

# Research on the Farmer Financing Model of Live Streaming E-Commerce Platforms from the Perspective of Supply Chain Finance

## -- Taking "Walking with Hui" as an Example

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### Abstract

In the era of deep integration between the rural revitalization strategy and the digital economy, effectively addressing the financing difficulties of farmers has become a core measure to stimulate the endogenous driving force of the rural economy and promote quality improvement and efficiency enhancement in rural development. Based on the unique perspective of the collaborative integration of supply chain finance and live-streaming e-commerce, this paper selects the "Hui Xing" live-streaming e-commerce platform as a typical analysis sample to deeply explore the specific operational modes and implementation paths of farmer financing in the live-streaming e-commerce scenario. Firstly, it comprehensively reviews the current academic research on the innovative application of supply chain finance, the promotion of live-streaming e-commerce in assisting agricultural practices, and the optimization of farmer financing models, clarifying the strengths and weaknesses of existing research. Secondly, it systematically explains the inherent action logic and operational mechanism of supply chain finance in empowering farmer financing in the live-streaming e-commerce scenario. Thirdly, from five core dimensions: convenience of financing access, financing capital cost, risk control ability, subjective satisfaction of farmers, and industrial radiation and driving effect, a comprehensive evaluation index system for farmer financing effects is constructed, and the CRITIC weight method is used to scientifically calculate the weights of each index. Furthermore, using a two-way fixed effects model, mediation effect model, and panel threshold model, the direct impact effect, indirect transmission path, and nonlinear moderating effect of supply chain finance on farmer financing are empirically tested. The research results show that both the degree of participation of supply chain finance and the development level of live-streaming e-commerce can significantly improve the availability of farmer financing. The depth of digital technology application and supply chain collaboration efficiency play a partial mediating role in the process of influencing farmer financing, while digital economic infrastructure exhibits a nonlinear moderating effect based on threshold values. The research conclusions of this paper can provide solid theoretical support and feasible practical references for optimizing the farmer financing service model of live-streaming e-commerce platforms, addressing the financing difficulties of farmers, and facilitating the high-quality development of rural industries.

### Keywords

Supply Chain Finance; Live Streaming E-commerce; Farmer Financing; "Walking with Hui"; Rural Revitalization.

## 1. Introduction

The report of the 20th National Congress of the Communist Party of China proposed strategic plans for comprehensively promoting rural revitalization and developing the digital economy, pointing out the direction for rural economic development. However, the difficulty in financing for farmers has always been a core pain point constraining rural revitalization - traditional farmer financing faces structural difficulties such as "insufficient collateral, difficult credit assessment, and high financing costs," and the practical problem of rural financial coverage being less than 50% urgently needs to be addressed [1]. The No. 1 central document of 2023 clearly states that "develop rural digital finance and encourage financial institutions to use digital technology to provide microloans to farmers," and the No. 1 central document of 2024 further emphasizes "promoting the extension of supply chain financial services to rural areas and innovating financing models for farmers."

In the context of rural revitalization and the integration of the digital economy, addressing the financing difficulties of farmers is crucial for activating the rural economy. The integration of supply chain finance and live-streaming e-commerce provides a new path for this: the former relies on core enterprise credit and digital technology to alleviate information asymmetry, while the latter leverages traffic and data to support farmers' credit assessment. By 2025, China's rural e-commerce transaction scale exceeded 3.8 trillion yuan, with live-streaming sales accounting for over 40% [2]; the "Hui Xing" platform assisted farmers with financing exceeding 1.5 billion yuan in 2024, serving over 3,000 farmers, with a bad debt rate of 1.2%, outperforming traditional models. This paper takes this platform as a sample, reviews the current research status, explains the mechanism by which supply chain finance empowers farmers' financing, constructs an evaluation system from five dimensions, calculates weights using the CRITIC method, and empirically tests with three types of models. The study finds that the participation of supply chain finance and the development level of live-streaming e-commerce significantly enhance the availability of farmers' financing, with the depth of digital technology application playing a partial mediating role, and the digital economy infrastructure exhibiting a threshold nonlinear moderating effect. This paper provides theoretical and practical references for optimizing farmers' financing models and promoting high-quality development of rural industries.

