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# Credit Risk Management in Commercial Banks

## Zarządzanie ryzykiem kredytowym w bankach komercyjnych

### Summary

Credit risk represents one of the most significant threats to the stability and profitability of commercial banks. Effective management of this risk, supported by prudential regulations, plays a crucial role in minimizing potential losses resulting from borrower insolvency. This article analyzes key credit risk management methods employed by commercial banks, with particular emphasis on prudential measures such as concentration limits, specific provisions, and capital requirements. It highlights the impact of provisioning on the bank's balance sheet and income statement. The study also discusses the stages of credit risk management – from identification and measurement through control and monitoring to risk financing strategies. Both exogenous and endogenous factors influencing the level of credit risk are examined, and the importance of strategic approaches to its mitigation is underscored.

**KEYWORDS:** commercial banks, prudential regulations, financial stability, Basel regulations, banking risk, credit risk mitigation

### Streszczenie

Ryzyko kredytowe stanowi jedno z najpoważniejszych zagrożeń dla stabilności oraz rentowności banków komercyjnych. Skuteczne zarządzanie tym ryzykiem, wspierane regulacjami ostrożnościowymi, odgrywa kluczową rolę w minimalizowaniu potencjalnych strat wynikających z niewypłacalności kredytobiorców. W niniejszym artykule analizie poddano podstawowe metody zarządzania ryzykiem kredytowym stosowane przez banki komercyjne, ze szczególnym uwzględnieniem instrumentów ostrożnościowych, takich jak limity koncentracji, rezerwy celowe oraz wymogi kapitałowe. Podkreślono wpływ tworzenia rezerw na strukturę bilansu oraz rachunek zysków i strat banku. W opracowaniu omówiono również etapy zarządzania ryzykiem kredytowym – od identyfikacji i pomiaru, poprzez kontrolę i monitorowanie, aż po strategię finansowania ryzyka. Przeanalizowano zarówno czynniki egzogeniczne, jak i endogeniczne wpływające na poziom ryzyka kredytowego, akcentując znaczenie strategicznego podejścia do jego ograniczania.

**SŁOWA KLUCZOWE:** banki komercyjne, regulacje ostrożnościowe, stabilność finansowa, regulacje bazylejskie, ryzyko bankowe, ograniczanie ryzyka kredytowego

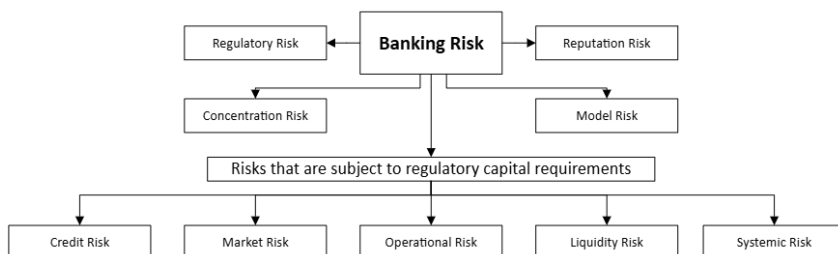
## Introduction

Credit risk is one of the key categories of risk faced by commercial banks, significantly affecting their financial stability and profitability. Effective management of this risk, supported by compliance with prudential regulations, plays a crucial role in limiting potential losses stemming from borrowers' insolvency. The aim of this article is to analyze methods of credit risk management in commercial banks and to define the role of credit risk management within the broader risk management framework of commercial banks, and to examine its impact on the bank's balance sheet and income statement.

## 1. Definition and nature of credit risk

Banks are exposed to a wide range of risks in the course of their operations, many of which can have a significant impact on their financial stability and profitability. The academic literature offers various frameworks for classifying these risks. One commonly used classification distinguishes between risks that are subject to regulatory capital requirements and those that are not. Diagram presents the types of risks to which banks are exposed and which are subject to capital requirement provisions. The subsequent section of the article will focus on credit risk analysis.

Diagram. Forms of banking risk



Source: prepared based on Pyka I., Pyka J., 2023, pp. 68–80.

