The Impact of Government Subsidies on Enterprise Financialization and Enterprise Innovation

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Abstract

This paper takes the data of Shanghai-Shenzhen listed companies in 2010-2020 as a research sample, this paper explores the effect of enterprise financialization on enterprise R & D investment based on the perspective of government subsidies, and provides theoretical reference for how to solve the practical problem of shifting from real to virtual brought by enterprise financialization. It is found that excessive enterprise financialization of enterprise innovation can suppress enterprise innovation investment; government subsidies can reduce the participation of enterprise financialization and the impact of the total assets of enterprises.

Keywords

Government Subsidies; Enterprise Financialization; From Real to Virtual; Enterprise Innovation; Enterprise Total Assets.

1. Introduction

The strength of a country depends on the real economy, not the bubble.General Secretary Xi Jinping has always attached great importance to the real economy, and has made important judgments such as "the real economy is the capital of the country", "a strong country depends on the real economy" and "grasping the real economy", which reflect a deep understanding of the laws of economic development and clarify the basic position of the real economy in the development of the national economy."Our policy basis should be placed on enterprises, especially those in the real economy."Promote supply-side structural reform, clear "supply-side structural reform to revitalize the real economy"; achieve high quality development, is to "promote China manufacturing to China created, China speed to China quality, manufacturing power to manufacturing power"; do financial work, emphasize "finance should serve the real economy as the starting point and foothold".It can be said that revitalizing the real economy is not only the fulcrum of China's economic development, but also the basis of economic policy formulation.The central government's support for the real economy will not and cannot change. The tendency to "move away from the real to the virtual" will be reversed. Practitioners and entrepreneurs in the real economy should be full of confidence.When General Secretary Xi Jinping visited Hunan's manufacturing industry in 2020, he stressed: " Innovation is the most important quality of enterprise operation, and it is also what we must overcome obstacles in the future.Key and core technologies must be firmly in our own hands, and manufacturing industries must be in our own hands."Innovation is the fundamental driving force for economic development and the key to improving the quality and efficiency of economic development.The innovation of enterprises is the core force of promoting economic development and the direct embodiment of the national innovation level.China has always attached great importance to the innovative development of the real economy and remained vigilant against the bubble economy from real to virtual.During the epidemic period, China's real economy suffered a cold winter. At such a time, the more necessary to be alert to the crowding out effect of asset price bubble on the real economy, the more necessary to prevent idle arbitrage in the virtual economy, and ensure that funds enter the field of production, research and development.

Corporate financialization means that non-financial enterprises obtain short-term returns by investing their limited resources in financial products in the capital market (Demir, 2009)[1]The financialization of enterprises brings the investment of non-financial enterprises away from their main business, and brings about the "transition from the real to the virtual" of the real economy.Listed companies using idle funds to buy financial products phenomenon is common, brokerage financial products into listed companies "new favorite", since July 2021, Evergrande high debt caused by liquidity crisis become the focus of the market and public, the head of the real estate market private companies caused the entity trust panic.With the rapid development of China's capital market, in recent years, China's economy has produced an obvious "excessive financialization" at the macro level, leading to the "real to real" of real enterprises, and the trend of virtual economy squeezing the real economy (Shi Town, 2021)[2]This is because China's financial market is in its infancy, innovation environment not good development, enterprises face problems such as excess capacity, and high returns of financial assets, enterprise innovation investment rate is low, in contrast, entity manufacturing put more money in the financial sector, entity enterprise financial asset allocation ratio rose rapidly, entity investment proportion continues to decline, cause financial products squeeze manufacturing, produce "real to virtual" phenomenon.Excessive financialization will restrain the investment of enterprises in innovation and research and development, which is not conducive to technological progress. At the same time, the turmoil of the financial market is easy to cause the recurrence of the financial crisis, and even threaten the state power and social stability.

The central government has a clear understanding of the difficulties in operating the real economy and is taking a series of strong measures.Since this year, the central bank has cut the reserve requirement ratio for four consecutive times, aiming to optimize the liquidity structure and enhance the financial ability to serve the real economy.At the same time, to ensure that capital flows into the real economy, regulators have been taking strict measures to prevent bank funds from illegally flowing into the real estate sector.In addition to the financial sector, policies and measures to reduce the tax burden, improve environmental governance and improve the capacity of scientific and technological innovation will be implemented, both intended to reduce costs for the real economy and create good conditions for the development of the real economy.

The research contributions of this paper are: on the one hand, introducing the variables of government subsidy, exploring the influence of enterprise finance on enterprise innovation, expanding the existing research situation of the relationship between enterprise finance and enterprise innovation; on the other hand, optimizing the innovation policy for government departments to control enterprise financialization, and promoting the process of enterprise removal from virtual to reality.

