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AGRICULTURAL GUARANTEE FUND AS A RISK INSURANCE METHOD OF BANK CREDITING OF AGRO-INDUSTRIAL COMPLEX ENTERPRISES IN UKRAINE

Abstract. The goal of the article is the development of theoretical principles and practical recommendations concerning the improvement of bank crediting of agro-industrial complex (AIC) enterprises based on the use of Agricultural Guarantee Fund opportunities.

The object of the research is a combination of theoretical, methodological and applied principles of forming and functioning of Agricultural Guarantee Fund in the process of bank crediting of AIC enterprises.

The methodological basis of the study is based on the systematic approach to improving bank crediting of AIC enterprises and searching the ways of the guaranteed risk insurance in credit relations. In the research process, general scientific and special methods were used, namely: bibliographic method (the study of scientific works concerning risk insurance in bank crediting of agricultural enterprises); abstract-logical method; the methods of system generalization, analysis and synthesis. The article focuses on the risk insurance problems of bank crediting of AIC enterprises by creating Agricultural Guarantee Fund (AGF). The dynamics of insuring credit risks in Ukraine in recent years has been studied. The experience of EU countries as to creating and functioning AGF has been generalized; the main purpose of AGF is to reduce and allocate

bank risk using the insurance technologies. The advantages of the fund have been substantiated; they will allow saving money due to the "leverage effect" with guarantee to get credit in sizes being significantly higher than the fund resources.

Keywords: bank crediting, credit guarantee, risk insurance, Agricultural Guarantee Fund, crediting AIC enterprises

Formulas: 0, fig.: 1, tabl.: 1, bibl.: 10

JEL Classification: G21, G22, G32, Q14, E52, H81

Introduction. Further development and improvement of bank crediting of agricultural enterprises is of particular importance in the conditions of reforming enterprises of agricultural economic sector. Today, in the conditions of limited budget financing, commercial bank crediting is the only source of finance resources for agricultural enterprises, monopolization of which puts agriculture in unequal conditions along with other sectors of the domestic economy and encourages enterprises to seek effective means of reducing risks and their insurance.

The unsatisfactory financial situation of many enterprises, insufficient provision of credit demanded by banks, the absence of a positive credit history make it difficult, and in some cases, make it impossible to obtain bank loans. The existing moratorium on mortgages of agricultural land slows down the development of credit support for enterprises in the agrarian sector of the economy.

Considering the availability of these and other problems, the issue of research and improvement of banking mechanisms for crediting agrarian enterprises and risk insurance are of paramount importance.

Literature review and the problem statement. The development of scientific principles of banking, credit and credit relations, including in the agricultural sector of the economy, are considered by a number of national economists, namely: V. H. Andriichuk, V. M. Aleksiichuk, V. D. Bazylevych, V. A. Borysova, Z. M. Vasylchenko, O. D. Vovchak, V. V. Honcharenko, O. Y. Hudz, I. S. Hutsal, M. Y. Demianenko, O. V. Dziubliuk, O. T. Yevtukh, V. D. Lahutin, P. A. Laik, Y. O. Lupenko, I. O. Liutyi, M. Y. Malik, V. I. Mishchenko, A. M. Moroz, L. V. Moldavan, K. B. Pavliuk, D. V. Polozenko, P. T. Sabluk, T. S. Smovzhenko, H. M. Tereshchenko, M. M. Fedorov, L. M. Hudolii, A. V. Chupis, A. A. Chukhno and others.

We should point out that despite the significance and practical importance of the findings in this field, many aspects of the problem demand further thorough research in order to find the ways of efficiency increase of the interaction between creditors and agricultural enterprises. One of the key tasks in this area is the necessity to solve a number of problems in terms of risk insurance of bank crediting, the creation of efficient guarantee structures of timely receiving of loan capital on mutually beneficial terms, institutional development of credit infrastructure.

Insufficient development of the mentioned problems, their methodological and practical significance determine the topicality of the article.

The goal of the article is the development of theoretical principles and practical recommendations concerning the improvement of bank crediting of AIC enterprises based on the use of Agricultural Guarantee Fund opportunities.

Research results. The system of crediting agricultural producers, according to the world practice, is a set of state, cooperative and private crediting institutions having

different functions, crediting schemes, principles of work with borrowers, crediting financially insolvent enterprises, credit privileges, pledge mechanisms, etc. These differences virtually eliminate competition between them and integrate them into a single integrated system in which the functions of one institution complement the functions of another one.

