DOI 10.54220/v.rsue.1991-0533.2023.80.4.027

Ли Вэньцзюнь, Е. В. Рощина, Чжао Цзыцян

АНАЛИЗ ПОВЕДЕНИЯ ФИНАНСОВЫХ УЧРЕЖДЕНИЙ В ОТНОШЕНИИ ФИНАНСОВЫХ СВЯЗЕЙ С ФЕРМЕРСКИМИ СПЕЦИАЛИЗИРОВАННЫМИ КООПЕРАТИВАМИ В КАЧЕСТВЕ ПОСРЕДНИКА (G20)

Аннотация

Сотрудничество между фермерскими специализированными кооперативами и финансовыми учреждениями является одним из важных способов финансового развития сельских районов, которое обеспечивает важный способ решения проблемы кредитного финансирования для китайских фермеров. Основанный на цепочке сельскохозяйственной промышленности Китая и использующий поведение финансовых связей в качестве связующего звена, он эффективно и органично соединяет совокупность спроса и предложения капитала и формирует относительно полный динамический механизм, механизм гарантии производительности и операционный механизм, который может эффективно облегчить проблемы недостаточного обеспечения кредитов фермеров и информационной асимметрии стороны спроса и предложения капитала на рынке кредитования сельских районов. Кроме того, это может снизить затраты на надзор и транзакционные издержки во всем кредитном процессе, повысить уровень погашения по графику и обеспечить устойчивое развитие сельского кредитного рынка. Правительство должно оказывать поддержку китайским фермерским специализированным кооперативам в продвижении их поведенческих намерений в отношении финансовых связей и укреплении их способности к финансовым связям, чтобы лучше удовлетворять спрос фермеров на кредитные средства на сельском финансовом рынке.

Ключевые слова

Профессиональный кооператив, поведение в области финансовых связей в сельской местности, кредитные рынки.

Li Wenjun, E. V. Roshchina, Zhao Ziqiang

ANALYSIS OF RURAL FINANCIAL LINKAGE BEHAVIOR WITH FARMER SPECIALIZED COOPERATIVES AS INTERMEDIARY (G20)

Annotation

Cooperation between farmer specialized cooperatives and financial institutions is one of important modes of rural financial development, which provides an important way to address problem of loan financing for Chinese farmers. Based on China's agricultural industry chain and taking financial linkage behavior as a link, it effectively connects body of capital supply and demand organically and forms relatively complete dynamic mechanism, performance guarantee mechanism and operation mechanism, which can effectively alleviate problems of insufficient collateral of farmers' loans and information asymmetry of capital supply and demand parties in rural credit market. In addition, it can reduce supervision cost and transaction cost in whole credit process, improve repayment rate on schedule, and ensure sustainable development of rural credit market. Chinese farmer specialized cooperatives should be supported by government to promote their behavioral intention of financial connection and strengthen their ability of financial connection so as to better solve farmers' demand for credit funds in rural financial market.

Keywords

Professional cooperative, rural financial linkage behavior, credit markets.

Introduction

In December 2016, China held the 2017 Rural Work Meeting of the CPC Central Committee, which stressed the need to carry out in-depth agricultural supply-side structural reform and promote rural financial innovation reform, so as to attract more funds to invest in agriculture. China's № 1 2017 document (The first document issued by Central government of China each year, usually at the beginning of the year. On October 1, 1949, Central People's Government of People's Republic of China began to issue Document № 1. From 2004 to 2022, the Chinese government issued the № 1 Central Document on agriculture, rural areas and farmers for 19 consecutive years) once again emphasizes the need to continue to activate the rural financial market, ensure the standardized development of rural finance in China, and promote financial services for agriculture, rural areas and farmers. China's Document No. 1 for 2022 calls for calmly responding to century-old changes and century-old epidemics, promoting steady and healthy economic and social development, and continuing to comprehensively promote rural revitalization. To achieve the above goals, not only requires a large number of high-quality production factors, but also requires all factors to work together to improve allocative efficiency.

