industrial output, l is the logarithm of average number of employees, k is the logarithm of enterprise capital, m is the logarithm of intermediate input, ω is total factor productivity, and η is the random error term.

$$\widehat{\omega_{it}} = y_{it} - \widehat{\beta_{li}} l_{it} - \widehat{\beta_{ki}} k_{it} - \widehat{\beta_{mi}} m_{it}$$

## 3.4. Data Collection

To ensure the timeliness and reliability of the research conclusions, this study selects enterprise data from the period between 2000 and 2020.

## 3.5. Data Analysis

To address the lack of specific data on the scale of enterprises' OFDI, this study uses the presence or absence of foreign direct investment as a measurement variable. The research hypotheses are tested using a Probit model based on this measurement approach.

$$OFDI_{it} = \alpha_0 + \alpha_1 DEV_{it} + \sum_{i=2}^{n} \alpha_n \, control_{it} + \varepsilon_{it}$$

The primary variable of interest, OFDI, indicates whether the company engages in foreign direct investment. The explanatory variable is the company's financing structure (DEV), while the control variables include productivity and R&D innovation, which reflect specific financial characteristics of the company.

# 4. Research Results

## 4.1. Description of Variables

#### 4.1.1. Explained Variables

The research includes both enterprises that have made foreign direct investment and those that have not. The primary variable of interest in this research is whether enterprises engage in OFDI, which serves as the explained variable.

#### 4.1.2. Explanatory Variables

The financing structure of enterprises is evaluated using the debt-to-equity ratio (DEV), which represents the proportion of debt financing to equity financing. Debt financing (DF) encompasses funds obtained through borrowing activities, calculated as (bonds payable + short-term loans + long-term loans)/total assets. Equity financing (EF) refers to the financing obtained through equity transactions and is calculated as (equity + capital reserves)/total assets.

#### 4.1.3. Control Variables

Enterprise Size (Size): The logarithm of total assets is used to determine the size of the enterprise.

Return on assets (RoA)

Liquidity ratio (Lr)

Capital intensity (K): The logarithm of the ratio of total fixed assets to the number of employees in an enterprise.

Corporate profitability (Profit): The ratio of operating profit to total operating revenue.

Growth ability of the enterprise: (TobinQ): (total capital stock -- B shares of foreign capital listed in China) * Current closing price of A shares + B shares of foreign capital listed in China * Current closing price of B shares * Ratio of the exchange rate on that day to total assets of the enterprise. Tobin's Q value reflects the growth prospects of enterprises.

Administrative cost per capita (M): The logarithm of the ratio of administrative expenses to the number of employees, reflecting the level of internal management specialization.

The average overseas investment of enterprises in the table

is 0.4560, indicating that more than 40% of the sample enterprises have engaged in overseas direct investment. Additionally, the average debt-to-equity ratio is 0.9441, highlighting the greater importance of equity financing compared to debt financing. It is worth noting that the minimum value of the debt-to-equity ratio is -12.6187, which is negative due to a listed enterprise having a negative capital reserve. This negative reserve results in negative equity financing, leading to a negative debt-to-equity ratio.

## 4.2. Empirical Regression

Before conducting the regression analysis, a correlation test and VIF (Variance Inflation Factor) test were performed to assess the presence of collinearity among the main variables. From the table, it is observed that the maximum correlation coefficient between variables is 0.4529, and the maximum VIF is 1.56, which is below the threshold of 10. This indicates that there is no severe collinearity issue among the variables.

### 4.2.1. Baseline Regression

The Probit model was used to examine the relationship between financing structure and enterprises' overseas direct investment behavior. The financing structure variable was considered, and it was found to have a significant positive effect on overseas direct investment. However, the model lacked control variables and had a low Pseudo-R2 value, indicating poor fit.

Results consistently show a significant negative correlation between financing structure and overseas direct investment at the 1% significance level. This suggests that a higher proportion of equity financing in the structure is associated with a greater likelihood of engaging in overseas investment.

Hypothesis 1 is confirmed: the financing structure of an enterprise affects its overseas direct investment, and a lower debt-equity ratio is associated with a higher likelihood of overseas investment. The regression results for control variables show that enterprise size and future growth potential have a positive correlation with overseas investment. Moreover, the coefficient for internal management level is significantly positive at a 1% level, indicating that improved management facilitates overseas direct investment.

The results reveal unexpected findings at the 1% significance level. The return on assets ROA and profitability of enterprises shows a significantly negative correlation with overseas investment, contrary to expectations. It appears that when enterprises experience higher profitability in the domestic market, they tend to focus on expanding within that market rather than venturing into international markets. On the other hand, the liquidity ratio does not have a significant effect on OFDI of enterprises.

