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Research on the Impact of Financing Decisions on Innovation Investment of Small and Medium-sized Enterprises

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Abstract:
Select relevant data of small and medium - sized enterprises (SMEs) from 2016 to 2020, this paper studied the impact of different financing methods on innovation investment. The results show that equity financing and endogenous financing have promoted innovation investment of SMEs, these two financing methods are both significantly positively correlated with innovation investment. In other words, as the scale of these two types of financing expands, the investment in innovation also increases correspondingly. However, when studying the relationship between debt financing and innovation investment, indicating that debt financing inhibits innovation investment. In addition, the relationship between different types of debt and innovation investment was studied. The results show that all four types of debt financing inhibits innovation investment. Basically, when debt financing goes up, innovation investment goes down. The study shows that the most favorable financing methods for innovation are endogenous financing and equity financing, and both of these financing methods have an incentive effect on innovation.

Key words: endogenous financing; debt financing; equity financing; innovation investment.

INTRODUCTION

Innovation can help China's high-quality economic development. Achieving the 2035 vision cannot be separated from innovation. Hyeock et al. [1]found that continuous innovation capabilities make enterprises more competitive. To a large extent, SMEs rely on continuous innovation to better expand the market, mainly through technological innovation, product innovation, and so on to meet various market demands, thereby obtaining more opportunities and conditions to seize the market's dominant position. For SMEs to carry out innovation investment, they cannot do without the demand for funds. If SMEs do not have sufficient funds to support innovation investment activities, it will affect the innovation investment and innovation development of SMEs. In order to better sustain and stabilize innovation, SMEs need to raise the required funds through different channels and methods. This financing process involves financing decisions. Enterprise financing decisions mainly involve internal and external financing methods. Endogenous financing mainly includes retained earnings and fixed asset depreciation, among others. and enterprises often put the profits they made last period into investment activities for the next period. Noailly et al. [2] believe that enterprise innovation investment is mainly endogenous financing. Nylund et al. [3] believe that enterprise innovation investment also needs to consider external financing. Debt and equity financing are both main ways of getting external funds. Debt financing faces the need to repay principal and interest at maturity. In this mode, there may be various conflicts between creditors and owners. In order to minimize their risks, creditors will impose different forms of constraints on this financing. At this time, enterprises, under the influence of such high constraints, will weaken their willingness to innovate. James et al. [4] found that equity financing is one of the main sources of innovation investment for young high-tech companies in the United States. Although equity financing dilutes the company's control, it participates in the distribution of the company's residual income and does not have the pressure to repay principal and interest. This kind of financing is more conducive for enterprises to invest in some high-risk, high-return innovation projects, allowing enterprises to better seize innovation opportunities. Previous literature has mostly focused on the research of listed companies as a whole, and rarely have studies have been delved into how various financing approaches affect the innovation investments of SMEs. Given these considerations, it is especially critical to investigate the relationship between various financing methods and innovation investment among SMEs in China. Through this study, it is expected that SMEs can select appropriate financing methods according to their investment and development needs, optimize their financing structure, improve their innovation level.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

The Impact of Endogenous Financing on Innovation

Endogenous financing refers to the funds retained from the previous year's earnings that can be flexibly used by the enterprise and are not subject to the supervision and constraints of external stakeholders. The financing cost is relatively low compared to other financing costs, and there is no need to repay principal and interest regularly, nor does it cause dilution of control. When

enterprises use endogenous financing to invest in innovation projects, they are not affected by creditors and shareholders, so enterprises can provide stable funds for innovation activities and are willing to invest these endogenous funds in innovation projects. According to theory, enterprises usually go for internal financing first, then debt, and lastly equity financing. HE and Wintoki [5] found that endogenous financing can effectively promote R&D investment activities. Czarnitzki and Hottenrott [6] found that small and young enterprises are more willing to use endogenous financing for innovation investment activities.

