



## MUAMMOLI KREDITLARNING IQTISODIY AHAMIYATI VA BANK OPERATSION SAMARADORLIGI

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**Annotatsiya.** Ushbu tadqiqotning natijalari moliya sektoridan tashqariga chiqib, siyosatchilar, moliya institutlari va iqtisodiy tahlilchilarga tushuncha beradi. Muammoli kreditlar va bank operatsion samaradorligi o'rtasidagi o'zaro bog'liqlikni chuqurroq tushunish risklarni boshqarish bo'yicha yaxshiroq amaliyotlarni xabardor qilish, moliyaviy barqarorlikni mustahkamlash va barqaror iqtisodiy rivojlanishni rag'batlantirish potentsialiga ega. Ushbu tadqiqot banklarning barqarorligi va samaradorligini oshirish va shu orqali umumiy iqtisodiy farovonlikka hissa qo'shishda muammoli kreditlarni bartaraf etishning muhim rolini tahlil qiladi.

**Kalit so'zlar:** kredit, foiz stavkasi, kredit riski, asosiy qarz, muammoli kredit, bank rentabelligi, moliyaviy natijalar.

## ЭКОНОМИЧЕСКОЕ ЗНАЧЕНИЕ ПРОБЛЕМНЫХ КРЕДИТОВ И ЭФФЕКТИВНОСТЬ РАБОТЫ БАНКОВ

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**Аннотация.** Последствия этого исследования выходят за рамки финансового сектора, предлагая информацию политикам, финансовым учреждениям и экономическим аналитикам. Более глубокое понимание взаимосвязи между проблемными кредитами и эффективностью банковской деятельности может помочь в улучшении практики управления рисками, укреплении финансовой стабильности и содействии устойчивому экономическому развитию. В этом исследовании подчеркивается решающая роль решения проблемы проблемных кредитов в повышении устойчивости и эффективности банков, что способствует общему экономическому благополучию.

**Ключевые слова:** кредит, процентная ставка, кредитный риск, основная сумма долга, проблемный кредит, прибыльность банка, финансовые результаты.

## THE ECONOMIC NATURE OF NON-PERFORMING LOANS AND BANK OPERATIONAL EFFICIENCY

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**Abstract.** The implications of this research extend beyond the financial sector, offering insights to policymakers, financial institutions, and economic analysts. A more profound understanding of the interplay between non-performing loans and bank operational efficiency holds the potential to inform better risk management practices, foster financial stability, and promote sustainable economic development. This study underscores the crucial role of addressing non-performing loans in enhancing the resilience and performance of banks, thereby contributing to overall economic well-being.

**Key words:** loan, interest rate, credit risk, principal, non-performing loan, bank profitability, financial performance.

**Introduction.** In the realm of financial economics, the complex interplay between non-performing loans (NPLs) and the operational efficiency of banks stands as a pivotal area of exploration. Non-performing loans, characterized by delayed or defaulting payments, have emerged as a critical concern within the financial sector due to their potential implications for both individual banks and the broader economy. The intertwining effects of NPLs and bank operational efficiency have captivated the attention of researchers, policymakers, and

financial institutions alike, as they hold the key to understanding the intricate dynamics that shape financial stability and economic growth.

The economic significance of NPLs lies not only in their direct impact on banks financial health but also in their broader implications for the allocation of capital, credit availability, and overall economic vitality. NPLs can strain bank profitability, erode capital buffers, and limit lending capacity, which in turn can reverberate through the wider economy, impacting investment, consumption, and

employment. Consequently, comprehending the intricate relationship between NPLs and bank operational efficiency is crucial for devising effective strategies to mitigate potential risks and enhance financial resilience.

This study seeks to unravel the multifaceted connections between NPLs and bank operational efficiency, shedding light on the underlying mechanisms that govern their interactions. Through this exploration, we endeavor to contribute to the existing body of knowledge by offering insights into the economic nature of NPLs and their repercussions for bank performance. By gaining a deeper understanding of these dynamics, we aspire to provide actionable insights for policymakers, regulators, financial institutions, and stakeholders in their pursuit of sustainable financial systems and robust economic growth.

**Literature review.** According to Frederic S. Mishkin [8], banks currently play a significant role within the financial market by offering various financial loans to both businesses and individuals. These financial institutions, encompassing chartered banks, trust and mortgage loan companies, and credit unions, accept deposits and extend loans.

