Financial forecasting at the enterprises of the poultry subcomplex

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Abstract. Financial forecasting issues do not lose their relevance as they are the "circulatory system" of the effective functioning of any organization in the agricultural sector. Taking into account this fact, a scientific study of the indicated problem was carried out regarding one of the dynamically developing subsectors of animal husbandry, namely poultry farming. An assessment of the prospects for the functioning of the industry is given and the fact of an increase in the number of unprofitable enterprises is established. In this regard, the adaptation of a progressive model of financial forecasting with a compensating variable based on the data of a poultry enterprise was carried out. Various modifications of the proposed model have been used, with a step-by-step approach to preliminary, intermediate and forecast balances. The final results of the work carried out made it possible to develop various strategies for the behavior of the managers of the poultry enterprise in the formation of the value of its own funds, as well as navigate the volumes of possible borrowed sources of the financed property. Demonstrated the variability of changes in balance sheet items at different percentages of growth in sales. The integration of the results obtained indicates the effectiveness and progressiveness of the financial forecasting model using the compensating variable in relation to the poultry industry.

1. Introduction
Forecasting financial resources is the "circulatory system" of the functioning of any business entity. Today, poultry enterprises are rapidly losing their economic viability and are experiencing a shortage of funds [1]. This is influenced by factors of an internal and external nature (sanctions, inflation, exchange rates, the level of the population's ability to pay). Among them, a special place is occupied by the difference in the growth rates of selling prices for feed and other resources used for keeping, feeding, growing poultry and a slight delta of the price increment for sold poultry products.

This situation is confirmed by the relevant analytics. Thus, the prices for feed ingredients increased by 33% in 2019 compared to 2018. At the same time, there was no adequate growth in prices for the industry's products over the same period (eggs - 7%, broiler meat - 10%).

The financial situation of the economic entities of the industry is aggravated by import dependence on pedigree resources in poultry farming, which negatively affects the value of the cost of production in the direction of increasing the cost of its value. This, in turn, leads to a decrease in profitability for the period from 2018 to 2019, respectively, for eggs by 3.6%, and for broiler meat - at the level of 2018, that is, 6%.
Consequently, the results of individual indicators of the industry for the study period indicate the loss of economic viability by a number of enterprises in the industry. The threats of their bankruptcy are neutralized by attracting borrowed funds, which are often used inefficiently [2].

Thus, in order to maintain the stable functioning of the economic entities of the industry, it is necessary to rationalize the sources of financing for the activities of poultry enterprises. In this regard, financial forecasting will make it possible to determine the actually possible volume of financial resources, sources of its formation [3].

2. Research results

The financial condition of poultry enterprises was studied, based on the results of which conclusions were drawn about the financial distress of most of them.

At the same time, the existing methods in the practice of forecasting financial resources were studied, which are used both in general in economic entities of the branches of the national economy, and specifically in poultry enterprises.

From the totality of existing financial forecasting models, the financial forecasting model with the use of a compensating variable, which has two modifications, was selected as an adaptation. We will illustrate its practical implementation at JSC Volzhani, whose main activity is the breeding of poultry, the production of natural egg products made in compliance with all the parameters of the technological process and biosafety, which has its own feed production, grows grain and herbs in ecologically clean areas, far from industrial businesses and highways. This poultry farm in 2019 took 1st place in the annual industry ranking of large enterprises and organizations for the production of eggs in the Russian Federation.

It develops both at the expense of its own and at the expense of borrowed sources. The payment of dividends is not a priority for the implementation of disruptive technologies in production areas. Therefore, the task was set to analyze the results of adaptation for two versions of the above model.

Borrowed sources are mainly used for the introduction of innovative technologies related to keeping, growing, feeding poultry and its processing products.

Table 1 shows the calculations for this modification according to the balance sheet of the selected poultry enterprise. Preliminary forecast reporting will be determined by increasing each item by 10%.

Based on the resulting situation, you can choose a behavior option:

- The payment of dividends (for example, to shareholders) acts as a compensating variable, that is, 1,931501-742108.4 = 1,189,392.6 thousand rubles.
- If we assume that the organization has not paid 1,189,392.5 thousand rubles, then all the profit will be used to increase equity capital, the amount of which will be 8,610,476.6 thousand rubles.
- Together with this, it is necessary to calculate the amount of borrowed capital: 103903314-8610476.6 = 95292837.4 thousand rubles.

| Table 1. Modification of the financial forecasting model using a compensating variable in the form of dividend payments. |
|---------------------------------------------------------------|
| **Balance sheet data for 2019, thousand rubles**              |
| Report about incomes and material losses | Balance |
| Volume of sales | 6249010 | Assets | 9445740 | Equity | 6746440 |
| Expenses | 4493100 | Borrowed capital | 2699300 |
| Revenue from sales | 1755910 | Total | 9445740 | Total | 9445740 |

| Preliminary forecast reporting for 2020, thousand rubles |
|----------------------------------------------------------|
| Report about incomes and material losses | Forecast balance |
| Volume of sales | 6873911 | Assets | 103903314 | Equity | 7421084 |
| Expenses | 4942410 | Borrowed capital | 2969230 |
Taking into account the amount of borrowed capital, it is necessary to balance the balance presented in table 2 (forecast reporting for 2020).

