Research Article

Influence Mechanism of Marketization Process and Financial Technology Development on Enterprise Investment Preference Based on Threshold Model

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This paper explores the influence mechanism of the marketization process and financial technology on corporate investment preference using panel data from 2013 to 2019 for China's A-share listed companies. The study finds that both the marketization process and FinTech can facilitate increased R&D innovation and foreign equity investment by companies but discourage investment in their fixed assets, and FinTech has a "U-shaped effect" on corporate R&D and innovation. At the same time, the marketization process and FinTech show different threshold effects on corporate investment preferences with government subsidies as the threshold variable. It is found that market-based processes in small-scale enterprises are better able to promote investment in innovative R&D by companies—the marketization process for large enterprises has a greater impact on outward equity investment in the heterogeneity analysis. From the perspective of the nature of property rights, it is found that the marketization process and FinTech have a greater impact on non-state enterprises. As a result, in an era of rapid FinTech development, this paper enriches the relevant research on the impact of the marketization process on corporate investment preferences, which has important practical significance for policy formulation and corporate future development.

1. Introduction

Since the reform and opening-up policy, the long-continued crude development model has made the industrial structure more and more irrational, and its current development is not compatible with the needs of the economy for quality development despite the fact that China has gradually developed into the world's second-largest economy. The market is the most efficient mechanism for allocating resources in economic development [1]. As a systematic reform in transition from a planned economy to a market economy, marketization is not simply changing a few rules and regulations, but a series of economic, social, legal, and other institutional changes [2]. The development of the marketization process can help to improve the efficiency of the allocation of corporate capital, reduce the inefficient investment behavior of enterprises, and enhance the

productivity of enterprises, which has a certain role in promoting enterprise performance [3–5]. In the meantime, FinTech is a key variable in determining the future transformation of the financial industry and a key link in helping the development of the real economy, and the essential purpose of FinTech is to serve the real economy. Thus, it is of great practical importance to promote innovative corporate investment and industrial structure upgrading, driven by marketization and financial technology innovation to achieve high-quality development of China's economy, as China's economy moves into a critical period of high-quality development.

Scholars have explored the impact of marketization on corporate investment preferences from different perspectives. Due to the lack of data and information on the degree of marketization, proxy variables of the degree of marketization such as order volatility, industry import penetration,

and local government incentives are used to reflect the effect of the degree of marketization on the total factor productivity of enterprises [6]. The marketization index compiled by *Fan Gang* and other scholars [7] provides a more comprehensive quantitative portrayal of the variability of the marketization process across regions of the country, facilitating research on the impact of the marketization process on resource allocation, corporate governance, capital structure, cost of equity, and other aspects. Sun et al. [8] found that the proportion of long-term liabilities to total liabilities is higher for enterprises in regions with lower marketization processes, indicating a crowding-out effect of long-term liabilities on short-term liabilities. Firth et al. [9] found that the marketization process in China has a significant effect on the likelihood of non-state enterprises to obtain bank loans. Jiang and Huang [10] found that the higher the marketization process, the faster the capital structure adjustment and the lower the degree of capital structure deviation from the target. In regions with a higher marketization process, various types of markets are more developed, contract economies are more mature, and disclosure incentives for capital market transactions are stronger, which is conducive to reducing the cost of equity capital [11]. It can be seen that the market environment has a very strong influence on firm behavior. Among them, the marketization process affecting firms' investment preferences is the focus of this paper.

With the continuous promotion of China's marketization process, it can not only stimulate the vitality of China's market economy subjects but also create an international first-class business environment for enterprises, thus enhancing the efficiency of corporate investment preferences. The behavior of corporate investment preferences not only affects the future growth value of enterprises but also affects the total level of investment in the same industry and even the entire country. Companies improve their business performance by adjusting their investment preferences to achieve their own business goals. There is a close relation between the regional marketization process and enterprises' investment preferences, and the value effect of the investment may only gradually manifest due to the improvement of the market environment when the marketization process reaches a certain level [12]. China's economy is in a critical period of transition from factor-driven quantitative speed growth to innovation-driven quality and efficiency growth, and the development of financial technology in recent years has promoted opportunities for corporate investment preferences and efficiency. Corporate investment behavior as an economic activity with a high degree of information asymmetry and outcome uncertainty has a high demand for financial capital, so the deep integration of financial capital and technological innovation is a key factor in achieving economic transformation.

With the development of the marketization process and the wide application of mathematical techniques in the field of finance, the derived financial technology brings a wide range of impacts on the economy and society. According to the discussion in the "China FinTech Ecology White Paper [13]," the application of FinTech is broadly divided into three stages: e-finance, Internet finance, and FinTech. The People's Bank of China established the Financial Technology Committee in 2017 and issued the Financial Technology (FinTech) Development Plan (2019–2021) in 2019, highlighting the key tasks of FinTech as a national strategy, which in turn accelerates the high-quality development of China's economy. With the rapid development of FinTech in the new era, academia and industry discuss the concept of FinTech from the perspectives of technology theory, institutional theory, and business model, exploring different application scenarios of FinTech. As a result, the growing awareness of FinTech has prompted financial institutions to continuously improve the quality of their services and business effectiveness, which in turn promotes the synergistic innovation and growth of financial institutions and enterprises, providing new opportunities for corporate investment preferences.

The marketization process and the development of FinTech are characterized by uncertainty and risk, which lead to problems such as low motivation of enterprises to invest and insignificant investment returns at the same time. Relying solely on market regulation will lead to a mismatch of investment resources and make it difficult to achieve the Pareto optimum of social economy, although government guidance can promote more investment activities for enterprises. Enterprises need a lot of financial support for investment. In addition to obtaining R&D funds through equity and debt financing channels, R&D subsidies from the government are also an important supplementary source for enterprises to carry out investment activities, which is of great significance in promoting enterprises to establish the concept of investment in science and technology. In the process of rapid economic development, the inherent relationship between government and enterprises has been a hot topic of academic concern. As a means of direct government regulation of the economy, government subsidies play an important role in guiding industrial development to achieve economic and social development goals [13]. The government has rarely intervened in the production activities of enterprises in China's economy since the reform and opening-up. However, local governments promote their development and innovation by subsidizing enterprises [14] based on the incentive for the development of the local economy. The debate on whether the mechanism of government subsidies on corporate investment preferences is a "crowding-in effect" or a "crowding-out effect" is still inconclusive and needs to be further explored by academics in China's marketization process and FinTech development. At present, there is no literature to analyze the difference in the effect of marketization process and FinTech on the impact of corporate investment preference from the perspective of government subsidies. This paper is devoted to an empirical study on the existence of threshold effect of marketization process and FinTech on corporate investment preference from the perspective of government subsidies.

Based on the above analysis, previous studies mainly analyze the impact of monetary policy and economic uncertainty on corporate investment preference or discuss the

impact of marketization and financial technology on corporate financing constraints. However, the internal relationship among the process of regional marketization, FinTech, and corporate investment preference are seldom discussed in the literature. What kind of investment preferences will companies tend to have in the context of the marketization process and the increasing development of financial technology in China? This paper also analyzes the heterogeneity of corporate investment preferences under different property rights nature and size structure situations. Furthermore, the mechanism of the marketization process and the role of financial technology on corporate investment preferences will be analyzed. In this regard, this paper explores the impact of the marketization process, financial technology, and government subsidies as threshold variables from the perspective of their influence on corporate investment preferences, which can help optimize corporate investment decision behavior and thus provide theoretical and practical support for micro-corporate investment preferences.

