

DOI: [10.55643/fcapter.3.62.2025.4748](https://doi.org/10.55643/fcapter.3.62.2025.4748)
Larysa Hrytsenko

D.Sc. in Economics, Professor,
 Technical University of Denmark,
 Ballerup, Denmark;
 Head of the Department of Financial
 Technologies and Entrepreneurship,
 Sumy State University, Sumy, Ukraine;
 e-mail: grjcenko-l@ukr.net
 ORCID: [0000-0003-3903-6716](https://orcid.org/0000-0003-3903-6716)
 (Corresponding author)

Iryna Kozhushko

Trainee, University of Applied Sciences
 Baltazar Zapresic, Zapresic, Croatia;
 Sumy State University, Sumy, Ukraine;
 ORCID: [0009-0005-7793-2767](https://orcid.org/0009-0005-7793-2767)

Onur Erisen

PhD in Accounting and Finance,
 Assistant Professor, Vice Dean of the
 Faculty of Business Administration,
 Marmara University, Istanbul, Turkey;
 ORCID: [0000-0002-7945-8318](https://orcid.org/0000-0002-7945-8318)

Vitaliy Romanchukevych

D.Sc. in Economics, Professor of the
 Department of Banking and Insurance,
 Vadym Hetman Kyiv National Economic
 University, Kyiv, Ukraine
 ORCID: [0000-0001-9393-5590](https://orcid.org/0000-0001-9393-5590)

Yevhen Chernov

PhD Student of the Department of
 Financial Technology and
 Entrepreneurship, Educational and
 Scientific Institute of Business,
 Economics and Management, Sumy
 State University, Sumy, Ukraine;
 ORCID: [0009-0004-7317-8456](https://orcid.org/0009-0004-7317-8456)

Petro Tarabanovskiy

PhD Student of the Department of
 Finance, Banking and Insurance, Lutsk
 National Technical University, Lutsk,
 Ukraine;
 ORCID: [0009-0003-2861-5189](https://orcid.org/0009-0003-2861-5189)

Received: 16/03/2025

Accepted: 28/05/2025

Published: 30/06/2025

© Copyright
 2025 by the author(s)



This is an Open Access article
 distributed under the terms of the
[Creative Commons CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/)

REGULATION OF A BANK'S CREDIT RISK IN THE CONTEXT OF ECONOMIC INSTABILITY: A CASE STUDY OF UKRAINE

ABSTRACT

The article is devoted to the issue of regulating the bank's credit risk in the context of economic instability. The relevance of the study is due to the high level of influence of the volatile environment on the credit risk and the efficiency of the bank's functioning. The article is aimed at assessing the mechanisms of state regulation of the bank's credit risk in the context of economic instability in Ukraine's case study. The article considers the requirements of Basel III, which regulates this aspect of banking activity at the European level. In the course of the study of Ukraine's experience, a detailed analysis of the adaptation of international standards to the existing conditions of the national banking system was carried out on the basis of the provisions set out in the Resolution of the National Bank of Ukraine No. 351. In order to assess the impact of adapting Basel III requirements the quality of the loan portfolio of five Ukrainian banks and the banking system as a whole are analyzed. The statistical study established the relationship between the level of credit risk, adequacy of provisions and profitability of banking activities. The results of the assessment demonstrated a significant positive impact of the NBU's approaches on the process of maintaining the stability of the banking system in the current socio-political crisis. The scientific novelty of the work lies in a comprehensive assessment of the effectiveness of credit risk regulation of banks in Ukraine in the context of economic instability, including an analysis of the harmonization of international standards with the national conditions, and an empirical study of the impact of adapted requirements on the quality of the loan portfolio. The study identified prospective directions for improving the methodology for assessing and managing credit risk in the context of economic instability.

Keywords: bank credit risk, transfer pricing risk, credit risk management, reserves, credit risk assessment, management accounting, agricultural lending, motivation, international approaches, Basel III

JEL Classification: E51, E58, G21, G28

INTRODUCTION

At the current stage of development, which is characterized by constant variability and instability of the national economy, the issue of effective risk management is particularly relevant for banks, as well as for any business entities. The deteriorating financial situation and crisis trends in the country against the backdrop of full-scale military operations are currently having a significant impact not only on the performance of the banks themselves but also on the solvency of the population and businesses, thereby increasing the importance of credit risk, which directly affects the liquidity and stability of the banking system (Dotsenko I., 2024). Additionally, the importance of this issue for banks is actualized against the background of toughening regulatory requirements of the National Bank, a dynamically growing share of non-performing loans in the banking system's portfolio and, as a result, the need to form additional provisions to cover potential losses from them, the inability to predict and adequately forecast their activities, etc.

Bank lending is not only one of the most profitable operations in banking, but it is also of great importance for the country's economic development, redistributing free resources to those areas that need them for their expanded reproduction. In view of this,

the study of bank credit risk and its regulation by the state is relevant not only to maintain the stability of their operations in a crisis but also to continue supporting the development of the national economy through lending to the real sector, which in the long run may have a significant positive effect on the post-war economic recovery of Ukraine. The study of this issue is also of a strategic nature, as it allows for the development of new, innovative approaches to risk management and credit policy, which can form the basis for future reforms of the Ukrainian banking system.

Due to the objective nature of credit risk, it is virtually impossible for banks to avoid it completely. Each time a bank agrees to disburse a certain amount of funds to a counterparty or provides such commitment, it assumes the appropriate amount of credit risk, and the higher the potential profit from the transaction, the higher the amount of risk involved. Despite the significant efforts of banks to reliably assess such threats and effectively manage them, it is impossible to fully identify and avoid possible negative consequences at the level of an individual institution in the current environment (Pokhylyk C. & Novikov V., 2019). This is due, in particular, to the probabilistic nature of credit risk and its significant dependence on a number of factors (Figure 1), which, moreover, cannot always be controlled or even foreseen by the bank.

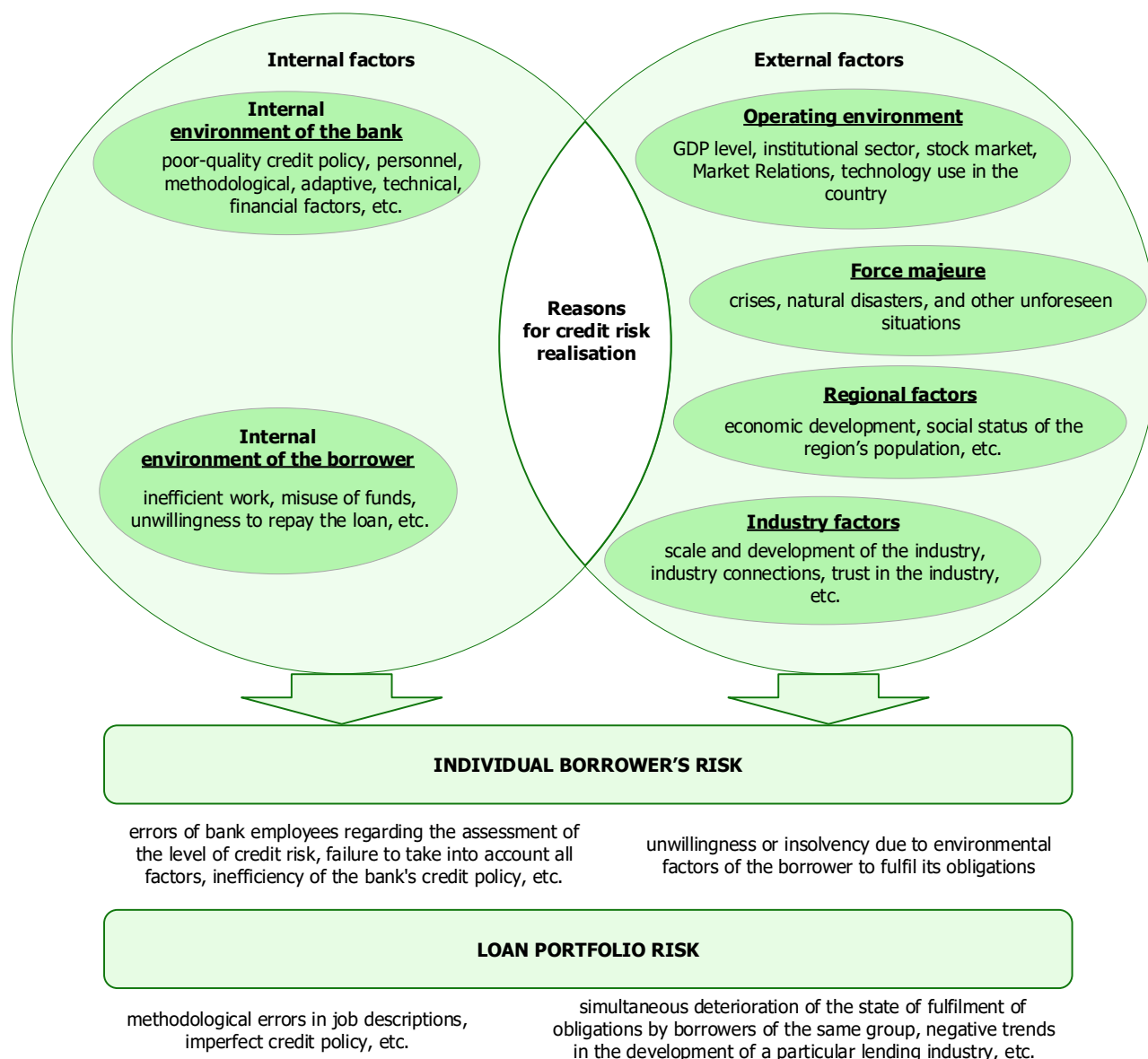


Figure 1. Main reasons for the realization of a bank's credit risk. (Source: systematized by the author based on Pavlenko L. & Kozhushko I., 2021; Fedina V., 2023; Shilo J., 2021; Marchenko O. et al., 2022; Sadchykova I. & Onoprienko A., 2022)

