

Features of the Formation and Transformation of Household Credit Behavior Under Macroeconomic Instability



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ABSTRACT

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Within the article, the formation and transformation of credit behavior of households in the conditions of macroeconomic instability is examined. The research was conducted on the basis of the analysis of the features of economic development and the development of lending to households in Ukraine in 2006-2021. At the same time, the justification of theoretical features of the change in the specified type of behavior was carried out. First of all, in the article, economic and political conditions in which economy of Ukraine developed during the outlined period are studied. Appropriate statistical indicators were used for this purpose. Also, in the article, taking into account the indicators of macroeconomic dynamics, a thorough study of the field of lending to households was carried out. This made it possible to describe the peculiarities of the change in the state of such crediting in different conditions of the country's economic development. A detailed analysis of individual parameters of bank lending to households made it possible to describe the formed model of credit behavior of these economic entities and conduct a statistical analysis of the impact of individual economic parameters on changes in the volume of such loans, establish the strength of their influence and importance for ensuring stable functioning of the lending sphere of these economic entities.

1. INTRODUCTION

The role of households in the development of the national economy is important. These subjects are an integral part of economic relations in all countries of the world. They play an important role in the development of the financial system, forming both demand and supply for financial resources. On the one hand, households have temporarily free funds that they do not need, and which can be placed at the disposal of banking and non-banking institutions for further use and their transformation into credit and investment resources. On the other hand, households also need credit resources that they need for their own development, raising the standard of living, developing business activities, etc. This situation determines a complex nature of households as consumers of financial services, which increases scientific interest in researching their functioning within the financial system, studying their needs in financial resources.

Lending is one of the most active directions of income generation of banking and non-banking credit institutions. Historical experience proves that there is always a demand for loan resources among households, because there is always a category of them that needs additional financial resources. As a rule, the presence of demand leads to the formation and supply of financial resources. However, this situation does not always happen.

In all developed countries, lending to households and other economic entities is an integral part of the functioning of the country's financial system. In favorable economic conditions, such development is important for ensuring the national economy development. The credit services market, within which the demand and supply for loan funds is formed, plays one of the key roles in ensuring stable functioning of such a system. That is why in most countries of the world, the issue of regulation of credit activities of banks and non-banking institutions is given considerable attention, since within this market there are significant risks for the stable operation of these institutions.

However, in the countries characterized by permanent economic fluctuations, which are unfavorable for the development of economic entities, destructive factors often arise in the credit services market, which can lead to significant crisis situations in the development of financial systems. This is confirmed by the global financial crisis of 2007, which was caused by disparities in the development of the credit services market. This increases the importance of conducting research in this direction, studying the peculiarities of the functioning of economic entities in such a market, analyzing their behavior, including the behavior of financial institutions that find themselves in difficult economic conditions of their own functioning. The issue of this behavior transformation as a result of a change in the economic

environment in which all subjects of economic activity function are also relevant.

Ukraine is one of the countries in which there are permanent economic and political crises, which always have a destructive effect on the financial system functioning. As a result of such influence, there is a significant transformation of the behavior of economic entities in the credit services market. It is from these positions that the use of Ukraine's experience to conduct research on changes in credit behavior of such subjects in the conditions of economic instability is appropriate and justified.

Particular attention should be paid to the analysis of the behavior of households in the credit services market in the conditions of macroeconomic instability, since changes in this market are primarily felt by these subjects and their reaction to new conditions is the fastest and most indicative for studying the general state of this market in a specific period destructive processes in the country's economy. Also, households have the opportunity to gradually and not always visibly form significant systemic credit crises that affect the functioning of banking and non-banking institutions and can form threats to ensure their stable functioning. Thus, taking into account the outlined, we will conduct a study of the peculiarities of the change and formation of the households' behavior in the credit services market of Ukraine in the conditions of macroeconomic instability.

The main goal of the article is to study the features of the transformation, the formation of credit behavior of households as a result of the change in the economic environment in which they operate.

2. LITERATURE REVIEW

Researches of the following scientists are devoted to the transformation of financial behavior of households, including loans to households, innovative and investment development strategies, ensuring stability in the conditions of macroeconomic instability [1-20].

Zhao et al. [20] examines the impact of social networks on credit behavior of rural households. According to the results of the study, it was proved that social networks can effectively contribute to the credit behavior of rural households.

The article of the scientists Dubyna et al. [8], which is devoted to the study of the impact of modern digitization processes on the change in credit behavior of the population, is of practical importance. The authors researched the main features inherent in the classic model of obtaining credit services by clients of financial institutions. As a result of the research, scientists have identified promising directions for further transformation of credit behavior of the population.

Researchers Sági and Lentner [12] have found that financial literacy is closely related to household savings and borrowing patterns. Based on the results of the analysis, the authors claim that financial awareness of households has not significantly improved in recent years either due to losses incurred on loans in foreign currency, or as a result of preventive actions taken by state regulatory bodies.

The authors Hunter and Heath [6] believe that being able to measure the role of credit card use during a recession provides unique information for studying credit behavior, since all respondents are known to have the same macroeconomic constraints. The authors evaluated the relationship between credit card usage behavior and three indicators of household well-being: Emotional well-being, financial well-being, and overall household financial condition.

The article of Lv et al. [9] proves that credit behavior of the peasant household affects not only the financial capacity of the peasant household, but also the credit decisions of the rural financial institution. And this, according to the authors, affects the development of the Chinese rural economy and economy of the peasant household. Scientists have developed proposals for improving credit behavior of peasant households.

Within the framework of the study by Gric et al. [3], the peculiarities of the influence of household sentiments on the fluctuations of recently issued consumer loans are considered. The authors argue that shocks in the sentiments of households do have a measurable impact on the growth of consumer loans.

Scholars Zauder and Rosan [18] examine household borrowing patterns in Croatia at the micro level. The authors present the structure of household debt obligations and identify several characteristics of households associated with the debt participation.

The scientists' article Theong et al. [14] is devoted to a comparative analysis of the sensitivity of each category of non-performing household loans in Malaysia. This study assumes asymmetry between different types of household loans, credit cards, personal use, residential property purchases, and vehicle purchases.

The main task of the article by Bukowski and Kosztowniak [2] is to determine changes in problem loans of households and their main determinants in the banking sector of Poland. The scientists analyzed the main determinants of the creditworthiness of households, which determine the possibility of repaying the principal amount and interest on time.

The authors of the paper Maulana and Nuryakin [11] analyze the impact of having a savings account and access to financial institutions on lending to households in Indonesia. As a result of the study, the authors argue that the government should encourage the ownership of bank accounts and facilitate access to financial institutions in order to promote formal lending and reduce informal lending.

The article by Sangwan et al. [13] defines the determinants of loan overdue, which reveals peculiarities in the repayment between households of customers with low and high income. The research analyzed the role of household characteristics, credit characteristics, moral hazard characteristics, and regional attributes in behavior of overdue loans.

A significant number of publications confirm the relevance of the research direction, however, the specifics of the formation and transformation of credit behavior of households in the conditions of macroeconomic instability require further analysis and research.

3. METHODOLOGY

A range of different scientific methods of cognition will be used within the scope of the research. They include both general and special methods of economic research, namely: measurement, abstraction, comparison, observation, comparative analysis and synthesis. Important attention is paid to the use of statistical methods of analysis, since significant arrays of economic information about modern development trends of Ukraine, the volume of lending to the national economy, and macroeconomic indicators were used to describe the features of the credit behavior model of households.

