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The Impact of R&D Investment on The Financialization of Enterprises —— Take The Manufacturing Industry as An Example

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Abstract. In recent years, the excessive investment of entity enterprises leads to the phenomenon of enterprise financialization, which makes the development of entity enterprises fall into a vicious circle. How to restrain the excessive financialization trend of enterprises and promote the high-quality development of real enterprises has become an urgent problem to be solved. Based on the financial data of listed companies in A-share manufacturing industry from 2008 to 2022, this paper studies the possible inhibitory effect of enterprise R&D investment on finalized investment from the perspective of asset allocation and market competition. The results show that R&D investment is significantly negatively correlated with the level of enterprise financialization, that is, R&D investment can restrain enterprise financialization to a certain extent. Further research shows that increasing cash holding and increasing market power are two intermediary paths for R&D investment to restrain the financialization of enterprises.

Keywords: R&D investment; financialization of enterprises; cash holding; market power.

1. Introduction

TeconomyFrom the micro perspective of financialization, enterprise financialization is the proportion of non-financial enterprises in financial investment, or the proportion of profit from the financial investment channels rising [1], more and more enterprises put money into the financial market, and even some companies rely on gains from the financial market to maintain the operation of the main business. The excessive financialization of the micro aspect of enterprises will eventually lead to the problem of "turning from real to virtual" in the macro economy [2]. According to the wind database, in 2022,89 listed companies with 1,089 invested in bank finance, trust loans and other financial products, with a total investment of 1,069.738 billion yuan. Excessive financialization makes the entity enterprise from its main business, profit to investment financial business, the capital from the real economy in the virtual economy "idling", the enterprise innovation input and output [3], is not conducive to the long-term development of the enterprise, at the same time excessive financialization will aggravate the management risk of [4], in the long run, the development of the real economy in China will face huge challenges. Therefore, to increase investment in scientific and technological innovation, to promote the full integration of innovation factors and the real economy [5], to alleviate the problem of excessive financialization of enterprises, and to guide the financial return to serve the origin of the real economy has become an urgent problem to be solved [6].

Based on the above analysis, this paper selects the a-share manufacturing listed companies from 2008 to 2022 as A sample, and studies the possible inhibitory effect of enterprise R&D investment on financialized investment from the perspective of asset allocation and market competition. The possible contributions of this paper lie in: (1) constructing the two paths of R&D investment affecting cash holding and market power, discussing the mechanism of R&D investment on the financialization of enterprises, enriching the research related to financialization; (2) enriching the research on R&D investment and its economic consequences, confirming the positive significance of R&D investment on the promotion of the value of enterprises, and providing theoretical support for the further implementation of the innovation-driven development strategy.

2. Theoretical analysis and research hypotheses

From the perspective of R&D innovation resources, due to high risk, long cycle, lack of collateral, and non-monopoly of income and other reasons, enterprise technological innovation is generally facing financing constraints, and it is difficult to pass through the traditional credit market

To obtain funds, the required funds mainly come from internal financing, and a sufficient and stable source of funds is an important prerequisite to ensure the continuous development of innovation and avoid high adjustment costs [7]. However, the resources owned by enterprises are limited, and the increase of R&D investment may produce the extrusion of financial asset allocation, resulting in the reduction of the resources available to enterprises for financial asset investment.

From the perspective of market competition, the unique core knowledge and technology owned by an enterprise can limit the imitation behavior of other enterprises and build the core competitive advantage of enterprises [8]. The new technologies generated by research and development activities can help enterprises to form resource positioning barriers, raise the threshold of product market access, enable enterprises to obtain monopoly competitive advantages, and promote their growth and value appreciation. Specifically, on the one hand, research and development activities can increase the diversification of enterprise products, and innovative enterprises can expand the total market demand through product diversification, tap and lock the potential market demand, and play the role of market entry barriers. On the other hand, the process innovation obtained by R&D activities reduces the production cost of existing products and makes use of its cost advantage to help them eliminate inefficient market competitors in the price competition. The technology accumulation brought by the continuous R&D output can maintain the competitive advantage and excess income of [9]. The improvement of competitive advantage weakens the motivation of managers to pursue financial returns due to the performance pressure or maintaining the stability of stock price, thus inhibiting the financialization of enterprises.

Based on the above analysis, this paper makes the following assumptions:

H1: R&D investment can inhibit the financialization degree of enterprises.

3. Study design

3.1. Sample selection and data source

This paper selects a-share manufacturing listed companies from 2008 to 2022 as samples and conducts the following screening: (1) excluding listed financial companies and ST and PT listed companies; (2) excluding sample values with missing data; (3) reducing tail reduction at the level of 1% of sample data. Finally get 23281 observations. The data used in this paper are from Guotai Taian database.

