

FINANCIAL ACCOUNTING AND MARKETING RESEARCH MANAGEMENT IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT OF THE AGRO-INDUSTRIAL SECTOR IN THE INTERNATIONAL AND REGIONAL ECONOMY

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Received 17 06 2026; Accepted 28 08 2026

Abstract

The article specifies the key methodological and conceptual aspects of regulating financial accounting and marketing in the context of supporting the sustainable development of the agro-industrial sector in the context of the international and regional economy. The key role of synergistically combined integrated approaches that combine financial analytics, marketing monitoring and innovation and investment management, which are aimed at supporting the sustainable development and prestige of agricultural enterprises, including on the world stage, is reflected. The article uses a set of economic, statistical and mathematical instrumental modeling methods to diagnose the relationship between indicators of financial balance, budget allocations and market conditions. The analytical results obtained in the article show that the state of enterprises in the agro-food sector is directly correlated with the efficiency of the distribution of financial flows and investments, the successful implementation of digital marketing tools and a sustainable financial reporting system. The novelty of the article is the implementation of an analytical framework for determining the integrated assessment of the impact of financial accounting and marketing indicators on the long-term competitiveness of agro-industrial enterprises. The conclusions and results obtained confirm that the strategy of integrating innovation in combination with financial transparency and a sustainable market orientation determines the ways to achieve sustainable competitiveness and adaptability to global and local adversities. The practical significance of the results of the article is based on the possibility of using the methodological framework in the management system of accounting and analytical mechanisms and developing recommendations for supporting the system of optimal strategic management of business entities in the agricultural sector.

Keywords: Financial Accounting, Marketing, Sustainable Development, Research, Agro-Industrial Sector, International Economy, Regional Economy Competitiveness.

JEL Codes: O32, Q13, M11, F63, C51, L26, E60.

Introduction

In modern national policy, supporting the sustainable development of the agro-industrial sector is one of the most important tasks, because it is such development that supports food security, creates additional jobs and supports regional socio-economic development. At present, global competition is increasing in the world society, turbulent changes are especially evident in the international socio-economic space. That is why the role of effective management of the system of marketing research and financial analysis or accounting, which performs the functions of managing economic operations and also appears as a special tool for assessing the effectiveness, investment attractiveness and financial security of agribusiness, is increasing. Analysis in the marketing sector forms an analytical and informational basis for monitoring market trends, market conditions, consumer preferences and the potential of export-import operations of production and sales processes and maintaining competitiveness. The methodological basis for making effective management decisions regarding the activation of production and sales activities and strengthening the competitiveness of enterprises in the coordination of marketing accounting research contributes to the formation of effective mechanisms for ensuring the adaptability of enterprises in the conditions of the modern economy, in particular technological renewal to synergy. Therefore, an important task is to form a model that synergistically combines research into a single system of marketing and finance indicators as a condition for the sustainable development of business entities.

Literature review

There are a large number of well-known scientists on the world stage who deal with the issues of innovative management, the activation of digitalization in the agricultural sector, sustainable development, and the expansion of innovative business models. The researchers of the considered works analyze both the theoretical aspects of adaptive management and the practical principles of optimizing the activities of enterprises operating in a turbulent environment. The scientific works of Hnatenko et al. (2024),

Bakhmat et al. (2022), Faqih et al. (2020), Bosniuk et al. (2021), Gryshchenko et al. (2023) use a system of methods that is relevant and used in our study. Nurmanbetova et al. (2021), Kumar (2024), Hnatenko et al. (2020), Kubitskyi et al. (2023) identified rather non-standard diagnostic tools for socio-economic phenomena that we used in diagnosing financial accounting management and marketing research in the context of sustainable development of the agro-industrial sector in the international and regional economy. Mazur et al. (2021), Egea et al. (2018), Santoso et al. (2024), Mykhailichenko et al. (2021), Voznyuk et al. (2022) proposed a systemic model for improving the functioning of the organization, which can be used to manage financial accounting and marketing research in the context of sustainable development. Prokopenko et al. (2021), Anh et al. (2011), Prylipko et al. (2021) identified instrumental directions for increasing innovative activity. Such tools are based on improving the management, personnel, financial and credit, investment and foreign economic strategy. Kovshov et al. (2024), Zhyvko et al. (2024), Purdenko et al. (2023), Muhamediyeva et al. (2024) proposed a comprehensive approach to diagnosing the dynamics of socio-economic phenomena, which can be used for effective management decision-making. Yusmiati et al. (2024), Semenov et al. (2021), Shumilova et al. (2023), Plakhonik et al. (2024) proposed tools for maneuvering managers that can be used in the process of managing financial accounting and marketing research in the context of sustainable development.

Thus, the analysis of scientific works has shown the fragmentation and imperfection of approaches to managing financial accounting and marketing research in the context of sustainable development of the agro-industrial sector in the international and regional economy. Thus, the analysis of the sources we have considered indicates the need to develop an innovative approach to managing integrated business structures. Moreover, it is important that such an approach combines elements of risk management, financial literacy, digitalization and sustainable development.

Research methodologies

The theoretical basis of the study is the concepts of economic theory, management, marketing and sustainable development management. The methodological basis is based on the principles of evidence, systematicity, expediency, comparability and graphic interpretation, which ensures the connection between scientific novelty and practical areas of research.

The source base of the scientific article is the official statistical and analytical data of the Ministry of Finance of Ukraine, the National Bank of Ukraine, the State Statistics Service of Ukraine for the period 2000–2025. For the purpose of a thorough and in-depth analysis, analytical reports of the Ukrainian Marketing Association, Gradus Research, Info Sapiens, Statista and DataReportal were used. Mathematical and statistical processing of the specified data was carried out using a software tool, which allowed a thorough assessment of the impact of marketing indicators on financial and economic indicators. This tool included calculation by the methods: least squares with adequacy check through the coefficient of determination; data normalization and standardization; forecasting the results of financial accounting management within the framework of the integration of marketing indicators; regression modeling; scenario modeling. The above methodology of our study

allowed us to comprehensively cover the processes of financial accounting management and marketing research, taking into account the need to support the sustainable development of agro-industrial enterprises.

The proposed methodology involves assessing the financial accounting and marketing research management system. Such an assessment is implemented with the involvement of economic and mathematical modeling and forecasting, which is combined with coefficient, comparative, horizontal and vertical analyses, which allowed us to identify trends and forecasts for the development of business entities at both the state and regional levels.

