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Research Article

Optimization of capital structures to increase the capital return of agro-organizations

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ABSTRACT

This article discusses methodological approaches to the development of a model for analyzing optimization of the company's capital structure, which focuses on a concept that includes the principle of effective use of equity capital, its profitability; the principle of effective use of borrowed capital; the principle of balanced sources of financing of the company. Both vertical and horizontal analysis was carried out, as well as an assessment of the company's financial stability and a factor analysis of the return on equity. Factors that affect the optimization of the leverage were considered, as well as the optimization of the capital structure based on the criterion of maximizing the return on equity. In the process of choosing the optimal source of financing, both quantitative and qualitative indicators of resource availability were evaluated and qualitative and quantitative analysis of financing channels was conducted, which was used to calculate the degree of their reliability. The optimization of the capital structure was carried out according to the criterion of minimizing the level of financial risks. An important role is played by the schemes of evidence of practical application of the model, which contributes to the growth of capital and increase its share in the overall structure of sources of financing the company's operations, procedures based on the assessment of changes in profitability, the structure of sources of financing in a specific time period.

The purpose of this paper is to present a methodological approach to the development of a model for analyzing the optimization of the capital structure of companies. As a measure of dependence, a factor analysis of the profitability of total capital is used. It is shown that the factor model takes into account various methodological approaches to the development of an assessment of the structure of sources of financing the company's activities, the efficiency of using its own and borrowed capital, the development of management decisions aimed at optimizing the capital structure to increase capital productivity. This allows us to recommend these procedures for practical use.

Key words:efficiency, financial stability, profitability, capital, capital intensity, profit, optimization.

[I] INTRODUCTION

Models for analyzing the optimization of the capital structure are a popular tool in the financial management of agro-organizations.

In this paper, we consider a model for analyzing the optimization of capital structure in an agro-organization, built on the basic principles of the concept. The policy of optimizing the capital structure predetermines the short-term and long-term financial stability of the agro-organization, which makes it possible to classify the sources of financing according to their priority and cost. Therefore, depending on the priority, relations are established with suppliers, which are most often shareholders and creditors. Shareholders provide funds to the agro-organization in the form of equity, lenders in the form of loans, loans, and payables. The capital structure management policy [II,10,14] considered in the study, is aimed at finding the most profitable structure of equity and debt capital in its total population, the ratio between equity and debt.

The exact value of the capital structure, which is optimal, has not been revealed until now, despite the large amount of research in this area by Gerasimenko, O.A. MolokovaV.I. [I,3] L.V. Davydova, S.A. Ilminskaya[I,6]KirillovYu.V., E.N. Nazimko[I,7] Foxes M.I. [I,11]NureevR.M. [I,12]PinyaevaA.E. [I,13].

The reason for this is the economic, social, political conditions that operate in different countries. But a lot of attention should be paid to industry characteristics, the life cycle of the agro-organization, the profitability of its activities, as well as the macroeconomic cycles. These factors form a unique combination in which the optimal value of leverage is most often individual for each individual agro-organization. I.A. Blank [I,1]BocharovV.V. [I,2]KovalevV.V. [I,9]Khabibullina L.R., YangirovA.V. [I,17].

In all the mentioned works, the approaches of different scientists to the content of the concept of “capital” are presented [I,1,2,15, 17,18].

The main attention of these works is focused on the principles of the Concept of Optimization of the Capital Structure of the Production Agro-Organization, which include the following:

1) the principle of effective use of equity capital. This principle implies a high level of return on equity, capitalization of net profit in the development of the agro-organization. At the same time, the share of the distribution of equity in the assets is very important for industrial agro-organizations (initially it is an investment in non-current assets, the acquisition of the necessary equipment for production and other fixed assets; later - the formation of stocks from its own sources of funds). When determining the return on equity, it should be borne in mind that dividends are paid from the net profit to owners, therefore the pledged level of net profitability should be sufficient both for paying dividends and for growing the company's equity capital by capitalizing part of the net profit;

2) the principle of effective use of borrowed capital. This principle implies a high level of profitability of borrowed capital. When developing the pricing policy of the agro-organization, forecasting the level of profitability, attracting borrowed funds in the form of bank loans, one should take into account the volume of expenses for loan servicing. The level of profitability of borrowed capital should not be lower than the interest rate on a bank loan;

3) the principle of efficiency and economy of use of the material and financial resources of the agro-organization;

4) the principle of balancing the sources of financing activities (the desire for financial independence due to the gradual excess of the share of equity over the share of liabilities);

5) the principle of increasing the investment attractiveness of the agro-organization (through the implementation of new efficient investment projects, attracting investors' funds).

