# Accounting Analysis of the Loan Portfolio of Banks and Feasibility of the Model for Credit Losses

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## Summary

The study presents research into credit as an economic category and as an object of accounting analysis in banks. Credit risk is perceived as part of the accounting policy of banks.

A model for accounting analysis, credit risk assessment and determining the necessary provisions (impairments) on the loans granted by the bank has been developed and established.

The interrelationship and interdependence between accounting information, accounting analysis and credit risk management in banks has been analyzed. The information sources for the implementation of accounting analysis of credit risk have been systematically structured. The models for assessing the quality of the bank loan portfolio have been systematized and scientifically grounded. A critical analysis of the currently applicable model of impairment of financial assets has been made. The expectations and the effects of the forthcoming introduction of a new model for the recognition of expected losses from commercial banks have been defined.

**Key words:** accounting analysis, loan portfolio, credit risk, accounting standards, expected credit losses

**JEL Classification:** G21, M40, M48

## 1. Credit as an object of accounting analysis in banks

Credit is an economic category known in the distant past. Its very name derives from the Latin "credere", which means faith, trust, and "creditum" means loan, debt. There is no full consensus among different authors and schools regarding the definition of credit. For example, according to Recktenwald (1987) credit can be seen as a form of acquiring additional resources, additional purchasing power through the temporary use of foreign capital. Nebenius (2011) defines credit as confidence that stands for a promise, by which a person is obliged to meet future payments against cash values. For Ad. Wagner (1867) loan is a private economic relation or voluntarily provisioning and receiving of economic benefits among different persons based on trust from one of the parties to be met later by the other party. Rosher (1878) defines credit as voluntarily assigned rights to dispose of foreign goods against the promise to recover their equivalents, together with interest due. From the above definitions of the nature of

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the loan, it shows that for some writers trust comes to the fore as the main manifestation of credit (Nebenius, Wagner), and for others it is a mechanism for the development of production opportunities and gaining further production power (Recktenwald). Rosher even introduced interest as an integral part of credit - as its price, and replaces the element of trust with the element of promise.

*Stoyan Stoyanov* (2010) defines bank credit as a "technical-organizational form of accomplishing active banking operations through which the free capital of banks is distributed, submitted and used". The principal requirement for fixed periodic returns and credit interest determines its definition of a pecuniary claim by certain persons (borrowers) in the amount of allocated sum plus interest due. This theoretical characterization defines credit as a specific type of asset (financial asset) of the bank from which it derives economic benefits (income) in the form of interest.

According to *Daniela Feschiyan* (2000), the nature of credit can be expressed as an "assignment of rights by the commercial bank (creditor) over a pecuniary resource in favor of the borrower". Along with the transfer of these rights, however, the transfer of a number of obligations and responsibilities set out in the terms of the credit deal is observed. The credit process - an element of active bank operations - generates a major part of revenue for banks but also hides big risks for them. *Therefore, the process of crediting raises the need for providing information to effectively evaluate, analyze, manage and track its impact on the financial result of the bank.*

Accounting is the main source of information for analyzing the credit risk and assessment of bank solvency (Stoyanov, 2008). Keeping the banks' investments in loans constant, the provision of high-quality accounting information improves the discriminating efficiency of the capital requirement policy (Corona, Nan and Zhang, 2015).

The most important tasks of accounting analysis to effectively assess, analyze and manage the credit portfolio of banks are:
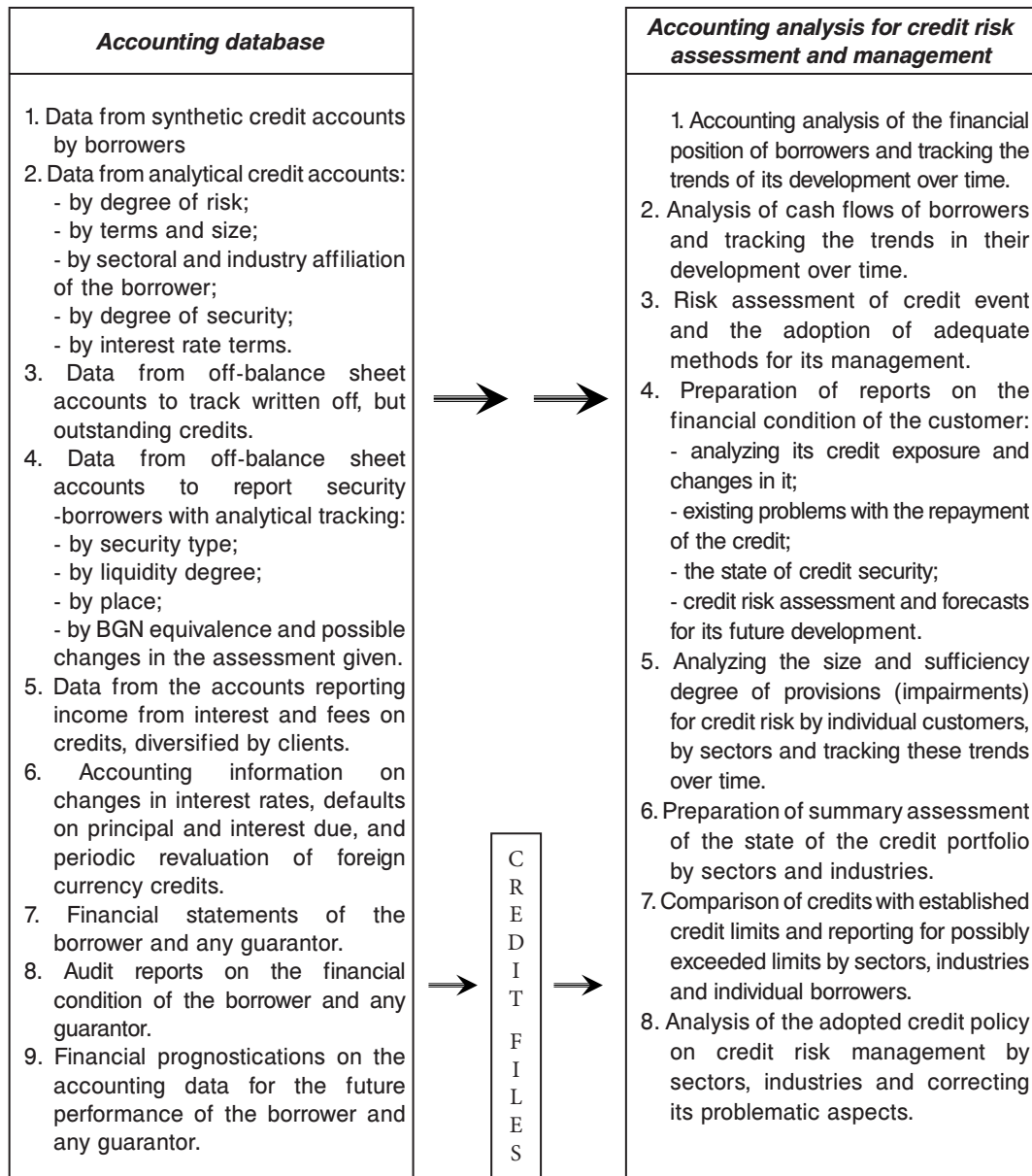1. Creating an effective mechanism for a smooth lending process.
2. Providing necessary information about a sufficient volume and exact structure on the status and change in credit relations.
3. Providing necessary and sufficient information on the financial condition of borrowers, on their performance, utilization and redeeming of credit resources, on the existing and predicted credit risk, on assessment and liquidity of security.
4. Providing information about the volume and timeliness of funds attracted by commercial banks as a prerequisite for credit operations.
5. Providing information on the structure of assets of commercial banks and disclosure of the share of loans in size, terms, sectors and industries of the economy, and financial security.
6. Providing information on the return, risk and profitability of credit operations of banks.