The data in Figure 1 confirm that the realization of credit risk and the scale of its consequences mainly depend on the impact of external factors – negative changes in the operating environment, force majeure, regional and industry factors, etc. As we can see, such an impact is system-wide, i.e., the outlined aspects have an impact not only on individual

institutions but on the system as a whole (Pavlenko L. & Kozhushko I., 2021). In view of this, we are once again convinced of the importance of the central bank's role in regulating credit risk, since it is its actions and the most complete understanding of the banking system's environment that can minimize the riskiness of lending activities, and thus the potential negative consequences for each institution, to some extent (Marchenko O. et al., 2022).

Despite the described almost uncontrollable influence of external factors, the consequences that credit risk can have on the stability of each individual bank are quite significant and diverse. The main manifestations of credit risk include the following (Abbas F. et al., 2019):

- reduction of bank liquidity;
- deterioration of financial stability;
- loss of confidence of stakeholders;
- increase in risk management costs;
- emergence of legal risks;
- imbalance in the structure of assets and liabilities;
- downgrading of the bank's credit rating;
- violation of strategic plans, etc.

In addition to increasing financial losses or even bank losses, these negative trends are also quite threatening for the banking system as a whole. First of all, the deterioration of the stability of individual institutions may lead to systemic crises in the future – the so-called "domino effect", which, due to the interconnectedness of the industry, can lead to significant negative consequences at the macro level (Kuznetsova A. et al., 2017). Thus, we can see that credit risk is an important aspect of activities not only at the level of individual financial institutions, but can also have a significant impact on the stability of the banking system and, consequently, the country's economy as a whole.

LITERATURE REVIEW

The study of credit risk as a phenomenon accompanying banking activities has been devoted to a significant number of scientific works by both Ukrainian and international scholars. This can be confirmed by a significant number of scientific publications in this area – the Scopus bibliometric database alone has 2,080 documents since 1979 (Scopus, 2025). That is, in addition to the significant interest of scientists in the issue of credit risk, we can also conclude that there is a rather long history of its research, however at a more active pace only since 2004, as evidenced by the data in Figure 2.

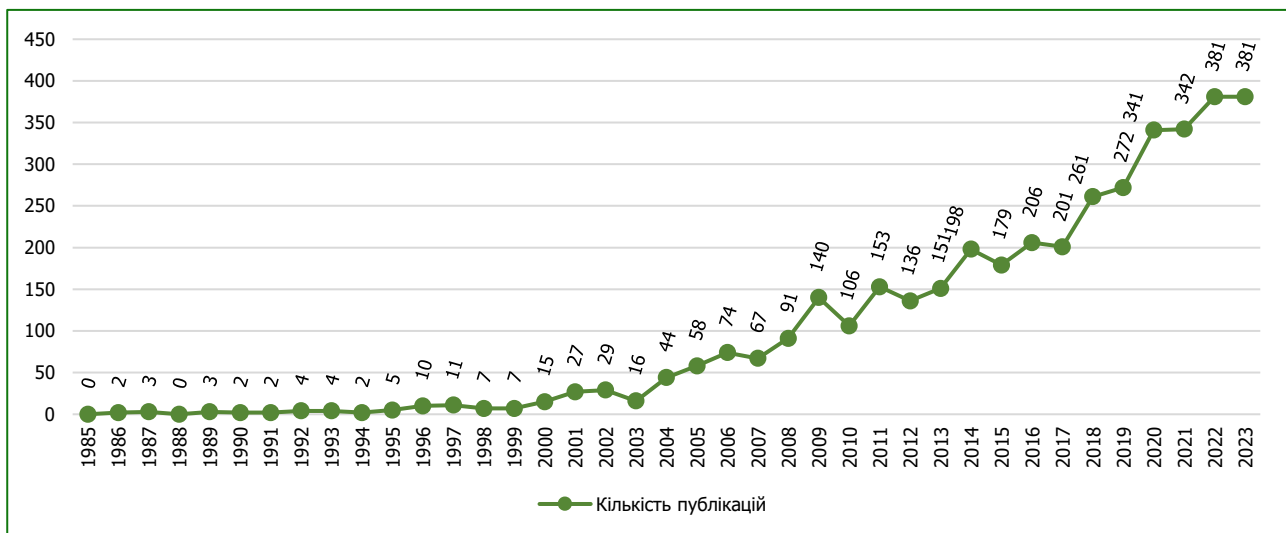


Figure 2. Dynamics of publication activity in researching issues related to the bank's credit risk. (Source: compiled by the author based on Scopus data, 2025)

The scientific interest of researchers tends to gradually increase at an increasing pace. It is also important to note that there was a significant increase in some years – 2006, 2009, 2011, 2014, 2018, 2022, 2022. Taking into account the geopolitical situation and general trends in economic development, this phenomenon becomes quite transparent: the

of their study in the context of sustainable development, which is expressed by the terms “environmental economics”, “green credit policy”, and others.

In general, the scientific literature reviewed by the authors pays considerable attention to the issue of credit risk and its impact on the banking system. A significant number of studies are aimed at exploring the possibilities of the most complete and reliable assessment of credit risk and its further management. Legislative regulation, which has a direct impact on the lending activities of second-tier institutions, is also important in this regard. Thus, one of the fundamental resolutions in this area, Resolution of the Board of the National Bank of Ukraine No. 351 “On Approval of the Regulation on Determination of the Amount of Credit Risk by Banks of Ukraine for Active Banking Operations” (Resolution of the National Bank of Ukraine No. 351, 2024), defines the general framework for the functioning of banks in this area, within which the last ones should further develop their own strategies and policies for credit risk management. Such a significant role of this regulatory act, in particular, confirms the need for a thorough study of the approaches set forth in it and the study of the effectiveness of their implementation by Ukrainian banks.

AIMS AND OBJECTIVES

Given the importance of banks’ lending activities for maintaining the stability of both the banking system and the country’s economy as a whole, the purpose of this paper is to study the issue of state regulation of bank credit risk in an unstable environment as well as to assess existing approaches its assessment on the example of Ukraine. To achieve this goal, the following tasks were performed:

- to identify exogenous and endogenous factors influencing the probability of realization of bank credit risk in conditions of significant economic instability;
- to study the current methodology for assessing bank credit risk approved by the National Bank of Ukraine and assess its comparability with the approaches set out in Basel III and IFRS 9;
- to conduct a statistical analysis of the impact of the regulatory requirements of the National Bank of Ukraine on the assessment of bank credit risk on the financial performance of both individual banks and the banking system as a whole for the period 2017-2023.

METHODS

A number of methods of scientific cognition were used in the course of the study. In particular, the method of scientific abstraction and logical generalization was used to determine the exogenous and endogenous factors of influence on bank credit risk. The bibliographic method was used to study the level of scientific interest and directions of study of the analyzed issue. When considering the European and Ukrainian legislative norms on bank credit risk assessment, the methods of systematization and comparison of data were used. In analyzing the current state and dynamics of the credit risk of Ukrainian banks, the article uses generalization, systematization, synthesis and detailing of data, comparative and statistical analysis, as well as analytical and graphical methods of data presentation.

RESULTS

The credit risk of banks in Ukraine is regulated by a number of rules, instructions and resolutions of the National Bank of Ukraine. One of the key legislative acts in this regard is the Resolution of the National Bank of Ukraine No. 351 “On Approval of the Regulation on Determination of the Credit Risk Amount for Active Banking Operations by Ukrainian Banks.” The approaches outlined in this document are an adaptation of the international requirements for regulating a bank’s credit risk set out in Basel III. The main aspects, as well as the areas of adaptation of such requirements to the national environment of the bank’s operation, are shown in Table 1.