The implementation of the Concept will be carried out by analyzing the capital of the manufacturing company. For this, the authors have developed a model for analyzing the capital of an agro-organization. The analysis was divided into the following stages:

1) horizontal and vertical analysis of the capital of the agro-organization;

2) assessment of the financial sustainability of the agro-organization;

3) assessment of the effectiveness and intensity of the use of agro-organization;

4) factor analysis of the profitability of total capital.

To optimize the capital structure, the analysis was carried out in the following steps.

The first stage is the analysis of the dynamics and structure of the capital of the agro-organization. Includes analysis of changes in the value of the company's own and borrowed capital as the main sources of financing activities. Evaluation of the dynamics is carried out by methods of horizontal analysis and involves the calculation of absolute and relative deviations, or how the cost of equity and debt in the reporting year has changed in comparison with the previous year. Evaluation of the structure is carried out by the method of vertical analysis and allows you to determine the share of own and borrowed capital (as well as its elements) in the overall structure of sources of financing the activities of the agro-organization.

The second stage is the assessment of the financial sustainability of the agro-organization. This analysis allows us to identify the company's dependence on borrowed sources of financing activities (bank loans, loans from other companies, accounts payable). At the same time, an absolute and relative assessment of financial stability is carried out. The absolute assessment is aimed at identifying the company's ability to finance current assets in terms of reserves at the expense of equity and form the so-called own working capital (OWC).

Sources of formation of stocks are presented in the works of economists Shokhina, L.S. BrykinaO.V. [I,20]Prosvirina I.I., ProskurinaV.V. [I,14] which were taken into account when developing a model for analyzing the optimization of the capital structure of an agro-organization.

Depending on whether a positive or negative value was obtained for OWS, Sol (own and long-term sources) and VSt (total value of main sources), the type of financial stability was determined: absolute; normal; unstable; crisis financial position [II,6]

The third stage is the evaluation of the effectiveness and intensity of capital utilization. At this stage, the effectiveness and intensity of the use of capital in general and its individual elements (in the structure of equity and liabilities) is analyzed.

The efficiency of capital use is characterized by its profitability (profitability). In the process of analyzing the effectiveness, the dynamics of changes in indicators such as:

1) the profitability ratio of the total capital used. The same indicator is called return on assets (ROA). Calculated by the following formula:

$$ROA = \frac{PRP}{ACP} \times 100, \quad (1)$$

where,

ROA – the return on assets (capital) of the agro-organization;

PRP - profit from the sale of products;

ACP - the average annual value of assets (capital) of the agro-organization.

2) the rate of return on equity. Calculated by the formula:

$$\mathrm{Re}\, q = \frac{PRnet}{EQaac} \times 100, \quad (2)$$

where, Req - return on equity of the agro-organization;

PRnet - net profit;

EQaac - the average annual cost of equity of the agro-organization.

3) the profitability ratio of borrowed capital. Calculated by the formula:

$$R_{BC} = \frac{PRnet}{BCaac} \times 100, \quad (3)$$

where, RBC – profitability of the borrowed capital of the agro-organization;

BCaac – the average annual cost of borrowed capital of an agro-organization.

To assess the intensity of the use of capital, an indicator was calculated for the turnover of total capital and the duration of one turnover. Thus, the turnover ratio of the aggregate capital (or capital productivity) showed the turnover rate of all sources of financing for the activities of the agro-organization and was determined by the formula:

$$Kcr = \frac{Rs}{TCaa}, \quad (4)$$

where, Kcr– capital return (or the turnover of total capital);

TCaa– the average annual value of the total capital of the agro-organization.

The duration of one turnover of total capital was determined by the formula:

$$1D = \frac{360}{\hat{E}_{\hat{I}\grave{O}\ddot{A}}}, \quad (5)$$

where, 1D– the continuanceof one turnover of total capital.

Reverse capital productivity was the indicator of capital intensity, which was determined by the following formula:

$$C\,\text{int}\,s = \frac{TCaa}{Rs}, \quad (6)$$

where, Cints - capital intensity.

The relationship between the indicators of profitability of total capital and capital return was expressed as follows:

$$\frac{PRnet}{TCaa} = \frac{PRP}{Rs} \times \frac{Rs}{TCaa}, \quad (7)$$

Or $$ROA = K_{OБ} \times R_{ПР}. \quad (8)$$

The fourth stage is a factor analysis of the profitability of total capital.