By providing information on the status and change in credit relations and financial condition of the borrower, on security and credit risk, the necessary data for improving the pricing model of credit proposals, bringing analytical indicators of the financial condition of the borrower, analysis of cash flows and full implementation of proposals for improving the methods for managing the credit portfolio are also provided.

The creation of an effective mechanism for the normal functioning of the lending process involves complete interdependence between the credit policy and the adopted accounting model in the bank. It is necessary that bank accounting provides information on each bank customer's credit, systematized under various criteria such as:

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- the credit term - short (a period of up to one year), long (a period of more than one year) or outstanding credit
- the terms of security - whether the credit granted is secured or unsecured; what is the degree of security and the level of liquidity of the security

- the purpose - credit for current needs, consumer credit, investment credit, etc.
- the sector and industry affiliation of the borrower, etc.

In order to fulfill its purpose, however, the accounting information has to meet the requirement of authenticity. The latter can

*Fig. 1. Interrelation between accounting data, accounting analysis and credit risk assessment and management*

| ***Accounting database*** | ***Accounting analysis for credit risk assessment and management*** |
|---|---|
| 1. Data from synthetic credit accounts by borrowers<br>2. Data from analytical credit accounts:<br>  - by degree of risk;<br>  - by terms and size;<br>  - by sectoral and industry affiliation of the borrower;<br>  - by degree of security;<br>  - by interest rate terms.<br>3. Data from off-balance sheet accounts to track written off, but outstanding credits.<br>4. Data from off-balance sheet accounts to report security -borrowers with analytical tracking:<br>  - by security type;<br>  - by liquidity degree;<br>  - by place;<br>  - by BGN equivalence and possible changes in the assessment given.<br>5. Data from the accounts reporting income from interest and fees on credits, diversified by clients.<br>6. Accounting information on changes in interest rates, defaults on principal and interest due, and periodic revaluation of foreign currency credits.<br>7. Financial statements of the borrower and any guarantor.<br>8. Audit reports on the financial condition of the borrower and any guarantor.<br>9. Financial prognostications on the accounting data for the future performance of the borrower and any guarantor. | 1. Accounting analysis of the financial position of borrowers and tracking the trends of its development over time.<br>2. Analysis of cash flows of borrowers and tracking the trends in their development over time.<br>3. Risk assessment of credit event and the adoption of adequate methods for its management.<br>4. Preparation of reports on the financial condition of the customer:<br>  - analyzing its credit exposure and changes in it;<br>  - existing problems with the repayment of the credit;<br>  - the state of credit security;<br>  - credit risk assessment and forecasts for its future development.<br>5. Analyzing the size and sufficiency degree of provisions (impairments) for credit risk by individual customers, by sectors and tracking these trends over time.<br>6. Preparation of summary assessment of the state of the credit portfolio by sectors and industries.<br>7. Comparison of credits with established credit limits and reporting for possibly exceeded limits by sectors, industries and individual borrowers.<br>8. Analysis of the adopted credit policy on credit risk management by sectors, industries and correcting its problematic aspects. |

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be ensured by exercising strict control of the incoming data through which the accounting system is being informed, reliable current control in the process of creating accounting information from this system and effective follow up on the outgoing information it has already created. Given these limitations, the accounting analysis of credit operations becomes essential for banking. The role of the accounting analysis of credit activity of banks can be expressed in two ways:

● The role of the accounting analysis in credit operations to effectively evaluate, analyze and manage credit resources;
● The role of the accounting analysis in credit operations to effectively evaluate, analyze and manage the risk they bear.

*With respect to the first aspect*- the role of accounting analysis for the effective evaluation, analysis and management of credit resources is the possibility it allows for current credit decisions in accessible quantities. This includes data presented for the implementation of good analysis of credit resources as a whole (so-called credit portfolio). This data is contained in the financial accounts for the credits granted. Therefore, it is very important to adopt rules and requirements for coverage of credits in specific financial accounts and rules for their analytical reporting by several criteria (by types of credits, by terms, by size, by sector and industry affiliation of borrowers, by types of security). The development of specific rules for reporting certain specific credits - big credits, interbank credits, credits of related parties - is also necessary. The development and adoption of rules proposed will increase the availability and usefulness of the information in a synthetic and analytical form. For example, when analyzing the loan portfolio, the database used will be accounting information in a synthetic form. The analytical structuring of information from credit accounts is a good

database for tracking credit resources by industry sectors and by individual types of creditors and borrowers. Accounting information in a synthetic and analytical form is a starting point for making accounting analyzes and assessments, and for the overall credit risk management. There is an interrelation and interdependence between the process of lending, accounting analysis, accounting data and credit risk assessment and management in banks. That interdependence can be illustrated by the following chart:

Accounting data is the base for tracking, analysis and classification of income from bank credit activity in the form of interest, fees, etc. The latter is particularly important in studying the profitability of the resources provided. Accounting data for credit costs in general, by certain sectors of the economy and by individual types, plays a significant role in the analysis of the profitability of bank's credit activity. This raises the need to develop a comprehensive methodology for calculating the cost of credit operations of commercial banks and their comparison with the proceeds. A prerequisite for the development of such methodology is the perception of a method of reflecting the cost of credit operations of banks. Three methods of cost allocation are used in banking theory and practice:

- the method of direct distribution;
- the method of co-management;
- incremental method of distribution.

The method of direct distribution of costs uses only direct costs and totally excludes the overall management costs. Many banks apply this method when making decisions about their credit policy. According to Sherman J. Maisel (Sherman, et al., 2006), the exclusion of administrative and management costs is justified by the fact that they do not directly influence the specific financial activities of banks.

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The method of co-management accounts only specific banking costs in a number of equations that aim at their distribution between bank departments. This method is very difficult to apply because of its great commitment to complex mathematical analysis.

The application of the incremental method is related to the exact delineation of the activities that are carried out by the respective banking department, as distribution is carried out according to the number of services of each department. This makes it possible to exclude interaction between departments.

For the provision of accounting data and calculating the cost of credit operations of commercial banks, it is recommended to apply a combined approach in reporting them – the direct method for the distribution of direct costs and the incremental method for indirect costs.

*In respect to the second parameter* - the role of accounting analysis in credit operations to effectively evaluate, analyze and manage risk - it is noted that the data provided by the system of accounting gives great opportunities for reduction and therefore effective risk management of credit operations. The latter was presented in the scheme tracing the relation between accounting data and the analyses of credit risk management. Much research in financial reporting has been concerned with the relationship between capital standards, risk-taking, and accounting rules. For example, Li (2009) analyzes how different accounting regimes affect banks' risk taking decisions through capital regulation, and finds that a lower-of-cost-or-market regime is more effective in controlling banks' risk-taking than other regimes. Bertomeu and Magee (2011) show that a shift of accounting information quality driven by an economic downturn may result in more bad loans. Corona, Nan, and Zhang (2015) examine the role of accounting information quality in a product market setting and we focus on the effect of accounting information on banks' risk-taking. Besanko and Kanatas (1996) show that when banks resort to issuing new equity in order to satisfy the capital requirement, a more stringent capital requirement may actually lead to more bank failures.

In terms of the impact of credit activity on bank liquidity, it is useful to develop a system of procedures and measures to write off arrears or transfer risk exposure in a lower risk group at the onset of the respective preconditions.

From another perspective - models applied for impairment of financial assets under the applicable accounting standards are crucial in terms of the level of risk that banks take. Bushman and Williams (2011) find evidence supporting the view that accounting discretion over loan-loss provisioning can have either positive or negative real consequences in disciplining banks' risk-taking activities.

## 2. Nature of credit risk as the main element of general bank risk

In the documents of the Basel Committee on Banking Supervision, credit risk is defined as one of the *main risks* that banks face and is regarded as "the inability of the counterparty to fulfill their obligations as per the arrangements" (Basel Committee on Banking Supervision, 1997).

