Proceedings of the 10th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/2026.36984

# *The Impact of Digital Finance on the Viability of Small and Medium-Sized Enterprises: Research Progress and Outlook*

**Luhan Yan**

*School of Economics and Management, Xi'an University of Technology, Xi'an, China*
*352499486@qq.com*

***Abstract.*** SMEs play an important role in the national economy, but they suffer from financing constraints and short survival cycles. Digital finance provides opportunities as an area of broad coverage, low cost and efficient. This paper systematically sorts out domestic and international literature concerning digital finance and SMEs since 2020. Research progress in this direction is summarized in four aspects: Financing constraints, operational performance, innovation and resilience. The `blood transfusion–blood generation–resilience' chain mechanism is distilled from the same source and reveals its distinct enabling characteristics, in different property rights, local and regional contexts. In practical challenges, i.e. poor digital capabilities, data security risks, institutional transformation pressure and lack of coordination of policy, as well as related safeguards, and direction for future research. This paper aims at clarifying research in this field, closing research gaps, and providing a framework for digital finance policies of SMEs and for digital transformations.

***Keywords:*** Digital finance, small and medium-sized enterprises, resilience, financing constraints, research review

## 1. Introduction

SMEs play an essential role in national economy. However, the survival capabilities of Chinese SMEs is generally weak, with an average survival length of 2.5 years and fewer than 7% of enterprises surviving beyond 5 years. This is far below the level found in developed economies in Europe and US [1]. At the root of this problem, the lack of finance constraints have to overcome the development of SME and micro-enterprise. Traditional banks, which have limited ability to cope with information asymmetry, high collateral requirements, and high risk identification costs, can not manage the long-tail funding of SMEs and micro-enterprises.

In recent years, with the rapid development of digital technologies such as big data, cloud computing, artificial intelligence and block chain, digital finance has emerged as a new financial model. By restructuring credit assessment systems, providing low-cost services and optimism risk pricing, it can effectively alleviate information asymmetry and broaden financing channels for SMEs and micro-enterprises. The 2023 Central Financial Work Conference incorporated digital finance into the strategic deployment of the 'Five Major Initiatives', highlighting the state's strategic emphasis on leveraging digital finance to empower the development of these enterprises.

© 2026 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2754-1169/2026.36984

Existing literature mainly focus on intermediate indicators such as financing constraints, operational performance and innovation output, with relatively insufficient attention paid to the more fundamental outcome variable of "survival capacity". Only a few studies have touched on the relationship of digital finance to the survival of SMEs, they are based on listings and do not represent the entire population of SME's. Since the pandemic since 2020 has facilitated the development and improvement of digital Finance to a new level of standardized, large-scale empowerment of the real economy, the research from this period is more time-efficient and practical. In particular, this paper considers the role of digital funds in enhancing the survival capacity of SMEs and micro-enterprises. The paper reviews related domestic and international literature, summaries research progress, highlights mechanisms, and discusses research gaps and future research directions to guide subsequent academic research and policy studies.

## 2. Literature review

### 2.1. Research on the relationship between digital finance and the development of SMEs — from the perspective of 'intermediate indicators'

#### 2.1.1. The mitigating effect on financing constraints for SMEs

Financing constraints represent the primary obstacle to the survival and development of SMEs. It is found that digital finance alleviates financing difficulties to a certain extent by expanding credit supply and reducing loan interest rates; the core mechanism involves utilising big data technology to reduce information asymmetry and optimise risk pricing. The coverage, depth of application and level of digitalisation of digital inclusive finance all significantly alleviate financing constraints, with the effect being more pronounced for non-state-owned enterprises [2]. Furthermore, some scholars have found that digital inclusive finance can alleviate financing constraints by reducing the pressure on small and medium-sized enterprises (SMEs) arising from high financing costs and significant leverage requirements, and that this effect exhibits significant bias in terms of ownership, industry and regional characteristics [3].

On the one hand, digital finance utilises digital technologies and fintech to provide financial services to small, medium and micro enterprises, enhancing financing accessibility through precise risk assessment and efficient credit review. On the other hand, digital finance significantly reduces external financing costs by lowering financial transaction costs and reducing review processes and intermediaries.

