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# EXPERT PRACTICE IN PROTECTING THE INTERESTS OF BANKS IN CASE OF NON-REPAYMENT OF LOANS

## ABSTRACT

The article reviews the expert analysis of confirmation of the amount of material damage (losses) caused to banks from non-repayment of loans. It is relevant to conduct an expert study to analyze the state of functioning of the banking system. The authors of the article have developed an integrated methodology for conducting forensic economic examinations of banks' credit operations based on a double verification system, which establishes causal links between procedural violations and financial outcomes.

The aim of the paper is to summarise the methodology for conducting expert studies determined by the regulatory authorities within their competence to confirm the amount of material damage (losses) caused to banks by non-repayment of loans and based on the general practice of appointment and conduct of forensic and economic examinations. The authors have improved the approach to credit transaction verification by introducing a multi-level checkpoint validation model, which minimises the risk of an expert's mistake.

We found that the methodology for confirming the amount of material damage (losses) caused to banks by non-repayment of loans allows a systematic study based on generalisation of the practice of appointment and conduct of forensic and economic examinations for today. We also make practical recommendations for resolving issues related to documentary confirmation of the amount of material damage (losses) caused to the bank, which data are in the inspection report (conclusion report). It also provides practical recommendations on resolving issues related to documentary confirmation of the amount of material damage (losses) caused to the bank, the data of which are set out in the audit report (report, conclusion), which contains the calculation of material damage (losses) of the bank, performed on the basis of a number of accounting and regulatory documents.

**Keywords:** bank lending, losses, material damage, economic examination, loss of assets, incomes, banks, loans, discount, collateral

**JEL Classification:** G21, H81, K41

## INTRODUCTION

Lending is one of the banks' activities, which provides them with significant income by allocating temporarily free financial resources. Ukrainian banks face numerous challenges that may destabilize their performance in an unstable socio-economic environment, characterized by a high level of uncertainty and dynamic external factors.

Lending is a key area of banking institutions' operations and, at the same time, one of the riskiest segments of the financial system. Non-repayment of loans, asset depreciation, loss or inadequacy of collateral, and transactions involving the assignment of claims represent a significant threat to the financial stability of banks. In the conditions of economic instability, credit risks, and structural changes in the banking sector, the problem of documentary confirmation of the amount of material damage (losses) caused to banks as a result of debtors' failure to fulfil their obligations is relevant.

The analysis of banking activity shows that financial institutions face the problem of non-repayment of loans regardless of the lending policy, the loan portfolio quality, the

methodological approach to assessing the borrowers' creditworthiness, and the credit risk management tools. This leads to the formation of non-performing assets. The growth of such debts has a negative impact on the bank's liquidity, which may threaten its financial stability and even lead to bankruptcy in the long run. Banks try to collect debt in court, confirming material damage – losses that they suffered due to the borrower's failure to fulfill obligations.

It is relevant to study the problem of confirming the amount of material damage (losses) caused to banks as a result of non-repayment of loans, since it is necessary to conduct expert research for a comprehensive analysis of the state of the banking system. In accordance with the amendments made by the Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine in the Field of State Anti-Corruption Policy in Connection with the Implementation of the Action Plan on Liberalization of the Visa Regime for Ukraine by the European Union" No 1261-VII (from May 13, 2014) to Article 242 of the Criminal Procedure Code of Ukraine, expert study is mandatory within the framework of criminal proceedings in determining the amount of material damage, non-property and environmental damages caused by a criminal offense. Documentary evidence of the amount of material damage (losses) caused to banks due to the non-repayment of loans is determined as part of the forensic economic examination. In accordance with the guidelines for the preparation and appointment of forensic examinations and expert studies, the key tasks of the financial and credit transactions examination are to document the validity of the processing and accounting for the issuance, use, and loan repayment. The main task of an expert economist within the framework of this study is to document the amount of material damage (losses) to banks due to non-repayment of loans, which is determined by the regulatory authorities within their competence.

Primary documents play a key role in the evidence base during the investigation of financial crimes in the banking sector. It allows not only to identify offenses, but also to substantiate experts' conclusions, confirm financial losses, and identify responsible persons. Each case has its own characteristics; the approach to the collection and analysis of documentary evidence should be flexible and comprehensive, involving forensic economic examinations, financial audits, and other methods of analyzing financial transactions.

Expert research practice indicates methodological difficulties in determining losses, the moment of their emergence, distinguishing accounts receivable as an accounting asset from actual losses, and confirming the market value and liquidity of collateral. In addition, the fragmented approaches to the analysis of credit operations and the insufficient integration of the legal and accounting aspects of the study require the development of a comprehensive methodology for expert verification of losses.

Thus, this article systematizes regulatory and legal regulation, analyzes the current practice of appointing and conducting examinations, and develops a structured model for checking credit transactions using a risk-based approach.

## LITERATURE REVIEW

Optimization of the resource base structure plays a vital role in strengthening financial stability, which implies a balanced ratio of equity and debt, as well as diversification of funding sources. Moreover, effective management of the bank's assets and liabilities requires the application of modern risk management methods, the introduction of innovative financial instruments and technologies, and compliance with international banking regulatory standards – the requirements of the Basel Accords. Non-compliance with these requirements may result in deterioration of the bank's financial position, reduction of its competitiveness, and sustainability in the face of economic instability. Therefore, the financial stability of the banking system is a complex indicator that depends on a number of internal and external factors, including the quality of bank resource management, the efficiency of the regulatory environment, and macroeconomic conditions.

Banking in the field of lending is one of the riskiest, as it is associated with a high probability of financial losses due to non-repayment of the granted credit funds, unscrupulous borrowers, and fraud. S. S. Cherniavsky (2010) considers that the area of active lending operations of banks has lost state control in the process of market relations development. It has led to financial fraud, manipulation of loan agreements, creation of fictitious lending schemes, and other illegal operations. Moreover, recent studies highlight determinants of financial security in uncertain environments (L. Dokiienko et al., 2024), emphasizing how external shocks such as pandemics exacerbate non-repayment risks. For instance, R. Dankiewicz et al. (2021) demonstrate that the COVID-19 crisis significantly impaired the solvency of enterprises, directly impacting loan repayment capabilities.

Similarly, T. Prymak et al. (2020) document how external crises disrupt critical sectors like air transportation, underscoring cross-industry vulnerabilities that indirectly affect banking stability. Their analysis of European charter air services during economic turbulence exemplifies how sector-specific shocks can cascade into broader financial risks, including loan defaults. This aligns with the need for robust risk management frameworks in banking.

A decline in banking profitability is one of the key problems of the modern banking system, which has a negative impact on the financial stability of banks and the efficiency of their performance. Yu. P. Makarenko (2016) suggests that one of the main reasons for banks' unprofitability is the need to form provisions to cover possible losses on active operations, as well as the sale of non-performing loans at a lower price than their value. At the same time, the economy's low business activity and increasing costs of attracting borrowed resources have a significant impact, which leads to a decrease in revenues from basic banking activity.

Shim, J. (2019), pays attention to the impact of market structure and credit portfolio diversification on the level of insolvency risk in the context of research on the financial stability of banks. Theoretical models provide contradictory approaches to the assessment of the relationship between banking market concentration and bank stability: according to the «concentration-stability» concept, more concentrated markets contribute to higher profitability and reduce incentives for excessive risk, while the alternative position connects high concentration with increased moral hazard and a tendency to risky behaviour among large banks. At the same time, empirical studies suggest that credit portfolio diversification has an inverse relationship with insolvency risk, and its stabilising effect may vary according to the level of market concentration. This study shows that banks operating in a more concentrated competitive environment and diversifying their lending activities demonstrate lower levels of financial vulnerability. Therefore, the financial stability of banks is formed by internal management decisions on asset structure and external institutional and market conditions, which have fundamental importance for assessing risks and potential losses in the credit relations area.

Kamani, E. F. (2019) focuses on the impact of non-traditional banking activities on financial stability in his paper and considers that this impact depends on the size of the bank. The empirical results of the study show that non-traditional operations increase systemic risk primarily for small banks, and the growth of income from commissions and fee operations is riskier for large banks. Thus, the structure of income and the nature of a bank's operations are important determinants of financial vulnerability. These conclusions justify the relevance of a differentiated regulatory approach and consideration of a bank's institutional characteristics during the assessment of its systemic stability. It has fundamental importance for the analysis of factors contributing to insolvency risk and potential financial losses.

O. Puchkov and S. Gordienko (2020) focus on the list of primary documents that are the basis for investigating illegal actions in the banking sector, and the evidence in criminal cases. These documents are key evidence for documenting financial and business transactions that resulted in material damage to banks. Thus, the primary documents provided for experts' examination play a key role in the evidence base for investigating financial crimes in the banking sector. It allows not only to identify the offence, but to substantiate and confirm financial losses with the help of expert opinions. Each case is unique, the approach to collecting and analysing documentary evidence should be flexible and comprehensive, and involve forensic economic examinations.

