

Fintech Enablement of Corporate Digital Transformation

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Abstract. Amidst the accelerated reorganization of the global digital economy landscape and China's rapid FinTech advancement, this study employs empirical methods to investigate FinTech's influence on corporate digital transformation dynamics and its underlying mechanisms. Utilizing data from Shanghai and Shenzhen-listed A-share companies spanning 2003 to 2023, findings indicate that an incremental rise in the FinTech development index correlates with a significant enhancement in firms' digital transformation levels. Analysis of the causal pathways reveals that FinTech facilitates this transformation primarily through two synergistic channels: mitigating corporate financing difficulties and reducing internal transaction costs. The exploration of heterogeneity reveals that firms with specific characteristics experience a more pronounced transformation impetus. Non-state-owned entities, coastal enterprises, and those within high-tech sectors effectively leverage institutional frameworks and infrastructure endowments to achieve stronger enabling effects. Conversely, state-owned enterprises exhibit relatively muted responsiveness, hindered by institutional rigidities and technological access barriers. Critically, a firm's technological innovation capability exerts a significant positive moderating influence on FinTech's transformation-enabling effect, underscoring the pivotal role of technological adaptation and assimilation. Collectively, these results provide empirical evidence for understanding FinTech's role as a catalyst for corporate digital transformation, thereby informing the design of targeted policy interventions, including geographically tailored support strategies.

Keywords: Fintech, Corporate digital transformation, Financing constraints, Internal transaction costs.

1. Introduction and Literature Review

In today's world, the global digital economy is undergoing rapid transformation, and FinTech has emerged as the driving force behind helping enterprises achieve digital transformation. Meanwhile, the compound annual growth rate (CAGR) of China's FinTech market is 18.05%, significantly higher than the global average growth rate of approximately 15.7%; the CAGRs of digital payment, smart credit, and other fields exceed 30%. In this context, conducting digital transformation is a key way for enterprises to achieve high-quality development. However, a study by Liu Kaihao(2025) and other scholars used the entropy method to measure the level of digital transformation of enterprises in 31 provinces in China, and the results show that the level of digital transformation in China presents a clear regional differentiation pattern of "high in the east and low in the central and western regions" [1]. This phenomenon raises a core question: how can fintech break through the traditional financial "supply mismatch" problem to empower the digital transformation of enterprises truly?

At the macro level, digital infrastructure serves as a crucial foundation for digital transformation, and its level of perfection has a significant impact on an enterprise's ability to undergo digital transformation. Wang Hai et al. (2023) found through empirical research that the implementation of digital infrastructure policies helps promote the digital transformation of enterprises, with a more pronounced effect on small-scale and non-state-owned enterprises [2]. At the same time, institutional factors are also key factors. The relevant policies, laws, and regulations issued by the government can guide and regulate the digital transformation of enterprises. Chen Xiuying et al. (2024) suggest that high international standards should be aligned in the digital economy to create an institutional environment that is more open, inclusive, equitable, cooperative, efficiently regulated, and risk-

controlled, thereby promoting the vigorous development of new business forms, such as digital trade [3].

At the micro-enterprise level, there are differences in digital transformation among enterprises at various stages of their life cycle. Tang Song et al.'s (2024) study, based on the enterprise life cycle theory, shows that enterprises in growth and maturity have relatively strong motivation and ability to transform digitally, whereas enterprises in decline face greater difficulties and often lack the necessary resources and motivation to upgrade digitally [4]. Enterprise size and industry type are also influential factors; large enterprises are typically well-resourced and can establish their own digital teams and R&D systems. Technology-intensive industries undergo a relatively faster digital transformation process, whereas labor-intensive industries, such as traditional manufacturing, face more significant challenges.

