

Article

Corporate Financialization, Financing Constraints, and Environmental Investment

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Abstract: This paper took non-financial listed companies on A-shares from 2014 to 2018 as samples to empirically test the relationship between corporate financialization, financing constraints, and environmental investment. The empirical results showed that the degree of corporate financialization is negatively related to environmental investment, and the negative relationship between long-term financial assets and environmental investment is more significant. Financialization has a “crowding out” effect on environmental investment when the firm is a non-state enterprise or a small-scale enterprise. Financialization has a “reservoir” effect on environmental investment when it is subject to less financing constraints. Further analysis revealed that both long-term and short-term financial assets have an inhibiting effect on environmental investment when environmental regulations are stringent. This paper provides a theoretical reference for companies to make investment decisions on financial assets and to improve their ability on environmental investment and green sustainability.

Keywords: corporate financialization; financing constraints; environmental investment



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1. Introduction

In recent years, China's economic development has stepped into a new stage, with economic growth slowing down. Enterprises gradually experience problems such as over-capacity, increased production costs, and a general decline in business performance. The excess returns brought by investments in financial assets have made enterprises more willing to invest their capital in the financial market. On the whole, the proportion of the real economy in China's GDP has been decreasing [1], while the scale and proportion of financial assets held by listed companies in China have been increasing year by year. Corporate financialization is a “double-edged sword”. On the one hand, it can bring high returns to enterprises and ease financing constraints; on the other hand, excessive financialization for profit is not conducive to the long-term development of enterprises. With limited resources, allocation of financial assets may “crowd out” other types of investment, causing enterprises to deviate from the optimal capital structure [2] and increasing the risk of share price collapse. It will curb the future development of the enterprise's main business and accelerate its decline [3]. At the same time, the financialization of real enterprises also weakens the effect of national monetary policy to revitalize the real economy [4], which is detrimental to the development of real industries in the long run.

Economic development has also brought about a series of environmental problems, and some enterprises have neglected ecological and environmental protection in pursuit of short-term interests, resulting in frequent environmental violations. Against the backdrop of the country's “green development” strategy, the government has promulgated the Environmental Law, the Environmental Tax Law, and a series of other regulations to regulate the behavior of enterprises. With the strengthening of government environmental regulations, China's total environmental investment has gradually increased. From 2013 to 2018, China's investment in ecological protection and environmental governance have increased by 31.4% annually. However, compared with developed countries, China's environmental

governance efforts are still inadequate, and the fulfillment of corporate environmental responsibility is still unsatisfactory. How to promote enterprises to fulfill environmental responsibility and increase environmental investment have become a practical problem which needs to be solved urgently. The era of maximizing shareholder interest as a business philosophy is also undergoing a shift towards sustainability in the world. The Paris Agreement adopted on 12 December 2015 is not only an international environmental treaty to address climate change after 2020, but also a foundation and platform for global climate governance. The issues of scientific certainty, the principle of common but differentiated responsibilities, mitigation and adaptation measures, institutional settings, and compliance mechanisms established by the Agreement not only reflect the current global environmental governance, but also predict its development direction. On 19 August 2019, 181 chief executives of top US companies joined together at the Business Roundtable, an American business organization, in Washington, DC, to sign a Declaration of Corporate Purpose. The Declaration redefines the purpose of a company's operations, declaring that shareholder interests are no longer the most important goal of a company and that a company's first priority is to create a better society. In this manifesto, the CEOs spoke out: a better society is more important than shareholder interests. We should focus on sustainable development and to create long-term value for shareholders.

Most of the existing studies have focused on the factors influencing environmental investment, such as environmental regulations, media attention, property rights of enterprise, and the characteristics of executives, while few studies discuss environmental investment from the perspective of investment. For enterprises, environmental responsibility is part of their social responsibility, but making environmental investment is difficult to generate economic benefits flowing into enterprises in the short term. The need for enterprises to spend special funds on dedicated equipment may result in higher production costs, so environmental investment will only be considered when managers admit the importance of green operations and believe that enterprises can afford the high costs and risks of environmental investment. Therefore, when studying the investment motivation of enterprises' environmental governance, we should pay attention to the endogenous motivation of enterprises in addition to the external mandatory environmental policies and regulations. Based on the investment perspective, this paper studied the influence of financialization behavior on environmental expenditure of enterprises and explores the influence mechanism of corporate financialization on environmental investment so as to correctly understand China's investment in financial assets of enterprises and behavior of environmental investment and improve environmental governance enthusiasm of enterprises and green sustainable development ability. It is of great significance to explore effective ways to realize the synergistic effect between economic performance growth and environmental governance.

2. Literature Review

2.1. Corporate Financialization

The financialization of real enterprises refers to the increase in financial investments, the gradual shift of the main business from real industries to the financial sector, and the gradual increase in earnings from financial sources. Studies have shown that companies allocate financial assets mainly for "capital saving" or "speculative profit-seeking" motives [5,6]. The "speculative profit-seeking" motive refers to the fact that enterprises invest in financial assets mainly to obtain high returns. Financial assets have high liquidity and high returns, which can effectively reduce the financial costs of enterprises and magnify the return on capital. The "capital saving" motive means that non-financial enterprises expect to make up for the lack of investment in their main business through financialization, and regard financial assets as a "liquidity management tool" to accelerate the adjustment of their capital structure and deviation degree of capital structure, mainly for the purpose of precautionary reserve. Gu Leilei [7] found that when enterprises fulfil their social responsi-

bility to alleviate their financing problems, they have more funds and choose to allocate more financial assets for the purpose of speculative profit.

