



ANALYSIS AND FORECASTS OF FINANCIAL RESULTS OF AGRICULTURAL ORGANIZATIONS IN UZBEKISTAN

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Article history:	Abstract:
Received: December 10 th 2022 Accepted: January 8 th 2023 Published: February 17 th 2023	In the current conditions, financial monitoring of agricultural subjects is an important element of the mechanism of economic growth, and it is an urgent issue in combating negative trends in the financial and economic condition of enterprises. Therefore, this article is devoted to the analysis and forecasting of the financial results of agrarian organizations in our republic. Also, based on the analysis, some recommendations for improving financial results are given.

Keywords: agricultural subjects, financial results, economic situation, profitability, profit, cost.

INTRODUCTION

The global pandemic that erupted in 2020 had a detrimental influence on the economy of Uzbekistan. In order to stabilize the economic situation following the pandemic, the Cabinet of Ministers of the Republic of Uzbekistan issued a decision No. 526 on August 29, 2020 "On steps to restore economic development in 2020-2021 and continue fundamental structural changes in economic sectors and sectors". The ruling acknowledged that the obligatory quarantine measures implemented in the second quarter of 2020 had a detrimental impact on the business and social sectors. Particularly notable: agricultural economic growth of 102.8% (predicted 103.3%), export losses of 215.5 million dollars in the first half of 2020 compared to the same time in 2019. As a result, it was intended to take steps to avert business failures, such as allocating additional financial resources in the form of subsidies, loans, or extensions to economic subjects in need, particularly those in the impacted industries. One of the key aims outlined in the decision is the targeted assistance of sectors that are vital and important for economic stability. Simultaneously, the Ministry of Economic Development and Poverty Alleviation has been tasked with overseeing the implementation of the proposed policies. In this article, we examined the financial results of agricultural organizations in a significant industry and evaluated the level of stability of the key variables. The findings of our study can help policymakers analyze the impact of the actions adopted within the context of this decision on ensuring macroeconomic stability and achieving structural changes in the economy.

Agriculture is the primary economic sector that provides the country's food security. Agriculture, forestry, and fisheries contributed 26.9% to the

composition of GNP. This industry had a 1.1 percentage point influence on GDP absolute growth [1, p. 88].

The major objective of agricultural production is to provide agricultural goods that are both sustainable for internal use and export. The financial status of agricultural enterprises determines production capabilities.

Financial analysis refers to the process of examining an enterprise's financial position and financial performance using financial reports, accounting, and other information, assessing possible financial possibilities, and implementing strategies to improve the financial situation.

The major component of financial analysis is the examination of an enterprise's financial status. The enterprise's financial condition is defined by a set of indicators that indicate elements such as the stability of its financial results, the rate of increase in the volume of manufacture of products, work, and services, the relative economy of resources, and profitability. The financial state of the firm is analyzed by examining and assessing the level of these indicators and summarizing their results. As a result, timely examination of these data helps to improve the company's financial status and build the economy. From this perspective, the significance of analysis is enormous and unparalleled. Analysis is a pledge to enhance the enterprise's financial status [2, p. 130].

The primary purpose of our research is to examine the financial state of the firm based on a study of the production volume, profit, resource consumption, receivables and payables of agricultural entities over a specific time period, and to demonstrate the prospects for development. In this sense, the following are the primary duties of financial situation analysis: analyzing financial results and



profitability indicators of agricultural companies; assessing and anticipating financial results stability; and offering findings and recommendations for enhancing financial results.

The primary sources of financial analysis are financial results of agricultural enterprises. Peasant farms (private accessory farms), farms, and agricultural groups are examples of agricultural entities (including agroclusters). We received generalized statistics to accomplish our study objectives because the State Statistics Committee does not disclose financial figures for each economic categories.