However, the relationship between ESG reporting and digital transformation is complex. On the one hand, good ESG performance can motivate firms to emphasize digital transformation, and the study by Wang Qianlong et al. (2024) points out that digital transformation of firms has a significant positive effect on their own ESG performance[5]. The study by Jinxi et al. (2024) also highlights that digital transformation enhances firms' ESG practices and plays a crucial role in improving their ESG performance[6]. In terms of corporate governance, digital transformation can enhance corporate transparency and management efficiency, which in turn improves Environmental, Social, and Governance (ESG) performance. However, ESG also has a dampening effect on digital transformation. Too much digital transformation may divert attention from ESG by increasing hidden costs and long-term investments, causing firms to prioritize business activities at the expense of ESG (Wang et al., 2024)[7]. Moreover, an overly high level of digital transformation may cause corporate disclosure to focus more on digital technology and financial returns, thereby weakening the incentives to improve ESG performance. He Yiming's (2025) empirical study suggests that as digital transformation deepens, firms may face new risks and challenges, including data security and privacy protection issues, which, if not addressed appropriately, can have a direct impact on the firm's Environmental, Social, and Governance (ESG) performance [8].

In exploring the impact of fintech on the digital transformation of enterprises, this study has the following three main contributions: in terms of research perspective, it innovatively constructs a "dual-path" it innovatively constructs a "dual-path" theoretical framework, which systematically explains that FinTech synergistically drives the digital transformation of enterprises through the dual mechanism of alleviating financing constraints and reducing internal transaction costs, and integrates regional economic factors to reveal the synergistic mechanism between FinTech and regional endowments, which provides a more comprehensive theoretical perspective to understand the enabling effect of FinTech. In terms of research content, not only the existence of the above dual-path mechanism is verified through rigorous empirical evidence, but also the significant heterogeneity of the impact effect of FinTech is revealed in depth: its effect on the digital transformation of non-state-owned enterprises, enterprises in coastal areas and high-tech industries is more significant, while the effect of the institutional mechanism is more significant. It also reveals the significant heterogeneity of fintech's impact: its promotion effect on non-state-owned enterprises, enterprises in coastal areas and high-tech industries is more significant, while institutional factors constrain state-owned enterprises and make their benefits relatively limited; at the same time, the empirical evidence confirms the positive moderating role of enterprises' technological innovation capacity in the process of fintech-enabled digital transformation, highlighting the key significance of technological adaptability.

2. Theoretical Analysis and Research Hypothesis

As a product of the deep integration of new-generation information technology and financial business, FinTech is restructuring the path and mode of enterprise digital transformation. Based on the transaction cost theory and the resource-based view, fintech can not only optimize the external

financing environment of enterprises but also significantly reduce the transaction costs of their internal operations through technological empowerment, thus creating favorable conditions for digital transformation.

Relying on cutting-edge technologies such as blockchain and artificial intelligence, fintech platforms have developed a more transparent and efficient financial service system, enabling enterprises to overcome the time and space limitations of traditional finance and obtain the financial support necessary for digital transformation. Song Min et al. (2021) note that fintech significantly enhances the total factor productivity of enterprises by alleviating the issue of credit rationing. McKinsey's report, "Digital Transformation in Financial Services," states that the development of FinTech has driven the digital transformation of the financial services industry[9]. Through technologies such as cloud computing, artificial intelligence, and big data analytics, financial institutions can make data-driven decisions, automate processes, and provide personalized services to customers. Fintech's ability to integrate data from multiple sources (e.g., tax, customs, and electricity information) will replace traditional collateral security, thereby addressing information asymmetry and credit rationing. On this basis, this paper proposes the following hypothesis:

H1: Fintech development has a significant positive contribution to enterprise digital transformation.

From the perspective of its mechanism of action, FinTech primarily promotes enterprise digital transformation through two interrelated yet differentiated paths. First, in terms of alleviating the financing constraint, FinTech effectively reduces the information asymmetry between financial institutions and enterprises through big data risk control models and intelligent credit approval systems. Based on the enterprise life cycle theory, Tang Song et al. (2022) demonstrate that FinTech can significantly alleviate the financing constraints faced by enterprises during their growth and maturity phases, thereby promoting their digital transformation [3]. Zhang et al.'s (2024) study confirms that financing constraints play a moderating role in the relationship between digital transformation and an enterprise's growth performance, and that the financing environment is crucial to the digitalization process of enterprises [10]. Second, in terms of internal transaction cost reduction paths, FinTech can reshape the financial services market structure by reducing transaction costs and information asymmetry (Feyen Et Al., 2021)[11]. Fintech offers solutions, including intelligent financial systems and automated supply chain financial tools, that significantly optimize the capital management processes of enterprises. Functions such as electronic invoicing and intelligent reconciliation reduce manual operations, while predictive analysis based on big data improves the efficiency of operational decision-making, all of which directly reduce internal transaction costs for enterprises and further promote their digital transformation (Hao Cui, 2025)[12]. Meanwhile, the empirical study by Ren Ding et al. (2024) shows that the shortening of the procurement reconciliation cycle for enterprises adopting intelligent financial systems has a significant contributing effect, accompanied by a decrease in management expenses. The released resources will be directly invested in digital upgrading [13].

