

Research on Financial Support for the New Types of Agricultural Management Entities from the Perspective of the Rural Revitalization Strategy

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Abstract: Both the escape from the predicament of traditional financial support in rural areas and the cultivation of new types of agricultural management entities underlie, at a micro level, the improvement of a new-type of agricultural management system, and offer an important guarantee for the implementation of a rural revitalization strategy. In reference to the demands of carrying out reform, activating factors, invigorating entities and stimulating markets during the implementation of this rural revitalization strategy, we are applying a financing preference theory that infers and analyzes the excessive preference for new-type agricultural management entities (family farms, specialized farmer cooperatives, specialized large family farms, and modern agricultural enterprises) regarding government subsidies (quasi-equity financing). Our analysis has identified crucial factors in the issue and predicts that government subsidies (quasi-equity financing) will crowd out financial support funding (quasi-debt financing), and we offer empirical proof obtained through statistical modeling. As our results indicate, financing costs, free cash flows, and the perceived income adequacy (*PIA*) of new-type agricultural management entities all have significant influence upon decision-making for debt financing by such entities. Therefore, with the concrete contents of the formulation of policies concerning the financial support for rural agricultural strategy, one not only needs to consider the further decrease of financing costs, but also should take into account both the designing of cash flow mechanism in the process of paying both principal and interest, and the improvement of bankruptcy rules for agricultural management entities to accelerate the transformation of family farms, specialized farmer cooperatives, and specialized large family farms, towards modern agricultural enterprises. Meanwhile, upgrades to the supply chains of the agriculture industry, improvements to the construction of the rural financial information system, building an accounting system that meets the requirements of the rural revitalization strategy, and giving full play to the policies for financial support, which assume an important role in activating factors and markets during the implementation of the rural revitalization strategy, are also anticipated.

Keywords: rural revitalization strategy, new-type agricultural management entities, financing costs, financial support

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As socialism with Chinese characteristics enters the new era, the agricultural and rural development of China is also greeting a new historic stage. The report by the 19th National Congress of the Communist Party of China puts forwards an overall demand for the implementation of a rural revitalization strategy, insists that the development of agriculture and rural areas is a priority, and sets up the new strategic goal of “thriving businesses, pleasant living environments, social etiquette and civility, effective governance, and prosperity.” As important content of “thriving businesses,” developing modern agriculture, accelerating the construction of the “three pillars” of modern agriculture, namely industrial systems, production systems and business operation systems, fostering and developing various forms of new-type agricultural management entities have become an important strategic task. The implementation of the rural revitalization strategy is like an engineering system and requires scientific planning; for the all-round implementation of the various revitalization measures, it is crucial to deal effectively with relations between “men, lands and funds.” (Luo, 2017; Liao & Chen, 2017; Ye, 2018). In order to achieve this strategic goal, the government, as the supplier of policies, has been engaging in improving production and operational environments for traditional farming households, concentrating on the factors of production and operations to guarantee the economic benefits of agricultural production entities. Pertinent major policies involve the improvement of the rural public service system, the enhancement of rural supply chains, the acceleration of rural land circulation, the increase of subsidies in the form of budgetary support for agriculture, and the constant optimization of the system of financial support policies (Tang & Lyu, 2007; Huang & Yu, 2010; Zhang & Zhao, 2013; Jiang & Xi, 2014). The relations between “men” and “funds” in agricultural production is still an intractable problem, and the “financing difficulties” that agricultural management entities have been facing still exist, even in economically advanced provinces and regions (Lin & Fa, 2015). Effective interactions to increase the synergy of policies were minimally achieved in spite of the simultaneous efforts on policies for government subsidies and financial support, and this has seriously undermined the anticipated effects of the fiscal and financial support for new-type agricultural management entities. This sustains the excessive substitution of government subsidy policies for financial support, the worsening burden of fiscal investments, and the constantly reduced efficiency in the use of government funds. In addition, the rural financial markets can hardly play the role of allocating funding sources by means of pricing loans, and increasingly crowd agricultural management entities out of the rural financial markets instead, which results in strong “path dependence” in terms of budgetary support for agriculture with regards to the enhancement of rural economic development (Zhao & Zhu, 2015). To implement the rural revitalization strategy, therefore, one must persist in institutional construction, focus on the improvement of both the property rights system and market-based allocation of factors of production, invigorate entities, factors and markets, and vigorously enhance the systematicity, integrality and cooperativity of reforms. We have taken the new types of micro agricultural management entities as our research object, analyzed crucial factors behind their financing behaviors, and now offer some advice to enhance the efficiency of financial support policies for the new types of agricultural

management entities during the implementation of the rural revitalization strategy.