In general, compared with external financing, enterprise endogenous financing has advantages in terms of efficiency, flexibility, and cost of supporting innovation activities. In the early stages of innovation, because the innovation cycle is long, the risk is high, and the return is also uncertain, in this case, the return required by external investors is higher, resulting in higher financing costs, which restricts external financing, while endogenous financing is not restricted, and the use of internal funds is more flexible, without the pressure of collateral and debt repayment, nor does it cause equity dilution. Therefore, Endogenous financing of enterprises is conducive to innovation investment.

Hypothesis 1: Endogenous financing of SMEs promotes innovation investment.

The Impact of Debt Financing on Innovation

External funding primarily comes from debt and equity, that is, debt financing and equity financing. and these two main financing methods also affect the innovative behavior of enterprises. Among them, when enterprises raise funds through debt financing, they need to pay principal and interest to creditors. Most creditors are willing to lend to enterprises only if the enterprises provide collateral. The innovative benefits of enterprises are mainly intangible assets, while creditors generally require tangible assets as collateral, so the intangible assets brought about by innovation are difficult to use as collateral for debt financing. Xin et al. [7] concluded that debt financing is not conducive to increasing innovation investment in family businesses. Liu and Yan [8] found that lower relational debt can promote corporate innovation. Wu et al. [9] found that green bonds issued by enterprises help increase the quantity of corporate green innovation. Pan and Jiang [10] found that Innovation is related to the cost of debt financing, debt financing cost is negatively correlated with innovation. Su et al. [11] studied the financing structure of GEM enterprises and the efficiency of green innovation. The final conclusion is that the relationship between debt financing and green innovation efficiency is not significant.

Through literature review, it can be seen that many scholars have studied debt financing and innovation, but the conclusions are not consistent. The inconsistency of this conclusion is related to the size of the enterprise and the different forms of debt financing. There are few studies on this aspect. Generally speaking, financial intermediaries are more willing to invest funds in large-scale, mature enterprises and state-owned enterprises. Start-up companies and SMEs find it difficult to obtain credit funds. The innovative achievements of enterprises are generally intangible assets, and the risks are relatively high. It is difficult to estimate at the beginning of innovation, so the amount of loans for enterprises is relatively small, and it is difficult to promote enterprise innovation through debt financing. Due to the information asymmetry between financial intermediaries and enterprises, the financing cost of enterprises is high. which brings certain financial pressure to enterprises. Under such circumstances, enterprises may be reluctant to invest in some high-risk projects, leading to insufficient motivation for innovation investment. Under the condition of information asymmetry, as a creditor, when an enterprise borrows funds through debt and invests them in high-risk innovation projects, the benefits mainly belong to the enterprise, while creditors can only obtain the principal and interest. Under such circumstances, financial intermediaries will restrict the use of the incorporated capital to control potential risks that may occur, which affects the enterprise's innovation investment.

According to the different forms of debt fund sources, it is mainly divided into bank loans, trade credit, and bond financing. In SMEs, due to credit reasons, it is difficult to raise funds through bond issuance, and more funds are raised through financial institutions such as banks. For security reasons, banks require SMEs to provide collateral as a guarantee when obtaining bank loans. In addition to requiring SMEs to provide collateral, banks also restrict the use of bank loans, and will limit the scope of use of funds, especially high-risk innovation projects. When enterprises obtain more funds through bank loans, the greater the risk for banks to recover principal and interest at maturity. Under such circumstances, banks, as creditors, are less willing for enterprises to invest the raised funds in innovation projects. As SMEs, due to reasons such as credit, few tangible assets, and information asymmetry with creditors, it is more difficult to raise funds through banks. If enterprise bank loans are raised, they face the pressure of repaying principal and interest, and coupled with the bank's restrictions on the scope of use of funds, enterprises may be unwilling and difficult to invest bank loans in innovation projects, Different periods of borrowing are the same performance. In particular, the more bank loans an enterprise obtains, the fewer opportunities it has to obtain loans, the narrower the scope of use of funds, the greater the pressure to repay principal and interest, and the greater the risk of bankruptcy, so it is even less willing to invest bank loan funds in innovation projects.