Table 1. Adaptation of the Basel III requirements to the bank's credit risk management in the Resolution of the National Bank of Ukraine No. 351. (Source: systematized by the author on the basis of Resolution of the National Bank of Ukraine No. 351, 2024; Basel III, 2011)

Features	Basel III	Resolution of the National Bank of Ukraine No. 351
Approach to regulating the bank's credit risk	Defines credit risk as the main category of risk for the banking system and provides comprehensive requirements for calculating capital to cover it. It uses a Standardised Approach (SA) and an Internal Ratings Based Approach (IRB), which includes a Foundation (FIRB) and an Advanced (AIRB) level	Establishes a methodology for assessing credit risk for Ukrainian banks using approaches based on the principles of the Basel Committee. Determines the amount of credit risk based on the following key components: Exposure at Default (EAD), Probability of Default (PD) and Loss Given Default (LGD)
Bank's credit risk assessment methods	Standardised Approach (SA), foundation and advanced internal rating approach (FIRB, AIRB)	Determination of the debtor class, credit risk assessment on an individual, group or simplified basis
Probability of Default (PD) assessment	Calculated based on the bank's historical data or external ratings	Determined in accordance with the class of the debtor and its history of fulfilment of obligations
Loss Given Default (LGD) assessment	Determined based on the value of collateral and the bank's historical losses	Calculated taking into account the liquidity of the collateral and possible costs of its realisation
Exposure at Default (EAD) assessment	Includes all possible sources of credit risk, including off-balance sheet commitments	Determined by established ratios depending on the type of asset
Usage of external ratings	Used in the Standardised Approach (SA)	Mainly based on banks' internal assessments
Consideration of the collateral	Included in the LGD calculation and may result in lower capital requirements	Used to reduce the amount of credit risk
Types of collateral	Movable and immovable property, the government guarantees	Property pledges, government guarantees, securities
Counterparty risk accounting	Measured through CVA (Credit Valuation Adjustment)	Considered in internal banking methods
Calculation of a bank's credit risk exposure	<p><u>Standardised Approach (SA):</u> $RWA = EAD * RW$ where EAD – exposure at default; RW – risk weight determined for a particular type of asset or counterparty</p> <p><u>Internal Rating Based Approach (IRB):</u> $RWA = EAD * LGD * f(PD, M)$ where LGD – loss given default; PD – probability of default; M – maturity of the asset</p>	<p><u>Credit risk of an individual borrower:</u> $CR = EAD * PD * LGD$ where EAD – exposure at default; PD – probability of default; LGD – loss given default</p> <p><u>Group credit risk assessment:</u> $CR = \sum_{m=1}^n EAD_m * PD * LCD$ where n – the total number of loans in the group; PD – average probability of default; LGD – average loss given default</p>
Capital requirements	Tier 1 capital: minimum 6 %. Total capital (Tier 1 + Tier 2): 8 %; with additional buffers can be up to 13 %. Countercyclical buffer: from 0 % to 2.5 %, depending on macroeconomic conditions	Minimum bank capital: not less than 10 % of risky assets. Capital buffers – applied to systemically important banks, similar to Basel III.
The bank's credit risk management	Includes the use of stress testing as a key tool for assessing the impact of potential shocks on a bank's capital. The supervisory process (Pillar 2) plays an important role, allowing regulators to require additional capital depending on the bank's risk profile	Requires banks to apply their own approaches to credit risk assessment, with the possibility of adjustments by the NBU in case of violations or underestimation of risk. Banks must regularly report on their risk exposures and make provisions to cover expected losses
Stress testing	Standard stress tests are used, considering global economic risks	The early warning system is used, considering individual bank indicators

The data in the table show that the National Bank of Ukraine (NBU) has integrated key aspects of Basel III into national practice by its Resolution No. 351 while adapting them to the specifics of the domestic market. Thus, the Ukrainian regulations retain the concept of using the Probability of Default (PD), Loss Given Default (LGD), and Exposure at Risk (EAD), which is fully consistent with the international standards under review. At the same time, the NBU sets stricter requirements for internal control and assessment of the debtor's financial condition. Another distinctive aspect of credit risk regulation is the availability of simplified approaches to risk assessment in Resolution No. 351, which are applied to small banks in certain lending segments and for low-risk assets. In addition, banks in Ukraine are allowed to use individual credit risk assessment methodologies for such areas as investment projects and specialised loans.

An important feature of the Ukrainian credit risk regulation is the expanded use of internal bank policies compared to Basel III. While Basel III allows institutions to use internal rating models (IRBs), the NBU obliges banks to develop relevant internal regulations on credit risk assessment and regularly reviews and approves them. In addition, the internationally accepted Standardised Approach is based on the use of external credit ratings, which is not possible in Ukraine due to the lack of a sufficient number of rating agencies. In this regard, the importance of banks' internal models is further enhanced. Importantly, the NBU also imposes additional requirements on banks to assess the level of liquidity, profitability and debt burden of a client, which is an integral part of credit analysis. At the same time, such assessment under Basel III is optional and is mainly based on credit ratings.

Other features related to the adaptation of Basel III requirements to the Ukrainian banking environment include the following:

1. Different capital requirements: The NBU sets 10 % for all banks, as well as additional requirements for systemically important banks, while Basel III sets a universal framework for capital, namely a minimum of 8 % plus buffers.
2. Stricter requirements for loan collateral: in Basel III, loan collateral only affects the calculation of LGD, while the NBU sets specific strict requirements for the liquidity of collateral and its valuation.
3. Higher frequency of credit risk assessment: in accordance with the Basel III approach, the regulator monitors credit risk on an annual or quarterly basis, while in Ukraine, credit risk assessment is reviewed on a monthly basis.
4. Mandatory provisioning for possible credit losses: Resolution No. 351 establishes clear requirements for the formation of loan loss provisions, while Basel III provides flexibility in this regard, taking into account individual bank approaches.
5. Expanded control over the debtor's risk: while Basel III focuses on rating agencies, the NBU requires a detailed internal assessment of the borrower's financial condition, taking into account the data of its financial statements, overdue liabilities, business reputation, etc.
6. The flexibility of requirements: Resolution No. 351 provides for a flexible definition of default (in relation to loans granted in times of war, economic crisis, etc.), while Basel III regulates only universal mechanisms.

Thus, despite the significant similarity of approaches to credit risk regulation, the Basel III requirements in Ukraine are significantly adapted to the conditions of the banking system. The need for the described difference in requirements can be explained by the following:

1. The macroeconomic situation in the country: the Ukrainian economy is currently more exposed to the negative impact of currency risks, inflation and instability in general, which makes stricter requirements and more frequent monitoring of compliance necessary.
2. Low creditor protection: in Ukraine, the mechanisms for debt collection and collateral realisation are imperfect, which, in particular, necessitates additional requirements for the quality of loan collateral and the formation of loan loss provisions.
3. Low quality of the banking system's loan portfolio: the high NPLs rate obliges banks to conduct a more detailed assessment of debtors and to create larger provisions for possible losses.
4. Lack of credit rating infrastructure: Basel III provides for the widespread use of rating agency data, which is not sufficiently developed in Ukraine, leading banks to rely more on internal approaches to credit risk assessment.
5. Consideration of local conditions: the Ukrainian market has a number of specific characteristics that make it impossible to use the Basel III requirements without their adaptation to these conditions, in particular, some Ukrainian banks do not have sufficient resources to comply with all the requirements of Basel III.
6. Insufficient data for risk modelling: Basel III focuses on the use of internal models (IRBS), which is not possible for a significant number of Ukrainian banks due to the lack of historical data.
7. High credit risk: due to the significant instability and unpredictability of the operating environment, the NBU sets higher requirements for risk assessment and provisioning in order to avoid crises in the banking system.

Despite some differences between the national requirements and the international ones, the adaptation of the Basel III approaches has had a significant positive effect on the Ukrainian banking system. First of all, compliance with the adapted requirements for credit risk assessment allows banks to improve their financial stability by better-assessing risks and responding promptly to them. In addition, due to the strict regulatory requirements, Ukrainian banks are now equipped

with effective tools for managing NPLs, which in the long run will lead to a significant improvement in loan portfolio quality. Another positive aspect is the harmonisation with international standards, namely European standards, which is an important step in the course of European integration processes. Thus, the adapted requirements will make it possible for Ukrainian banks to enter the international market, attract foreign investment, cooperate with foreign financial institutions, etc.

