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Methods for evaluating expected credit losses for the purpose of calculating the reserve on financial instruments in accordance with IFRS in commercial banks.

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Abstract

This article discloses the implementation and application of IFRS in commercial banks, as well as the use of the methodology for assessing expected credit losses in order to calculate the provision for financial instruments in accordance with IFRS 9. The article also discloses the analysis and factors influencing performance, the level of losses in case of default by financial instrument.

Keywords: Financial report; Loan portfolio; Methodology; assessment; Financial instruments; Factors; Commercial banks

1. Introduction

Many financial institutions, in accordance with legal requirements, have already completed a set of measures to ensure the accounting of transactions in accordance with IFRS. However, there are those who are still continuing the transition. Professionals eager to keep up with the times, who have already set foot on the path of transformation or are just preparing for the difficult process of implementing international financial reporting standards, understand the importance of professional exchange of good practices and failures during the introduction of IFRS. After all, every banking professional knows: loans are one of the most popular methods of attracting additional capital for the further functioning of a company or investing in large projects with the aim of making a profit in the future. And the reporting of the company in this case is the first document that will be carefully analyzed by specialists when making a credit verdict. And since IFRS is considered the generally accepted international reporting language, it is vital to know these standards.

International experience in implementing IFRS 9 in banks and other credit institutions shows that the successful implementation of this project involves, first of all, the development of a detailed plan of measures necessary to implement the new requirements. The importance of such a plan is determined not only by the complexity of the project, but also by the fact that the successful implementation of IFRS 9 requires active interaction between different departments of a bank or other credit institution (departments responsible for accounting, information technology, risk management, etc.).

The first step in the IFRS 9 transition plan can be an analysis of discrepancies and / or inconsistencies between current accounting practices, collection and analysis of information and the new requirements of IFRS 9 ("gap analysis") with the purpose of determining the needs for the improvement of existing models, methodology, systems, procedures. The second step can be the development of models, methodology and requirements for systems and procedures that will

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ensure compliance with the requirements of IFRS 9. The third step can be the implementation of the developed models, methodology, systems and procedures, as well as their testing. For a successful transition to IFRS 9 for a certain period of time, it is advisable to keep parallel accounting of financial instruments under the new and old requirements as part of the last stage of the transition to IFRS 9. Such parallel accounting will allow testing new systems and procedures prior to their application.

Applying IFRS 9, commercial banks establish principles for the recognition of financial assets and financial liabilities in financial statements in order to provide users of financial statements with relevant and useful information that allows them to estimate the amounts, timing of occurrence and uncertainty of the Bank's future cash flows. In accordance with the requirements of IFRS 9, for the purpose of making provisions for financial instruments, the Bank uses an estimate of expected credit losses, the key principle of which is to timely reflect deterioration or improvement in the credit quality of financial instruments, taking into account current and forecast information.

Commercial banks are required to recognize an expected credit loss allowance either over 12 months or over the life of the instrument, depending on the existence of a significant increase in credit risk after initial recognition. Estimates of expected credit losses reflect a probability-weighted outcome, time value of money, and forward-looking information. The need to take into account forward-looking information implies taking into account the impact of changes in macroeconomic factors on expected credit losses.

2. Literature review

There are several accounting systems in the world today, depending on regional, economic, political and social characteristics. It is well known to divide accounting systems into the following types: Anglo-Saxon, Continental, South American and Islamic models. In the Anglo-Saxon model, financial reporting is seen as the main source of information for investors and lenders. Almost all companies present on the securities market are directly interested in providing objective information about their financial position.

Today this model is used in Great Britain, the USA, Australia, Israel, India, Canada, Central America, etc. Unlike the Anglo-Saxon, the continental model pays much attention to legislative regulation of accounting, and the main users of financial statements are tax and other government agencies. Countries with such a model include Austria, Greece, Denmark, Spain, Italy, Germany, Norway, Portugal, France, Japan, and Belarus can also be attributed. An excellent characteristic of the South American model is the adjustment of financial statements to account for changes in the general price level, which is caused by the unstable economic situation and high inflation. Such adjustments are necessary to ensure the reliability of the financial statements. This model is inherent in such countries as Brazil, Peru, Uruguay, Chile, etc. One of the forms of organization of accounting and financial reporting is the Islamic model, which is characteristic of Muslim countries and formed under the influence of their national characteristics.