China has remained in the state of a peasant economy for almost all of its history. The report by the 18th National Congress of the CPC insisted on improving the basic rural business system, building a new-type agricultural management system combining intensification, specialization, organization and socialization, and energetically fostering new types of agricultural management entities (family farms, specialized farmer cooperatives, specialized large family farms and modern agricultural enterprises). This policy change can guarantee a reliable micro basis for modern agriculture. However, the transformation from traditional farming households to new-type agricultural management entities is not only a change of legal subjects in form, but more importantly the conversion of business mechanisms, ideas and such component factors of the business environment as corresponding laws and markets. Some traditional farming households still take the natural person mode in which individual members stand for the households when they make financing decisions, and face the serious problem of credit “self-rationing” although they have turned into family farms or set up specialized farmer cooperatives in form (Ren, Kong & Turvey, 2015). Some new types of agricultural management entities, including family farms and specialized large family farms, make the institutional change from traditional farming households towards corporate operations by setting up professional financial posts and financial systems, gradually developing towards the mode of corporate farms for production and operation in developed countries, expecting to attract long-term external investments through normalized corporate management. At present, developed countries have included research on the financial issues of agricultural management entities into the framework of corporate finance theory. Accordingly, based on the consideration that financing decisions of new-type agricultural management entities in China have now both market and social attributes, we applied the proposition of financing preference, which is a part of corporate finance theory, to analyze and interpret the behaviors of financing decisions of the new-type agricultural management entities. The classical financing preference theory holds that a company makes its financing choice in accordance to financing costs from low to high, preferring internal financing to debt financing, and having the least interest in equity financing. But under the special financing system in China, empirical evidence has shown that public companies prefer equity financing (Jiang, 2000; Huang & Zhang, 2001; Ye & Lu, 2004). For the new types of agricultural management entities which cannot go public for the time being, there has not yet been any corresponding theoretical analysis or research of their financing preferences. Regarding the existing rural financial environments in China, new-type agricultural management entities mainly rely on government subsidies and financial loans in terms of financing from external sources. Government subsidies are characterized with long terms, irreversibility and freedom from burdens and will not cause the loss of control rights. So, for the new-type agricultural entities, subsidies are more like equity financing. Of course, the choice of government subsidy is not totally costless, only that the application threshold and government supervision make the cost of government subsidies more “invisible.” Therefore, it is necessary to adopt the financing preference theory and carry

out a theoretical analysis of new-type agricultural management entities' excessive preference for government subsidy policies, and in light of this theory, to identify the crucial factors behind new-type agricultural management entities' enjoying financial support policies and choosing agricultural loans. As some researches have shown, in addition to the restriction of financing costs, the financing behaviors of enterprises may also be affected by such factors as bankruptcy risks, debt capacities, agency costs and control rights (Harris & Raviv, 1991; Liu & Peng, 2009). Therefore, in line with the financing preference theory, we should do in-depth research on the micro-level financial environments where new-type agricultural management entities are situated, resolve the problem that public finance may have a crowding out effect upon the policies regarding budgetary support for agriculture, and guarantee the synergy of policies on budgetary and financial support for agriculture. At the same time, it is advisable to comply with the implementation of the rural revitalization strategy, meet the requirements for the construction of a modern agricultural system, combine the mature theory of corporate finance with the organizational practice of modernized rural businesses, and emphatically dissect and resolve the problem of relations between "men" and "funds" faced by new-type agricultural management entities. While interpreting the financing behaviors of new-type agricultural management entities, this research will provide new evidence for both the clarification of financial support for new-type agricultural entities and the formulation of corresponding policies, and offer a new train of thought for improving the relevant institutional construction of policies on financial support. Thus, it has strong theoretical and practical value.

A Review of Literature

The dual structure of urban-rural economic development peculiar to China has long left rural funds in the state of insufficient supply, and the problem of credit rationing for farming households remains overwhelming. In order to prevent "financing difficulties" from recurring during the cultivation of new-type agricultural management entities, both practical and theoretical circles have done abundant research on the two general kinds of policy instruments in support of agriculture, namely fiscal and financial instruments. In particular, the investments of budgetary support for agriculture are mainly used in the field of rural public products and have played an important role of funding support in the construction of basic rural production and living facilities, and in rural ecological protection. As an important arrangement for industry to repay agriculture in China, the government funds in support of agricultural development have the hue of "public interest," imposing low requirements for economic returns. Moreover, the size of the investment continuously increases, and the threshold for funding is constantly lowered. At the micro level, budgetary support for agriculture has played an enormous part in increasing rural incomes and relieving poverty (Bai & Yue, 2018). At the macro level, it has been proven through empirical evidence that the expenditures of budgetary support for agriculture have a long-term positive effect upon agricultural development. As it is, public finance in China has