Basel III is the basis for regulating credit risk in the international market, but its implementation in Ukraine without adaptation is currently not possible due to a number of conditions. The analysis of the legislation has shown that Resolution No. 351 largely adapts the requirements of international standards to Ukrainian realities, ensuring enhanced control over credit risk and thereby contributing to the financial stability of banks. This adaptation also helps to strike a balance between international standards and national needs, positively contributing to the resilience and efficiency of the banking sector. It can be confirmed by certain positive aspects of the loan portfolio quality of Ukrainian banks, despite the difficult operating environment.

Lending activities have long played a major role in the activities of the Ukrainian banking system – on average, the loan portfolio accounted for 71.85 % of total assets in 2004 – 2015. Since 2015, with the exception of certain periods, this indicator has been on a gradual decline. Taking into account the operating environment and negative force majeure events, the root cause of such changes is clear: an increase in external threats and, consequently, the amount of credit risk. The trend line for the share of credit assets (Figure 6) confirms this aspect. In addition, based on the calculations and the ongoing instability of the country's economy, we can predict the continuation of the described trend.

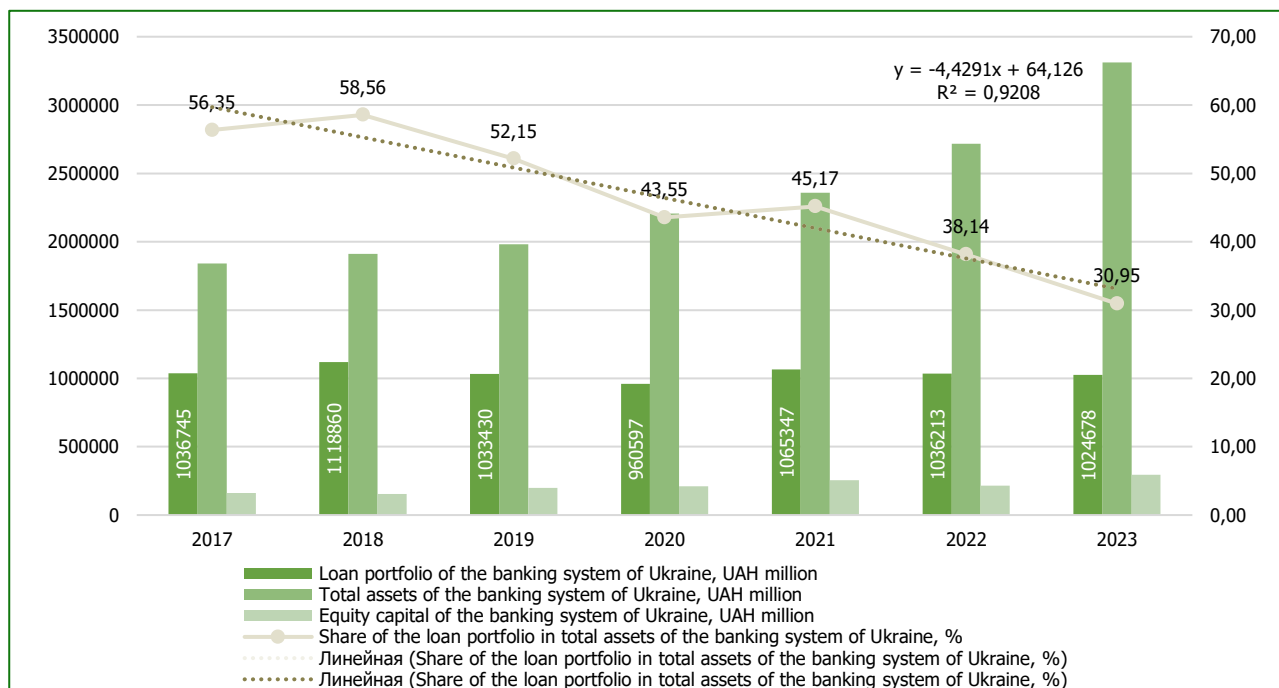


Figure 6. Dynamics of the volume of lending activities of the banking system of Ukraine in 2017 – 2023. (Source: compiled by the author based on Supervisory statistics of National Bank of Ukraine, 2024)

The decline in the share of the loan portfolio was particularly rapid from the beginning of the military period – 2022-2023. This period was characterized by a rather rapid increase in the banking system's assets, along with a gradual decline in the share of lending activities. That is, despite the opportunities for active operations and record profits (National Bank of Ukraine, 2024), banks continue to reduce their lending activities. Such actions of the banking system are quite logical, including due to the increased and unpredictable credit risk.

According to the definition of the National Bank of Ukraine (National Bank of Ukraine, 2017), a non-performing loan is "an asset for which the debt is overdue for more than 90 days (30 days for debtor banks) or for which the debtor is unable to meet its obligations without taking possession of collateral". The analysis of the volume and share of non-performing loans, in general, gives grounds to conclude that the loan portfolio management was effective in retrospect. The highest share of non-performing loans in the system's portfolio was in 2017 – 57.39 %, followed by a gradual decline until 2021 when a relative minimum of 32.40 % was recorded. In other words, the banking system has been quite successful in absorbing credit risks associated with the Covid-19 pandemic, the negative impact of which did not interrupt the downward trend in

NPLs in 2020, despite the decline in the loan portfolio. At the same time, in 2022, we can see a significant increase in the volume of non-performing loans to customers, which reached 41.70 %, which is 9.3 percentage points higher than in the previous period. Such a sharp change in the situation is entirely due to external factors beyond the banks' control that emerged in 2022, which once again confirms the particular importance of credit risk management in times of instability. Speaking about the level of coverage of the loan portfolio by provisions for active operations, it should be understood that this is one of the methods of managing and minimizing a bank's credit risk, which generally serves as a reserve of the institution's resources to cover possible losses in the event of a credit risk. In other words, provisioning is a risk management tool that is not aimed at preventing the occurrence of credit risk, such as limiting or rationing, but rather at dealing with the consequences of its realization.

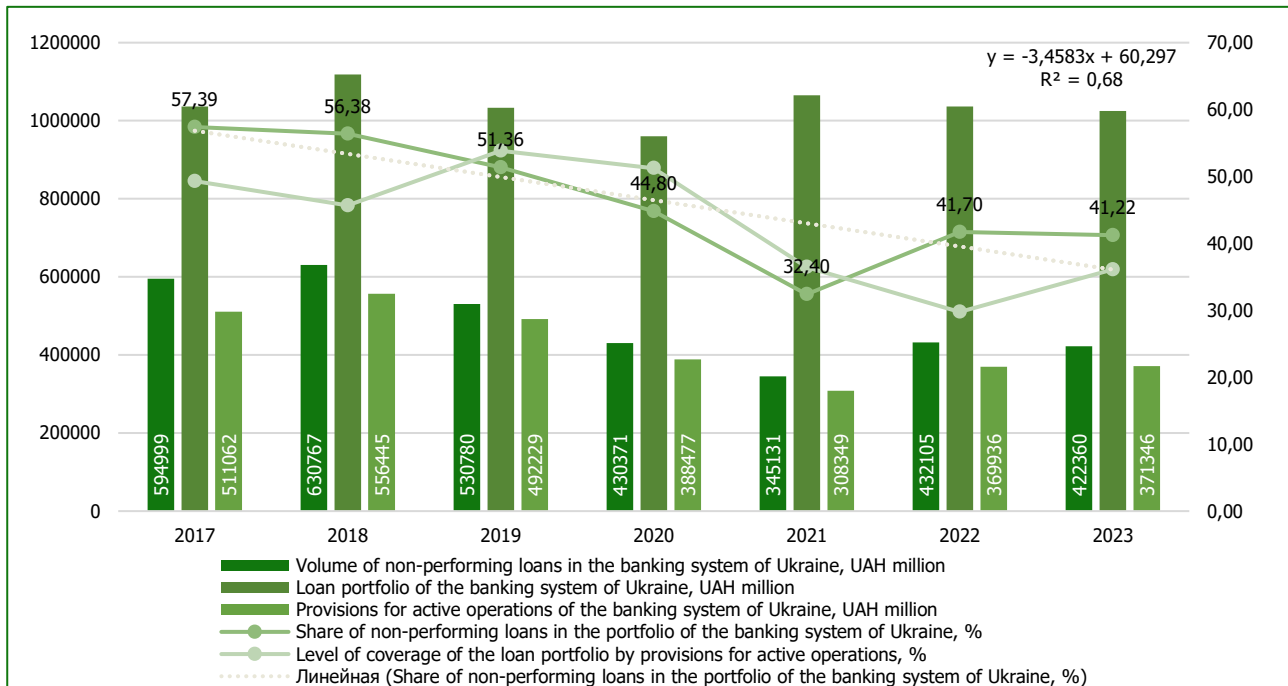


Figure 7. The share of NPLs in the portfolio of the Ukrainian banking system and the level of their coverage by provisions for active operations in 2017 – 2023. (Source: compiled by the author based on Supervisory statistics of National Bank of Ukraine, 2024)

The data in Figure 7 show that the amount of provisions made for active operations of the Ukrainian banking system is quite sufficient given the quality of the portfolio and the situation in the country in certain periods. In some periods, such as 2019 – 2021, the level of loan portfolio provisioning was higher than the share of non-performing loans, which may indicate that the system is able to offset losses from its resources. We can also see that in a period of significant instability in 2022, the banking system increased its provisions, which is due to the growing riskiness of lending operations. At the same time, such actions did not help the industry's institutions generate even sufficient resources to cover NPLs, whose share in the portfolio increased significantly over the period. The situation improved somewhat in 2023, but banks are still unable to fully cover losses on NPLs with provisions.