#### 2.1.2. The impact on enhancing corporate performance

Further research reveals that digital inclusive finance significantly enhances business performance by alleviating financing constraints and reducing operational risks [4]. It is noted that the positive impact of digital inclusive finance on the operational performance of small and medium-sized enterprises (SMEs) exhibits non-linear characteristics, with more pronounced effects observed in western regions, non-state-owned enterprises and manufacturing firms.

In addition to improvements in financing on the supply side, recent research has begun to focus on transmission channels on the demand side. The positive impact of digital inclusive finance on SME performance can be realized through the demand-side channel of stimulating household consumption, with the effect of increased coverage being more pronounced. Digital finance

DOI: 10.54254/2754-1169/2026.36984

enhances the operational efficiency of SMEs by driving innovation, indicating that digital finance serves not only to 'provide a blood transfusion' but also to 'generate new blood'.

#### 2.1.3. The driving effect on innovation output

It is found that the development of digital inclusive finance can effectively drive innovation in SMEs. The primary transmission channel is through alleviating corporate financing difficulties to incentivise technological innovation, with this effect being more pronounced in private enterprises and companies with poorer internal governance quality [5]. Specifically, it is manifested as an increase in R&D investment and the number of patents. This promoting effect is particularly significant in industries with high innovation demands and in the central and western regions. Furthermore, digital finance not only promotes R&D investment but also helps technology-based SMEs form new-quality productive forces by optimising the innovation value chain [6].

#### 2.1.4. The foundational effect on firm survival and operational resilience

Regarding survival duration, Zhang Wenfei et al., found that digital finance could substantially lower the number of delisting [7]. This effect exhibits marked heterogeneity and primarily extends corporate survival through two channels: alleviating financing constraints and promoting innovation and R&D.

Wang Xiao-yi and Zhang Tong-jin, demonstrated that digital finance can enhance operational resilience through multiple mechanisms, including alleviating financing constraints, empowering risk management, and improving information transparency [8]. By utilising the shock of COVID-19 pandemic to build an SME resilient index system, Li Jianwei showed that in addition digital finance significantly improves SME robustness, and transmission mechanisms on demand and supply sides exist [9]. The international studies further demonstrated that digital inclusive finance can relax financing constraints and ensure that businesses cannot collapse due to the high capital structure and liquidity gaps, thereby promoting sustainable growth of micro, small and medium-sized enterprises [10]. It is supplemented that digital supply chain capabilities and digital leadership effectively improve SMEs' supply chain resilience and operational sustainability, allowing enterprises to build core competitiveness with lightweight digital tools.

### 2.2. The survival capacity of SMEs and related research

Survival capacity refers to a firm's comprehensive ability to maintain its existence, withstand risks and achieve sustainable operations. Ren Yingwei et al. introduced the fundamental essence of survival capacity for SMEs in three dimensions: macro (environmental adaptation), meso (industrial competitiveness), and micro (internal stability) [1]. On the measurement of viability, existing literature has primarily developed two approaches: the first involves objective outcome indicators that directly reflect a firm's survival status, such as firm survival duration and exit status; the second involves comprehensive capability indicators that reflect a firm's potential to sustain survival, such as the construction of a financial indicator evaluation system [7]. Recently, objective weighting methods, such as the entropy method and factor analysis, have also been adopted to construct comprehensive indices of survival capacity, aiming to provide a more comprehensive portrayal of a firm's survival status.

It is found that technological level, ownership structure, stage of development and enterprise scale have a significant impact on the survival rate of SMEs. Regarding external environmental

DOI: 10.54254/2754-1169/2026.36984

factors, cyclical fluctuations in the macroeconomy and external negative shocks pose severe challenges to enterprise survival. It is noted that the widespread adoption of digitalisation at the macro level can significantly enhance the core competitiveness and survival capacity of micro and small enterprises by alleviating information asymmetry and reducing rent-seeking behaviour. Overall, whilst methods for measuring enterprise viability are becoming increasingly diverse, a systematic measurement framework tailored to the characteristics of small and micro-enterprises remains to be refined.

Based on the above literature review, existing research still suffers from the following gaps: Firstly, the specificity of research contexts needs to be strengthened. Most studies focus on main board-listed companies, whilst there is relatively insufficient exploration of the New Third Board market—which specifically serves small, medium and micro enterprises—and the large number of unlisted SMEs. Secondly, the depth of mechanism analysis needs to be expanded. Existing research has primarily validated basic transmission channels such as financing constraints and innovation and R&D, but there is a lack of systematic exploration into the differentiated effects of various dimensions of digital finance, as well as the influence of moderating variables such as industry competition and regional financial environments.