This study focuses on this innovative practice and aims to: first, analyze the operational mechanism of the "Go with Hui" model and extract a replicable path of "digital economy + supply chain finance + agricultural assistance"; second, construct an evaluation system for the farmer financing model on live streaming e-commerce platforms and reveal the core mechanism of data empowerment and credit transmission; third, provide policymakers with a reference for collaborative solutions involving "technology-finance-industry".

This study takes the "Go with Hui" live streaming e-commerce platform as the core case, following the logical chain of "theoretical analysis - model measurement - empirical testing - countermeasure suggestions". The research methods include: literature review method, systematically sorting out relevant theories and research status; CRITIC weighting method, constructing a five-dimensional comprehensive evaluation index system; two-way fixed effects model, testing the direct impact of supply chain finance on farmer financing; mediation effect model, verifying the transmission path of digital technology application and supply chain collaboration; panel threshold model, identifying the nonlinear moderating effect of digital economy infrastructure.

## 2. Literature Review and Theoretical Analysis

### 2.1. Current Research Status at Home and Abroad

#### 2.1.1. Research on Innovative Applications of Supply Chain Finance

The development of domestic supply chain finance has received strong support from national policies, with financial technology (such as blockchain, big data, and AI) becoming the core driving force for innovation in supply chain finance. Research has shown that supply chain finance can promote green innovation through collaborative research and development and resource sharing. As enterprises increase their participation in supply chain finance, the number of applications for green invention patents has significantly increased. Foreign research focuses on the theoretical mechanisms of supply chain finance on enterprise innovation and risk management. For example, the path of improving enterprise innovation performance by alleviating financing constraints has been empirically verified.

In terms of supply chain finance services for rural revitalization, European and American countries emphasize the deep integration of agricultural industry chains and financial technology. For instance, AgriDigital in the United States utilizes blockchain technology to enable digital pledge of agricultural product warehouse receipts, while Rabobank in the Netherlands assesses farmers' production scale through satellite remote sensing data, thereby improving the credit assessment system [3]. Domestic research generally indicates that supply chain finance is an important means to alleviate farmers' financing constraints. Relying on the credit empowerment of core enterprises and the integration of digital technology, it can effectively reduce the degree of information asymmetry in the rural financial market.

#### 2.1.2. Research on the Practice of Live Streaming E-commerce in Supporting Agriculture

Foreign research has primarily focused on the synergistic effects between e-commerce platforms and agricultural supply chains, yet there is a lack of analysis on dynamic financing needs in the live streaming scenario. Domestic scholars believe that live streaming e-commerce, leveraging its traffic advantages and data accumulation, can provide financial institutions with a basis for evaluating farmers' creditworthiness. However, its financing model still faces challenges such as high upfront costs and significant operational risks [2]. Studies have found that participating in supply chain finance significantly increases farmers' annual income, primarily through enhancing agricultural operations and support income.

Live streaming e-commerce platforms are exploring the "order financing + data credit" model. Shandong Agricultural Guarantee has launched the "Qilu E-commerce Loan - Order Loan" product, which achieves direct system connection with e-commerce platforms such as Tiktok, Kwai, and JD.com, accurately captures store operation data and order data, realizes instant approval and instant disbursement, and achieves "order + fund" dual closed-loop management, which can leverage 2-5 times of working capital [4]. The Industrial and Commercial Bank of China's Bijie branch in Guizhou has innovated the "E-commerce e-loan", which integrates e-commerce platform operation data and credit rating to build a "user portrait + intelligent risk control" dual engine, providing an extremely fast experience of "minute-level credit extension and online one-click withdrawal" [5].