In a broad sense, credit risk can be defined as the most fundamental of all types of risk for banks and the main reason for the loss of their business. The argument justifying this definition is the perception of lending as the main activity of banks and thus determining credit operations as their main sources.

In a narrower sense, credit risk can be defined as the probability or potential for incurring losses and damage from failure or improper performance of contractual

obligations between the lender and borrower.

In the applicable accounting standards, the credit risk – as a concept – is regulated and defined as "the risk that one party of a financial tool will cause a financial loss for the other party by failing to discharge an obligation "(IFRS, 2012).

Credit risk can be defined as part of the accounting policies of banks as it meets the following criteria:
- There is a sufficient probability that the bank acquires or divests of economic
- benefits under its influence;
- Credit risk can be reliably measured as an accounting object.

There is a credit risk in every operation related to the movement of money, and causes that give rise to it can be defined as:
- natural;
- political;
- economic.

In analyzing and assessing the risk, the bank is required to assess all three preconditions, but the biggest influence have the economic ones, such as credit and currency restrictions, denial of payment, exchange rate changes, etc. The aim of each bank is to choose a financially stable borrower to reduce the credit risk. For this purpose, it is necessary to classify and study the risks inherent in any credit event - overall, corporate and specific risk.

It is assumed that the overall risk is linked to the economic and sociopolitical situation of the country at the time. It stems from economic, currency, stock and other shocks, worsening of the political situation, etc. The overall risk is difficult to predict and reducing it is almost impossible. It affects all economic agents and can lead to a number of negative consequences.

Corporate risk is caused by changes in the specific economic conditions and only applies to an enterprise or industry. This risk may be a consequence of the shortage of raw materials, energy resources, changes in the price level of production and demand, loss of markets, customs restrictions and others. The corporate risk can be limited by reducing credits to risky sectors and enterprises, reasonable allocation of credit resources and avoiding the concentration of a large number of credits in a narrow range of customers.

The specific risk is related to specific borrowers and bank operations. This risk arises for individual credit transactions such as lending to new industries and activities, for which there is insufficient information; for lending to enterprises of poor financial condition, weak managerial personnel, insufficient production resources, highly indebted and unable to react to the changing economic situation.

## 3. Provisions (impairments) for credit risk

As already mentioned, lending bears certain risks of losses for commercial banks. A number of factors influence the level of risk on the credit resources provided by banks. These are:
- The presence of a high share of overdue loans;
- Concentration of credit resources in customers of the same industry or
- region;
- Concentration of loans in economically-linked undertakings;
- Increase in the share of loans to customers compared to the size of their
- deposits;
- Large loans provided to customers of a size that is close to the
- maximum allowed for the bank;
- Special loans designed to serve the paying process, which have the
- capacity to be resumed;
- Inadequately secured loans;
- Renegotiated loans due to the deteriorated financial condition of
  borrowers, etc.

The inherent credit risk belongs also

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to the above-mentioned factors that affect the risk in lending. Therefore, to reflect the risk of lending activities and the timely recognition of potential losses arising from them, the objective necessity of provisioning (depreciation) of credits arises. To fulfill its purpose - protection against the risk - provisions should be sufficient. This characteristis is treated as an internationally[1] accepted bank norm in determining their size.

When deciding on the need for defining and applying an appropriate approach in applicable accounting standards, the thorough evaluation and analysis of the loan portfolio is required, its evaluation and structuring in certain risk groups defined by the commercial bank, with the respective coefficients for necessary provisions. The main tasks in this peculiar review of credits granted are:

1. Defining the total amount of credit resources;
2. Structuring the credits granted by main types and analyzing their volume and trends in its changing;
3. Detection and removal of problem credits, which have accumulated arrears in principals, interests, fees, etc.;
4. Structuring the non-performing credits identified via the periods of late payments;
5. Discovering and structuring credits that have brought losses for the commercial bank or have been subject to renegotiation and restructuring;
6. Discovering and structuring concentration in lending, by the following criteria: - the type of credit; - the industry; - the region; - the economic connectivity of borrowers;
7. Identification of the specific economic conditions in the country on a macro and micro level, as well as the major trends

in the international economic conditions;
8. Establishing the nature of the credit exposure of the bank, i.e. tracking the ratio between the total amount of loans and number of borrowers. This determines whether the relatively small loans compared to a large number of borrowers dominate or there is the reverse higher-risk tendency, and namely - a small number of borrowers with high-valued loans;
9. Establishing the nature (in terms of liquidity) and type of securities on loans;
10. Determining the ability of securities to cover the provided credit resource, i.e. ratios between the fair value of securities and the amount of credits granted.

It often happens that no distinction can be drawn between provisioning under IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* and depreciation (provisioning) of credits due to becoming uncollectible and deteriorated financial condition of the debtor (under IAS 39). As noted in IAS 37, in some countries the term "provision" is used as a synonym for depreciation, impairment of assets and doubtful debts (irrecoverable debts), representing an adjustment to the carrying amount of the asset, but a provision under IAS 37 does not refer to them.

It should be noted that when considering the impairment of doubtful and irrecoverable collection of assets, because of which a recalculation of the carrying amount of the assets should be done (as defined in IAS 39 *Financial Instruments: Recognition and Measurement*), the applicable standards for provisions - IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* - will not be applied. By definition, provisioning is a liability of an uncertain timing or size (par.10

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[1] UCf. American Institute of Certified Public Account Bank Audit, USA, 2008 "It is necessary that each bank sets aside reasonable provisions for credit losses applicable to all categories of loans by making periodic deductions from operating costs. The amount of provisions made is considered reasonable when the provisions for credit losses, including the current situation, is assessed by the bank's management as sufficient to cover expected losses from the loan portfolio".

of IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*). Uncertain timing means that the moment of settlement is not specified and depends on the development of the circumstances in the future, and undefined size means that the initially recognized value of the obligation is an accounting estimate based on certain expectations and assumptions and as such can undergo corrections in the future until the settlement is done.

Banks form provisions for contingent liability under the applicable accounting standards (notably IAS 37 *Provisions, Contingent Liabilities and Contingent Assets)*, if:

- it is likely (indicators) that the obligation becomes real, i.e. payable by the bank (it is more likely to become real than not);
- The amount that the bank should pay can be accurately measured and the amount of the provision for a specific contingent liability represents the best estimate of the bank for the amount of resources that it needs to pay for the settlement, reduced by the amount of the highly liquid impairment on this obligation.

Therefore, provisions are recognized only when it is highly likely that the bank would settle its current obligation. The evaluation of the provision recognized is the best estimate of the costs to cover the current obligation on the reporting date (par.36). This is the value that is often expressed as the amount spent on the immediate settlement of the debt or paid to a third party to take the debt. The best estimate of the amount of the provision is a matter of judgment by the bank's management, considering factors such as experience with similar transactions, evidence provided by experts (in certain cases) and additional evidence provided by subsequent events after the reporting period within the scope of IAS 10 *Events After the Reporting Period.*

In determining the assessment of the provision, the uncertainties accompanying the deal should be considered. In this case, the assessment of the provision is determined in one of the two ways:

a) using the "expected value" method if a provision for a group of obligations is being estimated, or
b) using the "most likely outcome" method if a single obligation is being estimated.

For the proper display of the results of the analysis and evaluation of credits to determine the value of the provisions (impairments), it is necessary that banks prepare a number of documents and checkups. These documents should contain basic data about any credit granted by the commercial bank. Information can be obtained from the client file and register of loans.