Commercial Creditcan provide enterprises with usable funds, which is conducive to enterprise innovation investment activities. However, the more accounts payable an enterprise forms, the larger the scale of the enterprise's production products, and the enterprise needs to invest a large amount of funds in production, which will affect the enterprise's innovation investment. Bond financing is an important financing method for enterprises and also plays a very important role in enterprise innovation. Although bond financing can bring long-term funds to enterprises, which is conducive to enterprise innovation investment activities, bond financing must repay principal and interest at maturity. When enterprises cannot repay principal and interest at maturity, they may face the risk of bankruptcy. Under such financing constraints, enterprises may not carry out some high-risk investment projects, and this financing method cannot effectively promote enterprise innovation investment activities. Therefore, the following hypothesis is proposed:

Hypothesis 2: There is a negative correlation between debt financing of SMEs and innovation investment.

Hypothesis 3: There is a negative correlation between different types of debt financing of SMEs and innovation investment.

The Impact of Equity Financing on Innovation

Equity financing does not require intermediaries and belongs to direct financing. Su and Zeng [12] found through research that listed companies in China prefer equity financing when financing. Equity financing does not require the repayment of principal, and unlike debt financing, there is no risk of bankruptcy due to the inability to repay principal and interest when due. The distribution of corporate dividends also depends on the company's operating conditions. Moreover, the funds for corporate innovation investment are generally long-term funds, which is also an advantage of equity financing. Zhang et al. [13] concluded that banks find it difficult to support corporate innovation, in contrast, equity financing, with its unique advantages, plays a vital role in the process of helping enterprises to innovate. The study also found that the way in which the government directly provides R & D subsidies to enterprises may be more efficient in promoting enterprise innovation than the way in which the government provides investment risk guarantees for financial institutions. However, Liu et al. [14] showed that equity financing promotes innovation investment. Hou et al. [15] showed that the positive impact of an increase in equity financing scale can enhance the success rate of R&D and the rate of technological progress, and its effect increases with the rising proportion of equity in the financing structure. Jiang and Li [16] showed that Equity financing provides private enterprises with long-term and stable financial support, and innovation investment also increases with the increase of equity financing. This is crucial for the innovation of private enterprises. For SMEs, equity financing does not require the repayment of principal, which provides enterprises with long-term and stable funds, and favors increased innovation investment by enterprises. Therefore based on the extensive analysis of the existing literature on equity financing and informed by an in-depth understanding of the relevant theories and practical implications of equity financing, led to propose the following hypothesis:

Hypothesis 4: Equity financing promotes innovation investment of SMEs.

In summary, from the literature analysis, it can be seen that most of the existing literature research is aimed at the overall listed companies, and there is a lack of in-depth and systematic research on the impact of various financing methods on innovation investment in SMEs. This paper choose SMEs as the research object, mainly considering the following aspects: first, SMEs an indispensable role in the sustained, stable and high-quality development of China 's economy, improving innovation capacity and increasing social employment. Innovation is a key factor for SMEs to gain a stronger competitive advantage and achieve long-term sustainable development, and it has extremely important significance. Second, In previous academic research, scholars have come to a variety of different views on the relationship between financing decision-making and innovation investment, and have not yet formed a unified conclusion. because the financing decisions of enterprises of different sizes are different, Due to the varying debt repayment and profitability capacities of enterprises of different sizes, as well as the differing professional qualities and risk-bearing abilities of managers in enterprises of various scales, it is worth investigating how different financing methods affect innovation in SMEs compared to other-sized enterprises. By selecting SMEs for research, this paper also bridges the gap between the inconsistent conclusions to a certain extent. Therefore, selecting SMEs as the research object has both theoretical and practical significance.

RESEARCH DESIGN

Sample and Variable

Sample

This study selects the sample of SMEs from 2016 to 2022, and eliminates the following content:(1) ST, * ST, PT SME data; (2) Sample of missing data; (3) samples with abnormal values of main variables. Following rigorous selection, Ultimately,

4186 observations were obtained as the data for this study. The data for this study are primarily sourced from databases such as CSMAR and CNRDS. and some data are calculated and compiled. The software used includes Excel and Stata17.

