

ARCHITECTONICS OF FINANCING OF AGRICULTURAL ENTERPRISES IN UKRAINE

Svitlana Boiko¹, PhD; **Inna Demianenko**², PhD; **Halyna Skrypnyk**³, PhD; **Valentyna Yavorska**⁴, PhD

^{1,2}National University of Food Technologies

^{3,4}National University of Life and Environmental Science of Ukraine

Abstract. Agriculture is one of the most important types of economic activity for the Ukrainian economy, since together with other related economic activities it forms more than half of Ukraine's GDP and the share of agriculture in the production of goods and services tends to increase. In such conditions, an important and urgent task is a retrospective study of the architectonics of financing of agricultural enterprises in Ukraine, the factors influencing it and the substantiation of the prospects for its optimization. The aim of the study is the empirical assessment of the formation of architectonics of financing of agricultural enterprises in Ukraine under the influence of macroeconomic factors and industry factors. For the empirical assessment of the architectonics of financing of agricultural enterprises of Ukraine, a system of absolute and relative indicators, regression and correlation analysis were applied.

An empirical assessment of the financial support of agricultural enterprises in Ukraine in the context of agricultural development allowed to distinguish three periods: 2010-2013 – an increase of financial resources of agricultural enterprises in Ukraine subject to excess of equity, ensuring of financial stability of enterprises; 2014-2015 – reduction of financial resources of agricultural enterprises subject to excess borrowed funds, partial loss of financial stability of enterprises; 2016-2018 – an increase of financial resources of agricultural enterprises in the direction of restoring the potential of financial stability and a deterioration in the payment discipline of the resources of agricultural enterprises.

Key words: agricultural enterprises, agriculture of Ukraine, financial resources, architectonics of financing.

JEL code: C82, G32, Q14

Introduction

The purpose of the article is the empirical assessment of the formation of architectonics of financing of agricultural enterprises in Ukraine under the influence of macroeconomic factors and industry factors.

The main objectives of the research are: disclosure of scientific approaches to the formation of financial resources of agricultural enterprises of Ukraine; determination of the dynamics and structure of financing of agricultural enterprises in Ukraine.

Information sources: scientific articles and monographs on the financial support of agricultural enterprises of Ukraine, data from the State Statistics Service of Ukraine, National Bank of Ukraine.

Agriculture is one of the most important types of economic activity for the Ukrainian economy, since together with other related economic activities (processing industry, trade) it forms more than half of Ukraine's GDP. The share of agriculture in the production of goods and services in 2018 amounted to 10.85 % compared to 9.42 % in 2013, 7.55 % in 2010. The social and economic role of agriculture in Ukraine is enhanced by the following factors: ensuring of food security of the state, rural development, rural employment, as well as "foreign exchange earnings from the export sale of agricultural products, which directly affect the national currency rate" (Katan, L., 2019) and, accordingly, the balance of payments of the state. In such conditions, an important task of ensuring the sustainable development of agriculture is the financing of agricultural enterprises in compliance with both the principles of sufficiency and financial stability. Therefore, an important and urgent task is a retrospective study of the architectonics of financing of agricultural enterprises in Ukraine, the factors influencing it and the substantiation of the prospects for its optimization.

For the empirical assessment of the architectonics of financing of agricultural enterprises of Ukraine, a system of absolute and relative indicators (to determine the dynamics and structure of

financing of agricultural enterprises of Ukraine), a regression analysis (to construct regression equations for the total amount of financing of agricultural enterprises of Ukraine during the study period (2005-2018), a correlation analysis (to determine the degree of connection between the dynamics of financing of agricultural enterprises and other indicators in agriculture) were applied.