The academic community has abundant research results on how financial asset allocation affects other types of investment, mainly focusing on the impact of financialization on real and innovation investment. Research results show that corporate financialization will significantly inhibit enterprise entity investment [8]. As for innovation investment, some researchers argue from the perspective of investment behavior. Given the limited resources of enterprises, they think that financial asset allocation will “crowd out” innovation investment. Some researchers, from the perspective of financing, think that financial assets can be used as capital “reservoir”. On the one hand, financialization can improve the efficiency of investment and alleviate the financing constraints so that enterprises have more money for innovation investment [9]. On the other hand, the adjustment of the financial investment cost is far lower than the innovation investment. When there is a shortage of internal funds, enterprises will be more willing to smooth out higher-cost investments with lower-cost investments. Wan Xuxian [10] classified innovation investment into exploratory and exploitative types. He found that short-term financial assets do not have a “reservoir” effect on dual innovation, while long-term financial assets have “crowding out” effect on exploratory innovation. Financing constraints greatly affect the investment decision-making behavior of Chinese enterprises. Financing constraints will lead to insufficient R&D investment and limit enterprises’ ability to invest abroad [11]. As a category of investment decisions, environmental investment and financial asset allocation are also affected by them. The interaction between corporate financialization and financing constraints is complicated. Some scholars believe that retained earnings of financial assets can increase internal financing funds of enterprises and asset liquidity, beautify financial statements of enterprises, improve financing ability of enterprises, and thus alleviate financing constraints. The greater the financing constraints of enterprises, the stronger the incentive to allocate financial assets [12]. Some scholars believe that the corporate financialization levels associated with financing constraints are “U” shaped. When enterprises face large financing constraints, enterprises will choose to allocate more financial assets [13].

2.2. Environmental Investment

According to the traditional constraint hypothesis, environmental protection will bring additional costs to enterprises, making them less competitive and less economically efficient. However, with the deepening of research, scholars have found that environmental investment can promote enterprises’ innovation ability, improve resource utilization, and reduce pollution effectively, thus increasing enterprises’ operating returns. By investing in research and development of green innovation technologies, enterprises can obtain a “technological first-mover advantage” [14], which will increase their intangible assets, enhance their corporate value, and have a positive effect on their long-term profits. Studies have found that for enterprises in heavy pollution industries, fulfilling environmental responsibility can effectively improve corporate value [15]. Environmental investment can effectively improve corporate performance and have a positive effect on long-term profit increase [16]. Gavronski [17] found that environmental investment improves supplier relationships, which leads to better green supply chains and improved business performance. Therefore, although it is difficult to generate economic value in the short term, business managers should increase environmental investment. It is not only conducive to environmental protection, but also conducive to the long-term development of enterprises. There are many academic studies on factors affecting the level of corporate environmental investment. However, they have not combined financial assets allocation of enterprises with environmental investment. The factors affecting environmental investment can be divided into internal factors and external factors. The internal factors mainly include the effectiveness of internal control, corporate heterogeneity, industry characteristics, etc. The external factors mainly include mandatory environmental policies and regulations, the

intensity of local environmental regulations, monetary policy, etc. At present, there is a large gap in environmental investment for enterprises in China, and there is a mismatch of funds. External funds may help enterprises to strengthen environmental governance [18]. Lu Minghan [19] found that when monetary policy is relatively loose, enterprises face less financing constraints. The supply of external funds to enterprises increases and the psychological expectations of managers are favorable. Environmental investment in high-polluting enterprises increases. The intensity of environmental investment of enterprises is not only regulated by macro laws and regulations, but also restricted by corporate profits and investment funds. Only when the supply of funds is sufficient and the allocation of resources is effective can enterprises actively carry out environmental management activities. Tang Guoping [20], from the perspective of micro enterprise characteristics, found that the degree of ownership concentration, the degree of ownership balance, and the proportion of management ownership are all negatively correlated with the scale of environmental governance. SOEs have a larger scale of environmental governance than non-state-owned enterprises.

2.3. Comment on Literature Review

According to the existing studies at home and abroad, environmental management activities as a non-economic project can enhance enterprise value and help enterprises to obtain “green first-mover advantage” in the future. Environmental management activities also help enterprises to establish long-term competitive advantages and promote enterprises to achieve sustainable development. Most of the existing studies on the fulfillment of environmental responsibility by enterprises are based on the principle of legitimacy and resource-dependency theory. The studies focus on the impact of macro external factors such as environmental regulations, government subsidies, and media attention on the scale of environmental investment. Most studies at the micro enterprise level focus on the impact of heterogeneous characteristics of management and heterogeneous characteristics of corporate governance structure on environmental investment behavior. They seldom research and explore environmental investment from the perspective of firms’ micro economic behavior. Secondly, environmental investment has a long cycle time and uncertain returns. Environmental pollution accidents in enterprises are episodic and lagging in nature. Management, influenced by an opportunistic mentality, may ignore or downplay environmental risks and thus reduce the scale of environmental investment. The majority of scholars consider that existing companies fulfil their environmental responsibilities to avoid penalties for environmental violations and are “involuntary”. They pay less attention to the endogenous dynamics of companies, and seldom study the impact of corporate investment funds on environmental investment from financial perspective. Because of agency problems, management may make investment decisions with more regard to short-term profitability than long-term corporate value growth in order to maintain their own job security and gain private profit. With limited internal capital, management’s allocation of capital to financial markets may crowd out other types of investment. Agency problems actually lie behind corporate financialization decisions and environmental investment decisions.

There are abundant studies on corporate financialization and environmental investment, but the two are not connected. We seldom analyze the influence of corporate financialization on environmental investment scale from the perspective of investment. Based on the information asymmetry theory, sustainable development theory, principal-agent theory, and the theory of financial deepening, this paper built the enterprise financial asset allocation behavior and environmental investment behavior into a unified analysis framework. The paper analyzed the impact of financialization behavior on environmental investment under different holding purposes and conducted empirical tests. It enriches the research on influencing factors of environmental investment. It is also conducive to realizing the synergistic effect of enterprise economic performance growth and environmental protection. This research is very meaningful and necessary.