undertaken major protective and supporting responsibilities for agriculture therein. Compared to the budgetary support for agriculture, financial support for agriculture displays no significant effects upon agricultural development. More than that, Xie Ping and Xu Zhong pointed out that using rural financial institutions as an instrument in support of agriculture would further distort the financial system in rural areas (Xie & Xu, 2006). In the long run, the efficient operation of the rural financial system entails a reliable social ground, i.e., to cultivate social capital from the three dimensions of building social trust, improving social norms and constructing social networks (Hu, 2018). In the short term, in order to avoid the misuse of financial instruments in support of agriculture, new-type agricultural management entities should be guided to follow market rules. The existing practices are mainly concentrated on increasing the supply of funds in rural areas, applying modern information technology, innovating financing modes, and enlarging the sources of funds in rural financial markets. For example, new channels for funding have been opened through the “Internet + finance” mode, effectively remedying the insufficiency of traditional finance in supporting agricultural development in China. Financing modes such as P2P credits, microcredits based on big data, crowdfunding and supply chains can be innovatively combined with the financing demands of new-type agricultural management entities, producing new financing modes with rural financial characteristics in China. Additionally, the construction of a social credit system and a modern enterprise system should also be stressed while the Internet finance infrastructure is improved. All these will reliably guarantee innovation in the modes of financing (Jiang & Li, 2015). These measures can reduce information asymmetry, improve the corresponding policies for financial support, decrease financial risks, and thus achieve the goal of bringing down the financing costs of new-type agricultural management entities. Jiang Ziyi suggested that inclusive financial reforms in rural areas should take the innovations in collateral financing as a breakthrough point, improve the availability of collateral in rural areas, and enhance the mechanism for rural funding supplies (Jiang, 2015). Hui Xianbo held in his research that the pilot test of financing through the pledge of rural land incomes could help decrease the cost of property rights financing, and suggested policies such as strengthening the construction of relevant institutions in support of the financing guaranteed with rural land incomes (Hui, 2017). The aforementioned research has covered a series of policy adjustments including both the expansion of funding sources concerning the financial support for agriculture and the decrease of financing costs and have indeed attained some substantial achievements. But in essence, the “path dependence” of rural economic development in terms of funds for budgetary support for agriculture did not change.

From the financing behaviors of new-type agricultural management entities, financial support policies increase the supply of funds in rural areas, innovate the collateralized modes of financing, and reduce financing costs. But in reality, there are still low-cost loans for financing not being totally released. In the process of surveys and interviews, it is common to see “zero” in the column of short-term or medium-term loans in the accounts of agricultural enterprises. Existing research

explains this by stating that although new-type agricultural management entities have turned into legal persons at the level of law, in terms of the mechanisms for financing decisions, most family farms and specialized farmer cooperatives originating from farming households still stay at the financing decision level of farming households, and have the duality of “moral peasant” and “rational peasant,” displaying the quality of rural society peculiar to China. Due to bias in the understanding of loans from banks, self-satisfaction with incomes, and a variety of other reasons, credit “self-rationing” is chosen, (Zhang & Zhang, 2014; Wang, Hu & Wang, 2016) whereas with respect to the new-type agricultural management entities which have a higher degree of corporatization, they largely follow the theories relevant to corporate finance when they consider financing decisions. At present, the new-type agricultural management entities in China lack highly efficient channels for equity financing, and their financing sources are mainly self-owned funds and debt financing from such financial institutions as banks. According to the theoretical analysis of financing preferences, enterprises usually finance themselves from lower financing costs to higher ones in sequence. It is thus evident that for new-type agricultural management entities, attaining government subsidies is an important method to replenish funds at a low cost, and is bound to become a rational prior choice for new-type agricultural management entities. Regarding the cost of debt financing, it cannot be reduced to zero no matter what financial support policy is adopted, and government subsidy policies certainly have priority for financial support when a choice is made and have better effects. Additionally, in accordance with the financing preference theory, explicit financing costs are not the singular factors preventing new-type agricultural management entities from applying for loans from banks. The distribution of cash flows, actual unlimited joint and several liability, and certain other factors, are still important issues apart from financing costs, which new-type agricultural management entities cannot ignore. Zingales G., Shleifer A. and Vishny R. W. believed that because financing costs did not consider the increase of an enterprise’s expected bankruptcy cost brought about by debt financing, one should take into account the expected bankruptcy cost caused by debt financing to reflect, in an all-round way, the impact of financing costs upon the financing behaviors of enterprises (Zingales, 1994; Shleifer & Vishny, 1997). For new-type agricultural management entities in China, family farms, specialized farmer cooperatives and even some agricultural enterprises have failed to effectively distinguish the financial behaviors of firms from those of individuals. Usually they use the individual bank accounts of the actual controllers of new-type agricultural management entities to operate the transfer of funds in businesses. This directly causes banks to always regard new-type agricultural management entities as natural persons rather than corporations with limited liabilities. Consequently, the new-type agricultural management entities actually assume the unlimited joint and several liability of debts as peasants do, who act as natural persons. Jaffee D. M. and Russell T. and Stiglitz J. E. and Weiss A. applied the theory of information asymmetry on the credit market: under the condition of moral risk caused by information asymmetry, the debt capacity of a borrower mainly depends upon the size of his own capital; the larger the size of the self-owned capital, the higher credit limit an enterprise may obtain

(Jaffee & Russell, 1976). The size of net assets of an enterprise may have a negative influence upon its financing behaviors, which is the most serious challenge contemporary new-type agricultural management entities are facing. The large amount of money that new-type agricultural management entities invest in agricultural production and operation cannot be effectively capitalized, or form the “assets” in an accounting sense because such things as fruit trees, livestock, and production facilities cannot receive valid recognition from banks (Sun, 2017). Apart from net assets, Harris M. and Raviv A. held in their research that when free cash flow during the operation of an enterprise is heavy, it should increase debt financing. Jensen M. C. and Meckling W. H. introduced the principal-agent analysis, thinking that the behavior of an enterprise’s external financing would lead to two kinds of interest conflicts, excessive amounts of debts would result in the increase of agency costs between major shareholders and managers, and between creditors and shareholders, and thus increase the inefficient behaviors of managers (Jensen & Meckling, 1976). At present, most new types of agricultural management entities in China do not have the problem of internal governance, and the troubles caused by debts can be temporarily omitted as an important factor influencing their financing decision. For a company going public, debt financing shows the greatest advantage because it does not dilute control rights, and changes the efficiency of resource allocations by altering the financing structure. Major shareholders of a public company are often motivated to ensure, through the structural arrangement of financing, that their control rights and profits will not be significantly damaged (Xia, Zou & Yu, 2006; Bai et al., 2013). Obviously, the re-arrangement of control rights during debt financing cannot be realized if the status quo for new-type agricultural management entities in China is maintained, and thus cannot affect the debt financing decisions of new-type agricultural management entities.

