

JEL Classification: E 50; E 51; E 59; G 21

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## THEORETICAL AND METHODOLOGICAL ASPECTS OF THE FUNCTIONING OF THE PROBLEM CREDIT MANAGEMENT SYSTEM IN BANKS

The article examines the theoretical, legislative, normative and methodical foundations of the organization of the problem credit management system in domestic banks. The purpose of the study is to develop the fundamental principles of the functioning of the universal system of problem credit management in Ukrainian banks, which contains a comprehensive nature. The systematization of literary sources and approaches to solving this problem shows that until now there is no single approach to the definition of "problem loans" and their classification in the economic literature and official sources of international financial institutions, in addition, in the current realities of the domestic banking system functioning, there is a need for systematization, clarification and additions to the methods, tools and principles of problem credit management. The urgency of solving this scientific problem lies in the fact that the formed system of problem credit management is comprehensive and universal in nature and will allow domestic banks to increase the effectiveness of existing problem credit debt management systems. The study of the problem covered in the article is carried out in the following logical sequence: definition of the concept of "problem loans" based on the generalization and comparative analysis of approaches interpreted in official sources of international financial institutions and scientific publications of domestic scientists; analysis of the dynamics of the volume and share of non-performing loans in the portfolio of the banking system of Ukraine and identification of the reasons for such changes; development of a problem credit management system, which is comprehensive and universal in nature. The methodological toolkit of the research was a set of complementary methods: generalization and comparative analysis, analysis and synthesis, system analysis, logical generalization, etc. The object of the study is portfolios of problem loans of domestic banks, as well as a set of methods and tools for their management. The article presents the results of a systematic analysis and logical generalization, which serve as the basis for the formation of a system of managing problem loans in banks, which involves a combination of strategy, purpose, principles, stages, methods and tools of the bank's work with problem debt. The results of the study can be useful for domestic banks and are aimed at increasing the efficiency of the organization of work with problem loans in banking structures.

**Key words:** banks, non-performing loans, problem credit debt, problem loans, problem loan management system.

## ТЕОРЕТИКО-МЕТОДИЧНІ АСПЕКТИ ФУНКЦІОНУВАННЯ СИСТЕМИ УПРАВЛІННЯ ПРОБЛЕМНИМИ КРЕДИТАМИ В БАНКАХ

У статті досліджено теоретичні, законодавчо-нормативні та методичні основи організації системи управління проблемними кредитами у вітчизняних банках. Метою дослідження є розробка фундаментальних засад функціонування універсальної системи управління проблемними кредитами в банках України, що містить комплексний характер. Систематизація літературних джерел та підходів до вирішення цієї проблеми свідчить, що дотепер в економічній літературі та офіційних джерелах міжнародних фінансових установ так і немає єдиного підходу до дефініції «проблемні кредити» та їх класифікації, крім того в теперішніх реаліях функціонування вітчизняної банківської системи виникає необхідність в систематизації, уточненні та доповненні методів, інструментів і принципів управління проблемними кредитами. Актуальність вирішення даної наукової проблеми полягає в тому, що сформована система управління проблемними кредитами носить комплексний і універсальний характер і дозволить вітчизняним банкам підвищувати ефективність існуючих систем управління проблемною

кредитною заборгованістю. Дослідження висвітленої у статті проблеми здійснюється в такій логічній послідовності: визначення поняття «проблемні кредити» на основі узагальнення та порівняльного аналізу підходів, що трактуються в офіційних джерелах міжнародних фінансових інституцій та наукових публікаціях вітчизняних науковців; аналіз динаміки обсягів та частки непрацюючих кредитів у портфелі банківської системи України та виявлення причин такої зміни; розробка системи управління проблемними кредитами, яка носить комплексний і універсальний характер. Методологічним інструментарієм дослідження став комплекс взаємодоповнюючих методів: узагальнення та порівняльного аналізу, аналізу та синтезу, системного аналізу, логічного узагальнення та ін. Об'єктом дослідження виступають портфелі проблемних кредитів вітчизняних банків, а також сукупність методів та інструментів управління ними. У статті представлено результати системного аналізу та логічного узагальнення, що виступають основою формування системи управління проблемними кредитами в банках, яка передбачає поєднання в собі стратегії, мети, принципів, етапів, методів та інструментів роботи банку з проблемною заборгованістю. Результати дослідження можуть бути корисними для вітчизняних банків і спрямовані на підвищення ефективності організації роботи з проблемними кредитами в банківських структурах.