As a dynamic indicator, we defined it as the ratio between the average value of the time series and the mean square deviation of the time series from the trend [3, p. 195]:

$$V_y(t) = \frac{S_y(t)}{\bar{y}}; \quad (1);$$

Here:

$V_y(t)$ – coefficient of variation;

$S_y(t)$ – mean square deviation of the time series;

\bar{y} – arithmetic mean of a time series;

K_p – stability coefficient.

When computing the index of agricultural entities' sustainable development, we represented the values of all time series by year as the arithmetic average of growth rates relative to the preceding year:

$$B_i^t = \frac{\sum_{i=1}^n \left(\frac{K_t}{K_i} * 100 \right)}{n}. \quad (3);$$

Here:

B_i^t - Index of sustainable development of agricultural entities;

K_t – the absolute value of the indicator for the current year;

K_i – the absolute value of the index in the base year;

n – number of indicators.

The indicator shows a trend of stability in positive values.

We also used version 4.0.4.04 of "Novo Forecast" program of LLC "Novo BI" in forecasting financial results.

MATERIALS

According to T. Kudratov and N. Fayziyeva, the enterprise's financial state is defined by a set of indicators that indicate factors such as financial stability, financial independence, solvency, provision of own money, and the status of receivables and payables [2, p. 131]. M.Y. Rakhimov stated that in analyzing today's financial situation, it is necessary to rely on complex approaches and models covering the issues of protection from external influences (such as inflation, the strength of relationships with counterparties, changes in property and legal forms) [4, p. 4].

Russian economists Sergey Kozlov and Zinina Olga emphasize that in order to effectively manage business activities so that all resources maximize profit, the organization must demonstrate stable financial and economic indicators, such as profitability, liquidity, and other financial condition indicators [5, p. 108].

Comprehensive financial situation assessment - consideration of each indicator obtained as a result of financial analysis from the standpoint of compliance of its actual level with the normal level for the selected enterprise, determining the factors affecting the financial situation, determining the required level of indicators and achieving it in the future [6, 537-b].

A broad methodological foundation of Western scientists aids in understanding and mastering the process of financial analysis. E. Helfert [7], Z.S. Blaga [8, 13-b], L.A. Bernstein [9], and others, in particular.

ANALYSES AND RESULTS

The volume of agricultural products grown in January-December 2021 amounted to 302,524.9 billion soums or 103.6% compared to the corresponding period of the previous year, including agricultural products - 151,083.4 billion soums (103.1%), livestock products - 151,441.5 billion soums (104.1%). The share of agricultural subjects in gross agricultural products was 46.3%.

According to preliminary data, the industry's positive growth rate in January-December 2021 was primarily due to the high growth rate of the following products in comparison to the corresponding period in 2020: vegetables - 104.1%, potatoes - 104.7%, grapes - 105.5%, caught fish - 120.7%, meat - 104.8% in live weight [1].

In the production of agricultural products, the categories of farms had the following shares: 65.9% of the total volume - dekhan (personal assistant) farms, 29.2% - farms, 4.9% - the organizations that carry out the activities of agriculture (Table 1).



Table 1.
Volume of agricultural products by economic categories, thousand tons.