3. Research Hypothesis

3.1. The Effect of Corporate Financialization on Environmental Investment

Environmental management activities, as non-economic projects, help enterprises to enhance corporate value and build long-term competitive advantage. However, environmental investment of enterprises requires large investment funds, long investment cycles, high risk, and unstable returns, with significant positive externality. Therefore, enterprises are under greater financial pressure and relatively increased operational and financial risks [21]. The agency problem is hidden behind the investment decisions of financial assets and environmental protection. Shareholders are concerned about the long-term value of the enterprises and expect enterprises to achieve sustainable development. Green development is the advance of sustainable development. Motivated by pay performance, business executives expect to obtain high returns, enhance short-term corporate profits, and beautify financial statements by allocating financial assets [22].

Studies have shown that enterprises invest in financial assets mainly for the motive of capital saving or speculative profit-seeking. When companies allocate financial assets for profit-seeking motives, they may be short-sighted and fall into the cycle of “investment in financial assets-high returns-investment in financial assets”. Under the circumstances of limited corporate resources, more money invested in financial markets means less money invested in environmental governance. The “crowding out” effect of corporate financialization to environmental investment is significant. According to the Free Cash Flow Theory proposed by Jensen in 1986, management has a preference for holding more cash and financial assets have a high liquidity similar to cash. However, the long cycle of environmental investment will reduce the level of corporate cash holdings. Therefore, management prefers to allocate redundant funds to financial assets rather than environmental projects. According to Maslow’s Demand Theory and the CSR triangle model, companies will only consider higher-level needs such as other stakeholder needs and benefiting society once they have satisfied their goal of maximizing profits [23]. When enterprises face financing constraints and external financing channels are blocked, they are forced to reduce investment due to financial constraints, and managers will choose to reduce non-essential investments such as environmental investment first, further exacerbating the “crowding out” effect of environmental investment by corporate financialization. When enterprises allocate financial assets based on the motivation of capital savings, corporate financialization can optimize the assets structure and reduce business risk. The excess return of financial assets can provide enterprises with more abundant investment funds, raise the enthusiasm of companies to bear the “green” costs, and increase the scale of environmental investment. At this moment, corporate financialization has a “reservoir” effect on environmental investment. At the same time, the fulfillment of social responsibility by enterprises can play a “reputational insurance mechanism”, which sends a signal to society that the enterprise is in good business and has high ethical standards. It can gain the trust of financial institutions and other investors, thus effectively alleviating financing constraints and obtaining more sufficient investment funds [24]. Studies have shown that the purchase of financial assets from financial institutions can enhance the closeness between enterprises and financial institutions [25]. Financial assets such as investment properties held by enterprises have strong collateral capacity [26]. The allocation of financial assets can broaden financing channels, thus prompting enterprises to allocate more funds to environmental projects. The return on financial assets can bring more investment funds to enterprises, prompting them to realize the synergistic effect of financial asset allocation and environmental investment enhancement. Accordingly, hypotheses H1a and H1b are proposed.

Hypothesis 1a (H1a). *When enterprises allocate financial assets based on the speculative profit-seeking motive, corporate financialization has a “crowding-out” effect on environmental investment.*

Hypothesis 1b (H1b). *When enterprises allocate financial assets based on the capital saving motive, corporate financialization has a “reservoir” effect on environmental investment.*

3.2. The Intermediary Role of Financing Constraints between Corporate Financialization and Environmental Investment

Financing constraints greatly affect the investment decision-making behavior of Chinese enterprises. Financing constraints can lead to insufficient investment in R&D and limit the ability of enterprises to invest abroad. As a category of investment decisions, environmental investment is also affected by them. The long-cycle environmental investment requires stable and continuous cash flow support, which is difficult to achieve with endogenous financing alone. When making exogenous financing, it is affected by financing constraints. The high uncertainty about the returns on environmental investment and the information asymmetry caused by inadequate disclosure of information by enterprises about environmental investment will make environmental investment face more stringent financing constraints. When financing constraints are strong, enterprises are less motivated to invest in environmental protection due to insufficient internal capital and blocked external financing, while when financing constraints ease, the supply of external capital and the scale of environmental investment increase, as with the investment opportunities in the corporate market. These will prompt enterprises to expand their investments, thus sharing the marginal cost of green investment [27]. Gu Leilei [7] found that the current speculative atmosphere in the capital market is strong, and financing constraints are positively correlated with the corporate financialization. Enterprises allocate limited funds to the financial market for profit motive, which may cause a lack of other types of investment as well as productive investment, resulting in an imbalanced capital structure and increased risk of over-indebtedness. The enterprises will face further increase in financing constraints. When external financing constraints are strengthened, the pressure on operation and management will increase and the incentive for arbitrage in management's investment decisions will increase [28]. Therefore, the management will be more inclined to invest in the financial market with short cycles and high returns in order to obtain higher returns, thereby alleviating financing constraints and ensuring normal production and operation of enterprises. Enterprises are less willing to fulfil their environmental responsibility, and their environmental investment will be reduced. In summary, the correlation between corporate financialization and environmental investment is affected by financing constraints. Corporate financialization inhibits the amount of environmental investment by increasing financing constraints faced by enterprises, and financing constraints play an intermediary role in the correlation between corporate financialization and environmental investment. Accordingly, we propose Hypothesis H2.