#### 2.1.3. Research on Optimizing Farmers' Financing Model

Existing domestic literature analyzes from dimensions such as financing availability, cost, and efficiency. Research indicates that supply chain finance can reduce farmers' financing costs by 30%-50% through methods such as order pledge and accounts receivable financing. Foreign scholars emphasize the potential application of financial technology in farmers' credit assessment, but due to weak technological infrastructure in developing countries, the actual

implementation effect is limited. Existing research mostly focuses on SME financing, and there is a lack of systematic analysis of customized supply chain finance models for farmers [6].

## 2.2. Theoretical Basis and Mechanism of Action

### 2.2.1. Definition of Core Concepts

Supply chain finance refers to a service model that relies on core enterprises and takes real transactions as the premise, providing comprehensive financial products to upstream and downstream enterprises in the supply chain through self-liquidating trade financing. Live streaming e-commerce for agriculture refers to a new circulation model that relies on live streaming platforms to display and sell agricultural products through real-time interaction, achieving the upward flow of agricultural products and increasing farmers' income[7].

### 2.2.2. The Mechanism of Supply Chain Finance Supporting Farmer Financing

The direct impact paths include: first, core enterprise credit transmission, which reduces the financing threshold for farmers through the endorsement of core enterprise credit; second, data assetization empowerment, which converts live streaming transaction data and farmer business data into credit evaluation basis; third, risk control optimization, which reduces default risk through closed-loop management of capital flow, information flow, and logistics.

The indirect impact pathways include: promoting the upgrading of the agricultural industry chain, driving standardized production and brand building; promoting the development of the rural digital economy, and enhancing the level of digital infrastructure in rural areas; enhancing farmers' market bargaining power, and reducing market risks through contract farming[8].

## 3. Research Design

### 3.1. Case Selection and Data Sources

This study selects the "Go with Hui" live streaming e-commerce platform as a typical case, mainly based on the following considerations: First, typicality. The platform assisted farmers with financing exceeding 1.5 billion yuan in 2024, serving more than 3,000 farmers, with a bad debt rate of only 1.2%, making it an industry benchmark. Second, data availability. The platform publicly discloses key operational data, and its cooperation areas cover the eastern, central, and western regions, facilitating comparative analysis.

Data sources include: (1) Internal data from the "Hui Together" platform, including farmer financing transaction data (order amount, financing interest rate, repayment period), live broadcast operation data (number of viewers, conversion rate, repurchase rate); (2) Macroeconomic data of the cooperation area, sourced from the "China Statistical Yearbook", "China Rural Statistical Yearbook", and statistical yearbooks of various provinces; (3) Digital economy development index, referring to the Digital Inclusive Finance Index of Peking University and the digital economy development index released by CCID Consulting.

### 3.2. Construction of Indicator System

Based on the characteristics of supply chain finance and live streaming e-commerce, this study constructs a comprehensive evaluation index system for farmer financing models on live streaming e-commerce platforms from five dimensions:

**Financing availability dimension:** Reflects the ease with which farmers can obtain financing. It includes financing coverage rate (number of farmers who have obtained financing / number of farmers who applied), average financing amount per household, approval pass rate, and approval duration (in days).

**Financing cost dimension:** Reflects the economic burden of financing for farmers. It includes average financing interest rate (%), financing cost rate (financing cost/financing amount),

premium rate (guarantee fee/financing amount), and the decrease in comprehensive cost (compared to bank loan interest rates in the same period).

Risk control level dimension: Reflects the robustness of the financing model. It includes non-performing loan ratio (%), overdue rate (%), risk reserve coverage, and post-loan management efficiency (risk early warning response time).

Farmers' satisfaction dimension: Reflects farmers' evaluation of financing services. It includes financing satisfaction (questionnaire score), renewal rate (%), willingness to recommend (%), and problem-solving efficiency (days).

Industry driving effect dimension: Reflects the promoting effect of financing on industrial development. It includes the growth rate of farmers' income (%), the growth rate of agricultural product sales (%), the number of employment driven, and the brand premium margin (%).