## 3. The core mechanism through which digital finance empowers the viability of SMEs

Digital finance's empowerment of SMEs' survival capacity is a restructuring of financial services through technological penetration, forming systematic support across four levels: 'access to capital —cost control—efficiency enhancement—risk resilience'. Based on previous work, we have identified three linked transmission processes including blood transfusion (blood generation (resilience) and have highlighted their differentiated empowerment characteristics within enterprise, regional, and industry domains. In particular, we reviewed how digital finance helps in a qualitative transformation from "external blood transfusions" to "internal blood generation" and finally to "resilient". The following sections discuss three aspects: direct effects, transmission, and heterogeneity adaptation.

### 3.1. Direct effects: alleviating the core constraints of survival

The survival challenges for small and medium-sized enterprise (SME) and micro-enterprise mainly stem from the fundamental constraint of "fragility and instability in the capital chain" of finance models. Due to high transaction costs and high information asymmetry, traditional financial models cannot cope with long tail financing of SMEs and micro-enterprises. Many of these organizations are plagued with survival problems due to liquidity problems.

Digital finance has extended the financing channels and lowered the barriers and costs of accessing. By utilizing big data and artificial intelligence, digital Finance converts non traditional credit assets (such as corporate transaction records, tax payments histories, and supply chain data), to quantify credit scores, thereby eliminating the information asymmetric between banks and enterprises. Digital finance extends the financing channel and lowers the access limits. Take the automotive and motorcycle parts industrial cluster of Menghe Town, Changzhou, Jiangsu Province, as a model. The more than 4,000 small and small components manufacturers have long been under the lack of credit support from the major enterprises for their 'short-term, frequent, and urgent' financing. By leveraging the "Rong E Chain" digital supply chain model, Jiangnan Rural Commercial Bank has used multi-dimensional data such as tax records, business registration data, and transaction flows to construct a "credit empowered" risk control model. Through this model, the

DOI: 10.54254/2754-1169/2026.36984

bank has successfully provided credit facilities averaging 1.53 million yuan per account to 128 upstream suppliers in the industrial chain, effectively alleviating pressure on enterprises' cash flow.

In addition, digital finance is useful to help small and micro enterprises to track cash flow in real time and maximize capital allocation. Digital Finance can help companies to manage cash flow and reduce volatility and directly help them to avoid the existential crises that they encounter in the aftermath of broken cash flow chains [4]. Applying Xining's "Qingxinrong" inclusive finance credit information service platform as an example, Qingxinrong automatically combines corporate needs and financial products by applying AI algorithms to accurately match the financing response time between 30 days and 3 days and improve approval efficiency up to 90%.

### 3.2. Transmission mechanism: a chain reaction from 'external support' to 'self-sustaining growth' and ultimately to 'resilience'

The empowerment provided by digital finance extends beyond short-term capital injections; through a chain reaction of multi-layered transmission, it drives small and medium-sized enterprises (SMEs) and micro-enterprises to transition from 'external blood transfusion' to 'internal blood generation', gaining in resilience to risks and forming a critical support for survival over the entire business cycle.

### 3.3. The "blood transfusion" mechanism: alleviating financing constraints — the foundation of survival capacity

Digital finance provides external capital investment and liquidity support for SMEs or micro-entrepreneurs by extending and optimising capital management (direct effect). A repair and support of "fragility of the capital chain" is, in fact, what digital finance refers to as a "blood transfusion," mechanism—that is, by resolving information asymmetry and lowing financing costs, it helps enterprises obtain the short-term financial support required to maintain daily activities and to lay the foundations for further capability transformation.

"Blood transfusion" is not only for answering the "immediate needs" of SMEs /micro-enterprise; also for their transformation and growth. Digital finance in particular turns big data and artificial intelligence technologies to transform non-traditional credit assets into measurable score, which greatly improves access to finance [2]. At the same time, digital financial tool replacements replace manual reviews with digital methods in order to reduce operational cost and financing barriers especially among private firms and small-scale enterprises [3]. Improving the financial conditions allows enterprises to maintain their operations and invest in research and development. Micro and small firms with digital financial tools can reduce their survival uncertainty due to shortage of capital and provide a basis for future internal self-sustaining abilities [7].