With this review, it is not difficult to find that the new-type agricultural management entities in China have a simple governance structure but face complex financing environments and are badly in need of theoretical research on the financing behaviors peculiar to them. Therefore, the research design we adopted for this paper will start with the analysis of the financing behaviors of new-type agricultural management entities, and dissect the major factors impacting their financing behaviors. This will provide a theoretical interpretation and empirical support for the research on rural financial entities and offer important references for the formulation of financial support policies that promote the implementation of the rural revitalization strategy.

An Analysis of the Financing Preference Model of New-type Agricultural Management Entities

Government Subsidies, Financial Support and the Financing Behaviors of New-type Agricultural Management Entities

Suppose new-type agricultural management entities work towards the goal of maximized

financing incomes under the condition of minimized financing costs. And suppose the owner of a new-type agricultural management entity is also the operator, without any agency costs. When he has an interest conflict with a government subsidy agent or a financial supporter, an owner (operator) of the new-type agricultural management entity will consider the interest of the new-type agricultural management entity first. Because of the information asymmetry outside and within new-type agricultural management entities, it is further assumed that the owner (operator) of a new-type agricultural management entity would choose to disclose information favorable to the new-type agricultural management entity. Of course, to regulate the subsequent model inference, it is supposed here that the risk is neutral to all sides of financing, and the time value of currency is not taken into account.

Suppose a new-type agricultural management entity, which is titled i , needs to invest in an agricultural project whose expected net present value (NPV) is positive, and whose initial value is V_0 . Due to the restriction of funds, this agricultural management entity has to finance itself for an amount of external funding M , and the financing cost is C . The cost of applying for a government subsidy is C_e , the interest paid to obtain financial loans is C_d , and the operational value that the new-type agricultural management entity can achieve after its successful financing is V_1 . If the operation of this agricultural project meets its expectations, there would be the result $V_1 \geq V_0 + M + C$; If the operation falls short of its expectations, the equation would be $V_1 < V_0 + M + C$. In this case, the owner (operator) of the new-type agricultural management entity can choose to tell the truth or lie to the financier. For debt financing, the rigidity about the payment of both principal and interest in the debt contract prevents the owner (operator) of a new-type agricultural management entity from attaining any practical benefits through lies, and the operational achievement of the agricultural project is $\Delta V_d = V_1 - V_0 - M - C_d$, if it is profitable, there is $\Delta V_d \geq 0$, whereas in the case of failures there will be $\Delta V_d < 0$. On the part of government subsidies, there is no need to return the principal. Therefore, so long as the expectation on the occasion of the application of government subsidy is met, the agricultural project would have the operational achievement of $\Delta V_e = V_1 - V_0 - C_e$, and the profit of $\Delta V_e \geq 0$, whereas in the case of failure, there would be $\Delta V_e < 0$. Where the project that a new-type agricultural management entity financed through the application for government funds successfully achieves acceptance, it would be ensured to attain the full amount of government funds. The new-type agricultural management entity will increase its potential to constantly receive government subsidies in the future by means of its established reputation. Therefore, from the perspective of financial management, taking a government subsidy as the financing source will further reduce financing costs, and will thus encourage a new-type agricultural management entity to participate more actively in the investment in the agricultural project with a higher uncertainty of anticipated profits.

Obviously, the government needs to reach the performance goal set by itself when it issues agriculture-supporting government subsidies. Once the project fails to be accepted, the owner (operator) of the new-type agricultural management entity will face the withdrawal of government subsidies, penalties, and the punishment of disqualification from future applications. For this reason,

the owner (operator) of a new-type agricultural management entity will be motivated to tell a lie. In order to prevent an owner (operator) of a new-type agricultural management entity from lying or swindling any government subsidy, government subsidies in large amounts mostly appear in the form of matching funds. Suppose the financial resources that a new-type agricultural management entity can apply for and attain are in the matching ratio α , then it still needs to finance itself in the amount of $(1-\alpha)M$ from other sources. This directly incurs the financing cost C_o . In view of the financing size, the C_o should be less than C_d . In addition, the government will supervise and examine the government subsidies for agricultural purposes to discover and handle any violations against rules or laws. Suppose a new-type agricultural management entity be punished because of its fraud in a government subsidy project, and the penal cost is C_p , and the probability to be found lying is P . Then, for the owner (operator) of the new-type agricultural management entity, the possible penal cost will be $P \times C_p$.