A significant contribution to the creation of an effective system of agri-insurance with the active state participation in Ukraine was made by the International Finance Corporation [IFC, World Bank Group]. This project focuses on the international experience of constructing a system of agri-insurance and describes the possible options for the state participation in the insurance.

According to the World Bank study, partial credit guarantee schemes (PCGs) are used in more than 100 countries of the world [Beck, Klapper & Mendoza 2010].

These financial instruments were extensively used for the first time in the US in 1953, later in Canada and Switzerland in 1961, and in the UK in 1981. To support crediting of SMEs in the agrarian sector, 25 warranties were used in 9 regions in the EU in 2007-2013, and above 120 in the whole EU [European Commission 2016].

The increase of research papers focusing on this type of state financial support of SME access to funding shows a growing interest in partial credit guarantee schemes of agrarian producers every year.

The literature sources can be divided into three large groups. The first one consists of cross-country surveys describing the main features of guarantee schemes [e.g. Beck and al. 2008; Bennett and al. 2005]. The second one involves individual country studies, including the efforts to assess additionality [e.g. Ridding 2007; Cowan and al. 2009]. Finally, a third group focuses on the best practices and design issues, based on the international experience [e.g. Deelen and Molenaar 2004; Green 2003).

The imperfection of the capital market limits the access to finance for small enterprises [Laeven, 2003; Love 2003; Gelos and Werner, 2002].

The economic consequences of credit guarantee were considered in various theoretical research including [Mankiw 1986; Gale 1990, 1991 and Li 1998]. In general, the main problem of introducing partial credit guarantee schemes of agrarian producers is the fact that the government intervention in the credit markets leads to increasing the information problems that, in their turn, affect the inefficiency of SME funding. In addition, the government intervention can deteriorate the credit conditions. In 1990s, when the Japanese economy entered the period of prolonged stagnation, the government introduced special programs of credit guarantee for small business sector to maintain financial stability; those programs acted in October, 1998 – March, 2001. The purpose of that measure was to mitigate the effects of the credit crisis [Uesugi, Sakai & Yamashiro 2010]. The study of the dynamics of SME indicator growth during the economic recession after the global financial crisis showed that the access to financial resources was more important during the recession [Cowling et al 2015].

In addition, [Ghosh, Mookherjee, and Ray 2000] investigated the closer link between the access to finance and the growth of companies. The authors point out that the availability of credit induces to use modern technology and new equipment that, in their turn, increase the average income level. Studying the problems of credit types, particularly, micro and macro, it should be emphasized that there are credit limits in the first type, and there is often refusal to credit grant in the second type [Cowling 1997; Cowling, Liu,

Ledger 2012]. Such concern has led to the wide use of loan guarantee programs in the developed and developing countries [Klapper, Laeven, Rajan 2006; Honohan 2010]. Almost all the scientists stress that this mechanism of providing credits for SMEs in the capital market is almost the only one since the companies cannot get funding by conventional means [Cowling and Siepel 2013; Cowling 2010; Riding 1997; Clay 1995]. SMEs play an important part in developing countries for they create new business, increase workplaces, raise productivity and introduce innovative ideas [Nitani & Riding 2005]. Their role and need in funding have been recognized by the countries having implemented a variety of initiatives including credit guarantee schemes [Samujh, Twiname & Reutemann 2012]. In Ukraine, the problem of creating a credit system for the agrarian sector is at the initial stage, since only one component of this system works, in fact, the state participation in the reduction of interest rates for commercial bank loans.

Compensation for commercial bank credits from the state budget increased from 150 million UAH in 2001 to 667 million UAH in 2006 and was almost 20% of the volume of internal state support for the measures put into the "yellow box". However, in 2014, budget compensation for credits decreased to 200 million UAH. The government of Ukraine adopted a resolution amending the Procedure for the Use of Funds provided in the state budget for financial support of agricultural complex measures by means of cheaper credits. The adopted document improves the mechanism of giving the state support to the entities of agro-industrial complex by partial compensation of the interest rate for the credits borrowed in banks. To date, partial compensation for credits was to 50% of the NBU discount rate. The amendments double this compensation (100% of the NBU discount rate) for small and medium-sized agricultural producers and those who grow and breed cattle. 300 million UAH were provided for this program in 2017.