The evaluation of the necessary provisions will be more impartial if you take the approach of assessing not only the present implementation of commitments on loans, but also make a predictive analysis to assess the future performance of credit commitments. The proposal for two-sided presentation of this assessment is structured as follows:

- assessment of the future performance of credit obligations of the borrowers under the existing current conditions of business;
- assessment of the future performance of credit obligations of borrowers under forecasts for the future development of their activities.

Prognostic analysis is useful for reporting of risk associated with the specific activity of borrowers and the trends in its future development. Moreover, this analysis provides a very good opportunity for multivariance in determining the conditions. With its help the creditor bank may obtain an estimate of necessary provisions (impairments) when perceiving optimistic, pessimistic and realistic options for the development of the activities of the borrower.

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It is of great importance for the creditor bank to take into consideration the extent of the security and liquidity of the security of the credit when determining the necessary and sufficient provisions (impairments). Reporting on the evaluation of the security and its degree of liquidity may be of a prognostic nature. The information from the analytical accounts built on the following criteria is used for obtaining it:
- - the type of security;
- - the degree of liquidity of security;
- - the nature of security, i.e. to what extent the bank can be sure it will fulfill its purpose;
- - share of security against credit exposure.

With the proposed model for individual evaluation of loans, after aggregating the data, an overall assessment of the provided credit resources is obtained. The latter gives the real possibility of achieving the objective of the analysis, namely structuring of loans under the risk categories accepted by the bank and after applying the relevant coefficients to get an objectively accurate and fair assessment of the amount of provisions on loans that have the quality of sufficiency.

The amount of impairments for credit risk under the provisions of IAS 39 *Financial Instruments: Recognition and Measurement* is reflected as an expense and reduces the financial result of the bank. Their increase is reflected in the income statement. If in a subsequent period the amount of the impairment losses decreases and the decrease can be related objectively to an event occurring after the increase, then the decrease in impairment loss is recognized in the income statement of the bank. Therefore, impairments charged for credit losses are those that are recognized in the banks' financial statements that are prepared in accordance with IFRS.

To the accounts for recognizing the costs for provisions (impairments), for the purposes of the accounting analysis it is necessary to create such an organization of analytical reporting, which:
1. Provides information on the type of asset classified in the balance sheet risk exposure, by which the provisions have been formed;
2. Provides information on the type of off-balance liabilities classified in the respective off-balance sheet exposure, by which the provisions have been formed;
3. Is consistent with the organization of the analytical reporting to the accounts that reflect risk exposures;
4. Provides information on the currency of the risk exposure for which provisions are formed.

Provisions are released in the collection of the risk exposure or its reclassification in a lower risk group. The released provisions that were accrued in the current period will be reversed.

Similarly, the released provisions for off-balance liabilities are reversed. The released provisions that were accrued in previous periods are written off and recognized in the income statement as financial revenue (Stoyanov et al., 2008).

## 4. Procedures and models of analysis and evaluation of the quality of credit portfolio in banks

The phrase "quality of bank loans," invoked within the framework of the concerns specific to the credit activities carried by the banks, they arising also from ensuing the application of the fundamental principles of credit, aim a side of particular interest of bank loans manifestation, reflected in the development of the processes and the results obtained on micro level, but analyzed also on the macro level, especially, in the context of ensuring the financial stability in one country or another (Filip, 2015).

The main source of information for the analysis and evaluation of the quality of the credit portfolio of banks is the created accounting data for:
- the credits granted;
- the credits repaid;
- the actual amount of credits granted to a certain point;
- the agreed credits that have not been granted yet;
- the securities on the credits granted;
- the received interest income from credits granted;
- the depreciation degree of risk exposures under the applicable accounting standards.

The way of obtaining this information is presented in Table 1:

2. Procedures for checking the reclassification and restructuring of the credit portfolio – covering verification of compliance with statutory requirements and interbank rules for reclassification and restructuring of the credit portfolio.
3. Procedures for checking the security of credits - including checks of the availability of securities, and the type, nature and liquidity of these securities, their registration and insurance under the established statutory and interbank policy.
4. Procedures for checking domestic credits – including checks for compliance with the regulatory requirements and restrictions on domestic credits.
5. Procedures for the inspection of large credit exposures – including procedures

*Table 1. Information sources for analysis and evaluation of the quality of the credit portfolio in banks*

| Information source for analysis and evaluation of the credit portfolio | Way of obtaining |
|---|---|
| 1. information on credits granted | Debit turnover on credit accounts in banks |
| 2. information on credits repaid | Credit turnover on credit accounts in banks |
| 3. information on the actual amount of credits granted to a certain point | Debit balances on credit accounts in banks |
| 4. information on agreed credits that have not been granted yet | Credit balances on accounts of subgroup 925 "Off-balance sheet liabilities" |
| 5. information on securities of credits granted | Debit balances on accounts of group 91 "Foreign assets received as security" and some accounts of a group of 94 "Contingent receivables" |
| 6. information on received interest income from credits | Credit turnover in the accounts of subgroup 721 "Interest income" |
| 7. information on the amount of allowances for credit losses | Debit turnover on accounts from subgroup 622 "Expenses for provisions (impairments) for credit risk" |

The basic procedures for analyzing and assessing the credit portfolio of banks are:
1. Procedures for checking the correct framing of credit files – including checking the availability of full documentary support on credit operations in negotiating, authorizing, securing, granting and repaying the credit portfolio.

for detecting, assessing and analyzing large credit exposures, and also checks for compliance with regulatory requirements for large exposures in banks.
6. Procedures for analysis of the structure and dynamics of credit portfolio – covering procedures for analyzing credit size, maturity, sectors, industries and

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residency of borrowers.
7. Procedures for assessing and analyzing the classified risk exposures and impairments for credit losses.

The accounting analysis of the quality of the credit portfolio can be made in three areas:
1. Examination of the structure of the credit portfolio;
2. Bringing indicators for the quality of the credit portfolio;
3. Analyzing off-balance credit risk.

The examination of the structure of the credit portfolio reveals the overall tendency of the bank to take risks (its risk profile). With this aspect of accounting analysis, we can trace the level and trend of credit risk and to make realistic predictions about its impact on profitability, capital position and liquidity of the bank in a static and dynamic aspect.

The structural analysis of the credit portfolio includes the following procedures:
● Disclosure of the share of credits in the total amount of bank assets;
● Structuring the credits according to the area of operation and sectoral

affiliation of the borrower, and determining their relative share in the total amount of credit portfolio.

The structural analysis for revealing the relative share of credits in the total amount of assets of the bank contributes to determining the level of credit risk by comparison with internationally adopted norms and practices.

Analyzing the field of operation and sectoral affiliation of the borrower improves the ability to manage the credit portfolio by shifting credit resources from one field of the economy to another, from one branch to another. The latter is an opportunity to optimize management decisions.

Bringing indicators of the quality of credit portfolio is related to the classification of credits by degree of risk, in accordance

with the scheme developed by the Institute of International Finance (IIF), quoted also in the scientific literature in the field, this one being accepted and used in banking practice all over the world. Through its content, such bank loan classification suggests their delimitation, in a descending order of their quality level into the following five categories of loans: standard, watch, substandard, doubtful, loss (Krueger, 2002). On this basis, it is possible to calculate the ratio of problem credits and ratio of classified credits.

The ratio of problem credits can be presented as the relative proportion of the gross value of credits with arrears in all gross assets of the bank (assets before provisioning).

The ratio of classified credits can be presented as the relative proportion of all classified credits in the gross assets of the bank (assets before provisioning).

To achieve more accurate estimates of this analysis, it is advisable to track the levels and time trends in both ratios. The latter provide information about the level of the bank credit risk.

In the next steps of the accounting analysis of the quality of the credit portfolio, the factors that have an impact on the levels and changes in those ratios should be defined. For example - composition and structure of problem credits, influences caused by sectoral and field concentration of credit resources, concentration by individual customers, domestic credits, etc. It is necessary to pay attention to the individual classification groups.