Variable

(1) Explained variable: Investment represents the proportion of total R & D expenditure to operating income, referring to the practices of previous scholars. (2) Explanatory variables: Internal is represented by the proportion of the sum of surplus reserve, undistributed profits, and depreciation of fixed assets to total assets. Debt is represented by the proportion of the sum of long-term bank loans, trade credit, bond issuance and short-term bank loans to total assets. Among them, Longloans is represented by the proportion of long-term bank loans to total assets. Business is represented by the proportion of the sum of accounts payable, notes payable, and unearned revenue to total assets. Bonds are represented by the proportion of bonds payable to total assets. Shortloans are represented by the proportion of short-term bank loans to total assets. Equity is measured by the sum of share capital and capital surplus divided by total assets. (3) Control variables: Size is represented by the natural logarithm of total assets. Roa is represented by the ratio of net profit to total equity. Cash is represented by the proportion of net cash flow from operating activities to operating revenue. Age represents the age of the enterprises. Soe represents the nature of property rights. Tob is represented by the proportion of the market value of a listed company to total assets. To avoid interference from the macro environment and industry on the estimation, Control for industry fixed effects and year fixed effects. As shown in Table 1.

Table 1. Variable definition table

Name	Symbol	Measurement
Innovation investment	Investment	Total R&D expenditure / Operating revenue
Endogenous Financing	Internal	(Retained earnings+ Undistributed profits+ Fixed asset depreciation) / Total assets
Debt Financing	Debt	(Longloans + Shorloans + Bonds+Business) / Total assets
Long-term Bank Loans	Longloans	Longloans / Total assets
Short-term Bank Loans	Shortloans	Shortloans / Total assets
Bond Issuance	Bonds	Bonds payable / Total assets
Commercial Credit	Business	(Accounts payable +Notes payable +Advances received) / Total assets
Equity Financing	Equity	(Share capital+ Capital surplus) / Total assets
Company Scale	Size	Natural logarithm of total assets
Profitability	Roa	Return on net assets
Operating Cash Flow	Cash	Net cash flow from operating activities / Operating revenue
Company Age	Age	Number of years since the company was established, Sample year - Year of company listing + 1
Ownership	Soe	State-owned for 1, otherwise 0
Tobin Q	Tob	Market value of listed company / Total assets
Year Fixed Effect	Year	
Industry Fixed Effect	Industry	

Regression Model and Variable Setting

Based on the ideas of previous research and the needs of this empirical analysis, constructing the Following Three Models:

$$Investment_{i,t} = a_0 + a_1 Internal_{i,t} + a_j \sum controls_{i,t} + \sum year_t + \sum Industry_i + \varepsilon_{i,t} \quad (1)$$

$$Investment_{i,t} = b_0 + b_1 Debt_{i,t} + b_j \sum Controls_{i,t} + \sum year_t + \sum Industry_i + \varepsilon_{i,t} \quad (2)$$

$$Investment_{i,t} = c_0 + c_1 Equity_{i,t} + c_j \sum Controls_{i,t} + \sum year_t + \sum Industry_i + \varepsilon_{i,t} \quad (3)$$

In models (1)-(3), Investment is the explained variable of innovation investment. Internal, Debt, and Equity are the three core explanatory variables. ε is the residual term and controls represent the control variables.

EMPIRICAL TEST AND RESULTS ANALYSIS

Descriptive Statistics

Table 2. Descriptive statistics.