Government Subsidies and the Financing Decisions of New-type Agricultural Management Entities on Financial Loans

Compared to external financiers, the owner (operator) of a new-type agricultural management entity has more experience in practical operations and more internal information about the agricultural project in which he has invested. Based on the assumptions above, the owner (operator) of the new-type agricultural management entity will adopt the method of debt financing to obtain his funds if he predicts through his operational experience that a certain agricultural business can attain the expected positive benefits, and the profits expected to be gain through the investment in this agricultural project is:

$$\Delta V_d = V_1 - V_0 - M - C_d \quad (1)$$

Where the fund is achieved through government subsidy, the expected benefit through the investment in the agricultural project is:

$$\Delta V_e = V_1 - V_0 - C_e \quad (2)$$

In the case of a project fully subsidized by government funds, the difference between these two kinds of financing methods is:

$$\Delta V_e - \Delta V_d = (V_1 - V_0 - C_e) - (V_1 - V_0 - M - C_d) = M + C_d - C_e \quad (3)$$

The application cost of the government subsidy, namely C_e , is necessarily less than the government subsidy that can be obtained, i.e. M , so the sum of the financing size M in equation (3) and the cost of debt financing C_d is much larger than C_e , and the agricultural project is more profitable even if it is invested with government subsidies.

In view of the matching subsidy from government funds and its extra financing cost, the difference between these two financing methods is:

$$\Delta V_e - \Delta V_d = [V_1 - V_0 - (1-\alpha)M - C_e - C_o] - (V_1 - V_0 - M - C_d) = [M - (1-\alpha)M] + (C_d - C_e - C_o) = \alpha M + (C_d - C_e - C_o) \quad (4)$$

Obviously, the investment income of the new-type agricultural management entity drops after the matching subsidy from government funds is allocated. Whether income is positive depends on both the ratio α of the matching funds and the application cost C_e . This explains why large government

subsidies adopt the mode of matching payments, but those in small amounts use the mode of full payments. This is because this policy can effectively maintain the enthusiasm of new-type agricultural management entities to actively apply for funds and invest in agricultural projects.

Based on the assumption above, the income ΔV_d that the owner (operator) of a new-type agricultural management entity anticipates by investing the funds raised through debt financing in an agricultural project would be negative if he predicts through his own experience in operations that an agribusiness project can hardly lead to the expected positive yields. As a rational investor, the owner (operator) of the new-type agricultural management entity will not invest in that agricultural project. In the case of obtaining funds through government subsidies, the income that is anticipated by applying for a full government subsidy and investing it in an agricultural project is $\Delta V_e = V_1 - V_0 - C_e$, and the income anticipated by applying for a partial government subsidy and investing it in an agricultural project is $\Delta V_e = V_1 - V_0 - (1 - \alpha)M - C_e - C_o$. So long as the part $V_1 - V_0$ can replenish the cost C_e for the application for a full government subsidy or the cost $(1 - \alpha)M + C_e + C_o$ incurred by the application for a matching government subsidy, the new-type agricultural management entity would still invest in a certain agricultural project in question, and in this case, the function of a government subsidy to reduce the financing cost of a new-type agricultural management entity and maintain the level of investment in agricultural projects is given an actual play.

Of course, if the return on investment of a certain agricultural project continues to drop and does not comply with the aforementioned requirements for application, the owner (operator) of the new-type agricultural management entity may, by means of lies, take the government subsidy as its income rather than an actual investment. Suppose the income of a full government subsidy project is I_f . Then, the formula for the income of this project after the full use of the government subsidy will be:

$$I_f = M - C_o - P \times C_p \quad (5)$$

As for a project with a matching government subsidy, the income that can be gained through the project with a false application for a matching government subsidy is:

$$I_p = \alpha M - C_o - P \times C_p \quad (6)$$

With respect to the government subsidy that can be applied for, both M and αM are obviously larger than the application cost C_o . At present, the owner (operator) of a new-type agricultural management entity predicts an underestimated penal cost for the false application and regards the application for the government subsidy as a source of income. This greatly deviates from the original purpose of government subsidies in support of agriculture.

According to the simulating inferences of these models, it is obvious that in the existing rural financing circumstances the owner (operator) will finance himself by applying for government subsidy to increase his income when he has a “profitable” agricultural project at hand. Even if without any “profitable” agricultural project at hand, he may still gain some subsidy income by applying for government subsidies. Thus, the unified financing behaviors of new-type agricultural management entities, which are an important target of policies regarding government subsidies and financial support, will create “path dependence” for rural economic development upon the government funds

budgeted for the support of agriculture.

An Empirical Analysis of the Choice of Debt Financing by New-type Agricultural Management Entities

Research Design

Data sources and the choice of measuring methods.

This research takes Jiangsu, a province remarkable for its modern agriculture, as the research object. In order to collect micro-level data about new-type agricultural management entities in Jiangsu province, the research team did field research on new-type agricultural management entities in townships and towns in the southern, central and northern areas of Jiangsu during the Spring Festival, 2018, and received 196 copies of effective questionnaires. These questionnaires covered all types of new-type agricultural management entities, including 62 copies on family farms, 56 on specialized large family farms, 42 on specialized farmer cooperatives, and 36 on modern agricultural enterprises.

Consistent with existing research, we adopted logistic regression to do a quantitative analysis of the financing behaviors of new-type agricultural management entities. In order to highlight the differences between the factors impacting the financing behaviors of different new types of agricultural management entities, dummy variables were constructed to conduct grouping comparisons.