Research results and discussion

The issues of financial support of agricultural enterprises in Ukraine are covered in numerous research papers of scientists. In particular, P. Stetsiuk investigated the problems of building an effective system for agricultural enterprises' financial resources management in the conditions of market transformation of the economy (Stetsiuk, P., 2008); O. Gudz determined the priority areas for the formation and efficient use of financial resources in the direction of improving the credit support of agricultural enterprises (Gudz, O., 2007); N. Davydenko determined the attraction of financial resources by agricultural corporations through access to foreign stock exchanges (Davydenko, N., 2012); N. Trusova investigated the financing of agricultural enterprises and developed the model of an integrated system of financial potential for proportional distribution, free handling of own and attracted financial resources of agricultural enterprises, forecasting of financial results in a short-term and long-term time sections (Trusova, N., 2015); B. Batiuk and N. Radukh (2015) proved the need to diversify the financial resources of agricultural enterprises (Batiuk, B. and Radukh, N., 2015); S. Bojnec, S. Kvasha and O. Oliynyk analysed features of agriculture in Slovenia and Ukraine in terms of their farm organizational structures, their farm size structures and evolution in association with development of an efficient financial system for multifunctional roles of agriculture and for rural development (Bojnec, S., Kvasha, S. and Oliynyk, O., 2014).

A. Yanchuk, Ie. Markova and P. Voronzhak are convinced that the problem of financing of agricultural enterprises of Ukraine should be solved through instruments of financial-credit mechanism of state regulation such as subventions, grants, budget investments and budget lending (Yanchuk, A. O., Markova, Ie. Yu. and Voronzhak, P. V., 2017).

The financial resources of agricultural enterprises of Ukraine in the study period (2005-2018) increased by 6.5 times (Figure 1), which exceeds the growth rate of the total financial resources of enterprises in the economy (2.9 times) and in all other types of economic activity (transport, storage, postal and courier service – 3.4 times, industry – 2.9 times, building – 2.6 times, retailing and wholesaling – 2.6 times, financial and insurance activities – 1.8 times etc.).

The growth of the nominal size of financial resources in hryvnia equivalent (TFR_{UAH}) allows us to distinguish two substantive periods: the first period (2010-2015), when there was a constant accumulation of financial resources of agricultural enterprises (Formulae 1, $R^2 = 0.98$):

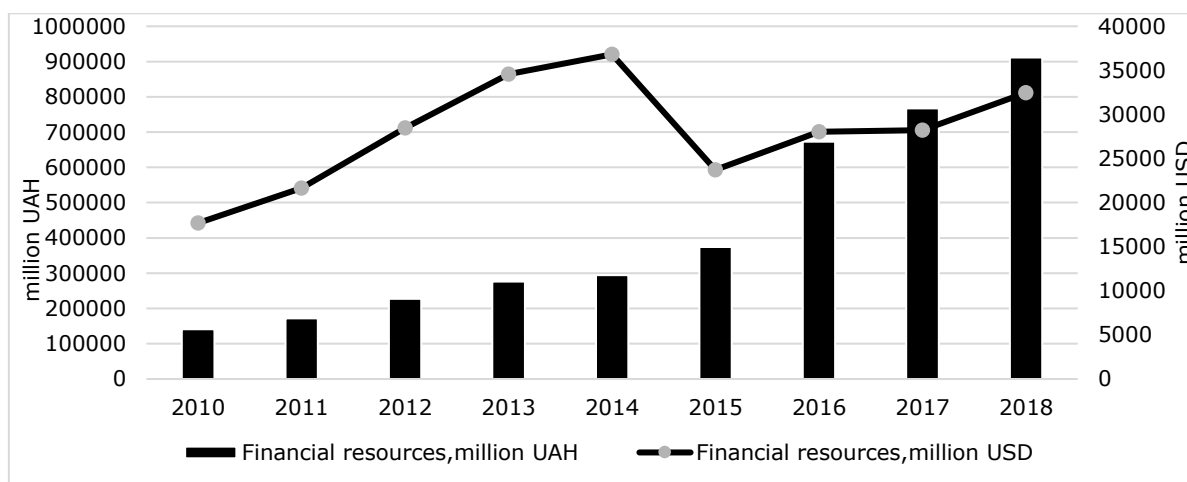
$$TFR_{UAH;2010-2015} = 45098 t + 89781 \quad (1)$$

The main factors that contributed to the accumulation of financial resources in agriculture and had a close direct correlation with their dynamics were: an output of products and services at market prices ($r = 0.95$), the gross yield of major crops (for example, sunflower, cereals and grain legumes), livestock production (milk, eggs, meat). At the same time, crop yields and average agricultural prices were increasing.