### 3.3. Research Methods

#### 3.3.1. CRITIC Weighting Method

The CRITIC method is an objective weighting approach that comprehensively assesses the information content based on the comparative intensity and conflictiveness of indicators. The specific steps are as follows: first, normalize the raw data; second, calculate the standard deviation of each indicator to reflect its variability; third, compute the correlation coefficient matrix among indicators to reflect their conflictiveness; finally, calculate the information content of each indicator and determine its weight.

#### 3.3.2. Two-way Fixed Effects Model

To examine the direct impact of supply chain finance on farmer financing, the following two-way fixed effects model is constructed:

$$Y_{it} = \alpha_0 + \beta_1 SCF_{it} + \beta_2 LIVE_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \tag{1}$$

Among them,  $Y_{it}$  represents the financing effect of farmers (financing amount, financing interest rate),  $SCF_{it}$  represents the participation degree of supply chain finance,  $LIVE_{it}$  represents the development level of live streaming e-commerce,  $X_{it}$  represents the control variable,  $\mu_i$  represents the regional fixed effect, and  $\lambda_t$  represents the time fixed effect.

#### 3.3.3. Mediation Effect Model

To examine the transmission path of digital technology application depth and supply chain collaboration efficiency, a stepwise regression mediation effect model is constructed:

$$M_{it} = \theta_0 + \theta_1 SCF_{it} + \theta_2 LIVE_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \tag{2}$$

$$Y_{it} = \phi_0 + \phi_1 SCF_{it} + \phi_2 LIVE_{it} + \phi_3 M_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \tag{3}$$

The Bootstrap method was used for significance testing of the mediating effect.

#### 3.3.4. Panel Threshold Model

To identify the nonlinear moderating effect of digital economy infrastructure, a panel threshold model is constructed:

$$Y_{it} = \eta_0 + \eta_1 SCF_{it} I(q_{it} \leq \gamma_1) + \eta_2 SCF_{it} I(\gamma_1 \leq q_{it} \leq \gamma_2) + \dots + \eta_n SCF_{it} I(q_{it} \leq \gamma_n) + \gamma X_{it} + \mu_i + \varepsilon_{it} \tag{4}$$

Among them,  $q_{it}$  is the threshold variable (level of digital economic infrastructure), and the significance of the threshold effect is tested using the "bootstrap method" proposed by Hansen (1999).

## 4. Empirical Analysis

### 4.1. Descriptive Statistical Analysis

Based on the monthly data from January 2024 to June 2025 on the "Huiying" platform, the descriptive statistics of key variables are presented in Table 1.

**Table 1.** Descriptive statistics of main variables

Variable Name	Number of Observations	mean	standard deviation	minimum	maximum
Farmers' financing limit (10000 yuan)	18	4250.3	856.4	3120.5	5860.2
Average financing interest rate (%)	18	4.82	0.43	4.15	5.60
Participation in supply chain finance	18	0.76	0.12	0.58	0.92
Development level of live streaming e-commerce	18	0.82	0.09	0.67	0.95
Depth of application of digital technology	18	0.68	0.15	0.45	0.88
Supply chain synergy efficiency	18	0.71	0.11	0.52	0.86
Digital Economy Infrastructure	18	0.65	0.18	0.38	0.90

Data source: Internal data compiled from the "Walking with Hui" platform.

As can be seen from Table 1, the financing limit for farmers has shown a steady growth trend, increasing from RMB 31.205 million at the beginning of the year to RMB 58.602 million in June 2025. The average financing interest rate has remained within the range of 4.15%-5.60%, significantly lower than the average interest rate of rural commercial bank loans during the same period (6.8%). Both the participation degree in supply chain finance and the development level of live streaming e-commerce are at a high level, indicating that the platform has fully utilized supply chain finance tools.

### 4.2. CRITIC Weighting Results

The CRITIC method was employed to assign weights to the five-dimensional evaluation index system, and the results are presented in Table 2.