2. Literature Review

2.1. Corporate Financialization

Enterprise financialization refers to the increasing proportion of financial assets in the process of financial assets relative to physical assets and financial sector versus non-financial sector. corporate profits mainly come from financial channels rather than manufacturing sector (Zhang Chengsi, Zhang Butan, 2016; Xie Jiazhi et al., 2014)[3-4]As a result, enterprises are more willing to allocate large amounts of funds to the financial sector, but the real economy cannot be effectively supplied (Hu Yiming et al., 2017)[5]. Previous studies have shown that there are two main behavioral motivations for enterprise financialization: "reservoir" motivation and "speculative arbitrage" motivation (Shi zhi, Yangzhen, 2021)[2]. Enterprises will invest idle funds in financial assets and make preventive savings of assets to achieve the purpose of capital

reserve, namely "reservoir" motivation; In the case of limited resources, when the return of financial investment is higher than the entity investment, enterprises will choose to allocate more financial assets for "speculative arbitrage" to increase the return of investment.On the one hand, enterprise financialization can promote the entity investment to some extent, because the financial assets have strong liquidity, fast liquidity, meet the capital needs of entity investment and realize wealth accumulation; in the case of declining entity operating profits, financial assets investment can spread the business risks, the income obtained can be a buffer for the struggling enterprises (Stulzm, 1996)[6]; Financial assets such as investment real estate can act as collateral for corporate debt financing, ease external financing constraints, and protect investment in R & D and other fixed assets (Kliman and W illiams, 2015)[7]. On the other hand, excessive enterprise financialization will lead to large amounts of capital flowing to the virtual economy (Nan Xiaoli, Zhang Min, 2019)[8]. Under the motivation of "speculation and arbitrage", due to the long innovation and development cycle and high failure rate, financial assets with short investment period and high returns are favored by enterprises. Enterprises invest more limited funds in the financial market. At this time, financialization is a crowding out effect on enterprise innovation (Wang Hongjian et al., 2017)[9]. Financialization makes enterprises deviate from their main business objectives, deteriorates the problem of agency, damages the long-term profits of shareholders, weakens the selection and promotion standards of innovative talents, thus crowding out the innovation investment and hindering the technological innovation of enterprises (Xuezhi, Yangzhen, 2021)[2]

2.2. Enterprise Innovation

Innovation is the fundamental driving force for economic development and the key to improving the quality and efficiency of economic development. Enterprise innovation is the fundamental cause for promoting the development of enterprises and the direct embodiment of the national innovation level (Chen Mingli, 2021)[10]. For the market economy, the innovation ability of enterprises determines its strategic position and its competitive advantage and market value (Porter, 1992)[11]. Enterprise innovation is characterized by high risk and long investment cycle, so it needs sufficient capital investment to support it.Studies have shown that the higher the economic policy uncertainty, the lower the willingness of enterprises to innovate, and the greater the risk of innovation.Under the uncertainty of economic policy, the financialization of enterprises reduces the willingness of enterprises to innovate and intensifies the innovation risk.Economic policy uncertainty is an important factor affecting enterprise innovation behavior.The macroeconomic policy environment affects the company's development strategy. The more uncertain the economic policy that the enterprise faces, the more difficult it is to make a correct judgment on the future development trend (Rao Jingui et al., 2017; Fabian, 2017)[12], The greater the investment risk, the enterprise will reduce the investment (Cao Chunfang, 2013; Bonaime et al., 2018)[13], Then affects the innovation expenditure of enterprises (Li Fengyu, Yang Mozhu, 2015; Wang Chaoyang et al., 2018)[14-15]. The increase in economic policy uncertainty leads to the increase in cash flow fluctuations in enterprise operating income. Under the pressure of debt repayment, enterprises tend to reduce r & D expenditure with long investment period and high risk, thus affecting the innovation behavior of enterprises (Chen Mingli, 2021)[10].

2.3. Government Subsidies

The subsidies given by the government may be an important signal for banks to evaluate and identify enterprise credit in the credit decision-making, and a means to effectively alleviate the financing constraints of enterprises (Chen Ran, 2020)[16]. Government financial subsidies to enterprises are considered as an implicit guarantee mechanism (Sun Zheng, 2006)[17], Help to alleviate the information asymmetry between banks and enterprises (Shen Xianghua, 2014)[18], Signal transmission effect on bank loans (Guo Xiaodan, He Wentao, 2011)[19], Relief

financing constraints for enterprises (Colombo M G, 2013)[20]. Since government subsidies are distributed by specific agents and allocated to enterprises according to government policies, it not only sends a signal of "government-enterprise relationship" to the outside world and has a certain "implicit guarantee" function, but it also is regarded as a means of implementing industrial policies (Chen Ran, 2020)[16]. The impact of government subsidies on the financialization of real enterprises is adapted to local conditions. The government participates in enterprise operation and bank lending in areas with higher marketization degree than that in regions with low marketization degree, and the financing constraints of enterprises in regions with higher financial development are significantly lower than that of areas with weak financial development (Shen Hongbo, 2010)[21]. Compared with enterprises in regions with high degree of marketization, enterprises in regions with lower degree of marketization may face greater financing constraints. At this time, the marginal negative impact of government subsidies on industrial financialization may be stronger (Chen Ran, 2020)[16]. On the contrary, in the market environment with less government intervention, developed economy, abundant financial resources, perfect system and strong credit culture, enterprises can make full use of external economic and financial resources to reduce the risk of falling into financing constraints (Wei Zhihua, 2014)[22]. As a policy tool of the government, it can not only directly inject a large amount of funds into enterprises to ease their financing constraints (Wei Zhihua, 2015)[23]And as a signal for banks to assess corporate credit, (Guo Xiaodan, He Wentao, 2011; Shen Xianghua, 2014)[19,18]Facilitating corporate debt financing and easing financing constraints (Martins, 1996)[24], To provide a basic guarantee for enterprise innovation.