Based on the above analysis, this paper proposes the following hypotheses:

H2: Fintech promotes enterprise digital transformation by alleviating financing constraints.

H3: Fintech promotes enterprise digital transformation by reducing internal transaction costs.

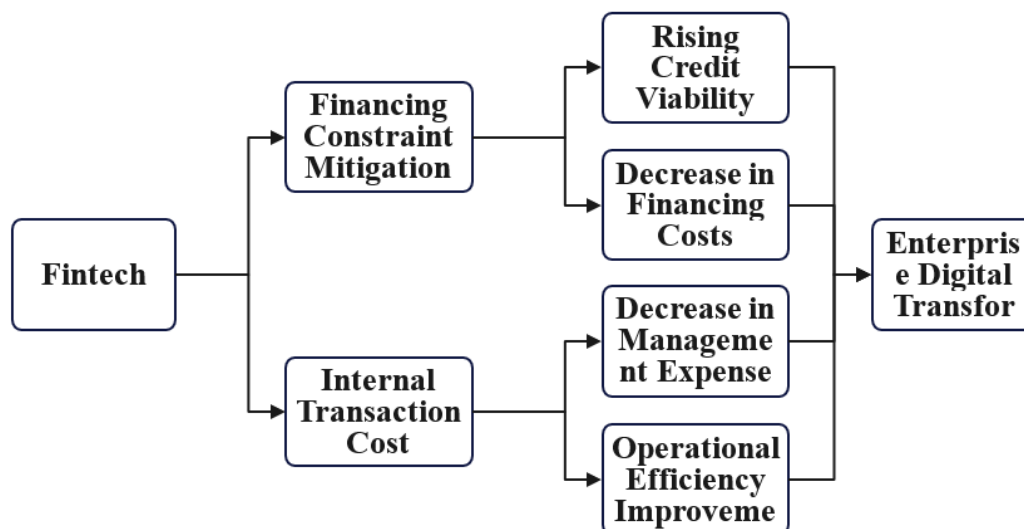


Figure 1. Pathway Mechanisms Map

The dual-path mechanism is visually summarized in Figure 1, illustrating how FinTech synergistically alleviates financing constraints and reduces internal transaction costs.

3. Research Design

3.1. Model Construction:

This study develops a multidimensional evaluation framework to empirically examine the catalytic role of FinTech proliferation in organizational digitalization trajectories:

$$\text{Digital}_{i,t} = \alpha_0 + \beta_1 \text{fintech}_{i,t} + \beta_x \text{controls}_{i,t} + v_t + \mu_i + \varepsilon_{i,t} \quad (1)$$

Where Digital denotes the degree of firms' digital transformation, and fintech denotes the level of firms' fintech development. The model addresses firm-level factors that do not vary over time through individual fixed effects μ_i , while controlling for the impact of changes in the macroeconomic environment through time fixed effects v_t . The intercept term, controls is the control variable, and is the random error term. The coefficient reflects the impact of fintech horizontality on firms' digital transformation.