Hypothesis (H2). *Financing constraints play an intermediary role in the interaction between corporate financialization and environmental investment.*

4. Study Design

4.1. Sample Selection and Data Sources

After the Shanghai Stock Exchange issued the Guidelines on Disclosure of Environmental Information of Listed Companies in 2008, more and more companies chose to disclose environmental information on a regular basis, but the quality of information disclosed in the early years is low. Therefore, this paper selected A-share listed companies in Shanghai and Shenzhen from 2014–2018 as samples. In this paper, sample data were processed as follows: (1) Excluded companies in the financial industry, real estate industry, and ST industry; (2) Removed enterprises with missing main research variables; (3) In order to eliminate the influence of extreme values, Winsorize processing was carried out on continuous variables at the 1% and 99% quartile, obtaining a total of 1371 samples. The data of environmental investment in this paper were from the Corporate Social Responsibility report, the data of environmental regulation were from the China Environmental Statistics Yearbook, the data of monetary policy were collected from the official website of the People's Bank of China, and the rest of the required data on corporate governance and finance were mainly obtained from the Guotai database.

4.2. Main Variables

4.2.1. Corporate Financialization

When defining financial assets, researchers generally classify financial assets into four categories, including trading financial assets, real estate investments, long-term equity investments, and entrusted loans, based on the Penman-Nissim analytical framework. Trading financial assets include trading financial assets, derivative financial assets, net short-term investments, net available-for-sale financial assets, net held-to-maturity investments and long-term debt investment, etc. Entrusted loans include entrusted loans, financial products and trust product investment, and other emerging financial assets. Financial assets in the broad sense also include monetary funds, which were not included in the study of financial assets in this paper because monetary funds are held to meet the daily production and operation activities of enterprises. Existing studies mainly adopt two ways to measure the level of corporate financialization: (1) From the perspective of assets, the proportion of financial assets in total assets is used as an indicator to measure the level of corporate financialization. (2) From the perspective of income, the proportion of income from financial channels in operating profit is used as an indicator to measure the level of corporate financialization [2], which mainly includes income from financial assets such as investment income, changes in fair value gains and losses, and other comprehensive income. Considering that China's financial market is still imperfect and the financial income of enterprises is still unstable, in order to more directly measure and evaluate the investment behavior of enterprises' financial assets, the proportion of financial assets in total assets was selected as a measurement index, which is in favor of Hu Yiming et al. [6,29]

4.2.2. Environmental Investment

This refers to the capital investment of enterprises in environmental-related areas, including research and development and renovation of environmental technologies, acquisition of environmental settings, pollution treatment, clean production, ecological restoration and protection, and environmental taxes and fees, etc.

4.2.3. Financing Constraints

In this paper, the SA index was used to measure the degree of financing constraints, based on the work of Ju Xiaosheng [30] and Hadlock and Pierce [31]. The SA index mainly adopts the size of the enterprise and the age of the enterprise as indicators, which can effectively solve the endogeneity problem in the measurement of financing constraints. The smaller the SA index is, the greater the financing constraints of the firm. In this paper, the data were grouped according to the mean value. When the SA index was greater than the mean value, the value was assigned to 1; when the SA index was less than the mean value, the value was assigned to 0. In other words, a firm facing smaller financing constraints was assigned a value of 1, and a firm facing larger financing constraints was assigned a value of 0. The specific formula is as follows. Table 1 is about the definition of main variables.

$$SA = 0.043 \times (SIZE)^2 - 0.737 \times SIZE - 0.04 \times AGE \quad (1)$$

4.3. Model Design

Referring to previous scholars' studies on corporate financialization and environmental investment, and to the research design of Liu Liya [11], we made improvements on this basis. To test Hypothesis H1, Equation (2) was constructed to examine the impact of corporate financialization on environmental investment.

$$EI = \beta_0 + \beta_1 FIN1 + \beta_2 SOE + \beta_3 SIZE + \beta_4 TOP1 + \beta_5 ROA + \beta_6 MANRATIO + \beta_7 GROWTH + \beta_8 VALUE + \beta_9 LEVB + \sum INDUSTRY + \sum YEAR + \varepsilon \quad (2)$$

To test the mediating effect of financing constraints, this paper used Baron's "three-step method of mediating effects" to construct models (3) and (4) to test whether corporate

financialization regulates the amount of corporate environmental investment by affecting financing constraints. The specific inspection process is as follows: In the first step, model (2) was used to test whether corporate financialization has a significant impact on environmental investment; in the second step, model (3) was used to test whether corporate financialization has a significant impact on financing constraints; in the third step, model (4) was used to test whether corporate financialization and financing constraints have a significant impact on environmental investment. There were three cases: when the regression coefficient of financing constraints in model (3) was significant, and the regression coefficient of enterprise financialization in model (4) was also significant, and the absolute value was significantly smaller than the coefficient in model (2), it indicated that there was a partial mediation effect; when the regression coefficient of financing constraints in model (3) was significant, and the regression coefficient of corporate financialization in model (4) was not significant, it indicated that there was a complete mediating effect. When at least one of model (3) or model (4) was insignificant, the mediation effect needed to be judged by Sobel test.

$$SA = \beta_0 + \beta_1 FIN1 + \beta_2 SOE + \beta_3 SIZE + \beta_4 TOP1 + \beta_5 ROA + \beta_6 MANRATIO + \beta_7 GROWTH + \beta_8 VALUE + \beta_9 LEVB + \sum INDUSTRY + \sum YEAR + \varepsilon \quad (3)$$

$$EI = \beta_0 + \beta_1 FIN1 + \beta_2 SA + \beta_3 SOE + \beta_4 SIZE + \beta_5 TOP1 + \beta_6 ROA + \beta_7 MANRATIO + \beta_8 GROWTH + \beta_9 VALUE + \beta_{10} LEVB + \sum INDUSTRY + \sum YEAR + \varepsilon \quad (4)$$

Table 1. Definition table of main variables.