Granted credits are classified into risk groups depending on the capacity of borrowers to service correctly their obligations to the bank. For the purposes of analysis, ratios should be drawn to show the share of individual classification groups in the total credit portfolio of the bank, as well as to trace the reclassification (so

called migration) of credit resources. On this basis, it is necessary to detect the trends – improvement or deterioration of the quality of the credit portfolio and linking them with any changes in the growth of the credit resources provided, as well as the writing-off or restructuring of credits.

Analyzing off-balance sheet credit risk includes procedures like those in analyzing the quality of the credit portfolio. It is necessary to reveal the volume and trends of classified off-balance sheet liabilities. When changes are seen, it is necessary to seek causes. The most important part of the analysis is the disclosure of the adequacy of the provisions (the extent of their sufficiency) according to the risk profile of the bank. The latter can be achieved by displaying the ratio between provisions for contingent liabilities and all contingent liabilities incurred by the bank.

By reliably analyzing the quality of the credit portfolio based on actual and prognostic condition, it is possible to achieve a more effective management of credit risk in the banking system. The current trends in bank management are directed towards achieving this target. The goal is the development of such analytical, control and management methods, by which it will be possible to immediately respond to market changes. If we try to systematize the patterns that found wider application, we will find some common features such as:

**(1) Expert systems**

(1.1) The traditional model of expert system examines the nature of the business of the company, industry and its cyclical nature, the capital adequacy of the company, the security and the level of professionalism in company management.

(1.2) An expert system built on the achievements in the field of artificial intelligence. These are systems able to "learn" from their mistakes, but are not sufficiently transparent and are usually not

equally good with different input data.

(1.3) Models supporting the preliminary identification of potentially problematic credits **(Early Warning Signal model) – an expert model** for assessing the credit risk of customers that are applying for credit, which is based on expert assessment, based on expert opinions regarding the parameters used, weight coefficients and limit of refusal. Thus, a matrix calculating the credit risk of borrowers is built, which classifies them in certain risk groups (zones). The purpose of the model is to detect the potentially problematic credits where the occurrence of certain events is likely to lead to further deterioration in the bank's exposure. The expert model is used when it is not possible to develop a statistical model due to insufficient data for analysis (an insignificant number of transactions or cases of default), as well as in introducing a new product or a new customer segment. The model was developed for the "municipalities" segment, "enterprises of the public sector" segment, and "specialized financing" segment.

**(1.4) Credit Value at Risk - CVaR** – model for estimating the maximum loss on a portfolio level for a given time horizon and confidence level (e.g. 99.97%).

**(2) Point valuation models** – these models use the structure of financial

ratios and are the most widely used models in the world. Point models rely largely on linear development, i.e. they have empirical confirmation, but many theorists oppose them.

In the practice of Bulgarian banks the methodology setting point values for certain indicators, consisting of three main stages, has received a higher prevalence. In the first stage, a selection of criteria (indicators) that present the economic condition of the debtor is carried out. In the second stage, point values are assigned to the indicators within certain limits - minimum and maximum. For values of the indicator lower

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than the prescribed minimum, the number of points is equal to zero, and for values higher than the specified maximum, the maximum number of points is given. In the third stage, the points are added together and the resulting value is a synthetic and quantitative expression of the potential risk a credit holds. Numerical intervals are defined for the individual risk categories. The number of points characterizing individual indicators are generally fixed at the discretion of banks, and it reflects their individual preferences. The same number of points can be referred to each indicator or some groups of indicators can be ranked higher than others. But the total number of points obtained as a result of using this method for assessing credit risk largely depends on the indicators accepted for analysis and their given number of points.

Results may differ significantly depending on the distribution of points. In this regard, it should be emphasized that there is subjectivity in the evaluation, which expresses the disadvantage of this method – the objectivity of the method is deceptive, as, of course, there is also the possibility of manipulating the results.

(3) **Statistical and econometric models**

(3.1) **Models, based on the "probability of default" (PD) indicator**, developed as part of the internal system for credit risk management, are:

- **Application PD model** - a model for credit risk assessment when applying for credit. The purpose of this model is to provide means for reliably predicting the future servicing of the credit based on quantifiable risk assessment when applying for a credit. The Application PD model uses as input variables customer data upon applying for credit, particularly demographic data, length of service and banking history of individuals or financial data for businesses, observing the requirement that all the customer parameters are available at the time of applying for a credit. The calculated PD value expresses the probability of default as a percentage from 0% to 100% within 12 months of the credit approval. The Application PD model is used to assess the probability of default when applying for a credit in the following customer segments: - individuals applying for mass products in retail banking; - business customers in retail banking (standard SMEs); - corporate customers (non-standard SMEs and corporate business customers);

- **Behavior PD model** – the objective of this model is to provide reliable prediction of the future servicing of the credit by a quantifiable risk assessment associated with the behavior of the customers regarding their use of banking products and servicing their debt obligations. Based on the calculated PD, which expresses the probability of default from 0% to 100% within a period of 12 months from the date of calculation, customers are classified into predefined risk categories. The behavior model is intended to serve as a tool for current analysis of the future PD at a portfolio level and to identify early warning signals. Behavioral models are developed for the customer segment: individuals applying for mass products in retail banking – credits that are secured by mortgages on real estates, revolving loans, consumer loans and stock loans.

(3.2) **Models for credit risk assessment based on the following indicators:** (i) probability of default (PD); (ii) current exposure to the debtor and forecast

for the exposure at default (EAD); (iii) expected recovery rate of exposure at default (loss given default - LGD), developed in accordance with the regulatory requirements of the Bulgarian National Bank and the European directive on capital adequacy. The bank assesses the probability of default (PD) indicator of a debtor using internal rating models for different classes of exposures and counterparties. These models were developed based on statistical analyzes and judgments by comparison with externally available information about the counterparty. The probability of default is the probability that the counterparty fails to fulfill its obligations under a current or future transaction within one year. Borrowers are segmented into individual rating classes that reflect the limits of the probability of default for the respective class. This means that exposures can switch between classes as the assessment of the probability of default changes over time. The bank uses estimates of recognized external rating agencies, where available, to compare with the assessment of credit risk, which is carried out using internal rating models. Exposure at default (EAD) reflects the expected credit amount payable in the event of default. For example, exposure at default on credit is the residual principal. In credit commitments EAD is defined as amount of the utilized portion and likely future absorption at the time of default. Loss given default (LGD) is defined as the amount of loss that the bank would suffer in case of default on a debt. LGD is directly dependent on the type of the counterparty, the seniority of the claim, availability of security or any other credit protection.

(3.3) **"Z-analysis" and model of Chesar** – "Z-analysis" is a statistical model based on risk assessment (as measured by statistical techniques), on the basis of which the risk classification of an undertaking is made. The model uses a number of financial indicators, weighted on the basis of the weight of each individual factor on the financial condition, whereby the "Z" 2 assessment is reached. It can be also seen as a variation of the rating approach as far as, based on certain key indicators and their individual weight, is determined the comprehensive assessment of the borrower and the related credit risk.

A similar approach is used in the model of Chesar but unlike the Z-analysis, this assessment is carried out in two stages:
- Step 1. Evaluation of the debtor's tendency to violate the credit contract1;
- Step 2. Assessment of the credit risk associated with the company2.

(4) **Rating systems** - evaluation is the referral of the customer to a particular risk category, as the number of categories can vary considerably depending on the rating system used. Whether it is external or internal rating, we can say that there is inconsistency between ratings set by the different agencies. Quality indicators are crucial for the rating of small and medium companies, but their role is difficult to measure.

(4.1) Group rating models (GWM) - used for customer segments and exposures whose risk factors are independent of the geographical location of the customer, the local market characteristics and used processes1.