Varibale	Mean	Median	Std.dev.	Min	Max	N
Investment	0.064	0.046	0.061	0.000	0.700	4186
Internal	0.254	0.245	0.129	0.000	0.792	4186
Debt	0.633	0.685	0.229	0.000	0.989	4186
Longloans	0.046	0.000	0.109	0.000	0.886	4186
Shortloans	0.148	0.057	0.190	0.000	0.911	4186
Bonds	0.019	0.000	0.084	0.000	0.734	4186
Business	0.419	0.401	0.241	0.000	0.980	4186
Equity	0.469	0.465	0.167	0.014	1.029	4186
Size	21.269	21.138	0.843	19.138	26.915	4186
Roa	0.075	0.072	0.095	-1.073	0.780	4186
Cash	0.098	0.102	0.493	-12.488	15.261	4186
Age	0.097	4.000	6.385	1.000	31.000	4186
Soe	0.159	0.000	0.036	0.000	1.000	4186
Tob	2.915	2.351	2.191	0.046	24.962	4186
Top	0.324	0.302	0.134	0.048	0.801	4186

From the results in the table above, the Mean of innovation investmen (Investmen) t is 0.064. The Median is 0.046. The Max is 0.700. The Min is 0. The Std. dev. is 0.061. indicates that there is still a significant variation in innovation investment among different SMEs. The right-skewed data distribution indicates the presence of SMEs with relatively high innovation expenditure. The Mean of endogenous financing (Internal) is 0.254. The Std. dev. is 0.129. The Mean of debt financing and equity financing are larger than the Mean of endogenous financing. The results indicate that internal accumulation is relatively limited among SMEs in China, and there is a significant variation in the use of endogenous financing. The Mean of debt financing (Debt) is 0.633, and the Std. dev. is 0.229. The Mean of equity financing (Equity) is 0.469, and the Std. dev. is 0.167. This study show that there is big differences between debt financing and equity financing. among different SMEs. The mean of Roa is 0.075, and the Std. dev. is 0.095, with the Std. dev. being about 1.3 times the Mean, which also has a certain impact on the innovation investment of SMEs. The Mean of Cash is 0.098, and the Std. dev. is 0.493. The difference between the Min and Max is also large, indicating that Cash of SMEs in China varies greatly. The Mean of Debt is about 1.3 times the Mean of Equity, indicates that SMEs in China have a preference for debt financing. The Mean of Longloans is 0.046, and the Std. dev. is 0.109. The Mean of Shortloans is 0.148, and the Std. dev. is 0.190. The Mean of Bonds is 0.019, and the Std. dev. is 0.084. The Mean of Business is 0.419, and the Std. dev. is 0.241. From the above descriptive statistical results, indicate that main forms of debt financing are commercial information and short-term loans. In different SMEs, there are significant differences in bond issuance.

Regression Analysis

The regression coefficient and correlation of internal financing suggest that internal financing positively and effectively promotes innovation investment in SMEs. In other words, an increase in internal funds helps to facilitate greater investment in innovation within these enterprises. This is consistent with hypothesis 1. The reason is that endogenous financing does not have as many restrictive clauses as debt financing, nor does it dilute the company's control like equity financing. Endogenous financing for innovation investment has the advantages of great flexibility and low cost.

In the research, it was discovered that debt financing and innovation investment exhibit an inverse relationship. And the regression coefficient is -0.046, indicating that debt financing inhibits innovation investment. This verifies hypothesis 2. The reason may be that the main forms of debt financing for SMEs are short-term loans and commercial information. Short-term loans have a shorter term and face the pressure of repaying principal and interest when due. If the principal and interest cannot be repaid when due, the enterprise may face the risk of bankruptcy. As enterprise managers, they place greater emphasis on the enterprise's short-term profitability. If the profit is not good and the principal and interest cannot be repaid, the enterprise will face bankruptcy. Under the influence of these factors, SMEs are unwilling to invest in innovation. In addition, the returns of innovation are uncertain and the risks are high. The returns of creditors are mainly interest. They are concerned about the ability of enterprises to repay debts. As a creditor, under the condition of constant income, it is sure that the smaller the risk,

the better. The creditor does not want the enterprise to invest the funds raised through debt into high-risk innovative projects. In order to avoid this situation, the debtor limits the scope of use of funds in advance before the enterprise raises funds. Under various constraints, the funds raised by enterprises through debt eventually lead to the unwillingness and inability of enterprises to invest in high-risk innovative projects. Therefore, debt financing inhibits the innovation investment of enterprises.