#### 3.3.1. The core mechanism of "self-sustaining capacity": dual-drive of operational efficiency and innovation

Building on the pillars of financial security, digital finance further drives the enhancement of enterprises' internal capabilities, enabling them to generate their own money and facilitating a shift from "passive survival" to "proactive development", thereby underpinning their long-term viability.

Digital finance contributes to the efficiency of small, medium, and micro companies. Tao Yunqing et al from the National Equities Exchange and Quotations (NEEQ) reported that digital inclusive finance has an impact on the performance and quality of a company by alleviating the

DOI: 10.54254/2754-1169/2026.36984

burden of financing and reducing the risk of operation [4]. The so-called "Xiaotianyuan" enterprise ecosystem service platform by China CITIC Bank digitized human resource, finance and taxation, thereby cutting down the number of times a certain technology enterprise has to process its accounting processes from 12 days to 5 days, resulting in an overall efficiency improvement of almost 60%. The efficiency gains brought about by digital finance are heterogeneous and may be transmitted through various channels: their promotional effects are particularly significant for small and medium-sized enterprises and manufacturing companies, and are more prominent in the western regions and non-state-owned enterprises.

Digital finance stimulates the innovative vitality of small, medium and micro enterprises. The alleviation of financing constraints enables enterprises to allocate more funds to R&D activities, providing a steady stream of resources for technological upgrading. Based on data from the National Equities Exchange and Quotations (NEEQ), Song Xiaoling et al. noted that digital inclusive finance incentivises technological innovation by alleviating financing difficulties, exhibiting a particularly pronounced 'support effect' among private enterprises [5]. Research by Du Yongshan et al. further indicates that the role of digital finance in promoting innovation among micro, small and medium-sized enterprises in central and western regions is even more pronounced [6]. Take Hunan's unsecured "Cash Flow Loan" as an example: by converting business operational data into tangible creditworthiness, it had extended over 100 billion yuan in loans to 48,000 SMEs within the province by the end of November 2025. This has significantly unlocked the innovation potential of inland regions, helping enterprises transform technological patents into market competitiveness.

### 3.3.2. 'Resilience' safeguard mechanism: enhanced risk mitigation and shock recovery capabilities

In the face of external uncertainty, digital finance gives a net-post-event support to long term survival. Wang Xiao-yi and Zhang Tong-jin show, from the operational resilience perspective, that digital finance is a well-suited method to enhance the operational stability of a company. It can achieve an improvement in their operational stability via a variety of mechanisms, such as reducing the financing constraints, allowing for risk management and better information transparency [8]. In practice, the dynamic risk control capability is driving the financial institutions to switch from post-event resolution to pre-event prevention. In 2025, the Anhui Provincial Rural Credit Cooperatives Union innovatively introduced big data and machine learning technologies to construct a post-loan default prediction model. By integrating multi-dimensional data such as cash flow and digital behaviour, the model successfully covered approximately 45,000 farming households across seven pilot rural commercial banks, achieving a risk identification accuracy rate of 84.66% and significantly reducing the workload of post-loan verification by approximately 70%.

Li Jianwei utilized the shock of pandemic in an effort to design a resilience index system of SMEs: digital finance contributed in terms of SME robustness, since transmission occurs at both demand and supply [9]. This macro-level increase in resilience occurs at the micro level, as enterprises are able to absorb shocks during a crisis. In 2023, many enterprises based on traditional credit had the potential of missing or interrupting loans. However, enterprises connected with digital finance platforms like 'Qingxinrong' were able to have dynamic monitoring and early warning based on end-to-end data (a total of 553k warning notifications at the end of June 2025, which avoided 960 million yuan of non-performing loans) and managed to adapt their credit strategies in a timely way to keep an investment in business. Digital finance provides continuous and stable financial support and risk alert technology to the firms to address external shocks and recover.

DOI: 10.54254/2754-1169/2026.36984

### 3.4. Heterogeneity effect: differentiated empowerment characteristics across multi-dimensional contexts

The empowerment mechanisms of digital finance exhibit significant variations across different contexts, and this heterogeneity further explains the divergence in its effects on enhancing survival capacity.