### 4.2.2. Robustness Test

(1) Replace the model

Different robustness tests were conducted, including using a mixed Logit model and a random effects regression model. The results consistently show a negative relationship between financing structure and enterprises' overseas direct investment. Although the significance level varies in the panel Probit random effects model, the negative and significant coefficient suggests the robustness of the findings.

(2) Change variables

Changes were made to the variables and models to test the robustness of the findings. The altered measurement method of the financing structure variable still resulted in a significantly negative coefficient, indicating the validity of the research hypothesis and the model's robustness. Additionally, when using the number of overseas investments as a proxy for the scale of enterprises' overseas investment, the negative influence of financing structure on the number of investments was maintained. These results confirm the robustness of the model.

(3) Instrumental variable regression

Financial institutions often assess the repayment capacity of enterprises based on their fixed assets and cash flow. Moreover, overseas investment projects typically have long cycles, implying a consideration period that can be influenced by the current financing structure. To address potential endogeneity issues, an instrumental variable approach using a lagged explanatory variable, as suggested by Hu Hengqiang (2020), is adopted in this study.

## 4.3. Heterogeneity Analysis

The study examines the heterogeneity of enterprises based on their nature (state-owned vs. non-state-owned) and analyzes the impact of financing structure on their OFDI. The results show that regardless of the nature of the enterprise, a higher proportion of equity financing is associated with a greater likelihood of engaging in overseas investment. Additionally, non-state-owned enterprises exhibit stronger growth ability, while the impact of internal management ability on OFDI is insignificant.

Manufacturing is a prominent industry in terms of foreign investment, comprising over 30% of the total. This study classifies the samples into manufacturing and non-manufacturing sectors. For manufacturing, the impact of financing structure on overseas direct investment is positive but not significant. Commercial banks provide improved financial services and support for the manufacturing industry, allowing them to obtain funds easily. However, financing structure still negatively affects overseas direct investment for non-manufacturing enterprises. Liquidity has a significant negative impact on manufacturing, while non-manufacturing asset liquidity has a significant positive impact. Profitability has little effect on overseas direct investment.

## 4.4. Empirical Analysis of the Influence of Financing Structure on the Transmission Mechanism of Enterprises' Overseas Direct Investment

### 4.4.1. Innovation Input Transmission Mechanism

A mediation effect model is employed to examine the influence mechanism and effect of corporate financing structure on FDI behavior through innovation and R&D intensity, following the research approach of Wen Zhonglin et al. (2004). The significance test is conducted for α1 in model (2) and α2 in model (3). If both coefficients are significant, it suggests the presence of a significant mediation effect. The model is outlined as follows:

$$OFDI_{it} = a_0 + a_1 DEV_{it} + \sum_{i=2}^{n} a_n control_{it} + \varepsilon_{\text{it}} \quad (1)$$

$$RD_{it} = a_0 + a_1 + DEV_{it} + \sum_{i=2}^{n} a_n control_{it} + \varepsilon_{it} \quad (2)$$

$$OFDI_{it} = a_0 + a_1 + DEV_{it} + a_2 RD_{it} + \sum_{i=3}^{n} a_n control_{it} + \varepsilon_{it} \quad (3)$$

The regression coefficients align with the expected mediation effect, confirming that innovation and R&D investment mediate the relationship between corporate financing structure and FDI. This implies that a lower debt-

equity ratio, favoring equity financing, encourages innovation and R&D investment, leading to increased overseas direct investment. Therefore, Hypothesis 2 is supported.

#### 4.4.2. Productivity Transmission Mechanism

The mediating effect of productivity on financing structure and enterprises' overseas direct investment is tested using a three-step method.

$$OFDI_{it} = a_0 + a_1 DEV_{it} + \sum_{i=2}^{n} a_n control_{it} + \varepsilon_{it} \quad (4)$$

$$TFP_{it} = a_0 + a_1 DEV_{it} + \sum_{i=2}^{n} a_n control_{it} + \varepsilon_{it} \quad (5)$$

$$OFDI_{it} = a_0 + a_1 DEV_{it} + a_2 TFP_{it} + \sum_{i=3}^{n} a_n control_{it} + \varepsilon_{it} \quad (6)$$

The productivity of enterprises, referred to as Total Factor Productivity (TFP), is measured using the LP method as suggested by Lu Xiaodong et al. (2012).

The regression results show that the financing structure has a significantly negative impact on overseas direct investment in (model 4) at a 1% significance level. (Model 5) demonstrates that financing structure also has a significantly negative effect on enterprise productivity at a 5% significance level, indicating that a higher proportion of equity financing improves productivity. These results support hypothesis 3, suggesting that financing structure influences both enterprise productivity and overseas direct investment.