However, due to the dual system of urban and rural areas in China, the government is absent from some work in the rural financial market, and the profit-seeking of capital leads to the failure of the rural financial market, which results in the serious imbalance between the supply and demand of rural financial market. Behavior mode of farmer professional cooperation financial linkage is a relatively innovative form emerging in China's rural financial market in recent years. It develops rapidly and shows strong vitality in practical application. It not only activates the rural financial market, but also alleviates the financial demands of farmers, optimizes the allocation of rural production factors and improves the Pareto efficiency. However, as a new development mode of behavior, its development status and the overall requirements of promoting China's rural revitalization there is a large gap. Therefore, in-depth analysis and study of farmer professional cooperative as the financial linkage behavior of rural intermediary play a huge role in promoting rural financial efficiency, financial product innovation, sustainable development of financial market, steady increase of agricultural production, steady increase of farmer's income and rural stability and tranquility.

Materials and methods

Theoretical analysis of financial linkage behavior

Asset pricing in financial linkage

In the study of financial linkage behavior, asset pricing is very important. Statman pointed out that purpose of behavioral finance research is to change the assumptions of the capital asset pricing model and make it more realistic. Shevlin and Statman built the behavioral asset pricing model in 1994 as counterpart of capital asset pricing model in mainstream finance, revising the traditional capital asset pricing model. In the study of the financial linkage behavior with farmers' professional cooperatives as the intermediary, we draw lessons from the theory that is closer to the real asset pricing model to find out the judgment of Chinese farmers on asset value, grasp the decision of farmers on financial products, and the degree of recognition of the effectiveness of financial linkage behavior.

The behavioral asset pricing model classifies investors as information traders, who are rational investors who invest strictly according to the standard capital asset pricing model and are not affected by cognitive bias. They only pay attention to the mean and variance of the portfolio, based on the Bayesian learning process, that is, the rational information processor.

The other type is the noise trader, who often suffers from cognitive bias, does not have a strict preference for mean and variance, and does not act rationally in accordance with the requirements of the capital asset pricing model.

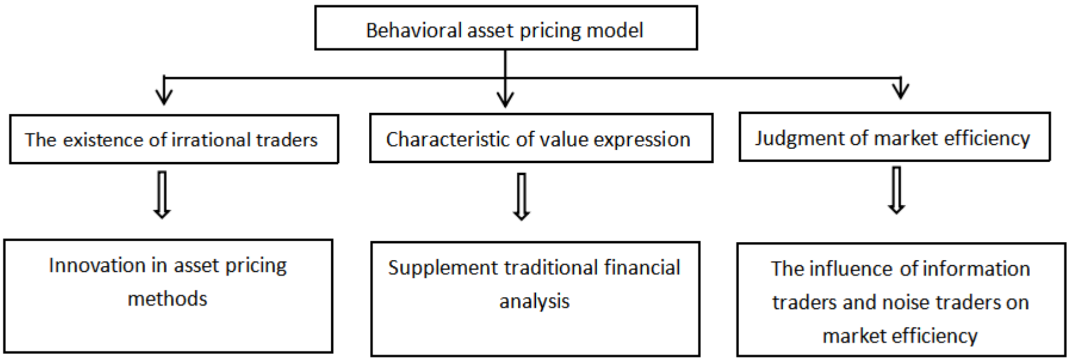

Figure 1 — **Main perspectives of behavioral asset pricing models**

These two types of traders interact with each other to determine asset prices. When the information traders among farmers play a leading role in the market, the rural finance linked by farmers' professional cooperatives is effective. However, when farmers' noise traders play a leading role in the market, it is ineffective.