To specify the influence of some indicators on others, the

article uses regression analysis, which allows formalizing such an influence in the form of algebraic regression equations. Regression analysis was used primarily to specify the characteristics of credit behavior of households as a result of the influence of various macroeconomic factors on the development of the entire financial system of the country. In Figure 1, methodological provisions of regression analysis is provided. A preliminary study of the outlined impact showed that in this case it would be best to use a cubic one-factor regression model to specify the impact of individual economic indicators on the volume of household loans.

A cubic univariate regression model is a type of model $y = \beta_0 + \beta_1 x^3 + \beta_2 x^2 + \beta_3 x + \varepsilon$, which is the best way and with a smaller percentage of error (ε) allows you to find a calculation model ($\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x^3 + \hat{\beta}_2 x^2 + \hat{\beta}_3 x$) dependence between two

variables (y and x), which best describes the real influence of the independent variable on the dependent variable. The search for this model will consist in determining the basic parameters of this model using statistical research methods (regression, correlation analysis) ($\beta_0; \beta_1; \beta_2; \beta_3$). These parameters will be found by the method of least squares. Verification of the adequacy and compliance with real processes of the cubic one-factor regression model will be carried out on the basis of the analysis of classical statistical indicators: the correlation coefficient (R), the determination coefficient (R^2) and the F-criterion. All mathematical calculations for finding the algebraic expression of the outlined model and checking its adequacy will be carried out on the basis of using the capabilities of the Mathhelpplanet online program (<http://mathhelpplanet.com>).

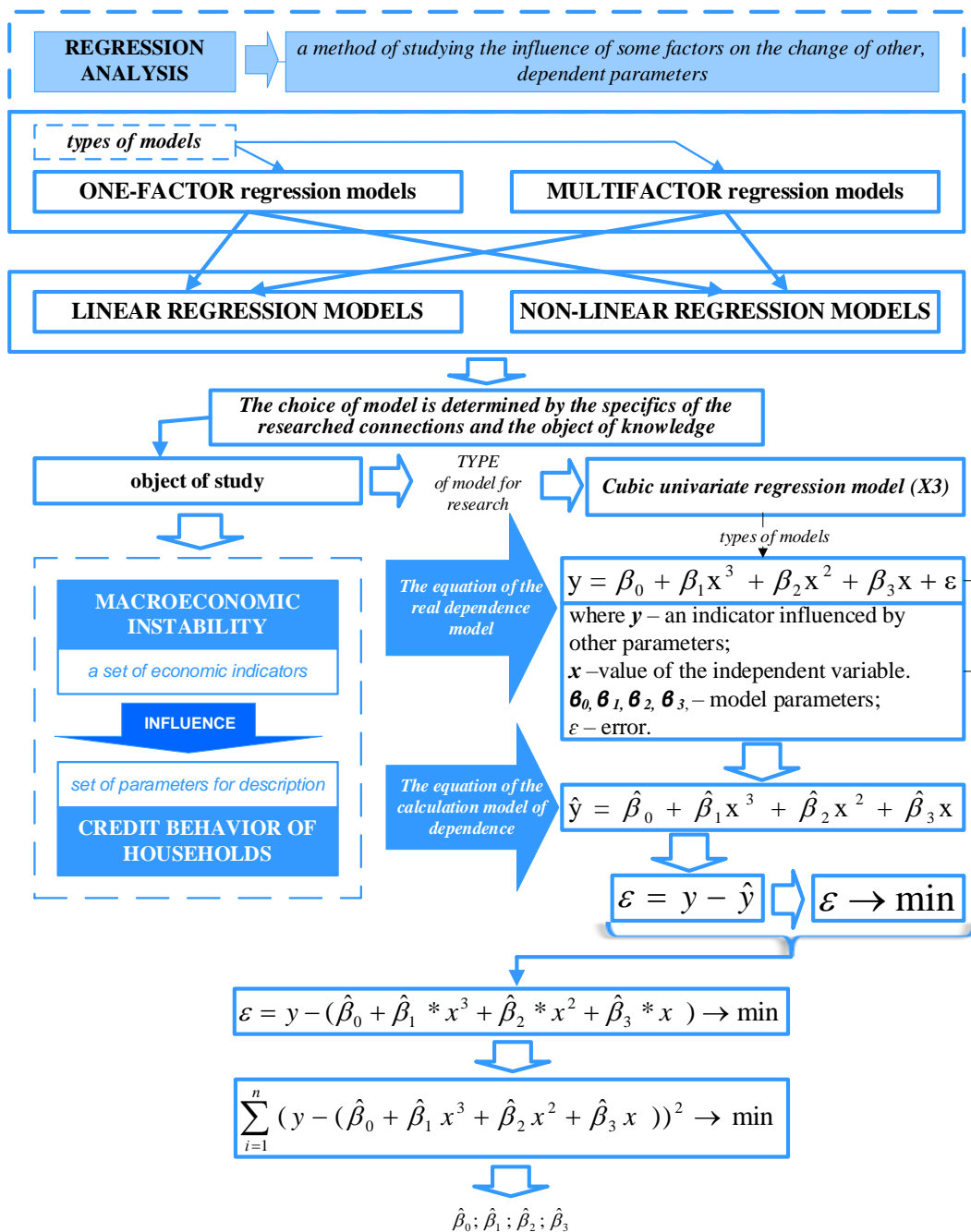


Figure 1. Methodological provisions of the study of the transformation of credit behavior of households in the conditions of macroeconomic instability

For regression analysis, the article uses arrays of statistical information provided by the National Bank of Ukraine (<https://bank.gov.ua/>) (a general array of information on the results of lending by banking institutions to households in Ukraine; data on the official exchange rate of the hryvnia) and the State Statistics Service of Ukraine (<https://www.ukrstat.gov.ua/>) (macroeconomic indicators: GDP volumes, average wages, inflation index).

4. RESULTS

Therefore, lending is an important component of the formation and development of financial relations within the country's economy. Their stimulation makes it possible to generate funds for economic development. Such a process is, as evidenced by the experience of the functioning of the financial systems of developed countries, correct and necessary for the specified system to perform its functions. However, lending is always associated with risks that arise in the activities of individual financial institutions, and may further accumulate within the limits of the entire financial system. The credit services market, within which credit behavior of various economic entities is formed and changes, is a complex market in which a significant number of such entities operate, and therefore, it is also difficult to assess potential risks.

Modern science and practitioners have already developed a significant number of methods for assessing credit risks and the creditworthiness of economic entities, but, as evidenced by the periodically occurring crises in the field of lending, the presence of such methodological provisions is not enough for effective credit risk management. Quite often, financial institutions, trying to get more income, level the basic provisions of such methodical approaches to the assessment of credit risks, change them in such a way as to simplify the requirements for borrowers and increase the volume of loans issued to them.

So, the field of lending is a really complex system of relationships between economic entities and financial institutions. However, despite numerous difficulties that may arise within such a sphere, its development is objectively necessary for countries with a market economy, since these institutions must receive income from their own activities, and economic subjects, including and households, always have a need for loan funds, regardless of the overall crediting conditions, economic development of the country. There are always those from the outlined subjects who are ready to take loans, even at high interest, not always favorable lending conditions. This behavior of potential borrowers is especially characteristic of the countries where the credit services market is being formed and gradually developing. Among them, it is appropriate to include Ukraine, in which the specified market is developing in the conditions of periodically occurring economic and financial crises.

The credit services market of Ukraine is an important component of the development of the entire financial system of the country, as it is the most developed among other components of the financial services market. In its development, Ukraine quite often encountered difficult macroeconomic conditions of its own functioning, and quite often it was credit operations, inefficient management of credit portfolios by banking and non-banking institutions that led to such conditions. That is why it is best to study the peculiarities of the behavior of economic entities in such a market in the specified conditions by analyzing the development trends of

both economy of Ukraine in a long-time range, as well as the indicators of the development of the credit services market.