2. Theoretical Analysis and Research Hypothesis

2.1. Marketization Process and Corporate Investment Preferences. With the in-depth development of China's economic transformation, the market-oriented economic system reform plays an important role in the process of China's high-quality economic development [15]. Due to the large differences in the level of economic development across regions in China, the level of marketization in different regions is not consistent, even among different industries in the same region, and thus the marketization process plays a different role. The choice of investment method is influenced by the level of development of the external market environment in the region, among which the marketization process is an important one, and an optimized marketization process can increase the expected future return of the enterprise investment. At the same time, the management of enterprises considers investment decisions from the perspective of the most beneficial to their own development for long-term development and profitability under the scenario of continuous optimization of China's marketization process.

In the real economy, corporate managers make strategic choices among investing in R&D innovation, investing in fixed assets, and investing in foreign equity based on the premise of realistic risks and benefits of investment. When the main pressure on a company comes from the internal environment, the company is more likely to seek stable growth by expanding investment in fixed assets. However, fixed asset investment is an irreversible investment project. Once the enterprise fails to invest, the fixed asset investment will face a higher exit cost, and the sunk cost of the fixed asset investment will reach 50% of the original capital value [16]. Investment in fixed assets will correspondingly increase the capital and labor costs of the enterprise in that it needs physical assets such as fixed assets on the one hand and a corresponding increase in labor, i.e., human capital, on the

other hand, when an enterprise chooses to expand its scale. At the same time, the capital costs associated with the investment process occurring during the investment process are completely sunk with the failure of the fixed asset investment, thus reducing the willingness of companies to invest in fixed assets.

When the marketization level of the region where the enterprise is located is high, a large amount of market information will be revealed, and the enterprise can not only grasp timely and comprehensive investment information but also reduce a large amount of fixed asset investment costs, which is conducive to the choice of innovative R&D and foreign equity investment. The marketization process in different regions of China has a moderating effect on enterprises' investment preferences. When the main pressure faced by enterprises comes from the external environment, such as marketization, the higher the marketization process, the higher the autonomy of enterprises' R&D and innovation, thus prompting them to increase their R&D and innovation investment and improve their R&D and innovation efficiency. At the same time, the autonomy of enterprises makes it impossible for them to sit out the highly market-oriented process, and the only way to increase the success rate of R&D and reduce the riskiness of investment in R&D and innovation is to carry out corporate innovation activities as soon as possible. In contrast, companies choose to invest in financial assets with lower specificity and higher liquidity and face relatively lower adjustment costs and labor costs, and thus they choose to invest in financial assets over fixed assets. Based on the above discussion, this paper proposes the following hypothesis.

H1: the marketization process will prompt companies to choose to increase investment in R&D innovation and foreign equity investment and reduce investment in fixed assets.

2.2. FinTech and Corporate Investment Preferences. The financial industry is more focused on service while promoting business development. The higher level of FinTech development in a region represents a region with more and better-developed technology-based and innovative start-ups, and the more developed equity market in the region is more attractive to companies that prefer venture capital. China's financial industry is constantly changing and developing, especially the development of financial technology to promote a new vitality of the financial industry, prompting the financial industry to better serve the various needs in the market. Whether an enterprise can obtain sufficient funds to continue its own innovation depends on its own financing capacity and the effectiveness of the external financial environment. In the fierce market competition, continuous innovation drives companies to achieve high-quality development [17]. Fintech enhances financial information collection capabilities, which can reduce the information asymmetry between banks and enterprises, enhance the financing ability of enterprises, and alleviate their financial difficulties, thus helping to enhance their innovation ability [18]. Emerging financial technologies have expanded the

coverage of financial services, broadening the financing channels for enterprise technology innovation, reducing the difficulty of enterprise technology innovation financing, and improving the availability of enterprise technology innovation financing [19].

FinTech makes external financing universal and lowers the financing threshold in the financial market. The traditional service model of financial institutions mainly focuses on the hard assets available for collateralization by enterprises [20] while ignoring the importance of technology and innovation capabilities, making it difficult for enterprises with fewer hard assets but higher growth potential to obtain financing, thus hindering the innovation of the enterprise. FinTech has conducted a comprehensive sort and analysis of various financial service subjects to form an ecological map of the technology industry, expanding the coverage of financial services and lowering the access threshold of the credit market through big data, artificial intelligence, blockchain, and other technologies. Therefore, the deep integration of finance and technology creates new opportunities to better serve the real economy, helping enterprises to obtain more funds, prompting them to use more funds for expanding reproduction, and helping to stimulate the innovative investment vitality of China's enterprises.

With the development of regional technology finance, local finance and technology are becoming more and more closely integrated, helping to break the dilemma of difficult financing for enterprises. China has further restructured its economy through a series of top-level designs, laying the foundation for achieving high-quality economic development and enhancing the economic marketization process in all regions. The prosperous development of financial technology in each region in recent years has provided a new capital base for corporate R&D investment in science, technology, and investment in innovative enterprises, while the ability of science and technology innovation has a significant locational correlation, making the level of corporate R&D and innovation investment in each region increase with the improvement of the level of financial technology.

In addition, real options theory suggests that the choice to defer investment due to the presence of adjustment cost effects, coupled with financial market frictions, raises the risk of corporate investment to reduce corporate investment expenditures. In contrast, companies that focus on R&D innovation investment have more growth potential [21]. As a type of financial asset investment, external equity investment can also be regarded as a call option. With the development of financial technology, the value of the call option will be higher. Call options have an inherent advantage in terms of profit and loss, i.e., there is a lower limit of loss but no upper limit of potential gain, and companies can adjust the scale of investment at any time according to the changes in marketability, which will be positively correlated with the expected return on investment. This is because when marketization increases, foreign equity investment is motivated to some extent by the growth option effect and higher elasticity of corporate investment decisions after making them in camera. Therefore, this paper proposes the following hypothesis.

H2: the development of financial technology increases investment in R&D innovation and foreign equity investment but reduces investment in fixed assets.

2.3. Threshold Effect of Government Subsidies. According to the characteristics of the Chinese economy in transition, the marketization process is developing unevenly in different places. For enterprises, although they face the same market economy environment, the marketization process in their regions is very different, which indicates that the degree of government intervention in the economy is different [22], which affects the motivation and willingness of the government to subsidize enterprises. From the government's perspective, the greater the potential for business development in regions with lower levels of marketization, the stronger the incentive for government intervention and the greater the financial subsidies. In regions with a high degree of marketization, enterprises have obvious advantages in human resources and financial resources but have less incentive to win government financial subsidies.