3.2. Definition of Variables

To clarify the research model, the main variables are described below. The dependent variable Digital indicates the degree of digital transformation of the enterprise, which is measured by the frequency of keywords related to digitalization in the annual report or financial report of the enterprise, and this paper refers to the method of Yang Chun et al. (2025), which calculates the number of times that keywords such as "digitalization," "big data", "artificial intelligence", "cloud computing" and other keywords, and standardize them to reflect the degree of digital transformation of enterprises[14]; the core independent variable Fintech indicates the level of development of enterprises' financial technology which the enterprise's investment scale can quantify in the field of fintech, the proportion of related business revenue or the number of technology applications. Other control variables include: enterprise size (Size, i.e., the logarithm of the total assets of the enterprise), operating cash flow (Cashflow), TobinQ (TobinQ, which is used to measure the market valuation level of the enterprise), the size of the board of directors (Board, i.e., the number of directors), the proportion of the top five shareholders' shareholding (Top5), the return on equity (ROE), and the CEO is the chairman of the board (Dual), and so on. (Dual), etc. In addition, the mechanism of the impact of economic development level on corporate behavior in the study of Acemoglu, D (2001) provides theoretical support for this paper, so the macroeconomic indicators of Gross Regional Product (economic and

Urbanization) are used as control variables to try to control the potential impact of the macroenvironment on the digital transformation of enterprises[15].

3.3. Data Sources and Descriptive Statistics

The empirical analysis draws on a comprehensive dataset encompassing A-share listed entities across Shanghai and Shenzhen stock exchanges from 2003 to 2023. Following the exclusion of financial sector entities, temporarily suspended firms, and observations with incomplete core data, the final sample comprises 51,446 qualified observations. Primary data sources include the Wind Financial Database and corporate annual reports: digital transformation intensity is operationalized through textual analysis of digital project investment disclosures in annual reports, while fintech adoption maturity is quantified based on enterprise-level technological application indicators extracted from these documents. Covariates are predominantly sourced from Wind and CSMAR databases. As delineated in Table 1, the descriptive analysis reveals the distribution characteristics of key variables, including mean values, standard deviations, and extreme ranges, providing foundational insights for subsequent econometric modeling.

The descriptive statistics results in Table 1 show that the mean value of the digital transformation water for the sample enterprises is 1.274, and the standard deviation is 1.412, indicating significant differences in the digitization process among different enterprises, with some performing particularly well. The mean value of the development level of financial technology is 3.048, which also exhibits significant fluctuations. Some enterprises have not yet adopted the relevant technology, providing a comparative space for studying the enabling effect of financial technology.

Table 1. Descriptive Statistics

	Obs	Mean	Std. dev.	Min	Max
Digital	51446	1.274	1.412	0	6.380
Fintech	51446	3.048	1.484	0	6.263
Size	51446	22.067	1.293	19.333	26.440
Cashflow	51446	0.048	0.071	-0.232	0.283
TobinQ	51446	1.941	1.267	0.789	16.647
Board	51446	2.132	0.205	1.099	2.773
Top5	51446	0.538	0.154	0.176	0.907
ROE	51446	0.062	0.138	-1.342	0.446
Dual	51446	0.273	0.446	0	1
economic	51446	11.050	0.702	8.218	12.207
Urbanization	51446	0.636	0.180	0	0.896

4. Model Results and Analysis

4.1. Benchmark Regression Results

Table 2's regression results consistently demonstrate positive and statistically significant ($p < 0.01$) coefficients for Fintech across all model specifications (0.581-0.693), confirming H1 that regional FinTech development significantly facilitates enterprise digital transformation. Each unit increase in the Fintech index corresponds to a 0.581-0.693 unit increase in digital transformation. Robustness is evidenced through progressive model specifications: Column 1 (Fintech and Digital only) establishes the baseline relationship; Column 2 adds industry/year fixed effects to control for structural/time trends; Column 3 incorporates firm-level controls (Size, Cashflow, TobinQ, Board, Top5, ROE, Dual); Column 4 further includes regional controls (economic, Urbanization). The Fintech effect remains strongly significant even in the strictest specification (Column 4). Control variable analysis reveals that Size (resource capacity), TobinQ (growth motivation), and Board size (strategic resources) positively correlate with transformation, while ROE (reduced urgency in profitable firms) and regional economic development (diminished need in digitally advanced regions) show negative associations.