Indicators	2017 y.	2018 y.	2019y.	2020 y.	2021 y.	2021 y. compared to 2017 y
Farms						
Cereal crops	6 550,5	5 020,5	5 848,6	6 208,3	6 112	93%
Vegetables	3 775,7	2 328,1	2797,4	3 260,5	3 966,9	105%
Potatoes	645,0	299,9	443,4	506	762,8	118%
Poly products	999,0	728,7	754,3	939,9	1165,1	117%
Fruits and berries	1 370,0	911,6	1 033,8	1 144,8	1 202,5	88%
Grapes	862,0	677,6	665,7	704,8	734,5	85%
Meat (live weight)	74,1	98,0	123,7	130,9	149	201%
Milk	359,1	372,9	457,4	524,7	587,7	164%
Eggs, million pieces	645,6	1 062,5	1 065,7	1 135	1 203,8	186%
Fish			48,1	64 195	81 582	169609%
Dekhan farms						
Cereal crops	1 445,2	1 215,6	1 103	831,5	771,4	53%
Vegetables	7 565,6	7 162,0	7 032,9	6 940,6	6 587,4	87%
Potatoes	2 347,5	2 432,3	2 472,4	2 581,3	2 459,4	105%
Poly products	1 061,0	1 158,7	1 148,3	1 159,7	1 066,2	100%
Fruits and berries	1 645,8	1 620,1	1 643,5	1 630,9	1 567,4	95%
Grapes	861,9	860,9	897,7	898,6	920,9	107%
Meat (live weight)	2 145,1	2 238,7	2 261,7	2 277,1	2 357,4	110%
Milk	9 639,7	10 018,6	10 184,6	10 386,4	10 590,6	110%
Eggs, million pieces	4 015,9	4 294,0	4 429,8	4 579,8	4 875,5	121%
Fish			9,8	9543	10091	102969%
Organizations that carry out the activities of agriculture						
Cereal crops	120,8	139,3	235,8	526,8	657,5	544%
Vegetables	92,3	145,0	115,2	258,4	305	330%
Potatoes	22,1	17,9	35,1	56,2	70,1	317%
Poly products	34,8	17,5	19,6	34,8	49,8	143%
Fruits and berries	60,5	58,0	62,3	88,3	82,6	137%
Grapes	25,0	26,0	31,8	35,8	39,7	159%
Meat (live weight)	61,9	80,7	79,6	118,2	134	216%
Milk	84,4	89,2	68,8	98,8	108,6	129%
Eggs, million pieces	1 944,0	2 004,0	2 261,9	2 110,2	1 973,8	102%
Fish			57,3	70 347	82 193	143443%

Source: Compiled based on the information of the State Statistics Committee

According to the statistics in the table, dekhani farms account up a considerable portion of overall agricultural product output, and the trend is upward. Farms showed relatively low indicators. In this scenario, farms are mostly associated with 665

clusters. According to 2021 statistics, 69.5 thousand farms are connected to 425 clusters in the direction of cotton-textile, grain, and fruit-vegetable production [10].



We utilize information acquired from the State Statistics Committee on the financial outcomes of these organizations for the years 2016-2021 to

examine the financial status of agricultural companies. The primary indicators for the analysis are shown in Table 2

Table 2.
Financial results of agricultural entities.

Years Indicators	2016	2017	2018	2019	2020	2021	Stability coefficient
Number of organizations		4999148	5125698	5127081	5087401	5202922	98,5%
Profit before paying profit tax (loss. billion. soum)	300,8	276,4	226,5	272,6	-583,8	9,2	
Net income from the sale of products (goods, work and services). billion soums	2321,3	3012,6	2654,2	7215,1	10073,3	13996,9	27,1%
Cost of goods sold (goods, work and services). billion soums	1779,6	2273,8	2148,9	5935,0	8519,5	11958,2	23,5%
Accounts receivable - total. billion soums	574,5	931,6	589,3	2137,1	3416,4	1130,7	23,8%
Accounts payable - total billion soums	1153,4	1432,8	1080,1	2722,8	6063,6	1973,6	21,2%
Profitability of sales	13,0%	9,2%	8,5%	3,8%	2,3%	0,1%	-
Profitability of products sold	16,9%	12,2%	10,5%	4,6%	2,8%	0,1%	-
Index of sustainable development of agricultural entities		115,8	87,3	206,3	59,7	69,0	-

Source: Compiled based on the information of the State Statistics Committee

From the data in the table, we can see that the profit (loss) indicator has a downward trend before paying the profit tax. On the contrary, we can observe a trend of regular growth in the cost of sold products (goods, work and services). Profits fell by 91.9% in 2017 compared to the previous year, 81.9% in 2018, and 124.5% in 2020, despite an increase in agricultural production of 124.5% compared to 2019. However, the COVID-19 pandemic resulted in a 214.2% fall in profit volume. In order to stabilize the crisis created by the pandemic, actions were implemented in 2020 to retain agricultural goods as a quarantine-free zone, as well as to fund and implement all agricultural tasks on schedule. The amount of tax for using water resources was cut by 50% as an additional help to 83 thousand agricultural producers, and this sum amounted 814 billion soums.