Traditional financial institutions have revealed many problems in supporting corporate investment activities, including "attribute mismatch," "field mismatch," and "stage mismatch." These problems will lead to a stratification of the liquidity of financial resources and reduce the efficiency of FinTech to serve the real economy. Companies need to invest a large amount of money in the process, which often leads to financial difficulties. Fiscal incentives can mobilize the R&D efforts of companies and increase their overall investment activities. Based on the advantages of digital finance, the government uses new technologies such as cloud computing and big data to achieve integration and share data resources, which helps to promote the interactive sharing of information and alleviate the information asymmetry between the government and enterprises.

Government subsidies to companies reduce the cost of capital associated with investment projects, which is a social affirmation for companies to make them more motivated to conduct R&D. However, some studies have found that there is a "moderate interval" between government subsidies and enterprise innovation. For example, Shao and Bao [23] found that government subsidies significantly inhibit enterprise productivity improvement when they are greater than a certain threshold value. The higher the intensity of government subsidies, the stronger the incentive for enterprises to generate rent-seeking behavior, which inhibits enterprise innovation [24]. Due to limited resources, in less economically developed regions where financial accumulation is relatively backward, the government is likely to intervene and guide the investment behavior of enterprises, allowing them to focus their capital on areas with high industrial relevance, long industrial chains, and rapid economic growth, rather than encouraging them to invest in intangible assets and technology. Therefore, government intervention largely influences the investment direction and projects of enterprises. This leads to the following hypothesis.

H3: government subsidies have a threshold effect among the marketization process, FinTech, and corporate investment preferences.

3. Study Design

3.1. Data Sources. The data of the listed companies in this paper are obtained from *CSMAR* and *Wind* databases. The marketization process adopts the marketization index of each region in China compiled by Fan Gang, and the FinTech indicators are obtained from the China Digital Inclusive Finance Index prepared by the Digital Finance Research Center of Peking University as proxy variables. Due to the limitations of the availability of marketability indices in various regions of China, the data in this paper are based on the listed companies in China's Shanghai and Shenzhen markets from 2013 to 2019 as the initial sample. Data for listed companies in the ST, ∗ ST, and financial sectors as well as those with significant missing key variables within the data selection period are excluded from the sample, and all continuous variables in the sample are abbreviated at 1% level before and after data. After the above screening and collation, the final balanced panel data of 1,665 listed companies with a total of 11,655 samples are obtained.

3.2. Definitions of Variables

3.2.1. Explanatory Variable: Enterprise Investment Preferences

Corporate Investment in R&D Innovation (RD). The technological innovation investment of enterprises can be measured by two main indicators, one being the absolute indicator, i.e., total corporate R&D investment, and the other being a relative indicator, that is, the intensity of enterprise R&D investment. The investment in R&D is mainly from the reported R&D expenditure and administrative expenses by taking into account the different sizes and industry characteristics of enterprises. Therefore, it is more appropriate to use the relative indicator of R&D investment intensity, i.e., the ratio of enterprise R&D investment to enterprise business revenue, which is obtained from the "R&D expenditure" of the Wind database.

Enterprise Fixed Asset Investment (PE). It reflects the change in the cost of fixed assets over a period of time, which is shown on the balance sheet of the enterprise as "net fixed assets" and can be expressed by the change in the value of this indicator. Considering differences in company size, this paper uses relatively fixed asset investment (the ratio of net fixed assets to company operating income) as a measure.

Corporate Foreign Equity Investments (EQ). In this paper, foreign equity investment refers to the act of enterprises to invest capital directly in other enterprises, holding or participating in other companies through mergers and acquisitions, restructuring, and other equity transactions or cash transactions. At the same time, considering the level of change in the scale of corporate foreign investment under the fluctuation of performance, this paper chooses the

amount of change in corporate long-term equity investment to measure the level of corporate equity investment, which is expressed as equity investment intensity (the ratio of equity investment to corporate operating income).

3.2.2. Explanatory Variables: Marketization Process (Market). The marketization process in this paper is mainly derived from the marketization index reported by Fan et al. [24], which includes data on five main aspects, that is, the relationship among the government and the market, the development of the non-state economy, the development of product markets, the development of factor markets, the development of market intermediary organizations, and the legal institutional environment. From the component content of the marketization index, it can reflect the marketization process in the previous theoretical analysis and can be used to reflect the marketization degree of each province.

Financial Technology (FinTech). Referring to the studies of Guo et al. [25], the Peking University Digital Inclusive Finance Index is selected as a proxy variable to reflect the level of FinTech. The index system assigns corresponding weights to 33 specific subindicators after dimensionless processing, measuring them in terms of coverage breadth and usage depth, and finally constituting the Digital Inclusive Finance Index. Considering that the data of the Digital Inclusion Index are objective, comprehensive, and robust, this paper selects the Digital Inclusion Index from 2013 to 2019 to measure the degree of FinTech development. In order to narrow down the order of magnitude differences between the FinTech development degree indicator and other indicators, this paper divides the indicator by 100 in the empirical analysis, and the final robustness test is performed by using the breadth of financial coverage (FinTech1) and the depth of use (FinTech2).

3.2.3. Threshold Variables

Government Subsidies (Sub). Total government subsidies from companies outside of operations are expressed by using the logarithm of government subsidies in non-operating income plus one.

3.2.4. Control Variables. In this paper, the specific control variables are enterprise size (Size), asset-liability ratio (Lev), financing size (Loan), growth rate (Growth), liquidity ratio (Quick), management fee rate (Adm), current asset turnover ratio (Lart), and equity concentration (Top5). This paper also controls for the year (Year) and area effect (City) fixed effects, as shown in Table 1 for specific variable explanations.

3.3. Model Construction

3.3.1. Basic Panel Data Model. Since the corporate investment data exhibit right-skewed characteristics, they also have a mixture of zero-valued stacking and positive continuous distribution coexistence. Therefore, in order to test

TABLE 1: Definition of main variables.

Variable classification	Variable name	Variable symbols	Variable definition
Explained variables	R&D innovation investment	RD	Total R&D expenditure/operating revenue
	Fixed asset investment	PE	Net fixed assets/operating income
	Foreign equity investment	EQ	Long-term equity investments/operating income
Explanatory variables	Marketization process	Market	Using the total marketization index of each province as disclosed in the China Marketization Index by Province report compiled by Fan Gang et al.
	Financial technology	Fintech	Digital Inclusive Finance Index/100
Threshold variables	Government compensation	Sub	(Government subsidies + 1) take the natural logarithm
Control variables	Enterprise size	Size	(Total assets + 1) as natural logarithm
	Gearing ratio	Lev	Total liabilities/total assets
	Financing size	Loan	Corporate borrowings/total assets
	Growth rate	Growth	Revenue from main business/total assets
	Current ratio	Quick	Current assets/current liabilities
	Management fee rate	Adm	Administrative expenses/operating income
	Current asset turnover ratio	Lart	Net operating income/average total current assets
	Shareholding concentration	Top5	The sum of the shareholdings of the top five shareholders
	Year	Year	Year dummy variable
	Industry	Ind	Industry dummy variable

the validity of the previously stated hypotheses, the tobit model is used to test the investment preferences of companies separately. Models (1)–(3) examine the effects of the marketization process on corporate investment in fixed assets, R&D investment, and foreign equity investment for testing H1.

$$RD = \alpha_0 + \alpha_1 \text{Market}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} \quad (1)$$
$$+ \alpha_8 \text{Lart}_{it} + \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it},$$

$$PE = \alpha_0 + \alpha_1 \text{Market}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} \quad (2)$$
$$+ \alpha_8 \text{Lart}_{it} + \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it},$$

$$EQ = \alpha_0 + \alpha_1 \text{Market}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} \quad (3)$$
$$+ \alpha_8 \text{Lart}_{it} + \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it}.$$

Among them, equations (1)–(3) take the enterprise R&D innovation investment, the enterprise fixed asset investment, and the enterprise external equity investment as the explained variables, respectively.