The definition of variables and the construction of models.

Explained Variable: debt financing behaviors (*FINANCING*), represented as the probability that new-type agricultural management entities conducted debt financing.

Explanatory Variables: (1) Financing costs (*COST*): Conducting interviews with financial managers at the new-type agricultural management entities. Comprehensively using questionnaires concerning the credit rating by banks and finance companies to calculate and estimate the financing costs that a new-type agricultural management entity needs to pay in receiving a bank loan.

(2) Net assets (*NET ASSET*): The variable of net assets of a new-type agricultural management entity is used to estimate the impact of the capital size of a new-type agricultural management entity upon its financing behaviors, and this research adopted the natural logarithm value of the net assets of new-type agricultural management entities.

(3) Free cash flows (*CASHFLOW*): Free cash flows are the cash flows occurring during the operation of business minus those of capital expenditures. This research adopted the natural logarithm value of free cash flows of new-type agricultural management entities to make estimates.

What needs to be explained is that in the actual investigation most new-type agricultural management entities had incomplete accounting records. The aforementioned net assets and free cash flows, both as explanatory variables, came from the process and calculations in accordance with the

accounting records provided by the new-type agricultural management entities and the interview records of their relevant persons in charge.

Controlled variables are divided into such aspects as the qualities of controllers, business types, and perceived income adequacy, of new-type agricultural management entities, which are specified as follows:

(4) The qualities of interviewees as people in charge of new-type agricultural management entities. We took the educational attainment that the actual controllers of new-type agricultural management entities have completed (*EDUCATION*), the size of the new-type agricultural management entities (*SIZE*), and the number of employees (*PERSON*), as indexes to estimate the qualities of new-type agricultural management entities and to control the impact of these qualities of business entities upon the choice of credits.

(5) The business types of new-type agricultural management entities (*TYPE*). In accordance to the actualities of new-type agricultural management entities during the field research, they were divided into businesses engaging in the production, circulation, services and processing of agricultural products, respectively, and the valuations of these four types of new-type agricultural management entities are 1, 2, 3, and 4 in sequence.

(6) The perceived income adequacy (*PIA*) of the controllers of new-type agricultural management entities. J. E. Grable's method to estimate perceived income adequacy (*PIA*) is used to measure the subjective perceived income adequacy (*PIA*) by enquiring about a question with interviewees. The question is: To what degree do you think your incomes can enable you to live better? The options were: (A) Not adequate; (B) Able to meet basic requirements; (C) Enough for me to afford what I desire, but not all that I want; (D) Enough for me to afford all that I desire; and (E) Enough for me to afford all that I desire, and there is a balance. The aforementioned options are assigned values from 1 to 5 in the sequence from A to E, respectively.

With a statistical description of the data from field research, and in reference to explanations about the values of the above-mentioned variables, dummy variables D_1 , D_2 , D_3 , and D_4 indicating the differences between sampling groups were designed to check the differences between the financing decision-making of new-type agricultural management entities of the various types. The particular information on these variables is shown in Table 1.

Table 1 A List of Variable Definitions

Variable type		Variable description
Explained variable Y	<i>FINANCING</i>	Probability of implementing debt financing for a new-type agricultural management entity
	<i>COST</i>	Comprehensive financing cost of a bank loan that can be obtained by a new-type agricultural management entity
Explanatory variable X	<i>NET ASSET</i>	Natural logarithm value of net assets of a new-type agricultural management entity
	<i>CASHFLOW</i>	Natural logarithm value of free cash flows of a new-type agricultural management entity

Variable type		Variable description
Control variable <i>C</i>	<i>EDUCATION</i>	Non-educated=1, dropout from primary school=2, graduate from primary school=3, dropout from junior high=4, graduate from junior high=5, dropout from high school=6, graduate from high school=7, graduate from university and above=8
	<i>SIZE</i>	Operation area of a new-type agricultural management entity
	<i>PERSON</i>	Number of Employees of a new-type agricultural management entity
	<i>TYPE</i>	Business types of a new-type agricultural management entity, values assigned by 1, 2, 3, and 4 respectively
	<i>PIA</i>	Perceived income adequacy of the actual controller of a new-type agricultural management entity
Dummy variable <i>D</i>	<i>D₁</i>	The sample is set to 1 for the family farm, otherwise 0
	<i>D₂</i>	The sample is set to 1 for the specialized large family farm, otherwise 0
	<i>D₃</i>	The sample is set to 1 for the specialized farmer cooperative, otherwise 0
	<i>D₄</i>	The sample is set to 1 for the modern agricultural enterprise, otherwise 0

After being tidied up, the final form of the model is:

$$Y = \alpha_0 + \beta_X + \gamma_C + \theta_D + \varepsilon$$

In particular, the explained variable Y is a dummy variable, standing for the probability that a new-type agricultural management entity conducts debt financing; the explanatory variable X consists of the comprehensive financing cost at which a new-type agricultural management entity can obtain bank loans ($COST$), the net assets of a new-type agricultural management entity ($NET\ ASSET$), and the free cash flow of the new-type agricultural management entity ($CASHFLOW$); item C refers to the control variables impacting upon the financing decision-making of a new-type agricultural management entity, composed of the degree of education, operational status, business types and perceived income adequacy, etc., of a new-type agricultural management entity; α_0 is a constant term; β , γ and θ are the parameters to be estimated; and ε is the random error of the model.