Credit risk is defined as the risk of an unexpected failure by bank clients to fulfill their obligations or a deterioration in their creditworthiness that threatens the performance of said obligations (Urząd Komisji Nadzoru Finansowego [Polish Financial Supervision Authority, UKNF], 2024). Credit risk is associated with various areas of banking activity (Yhip, Alagheband, 2020):

- granting bank loans and credit facilities,
- issuing electronic payment instruments: credit cards, deferred payment cards,
- providing sureties and acceptances,
- issuing guarantees,
- opening letters of credit.

Credit risk may also emerge from additional banking operations beyond lending (credit risk in the broad sense), for example: placing deposits in other banks in the form of interbank placements; purchasing securities issued by other entities; leasing and factoring operations (Mikliński, 2021).

The most common classification of credit risk from the bank's balance sheet perspective is the division into active and passive credit risk (Kałużny, 2009). Active credit risk is associated with the threat that a borrower will fail to repay principal and interest instalments on time as specified in the agreement. Passive credit risk concerns the possibility that depositors may withdraw their funds earlier than the contractual date or that the bank may fail to obtain refinancing credit from other financial institutions. The bank has limited influence on the level of this kind of risk; it is in a passive position (S. Juszczak, Balina, J. Juszczak, 2021). Credit risk can also be classified based on the entity involved (Jajuga, 2019).

Individual risk (single credit) is related to a single borrower and results from that borrower's financial situation. It also pertains to the value and liquidity of the legal collateral securing a particular credit exposure.

Aggregate portfolio risk is influenced not only by the total number of loans granted and their sizes, but also by the degree of interdependence among individual loans (Marcinkowska, 2009). A high level of portfolio credit risk often results from a poor bank strategy and inadequate credit policy.

Credit risk arises from a variety of causes, which can be categorized into two main groups: external, or exogenous, factors that stem from the bank's operating environment, and internal, or endogenous, factors that originate within the bank itself (Natufe, Evbayiro-Osagie, 2023).

The most frequently cited external (exogenous) factors include: the political situation at home and abroad; economic conditions; natural phenomena such as earthquakes or floods; and changes in legal regulations that affect banking activities. Internal (endogenous) factors include: insufficient own capital; the quality of management and staff (their qualifications, integrity); technical factors – technologies used, the level of IT development; and flawed organizational and legal procedures (Grobelyny, 2010).

## 2. Prudential standards related to credit risk

### 2.1. Concentration limits

Under Regulation (EU) No 575/2013 of the European Parliament and of the Council (Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms, amending Regulation (EU) No 648/2012, Official Journal of the European Union L 176, 27.06.2013, pp. 1–337), the total amount of a bank's receivables, off-balance-sheet liabilities granted by the bank, and any shares or equity interests held directly or indirectly in another entity (as well as additional contributions in a limited liability company or contributions in a limited partnership or partnership limited by shares – whichever amount is higher) that are exposed to the risk of a single entity or group of entities connected by capital or organizational links may not exceed the large exposure limit of 25 per cent of the bank's own funds.

If the bank's client is another domestic bank, a credit institution, a foreign bank, or a group of entities connected by capital or organizational links comprising at least one domestic bank, credit institution, or foreign bank, the exposure may not exceed 25 per cent of the bank's own funds or the amount of EUR 150 million, whichever is higher. If EUR 150 million exceeds 25 per cent of the bank's own funds, the value of the exposure must not exceed the limit defined by the bank in relation to its own funds (Regulation (EU), 2013, Art. 395). There are exceptions to the above limits for certain exposures, including those toward central governments, central banks, public-sector entities, international organizations, or multilateral development banks (Świdarska, Galbarczyk, Klimontowicz, Marczyńska, 2016).

### 2.2. Specific provisions

Banks in Poland are required to create specific provisions according to a universal algorithm for classifying credit exposures (Wiatr, 2008). The amount of a specific provision is determined based on the assessment of the risk associated with credit exposures, which, according to the Regulation of the Minister of Finance of 16 December 2008 (Regulation of the Minister of Finance of 16 December 2008 on creating provisions for risks related to banking activities [Rozporządzenie Ministra Finansów z dnia 16 grudnia 2008 r. w sprawie zasad tworzenia rezerw na ryzyko związane z działalnością banków], consolidated text Journal of Laws

[Dziennik Ustaw] 2021, item 1238), include balance-sheet receivables arising from loans and credits, purchased receivables, checks and promissory notes, realized guarantees, and other receivables of a similar nature, as well as off-balance-sheet financial and guarantee commitments – excluding interest and commissions – as well as receivables from entities dependent on the bank.