Results

We begin the study of the chosen topic with a phased analysis of the state financial system. In the first step, we examine the budget system, which unites all state budgets, in particular revenues, expenditures and surplus/deficit. It assesses how funds are distributed between different sectors of the economy and social programs. We observe the state budget deficit for the last studied period. Budget stability is determined - the ratio of state revenues and expenditures. We see its decrease from 94.88% in 2008 to 69.68% in 2024. The graphical dynamic series of revenues and expenditures of the state budget of Ukraine for the last period is presented in Fig. 1.

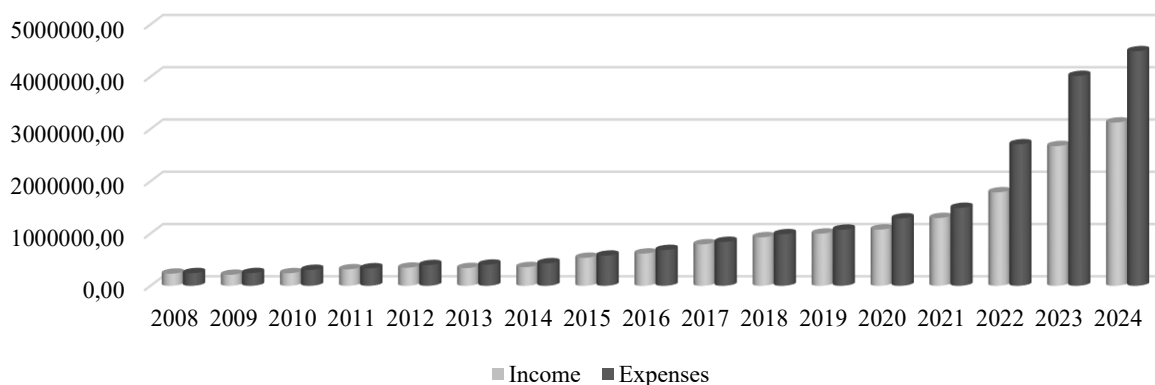


Figure 1. Dynamic series of revenues and expenditures of the state budget of Ukraine, 2008-2024

*Source: summarized based on information from the Ministry of Finance of Ukraine <https://index.minfin.com.ua/ua/finance/budget/gov/2017/>.

The Ministry of Finance of Ukraine has presented public information on the implementation of the state budget of Ukraine in 2025. As we can see, the budget balance, or deficit, in August 2025 is slightly lower than the indicators planned at the beginning of 2025 and higher compared to January and July 2025. We observe

an increase in expenditures on economic activity, both in general and at the state and local levels. The share of expenditures on economic activity in the total expenditures of the state budget of Ukraine in 2024 decreased by 0.76%, and compared to the pre-war 2021 by 13.99%. This dynamic series is graphically depicted in Fig. 2.

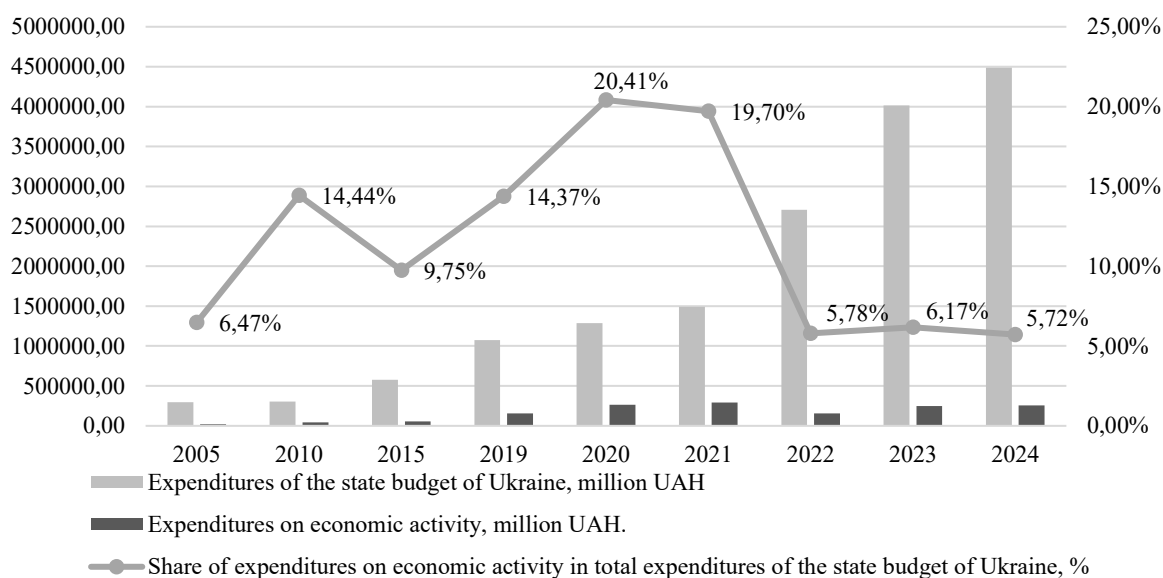


Figure 2. Dynamics of the State Budget of Ukraine, expenditures on economic activity and their share in the total expenditures of the State Budget of Ukraine, 2005-2024

**Source: summarized on the basis of <https://minfin.com.ua/>.*

The next indicator of financial management at the state level is the size of the state debt. The indicators of the total debt volume (internal and external), as well as its ratio to GDP are studied to assess the financial stability of the state. We observe an increase in both total public debt and

external and internal debt. Only in 2019 did we note a decrease in the total public debt by 7.86% compared to 2018. Graphically, we have a dynamic series of external and internal debt for the recent period in Fig. 3