2.4. The Relationship between Government Subsidies and Enterprise Financialization and Enterprise Innovation

The academic circle believes that under the action of government subsidies, enterprises can increase their R & D investment, which stimulates the enthusiasm of enterprises for R & D and innovation, and encourages enterprises to increase their R & D investment. Link(1982) [25], Lach(2002) [26], Lee and Hwang(2003), Czarnitzki et al.(2007) And other scholars believe that government subsidies will promote enterprises to increase investment in R & D.Gonzalez et al.(2005) Based on the enterprise investment decision model, using the sample data from 2,000 manufacturing industries in Spain, it empirical shows that government subsidies promote R & D investment and have a significant effect on small-scale enterprises.Aerts and Schmidt (2008) [27] Using micro-industrial data of Germany and Flanders, non-parameter estimators and conditional difference estimators to build models, and the empirical results show that enterprises receiving government subsidies will actively carry out R & D and innovation activities.Bai Junhong (2011)[28]Based on the dynamic panel and static panel models, the government subsidies for R & D can encourage enterprises' technological innovation.

Enterprise financialization has both positive and negative effects on enterprise innovation. When enterprises deal with possible financial difficulties in the future through liquid financial assets, appropriate enterprise financialization has a positive impact on enterprises.When enterprise financialization, enterprises to short-term interests to allocate a lot of funds to financial investment, too dependent on financial short-term profits, gradually deviate from the main target, weaken the r & d, weaken the ability of enterprise innovation, the government subsidies can guarantee on the road of enterprise innovation, the government by injecting a lot of money for the enterprise to achieve effective subsidies, ease enterprise financing constraints, enterprises can allocate more funds to innovation r & d investment, thus promoting the enterprise innovation.Government subsidies play a regulating role between enterprise financialization and enterprise innovation, and the contradiction between enterprise financialization and innovation provides a guarantee for enterprise innovation.

3. Research Hypotheses

3.1. The Direct Effect of Enterprise Financialization on Enterprise Innovation

Financial assets have high liquidity. When enterprises hold financial assets, financial assets can improve the efficiency of allocating financial assets and improve the productivity of enterprises (Xu Shan, Liu Duchi, 2019)[29], Help enterprises to reduce transaction costs and alleviate the financial difficulties they will face in the future.Even if enterprises encounter financing constraints in innovation activities, the results of enterprise financialization will enable enterprises to preserve part of their strength and put more energy into innovation activities, so that enterprises can achieve higher income through short-term financialization.Therefore, enterprise financialization will have a promoting effect on enterprise innovation.

However, enterprises often have a lot of speculative and arbitrage behavior in the actual operation.Innovation research and development cycle is long, and the success rate of innovation is low, many uncertainty factors, and the enterprise itself resources are limited, in the face of short investment period and profitable financial assets investment, enterprises are more likely to be limited resources allocation to financial investment, reduce the industrial investment allocation, thus reduce the innovation, thus weaken the power of innovation investment, over time extrusion effect.In addition, due to the uncertainty of the principal-agency relationship, there is an asymmetry between the information of the interests of managers and shareholders. Shareholders provide equity incentives to managers. In order to achieve shareholders' expected profits, managers have short-sighted practices in decision-making and pay attention to short-term interests.Due to the high risk and long return cycle of innovation behavior, managers will avoid innovation as much as possible. At this time, although enterprises bring higher income through short-term financialization, they make the mistake of short-term profitability of shareholders, produce crowding out effect and hinder the technological innovation of enterprises.Therefore, the financialization of enterprises will also hinder the enterprise innovation.Based on the above analysis, the following assumptions are made:

H1a: Moderate financialization of enterprises has a positive impact on enterprise innovation;

H1b: Excessive financialization of enterprises will bring crowding out effect to enterprise innovation and have a negative impact on enterprise innovation.