The second period lasted from 2016 to 2018. During this period there was an accumulation of financial resources of agricultural enterprises (Formulae 2, $R^2 = 0.99$) due to the increase in the output of goods and services at market prices ($r = 1.00$), which was a consequence of the increase, first of all, in the average prices of products of both crop and livestock production:

$$TFR_{UAH;2016-2018} = 119542 t - 544599$$

(2)



Source: author's calculations based on the State Statistics Service of Ukraine

Fig. 1. Financial resources of agricultural enterprises of Ukraine, 2010-2018

The instability of the national currency in the long term and fluctuations in the hryvnia exchange rate to foreign currencies make relevant the assessment of the dynamics of financial resources of Ukraine's agricultural enterprises in dollar terms, but the approach to periodization requires some adjustments: the first (2010-2013) is a steady increase in financing of agricultural enterprises of Ukraine; the second (2014) – a sharp reduction in the financing of agricultural enterprises of Ukraine in dollar terms due to the devaluation of hryvnia; the third (2015-2018) – gradual restoration of capitalization of agriculture. However, in particular some authors call the current state of financing of agricultural enterprises of Ukraine as well as "The condition of the limited financial resources of a large number of business entities in the agrarian sector of the Ukrainian economy" (Pohrishchuk, G. B. and Melnyk, V. I., 2017).

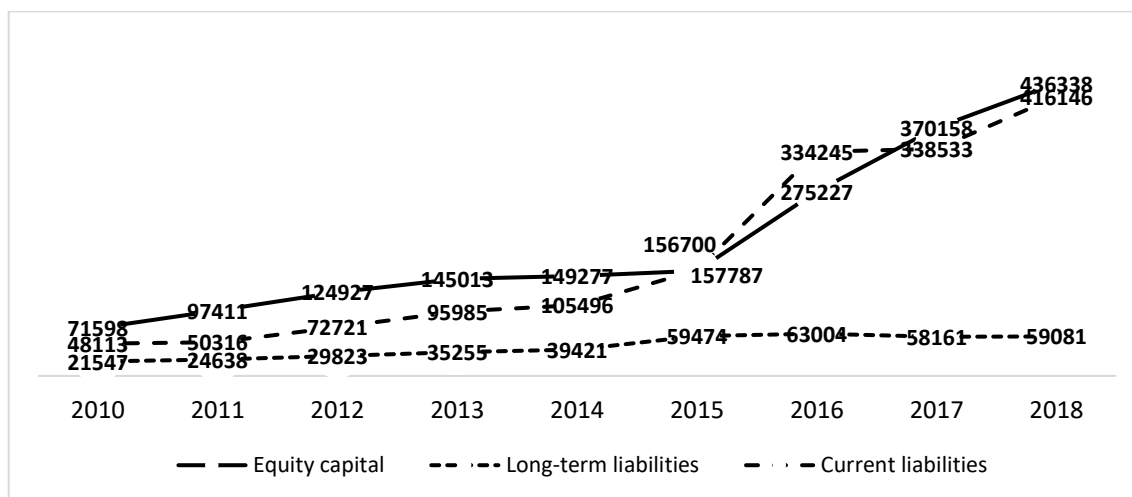
The architectonics of financing of agricultural enterprises in Ukraine is determined by the composition and structure of financial resources with the determination of the share of equity, long-term and current liabilities (figure 2, table 1).