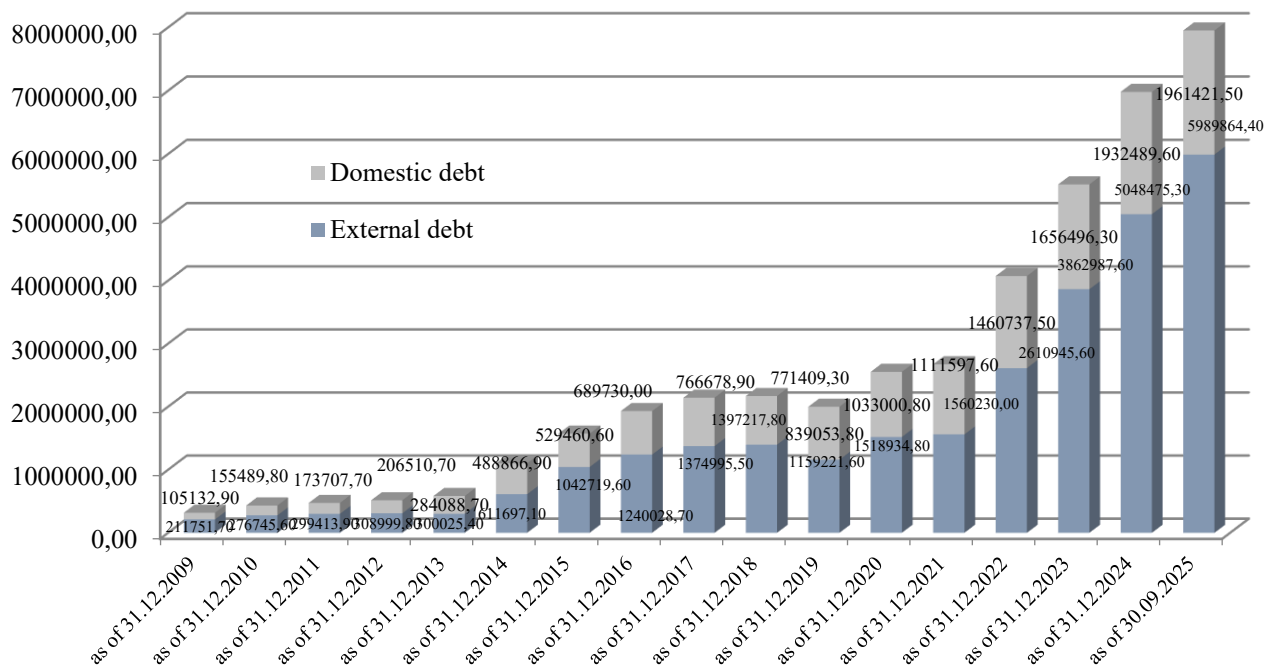


Figure 3. Dynamic series of external and internal debt, 2009-2025

*Source: summarized on the basis of <https://index.minfin.com.ua/ua/finance/debtgov/>.

We see only in 2022 a decrease in the value of the gross domestic product by 4.92% compared to the pre-war figure. An illustration of the ratio of public debt to gross domestic product over the recent period is shown in Fig. 4.

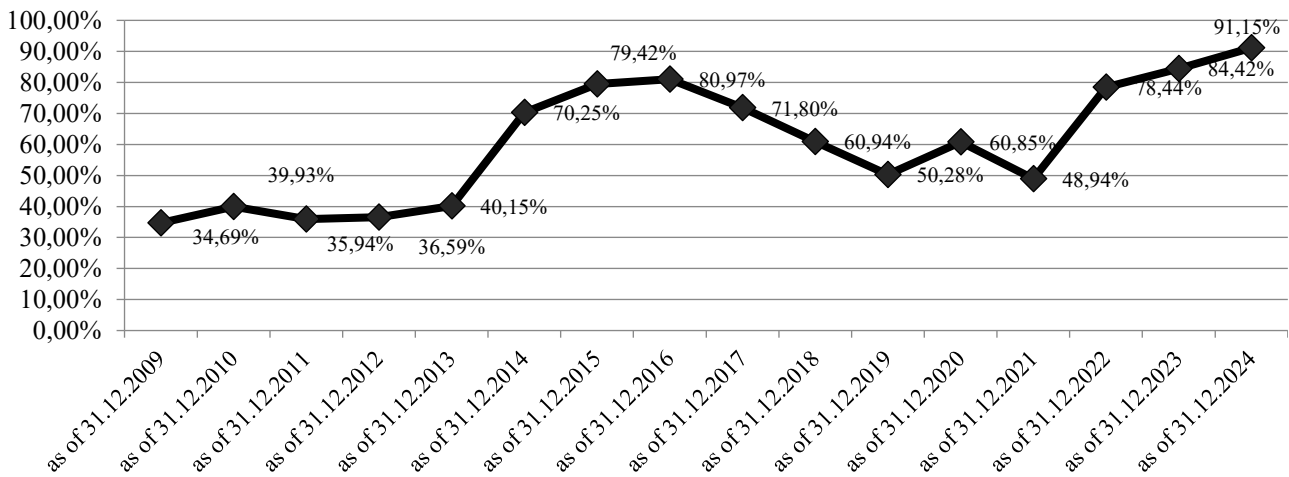


Figure 4. Ratio of public debt to gross domestic product, 2009-2024

*Source: summarized on the basis of <https://index.minfin.com.ua/ua/finance/debtgov/>.

An illustration of the dynamic series of Ukraine's state and state-guaranteed debt in US currency over the recent period is presented in Fig. 5.

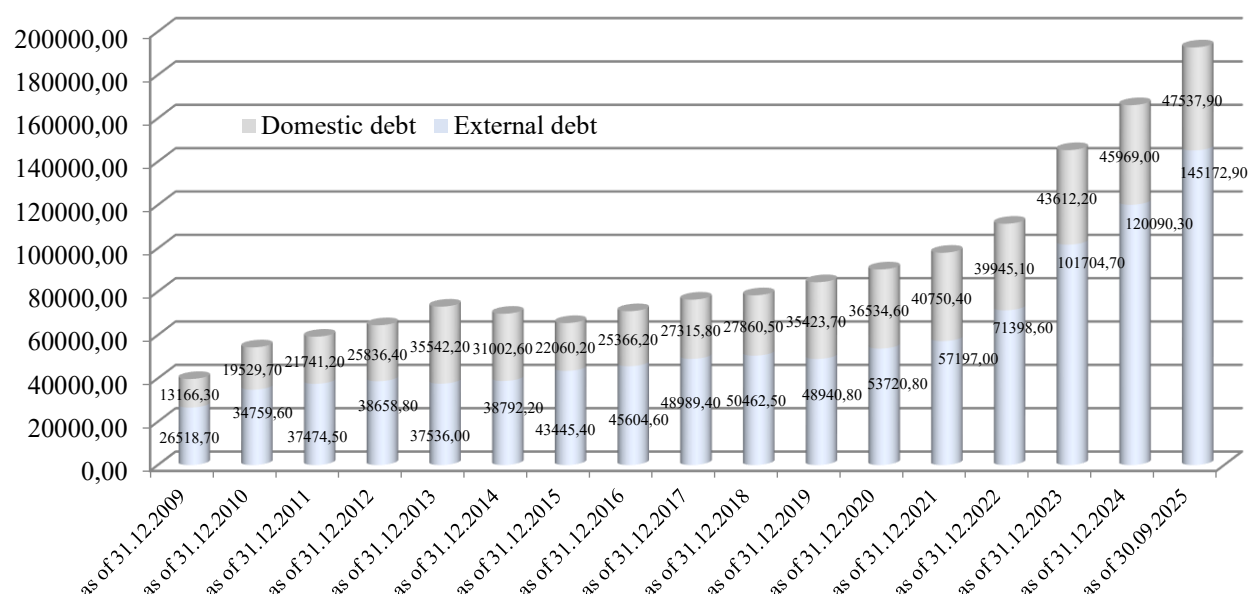


Figure 5. Dynamics of Ukraine's state and state-guaranteed debt in US currency, 2009-2025

*Source: summarized based on <https://index.minfin.com.ua/ua/finance/debtgov/>.

