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The Impact of Digital Inclusive Finance on Innovation Featured by Green in Small and Medium Enterprises (SMEs)

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Abstract

In recent years, with the proposal of sustainable development strategies, green development has become a trend of the times. Enhancing the level of innovation featured by green in enterprises is an important means to promote sustainable development. SMEs are the main battleground for innovation featured by green, but due to factors inherent to SMEs, they have been marginalized in the traditional financial market, struggling to secure adequate funding and facing dilemmas of lacking funds, talent, and technology. Digital inclusive finance, a deep integration of digital finance and inclusive finance, uses technological means to fill the gaps left by traditional financial markets in serving SMEs, expanding the coverage of financial services, promoting diversified financing methods, alleviating funding issues for green development, and fostering innovation featured by green in SMEs. Thus, exploring the impact of digital inclusive finance on innovation featured by green in SMEs helps reveal its role mechanism in this area and provides useful references for the government, financial institutions, and SMEs, promoting its widespread application in innovation featured by green among SMEs.

Keywords

Digital Inclusive Finance; Small and Medium Enterprises; Innovation Featured by Green.

1. Definitions of Digital Inclusive Finance and Innovation Featured by Green

1.1. Digital Inclusive Finance

With the rapid development of the Internet, digital technology has been applied to the economic field, giving rise to digital finance. Utilizing new-generation digital technologies like the internet, artificial intelligence, and big data as a foundation, digital finance innovates traditional financial business processes, products, and service models, creating new products, services, and business forms. Digital inclusive finance is a new form of finance formed by combining inclusive finance with digital finance, achieving inclusive development through technologies like big data, essentially expanding the reach of inclusivity. Inclusive finance is characterized by broad coverage, low cost, and high efficiency, providing a wide range of financial services at manageable costs, especially focusing on small businesses and low-income groups[1-2]. However, the financial systems faced by inclusive finance are often incomplete, and the credit systems are imperfect, leading to inaccurate information about service targets and increased risks, further exacerbated by unclear financial management models among these targets. Therefore, digital inclusive finance uses financial technology to quantitatively analyze customers and strictly control risks, providing comprehensive protection for service providers.

1.2. Innovation Featured by Green

Innovation featured by green is a broad term aimed at conserving resources, reducing pollution emissions, and protecting the ecological environment. After long-term development, this concept has been redefined as using new technologies to reduce the negative impact on the

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environment and add economic value to individuals or enterprises. Subsequently, many studies on innovation featured by green have been conducted across various sectors, but a consensus on the definition of corporate innovation featured by green has not been fully established(Table 1). Current research defines corporate innovation featured by green from two different perspectives: one based on objectives, indicating that innovation featured by green involves improving the environment through specific purposes or side effects in products, production processes, marketing models, organizational structures, etc., and is considered a technological innovation beneficial for enhancing resource efficiency and environmental quality. Another is based on content, referring to hardware or software innovations related to green products or processes, including energy conservation, pollution prevention, waste recycling, green product design, or innovations in corporate environmental management, providing different dimensions for a comprehensive understanding of corporate innovation featured by green.

Table 1. Definition of innovation featured by green

Perspective	Specific aspects	Examples
Goal	Marketing model	We will promote the concept of green consumption and guide consumers to choose environmentally friendly products
	Organizational structure	Establish an environmental protection department or committee to be responsible for the management and supervision of environmental protection within the enterprise
Content	Hardware innovation	The introduction of energy-saving equipment, such as LED lighting, efficient energy-saving motors, etc
	Software Innovation	Develop environmental management systems to optimize energy use monitoring and data analysis
	Prevention of pollution	Adopt cleaner production technology to reduce the emission of harmful substances

2. Characteristics of Digital Inclusive Finance

2.1. Broad Coverage

Due to its robust digital technology, digital inclusive finance effectively overcomes the shortcomings of traditional financial service models. Unrestricted by geographic or physical factors and leveraging the advantages of mobile devices and the internet, digital inclusive finance extends the reach of financial services to previously inaccessible remote areas and vulnerable groups. This broad coverage helps SMEs and individual entrepreneurs access the funds they need, significantly enhancing the inclusiveness of financial services. From another angle, the wide coverage of digital inclusive finance also injects vitality into the innovative development of SMEs, laying a solid foundation for the prosperity and development of the financial market.