The correlation coefficient is 0.059, which is significant at the 1% level. Results indicate that equity financing has a significant promoting effect on innovation investment, meaning that an increase in equity financing in SMEs is positively correlated with an increase in innovation investment, and verifying hypothesis 4. The reason may be that, on the one hand, the funds obtained from equity financing are equity funds, which do not need to be repaid in principal, and only need to distribute a certain amount of income to investors according to the company's profitability, allowing SMEs to use funds continuously. On the other hand, equity financing has higher requirements for enterprises, which can also constrain enterprises to a certain extent, and the operators of enterprises can play a role in mutual restraint, which can reduce the overall risk of SMEs to a certain extent. Therefore, when investors have a favorable view of the prospects of a company's innovation projects, they are more willing to invest funds into the company. In this scenario, equity financing can provide the company with a significant amount of financial support. Once the company secures equity financing, it is better equipped to promote the development of its innovation projects.

Table 3. Regression results

	Investment					
	Model (1)		Model (2)		Model (3)	
	Coefficient	VIF	Coefficient	VIF	Coefficient	VIF
Internal	0.015* (1.91)	1.30				
Debt			-0.046*** (-11.10)	1.23		
Equity					0.059*** (10.23)	1.26
Size	0.002 (1.45)	1.88	0.002 (1.16)	1.78	0.004*** (2.64)	1.83
Roa	-0.127*** (-12.24)	1.28	-0.122*** (-12.54)	1.16	-0.107*** (-10.86)	1.18
Cash	-0.001 (-0.59)	1.04	-0.002 (-1.30)	1.05	-0.002 (-0.86)	1.04
Age	-0.001*** (-6.33)	1.37	-0.001*** (-7.86)	1.39	-0.001*** (-5.66)	1.37
Soe	-0.003 (-1.30)	1.17	-0.003 (-1.13)	1.17	-0.001 (-0.39)	1.18
Tob	0.008*** (15.61)	1.48	0.006*** (13.37)	1.54	0.007*** (13.61)	1.53
Top	-0.042*** (-6.24)	1.09	-0.040*** (-5.93)	1.09	-0.037*** (-5.58)	1.09
Year	√		√		√	
Industry	√		√		√	
R-squared	√		√		√	
F	27.56		32.62		31.83	
P	0.0000		0.0000		0.0000	
N	4186					

Note: ***, **, and * indicate significance levels of 1%, 5%, and 10%, respectively, and values in parentheses are t-values. √ represents control. The following table is the same.

Test Based on the Difference of Debt Types

The above regression results show that debt financing has an inhibitory effect on innovation investment in China's SMEs. In addition to bank loans, debt financing also includes bonds and commercial information. Moreover, bank loans can be further categorized by term into short-term and long-term borrowings. This paper will further analyze the relationship between

different forms of debt financing and innovation investment, that is, to study the relationship between short-term loans, bond issuance, commercial credit, long-term loans, and innovation investment. Here, the explanatory variable debt financing variable in model (2) is replaced by short-term loans, commercial credit, bond issuance, and long-term loans respectively for regression. The regression results indicate an inverse relationship between short-term loans and innovation investment, the correlation coefficient is -0.04, meaning that an increase in short-term loans is significantly associated with a decrease in innovation investment. This situation may arise because the repayment period for short - term loans is not long, which requires enterprises to ensure sufficient funds to repay the principal and interest on time. Additionally, since innovation is inherently risky and requires substantial investment that cannot be quickly recouped, short-term loans tends to inhibit innovation investment. The results also show a significantly negative correlation between commercial credit, long-term loans and innovation investment at the 5% level. The correlation coefficient between commercial credit and innovation investment is -0.04. The correlation coefficient between long-term loans and innovation investment is -0.02. Bond issuance is significant negative correlated with innovation investment at the 10% level. From the above results, indicating that commercial credit, bond issuance and long-term loans inhibits innovation investment. Through the above analysis, it can be seen that different types of debt financing are negatively correlated with innovation investment in SMEs. This verifies hypothesis test 3.