Research on mechanism and effect of financial linkage behavior

At present, there is a double failure of «government failure» and «market failure» in our rural financial market, mainly because of the information asymmetry between lenders and borrowers, and such problems can also be verified by the proper intervention of the government or the improvement of the degree of organization of lenders and other non-market factors [7]. Jain [8] believes that the imperfect development of rural formal finance leads to the development of rural informal financial institutions, and the imperfect development of rural financial development promotes the development of rural informal financial institutions. There is a symbosis relationship between rural formal finance and informal finance. crowding out may also lead to the strong complementary relationship between formal and informal finance in rural areas, laying the foundation for financial connectivity. Liu Jie and Yan Xingsheng [9] The important way to realize the substitution and complementarity between the two is to lower the interest rate of formal financial institutions, and make full use of the advantages of all participants in the financial link to maximize the profit. Floro & Yotopoulos [3] believed that financial linkage is a scientific bridge, and the funds of formal financial institutions are lent to rural capital suppliers, and then they are lent to capital demanders. With the advantage of low transaction costs, extended services were provided to rural micro-credit demanders, better improved credit conditions and expanded rural credit services [6].

Varghese [12] found through comparison that the financial linkage behavior of rural intermediaries could maximize the advantages of information flow, not only expand the loan object, but also increase the operating income of the borrower and prompt the lender to repay the loan on time. Rural financial linkage behavior can not only effectively meet the financing needs of farmers and improve the profitability of financial institutions, but also improve the overall realization of rural financial functions and the efficiency of resource allocation, thus increasing the income and welfare of farmers [10].

Risk control of financial linkage behavior

Fuentes [4] can improve the incentive and constraint mechanisms such as the rate of return by means of signing contracts with rural intermediaries to encourage or constrain the opportunistic behaviors of intermediary organizations. In addition, incentives for rural intermediaries can be increased to stimulate their participation in the supervision of capital users and improve the loan repayment rate of borrowers. Otherwise, rigid punishment is adopted to supervise the rural intermediary [14].

It can be seen from the above research that many scholars have studied the pricing, formation principle, effect, risk and other aspects of assets in rural financial linkage behavior, and have achieved fruitful results. And reached a consensus that financial linkage plays a reliable role in solving the imbalance between supply and demand in rural credit market. With continuous development of China's socialist market economic system and the gradual prosperity of rural economy, various forms of economic organizations and various rural intermediaries have emerged. These organizations and intermediaries have developed rapidly. However, from observation of existing literature, there are not many aspects of the causes and operation mechanism of such linkage behavior, so we need to invest more energy to study and think.

Results

Causes of financial linkage behavior

Formal financial credit can not meet the capital needs of farmers

First, farmers have difficulty accessing funds from formal credit markets. According to the report on China's Rural household Finance Development in 2014, the loan demand rate of Chinese farmers is 19,6 %, higher than the national average of 18,36 %. The loan satisfaction rate was 27,57 %, much lower than the national average of 40,50 %. The loan rejection rate was more than 9,78 %, much higher than the national average of 6,05 %. These figures suffice to say that rural capital demanders have little access to formal credit.

Second, farmers are more inclined to seek funds from informal financial markets, and gradually become the main source of their credit funds. The 2014 Rural household financial Development report shows that informal finance accounts for more than 50 % of rural financial market. Among them, ratio of loans between rural households was 43,8 %, much higher than that of urban households (28 %). Inter-household borrowing was over 64,6 % and 71,5 % in the central region. This fully illustrates the extent to which informal finance is active in rural areas.

Third, the long-term formation of social and cultural circles of farmers has weakened the risks of informal financial markets. In their long life, farmers gradually form a special social and cultural circle with individuals as the center and blood ties as the basis. In this circle, the special trust mechanism, information acquisition mechanism and compliance mechanism greatly reduce the supervision cost of rural informal financial market and form a unique advantage. It is in contrast with the rural formal financial market, and on the other hand, it makes up for the lack of formal financial functions in the rural financial market. At the same time, we should also see that the inherent defects of rural informal financial market itself are impossible to solve by itself. Ray [2] first proposed that non-financial intermediaries can apply for loans from the formal financial sector and then lend to farmers and other capital users. In this way, formal financial institutions can not only expand the service boundaries of financial institutions, but also expand the service boundaries of financial institutions. And a way to serve. In this way, the strategic cooperation between formal finance and intermediary organizations was promoted, which was later called financial linkage.