(4.2) Local rating models:
   a) Corporate rating model;
   b) Slotting model. Used in cases of specialized crediting.

Determination of the mechanisms of credit risk under the standardized and IRB approach may be presented in the following table:

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*Table 2. Approaches to determining credit risk*

| Criteria | Standardized approach | IRB approach | |
| --- | --- | --- | --- |
| | | Basic | Advanced |
| **Rating** | External | Internal | Internal |
| ***Risk components*** | | | |
| **Probability of default (PD)** | | Determined by the bank based on its own assessment | Determined by the bank based on its own assessment |
| **Loss given default LGD)** | | Determined by the supervising bodies of the bank | Determined by the bank based on its own assessment |
| **Exposure at default (EAD)** | | Determined by the supervising bodies of the bank | Determined by the bank based on its own assessment |
| **Maturity (M)** | | Determined by the supervising bodies of the bank | Determined by the bank based on its own assessment |
| ***Risk weight (RW)*** | Identified and defined by Basel III, depending on the external rating | The function of the risk weight is determined by Basel III $RW = f(PD, LGD, M)$ | The function of the risk weight is determined by Basel III $RW = f(PD, LGD, M)$ |
| ***Risk weighted assets (RWA)*** | $RWA = E \times RW^{1*}$ | $RWA = RW \times EAD$ | $RWA = RW \times EAD$ |

In providing information to analyze key components, the role of the accounting information can be presented schematically as follows:

These sources of accounting information can be used in building models to assess losses from credit (default) and building models to assess the change in market

| Components of risk | Sources of accounting information |
| --- | --- |
| Risk assessment | Sources of quantitative information: = balance sheet; = statement of profit or loss and statement of comprehensive income; = cash flow statement. |
| Risk assessment of the transaction | Accounting information accounting factors: = security; = subordination; = time to implement |
| Amount of exposure for non-payment | Accounting information on: = nominal value; = amount of arrears; = current debt of credit lines; = unused segment of credit lines. |

In analyzing and evaluating the second group of components - other important elements - accounting information plays a decisive role in establishing the maturity (timeliness) of credit exposures.

value of the credit portfolio as a result of a change in the condition of the borrower. The "Stress test" uses a number of techniques to establish the impact of major changes in macroeconomic circumstances or future

events on the credit portfolio. The main purpose of the stress test is to reveal areas of risk and thereby assess the level of probable and possible losses under unusual market conditions.

As stated, each credit operation is linked to cash outflow from the bank and this makes it a carrier of certain risks. They are caused by the possibility that at some point borrowers find themselves in financial difficulties and are unable to return the granted credit resources within the agreed period, i.e. violate fundamental principles of the loan, namely return, maturity, profitability. Prevention is needed to avert or reduce the likelihood of these risks. Accounting analysis of credit risk in banks has a specific place and role in the implementation of these preventive procedures, and particularly the accounting treatment of impairments (provisions) for credit losses. The inadequate coverage of the risks with provisions (impairments) related to balance sheet and off-balance sheet items has been and will be a factor that destabilizes the banking sector.

## 5. Accounting model for recognition of impairments for credit losses - theoretical aspects and statutory treatment

Much research in financial reporting has been concerned with the quality of accounting standards and sufficiency degree of provisions (impairments) for credit risk. An important consideration is the level of judgment allowed in the preparation of financial statements. A purported benefit of allowing judgment in the application of accounting standards is that it gives management the opportunity to provide private information to financial statement users. However, judgment also enables experts to manage earnings when they have strong incentives to do so (Ball, 2006).

The effect of incentives on reported loan loss provisions has been studied by Marton and Runesson (2017); Heba Abou El Sood (2012); Bushman and Williams (2012); Adzis, Tripe and Dunmore (2010); Kanagaretnam, Lobo, and Yang (2004). Credit losses in banks play a central role in the evaluation of risks and stability in banks and thus have substantial economic significance. Due to the fact that the reporting of credit losses involves judgment and these losses have economic significance, it is useful to recognize expected credit losses. The importance of enforcement in explaining variations in international financial reporting quality has been shown generally by the auditing companies "Deloitte" (2014, 2015) and "Ernst & Young" (2011, 2012).

In July 2014, the International Accounting Standards Board (IASB) published the final version of IFRS 9 *Financial Instruments*, including the requirements for recognition of impairment of financial assets. The aim of the standard is to define the principles for financial reporting of *financial assets* and *financial liabilities* that provide relevant and useful information to users of financial statements for their assessment of the size, time parameters and uncertainty of future cash flows. This is a fundamental change in accounting rules and a recognition of impairment losses as financial instruments essential for banks, credit and financial institutions.

The process of final approval of IFRS 9 *Financial Instruments* ended in the last quarter of 2016. ***The standard was adopted by the European Commission with Regulation 2016/2067 of 22 November 2016*** and published in the Official Gazette, L 323 of 29.11.2016, which act upheld the decision for the mandatory application of the standard for all EU member states for accounting periods beginning on or after January 1, 2018 and will succeed the current IAS 39 *Financial Instruments: Recognition*

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*and Evaluation* as earlier application is also permitted.

The present IAS 39 was the subject of repeated criticism from the standpoint of existing accounting model for impairments – the "suffered loss" approach. The European Commission noted in a statement that the model of impairment applied has led to "too little and too late" recognition of credit losses in the portfolios of commercial banks.

Compared with the existing standard (IAS 39), in which the "suffered loss" model is embedded, according to the provisions of the new accounting standard for financial instruments - IFRS 9 *Financial Instruments* - for the first time the recognition of impairments of financial assets due to uncollectability will not depend on the judgment (assessment) by the bank management if there is objective evidence for impairment of a financial asset or group of financial assets. IFRS 9 allows for the provisioning of potential (future) losses based on *adequate prognostic information* about the credit quality of bank portfolios, including macroeconomic forecasts. It is intended that holders of financial assets measured at depreciated cost already have a commitment not only to the regular monitoring of historical information, but also to any other reasonable and substantiated information that provides an objective basis for the expected deterioration of the financial asset.

The concept enshrined in the new accounting standard - IFRS 9 - provides recognition of expected credit losses for the following categories of financial assets:
- Financial assets measured at depreciated cost;
- Financial assets measured at fair value through other comprehensive income;
- Lease receivables;
- Assets under a contract or agreement for a loan commitment or financial guarantee.

Through the establishment of *adequate accounting information* for classification and measurement of financial instruments, the proposed new model of impairment will lead to *timely detection and recognition* of losses and achieving greater transparency for users of financial information about the dynamics of credit risk in the portfolios of commercial banks.

In accordance with the foregoing information, we share the opinion that by applying the EL approach commercial banks will assess the presence of "expected loss" based on a wider range of information about the following three areas:
- ➢ *on past events*, such as historical experience from the management of the bank;
- ➢ *on current conditions*, including functioning market environment, specific environmental conditions in which the company operates, specific economic conditions in the country on a micro and macro level, and basic trends in the international economic conditions;
- ➢ *reasonable and supportable forecasts concerning the collection of future cash flows associated with the financial instrument.*

In addition, a circumstance should be noted, which should in no way be underestimated, given the current situation, that *the behavior of commercial banks in the credit process will undoubtedly depend on the attitude of bank regulatory authorities to the new requirements*. According to the regulator of the national banking system and in particular the systemically relevant banks (under Basel III), reliable and effective banking supervision, together with an adequate macroeconomic policy, are crucial for the financial stability of each country. A study devoted to analyzing the effects of changes in the regulatory environment in the monetary sector proves that "under the terms of a currency board, a

crucial condition for banking stability is the confidence in the Central Bank's ability to manage systemic risk. The latter dexterity is manifested in the adoption of an adequate, common for all market players rules and the firm adherence to them" [2] (Sotirova and Beev, 2005). Regulating and supervising the credit institutions' activities aims to maintain the stability of the banking system and protect depositors' interests. In line with this, the new Basel 3 framework includes an improved set of measures for more and better quality capital, unlike the previous regulatory frameworks.