3.2. Variable definitions

3.2.1. Interpreted variables

This paper draws on the practice of Song Jun and Lu Yang (2015) and expresses the degree of financialization by the proportion of financial assets held by enterprises. According to the balance sheet of an enterprise, this paper includes trading financial assets, derivative financial assets, net loans and advances, net financial assets available for sale, net investment held to maturity, and net investment real estate are included in the category of financial assets. It should be noted that, although monetary funds are also financial assets, and some scholars include them in the study of enterprise financialization, the business activities themselves will also produce money. Therefore, the financial assets in this paper do not include monetary funds. In addition, the modern real estate is more and more from the real economy sector virtualization characteristics [10], a large amount of funds is used to speculation rather than used in production according to the accounting standards for enterprises no. 3-investment real estate definition, investment real estate is to earn rent or capital appreciation or both

and hold real estate, it can better measure the entity enterprise real estate investment, therefore, this paper includes the measurement of the enterprise financial investment real estate net project. Therefore, the calculation formula of the degree of enterprise financialization (Fin) is: Fin = (trading financial assets + derivative financial assets + net loans and advances + net financial assets available for sale + net investment held to maturity + net investment real estate) / total assets. And use the logarithmic form of financial assets for the robustness test.

3.2.2. The explanatory variables

R&D investment refers to the behavior of enterprises investing resources in research and development in the process of operation. Scholars mostly use the proportion and absolute value of R&D investment to measure the density and scale of R&D investment. This paper borrows the research of Zhou Wei et al. and uses the natural log of the total R&D expenditure to measure R&D investment [11].

3.2.3. Mediation variables

(1) Cash holding (Cashhold). The enterprise cash holding level is measured by the natural logarithm of the ending balance of cash and cash equivalents.

(2) Market power (Mpower). With the Lerner index as the agent variable of the market power, the specific calculation method is market power = (operating income-operating costs-sales expenses-administrative expenses) / operating income.

3.2.4. Control Variables

In this paper, the enterprise size, enterprise age, audit opinions, capital intensity, operating income growth rate, management expense ratio, cash flow, financial leverage, profitability, Tobin Q, property nature, equity concentration, size of the board are selected as control variables. In addition, this article controls for the industry and annual impact.

Table 1. Variable definitions

Name	Variable Symbol	Variable Name	Variable-definition
Explained Variable	Fin	Corporate financialization	(Trading financial assets + derivative financial assets + net loans and advances + net financial assets available for sale + net investment held to maturity + net investment real estate) / total assets
Explanatory Variable	RD	R&D amount	R&D investment plus 1 log is taken
Meta-variable	Cashhold	Cash hold	Balance of ending cash and cash equivalents plus 1 logarithm
	Mpower	Market forces	(Operating income-operating cost-sales expenses-administrative expenses) / operating income
Controlled Variable	Size	scale	Total assets take the natural log
	ROE	Return on equity	Average balance of net profit / shareholders' equity
	FirmAge	enterprise age	Year of ln (current year-market year + 1)
	Fixed	The proportion of fixed assets	Net fixed assets / total assets
	Top1	The largest shareholder shareholding ratio	Number of shares of the largest shareholder / total number of shares
	Mc	Administrative expense rate	Administrative expenses / operating income
	TobinQ	Tobin Q value	(Market value of tradable shares + number of non-tradable shares net assets per share + book value of liabilities) / total assets
	Growth	increase rate of business revenue	Operating income of this year / previous year-1
	Opin	audit opinion	If the company's financial report has issued the standard audit opinion, the value is 1, otherwise it is 0
	Year	Annual virtual variable	Take 2008 as the benchmark, take 1 in the current year, otherwise take 0

3.3. Model design

This paper refers to the existing literature and designs the following model to verify the main hypothesis of this paper, namely hypothesis 1.

$$\mathrm{Fin}_{i,t} = \beta_0 + \beta_1 \mathrm{RD}_{i,t} + \Sigma\beta_x \mathrm{Control}_{i,t} + \mathrm{Year}_t + \mathrm{Industry}_i + \varepsilon_{i,t} \quad (1)$$

Among, $Fin_{i,t}$ indicates the degree of corporate financialization in the t-year of the listed company i. RD is the R&D investment of the explanatory variable, and Control is the control variable.β_0As a constant term, β_1 Represents the regression coefficient of the explanatory variable on the explained variable, β_x Represent the regression coefficients for the control variables. The fixed effect of year (Year) was added to the model for model estimation.$\varepsilon_{i,t}$ For error terms.