Models (4)–(6) mainly examine the impact of financial technology development on corporate investment preferences and are used to test H2. The model settings are as follows:

$$RD = \alpha_0 + \alpha_1 \text{Fintech}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} + \alpha_8 \text{Lart}_{it} \quad (4)$$
$$+ \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it},$$

$$PE = \alpha_0 + \alpha_1 \text{Fintech}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} + \alpha_8 \text{Lart}_{it} \quad (5)$$
$$+ \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it},$$

$$EQ = \alpha_0 + \alpha_1 \text{Fintech}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 \text{Lev}_{it} + \alpha_4 \text{Loan}_{it}$$
$$+ \alpha_5 \text{Growth}_{it} + \alpha_6 \text{Quick}_{it} + \alpha_7 \text{Adm}_{it} + \alpha_8 \text{Lart}_{it} \quad (6)$$
$$+ \alpha_9 \text{top5}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it},$$

where the subscripts i and t represent the company and year, respectively, Year and Ind represent year effect and industry effect, respectively, α_0 is the intercept, and ε_{it} denotes the random error.

3.3.2. Threshold Model Construction. This paper attempts to explore the trend of government-directed corporate investment in a market environment and FinTech scenario by using the government subsidies as a threshold variable in that both the marketization process and FinTech have a variable impact on corporate investment preferences in the presence of government subsidies, i.e., there is a non-linear relationship, showing the characteristics of a segmented function. Therefore, a non-linear adjustment mechanism is introduced in the model, which is consistent with the dynamic changes that characterize the gradual adjustment of most economic variables in reality. To this end, drawing on the idea of the threshold regression model [26], which can be used to analyze various economic problems [27, 28], model (6) used in the study is obtained by using corporate investment preference as the explanatory variable, the marketization process and financial technology as the key explanatory variables, and government subsidies as the threshold variables. Where i denotes the company, t denotes the year, γ is the unknown true threshold, and ε_{it} is a random disturbance term with independent identical distribution. Sub_{it} is divided into multiple intervals by the estimated threshold $\widehat{\gamma}$ obtained from the threshold regression analysis method, and then we discuss the influence mechanism of marketization process and Fintech on corporate investment preference in each interval.

$$\text{RD}_{it}/\text{PE}_{it}/EQ_{it} = \begin{cases} \alpha_i + \dfrac{\beta_1 \text{Market}_{it}}{\text{Fintech}_{it}} + \varepsilon_{it}, & \text{Sub}_{it} \leq \gamma \\[2mm] \alpha_i + \dfrac{\beta_2 \text{Market}_{it}}{\text{Fintech}_{it}} + \varepsilon_{it}, & \text{Sub}_{it} > \gamma \end{cases} \quad (7)$$

For a clearer representation, a threshold model can also be constructed on the basis of models (1)–(6), as shown in (10) and (11).

$$\begin{aligned} \text{RD}_{it}/\text{PE}_{it}/\text{EQ}_{it} = {} & \alpha_{0+}\alpha_1 \text{Market}_{it} \times I\text{Sub}_{it} \leq \gamma + \alpha_2 \times \text{Market}_{it} \\ & \times I\left(\text{Sub}_{it} > \gamma\right) + \alpha_3 \text{Control}_{it} + \sum \text{Year} \\ & + \sum \text{Ind} + \varepsilon_{it}, \end{aligned}$$

$$(8)$$

$$\begin{aligned} \text{RD}_{it}/\text{PE}_{it}/\text{EQ}_{it} = {} & \alpha_{0+}\alpha_1 \text{Fintech}_{it} \times I\text{Sub}_{it} \leq \gamma \\ & + \alpha_2 \text{Fintech}_{it} \times I\left(\text{Sub}_{it} > \gamma\right) \\ & + \alpha_3 \text{Control}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it}, \end{aligned}$$

$$(9)$$

where I is a schematic function that takes the value of 1 when the conditions in parentheses are satisfied and 0 when they are not.

The above threshold model assumes that only a unique threshold exists, while in the actual situation there may be two or more thresholds, so the dual threshold regression model is set in this paper as follows:

$$\begin{aligned} \text{RD}_{it}/\text{PE}_{it}/EQ_{it} = {} & \alpha_{0+}\alpha_1 \text{Market}_{it} \times I\text{Sub}_{it} \leq \gamma_1 + \alpha_2 \text{Market}_{it} \\ & \times I\gamma_1 < \text{Sub}_{it} \leq \gamma_2 + \alpha_3 \text{Market}_{it} \times I\left(\text{Sub}_{it} > \gamma_2\right) \\ & + \alpha_4 \text{Control}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it}, \\[2mm] \text{RD}_{it}/\text{PE}_{it}/EQ_{it} = {} & \alpha_{0+}\alpha_1 \text{Fintech}_{it} \times I\text{Sub}_{it} \leq \gamma_1 + \alpha_2 \text{Fintech}_{it} \\ & \times I\gamma_1 < \text{Sub}_{it} \leq \gamma_2 + \alpha_3 \text{Fintech}_{it} \times I\left(\text{Sub}_{it} > \gamma_2\right) \\ & + \alpha_4 \text{Control}_{it} + \sum \text{Year} + \sum \text{Ind} + \varepsilon_{it}, \end{aligned}$$

$$(10)$$

where $\gamma_1 < \gamma_2$. Other multiple threshold models can be extended on the basis of single and double-threshold models, which are not described in this paper. At the same time, Hansen [26] argues that the estimation of a threshold effects model for panel data should be carried out in two steps.

Step 1. The value of γ is estimated. The estimated value of each coefficient and the residual sum of squares of the model $S_1(\gamma)$ are obtained by least squares. For $\gamma \in \{q_{it}: 1 < i < n, 1 < t < T\}$, the equation is the optimal regression model when the chosen $\widehat{\gamma}$ makes the smallest $S_1(\gamma)$, i.e., the estimated γ is closer to the true threshold level. Therefore, to test whether there is a threshold effect, the original hypothesis $H_0: \beta_1 = \beta_2$ can be made, and if the original hypothesis holds, there is no threshold effect; the alternative hypothesis corresponding to this is $H_1: \beta_1 \neq \beta_2$, there is a threshold effect, and the test statistic is

$$F_1(\gamma) = \frac{S_0 - S_1(\widehat{\gamma})}{\widehat{\delta}^2} = \frac{S_0 - S_1(\widehat{\gamma})}{S_1(\widehat{\gamma})/\left[n(T-1)\right]}, \quad (11)$$

where S_0 is the sum of squared residuals obtained under the original hypothesis H_0 (when there is no threshold effect), S_1 is the sum of squared residuals obtained under the alternative hypothesis H_1 (when there is a threshold effect), and $\widehat{\delta}^2$ is a consistent estimate of the variance of the perturbation term. In this paper, Bootstrap is used to obtain the asymptotic distribution and then construct a valid p value to determine whether the null hypothesis is rejected. It is clear that the null hypothesis should be rejected when $F_1(\gamma)$ exceeds the critical value for a given significance level.