3.2. The Regulating Role of Government Subsidies

Government subsidies are a motivation to change the financialization of enterprises. The government guides micro enterprises in the market to gather and invest in a certain industrial scope through corresponding fiscal policies and tax policies (Qizhi, Yangcheng Town, 2021)[2]. When enterprises invest in financial products in order to realize capital reserves, government subsidies can directly inject a large amount of funds into enterprises, which can help enterprises adjust the capital allocation structure, ease financing constraints, buffer the financial fluctuations brought by research and development uncertainties, and reduce the negative impact of innovation.In the face of managers chasing short-term interests, government subsidies to some extent represent the recognition of enterprises, which is a signal to encourage enterprises to innovate.Government financial subsidies and preferential tax policies will effectively resolve the external financing constraints of enterprises and bring benefits to the innovation activities of enterprises.The funds injected by the government effectively offset the risks of research and development, reduce the loss pressure of enterprises, give managers a reassurance, and give managers the motivation to increase innovation investment.In the long run, the enterprise increase r & d investment, improve the level of innovation is profit, innovation activities often shut out because of the constraints of limited funds, government subsidies provide financing support for management, reduce the risk of enterprise innovation

investment, avoid business hollowing out, alleviate the enterprise financial extrusion effect, make more money to flow into innovation business.Therefore, based on the above analysis, the following assumptions are made:

H2: Government subsidies play a negative role in regulating between enterprise financialization and enterprise innovation.

3.3. Intermediation Role of Enterprise Total Assets in Enterprise Financialization and Enterprise Innovation

The purpose of enterprise investment is to realize asset appreciation. Only when the total assets are sufficient can there are enough assets for innovation investment.When the enterprise asset allocation in the process of financial assets ratio more and more high, financial assets relative to physical assets, the financial sector relative to the non-financial sector excessive inflation, and financial channels instead of traditional business channels become non-financial enterprise profit sources, cause enterprises more willing to allocate to a lot of money in the financial sector and the real economy cannot get effective supply (historical wisdom, Yang town, 2021)[2]At this time, the financialization phenomenon of enterprises makes enterprises use a large number of assets for financial investment, resulting in the reduction of the total assets of enterprises.The shrinkage of the total assets of enterprises has no cash to control, and innovation and research and development requires a large amount of capital investment. Therefore, the reduction of the total assets of enterprises caused by financialization reduces the entity investment and inhibits the innovation of enterprises.Therefore, based on the above analysis, the following assumptions are made:

H3: The total assets of enterprises play an intermediary role between enterprise financialization and enterprise innovation.

4. Research Design

4.1. Sample Selection and Data Source

In this paper, the data of China's Shanghai and Shenzhen A-share listed companies from 2010 to 2020 are taken as the research sample. The data at the company level are all obtained from Guotaian Database (CSMAR).Further, based on the needs of research, the sample data is processed as follows: (1) excluding financial and real estate listed companies.(2) Excluding ST and PT listed companies.(3) Excluding the listed companies with serious financial data loss or abnormal values.Finally, 4,808 valid samples were obtained.To avoid the influence of outliers, 1% Winsorize.

4.2. Model Design

To examine the proposed studies H1a, H1b, H2, and H3, the following study base models (1) and (2) are designed.

$$innovation_{it} = \alpha_0 + \alpha_1 Fin_{it} + \sum_{j=2}^{T} \alpha_j control_{it}^j + \lambda_i + \theta_t + \varepsilon_{it}$$

$$innovation_{it} = \alpha_0 + \alpha_1 Fin_{it} + \alpha_2 sub_{it} + \alpha_3 Fin_{it} \times sub_{it} +$$

$$\sum_{j=4}^{T} \alpha_j control_{it}^j + \lambda_i + \theta_t + \varepsilon_{it}$$

The subscript i and t of model (1) represent different enterprises and different years; innovation is the explained variable and measures the enterprise as the innovation level; Fin is

the explanatory variable representing the level of enterprise finance; control represents the control variable; the individual effect; the year effect of the enterprise; and the random error.On the basis of the model (1), the new interactive item government subsidy sub builds a model (2). Fin sub indicates the adjustment effect of the government subsidy between enterprise financialization and enterprise innovation.If the coefficient 3 is significantly negative, then the hypothesis test can prove that the regulatory utility of government subsidies exists.

4.3.   Variable Definition

(1) The financialization level of enterprises. This paper draws on Xie Jiaji Zhi et al. (2014) [30] The ratio of the financial assets and the total assets of the end is used to measure the financialization level of the enterprise. Among them, financial assets include trading financial assets, loans and advances, hold-to-maturity investment and investment real estate.

government subsidies.This paper uses the right value of government subsidies accepted by enterprises to measure the level of government subsidies, and constructs the intersection item of government subsidies and enterprise financialization level, in order to explore the influence of government subsidies on the investment motivation of enterprise financial assets, that is, the adjustment effect of government subsidies.

(2) Innovation level of the enterprise. This article draws from Pan Yue (2015)[31] The amount of research and development expenditure is taken as the index of enterprise innovation investment to measure the level of enterprise innovation.Among them, the innovation investment includes various expenses related to the investigation, scientific research and personnel and equipment funds for enterprise innovation.

(3) Control variables. The research model of this paper also controls some other important factors affecting the financialization of enterprises, such as company size, capital structure, enterprise performance, equity concentration, independent director system, two positions and one, board size, executive monetary compensation, property right nature, debt level, cash flow level and other control variables.At the same time, the region, industry and year effect are controlled in the measurement model.