4. The empirical results and the analysis

4.1. Descriptive statistics

Table 2 shows the descriptive statistics of the main variables. The mean value of enterprise financialization (Fin) is 0.0381, median is 0.0056, standard deviation is 0.0736, maximum value is 0.397, the data is right biased, indicating that most enterprises in the sample hold excessive financial assets; the mean R&D investment (RD) is 17.99, standard deviation is 1.408, minimum value is 14.03, and maximum value is 21.86, enterprise R&D investment in the sample. From the perspective of control variables, the overall difference of enterprise size (Size), Tobin Q value (TobinQ) is large, and the overall difference of return on equity (ROE), enterprise age (FirmAge), the largest shareholder shareholding ratio (Top1), fixed assets ratio (Fixed), operating income growth rate (Growth), audit opinion (Opin) is small.

Table 2. Descriptive statistics

variable	N	mean	p50	sd	min	max
Fin	23280	0.0381	0.00560	0.0736	0	0.397
RD	23280	17.99	17.93	1.408	14.03	21.86
Cashhold	23280	19.94	19.86	1.268	17.11	23.58
Mpower	23280	0.134	0.120	0.116	-0.196	0.510
Size	23280	21.99	21.81	1.160	19.98	25.60
ROE	23280	0.0756	0.0794	0.113	-0.458	0.360
FirmAge	23280	2.869	2.890	0.348	1.792	3.526
Top1	23280	0.338	0.318	0.141	0.0893	0.718
Fixed	23280	0.216	0.193	0.129	0.0155	0.601
Mc	23280	0.0813	0.0696	0.0526	0.0102	0.306
TobinQ	23280	2.034	1.675	1.124	0.908	7.265
Growth	23280	0.209	0.101	0.499	-0.615	2.964
Opin	23280	0.981	1	0.136	0	1

4.2. Benchmark regression results

Table 3 shows the benchmark regression results for the model (1). Column (1) represents the regression results of fixed time effect and individual effect, and the coefficient of explanatory variable RD is-0.0051 and significantly negative at 1%; column (2) shows the regression result, the coefficient of RD is-0.0053, and significantly negative at 1%, which indicates that the increase of R&D investment can inhibit the financialization of the enterprise, and is an important factor to break the

vicious circle of financial investment and promote the return of enterprise investment to industry, which is supported in this paper.

Table 3. Benchmark regression results

	(1)	(2)
	Fin	Fin
RD	-0.0051***	-0.0053***
	(0.0006)	(0.0007)
Size		0.0005
		(0.0011)
ROE		-0.0081**
		(0.0041)
FirmAge		0.0400***
		(0.0062)
Top1		-0.0131**
		(0.0066)
Fixed		-0.0470***
		(0.0054)
Mc		-0.0213*
		(0.0128)
TobinQ		0.0025***
		(0.0004)
Growth		-0.0004
		(0.0009)
Opin		-0.0035
		(0.0028)
Constant	0.1004***	0.0223
	(0.0100)	(0.0244)
Observations	23280	23280
Adj R-squared	-0.0771	-0.0686
Year	Yes	Yes

5. Intermediary mechanism test

According to the above theoretical analysis, this paper believes that the increase of R&D investment can squeeze out the investment of enterprises and financial industry, break the "reservoir" motivation of financial investment, and the results of R&D investment can promote the development of the main business strength of enterprises, expand the scale and performance of enterprises, so as to reduce

speculation in the financial market. Accordingly, this paper uses two variables: cash holding (Cshhold) and market power (Mpower) to test the relationship between R&D investment and corporate financialization. The specific model is as follows:

$$Fin_{i,t} = \beta_0 + \beta_1 Media_{i,t} + \Sigma\beta_x Control_{i,t} + Year_t + Industry_i + \varepsilon_{i,t} \quad (2)$$

$$Media_{i,t} = \alpha_0 + \alpha_1 RD_{i,t} + \Sigma\alpha_x Control_{i,t} + Year_t + Industry_i + \varepsilon_{i,t} \quad (3)$$

5.1. Cash holding

Table 4 shows the regression results of cash holding as an intermediary variable. Using the three-step method, the regression results of cash holding on enterprise financialization. The coefficient is significantly-0.0154 at 1%, and cash holding can inhibit the financialization of enterprises; the third is the regression results of R&D investment on cash holding, which is significantly 0.0378 at 1%, indicating that R&D investment can increase cash holding. To sum up, the current R&D investment suppresses the financialization of enterprises by increasing cash holdings.

Table 4. Inter-mediation mechanism test —— cash holding

variable	Fin	Fin	Cashhold
RD	-0.0051***		0.0378***
	(0.0006)		(0.0072)
Cashhold		-0.0154***	
		(0.0007)	
Control	Yes	Yes	Yes
Y ear	Yes	Yes	Yes
Constant	0.1004***	0.0681***	2.9929***
	(0.0100)	(0.0242)	(0.2569)
Observations	23280	23280	23280
Adj R-squared	-0.0771	-0.0436	0.3633

5.2. Market power

Table 5 shows the regression result of market power as intermediary variable, the three-step method is the regression result of cash holding on enterprise financialization, the coefficient is significantly-0.0197 at 1% level, market power enhancement; the third column is the regression result of R&D investment on market power, significantly 0.0039 at 1% level, indicating that R&D investment can improve market power. To sum up, it shows that the current R&D investment suppresses the financialization of enterprises by increasing the market power.