It is also important to understand the case of 2021, when, while the loan portfolio grew by 10.90 % compared to the previous period, the amount of provisions decreased by 20.63 %. In general, this can be explained by a certain level of stabilization of the economic situation in the country and improvement in the quality of the loan portfolio over that period, as evidenced by the share of non-performing loans in it at 32.40 %. In other words, banks did not need to form significant provisions and could use the freed-up resources for additional lending and, consequently, generate income. This situation highlights several important aspects of the method of minimizing credit risk through provisions. First, the more stable and predictable the situation in the economy, the less the bank needs to use this method (as demonstrated in 2021). Secondly, and this is one of the main drawbacks of the tool, provisioning leads to the 'freezing' of a significant portion of the bank's resources that could be used for active operations to generate income, and therefore, the higher the threats associated with lending to the bank, the fewer opportunities it has for further lending and/or investment activities.

The described aspects, namely NPLs and the level of their provisioning, should also be considered in the context of individual banks, which can best demonstrate the state of this area of the Ukrainian banking system. For the analysis, we selected representatives of different groups of banks, namely: a state-owned bank – JSC Oschadbank; a bank with fully

foreign capital – JSC UkrSibbank; a bank with private capital – JSC PUMB; a bank with the highest share of NPLs – JSC PrivatBank; and a specialized bank – JSC Bank Portal. In our opinion, it is through the analysis of credit risk in the example of these institutions that we can most fully assess the effectiveness of the implementation of the regulatory requirements set out in Resolution No. 351. Let's consider the credit risk indicator and its coverage of class 10 corporate customer debt, which is a reflection of NPLs (Figure 8).

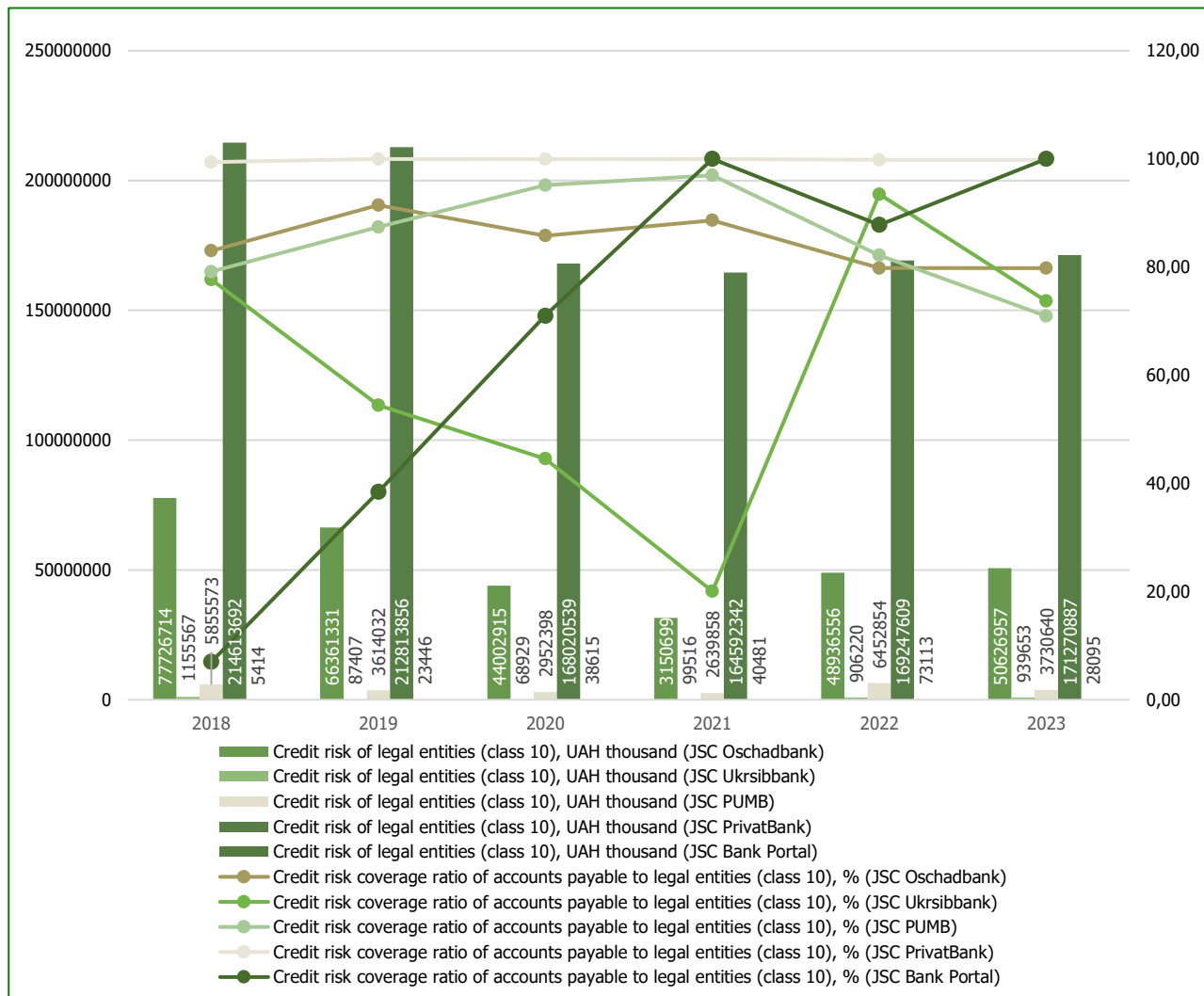


Figure 8. Amount of credit risk coverage of the non-performing loan portfolio of legal entities by banks in 2018 – 2023. (Source: compiled by the author based on Supervisory statistics of National Bank of Ukraine, 2024)

JSC UkrSibbank has one of the most difficult situations with regard to credit risk coverage: only in 2022, this indicator had a rather high value of 93.47 %, which is an objective phenomenon. In general, during 2018 – 2023, the level of credit risk coverage tended to decrease along with the growing credit risk. In this aspect, it is worth noting the general trend towards a significant reduction in the bank's lending activities – as of the end of 2023, it was only 7.92 % of total assets. Similar trends are also inherent in JSC PUMB, with the difference that the average value of the analyzed indicator for the period is significantly higher than that of the previous bank – 85.29 % (compared to 60.66 % at JSC UkrSibbank). In addition, the amount of credit risk of this bank is almost 8 times higher, which may indicate that private Ukrainian banks are more inclined to lend even under unstable conditions that characterized the period of 2018 – 2023 than foreign banks, which may be due to the need for the latter to comply not only with national requirements but also with international ones, and to conduct their activities in accordance with the policies and rules of the foreign financial group to which they belong.

The highest level of coverage of NPLs of legal entities is that of JSC PrivatBank, which averaged 99.83 % over the period. It should be noted that given the highest portfolio of non-performing assets, as well as its particular importance for the functioning of the banking system as a whole, the bank requires special attention from the regulator. The amount of credit risk calculated in accordance with the methodology of Resolution No. 351 allows the bank to form sufficient reserves,

which will allow it to absorb its financial losses in the event of a risk materializing. Speaking of another state-owned bank, JSC Oschadbank, we see fairly stable dynamics, whereby, despite fluctuations in the amount of credit risk, its coverage remained almost stable – on average, 84.75 %. As for the JSC Bank Portal, by 2023, we see a rather rapid growth of non-performing loans of legal entities in its portfolio, which, accordingly, led to an increase in credit risk. We also see a positive trend towards an increase in the coverage ratio, which as of the end of 2023 amounted to 100.00 % of the total debt.