The overview of foreign economic literature and the analysis of practice show that this support form of crediting agriculture is considered to be the most costly for the state and least efficient for agriculture, since the effect of the allocated funds is calculated for only one year. In addition, this form of support as a measure of the "yellow box", according to the requirements of the World Trade Organization, of which Ukraine is a member, is subject to reduction.

Considering the specific activity of agricultural enterprises, the most common credit projects are: financing for the replenishment of working capital, financing of current investment needs related to the technical support of the agricultural production cycle, alternative forms of financing the purchase of plant protection products, fertilizers and sowing material, as well as loans secured by grains stored in the certified grain stock.

Since solvency of agricultural enterprises is formed by both external and internal factors, their crediting is closely linked to agrarian insurance, which is an obligatory condition for obtaining cash in most countries of the world. Obviously, the credit risk of agricultural enterprises should be considered as a loss probability of not only the pledged property, but also future revenues. Its components are systemic risks (arising in the external environment of credit process participants), risks associated with collateral (associated with the probable loss of pledged property or a decrease in its value), as well as production risks (lead to losses in production activities).

In practice, the insurance of credit risks of an agricultural enterprise in recent years is becoming widespread, in particular, the insurance of crops with the aim of improving the financial condition of the agricultural enterprise in terms of its solvency (Table 1).

Table 1 – *Insurance dynamics of credit risks of agricultural enterprise in Ukraine in 2005-2017*

Indicators	Period								
	2005	2010	2011	2012	2013	2014	2015	2016	2017
Insured area, thousand hectares	390	553	786	727	869	732	689	700	657
Insurance payments, mln. UAH	12.8	72.1	136.3	130.4	135.4	72.8	77.7	157.0	204.4
Insurance payment for 1 hectare, UAH	32.8	130.4	173.4	179.4	155.8	99.4	112.7	224.3	311.1
The size of state subsidies, mln. UAH	5.8	0	0	0	0	0	0	0	0
Share of state subsidies in insurance costs,%	45.3	0	0	0	0	0	0	0	0
Number of insurance contracts, pieces	910	1217	2710	1936	1722	1392	1062	793	957
Average insurance payment for one contract, ths. UAH	14.1	59.2	50.3	67.4	78.6	52.3	73.2	197.9	213.6
Payout level,%	n/a	50.9	28.0	41.0	9.7	7.6	12.9	44.2	3.7[1]
Course $ / UAH[2]	5.05	7.91	7.98	7.99	7.99	12.95	22.91	26.02	26.54

Source: calculated by the author on the basis of IFTs. World Bank Group (2017)

[1] Data on insurance payments are submitted as of 1.10.2017 and can be adjusted upward by the end of 2017

[2] The official exchange rate of the US dollar to the UAH at the end of October of each month

Despite the absence of the state support to the agrarian sector of Ukraine economy, according to the main indicators in 2017, better results were obtained in terms of insurance than in previous years. The total amount of insurance market of agricultural crops during this period was 657 thousand hectares of the insured areas. The amount of insurance payments for this type of insurance was 204.4 million UAH, being by 47.4 million UAH or by 30.2% more than in 2016.

On average, in 2017, 1 hectare of land accounted for 311.1 UAH of insurance payment. The agricultural enterprises concluded 957 insurance contracts being by 164 more than in 2016, but less than 1753 contracts compared with 2011. The level of payments in 2016 was 44.2% (in 2015 - 12.9%, in 2014 - 7.6%, in 2012 - 41.0%).

Obviously, the main problem in the insurance of credit risks of agricultural enterprises is the lack of real comprehensive programs of risk management in the majority of banks in the field of providing credit support to the agrarian sector of the Ukrainian economy.

The situation of nominal insurance of credit risks of agricultural enterprises, that is, the insurance of bank collateral in order to improve the financial position of the agricultural enterprise in terms of its solvency, is stipulated by the lack of [Rural Credit Guarantee Foundation (AVHGA) 2011]:

- the skilled professionals who understand the complex of problems and risks of agricultural enterprises;
- underwriters and methodologists who are able to create high-quality risk insurance programs for crediting agricultural enterprises;
- a reliable long-term partner who is ready to insure and pay the insurance amount in the event of the risk of agricultural enterprise activity;
- a qualitative risk assessment and interim control system for identifying the risks of agricultural enterprises' activities before they occur;
- the state active position and real support of agricultural enterprises.

