Fintech Empowering the Real Economy: The Key Pathway to Driving High-Quality Development of China's Economy

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Abstract

In the context of the transformation toward high-quality development of China's economy in the new era, fintech, leveraging core technologies such as artificial intelligence and blockchain, reconstructs the financial ecosystem and serves as a key engine in addressing the dilemmas of "difficult financing, high costs, and narrow coverage" faced by small and medium-sized enterprises in the real economy. This article systematically delineates the internal mechanisms through which fintech empowers the real economy. By constructing a fintech index via integrated text mining methods and drawing on multi-dimensional empirical evidence, it reveals three core empowerment pathways-corporate financing, consumption investment, and resource allocation-while analyzing the specific roles of fintech in promoting economic development. It provides theoretical references for establishing a virtuous cycle of "technology-finance-industry" and holds strategic significance for cultivating new quality productive forces.

Keywords

fintech, real economy, high-quality development

1. Introduction

At present, China's economic development is undergoing a critical transformation toward high-quality development. As the foundation of the national economy, the real economy's strategic position in this historical context is increasingly prominent: its stable development not only concerns the construction of a modern economic system but also directly impacts the enhancement of national comprehensive strength (Lu and Ma, 2021). Among these, small and medium-sized enterprises (SMEs), which contribute significantly to GDP growth and create a large number of employment opportunities, are key players. Their survival and development not only relate to their own sustainability but also affect industrial structure optimization, technological innovation breakthroughs, and employment market stability (Chen, 2019).

However, the revitalization of the real economy faces significant financial constraints: there is a structural mismatch between traditional financial services and the needs of the real economy-on one hand, SMEs and sci-tech entities have long faced financing gaps due to information asymmetry and high risk control difficulties; on the other hand, the excessive concentration of financial resources in certain areas exacerbates the risk of "detaching from the real to the virtual" (Wang et al., 2019). A deeper contradiction lies in the fact that these enterprises are trapped in a vicious cycle of "narrow financing channels and high costs" due to credit evaluation barriers, while the resource tilt of traditional financial institutions further solidifies this imbalance (Yang, 2025).

In this context, the revolutionary empowerment of fintech has become the key to breaking the deadlock: by reconstructing core financial links through key technologies, it is effectively addressing pain points such as "difficult financing, high costs, and narrow coverage," becoming a new engine for activating the real economy.

Current research has conducted technical mechanism analyses and innovation explorations around fintech technologies such as artificial intelligence and blockchain, verifying their promotional effects on listed companies through the construction of fintech indices (Dong and Cai, 2021) and the design of empirical models (Dong and Cai, 2021). However, studies on the pathways of "how fintech systematically empowers high-quality development of the real economy" remain relatively scattered. Based on this, this study aims to deeply sort out the internal mechanisms and practical pathways of fintech empowerment, providing theoretical references for building a virtuous cycle of "technology-finance-industry." This holds important strategic significance for China to break through development bottlenecks and cultivate new quality productive forces.

2.   Measurement of the Fintech Index

To better construct an empirical model of the impact of fintech on real economic development, a universal and objective fintech index is needed to define the level of fintech application. These indices have made important contributions to research related to high-quality economic development.

Since fintech can be seen as the continuation and improvement of internet finance, its keyword frequencies overlap significantly with those of internet finance. Therefore, current studies on the measurement of fintech indices generally reference the calculation method of the internet finance index by Guo Pin and Shen Yue (2015), which uses text mining to construct the fintech index. This involves combining financial functions with technological implementation paths in fintech to build an initial keyword library for fintech, and then using Baidu Search Index to calculate the average annual search frequency of keywords in the initial library across various regions. Non-keywords in the initial library are converted into structured word frequencies, and finally, factor analysis is employed to synthesize the fintech index (Yang, 2025, Dong and Cai, 2021, Liu et al., 2018).

3.   Research on Empowerment Mechanisms and Core Pathways

Currently, fintech technologies mainly involve cutting-edge technological achievements such as artificial intelligence, big data, blockchain, and cloud computing. Understanding how these technologies land and apply in various fields of the real economy to solve practical problems is the foundation for empowering high-quality development of the real economy. The role of fintech in economic activities is becoming increasingly important, and research on fintech has become a hot topic among scholars, encompassing both direct and indirect perspectives.

The integration of technological techniques with financial behaviors has a direct promotional effect on the development of the real economy. SMEs, as an important component of China's real economy, have long faced discrepancies between ideals and reality: high-quality and potential enterprises struggle to showcase themselves and obtain financing more effectively, while financing shortages are fatal to SME development, leading them into a vicious cycle of being undiscovered and unable to secure funding. With the gradual application of fintech in the market in recent years, it provides new-era solutions to the problem of difficult financing for SMEs through two main perspectives: financing innovation and consumption promotion.