2.2. Low Cost

As China's technological level continues to improve, digital technology is widely applied in various fields, including the economic sector, significantly reducing the operational costs of financial services. Financial institutions can use advanced technologies like big data and cloud computing to work more intelligently and automatically, reducing reliance on human labor, significantly increasing work efficiency, and lowering labor and time costs[3-4]. In the development journey of SMEs, digital inclusive finance provides economically affordable financial services, lowering the barriers and costs of financing, compensating for the small scale of SMEs, promoting the effective allocation of financial resources, gaining more financial support, and securing more opportunities for future development.

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2.3. High Efficiency

Digital inclusive finance achieves rapid response and efficient processing of financial services through digital technology. In practical applications, enterprises can easily complete loan applications, account information inquiries, and other operations through online platforms, saving a significant amount of time and effort. Financial institutions can also complete the approval and loan disbursement processes in the shortest possible time, significantly improving work efficiency. This highly efficient service model is widely recognized by the public, providing satisfactory experiences for users and further promoting the liquidity and activity of the financial market. Under the push of digital inclusive finance, the flow of funds in the financial market becomes faster and more convenient, offering more flexible and diverse financial service options for enterprises and individuals.

3. The Role of Digital Inclusive Finance in Innovation Featured by Green among SMEs

3.1. Promoting Healthy Enterprise Development

Compared to ordinary innovation, innovation featured by green distinctly requires substantial financial support, with the investment costs and innovation outcomes being irreversible. Limited resources and the uncertainty of innovation results significantly increase the risk of failure, making effective capital investment a key factor in the success of innovation featured by green in SMEs, highlighting the importance of a well-functioning financial market for supporting innovation featured by green in SMEs. In traditional financial markets, due to the economic backwardness of certain regions, it is difficult to gather sufficient funds for the development of SMEs. By applying digital technology, rapid and effective communication between companies and financial institutions can be facilitated, and this information can be recorded to better assess the creditworthiness of SMEs[5]. Additionally, establishing a comprehensive credit management system based on big data can effectively enhance financial institutions' ability to recognize the credit of SMEs needing funds. In this context, digital inclusive finance emerges, serving as a comprehensive and mature financial system capable of providing solid financial support for the innovation featured by green of SMEs.

Table 2. How does digital financial inclusion promote the healthy development of smes

Content	Measures	Effect of facilitation
Financial support	Provide diversified financing channels	Smes can obtain more funds for innovation featured by green and reduce the difficulty and cost of financing
Information sharing	Strengthen information sharing among the government, financial institutions and enterprises	To alleviate the problem of information asymmetry and improve the effective allocation of financial resources
Reduce costs	Reduce operating costs through digital means	Financial institutions can provide services to smes at a lower cost, and smes can also save financing costs
Risk management	Establish a sound risk management mechanism	To help smes effectively prevent and respond to risks in the process of innovation and improve operational stability

3.2. Easing Financing Pressure on Enterprises

Compared to large enterprises with robust capabilities, the financing of SMEs features smaller scale, shorter cycles, higher frequency, urgent needs, and higher risks. High operational risks, improper financial disclosure, and lack of guarantees in SMEs further reduce the enthusiasm of financial institutions to provide financing services, significantly exacerbating the financing

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difficulties of SMEs and ultimately suppressing their enthusiasm for innovation featured by green[6-7]. However, the application of digital technology and artificial intelligence, integrated into digital inclusive finance, effectively solves the financing difficulties of SMEs, easing their financing constraints. First, by using blockchain and digital technology among other innovative service models, digital inclusive finance provides diversified financing channels for SMEs, precisely meeting their differentiated needs and solving financing difficulties. Second, digital inclusive finance has the advantages of low risk and convenience, greatly reducing the cost and risk for financial intermediary organizations to provide financial services, thereby lowering the financing costs of innovation featured by green projects for SMEs and alleviating the problem of expensive financing for SMEs. Third, leveraging advanced technology, digital inclusive finance can obtain massive information about financing supply and demand, helping financial institutions understand the real situation of borrowers, speeding up transaction completion, and solving the problem of slow financing.