Credit exposures can be divided into three categories: normal, special mention, and impaired. The category of impaired receivables is further subdivided into three groups: substandard, doubtful, and lost. Specific provisions for the risk arising from credit exposures must be created at the minimum levels below (Regulation of the Minister of Finance, 2008, § 3(2)):

- 1.5 per cent of the basis for provisioning for normal exposures arising from retail loans and credits,
- 1.5 per cent of the basis for provisioning for exposures classified as special mention,
- 20 per cent of the basis for provisioning for exposures classified as substandard,
- 50 per cent of the basis for provisioning for exposures classified as doubtful,
- 100 per cent of the basis for provisioning for exposures classified as lost.

The basis for creating specific provisions is the balance-sheet value of the credit exposure, not including any already established specific provisions, but factoring in any partial write-off of the exposure projected in connection with debt restructuring. Provisions are charged to expenses and are reversed once the reasons for establishing them no longer exist.

The failure of a borrower to fulfill loan repayment obligations in accordance with contractual terms results in a series of adverse financial and operational consequences for the lender. These effects are reflected in the financial statements, in accordance with the applicable accounting standards adopted by the institution (Czechowska et al., 2024):

- The carrying amount of credit exposures – comprising the outstanding principal and accrued interest, including capitalized interest – is reduced by the recognition of specific provisions and impairment charges on interest receivables (under Polish banking accounting standards) or by impairment losses on credit exposures (under international accounting standards).
- These provisions and impairment charges impact the lender's financial performance negatively, as they are recorded as expenses. Moreover, under current Polish tax regulations, such expenses are generally not tax-deductible, except in limited, exceptional cases.
- The absence of interest income from non-performing loans further diminishes the lender's profitability.

- Significant shortfalls in loan repayments can impair the bank's ability to manage liquidity effectively.
- Capital becomes tied up in non-performing assets, restricting the bank's capacity to extend new, income-generating loans.
- If the provisions or impairment charges fall short of the levels required by applicable accounting standards, the resulting shortfall reduces the bank's regulatory capital, which is a key component in calculating the capital adequacy ratio. This, in turn, may limit the bank's ability to expand its lending operations.

In contrast, the reinstatement of principal and interest payments by the borrower would prompt a corresponding reversal of previously recorded impairment provisions, thereby enhancing the lender's financial results as reflected in the income statement.

### 2.3. Capital requirement for credit risk

To calculate risk-weighted exposure amounts, banks apply the standardised approach or the Internal Ratings-Based (IRB) approach, provided they have received permission from the Polish Financial Supervision Authority (UKNF; Regulation (EU), 2013, Art. 107(1)). The standardised approach is used by all banks that have not obtained approval for using the IRB approach. The exposure value of a balance-sheet asset equals its book value after making deductions for any specific credit risk adjustments, additional value adjustments in accordance with Art. 34 and 110, as well as other deductions from own funds relating to that asset (Regulation (EU) 2024/1623 of the European Parliament and of the Council of 31 May 2024 amending Regulation (EU) No 575/2013 as regards requirements concerning credit risk, credit valuation adjustment risk, operational risk, market risk, and the output floor, Official Journal of the European Union L 2024/1623, 19.06.2024, Art. 111(1)). The value of an off-balance-sheet exposure is the product of its nominal value, after subtracting any specific credit risk adjustments, and a percentage weight of 0, 20, 50, or 100 per cent, depending on the risk (Świdorska et al., 2016).

The Internal Ratings-Based approach, which can be used by banks once they receive approval from the UKNF, allows for a more precise determination of credit risk for each exposure. The exposure value is determined similarly to the standardised approach. The exposures are then assigned to one of seven categories. Next, the creditworthiness of each category of exposure is assessed.

The calculation of risk-weighted exposure amounts for credit risk is based on the following parameters (Regulation (EU), 2013, Art. 107(1)):

- Probability of Default (PD),
- Loss Given Default (LGD),
- Maturity (M),
- Exposure Value.

The first three parameters are used to determine the risk weight, which is then multiplied by the exposure value to obtain the risk-weighted amount.