The results of our study confirm the conclusions of O. O. Puchkov and S. V. Gordienko (2024) about the need to determine the date of damage, which ensures reliability, objectivity, and legal correctness in the process of investigating financial crimes in the banking sector. This approach complies with the principles of financial accounting, state control requirements, and the provisions of the criminal procedure regarding the evidence-based material damage. Its implementation in forensic economic examinations and financial investigations will help to increase the effectiveness of law enforcement agencies in combating illegal transactions in the banking sector.

O. Dziublyuk (2023) concludes that it is necessary to strengthen risk control in the bank lending area, improve methods of managing distressed assets, and expand analytical approaches to financial risk assessment. Effective risk management is a key factor in maintaining the stability of the banking system and preserving confidence in financial institutions.

The study of the problem of confirming the amount of material damage (losses) caused to banks as a result of non-repayment of loans is an urgent task in the field of financial and economic analysis. This issue is important not only in terms of assessing the financial stability of banks but also in the context of forensic economic examination, which involves documentary evidence of the amount of losses and their impact on the performance of a bank.

## AIMS AND OBJECTIVES

The aim of the paper is to summarise the system of theoretical, methodological, and practical aspects relating to expert study on the issues of confirming the amount of material damage (losses) caused to banks by non-repayment of loans.

This purpose can be achieved by:

- summarising the methodological approaches used in studies to confirm the amount of material damage (losses) caused to banks by non-repayment of loans;
- determining the sequence of actions in conducting research on the confirmation of material damage (losses) caused to banks from non-repayment of loans determined by regulatory authorities within their competence;
- carrying out an analysis of the material damage (losses) to banks from non-repayment of loans, as a result of accepting as collateral objects, the cost and characteristics of which do not correspond to the objects of collateral;
- developing recommendations on the methodology for conducting a study to confirm the amount of material damage (losses) caused to banks by non-repayment of loans based on generalisation of the practice of appointment and conduct of forensic economic examinations.

## METHODS

General scientific and special methods that provide documentary evidence of the amount of material damage (losses) to banks and the formation of the authors' integrated methodology for forensic economic examination of credit operations were applied. Methods of analysis and synthesis were chosen because they are the most practical ways to study the regulatory and legal framework, to divide the research subject into key elements (credit, collateral, accounting, write-off/depreciation, assignment of claims); to summarize the results of the practice of appointing and conducting forensic economic examinations. Through the use of induction and deduction methods, we were able to go from the analysis of individual expert practices to the formation of a generalised methodology; verify conclusions by comparing specific facts of the case with general regulatory and methodological requirements. A systematic approach was selected in order to build an integrated model for researching credit transactions as a single process that includes legal, management, and accounting records, and ensure the consistency and completeness of the expert research. Special economic methods such as documentary verification was applied to confirm the fact of loan issuing, collateral, repayment/non-repayment of debt; verify the correctness of interest and penalty charges; verify the debt and write-off/impairment transactions in accounting records (including off-balance sheet accounts). Special forensic economic analysis methods were selected in order to logically structure our conclusions: violation → consequence → financial impact → causal link → documentary evidence; strengthen the evidence base of expert conclusions for court proceedings.

## RESULTS AND DISCUSSION

The activity of banks should be flexible and adaptive to changes in the macroeconomic environment, including exchange rate fluctuations, inflationary processes, changes in monetary policy, and regulatory frameworks. The financial stability of banks depends on the banks' ability to manage their assets and liabilities effectively, minimise liquidity, credit, and market risks, and ensure a sufficient capitalisation level.

There are different reasons for problem loans, but they can be divided into three main groups: external (macroeconomic), internal (related to the bank's or borrower's operations), and internal systemic (specific to the banking system as a whole).

In Ukraine's legislation, the issue of writing off impaired financial assets of banks is regulated by Resolution of the Board of the National Bank of Ukraine No. 49 (dated 13 April 2020) "On Approval of the Regulation on Determining Criteria for Writing Off Impaired Financial Assets of Ukrainian Banks at the Expense of Estimated Provisions for Expected Credit Losses." This document approves the mechanisms for writing off assets that have lost their value at the expense of the provisions for expected credit losses made by banks. In accordance with the provisions of the Resolution No. 49 (dated 13 April 2020), Ukrainian banks are obliged to develop and approve internal procedures (rules) for writing off impaired financial assets, or amend existing internal regulations in accordance with the requirements of Regulation No. 49 (sub-clause 1, clause 2); annually analyse impaired financial assets for compliance with the write-off criteria and write them off at the expense of the provisions for expected credit losses.

In addition, paragraph 2 of Regulation No. 49 defines the main criteria by which banks should write off impaired assets. The main criteria used in banking practice include unrealistic prospects for debt repayment by the borrower in the future; expiration of the limitation period for claims against the debtor, declaration of bankruptcy and completion of the liquidation procedure without the possibility of debt collection, insufficiency of liquid collateral or impossibility of its sale due to legal or economic circumstances; final confirmation of the financial unpromising nature of the loan in accordance with the credit assessment methodology.

Table 1 systematises the stages of non-performing loans (NPL) dynamics in the Ukrainian banking system for the period 2006–2025 for the 20 leading banks in Ukraine. It reflects the relationship between macroeconomic shocks, structural changes in the banking sector, and the scale of problem debt. In the pre-crisis period of 2006–2008, the NPL level remained relatively low, indicating a favourable macro-financial environment and active expansion of lending. The volume of problem debt was limited and non-systemic. The period 2009–2016 was characterised by a sharp increase in non-performing loans as a result of the global financial crisis and internal economic shocks in 2014. This was the period when significant amounts of problem debt accumulated, especially in state-owned banks. The indicators of PrivatBank, Oschadbank, and Ukreximbank show a multiple increase in NPLs, which indicates a systemic crisis in loan portfolios and the formation of a significant amount of potential material losses. In 2017–2021, there was a period of stabilisation and gradual balance sheet write-offs, due to recapitalisation, supervisory policy reform, and the introduction of IFRS 9. Although the absolute values of problem debt remained high, its growth rate slowed down, and a gradual decline was recorded in some segments. During 2022–2023, there was a new shock caused by a full-scale war, which led to macroeconomic instability, business relocation, and the introduction of credit holidays. As a result, some banks experienced an increase in problem debt, which raised the issue of assessing financial losses. During 2024–2025, there was a trend of gradual reduction in NPL volumes in most systemically important banks. This indicates an increase in the effectiveness of problem asset management and the intensification of restructuring and debt collection procedures.

**Table 1. Stages of non-performing loans (NPL) dynamics in the banking system of Ukraine (2006–2025).** (Source: Official website of the National Bank of Ukraine, 2025)

Period	Stage characteristics	Key trends	Key performance indicators (examples)	Importance of expert practice
2006–2008	Pre-crisis period	Low level of problem debt	NPL mainly UAH tens/hundreds of millions	Minimal number of court disputes involving relating significant damages
2009–2016	Systemic growth after the financial crisis and the events of 2014.	Significant accumulation of NPLs, especially in state-owned banks	PrivatBank: from UAH 31 billion to UAH 236 billion; Oschadbank: up to UAH 99 billion; Ukreximbank: over UAH 84 billion	A significant number of disputes arising over credit losses and material damage
2017–2021	Balance sheet stabilisation and balance sheet write-offs	Gradual reduction or stabilisation of NPLs following recapitalisation and implementation of IFRS 9	Decrease in growth rates, reserves formation according to the ECL model	Strengthening the role of accounting expertise and reserve analysis
2022–2023	War time	Temporary increase in NPLs due to macroeconomic instability and credit holidays	Increase in problem debt in certain private sector banks	Increase in cases related to restructuring, force majeure, and collateral assessment
2024–2025	Gradual decline	Reduction of NPL volumes in most systemic banks	PrivatBank: ~ UAH 180 billion → ~ UAH 168 billion; Ukreximbank: ~ UAH 50 billion → ~ UAH 39 billion; Oschadbank: ~ UAH 68 billion → ~ UAH 61 billion	The shift to active work with problem assets and optimisation of the evidence base

Therefore, Table 1 demonstrates the cyclical nature of credit risk development in the Ukrainian banking system and confirms that peak values of non-performing loans coincide with periods of macroeconomic instability. For expert practice, this means that the historical context of the formation of problem debt must be taken into account when determining the amount of material damage, analysing causal links, and assessing the actions or failures of bank officials.