Step 2. If the result of the first step is to determine the existence of a threshold effect, then a significance test for the original hypothesis $H_0: \widehat{\gamma} = \gamma$ is also required. This can be done by constructing the likelihood ratio statistic for this test (Hansen, 1999), where the likelihood ratio statistic is

$$\text{LR}_1(\gamma) = \frac{S_1(\gamma) - S_1(\widehat{\gamma})}{\widehat{\delta}^2}. \quad (12)$$

At significance level α, when $\text{LR}_1(\gamma_0) < c(\alpha)$, where $c(\alpha) = -2\text{aln}\left(1 - \sqrt{1-\alpha}\right)$, then the original hypothesis

cannot be rejected, i.e., the estimated threshold value is the true threshold value.

4. Empirical Results and Analysis

4.1. Descriptive Analysis. Table 2 shows the descriptive statistical analysis of each variable. It can be seen that the mean value of PE of corporate fixed assets investment is 0.479, and the average values of RD and EQ of corporate are 0.044 and 0.076, respectively, thus indicating that the percentage of fixed assets investment of listed companies in China is relatively high. However, the standard deviation of PE for enterprises is 0.462, which indicates that the amount of investment in fixed assets varies significantly among enterprises, and the standard deviation of investment in fixed assets is significantly larger than that of investment in R&D innovation and foreign equity investment.

4.2. Correlation Analysis. According to the correlation coefficients between the main explanatory variables and the explained variables in Tables 3–5, it can be seen that the correlation coefficient among corporate R&D innovation investment RD, marketization process, and financial technology is positive, and it is significant at 1% confidence level. However, the correlation coefficients among PE, marketization process, and financial technology are all negative and significant at 1% confidence level. Corporate foreign equity investment EQ, on the other hand, is significantly and positively correlated with the marketization process and FinTech. From the remaining control variables, the correlation coefficients between the variables are small. There is basically no multicollinearity problem among the variables, and the selected variables are reasonable.

4.3. Basic Panel Model Regression Results. This paper analyzes the relationship between the marketization process and enterprises' investment preferences by focusing on the positive and negative signs and significance levels of the coefficients of the marketization process in models (1)–(3). From the results in columns (1)–(3) of Table 6, it is easy to find that all three types of corporate investment are significant, but the regression coefficients of marketization process, corporate R&D investment RD, and corporate foreign equity investment EQ are positive, that is, they are positively correlated with each other. The regression coefficient between the marketization process and enterprises' investment in fixed assets PE is negative, which means that companies tend to choose investment in R&D and foreign equity to reduce their investment in fixed assets under the marketization process. This may be due to the existence of high adjustment costs or high waiting values for fixed asset investments, so enterprises choose to reduce or defer investments in fixed asset projects, thus proving hypothesis H1 in this paper.

The impact of FinTech development on enterprises' investment preferences is analyzed by using models (4)–(6), and the regression results are shown in columns (4)–(6) of Table 6. It can be seen that the positive impact brought by FinTech development is the same as that of the marketization process, and the development of FinTech has a significant promotion effect on corporate R&D investment and foreign equity investment, and it will restrain fixed asset investment, thus proving hypothesis H2 in this paper.

From the control variables of the empirical results, it can be found that the enterprise size, the financing scale, and the management fee rate have a positive impact on the investment preference of the enterprise, and the asset-liability ratio has a negative correlation with the investment preference of the enterprise. Enterprise growth and asset liquidity have a negative impact on fixed asset investment and external equity investment, but they have a positive impact on enterprise innovation. At the same time, stronger current asset turnover is conducive to increased investment in fixed assets and foreign equity investment, but it is not conducive to enterprise's investment in R&D. Equity concentration is beneficial to fixed asset investment but negatively related to R&D investment and foreign equity investment.

4.4. Threshold Model and Result Analysis. According to the threshold regression model, regression analysis was carried out on the panel data of 1665 listed companies from 2013 to 2019. Based on the determination of the threshold existence and the number of thresholds in this paper, the significance of the threshold effect is tested using the 300 iterative sampling method (Bootstrap), as shown in Table 7. It can be seen that the marketization process and FinTech show different threshold effects on firms' investment when government subsidies are used as threshold variables. Government subsidies are a means for the government to influence enterprise investment. Enterprises combine their own benefits and future development to allocate government subsidies to different investment projects to promote enterprises to invest more reasonably in the process of the market environment and the development of financial technology. Therefore, government subsidies have different impacts on corporate investment at different stages of marketization and FinTech development.

To test whether the threshold estimates obtained in this paper are equal to the true values, the confidence intervals corresponding to each threshold estimate shown in Table 8 are obtained by using the repeated sampling method. It can be found that the estimated threshold value falls in the corresponding confidence interval, and thus government subsidies have a threshold effect, which verifies hypothesis H3.

Once the threshold has been determined, the coefficients of the statistics in the model need to be estimated in segments. Therefore, this paper uses government subsidies as the threshold for regression analysis, and the results are shown in Table 9.

It can be found that there is a single-threshold effect of the marketization process on R&D innovation when government subsidies are used as the threshold variables. When the government subsidy is less than the first threshold, the promotion effect of the marketization process on R&D innovation investment is insignificant, but the promotion

TABLE 2: Descriptive analysis of variables.

Variable	Obs	Mean	Std. Dev.	Min	Max	$p1$	p99	Skew.	Kurt.
RD	11655	0.044	0.043	0	0.25	0	0.25	2.407	10.367
PE	11655	0.479	0.462	0	2.812	0.011	2.774	2.42	10.698
EQ	11655	0.076	0.167	0	1.078	0	1.078	3.947	20.679
Market	11655	8.758	1.796	3.49	11.639	3.63	11.639	−0.584	2.786
Fintech	11655	2.21	0.48	1.228	3.086	1.228	3.086	−0.048	2.031
Sub	11655	0.005	0.005	0	0.032	0	0.032	2.673	12.027
Size	11655	22.353	1.257	19.581	26.179	20.122	26.179	0.728	3.446
Lev	11655	42.143	19.835	5.642	88.793	5.747	88.753	0.219	2.267
Loan	11655	0.146	0.133	0	0.526	0	0.521	0.794	2.851
Growth	11655	0.609	0.382	0.092	2.293	0.094	2.293	1.892	7.883
Quick	11655	2.304	2.164	0.337	14.644	0.337	14.431	3.226	15.962
Adm	11655	10.868	7.694	1.256	45.591	1.256	45.278	1.992	8.238
Lart	11655	1.266	0.874	0.185	5.095	0.192	5.095	1.994	8.03
Top5	11655	51.364	14.951	19.52	91.71	19.52	87.62	0.147	2.605

effect is found to be significantly positive when the government subsidy crosses the first threshold. The marketization process has a double-threshold effect on enterprise fixed asset investment when government subsidies are the threshold variables, with overall disincentives to investment in fixed assets. The inhibitory effect of different threshold ranges is also different, showing a jumping inhibitory effect on the whole. The marketization process has a single-threshold effect on outward equity investment when the government is the threshold variable, the promotion effect is not linear but non-linear, and the promotion effect is different for each threshold interval.