Empirical Results and Analyses

To determine the differences between factors impacting the financing decision-making of various new-type agricultural management entities, one can put forward the pertinent suggestions about financial support policies. The steps of empirical analyses are: First, on the basis of all samples, the control variables are considered and regressions are made. Then, dummy variables are added to make a regression based on all samples, to compare the cross-section difference between new-type agricultural management entities of various types. And last, dummy variables are interacted with the explanatory variables of net assets and free cash flows, and the regression based on all samples is made, to compare the slope differences of various new-type agricultural management entities. The regression results are shown in Table 2.

Table 2 The Regression Results of the Model

Variable	Model 1 FINANCING	Model 2 FINANCING	Model 3 FINANCING
<i>COST</i>	-0.631*** (11.12)	-0.712*** (12.23)	-0.528*** (7.83)

Variable	Model 1 FINANCING	Model 2 FINANCING	Model 3 FINANCING
<i>NET ASSET</i>	0.173 (0.11)	0.103 (0.28)	0.0514 (0.23)
<i>CASHFLOW</i>	-0.01 (1.01)	0.128* (1.81)	0.192* (1.95)
<i>EDUCATION</i>	0.022 (0.44)	0.013* (1.87)	0.004 (1.13)
<i>SIZE</i>	0.312*** (5.52)	0.270** (2.58)	0.222** (2.01)
<i>PERSON</i>	0.012 (0.55)	0.113*** (3.19)	-0.133*** (3.24)
<i>TYPE</i>	0.039*** (3.42)	0.034*** (3.31)	0.032*** (3.26)
<i>PIA</i>	-0.161** (-1.95)	-0.173*** (-2.53)	-0.152*** (-2.32)
<i>D₁</i>		—	—
<i>D₂</i>		0.326 (0.72)	0.218 (0.53)
<i>D₃</i>		0.067 (1.58)	-0.258 (0.12)
<i>D₄</i>		0.037* 1.76	0.022 0.32
<i>corss_D₂_NET ASSET</i>			0.112 (0.76)
<i>cross_D₃_NET ASSET</i>			0.131 (1.51)
<i>cross_D₄_NET ASSET</i>			0.109* (1.83)
<i>cross_D₂_CASHFLOW</i>			0.059 (1.52)
<i>cross_D₃_CASHFLOW</i>			0.013* (1.86)
<i>cross_D₄_CASHFLOW</i>			0.013* (1.90)
<i>_cons</i>	11.571*** (14.56)	5.072** (7.03)	4.637*** (5.02)
Adj R ₂	0.303	0.377	0.378
F	30.12***	123.0***	88.65***
N	196	196	196

Note: The numbers in the brackets represent the value of *t* after heteroscedasticity is adjusted in accordance with White test (1980), and the asterisks ***, ** and * added behind the regression model indicate that two-tailed tests are significant at the levels of 0.01, 0.05 and 0.1.

Regarding the results for Model 1 in Table 2, what significantly impact the financing decision-making of a new-type agricultural management entity are its financing costs and business size, which are all significant at the level above 1 percent. This is basically consistent with the financing problem that new-type agricultural management entities are facing in the analysis above. From the perspective of population, most new-type agricultural management entities lack a healthy financial system and are thus unable to offer genuine, reliable financial data; this directly causes the variables of both net assets and cash flows to be ignored by both sides during the process of borrowing. In Model 2, as the dummy variables D_i for the various types of new agricultural management entities are added, the regression results show that D_4 is statistically significant. This indicates that, with family farms as a benchmark, only modern agricultural enterprises display statistical differences from the family farms in terms of cross section. Moreover, the major factor impacting the financing decisions of a new-type agricultural management entity is still the financing cost (*COST*), and free cash flow (*CASHFLOW*) is significant at the level of 10 percent. The concrete differences between various types of new-type agricultural management entities need to be further explained by means of the regression results in Model 3. With the dummy variables D_i in different stages interacting with the given explanatory variables, the results in Model 3 show that financing costs (*COST*) are still an important factor significantly impacting the financing decisions of new-type agricultural management entities. Take family farms as the benchmark, respecting net assets as a variable, only modern agricultural enterprises show differences from other groups in terms of slopes, whereas with respect to the variable of free cash flows, both specialized farmer cooperatives and modern agricultural enterprises display differences from other groups regarding slopes. This indicates that net assets and free cash flows have a significant influence upon the financing decision of modern agricultural enterprises.

Among control variables, the *PIAs* in Models 1, 2, and 3 are significantly positive at the level of 1 percent, and this is evidence that farming households are still in the tradition of being easily content, which used to be a common phenomenon among traditional farming households in China, even if they have been transformed into new-type agricultural management entities, and especially when they are more satisfied with their existing incomes, they have no intention to enlarge their sizes of production by means of debt financing. In addition, both the business type (*TYPE*) and size (*SIZE*) of a new-type agricultural management entity are significant in the empirical models, and this indicates that family farms in various types differ from each other in terms of their demands for loans. In reality, compared to the new-type agricultural management entities mainly engaging in the production and processing of agricultural products, those in the types of service and circulation face more risks in their operations, and have the difficulty of unstable distribution of cash flows, so they are fonder of getting bank loans. Therefore, to further concentrate the resources and factors of agricultural production and increase the sizes of new-type agricultural management entities is still an important element to stimulate their demands for loans.