Today, households play one of the key roles in the functioning of the mentioned market in Ukraine, and the volume of lending to these business entities is constantly growing. However, in difficult conditions of the country's macroeconomic development, behavior of such entities is not always predictable, and the processes that then take place in this area are complex and, as experience shows, systematically and negatively affect the entire financial system of the country. To study the specifics of this behavior, it is advisable to first of all analyze the economic environment in which households' function and develop, since it is their economic activity that leads to the formation or absence of the needs for additional loan funds.

It's should be noted that it is impossible to study economic development of Ukraine without understanding political and social conditions in which such development takes place. During a rather insignificant period of its independence, the country faced extremely complex economic and political crises. Among them, it is worth highlighting the Orange Revolution, the Revolution of Dignity, the annexation of Crimea, the war in the East of Ukraine, and the current war with the Russian Federation, which began in 2022. All these events in one way or another affected the macroeconomic situation in the country, formed crisis conditions for the national economy development. Let's consider the features of such influence in more detail.

Macroeconomic instability is a state of economy that is characterized by complex destructive processes in the development of economic relations, which are accompanied by a decrease in the country's GDP, devaluation of the national currency, high rates of inflation, unemployment, and an increase in the state budget deficit and the country's total debt. Such processes eventually lead to a decrease in the level of economic activity of subjects, a decrease in the real income of the population, a decrease in the social security of citizens and an increase in the level of poverty. In fact, all the described processes were characteristic of Ukraine in different periods of its development and are developing quite quickly today as a result of the opposition to the Russia's military aggression.

In Figure 2, statistical information on the main macroeconomic indicators of the development of Ukraine in 2006-2021 is presented, that is, the analysis is carried out for more than fifteen years of the functioning and development of the country's economy.

Analyzing the information of Figure 2, it is possible to state a complex trend of changes in the GDP volume of Ukraine in 2006-2021. In 2021, the GDP volume amounted to 200.09 billion dollars. This is the largest indicator for the period under analysis. However, in 2013, this figure was 183.31 billion US dollars. After this year, we observe a sharp decline in Ukraine's GDP, which is caused by the difficult economic and political situation that occurred after the Revolution of Dignity.

This decrease in 2014 to 131.81 billion USD, and in 2015 - to 90.62 billion USD, is due to the following reasons:

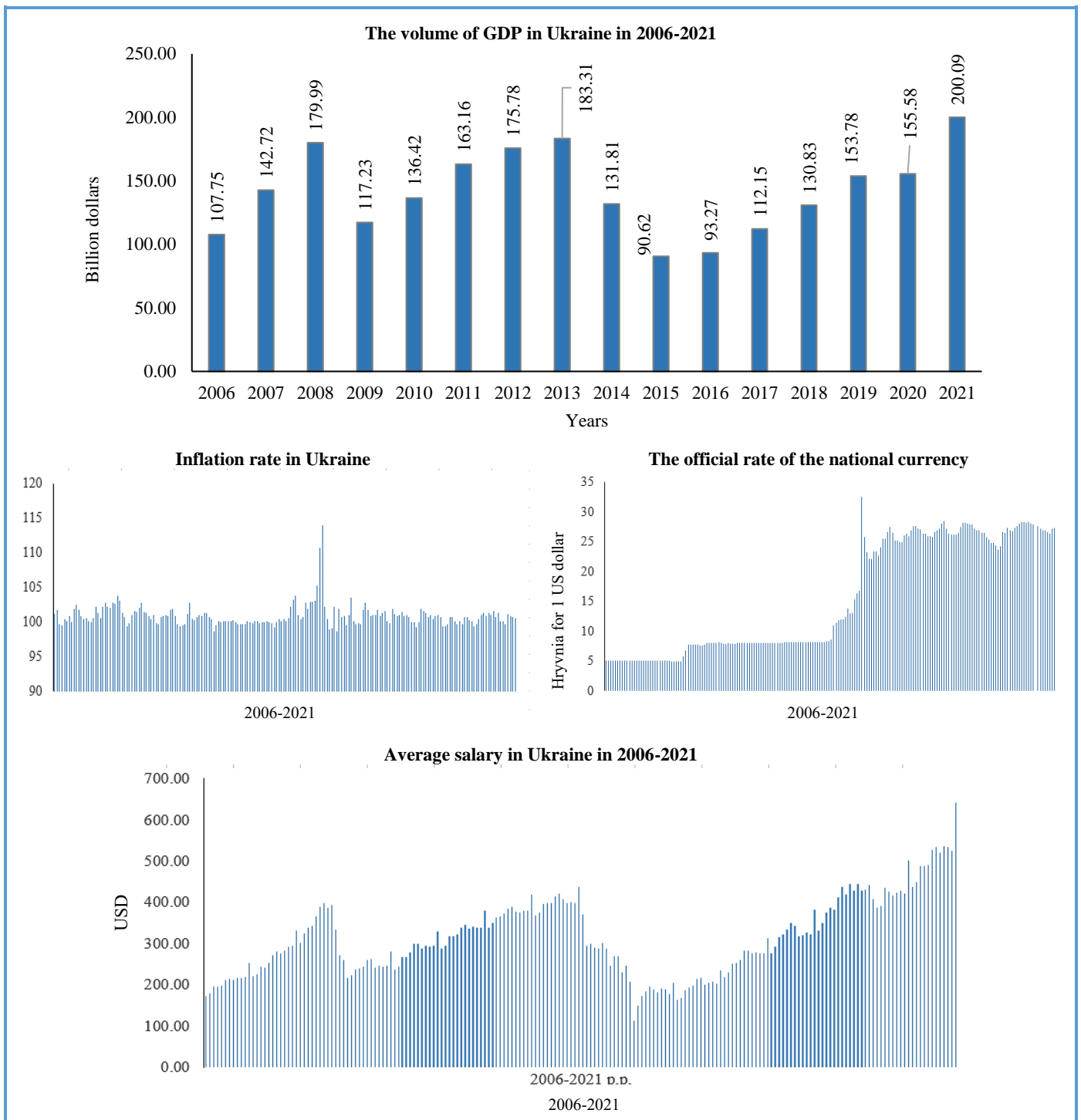
- 1) the loss of the territory in the East of the country, where there was a significant amount of industrial production;
- 2) the armed conflict in Donbas and the conduct of an anti-terrorist operation, which had a destructive effect on economic development of the territories where this operation took place;
- 3) the annexation of Crimea, which accelerated the severance of economic relations with the Russian Federation;
- 4) blocking the transportation of goods, raw materials,

products from Ukraine through the territory of the Russian Federation;

5) a significant decrease in the value of the national currency, which was due to the low level of gold and foreign exchange reserves in the country, which were actively used by the authorities until 2013 to artificially maintain the non-market official exchange rate of the hryvnia, and other reasons.

A significant devaluation of the hryvnia had a particularly negative impact on economic development of the country, which on the one hand strengthened the position of enterprises that export products, and on the other, led to a sharp collapse of economic and social security of the population, significant rates of inflation, and a decrease in the standard of living. The

devaluation took place from UAH 7.99 per USD 1 in 2013 to UAH 15.76 per USD 1 in 2014, and to UAH 24.00 per USD 1 in 2015 (Figure 2). There were short-term periods when the value of the hryvnia fell to UAH 40.0 per USD 1. Thus, the value of the national currency of Ukraine decreased by more than three times. This had a powerful impact on economic development of the country. With the gradual increase in export volumes, imports partially increased, but the demand for foreign goods fell significantly. At the same time, the loss of a significant number of export-oriented enterprises in the East of Ukraine, the breakdown of production chains did not allow to obtain greater effects from the currency depreciation.