The calculation of the influence of factors of the first order on the change in the level of profitability of total capital was made by the method of absolute differences:

$$\Delta ROA_{K_{OБ}} = \Delta K_{OБ} \times R_{ПР0}, \quad (9)$$

$$\Delta ROA_{R_{ПР}} = K_{OБ1} \times \Delta R_{ПР}. \quad (10)$$

The purpose of this work is to present a methodological approach to developing a model for analyzing the optimization of the capital structure of an agro-organization. As a measure of dependence is used factor analysis of the profitability of total capital. It is shown that the factor model takes into account various methodological approaches to developing an assessment of the structure of sources of financing for agro-organization activities, the effectiveness of using own and borrowed capital, and developing management decisions aimed at optimizing the capital structure to increase capital return. This allows us to recommend these procedures for practical use.

The article is organized as follows: in sect. 1 introduced the basic definitions and notation; in section 2 task of building a model for analyzing the optimal capital structure; in section 3 formulated the concept of optimizing the capital structure; in section 4 practical procedures for analyzing the optimization of the company's capital structure; in section 5 outlines the scheme of evidence of "financial sustainability" of practical procedures based on a model analyzing the optimization of capital structure; in section 6 discusses the results and further research directions.

[II] BASIC DEFINITIONS AND NOTATION

Consider the indicators used in the analysis model of the optimization of the capital structure of an agro-organization:

Stage 1 – assessment of the dynamics and structure of sources of financing of the organization: It includes an analysis of changes in the value of own and borrowed capital of an agricultural organization Evaluation of the dynamics is carried out by methods of horizontal analysis and involves the calculation of absolute and relative deviations, or how the cost of equity and debt in the reporting year has changed in comparison with the previous year. Evaluation of the structure is carried out by the method of vertical analysis and allows you to determine the share of own and borrowed capital (as well as its elements) in the overall structure of sources of financing the activities of the agro-organization.

Stage 2 – assessment of financial stability:

Determining the type of financial stability (absolute assessment)(Afst):

a) absolute, when the condition for changing the OWC is greater than zero: ΔOWC> 0;
b) normal, when the condition for the change in the OWC is less than zero and the change in the DM is greater than zero: ΔOWC<0, ΔSol>0;
c) an unstable financial situation, when the condition OWC is less than zero, the Sol is less than zero and the VSt is greater than zero: ΔOWC < 0, ΔSol< 0, ΔVSt > 0;
d) financial crisis situation when the OWC condition is less than zero, the Sol is less than zero and the VStis less than zero: ΔOWC<0, ΔSol<0, and ΔVSt<0.

Relative assessment (definition of financial sustainability):

- coefficient of security OWC. This ratio characterizes the possibility of financing current assets from their own sources. The standard must be at least 0.1. The coefficient was calculated by the formula:

$$\hat{E}_{sOWS} = \frac{OWC}{Ac}, \quad (11)$$

whereAc - the amount of current assets;

- the coefficient of security of stocks OWC characterizes the cost of stocks financed at the expense of equity. Standard - not less than one. The coefficient was calculated by the formula:

$$\hat{E}ss = \frac{OWC}{S}, \quad (12)$$

where,S - stocks;

- the financial independence ratio is required to determine the level of equity in the total amount of sources of funds. Standard - not less than 0.5. Calculated by the formula:

$$\hat{E}_{fin} = \frac{Eq}{VBt}, \quad (13)$$

Where VBt- the total balance value;

- the flexibility factor is needed to assess the ability of an agro-organization to acquire stocks using its own capital. The standard should be in the range of 0.2 - 0.5. Calculated by the formula

$$\hat{E}_{flex} = \frac{OWC}{Eq}. \quad (14)$$

- financial leverage ratio (financing ratio) sets the amount of borrowed funds raised per unit of equity. The calculation was carried out according to the formula:

$$\hat{E}fl = \frac{BC}{\mathrm{Eq}}, \quad (15)$$

Where BC - borrowed capital;

- the ratio of long-term financial independence shows the ratio of the amount of equity and long-term liabilities to the total amount of liabilities. It reveals the financial potential of the agro-organization. Calculated by the following formula:

$$\hat{E}ltin = \frac{Eq + Ll - t}{BC}, \quad (16)$$

whereLl-t- long-term liabilities;

- the ratio of long-term and short-term debt is aimed at determining the amount of attracted long-term liabilities per unit of short-term liabilities. Calculated by the formula:

$$\hat{E}td = \frac{Ll - t}{Ls - t}, \quad (17)$$

Where Ls-t- short-term liabilities.

