Proceedings of ICMRED 2026 Symposium: Green Finance Innovation, Climate Risk Governance, and Sustainable Development
DOI: 10.54254/2754-1169/2026.LH35427

Fintech and Digitalization of Corporate Supply Chains

Yiheng Wang

Dongbei University of Finance and Economics, Dalian, China
1650531064@qq.com

Abstract. Based on data of Chinese A-share listed firms from 2012 to 2023, this study empirically examines the impact of fintech on the digitalization of corporate supply chains. The findings are as follows. First, fintech significantly improves the level of corporate supply chain digitalization, and the results pass robustness tests. Second, fintech can further promote corporate supply chain digitalization by enhancing corporate total factor productivity and easing corporate financing constraints. Third, heterogeneity analysis shows that the positive effect of fintech development on corporate supply chain digitalization is significant for firms located in eastern and central regions as well as firms without material weaknesses, whereas the effect is insignificant for firms in western regions and firms with material weaknesses.

Keywords: fintech, supply chain digitalization, total factor productivity, financing constraints

1. Introduction

With the iterative breakthrough of new-generation information technologies and the in-depth advancement of digital transformation in the real economy, the integrated development of fintech and supply chain digitalization is becoming a key force reshaping the industrial financial ecosystem. From the perspective of industrial demand, the uncertainty of global supply chains has intensified in the post-pandemic era, and firms urgently need to improve supply chain resilience and capital turnover efficiency through digital means. From the perspective of policy orientation, the People's Bank of China, the Ministry of Industry and Information Technology and other departments have successively issued a number of documents, explicitly encouraging fintech to empower supply chains and industrial chains, and promoting the development of "data-enhanced credit" and "movable property financing". However, in practical applications, the integration of fintech and supply chain digitalization still faces many challenges, such as inconsistent technical standards, data silos, privacy and security risks, and the lack of cross-subject collaborative governance mechanisms.

Against this background, this paper intends to systematically address the following research questions. First, what is the impact of fintech on corporate supply chain digitalization? Second, what is the internal mechanism of influence? Third, does such impact vary with the region where firms are located and their corporate governance quality? Addressing these questions carries important theoretical and practical significance. Theoretically, this study is expected to break through the limitation of traditional supply chain finance research that is confined to "subject credit", deepen the

DOI: 10.54254/2754-1169/2026.LH35427

understanding of the generation mechanism and transmission path of "digital credit", and enrich the theoretical system of the interdisciplinary field of fintech and operational management. Practically, the research results can provide decision-making references for firms to formulate digital supply chain and financing strategies, and for regulators to improve fintech application standards and data security regulations.

2. Literature review

In recent years, studies on how fintech affects corporate digital transformation have become increasingly abundant. Hu Yan et al. found that fintech can break through geographical constraints to form synergies, and accelerate corporate transformation through channels such as optimizing information transmission and alleviating financial distress, while a sound policy support system is crucial [1]. From the perspective of structural matching, Ren Ding et al. pointed out that fintech has a more significant driving effect on non-state-owned, high-tech enterprises and enterprises in eastern regions, and its functioning paths include improving financial conditions and strengthening risk-smoothing capabilities [2]. Yang Xinyue et al. further emphasized that fintech promotes transformation by enhancing informatization levels, capital allocation efficiency and optimizing the digital ecosystem, with more prominent effects in non-state-owned and capital-intensive enterprises [3]. Focusing on digital innovation, Su Guihong found that alleviating financing constraints, government subsidies and resource allocation are the main mechanisms, while heterogeneity results show that state-owned enterprises, high-tech industries and enterprises in large-scale regions benefit more [4]. He Yong et al. introduced information quality and corporate risk-taking as mediating variables, and confirmed that the business environment has a positive moderating effect, especially in regions with strong financial regulation and among enterprises in eastern regions [5]. Wu Fei et al. verified the intra-regional linkage effect of fintech from the perspective of spatial spillover, emphasizing the improvement of financial conditions and the increase in innovation investment in terms of mechanisms [6]. Xiang Hailing et al. also supported transmission pathways such as improved financing conditions, strengthened internal control and enhanced innovation vitality [7]. Chen Ke focused on agricultural product supply chains and discussed the necessity and practical challenges of fintech in promoting their financial digitalization [8]. Li Wei et al. argued that fintech exerts an overall promoting effect by alleviating financing constraints, stabilizing finance, reducing leverage and increasing R&D investment [9]. Starting from the corporate life cycle, Tang Song et al. pointed out that enterprises in the growth and maturity stages benefit significantly, while those in the decline stage do not, with mechanisms mainly involving reduced financing costs and increased innovation output [10]. In summary, existing literature has confirmed the positive impact of fintech on corporate digital transformation from multiple dimensions, yet few studies have explored the effect of fintech on corporate supply chain digitalization. On this basis, this study will further investigate this issue.