Source: compiled by the authors based on [21, 22]

Figure 2. Modern trends of macroeconomic development of Ukraine in 2006-2021

The devaluation of the national behavior led to significant rates of inflation and a decrease in the real wages of the population. If in 2013 the average salary in Ukraine was 369.98 USD, then in 2014 it was 206.89 USD. US, and in 2015 –163.98 USD (Figure 2). In fact, according to this indicator, the country returned to 2006, when the average salary was 220.2 USD. It took almost six years to return to the pre-crisis level of this indicator. Only in 2019, this figure was 431.0 USD.

However, already in 2022, there is a new deterioration of macroeconomic indicators in Ukraine, the reasons for which are primarily the war. At the end of July 2022, the National Bank of Ukraine has already officially devalued the national currency from UAH 27.28 per US dollar to UAH 36.56 per US dollar, i.e., by 25.41%.

The described complex economic processes could not but affect the functioning of households and their economic behavior. The majority of financial institutions stopped lending to economic entities and, accordingly, this affected the

effectiveness of their activities. Also, in 2014-2015 in Ukraine, a reform of the banking sector was carried out, as a result of which a significant number of banking institutions were withdrawn from the market, banks were declared insolvent and liquidated by the regulator. As a result of such a reform, the entire financial system of the country was in rather unstable conditions of its own functioning, since quite powerful systemic banks, which occupied significant positions in the banking system functioning of Ukraine, were withdrawn from the market. The nationalization of PrivatBank, which is the largest commercial bank in Ukraine, gradually completed the reform of the banking sector, which in general made it possible to increase the level of financial stability of banking institutions and strengthen the country's financial system. However, economic entities, carrying out such a reform against the background of significant macroeconomic instability was indeed a difficult period in their development. Business entities and non-bank financial institutions were the most affected during this period.