The stage of analyzing the dynamic series of gross domestic product (GDP), its structure (consumption, investment, government spending, net exports) to assess overall economic activity and its components. The Ministry of Finance of

Ukraine officially presented the value of the gross domestic product of Ukraine for the first quarter of 2025, both nominal and real. The graphical dynamic series of Ukraine's gross domestic product for the recent period is presented in Fig. 6.

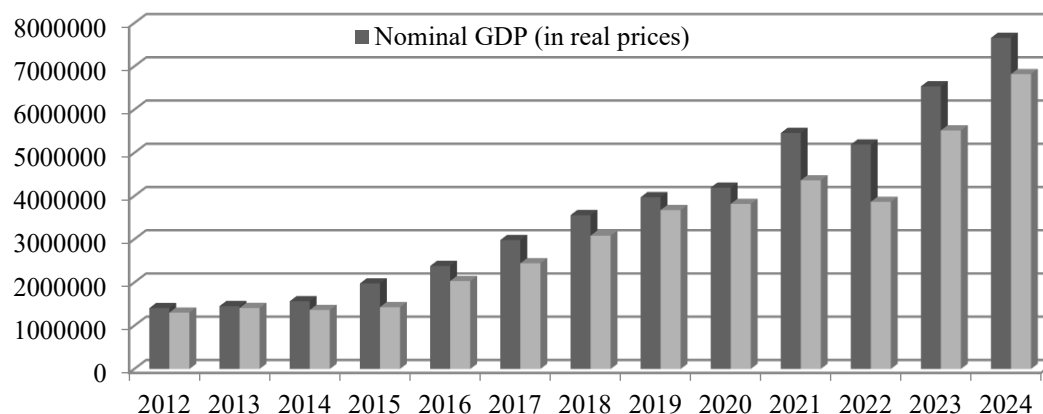


Figure 6. Dynamics of Ukraine's gross domestic product, 2012-2024

*Source: summarized based on <https://index.minfin.com.ua/ua/economy/gdp/>.

The value of consumer spending and imports of goods and services in the structure of gross product production over the last period increased by 23.75% and 2.30%, respectively, while the values of gross accumulation, exports of goods and services in the structure of gross product production decreased by 3.98% and

22.07%, respectively. Also, the structural dynamic series of Ukraine's GDP by final use in 2024 is compared with the pre-war 2021. The structural dynamic series of Ukraine's GDP by final use over the last period is graphically presented in Fig. 7. Histogram with accumulation.

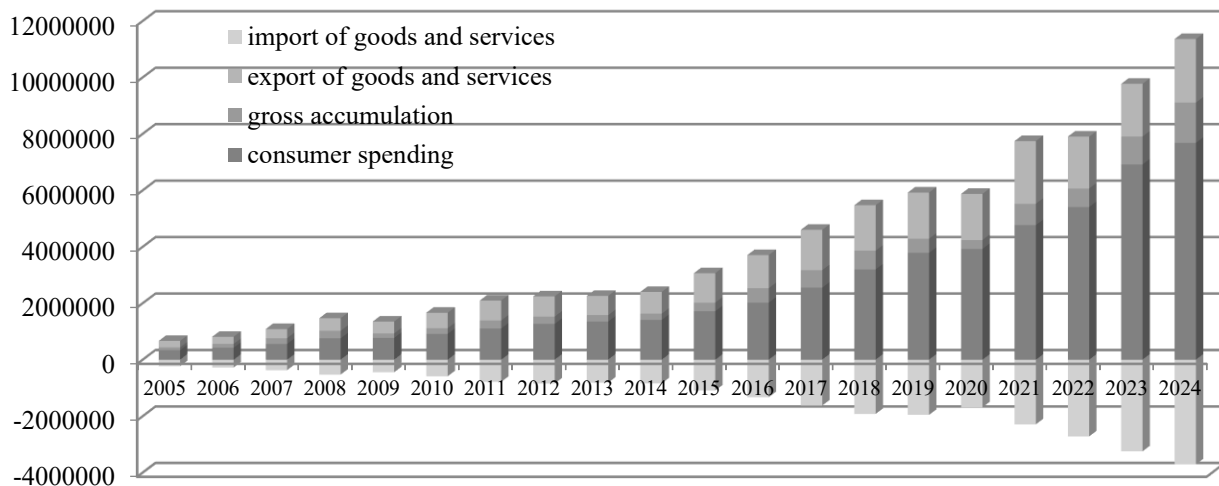


Figure 7. Structure of Ukraine's GDP by final use, 2005-2024

**Source: summarized on the basis of <https://index.minfin.com.ua/ua/economy/gdp/>.*

Next, we analyze the dynamics of the consumer price level or the core inflation index over the past twenty-six years (Fig. 8). Based on the results of the summary figure, we conclude that the minimum value of the core inflation index

in 2002 was 99.40%, and the maximum in 2015 was 143.30%. Over the period under study, the core inflation index fluctuates. The graphical series of the core inflation level over the past twenty-six years is presented in Fig. 8.