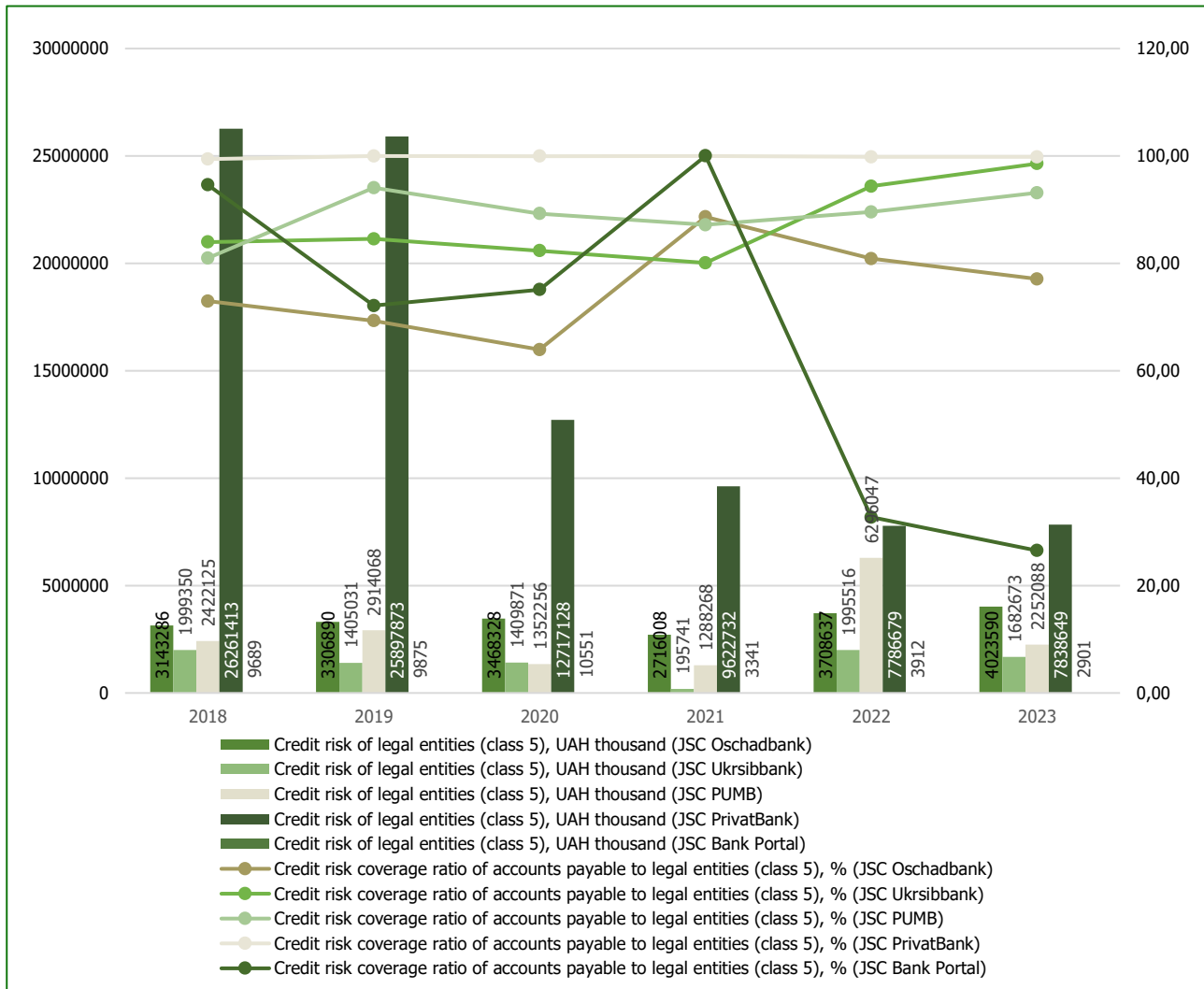


Figure 9. The amount of credit risk coverage of the NPL portfolio of individuals by banks in 2018 – 2023. (Source: compiled by the author based on Supervisory statistics of National Bank of Ukraine, 2024)

As practice shows, lending to the retail sector is riskier than lending to the corporate sector for a number of reasons, and therefore requires even more detailed assessment and effective provisioning for bad debts. Figure 9 shows that the highest percentage of bank NPLs covered by credit risk is at PrivatBank, at 93.41 %. In other words, in general, the bank almost fully covers NPLs in its portfolio of both corporate and retail loans. This may indicate that the bank's risk management is quite effective, as well as the formation of sufficient risk provisions. The same positive trends can be seen in the coverage ratio for JSC Ukrsibbank and JSC PUMB, whose credit risk has been gradually increasing and, as of 2023, covered almost all of the debt of legal entities of class 10. In other words, both banks are being quite cautious and increasing their provisions in order to minimize potential financial losses as much as possible.

Considering the results of JSC Oschadbank for the wartime period, we see that, with the growth of credit risk, the level of coverage of NPLs by the bank decreased and as of the beginning of 2024 amounted to 77.08 %. Given the instability of the operating environment and the gradual increase in NPLs, this situation may pose a threat to the stability of the bank's operations. The worst situation in this aspect is in JSC Bank Portal, whose credit risk coverage ratio for non-performing loans was only 26.51 % in 2023. This means that the bank does not have sufficient resources, and in the event of a credit risk materializing, it could lead to significant losses or even bankruptcy.

In general, the analysis shows that the most cautious in their lending activities are JSC UkrSibbank, as a representative of banks with foreign capital, and the private bank JSC PUMB. The most positive results were demonstrated by JSC PrivatBank, which, despite the highest share of non-performing loans among Ukrainian banks, had sufficient coverage of such debt, which is positive in terms of maintaining the stability of the institution's functioning in the current unstable environment. Speaking about the small specialized bank JSC Bank Portal, we see certain problems with the level of coverage and the need for urgent management actions to resolve them. Thus, we can conclude that the methodology of Resolution No. 351 generally had quite positive consequences for risk management and maintaining the stability of banks in today's extremely dynamic environment. At the same time, the formation of a significant amount of provisions for active operations may have not only positive consequences for the institution's operations. Provisioning as a method of minimizing credit risk entails the diversion of a bank's free resources and their 'freezing' on its accounts. In other words, in order to really maintain the stability and efficiency of a bank's operations, it is necessary to strike a balance between these two aspects. Let's analyze what share of operating income banks allocate to provisions and how this affects their profitability (Figure 10).

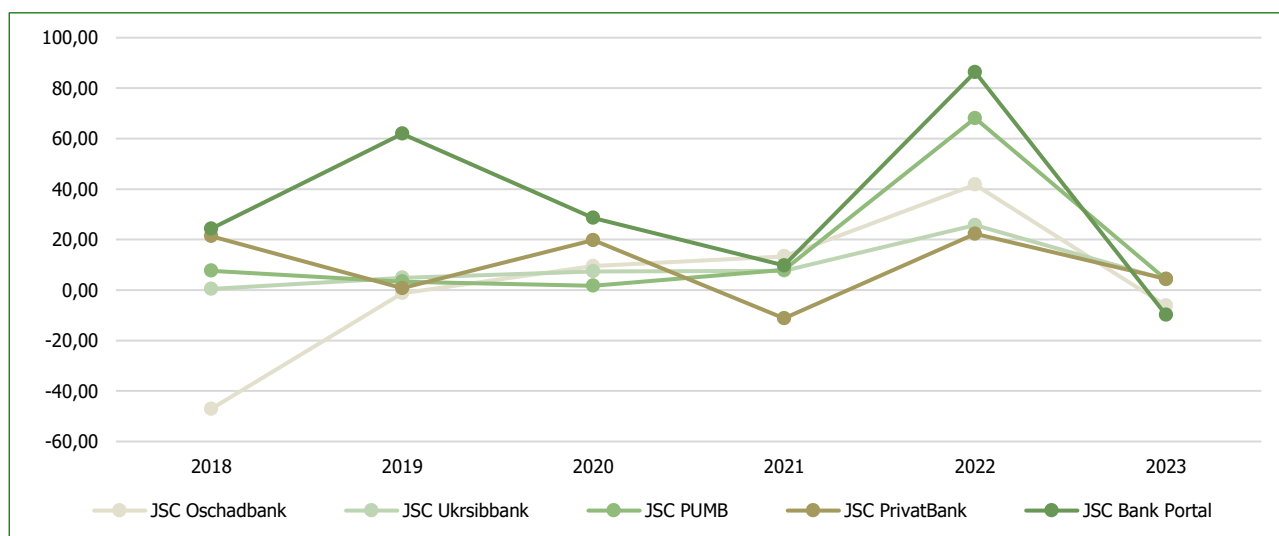


Figure 10. Share of allocations to credit risk provisions in the bank's operating income in 2018 – 2023. (Source: compiled by the author based on Supervisory statistics of National Bank of Ukraine, 2024)

JSC Bank Portal allocates the largest share of its operating income to credit risk provisions, which is especially evident in 2022 when 86.38 % of its income was allocated for this purpose. Similarly, in 2022, JSC PUMB made significant allocations to provisions – 68.12 % and JSC Oschadbank – 41.75 %. In other words, due to the hostilities and thus significant threats, banks were inclined to increase their provisions to cover future losses. Taking into account the previously analyzed data, we can see that such actions were quite reasonable and appropriate. Another positive aspect is that such actions did not affect the banks' profitability. The case of 2023 is also quite unique, when, despite the ongoing hostilities and instability in the country, the allocations to reserves of the analyzed banks were not significant, and JSC Oschadbank and JSC Bank Portal reduced them by UAH 1,450,009 thousand and UAH 3,243 thousand, respectively. This trend is typical for the entire banking system: "...significantly lower allocations to provisions for losses from active operations, which decreased by 86 % in the year [2023]. In total, since the beginning of the full-scale invasion, banks have formed reserves of UAH 133 billion, of which only UAH 17 billion in 2023" (National Bank of Ukraine, 2024). This explains the significant increase in profitability of both the system and the analyzed institutions, which were able to use previously "frozen" funds for active activities, namely investing in securities, which created the possibility of generating profit without a significant increase in risk.

