

Digital Development of Agricultural Supply Chain Finance under Rural Revitalization Strategy

Liping Zhu^{1,*}

¹*School of Air Transportation, Shanghai University of Engineering Science, Shanghai, 201620*

^{*}*Email: zlp_sues@126.com*

ABSTRACT

Digital development of agricultural supply chain finance can effectively alleviate the problems of rural finance suppression and farmer credit constraint, which have a positive impact on rural revitalization. This paper analyzes the main methods of agricultural supply chain finance digitalization development, discusses the difficulties of agricultural supply chain finance digitalization development, and puts forward development suggestions.

Keywords: *Rural revitalization, Agricultural supply chain finance, Digital development*

1. INTRODUCTION

Agricultural supply chain finance can effectively alleviate the problems of rural finance suppression and farmer credit constraint, which realize the transformation, commercialization and sustainability of agriculture and promote smallholders to the upper reaches of the supply chain. So the services of financial institutions can penetrate into the complete agricultural supply chain from "seed to plate". By providing financial support to core enterprises as well as upstream and downstream enterprises, supply chain finance can effectively meet the capital needs of the development of "agriculture, rural areas and farmers". It can internally improve the rural credit market, and drive more leading enterprises to achieve the development of the whole supply chain. Supply chain finance focuses on supplementing, strengthening and extending the chain of agriculture-related industries, and builds modern agricultural industrial clusters, which is an important way to boost the prosperity of rural revitalization industries.

2. LITERATURE REVIEW

Scholars have studied the connotation, characteristics, risks, pricing, innovation and other aspects of agricultural supply chain finance. The main research results are as follows:

Hu Xiaofeng (2021) points out that in the process of the combination of agricultural supply chain finance and digital technology, there are a series of problems,

such as obvious short board of capital supply, severe exclusion of digital finance, difficult protection of legal rights and interests of participants, imperfect credit reference system, loss of digital financial supervision, etc.^[1]Jiang Donghui, Wang Bo (2020) think the innovative development of agricultural supply chain finance under the scenario of inclusive finance and targeted poverty alleviation should be led by the government, focus on cultivating new agricultural operating subjects, and integrate poor farmers into the agricultural supply chain finance system with social security policies.^[2]Xu Yuyun, Zhang Longyao (2020) conducted theoretical and case analysis on digital agricultural supply chain finance model. They believe that the digital transformation of traditional agriculture should be accelerated, the development of rural e-commerce should be promoted, and the development of agriculture-related Internet financial institutions should be supported and regulated.^[3]Gou YanJie (2020) says that agricultural financial problems and the industrial development of supply chain finance is not a simple problem, but need to build a "crossover, fu can, integration and symbiosis, collaborative" ecological agriculture industry, polymerization of various kinds of policy factor, capital factor, industrial elements and talent, for the development of agricultural supply chain finance to foster good organizational environment, industry environment, Form the core capability of supply chain finance operation, so that agricultural supply chain finance can complete the evolution from "point" to "ecological chain".^[4]Pi Shangyu (2020) believes that It is better to share the benefits of agricultural supply chain finance by reasonably sharing

the demand risk, Increasing the compensation cost of surplus units, and increasing the input of farmers' agricultural materials. ^[5]Chang Yudong (2019) believes that the key to breakthroughs in agricultural supply chain finance is innovation in products, business ecology, risk control, informatization, operation service and government management mechanism. ^[6]Shen Yun and Li Jingrong (2019) analyzed the financial credit risk prevention and control mechanism of agricultural supply chain from the perspective of cooperatives from three dimensions of pre-screening, process control and post-contract implementation. They believe that the rural financial system should be actively optimized and the level of fintech should be improved, the agricultural supply chain credit risk monitoring system should be improved, and the rural revitalization industry should be actively boosted. ^[7]Peng Lu (2018) proved the possibility of amplifying the financial moral hazard of agricultural supply chain based on the decisions of leading enterprises. In order to prevent the systemic risks caused by agricultural supply chain finance, commercial banks can cooperate with agricultural leading enterprises to implement the order mode, strengthen the closed management of agricultural supply chain finance, actively integrate into the cultural value system of agricultural supply chain finance, and strengthen the coordination supervision between macro-prudential and micro-prudential of agricultural supply chain finance. ^[8]Chen Yonghui et al. (2018) constructed a core enterprise-led agricultural supply chain finance loan service pricing model, and proposed loan service pricing rules and production decisions of agricultural supply chain finance by solving the optimization problems of acquirers and farmers. ^[9]Peng Lu (2015) concluded that agricultural supply chain financial risks are characterized by prominent moral risks, difficult to identify overall risks, and possible regional and industrial systemic risks. Therefore, the supporting projects of agricultural supply chain finance should be determined according to local conditions, and the risk of agricultural supply chain finance should be controlled by the principle of system theory. ^[10]

3. POSITIVE IMPACT OF DIGITAL DEVELOPMENT OF AGRICULTURAL SUPPLY CHAIN FINANCE ON RURAL REVITALIZATION

3.1. It helps alleviate the financing problems of small and medium-sized enterprises related to agriculture and reduce moral hazard.