Table 1

The structure of financing resources of agricultural enterprises of Ukraine, 2010-2018 %

Indicator	2010	2011	2012	2013	2014	2015	2016	2017	2018
Equity capital	50.69	56.51	54.92	52.47	50.73	41.90	40.92	48.27	47.86
Borrowed capital, including	49.31	43.49	45.08	47.53	49.27	58.10	59.08	51.73	52.14
Long-term liabilities	15.25	14.29	13.11	12.76	13.40	15.90	9.37	7.58	6.48
Current liabilities	34.06	29.19	31.97	34.77	35.88	42.20	49.71	44.15	45.65
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: author's calculations based on the State Statistics Service of Ukraine



Source: author's calculations based on the State Statistics Service of Ukraine

Fig. 2. **Financial resources of agricultural enterprises of Ukraine, 2010-2018, million UAH**

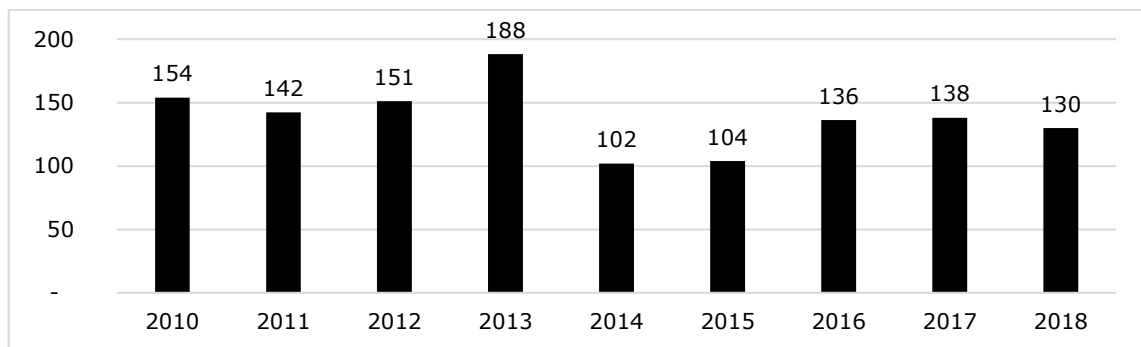
Equity capital was the basis for the accumulation of financial resources of agricultural enterprises. Equity capital's formation was possible due to such components as registered capital, additional paid-in capital, reserve capital, retained earnings (uncovered loss), unpaid and withdrawn capital. The dynamics of equity of agricultural enterprises indicates an annual increase in its nominal size, but its growth rate ranged from 2.94 % in 2014 to 75.64 % in 2016, which indicates the heterogeneity of the dynamics of equity, which is mainly determined by the dynamics of retained earnings. The smallest share of unprofitable enterprises in Ukraine in 2016 was observed in agriculture – 12.4 % of total amount of enterprises in the industry. However, this situation is explained by preferential tax treatment (single tax, in which an object enters the land for agricultural purposes and the availability of tax relief VAT) (Iatsukh, O. and Demchenko, I., 2018).

The calculated data on the correlation of the dynamics of equity and retained earnings with the net financial result of agricultural enterprises indicate a direct close relationship (the correlation coefficient in 2010-2018 was 0.82). Therefore, equity is the basis for the formation of financial resources of agricultural enterprises, which are replenished mainly due to the net profit of enterprises.

According to the calculated indicators of the structure of financial resources of agricultural enterprises of Ukraine in 2010-2014, equity capital prevailed (table 1). This fact meets the requirements of financial stability of enterprises. Since 2011, decreases in the share of equity and a partial loss of financial stability of agricultural enterprises have started. In 2015, the share of equity was less than 50 %. It should be noted that own funds of agricultural enterprises were insufficient to finance activities. Thus, the growth rate of equity was inferior to the growth rate of both long-term and current liabilities.