5.   Empirical Analysis

5.1.   Descriptive Statistics

Table 1. Descriptive statistics

Variable name	mean	standard deviation	least value	median	crest value
RD	158000000	770000000	0	44515575.26	73800000000
GOV_S	25960639.49	108000000	-4795645.58	4659685.635	3990000000
FIN	136000000	1650000000	-685200	173203.51	135000000000
ROA	0.042	0.205	-5.169	0.036	22.003
ROE	0.032	0.203	-5.259	0.024	22.005
YEAR_EN	12.972	8.634	0	14.33	52.67
NUM_W	4601.659	11675.406	0	1864	253724
TOL_ASSET	8150000000	26500000000	0	2670000000	849000000000
BOARD_SIZE	6.596	3.829	0	8	18
EQUITY	28536687.58	82080270.03	0	100000	1780000000
EQUITY_CON	33.626	14.385	3.003	31.494	89.986
MEDIA	2.817	1.781	0	2.996	12.743
SOCIAL_RES	4.339	4.022	-15	3.99	30

According to the main descriptive statistical results of the variables studied in this paper, the average enterprise innovation (RD) is 158000000, and the standard deviation is 7700000000, which indicates that the enterprise r & d investment is very different.The average value of enterprise financialization water is 136000000, and the maximum value is 13500000000000, indicating that the proportion of enterprise r & d investment and financial assets investment is not high, but it cannot judge whether financial assets have squeezed out r & d investment.The average government subsidy is 25960639.49, and the standard deviation is 1080000000, indicating that the government subsidies may ease the level of enterprise financialization.The average total assets is 8150000000, the standard deviation is 26500000000, the maximum value is as high as 8490000000000, indicating that the high total assets of an enterprise has a positive impact on enterprise innovation.

5.2.   Regression Analysis

1. Test of main effect

In this paper, F test and Hausman test were used to further determine the form of the model. F test results rejected the null hypothesis of mixed OLS at 1% level, and Hausman test rejected the null hypothesis of random-effect model at 5% significance level, so the fixed-effect model was used for fixed-effect regression.

Table 2. Corporate financialization and Enterprise Innovation

	RD1(1)	RD1(2)
FINANCE_LEVEL	-4.705*** (0.964)	-4.452*** (0.952)
SOCIAL_RES		0.005 (0.010)
EQUITY_CON		0.037*** (0.011)
EQUITY		-0.000 (0.000)
BOARD_SIZE		0.139** (0.062)
TOL_ASSET		0.000*** (0.000)
NUM_W		0.000 (0.000)
YEAR_EN		-0.030 (0.048)
ROE		0.685 (3.071)
ROA		-0.633 (3.124)
_cons	10.877*** (0.191)	8.640*** (0.757)

Standard errors in parentheses

$^*p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$

In this paper, the samples are then regression progressively, and the table shows the master regression results.The regression results of financialization level and innovation level are significantly negative, indicating that enterprise financialization has a negative impact on

enterprise innovation investment.After joining the government subsidy, the return result is still significantly negative, and significant at the 1% level, indicating that the more government subsidies, the lower the degree of financialization of enterprises, and the higher the innovation level of enterprises.After joining the government subsidy, social resources are significantly positive, indicating that the more sufficient social resources enterprises obtain, the easier it is to stimulate their innovation activities.The net asset value of the enterprise is significantly positive and significant at the 1% level, indicating that the enterprise will inhibit its innovation investment in the face of financialization.The enterprise size is significantly positive and significant at the 5% level, indicating that the larger the enterprise is more likely to innovate.The year is significantly negative, indicating that the longer the year when the enterprise is established, the higher the degree of enterprise innovation.The return on equity of the enterprise is significantly positive, indicating that the enterprise generally maintains r & D investment.The return on assets is significantly negative, indicating that enterprises' r & D investment will be inhibited when facing certain financing constraints.

2. Test of the regulatory effect

(1) The adjustment effect of government subsidies

Table 3. Adjustment effect of government subsidies

	RD1(3)
FINANCE_LEVEL	-2.828***
	(0.926)
SOCIAL_RES	0.005
	(0.010)
EQUITY_CON	0.037***
	(0.011)
EQUITY	-0.000
	(0.000)
BOARD_SIZE	0.121**
	(0.060)
TOL_ASSET	0.000***
NUM_W	0.000
	(0.000)
YEAR_EN	-0.033
	(0.048)
ROE	1.886
	(2.967)
ROA	-1.824
	(3.010)
GOV_S1	0.054***
	(0.010)
GOV_S_FINANCE_LEVEL	-0.040***
	(0.011)
_cons	8.189***
	(0.765)
N	18786
R^2	0.298

Standard errors in parentheses

*p < 0.1,**p < 0.05,***p < 0.01

After joining the government subsidy, the financialization level of enterprises is significantly negative, and significantly at the 1% level, indicating that the government subsidy significantly improves the financialization level of enterprises and promotes enterprise innovation.Social resources are significantly positive, indicating that government subsidies enable enterprises to obtain social resources and better stimulate their innovation activities.Equity is significantly positive and significant at 1%, indicating that government subsidies improve the equity structure and promote corporate innovation.The size of the enterprise is significantly positive and significant at the 5% level, indicating that the larger the enterprise size under the government subsidies, the higher the level of enterprise innovation.The total assets of the enterprise are significant at the 1% level, indicating that the more the total assets, the stronger the enterprise innovation.The year is significantly negative, indicating that with the superposition of the years, the innovation level of enterprises decreases.The return on equity is significantly positive, indicating that the enterprise maintains r & d and innovation investment.The return on assets is significantly negative, indicating that enterprises will reduce their r & d investment when facing certain financing constraints.