4. Pathways for Digital Inclusive Finance to Promote Innovation Featured by Green in SMEs

4.1. Strengthening Financial Regulation

In the current context of rapid development of the digital economy, to strengthen financial regulation(Figure 1), the government should actively build and improve the regulatory system for digital inclusive finance, thereby enhancing regional financial regulation and effectively promoting innovation featured by green among SMEs. Digital inclusive finance, a combination of digital technology and financial innovation, avoids risks related to the openness and sensationalism of digital technology through a well-established regulatory system, preventing systemic financial risks and providing a favorable environment for innovation featured by green in SMEs. In addition, traditional regulations can be used as a foundation for improvement, effectively managing regional finance, designing scientifically sound top-level plans for regional digital inclusive finance and innovation featured by green, clarifying market access and exit mechanisms, reasonably planning support for specific categories of innovation featured by green, strengthening process-based regulation of relevant entities, and orderly promoting the healthy development of regional digital inclusive finance, thereby creating a safe inclusive financial market environment for SME development.

Translation:

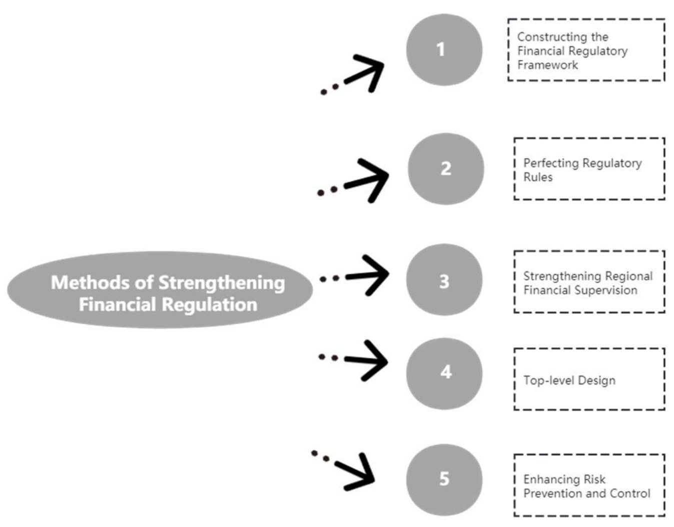

Figure 1. Methods of Strengthening Financial Regulation

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4.2. Achieving Information Sharing

In the current context of rapid development in the digital economy and innovation featured by green, enhancing information sharing between government bodies and financial institutions is crucial. Leveraging the National Data Bureau's role in coordinating data resources can effectively support the creation of comprehensive enterprise credit information databases, which are instrumental in transmitting enterprise-related data to the financial markets. Financial institutions, particularly banks, can then use this information alongside big data technologies to establish multidimensional credit evaluation systems. These systems can rigorously assess the qualifications of small and medium-sized enterprises (SMEs), develop models that evaluate the risks and returns associated with innovation featured by green projects, and ultimately facilitate more informed value judgments[8-9].

Furthermore, the government plays a key role in guiding SMEs to standardize their internal management systems. By encouraging SMEs to regularly publish performance indicators of green technological innovation and share detailed project information, the government can significantly improve the level of corporate information disclosure. This increased transparency is likely to build and enhance the trust financial institutions place in these enterprises. When financial institutions have better access to reliable data, they are more willing to extend financial support, especially for innovation featured by green initiatives, thereby promoting a cooperative relationship that is beneficial to both enterprises and financial entities. This healthy interaction between enterprises and financial institutions can act as a catalyst, advancing sustainable development in the field of innovation featured by green among SMEs.

4.3. Enterprises Strengthening Self-Improvement

With the rapid advancements and ongoing innovations in digital technology, the landscape of digital inclusive finance continues to evolve, offering numerous new opportunities for SMEs. To truly benefit from these developments in digital inclusive finance, SMEs need to actively adapt to the rapid changes within this environment. For this purpose, SMEs should prioritize strengthening their internal governance frameworks. They must focus on continuously improving their financial management systems, as well as internal control mechanisms, to ensure better financial conditions that are conducive to growth. Additionally, enhancing their capabilities for innovation featured by green is crucial in achieving competitiveness and sustainability.

In the current market environment, where economic activities are fraught with uncertainties and risks-including those related to SME financing-enterprises must align industry-specific characteristics with their unique operational realities. This means establishing comprehensive risk management systems that can anticipate and mitigate the risks that might arise during the financing process. Building multi-departmental internal management structures will allow for more effective risk prevention and ensure the scientific basis of decision-making processes. Moreover, SMEs should make informed decisions by accurately assessing both internal and external environments, including market conditions, economic trends, and consumer preferences. By closely integrating the funding cycle with production and business activities, enterprises can allocate funds more rationally after securing financing support, thereby improving project returns, optimizing the efficiency of fund usage, and ensuring that the potential benefits of digital inclusive finance are fully realized.