A Conclusion and Some Suggestions About Policies

We examined the financing behaviors of new-type agricultural management entities as a research object; in the light of the financing preference theory, and on the basis of simulating the financing circumstances of contemporary new-type agricultural management entities, we explained, through the deduction of models, a new-type agricultural management entity's excessive preference for government subsidies (quasi-equity financing) over financial support (quasi-debt financing). Through field surveys and interviews, as well as the application of logistic regression models, we researched, at the micro-level angle of new-type agricultural management entities, the major factors impacting the decision on debt financing of new-type agricultural management entities. As the research findings show, financing costs are still a significant factor restricting the financing decisions of new-type agricultural management entities. Family farms, specialized farmer cooperatives and specialized large family farms display their very strong social quality in terms of their financing decisions: the higher the degree of their existing perceived income adequacy is, the more conservative their financial behaviors will be; modern agricultural enterprises will consider factors (the risk of bankruptcy and the capability of repayment) in addition to financing costs; the new-type agricultural management entity has obtained the qualification of a legal person in form but because of its insufficient self-recognition and the asynchrony of relevant matching policies, the suppliers of funds, including banks, still identify it as a natural person. This directly elbows a number of new-type agricultural management entities out of the rural financial markets, and the obtainment of agricultural subsidies thus becomes a major financing source for most new-type agricultural management entities. In this case, the policies for rural financial support fail to work, and seriously deviate from the original purpose of the formulation of policies for rural financial support.

Therefore, at the outset of the implementation of the rural revitalization strategy, it is necessary to improve the policies pertinent to government subsidies and financial support. The inadequacy of existing policies for government subsidies should be overcome first, to prevent the opportunist behaviors of new-type agricultural management entities aiming at government subsidies. In addition, a financial information system on rural business entities should be established to obtain genuine, reliable accounting information so that the policies for financial support can play a more active role. By clarifying the position of policies for government subsidies and financial support in aid of agriculture respectively and the relations between them, it must finally be guaranteed to give dutiful, adequate play to policies for the rural revitalization strategy.

Based on this conclusion we offer a few suggestions on policies.

To Upgrade the Supply Chain for Rural Industry, and Guarantee Transparency and Precision in the Implementation of Policies for Government Subsidies

Further strengthen the construction of the system for a modern agricultural industry, integrate the information flows, cash flows, and substance flows of new-type agricultural management entities

by relying on the supply chain for rural industry, and profoundly dissect new-type agricultural management entities. With respect to the upgrade of supply chains for rural industries, policies concerning government subsidies are supposed to be formulated to effectively stop opportunist behaviors in the application for government subsidies among new-type agricultural management entities. It is advisable to establish a unified standard and set up some information ports to agricultural management entities in the supply chain, to gather from all aspects the information on production and operation occurring and transmitted along the industrial supply chain. This will not only offer a practical information ground for the continuous optimization of rural industries, but also lay a reliable data basis for the estimate and subsequent optimization of government subsidy policies on the system for new-type agricultural management entities.

To Start with the Improvement in the Rural Financial Information System to Constantly Reduce Financing Costs

For the predictable future, financing costs will continue to be an important factor hindering the development of new-type agricultural management entities. To control financial risks and reduce transaction costs, it is theoretically necessary to solve the problem of information asymmetry abounding in the rural financial markets. The implementation of the rural revitalization strategy entails the establishment and improvement of an inclusive rural finance and credit system. And the aforementioned goals can hardly be reached without a simple but reliable financial accounting system which complies with rural realities and is operable. It has been proven that the accounting system, as a language of modern business, has played an important basic role in the development of a market economy. In reference to the requirement for the construction of “rural information network coverage” during the implementation of the rural revitalization strategy, Internet information technology should be heavily used. And a system for the management of rural financial information complying with the quality standards of accounting information should be built by analyzing the information on agricultural management entities through big data on the basis of the gathering and sorting of financial information from those agricultural management entities.

To Guide New-type Agricultural Management Entities to Establish the Accounting System and Strengthen the Cultivation of Specialized Farmers' Financial Quality

New-type agricultural management entities are actually restricted by irrational qualities and financial factors when they make financing decisions, and this is directly related to the fact that the new agricultural management entities at present have not yet completed their corporatization. As to new-type agricultural management entities which have reached their preliminary sizes, it is necessary to shake off their previous thinking of operating as large agricultural households. It is feasible to separate the accounts of enterprises from those of individuals, and with the help of rural financial service institutions, set up professional posts for independent financial accounting, preliminarily building a correct, normalized financial system. As to new-type agricultural management entities that

are still not qualified to set up accounting posts, it is useful to strengthen the module education on financial quality in the professional training of farmers, so that they are surely aware of the financial and legal requirements of new-type agricultural management entities. By introducing and employing financial professionals to deal with the accounting business of new-type agricultural management entities in a concentrated way, it will help to create consequent and orderly financial records and strict mechanisms for accounting checks, and give all-round play to the supporting role of accountants in the implementation of the rural revitalization strategy.

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