**Ключові слова:** банки, непрацюючі кредити, проблемна кредитна заборгованість, проблемні кредити, система управління проблемними кредитами.

**Introduction.** Nowadays, the financial and economic system of Ukraine is under the influence of growing negative challenges caused initially by the global pandemic of COVID-19, which has been going on for the third year in a row, and the current full-scale military aggression of the Russian Federation against Ukraine, which causes a drop in GDP, a stoppage of business operations in most the territory of the country, the outflow and cessation of the inflow of new foreign investments to the Ukrainian market, a significant increase in inflation and unemployment, etc. The risk of non-repayment of loans and the growth of the share of problem debts in the credit portfolios of banks is increasing, which may threaten the activation of credit processes in Ukraine and the financial stability of the domestic banking system as a whole. Therefore, the problem of increasing the efficiency of management of problem loans in domestic banks is becoming increasingly relevant and important for the stability of the financial sector.

**Literature review.** Issues of problematic bank loans are always in the center of attention of economists-scientists, various analysts, experts-practitioners working in the banking sector. Research into the essence and methods of managing problematic bank loans is revealed in the works of such foreign and domestic scientists as T. Bolhar, U. Vladychyn, I. Zaitseva, K. Zatvornytskyi, O. Krukhmal, N. Mostovenko, T. Korobchuk, A. Moroz, R. Shevchenko, I. Dubyk, L. Prymostka, Rose Peter S., O. Yaremenko and many others. Despite the significant efforts of scientists in this direction, the gradual reform of the banking sector and bringing the regulatory framework into line with European standards, as well as the presence of new challenges for the banking system, require a review of the policy of managing problem loans in banks and the need for new research in this area.

**The purpose of article.** The purpose of the study is to develop the fundamental principles of the functioning of the universal system of managing problem loans in Ukrainian banks, which contains a complex nature.

**Research methodology and methods.** The methodological toolkit of the research was a set of complementary methods: generalization and comparative analysis – to clarify the essence of the concept of "problem loans", analysis and synthesis, causal analysis – to identify the reasons for changes in the share and volume of problem loans in banks' loan portfolios, system-analytical, logical generalization – for the development of a comprehensive system for managing problem loans in domestic banks, etc.

**Generalization of main statements.** For the sustainable economic development of Ukraine, an important factor is the development of the banking system, in particular bank lending. However, no commercial bank could avoid problem loans in its activities. Today, the

management of such loans requires not only highly qualified and specially trained specialists, but also new strategies and methods of working with them.

Recently, many studies have appeared in the modern economic literature devoted to the management of problem loans in the banking sector. However, the ambiguity of interpretations of the essence and approaches to the classification of problem loans, differences in approaches among various financial institutions and individual economists-scientists, continues to draw attention to this issue. The results of the study showed that until now there is no single definition of the concept of "problem loans" in the economic literature and official sources of international financial institutions. It is generally accepted in the world practice of financial institutions to use the term "non-performing loans" (NPL) instead of the definition of "problem loans". The most typical approaches to defining these concepts are summarized in Table 1.

Table 1. Approaches to the interpretation of the concepts of "problem loans" or "non-performing loans"\*