4.4. Adopting Differentiated Models

In the current global drive towards a green economic transformation, financial institutions must adapt and flexibly adjust their service strategies to effectively cater to the unique needs of different enterprises. Digital inclusive finance has demonstrated enormous potential in

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promoting innovation featured by green among SMEs, but the impact of this promotion can vary significantly between different industries and regions, necessitating a deeper exploration of its diverse effects. It is vital for financial institutions to expand the breadth and depth of financial services provided to SMEs. This can be achieved by constructing a tiered digital green financial ecosystem, enhancing the diversity of digital green products available, and specifically targeting the capabilities of SMEs in underdeveloped areas to ensure they also benefit from these initiatives.

Expanding the scope and efficiency of financing can significantly improve the quality of services available to SMEs. Given the heterogeneous effects that digital inclusive finance has on enterprises with different production characteristics, financial institutions should particularly focus on those industries where the promotion effects are most substantial. By effectively addressing the financing constraints of SMEs in these key sectors, financial institutions can ensure that their support yields the highest possible impact[10]. Establishing a multi-layered digital credit assessment system will be crucial in enabling a more comprehensive and timely examination of the credit conditions of SMEs.

This improved credit assessment capability will lead to better credit support for SMEs engaged in innovation featured by green activities, allowing these enterprises to access more resources and funding opportunities. In doing so, financial institutions can help SMEs enhance their innovation featured by green capabilities incrementally, contributing not only to individual enterprise growth but also to the overall sustainable development of the broader economy. Moreover, differentiated service models that account for industry-specific needs will allow financial institutions to provide more tailored support, fostering an environment in which innovation featured by green is encouraged and adequately funded across various economic sectors.

5. Conclusion

In today's societal context, digital inclusive finance plays an important role in promoting innovation featured by green among SMEs with its unique advantages, optimizing the financing environment, and improving the efficiency of financial services, providing more convenient and low-cost financial support for SMEs, further enhancing their innovation featured by green capabilities. In the existing market economy system, SMEs are important participants, and enhancing the innovation featured by green capabilities of SMEs can effectively promote green development. Digital inclusive finance can help enterprises alleviate financing constraints and move towards sustainable and green development. However, in specific practices, the government, financial institutions, and SMEs need to jointly exert effort, collectively address the diversified and complex issues in the development process, provide more comprehensive and efficient support for innovation featured by green among SMEs, and achieve sustainable economic and social development.

References

[1] Wan, J.; Zhou, Q.; Xiao, Y. Digital finance, financial constraint, and enterprise innovation. Econom. Rev. 2020, 71–83.

[2] Yao, L.; Yang, X. Can digital finance boost SME innovation by easing financing constraints? Evidence from Chinese GEM-listed companies. PLoS ONE 2022, e0264647. [CrossRef] [PubMed].

[3] Xue, L.; Zhang, X. Can digital financial inclusion promote innovation featured by green in heavily polluting companies? Int. J. Environ. Res. Public Health 2022, 7323. [CrossRef] [PubMed].

[4] Li, X.; Ran, G. How does digital financial development affect the quality of technological innovation? J. Mod. Econ. 2021, 69–77. [CrossRef].

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[5] Goldstein, I.; Jiang, W.; Karolyi, G.A. To FinTech and beyond. Rev. Financ. Stud. 2019, 1647–1661. [CrossRef].

[6] Huang, Y.; Lin, C.; Sheng, Z.; Wei, L. FinTech Credit and Service Quality; Working Papers; Geneva Financial Research Institute: Geneva, Switzerland, 2018.

[7] He, Z.; Chen, H.; Hu, J.; Zhang, Y. The impact of digital inclusive finance on provincial green development efficiency: Empirical evidence from China. Environ. Sci. Pollut. Res. 2022, 90404–90418. [CrossRef] [PubMed].

[8] Lin, B.; Ma, R. How does digital finance influence green technology innovation in China? Evidence from the financing constraints perspective. J. Environ. Manag. 2022, 115833. [CrossRef] [PubMed].

[9] Tang, S.; Wu, X.; Zhu, J. Digital finance and corporate technology innovation-structural characteristics, mechanism identification and differences in effects under financial regulation. Manag. World 2020, 52–66.

[10] Lee, I.; Shin, Y. Fintech: Ecosystem, business models, investment decisions, and challenges. Bus. Horiz. 2018, 35–46. [CrossRef].