Within the domain of bank lending, there exist conceptual frameworks for comprehending bank loans, often referred to as loan theory. As articulated by Kenneth R. Szulczyk [14], every financial instrument, except for stocks, encompasses principal, interest, and maturity components. Principal denotes the sum borrowed by the borrower from the lender. The borrower then remits interest payments to the lender for utilizing the funds, thus acting as a cost to the borrower and a source of income for the lender. Maturity signifies the expiration date of the security or the final due date when the borrower repays the principal along with interest.

Moorad Choudhry [17] notes that the loan term is typically predetermined and repayment can take one of two forms: "bullet," wherein the initial borrowed amount is settled in its entirety upon maturity, or "amortizing," which entails regular payments of a portion of the loan's value over its duration.

Crucially, there are four fundamental terms that define the loan amount and the debtor's repayment schedule:

- Principal signifies the borrowed amount taken from the bank by the borrower.
- Loan term represents the duration within which the debtor is expected to repay the loan to the bank, determined through a mutual agreement.
- Interest rate denotes the percentage of the principal amount that the lender charges the bank for the use of its funds. This interest rate is expressed as an annual percentage rate.

- Loan payments indicate the regular sum that the borrower must remit each month to facilitate the repayment of the loan. An amortization table is constructed based on these four fundamental terms of the loan.

The ramifications of defaulted loans extend beyond merely affecting the profits of an individual bank; they also have broader repercussions on the overall economy. Consequently, cautious financial institutions prioritize both the caliber of their loans and the effectiveness of their risk management strategies. In a study by Almir Alihodzic et al (2018) [1], it was emphasized that the quality of credits holds a pivotal role within the bank credit system.

The first glance at the review of the literature indicates that there is no internationally accepted definition of non-performing loans. This implies that NPL classifications vary among different jurisdictions [15]. While non-performing loans has not uniform definition across countries, International Monetary Fund (IMF) stated that loans would be considered as NPLs if borrowers do not repay payments (interest and principal amount) for at least of 90 days. According to Oxford Dictionary of Finance & Banking (3<sup>rd</sup> Edition), non-performing loans are loans on which the interest or payment are overdue. Based to Oxford Business English Dictionary, non-performing loans are loans in which the borrower has not made a payment for a particular period of time. Alton and Hazen (2001) [2] stated that a loan becomes non-performing when the payments of interest and principal have past their due by 90 days or more, or at least 90 days of their interest payments have been capitalized, refinanced or delayed by the agreement, or when there are other good reasons to doubt that payments will be made in full. Eric Jing (2020) [7] declared non-performing commercial bank loan is one in which the borrower has defaulted or has failed to make any scheduled loan payments for more than 90 days.

NPLs serve as a pivotal metric for gauging credit risk, directly impacting the banking system and reflecting the credit quality of a country's banking sector and economy. A heightened level of NPLs directly influences the overall financial performance of banks [5], while the level of financial sector development also affects bank performance [24]. The significance of financial development in enhancing bank profitability and efficiency is underscored [6]. As such, policymakers must grasp the role of financial development in the persistence of non-performing loans. Additionally, NPLs constrain new lending, as banks with substantial NPLs face limitations in issuing new credit. NPLs are indicative of banks' performance standards, with a high NPL ratio suggesting heightened risk of loss if outstanding loan amounts remain unpaid, while a low ratio implies minimal threat to the bank [23]. Elevated

NPL rates may erode banking operations' efficiency in terms of profitability, leading to declines in net income that impact shareholders' equity and the bank's dividend-paying capacity in the long term[13].

Well-performing banks possess the ability and potential to bolster capital, expand assets, and manage operations. Banks financial performance is evaluated through various profitability indicators like returns on assets (ROA), returns on equity (ROE), net interest margin (NIM), return on average assets (ROAA), return on average equity (ROAE), and others. Among these indicators, returns on assets (ROA), returns on equity (ROE), and net interest margin (NIM) are most suitable for assessing bank profitability. Therefore, problem loans are seen as the main factor affecting the above profitability indicators.

The Global Financial Crisis (GFC) of 2007-2009 and subsequent periods of low interest rates reignited policymakers' interest in the relevance of bank profitability for maintaining financial stability [25]. Banking profitability stands as an essential indicator of bank performance, critical for the bank's sustainability and growth [18]. Understanding the relationship between variations in the business cycle and banking sector profitability is vital for evaluating the stability and soundness of the financial and banking industry [26].