Information asymmetry is the main reason for the shortage of effective credit supply. Due to farmers' lack of mortgageable assets and high risk-weighted interest rate pricing, there is serious information asymmetry between financial institutions and farmers, leading to

adverse selection and moral hazard. Agricultural supply chain finance can be integrated into the upstream and downstream information scene of agricultural supply chain. Logistics, business flow, capital flow and information flow in the agricultural supply chain can be effectively integrated by the core enterprises transferring the key information of farmers' production and operation status and potential risk level of credit funds to financial institutions. Relying on the stable strategic partnership between the upstream and downstream of core enterprises, it can realize the collection and utilization of multi-dimensional comprehensive information, and supply chain finance entities can effectively track supply chain capital flow. Agricultural supply chain finance can greatly improve the efficiency of resource allocation in the supply chain, and then improve the credit access ability of each main body of the supply chain.

3.2. It helps to dramatically reduce transaction costs in financial services.

The cost of physical branches in traditional banks is high. However, digital financial supply can greatly reduce the marginal cost of financial supply without physical outlets. Digital information technology can conduct real-time and remote supervision on agricultural supply chain finance. Big data analysis systems, directional payment systems and e-commerce platforms can help farmers complete online purchasing, payment, sales, loan application and repayment. Digital financial supply can greatly reduce the intermediate links in the credit process, shorten the credit decision-making chain, and greatly reduce the cost of information search.

3.3. It helps to promote the development of agricultural industry chain.

The credit object of agricultural supply chain finance is the enterprise group in the whole agricultural supply chain system, rather than a single enterprise or farmers. The credit conditions are mainly chattel pledge and goods right pledge rather than asset mortgage or third party guarantee. The nature of the loan is closed and continuous, rather than independently issued. Repayment sources are the trading assets and their earnings under the contract. Agricultural supply chain finance improves information transparency between financial institutions and households through a package of credit solutions for supply chain members. Through the integration of logistics, business flow, capital flow and information flow in agricultural supply chain, agricultural supply chain finance has realized the integration of asset management, personal finance, mobile payment and other financial products into supply chain financial services. Agricultural supply chain finance has expanded the supply of rural financial

services and promoted the modernization and chain development of agricultural industry.

3.4. It helps to increase the supply level of agricultural finance.

The digital transformation of agricultural supply chain finance is not limited to financial services. The application of IoT technology can help manufacturers improve production efficiency. The e-commerce platform and operation center promoted by digital technology can help enterprises quickly understand the market demand, expand the overall scale of the supply chain, and realize the value improvement of the supply chain. All these will help promote financial institutions to improve the level of financial supply.

4. MAIN METHODS OF DIGITAL DEVELOPMENT OF AGRICULTURAL SUPPLY CHAIN FINANCE IN CHINA

4.1. Digital agricultural supply chain finance business dominated by banks

Digitization has greatly streamlined the examination and approval procedures of agricultural supply chain financial business and greatly enhanced the risk control ability. Core agricultural enterprises with stronger financial strength provide guarantees for farmers and small and micro distributors, and banks' worries about bad debt risk are greatly reduced. Banks can complete data extraction of farmers and enterprises in the supply chain with the help of the trading platform set up by them, and analyze them while accumulating industrial data, so as to gradually ease the credit gap and control lending risks from the source.

4.2. Digital agricultural supply chain finance business dominated by e-commerce platform

By adopting agricultural supply chain finance, e-commerce platforms establish supply chains with agricultural core enterprises, and the contractual relationship between agricultural core enterprises and upstream farmers can be used as "agricultural funds". After the production and processing of agricultural products are completed, they can be sold online on the e-commerce platform to help upstream farmers repay loans.

4.3. Digital agricultural supply chain finance business led by the core enterprises

It usually consists of three core business platforms: data platform, e-commerce platform and financial platform. The data platform is the basic platform, and its original data mainly comes from the digital footprint formed by rural farming households and enterprises in

the process of production and sales. E-commerce platform is the core platform. Relying on e-commerce market, businesses including agricultural materials and agricultural products sales are unified online, effectively shortening the trading chain. The financial platform focuses more on strengthening the financial support for the upstream farming households. With the help of the information accumulated in the e-commerce platform and data platform, the digital credit evaluation model is constructed to complete the corresponding credit evaluation and risk evaluation.