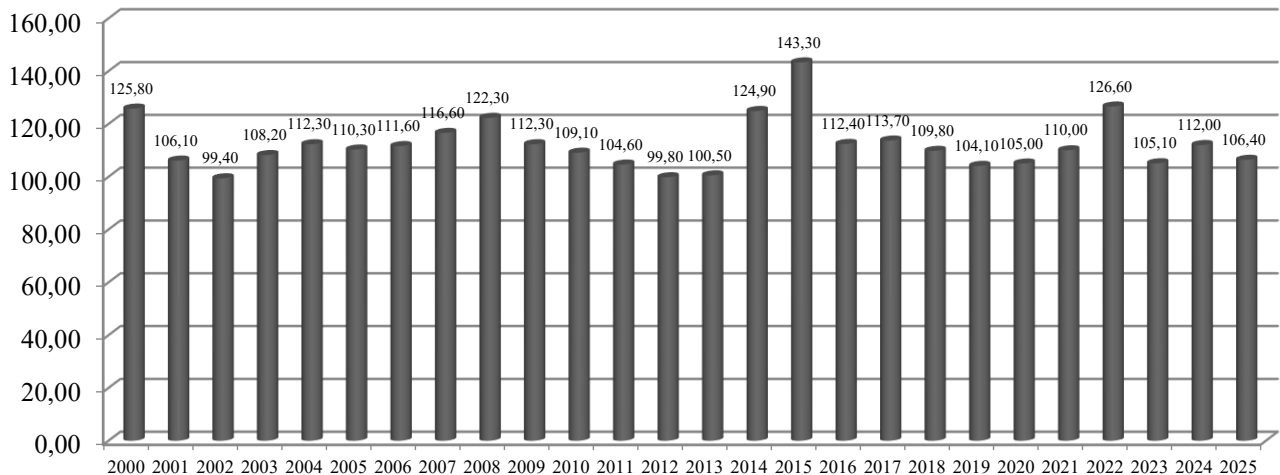


Figure 8. Graphical dynamic series of the core inflation rate, 2000-2025

**Source: summarized on the basis of <https://index.minfin.com.ua/ua/economy/index/inflation/>.*

It should be noted that the Ministry of Finance of Ukraine officially presented the consumer price index by regions of Ukraine as of October 1, 2025, ranked this indicator and determined its highest and lowest values: maximum value, 2025 107.6% Cherkasy region, a somewhat optimistic result minimum value, 2025 104.4% Sumy region. In Kyiv and Volyn region, there are also high consumer price indices of 107.4% and 107.2%, which is a negative result.

Ternopil and Vinnytsia regions occupy positions with a positive result relative to other regions, the consumer price index is 104.7% and 105.1%, respectively. The next element of state financial accounting management is the analysis of the foreign trade balance of Ukraine, its dynamic series for the recent period. Visualization of the dynamic series of Ukraine's foreign trade balance for the recent period is presented in Fig. 9.

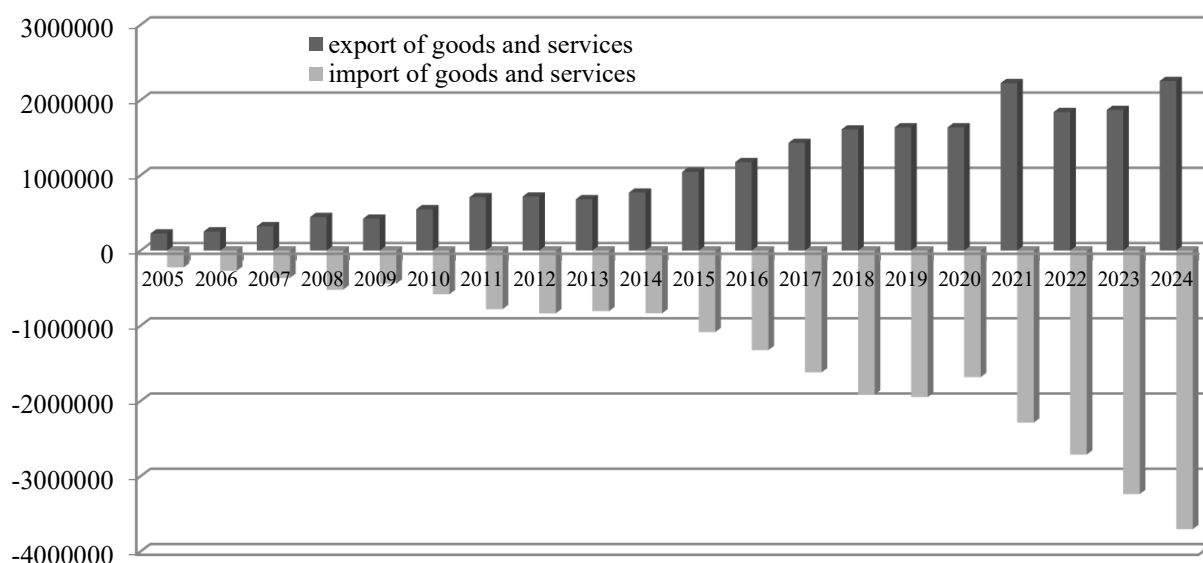


Figure 9. Dynamics of Ukraine's foreign trade balance, 2005-2024

**Source: summarized on the basis of <https://index.minfin.com.ua/ua/economy/gdp/eximp/>.*

Let's analyze the dynamics of Ukraine's official international reserves over the past seventeen years. As we can see, the critical years of the decline in international reserves were 2011, 2012, 2013, 2014 and 2022. Over the past three years, their value increased in 2024 by 42.18%, in 2024 and as of September 30, 2025, the growth rate was slightly lower, 8.10% and 6.49%, respectively.

The Ministry of Finance of Ukraine publicly presented the official international

reserves of Ukraine as of September 30, 2025. As we can see, the largest share in Ukraine's international reserves is held by assets in foreign currency 91.58%, including Securities 53.43% and Currency and deposits 38.15%. Monetary gold occupies a small percentage of 7.24%. Other types of international reserves occupy a small share. The dynamics of official international reserves of Ukraine over the past seventeen years is graphically presented in Fig. 10.