Source, author	Explanation of the concept
<i>Interpretation in official sources of international financial institutions</i>	
International Monetary Fund (IMF)	"A loan is nonperforming when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons – such as a debtor filing for bankruptcy – to doubt that payments will be made in full" ( <i>IMF, 2005, pp. 4, 9</i> ).
World Bank Group	"Non-performing loans are loans that are more than 90 days past due or are unlikely to be repaid in full without collateral" ( <i>World Bank Group, 2021, p. 3</i> ).
Basel Committee on Banking Supervision, Bank for International Settlements (BIS)	"Problem loans are credit products that have significant violations of the terms of fulfilling obligations to the bank, a significant deterioration in the debtor's financial condition, a significant deterioration in quality, or a complete loss of collateral" ( <i>BIS, 2022</i> ).
European Central Bank	"NPL (non-performing loans) – loans that are not intended for trade, which meet one or both of the following criteria: a) material loans that are overdue for more than 90 days; b) it is considered that the debtor is unlikely to be able to fully repay his credit obligations without realizing the security, regardless of the presence of any overdue amount or number of overdue days" ( <i>European Central Bank, 2017, p. 99</i> ).
National Bank of Ukraine (NBU)	"A non-performing asset / loan is an asset for which the debt repayment delay exceeds 90 days (30 days for debtor banks), or for which the counterparty is unable to ensure the fulfillment of obligations without collecting collateral" ( <i>National Bank of Ukraine, 2017, p. 2</i> ).
<i>Separate approaches of modern scientists</i>	
T. Bolhar	A problem loan is considered "a loan for which one or more payments have not been made on time, or circumstances have arisen that raise doubts about the timely and full repayment of the loan due to the financial instability of the borrower, insufficient security or unsecured credit, or due to other reasons that affect the possibility non-return of the loan and interest for its use by the borrower" ( <i>Bolhar, 2013, p. 143</i> ).
O. Krukhmal L. Pavlenko, Ya. Tarasenko	"...a problem loan, from the point of view of management, can be considered as a loan for which certain measures (administrative, organizational, legal) aimed at returning the loan, preventing losses on the loan or minimizing losses from non-repayment must be carried out" ( <i>Krukhmal et al., 2021, p. 58</i> ).
N. Mostovenko, T. Korobchuk	"Problem credit is a debt in the servicing of which the bank has detected and recorded signs of problems (financial and non-financial), as a result of which there is a high probability of late payment of the main part or accrued interest, or the probability of non-payment of the principal debt and/or accrued interest" ( <i>Mostovenko &amp; Korobchuk, 2015, p. 392</i> ).
A. Moroz, R. Shevchenko I. Dubyk	"Problem loans should be understood as debts due to bank loans for which one or more payments have not been made on time and as a result of other circumstances, there are reasons to doubt the repayment of the loan in general" ( <i>Moroz et al., 2009, p. 276</i> ).

\* Summarized by the author.

Therefore, the analysis of the given interpretations allows us to state that the main signs, according to which the given loan is transferred to the "problematic" category, are the presence of overdue payments (interest and/or the principal amount of the debt) within the established period (usually more than 90 days) and the appearance of doubts at the bank regarding the borrower's ability to repay the debt in full without collecting collateral.

In other words, the author understands the concept of "problem loan" as a bank loan, according to which the bank acknowledges the fact of the existence of a problem in the relationship between it and the debtor-borrower, both with regard to making timely payments under the given credit agreement, and the financial ability or desire of the borrower in full repay this loan in the future without the bank taking appropriate measures.

The National Bank of Ukraine uses the term "problem loans" in the context of the concept of "problem assets", which, in addition to the loans that make up their basis, also include funds on demand from other banks, financial receivables (except receivables from settlements with bank employees) and debt securities (*NBU Regulations № 97, 2019*). According to the legislation of Ukraine, "problem assets are the aggregate amount of potentially problematic assets, non-performing assets, seized property" (*NBU Regulation № 97, 2019*). Where potentially problematic assets include assets that have signs of potential problems, defined by the NBU Regulation № 97 and assets that are non-performing based on the signs defined by the NBU Regulation № 351, "if the bank, based on judgment, proved that there is no need to take settlement measures debtor's debts by a work unit or a person responsible for work with non-performing assets (NPA)" (*NBU Regulation № 97, 2019; NBU Regulation № 351, 2016*).