1. Financial connection improves transaction efficiency and reduces operating costs. In the financial market, the industrial specialization and credit issuance mechanism are closely linked. Finer the industrial specialization and the division of labor, larger the service scope of financial market will be. As a result, financial institutions need to support more and more basic business operations, so operating cost will be increased, while operating efficiency will be reduced. In rural financial industry, number of informal financial services is much higher than that of formal financial services, but it is also difficult to supervise them. It is very difficult to rely on informal financial services alone to serve the rural economy. Therefore, cooperation between financial institutions and intermediary organizations can not only accelerate the formation of

specialized division of labor in rural financial markets, but also promote expansion of scale and efficiency of other rural markets.

2. Financial linkage can reduce information failure in rural financial markets. When farmers borrow money, credit institutions will investigate the farmers' credit, contract execution ability, effort level, interest rate and collateral in detail. In today's rural market in China, farmers know a lot about lenders and institutions, but their efforts, adverse selection and execution ability are limited. Rural intermediary organizations have a special economic relationship with farmers, so they have a clear understanding of farmers' risk degree, which can reduce the cost of capital supervision. Otherwise, financial institutions will not be able to understand clearly the borrowing risks of farmers, resulting in reduced benefits, financial contract default and other problems.

3. Financial linkage can alleviate collateral insufficiency. In rural credit market, farmers' collateral is the main measure to solve information failure and reduce the risk of capital management. But farmers' lack of collateral has led to credit rationing and market failures. Operation relationship between rural intermediaries and farmers can improve efficiency of production and circulation, which can not only improve the use efficiency of farmers' funds, but also reduce risks of financial institutions and improve the profit rate of financial institutions.

Formation and operation of financial linkage behavior

The formation mechanism of financial linkage behavior

Prerequisite for the formation of rural financial linkage behavior with farmers' specialized cooperatives as the intermediary is the balanced development of rural finance. If rural intermediaries can participate in the rural financial market, they need to have the following characteristics:

First, we should have a sufficient understanding of farmers and other fund users and grasp their information to determine the borrowers and supervise the borrowers' performance of contract in te reception process.

Second, it has more information about borrowers' borrowing needs and can integrate their capital needs, which lays the foundation for bank funds to exert scale effect in the later stage.

Thirdly, organization that takes farmer specialized cooperative as rural intermediary must have certain economic strength. It can not only bear the compensation responsibility of lender, but also supervise the farmers to repay the loan funds on schedule. It integrates information, credit, credit and other resources in the form of "farmer + professional cooperative organization". Information integration is the integration of supply and demand side information flow; Credit integration is the credit flow formed mainly by the mutual transaction and trust between the two sides of supply and demand. Credit integration is the capital demand credit flow of each production chain, and the supply chain synchronously complete a high degree of integration. Therefore, with farmers' professional cooperatives as the link, the industrial chain and supply chain that farmers participate in have a strong industrial, information and credit foundation. Formal financial institutions have also changed the identification of scattered farmers into a community of interest with specialized farmer cooperatives as the core, which has expanded the scope of rural financial services provided by banks and other formal financial institutions and enhanced their financial service capabilities.

Financial linkage behavior with farmers' professional cooperatives as intermediary can also realize government's regulation and control of rural financial markets. Well-run financial linkage behavior can promote Pareto improvement of rural financial market. Governments can correct «market failures». In order to control «market failure» in agricultural production, government often uses special funds and project construction funds to support finance. In addition, specialized cooperatives can also receive special subsidies to reduce financing costs, improve utilization rate of credit funds, and improve ability to combat market risks.

Construct the operation mechanism of financial connection

In order to give full play to the role of farmer specialized cooperatives in financial connection, it is necessary to constantly improve the dynamic mechanism, optimize the operating mechanism, formulate the guarantee mechanism and increase the income incentive mechanism.