The case of JSC UkrSibbank is also worthy of consideration, as it allocates only a small part of its operating income to form reserves. This situation once again confirms the bank's considerable caution in lending, which is also typical for all banks with foreign capital. In general, we see that the NBU's requirements for credit risk provisions are not a factor that reduces the profitability of Ukrainian banks, regardless of their business activities or ownership structure. Under relatively normal operating conditions, banks make the necessary provisions by deducting a small share of their operating income, which allows them to actively develop and innovate while having a sufficient margin of stability. In other words, the requirements of NBU Resolution No. 351 (Resolution of the National Bank of Ukraine No. 351, 2024) contribute to the stability and efficiency of banks' operations without leading to significant losses of profitability, which in the long run can be quite negative for the development of the institution.

DISCUSSION

The results of the study show that the adaptation of the Basel III requirements for credit risk management to the Ukrainian realities of the banking sector has a significant positive impact on its financial stability. The empirical analysis of five Ukrainian banks also demonstrated that the assessment and further management of a bank's credit risk based on the adapted methodology allows not only to reduce the level of risk, but also to stimulate profitability despite external economic shocks. The study also emphasizes the critical need to eliminate the current structural constraints to harmonize international and national banking standards in Ukraine. This is particularly consistent with the findings of previous studies, namely Pokhylko C. & Novikov V. [2], who emphasized the main shortcomings of traditional methods of assessing the risk of non-payment, as well as Dotsenko, I. [1], who stressed the need to enhance control over the bank's credit risk in wartime.

Fedina V. [4] pays considerable attention to the impact of economic shocks on the level of credit risk, which can also be confirmed by the results of our statistical study of banking institutions in periods of significant instability, namely 2020 and 2022-2023. At the same time, our assessment of the quality of the loan portfolio of five Ukrainian banks indicated that the credit risk assessment methodologies updated in accordance with international requirements have a significant positive impact on the financial stability of institutions, even in the face of unpredictable changes in their operating environment. Marchenko O., Petrykiva O., & Korobko K. [6] consider opportunities to improve the quality of the loan portfolio. Our study emphasizes the significant role of regulatory requirements in this process, which, among other things, are aimed at counteracting possible financial losses in the course of lending activities.

As for the limitations, the empirical study was conducted on the basis of data from five Ukrainian banks, which, given the small sample, may not fully reflect the industry-wide situation with regard to the quality of the loan portfolio and its risk level. In addition, certain requirements imposed on banks in the course of harmonization of regulatory norms with international standards may have a considerable impact on the possibility and scope of their activities, which may also be insufficiently taken into account in the course of the study due to the limited sample. The strong influence of exogenous factors, such as macroeconomic instability, geopolitical risks, specific wartime conditions, etc., may also be a preventive factor for the further adaptation of Basel III requirements to the realities of the Ukrainian banking sector.

Further research can expand the analysis of the impact of adapted regulatory requirements on the functioning of the Ukrainian banking system, including broadening the sample and adding indicators for assessing loan portfolio quality. It would also be reasonable to conduct a comparative analysis of the effectiveness of regulatory approaches to a bank's credit risk in the context of the international and Ukrainian markets, which would allow the latter to better adapt best practices and approaches. Additionally, modern technologies such as artificial intelligence, machine learning, big data, etc. are likely to become one of the most promising tools for credit risk management, which increases the importance of investigating this aspect.

CONCLUSIONS

In the course of the study, the significant relevance of the issue of bank credit risk and its management in the context of the current conditions of functioning of the Ukrainian banking system was identified. An analysis of the relevance of the selected topic using VOSviewer software confirmed its high scientific and practical significance, which is reflected in numerous publications and studies by both Ukrainian and international scholars, a significant part of which is devoted to credit risk modelling, non-performing debt management, and improvement of the bank's credit and reserve policies. In turn, a detailed analysis of the NBU Resolution No. 351 "On Approval of the Regulation on Determining the Amount of Credit Risk for Active Banking Operations by Ukrainian Banks" showed that the methodology for calculating credit risk defined by the NBU is sufficiently adaptable, structured and focused on taking into account the specifics of the Ukrainian banking business. In addition, the assessment of the credit risk level in the context of five Ukrainian banks – JSC Oschadbank, JSC PrivatBank, JSC PUMB, JSC Ukrsibbank, and JSC Bank Portal – gives grounds to conclude that this methodology is sufficiently effective for Ukrainian activities despite its current difficulties and challenges of martial law. An important aspect in this context is that the analyzed banks managed to ensure the sustainability of their operations in 2017 – 2023 despite the extremely difficult economic conditions, forming sufficient provisions for growing credit risks without a loss of profitability.

The assessment of the level of credit risk coverage of NPLs by selected banks confirmed the previous conclusions about the effectiveness of the methodology proposed by the NBU and demonstrated its adequacy in the context of assessing the riskiness of the asset portfolio of the respective class and the corresponding provision for possible losses. In general, we can conclude that there is a positive correlation between the amount of loan loss provisions and financial stability, which

is extremely important in the context of the crisis. Despite the identified effectiveness of the methodology, the following areas of improvement are proposed for further adaptation to the dynamic environment of banks' operation:

1. Ensure greater integration with international standards, in particular in the context of developing a single platform for better information exchange between commercial banks and the regulator (Hrytsenko L. et al., 2024a).
2. Promote the development of credit bureaus and mechanisms/platforms for the exchange of information on borrowers between commercial banks to minimize information asymmetry and improve the accuracy of credit risk assessment both for each individual client and for the asset portfolio (based on the best practices of Ukrainian banks) (Hrytsenko L. et al., 2022).
3. Development of special instruments/governmental programmes to support lending to sectors of the economy critical for post-war recovery and development, with the corresponding improvement of mechanisms for monitoring and controlling the riskiness of such assets, in order to minimize potential threats to banking activities.
4. The widespread introduction of digital solutions in the processes of credit risk assessment and calculation of the required amount of provisions, will not only reduce the operating costs of banks but also increase the speed of operational decision-making without compromising the accuracy and completeness of the assessment (Hrytsenko L. et al., 2024b).
5. Creation of automated credit risk forecasting systems based on artificial intelligence (AI) and Big Data, which will allow banks to predict the probability of borrower default and implement preventive measures to minimize their own losses (Hrytsenko L. et al., 2024b).
6. Improving the mechanisms for restructuring bad debts using modern tools such as asset securitization, sale of non-performing loans, creation of specialized institutions to manage such assets, etc., which will reduce pressure on the loan portfolio of banks and improve their financial stability.
7. Introduction of more differentiated approaches to credit risk assessment depending on the borrower's business and other material characteristics.

In our opinion, these are the areas of improvement that are most relevant today and require attention from the National Bank of Ukraine. Further areas of research may include studying the relationship between the digitalisation of banking and the credit risk management process, which will be crucial for ensuring the stability of the Ukrainian banking sector in the future.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All Authors have contributed equally.

FUNDING

The Authors received no funding for this research.

CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

REFERENCES

1. Dotsenko, I. (2024). Credit risk management of banking institutions under martial law. *Modeling the Development of the Economic Systems*, (1), 156-162. <https://doi.org/10.31891/mdes/2024-11-22>
2. Pokhylko, C., & Novikov, V. (2019). Analysis of existing approaches to managing and minimizing the bank's credit risk. *Herald of Sumy State University. Series "Economics"*, 1, 53-63. https://essuir.sumdu.edu.ua/bitstream-download/123456789/76876/1/Pokhylko_kredytnyi_ryzyk.pdf
3. Pavlenko, L., & Kozhushko, I. (2021). Improving the bank's credit risk management based on the systematization of risk factors. *Problems and prospects for the development of the financial and credit system*, 94-97. https://essuir.sumdu.edu.ua/bitstream-download/123456789/89491/1/Pavlenko_credit_risk.pdf

4. Fedina, V. (2023). Bank credit risk: essence and causes of occurrence. *Entrepreneurship and Trade*, 39, 223-228. <https://doi.org/10.32782/2522-1256-2023-39-27>
5. Shilo, J. (2021). Credit risk of a commercial bank: causes and management methods. *Modern science and practice*, 21-23. <https://eu-conf.com/wp-content/uploads/2021/03/VII-Conference-Modern-science-and-practice.pdf#page=22>
6. Marchenko, O., Petrykiva, O., & Korobko, K. (2022) Minimizing Credit Risk and Improving the Quality of the Bank's Loan Portfolio. *Business Inform*, 11(538), 205–210. <https://doi.org/10.32983/2222-4459-2022-11-205-210>
7. Sadchukova, I., & Onoprienko, A. (2022) Assessment of the credit risk of a commercial bank under the conditions of the Corona crisis. *Problems and prospects of economics and management*, 3(30), 115–124. [https://doi.org/10.25140/2411-5215-2022-2\(30\)-115-124](https://doi.org/10.25140/2411-5215-2022-2(30)-115-124)
8. Abbas, F., Iqbal, S., Aziz, B., & Yang, Z. (2019). The impact of bank capital, bank liquidity and credit risk on profitability in postcrisis period: A comparative study of US and Asia. *Cogent Economics & Finance*, 7(1), 1605683. <https://doi.org/10.1080/23322039.2019.1605683>
9. Kuznetsova, A., Azarenkova, G., & Olefir, Ie. (2017). Implementation of the "bail-in" mechanism in the banking system of Ukraine. *Banks and Bank Systems*, 12(3), 269-282. [http://dx.doi.org/10.21511/bbs.12\(3-1\).2017.11](http://dx.doi.org/10.21511/bbs.12(3-1).2017.11)
10. Kuznyetsova, A., Kozmuk, N., & Levchenko, O. (2017). Peculiarities of functioning of financial and credit mechanism for performing leasing operations in developed countries and in Ukraine. *Problems and Perspectives in Management*, 15(4), 209-221. [http://dx.doi.org/10.21511/ppm.15\(4-1\).2017.05](http://dx.doi.org/10.21511/ppm.15(4-1).2017.05)
11. Scopus preview (2025). *Scopus*. <http://surl.li/lxumbz>
12. Budianto, E. W. (2023). Research mapping on credit risk in islamic and conventional banking. *AL-INFAQ: Jurnal Ekonomi Islam*, 14(1), 73–86. <https://jurnalfai.uikabogor.org/index.php/alinfag/article/view/1862/815>
13. Bogrinovtseva, L. M., Zaichko, I. V., & Fedina, V. V. (2024). Bank credit risk management in the financial market: A theoretical aspect. *Digital Economy and Economic Security*, 2(11), 283-289. <https://doi.org/10.32782/dees.11-46>
14. Viadrova, N. (2023). Formation of the risk management system of the bank in the conditions of the martial state economy: Conceptual provisions. *Problems and Prospects of Economics and Management*, 2(34), 215–226. [https://doi.org/10.25140/2411-5215-2023-2\(34\)-215-226](https://doi.org/10.25140/2411-5215-2023-2(34)-215-226)
15. Vovchenko, O. (2021). Development of the banks' risk management system under conditions of uncertainty. *Economics of Development*, 20(4). [https://doi.org/10.57111/econ.20\(4\).2021.8-15](https://doi.org/10.57111/econ.20(4).2021.8-15)
16. On Approval of the Regulation on Determining the Amount of Credit Risk for Active Banking Operations by Banks of Ukraine, Resolution of the National Bank of Ukraine No. 351 (2024). <https://zakon.rada.gov.ua/laws/show/v0351500-16#Text>
17. Basel Committee on Banking Supervision. (2011). *Basel III: A global regulatory framework for more resilient banks and banking systems*. Bank for International Settlements. <https://www.bis.org/publ/bcbis189.pdf>
18. IFRS Foundation. (n.d.). *IFRS 9 Financial Instruments*. IFRS. <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards/english/2021/issued/part-a/ifrs-9-financial-instruments.pdf>
19. National Bank of Ukraine (2024). *Supervisory statistics*. <https://bank.gov.ua/ua/statistic/supervision-statist>
20. National Bank of Ukraine (2024). *The banking sector received UAH 86.5 billion in profit in 2023, according to operational data*. <https://bank.gov.ua/ua/news/all/bankivskiy-sektor-otrimav-865-mlrd-grn-pributku-za-2023-rik-zgidno-z-operativnimi-danimi>
21. National Bank of Ukraine (2017). *New approaches of the NBU to the definition of non-performing assets/loans*. https://bank.gov.ua/admin_uploads/article/NPL_pr_2017-05-10.pdf
22. National Bank of Ukraine (2024). *Financial Stability Report June*. NBU. https://bank.gov.ua/admin_uploads/article/FSR_2024-H1.pdf?v=7
23. Hrytsenko, L., Zakharkin, O., Zakharkina, L., Hedegaard, M., Kuznyetsova, A., & Novikova, L. (2024a). Assessment of the Level of Information Transparency of Banks. *Financial and Credit Activity Problems of Theory and Practice*, 6(59), 60–75. <https://doi.org/10.55643/fcaptop.6.59.2024.4619>
24. Hrytsenko, L., Zakharkina, L., Zakharkin, O., Novikov, V., & Chukhno, R. (2022). The Impact of Digital Transformations on the Transparency of Financial-economic Relations and Financial Security of Ukraine. *Financial and Credit Activity Problems of Theory and Practice*, 3(44), 165–175. <https://doi.org/10.55643/fcaptop.3.44.2022.3767>
25. Hrytsenko, L., Pakhnenko, O., Kuzior, A., & Kozhushko, I. (2024b). Smart technologies in banking. *Financial Markets, Institutions and Risks*, 8(1), 81–93. [https://doi.org/10.61093/fmir.8\(1\).81-93.2024](https://doi.org/10.61093/fmir.8(1).81-93.2024)

Гриценко Л., Кожушко І., Ерісен О., Романчукевич В., Чернов Є., Тарабановський П.

РЕГУЛЮВАННЯ КРЕДИТНОГО РИЗИКУ БАНКУ В УМОВАХ ЕКОНОМІЧНОЇ НЕСТАБІЛЬНОСТІ: ДОСЛІДЖЕННЯ ДОСВІДУ УКРАЇНИ

Стаття присвячена питанню регулювання кредитного ризику банку в умовах економічної нестабільності. Актуальність дослідження зумовлена високим рівнем впливу мінливого середовища на розмір кредитного ризику і, як наслідок, ефективність функціонування банку. Розглянуті в роботі внутрішні та зовнішні причини реалізації кредитного ризику, а також здійснене мапування актуальних напрямів наукових досліджень у галузі банківського ризик-менеджменту підтверджують, що регулювання цього аспекту діяльності галузі є ключовим фактором забезпечення її фінансової стійкості. Метою дослідження є оцінка ефективності механізмів державного регулювання кредитного ризику банку в умовах економічної нестабільності на прикладі України. У роботі розглянуто вимоги Базель III, який на європейському рівні нормує цей аспект банківської діяльності. Під час дослідження досвіду України проведено детальний аналіз адаптації міжнародних стандартів до існуючих умов функціонування національної банківської системи на основі розгляду положень, викладених у Постанові Національного банку України № 351 «Про затвердження Положення про визначення банками України розміру кредитного ризику за активними банківськими операціями». Для оцінки впливу адаптації вимог Базель III до українських умов функціонування проведено аналіз якості кредитного портфеля п'яти українських банків і банківської системи загалом за період 2017–2023 рр. Здійснене статистичне дослідження дозволило встановити взаємозв'язок між рівнем кредитного ризику, адекватністю резервів і прибутковістю банківської діяльності. Результати оцінки також продемонстрували значний позитивний вплив підходів Національного банку України на процес підтримки стабільності банківської системи в сучасних умовах суспільно-політичної кризи. Наукова новизна роботи полягає в комплексній оцінці ефективності регулювання кредитного ризику банків в Україні в умовах економічної нестабільності, що включає аналіз гармонізації міжнародних стандартів до національних реалій функціонування галузі, а також емпіричне дослідження впливу адаптованих нормативних вимог на якість кредитного портфеля. За результатами дослідження визначено перспективні напрями вдосконалення методології оцінки кредитного ризику та управління ним в умовах економічної нестабільності.

Ключові слова: банківський кредитний ризик, ризик трансфертного ціноутворення, управління кредитним ризиком, резерви, оцінка кредитного ризику, управлінський облік, кредитування агропромисловості, мотивація, міжнародні підходи, Базель III

JEL Класифікація: E51, E58, G21, G28