Enterprise Characteristics Dimension: For private SMEs and micro-enterprises, digital finance can reduce the financing requirements [2]. According to the National Financial Regulatory Administration, as of June 2024, the outstanding balance of loans to the private enterprises nationwide is 71.8 trillion yuan, and the year-on-year growth rate is 9.0%, which is 0.8% higher than the growth of total loans; In first half of 2024, interest rate of new loans to private firms is 3.90%, and the difference for the year's increase is 0.58%, which can alleviate the financing constraints in private SME.

Regional dimension: Digital finance in undeveloped areas of central and western China only fills service gaps through 'broad coverage'. It is found that digital inclusive finance helps enhance performance of enterprises in western regions. The Qinghai "Qingxinrong" platform by combining government data from over 30 different departments both inside and outside the province is able to construct "credit profiles" for micro, small and medium enterprises (MSMEs), and over 81,500 MSMEs have been registered so far and financial funds can be contributed by more than 45.785 billion yuan to cover the inadequacies in financial infrastructure in the underdeveloped regions of western China. In the developing eastern regions, the "depth of usage" of digital finance is also crucial to help enterprises to be more sustainable.

Industry perspective: Since core financing requirements are different across sectors, digital finance enabling mechanisms also differ among sectors. For asset-light industries such as wholesale and retail, digital financial credit profiling' can resolve the problem of insufficient collateral. For example, Duyun Branch of the Industrial and Commercial Bank of China (ICBC) implemented Merchant e-Loan which takes QR code payments and transaction records into account, granting over 67 million yuan credit to 182 small and micro merchants.

The heterogeneous empowerment of digital finance in terms of property rights, regions and industries basically means that digital technology can resolve the inner concerns of several entities accurately, thereby being more suited to the specific survival needs of small, medium and micro enterprises than traditional finance.

In sum, the three mechanisms of "blood transfusion—blood generation—resilience" are interlinked and built upon one another and form a closed-loop chain of transmission. On this basis, digital finance dynamically adapts its priorities according to different enterprise ownership, regional financial development, and industry characteristics to attain targeted adaptation and precise empowerment. This forms a combination of "core transmission + heterogeneous adaptation", which is comprehensive and differentiable in the improvement of SME and micro-enterprise survival capabilities.

## 4. Practical challenges and safeguard mechanisms in digital finance's empowerment of SMEs' viability

The process of digital finance empowering the survival capabilities of SMEs and micro-enterprises is not without its hurdles. It faces multiple challenges at the technological, market and institutional levels, requiring corresponding safeguard mechanisms to provide support.

DOI: 10.54254/2754-1169/2026.36984

### 4.1. Challenges facing digital finance in empowering the viability of SMEs

#### 4.1.1. Insufficient digital capabilities and the dilemma of dual exclusion

The inclusivity of digital finance is founded on digital accessibility; however, the inherent heterogeneity of SMEs leads to severe "capability exclusion". A large number of micro and small enterprises in their start-up or late survival phases are constrained by narrow profit margins and find it difficult to bear the hardware and software investment required for digital transformation. SMEs generally suffering from issues such as inadequate financial systems and weak digital literacy. Compared to urban areas and large-scale enterprises, some SMEs in remote regions or traditional industries may experience "self-exclusion" or "tool exclusion" due to insufficient network infrastructure and a lack of digital skills.

#### 4.1.2. Data security and technological ethics risks

Digital finance relies heavily on vast amounts of business operational data. For SMEs with weak data security and privacy protection capabilities, risks such as data breaches, cyber fraud and algorithmic discrimination are particularly pronounced. Should a risk event occur, it could deal a devastating blow to a company's reputation and financial standing, running counter to the original aim of empowering their survival. Existing literature has paid insufficient attention to such 'technological negative externalities' and lacks in-depth empirical testing.

#### 4.1.3. Transformation pressures and external competition facing traditional financial institutions

With the rise of digital finance platforms, some traditional financial institutions will face the dual pressures of 'internal weakness and external competition': insufficient internal capabilities coupled with intensifying external competition. Faced with the loss of high-quality customers and profitability pressures, traditional institutions may further reduce their coverage of higher-risk clients, thereby creating new gaps in financial supply. Bu Ya and Liu Shuyu found that the sustainability of digital inclusive finance in alleviating financing constraints depends on the adaptability of financial institutions [3]. How to foster a complementary rather than a substitute relationship between digital financial platforms and traditional financial institutions is an issue that urgently needs to be addressed.