In terms of dimension weights, the level of risk control (24.36%) and financing availability (22.45%) are the most important dimensions for evaluating the financing model of farmers on live streaming e-commerce platforms, indicating that the core of the financing model lies in improving availability under the premise of controllable risk. Financing costs (20.18%) and industrial driving effect (17.75%) come next, while farmer satisfaction (15.26%) has a relatively low weight but remains an important reference indicator.

In terms of specific indicators, the non-performing loan ratio (6.92%), overdue rate (6.58%), approval pass rate (6.38%), and approval duration (6.09%) are the four indicators with the highest weights, accounting for a total of 26.57%. This highlights the crucial role of risk control and financing efficiency in farmer financing.

**Table 2.** Weights of evaluation index system for farmer financing models on live streaming e-commerce platforms

Dimension	Indicator	Weight(%)	Dimension Weight(%)
Financing availability	Financing coverage rate	4.86	22.45
	Average financing limit per household	5.12	
	Approval rate	6.38	
	Approval duration	6.09	
financing cost	Average financing interest rate	5.67	20.18
	Financing cost ratio	5.23	
	Premium rate	4.45	
	Cost reduction rate	4.83	
Risk control level	Non-performing loan ratio	5.23	24.36
	delinquency rate	6.58	
	Risk reserve coverage ratio	5.24	
	Post loan management efficiency	5.62	
Farmer satisfaction	Financing satisfaction	4.35	15.26
	Loan renewal rate	4.12	
	Recommendation intention	3.86	
	Problem solving efficiency	2.93	
Industrial driving effect	Growth rate of farmers' income	4.78	17.75
	Growth rate of agricultural product sales revenue	4.56	
	Employment driven population	4.23	
	Brand premium range	4.18	

Data source: Calculated by the author based on the CRITIC method.

### 4.3. Estimation Results of Two-way Fixed Effects Model

To examine the direct impact of supply chain finance on farmer financing, a two-way fixed effects model was employed for estimation, and the results are presented in Table 3.

**Table 3.** Estimation results of two-way fixed effects model

Variable	Model 1 (Financing Amount)	Model 2 (Financing Interest Rate)
Participation in supply chain finance	0.356*** (4.82)	-0.284*** (-3.96)
Development level of live streaming e-commerce	0.293*** (3.71)	-0.215** (-2.58)
Educational level of farmers	0.086 (1.24)	-0.042 (-0.98)
Cooperative participation rate	0.152** (2.33)	-0.138* (-1.92)
Regional economic development level	0.118* (1.86)	-0.095 (-1.43)
constant term	2.846*** (5.67)	6.235*** (8.42)
Regional fixed effects	control	control
Fixed time effect	control	control
Adjust R <sup>2</sup>	0.683	0.592
Observation numbers	180	180

Note: The t-values in parentheses indicate significance at the 1%, 5%, and 10% levels, respectively.

The results of Model 1 indicate that the participation degree of supply chain finance has a significant positive impact on the financing amount for farmers (coefficient 0.356, p<0.01),

suggesting that for every 1 percentage point increase in the participation degree of supply chain finance, the financing amount for farmers increases by 0.356 percentage points. The development level of live-streaming e-commerce also has a significant positive impact on the financing amount (coefficient 0.293,  $p < 0.01$ ), confirming the positive role of live-streaming e-commerce in broadening the financing channels for farmers.

The results of Model 2 indicate that the degree of supply chain finance participation has a significant negative impact on financing interest rates (coefficient -0.284,  $p < 0.01$ ), and the level of development of live-streaming e-commerce also has a significant negative impact on financing interest rates (coefficient -0.215,  $p < 0.05$ ), suggesting that the development of supply chain finance and live-streaming e-commerce contributes to reducing farmers' financing costs. This is primarily because supply chain finance reduces risk premiums through the credit transmission of core enterprises, while live-streaming e-commerce reduces the degree of information asymmetry through data accumulation.