## 6. Critical analysis of regulations for recognition of impairments for credit losses as defined in IAS 39

Impairment is associated with the presence of conditions that the carrying amount of the asset is not recoverable. In other words, the assessment of the unrecoverable value of a financial asset is called impairment. All financial assets of the bank are subject to impairment test except for those at fair value as profit and loss.

As already mentioned, the main methodological point is when properly understanding the issue of impairment of loans due to uncollectability and deteriorating financial condition of the debtor is its treatment under the terms of IAS 39 *Financial Instruments: Recognition and Measurement*.

Following the provisions of the Standard, the focus is on:
- The existence of objective evidence of impairment. If there is *objective evidence* of impairment, the bank recognizes any

impairment loss in the profit or loss. Our targeted approach - the model of suffered loss - allows the recognition of impairments only for losses that have occurred (actually suffered losses). The recognition of allowances for potential losses is not allowed regardless of how likely they are to occur, i.e. expected losses on future events are not recognized.
- *Judgment of bank management*. The main feature of the standard is that it does not set requirements for a predetermined percentage of reassessment, and relies on the assessment of the bank itself.
- *Fixed impairment is subject to accounting, recognized in profit or loss (treated as an expense), and its amount is deducted from the value of the financial asset (by crediting the synthetic account for reporting of the credit) or through a corrective account.*

*Based on the theoretical interpretation of IAS 39, a rather negative evaluation of the applicable model may be given in the "allowances for credit losses" part. The arguments for this are:*

O The model for the recognition of an impairment of financial assets included in IAS 39 Financial Instruments: Recognition and Measurement – the "suffered loss" model – could lead to delayed recognition of impairments in time. It results from the fact that holders of financial assets have a commitment only to regularly monitor historical information without using any confirmed information, which provides an objective basis for the expected deterioration of the financial asset.

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[2] In a report entitled "Theoretical analysis on the effects following the changes in the normative framework of the monetary sector" with a subtitle "Analysis of the adopted amendments and additions to Regulation 21 from 22.03.2005 of BNB for the mandatory minimal reserves which banks maintain with the Bulgarian National Bank", Dr. Ekaterina Sotirova and Dr. Ivaylo Beev present a retrospective analysis of the use of the minimum reserves in Bulgaria as a measure for regulating the banking sector under the conditions of a currency board while simultaneously systemizing and exposing a number of negative effects which cast "doubt on the effectiveness of the restrictive measures applied by BNB" in the cases of "reinsurance against credit or other type of risk".

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O Using the judgment of the bank itself gives greater freedom in the process of recognition of impairment for credit losses. Accounting standards provide greater flexibility when bad credits are written off, and the decision at what point exactly to do it often depends on various factors such as the strategy of the parent bank or simply delaying while hoping for "better times". In this regard, the question arises how far we can trust the expertise of the bank management in the process of recognition of impairments provisions for credit risk. This uncertainty is even more prominent in the ongoing financial and economic crisis and the pursuit of banking institutions to smooth their income by the instrument of impairments to cover the risk of credit losses.

O Reducing the amount of impairments is reflected in the income statement, resulting in an increase in net income and reflecting the capital positions of commercial banks, increasing the regulatory capital of commercial banks.

O Not charging impairments for the financial assets category "loans and receivables" in the balance usually leads to their "overrating" - the principle of cautiousness is violated. At the same time, the principle of comparability of revenue and expenditure is also violated - impairment charges are not reflected and compared to the resulting effects (interest income on loans) in the reporting period. This leads to a complete distortion of the result of the operation of commercial banks and questions the quality of the credit portfolio.

## 7. The three-tier model for the formation of expected credit losses

The introduced *common approach for the recognition of impairment is based on the so called three-tier model for the formation of expected credit losses*, taking into account the deterioration of the credit quality of the financial instrument after initial recognition. In the applicable accounting standards (IFRS 9) the ***credit loss*** as a concept is regulated and is defined as "the difference between all contractual cash flows owed to the company under a contract, and all cash flows the company expects to receive (i.e. all cash shortages), discounted at the original effective interest rate" (i.e. the effective interest rate used for calculating the depreciated cost).

After initial recognition, each credit institution should assess a corrective for losses on financial tools in one of two ways - *"expected credit losses for 12 months"* and *"expected credit losses for the lifetime of the tool"*. *Expected credit losses for 12 months* are the part of the expected credit losses for the lifetime of the tool, which represents the expected credit losses resulting from defaults on a financial tool that may occur within 12 months after the reporting date". Therefore, expected credit losses for the 12 months are neither expected credit losses for the lifetime of the tool, which the company will bear on financial tools with predicted default in the next 12 months, nor cash shortfall projected for the next 12 months. Expected credit losses resulting from all possible events of default over the expected lifetime of the financial tool are classified as *expected credit losses for the entire period*. The boundary between the two stages - *"expected credit losses for 12 months"* and *"expected credit losses for the whole period"* - is based on the change in the risk of default during the expected lifetime of the financial tool (because of a significant deterioration in credit quality), and not a change in the amount of expected credit losses. To make this assessment, the bank compares the ***risk of default*** on the financial tool at the reporting date and at the date of initial recognition, based primarily on reasonable and supportable information.

From a practical standpoint, the risk indicator *"probability of default"* (PD) can be used by commercial banks as an indicator of a significant deterioration in credit risk after the initial recognition of the financial asset. In the process of identifying the **risk of default**, the bank may apply the definition of **default** used for regulatory purposes. Under the provisions of the new regulation on capital requirements, each banking credit institution should recognize **defaulted exposure** based on the following two conditions or at least one of them: **firstly**, the debtor is defaulting more than 90 days (or 180 days for exposures secured by a residential property or commercial real estate of an SME) on a substantial part of his credit obligation, and **secondly**, it is unlikely that the debtor will fully repay his credit obligations.

The general approach for the recognition of impairment includes also a subsequent **third stage** as part of a three-tier process for the formation of credit losses relating to assets for which there is *objective evidence of impairment* (credit-impaired assets). Under the provisions of the current IAS 39 *Financial Instruments: Recognition and Measurement*, the **objective evidence of impairment** under which a financial asset or group of financial assets is impaired includes observational data for any events that **suffered losses**:

a) Significant financial difficulty of the issuer or debtor;
b) Failure to meet contractual obligations - late payment or non-payment of interest or principal obligations;
c) Restructuring of a bad debt;
d) The borrower's possible bankruptcy or another financial reorganization;
e) There is no active market for the financial asset due to financial difficulties;
f) Observed data indicate that from the initial recognition of a group of financial assets, there is a measurable decrease in the estimated future cash flows of the same assets, although the decrease cannot yet be identified with an individual financial asset of this group (i.e. suffered loss but not yet reported). The ongoing changes in the level of unemployment or real estate prices, which affect the borrower in one way or another, can be related to the observed data.

In the third stage of the process of recognizing an impairment, the bank forms *estimated credit losses for the entire period*, but the basis for determining the interest income is *the net carrying value of the asset* (the depreciated cost of the financial asset after deducting the corrective for losses), unlike the first two stages, where the source of formation of interest income is the gross carrying amount of the asset (the depreciated cost of the financial asset before deducting the corrective for losses).

*In summary, according to the provisions of the new accounting standard - IFRS 9 - in connection with the implementation of the proposed common approach to the recognition of impairments, the most significant innovations in this area relate to:*

- *Introduction of a three-tier process for the formation of expected credit losses, depending on the degree of deterioration in the credit quality of the financial tool upon initial recognition;*
- *The recognition of interest income from financial assets based on the gross or net carrying value of the asset;*
- *The concept for recognition of a significant increase in credit risk based on reasonable and substantiated information on arrears of individual or collective basis when the default on contractual payments exceeds 30 days.*

The new requirements to commercial banks for the formation of impairments for credit losses are systematized and presented in *Table 3*.