### 3. Stages and methods of credit risk management in banks

Credit risk management encompasses all activities aimed at identifying the factors that determine this risk, measuring its level, controlling it, and mitigating its adverse effects. Hence, the following stages that can be distinguished in credit risk management:

- Risk Identification – involves activities to identify the reasons for the existence of this risk, specify its types, determine its scope, and assess its consequences.
- Risk Measurement (Quantification) – involves measuring and numerically expressing the extent of risk, for instance by using methods such as Value at Risk (VaR).
- Risk Control (Steering the Risk) – involves making informed decisions about whether and how to assume risk and shape its profile. To properly manage credit risk, a bank must choose and consistently implement an appropriate strategy. Key elements include:
  - risk avoidance
  - risk shaping:
    - reducing risk,
    - hedging or compensating risk,
    - accepting or assuming risk.

At the level of an individual credit transaction, risk control may be seen as assessing creditworthiness, limiting the loan amount, securing the loan with collateral, and monitoring the borrower's credibility after the loan is granted. Regarding the entire loan portfolio, instruments for risk control include (Gwizdała, 2014):

- risk diversification – ensuring as little correlation as possible among borrowers,
- risk insurance,
- risk transfer – shifting it to other entities and institutions. An example is a syndicate loan, where credit risk is spread among all participating banks,
- organizational and personnel measures:
  - internal control and credit audit,
  - establishing accountability rules for credit decisions,
  - proper hiring and training of staff,
  - oversight of electronic systems for processing loan applications and decision-making, including discriminant and scoring models.

Risk Control and Monitoring – encompasses both current and potential future risks. The aim is to verify the effectiveness of the risk management processes and, upon detecting any irregularities, to undertake corrective measures (Capiga, 2006). Regarding risk control, a passive approach (avoiding or reducing risk) can be distinguished from an active approach (focusing on mitigating the adverse outcomes of risk). It should be noted that a bank may deliberately take on higher risk to achieve greater returns (Marcinkowska, 2009).

Under Banking Law Act 1997 (Act of 29 August 1997 – Banking Law [Ustawa z dnia 29 sierpnia 1997 r. – Prawo bankowe], consolidated text Journal of Laws [Dziennik Ustaw] 2024, item 1646 as amended), a bank's management board is responsible for ensuring the establishment of an internal control system aligned with the level of risk.

An additional element of credit risk management is the bank's risk appetite, defined as the maximum level of risk the bank is willing to accept. It is quantified and may specify the maximum exposure the bank will take on any single credit exposure, product group, entity, or industry. The bank's management board approves the level of risk appetite (Iwanicz-Drozdowska, 2024).

Because credit risk inevitably leads to losses, risk financing can be described as the process of accumulating financial resources and allocating them to cover potential losses from partially or entirely unpaid loans (Kałużny, 2009). The primary source to cover this risk should be the price of the loan, which includes a premium for credit risk. The risk premium is set at a level appropriate to the bank's losses resulting from credit transactions. Under conditions of perfect market competition, the market determines the price of a loan based on the interaction of supply and demand, as well as prices offered by competing financial institutions.



Risk financing can be sourced externally or internally. One example of external coverage is credit portfolio insurance. This involves signing an insurance contract and paying premiums that match the estimated level of risk. Another example of external risk transfer is using derivatives or securitization (replacing bank credit with an issue of debt securities; Grobelny, 2010). Internal sources of risk financing include the provisions and own funds created by banks. Banks create several types of reserves:

- Statutory Reserves – a general risk reserve and specific provisions for covering credit risk,
- Statutory (Bylaw) Reserves – created under the bank's articles of association,
- Ad Hoc Reserves – created by resolution of the bank's shareholders or stockholders.

## Conclusion

In summary, credit risk remains one of the most prevalent and significant threats to the stability of banking institutions, despite ongoing advancements in risk management systems. Given that loans represent a substantial portion of bank assets, credit risk management constitutes a critical component of overall risk governance, playing a pivotal role in mitigating potential losses. The failure of a borrower to meet repayment obligations in accordance with contractual terms can lead to a range of adverse financial and operational consequences for the lender. This highlights the essential role of robust credit risk management within the broader framework of banking operations. This article has examined the fundamental aspects of credit risk management, emphasizing the mechanisms that support the limitation and diversification of this risk in the operations of commercial banks.

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