We also analyzed the dynamics of non-performing loans (NPLs) in the Ukrainian banking system for the period 2006–2025 according to five segments: the system as a whole, JSC CB PrivatBank, banks with state share (excluding PrivatBank), foreign group banks, and privately owned banks. The data is presented in Table 2. Analysis of the data allows us to identify several stages in the development of problem debt. In 2006–2008, the credit portfolio of banks was relatively stable. The share of NPLs in the system decreased from 6.2% to about 3%, which indicates a favourable macroeconomic environment and an active phase of credit expansion. The lowest indicators were demonstrated by banks belonging to foreign group banks (2–3%), while PrivatBank's level of problem debt remained higher than the average. The period from 2009 to 2013 was characterised by a rapid increase in the share of NPLs due to the global financial crisis and the deterioration of borrowers' solvency. The average indicator increased to 19%, and in some groups of banks grew to 20–22%. This indicates an accumulation of credit risk and structural imbalances in loan portfolios. The most critical period was between 2014 and 2018. After the events of 2014 and the banking transformation, there was a significant deterioration in asset quality. In 2017–2018, the share of NPLs in the system exceeded 50%, which is a historic maximum. High figures were recorded at

PrivatBank (up to 88%) and in banks with state ownership (over 49%). This indicates a large concentration of credit risk in the public segment of the banking sector. Since 2019, there has been a stable trend towards a reduction in the share of NPLs, due to balance sheet write-offs, loan restructuring, write-offs of problem debt, and the implementation of IFRS 9 requirements. By the end of 2021, the systemic indicator decreased to 27-30%. The most significant improvement was demonstrated by foreign-owned banks, where the NPL ratio fell to 2.9%. In 2022–2023 (as a result of the full-scale war), there was a renewed increase in the share of problem loans to around 39%. However, in 2024–2025, a gradual recovery and decline in the systemic indicator to 23.9% by the end of 2025 is observed. The decline was in all groups of banks, indicating the banking system's adaptation to new economic conditions.

**Table 2. Dynamics of non-performing loans (NPL) by groups of Ukrainian banks, %.** (Source: Official website of the National Bank of Ukraine, 2025)

Period	Total for the system	PrivatBank	Banks with state ownership	Foreign group banks	Banks with private capital	Stage characteristics
2006–2008	6.2% → 3.1%	12.9% → 4–6%	6.6% → 2–3%	3.2% → 2–3%	4–5% → 2–3%	Pre-crisis decline, stable loans
2009–2013	4.5% → 19%	7–20%	2–18%	4–22%	4–15%	Post-crisis growth, accumulation of risk
2014–2016	16% → 33%	10% → 15%	19% → 49%	20% → 40%	10% → 23%	Systemic crisis, rapid deterioration in portfolio quality
2017–2018 (peak)	49–56%	76–88%	49–55%	29–33%	24–26%	The highest concentration of NPL
2019–2021	46% → 27%	83% → 69%	49% → 27%	11% → 2,9%	24% → 10%	Balance sheet write-offs, stabilisation
2022–2023	27% → 39%	69% → 67%	25% → 41%	3% → 17%	10% → 23%	Wartime shock, temporary growth
2024–2025	37% → 23.9%	63% → 44.7%	42% → 28.8%	16% → 6.7%	15% → 8.9%	Gradual reduction in NPLs

This data confirms the cyclical nature of problem debt formation and its high dependence on macroeconomic shocks. At the same time, the different dynamics of indicators of bank groups indicate unequal quality of credit risk management systems, which is of fundamental importance for the formation of a methodology for forensic economic expertise in cases concerning the protection of banks' interests in the case of non-repayment of loans.

It should be noted that the process of writing off impaired financial assets is based on the bank's valuation allowances, which are formed in accordance with expected credit losses. The write-off of such assets does not automatically terminate the debtor's obligations to the bank. It only reflects the fact that the asset value is reduced in the bank's financial statements in order to form a realistic assessment of the institution's financial position. To effectively regulate this process, banks should introduce a systematic analysis of the loan portfolio to identify assets to be written off; implement internal control procedures for the timely write-off of impaired assets, and ensure compliance with international financial reporting standards (IFRS 9 Financial Instruments) regulating the assessment of expected credit losses.

Therefore, the regulation of the process of writing off impaired financial assets in accordance with NBU Resolution No. 49 (dated 13 April 2020) increases the transparency of banks' financial statements, improves credit risk management, and enhances banking system resilience. Thus, the introduction of clear criteria for writing off such assets minimises the impact of non-performing loans on the banks' financial performance, which contributes to the credit market stability and effective regulation of Ukraine's banking activity.

In accordance with paragraph 6 of the NBU Regulation No. 49, banks determine that there are no reasonable expectations of a financial asset recovery in cases where the provision for expected credit losses is formed in accordance with IFRS 9 Financial Instruments in the full amount of its gross book value. The criteria for recognising a financial asset as subject to write-off include:

- overdue repayment of the debt or a part of it (principal amount and/or accrued income) is more than 36 months; the lack of significant payments on the financial asset during the previous 36 months;
- the lack of significant revenues from the sale of collateral or collection of loan collateral within 36 months, or the bank's inability to access the sale of collateral;

- inability to sell a financial asset – the bank has failed to sell the asset in three consecutive attempts at open auctions or in another way; information on debt write-offs by other banks – if the debtor has already written-off debt with other banks.

In accordance with clause 7 of Regulation No. 49, banks may use additional criteria for writing off impaired assets, which are developed in the bank's internal methodology, considering the provisions of IFRS 9. The bank may not set more favourable terms of write-off for debtors or counterparties that are related parties compared to other borrowers for similar assets. According to the regulatory requirements, banks derecognise an impaired financial asset in the balance sheet after it has been written off by use of the appraisal reserve.

It is worth mentioning that an asset writing off does not mean automatic debt cancellation. The rights and obligations of the parties to a business transaction do not depend on the fact that it is recorded in the accounting records. It means that the debt write-off may still be subject to collection. In accordance with paragraph 11 of Regulation No. 49, banks are required to write off impaired financial assets if there is no reasonable expectation of their recovery. This applies to financial assets measured at amortised cost, financial assets measured at fair value through other comprehensive income, and financial receivables. In accordance with paragraph 12 of Regulation No. 49, banks are responsible for determining the reasonable expectation of a financial asset recovery.

In addition, banks are required to provide the National Bank of Ukraine and the external auditor with reasonable explanations in case of failure to write off impaired assets despite meeting the criteria set out in the regulations. Compliance with these requirements is mandatory for all banks in Ukraine and is monitored by the NBU and external auditors. This ensures the reliability of the banking system and prevents the accumulation of non-performing loans that could pose risks to financial stability.

In the banking sector, losses may arise from the creation of appraisal reserves for expected credit losses, which is a necessary component of credit risk management. This issue is regulated by IFRS 9 Financial Instruments, which requires banks to make provisions for potential credit losses that may arise in the future.

Therefore, in accordance with the provisions of the above-mentioned regulation, the main criteria for writing off impaired financial assets of Ukrainian banks by the use of appraisal reserves for expected credit losses have been set.

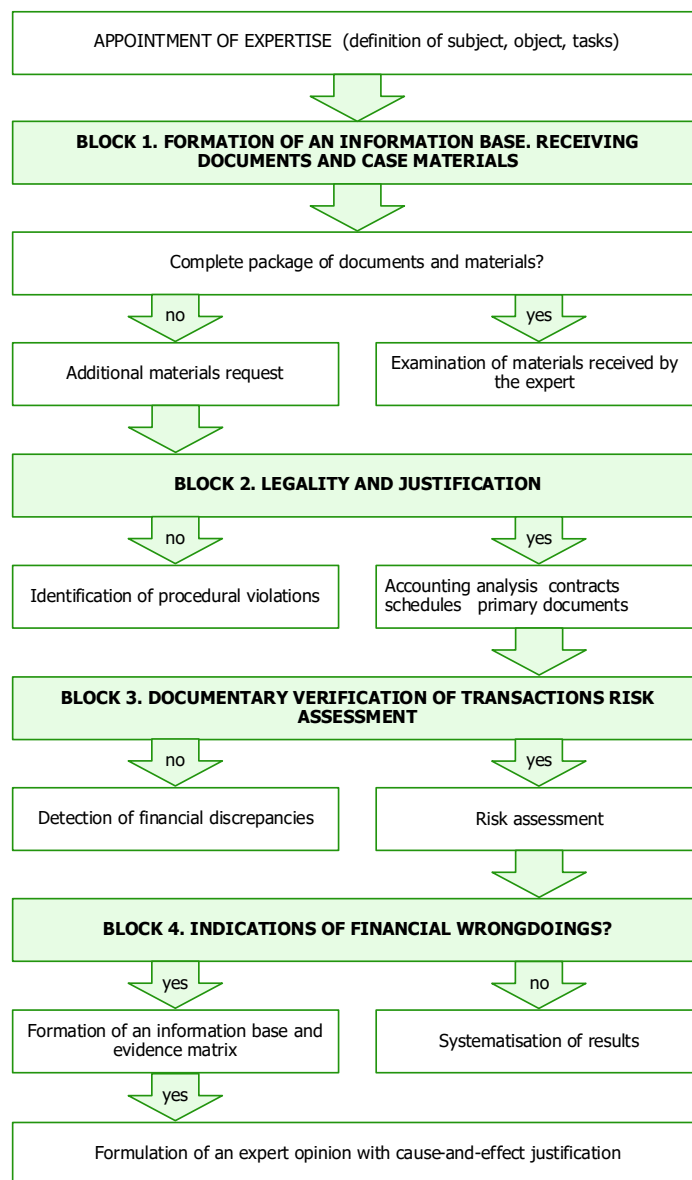
A. O. Puchkov and S.V. Gordienko emphasize that it is critically important to correctly establish the date of damage in the process of investigating financial crimes and assessing the material damage caused to banks. It is necessary to consider the requirements of financial accounting and the legal aspects of fixing losses. We propose to determine the date of loss fixation not earlier than the determination by a commodity expert of the market value of the relevant group of assets in accounting for impairment, and fix a negative financial result from the asset liquidation. This approach is consistent with the methodological principles for determining the amount of material damage set out in the Procedure for Interaction between the State Control and Audit Service, Prosecutor's Office, Internal Affairs, and the Security Service of Ukraine No. 346/1025/685/53 (dated 19 October 2006). In accordance with this regulatory document, the amount of material damage is defined as the value of lost assets or lost income, which is set on the basis of the accounting and financial statements of the controlled entity or expert assessment and other methods defined by law. Compensation for losses is provided for by the Civil and Commercial Codes, laws, and other regulations.