The concept of "problem loan" is often used together with the concept of "problem credit debt", which, according to such domestic scientists as N. Mostovenko and T. Korobchuk, has a different content, and is interpreted by them as "a set of loans that are not serviced by debtors, or are serviced in violation of the volumes and terms, or the debtor has experienced significant changes (deterioration) in the conditions of operation and quality of collateral" (*Mostovenko & Korobchuk, 2015, p. 394*). These authors include the following types of loans as part of problem credit debt: bad loans, overdue non-loss loans, overdue loss loans, which collectively belong to the category of "actually problem loans", and the category of "potentially problem loans", which includes self-loans under enhanced control and refinanced loans in the early warning stage (*Mostovenko & Korobchuk, 2015, p. 394*). We consider somewhat similar the approach to the classification of problem loans by other authors of scientific works, in particular O. Krukhmal, L. Pavlenko, Ya. Tarasenko, who group problem loans into two groups from the point of view of their management, namely: "loans in the pre-problem stage", to which include loans at the enhanced control stage and loans at the early warning stage and "loans with recognized signs of problem", which include non-performing loans, defaulted loans and impaired loans (*Krukhmal et al., 2021, p. 59*).

As a result of the modernization of banking legislation in Ukraine and its harmonization with European standards, credit committees of domestic banks approve the classification of credit transactions by risk groups (*NBU Regulation № 97, 2019; NBU Regulation № 351, 2016*).

According to studies of the pre-war state of the banking sector of Ukraine, the share of non-performing loans in banks gradually decreased from 2018, while still remaining quite high (Fig. 1). Experts considered the main reasons for the high share of problem loans during the past years to be "the implementation of credit expansion, when the standards for assessing borrowers' solvency were low, and the rights of creditors were insufficiently protected, fraud in banks, including by management, the practice of lending to persons associated with the bank, mainly former bank owners who stopped servicing loans during the crisis, as well as the economic downturn caused by the 2014 crisis, the military conflict in Donbas, etc. (*Ukrainian Bar Association, 2022*).

In the last year, 2021, banks collectively managed to reduce the volume of problem loans by UAH 85.2 billion and reduce the share of NPLs from 41 % to 30 %. According to the NBU, "this happened due to the write-off of non-performing loans reserved by banks and the activation of lending" (*News of the NBU Media space*, 2022). For comparison, in most EU countries the share of non-performing loans does not exceed 5 %, only five countries have a higher rate. The withdrawal of banks with Russian capital from the market made it possible to further reduce the share of NPLs in the banking sector, which, according to the NBU, amounted to 26.6 % at the beginning of March 2022.

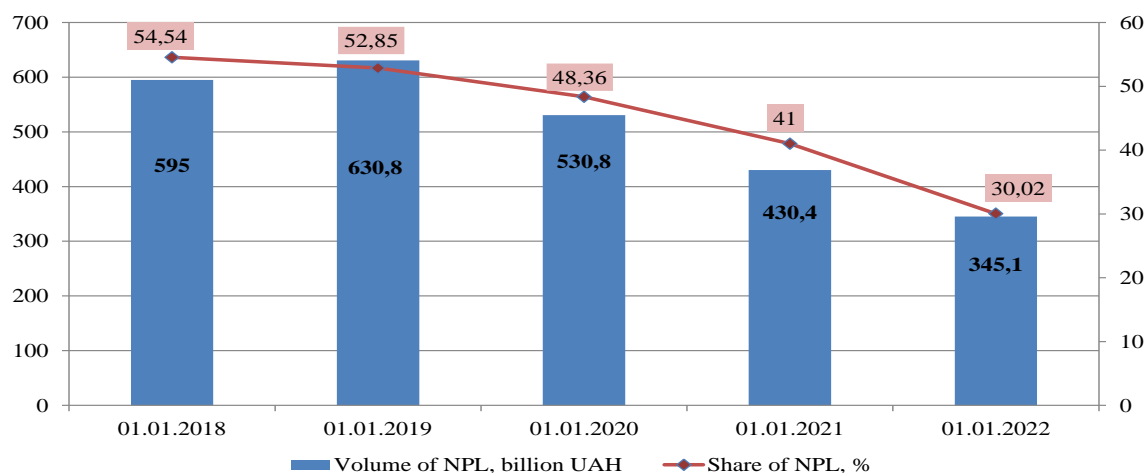


Figure 1. Dynamics of volumes and shares of non-performing loans (NPL) in the portfolio of the banking system, %\*

\* Compiled by the author based on sources (*Data of the NBU Supervisory Statistics*, 2022; *News of the NBU Media space*, 2022)

According to NBU statistics, the quality of loan portfolios in banks of all groups has improved in recent years. In particular, at banks with private capital and banks of foreign banking groups, if considered without Russian banks, the share of non-performing assets by the end of 2021 has become lower than 10%, which is a strategic goal for the NBU. State banks were also able to reduce their problem loans over the last year by UAH 56.2 billion, reducing their share of NPLs from 57.4 to 47.1 %. At the same time, they continue to accumulate more than 70 % of the total portfolio of non-performing loans, of which Privatbank accounts for more than 50 % (*News of the NBU Media space*, 2022).