Table 2. Benchmark Regression

	(1) Digital	(2) Digital	(3) Digital	(4) Digital
Fintech	0.693*** (252.74)	0.591*** (59.00)	0.581*** (57.87)	0.581*** (57.82)
Size			0.126*** (9.63)	0.127*** (9.71)
Cashflow			-0.042 (-0.77)	-0.043 (-0.79)
TobinQ			0.029*** (6.13)	0.029*** (6.19)
Board			0.089** (2.23)	0.088** (2.19)
Top5			-0.643*** (-8.48)	-0.644*** (-8.50)
ROE			-0.065** (-2.09)	-0.063** (-2.03)
Dual			-0.005 (-0.35)	-0.005 (-0.30)
economic				-0.141** (-2.31)
Urbanization				-0.026 (-0.90)
Constant	-0.851***	-0.615***	-3.010***	-1.668***
Observations	51,446	51,446	51,446	51,446
Firm-fe	×	✓	✓	✓
Year-fe	×	✓	✓	✓
R-squared	0.644	0.563	0.571	0.571

z-statistics in parentheses

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

4.2. Endogeneity Test

When examining the impact of FinTech on the digital transformation of enterprises, endogeneity issues may arise, including omitted variables and reverse causality, which can bias the estimation results. Therefore, it is necessary to select appropriate instrumental variables to address endogeneity. In this paper, the level of regional traditional financial development is chosen as an instrumental variable. On the one hand, the level of regional traditional financial development is closely related to the level of enterprise fintech development, and regions with developed traditional finance tend to have better financial infrastructure, talent reserves and financial ecology, which is more conducive to the development of fintech; on the other hand, the level of regional traditional financial development is relatively exogenous, which is mainly influenced by regional history, policy and other factors, and is not related to the enterprise digital transformation decision itself. Influence, there is no direct correlation between the enterprise digital transformation decision itself and the influence of the instrumental variable.

In Column (1) of Table 3, the regression coefficient of the instrumental variable (regional traditional financial development level) on Fintech is 0.253, which is significant at the 1% level of significance, indicating that the regional traditional financial development level is positively correlated with the enterprise's Fintech development level. Meanwhile, the Cragg-Donald Wald F-statistic value is 778.86, which is much larger than the empirical threshold of 10, indicating that there is no weak instrumental variable problem. In Column (2), the regression coefficient of Fintech on the level of digital transformation of enterprises (Digital) is 0.701, which is significant at a 1% significance level after dealing with endogeneity using the Instrumental Variables Approach.

Table 3. Endogeneity Test

	Instrumental Variable Approach	
	(1) Finance	(2) Digital
Fintech		0.701*** (11.11)
IV	0.253*** (9.60)	
Controls	✓	✓
Firm-fe	✓	✓
Year-fe	✓	✓
N	51446	51446
R-squared		0.655
Cragg-Donald Wald F Statistic	778.86	
Kleibergen-Paap rk LM Statistic	84.234	

4.3. Robustness Test

4.3.1. Robustness Test of Replacing Explained Variables

To verify the robustness of the research findings, this paper replaces the measure of the explanatory variable, enterprise digital transformation, in Column (1) of Table 4 with the logarithm of the frequency of words related to digital transformation in the annual reports of enterprises (Digital1). The regression results show that the coefficient for financial technology (Fintech) is 0.843 and significant at the 1% significance level ($p < 0.01$). This indicates that the positive contribution of Fintech to the digital transformation of enterprises remains significant even after adopting various measures, which verifies the robustness of the research findings in terms of the explanatory variables.

4.3.2. Robustness Test of Replacing Explanatory Variables

In Column (2), this paper replaces the measure of the explanatory variable fintech level with the regional inclusive digital finance index (index_aggregate) released by the Digital Finance Research Center of Peking University. The results show that its coefficient is 0.004 and significant at a 1% significance level ($p < 0.01$). This indicates that even if the measure of Fintech level is altered, its positive relationship with the digital transformation of enterprises remains significant, demonstrating the robustness of the research findings in terms of the explanatory variables. Robustness Test of Regression Methods

In Column (3), we replace the empirical methodology with a high-dimensional regression model that incorporates clustering at the provincial level. At this point, the coefficient of Financial Technology (Fintech) is 0.581, which is significant at the 1% level of significance. The results show that when the regression method is changed, the positive contribution of Fintech to enterprise digital transformation remains significant, further validating the reliability and robustness of the research findings.