# 5. Conclusion, Discussions, and Recommendations

## 5.1. Conclusion

This study examines the impact of corporate financing structure on overseas direct investment using data from China's A-share listed companies. Findings show that equity financing promotes foreign investment. The influence of financing structure operates through innovation R&D and productivity. Results are consistent across enterprise types and regions, except for the manufacturing industry. Higher equity financing has a stronger effect on overseas investment for firms with greater debt constraints. These findings highlight the importance of financing structure for international expansion.

## 5.2. Discussion

#### 5.2.1. Proof of Hypothesis 1:

The regression analysis in Chapter 4 confirms that the financing structure of enterprises significantly affects their overseas direct investment behavior. Lower debt-equity ratio increases overseas investment. Innovation and productivity mediate this relationship. Higher equity financing promotes innovation and productivity, leading to more overseas investment. Results hold across enterprise types and regions.

#### 5.2.2. Proof of Hypothesis 2:

The results of model 1, 2, and 3 provide evidence for the intermediary effects between overseas investment, innovation research and development (R&D), and corporate financing structure. Financing structure has an intermediary effect on overseas investment through innovation R&D. Higher equity financing promotes innovation and R&D, leading to increased overseas investment.

#### 5.2.3. Proof of Hypothesis 3:

The findings from models 4-6 support the hypothesis that financing structure affects overseas direct investment through its impact on productivity. Higher equity financing promotes productivity and leads to increased overseas investment.

## 5.3. Recommendations

#### 5.3.1. Practical Recommendation

First, expedite the process of restructuring corporate financing and promote greater utilization of equity financing.

Second, enhance the overall capacities of businesses and allocate resources towards talent development and management.

Third, foster a culture of innovation and strive for enhanced efficiency in production processes.

Fourth, the government has fostered a favorable financial climate for businesses to engage in global expansion and enhanced financial policies to facilitate outbound investments.

Fifth, the government should enhance the availability of various financing options to alleviate the financing constraints faced by enterprises.

#### 5.3.2. Future Research Recommendation

Firstly, further investigation can be conducted to examine the influence of different types of financing sources on enterprises' overseas direct investment.

Secondly, future studies can investigate the mediating factors and mechanisms that link equity financing, innovation input, productivity, and overseas direct investment in enterprises.

Thirdly, research can examine the influence of financing structure on the overseas direct investment of industries or sectors other than manufacturing.

# References


[1] Al-Thaqeb, S. A., Algharabali, B. G., & Alabdulghafour, K. T. (2022). The pandemic and economic policy uncertainty. International Journal of Finance & Economics, 27(3), 2784–2794. http: //doi: 10.1002/ijfe.2298.

[2] Bakhtiari, S., Breunig, R., Magnani, L., & Zhang, J. (2020). Financial constraints and small and medium enterprises: A review. Economic Record, 96(315), 506–523.

[3] Dunning, J. H. (2001). The eclectic (OLI) paradigm of international production: past, present and future. International Journal of the Economics of Business, 8(2), 173-190.

[4] Geis, G. (2007). Business outsourcing and the agency cost problem. Notre Dame Law Review, 82(3), 955–1003.

[5] Hong, E., Lee, I. H. I., & Makino, S. (2019). Outbound foreign direct investment (FDI) motivation and domestic employment by multinational enterprises (MNEs). Journal of International Management, 25(2), 100657. https://doi.org /10. 1016/ j.intman.2018.11.003.

[6] Kalandarovna, A. G., & Jamshidugli, R. D. (2020). Theoretical principles of attracting foreign investment to the country's economy. Asian Journal of Multidimensional Research, 9(4), 79-88.

[7] Owolabi, S. A., & Obida, S. S. (2012). Liquidity management and corporate profitability: case study of selected manufacturing companies listed on the Nigerian stock exchange. Journal of Economics and Behavioral Studies 8(4), 41–51.

[8] Shahbaz, M., Nasir, M. A., & Roubaud, D. (2018). Environmental degradation in France: the effects of FDI, financial development, and energy innovations. Energy Economics, 74, 843-857.

[9] Xiang, X., Liu, C., Yang, M. (2022). Who is financing corporate green innovation? International Review of

Economics & Finance, 78, 321–337. https://doi.org/ 10.1016/ j. iref. 2021.12.011

[10] Wang, S. H., Lu, B. B., & Yin, K. D. (2021). Financial development, productivity, and high-quality development of the marine economy. Marine Policy, 130, 104553. https:// doi.org/ 10.1016/j.marpol.2021.104553.

[11] Yao, L., & Yang, X. (2022). Can digital finance boost SME innovation by easing financing constraints? Evidence from Chinese GEM-listed companies. PLoS ONE, 17, e0264647. https://doi.org/10.1371/journal.pone.0264647.