Stage 3 - assessment of efficiency and intensity of capital use.

The evaluation of the efficiency of capital use is presented by the following criteria:

- the rate of return of all capital used. The same indicator is called return on assets (ROA). Calculated using the following formula:

$$ROA = \frac{PRP}{ACP} \times 100, \quad (18)$$

Where ROA – the return on assets (capital) of the agro-organization;

PRP - profit from the sale of products;

ACP - the average annual value of assets (capital) of the agro-organization.

- the rate of return on equity. Calculated by the formula:

$$\mathrm{Re}\,q = \frac{PRnet}{EQaac} \times 100, \quad (19)$$

where, Req - return on equity of the agro-organization;

PR_{net}- net profit;

EQ_{aac} - the average annual cost of equity of the agro-organization.

- the profitability ratio of borrowed capital. Calculated by the formula:

$$R_{BC} = \frac{PRnet}{BCaac} \times 100, \quad (20)$$

where, R_{BC}– profitability of the borrowed capital of the agro-organization;

BCaac– the average annual cost of borrowed capital of an agro-organization.

To assess the intensity of the use of capital, an indicator was calculated for the turnover of total capital and the duration of one turnover. Thus, the turnover ratio of the aggregate capital (or

capital productivity) showed the turnover rate of all sources of financing for the activities of the agro-organization and was determined by the formula:

$$Crt = \frac{Srv}{TCaav}, \quad (21)$$

where, Crt – capital return (or the turnover of total capital);

TCaav – the average annual value of the total capital of the agro-organization.

- The duration of one turnover of total capital was determined by the formula:

$$1D = \frac{360}{\hat{E}_{\hat{I}\grave{O}\ddot{A}}}, \quad (22)$$

where, 1D – the continuanceof one turnover of total capital.

- Reverse capital productivity was the indicator of capital intensity, which was determined by the following formula:

$$C\,\mathrm{int}\,s = \frac{TCaa}{Rs}, \quad (21)$$

where, KEMK - capital intensity.

- The relationship between the indicators of profitability of total capital and capital return was expressed as follows:

$$\frac{PRnet}{TCaa} = \frac{PRP}{Rs} \times \frac{Rs}{TCaa}, \quad (22)$$

Or $ROA = K_{OБ} \times R_{ПР}.$ (23)

The fourth stage is a factor analysis of the profitability of total capital.

- The calculation of the influence of factors of the first order on the change in the level of profitability of total capital was made by the method of absolute differences:

$$\Delta ROA_{K_{OБ}} = \Delta K_{OБ} \times R_{ПР0}, \quad (24)$$

$$\Delta ROA_{R_{ПР}} = K_{OБ1} \times \Delta R_{ПР}. \quad (25)$$

- The purpose of this work is to present a methodological approach to developing a model for analyzing the optimization of the capital structure of an agro-organization

2.1. The problem of constructing a model of capital structure optimization analysis.

In the practical construction of the model of analysis and optimization of capital structure of agricultural data are available indicators used to assess its financial stability, and the normative values of these indicators.

During the construction of the model, qualitative and quantitative analysis of financing channels was used to calculate the degree of their reliability, which allowed to analyze the capital structure of the agricultural organization and determine the degree of availability of borrowed capital and the reliability of its receipt, as well as the effectiveness of the use of own funds.

The main criteria for optimizing the capital structure of the agricultural organization are the following criteria:

1. optimization of capital structure by the criterion of maximizing return on equity. At the same time, the financial leverage ratio was calculated as the ratio of debt and equity capital;
2. optimization of capital structure by the criterion of its cost minimization. At the same time, the cost of raising the equity capital of the agricultural organization from various sources was estimated, the cost of borrowed capital under different conditions of its attraction was estimated, and the weighted average structure of capital under different conditions of its attraction was determined by the formula:

WACC = ∑ Ki × di, (26)

where Ki - the price of the I-th source of funds;

Di- the share of the i-th source of financing of activities.

3. optimization of capital structure according to the criterion of minimizing the level of financial risks by determining:

- share of non-current assets in the balance sheet structure;
- the share of the constant part in the structure of current assets of the agricultural organization;
- the share of the variable part in the structure of current assets;
- optimal capital structure for different approaches to asset acquisition financing;
- indicatorsof the target capital structure.