Table 4. Robustness Test

	Replacement of explanatory variables (1) Digital1	Replacement of explanatory variables (2) Digital	Replacement of regression methods (3) Digital
	Digital1	Digital	Digital
Fintech	0.843*** (0.014)		0.581*** (0.017)
Index_aggregate		0.004*** (0.001)	
	(0.030)	(0.032)	(0.037)
_cons	0.612 (1.073)	-4.618*** (1.290)	-1.617* (0.814)
Controls	✓	✓	✓
Firm-fe	✓	✓	✓
Year-fe	✓	✓	✓
N	30221	37384	51446
R-square	0.522	0.316	0.849

4.4. Mechanism Test

This study employs a two-step approach to investigate the mechanism by which FinTech influences the digital transformation of enterprises, focusing on two key channels: financing constraints and internal transaction costs.

The study employs the Kaplan-Zingales (KZ) index to measure corporate financing constraints. Results in Table 5 (Column 1) show that FinTech's coefficient is -0.046 ($p < 0.01$), indicating that it significantly alleviates funding bottlenecks by improving risk assessment through big data and blockchain, expanding financing channels via P2P and supply chain platforms, and optimizing capital allocation via algorithmic lending. This technological intermediation reduces traditional banking dependence while supporting digital transformation.

In terms of internal transaction cost mechanisms, internal transaction cost is measured by the internal management expense ratio. In Column (2) of Table 5, the coefficient of financial technology (Fintech) is -0.007, which is significant at a 1% significance level. The negative coefficient implies that Fintech development is effective in reducing firms' internal transaction costs. This may be because Fintech promotes enterprises' digital offices and intelligent management, optimizes business processes, reduces unnecessary intermediaries and communication costs, improves operational efficiency, and thus facilitates enterprises' digital transformation.

Table 5. Mechanism Tests

	(1) Financing constraints	(2) Internal transaction costs
Fintech	-0.046*** (-3.13)	-0.007*** (-5.59)
Controls	✓	✓
Firm-fe	✓	✓
Year-fe	✓	✓
R-squared	0.571	0.118

4.5. Heterogeneity Test

The heterogeneity test is an indispensable step in studying the impact of financial technology (Fintech) on firms' digital transformation. It is only through the heterogeneity test that differences in this impact due to firm or regional characteristics can be revealed. Firms' digital transformation does not perform consistently under all conditions, and factors such as geographic location, industry type, level of marketization, and ownership structure may significantly affect the role of Fintech. For example, coastal regions may be more likely to benefit from fintech due to better digital infrastructure and a more active innovation ecosystem, while state-owned enterprises may benefit less due to institutional constraints or less efficient resource allocation. If these differences are ignored, the findings may be too generalized to provide precise guidance for policymaking or business practices. Therefore, the heterogeneity test not only reveals the complexity of the fintech role but also enhances the theoretical depth and practical value of the study.

In this paper, the heterogeneity test is carried out by taking the heterogeneity variables as values 0 or 1:

Geographic location: take 1 to indicate coastal areas and 0 to indicate non-coastal areas.

Industry type: take 1 to indicate a high-tech industry and 0 to indicate other industries.

Marketization level: assign 1 for high marketization regions and 0 for low marketization regions.

Ownership structure: take 1 to indicate state-owned enterprises and 0 to indicate non-state-owned enterprises.

In the heterogeneity analysis of Table 6, the coefficients of the cross-multiplier terms reveal the differences in the impact of FinTech on the digital transformation of enterprises under different conditions:

1. Coastal or not: the coefficient of the cross-multiplier of the coastal or not variable and Fintech (coastal_Fintech) is 0.065 and significant at the 1% level, indicating that Fintech applications in

coastal areas promote the digital transformation of enterprises more than those in non-coastal areas, which may be attributed to the better infrastructure, more active innovation ecology, and more open market environment in coastal areas.