Thus, the risk insurance when crediting agricultural enterprises is an important element of financial credit provision system of agrarian sector of Ukraine economy. In addition, this kind of insurance is designed to prevent loss of not only mortgaged property and future income, but also improve the access of agricultural enterprises to credit resources.

The practice of countries with market economy has accumulated a positive experience of efficient and less risky use of the state funds to promote agricultural credit provision. Government institutions that, to a greater or lesser extent, perform the guarantor's role in relation to agricultural producers in front of the commercial banks, especially with regard to long-term credits that are not available for the agrarian sector in other circumstances, occupy a prominent place here besides the support of forming the system of agricultural banks serving their members at interest rates at cost.

We have generalized the experience of creating and functioning of agricultural guarantee funds in the EU countries, and its study is of both scientific and practical importance for Ukraine.

The Agricultural Guarantee Fund ("the Fund") is a financial instrument intended to reduce and distribute bank risk.

The Fund uses the insurance technologies in the work with a commercial bank: the bank pays the "commission" to the Fund (corresponding to the insurance premium), which, in its turn, returns the part of the guaranteed credit in the event of bankruptcy of the borrower (corresponding to the compensation of the non-repayable credit). This type of work is legally quite close to the technology of a pledge or a bank guarantee. However, the Fund replacing the bank does not pursue the borrower who has gone bankrupt.

The allocation of bank risk is based on the principle that all beneficiaries of the guaranteed loans cannot simultaneously bankrupt. This allows applying the "leverage effect" as the capital managed by the Fund can guarantee a much larger amount of bank credits.

The importance of the "leverage effect" will increase when the percentage of bankruptcies of borrowers decreases. The predicted percentage of bankruptcies is a central point in the design of the entire Fund. It allows determining the "multiplier coefficient", which will be reversed to the predicted bankruptcy percentage. More precisely, the "multiplier coefficient" is an a posteriori economic calculation of the ratio between the amount of the unpaid guaranteed credits and the amount of capital required to enable the Fund to provide appropriate compensation to banks for non-repayable credits after the expi-

ration of all conventions and legal proceedings (the realization of mortgages, guarantors, deposits, etc.).

The second element of risk distribution is that the Fund always leaves part of the guarantee to the bank that is necessary for maintaining the responsibility of the latter. As a rule, the share of the guarantee is 50%. Experience shows that in the case when the bank is guaranteed a 100% repayment of a credit, it loses interest in carrying out a risk control which always remains in the agrarian sector.

Thus, the "leverage effect" is a combination of two parameters: the "multiplier", which represents the percentage of bankruptcies, and the share of the guarantee.

Consequently, with a guarantee share of 50% and a multiplier factor of 5%, it will be possible to guarantee the amount of credits, which is ten times the amount of capital held by the Fund. That is, if the purpose is, for example, the guarantee of 1 billion UAH credits, it is necessary for the Fund to have 100 million UAH at its disposal (always with the same multiplier coefficient and a percentage of the guarantee).

If it is difficult to mobilize resources and, in particular, when it comes to the state funds, this scheme is particularly profitable compared to direct aid provided by the state, such as grants. In addition, there is always a certain period of time between the announcement of the creation of the Fund by public authorities, the actual coverage of credits (notification of consent to the guarantee), the first non-repayment of the credit declared by the bank, and, finally, the first real settlement with the bank in the treasury.

The Fund allows introducing a "voluntarist" sectoral economic policy. That is, when establishing a fund, the process of granting the guaranteed credits can be clearly defined for:

- sectors of activity (for example, livestock sector, agricultural co-operation);
- types of enterprises (agricultural enterprises, agricultural service cooperatives, private peasant or farm enterprises, etc.);
- types of credits (medium-term or long-term credits, short-term credits or leasing);
- the size of credits, which allow simultaneously to limit the category of enterprises (small, medium or large);
- targeted operations (creation of an enterprise, organization of a sales or processing cooperative, formation of a dairy herd, etc.).

Thus, the Fund activity is rather flexible, and it can support the provision of targeted credits. Besides, these actions can be quickly and easily supported by free funds and operationally ensure the implementation of changes in the state policy. When the Fund is a state structure, it can meet the demands in guarantees in very short terms. In addition, the foundation of the Fund obliges to determine the economic purpose of credit operations, that is, modifying the balanced activity of the fund requires a clear definition of the amount of funds to be used and the expected results. The expediency of the Fund's activities is also in the orderly management of funds; in particular, the amount of funds provided by the government agencies should be determined a priori.