The volume of problem loans of the corporate sector of the economy during 2017-2021 had a tendency to decrease, and decreased during this time by UAH 188.7 billion. At the same time, the share of non-performing loans still remained quite high – 36.1 % as of January 1, 2022. Lending to individuals in the country was less problematic compared to legal entities, but the share of problem loans also remained significant and reached almost 17 % at the beginning of 2022. Almost the entire portfolio of non-performing household loans is foreign currency loans, so banks actively used restructuring (transferring these loans to UAH), as well as selling these loans to collection companies, which made it possible to significantly reduce their volume and share compared to 2018.

With the beginning of a full-scale war on the part of the Russian Federation on the territory of Ukraine from February 24, 2022, which reduced the ability of the population and businesses to service their loans and led to a significant loss of collateral property, the volume and share of problem loans began to grow again (up to 29.7 % on 01.07.2022) (*Data of the NBU Supervisory Statistics*, 2022).



In order to ensure the stability and liquidity of the banking system during the period of martial law, the National Bank made temporary changes to a number of regulatory acts. In particular, temporary features of credit risk assessment were established to support banks in providing flexible terms of credit holidays for borrowers in a period of uncertainty. However, already in June 2022, with the gradual recovery of the economy, banks gradually returned to generally accepted approaches to credit risk assessment for a realistic assessment of their losses. In addition, the war made its corrections regarding the assessment of the condition of collateral in the territories that suffered or are suffering the consequences of military aggression. If the banks become aware of the loss or significant damage of the collateral from all the available information, this should be taken into account during the credit risk assessment. At the same time, the NBU introduced some easing of requirements for credit risk assessment, which will stimulate banks to carry out timely restructuring of loans to support solvent borrowers (*News of the NBU Media space*, 2022).

The effectiveness of the bank's work with problem loans is determined by the established system of management of problem loans, which is a dynamic system of interaction of the principles, stages, methods and tools of the bank's work with problem loans, aimed at achieving the priority goal of improving the quality of the loan portfolio in the context of the fastest and full repayment of borrowers' debts in front of the bank. Based on the results of the systematization and generalization of the minimum requirements established by the NBU for banks regarding the organization of the process of managing problem assets (*Regulations of the NBU № 97, 2019*), we have created a universal system for managing problem loans, which, in our opinion, is comprehensive and will allow banks to increase the effectiveness of existing problem credit debt management systems.

In the complex, the universal system of managing problem loans of the bank should include the following elements (see Fig. 2).

1. *Subjects (bodies) of problem credit management and the order of interaction between them.* Such entities are the bank's divisions at different organizational levels, involved in the process of initial assessment, monitoring of credit portfolio risks and settlement of problematic credit debt with a clear division of functions, duties and responsibilities: division of work with non-performing assets (NPA), division of risk management, regulatory compliance unit, internal audit unit and other units/committees if necessary to create them at different organizational levels of the bank.

2. *Current regulatory, methodological and software support for the process of managing problem loans.* For this purpose, the NBU developed Regulations aimed at "ensuring effective management of problem assets by banks of Ukraine, reducing the level and volume of such assets..." (*Regulation of the NBU № 97, 2019*) and "determining the amount of expected losses (losses) from active banking operations as a result of the implementation of credit risk" (*Regulation of the NBU № 351, 2016*). In order to document the process of managing problem loans, each bank develops detailed internal bank documents that must correspond to the adopted strategy for managing problem loans, and provide methods for determining the amount of credit risk based on active banking operations, assessing the financial condition and determining the class of the debtor, etc. Effective management of problem loans is also not possible without appropriate information and software. For this purpose, the employees of the relevant departments of the bank should closely interact with credit bureaus and IT specialists in the banking sector, actively use information technologies, in particular, automated credit scoring systems, etc.