In accordance with the current regulatory requirements, a partial or complete write-off of a financial asset by use of the appraisal reserve leads to the termination of its recognition in the bank's balance sheet, but does not deprive the creditor of the right to further recover debt from the debtor. In such cases, the written-off asset is accounted for in the bank's off-balance sheet accounts, which ensures the preservation of the possibility of legal debt settlement.

Thus, a written-off asset cannot be considered as a final financial loss until all measures to resolve the asset liquidation are completed by the bank, and after all legal mechanisms for debt repayment, the bank can identify it as an actual financial loss in the financial statements.

In practice, expert economists analyze documentary evidence of the collateral value, documentary evidence of the grounds for replacing the collateral object, compliance of the collateral object with the requirements of the current legislation and the bank's internal lending policies, documentary evidence of the withdrawal of collateral without actual debt repayment under loan agreements, etc. Confirmation of transactions with collateral used as security for the fulfillment of credit obligations is the verification of pledge agreements and their compliance with legal requirements, analysis of valuation reports on the collateral value at the time of the loan agreement, verification of compliance with the market value of the pledge at the time of valuation and at the date of possible foreclosure, analysis of the presence of manipulations with overstatement or undervaluation of property, which could influence the bank's decision to provide a loan.

The modern practice of forensic economic expertise in the area of investigating bank credit transactions is characterised by fragmented approaches to the analysis of financial transactions, the lack of a unified system of verification control points, and insufficient integration of the legal and accounting aspects of the investigation. The authors have developed an integrated methodology for conducting forensic economic examinations of bank credit transactions based on a systematic approach, the principle of dual verification, risk-oriented analysis, the concept of forensic accounting, and the construction of an evidence matrix of causal links (Figure 1).



**Figure 1. Structural and logical block diagram of conducting a forensic economic examination of a bank's credit operations with the use of a double analysis cycle and a system of control points.**

Therefore, we analyse specific expert studies and provide recommendations on the methodology for conducting studies to confirm the amount of material damage (losses) caused to banks by loan non-repayment based on a generalisation of the practice of appointing and conducting forensic economic examinations based on three examples.

This is an example of documentary evidence of the collateral object's value to resolve the judicial economic examination. The experts analyze the following questions: "Does the Regulation on the Bank's Credit Committee and credit commissions of the Bank's branches comply with the decision of the Bank's credit committee No. xx dated xx. xx. xxxx, according to which the collateral under the loan agreement No. xx dated xx. xx. xxxx has been changed?" "Is the value of assets proposed as a replacement for collateral under the loan agreement No. XX dated xx. xx. xxxx (contracts concluded between Company 1 and Company 2) documented?"

An expert economist uses the following sequence of steps to conduct research on this issue:

1. Study of the bank's internal policies.
2. Selection and study of the regulatory framework on the issue.
3. Study of the minutes of the credit committee meetings on collateral decisions.
4. Study of loan agreements and appendices, loan restructuring agreements, and pledge agreements.
5. Examination of primary documents certifying the issuance of loans, acceptance of collateral, loan repayment, interest payment, interest accrual, penalties accrual, penalties payment, etc.

In accordance with the above algorithm, the expert examines the documents submitted for the study – extracts from the minutes of the meeting of the Credit Committee of the Bank No. xx dated xx.xx.xxxx, which granted permission to the Investment Department of the Bank's branch to restructure the Company's credit debt under a number of loan agreements, including the Loan Agreement No. xx-xxx dated xx.xx.xxxx (in the above case), according to Appendix No. 1 to the minutes No. xx dated xx.xx.xxxx, it was decided to withdraw from the collateral under the Loan Agreement No. xx dated xx.xx.xxxx: 1) non-residential property with an area of 17,161.5 sq. m. and 2 land plots with an area of 4.3497 ha and 0.2924 ha, which is located at address xxxx, the collateral value is UAH 41,027,919.00; 2) non-residential property (complex) with an area of 2,651.5 sq. m, which is located at address xxxx, with a collateral value of UAH 3,916,531.00.

In this situation, the company decided to withdraw (from the collateral under the Loan Agreement No. xx dated xx.xx.xxxx) property in the total amount of UAH 219,693,196.00, which includes:

- property rights to money under supply agreements (agricultural products) concluded between Company 1 and Company 2 with a residual contractual value of UAH 710,000,000.00 to secure the fulfilment of obligations under loan agreements No. xxx dated xx. xx. xxxx, No. xxx dated xx.xx.xxxx, No. xxx dated xx.xx.xxxx;
- property rights to funds (deposits of individuals: xxxx, xxxx, and/or other individuals/legal entities) placed with the Bank in the amount equivalent to UAH 556,670,029.76, including UAH 448,140,993.94 as a second priority pledge to secure fulfilment of obligations under loan agreements effective as of the date of signing of these pledge agreements.

The expert analyzed the following documents regarding the withdrawal of property from the pledge:

1. The agreement on the termination of the mortgage agreement (it was concluded in xx.xx.xxxx, certified by xxxxx, a private notary of the Kyiv city notary district, registration No. 1934).
2. The agreement on the termination of the mortgage agreement (it was concluded in xx.xx.xxxx, certified by xxxxx, a private notary of the Sokyrianskyi notary district of Chernivtsi region, registration No. 162).

According to these materials, the expert found that on xx.xx.xxxx, the Bank and the Company concluded Pledge Agreement No. xxxx, according to which the Bank pledged the property right to claim the following funds in the amount of UAH 302,000,000.00, which will be transferred to the Pledgor's account No. 26004094605001 in the international Bank, on the basis of the Supply Agreement No. xxx dated xx.xx.xxxx (hereinafter as the Agreement No. x), concluded between the Pledgor and the Company 1. The debtor to the Pledgor under the said agreement is the Company, from which the Pledgor has the right to demand the transfer of funds under the terms and conditions stipulated by the Agreement No. x; in the amount of UAH 710,000,000.00.

The expert was provided with the Assignment Agreement with a deferred claim without a number dated xx. xx. xxxx between the Bank (new creditor) and the Company (creditor), according to which the creditor assigns to the new creditor the right to claim with a deferred condition under the following supply agreements: Supply Agreement No. xxxx dated xx.xx.xxxx (hereinafter as the Agreement No. X), concluded between the Creditor and the Company 1.

Therefore, the expert concludes that the value of the assets (property right to claim cash) offered as collateral replacement under the loan agreement No. xxx dated xx.xx.xxxx (contracts concluded between the Company and the Company) is documented in the amount of UAH 710,000,000.00.

This is an example of documentary evidence of collateral without actual debt repayment under loan agreements. The expert analyzes the following questions: "Are the conclusions of the working group of the Deposit Guarantee Fund dated xx. xx. xxxx regarding the withdrawal of collateral without actual debt repayment under loan agreements – land plots located in xxxxx district of xxxxx region (cadastral numbers: № xxxxxxxxx:xxx:xxx: xxx 1; № xxxxxxxxx:xxx:xxx: xxx 2; № xxxxxxxxx:xxx:xxx: xxx 3; № xxxxxxxxx:xxx: xxx 4)?"

An expert economist uses the following sequence of steps to conduct research on this issue:

1. Study of the bank's internal policies.
2. Selection and study of the regulatory framework on the issue.
3. Study of the minutes of the credit committee meetings on collateral decisions.
4. Study of loan agreements, annexes thereto, loan restructuring agreements, and pledge agreements.
5. Examination of primary documents certifying the issuance of loans, acceptance of objects as collateral, repayment of loans, payment of interest, accrual of interest, accrual of penalties, information from the State Register of Real Property Rights and the Register of Ownership Rights to Real Property, the State Register of Mortgages, the Unified Register of Prohibitions on Alienation of Real Property in relation to real property, etc.

The expert economist was provided with loan agreements, additional agreements, and agreements to amend them concluded by the Bank with business entities Borrowers No. 1-9 for the total amount of UAH 215,453,958.14.