This option clearly shows the relationship between the growth in sales of poultry products and the strategy of financial behavior. The increase in the total assets of JSC Volzhanin is taking place against the background of a positive trend in the growth of sales. The investigated enterprise provides for the implementation of the chosen strategy option, provided that the appropriate sources of funds are invested in both current and non-current assets of the corresponding sources.

Subsequently, the adaptation of the second version of the proposed model [4] was carried out at the same enterprise. We will demonstrate its implementation step by step.

2.1. Step 1

At this stage, it is planned to identify those balance sheet items that change in proportion to the volume of sales with their subsequent transfer to the forecast balance sheet, taking into account the growth in sales (table 3).

### Table 2. Profit and loss statement for 2019, thousand rubles.

| Indicator name                      | Indicator value |
|-------------------------------------|-----------------|
| Volume of sales                     | 6249010         |
| Expenses                            | 4493100         |
| Profit from sales, including        | 1755910         |
| Undistributed profits               | 1316932.5       |
| Dividends                           | 438977.5        |

The volume of sales of poultry products was increased by 15% from the initial value and amounted to 7186361.5 thousand rubles.

At the same time, the indicators of the profit and loss plan for JSC Volzhanin were predicted.

The limiting condition was the amount of expenses, which in the structure of the volume of sales of poultry products amounted to 71.9%, as well as the ratios of investment and dividend payments, which are constant values.

In order to determine the directions of spending retained earnings, the reinvestment ratio and the ratio of dividend payments were determined, the value of which is 0.75 and 0.25, respectively. These ratios are a guideline for financial forecasting of the expected indicators of the ratios of retained earnings and the value of the selected dividends [5, 6].

The profit and loss plan based on the assumptions made is shown in table 3.

### Table 3. Profit and loss plan for 2020.

| Indicator name                      | Indicator value |
|-------------------------------------|-----------------|
| Volume of sales                     | 7186361.5       |
| Expenses                            | 5167065.0       |
| Profit from sales, including        | 2016296.5       |
| Undistributed profits               | 1514472.4       |
| Dividends                           | 501824.1        |

The assumption of expenses as a constant percentage of sales means a constant level of net profitability of sales of poultry products for 2019, its value was 28%, which allows the company to make not only dividend payments, but also to conduct an expanded reproduction of the poultry business. This
value in the forecast of profits and losses for 2020 remained unchanged, which is a positive trend in the current situation of increased competition and sanctions from the Western states and the United States.

The projected balance is calculated from the balance sheet data of the enterprise (table 4).

**Table 4. Balance forecast for 2019.**

| Assets                      | Amount, thousand rubles | Revenue percentage | Liabilities | Amount, thousand rubles | Revenue percentage |
|-----------------------------|-------------------------|--------------------|-------------|-------------------------|--------------------|
| Non-current assets, incl.   |                         |                    | I. Fixed assets | 3720590                 | 59.54              |
|                             |                         |                    | Total for Section I | 3790370                | 60.66              |
|                             |                         |                    | III. Authorized capital | 1264                   | n/a                |
|                             |                         |                    | retained earnings | 6635320                 | 0.00               |
|                             |                         |                    | IV. Long-term liabilities, incl. | 6746440             | n/a                |
|                             |                         |                    | Long term loan | 1792350                 | 0.00               |
| II. Current assets, incl.   |                         |                    | Stocks | 1441630                 | 23.07              |
|                             |                         |                    | Receivables | 951420                  | 15.23              |
|                             |                         |                    | Cash | 42846                   | 0.69               |
|                             |                         |                    | Total for Section II | 5655360               | 90.50              |
|                             |                         |                    | Total for Section IV | 1792350               | 0.00               |
|                             |                         |                    | Total assets | 9445740                 | 151.16             |
|                             |                         |                    | Total liabilities | 9445740                 | n/a                |

Thus, based on the results of previous calculations and differentiation of the percentage of revenue, a financial forecast for the balance sheet for 2019 is drawn up.

2.2. Step 2

Items that do not change spontaneously with an increase in sales are determined by financial decisions and transferred to the forecast form without changes (dividends, bills payable, etc.).

We will express changing articles as a percentage of sales for 2019. For independent articles, these values are not defined (n/a). So, in the section of current assets, inventories are equal to 23.07% of sales in the last financial year. Suppose that the same percentage will remain in the planned 2020, that is, for every ruble of goods sold, there will be 23 kopecks of inventory. At the same time, the capital intensity of all assets will be 151.61%. Changes in the asset will certainly cause changes in the liability. Thus, the intermediate version of the forecast balance of the enterprise for 2020 will have the following form (table 5).