There is a double-threshold value of FinTech on corporate R&D innovation investment when government subsidies are the threshold variables, and there is a non-significant contribution of FinTech to corporate R&D innovation investment when government subsidies do not cross the first threshold. The coefficient of FinTech becomes positive when government subsidies are between the first and second thresholds, and the facilitation effect is not significant. When government subsidies cross the second threshold, FinTech is found to have a significant contribution to corporate R&D innovation. It can be seen that when government subsidies are used as the threshold variables, FinTech has a "U-shaped effect" on R&D innovation. FinTech also has a double threshold for corporate fixed asset investment when government subsidies are the threshold variables, and the inhibitory effect is different in different threshold intervals, showing an overall decreasing inhibitory effect. The reason may be that FinTech development encourages enterprises to expand, such as purchasing fixed equipment and factories, so as to appropriately increase some fixed asset investment. When government subsidy is the threshold variable, financial technology presents a single threshold for foreign equity investment. It can be seen that as government subsidies cross the first threshold, the promotion effect of financial technology on foreign equity investment decreases. The reason for this may be that FinTech development is more focused on technological advancements and the impact on companies acts more on their investment in R&D and innovation.

4.5. Heterogeneity Analysis

4.5.1. Impact of Differences in Enterprise Scale. Due to the different scales of enterprises, there are great differences in their internal control, talent advantage, managerial ability, and government support. In the process of marketization, large-scale enterprises have the advantage of talent and greater government support, and they will make more rapid, professional, and appropriate investment choices than small-scale enterprises. In this paper, referring to the method of Ping [29], the full sample is divided into two groups by using the mean value of enterprise scale (Size) of 22.352, and the sample companies with Size greater than 22.352 are considered as large-scale companies, and those with Size less than 22.352 are considered as small-scale companies, and the regressions are conducted on the two groups of samples using models (1)–(6), and the results are shown in Tables 10 and 11. From the regression results, it can be found that small-scale companies are more likely to promote corporate R&D investment, but large-scale companies have a greater impact on foreign equity investment during the marketization process. The reason may be that large-scale companies tend to be mature in their own technology and management and are more inclined to expand externally, which will lead to the above phenomena. At the same time, under the circumstance of different scales of enterprises, FinTech can promote R&D and innovation investment and foreign equity investment while inhibiting fixed asset investment.

4.5.2. Differences in the Nature of Property Rights. This paper analyzes the heterogeneity of enterprises based on the nature of their property rights into state-owned and non-state-owned enterprises. This is because state-owned enterprises are larger in quantity and scale than non-state-owned enterprises and the investment behavior of state-owned enterprises is often guided by policy and has better operational stability. It can be seen that the marketization process and FinTech have less impact on state-owned enterprises, while non-state-owned enterprises are more affected by marketization and FinTech. To verify the effect of heterogeneity in the nature of enterprise ownership,

TABLE 3: Correlation analysis of corporate R&D innovation investment.

Variable	RD	Market	Fintech	Sub	Size	Lev	Loan	Growth	Quick	Adm	Lart	Top5
RD	1											
Market	0.130***	1										
Fintech	0.127***	0.567***	1									
Sub	-0.045***	0.024**	0.185***	1								
Size	-0.261***	0.0120	0.194***	0.678***	1							
Lev	-0.323***	-0.104***	0.025***	0.351***	0.533***	1						
Loan	-0.265***	-0.143***	-0.049***	0.223***	0.326***	0.704***	1					
Growth	-0.311***	0.022**	-0.025***	0.130***	0.091***	0.181***	0.050***	1				
Quick	0.311***	0.048***	-0.060***	-0.276***	-0.365***	-0.664***	-0.486***	-0.188***	1			
Adm	0.723***	0.072***	0.088***	-0.167***	-0.335***	-0.315***	-0.258***	-0.468***	0.292***	1		
Lart	-0.361***	-0.064***	-0.056***	0.196***	0.245***	0.225***	0.222***	0.765***	-0.314***	-0.454***	1	
Top5	-0.118***	0.022**	-0.076***	0.114***	0.222***	0.00500	-0.042***	0.066***	0.044***	-0.133***	0.106***	1

Table 4: Correlation analysis of enterprise fixed asset investment.

Variable	PE	Market	Fintech	Sub	Size	Lev	Loan	Growth	Quick	Adm	Lart	Top5
PE	1											
Market	−0.163***	1										
Fintech	−0.106***	0.567***	1									
Sub	0.018***	0.024**	0.185***	1								
Size	0.054***	0.0120	0.194***	0.678***	1							
Lev	0.046***	−0.104***	0.025***	0.351***	0.533***	1						
Loan	0.236***	−0.143***	−0.049***	0.223***	0.326***	0.704***	1					
Growth	−0.409***	0.022**	−0.025***	0.130***	0.091***	0.181***	0.050***	1				
Quick	−0.071***	0.048***	−0.060***	−0.276***	−0.365***	−0.664***	−0.486***	−0.188***	1			
Adm	0.185***	0.072***	0.088***	−0.167***	−0.335***	−0.315***	−0.258***	−0.468***	0.292***	1		
Lart	−0.073***	−0.064***	−0.056***	0.196***	0.245***	0.225***	0.222***	0.765***	−0.314***	−0.454***	1	
Top5	0.025***	0.022**	−0.076***	0.114***	0.222***	0.00500	−0.042***	0.066***	0.044***	−0.133***	0.106***	1

TABLE 5: Correlation analysis of enterprises' foreign equity investment.

Variable	EQ	Market	Fintech	Sub	Size	Lev	Loan	Growth	Quick	Adm	Lart	Top5
EQ	1											
Market	0.043***	1										
Fintech	0.094***	0.567***	1									
Sub	−0.0140	0.024**	0.185***	1								
Size	0.093***	0.0120	0.194***	0.678***	1							
Lev	−0.025***	−0.104***	0.025***	0.351***	0.533***	1						
Loan	0.042***	−0.143***	−0.049***	0.223***	0.326***	0.704***	1					
Growth	−0.257***	0.022**	−0.025***	0.130***	0.091***	0.181***	0.050***	1				
Quick	−0.037***	0.048***	−0.060***	−0.276***	−0.365***	−0.664***	−0.486***	−0.188***	1			
Adm	0.190***	0.072***	0.088***	−0.167***	−0.335***	−0.315***	−0.258***	−0.468***	0.292***	1		
Lart	−0.122***	−0.064***	−0.056***	0.196***	0.245***	0.225***	0.222***	0.765***	−0.314***	−0.454***	1	
Top5	−0.040***	0.022**	−0.076***	0.114***	0.222***	0.00500	−0.042***	0.066***	0.044***	−0.133***	0.106***	1

TABLE 6: Baseline regression results.