Variable Name	Variable Symbols	Variable Definition
Environmental Investment	EI	Natural logarithm of the average of current environmental investment/total assets
Financialization	FIN1	Total financial assets/total assets at end of the period
Financing Constraints	SA	The financing constraint is 1 when it is small and 0 when it is large
Property Rights	SOE	SOEs take 1, otherwise take 0
Enterprise Scale	SIZE	Natural logarithm of total assets
Ownership Concentration	TOP1	Number of shares held by the largest shareholder/total number of shares
Profitability	ROA	Corporate ROA value
Overhead Expense Rate	MANRATIO	Overhead expenses/main operating income
Growth Capacity	GROWTH	Total assets growth rate
Enterprise Value	VALUE	Corporate Tobin's Q value
Asset-liability Ratio	LEVB	Total liabilities/total assets
Industry Effect	INDUSTRY	Industry dummy variable. If the enterprise is in the industry, the value is 1; otherwise, it is 0
Vintage Effect	YEAR	Year dummy variable. If the enterprise is in the year, the value is 1; otherwise, it is 0

5. Empirical Tests and Analysis of Results

5.1. Descriptive Statistics

Descriptive statistics of the main variables are shown in Table 2. The mean value of corporate environmental investment index EI was -7.696 . The proportion of environmental investment in the total assets of enterprises was relatively small, and the willingness of enterprises to invest in environmental protection was low. The standard deviation was

1.601, the median was -7.568 , the minimum was -12.554 , and the maximum was -4.329 , reflecting the big differences in the level of enterprise environmental investment. The mean value of financial asset FIN1 held by enterprises was 0.097, accounting for about 1/10 of the total assets, and the maximum accounted for about 70% of enterprises, indicating that financial asset transaction has become an important activity of listed companies. The mean value and standard deviation of SA of financing constraint were -3.635 and 0.291, indicating that the degree of financing constraint of enterprises is different to some extent. At the same time, the standard deviation of TOP1 was 14.145, indicating that the ownership concentration of the sample enterprises varies greatly. The mean value of financing constraints SA was -3.635 and the standard deviation was 0.291, indicating that the degree of financing constraints of enterprises is different to some extent. Meanwhile, the standard deviation of TOP1 was 14.145, which indicated that the ownership concentration of the sample enterprises varies greatly.

Table 2. Descriptive statistics of main variables.

Variables	Average Value	Standard Deviation	Median	Minimum	Maximum
EI	-7.696	1.601	-7.568	-12.554	-4.329
FIN1	0.097	0.123	0.052	0	0.680
SA	-3.635	0.291	-3.684	-4.147	-2.919
SIZE	22.557	1.225	22.449	20.061	26.022
TOP1	36.533	14.145	35.370	9.080	72.110
ROA	0.030	0.058	0.026	-0.187	0.216
MANRATIO	0.096	0.074	0.082	0.011	0.519
GROWTH	0.103	0.219	0.052	-0.334	1.103
VALUE	2.208	1.358	1.739	0.940	8.375
LEVB	0.463	0.203	0.046	0.072	0.933

5.2. Correlation Test

The statistical results of correlation between variables are shown in Table 3. It can be seen from the data in the table that most variables are significantly correlated. The correlation coefficient between corporate financialization FIN1 and environmental investment was -0.045 , which preliminarily verified the negative correlation between corporate financialization and environmental investment. A more rigorous conclusion needs further regression testing. Among the control variables, property rights, enterprise size, ROA, management expense ratio, and asset-liability ratio were all correlated with environmental investment. The correlation coefficient between the property right and the financialization of enterprises was -0.075 , indicating that the financialization degree of state-owned enterprises is relatively low. The correlation coefficient between the ownership concentration and the financialization variable of enterprises was -0.158 , indicating that enterprises with higher ownership concentration are more risk-averse.

Table 3. Correlation analysis of key variables.

	EI	FIN1	SOE	SIZE	TOP1	ROA	MANRATIO	GROWTH	VALUE	LEVB
EI	1	-0.045^*	-0.052^*	-0.102^{***}	-0.02	0.075^{***}	0.066^{**}	-0.040	0.045	-0.077^{***}
FIN1		1	-0.075^{***}	-0.030	-0.158^{***}	0.069^{**}	0.143^{***}	-0.020	-0.000	-0.204^{***}
SOE			1	0.331^{***}	0.288^{***}	-0.190^{***}	-0.129^{***}	-0.230^{***}	-0.220^{***}	0.286^{***}
SIZE				1	0.225^{***}	0.010	-0.328^{***}	0.011	-0.521^{***}	0.448^{***}
TOP1					1	0.020	-0.107^{***}	-0.104^{***}	-0.158^{***}	0.106^{***}
ROA						1	-0.094^{***}	0.295^{***}	0.088^{***}	-0.386^{***}
MANRATIO							1	-0.024	0.342^{***}	-0.249^{***}
GROWTH								1	0.024	-0.078^{***}
VALUE									1	-0.302^{***}
LEVB										1

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.3. Multiple Regression Analysis

5.3.1. The Impact of Corporate Financialization on the Level of Environmental Investment

As can be seen from column (1) of Table 4, the regression coefficient of corporate financialization FIN1 was -1.377 , which was significantly negative at the 1% level, indicating that the higher the degree of corporate financialization, and the lower degree of environmental investment of enterprises. Corporate financialization has a “crowding-out” effect on environmental investment, which verifies Hypothesis H1a, i.e., enterprises allocating financial assets are for investment arbitrage motive. The regression results of the control variables showed that the regression coefficients of corporate profitability ROA and overhead expense rate MANRATIO are significantly positive at the 1% and 5% levels respectively. The MANRATIO regression coefficient of enterprise profitability ROA and management expense ratio was significantly positive at the level of 1% and 5% respectively, which is positively correlated with environmental investment.

Table 4. Corporate financialization, financing constraints, and environmental investment.