2. High-tech industry: The coefficient of the cross-multiplier term (htech_Fintech) between high-tech industry and Fintech is 0.061 and significant at 1% level, indicating that Fintech has a more obvious role in promoting the digital transformation of enterprises in high-tech industry, which may be because this kind of enterprises have a more urgent need for technological innovation and are more adept at utilizing the new tools and channels brought by Fintech.

3. High marketization level areas: the coefficient of the cross-multiplier term (hmarket_Fintech) of high marketization level and Fintech is 0.103 and is significant at the 1% level, indicating that Fintech has a greater effect on the promotion of digital transformation of enterprises in areas with a high degree of marketization, which may be attributed to the fact that enterprises face more intense competition in a market-oriented environment and are more motivated to realize digital upgrading with the help of Fintech. Digital upgrading.

4. State-owned enterprises: the coefficient of the cross-multiplier term (property_Fintech) of state-owned enterprises and Fintech is -0.101 and significant at 1% level, which means that the promotion effect of Fintech on the digital transformation of state-owned enterprises is weaker than that of non-state-owned enterprises, which may reflect the existence of certain constraints on state-owned enterprises in terms of the decision-making mechanism, the efficiency of resource allocation or incentives for innovation, which limits the efficacy of Fintech—technology effectiveness.

Table 6. Analysis of Heterogeneity

	Coastal Digital	High-tech Industry Digital	Marketization Level Digital	Property Right Digital
Fintech	0.541*** (41.24)	0.558*** (50.03)	0.496*** (28.86)	0.623*** (54.38)
Coastal	-0.101 (-0.87)			
Coastal_Fintech	0.065*** (4.14)			
Htech		-0.153*** (-3.39)		
Htech_Fintech		0.061*** (5.08)		
Hmarket			-0.224*** (-4.45)	
Hmarket_Fintech			0.103*** (6.06)	
Property				0.331*** (7.50)
Property_Fintech				-0.101*** (-7.36)
Controls	✓	✓	✓	✓
Firm-fe	✓	✓	✓	✓
Year-fe	✓	✓	✓	✓
R-squared	0.573	0.574	0.574	0.575

Robust t-statistics in parentheses

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

4.6. Moderating Effect

This paper selects the level of enterprise technological innovation as the moderating variable, given its centrality to development. Technological innovation underpins both FinTech advancement (e.g., big data, AI applications in finance) and enterprise digital transformation (via new technologies

and management models). The logarithm of enterprise invention patent applications measures this innovation level, reasonably capturing its influence on the FinTech-digitalisation relationship.

Table 7 results confirm: Fintech significantly promotes digital transformation (coeff. = 0.564); stronger innovation capability directly aids transformation (coeff. = 0.043); and the positive interaction term (innovate_Fintech coeff. = 0.011, significant) reveals innovation capability's positive moderating role. This indicates enterprises with higher innovation capacity experience a stronger facilitative effect from Fintech, likely due to their enhanced ability to absorb and apply FinTech-driven tools and solutions, accelerating business-process integration.

Table 7. Moderating effects (technological innovation)

	Digital
Fintech	0.564*** (54.65)
Innovate	0.043*** (5.18)
innovate_Fintech	0.011*** (4.85)
Controls	✓
Firm-fe	✓
Year-fe	✓
R-squared	0.575

5. Conclusions and Implications

This study empirically confirms the significant role of FinTech in driving enterprise digital transformation through two mechanisms: alleviating financing constraints and reducing internal transaction costs. Robustness tests validate this relationship across diverse conditions. Heterogeneity analysis reveals stronger effects for non-state-owned enterprises, coastal firms, and high-tech industries, which are attributed to their superior infrastructure and innovation ecosystems. In contrast, state-owned enterprises exhibit limited gains due to institutional constraints. Technological innovation capability positively moderates the impact of FinTech, highlighting the criticality of technology suitability.

Policymakers should implement regionally differentiated strategies (e.g., subsidies and digital infrastructure in central and western China), develop specialized FinTech solutions for traditional industries, and establish dynamic regulations to prevent monopolies and data risks. Enterprises, especially small and medium-sized enterprises (SMEs), should leverage FinTech to optimize financing while enhancing their innovation capabilities to maximize the effectiveness of these tools.

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