The experts collect information on loan agreements concluded by the Bank with Borrowers No. 1-9, in terms of loan amounts, loan terms, and collateral conditions. Mortgage agreements, securities pledge agreements, property rights pledge agreements, etc., have been concluded to secure the loans of Borrowers No. 1-9. It should be noted that changes to the collateralised obligations of Borrowers No. 1-9 were made in accordance with the amendment agreements and supplemental agreements.

It is important to emphasize that there are no statements on off-balance sheet accounts No. 9500, No. 9503, No. 9520, No. 9521, No. 9523 in which Bank reflected the collateral received under loan agreements of Borrowers No. 1-9.

It is known that the Resolution of the Board of the National Bank of Ukraine dated 22 January XXXX No. XX "On Categorisation of Bank as a Problematic Bank" classified the Bank as a problematic bank for a period of 180 days and imposed restrictions on the Bank's activities, including to carry out credit transactions with customers in the amount not exceeding the volume of such transactions as of the date of adoption of this resolution; not to allow active transactions with insiders, bank's shareholders and related parties; debt repayment arising from any active transactions to be accepted only in cash; debt repayment on loans and other active transactions by acquiring ownership of collateral to be carried out with the consent of the National Bank of Ukraine; not to release the collateral received by Bank as security for lending transactions until the borrowers repay the debt in full; not to replace the collateral for loans and other active operations of the Bank; not to make early funds repayment to insiders and related parties; not to accept property rights to deposits of legal entities and individuals as collateral for loans; not to allow any transactions that increase the guaranteed amount of compensation for deposits of individuals by the Deposit Guarantee Fund, except for agreements concluded before the entry into force of this resolution, the terms of which provide for deposits replenishment of individuals at the expense of interest, etc.

The expert economist was provided with the mortgage agreement, No. xx/xx/xx/xx dated 15 July XXXX, Bank concluded to the loan agreements with the Borrowers No. 1-9, according to which the subject of the mortgage is land plots for the construction and maintenance of residential buildings, household buildings and structures located at the address in XXXXX district of XXXXX region (cadastral numbers: No. xxxxxxxxxxx:xxx:xxx: xxx 1; No. xxxxxxxxxxx:xxx:xxx: xxx 2; No. xxxxxxxxxxx:xxx:xxx: xxx 3; No. xxxxxxxxxxx:xxx:xxx: xxx 4). In accordance with clause 2.2 of the Mortgage Agreement dated 15 July XXXX, the collateral value of the mortgage was determined according to the reports on expert monetary valuation of the land plot, drawn up on 25 June XXXX by the Information Research Centre "xxxxxx" in the total amount of UAH 218,794,995.00.

The expert economist was provided with information from the State Register of Rights to Real Estate and the Register of Rights to Real Estate, the State Register of Mortgages, the Unified Register of Prohibitions on the Alienation of Real Estate Objects concerning real estate objects, according to which the land plots (cadastral numbers: No. xxxxxxxxxxx:xx:xxx: xxx 1; No. xxxxxxxxxxx:xx:xxx: xxx 2; No. xxxxxxxxxxx:xx:xxx: xxx 3; No. xxxxxxxxxxx:xx:xxx: xxx 4) with an area of 1.05 ha, an area of 1.2 ha, an area of 1.05 ha, an area of 1.05 ha, an area of 1.05 ha, located at the address in the Xxxxx district of the Xxxxx region, their owner is Xxxxx x. x. A mortgage record No. xxxxxxxx was made on 15 July xxxx. The basis for state registration is the mortgage agreement dated 15 July xxxx No. xxxxx, and the basis for making the entry is the Decision on rights registration and encumbrances, index number is xxxxxxxx dated 15 July xxxx.

Thus, the Loan Agreements concluded by the Borrowers No. 1-9 in the amount of UAH 215,453,958.14 are obligations under the mortgage agreement dated 15 July xxxx No. Xxxxx. At the same time, on 19 July xxxx, a record was made on

the termination of the mortgage of the above land plots on the basis of the notice of the Bank dated 17 July xxxx (without number). In this example, the expert was not provided with this notice.

Moreover, the Board of the National Bank of Ukraine declared the Bank as insolvent by the Resolution dated 20 July xxxx No. xxxx.

The materials provided to the expert indicate that the land plots (located in the Xxxxx district of the Xxxxx region (cadastral numbers: № xxxxxxxx:xx:xxx: xxx 1; № xxxxxxxx:xx:xxx: xxx 2; № xxxxxxxx:xx:xxx: xxx 3; № xxxxxxxx:xx:xxx: xxx 4), according to the mortgage agreement dated 29 September xxxx, concluded between Bank 1 (the Mortgagee) and Xxxxx xxx (the Mortgagor), as security for the obligations fulfilment of xxxxx LLC under the overdraft loan agreement No. Xxx-xxx dated 11 September xxxxx) the Mortgagor transferred the property to the Mortgagee. The principal obligation under the overdraft loan agreement No. xxxxx-xx dated 11 September xxxx is UAH 22,000,000.00. At the same time, the value of the mortgaged property according to the expert monetary valuation of land plots performed by the appraiser PE "Expert Continental" as of 17 September xxxx is UAH 28,968,825.00.

Therefore, the expert has assured that the conclusions of the working group of the Deposit Guarantee Fund, dated xx. xx. xxxx on the withdrawal of collateral without actual debt repayment under the loan agreements of the Borrowers No. 1-9 in the amount of UAH 215,453,958.14 to the Bank is documented.

This is an example of documentary evidence of the amount of the bank's loss on transactions involving the conclusion and execution of loan agreements, which is the borrowers' debt. The experts analyze the following questions: "Is there any documentary evidence of the amount of Bank's loss on transactions for the conclusion and execution of loan agreements, which is the borrowers' debt (the total amount of the loan agreement of LLC Company 1, dated 09 February 20xx No. xxx/xx is UAH 143,705,192.46)?" "LLC "Company 2" under the loan agreement dated 13 March 20xx No. xxx/xx for the total amount of UAH 135,383,435.98, which includes debt on the principal and accrued interest thereon, according to the Report on the results of the audit of certain operations of the Bank, dated 27.01.20xx on the results of the audit of loan agreements concluded in 20xx by "Bank", approved by the Authorised Person of the Deposit Guarantee Fund for the liquidation of "Bank" on xxx.xxx.20xx, specified in the annexes: No. 3 "Analysis of the loan disbursement and maintenance to LLC "Company 2" under loan agreement No. xxx/xx dated March 13, 20xx"; No. 4 "Analysis of the loan disbursement and maintenance to LLC "Company 1" under loan agreement No. xxx/xx-cl dated February 09 20xx"; No. 5 "Scheme to the report"? If so, what is the total amount?"

The analysis of this case allows an objective assessment of a financial institution's losses, their documentary evidence, and compliance with accounting data. An expert economist uses the following sequence of steps to conduct research on this issue:

1. Study of the regulatory framework for risk management and governance.
2. Analysis of the bank's audit reports.
3. Analysis of the regulatory framework of loss assessment.
4. Analysis of the peculiarities of accounting in banks.
5. Analysis of audit reports.
6. Analysis of the debt in the accounts.
7. Study of the regulatory framework for risk management and governance.

It should be noted that the experts apply the legislative and regulatory acts in the versions that were in force at the time of the financial and business transactions.

Therefore, in order to determine possible losses (damages) due to non-fulfillment of obligations by the debtor/counterparty, the bank (in accordance with the Regulation on the procedure for the formation and use by banks of Ukraine of reserves to compensate for possible losses on active banking operations, approved by the Resolution of the Board of the National Bank of Ukraine No. 23 (dated 25 January 2012), registered with the Ministry of Justice of Ukraine (dated 15 February 2012) under No. 231/20544 (as amended) (The Resolution became invalid based on the Resolution of the National Bank (dated 30 June 2016, No. 351 – hereinafter as Regulation No. 23), assesses the risk of non-fulfillment of obligations by the debtor/counterparty (i.e. the risk that the debtor will fulfill the obligation beyond the terms stipulated by the terms of the agreement, or in the amounts less than stipulated by the contract, or will not be carried out at all) for all banking operations and financial obligations provided by the bank. According to clause 1.6 of Regulation No. 23, the Bank assesses the risk of non-fulfillment of obligations by the debtor/counterparty and forms a reserve in full regardless

of the amount of its income. The risks of non-repayment of loans are taken into account by the Bank when it forms an amount of reserve adequate to these risks.

The amount of gross credit risk for each credit transaction is reduced by the value of collateral (guarantees and pledges of property and property rights) when determining the net credit risk for calculating the reserve. The value of the collateral is included in calculating reserves for credit risks, including the established coefficients (depending on the debt category). The Bank classifies assets/provided financial liabilities by quality categories based on its assessment of the debtor's financial condition and the debtor's performance of obligations under the contract (debt service status), including the type and conditions of the active banking transaction.