Variables	(1) RD	(2) PE	(3) EQ	(4) RD	(5) PE	(6) EQ
Market	0.000***	−0.018***	0.005***			
	(2.88)	(−8.45)	(4.16)			
Fintech				0.009***	−0.227***	0.059***
				(7.05)	(−13.46)	(6.25)
Size	0.003***	−0.007*	0.045***	0.003***	−0.004	0.044***
	(11.11)	(−1.87)	(22.33)	(10.70)	(−1.18)	(22.03)
Lev	−0.000***	−0.001***	−0.002***	−0.000***	−0.001***	−0.002***
	(−9.76)	(−3.94)	(−10.91)	(−10.14)	(−3.10)	(−11.38)
Loan	0.008***	0.625***	0.140***	0.009***	0.597***	0.148***
	(2.75)	(16.10)	(6.54)	(3.14)	(15.42)	(6.86)
Growth	0.009***	−0.757***	−0.135***	0.008***	−0.747***	−0.137***
	(7.02)	(−47.38)	(−15.22)	(6.56)	(−46.92)	(−15.48)
Quick	0.001***	−0.009***	−0.013***	0.001***	−0.008***	−0.013***
	(6.46)	(−4.35)	(−10.22)	(6.24)	(−3.86)	(−10.45)
Adm	0.004***	0.010***	0.005***	0.004***	0.011***	0.005***
	(85.25)	(17.99)	(15.35)	(84.48)	(19.06)	(14.81)
Lart	−0.003***	0.194***	0.029***	−0.003***	0.191***	0.029***
	(−5.99)	(27.26)	(7.35)	(−5.71)	(26.97)	(7.50)
Top5	−0.000**	0.001***	−0.001***	−0.000***	0.001***	−0.001***
	(−2.34)	(4.38)	(−8.77)	(−2.72)	(4.86)	(−8.96)
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.039***	0.704***	−0.839***	−0.047***	0.856***	−0.878***
	(−6.66)	(9.08)	(−19.43)	(−7.86)	(10.90)	(−19.96)
Observations	11,655	11,655	11,655	11,655	11,655	11,655

Note. t values are given in parentheses; ***, **, and * indicate significance at 1%, 5%, and 10% significance levels, respectively.

TABLE 7: Results of the threshold effect existence test.

Explained variables	Explanatory variables	Number of thresholds	F value	P value	Number of BS	1% threshold	5% threshold	10% threshold
RD		Single threshold	26.76	0.003	300	23.078	17.038	13.858
		Double threshold	12.27	0.110	300	21.460	15.134	13.140
		Single threshold	24.27	0.0067	300	22.3102	16.2712	13.9878
PE	Market	Double threshold	20.97	0.0033	300	17.9470	14.5087	13.0041
		Three-fold threshold	7.35	0.5267	300	26.8050	16.2757	13.6322
EQ		Single threshold	26.72	0.0033	300	21.1185	16.7084	14.0675
		Double threshold	8.15	0.360	300	19.5675	16.0810	13.0347
RD		Single threshold	36.29	0.000	300	24.2736	16.6209	13.9040
		Double threshold	20.05	0.0300	300	24.3189	16.4060	13.7580
		Three-fold threshold	10.61	0.5667	300	33.5722	24.2622	20.6943
PE	Fintech	Single threshold	28.93	0.000	300	22.3640	17.0623	14.2065
		Double threshold	18.57	0.0333	300	21.8480	17.2325	13.4317
		Three-fold threshold	5.62	0.6767	300	26.4968	18.9807	15.2874
EQ		Single threshold	34.27	0.000	300	24.5675	18.0243	15.0492
		Double threshold	8.84	0.3167	300	22.3521	17.2186	14.5723

subsample regressions of SOEs and non-SOEs are conducted by using models (1)–(6), and the regression results are shown in Tables 12 and 13.

From Table 12, it can be found that the marketization process promotes the foreign equity investment of state-owned enterprises to reduce investment in fixed assets and has no significant impact on their R&D innovation.

Conversely, in Table 13, non-SOEs tend to invest in R&D innovation and reduce investment in fixed assets and have an insignificant impact on foreign equity investment. Fin-Tech has a significant boosting effect on R&D innovation in non-state enterprises, while it has a significant dampening effect on fixed asset investment in both state and non-state enterprises, and it can promote foreign equity investment. It

TABLE 8: Threshold estimates and confidence intervals.

Explained variables	Explanatory variables	Threshold value	Estimated value	95% confidence interval
RD		Threshold I	16.9459	[16.84,16.95]
PE	Market	Threshold I	16.6039	[16.53,16.61]
		Threshold II	18.6508	[18.59,18.67]
EQ		Threshold I	15.5931	[15.49,15.60]
RD		Threshold I	15.9957	[17.02,17.06]
		Threshold II	17.0560	[15.84,16.00]
PE	Fintech	Threshold I	16.6039	[16.53,16.61]
		Threshold II	18.6508	[18.55,18.67]
EQ		Threshold I	15.5931	[15.49,15.60]

TABLE 9: Threshold effect regression results.

Variables	(1) RD	(2) PE	(3) EQ	(4) RD	(5) PE	(6) EQ
Market _×_ sub	0.000	−0.034***	0.014***			
	(0.71)	(−10.12)	(8.70)			
Market _×_ sub	0.000*	−0.031***	0.013***			
	(1.71)	(−9.34)	(7.87)			
Market _×_ sub		−0.026***				
		(−7.30)				
Fintech_×_ sub				−0.000	−0.054***	0.033***
				(−0.92)	(−9.20)	(10.80)
Fintech_×_ sub				0.000	−0.042***	0.025***
				(0.94)	(−7.26)	(9.05)
Fintech_×_ sub				0.001***	−0.023***	
				(3.09)	(−3.29)	
Control	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.088***	1.568***	−0.170***	−0.077***	1.385***	−0.016
	(−9.83)	(13.51)	(−3.04)	(−7.69)	(10.89)	(−0.27)
Observations	11,655	11,655	11,655	11,655	11,655	11,655
R-squared	0.340	0.273	0.090	0.342	0.271	0.093
Number of code	1,665	1,665	1,665	1,665	1,665	1,665
r2_a	0.230	0.151	−0.0630	0.232	0.149	−0.0596
F	515.0	340.6	98.35	471.7	337.8	101.9

TABLE 10: Regression results for large-scale companies.

Variables	(1) RD	(3) PE	(5) EQ	(7) RD	(9) PE	(11) EQ
Market	0.000	−0.027***	0.006***			
	(0.86)	(−8.00)	(3.62)			
Fintech				0.005***	−0.205***	0.046***
				(3.15)	(−7.47)	(3.66)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.036***	0.679***	−0.838***	0.031***	0.697***	−0.845***
	(3.64)	(4.28)	(−11.51)	(3.15)	(4.37)	(−11.56)
Observations	5,119	5,119	5,119	5,119	5,119	5,119

can be seen that the marketization process and financial technology have a greater impact on the R&D and innovation investment of non-state-owned enterprises. The reason may be that state-owned enterprises have natural advantages in ownership and can obtain more convenience in financing. However, non-state-owned enterprises often encounter "revolving doors" and "spring doors" in the financing process. Therefore, the development of the marketization process can reduce the threshold of non-state-owned financing, enhancing its accessibility and promoting investment in R&D and innovation.