4. optimization of the capital structure by the criterion of maximizing the value of the company's shares was carried out by calculating the beta coefficient by the formula of Robert Hamada I. V. Kushnir (Kushnir, 2010, p. 224-239)

$\beta i = \beta 0 [1 + BC / Eq \times (1-TRin)]$, (27)

where βi – beta-adjusted debt burden;

$\beta 0$ – value of the beta coefficient with financial leverage of zero;

BC/Eq – ratio between borrowed and own capital;

TRin-level of income tax rate.

The required level of profitability (Kpr) is determined by the formula:

$K_{pr} = K_{BB} + (K_{РБ} – K_{BB}) \times \beta$

where, K_{BB} is the yield of a risk-free asset;

K_{RB}-expected average yield of securities.

And also determined the value of the company's shares as a ratiodividend per share (D_0) to its expected return (Kpr):

$Ppc = D_0 / Kpr.$ (29)

It should be noted that these approaches to optimizing the structure of sources of financing for the activities of industrial agricultural organizations are widely used by both theorists and practitioners to assess the effectiveness of the company. But at the same time, the approach based on the assessment of the effect of financial leverage is the most widespread in practice.

Consider Shokhin L. S., BrykinO. V. [I,20] that one possibility for the retention of areorganization "afloat" is the use of borrowed capital. But unlike the company's own capital, managing debt requires a professional approach.

According to Russian scientists, Gerasimenko, O.A,MolokovaO.V.,GubanovaE. V., Davydova L. V., IlminskyS.A.,KirillovYu.V., NazimkoE.N. KhlebnikovaYu.V., RakhimovE.N.. CharaevaM.V., ShokhinL.S., BrykinO. V. for the selection of the optimal capital structure necessary to achieve this ratio of own and borrowed funds [II,11]which is guaranteed the most effective proportion between the financial ratios of profitability and financial stability [II,1] industrial agricultural organization, leading to the maximization of market value.

Thus, the task of constructing a model for the analysis of optimization of the capital structure of the agricultural organization and optimization of leverage becomes urgent.

[III] THE CONCEPT OF CAPITAL STRUCTURE OPTIMIZATION IS FORMULATED

Let the optimization of capital structure be based on the following stages:

Phase 1.Analysis of the structure and sources of capital of industrial agricultural organization.

At the first stage, the structure and sources of capital are analyzed. The main purpose of the analysis is to determine the trends in the dynamics of the volume and components of capital in the period under review, as well as their impact on financial stability and efficiency of capital use.

It is shown below that this conclusion is valid for industrial agricultural organizations.

Phase 2.Assessment of the main factors influencing the formation of the capital structure.

At the second stage, the factors influencing the formation of the capital structure are evaluated. There are a number of criteria that contribute to the targeted formation of the capital structure, ensuring the most effective conditions for its application in each specific agricultural organization.

The composition of the factors affecting the formation of the capital structure of the agricultural organization, the impact assessment of which is carried out during the second stage of the optimization process, you can include the following:

- stage of life cycle of agricultural organization. At the initial stages of its development, agricultural production organizations can use borrowed capital on condition of production or sale of competitive products, while the cost of credit resources can be quite high, as the financial risks are high. At the same time, companies that are at the stage of maturity should work as much as possible on the use of equity;
- industry peculiarities of the economic activities of production areorganization, the character that defines the structure of areorganization assets and their liquidity;
- supply and demand in the commodity market. The more stable the market conditions for the products sold, the lower the risk of using

borrowed capital. Conversely, in the face of unfavourable market conditions and declining sales volumes, the use of borrowed capital leads to lower profits and the risk of loss of solvency. That is, it is necessary to reduce the financial leverage ratio by reducing the amount of credit funds;

- financial market conditions, depending on which the cost of borrowed capital increases or decreases;
- the level of profitability of the main activity. The credit rating of the production agricultural organization directly depends on the value of the indicator, increases the reserves of possible use of borrowed capital;
- the level of income tax rates. The lower the tax rate or the possibility of applying tax benefits, the higher the level of capitalization of net profit in the activity;
- the level of concentration of equity.

Phase 3.Optimization of capital structure by the factor of increase to the maximum of financial profitability.

In the third stage, the financial leverage mechanism is used to optimize the capital structure by the factor of increase to the maximum of financial profitability. This technique gives the ability to control the profitability of the own capital through the optimization of the capital structure of production areorganization.

Phase 4.Selection of the optimal capital structure on the principle of maximum reduction of its value.