	EI	SA	EI
	(1)	(2)	(3)
FIN1	-1.377^{***} (-3.65)	-0.344^{***} (-5.58)	-1.209^{***} (-3.15)
SA			0.488^{***} (2.80)
SOE	0.032 (0.32)	-0.198^{***} (-12.32)	0.129 (1.23)
SIZE	-0.051 (-1.05)	0.037^{***} (4.82)	-0.069 (-1.43)
TOP1	0.005 (1.39)	0.004^{***} (7.02)	0.003 (0.81)
ROA	2.193^{**} (2.48)	-0.373^{***} (-2.62)	2.374^{***} (2.68)
MANRATIO	3.681^{***} (5.06)	0.042 (0.36)	3.661^{***} (5.05)
GROWTH	-0.117 (-0.56)	0.127^{***} (3.79)	-0.180 (-0.87)
VALUE	-0.038 (-0.92)	0.006 (0.88)	-0.040 (-0.99)
LEVB	-0.430 (-1.55)	-0.331^{***} (-7.38)	-0.271 (-0.96)
Proportion of Mediating Effect		12.2%	
INDUSTRY	Yes	Yes	Yes
YEAR	Yes	Yes	Yes
Constant	-7.191^{***} (-6.37)	-4.282^{***} (-23.45)	-5.097^{***} (-3.77)
R-squared	0.243	0.395	0.247
F-test	5.547	11.389	5.609

*** $p < 0.01$, ** $p < 0.05$.

5.3.2. The Mediating Effect of Financing Constraints

Table 4 reports the regression results of the mediating effect model. Column (2) shows the regression results of the independent variable corporate financialization on the mediating variable financing constraints. The regression results indicated that the regression coefficient of corporate financialization FIN1 is significantly negative at the 1%

level, indicating that the greater the degree of corporate financialization is, the greater the financing constraints faced by enterprises (the smaller the SA value). The regression results in column (3) showed that the regression coefficient of the financing constraints variable is 0.488, which is significantly positive at the 1% level, indicating that the greater the financing constraints faced by enterprises (the smaller the SA value), the lower the amount of corporate environmental investment and the lower the motivation to fulfill environmental responsibility. After adding the mediating variable financing constraints, the coefficient of corporate financialization FIN1 was still significant at the 1% level, which was -1.209 . Its absolute value was smaller than column (1)'s regression coefficient of corporate financialization FIN1, which was -1.377 . It indicated that financing constraints are part of the mediating factor of corporate financialization inhibiting environmental investment, with the mediating effect accounting for 12.2%. Corporate financialization negatively affects corporate environmental investment by increasing the degree of financing constraints, which verifies Hypothesis H2.

6. Further Research

6.1. The Impact of Firm Heterogeneity

The correlation between corporate financialization and environmental investment may also be influenced by firm heterogeneity. On the one hand, the nature of property rights of enterprises is different, the operation and management goals of enterprises are different, and the basis and behavior of decision-making are also different. On the other hand, the organizational structure and governance structure characteristics of a company represent the risk taking and benefit distribution mechanism of the company, which has a profound impact on the governance behavior and efficiency of the company [32]. The agency problem is hidden behind the phenomenon of corporate financialization, which is closely related to the ownership structure and governance structure of the company. Therefore, this paper starts from the level of micro characteristics of firms, such as heterogeneity of property rights and ownership concentration. This paper took the sample mean of variables as the standard and divided the samples for regression analysis. The regression results of corporate financialization and environmental investment under different sub-sample enterprises are shown in Table 5.

The regression results showed that the correlation between the degree of corporate financialization and environmental investment is influenced by the nature of property rights and ownership concentration. In samples of non-state enterprises, the coefficient of FIN1 was -2.341 , which was significantly negative at the 1% level. While, in SOEs samples, the regression coefficient was negative but not significant, reflecting that the "crowding out" effect of corporate financialization on environmental investment is more significant in non-state enterprises. The coefficient of FIN1 was -2.053 in the low ownership concentration samples, which was significantly negative at the 1% level. The regression coefficient was negative but insignificant in the high ownership concentration samples, reflecting that the lower the ownership concentration, the stronger the "crowding out" effect of corporate financialization on environmental investment. The reasons for this phenomenon are as follows. First, in China, SOEs bear more strategic and social policy burdens and pay more attention to the fulfillment of social responsibilities rather than the realization of their own interests. At the moment, when the government calls on enterprises to actively fulfill their environmental responsibilities, SOEs will expand their scale of environmental investment. At the same time, due to the policy burden, environmental policy plays a more significant role in promoting the environmental investment of SOEs. In addition, there is a weak correlation between the remuneration incentive of the management of SOEs and the profitability of enterprises, so the profit-seeking motivation of the management of SOEs is weak. Second, compared with non-state enterprises, SOEs face smaller financing constraints and lower financing costs due to the nature of their own property rights and government endorsement. Therefore, SOEs have weaker profit-seeking motivation to allocate financial assets, and the "crowding out" effect of financialization on environmental investment

is more significant in non-state enterprises. Third, according to the “governance effect of major shareholders”, major shareholders have strong motive and ability to supervise management’s decision-making behaviors, which can restrain management self-interested behaviors to a certain extent. Studies have found that major shareholders prefer value-based investment and industrial development [7]; therefore, in enterprises with higher ownership concentration, major shareholders tend to play a strong supervisory role to promote the flow of resources to the most valuable investment projects that are beneficial to the long-term development of the enterprises. It also can reduce the degree of corporate financialization, thus inhibiting the “crowding out” effect of corporate financialization on environmental investment.

Table 5. Regression results of corporate financialization, firm heterogeneity and environmental investment.