5. Robustness Tests

5.1. Substitution of Variables. In this paper, the four provinces of Jiangsu, Zhejiang, Shanghai, and Guangdong, which

TABLE 11: Regression results for small-scale enterprises.

Variables	(1) RD	(3) PE	(5) EQ	(7) RD	(9) PE	(11) EQ
Market	0.001***	−0.008***	0.004***			
	(3.25)	(−3.20)	(2.59)			
Fintech				0.011***	−0.232***	0.072***
				(6.20)	(−11.27)	(5.18)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.174***	1.857***	−0.799***	−0.185***	2.096***	0.871***
	(−12.02)	(11.38)	(−7.20)	(−12.65)	(12.84)	(7.76)
Observations	6,536	6,536	6,536	6,536	6,536	6,536

TABLE 12: Regression results for state-owned enterprises.

Variables	(1) RD	(3) PE	(5) EQ	(7) RD	(9) PE	(11) EQ
Market	0.000	−0.016***	0.010***			
	(0.28)	(−4.51)	(6.10)			
Fintech				0.003	−0.112***	0.082***
				(1.49)	(−3.98)	(6.11)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.011	0.610***	−0.673***	0.008	0.667***	−0.720***
	(1.30)	(4.93)	(−11.39)	(0.97)	(5.28)	(−11.91)
Observations	4,403	4,403	4,403	4,403	4,403	4,403

TABLE 13: Regression results for non-state-owned enterprises.

Variables	(1) RD	(3) PE	(5) EQ	(7) RD	(9) PE	(11) EQ
Market	0.001***	−0.017***	0.002			
	(2.45)	(−6.40)	(1.21)			
Fintech				0.012***	−0.296***	0.043***
				(6.85)	(−14.04)	(3.26)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.087***	0.988***	−0.901***	−0.099***	1.260***	−0.946***
	(−10.15)	(9.27)	(−13.74)	(−11.39)	(11.75)	(−14.15)
Observations	7,252	7,252	7,252	7,252	7,252	7,252
F	.	.	.	.	.	.

ranked in the top five consecutively from 2013 to 2019, are taken as regions with a high marketization process with a value of 1, while the remaining provinces are taken as regions with a low marketization process with a value of 0 [32]. The regression analysis is performed by using the breadth of coverage (FinTech1) as well as the depth of use (FinTech2). The empirical results are shown in Table 14. The conclusions are also consistent with the previous results, indicating that the conclusions of this paper are robust.

5.2. Endogeneity Test. In order to avoid possible endogeneity problems in this paper, the robustness tests of the regressions are conducted with a one-period lag between the marketization process and FinTech in this paper, and the

results are shown in Table 15. From the regression results, it is also found that the marketization process and financial technology can promote corporate research, innovation investment, and foreign equity investment, to reduce fixed asset investment. The main findings of this paper have not changed, and the hypotheses are further tested.

6. Research Conclusions

This paper empirically explores the intrinsic impact mechanisms of the marketization process and financial technology on enterprises' investment preferences by using China's Shanghai and Shenzhen A-share listed companies from 2013 to 2019. The study finds that both the marketization process and FinTech have positive effects on

TABLE 14: Regression results of replacement variables.

Variables	(1) RD	(2) PE	(3) EQ	(4) RD	(5) PE	(6) EQ	(7) RD	(8) PE	(9) EQ
Market	0.002*** (3.43)	-0.036*** (-5.20)	0.011*** (2.82)						
FinTech1				0.007*** (6.87)	-0.173*** (-13.35)	0.041*** (5.71)			
FinTech2							0.007*** (6.21)	-0.165*** (-11.55)	0.053*** (6.74)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.034*** (-5.78)	0.625*** (8.13)	-0.819*** (-19.19)	-0.043*** (-7.39)	0.769*** (9.96)	-0.851*** (-19.72)	-0.045*** (-7.52)	0.792*** (10.13)	-0.875*** (-20.05)
Observations	11,655	11,655	11,655	11,655	11,655	11,655	11,655	11,655	11,655

TABLE 15: Results of one-period lagged regression of explanatory variables.

Variables	(1) RD	(3) PE	(5) EQ	(7) RD	(9) PE	(11) EQ
L.Market	0.000***	−0.020***	0.004***			
	(2.58)	(−8.42)	(3.32)			
L.FinTech				0.009***	−0.251***	0.064***
				(6.37)	(−13.23)	(6.05)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.045***	0.690***	−0.881***	−0.053***	0.859***	−0.931***
	(−7.08)	(8.07)	(−18.35)	(−8.19)	(9.92)	(−19.01)
Observations	9,990	9,990	9,990	9,990	9,990	9,990

enterprises' innovation R&D investment and equity investment, while they have negative effects on fixed asset investment. At the same time, this paper analyzes the specific function mechanism of marketization process and FinTech on enterprise investment preference when the government subsidy is taken as the threshold variable. Finally, the heterogeneity analysis of the research results is carried out from the perspectives of the differences in enterprise scale and the nature of property rights.

From the analysis of differences in enterprise scale, the process of marketization can better promote the innovation and R&D investment of small-scale enterprises and has a greater impact on the external equity investment of large-scale enterprises. The promotion effect of FinTech on corporate R&D and foreign equity investment is a significant boost across scales while discouraging fixed asset investment. On the whole, the development of FinTech has little difference in the impact of all enterprises. From the perspective of the nature of property rights, it is found that the marketization process promotes the foreign equity investment of state-owned enterprises to reduce investment in fixed assets and has no significant impact on R&D innovation. Non-state enterprises tend to invest in R&D innovation to reduce investment in fixed assets, which is not significant with foreign equity investment, and thus the marketization process has a greater impact on non-state-owned enterprises' R&D. In addition, the findings of the study are found to be unchanged after conducting robustness tests for the replacement variables and endogeneity tests for the lagged terms in this paper.

Therefore, the research in this paper further adds to the intrinsic mechanism of how the marketization process affects corporates' investment choices and provides new ideas for the study of corporates' investment preferences in the context of the FinTech boom. However, this paper does not consider the impact of the marketization process and financial technology on corporate investment choices when the specific threshold of government subsidies changes due to lack of relevant data. At the same time, the impact of the marketization process and financial technology on enterprises' investment choices at this time is also different due to the different industries in which enterprises are located and the different stages of development of enterprises. In the future, these contents will be the direction of our future in-depth research in obtaining data information of related enterprises.

Data Availability

The listed company and marketization process data used to support the findings of this study were supplied by CSMAR and Wind databases under license and so cannot be made freely available. Requests to access these data should be sent to the following websites: https://cn.gtadata.com/; https://www.wind.com.cn/. FinTech-related data can be obtained through the following website: https://idf.pku.edu.cn/.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

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