Robustness Test

Test whether the model is stable, this paper reduces the sample size by reducing the sample by narrowing the time frame from 2016-2022 to 2017-2022.As shown in Table 4. The relationship between endogenous financing, debt financing, equity financing and innovation investment is consistent with the original estimation, indicating that the model construction is basically correct, and the original empirical results are also relatively robust. Long-term loans, commercial credit, bond issuance, and short-term loans also have a significant negative correlation with innovation investment, which is consistent with the original hypothesis. This suggests that the initial empirical findings are fairly stable and reliable.

Table 4. Robustness test

	invest						
Internal	0.014 * (1.76)						
Debt		-0.050*** (-11.44)					
Equity			0.062*** (10.08)				
Longloans				-0.022** (-2.38)			
shortloans					-0.044*** (-8.43)		
Bonds						-0.019* (-1.72)	
Business							-0.009** (-2.18)
Control Variable	√	√	√	√	√	√	√
Year	√	√	√	√	√	√	√
Industry	√	√	√	√	√	√	√
R-squared	0.1581	0.1856	0.1795	0.1587	0.1730	0.1581	0.1585
F	26.25	31.87	30.58	26.37	29.24	26.25	26.33
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	3803	3803	3803	3803	3803	3803	3803

CONCLUSIONS AND SUGGESTIONS

This study focuses on financing and innovation in-depth discussion, through empirical research methods, a comprehensive analysis of various forms of financing. The following conclusions are drawn: First, Whether it is the increase of endogenous financing or the growth of equity financing, it can provide more funds and resources for SMEs, promote enterprises to actively carry out innovation activities from many aspects, and ultimately lead to a significant increase in innovation investment of SMEs, endogenous financing and equity financing have a positive relationship with innovation investment. That is, an increase in endogenous financing and equity financing will lead to an increase in innovation investment among SMEs, which will play

a positive role in promoting the innovation and development of small and medium-sized enterprises; second, in SMEs, there is a negative relationship between debt financing and innovation investment. That is, an increase in debt financing will lead to a decrease in innovation investment; third, Different forms of debt financing are negatively correlated with innovation investment. That is, regardless of the type of debt financing that increases, this can lead to a reduction in innovation investment. This shows that in China's SMEs, endogenous financing and equity financing promote innovation investment, while debt financing inhibits innovation investment, and different types of debt financing are all significantly negatively correlated with innovation investment, and have an inhibitory effect on innovation investment.

Small and medium-sized enterprises in China should choose financing methods that are beneficial to innovation according to their own development needs. According to the analysis results above, although there are many factors that influence innovation, companies should not overlook the impact of equity financing and internal financing on innovation investment, as these two financing methods have a promoting effect on it. First, Innovation investment increases with the increase in endogenous financing, indicating a positive correlation between the two. Endogenous financing has lower costs and lower operating risks, which to a certain extent neutralizes the characteristics of uncertainty and high risk of innovation projects. SMEs should continuously improve their core capabilities, so that the company's funds can continuously circulate and circulate benignly, adopt different strategies to improve the efficiency of capital utilization, and steadily improve the company's profitability, thereby continuously promoting the company's innovation investment, improving innovation capabilities, and enabling SMEs to better play their advantages in the competitive market. Second, encourage equity financing. Establishing an investment market dominated by equity financing not only meets the needs of SMEs for direct financing, but also provides more direct financing opportunities for SMEs, thereby meeting the needs of SMEs for innovation. Third, improve research and development capabilities. SMEs should select innovation projects that meet the actual development needs of the enterprise according to their own situation. In order to obtain more external funds, SMEs should try to convey relevant information about R&D to the outside world through various channels, minimize the impact of information asymmetry, and enable enterprises to obtain more external funds.

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