5. PROBLEMS EXISTING IN THE DIGITAL DEVELOPMENT OF AGRICULTURAL SUPPLY CHAIN FINANCE IN CHINA

(1) There is low degree of informatization in rural area. Agricultural supply chain finance is still a simple online application. The informatization level of the whole agricultural supply chain is low. The insufficient application of agricultural automation and data makes it difficult to apply the big data mining model, leading to the weak comprehensive application ability of supply chain finance. It is difficult to give full play to the personalized and precise advantages of agricultural supply chain finance.

(2) Compared with industrial products with a higher degree of standardization, the development of e-commerce market of agricultural products lags behind. The commercial ecosystem built around the agricultural e-commerce platform is not perfect. Due to the lack of comprehensive data on commodities, transactions and logistics of agricultural products, there are few types and quantities of agricultural financial service institutions. The financing channels and related service institutions of agricultural supply chain finance are relatively single.

(3) The unsound rural credit environment hinders the digital development of agricultural supply chain finance. Many farmers have low education level and weak legal awareness. Their cognition of credit investigation is generally low and they cannot actively cooperate with the construction of rural credit system. Agricultural policy insurance institutions, public insurance system and rural credit guarantee mechanism are absent.

6. CONCLUSIONS

With the help of Internet, Internet of Things and big data technology, agricultural supply chain finance can better meet the personalized financing needs of the industry. In the future, the digital development of agricultural supply chain finance can be promoted from the following aspects.

(1) We should strengthen the rural information infrastructure construction. Big data, information technologies are the infrastructure for the smooth digital transformation of agricultural supply chain finance. It is important way to obtain farmers' digital footprint and solve farmers' rejection of digital agricultural supply chain financial tools. Therefore, financial investment in digital infrastructure construction in rural areas should be increased. At the same time, telecom operators should be encouraged to increase network infrastructure in rural areas, help them cut fees and speed up with incentive policies, reduce the cost of various digital financial facilities for rural small and micro business entities, and bridge the digital divide.

(2) We should increase the fund supply of financial institutions related to agriculture and rural areas. As the current institutions providing digital credit are mainly small loan companies or Internet banks, there are policy constraints or restrictions on the absorption of public savings. Insufficient capital supply leads to the problem of high capital cost in the digitalized development of agricultural supply chain finance. The government can increase the source of financing by relaxing the regulation on these financial organizations and allowing them to enjoy government subsidy policies.

(3) We should improve digital financial regulatory policies. Digital agricultural supply chain finance is the product of continuous innovation. Lack of regulation is inevitable. The regulatory authorities should innovate the implementation standards and codes of conduct corresponding to the digital operation process of supply chain, stipulate the application scope and application authority, formulate the corresponding industry technical standards, and establish market access rules for digital agricultural supply chain finance enterprises. On this basis, we should accelerate the construction of supervision technology and deployment of supervision application platform.

REFERENCES

- [1] Hu Xiaofeng. Practice and promotion of digital transformation of agricultural supply chain finance [J]. Southwest Financial, 2021 (4) : 52-62.
- [2] Jiang Donghui, Wang Bo. Inclusive and accurate: Innovative development of agricultural supply chain finance [J]. Rural Economy, 2020(5):99-104.
- [3] Xu Yuyun, Zhang Longyao. The digital transformation of agricultural supply chain finance: Theory and China's case [J]. Issues in Agricultural Economy, 2020(4):72-81.
- [4] Gou Yanjie. Research on agricultural supply chain finance Model innovation from the perspective of Industrial Internet [J]. Journal of Sichuan University of Science & Engineering (Social Sciences Edition), 2020 (4) : 33-52.
- [5] Pi Shangyu. Study on benefit Sharing mechanism of agricultural supply chain finance under Different Risk Sharing Mechanisms [J]. Journal of Hunan University of Science & Technology (Social Science) Edition, 2020(5):178-184.
- [6] Chang Yudong. Innovative mechanism of agricultural supply chain finance [J]. Social Scientist, 2019(8):42-47.
- [7] Shen Yun, Li Jingrong. Research on financial credit risk prevention and control mechanism of agricultural supply chain under the background of rural revitalization [J]. Finance and Economics, 2019 (2) : 46-53.
- [8] Peng Lu. Research on the amplification effect of financial moral hazard in agricultural supply chain [J]. Financial Research, 2018 (4) :88-103.
- [9] Chen Yonghui, Tu Hongyu, Zeng Yan. Systems Engineering-Theory & Practice, 2018(7) : 1706-1716. (in Chinese)
- [10] Peng Lu. Main Characteristics of financial risks in agricultural supply chain and basic principles of Risk prevention [J]. Financial Theory & Practice, 2015 (11) :20-24.