3. Test of the mediation effects

Table 4. For tests of mediation utility

	ln_TOL_ASSET(5)	RD1(6)
FINANCE_LEVEL	-0.528*	-4.032***
	(0.276)	(0.927)
SOCIAL_RES	0.000	0.004
	(0.001)	(0.010)
EQUITY_CON	-0.000	0.038***
	(0.002)	(0.011)
EQUITY	0.000***	-0.000**
	(0.000)	(0.000)
BOARD_SIZE	0.056***	0.095
	(0.009)	(0.059)
TOL_ASSET	0.000***	0.000***
	(0.000)	(0.000)
NUM_W	0.000***	0.000
	(0.000)	(0.000)
YEAR_EN	0.029***	-0.052
	(0.007)	(0.048)
ROE	0.458	0.321
	(0.801)	(3.368)
ROA	-0.475	-0.255
	(0.811)	(3.440)
ln_TOL_ASSET		0.796***
		(0.159)
_cons	20.428***	-7.629**
	(0.121)	(3.422)
N	18906	18906
R²	0.523	0.300

Standard errors in parentheses

*p < 0.1,**p < 0.05,***p < 0.01

The return result of the total assets of the enterprise is significantly positive, indicating that the more the total assets of the enterprise, the higher the innovation level of the enterprise.After joining the government subsidy, the return result is still significantly positive, indicating that the government subsidy suppresses the finalization level of financialization of enterprises, increases the total assets of enterprises, and increases the r & D investment of enterprises for innovation, which is conducive to the innovation of enterprises. The total assets of enterprises play an intermediary role between enterprise financialization and enterprise innovation.

5.3. Robustness Test

1. Replacement of the explanatory variable method

Table 5. The robustness test

	RD1(1)	RD1(2)
FINANCE_LEVEL1	-0.026***	
	(0.007)	
SOCIAL_RES	0.005	0.005
	(0.010)	(0.010)
EQUITY_CON	0.037***	0.037***
	(0.012)	(0.011)
EQUITY	-0.000	-0.000
	(0.000)	(0.000)
BOARD_SIZE	0.149**	0.139**
	(0.062)	(0.062)
TOL_ASSET	0.000***	0.000***
	(0.000)	(0.000)
NUM_W	0.000	0.000
	(0.000)	(0.000)
YEAR_EN	-0.025	-0.030
	(0.048)	(0.048)
ROE	0.741	0.689
	(3.120)	(3.064)
ROA	-0.694	-0.636
	(3.171)	(3.117)
FINANCE_LEVEL2		-5.319***
		(1.118)
_cons	8.610***	8.646***
	(0.762)	(0.757)
N	18904	18906
R^2	0.295	0.295

Standard errors in parentheses

*p < 0.1,**p < 0.05,***p < 0.01

Because loans and net advances does not belong to the "arbitrage" motivation variables, so this article first eliminate it, with trading assets, net investment and net investment real estate take logarithm as the original financialization level, named the financialization level 1, test the robustness of model 2, regression results as shown in the first column of the table.The results show that after excluding the net loans and advances, the coefficient of financialization level 1 is-0,026, significantly negative at 1%, and the coefficient symbol and significance of the remaining variables from the original financialization level 2. Regression results are shown in

the second column of the Table.The results show that after log-counting the original financialization level of existing enterprises, the coefficient of financialization level 2 is-5.319, which is significantly negative at the level of 1%, and the coefficient symbol of other variables and the significance level are not significantly different from the original measurement index of enterprise financialization.Through two replacement explanatory variables, both indicated that the previous regression results were more robust.It proves once again that the financialization of enterprise will inhibit enterprise innovation, which is manifested in the conclusion of crowding out effect.

2. Tool variable method

To solve the endogenous problem brought by the panel data, the endogenous variables are related to the perturbation term.Referring to previous studies, this paper selects the lag phase term of the financialization level as the instrumental variable to eliminate the correlation between explanatory variables and residuals.The reason for choosing this variable is that the lag term of the enterprise financialization level is related to the enterprise financialization level, but not to the random disturbance term.In this paper, regression analysis with 2SLS for model 2 after selecting instrumental variables

Table 6. The endogenicity test

	RD1(3)
FINANCE_LEVEL	-11.928***
	(2.963)
SOCIAL_RES	0.002
	(0.009)
EQUITY_CON	0.033***
	(0.007)
EQUITY	0.000
	(0.000)
BOARD_SIZE	0.130***
	(0.048)
TOL_ASSET	0.000***
	(0.000)
NUM_W	0.000
	(0.000)
YEAR_EN	-0.020
	(0.037)
ROE	3.293
	(2.410)
ROA	-3.439
	(2.388)
Kleibergen-Paaprk LM	(58.282)***
Cragg-Donald Wald F	(1778.487)***
N	16169
R^2	0.266