1. Improve dynamic mechanism of financial linkage

Common interests are the driving force to ensure sustainable development of financial linkages. In rural financial connection, the common interests of farmers' specialized cooperatives, banks and farmers are to realize their own needs. In recent years, farmers' professional cooperation has developed rapidly, playing a crucial role in promoting the increase of farmers' income and the transition of rural economy. Farmer specialized cooperative itself is not the direct producer of agricultural products, each member is the product source provider. The more farmers participate in cooperatives, the stronger the product source base. At the same time, with the increase of output, the level of industrial production, management technology and the ability to resist market risks are improved, which provides a guarantee for the continuous and stable increase of their income. In addition, due to increase of income, more farmers are willing to participate in cooperatives and expand the scale of operation. With the expansion of the scale of operation, the demand for production factors increases, especially the capital input. However, it is difficult for rural financial market to achieve the balance between supply and demand of farmers and financial institutions. If each member has a capital demand of 10,000 to 15,000 yuan, and each specialized cooperative has an average of 100 farmers, the total capital demand of members will reach 100 million to 150 million yuan. Huge scale of capital demand for rural financial markets to provide a huge space for development. In order to achieve win-win development, cooperatives, farmers and financial institutions must cooperate in many aspects, including financial linkage.

2. Optimize operating mechanism of financial linkage

Only by developing an operation mechanism that conforms to China's specific conditions, market requirements and rural characteristics can we promote sustainable and efficient operation of rural financial linkage. Premise of financial connection is that farmers professional cooperatives sign tripartite cooperation agreements with financial institutions and members. Cooperatives sign mortgage contracts directly with banks, participate in form of guarantors, open basic bank accounts and set up cooperative funds.

Cooperative then signs a series of supply and demand contracts with its members for agricultural products and raw materials for processed goods, and determines the amount of loans to banks based on the total quantity of supply and demand. Among them, cooperative signed with the bank is total amount of mortgage loan contract, bank, cooperative and the members after completion of above procedures, need to sign a tripartite co-insurance contract, and to verify situation of members. When members of cooperative need a loan, by cooperative for its credit guarantee letter, and in form of membership to apply for loans to financial institutions, by bank auditor and cooperative cooperation audit, after the approval of members, financial institution for members to open a personal settlement account. Approved loan funds are transferred directly to members, who then use funds to buy shares and transfer the funds to cooperative's bank fund account. After execution of current operation contract, cooperative fund account can obtain some operating profits according to actual operation results, and members will be paid dividends according to proportion of shares invested in number of loans. If loan contract is not expired, funds can be rolled into next phase of contract. If loan contract expires, farmers' loan funds will be returned to bank loans (Figure 2)

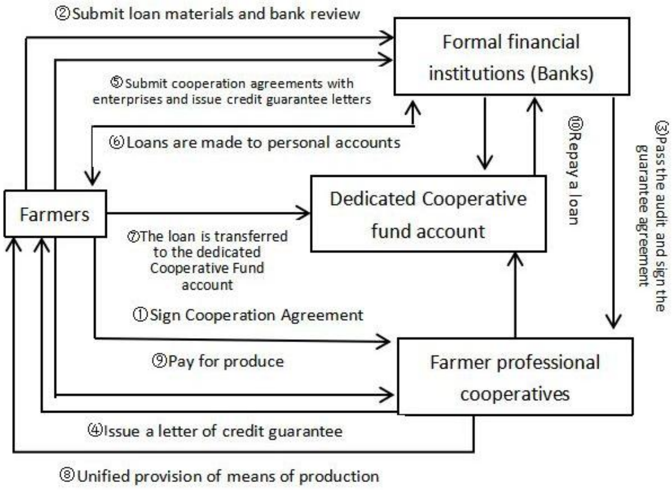

Figure 2 — **Financial linkage behavior of farmer specialized cooperatives as intermediaries**

3. Formulate reasonable and effective financial linkage guarantee mechanism

Establishment of a reasonable and effective safeguard mechanism is a prerequisite for win-win cooperation among all participants in the financial linkage.