3. Research design

3.1. Model specification

This study specifies the following fixed-effects model:

DOI: 10.54254/2754-1169/2026.LH35427

$$Digitalization_{it} = \alpha_0 + \beta_0 Fintech_{it} + \sum \gamma_k Control_{it} + \varepsilon_{it}$$

where $Digitalization$, $Fintech$, $Control$, and ε represent supply chain digitalization, fintech, a series of control variables, and the error term, respectively. α_0 denotes the constant term, and β_0 and γ_k represent the coefficients of the variables, respectively.

3.2. Variable definitions

For the dependent variable, this study measures supply chain digitalization as the frequency of keywords related to supply chain digitalization in the crawled annual reports of each firm, divided by the length of the Management Discussion and Analysis section in the annual report and multiplied by 100.

For the core independent variable, this study measures fintech as the natural logarithm of the frequency of keywords related to fintech in the crawled annual reports of each firm.

For control variables, they specifically include: (1) Firm-level variables: firm size, firm profitability, firm solvency, firm liquidity, firm age, board size, executive compensation, ownership concentration, and price-earnings ratio; (2) Macro-level variables: regional economic development level, regional industrial structure, and regional financial development level.

3.3. Data source and descriptive statistics

This paper selects Chinese A-share listed companies from 2012 to 2023 for investigation and conducts relevant processing: first, samples with extensive missing data are excluded; second, data of various variables are matched and integrated. Regarding data sources, supply chain digitalization and fintech data are obtained from annual reports of listed companies, other firm-level data are derived from the China Stock Market & Accounting Research Database (CSMAR), and macro-level data are collected from the Wind Database. Descriptive statistics of all variables are shown in Table 1.

Table 1. Descriptive statistics

VarName	Obs	Mean	SD	Min	Max
Digitalization	24533	0.030	0.014	0.000	0.386
Fintech	25701	3.496	1.323	0.000	6.263
Size	25486	3.093	0.061	2.848	3.357
ROA	25485	0.052	0.061	-0.163	0.171
Leverage	22908	1.172	0.564	0.630	4.947
Liquidity	25457	0.780	2.047	-5.723	8.204
Board	17692	8.331	1.646	0.000	17.000
Salary	17644	0.312	0.376	0.005	1.689
Age	25483	9.213	8.380	0.000	27.000
PE	21658	58.711	86.751	6.843	550.452
Top5	25241	0.483	0.187	0.200	0.991
Industry	25691	55.495	10.550	34.500	84.800

DOI: 10.54254/2754-1169/2026.LH35427

Table 1. (continued)

GDP	25691	10.775	0.748	6.565	11.818
Finance	25691	1.702	0.440	0.701	2.998

4. Empirical analysis

4.1. Analysis of baseline regression results

It can be seen that with the inclusion of control variables at the firm financial level, corporate governance level, and macroeconomic level, the coefficient of fintech development level (Fintech) remains significantly positive, indicating that fintech development helps improve the level of corporate supply chain digitalization.