The expert was provided with a report on the bank's inspection. According to the report on the inspection results the of individual operations of the Bank, which was prepared on January 27, 20xx and based on the inspection results of the loan agreements concluded in 20xx by Bank, it was approved by the Authorized Person of the Deposit Guarantee Fund for Individuals for the liquidation of Bank on January 27, 20xx (according to the text of the Auditors' Report). It is stated that "considering the presence in the Bank's balance sheet as of January 01, 20xx of overdue debts of Borrowers under Loan Agreements and the absence of reviews of Reports on expert monetary valuation of land plots provided as collateral under Loan Agreements, the probable loss of the Bank under operations on the conclusion and execution of Loan Agreements can be considered the debts of Borrowers under Loan Agreements in the total amount of UAH 500,121,790.31, which includes debts for the body of loans and the accrued interest on them."

Therefore, overdue debt of borrowers of LLC "Company 1" as of January 01, 20xx, under the loan agreement dated March 13, 20xx, No. 47/03 and LLC "Company 2" under the loan agreement dated February 09, 20xx No. 44/02 is a total amount of UAH 500,121,790.31, which includes debt on the body of loans and accrued interest on them.

The audit report states that the bank is facing losses because of the overdue debts of borrowers under loan agreements that are on the balance sheet of the bank, and the failure to review expert monetary assessments of land plots pledged under the loan agreement.

However, in the economic sense, losses are material, property, and financial losses incurred by the state, entrepreneur, consumer, or intermediary as a result of violations of economic and financial ties, balance of commodity and money supply, strikes, national and territorial conflicts, natural disasters, etc. Losses are the excess of costs over the results of production and economic activity, profit, and income of enterprises and organizations.

The Resolution of the Cabinet of Ministers of Ukraine On Approval of the Procedure for Determining the Amount of Damage from Theft, Shortage, Destruction (Damage) of Material Values (dated January 22, 1996) No. 116 (as amended) (hereinafter as the Procedure No. 116) approved the Procedure for determining the amount of damage from theft, shortage, destruction (damage) of material values, which determines the mechanism for calculating the amount of damage to companies from theft, shortage, destruction (damage) of material values. This mechanism provides for the recovery of amounts from the offender in an amount that exceeds the amount of direct losses of the company.

It is worth noting that the presence of receivables under bank credit operations does not constitute theft, shortage, or destruction (damage) of material assets in the Procedure No. 116.

The legislative acts of Ukraine do not determine unpaid debts under contractual relations and credit transactions as losses. The Procedure for Interaction of the State Control and Audit Service, Prosecutor's Office, Internal Affairs, and Security Service of Ukraine, approved by the order of the Main Control and Audit Department of Ukraine, the Ministry of Internal Affairs of Ukraine, the Security Service of Ukraine, and the Prosecutor General's Office of Ukraine (dated October 19, 2006) No. 346/1025/685/53, registered with the Ministry of Justice of Ukraine (dated October 25, 2006) under No. 1166/13040, defines the term of material damage (losses).

In order to estimate the damage (loss) caused to the bank by concluding loan agreements with borrowers, conditions like loss of assets, lost income, and established violations of Ukrainian legislation should be taken into consideration.

The amount of debt to the Bank (including overdue) under loan agreements of borrowers is recorded as the Bank's assets (with regard to the Bank's accounting data). Accordingly, the issuance of credit funds will lead only to a change in the structure of section 2 of the balance sheet "Current assets", since the article "Money and its equivalents" and the article "Receivables" belong to the 2nd section of the assets of the balance sheet, in which the total arithmetic amount of assets does not change under the section, and it will not lead to a decrease in assets due to the transfer (payment) of funds under loan agreements.

The expert economist was given a letter from the National Bank of Ukraine, "Explanation of the reflection in the accounting of individual transactions" (dated December 28, 2009), No. 12-111/1788-24217, which states that "in some cases, financial assets are bought at a large discount, which reflects the losses incurred. Such credit losses are included in the estimated cash flows when calculating the effective interest rate. As a rule, on such loans the creditor does not expect to receive the principal amount of the loan and/or interest in full, therefore, at the end of the term there remains a part of the unamortized discount, which is written off in correspondence with the accounts on which the outstanding principal amount of the loan and/or the outstanding amount of accrued interest is recorded." Paragraph 7 of this letter clarifies that "in accounting, the termination of recognition of assets and liabilities is based on the basic principles of international accounting and reporting standards. Derecognition means writing off an asset or liability from the balance sheet."

According to the Auditors' Report submitted to the expert for the study, the borrowers' debt of the LLC "Company 2" (under the loan agreement dated March 13, 20xx No. xx/xx) and LLC "Company 1" (under the loan agreement dated February 09, 20xx No. xx/xx) consists of the debt on the body of the loans and accrued interest, which are recorded in the accounts of overdue debt. As of the date of the Auditors' Report – January 27, 20xx – the balance sheet of Bank recorded the following debt to the borrowers:

1. LLC Company 2 under the loan agreement No. xx/xx for a total amount of UAH 135,383,435.98, including overdue debt on the body of the loan, which is UAH 119,047,000.00; overdue debt on accrued income, which is UAH 16,336,435.98 (4,067,439.16 + 12,268,996.82).
2. Company 1 LLC under the loan agreement No. xx/xx for a total amount of UAH 143705192.46, including overdue debt on the loan body, which is UAH 126 216 000.00; overdue debt on accrued income, which is UAH 17,489,192.46. (4,354,452.00 + 13,134,740.46).

The total amount of debt is UAH 279,088,628.44.

In this case, the expert analyzes the debt on accounting accounts. It is worth noting that any transactions, including those relating to the amount of losses under loan agreements, must be recorded within the relevant operating period and under the Chart of Accounts of the relevant classification. The Bank will take into account the written-off credit debt on the principal debt at the expense of reserves on the off-balance sheet account 9611 A "Written-off to loss debt on credit transactions", and the accrued interest (but not received) on the written-off overdue debt on the off-balance sheet account 9600 A "Written-off due to special reserves debt on accrued income on transactions with banks." The debit of the account is the amount of debt written off from the balance sheet at the expense of a special reserve. As a rule, banks are required to continue working with such borrowers to repay their debt for at least three years. However, the balances on such accounts are accounted for and recognised as "written-off loan receivables." If the borrower has not repaid the debt, it is written off from off-balance sheet accounts.

As mentioned earlier, the expert economist summarized that the conclusions in the Report on the results of the audit of individual operations of the Bank, dated January 27, 20xx (based on the results of verification of loan agreements concluded in 20xx of Bank, approved by the Authorized Person of the Deposit Guarantee Fund for liquidation of Bank on January 27, 20xx, according to which the losses of Bank are the result of the issuance and maintenance of loans of LLC "Company 1" under the Loan Agreement dated March 13, 20xx No. xx/xx and LLC "Company 2" under the Loan Agreement dated February 09, 20xx No. xx/xx), are not documented.

## CONCLUSIONS

In this paper, we have summarized expert practice in protecting the interests of banks in cases of non-repayment of loans through documentary confirmation of the amount of material damage (losses). The dynamics of problem debt are distinctly cyclical and directly correlate with macroeconomic and political shocks (e.g., the crises of 2008–2009, 2014–2016, and 2022). The peak value of the NPL ratio (over 50%) was recorded in 2017–2018, which indicates the systemic nature of the credit quality crisis. The highest concentration of problem loans was in banks with state ownership – particularly in PrivatBank – where the NPL ratio was 88%. This demonstrates structural problems in credit risk management and a significant share of insider or politically motivated lending in previous periods. Banks belonging to foreign group banks showed the most stable dynamics, with minimal peak values and the fastest portfolio write-offs (decrease to 2.9% in 2021). This indicates more effective risk management systems and a more conservative lending policy. The period from 2019 to 2021 was characterized by an active phase of balance sheet write-offs, due to the write-off of problem debt, loan restructuring, and the implementation of IFRS 9 standards. The full-scale war in 2022 caused a temporary increase in the share of NPLs, but in 2024–2025, there was a trend toward stabilization and a decrease in indicators, which indicated the

adaptive potential of the banking system. We have confirmed that the assessment of a bank's losses due to non-repayment of loans should take into account the macroeconomic context of the loan issuance period, the bank's group affiliation, and the systemic risks of the relevant stage for expert practice.

We have obtained accurate results demonstrating that forensic economic expertise is a key tool for forming an evidence base in criminal, civil, and commercial proceedings – in cases of non-repayment of loans, ownership and quality of collateral, withdrawal of collateral without actual repayment of debt, and assignment of claims at a discount. The proposed integrated methodology, based on double verification (legal and accounting contours) and a multi-level system of control points, increases the consistency of expert conclusions, reduces the risk of methodological errors, and ensures the establishment of causal links between procedural violations and financial consequences through the formation of an evidence matrix.

We found that reliable determination of material damage (losses) required a comprehensive study of the bank's internal policies; regulatory and legal regulations in force on the date of the transactions; credit committee protocols on collateral decisions; credit agreements, restructuring, and collateral agreements; primary documents, accounting data, and information from state registers of rights and encumbrances. This approach allows experts to distinguish between accounts receivable (as an asset in accounting) and the moment when actual losses occur. This is crucial in cases of asset depreciation, write-offs, collateral realisation, reserve formation, and the application of expected credit loss models.