Consequently, the Fund is a financial tool, which allows predicting the behaviour of budget bodies in a changing environment more accurately than when using other techniques.

In the event of an error in estimating one or more parameters (for example, the percentage of bankruptcies ...), it will be possible to use the multiplier or guarantee portion

in order to reduce the future obligations of the Fund. If there is a Fund, it is always possible to avoid the negative effects of unstable politics.

The expediency of the Fund activity is more "to motivate action" than to do it for itself. In principle, the Fund can mobilize the entire bank system of the country in order to carry out all banking operations directly within the agrarian sector serviced by the Fund. The key to efficiency here is the division of tasks between the participants of this system:

- the state determines its policy and conditions of its implementation;
- the banks themselves carry out credit operations;
- the Fund deepens the risk analysis of the company and obliges banks to improve their own analysis.

There are two possible ways of Agricultural Guarantee Fund functioning: permanent Fund being self-financing and the Fund with means being consumed in this period.

The permanent Fund must systematically maintain its financial equilibrium since its creation. It means that its costs should not exceed its income, or rather: (operating costs + compensation to banks - commissions paid by banks + income from equity investments).

However, practical experience confirms that commissions cannot cover compensation. They cannot exceed the real percentage of non-refundable credit, since otherwise the banks will not have any financial interest in using the Fund's guarantee (in their interest, there will be only a risk distribution in order to comply with the insurance percentages that were set by the higher authorities). Consequently, the income from the financial operations of the Fund should cover the compensation, and therefore the size of the equity capital of the Fund should be calculated at the beginning of its activity, depending on the amount of compensation provided and the previous interest on the invested capital.

The state fund should be exempted from the income tax, at least during the first 5 years of functioning, since it is inappropriate to provide a grant to the fund and at the same time reduce its possibilities by taxing.

The term of the Fund activity with funds being spent during this period, will depend mainly on the real average percentage of non-refundable credit and the amount of capital provided at its disposal.

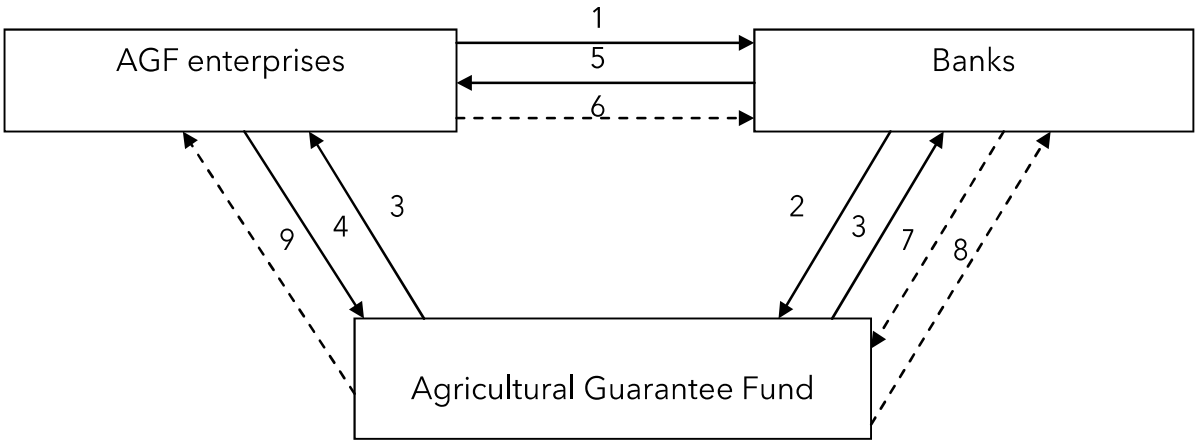
Having reliable statistical data, a fairly accurate estimate of the credit percentage that have not been refunded in the past in a particular sector of activity can be made. On this basis, the "multiplier coefficient" is determined, which will allow easy determining the credit size that can be guaranteed each year (quarter), without thereby violating the Fund's equilibrium, that is, to ensure a permanent obligation of the Fund to provide compensation using the initial capital. The "multiplier" will need to change over the course of using free funds, acting as a regulator when making a commitment to the Fund.

The Guarantee Fund must have the legal status of a bank (at any rate, a specialized financial company) for two reasons, at least: banks are its direct "clients"; it carries out banking operations to provide credit guarantees and placement of its own funds. The functioning mechanism of guarantee credit scheme with the participation of the Agricultural Guarantee Fund is shown (Figure 1).