Table 2. Baseline regression results

VARIABLES	(1)	(2)	(3)	(4)
	Digitalization	Digitalization	Digitalization	Digitalization
Fintech	0.0014***	0.0014***	0.0014***	0.0012***
	(22.98)	(20.55)	(15.71)	(11.82)
Size		-0.0084***	0.0077**	0.0059*
		(-4.12)	(2.37)	(1.78)
ROA		-0.0085***	-0.0077***	-0.0067***
		(-4.66)	(-3.07)	(-2.65)
Leverage		-0.0006***	-0.0008***	-0.0008***
		(-4.94)	(-4.67)	(-4.64)
Liquidity		0.0000	0.0000	0.0000
		(0.69)	(1.13)	(1.06)
Board			-0.0002***	-0.0002***
			(-3.32)	(-2.59)
Salary			0.0013***	0.0011***
			(3.25)	(2.72)
Age			-0.0001***	-0.0001***
			(-5.73)	(-6.13)
PE			0.0000**	0.0000**
			(2.20)	(2.51)
Top5			-0.0017**	-0.0013*
			(-2.38)	(-1.87)
Industry				0.0000**
				(2.51)
GDP				0.0018***
				(6.98)
Finance				-0.0009**
				(-2.37)

DOI: 10.54254/2754-1169/2026.LH35427

Table 2. (continued)

Constant	0.0260***	0.0527***	0.0062	-0.0083
	(95.49)	(8.49)	(0.63)	(-0.82)
Observations	24,533	21,838	14,690	14,684
Number of enterprises	4,813	4,705	3,100	3,096

Note: Z-statistics in parentheses; * p<0.01, p<0.05, * p<0.1

4.2. Robustness analysis

First, the fixed-effects model is adopted; second, the independent variable is replaced, using the number of newly registered fintech companies in the year to represent regional fintech development level, with a logarithm transformation after adding 1; third, to eliminate the influence of extreme values, this study conducts a 2% winsorization on the original data. As shown in Table 3, fintech development still contributes to improving the level of corporate supply chain digitalization.

Table 3. Robustness test results

VARIABLES	(1)	(2)	(3)
	Fixed-effects model	Replaced independent variable	Excluding extreme values
Fintech	0.0002*		0.0011***
	(1.74)		(11.60)
Fintech2		0.0007***	
		(6.41)	
Size	0.0217***	0.0066*	0.0087***
	(4.65)	(1.66)	(2.77)
ROA	-0.0080***	-0.0079***	-0.0060***
	(-2.99)	(-2.59)	(-2.62)
Leverage	-0.0008***	-0.0008***	-0.0010***
	(-4.31)	(-4.10)	(-4.60)
Liquidity	0.0000	0.0000	0.0000
	(1.08)	(0.69)	(0.14)
Board	-0.0000	-0.0001	-0.0002**
	(-0.50)	(-1.51)	(-2.21)
Salary	-0.0017***	0.0009*	0.0008**
	(-3.53)	(1.91)	(2.17)
Age	0.0005***	-0.0001***	-0.0002***
	(5.06)	(-4.47)	(-6.83)
PE	0.0000**	0.0000*	0.0000***
	(2.22)	(1.67)	(3.08)
Top5	0.0016*	0.0005	-0.0010
	(1.90)	(0.56)	(-1.58)
Industry	-0.0000	0.0000	0.0000**

DOI: 10.54254/2754-1169/2026.LH35427

Table 3. (continued)

	(-0.58)	(0.82)	(2.23)
GDP	-0.0020**	0.0016***	0.0021***
	(-2.03)	(4.79)	(8.16)
Finance	-0.0027***	-0.0004	-0.0007**
	(-5.05)	(-0.80)	(-2.08)
Constant	-0.0148	-0.0072	-0.0199**
	(-0.88)	(-0.59)	(-2.05)
Observations	14,684	10,281	14,684
R-squared	0.024		
Number of enterprises	3,096	2,195	3,096

Note: Same as above.

4.3. Mechanism analysis

Furthermore, this study conducts investigations from the perspectives of corporate total factor productivity and corporate financing constraints respectively. Among them, corporate total factor productivity data are obtained using the OP method, and corporate financing constraint data are measured using the SA index. As shown in Columns (1) and (2) of Table 4, fintech can further promote corporate supply chain digitalization by positively boosting total factor productivity. As shown in Columns (3) and (4) of Table 4, fintech can further promote corporate supply chain digitalization by alleviating corporate financing constraints.