The role of fintech in corporate financing innovation is mainly manifested in reducing information asymmetry between financing enterprises and investors, lowering financing costs, reducing the financing threshold for SMEs, improving the efficiency of market fund utilization, enhancing the profitability of such enterprises, and thereby promoting their performance in expanding production scale, to empower real economic development.

3.1   Corporate Financing Empowerment

Fintech reconstructs credit evaluation systems and financing channels through technical means, breaking the scale discrimination and information asymmetry of traditional financial services, forming a financing innovation closed loop of "data credit enhancement-cost compression-controllable risk," creating inclusive

financial support for SMEs, and fundamentally changing the core contradictions of traditional financing models.

The empowerment effect of fintech on the real economy is reflected in breaking the financing constraints of SMEs. Fintech first alleviates the financing dilemmas of SMEs by penetrating information barriers and optimizing financing costs. In this process, big data credit reporting replaces collateral dependency: traditional financial institutions rely on fixed asset mortgages, leading to financing difficulties for light-asset enterprises and tech companies. However, fintech can integrate multi-dimensional data from taxes, supply chains, and social behaviors to build dynamic credit evaluation models. At the underlying architecture level, systems like Ant Group's Sesame Credit break through collateral dependency, transforming multi-dimensional dynamic operational data (taxes, logistics, supply chains) into credit assets, significantly lowering the identity threshold for micro, small, and medium enterprises to obtain financing. This transformation is embodied in three major breakthroughs at the operational level:

First, on the direct pathway, fintech can expand financing channels and serve the long-tail market. Zhuang Lei and Wang Ye point out that models such as P2P and equity crowdfunding can activate folk capital, break traditional financial barriers, and reduce financing tier costs. New channels like P2P and supply chain finance activate the long-tail market, and blockchain-enhanced tokenization of accounts receivable enables the sequential transmission of core enterprise credit along the industrial chain. Empirical evidence shows that manufacturing enterprises accessing platforms have their financing costs reduced from 14.6% to 8.9% (Zhuang and Wang, 2019); second, on the indirect pathway, Tan Zhongming et al. supplement the key role of bank credit transmission-fintech expands credit scale, lowers long-term loan interest rates, drives funds to flow toward the real industry, and guides industrial upgrading. AI risk control models achieve a qualitative leap in credit approval processes, compressing the review cycle from weeks in traditional modes to minutes (Zhuang and Wang, 2019), while controlling non-performing rates below 1.2% (Qi and Li, 2021); third, improvements in fund flow monitoring technologies effectively curb "detaching from the real to the virtual," intercepting irregular behaviors like "down payment loans" in real-time through smart contracts, increasing the loan approval ratio for real projects by 37% (Zhuang and Wang, 2019). Micro-level data is more persuasive: Dong and Cai (2021) verify through micro-data empirics that fintech reduces enterprise financing costs by an average of 12% and improves performance by suppressing inefficient investments, with a mediation effect of 19.3%. Its mechanism extends to urban-rural inclusivity: Lu Zhaoyang and Ma Hui confirm that technology reduces the urban-rural income gap ratio by 18.55%, unleashing the financing potential of rural enterprises, especially in regions with high urbanization rates (Lu and Ma, 2021); for every 1-unit increase in the urban fintech index, the enterprise financing constraint index (SA) significantly decreases by 0.15 standard deviations (Dong and Cai, 2021). This effect is particularly prominent in eastern manufacturing enterprises, where the decline in interest expense ratio is 3.3 times that of central and western enterprises, fully confirming the key role of technological adaptability.

3.2   Consumption and Investment Empowerment

Fintech reconstructs consumption markets and investment behaviors through scenario-based services and intelligent decision-making tools, activating a capital efficiency revolution on the demand side and forming a positive cycle of "demand activation-supply optimization-industrial upgrading," injecting endogenous growth momentum into the real economy.

Fintech directly stimulates the real economy from both ends of consumption scenario innovation and investment efficiency improvement, becoming a dual-wheel drive for activating domestic demand and optimizing decisions. On the demand side, the increase in penetration rates of mobile payment systems like Alipay significantly lowers transaction costs, compressing per-transaction costs by 92%, and more importantly, building a positive cycle of "payment-data-credit": for every additional dimension of user payment behavior data, the consumption credit activation rate increases by 13.8%, and the marginal propensity to consume rises from 0.42 to 0.57. Taking Ant Group as an example, it also reveals that mobile payments break spatiotemporal constraints; during "Double Eleven," transaction volumes rose from 8 billion in 2010 to 1,682 billion in 2017, significantly increasing consumption frequency and scale, and guiding consumption upgrades through big data analysis, forcing industrial manufacturing transformation. Essentially, this is the consumption potential unleashed by payment convenience (Zhuang and Wang, 2019); supply-side changes are even more profound: consumption big data drives production-end innovation through C2M user-direct manufacturing models, with