However, due to natural disasters, in April of this year, 16,600 hectares of cultivated land in Kashkadarya, Navoi and Bukhara regions, as well as gardens in a number of areas of the Fergana Valley,

were damaged. More than 21,000 hectares of agricultural land were put out of circulation as a result of the collapse of the water reservoir in the Sardoba area.

Only in 2019 did profit growth exceed 120.4% throughout the examined timeframe. Also, in 2021, the indicator stabilized and continued to fall to -1.6%. In general, the profit volume in 2021 compared to 2016 decreased by 32.6 times.

The examination of the cost of sold items (goods, labour, and services) reveals that the indicator is mostly growing, with 127.8%, 276.2%, 143.5%, and 140.4% increases in 2017, 2019-2021. Only in 2018, as an exception, the cost was 94.5% compared to the previous year. In general, the cost of sold items (goods, works, and services) grew by 6.7 times in 2021 compared to 2016.

Except for 2017, the growth rate of the cost of sold items (goods, labour, and services) has been greater than the growth rate of net income from sales. This suggests that agricultural entities in our country



were inefficient throughout the studied era, and the technique of economic management was applied, which required a lot of resources. At the same time, the difference in growth rates in 2017 is not statistically significant, confirming the need to revisit economic systems.

It is well understood that not only the amount of profit, but also the level of profitability, are essential factors in determining an organization's efficiency. As a result, while analyzing the effectiveness of the organization's activities, it is important to examine the degree of profitability as an indicator of the level of revenue, and profit growth.

In 2016, the greatest index of profitability of agricultural enterprises' products, activities, and services was 16.9%. After that, the indicator regularly decreased by 4.7%, 1.6%, 5.9%, 1.8%, 2.7% in 2017-2021, respectively. The indicator decreased by 16.8 percentage points during the analyzed period. A similar situation was observed in the profitability of sales, the indicator decreased by 12.9 percentage points during the analyzed period.

The analysis of indicators from 2016 to 2021 shows that 2016 was the most successful year for agricultural entities. This is confirmed by the positive value of a number of indicators

Table 3.
Forecasts of financial results of agricultural entities.

Years Indicators	2022	2023	2024	2025	2026	Stability coefficient *	Accuracy level (1-MAPE)
Number of organizations	5076436,7	5091384,6	5106332,5	5139666,7	5136228,3	99,4%	76%
Profit before paying profit tax (loss. billion. soum)	235,5	272,6	235,5	272,6	235,5	91,9%	97%
Net income from the sale of products (goods, work and services). billion soums	11 898,4	13 923,2	16 033,2	18 048,1	19 997,9	79,9%	70%
Cost of goods sold (goods, work and services). billion soums	10 096,7	11 860,9	13 702,1	15 456,2	17 153,4	79,5%	68%
Accounts receivable - total. billion soums	1 665,6	1 676,2	1 700,2	1 692,0	1 707,9	99,0%	56%
Accounts payable - total billion soums	2 241,2	2 393,0	2 548,4	2 695,2	2 848,5	90,6%	80%
Profitability of sales*	2,0%	2,0%	1,5%	1,5%	1,2%	78,7%	-
Profitability of products sold*	2,3%	2,3%	1,7%	1,8%	1,4%	78,3%	-

Source: Compiled using Novo Forecast software.

* It was calculated based on the above formulas using forecast indicators.

Using the Novo Forecast tool, we attempted to forecast the indicators studied from 2016 to 2021 for

the years 2022 to 2026. According to the data analysis, the profit, cost, and profitability indicators



exhibited absolute volatility, while the remaining indicators indicated moderate volatility. Only the growth of the number of organizations was relatively stable. All this complicates time series forecasting and leads to low reliability. Therefore, in order to avoid large deviations in the time series in forecasting, we

normalized the time series using the functions of the Novo Forecast program. After that, we used the received indicators to make forecasts (Table 3). We can get detailed information about the models used for forecasting each indicator in the program through Table 4.