The Fund is structured on two levels:

- the general policy is determined by the Board (or by the Supervisory Board), including the representatives of three mentioned partners, with the state having a casting vote and the right to chair;

- current management is carried out by the General Directorate involving experts of a high level commercial bank.



The mechanism of functioning the Agricultural Guarantee Fund provides:

1. Grant applications and documents for obtaining a credit, including documents required for obtaining a guarantee.
2. An application to provide a guarantee and documents regarding the borrower to determine the risk of the borrower, the Agricultural Guarantee Fund (AGF).
3. Notice of granting a guarantee to the bank and the borrower.
4. Fee for providing the guarantee.
5. Granting a credit.
6. Failure to refund the credit by the borrower, partial satisfaction of the creditor's claims by collecting penalty on the subject of collateral.
7. Bank's request to AGF to fulfill the warranty.
8. Execution of guarantees in the amount of up to 70% of the unpaid credit amount.
9. Debt collection from the borrower.

Figure 1 - *The mechanism of functioning Agricultural Guarantee Fund*
Source: *own development on the basis of OECD [2012]*

The decision on the obligations of the Fund is taken by the Committee presided by the General Director of the Fund including the responsible persons of the Fund, representatives of banks and, if necessary, representatives of users.

The basic principle of the Fund's operation is as follows: the percentage of contributions should be risk-based, and the risk assessment should be based on the financial analysis of the enterprise and the quotation system. It is a key indicator to be considered by the banks and by which the costs can be estimated. It is not the only factor in the assessment, but the most sensitive and more often used. This principle can be then rejected with the number of criteria increasing and the risk assessment being determined better.

Such criteria can be:

- internal quotation of the enterprise;
- quotations of the guaranteed operations or guaranteed credits of a certain type (short-term or medium-term credits: classic credit or leasing ...);
- the efficiency of guarantees taken by the bank on the guaranteed credit;
- distribution of risk by the bank, carried out before the Fund guarantees are attracted;

- taking into account these criteria allows creating a grid of the differentiated interest rates according to the real level of risk assumed by the Fund;
- in case of a risk, there are two main types of compensation;
- the full compensation of non-refundable credit to the bank (after 50% guarantee portion has been applied) since the bankruptcy of the enterprise and the possible repayment of the funds by the bank received by the latter from the debtor to the account of guarantees taken jointly by the bank and the Fund;
- final compensation after the repayment received by the bank as a result of a borrower's performance of the guarantee obligations.

These types of compensation have different implications for the Fund, so before making a decision on compensation payment, they need to be thoroughly studied.

Over 20% of the total credit volume is invested in agriculture under the guarantees of agricultural guarantee institutions in the EU and the US.

Conclusions. AIC enterprises have limited access to financing that is the main obstacle for their further development and the increase of productivity. Existing financial mechanisms of the state support (partial interest rate compensation, leasing program) are inefficient and are mostly used by large agricultural enterprises, due to broad criteria of the right to use and the absence of marginal credit compensation.

The introduction of a credit guarantee scheme is more efficient state mechanism for supporting AIC enterprises due to the fact that, firstly, it is the market mechanism, the state does not directly interfere with the provision of credit; secondly, the requirements for collateral are reduced, agricultural enterprises limited in access to credit due to lack of collateral, receive credits; thirdly, interest rates decrease, because of the availability of guarantees, banks reduce interest rates and demand for loans increases.

The article summarizes the experience of the EU countries in the creation and functioning of agricultural guarantee funds and proposes to distribute it in Ukraine. The proposed Agricultural Guarantee Fund, in its work with a commercial bank, applies insurance technology, that is, such a technique is quite close to collateral technique, but the Fund does not pursue a borrower who has gone bankrupt.

The article presents the principle of bank risk distribution consisting in the fact that recipients of the guaranteed credits cannot fail at the same time, which allows applying the "leverage effect". The necessity of using the predicted percentage of bankruptcy in the Fund's construction is substantiated, which allows determining the "multiplier coefficient", the inverse indicator of bankruptcy percentage and which reflects the share of the guarantee.

The advantages of the Agricultural Guarantee Fund consisting in saving money through the leverage effect, are described, and the ways of its functioning as a permanent fund self-financing and being supported by the state and the temporary fund for guaranteeing a separate program, are determined.

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