At the same time, analysis of practice has revealed a number of methodological problems: the lack of a unified approach to the composition of losses (principal, interest, penalties, lost income), insufficient standardisation of the definition of the «date of damage», the complexity of documenting the market value and replacement of collateral, the limited use of risk-oriented indicators and forensic analytics in substantiating conclusions.

We propose that further research should be undertaken in the following areas:

1. Standardization of the structure of material damage (losses) in cases of non-repayment of loans, with a methodological distinction between direct losses, lost income, and related financial effects (in particular, losses from discounting when assigning claims).
2. Investigating the relationship between the level of NPLs and the effectiveness of internal control systems.
3. Unification of the approach to the determination of the «date of damage», agreed with accounting principles and procedural requirements, the recording of the moment of objective formation of a negative financial result (valuation/realization of collateral, assessment of depreciation, write-off, etc.).
4. Development of standard models of evidence matrices for expert conclusions according to the following scheme: violation → consequence → financial effect → causal link → documentary evidence, templates for the common cases (replacement of collateral, withdrawal of collateral without repayment, discount assignment, incomplete package of documents).
5. Integration of risk-oriented and forensic analytical tools into the expert examination methodology: indicators of manipulation (overstatement/understatement of collateral value, artificial restructuring), quantitative risk metrics, scenario and stress assessments to objectify conclusions.
6. Further development of methods for reconciling accounting data and state registers, including rules for coordinating internal bank data with the Register of Property Rights, the Register of Mortgages, and registers of encumbrances to minimize evidence on the status of collateral.
7. Harmonization of national expert practice with international approaches to credit risk and loss assessment, adaptation to the Ukrainian legal framework to increase the transparency and comparison of expert conclusions.

The study shows that the problem of non-performing loans in Ukraine isn't just financial, but also institutional. The accumulation of NPLs is a result of macroeconomic shocks and imperfect risk management systems in certain parts of the banking system. These factors are essential to develop an effective methodology for protecting banks' interests. Taking these factors into account is a necessary prerequisite for developing an effective methodology for protecting the interests of banks in the case of non-repayment of loans and determining the amount of losses. Thus, the results of the study confirm the importance of a unified and structured methodology for forensic economic expertise in credit disputes. Further development of standards, verification control points, and evidence-based modeling of causal links will contribute to increasing the reliability of expert conclusions, strengthening the judicial protection of banks' interests, and enhancing the stability of the banking system in conditions of increased credit risks.

## ADDITIONAL INFORMATION

### AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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The Authors declare that there is no conflict of interest.

## REFERENCES

- Alekseenko, M. D. (2002). Bank capital: issues of theory and practice. Monograph. KNEU. 276 p. <https://studentbooks.com.ua/content/view/135/39/>.
- Attitudinal differences among ethnic groups in Hawaii. (n.d.). <https://scholarspace.manoa.hawaii.edu/items/ee7b6650-3606-4078-a591-e13f08700487>
- Annual Report. (2022). [https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/investor-relations/bilanci-relazioni-en/2022/2022\\_Annual\\_report.pdf](https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/investor-relations/bilanci-relazioni-en/2022/2022_Annual_report.pdf)
- Andriy Ramskyi, Valeria Loiko, Olena Sobolieva-Tereshchenko, Daria Loiko, and Valeriia Zharnikova (2017). Integration of Ukraine into the European banking system: cleaning, rebooting and Basel III. *Banks and Bank Systems*, 12(4), 163-174. [https://doi.org/10.21511/bbs.12\(4-1\).2017.05](https://doi.org/10.21511/bbs.12(4-1).2017.05)
- Application of English Language in the Teaching of Criminal Legal Disciplines [Text]: Materials of Interuniversity Scientific and Practical Internet Conference (2019, June 05.). Kyiv: National Academy of Internal Affairs. <https://elar.navy.edu.ua/server/api/core/bitstreams/40121737-65f9-473b-b1b9-a0076a7f70a7/content>
- Bae, J., Berger, Allen, N., Choi, Hyun-Soo, & Kim, Hugh Hoikwang. (2024). Bank Sentiment, Loan Loss Provisioning, and Lending. <http://dx.doi.org/10.2139/ssrn.4745996>
- Birn, M., Corrias, R., Schmieder, C., & Tarashev, N., (2023). Banks' credit loss forecasts: lessons from supervisory data. *BIS Working Papers*, 1125. <https://www.bis.org/publ/work1125.pdf>
- Chernyavskyi, S. S. (2003). Crimes in the field of bank lending (problems of investigation and prevention): a textbook. Kyiv: Jurin kom Inter, 264 p.
- Chernyavskyi, S. S. (2010). The theoretical and practical bases of investigation methodic of financial swindle. *Manuscript*, 36. [https://dspace.nlu.edu.ua/bitstream/123456789/13910/1/Chernyavskyi\\_2010.pdf](https://dspace.nlu.edu.ua/bitstream/123456789/13910/1/Chernyavskyi_2010.pdf)
- Dankiewicz, R., Balawejder, B., Tomczyk, N., & Trynchuk, V. (2021). The impact of the COVID-19 pandemic on the due payments of Polish enterprises from selected industries. *Investment Management and Financial Innovations*, 18(2), 144-154. <https://www.businessperspectives.org/index.php/journals/investment-management-and-financial-innovations/issue-381/the-impact-of-the-covid-19-pandemic-on-the-due-payments-of-polish-entreprises-from-selected-industries>
- Dokiienko, L., Hrynyuk, N., Britchenko, I., Trynchuk, V., & Levchenko, V. (2024). Determinants of enterprise's financial security. *Quantitative Finance and Economics*, 8(1), 52–74. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4722837](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4722837)
- Didkivska, H. V., & Chukhrai, V. V. (2019). Peculiarities of investigation of crimes committed the way of credit and financial operations. *Legal Scientific Electronic Journal*, 6, 370-372. <https://doi.org/10.32782/2524-0374/2019-6/88>
- Drohorub, I. (2014). Relationship definitions of «financial resources of the bank», «bank resources», «resource base of banks». *Finance, cash flow and credit*, 25, 104-108. [http://nbuv.gov.ua/UJRN/Nznuoa\\_2014\\_25\\_19](http://nbuv.gov.ua/UJRN/Nznuoa_2014_25_19)
- Dziubliuk, O. (2023). Problems of intensification of bank lending to the real sector of the economy in the conditions of martial law. *Herald of Economics*, 3, 8-25. <https://doi.org/10.35774/visnyk2023.03.008>
- Economic Systems in the New Era: Stable Systems in an Unstable World (2021). <https://link.springer.com/book/10.1007/978-3-030-60929-0>
- Izarova, I., Hartman, Y., & Nate, S. (2023). War damages compensation: a case study on Ukraine. *F1000Research*, 12, 1250. <https://doi.org/10.12688/f1000research.136162.1>
- International Asset Transfer an Overview of the Main Jurisdictions. A Practitioner's Handbook. (n.d.). <https://www.degruyterbrill.com/document/doi/10.1515/9783899496635/html>
- International Financial Reporting Standard (IFRS). (2017). <https://www.icpak.com/wp-content/uploads/2017/09/IFRS-9-implementation-guideline-revised-by-ICPAK.pdf>
- Hlazunov, A. (2022). Determinants of corporate credit growth in Ukraine: The application of bank lending survey data. *Visnyk of the National Bank of Ukraine*, 254, 4-14. <https://doi.org/10.26531/vnbu2022.254.018>
- Horbenko, K. M., & Zakharchenko, A. O. (2022). Problematic aspects of lending to Ukrainian enterprises. *Finance, cash flow and credit*, 2, 79-87. [https://cms.economics-management.e-u.edu.ua/uploads/1142\\_1\\_1bc4eae3a4.pdf](https://cms.economics-management.e-u.edu.ua/uploads/1142_1_1bc4eae3a4.pdf)