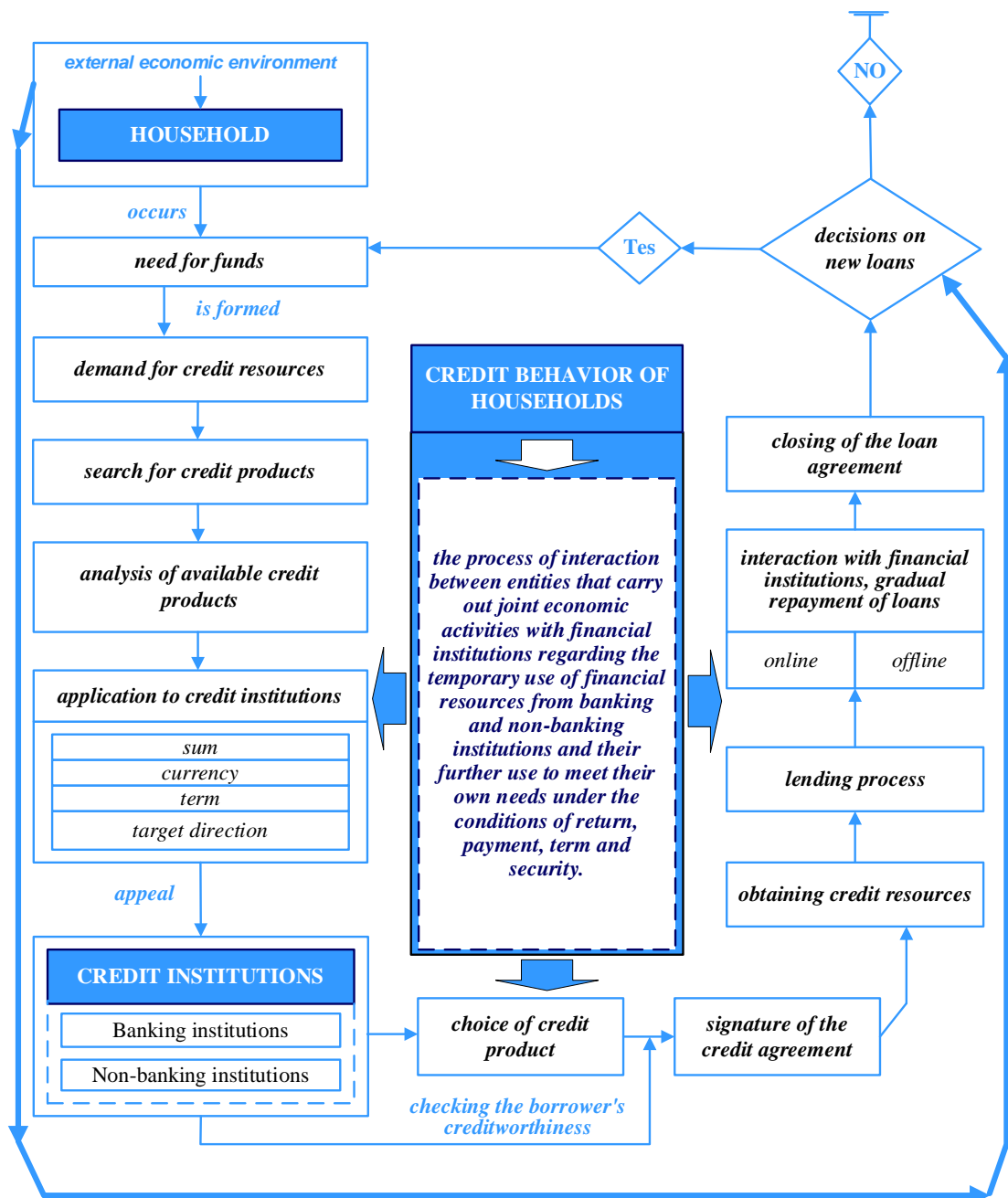


Figure 3. Scheme of the credit behavior formation of households

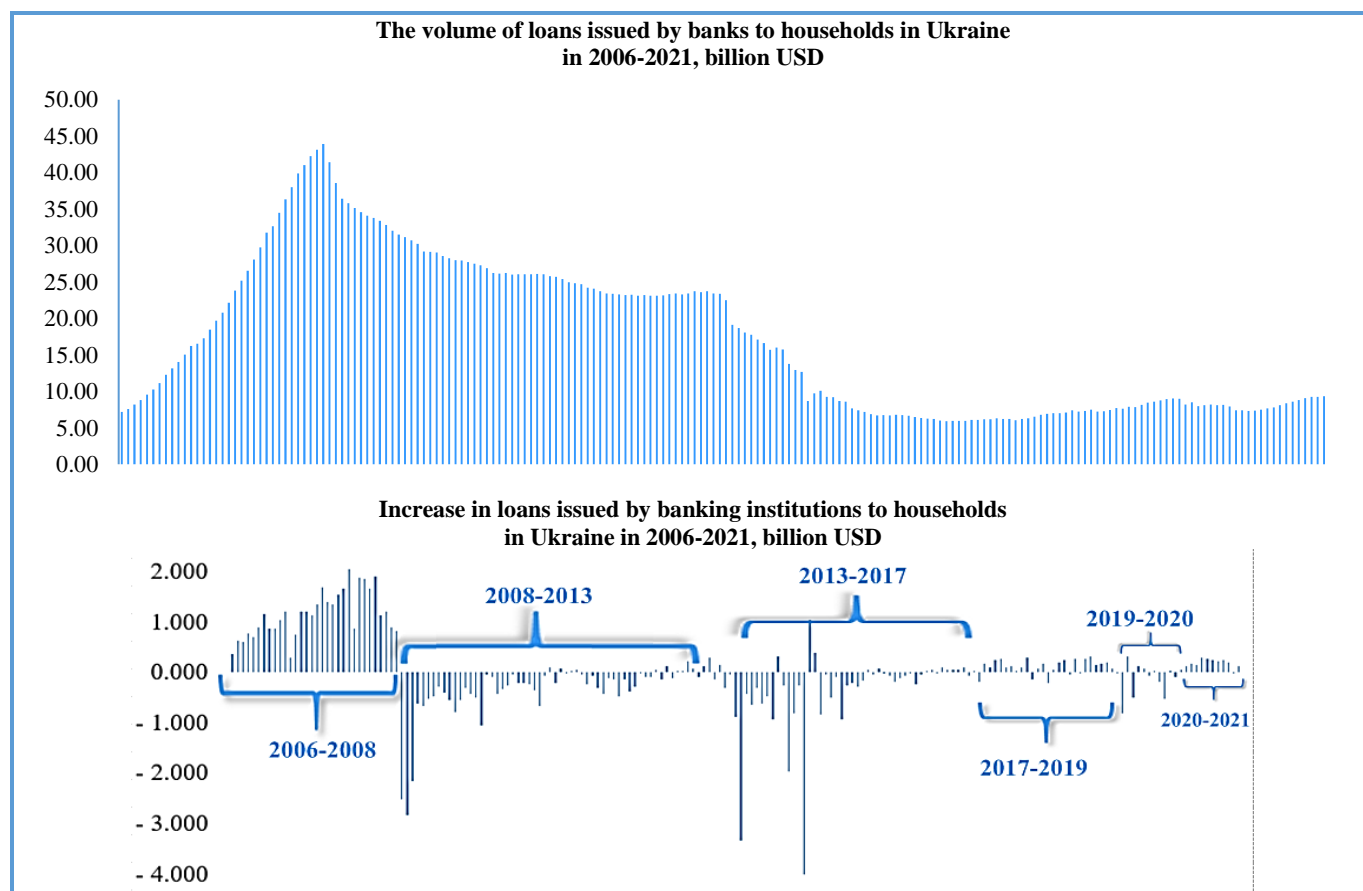
Let us consider in more detail the peculiarities of credit behavior of households in the periods of the described macroeconomic instability in Ukraine. We immediately note that in the article we consider credit behavior as a generalized model of the households' behavior in the credit services market, since it is quite clear that there are a significant number of models of such behavior that can describe the attitude of certain groups of economic entities to credit services, taking into account the terms, type currencies, targeting of loans, etc. Also, different types of models of credit behavior of households are characteristic of different regions of the country, depending on the age of borrowers, their income, place of residence, specifics of work, etc. However, the very mechanism of the formation of any type of model of such behavior is quite similar. In Figure 3, the scheme of the credit behavior formation of households is presented.

Analyzing the information of Figure 3, it can be stated that credit behavior of households is formed on the basis of their awareness of the need for credit funds, which may be related to the need to purchase goods, develop business activities, purchase real estate, and transport. There can be many ways of using loans from credit institutions. Because the needs of any economic subjects are unlimited, and financial resources are always insufficient to satisfy them.

In this way, households form a demand for credit resources, and therefore in a market economy there will be a supply of such funds. The development of the credit services market proves that such processes are really developing effectively and the outlined market is quickly adapting to the new conditions of economic development. However, not all financial institutions and their clients succeed in this. For example, after the financial crisis of 2007-2008, economy of Ukraine suffered very serious

consequences and experienced a sharp decline. This crisis especially affected the functioning of the country's financial system and, in particular, the financial services market. Until 2007, this market developed at an extremely fast pace, new banking and non-banking institutions constantly appeared in the country, and foreign investors actively invested in their activities. After 2007-2008, the financial services market practically stopped in its development, financial institutions declared significant losses, everyone stopped lending. By the way, this crisis also arose in the credit services market. After the devaluation of the national currency under the influence of the global financial crisis from UAH 5 for 1 USD to 8 UAH for 1 USD, the number of borrowers who took foreign currency loans from financial institutions and could service them decreased sharply, which had a ripple effect on the functioning of the entire financial services market. During this period, households in Ukraine faced the first financial crisis and its consequences.

However, gradually, against the background of significant losses of the banking system, the declaration by banks of large amounts of problematic credit debt and the formation of corresponding reserves for it, non-bank credit institutions began to develop quite quickly in Ukraine. a certain transformation of credit behavior of households took place. Since 2009, pawnshops and financial companies have been active in the credit services market, which developed at an extremely fast pace and gradually began to compete with banks primarily in the field of consumer lending and cash loans. To date, after the legislation improvement in the field of regulation of the activities of these institutions, their activity has decreased, but a significant number of pawnshops and financial companies actively provide lending services.



Source: compiled by the authors based on [21]

Figure 4. Volumes of loans granted to households by banking institutions in Ukraine in 2006-2021

Despite active development of non-bank credit institutions in Ukraine after 2009, commercial banks today remain the largest creditors of the Ukrainian economy. The specific weight of non-bank credit institutions in the total volume of loans issued to economic entities remains insignificant. That is why it is expedient to study the generalized model of lending behavior of households in Ukraine, primarily based on the results of the research of the activities of banking institutions in the direction of lending to these economic entities. Through the analysis of relevant statistical information, it is possible to describe the main parameters of such a model and substantiate the prerequisites for its formation. At the same time, it becomes possible to learn the impact of individual economic indicators on the formation of credit behavior of households. We will present in more detail the current trends in bank lending to these economic entities in Ukraine in 2006-2021. The relevant information is presented in Figure 4.

Thus, analyzing the data of Figure 4, it can be asserted that the trend of this indicator during 2006-2021 is unstable and highly variable, which is caused by the presence of difficult economic conditions for the development of lending to households in certain periods. By the end of 2021, the volume of crediting of these entities in Ukraine amounted to 9.35 billion dollars. In fact, according to this indicator, the country came close to the indicator of 2006, the pre-crisis period of active development of the financial sector. That is, lending to the population remains at a rather low level. If we consider the volume of lending in the national currency, we can observe a positive trend of increasing the volume of such loans. However, the real volume of loans received by households is low. The largest amount of such loans was observed in 2008, by the middle of this year it amounted to 43.94 billion USD, that is, more than five times the figure for 2021. The trend of lending to households also shows a constant decline in lending by banking institutions. Of course, there are also volumes of lending that were provided by non-banking institutions. However, this volume is insignificant from the point of view of the development of the country's economy in general.

In Figure 4, the dynamics of changes in the volume of lending to households during 2006-2021 is presented, that is, how the credit portfolio of commercial banks grew each month during the specified period. The presented data show that the greatest increase occurred precisely in 2006-2008, that is, before the global financial crisis, the consequences of which Ukraine felt a little later, since at that time it was not actively involved in the world economy. However, active development of lending to the population gradually decreased. To a large extent, this development was due to significant volumes of mortgage lending, which banks actively issued to the population, even to those households that did not always have a positive credit history and could service such loans. Foreign banks and banks with a large specific weight of foreign capital played an important role in mortgage lending. As a result, such loans became the main cause of the crisis situation in the financial services market of Ukraine.

In 2009-2013 (crisis elements began at the end of 2008), the country saw a gradual recovery of lending to individuals. After a significant drop in 2008, banks began to resume such lending in 2012-2013. However, not all financial institutions actively lent to households. Mortgage lending was completely suspended. Moreover, lending in foreign currency was provided exclusively to those economic entities that received foreign currency. Gradually, from 2012, banking institutions in Ukraine began to declare profits from their own activities.