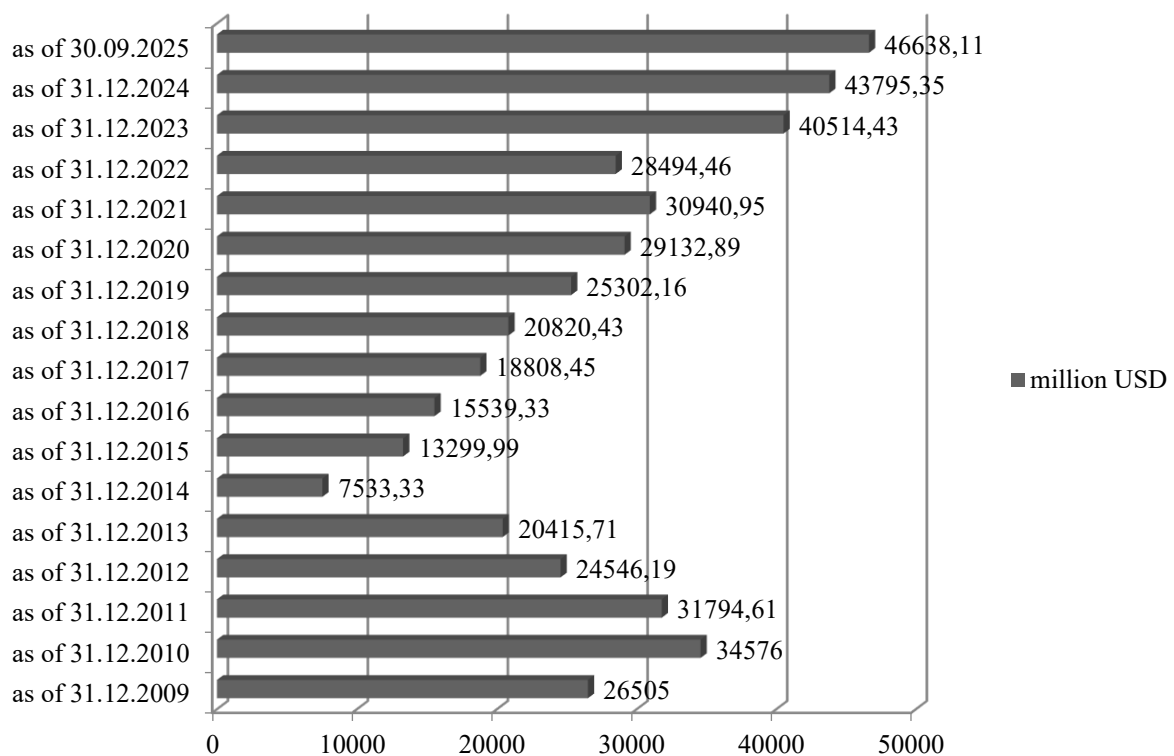


Figure 10. Dynamics of official international reserves of Ukraine, 2009-2025

*Source: summarized based on <https://index.minfin.com.ua/ua/finance/assets/>.

Important segments in the management of state financial accounting are monetary aggregates - liabilities of depository corporations to other sectors of the economy, except for the general government sector and other depository corporations, the official exchange rate of the hryvnia to foreign currencies established by the National Bank of Ukraine and loans provided by depository corporations (banks). The management of state financial accounting takes into account a significant increase in the official

exchange rate of the hryvnia to foreign currencies: the US dollar increased in 2024 by 36.47 UAH. compared to 2005, and by 14.30 UAH. compared to pre-war 2021. The euro exchange rate increased by 37.47 UAH. and by 11.55 UAH. respectively [9, 10]. A graphical representation of the dynamic series of the exchange rates of major currencies in the management of state financial accounting for the recent period is shown in Fig. 11.

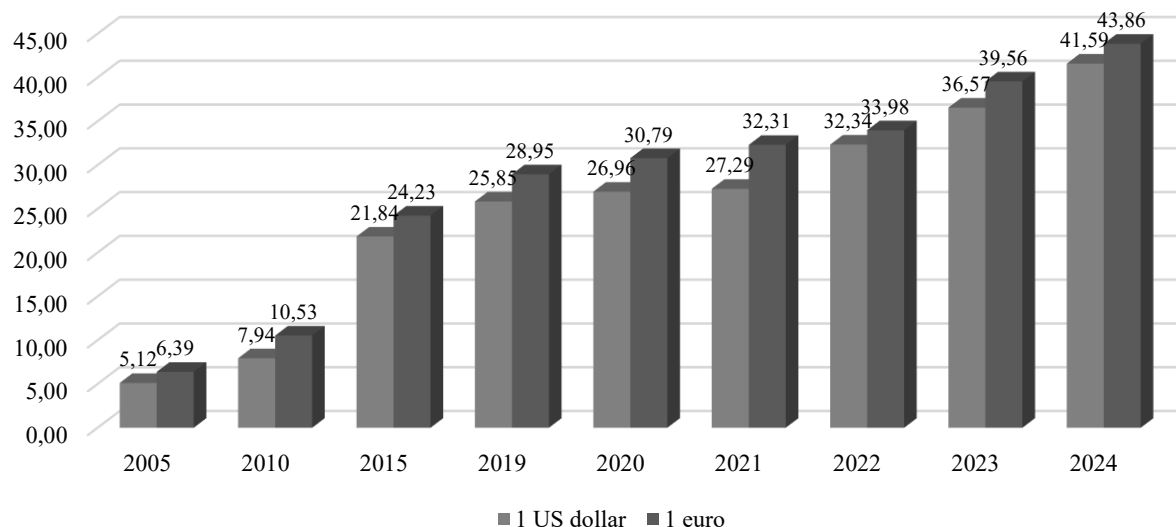


Figure 11. Dynamic series of exchange rates of major currencies in state financial accounting management, 2005-2024

**Source: generalized based on <https://bank.gov.ua/ua/markets/exchangerates?date=01.12.2024&period=daily>.*

If we link the state financial accounting system and marketing research, it is necessary to refer to the information sources of the State Statistics Service of Ukraine, which provides the main macroeconomic indicators. Thus, analytical data on the number of registered legal entities by region (Table 1), the dynamics of income and expenditure of the population, the dynamic series

of capital investments by type of assets, the trend of the use of information and communication technologies at enterprises, indicators of production and financial activity of enterprises, can be used to analyze, model and forecast indicators of state financial accounting management and marketing factors.