Table 4. Mechanism test results

VARIABLES	(1)	(2)	(3)	(4)
	TFP_OP	Digitalization	SA_index	Digitalization
Fintech	0.0213***	0.0010***	-0.0047***	0.0011***
	(5.43)	(10.15)	(-5.60)	(11.29)
TFP_OP		0.0008***		
		(3.57)		
SA_index				-0.0042***
				(-5.75)
Size	8.0953***	-0.0030	0.1826***	0.0088***
	(59.05)	(-0.77)	(5.74)	(2.64)
ROA	2.6370***	-0.0082***	0.0952***	-0.0062**
	(26.98)	(-3.06)	(4.86)	(-2.45)
Leverage	-0.0021	-0.0007***	-0.0055***	-0.0008***
	(-0.33)	(-4.02)	(-4.21)	(-4.85)
Liquidity	0.0001	0.0001**	-0.0002	0.0000
	(0.04)	(2.22)	(-0.82)	(1.02)
Board	-0.0070**	-0.0002***	0.0029***	-0.0002**

DOI: 10.54254/2754-1169/2026.LH35427

Table 4. (continued)

	(-2.38)	(-2.87)	(4.81)	(-2.46)
Salary	-0.6606***	0.0016***	0.0477***	0.0013***
	(-39.44)	(3.42)	(14.30)	(3.25)
Age	0.0112***	-0.0001***	-0.0243***	-0.0002***
	(10.50)	(-5.72)	(-69.99)	(-8.29)
PE	-0.0004***	0.0000**	0.0001***	0.0000***
	(-8.55)	(2.15)	(8.85)	(2.93)
Top5	0.0182	-0.0014*	-0.0437***	-0.0014*
	(0.65)	(-1.91)	(-7.17)	(-1.90)
Industry	0.0046***	0.0000**	-0.0003	0.0001***
	(5.46)	(2.43)	(-1.34)	(2.68)
GDP	0.0675***	0.0016***	-0.0997***	0.0014***
	(5.89)	(6.21)	(-27.02)	(5.27)
Finance	0.0175	-0.0012***	-0.0621***	-0.0013***
	(1.11)	(-2.92)	(-17.62)	(-3.46)
Constant	-19.3467***	0.0161	-2.9971***	-0.0277***
	(-45.66)	(1.41)	(-29.71)	(-2.60)
Observations	13,567	13,201	15,106	14,684
Number of enterprises	2,991	2,944	3,146	3,096

Note: Same as above.

4.4. Heterogeneity analysis

This study examines heterogeneity from the perspectives of corporate location and corporate governance quality respectively. As shown in Columns (1) to (3) of Table 5, the positive effect of fintech development on the level of corporate supply chain digitalization is significant for enterprises located in eastern and central regions, while such effect is insignificant for enterprises in western regions. As shown in Columns (4) to (5) of Table 5, the positive effect of fintech development on the level of corporate supply chain digitalization is significant for enterprises without material weaknesses, while such effect is insignificant for enterprises with material weaknesses.

Table 5. Heterogeneity test results

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Eastern	Central	Western	No material weaknesses	Material weaknesses exist
Fintech	0.0011***	0.0007*	0.0002	0.0012***	0.0001
	(10.66)	(1.68)	(0.64)	(11.81)	(0.10)
Size	0.0080**	0.0212*	-0.0314***	0.0060*	0.0468
	(2.22)	(1.75)	(-3.52)	(1.83)	(1.17)
ROA	-0.0018	-0.0174*	-0.0111*	-0.0068***	-0.0207
	(-0.68)	(-1.75)	(-1.66)	(-2.66)	(-0.66)

DOI: 10.54254/2754-1169/2026.LH35427

Table 5. (continued)