However, the period starting in 2014 was the most difficult period of the lending development. As already noted, it was a difficult period for the country as a whole, and it affected the development of lending to households. During 2014-2017, the volume of such lending in the country decreased rapidly. At the end of 2013, 23.27 billion USD were recorded, at the end of 2021, as noted, 9.35 billion USD. That is, for eight years, crediting did not recover to the pre-crisis level. This is generally due to the following reasons:

- 1) a decrease in the real incomes of households and their level of creditworthiness;
- 2) annexation of Crimea, the war in Donbas led to the closure of bank branches in these regions and, accordingly, a decrease in the number of clients, many of whom stopped paying for the loans they took before the conflict;
- 3) banking institutions temporarily stopped lending to economic entities in general;
- 5) difficult macroeconomic situation had the most negative impact on lending to households;
- 6) active decrease in the number of banking institutions as a result of the reform of the banking system also reduced the supply of credit funds, etc. reasons.

After 2017, crediting to households gradually recovered, some banking institutions began to offer mortgage products to households. In general, during this period, banking institutions also increased the volume of consumer loans, credit card limits increased. However, the cost of credit funds became a restraining factor in crediting during this period. Given the increased lending risks, financial institutions offered their own products with fairly high interest rates. For example, non-bank credit institutions provided small loans, but sometimes the real interest rate on them was 300-400% annually. And such products found their buyers. These institutions activated faster lending to households. Later, banking institutions also gradually began to offer customers similar credit products, and the cost of loans was quite often 200-300% annually. Commercial banks, taking into account their greater financial capabilities than non-bank institutions, actively offered clients large loans, providing 200-300 thousand UAH for several years. However, there were already few customers for these loans, given the number of such offers. During this period, consumer lending, the granting of loans for household needs, the purchase of household appliances, etc., is actively developing. This segment began to develop most actively. In Figure 5, statistical data on the direction of lending to households by banking institutions in Ukraine in 2006-2021 are presented.

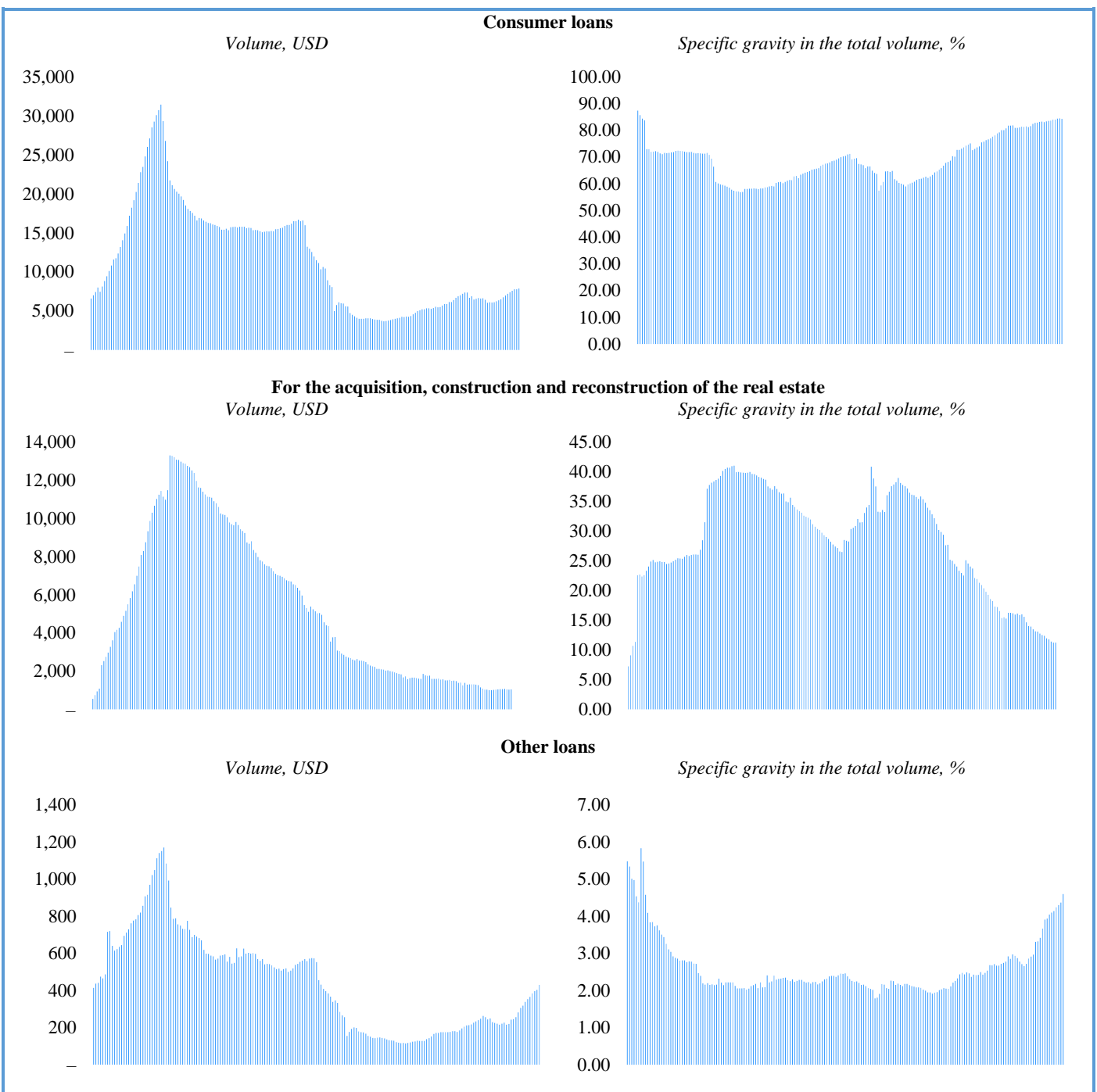
So, the presented information confirms that in recent years, after a significant drop in lending to individuals, its recovery occurred primarily due to the growth of the specific weight of consumer loans in the total volume of loans provided by banking institutions to households. If in 2016 this indicator was 59.95%, then in 2021 it will be 84.18%. At the same time, the specific weight of loans issued for the purchase, construction and reconstruction of real estate decreased significantly in 2016-2021 (more than six years) from 39.94% in 2016 to 11.23% in 2021. The reduction is significant. As shown by the statistical information of Figure 5, the volume of lending in various directions of the use of loans by households decreased significantly. A difficult situation remains with mortgage lending. Although the state has tried to support this type of lending to households in recent years by introducing new conditions and mortgage programs, the result remains unsatisfactory.

The 2017-2021 period is a period of permanent growth and decline in lending to households. This period is characterized by the signs of macroeconomic stability. It is during this period that there is a general increase in the volume of household loans issued by banks. At the same time, there were periods when the growth of such loans was negative. In these years, COVID-19 had a certain impact on the development of lending to households, which led to the deterioration of the economic development of Ukraine. However, in general, the outlined direction of lending was actively developing.