Table 1. Number of registered legal entities by region, 2016-2025

	2016	2018	2019	2020	2021	2022	2023	2024	2025 as of 01.10. 2025	Ranking by number of registered legal entities	Deviation 2024- 2025 from 2016, +,-	Deviation of 2024-2025 from pre-war 2021, +,-
Ukraine	1121347	1235024	1298435	1350627	1395448	1437009	1464953	1495879	1774000		652653	378552
regions												
Vinnitsia	27349	29869	30984	32031	33012	34318	35069	35917		12	8568	2905
Volynska	18673	20288	21159	21933	22897	23627	24388	25218		22	6545	2321
Dnipropetrovsk	92438	95678	97495	100768	103645	106275	108409	111210		2	18772	7565
Donetsk	84073	86808	87995	90315	91822	93171	92514	92016		4	7943	194
Zhytomyr	27160	29456	30371	31428	32046	32670	33313	33869		13	6709	1823
Zakarpattia	19987	21742	22438	23251	24137	25016	25859	26774		18	6787	2637
Zaporizhzhia	43274	45583	46501	47441	48725	50432	50958	51549		9	8275	2824
Ivano-Frankivsk	24326	26607	27577	28571	29459	30205	31063	31778		15	7452	2319
Kyiv	55351	63257	66592	70046	73080	75654	77436	79687		7	24336	6607
Kirovohrad	20714	22608	23487	24499	25348	26002	26369	26755		19	6041	1407
Luhansk	39850	40307	40598	40997	41344	41445	41198	40966	40748	10	898	-596
Lviv	57750	64462	67578	71104	74475	77475	80456	82972	87800	6	30050	13325
Mykolaiv	41047	44988	47383	48917	49939	51058	51450	52071		8	11024	2132
Odessa	68103	76160	79306	83139	86456	89692	91547	93542		3	25439	7086
Poltava	30147	32009	32775	33410	34608	35113	35665	36230		11	6083	1622
Rivne	19446	21219	22041	22929	23918	24503	25089	25844		20	6398	1926
Sumyska	21074	22397	23633	24451	25128	25244	25480	25758		21	4684	630
Ternopil	19271	20601	21367	22012	22771	23152	23719	24310		23	5039	1539
Kharkiv	67297	73703	76760	79644	83170	86327	87589	89091	92203	5	24906	9033
Kherson	24726	27169	28298	29034	29680	29574	29303	29359		17	4633	-321
Khmelnyskyi	26908	28447	29343	29895	30474	31030	31754	32289		14	5381	1815
Cherkasy	24739	27070	27909	28902	29848	30249	30657	31129		16	6390	1281
Chernivtsi	14709	15365	15405	15910	16356	16584	17140	17674		25	2965	1318
Chernigiv	19786	21239	21675	22397	23062	23291	23556	23734		24	3948	672
city Kyiv	233149	277992	309765	327603	340048	354902	364972	376137		1	142988	36089

*Source: summarized based on <https://www.ukrstat.gov.ua/>.

According to official statistics, in 2024, the largest number of registered legal entities was in Kyiv, Dnipropetrovsk and Odessa regions, the smallest in Chernivtsi - 17,674 units. Given that legal entities are actively engaged in marketing activities, analytical studies in this area are being conducted, in particular by the Ukrainian Association of Marketing (UAM), which publishes annual analytical reviews of the

marketing research market, Gradus Research and Info Sapiens, which regularly conduct and publish consumer sentiment surveys, Statista, which provides forecasts and statistics on the advertising market, and DataReportal, which published data on digital use in Ukraine as of 2021[12-15]. Table 2 presents the main marketing research indices for the last eleven years.

Table 2. Dynamic series of the main marketing research indices, 2014-2024

Years	Consumer Sentiment Index (CSI)	Economic Expectations Index (EEI)	Current Situation Index (CSI)
2014	60	58	55
2015	46	47	49
2016	46	38	31
2017	46	38	31
2018	51	51	50
2019	64	60	56
2020	70	66	63
2021	76	69	63
2022	81	76	71
2023	89	85	80
2024	92	87	83
Deviation 2024 from 2014, +,-	32	30	28
Deviation of 2024 from pre-war 2021, +,-	16	18	20

**Source: summarized based on [25; 26].*

Over the past twenty-two years, market research specialists have conducted market volume surveys. Information sources regarding volumes were provided by: in 2003 - 15 companies, 2004 - 29 companies, 2005 - 16 companies, 2006 -16 companies, 2007 - 12 companies, 2008 - 13 companies, 2009 - 22 companies, 2010 - 19 companies, 2011 - 23 companies, 2012 - 23 companies, 2013 - 24

companies; 2014 - 27 companies; 2015 - 20 companies, 2016 - 27 companies, 2017 - 23 companies, 2018 - 19 companies, 2019 - 27 companies, 2020 - 22 companies, 2022 - 24 companies, 2023 - 32 companies (27 companies that participated in the study and 5 companies, turnover was taken from open sources), 2024 - 34 companies (Table 3) [25; 26].

Table 3. Volume of the Ukrainian research market, 2003 -2024

Years	Market size		Growth / decline USD, %
	USD, million	hryvnia, million (according to the exchange rate of the corresponding year)	
2003	14,60	77,30	-
2004	19,50	100,00	33,56%
2005	24,80	127,00	27,18%
2006	33,50	169,00	35,08%
2007	41,50	212,00	23,88%
2008	55,00	275,00	32,53%
2009	45,00	304,00	-18,18%
2010	40,50	324,00	-10,00%
2011	44,40	354,60	9,63%
2012	56,95	449,24	28,27%

2013	60,80	487,10	6,76%
2014	42,44	509,29	-30,20%
2015	35,90	767,00	-15,41%
2016	32,33	865,14	-9,94%
2017	35,35	992,07	9,34%
2018	36,62	1025,40	3,59%
2019	52,89	1322,45	44,43%
2020	43,50	1209,00	-17,75%
2021			
2022	22,30	720,00	-48,74%
2023	31,71	1205,00	42,20%
2024	36,62	1538,06	15,48%

*Source: summarized based on [25; 26].

We see fluctuations in indicators, both growth and decline of marketing factors. As previously noted, we will investigate, analyze, model and forecast the main indicators of financial accounting management and marketing factors. Namely, as factors of marketing analytics, we offer: consumer sentiment index (CSI), economic expectations index (EII) and current situation index (IPS) for the last period. As indicators of financial accounting management, we offer: revenues of the state budget of Ukraine, nominal GDP (in actual prices), real GDP (in prices of the previous year), capital investments, exports of goods and services and profitability of operating activities of enterprises.

A three-factor linear model was chosen as a tool for conducting research, modeling and forecasting.

As a result of data processing, the main parameters of production regression, interdependence coefficients of marketing factor characteristics and effective indicators of financial accounting management were obtained, which indicate high dependence, variability, quality and adequacy.

Forecasting of marketing factor characteristics shows their growth in 2026 under an optimistic scenario. Regarding the forecasting of financial accounting management indicators, the calculation using a three-factor linear model shows the growth of selected performance characteristics compared to last year's indicators (Table 4).