The first is the mechanism for ensuring adequate information. Ensuring adequate disclosure of information is the basis to solve adverse selection and avoid moral hazard in market economy. In the operation mechanism of financial connection, the members and farmers specialized cooperatives have close production cooperation and interest relationship, and have fully symmetrical information state. On the one hand, it can solve the problems of producers' operation choice and adverse selection of bank loan guarantee. On the other hand, it can avoid risks that may be encountered in the implementation of credit union membership project, and strengthen the supervision of degree of management effort.

The second is the membership debt performance mechanism. By cooperating with members in industrial projects, farmers' specialized cooperatives can not only improve the supply of means of production, sales of agricultural products and loan fund services, but also improve the cooperative efficiency of agricultural production factors and effectively solve problem of default. Loan funds are directly transferred to cooperative fund account by a special mechanism, rather than giving cash to members, which can not only effectively solve the problem of subjective default, but also ensure «closed» operation of funds in the field of agricultural production and operation, so that the return of rural credit funds has been better controlled, which can be said to be a lot of birds with one stone.

Third, cooperatives participate in credit guarantee mechanism. When members apply for a loan from a bank, farmer specialized cooperative will issue a letter of credit guarantee for members to ensure timely and accurate release of bank funds. In this way, credit relationship between bank and cooperative replaces the credit relationship between the bank and the members. This replacement not only greatly reduces the negative impact of loan defaults, but also reduces bank credit risk.

The fourth is to ensure the scale of bank loan funds mechanism. By pooling the capital needs of members through cooperatives, banks can meet the requirements of the scale attribute of group loans. For banks, there are two major benefits: one is to ensure the scale of loans; the other is to reduce transaction costs. At the same time, it can promote the establishment of long-term cooperative relationship between members and cooperatives. The automatic transfer and rolling circulation of loan funds obtained by members also greatly reduces the credit cost of farmers.

4. Increase the income incentive mechanism of financial linkage

All participants can obtain reasonable profits, which is the key to realize rural financial linkage. The sustainable development of financial linkage lies in the efficient utilization of capital and other production factors. First, cooperatives provide qualified material and technical guarantees. According to the standards of the cooperative, the members build the production base conforming to the standards and realize the function of standardized production. Cooperatives guarantee the quality of agricultural products by providing training services in agricultural production materials and techniques to members. The second is to set the protection price to ensure the benefits of members' agricultural production and operation, and stimulate the enthusiasm of members to participate. When the market price is higher than the protection price, the cooperative shall purchase at the market price; When the market price is lower than the protection price, it should be purchased according to the protection price, so as to avoid the phenomenon of increasing production without increasing income. The third is to provide subsidies to members who supply a large amount of high-quality raw materials and have a high reputation for performing the contract. On the premise of providing guaranteed income for the members, use the income of the cooperative to reward the members with better management and improve their production enthusiasm. For example, we can cooperate with agricultural insurance companies to share the agricultural insurance premiums of farmers (special financial and cooperative funds can be used) to help members reduce unexpected losses caused by natural disasters and other uncertain factors.

Discussion

First, farmer specialized cooperatives have the natural property of financial intermediary and can become the formation of rural financial linkage behavior. Through financial connection, information asymmetry in rural financial market can be better solved, and formal financial institutions' reluctance to lend or reduce loans due to default rate and risk rate can be reduced. In the end, formal financial institutions' support for rural finance will increase, and it can better help agricultural production increase, farmers' income increase steadily, and rural stability and tranquility.

Second, on the premise of market operation mechanism and with the guidance of the government, financial linkage completes the optimal allocation of capital resources among cooperatives, members and formal financial institutions, which greatly improves the efficiency of the use of capital resources.

Third, common interests become the driving force for financial linkage. Specialized farmer cooperatives, based on the industrial chain, organize scattered farmers together in the form of contracts, which not only strengthens the industrial foundation for the development of cooperatives, but also improves the degree of organization of farmers and their ability to participate in market competition.