#### 4.1.4. Insufficient policy coordination and regulatory adaptation

The coordination mechanisms between digital finance development and financial inclusion policies, as well as industrial policies, remain underdeveloped. Existing regulatory resources are primarily concentrated in urban areas, resulting in a lag in the regulation of digital finance for small and medium-sized enterprises (SMEs) and micro-enterprises, making it difficult to effectively address new risks arising from technological iteration.

DOI: 10.54254/2754-1169/2026.36984

## 4.2. Safeguard mechanisms

### 4.2.1. Strengthening the digital foundation to overcome the dual exclusion dilemma

To address the dual exclusion dilemma caused by insufficient digital capabilities, efforts must be made on two fronts: infrastructure development and the enhancement of digital literacy. Accelerate the roll-out of digital networks and terminal facilities in remote areas, counties and rural villages; reduce the cost of digital access for SMEs and micro-enterprises; and encourage the development of lightweight, low-cost digital financial products to overcome 'tool exclusion' at the physical level. Conduct training in digital business operations and digital financial skills; standardise corporate financial management systems; and enhance business owners' digital literacy and data application capabilities to reduce 'self-exclusion' and 'tool exclusion', ensuring that digital financial services reach long-tail micro-enterprises with precision.

### 4.2.2. Strengthen data governance to mitigate technological and ethical risks

To address "technological negative externalities" such as data security breaches and algorithmic bias, a comprehensive data security governance and risk prevention system should be established. At the technical level, data encryption, privacy-preserving computing and block chain applications should be strengthened to ensure information security and process transparency; at the institutional level, data security regulations should be refined, whilst clearly defining the compliance boundaries for the collection, use and storage of business operational data in digital finance scenarios. Privacy protection and data security oversight should be reinforced, and illegal activities such as data breaches, cyber fraud and algorithmic bias should be severely cracked down upon.

### 4.2.3. Promoting synergy and complementarity to facilitate digital transformation

To address the transformation challenges and external competitive challenges faced by traditional financial institutions, the digital finance platforms and traditional financial institutes should be guided in this complementary and complementary direction. Let traditional financial Institutions leverage the potential of fintech for digital transformation in risk management and services, develop low-cost financial products for small and micro enterprise and solve internal service bottlenecks, while encouraging traditional financial institution to "funding + scenario" cooperation model with digital platforms, in which one provides low-value funding and safe risk management, the other provides traffic channels and technical support, to complement each other's advantages, and maintain steady financial supply.

### 4.2.4. Strengthen policy coordination and refine the adaptive regulatory framework

To address regulatory lag and lack of policy coordination, top-level design must be more closely linked to grassroots implementation. On the one hand, let digital finance policies be supported with government subsidies and industrial support policies, and indeed, empower SMEs and micro-enterprises very well. On the other hand, the regulatory model should continuously move from "post-event punishment" to "pre-event prevention and in-process surveillance, utilizing regulatory technology to effectively respond in real-time to incoming risks. Particularly in rural and underdeveloped regions, it should be enhanced, allowing limited trial-and-error for digital financial innovations addressing the weak link of real economy and achieving a dynamic trade-off between development and risk management.

DOI: 10.54254/2754-1169/2026.36984

## 5. Research conclusions and future outlook

Through a systematic review of relevant literature since 2020 and an in-depth exploration of its underlying logic, this paper has distilled a "blood transfusion–blood generation–resilience" chain mechanism through which digital finance empowers the survival capabilities of SMEs and micro-enterprises: by alleviating financing constraints to resolve short-term liquidity crises; by converting external funds into endogenous development momentum through improved operational efficiency and innovation cultivation; and by enhancing long-term resilience through risk resistance and shock recovery capabilities. Existing research has validated the empowering effects of digital finance across multiple dimensions, including the alleviation of financing constraints, improvements in operational performance, the cultivation of innovation capabilities, and the enhancement of survival resilience; moreover, these effects exhibit significant heterogeneity among private enterprises, in underdeveloped regions of central and western China, and within manufacturing enterprises. At the same time, the process of digital finance empowerment faces practical challenges such as insufficient digital capabilities, data security risks, pressure on traditional financial institutions to transform, and a lack of policy coordination. In the future, safeguard mechanisms need to be established by consolidating the digital foundation, strengthening data governance, promoting synergy and complementarity, and improving the regulatory framework.