#### 4.4. Mediation Effect Test Results

To examine the transmission path of digital technology application depth and supply chain collaboration efficiency, a stepwise regression method was employed for mediating effect testing. The results are presented in Table 4.

**Table 4.** Mediation effect test results

Pathway	Direct Effect	Indirect Effect	Total Effect	Mediation Proportion(%)
Supply chain finance → Digital technology application → Financing limit	0.214***	0.142***	0.356***	39.9
Supply chain finance → supply chain collaboration → financing limit	0.238***	0.118***	0.356***	33.1
Live streaming e-commerce → Digital technology application → Funding limit	0.176**	0.117***	0.293***	39.9
Live streaming e-commerce → supply chain collaboration → financing quota	0.185**	0.108***	0.293***	36.9

Note: Bootstrap resampling was conducted 500 times

As can be seen from Table 4, all four intermediary paths have passed the significance test. In the impact of supply chain finance on financing quotas, the intermediary proportion of digital technology application is 39.9%, and the intermediary proportion of supply chain collaboration is 33.1%, indicating that supply chain finance indirectly promotes farmer financing by promoting the application of digital technology and enhancing the efficiency of supply chain collaboration. In the impact of live streaming e-commerce on financing quotas, the intermediary proportion of digital technology application is 39.9%, and the intermediary proportion of supply chain collaboration is 36.9%, also verifying the existence of an indirect transmission mechanism.

The theoretical significance of this discovery lies in its revelation that supply chain finance and live-streaming e-commerce not only directly improve farmers' financing but also generate a "multiplier effect" through technological penetration and industrial chain synergy. The practical significance lies in the fact that optimizing farmers' financing models requires simultaneous attention to technological empowerment and industrial synergy, forming a multi-dimensional policy synergy.

### 4.5. Panel Threshold Model Estimation Results

To identify the nonlinear moderating effect of digital economic infrastructure on the financial effects of supply chains, we use the level of digital economic infrastructure as the threshold variable and employ a panel threshold model for estimation. The results are presented in Table 5.

**Table 5.** Panel threshold model estimation results

Threshold variable: Digital economy infrastructure	Threshold value	F-value	P-value	95% Confidence interval
single threshold	0.524	28.36	0.000	[0.486, 0.557]
Double thresholds	0.735	15.42	0.013	[0.698, 0.771]
Triple thresholds	0.832	6.85	0.286	[0.805, 0.856]

Table 5 shows that digital economic infrastructure exhibits a dual threshold effect, with two threshold values of 0.524 and 0.735. This implies that the impact of digital economic infrastructure on the financial effect of supply chains is nonlinear, and can be divided into three zones: low-level zone ( $\leq 0.524$ ), medium-level zone (0.524-0.735), and high-level zone ( $\geq 0.735$ ).

**Table 6.** The marginal effect of supply chain finance within different threshold ranges

Threshold range	upply chain finance coefficient	t-value	Sample proportion(%)
Digital economy infrastructure $\leq 0.524$	0.186**	2.35	27.8
0.524 < digital economy infrastructure $\leq 0.735$	0.357***	4.68	45.6
Digital economy infrastructure $\geq 0.735$	0.442***	5.23	26.6

As can be seen from Table 6, with the improvement of digital economy infrastructure, the promoting effect of supply chain finance on farmer financing shows an increasing trend: in the low-level region, the coefficient is 0.186; in the medium-level region, the coefficient increases to 0.357; and in the high-level region, the coefficient further rises to 0.442. This indicates that digital economy infrastructure has a significant "empowerment enhancement effect" - only when the infrastructure reaches a certain threshold can the promoting effect of supply chain finance on financing be fully unleashed.

The policy implication of this finding is that promoting the integration of supply chain finance and live-streaming e-commerce to assist farmers in financing should not be a one-size-fits-all approach, but rather adopt differentiated strategies based on regional digital infrastructure levels. For areas with weak infrastructure, priority should be given to increasing investment in digital infrastructure; for areas with better infrastructure, emphasis can be placed on promoting model innovation and technological deepening.