The fourth stage is the selection of the optimal capital structure on the principle of maximum reduction of its value. The process of this optimization is based on a preliminary assessment of the cost of equity and debt capital in the case of different conditions of its attraction and implementation of multivariate calculations of the weighted average cost of capital.

Step 5.Optimization of capital structure by the criterion of minimizing the level of financial risks.

At the fifth stage, the capital structure is optimized according to the criterion of minimizing the level of financial risks.

Step 6.Formation of indicators of capital structure by target orientation.

At the sixth stage, indicators of capital structure by target orientation are formed.

It is worth noting that there are no single instructions for the optimal ratio of debt and equity. But in the process of choosing the optimal source of financing, it is advisable to assess both quantitative (for example, the price of capital) and qualitative indicators of the availability of resources, as well as to conduct a qualitative and quantitative analysis of financing channels to calculate the degree of their reliability.

[IV] PRACTICAL PROCEDURES OF CAPITAL STRUCTURE OPTIMIZATION ANALYSIS MODEL OF AGRICULTURAL ORGANIZATION.

Testing of the capital structure optimization analysis model was carried out on specific production agricultural organizations. For this purpose, the information basis of the assessment was based on the data of accounting (financial) statements.

On the basis of the conducted studies it was found that the normative value of the coefficient of self-sufficiency from 0.1 is not fulfilled. The results were 0.02 in 2014, 0.04 in 2015 and 0.06 in 2016.

Similar situation with the ratio of coverage with own funds, at a rate of from 1.0 result in 2014 to 0.16 in 2015 – 0.15, and in 2016 – 0,16.

The value of the financial independence ratio indicates a very low share of equity in the total structure of sources of financing (0.02 in 2014, 0.05 in 2015 and 0.11 in 2016), although the dynamics is positive.

There is a negative trend in the calculation of the coefficient of maneuverability from 1.00 in 2014 to 0.51 in 2016, that is, the security of own working capital is reduced.

The results of the calculation of the financial leverage ratio show that the borrowed capital exceeds its own capital by 43 times in 2014, 19 times in 2015 and 8 times in 2016, that is, the financial stability of the production agricultural organization for the period 2014 – 2016 is

increased due to the capitalization of net profit in 2015 – 2016.

Positive changes in the level of financial stability also characterize the results of the calculation of the long-term financial independence ratio. Despite the low values of this coefficient in 2014 – 2016, the positive dynamics from 0.02 to 0.11 is a plus.

Thus, it is necessary to continue the policy of the production agricultural organization to increase its own capital due to capitalization of net profit on the basis of the results of activity in each reporting period in the future. While in 2014 – 2015 there was a significant increase in liabilities (accounts payable), in 2015 – 2016 these liabilities decreased slightly, although the share of debt capital in its total structure is still high-89% at the end of 2016.

It should also be noted a very low level of profitability of agricultural products and sales. Industrial agricultural organization should focus on this and focus in choosing a strategy for further development to increase profits, growth of net profit and its capitalization in the activities that will contribute to the growth of the company's equity and its financial independence.

[V] **THE SCHEME OF THE PROOF OF" FINANCIAL STABILITY " OF THE PRACTICAL PROCEDURES CONSTRUCTED ON THE BASIS OF MODEL OF THE ANALYSIS OF OPTIMIZATION OF STRUCTURE OF THE CAPITAL IS STATED.**

This section shows the financial stability of the industrial agricultural organization, built on the basis of the model of analysis of capital structure optimization. To do this, we have compiled a scheme of evidence for the practical application of the model.

When testing the model, we recommended that the profit of agricultural organizations should be directed to the development of their activities and increase of financial results. This will contribute to the growth of capital and increase its share in the overall structure of sources of financing of production activities.

We assessed the changes in the profitability of the production agricultural organization, as well as the structure of sources of funding for their activities in a specific period. The net profit capitalised at production activity in a given period of production areorganization, the expected increase in the share of own capital in total structure of sources of financing of its activities. Calculation of profitability coefficients and structure of sources is presented in table. 1.