Table 4. Forecasting and comparison of financial accounting management indicators in interaction with factor characteristics of marketing research, 2024, 2026

Years	Factorial signs, 2026			Financial accounting management indicators					
	Consumer Sentiment Index (CSI)	Economic Expectations Index (EEI)	Current Situation Index (CSI)	Revenues of the state budget of Ukraine, million UAH.	Nominal GDP (in actual prices), million UAH.	Real GDP (in previous year's prices), UAH million	Capital investments, million UAH	Export of goods and services, million UAH.	Profitability of operating activities of enterprises, %
2024	92	87	83	3122713,40	7658659	6821088	632662	2252428	10,37
2026	103	95	87	3198847,13	8399227,56	7153887,27	718446	2440180,89	11,48
Increase/decrease, +,-	11	8	5	76134	740569	332799	85784	187753	1,11
Growth/decrease, %	11,77%	8,88%	5,67%	2,44%	9,67%	4,88%	13,56%	8,34%	X

*Source: calculated by the authors.

Graphical forecasting and comparison of financial accounting management indicators in interaction with factor characteristics of marketing research are presented in Fig. 12 and Fig. 13.

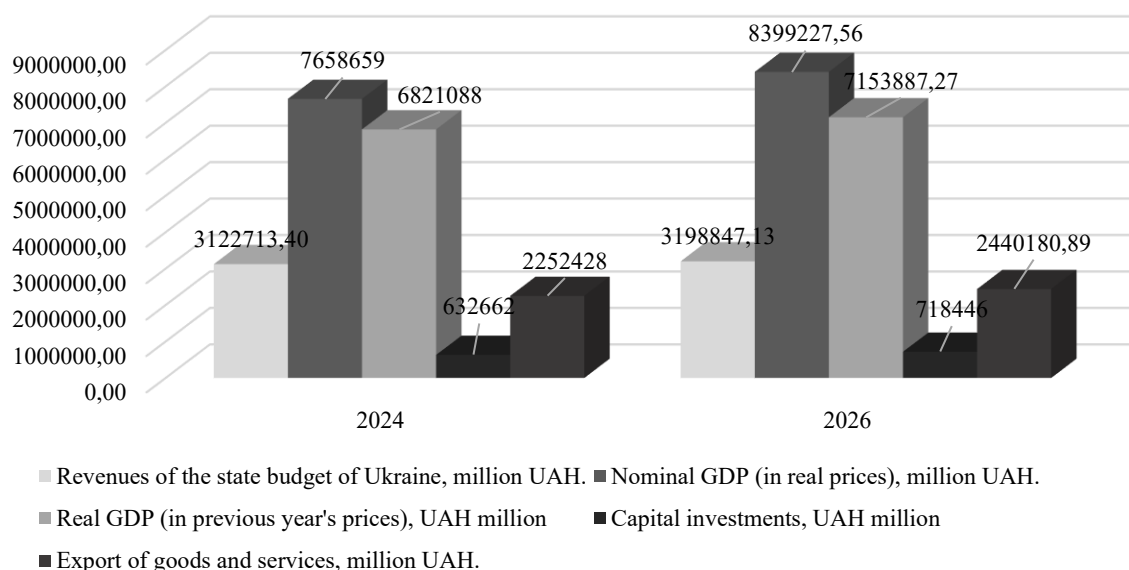


Figure 12. Forecasting and comparing financial accounting management indicators in interaction with factor characteristics of marketing research, 2024, 2026

**Source: calculated by the authors.*

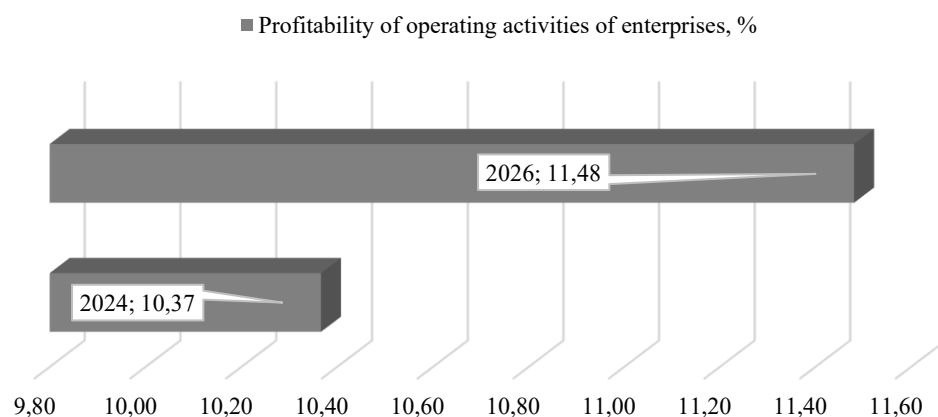


Figure 13. Forecasting and comparison of financial accounting management indicators in interaction with factor characteristics of marketing research, 2024, 2026

**Source: calculated by the authors.*

Therefore, the comprehensive analysis of the financial accounting management system and marketing research, which combines horizontal analysis, vertical analysis, comparative analysis, coefficient analysis, economic and mathematical modeling and forecasting, allows for in-depth study, modeling and forecasting of complex economic processes, both at the state and regional levels, and at the level of the business entity.

Conclusions

The results of the study determined that effective management of financial accounting and marketing research is an important condition for

ensuring the sustainable development of agricultural and agri-food enterprises. Attention is focused on the fact that the financial sustainability of the country's development correlates with the size of budget revenues, the volume of public debt and the effective use of resources between industries and economic sectors. The data obtained as a result of modeling showed a high correlation between financial and marketing indicators, as well as indices of consumer preferences, economic expectations and socio-economic status, which indicates the relevance of a systemic approach to effective state regulation of financial policy. The results of the study

indicate that the combination of financial accounting analytics and marketing tools form a source base for making the necessary management decisions in conditions of uncertainty. The obtained forecasts indicate an increase in gross domestic product, an increase in state budget revenues, and the accumulation of capital investments in the medium term as a result of increasing the effectiveness of marketing communications and focusing on consumer preferences. At the same time, the need to improve institutional mechanisms of analysis is noted, which will ensure the best combination of

effective financial policy with changing market processes.

Thus, the scientific results obtained in the article provide a scientific basis for improving the integrated system of strategic management. In particular, by combining financial flows, enterprise analytics and marketing impulses into a single information-adaptive model. The above indicates the need for further scientific research in the direction of improving financial analysis, forecasting and risk hedging in the agricultural industry of Ukraine.

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