### 4.6. Robustness Test

To ensure the reliability of the research conclusions, the following robustness tests were conducted: (1) Replacing the dependent variable, substituting the farmers' financing amount with the number of financing transactions and the average financing amount per household; (2) Replacing the core explanatory variable, substituting the degree of participation in supply chain finance with the number of types of supply chain finance products; (3) Adjusting the sample range, excluding the top and bottom 5% of samples with extreme values; (4) Changing the estimation method, using the system GMM model to address potential endogeneity issues. The

results of each test are basically consistent with the benchmark regression, indicating that the research conclusions are robust.

## 5. Case analysis of the "Walking Together with Hui" Model

### 5.1. Mode Operation Mechanism

The farmer financing model of the "HuiTongXing" platform can be summarized as a three-stage mechanism: "assetization of live streaming data - design of supply chain finance products - closed-loop risk management".

Phase 1: Assetization of live streaming data. The platform accumulates massive transaction data through live streaming, including indicators such as user viewing duration, interaction frequency, conversion rate, and repurchase rate, combined with farmers' business data (planting area, historical output, sales records), and utilizes big data technology to build farmers' credit profiles. As of June 2025, the platform has accumulated more than 5 million pieces of farmers' business data, covering more than 300 counties in 28 provinces across the country.

Phase 2: Design of supply chain finance products. Based on data profiling, the platform designs differentiated financing products: for farmers with stable orders, the "Order Loan" product is launched, using pre-sale orders as collateral, with a financing limit of up to 70% of the order amount; for branded farmers, the "Credit Loan" product is introduced, with dynamic credit extension based on historical transaction data; for cooperatives, the "Industry Chain Loan" is launched, covering the entire chain of production, processing, and sales. In 2024, the platform issued a total of 1.52 billion yuan of various financing loans, benefiting 3,120 farmers.

Phase 3: Risk closed-loop management. The platform establishes a dual risk control system of "technology + system": technically, blockchain technology is employed to store transaction data on the blockchain for certification, ensuring data immutability; institutionally, a joint guarantee mechanism of "platform + core enterprise + farmer" is established, with the core enterprise providing guarantees and the platform setting up a risk reserve (with a provisioning ratio of 2% of the financing amount). As of June 2025, the platform's non-performing loan ratio was controlled at 1.2%, significantly lower than the industry average (the non-performing loan ratio in rural finance is approximately 4.5%).

### 5.2. Analysis of Regional Differences

Based on ArcGIS spatial visualization technology, an analysis was conducted on the applicability of the "Walking Together with Hui" model in different regions, and the results are presented in Table 7.

As can be seen from Table 7, the "Hui-Together" model exhibits significant differences across different regions: the eastern coastal areas have the highest financing availability (85.6%), the lowest financing cost (4.35%), and the lowest non-performing loan ratio (0.9%), primarily benefiting from well-developed digital infrastructure and a mature e-commerce ecosystem; the western mountainous areas have lower financing availability (58.7%), higher financing cost (5.48%), and a higher non-performing loan ratio (1.8%), reflecting the constraints of weak digital infrastructure on the model's effectiveness.

This finding validates the conclusion of the panel threshold model mentioned earlier: digital economic infrastructure serves as a "threshold variable" influencing the efficiency of supply chain finance. Only when the infrastructure reaches a certain level can the potential of innovative models be fully unleashed.

**Table 7.** Comparison of regional differences in the "Walking with Hui" model

Region type	Representative province	Financing availability	Financing cost(%)	Non-performing loan ratio(%)	Adaptation strategy
Eastern coastal area	Zhejiang, Jiangsu	High(85.6%)	4.35	0.9	Technological deepening, mode innovation
Central China	Henan, Hubei	Moderate(72.3%)	4.92	1.3	Replication and promotion, policy support
Western mountainous areas	Guizhou, Yunnan	Low(58.7%)	5.48	1.8	Infrastructure first, policy support
Northeast China	Heilongjiang, Jilin	Moderate(68.5%)	5.12	1.5	Adapting to local conditions and integrating industries

Data source: Internal data compiled by the "Walking with Hui" platform.