Nameoftheindicator	valueoftheindicator		
	2016	plan	absolute change
1	2	3	4
1. Revenue, ths RUB	213546	531374	317828
2.Cost, ths RUB	189128	443390	254262
3.Net profit, ths RUB	3743	56715	52972
4.Equity, ths RUB	6758	59730	52972
5.Loan capital, ths RUB	53723	243663, 75	189940,75
6.The share of own capital,%	11,17	19,69	8,51
7.The share of borrowed capital, %	88,83	80,31	-8,51
8.Financial leverage ratio, (p. 8/p. 9)	7,95	4,08	-3,87
9.Return on total capital(ROA)	6,06	31,07	25,01
Net profit, thsRUB	3743	56715	52972
10. Return on equity,%	75,65	170,60	94,95
Net profit, ths r	3743	56715	52972
Average annual cost of equity,ths RUB	4948	33244	28296
11. The profitability of debt capital,%	6,59	38,14	31,55
Net profit, ths rub	3743	56715	52972
The average cost of borrowed capital, ths RUB	56769, 5	148693, 4	91923,9

Table:1. Planned changes in the structure of sources of financing, financial stability and return on capital of industrial agricultural organization.

The data presented in table 1 show that the share of equity in the overall structure of sources of financing will increase due to the net profit of the agricultural organization.

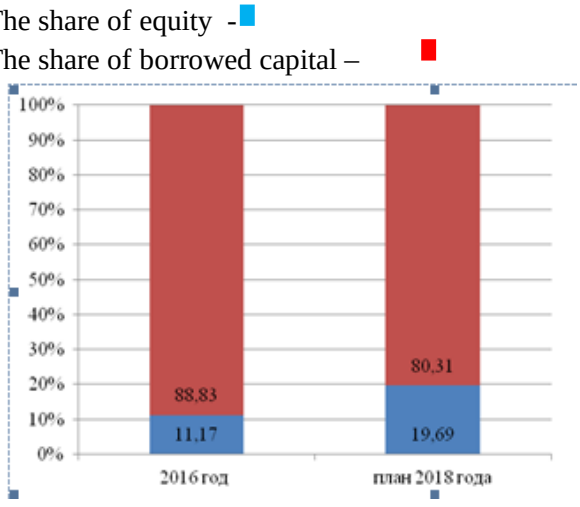
On the basis of the regression analysis, we carried out forecasting of profitability indicators of the production agricultural organization and determined the regression equation, performing the appropriate calculations in the program "Statistica 6.0", using statistical functions. The results of the analysis will be presented in table. 2.

Name of the indicator	Regression equation	the value of the approximation validity (R3)
1	2	3
Return on total capital	y = 0,022x + 0,124	0,311
Return on equity	y = 0,967x + 0,899	1,706
Return on borrowed capital	y = 0,028x + 0,131	0,381

*Source: authors' calculations based on Rosstat information.

Table:2 The results of the regression analysis of the profitability indicators of the activities of the production agro-organization.

The capital structure of the production agro-organization after implementation will change as follows: the share of equity will increase from 11.17% in 2016 to 19.69% in 2018, the share of borrowed capitalwill decrease from 88.83% in 2016 to 80.31% in 2018 year (Fig. 1).

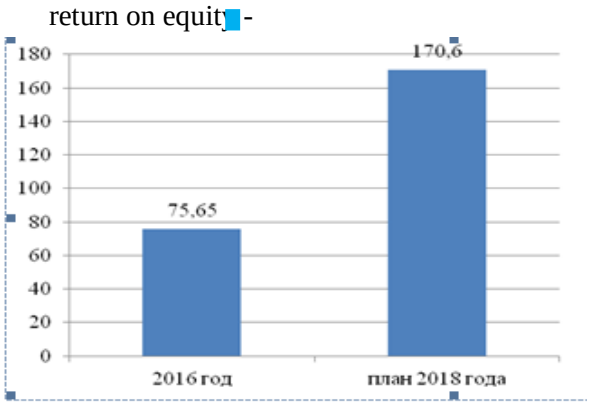


*Source: compiled according to Rosstat

Fig.1. The capital structure of the production agro-organization in the planning period

The level of profitability of the total, own and borrowed capital of the production agro-organization in the planned period will increase.

So, on fig. 2 shows the change in the return on equity of the production agri-organization, which will increase from 75.65% in 2016 to 170.60% in the plan.

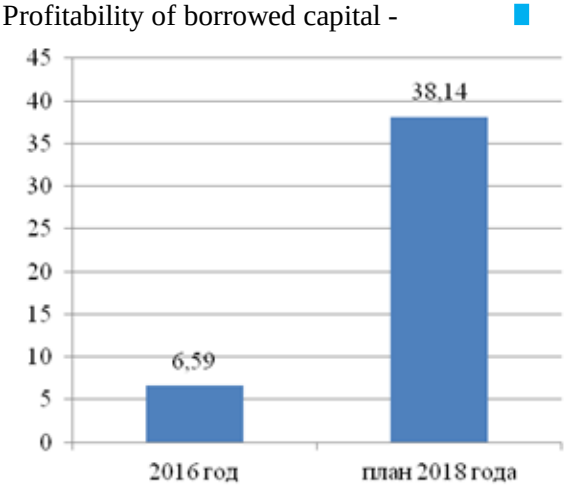


*Source: compiled according to Rosstat.