Current liabilities are the second priority element of the architectonics of financial resources of agricultural enterprises. Their formation occurred due to such components as short-term bank loans, accounts payable for goods, work, services and for settlements with employees, budget and social insurance funds, as well as current collateral and deferred income. Agricultural enterprises of Ukraine most often used accounts payable to finance current activities and current assets. A rapid increase in accounts payable, which began in 2011, indicates deterioration in the solvency of agricultural enterprises and violation of their payment discipline until 2013 (Figure 3). In 2014, the state of payment discipline of agricultural enterprises improved and the average repayment period in the

industry was reduced almost by half (from 188 days in 2013 to 102 days in 2014). In 2016-2017, the payment discipline of agricultural enterprises was deteriorated and in 2018 it was stabilized.



Source: author's calculations based on the State Statistics Service of Ukraine

Fig. 3. Payables payable period by agricultural enterprises of Ukraine, 2010-2018, days

According to the table 1, long-term liabilities – the third priority element of the architectonics of financial resources of agricultural enterprises, which combines long-term bank loans, long-term bonds of enterprises, targeted financing from state and local budgets and others. Long-term liabilities were the smallest part among others in the structure of sources for accumulation of financial resources of agricultural enterprises. The main reasons for the lack or insufficient demand of agricultural enterprises for “long money” are the insufficient development of the Ukrainian stock market, and the low level of creditworthiness of some agricultural enterprises. The decrease in the share of long-term liabilities by 2.5 times in 2016-2018 is of particular importance.

The main obstacles of agricultural lending development in Ukraine are on the supply-side, on the commercial banks, which are facing the lack of specialized risk assessment tools to be used in evaluating business strategies and loan applications of farms. Most of commercial banks due to the lack of understanding of the specificities of agricultural production and the inability to adequately assess the risks associated with farming activities and farmers, they resort to higher interest rates, which in turn lead to a reduction in the demand-side for loans by farms (Bojniec, S., Kvasha, S. and Oliynyk, O, 2014).

Based on six features, we will periodize the features of the architectonics of financing of agricultural enterprises in Ukraine in the long term (table 2).

Table 2

Periodization of financing of agricultural enterprises of Ukraine, 2010-2018

Periods	Features					
	Total amount, million US dollars	The share of equity capital	Long-term liabilities	Current liabilities	Payables payable period	Financial stability
The first period (2010-2013)	growth	more than 50 %, decrease	13-15 %, decrease	30 -35 %, Absence of single tendency	142-188 days, increase	Normal
The second period (2014-2015)	decrease	42-51%, decrease	13-15 %, increase	36-42%, increase	102-104 days	Normal
The third period (2016-2018)	growth	less than 50 %, increase	6-9 %, decrease	44-50 %, decrease	130-136, decrease	Unstable financial position

Source: author's calculations based on the State Statistics Service of Ukraine

Conclusions, proposals, recommendations

- 1) The empirical assessment of the financial support of the activities of agricultural enterprises of Ukraine in the context of agricultural development was carried out, and three periods were distinguished: 2010-2013 – an increase in the financial resources of agricultural enterprises in Ukraine subject to the predominance of equity, ensuring of the financial stability of enterprises, the violated state of payment discipline; 2014-2015 – reduction of financial resources of agricultural enterprises subject to the prevalence of borrowed funds, partial loss of financial stability of enterprises; 2016-2018 – an increase in the financial resources of agricultural enterprises in the direction of restoring the financial potential of the first period, partial loss of financial stability and a deterioration in the payment discipline of the resources of agricultural enterprises.
- 2) The architectonics of financial resources of agricultural enterprises of Ukraine indicates the presence of structural changes that are manifested in a decrease in the potential of agricultural enterprises in the long term.
- 3) Conducting the study gives grounds to propose approaches to optimizing the structure of financial resources of agricultural enterprises in Ukraine with the determination of the priority of equity capital and long-term liabilities.

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