3. *The strategy for managing problem loans* (as part of the strategy for managing problem assets), which provides for the development and implementation of a set of consecutive measures aimed at achieving the target indicators of reducing the levels and volumes of problem loans and seized property.

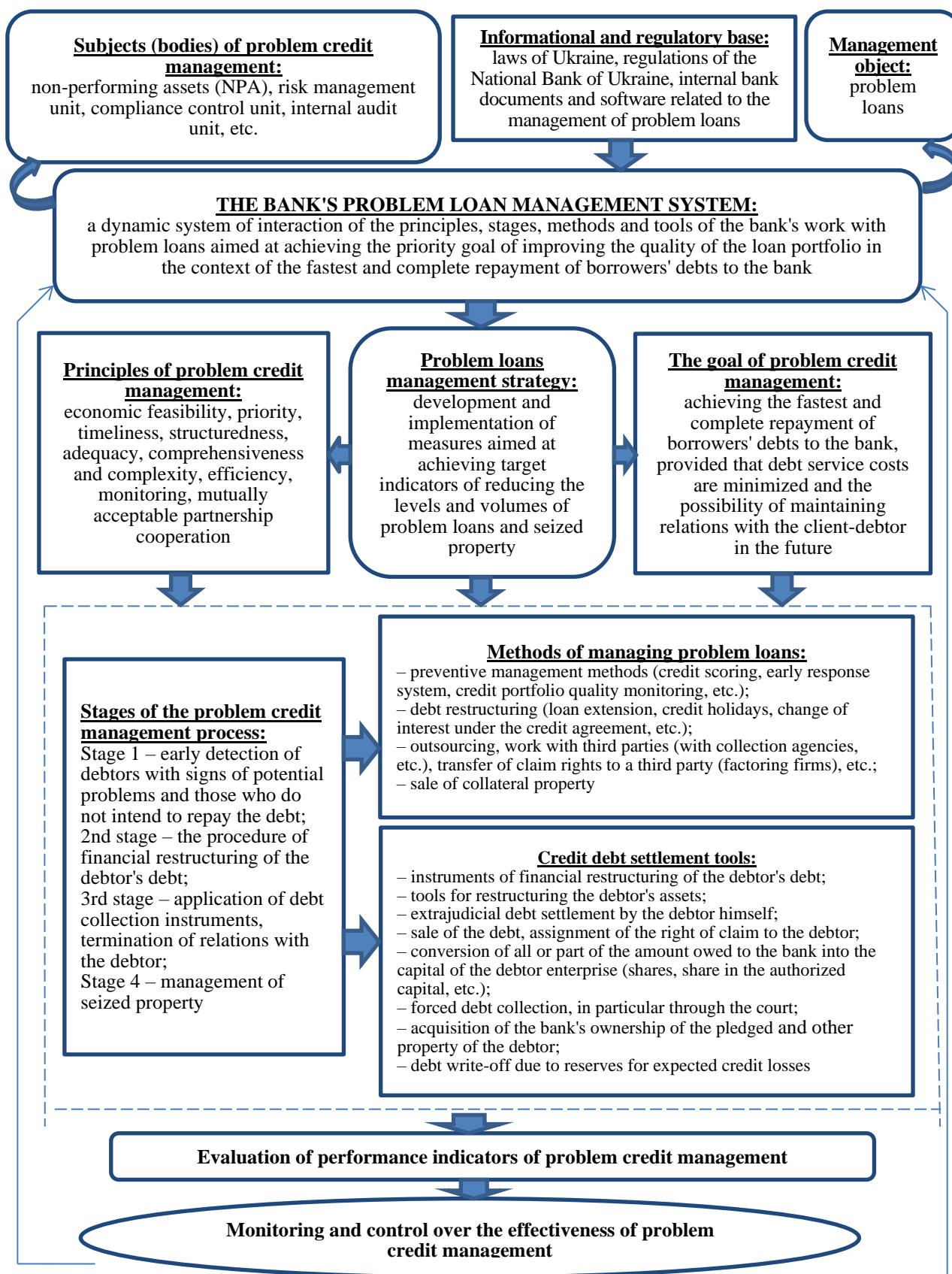


Figure 2. The bank's problem loans management system\*

\* Developed by the author taking into account the source (NBU Regulations № 97, 2019)