Fourthly, financial connection formed by farmers' professional cooperatives as intermediaries not only enhances the security of loan funds, but also reduces transaction and supervision costs. As the financial sustainability is improved, the participation and enthusiasm of financial institutions in rural credit business are significantly improved.

Fifth, the guarantee mechanism and incentive mechanism of financial linkage not only ensure the realization of the interests of all parties involved, but also improve the enthusiasm of all parties involved in the work, and finally promote the rapid development of China's rural economy.

Conclusion

First, government should promote development of specialized farmer cooperatives. Government should do a good job in regional positioning, gather regional industrial advantages, give play to comparative advantages, accumulate production, promote development of dominant industries, and lay a solid foundation for development of specialized farmer cooperatives.

Second, government should continue to improve laws and regulations, expand and tamp land for farmers' professional co-operatives to grow, and strengthen their radiating role in driving. Through strengthening management of cooperatives, implementing dynamic assessment and monitoring, further standardizing the market competition mechanism of farmer specialized cooperatives, improving level of operation and management, and providing adequate and true connection information for formal financial institutions.

Third, formulate preferential policies for financial linkage in which cooperatives participate, reduce operating costs and risks of cooperatives and improve their returns through rewards and fiscal subsidies.

Fourth, government should enhance power, operation, guarantee and incentive of financial linkage mechanism, so that diversified participants of financial linkage such as banks, farmers and cooperatives can achieve a win-win situation. In addition, we should strengthen the supervision of financial connection, make behavior of financial connection more healthy and energetic, and help development of our country «rural revitalization» cause.

Bibliographic list

1. *Abel, A. B.* Asset Prices Under Habit Formation and Catching Up with Joneses // American Economic Review Papers and Proceedings. — 1990. — Vol. 80. — P. 38–42.

2. *Duan Zuo-qiang, Liu Chun-hua, Sun Yi-Listen.* Agricultural industry chain financing model based on industry chain integration: case of dongying // Time Finance. — 2013. — № 10. — P. 107–110.

3. *Floro, S. L., Yotopoulos, P. A.* Informal credit markets and new institutional economics: case of Philippine agriculture. — Boulder Co, 1991.

4. *Fuentes, G.* Use of village agents in rural credit delivery // Journal of Development Studies. — 1996. — № 3. — P. 188–209.

5. *Gan, Li* China Rural Household Finance Development Report. — M., 2014.

6. *Ghate, P.* Informal Finance: Some Findings from Asia. — Boston – Oxford, 1992.

7. *Hoff, K., Stiglitz, J. E.* Moneylenders and Bankers: Price-Increasing Subsidies in Monopolistically Competitive Market // Journal of development economics. — 1997. — № 52. — P. 429–462.

8. *Jain, Sanjay.* Symbiosis vs. Crowding-out: The Interaction of formal and Informal Credit Markets in Developing Countries // Journal of Development Economics. — 1999. — № 59. — P. 419–444.

9. *Liu J, Yan, X S.* On vertical integration of rural formal and informal finance // Journal of Changsha University. — 2007. — № 3. — P. 26–28.

10. *Tang, Liujie.* Historical research on institutional arrangement of vertical link between formal and informal finance // Hunan Social Sciences. — 2009. — № 6. — P. 187–190.

11. Central Committee of Communist Party of China and State Council issued Opinions of CPC Central Committee and State Council on Completing Key Work of Comprehensively Promoting Rural Revitalization in 2022 [Electronic resource]. — URL: http://www.gov.cn.

12. *Varghese, A.* Bank-Moneylender Credit Linkages: Theory and Practice. Bush School Working Paper, 2004 [Electronic resource]. — URL: https://www.researchgate.net.

13. *Wu, D, Wang, L, et al.* Research on financial Service function expansion of farmer cooperatives based on perspective of financial linkage // Journal of Agricultural Economics. — 2015. — № 1. — P. 33–35.

14. *Wu, Xiangyu.* Design of Rural Financial Linkage System // Journal of Finance Research. — 2008. — № 8. — P. 156–165.