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*Table 3. Three-tier model for the recognition of expected credit losses*

| | **First stage** | **Second stage** | **Third stage** |
|---|---|---|---|
| Credit quality | *There is no significant deterioration of the financial tool after initial recognition* | *There is a significant deterioration of the financial tool after initial recognition without objective evidence of impairment* | *There is objective evidence of impairment on the reporting date* |
| Recognition of expected credit losses | *Expected credit losses for 12 months* | *Expected credit losses for the whole period* | |
| Degree of credit risk | *Low risk of default after initial recognition of the asset* | *High risk of default after initial recognition of the asset* | |
| Recognition of interest income | *Based on gross carrying value of the asset* | | *Based on net carrying value of the asset* |

*Source: Regulation (EU) 2016/2067 of the Commission of 22 November 2016*

## 8. Conclusion

The provisions of the new IFRS 9, namely in the part on recognition of expected credit losses, are in full compliance with the Accounting Act for "true and fair view of the property and financial status and financial performance of the enterprise, cash flow and equity". Along these lines, prudence is a key accounting principle enshrined in the current Act on Accounting, suggesting "assessing and reporting of alleged risk and estimated potential loss in the accounting of business transactions to obtain actual financial result". The aim is that assets and liabilities, income and expenses be neither overrated nor underrated, and to be presented to the greatest extent by their objective value. It follows from the fact that the current IAS 39 was the subject of repeated criticism in terms of the approach to the formation of impairment for credit losses – the "suffered loss" model – leading to a delay in the recognition of impairment expenses in time, on the one hand, and, on the other - the overrating of interest income calculated on the basis of gross carrying value of the asset for the entire duration of the

contract. In response to that, recognition of expected credit losses for 12 months, part of the three-tier model for the formation of impairment, will be offset by the recognition of interest income in profit or loss in full, i.e. on the gross carrying value and not on the basis of net carrying value (after deducting the corrective for losses). As a result, recognition of expected credit losses will essentially eliminate the possibility of overrating, respectively underrating costs and revenues for complete distortion of the result of the operation of commercial banks and the quality of the loan portfolio.

## References

Ball, R., 2006. International financial reporting standards (IFRS): Pros and cons for investors. Accounting and Business Research, 36, pp. 5-27 (Supplement 1, Special Issue: International Accounting Policy Forum).

Basel Committee on Banking Supervision, (1997) Core Principles for Effective Banking Supervision. [Online]. Available: http://www.bis.org/publ/bcbs30a.pdf [Accessed 10 January 2017].

Bertomeu, J., Magee, R., 2011. From low-quality reporting to financial crises: Politics of disclosure regulation along the economic cycle. Journal of Accounting and Economics, 52, pp. 209–227.

Besanko, D., Kanatas, G., 1996. The regulation of bank capital: Do capital standards promote bank safety? Journal of Financial Intermediation, 5, pp. 160–183.

Bushman, M., Williams, C.,. 2011. Accounting Discretion, Loan Loss Provisioning, and Discipline of Banks' Risk-Taking. Working paper, The University of North Carolina at Chapel Hill.

Feschiyan, D., 2000, "Accounting as a source of information for the management of short-term bank credit activity", thesis for the award of educational and scientific degree "Doctor", Sofia (in Bulgarian).

Filip, B., 2015. The quality of bank loans within the framework of globalization. Procedia Economics and Finance, 20, pp. 208 – 217.

Krueger, R., 2002. International Standards for Impairment and Provisions and Their Implications for Financial Soundness Indicators, IMF Working Paper.

Li, J., 2009. Accounting for Banks, Capital Regulation and Risk-Taking. Working paper, Carnegie Mellon University.

Marton, J., Runesson, E., 2017. Effects of accounting standards, enforcement and incentives. The British Accounting Review, 49, pp.162-180.

Nebenius, C., 2011. Der Öffentliche Credit... German.

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 mediators (OB L 176), art.178.

Sherman J. M., Jacobson, R.,2006, Interest Rate Changes and Commersial Bank – Revenues and Costs, L.

Sotirova, E., Beev, I., " Theoretical analysis on the effects due to the changes in the law element in the money sector" ", "The Economic Theory at the Beginning of the 21st Century - Achievements, Problems, Perspectives - Collection of papers from a scientific conference with international participation", PH "Science and Economics", Varna Economic University, 2005, pp.464-472

Stoyanov, St., 2008. Analysis and Information Provision of credit risk, Sofia (in Bulgarian).

Stoyanov St., Feschiyan, D., Rangelova, L., 2012. Bank accounting. UNWE Publishing Complex, Sofia.

Stoyanov, St., Feschiyan, D., Basheva, S., 2008. Bank Accounting. UNWE Publishing Complex, Sofia (in Bulgarian).

Adzis, A., Dunmore P., Tripe, D. (2010) International Financial Reporting Standards (IFRS) and Income Smoothing Activities of Banks: Evidence from Australia and New Zealand Commercial Banks. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1717307 [Accessed 10 January 2017].

Bushman, R., Williams, Ch., 2012. Accounting discretion, loan loss provisioning, and discipline of Banks' risk-taking. Elsevier: Journal of Accounting and Economics. Elsevier, 54, pp.1-18.

Corona, C., Nan, L., Zhang, G., 2015. Accounting Information Quality, Interbank Competition, and Bank Risk-Taking. Accounting Review, 90 (3), pp. 967-985.

Deloitte, (2015) "Fifth Global IFRS Banking Survey — Finding your way". [Online]. Available: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/dttl-fsi-5th-IFRS-Bank-Survey.pdf. [Accessed 2 January 2016].

Deloitte, (2014) "Fourth Global IFRS Banking Survey Ready to land". [Online]. Available: http://www2.deloitte.com/content/dam/Deloitte/at/Documents/audit/fourth-global-ifrs-banking-survey.pdf. [Accessed 2 January 2016].

Ernst & Young, (2012) "The new impairment model". [Online]. Available: http://www.ey.com/Publication/vwLUAssets/The_new_FASB_and_IASB_impairment_model_US_financial_institutions_weigh_in/$File/BCM%20Impairment%20Survey.pdf.

[Accessed 2 January 2016].

Ernst & Young, (2011) "The IASB's new impairment model. Views of European financial institutions". [Online]. Available: http://www.ey.com/Publication/vwLUAssets/The-IASBs-new-impairment-model/$FILE/Impairment-survey-2011.pdf. [Accessed 2 January 2016].

Heba Abou El Sood, 2012. Loan loss provisioning and income smoothing in US banks pre and post the financial crisis. Elsevier: International Review of Financial Analysis, 25, pp. 64-72.

Kanagaretnam, K., Lobo, G. J.,Yang, D. H., 2004. Joint tests of signaling and income smoothing through bank loan loss provisions. Contemporary Accounting Research, 21(4), pp. 843-884.

Rectenwald, H. Kl., 1987. Wörterbuch der Wirtschaft. Stuttgard.

Regulation (EU) 2016/2067 of the Commission of 22 November 2016 amending Regulation (EC) No. 1126/2008 adopting certain international accounting standards in accordance with Regulation (EC) No. 1606/2002 of the European Parliament and of the Council regarding International Financial Reporting Standard 9.

Roscher, W., 1878. Principles of Political Economy. New York:Henry Nolt, vol.I, pp. 268-285.

Wagner, Ad., 1867. "Statistik." In Deutsches Staats-Wörterbuch, vol. 10. Leipzig: Expedition des Staats-Wörterbuchs, pp. 400–481.