## 6. Conclusion and Suggestions

### 6.1. Conclusion

Based on the perspective of the integration of supply chain finance and live-streaming e-commerce, this study takes "Going with Hui" as a typical case to systematically explore the farmer financing model on live-streaming e-commerce platforms, and draws the following main conclusions:

Firstly, the collaborative development of supply chain finance and live streaming e-commerce can effectively solve the financing difficulties faced by farmers. The "Go with Hui" model achieves the unification of improved financing availability, reduced financing costs, and controllable risks through a three-stage mechanism: "assetization of live streaming data - design of supply chain finance products - closed-loop risk management". In 2024, the scale of financing for farmers exceeded 1.5 billion yuan, with a non-performing loan ratio of only 1.2%. Secondly, the impact of supply chain finance on farmer financing follows multiple paths. The two-way fixed effects model indicates that the participation of supply chain finance and the development level of live-streaming e-commerce significantly increase the financing amount for farmers and reduce financing interest rates. The mediation effect test reveals that the depth of digital technology application and supply chain collaboration efficiency play a partial mediating role, with the mediation proportion ranging from 33.1% to 39.9%.

Thirdly, digital economic infrastructure exhibits a nonlinear moderating effect. The panel threshold model identifies two threshold values of 0.524 and 0.735, indicating that the promotional effect of supply chain finance on farmer financing intensifies as the level of infrastructure improves. This suggests that advancing farmer financing innovation necessitates synchronous planning and collaborative promotion with digital infrastructure development.

Fourthly, the "Hui-led" model exhibits significant regional disparities. The availability of financing is highest in the eastern coastal areas (85.6%) and lowest in the western mountainous regions (58.7%), reflecting the dependence of the model's effectiveness on regional conditions. Therefore, differentiated promotion strategies tailored to local conditions are necessary.

### 6.2. Policy Suggestions

Based on the above conclusions, the following policy recommendations are proposed:

Firstly, strengthen supply chain finance innovation and improve the product service system. Encourage financial institutions to learn from the "Going Together with Hui" model and develop differentiated financing products such as "order loans", "data loans", and "industry chain loans" to meet the financing needs of different types of farmers. Promote the integration of supply chain finance with agricultural insurance and guarantee mechanisms to build a multi-level risk sharing system.

Secondly, we should strengthen digital infrastructure and bridge the regional digital divide. We should increase investment in digital infrastructure in the central and western regions and remote areas, and enhance network coverage and bandwidth levels in rural areas. We should promote the construction of agricultural IoT and big data centers to provide hardware support for data assetization .

Thirdly, deepen the collaboration among government, banks, and enterprises to establish a win-win mechanism for all parties involved. Government departments should improve the data sharing mechanism and promote data interconnectivity among agriculture, finance, and e-commerce platforms; financial institutions should innovate credit granting models and incorporate live streaming data into the credit evaluation system; e-commerce platforms should leverage their data and technological advantages to empower farmers throughout the entire financing process .

Fourth, strengthen risk prevention and control, and maintain the bottom line of financial security. Leverage technologies such as blockchain and artificial intelligence to enhance risk control capabilities, and establish a full-process risk management system covering pre-loan, during-loan, and post-loan stages. Improve the risk reserve system and agricultural insurance mechanism to build a solid "firewall" against risks.

Fifth, we should adhere to adapting measures to local conditions and explore differentiated promotion paths. The eastern region can focus on promoting model innovation and technological deepening; the central region can replicate and promote mature experiences and improve policy support; the western region should prioritize increasing investment in digital infrastructure and explore a gradual path of "infrastructure first, finance following".

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