A feature of credit behavior of households in Ukraine, the feature that distinguishes them from credit behavior of households in developed countries, is their tendency to take short-term loans, primarily in the national currency. In Figure 6, information on the currency and terms of lending to households by banking institutions is presented. Let's analyze

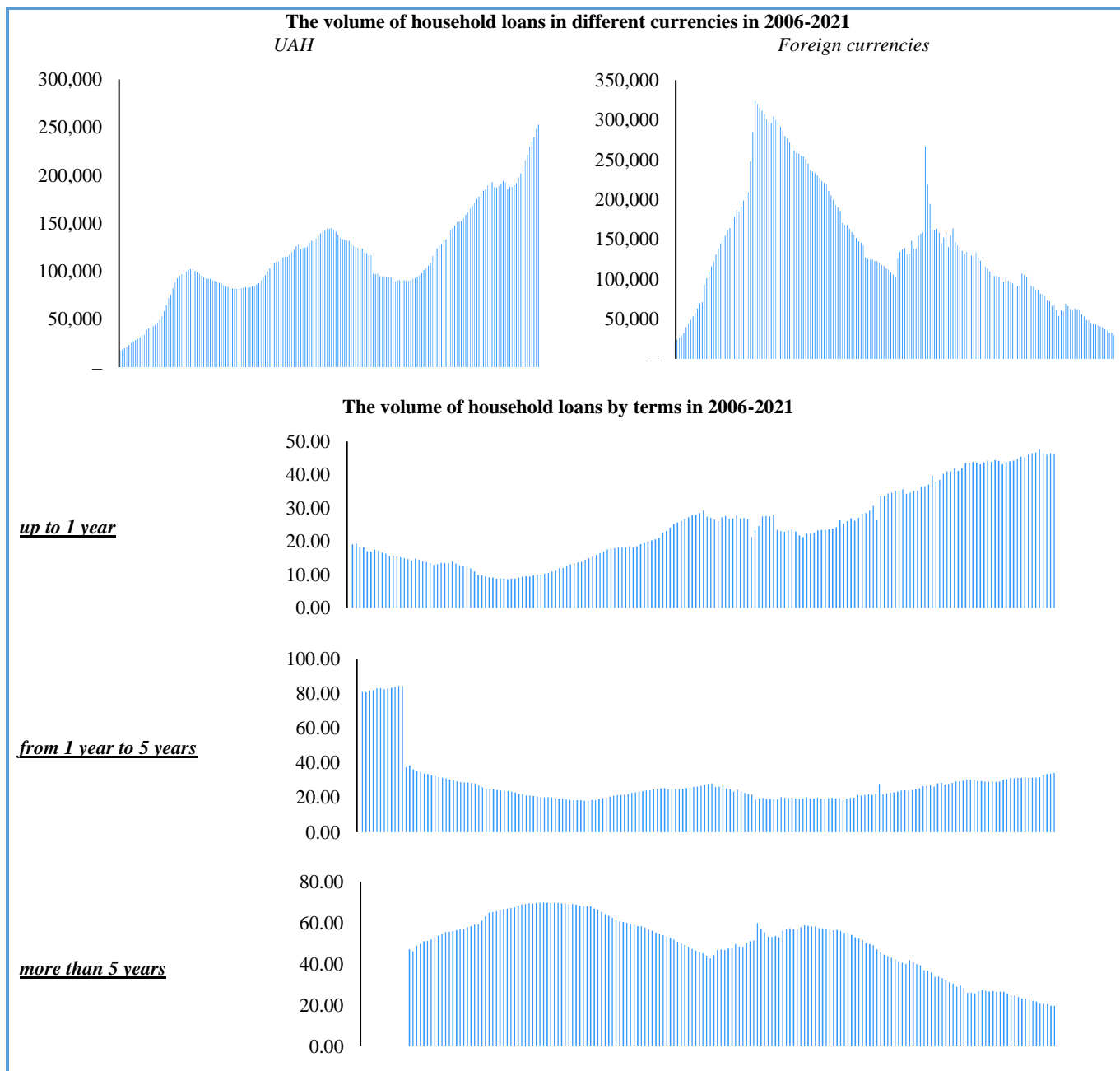
the presented data in more detail.

Taking into account the causes of the financial crisis in Ukraine in 2007-2008, which, as noted, were partly connected with significant volumes of the foreign currency lending to households that did not have access to foreign currency income, since then the desire to receive loans in foreign currency among Ukrainians has gradually decreased. Also, in this direction, legislative norms regarding the prohibition of crediting the population in foreign currency without confirmation of the presence of foreign currency income of individuals played an active role. It was this situation that led to a gradual decrease in household loans in foreign currency. If at the end of 2008, the volume of such loans amounted to UAH 323.74 billion, then by the end of 2021 – UAH 30.23 billion (calculated at the official foreign currency loan rate).



Source: compiled by the authors based on [21]

Figure 5. Directions of lending to households in Ukraine in 2006-2021



Source: compiled by the authors based on [21]

Figure 6. Analytical information on the currency and term of lending to households by banking institutions in Ukraine in 2006-2021

If we consider the terms for which households most often wish to receive loans, loans up to 1 year occupy the largest specific weight in the total volume of lending to households. By the end of 2021, their share in the structure was 46.11%, the share of loans from 1 to 5 years – 34.18% (Figure 6). At the same time, in 2006-2013, the specific weight of loans for more than 5 years was 50% or more in the total structure of loans issued to households.

Macroeconomic instability in Ukraine also contributed to the fact that most household loans are short-term. These are the loans that are issued in large numbers per year for the purchase of consumer goods that not all households are able to purchase immediately. A significant part of such loans are also issued for more than one year. At the same time, the specific weight of long-term loans is insignificant and will decrease, as households are not sure of the stability of their own financial position in the long term, and banks are not always sure that

clients will be able to repay long-term loans on time. This situation is partly due to the historical features of the development of lending to households, credit risks and their consequences for all participants in credit relations.

The war of 2022 crossed out the entire development of lending to households. As evidenced by the historical development of Ukraine, the country's credit services market will feel the consequences of this aggression for a long time. After the war, commercial banks and other financial institutions stopped lending to households and began actively working with clients to restructure their debts. In general, by the middle of 2022 (after five months of war), the following features of the functioning of the defined market and signs of credit behavior of households can be distinguished:

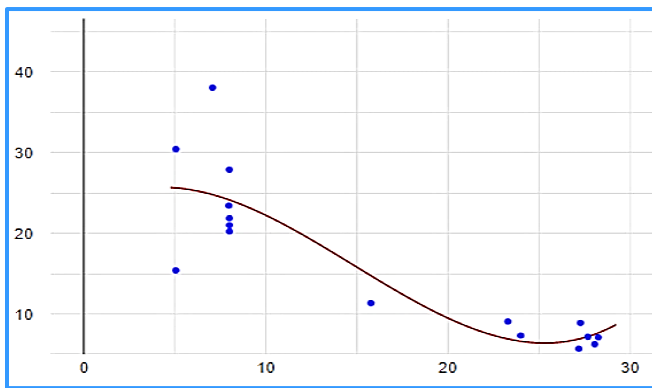
1) short-term suspension of lending to households by banking institutions and its partial recovery after three months of war;

- 2) active work of banking institutions on credit debt, carrying out loan restructuring, especially for large loans;
- 3) at the legislative level, it was forbidden to charge interest to households for loans issued;
- 4) stoppage of work of a significant number of bank branches that appeared in the occupied territories, which undoubtedly affected the credit activity of banking institutions;
- 5) a difficult situation with loans from customers who are in the occupied territories and are unable to make payments in accordance with the credit agreement, even with the availability of funds;
- 6) the process of closing banking institutions, whose capital participants are residents of the Russian Federation, has begun, which also directly affects general development of the credit services market;
- 7) increasing requirements for the creditworthiness of households against the background of rising unemployment,

inflation and a significant devaluation of the hryvnia is already restraining the provision of loans to clients.

Thus, taking into account what has been outlined, it is quite possible to state that today another stage of changes in the credit behavior of households is taking place, the main reason for which is macroeconomic instability in Ukraine, which is primarily caused by military aggression.

We will conduct a more detailed analysis of the impact of macroeconomic factors on the transformation of credit behavior of households in Ukraine. For this, we will use the methodological provisions of regression analysis, namely, we will build regression models of the influence of individual macroeconomic indicators on changes in the volume of lending to individuals by banking institutions based on arrays of statistical information. We will process the data using an online program Mathhelpplanet. The results of such modeling are presented in Figure 7.