**Table 5. Interim forecast balance for 2020.**

| Assets                      | Amount, thousand rubles | Revenue percentage | Liabilities | Amount, thousand rubles | Revenue percentage |
|-----------------------------|-------------------------|--------------------|-------------|-------------------------|--------------------|
| I. Non-current assets, incl. |                         |                    | Fixed assets | 4278759.64             | 558169.64          |
|                             |                         |                    | Total for Section I | 4359246.89        | 568876.89          |
|                             |                         |                    | III. Equity capital, incl. | 1264                  | n/a                |
|                             |                         |                    | Authorized capital | 8149792.4             | 1514472.4          |
|                             |                         |                    | retained earnings | 8150156.4             | 1404616.4          |
|                             |                         |                    | IV. Long-term liabilities, incl. | 1792350             | 0.00               |
|                             |                         |                    | Long term loan | 1792350                 | 0.00               |
| II. Current assets, incl.   |                         |                    | Stocks | 1657893.59              | 216263.59          |
|                             |                         |                    | Receivables | 1094482.86             | 143062.86          |
|                             |                         |                    | Cash | 51023.17                 | 8177.17            |
|                             |                         |                    | Total for Section II | 6503657.15          | 848297.16          |
|                             |                         |                    | Total for Section IV | 1792350              | 0.00               |
|                             |                         |                    | Total assets | 10923806.6             | 1478066.60         |
|                             |                         |                    | Total liabilities | 10862904.04           | 1417164.04         |
It should be noted that such liabilities as short-term loans, long-term liabilities and authorized capital remained unchanged, and relative to accounts payable, its value increased and amounted to 563,187.2 thousand rubles. Thus, the first two stages made it possible to calculate retained earnings, the value of which will be determined at stage 3.

2.3. Step 3

The retained earnings item changes as sales change, but the relationship will not be proportional. It should be noted that, as in the previous versions, there was a relationship between the volume of sales of poultry products and financial results. However, retained earnings do not change in proportion to the change in sales [6, 7].

Next, an interim forecast balance is compiled by using percentages for sales-dependent items. For balance sheet items independent of sales, changes are not expected. The calculation results are shown in table 6. Retained earnings increased by 1,514,472.4 thousand rubles, as previously determined in table 4.

At the 4th stage, the need for this financing is determined, taking into account possible restrictions on the capital structure, the cost of various sources (table 6) [8].

| Assets                      | Amount, thousand rubles | Revenue percentage | Liabilities | Amount, thousand rubles | Revenue percentage |
|-----------------------------|-------------------------|--------------------|-------------|-------------------------|--------------------|
| I. Non-current assets, incl.|                         |                    | III. Equity capital, incl. |                         |                    |
| Fixed assets                |                         |                    | Authorized capital retained earnings | 1264               | n/a                |
| Total for Section I         | 4278759.64              | 558169.64          | Total for Section III | 8151056.4           | 1404616.4          |
| IV. Long-term liabilities, incl. |                     |                    | Long term loan | 1792350            | 0                  |
| Total for Section IV        | 4359246.89              | 568876.89          | Total for Section IV | 1792350            | 0                  |
| II. Current assets, incl.   |                         |                    | V. Short-term liabilities, incl. |                     |                    |
| Stocks                      | 1657893.59              | 216263.59          | Short-term loan | 478115.56           | 60902.56           |
| Receivables                 | 1094482.86              | 143062.86          | Accounts payable | 563187.2           | 73459.2            |
| Cash                        | 51023.17                | 8177.17            | Total for Section V | 1041302.76        | 134352.76          |
| Total for Section II        | 6503657.15              | 848297.16          | Total liabilities | 10923806.6        | 1478066.6          |
| Total assets                | 10923806.6              | 1478066.6          |                          |                      |                    |

As can be seen from the data in table 6, the expected increase in assets amounted to 1,478,066.6 thousand rubles. it should be noted that there was no adequate increase in liabilities, namely, they increased only by 1,417,164.04 thousand rubles. that is, the deficit of funds amounted to 60,902.56 thousand rubles. this figure shows that to ensure the required sales growth of 15%, additional external financing is required in the corresponding amount above the given value.

Having made all the adjustments in accordance with the given variants of the considered model, we obtain the forecast balance for 2020. The data obtained indicate that OJSC Volzhnin as a whole effectively uses its capital and experiences a slight deficit in financing, which will be directed to finance accounts payable, which will lead to an increase in the return on equity and an increase in the company's solvency.

Thus, the use of a progressive model of financial forecasting in poultry farming with the use of a compensating component is economically justified, since it allows to optimize sources of funds in order
to increase equity capital and develop financial strategies for the behavior of Volzhanin OJSC for the future.

3. Conclusion
The study of financial forecasting issues has made it possible to update the use of modern financial forecasting models and the selection of the most progressive ones. As such a model, a financial forecasting model was chosen using a compensating variable and appropriate modifications of its implementation. Adaptation of this model at JSC Volzhanin made it possible to orientate with the strategies of behavior regarding the sources of financing and directions of their use on the basis of four variants of the model under consideration.

The combination of these options made it possible to calculate the forecast balance of the analyzed enterprise for 2020 and develop management decisions on a possible percentage increase in sales in the poultry products market in order to maximize profits and the possibility of increasing not only funds aimed at investing property, technologies, but also to pay dividends.

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