Fig.2. Return on equity of production agro-organization.

Such a significant increase is due to the fact that the amount of net profit will be significant, but, perhaps, the company's other expenses will decrease. In addition, due to the capitalization of net profit, the amount of equity capital will increase.

In fig. 3 presents the results of changes in the profitability of borrowed capital, which will increase from 6.59% on the fact of 2016 to 38.14% in the 2018 plan.



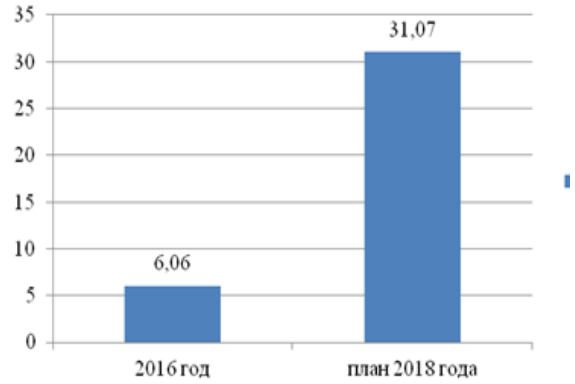
* Source: compiled according to Rosstat.

Fig.3. The profitability of the borrowed capital of the production agro-organization.

Production activities will not require additional borrowed funds in terms of bank lending or credit lines. But due to the postponement of suppliers of raw materials and materials, accounts payable will be formed (which at present is also the main type of obligations of the agro-organization).

In fig. 4 shows the change in the profitability of the total capital of the production agro-organization.

profitability of the total capital -



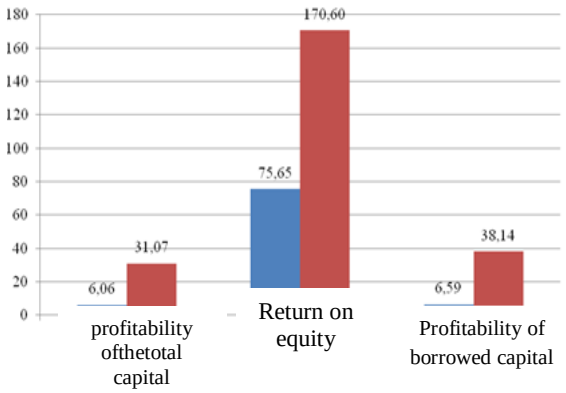
*Source: compiled according to Rosstat

Fig.4. The profitability of the total capital of the production agro-organization.

In fig. 5 presents the change in all indicators of profitability. At the same time, the profitability of total capital and borrowed capital will change smoothly, with a big jerk - return on equity (only due to the fact that the amount of equity at the end of 2016 was very small and the net profit from production activities is very substantial).

2016 -

Plan 2018 -



*Source: compiled according to Rosstat.

Fig.5. Indicators of profitability of the capital of the production agro-organization.

Thus, the developed concept of optimizing the capital structure through the implementation of the existing production direction in the activities of the agro-organization will have a positive impact on the capital structure and the effectiveness of its use for the future.

[VI] CONCLUSION.

The main result of this work is a model for analyzing the optimization of the capital structure of an agro-organization. The proposed methodology leads to the financial sustainability of the agro-organization based on the optimization of the capital structure. The methodology is based on the capital structure optimization model built on the basic principles of the concept. This model is of independent interest and has advantages in the variant of own and borrowed capital:

- ease of recruitment;
- the possibility of capitalization of net profit on the basis of the results of production activities for the year and increasing its own capital on this basis;
- the high share of own sources in the capital structure has a positive effect on the level of financial stability of the agro-organization;
- the possibility of increasing the value of the financial potential of the agro-organization, if necessary, increase its assets and scale of activity;
- the ability to ensure the growth of return on equity due to the effect of financial leverage;
- large amounts of borrowed funds in the presence of collateral, surety;
- the possibility of including the cost of servicing credit debt in the cost of production, which reduces the basis for calculating income tax.

Thus, the procedures proposed in this article for schemes of evidence of "financial sustainability", built on the basis of a model for analyzing the optimization of the capital structure for production agro-organizations, can be recommended for practical use.

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