**Methods.** Certain global organizations, scientific institutions, and researchers have categorized loans into distinct groups based on both theoretical knowledge and practical considerations. This classification serves the purpose of enhancing loan quality assessment and providing greater clarity regarding non-performing loans. The International Monetary Fund (IMF) delineates loans as non-performing loans under several conditions: a) if both principal and interest payments are outstanding for 90 days or more; b) if accrued interest payments of 90 days or more have been capitalized, refinanced, or deferred by mutual agreement; or c) if there is evidence warranting their reclassification as non-performing loans, even in the absence of a 90-day overdue payment. An example of this scenario is when a debtor declares bankruptcy subsequent to the classification of the loan as a non-performing loan.

In a similar vein, the Institute of International Finance's 1999 task force dedicated to loan quality devised a five-tier loan categorization: standard (within 30 days), watch (between 30 and 90 days), substandard (between 90 and 180 days), doubtful (between 180 and 360 days), and loss (exceeding 360 days). Notably, the latter three categories align with the classification of non-performing loans, signifying that principal and/or interest payments have been overdue for more than 90, 180, and 365 days, respectively.

Banks utilize the NPL ratio as a metric to ensure their operational health is maintained at optimal levels. The NPL ratio is computed as a percentage representation of non-performing loans or loans with a risk of non-performance in relation to the total loans within the bank's portfolio. Loans falling within the last three categories, collectively referred to as the NPL group, are denoted by the variable  $\delta$ . The cumulative value of non-performing loans within a specific bank, denoted as  $\varphi$ , encompasses the summation of all loans categorized under the NPL groups. The formula below captures the quantification of NPLs for a particular bank:

$$\varphi = \delta_1 + \delta_2 + \delta_3 + \dots + \delta_n$$

Loans categorized under the "watch" group are considered to be at risk of potential default, despite their current performing status. These loans are liable to transition into non-performing loans, represented as  $\theta$ . The cumulative value of such loans can be computed through the equation below, where  $\alpha$  signifies a specific bank's performing loans that are susceptible to default:

$$\alpha = \theta_1 + \theta_2 + \theta_3 + \dots + \theta_n$$

The category of "standard" loans constitutes performing loans within a given bank, denoted by  $\rho$ , while the variable  $\beta$  represents the cumulative sum of performing loans devoid of any default risk:

$$\beta = \rho_1 + \rho_2 + \rho_3 + \dots + \rho_n$$

The following mathematical calculation formula express the total amount of loans (non-performing, performing at risk and performing), represented by  $\gamma$ , at a given bank, at any period. Thus:

$$\lambda = \varphi + \alpha + \beta$$

A given bank NPL ratio at a given time is calculated by using defined equations and variables. It can be derived as following

$$\phi = \frac{\varphi + \alpha}{\lambda}$$

where  $\phi$  is NPL ratio and if  $\phi = 0$  means that there is no any loans as defined at risk of defaulting or NPL, as well as  $\phi = 1$  means that the amount of NPLs and performing loans that are at risk of defaulting equals to the sum of healthy performing loans in a given bank.

### Results, analysis and discussion.

A loan constitutes a monetary sum extended by a financial institution to either individuals or organizations, accompanied by an interest rate that necessitates full repayment. This transaction is purely of a financial nature. A formal representation of all precise terms and conditions from both parties is outlined in a promissory note. Conceptually, a loan is defined as a temporary allowance of funds by a lender to a borrower, who undertakes the obligation

to reimburse the borrowed amount along with the computed interest within an agreed-upon time-frame. The lender stipulates a fixed maturity date for the repayment, but in cases of default, the lender imposes a penalty on those failing to adhere to the schedule. Generally, the term “financial loan” pertains to monetary debt. Despite the possibility of lending any tangible asset, lending money is the predominant financial transaction in modern economies.

Financial markets exert a substantial influence on the economy as they are engaged in evaluating the risks inherent in financial instruments and effectively allocating assets among investors. Notably, banks hold a central role within these financial markets, emerging as the foremost contributors. Consequently, leveraging banking resources emerges as a convenient avenue for borrowers. In this context, bank loans assume a pivotal role as a principal source of funding for businesses and corporate entities.

The bank designates the loan as a non-performing loan and labels it as “bad debt” in alignment with domestic accounting standards. Additionally, there exist regional and bank-specific factors that contribute to variations in NPL interpretations. The diversity in NPL interpretations can be attributed to the following factors:

Determining whether collateral is treated as a fund to extinguish the loan.