Standard errors in parentheses

$^*p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$

6. Research Results and Suggestions

6.1. Study Results

This paper takes the data of China's Shanghai and Shenzhen A-share listed companies in 2010-2020 as a research sample, based on the perspective of how to prevent and resolve financial risks, and explores the impact of government subsidies on the financialization of real enterprises. This paper takes government subsidy as the adjustment variable to explore its regulating role between enterprise financialization and enterprise innovation, and also considers the impact of enterprise total assets on the relationship between government subsidy and enterprise financialization, to verify the intermediary role of enterprise total assets between enterprise financialization and enterprise innovation. The research found that enterprise financialization has an inhibitory effect on enterprise innovation, and excessive enterprise financialization will have an obvious crowding out effect on enterprise innovation investment, and inhibit the r & d investment of enterprises.Government subsidies play a negative role in regulating between enterprise financialization and enterprise innovation. Government subsidies reduce the participation degree of enterprise financialization, and can weaken the crowding out effect of enterprise financialization on enterprise innovation. Enterprise financialization affects the total assets of enterprises by affecting the allocation of financial assets, and then affects the innovation investment of enterprises.

6.2. Research Recommendations

Based on the above analysis, the following recommendations are made:

(1) As the financialization of enterprises affects the investment of innovation in research and development, reducing the proportion of financial investment and putting more funds on research and development has a far-reaching impact on the development of enterprises. Enterprises should pay attention to the level of financialization, prevent the crowding out effect of physical innovation investment brought by excessive financialization, strive to enhance the industrial added value, support the elimination of backward production capacity, actively develop backward industries, ensure the smooth operation of the real economy, and prevent the occurrence of financial risks.Therefore, enterprises should expand the industrial value chain, enhance the industrial added value, and reasonably and appropriately use industrial policies and financial tools to support the actual industry, to complete the industrial transformation --is to eliminate backward production capacity and technology, by developing emerging industries, to develop new technologies and new models that more conform to the market and The Times.

(2) At present, under the background of the cold winter of the global economy, real enterprises are facing many survival problems, and the government's industrial support raises better possibilities for enterprises.The epidemic winter is both an opportunity and a challenge for businesses, The government should strengthen the guidance to enterprises, Guide enterprises to reduce financial investment, Pay more attention to innovative research and development; Support a lot of money through direct government subsidies, To ease the financing constraints of enterprises, Reduce the financialization level of enterprises, Weakening the crowding-out effect of enterprise financialization on innovative research and development; As the regulator and guide of the market, The government can encourage enterprises' scientific research and innovation by introducing tax incentives and other policies, To guide enterprises to rationally allocate financial assets, Reduce the current situation of enterprise hollowing out; The government has issued policies to strengthen property rights protection, Prevent the hitchhiking phenomenon, Thus building a new relationship between government and business, We will shift the real economy from the virtual economy to the real one.

(3) Enterprise financialization affects the innovation investment by affecting the total assets of enterprises. Therefore, enterprises should correctly manage their assets, balance the relationship between financial assets and entity r & d investment, and steadily improve the total assets of enterprises.The government should actively guide the investors, Enhance investors' confidence in enterprise innovation investment, Ensure the share of r & D investment of enterprises; Enterprises should strengthen their internal management, Regular, reasonable and correct assessments, To prevent mismisjudgment of financial markets, Avoid enterprises to seriously overestimate or underestimate the trend of financial markets; The government should always pay attention to the level of R & D investment of enterprises, Prevent companies from pursuing temporary interests, Distribulocate large amounts of money into financial investments, The occurrence of excessive financialization, At the same time, to prevent the excessive market value caused by excessive financial investment, Avoid market disruption; The government should guide enterprises to better allocate resources in the financial market, Steady the total assets level of the enterprise, Promote innovation investment in enterprises, At the same time, the government should view corporate assets correctly, Enterprise assets cannot be taken as the only criterion to judge the development potential of an enterprise, To achieve the rational allocation of government resources, Prevent resource mismatches, So that every enterprise with development potential can steadily improve the total assets of enterprises.

References

[1] Demir, F. Financial Liberalization, Private Investment and Portfolio Choice: Financialization of Real Sectors in Emerging Markets[J]. Journal of Development Economics, 2009, 88(2): 314-324.

[2] Historical zhi, Yang Town. Enterprise financialization and enterprise innovation --is based on the perspective of industrial policy [J]. Scientific Research Management, 2021,42 (04): 147-157.

[3] Zhang Chengsi, Zhang Butan. The mystery of the decline of Chinese industrial investment rate: the perspective of economic financialization [J]. Economic Research, 2016 (12): 32-46.

[4] Xie Jiaji Zhi, Wang Wentao, Jiang Yuan. Manufacturing financialization, government control and technological innovation [J]. Economic dynamics, 2014 (11): 78-88.