	EI		EI	
	SOEs	Non-State Enterprises	High Ownership Concentration	Low Ownership Concentration
FIN1	−0.025 (−0.05)	−2.341 *** (−4.46)	−0.059 (−0.09)	−2.053 *** (−4.18)
SOE			−0.117 (−0.82)	0.138 (0.98)
SIZE	0.001 (0.02)	−0.022 (−0.25)	0.148 ** (2.41)	−0.224 *** (−2.85)
TOP1	0.007 (1.58)	0.009 * (1.73)		
ROA	1.340 (1.24)	1.769 (1.25)	2.612 ** (2.28)	1.555 (1.13)
MANRATIO	5.479 *** (5.42)	2.423 ** (2.34)	5.944 *** (5.53)	1.817 * (1.77)
GROWTH	−0.159 (−0.46)	−0.476 * (−1.80)	−0.255 (−0.85)	−0.117 (−0.42)
VALUE	0.025 (0.42)	−0.023 (−0.40)	−0.077 (−1.24)	−0.013 (−0.22)
LEVB	−0.745 ** (−2.12)	0.832 * (1.88)	−0.435 (−1.09)	−0.506 (−1.23)
INDUSTRY	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes
Constant	−8.862 *** (−6.83)	−6.629 *** (−2.91)	−11.617 *** (−8.10)	−1.865 *** (−0.90)
R-squared	0.401	0.280	0.317	0.319
F-test	7.280	3.748	4.611	4.885

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The results of the regression analysis under different sub-samples are shown in Table 5. As can be seen from Table 6, the coefficient of corporate financialization FIN1 was significantly negative in all sub-samples, reflecting that the “crowding out” effect of corporate financialization on environmental investment is prevalent under different external conditions. A comparative analysis of the sub-sample results showed that under the conditions of looser monetary policy and stricter environmental regulation, corporate financial asset allocation has a stronger inhibition effect on environmental investment. The reasons may be as follows. First, when the monetary policy is relatively loose, the difficulty of enterprise credit financing will be reduced, the market flow will be accelerated, and the financial market will be active. When the enterprise has more abundant external funds, it may invest more funds in the financial market for the profit-seeking motive, resulting in the crowding out of environmental investment. Second, because the environmental regulation

has a “threshold effect” on environmental investment, the correlation between them is U-shaped [29]. China’s overall environmental regulation intensity is generally low, and it is still in the stage of environmental investment decrease with environmental regulation strengthen. Therefore, when the intensity of environmental regulation is higher, the “crowding out” effect of financialization on environmental expenditure is more significant.

Table 6. Grouped regressions based on monetary policy and environmental regulation.

	EI		EI	
	Strict Monetary Policy	Loose Monetary Policy	Strict Environmental Regulations	Lax Environmental Regulations
FIN1	−1.151 ** (−2.35)	−1.740 *** (−2.73)	−3.168 *** (−4.56)	−0.785 * (−1.74)
SOE	0.014 (0.11)	0.055 (0.32)	−0.004 (−0.02)	0.101 (0.81)
SIZE	0.012 (0.19)	−0.087 (−1.12)	−0.107 (−1.46)	−0.106 * (−1.69)
TOP1	0.003 (0.69)	0.004 (0.65)	0.013 ** (2.58)	−0.001 (−0.18)
ROA	2.880 ** (2.55)	1.808 (1.11)	3.628 *** (2.85)	1.407 (1.24)
MANRATIO	2.406 *** (2.83)	5.762 *** (3.95)	8.466 *** (7.57)	1.629 * (1.68)
GROWTH	−0.200 (−0.82)	0.132 (0.32)	−0.453 (−1.31)	−0.165 (−0.66)
VALUE	0.046 (0.96)	−0.135 (−1.54)	−0.022 (−0.39)	−0.045 (−0.84)
LEVB	−0.143 (−0.41)	−0.835 * (−1.66)	0.247 (0.57)	0.016 (0.04)
INDUSTRY	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes
Constant	−8.442 *** (−5.68)	−6.444 *** (−3.48)	−7.762 *** (−4.89)	−4.915 *** (−2.65)
R-squared	0.251	0.312	0.471	0.275
F-test	3.776	3.159	6.535	4.465

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

6.2. The Influence of External Factors

External macro factors may also influence the correlation between firms’ financial assets allocation and environmental investment decisions. In China, the initiative of firms to voluntarily fulfill their environmental responsibility is relatively low, and environmental investment are mainly influenced by mandatory environmental regulations. However, due to the uneven development in different regions of China and regional characteristics of the environmental system, there are significant differences in the level of environmental governance and the intensity of environmental regulations. Monetary policy, as an important tool for the government to regulate the macro economy [33], widely affects the investment decision-making behavior of individual enterprises. Therefore, this paper selected the relevant indicators, divided the samples from two levels of monetary policy easing and environmental regulation intensity, and conducted regression analysis on the sub-samples based on the median of the sample data of the indicator. The measure of monetary policy easing was based on the study by Zhu Jigao [34] and others, using the monetary policy perception index disclosed in the quarterly bankers’ questionnaire survey released by the People’s Bank of China as the measurement method. According to Huang Zhiji [35], the environmental regulation index uses industrial waste water, industrial SO₂, and industrial soot to construct a comprehensive evaluation index. Since the data of the three waste emissions in 2018 have not been disclosed, this paper obtained the data of each

province and city in 2018 based on the prediction of the growth rate of wastes in the past years. C_{its} is the adjustment coefficient of the environmental pollution emissions of the s pollutant in the t year of the i province, M_{its} is the total environmental pollution emissions of the s pollutant in the t year of the i province. N_{its} is the total industrial output under the environmental pollution emissions of the s pollutant in the t year of the i province. And the comprehensive environmental regulation index C_{it} is obtained by summing up the adjustment coefficient of the three pollutants. The specific formula is as follows.