Establishing whether restructured loans should be classified as NPLs.

Deciding whether NPLs are categorized as entirely overdue or partially overdue concerning the outstanding value.

Contemplating whether all loans must be downgraded by banks.

Several compelling rationales contribute to the prevalence of high NPLs, and the origins of NPLs are shaped by bank policies and macroeconomic regulations. Consequently, the attribution of causes for non-performing loans differs not only among banks but also across countries. Generally, the sources of NPLs can be classified into two distinct categories: internal factors specific to the bank and external factors unrelated to bank performance. Internal reasons leading to the emergence of NPLs encompass deficiencies in credit procedures, inexperienced credit specialists, unfounded credit principles, and a lack of borrower monitoring policy. These internal factors manifest through various stages of bank performance during the loan transaction period, such as:

- inadequate oversight of repayment due to staffing shortages.
- limited consultation and communication with defaulting borrowers.

- overvaluation of collateral during the assessment process.

- insufficient credit data acquired from other commercial banks.

- existence of employees who misuse their roles to bolster their loan portfolio and bonuses, often by approving loans without thorough analysis.

Furthermore, external factors contribute to the accumulation of NPLs and are closely linked to government economic policies and borrowers’ business strategies. Key external factors contributing to NPLs include:

- diverting the principal amount for other purposes.

- the impact of economic and political policies.

- vulnerability to fluctuating fiscal and monetary policies.

- absence of a credit awareness system in the financial market.

- unfair competition among banks.

- inadequate implementation of laws related to finance.

Every economic process has a ripple effect across various economic sectors and impacts the well-being of people. For instance, elevated levels of non-performing loans exert a negative influence on bank performance, leading to a reduction in available loan resources for economic entities in the financial market. Ultimately, this contraction results in decreased product and service availability, creating fresh hurdles for economic diversification. Thus, the financial performance of banks directly correlates with the economic growth of nations. In fact, some countries and financial institutions have recurrently faced financial crises stemming from problematic loans.

The repercussions of high NPL ratios on banking operations can manifest in specific banks’ lending patterns and profitability. These include a decrease in the supply of bank credit, an increase in short-term loan portfolios, and heightened risk of bank insolvency, and diminished bank working capital, improper credit allocation, a decrease in bank clientele for loans and services, and an adverse impact on profitability. Furthermore, the underlying causes of high NPL ratios have overarching effects on the entire national economy, encompassing reduced national loan supply, decelerated economic growth, a drop in the rate of nominal GDP, limited capital availability for entities, heightened borrower demand for loans, and a significant decline in market confidence.

Elevated non-performing loans indicate a heightened likelihood of financial crisis within banks, primarily due to the increase in risky loans. Consequently, NPLs play a pivotal role in shaping banks’ profitability. Bank profitability largely hinges on attracting investor deposits at a fixed rate and

reallocating these funds to individuals and entrepreneurs. Loans that go unpaid lead to a reduction in bank profitability. As the number of loans categorized as non-performing increases, bank profitability diminishes. Specifically, higher reserves are required for loans classified as “substandard,” “watch,” “doubtful,” and “loss,” progressively eroding bank profitability. By curbing or addressing NPLs, banks can mitigate unforeseen losses and sustain profitability.

**Conclusion.** NPLs serve as a critical indicator for evaluating credit risk, directly affecting the banking system’s credit quality, the loan portfolio of the banking sector, and the overall economy. A substantial NPL ratio directly impacts the overall financial performance of banks. Moreover, the level of financial sector development correlates with bank performance. Policymakers must recognize the role

of financial development in the persistence of NPLs. Additionally;

NPLs impede new lending opportunities, as banks with significant NPLs face limitations in issuing new credit. The NPL ratio serves as a reflection of a bank’s performance standards, with higher ratios indicating greater risk and lower ratios signaling lower threats to the bank’s stability.

Furthermore, negative results of high NPLs causes to arise other problems in banks, such as worsening cost efficiency, lack of capital, losing faith of investors, decreasing in competitiveness, deteriorating bank system stability, environmental disturbance among employees and others. The prevalence of NPLs can hamper banking operational efficiency, resulting in reduced profitability, which in turn impacts shareholders’ equity and the bank’s long-term dividend-paying capacity. Hence, high level of NPLs is a valuable indicator in a bank performance.

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