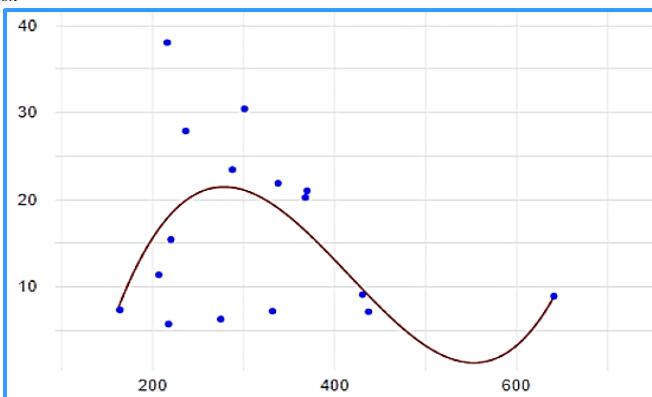


The influence of the national currency on the volume of lending to households by banking institutions

$R = 0,8693$;
 $R^2 = 0,7556$;
 $F = 12,37$ (critical value: 3,49).

VCr_{housh} – volume of household loans issued by banking institutions;
 ExR – exchange rate of the national currency.

$$VCr_{housh} = 0,0042 * ExR^3 - 0,19 * ExR^2 + 1,37 * ExR + 22,89$$

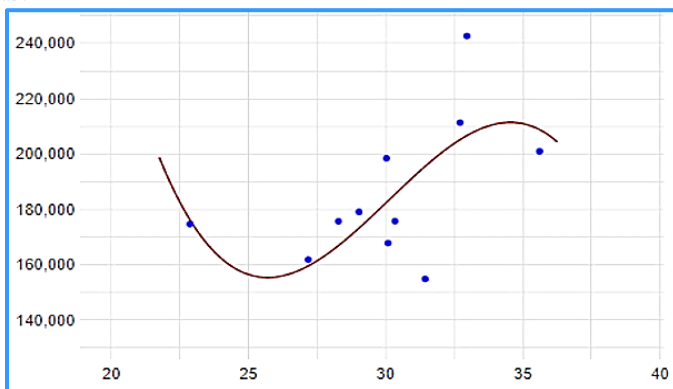


The influence of the average salary on the volume of lending to households by banking institutions

$R = 0,4711$;
 $R^2 = 0,222$;
 $F = 1,14$ (critical value: 3,49).

$AvSal$ – the size of the average salary.

$$VCr_{housh} = -0,0024 * AvSal^2 + 0,9006 * AvSal - 82,93$$



The influence of the value of credit resources on the volume of lending to households by banking institutions

$R = 0,6505$;
 $R^2 = 0,4321$;
 $F = 1,71$ (critical value: 4,35).

CrR – the level of interest on credit resources.

$$VCr_{housh} = -161,9 * CrR^3 + 14631,26 * CrR^2 - 431234,34 * CrR + 4322483,73$$

Source: compiled by the authors based on [21]

Figure 7. Regression models of the impact of macroeconomic indicators on the volume of bank lending to households

To carry out the impact of macroeconomic indicators on the volume of loans issued to households, we will build the following models:

1) the influence of the national currency (ExR) on the volume of lending to households by banking institutions (VCr_{housh});

2) the influence of the average salary ($AvSal$) on the volume of lending to households by banking institutions (VCr_{housh});

3) the influence of the value of credit resources (CrR) on the volume of lending to households by banking institutions (VCr_{housh}).

Thus, from the conducted simulation, the results of which are presented in Figure 7, the following conclusions can be drawn. First of all, the volume of lending depends on the exchange rate of the national currency. This is true. Having analyzed a significant period of the development of the credit services market, it can be unequivocally stated that the rate of its development has never decreased without the devaluation of the national currency of Ukraine. At the same time, the influence of the indicators of the average salary and the loan rate on the volume of lending is less strong, which can be explained by a more complicated correlation between the outlined parameters from an economic point of view.

The average salary is a generalized indicator that is generally calculated within the country. In such a case, it is quite clear that after each crisis, after a bad credit experience, a significant number of households refused to take loans, and the increase in their volume occurred at the expense of the increase in the amount of loans granted to individual households. At the same time, these were mostly households with more than average wages.

The ambiguous influence of the level of the credit rate, denominated in the national currency, proves the presence of the disproportion in the development of lending to households, when the increase in the cost of loans does not always lead to a decrease in the demand for such loans. Lending to households in 2017-2021 it confirms. In 2011, the average level of the credit rate was 22.87%, and in 2021 - 32.96%, in 2020 - 35.61% in general.

5. CONCLUSIONS

The article provides a detailed analysis of the peculiarities of the credit behavior formation of households in Ukraine and its transformation as a result of changes in the main parameters of the macroeconomic environment. It was established that banking institutions are the largest creditor of households. This substantiated the expediency of conducting an analysis based on the volume of lending to the population by these financial institutions. The article describes the process of forming credit behavior of households and found that its formation takes place taking into account factors, a significant part of which is formed on the basis of external influences, including the economic environment in which these business entities operate.

Analysis of the macroeconomic situation in Ukraine in 2006-2021 made it possible to establish the features of the country's economic development, describe crisis situations, their causes and consequences for both the country's economy and the financial sphere. As a result, it was established that the most destructive impact on the economy development in Ukraine occurred during complex economic and political events in the history of the country, namely: the financial and economic crisis of 2007-2008, the Revolution of Dignity, the annexation of Crimea and the war in Donbas. It is also

substantiated that the 2022 war will have the most complex consequences for economic development of Ukrainian society during the entire period of Ukraine's independence, which will directly affect the functioning of the credit services market and the activities of banking institutions.

Analysis of credit behavior of households in 2006-2021 allows us to draw conclusions that such behavior depends on the peculiarities of the macroeconomic environment in which such entities carry out their activities, but its transformation to a rational model takes place for a long period after the crisis events. A detailed examination of the essence of the model of modern credit behavior of households in Ukraine gives grounds to assert that this model is characterized by short-term lending in the national currency in the vast majority of cases for consumer needs. That is, lending is focused on meeting the temporary household needs of households. It is in this segment of the credit services market that there is the greatest competition between financial institutions for customers.

It is quite difficult to predict further changes in the model of credit behavior of households in the current conditions of the war with Russia, it is impossible to propose measures to intensify lending, taking into account the difficult situation in ensuring the macroeconomic stability of the country and the need to ensure, first of all, the safety of the population. As noted in the article, today commercial banks in Ukraine continue to provide loans to households, despite the difficult conditions of the general development of the financial services market. At the same time, the National Bank of the country is trying to ensure the stability of the national currency, curb the inflation rate and ensure the appropriate amount of gold and foreign exchange reserves through monetary policy measures. In this way, measures are implemented that, on the contrary, restrain the development of lending, but allow the functioning of the country's financial system to be balanced.

The article carries out a statistical analysis of the impact of individual economic indicators on the volume of lending to households by banking institutions. As a result, it was established that the change in the national currency exchange rate has the greatest impact on the development of such lending. This conclusion is also confirmed by the fact that during the past fifteen years, crises in the credit services market have never been accompanied by sharp negative changes in the country's foreign exchange market.

Further research in this area may be related to conducting a more thorough analysis of individual models of credit behavior of households in their various groups. The issues of differences between models of such behavior among households living in different regions of Ukraine and in different territories remain especially interesting. The analysis of the specifics of the credit behavior of young people in Ukraine, the determination of their needs in credit resources, and their relationship to loans are also understudied.

A separate area of research in this direction can be a detailed analysis of monetary policy models, which must be carried out by central banks in order to intensify lending to households in various conditions of economic development. This especially applies to measures that must be implemented in extremely difficult and turbulent conditions of the development of financial systems.

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