Table 5. Inter-mediation mechanism tests —— market power

Variable	Fin	Fin	Mpower
RD	-0.0051***		0.0039***
	(0.0006)		(0.0007)
Mpower		-0.0197***	
		(0.0071)	
Control	Yes	Yes	Yes
Year	Yes	Yes	Yes
constant	0.1004***	0.0244	0.1291***
	(0.0100)	(0.0244)	(0.0243)
Observations	23280	23280	23280
Adj R-squared	-0.0771	-0.0714	0.4446

6. Conclusion and recommendations

6.1. Conclusion

Based on the financial data of a-share manufacturing companies from 2008 to 2022, this paper examines the influence of R&D investment on enterprises and financialization. The research results show that the R&D investment is significantly negatively related with enterprise financial level, that is, R&D investment can inhibit enterprise financialization; function mechanism shows that R&D investment is mainly suppressed by increasing cash holding and increasing market power.

6.2. Suggestions

Based on the above conclusions, the standard makes the following recommendations:

Firstly, From the aspect of corporate governance, enterprises should increase the changes in market demand and their own investment funds, reasonably and scientifically formulate the development strategic plan, strengthen the market competitive position, stimulate the vitality of technological innovation and research and development, and improve their own technological innovation level. We should pay attention to the combination of industries, universities and research institutes and the accumulation of key core technologies, improve the quality of innovation, promote the transformation of innovation achievements into high-quality productivity, improve the profitability of enterprises, so that the innovation achievements can truly benefit the real economy, and realize a virtuous cycle of technological innovation and industrial development.

Secondly,From the aspects of policy support, the relevant government should increase support for enterprise R&D investment, formulate tax cuts JiangFei enterprise policy, more measures and make enterprise innovation break the "lead", guide enterprise scientific planning R&D, stimulate enterprise innovation research and development, at the same time promote production depth fusion, promote the transformation of scientific and technological innovation achievement transfer, power enterprise innovation performance improve continue to deepen the supply side structural reform, enhance the vitality of the real economy. Support the enterprise innovation from the policy level to bear the risk

of enterprise innovation to a certain extent, so as to drive the continuous innovation of enterprises and govern the phenomenon of enterprise financialization with innovation.

References

[1] Zhang Chengsi. The logic and reflection of Financialization [J]. Economic Research, 2019,54 (11): 4-20.

[2] Xu Yunsong, Lu Linyao. Study on the influence of enterprise financialization on industrial investment —— intermediary effect and threshold characteristics [J]. Theory and Teaching of Finance, 2024,42 (01): 1-12.

[3] Section of Junshan, Zhuang Xudong. Financial investment behavior and enterprise technology innovation —— Motivation analysis and empirical evidence [J]. Industrial economy of China, 2021 (01): 155-173.

[4] Xu Guoxiang, Hao Jinhao. Financialization, monetary policy and operational risk of non-financial enterprises [J]. International Finance Research, 2023 (05): 85-96.

[5] Luo Dang theory, Yang Wenhui, Huang Yimei. Scientific research endowment of entrepreneurs and enterprise financialization [J]. Southern Finance, 2022 (2): 58-71.

[6] Deng Chuang, Guo Meng, Yang Chenlong. Uncertainty of credit policy, asset allocation and enterprise financialization [J]. Quantitative Economics Research, 2023,14 (04): 83-100.

[7] Xing Yi, GUI Huang Bao, Li Xiang. Technological innovation, cash holding and its economic consequences —— is based on the dual perspective of preventive motivation and agent motivation [J]. Technical Economics and Management Research, 2022, (12): 17-22.

[8] Parahalad C.,Hamel G..The Core Competence of Corpo -ration [J].Harvard Business Review,1990(3):79-91.

[9] Dosi G..Sources, Procedures,and Microeconomic Effects of Innovation [J]. Journal of Economic Literature, 1988(3):1120 -1171.

[10] Song Jun, Lu Yang. U-shaped relationship between non-monetary financial assets and operating return rate —— Evidence from the financialization of listed non-financial companies in China [J]. Financial Research, 2015, (06): 111-127.

[11] Zhou Wei, Huang Han, Jiang Hongfei. Digital transformation, R&D investment and innovation performance of multinational enterprises [J/OL]. Scientific Research, 1-23,2024.