Based on the gaps in existing research and the theoretical analysis presented in this paper, the following directions for future research are proposed: First, broaden the study from on-exchange to off-ex change to make the sample more representative. Future studies should not only take capital market thresholds into account, but also utilize NEEQ and regional equity markets and build a representative research sample and the heterogeneous survival logic of small and medium enterprises at growth steps and listing level to refine the internal validity of the conclusions.

Second, create a multi-dimensional comprehensive measurement system for survival capacity. Until now, the most recent literature only use single survival duration indicators or traditional financial metrics. Future research should address this limitation by incorporating enterprise operations and industry characteristics. With objective weighting techniques such as entropy method and factor analysis, a global index should be constructed with respect to risk resilience, growth capacity, innovation capability, and operational resilience for a more comprehensive and accurate description of an enterprise's suitability.

Third, further develop theoretical and practical research on mechanisms of action. Future researches should move beyond the single mechanism of financing constraints and explore in more detail the different mechanisms of actions in various aspects of digital finance, with a focus on phenomena such as 'non-linear effects' and 'threshold effects", while introducing contextual variables such as industry competitiveness and regional financial development levels to reveal boundary conditions.

Fourth, expand comparative and synergistic research on diverse digital technology empowerment pathways. Existing research often treats 'digital finance' as a monolithic concept, yet lacks in-depth exploration of the differentiated mechanisms of action of specific technologies such as blockchain and artificial intelligence. Future research could analyse the complementary, synergistic and substitutive relationships between different technologies in areas such as credit assessment, risk control and capital flow, whilst exploring the comprehensive empowerment effects of the integration of digital finance and digital technologies on the viability of SMEs.

DOI: 10.54254/2754-1169/2026.36984

## References

[1] Ren, Y., Lü, L., & Zhang, B. (2021). A political economy analysis of the survival capacity of micro and small enterprises in the context of the digital economy. *The Economist*, (11), 33–42.
[2] Wen, G., & Chen, H. (2024). A study on the impact of digital inclusive finance on financing constraints for small, medium and micro enterprises. *Financial Theory and Teaching, 42*(5), 14–25.
[3] Bu, Y., & Liu, S. (2022). A study on the impact of digital inclusive finance on financing constraints of SMEs: Dynamic effects, heterogeneity characteristics and mechanism identification. *Economic Forum*, (7), 125–138.
[4] Tao, Y., Zhang, J., Zou, K., et al. (2022). Digital inclusive finance and the operational performance of small, medium and micro enterprises: Evidence from companies listed on the New Third Board. *Investment Research, 41*(5), 37–52.
[5] Song, X., Wang, W., & Wang, G. (2023). Can digital inclusive finance provide momentum for SME innovation? Empirical evidence from enterprises listed on the NEEQ. *Investment Research, 42*(1), 120–137.
[6] Du, Y., Guo, H., & Li, T. (2024). A study on the relationship between digital finance, financing constraints and technological innovation in micro and small enterprises: Empirical evidence from New Third Board-listed companies. *Price Theory and Practice*(1), 151–157.
[7] Zhang, W., & Feng, Y. (2024). A study on the impact of digital finance development on the survival period of listed companies. *Explorations in Financial Theory*(1), 44–59.
[8] Wang, X.-y., & Zhang, T.-j. (2025). How does digital finance reshape corporate operational resilience? — Evidence from Chinese listed companies. *Research on Financial Development*(9), 32–42.
[9] Li, J. (2024). *A study on the impact of digital finance on the resilience of small and medium-sized enterprises: Empirical evidence from the ChiNext market* [Doctoral dissertation]. University of International Business and Economics. DOI: 10.27015/d.cnki.gdwju.2024.000134.
[10] Yang, L., & Zhang, Y. (2020). Digital financial inclusion and sustainable growth of small and micro enterprises—Evidence based on China's New Third Board market listed companies. *Sustainability, 12*(9), 3733.