$$C_{its} = \frac{(M_{its}/N_{its})}{(\frac{1}{31} \sum_{i=1}^{31} M_{its}/N_{its})} \quad (5)$$

$$C_{it} = \frac{C_{it1} + C_{it2} + C_{it3}}{3} \quad (6)$$

6.3. Robustness Test

To test the reliability of the paper's conclusions, the following robustness tests were conducted: (1) To test whether there is an endogenous problem, this paper used the one-period lagged as well as two-period lagged corporate financialization indicators L-FIN1 and L2-FIN1 as instrumental variables. These variables are closely related to current financial asset holdings, but are unlikely to become the main source of current environmental investment, which conforms to the definition of instrumental variables. The regression results are shown in Table 7. In the first stage of regression, the instrumental variable F value was greater than 10, indicating that there is no weak instrumental variable problem. The regression results of the second stage were consistent with the previous ones, and the allocation of corporate financial assets still produces a “crowding out” effect on environmental investment, indicating that there is no endogenous problem in the benchmark model. (2) Replace corporate financialization variables. Replace corporate financialization variables from the ratio of financial assets to total assets to the ratio of broad financial assets to total assets. That is to say, financial assets include monetary funds. (3) Replace environmental investment variables. The index of environmental investment was replaced by the natural logarithm of environmental investment for regression analysis. The regression results after the substitution of variables showed that corporate financialization was still negatively correlated with environmental investment, and financing constraints played a mediating role in the correlation between the two. The conclusion of this paper has good robustness and reliability.

Table 7. Endogeneity test based on 2SLS.

	Stage I	Stage II	Stage I	Stage II
	FIN1	EI	FIN1	EI
FIN1		−1.191 ** (−2.24)		−1.56 * (−1.87)
L-FIN1	0.790*** (16.66)			
L2-FIN1			0.656 *** (9.32)	
SOE	−0.001 (−0.11)	0.058 (0.52)	−0.005 (−0.59)	0.117 (0.79)
SIZE	0.003 (1.33)	−0.035 (−0.66)	0.004 (1.11)	

Table 7. Cont.

	Stage I	Stage II	Stage I	Stage II
	FIN1	EI	FIN1	EI
TOP1	−0.001 (−0.69)	0.005 (1.49)	−0.001 (−1.45)	0.004 (0.75)
ROA	−0.177 ** (−2.09)	2.634 ** (2.46)	−0.230 ** (−1.98)	2.975 ** (2.10)
MANRATIO	0.063 (1.19)	4.194 *** (4.08)	0.091 (1.23)	5.412 *** (4.28)
GROWTH	0.005 (0.27)	−0.159 (−0.52)	−0.014 (−0.47)	−0.221 (−0.53)
VALUE	0.004 (1.34)	−0.083 * (−1.88)	0.008 * (1.73)	−0.118 ** (−2.22)
LEVB	−0.068 *** (−3.27)	−0.609 * (−1.98)	−0.100 *** (−3.34)	−0.869 ** (−2.32)
INDUSTRY	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes
Constant	−0.019 (−0.33)	−7.478 *** (−6.23)	0.029 (0.34)	−8.042 *** (−5.38)
R-squared	0.717	0.274	0.592	0.325
Adj R-squared	0.698		0.555	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

7. Conclusions and Recommendations

This paper took the non-financial listed companies in Shanghai and Shenzhen A-share markets from 2014 to 2018 as samples, integrated corporate financialization and environmental investment into the same empirical analysis framework, and tested the effect of financialization on environmental investment and the effect of financing constraints between the two. The regression results found that financialization has a “crowding out” effect on corporate environmental investment, and that financing constraints play a mediating role in the interaction between corporate financialization and environmental investment. Corporate financialization negatively inhibits corporate environmental investment by increasing the degree of financing constraints faced by enterprises. Further research incorporated the effects of firm heterogeneity and macro factors, and divides the samples according to heterogeneity of property rights, ownership concentration, loose monetary policy leniency, and intensity of environmental regulation. The regression results showed that the inhibiting effect of corporate financialization on environmental investment was stronger among non-state enterprises, enterprises with low ownership concentration, and enterprises under loose monetary policy and strict environmental regulations.

At present, China is in a critical period of economic transformation, and excessive financialization of the real economy is not conducive to the stable and healthy development of the macro economy. In order to stop the real economy being distracted from its intended purpose, it is crucial to increase the sustainable development capacity of enterprises and help enterprises achieve green development. Therefore, based on the conclusion of this paper, the following policy suggestions are proposed: (1) Improve the financial market system. We should improve financial policies and strengthen market supervision to ensure healthy and orderly market development. Financial regulators should increase credit support for enterprises’ investment activities, and at the same time control the flow of funds to prevent financial risks. The government and relevant regulatory authorities should strengthen the guidance of credit funds and encourage financial institutions to increase credit support for environmental investment and green innovation activities. (2) Increase support for environmental investment activities of enterprises. Because the environmental

investment has positive externality, improving corporate environmental motivation and government intervention are essential. The government should improve environmental policy tools such as pollution permits. In addition, the government can also increase government subsidies and other means to encourage enterprises to fulfill their environmental responsibilities. Policy-based credit institutions that do not aim at maximizing profits should also play a role in guiding enterprises to strengthen environmental investment. Meanwhile, they should pay attention to the heterogeneity of enterprises to develop targeted policies. (3) Strengthen environmental regulations. At present, the intensity of local environmental regulation in China is still generally low, which cannot achieve the purpose of increasing enterprises' environmental investment. Environmental departments should improve relevant environmental policies and legal systems, and environmental control institutions should also strengthen the enforcement. (4) Encourage enterprises to improve their internal governance. Enterprises should strengthen internal governance to prevent the risk of excessive financialization. Enterprise managers should realize that the allocation of financial assets can also have an inhibiting effect on other types of investment, increasing the risk of business operations. Enterprises should make green and sustainable development as a strategic development goal, actively fulfill their social responsibility, and increase environmental investment.

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