[5] Hu Yiming, Wang Xueting, Zhang Jin. Financial asset allocation motivation: "reservoir" or "replacement"? Evidence of --from Chinese Listed Companies [J].Economic Research, 2017,52 (1): 181-194.

[6] STULZM.Rethinking risk management [J].Journal of Applied Corporate Finance, 1996,9(3):8-25.

[7] KLIMANA, WILLIAMSSD. Why financialisation hasn 't depressed US productive in vestment [J]. Cambridge Journal of Economics, 2015,39(1):67-92.

[8] Nan Xiaoli, Zhang Min. Empirical research on the financial extrusion of R & D investment by emerging enterprises under policy uncertainty [J].Journal of Dalian University of Technology (Social Science edition), 2019,40 (06): 17-27.

[9] Wang Hongjian, Cao Yuqiang, Yang Qing, Yang Zheng. The promotion of financialization of real enterprises still inhibits enterprise innovation. --is based on the experience research of listed Chinese manufacturing companies [J]. Nankai Management Review, 2017,20 (1): 155-166.

[10] Chen Mingli. Economic policy uncertainty, enterprise financialization and corporate innovation [J]. Shanghai Finance, 2021 (01): 66-79.

[11] Porter, M. E. Capital Disadvantage: America's Failing Capital Investment System [J]. Harvard Business Review, 1992, 70(5):65-82.

[12] Rao Pingui, Wang Deli, Li Xiaoxi. High-speed rail opening and supplier distribution decision [J]. China Industrial economy, 2019 (10): 137-154.

[13] Cao Chunfang. Political rights transfer and corporate Investment: China Logic [J]. Manage World, 2013, (1): 143-155.

[14] Li Fengyu, Yang Mozhu. Will economic policy uncertainty dampen business investment?--An empirical study based on the China Economic Policy Uncertainty Index [J].Financial Research, 2015, (4): 115-129.

[15] Wang Chaoyang, Zhang Xuelan, Bao Huina.Uncertainty of economic policy and dynamic adjustment of enterprise capital structure and leverage stabilization [J].Industrial Economy of China, 2018, (12): 134-151.

[16] Chen Ran, Huang Xianqin, dry Sheng.Government subsidies, local economic fluctuations and the financialization of real enterprises [J].Journal of Chongqing University (Social Science edition), 2020, 26 (05): 14-29.

[17] Sun Zheng, Li Zengquan, Wang Jingbin. Ownership nature, accounting information and debt contract:, empirical evidence from listed companies in China [J].Management World, 2006 (10): 100 -107,149.

[18] Shen Xianghua. Bank risk identification, government financial subsidy and corporate debt financing cost: Empirical test based on company data from 2007-2012 [J]. Finance and trade economy, 2014 (9): 62-71.

[19] Guo Xiaodan, He Wentao. Dynamic analysis of Government R & D subsidy signal effect [J]. Economic Dynamics, 2011 (9): 88-93.

[20] COLOMBOMG ,CROCEA,GUERINIM.The effect of public subsidies on firms'investment – cash flow sensitivity: Transient or persistent?[J]. Research Policy,2013,42(9) : 1605-1623.

[21] Shen Hongbo, Kou Hong, Zhang Chuan. Empirical Research on Financial Development, Financing Constraints and Enterprise Investment [J]. China Industrial economy, 2010 (6): 55-64.

[22] Wei Zhihua, Zeng Aimin, Li Bo. Financial ecological environment and enterprise financing constraints: Empirical research based on Chinese listed companies [J]. Accounting Research, 2014 (5): 73-80,95.

[23] Wei Zhihua, Zhao Yueru, Wu Yuhui. Financial subsidies: "pie" or "trap": an empirical research based on financing constraints VS. The perspective of excessive investment [J]. Financial Research, 2015 (12): 18-29.

[24] MARTINS. R&D joint ventures and tacit product marketcollusion[J].European Journal of Political Economy, 1996,11(4) :733-741.

[25] Link A N. An analysis of the composition of R&D spending [J]. Southern Economic Journal, 1982, 49 (2): 342-349.

[26] Lach S. Do R&D subsidies stimulate or displace private R&D?Evidence from Israel [J].Journal of Industrial Economics, 2002, 50(4):369-390.

[27] Aerts,K., T. Schmidt. Two for the price of one? [J]. Research Policy. 2008,37(5): 806-822.

[28] Bai Junhong. Is the government funding in China effective?Empirical evidence from large and medium-sized industrial enterprises [J]. Economics (quarterly), 2011. (4): 1375-1400.

[29] Xu Shan, Liu Duchi. Empirical Study on the Impact of Enterprise financialization on Technological Innovation [J]. Scientific Research Management, 2019,40 (10): 240-249.

[30] Xie Jiaji Zhi, Wang Wentao, Jiang Yuan. Manufacturing financialization, government control and technological innovation [J].Economic dynamics, 2014 (11): 78-88.

[31] Pan Yue, Pan Jianping, Dai Yi Yi.Corporate litigation risk, judicial and local protectionism and enterprise innovation [J]. Economic Research, 2015, (3): 131-145.