Leverage	-0.0008***	-0.0019***	0.0001	-0.0008***	-0.0015
	(-4.23)	(-3.18)	(0.30)	(-4.60)	(-0.96)
Liquidity	0.0000	0.0001	0.0000	0.0000	0.0001
	(0.63)	(0.49)	(0.33)	(0.98)	(0.42)
Board	-0.0001	-0.0007**	-0.0003	-0.0002***	-0.0025***
	(-0.80)	(-2.55)	(-1.36)	(-2.61)	(-3.96)
Salary	0.0009**	0.0022	-0.0018	0.0010**	0.0103***
	(2.07)	(1.30)	(-1.44)	(2.49)	(3.56)
Age	-0.0002***	-0.0003***	-0.0002**	-0.0001***	-0.0002
	(-6.41)	(-3.38)	(-2.13)	(-6.20)	(-0.62)
PE	0.0000***	-0.0000	0.0000	0.0000**	0.0000**
	(3.48)	(-0.13)	(0.33)	(2.53)	(2.28)
Top5	-0.0011	-0.0013	-0.0011	-0.0014*	-0.0072
	(-1.48)	(-0.52)	(-0.56)	(-1.89)	(-0.84)
Industry	0.0001***	0.0003***	-0.0004***	0.0001***	-0.0001
	(4.86)	(2.59)	(-5.35)	(2.58)	(-0.25)
GDP	0.0035***	-0.0003	0.0032***	0.0018***	0.0035
	(10.61)	(-0.26)	(3.82)	(7.05)	(1.57)
Finance	-0.0012***	-0.0019	0.0060***	-0.0009**	0.0030
	(-3.00)	(-0.95)	(3.98)	(-2.48)	(0.73)
Constant	-0.0384***	-0.0329	0.1126***	-0.0091	-0.1316
	(-3.45)	(-0.89)	(4.15)	(-0.89)	(-1.05)
Observations	11,481	1,763	1,371	14,596	88
Number of enterprises	2,446	382	282	3,094	73

Note: Same as above.

5. Conclusions

Based on data of Chinese A-share listed enterprises from 2012 to 2023, this study empirically examines the impact of fintech on the digitalization of corporate supply chains. The findings are as follows. First, the development of fintech helps improve the level of corporate supply chain digitalization, and this relationship remains significant after a series of robustness checks including the adoption of fixed-effects models, replacement of explanatory variables, and elimination of extreme values. Second, fintech can further promote corporate supply chain digitalization by enhancing total factor productivity and easing financing constraints of enterprises. Third, heterogeneity analysis shows that the positive effect of fintech development on the level of corporate supply chain digitalization is significant for enterprises located in eastern and central regions as well as enterprises without material weaknesses, whereas such effect is insignificant for enterprises in western regions and enterprises with material weaknesses.

DOI: 10.54254/2754-1169/2026.LH35427

References

[1] Hu, Y., Xiang, H., & Wu, F. (2025). FinTech and corporate digital transformation: Structural characteristics, channel mechanisms, and policy optimization under the Triple Helix framework. *Journal of South China Normal University (Social Science Edition)*, (6), 183–204, 208.

[2] Ren, D., Wu, F., & Chang, X. (2024). The impact and mechanisms of FinTech on corporate digital transformation: Empirical evidence from the perspective of finance–economy structural matching. *The Journal of Humanities*, (12), 84–95.

[3] Yang, X., Zhou, S., & Xie, X. (2024). The impact of FinTech development on corporate digital transformation: Empirical evidence from China's non-financial listed companies. *Reform*, (9), 153–167.

[4] Su, G. (2024). FinTech-enabled corporate digital innovation: Theoretical mechanisms and empirical evidence. *Statistics and Decision*, *40*(15), 161–166.

[5] He, Y., & Ling, J. (2025). Multiple effects and heterogeneous characteristics of FinTech-enabled corporate digital transformation. *Journal of Chongqing University (Social Science Edition)*, *31*(6), 57–72.

[6] Wu, F., Fan, Q., Liu, Q., Yuan, P., & Chang, X. (2024). The impact of FinTech on corporate digital transformation from the perspective of spatial spillover effects. *Journal of Shenzhen University (Science and Engineering), 41*(3), 303–312.

[7] Xiang, H., Ding, Z., Xu, S., & Wu, F. (2023). FinTech and corporate digital transformation. *China Soft Science*, (5), 207–215.

[8] Chen, K. (2022). Strategies for promoting the digitalization of agricultural supply chain finance under the background of FinTech. *Agricultural Economy*, (11), 119–121.

[9] Li, W., Tan, S., & Wu, F. (2022). FinTech development and corporate digital transformation: The mediating roles of alleviating financing constraints and promoting innovation. *Science and Technology Management Research, 42*(20), 28–38.

[10] Tang, S., Su, X., & Zhao, D. (2022). FinTech and corporate digital transformation: Evidence from the perspective of the corporate life cycle. *Finance and Economics Science*, (2), 17–32.