a certain appliance enterprise compressing new product R&D cycles by 61% and boosting hit rates from 25% to 63% (Dong and Cai, 2021). In the investment field, empirical evidence from Qi Jingjia and Li Lei shows that technologies like intelligent irrigation and e-commerce platforms can directly enhance agricultural output efficiency; the regression coefficient of 0.347 explains blockchain and big data-driven upgrades in the construction industry. At the indirect level, Tan Zhongming et al. find that fintech reduces investment costs for real enterprises; Lu Zhaoyang and Ma Hui's research discovers that under the influence of fintech, patent applications increased by 34.02%, emphasizing its optimization of investment structures by incentivizing enterprise technological innovation (Lu and Ma, 2021). Products like Yu'e Bao activate idle funds from 470 million residents (Zhuang and Wang, 2019), while on the enterprise side, machine learning algorithms analyze global patents and supply chain data, raising the success rate of emerging industry investments from 23% to 41% (Qi and Li, 2021). Particularly crucial is the credit pricing transmission mechanism: for every 0.092 percentage point decline in long-term loan interest rates (Tan et al., 2022), manufacturing R&D investment intensity increases by 2.4%, forming a leap path of "low-cost financing → technological innovation → total factor productivity improvement" (Lu and Ma, 2021).

3.3 Resource Allocation Empowerment

Fintech breaks traditional resource allocation's administrative barriers and market segmentations through technological penetration and data empowerment, forming a dynamic equilibrium of "technology diffusion-factor mobility-efficiency improvement," promoting the structural optimization of the real economy.

Fintech leverages core technologies like artificial intelligence and blockchain to reconstruct the logic of production factor allocation, but exhibits significant industry and regional heterogeneity. This heterogeneity first manifests in industrial penetration: Qi and Li (2021) confirms that technology significantly empowers the construction and agriculture sectors, but the manufacturing penetration rate is only 0.4%, exposing bottlenecks in technological adaptation; Zhuang Lei and Wang Ye corroborate that fintech has the greatest impact on the secondary industry, highlighting the urgent need for technology to sink into industrial scenarios (Zhuang and Wang, 2019). In terms of spatial reconstruction, the regional heterogeneity of fintech is also evident: Tan et al. (2022)verify the inter-provincial spatial spillover phenomenon of fintech, finding that a 1% technology improvement in neighboring provinces increases local real economy by 0.27%; in Lu Zhaoyang and Ma Hui's empirics, the DID coefficient is -0.3176, revealing that eastern policy effects are stronger than in central and western regions, and that technological efficacy is absent in low-urbanization areas, reflecting the issue of regional digital divides (Lu and Ma, 2021). Additionally, Tan et al. (2022) emphasize fintech's green orientation, guiding funds toward environmental industries by increasing green credit ratios, which can also drive high-quality transformation of the real economy.

4. Conclusion

Fintech empowers high-quality development of the real economy through a three-tier pathway of "financing-consumption investment-resource allocation." At the financing end, it breaks SME information barriers, reducing financing costs by 12%; at the consumption end, mobile payments activate domestic demand, enabling exponential growth in consumption scale; at the resource allocation end, spatial spillover effects and green finance guide industrial structure upgrades. However, there are certain technological adaptation bottlenecks and regional differentiation risks: core technologies have mature applications in construction and agriculture scenarios, but the manufacturing penetration rate is low, exposing structural contradictions in insufficient technology sinking into industrial scenarios. Fintech efficacy presents an "east-strong--west-weak" pattern, with technology dividends missing in low-urbanization areas, and excessive government intervention further weakening empowerment effects.

In the existing literature on fintech, there remain some research limitations, leaving room for further studies in the following areas. First, data depth is limited; existing fintech indices rely on search word frequency text mining, making it difficult to capture dynamic evolution features of technologies. In the future, real-time monitoring systems can be built by integrating patent data and enterprise API interfaces; Second, research on industry heterogeneity is insufficient, and the micro-mechanisms of manufacturing technology adaptation bottlenecks are not yet clear. It is necessary to deeply explore implementation resistances of smart contracts in supply chain finance and AI quality inspection in industrial scenarios; Moreover, current research pays

insufficient attention to policy synergies and has not quantified the linkage effects between policies like "Made in China 2025" and fintech. It is recommended to construct a "technology-industry-institution" triangular analysis framework to explore regionally differentiated policy toolkits. Furthermore, in the current era, the deepening direction of green finance increasingly requires attention, and the long-term effects of fintech-driven environmental industries have not yet been verified. In the future, ESG rating systems can be combined to study the empowerment mechanisms of blockchain technology in green fields such as carbon trading markets.

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Conflicts of Interest

The authors declare no conflict of interest.

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