4. *Principles of problem credit management.* The main rule in the work of the bank's non-performing loan management services is compliance with the principles established by world practice. Taking into account maximum harmonization with EU standards, the NBU suggests that banks, when organizing the process of managing problem loans, adhere to such basic principles as: economic feasibility, priority, timeliness, structuredness, adequacy, comprehensiveness and complexity, efficiency and monitoring, the content of which is described in detail in (*NBU Regulation № 97, 2019*). In our opinion, another important principle in the process of managing problem loans should be the principle of mutually acceptable partnership cooperation, the constant observance of which during the bank's work with borrowers will allow not only to settle the debtor's debt with the least financial, time and moral losses, but also to keep the client for the bank for the future. Adherence to this principle in practice means openness and consistency in the choice of the method of settlement of problem debt on the part of both the creditor and the borrower, assistance from the creditor bank to the borrower in implementing the optimal type of credit debt restructuring, etc.

5. *Stages, methods and tools of problem credit management.* The global and domestic practice of banks working with problem loans has developed a sufficient number of different methods and tools that allow reducing the volumes and levels of problem credit debt. Depending on the stage of the NPL management process, these methods can be conditionally divided into four groups:

1) preventive methods aimed at preventing or reducing the risk of problem loans: credit scoring, use of an early response system, calculation of early warning indicators; regular analysis of the quality of the loan portfolio in order to monitor the level of credit risk, regular analysis of borrowers' creditworthiness, periodic inspection and reassessment of collateral for loans, use of models for predicting the probability of loan default, keeping records of customer credit histories, etc.;

2) methods of financial restructuring of the debtor's debt, which involve active cooperation with the borrower and his voluntary participation in these processes: extension or change of the loan repayment schedule, appointment of credit holidays, change of interest under the loan agreement, refinancing, write-off of fines for breach of contract, conversion of currency loans to UAH, pre-trial debt collection through direct communication with the client, etc.;

3) methods of forced debt collection through claims-lawsuit work, which also provide for the termination of relations with the debtor: foreclosure on collateral property, its projected sale, the use of outsourcing (transfer of problematic loans to external collection companies for processing), transfer of rights to claim the debt to a third party (factoring companies) etc.

4) methods of management of pledged property: acquisition of property rights, sale of pledged property for the purpose of compensation for losses.

Banks can also write off part or all of the amount of debt due to reserves for expected credit losses, but such measures, in our opinion, cannot be considered effective.

6. *Evaluation of performance indicators of problem credit management. Monitoring and control over the effectiveness of problem credit management.* To assess the performance of banks with problem loans, the NBU recommends applying a system of key performance indicators for the management of problem loans (*Regulations of the NBU № 97, Appendix 3, 2019*), monitoring the calculations of which allows both the banks themselves and the regulator to assess the overall level of problem assets in bank; the effectiveness of the non-performing assets division staff, the effectiveness of the debt restructuring process, and the effectiveness of out-of-court and judicial debt settlement. Based on the results of monitoring and control, changes are made to the bank's problem loans management strategy, with the aim of reviewing and timely changing measures aimed at reducing the volume and levels of problem loans in the bank's loan portfolio.

**Conclusions, discussion and recommendations.** Settlement of problem loans that have reached the systemic level is a complex and expensive process. Bank NPL problems usually arise after credit booms, or long periods of low growth in structurally weak financial



systems, or as a result of external negative challenges such as full-scale domestic war. Problem loans crowd out new lending, undermining both profitability and solvency of banks. Therefore, from the point of view of practical application, the problem credit management system proposed in the article is worthy of attention, which is complex and universal in nature and combines the strategy, purpose, principles, stages, methods and tools of the bank's work with problem debt, and is aimed at increasing effectiveness of the organization of work with problem loans in banking structures.

#### Author's contributions.

Conceptualization: Nikolaieva Anzhela

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Purchase of funding: Nikolaieva Anzhela

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Date of publication 16.08.2022