Table 4.
Models used to calculate forecasts

Indicators	Model used
Number of organizations	Holt-Winters smoothing coefficient = 9, trend coefficient = 37, seasonality smoothing coefficient = 13 - multiplicative model
Profit before paying profit tax (loss. billion soums)	Maximum similarity
Net income from the sale of products (goods, work and services). billion soums	Holt-Winters, smoothing coefficient = 33, trend coefficient = 37, seasonality smoothing coefficient = 1 - multiplicative model
Cost of goods sold (goods, work and services). billion soums	Holt-Winters, smoothing coefficient = 33, trend coefficient = 37, seasonality smoothing coefficient = 1 - multiplicative model
Accounts receivable - total. billion soums	Holt-Winters, smoothing coefficient = 33, trend coefficient = 1, seasonality smoothing coefficient = 1 - multiplicative model
Accounts payable - total. billion soums	Holt-Winters, smoothing coefficient = 33, trend coefficient = 25, seasonality smoothing coefficient = 1 - multiplicative model

Source: Compiled by the author using Novo Forecast's enhanced ledger functionality.

As indicated in Table 2, the assessed indicators are predicted to be generally stable with a largely favorable trend during the next five years.

As a result, the number of agricultural enterprises will continue to rise rapidly through 2025, only to fall somewhat by 2026. According to forecasts, the rate of increase of net revenue from the sale of goods, labor, and services will continue to be lower than the rate of rise of their expenses until 2025, when the trend will reverse.

As for profit, as we mentioned before, we have a relatively uncertain model due to extremely unstable time series values, but the forecasts mainly indicate that this indicator will stabilize and the growth trend will remain indifferent. A similar situation is observed in accounts receivable and payable.

MAPE (Mean Absolute Percentage Error) mathematical model was used to determine the level of reliability of forecast indicators:

$$MAPE = \frac{1}{N} \sum_t \left[\frac{|E_t - A_t|}{A_t} \right] \quad (4)$$

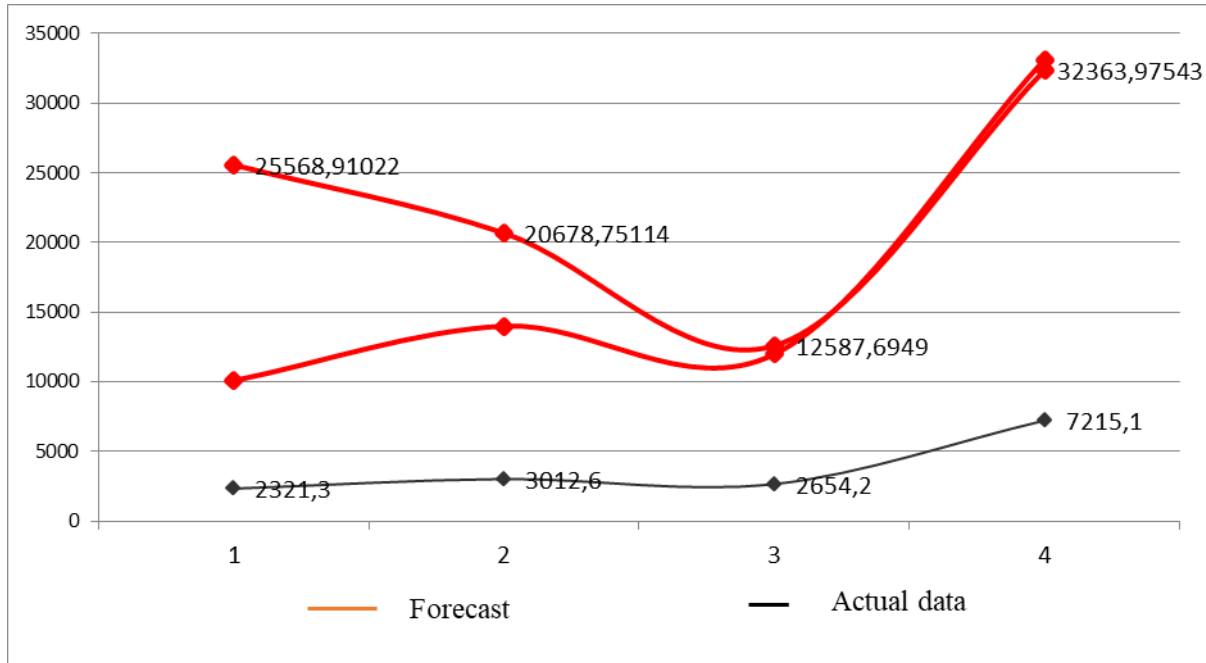
Here:

A_t – Actual value;

E_t – Prognosis indicator.

This indicator shows how much the forecast performance deviates from the actual performance. The indicator takes values from 1 to 100, with a higher value indicating a lower level of reliability. The table uses the MAPE indicator 1, which represents the accuracy.

In fact, we can see the correspondence between the real values of the indicators and the values obtained for the forecast from our econometric models in the Cartesian coordinate system (Fig. 1).



Source: Compiled in Novo Forecast software.

Figure 1. Correlation between actual and predicted indicators of net revenue from product sales (goods, work and services)

Agriculture is a sector that is swiftly influenced by external variables, and agricultural economic activity is heavily reliant on the market for industrial production instruments and their costs. All of this highlights the need of developing a framework for making operational choices in the field [11].

At the same time, another element of agricultural production is product degradation and concentration of output in a certain location. This increases transportation expenses, raises product prices, and makes it difficult to market. To mitigate these negative repercussions, agriculture will need to continue to attract financial resources.

CONCLUSIONS AND SUGGESTIONS

We can draw the following conclusions from the results of the analysis:

As a consequence of the execution of the Republic of Uzbekistan's agriculture development strategy for 2020-2030, among the primary indicators to be reached in the section of priority directions, the goal indicators of organizational profitability have not been specified. This does not enable you to guide the program's execution in this direction;

In 2016-2021, the amount of net income from the sale of products (goods, work and services) in agricultural entities was observed to increase. The lowest net income from the sale of products (goods, work and services) was observed in 2018 (2654.2 billion soums), the highest in 2021 (13996.9 billion

soums). In 2020, the net income from the sale of products (goods, work and services) increased, although the organizations suffered huge losses. Furthermore, the cost of sold items (goods, labor, and services) is rising at a faster pace than the rate of growth in net revenue from product sales (goods, work and services);

Profit before tax has mainly decreased during the analyzed period. Growth was observed only in 2019 and 2021. The highest figure was observed in 2016 (300.8 billion soums), the lowest figure was observed in 2020 (-583.8 billion soums). Also, profitability indicators showed a downward trend. The data obtained as a result of our forecasts also show that this indicator will decrease in the next 5 years.

Although the level of reliability of our forecast indicators is relatively low due to strong instabilities in the indicators, they indicate that the current trends in all indicators will be preserved in the next 5 years.

Based on all the results of the analysis, we believe that it is appropriate to monitor our analyzed indicators along with the implementation of the strategy for the development of agriculture for 2020-2030.

Thus, in order for the agriculture sector of the economy to flourish rapidly in contemporary times, the following areas of activity must be improved [12]:

development of innovative investments that will serve to boost the industry's stability, the



competitiveness of its goods, and Uzbekistan's food security;

Creating a favorable environment for network investment and lowering investment risks;

state support of agricultural producers, in this case:

stimulating the development of innovative production;

organizations develop the export component, increase the competitiveness of products in local and foreign markets, reduce investment risks through state-supported agricultural insurance, etc;

establishing cooperative relations between agricultural producers.

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