21. Leonard, H. C., Elsabbagh, M., & Hill, E. L. (2014). Early and persistent motor difficulties in infants at-risk of developing autism spectrum disorder: A prospective study. *European Journal of Developmental Psychology, 11*(1), 18–35. <https://doi.org/10.1080/17405629.2013.801626>
22. Herman, O.V. (2021). Administrative and legal provision for interaction of subjects of counteraction to violations of the budget legislation: dissertation. <https://dspace.lvduvs.edu.ua/handle/1234567890/3736>
23. Kamani, E. F. (2019). The effect of non-traditional banking activities on systemic risk: Does bank size matter? *Finance Research Letters, 30*, 297–305. <https://doi.org/10.1016/j.frl.2018.10.013>
24. Kornienko, V. V. (2012). Criminalistic characterization and main provisions of investigation economic crimes committed using banks. *Manuscript, 19*. [https://dspace.nlu.edu.ua/jspui/bit-stream/123456789/14005/1/Kornienko\\_2012.pdf](https://dspace.nlu.edu.ua/jspui/bit-stream/123456789/14005/1/Kornienko_2012.pdf)
25. Kovalenko, M. O. (2014) Sources of formation of bank resources and features of this process at different stages of economic development. *Bulletin of Socio-Economic Research, 3*(54), 212–216. [http://nbuv.gov.ua/UJRN/Vsed\\_2014\\_3\\_34](http://nbuv.gov.ua/UJRN/Vsed_2014_3_34)
26. KWAK, H.S., JEON, I.J., & PERNG, S.K. (1989). Statistical Patterns of Lipase Activities on the Release of Short-Chain Fatty Acids in Cheddar Cheese Slurries. *Journal of Food Science, 54*, 1559–1564. <https://doi.org/10.1111/j.1365-2621.1989.tb05160.x>
27. Makarenko, Yu., & Morokhovets, K. (2016). Incomes and expenses in providing profitability of ukrainian commercial banks. *Investments: practice and experience, 10*, 15–19. [http://www.investplan.com.ua/pdf/10\\_2016/5.pdf](http://www.investplan.com.ua/pdf/10_2016/5.pdf)
28. Martynenko, N. (2024). Areas of modernization of the system of training and certification of forensic experts in Ukraine based on the adaptation of foreign experience. *Forensic Sciences Research, 9*(4). <https://doi.org/10.1093/fsr/owae033>
29. Mishchenko, V. I., Slavyanska, H. G., & Koreneva, O. G. (2007). Banking operations. A textbook. - 2nd edition, revised and supplemented, 796. <https://finance.mnau.edu.ua/files/dystsypliny/bankivska-diyalnist/2007-mischenko-bankivski-operacii.pdf>
30. Ting, M.Y., Teo, F.Y., Theng, I.K.H., & Goh, B.H. (2020). A Feasibility Study of Stormwater Management for a Campus University in Semenyih, Malaysia. In: Mohamed Nazri, F. (eds) Proceedings of AICCE'19. AICCE 2019. *Lecture Notes in Civil Engineering, 53*. Springer, Cham. [https://doi.org/10.1007/978-3-030-32816-0\\_61](https://doi.org/10.1007/978-3-030-32816-0_61)
31. Manual on certain aspects of financial investigations (analysis of financial relations). (n.d.). [https://fiu.gov.ua/assets/userfiles/200/Typologies%20%28National%20Studies,%20Guidances%20etc%29/ENG\\_FINANCIAL%20INVESTIGATIONS%20MANUAL.pdf](https://fiu.gov.ua/assets/userfiles/200/Typologies%20%28National%20Studies,%20Guidances%20etc%29/ENG_FINANCIAL%20INVESTIGATIONS%20MANUAL.pdf)
32. Modern Development Paths of Agricultural Production (2019). <https://link.springer.com/book/10.1007/978-3-030-14918-5>
33. Onyshchenko, Y. I., & Grebenshchikova, T. S. (2016). The factors of bank equity capital formation in Ukraine. *Economy and Society, 2*, 525–530. [https://economyandsociety.in.ua/journals/2\\_ukr/93.pdf](https://economyandsociety.in.ua/journals/2_ukr/93.pdf)
34. Official website of the Ministry of Defense of Ukraine. (n.d.). <https://mod.gov.ua/kontakti>
35. Official website of the National Bank of Ukraine. (n.d.). <https://bank.gov.ua/ua/stability/npl#1243-za-obsyagom-nepratsyuyuchykh-kredytiv-npl>
36. Official website of the Oschadbank. (n.d.). [https://www.oschadbank.ua/sites/default/files/documents-2021/Qs-chadbank%202020%20-%20FS%20CONSO%20\(ENG\).pdf](https://www.oschadbank.ua/sites/default/files/documents-2021/Qs-chadbank%202020%20-%20FS%20CONSO%20(ENG).pdf)
37. Pchelina, O.V., & Kornienko, V.V. (2011). Peculiarities of investigating crimes committed through credit and financial transactions. Methodological recommendations. *Kharkiv National University of Internal Affairs, 36*. <https://dspace.univd.edu.ua/server/api/core/bit-streams/fdf374ed-5640-4414-8914-bde457c98d98/content>
38. Puchkov, O. O., & Gordienko, S. V. (2020). Some aspects of the investigation of crimes related to the withdrawal of funds to foreign accounts by converting the national currency into foreign. *Law and society, 5*, 115–124. [http://pravoisuspilstvo.org.ua/archive/2020/5\\_2020/20.pdf](http://pravoisuspilstvo.org.ua/archive/2020/5_2020/20.pdf)
39. Puchkov, O. O., & Gordienko, S. V. (2020). Methodology features of investigation of crimes, committed in the credit and banking sector. *Prykarpattyia legal bulletin, 2*(31), 163–172. [http://www.piv.nuoua.od.ua/v2\\_2020/35.pdf](http://www.piv.nuoua.od.ua/v2_2020/35.pdf)
40. Poste Italiane SpA. (2024). <https://www.posteitaliane.it/files/1476612043197/Relazione-Finanziaria-Annuale-2023-eng.pdf>
41. Proposals of the European business association concerning the recovery of Ukraine's economy. (2023). <https://greendealukraina.org/assets/images/literature/24-eba-proposals-2023eng.pdf>
42. Property complex of SOE "Ukrainian State Institute for Design of Heavy Engineering Plants". (n.d.). <https://privatization.gov.ua/wp-content/uploads/2024/08/SOE-Ukrainian-State-Institute-for-Design-of-Heavy-Engineering-Plants.pdf>
43. Prymak, T., Ivchenko, L., Pohuda, N., Levchenko, V., & Trynchuk, V. (2020). The peculiarities of establishing the charter air transportation: European experience in Ukraine. *Innovative Marketing, 16*(1), 43–56. <https://www.business-perspectives.org/index.php/journals/innovative-marketing/issue-343/the-peculiarities-of-establishing-the-charter-air-transportation-european-experience-in-ukraine>
44. Korol, M., Bazhenova, O., Korol, I., Starchenko, H., Bazhenov, V., & Banna, O. (2022). REALII TA REZULTATYVNIST FUNKTSIONUVANNIA UKRAINSKOI BANKIVSKOI SYSTEMY. *Financial and Credit Activity Problems of Theory and Practice, 3*(44), 16–29. <https://doi.org/10.55643/fcaptop.3.44.2022.3766>
45. Report of the Auditor-General for the financial year ended december 31. (2023). <https://cite.org.zw/wp-content/uploads/2024/07/Report-of-the-Auditor-General-for-the-Financial-Year-ended-December-31-2023-on-State-Owned-Enterprises-and-Enterprises.pdf>
46. Shim, J. (2019). Loan portfolio diversification, market structure and bank stability. *Journal of Banking and Finance, 104*, 103–115. <https://doi.org/10.1016/j.jbankfin.2019.04.006>

47. Stadnik, L. (2017). Inventory problems in agricultural enterprises and their solutions. *EKONOMIKA TA UPRAVLINNIa APK*, 2. <http://econommeneg.btsau.edu.ua/uk/content/problems-inventoryzacyi-v-silskogospodarskyh-pidpryemstvah-ta-shlyahy-yih-vyrishennya>
48. Strelbytska, L. M., & Strelbytskyi, M. P. (2004). *Osnovy bezpeky bankivskoi systemy Ukrainy ta bankivskoi diialnosti: monohrafiia*. Kyiv: Kondor. <https://surf.li/ojnmwn>

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## **ЕКСПЕРТНА ПРАКТИКА ЗАХИСТУ ІНТЕРЕСІВ БАНКІВ У РАЗІ НЕПОВЕРНЕННЯ КРЕДИТІВ**

Стаття присвячена експертному дослідженню підтвердження розміру матеріальної шкоди (збитків), завданих банкам від неповернення кредитів, що своєю чергою обумовлена важливістю проведення експертних досліджень для аналізу стану функціонування банківської системи.

Метою дослідження є узагальнення методики з проведення експертних досліджень, визначених органами контролю в межах їхньої компетенції, з питань підтвердження розміру матеріальної шкоди (збитків), завданих банкам від неповернення кредитів, на основі узагальнення практики призначення й провадження судово-економічних експертиз.

За результатами дослідження встановлено, що на сьогодні застосування методики з питань підтвердження розміру завданої банкам матеріальної шкоди (збитків) від неповернення кредитів, дозволяє в систематизованому вигляді проводити дослідження на основі узагальнення практики призначення й провадження судово-економічних експертиз. А також надає практичні рекомендації з розв'язання питань, що стосуються документального підтвердження розміру матеріальної шкоди (збитків), завданих банкові, дані яких викладені в акті (звіті, висновку) перевірки, що містить розрахунок матеріальної шкоди (збитків) банку, виконаний на підставі низки облікових і регулюючих документів.

**Ключові слова:** банківське кредитування, збитки, матеріальна шкода, економічна експертиза, втрата активів, доходи, банки, кредити, дисконт, застава

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