This model, in particular, prohibits the receipt of financial dividends for the sake of increasing income, and when assessing assets and liabilities, only market prices are used. There are other approaches to grouping countries depending on the degree of implementation of International Financial Reporting Standards. In particular, on this basis, countries should be grouped into six groups: 1) direct permission for listed companies using special procedures (European Union countries); □ convergence of national standards with IFRS for listed companies (USA, Japan); 2) convergence of national standards with IFRS for all companies (Great Britain); 3) conversion of IFRS into national standards (New Zealand, Australia, Hong Kong, Singapore); 4) development of new national standards and improvement of existing national standards in the direction of their compliance with IFRS, taking into account national characteristics (India); 5) work on the recognition of national standards equivalent to IFRS (in the EU for Canada, Japan and the USA); □ direct introduction of IFRS as national standards, including for legal entities and non-listed companies. It is interesting to note that some countries that are moving to IFRS (for example, Kenya) argue that such a decision will allow them to save money on developing standards and direct them to practical implementation.

A different vision of dividing the countries of the world has been declared by the International Financial Reporting Standards Committee, on the official website of which four categories of countries have been identified according to the level of IFRS implementation at the moment: 1) full-scale implementation of IFRS for all companies, regardless of whether they are listed on the stock exchange or not ... 36 countries fit this category; 2) mandatory compliance with IFRS only for companies included in the exchange listing. This group includes China, Estonia, Hong Kong and Latvia; 3) countries whose legislation allows the application of IFRS or other internationally recognized accounting principles (for example, US GAAP) instead of national rules. Examples of such countries are Denmark, Germany, Hungary and the Netherlands; 4) countries whose national financial reporting standards are close to IFRS, for example, Egypt, Malaysia, Singapore and South Africa, and the degree of closeness of national standards to IFRS varies. The experience of countries

that have completely switched to international accounting requirements and use International Financial Reporting Standards is of the greatest practical interest. However, a study of the state of implementation of international standards in the accounting practice of foreign companies shows that only 35 countries have declared the use of IFRS as mandatory for listed companies and, to one degree or another, for companies that are not included in the listing. These countries are divided into four groups: 1) Middle Eastern countries (Bahrain, Kuwait, etc.); 2) the countries of South America (Peru, Honduras, etc.); 3) former British colonies (Barbados, Cyprus, Kenya, etc.); 4) countries with economies in transition (Georgia, Croatia, etc.).

3. Modelling technique

This Provisioning Methodology, developed in accordance with the requirements of IFRS 9 (hereinafter referred to as the Methodology), describes the rules for impairment and the calculation of the allowance for impairment of financial instruments.

In accordance with the requirements of IFRS 9, the Bank applies an expected credit loss model for the purpose of making provisions for financial instruments, the key principle of which is to timely reflect deterioration or improvement in the credit quality of financial instruments, taking into account current and forecast information. The amount of expected credit losses recognized as an allowance for impairment losses depends on the extent to which the credit quality of the financial instrument has changed since the date of initial recognition.

Estimating expected credit losses for a financial instrument is done using one of three approaches:

- the approach to provisioning for acquired or originated credit-impaired financial assets - applied to financial instruments that at the date of initial recognition were indicative of impairment;
- simplified approach - used for short-term receivables;
- general approach (collective assessment) - is applied for all other financial instruments subject to provisioning in accordance with IFRS 9.

The Bank may also apply an individual assessment as part of a general approach for borrowers with signs of impairment if the following conditions are met:
The total amount of claims to the client is more than 200 billion UZS.
Indicators of impairment under any of the customer's agreements (categorized as stage 3).
The formula for calculating the provision on an individual basis can be written in a general form:

$$ECL = BV - \sum_i w_i PV_i$$

Where:

BV – The carrying amount of the asset;

w_i – the probability of the i-th scenario;

PV_i – the value of the reduced cash flows in the i-th scenario.

As part of an individual assessment, experts assess the planned cash flows in the context of different scenarios (at least two), weighted by the likelihood of implementation. Dates of receipts, size of flows, sources of receipts are estimated by experts.

The amount of the provision for such instruments is equal to the difference in the balance sheet debt and the value of the present value of cash flows calculated on the basis of weighted scenarios.

In accordance with the general approach at the recognition date, financial instruments are assigned to stage 1 of provisioning, then, depending on the degree of increase in credit risk from the date of initial recognition to subsequent reporting dates, the Bank classifies financial instruments into one of the following stages:

Stage 1 - Financial instruments that do not have factors indicating a significant increase in credit risk and do not have any signs of impairment, for which expected credit losses are calculated within 1 year:

$$ECL_{1st\ stage} = ECL_{on-balance} + ECL_{off-balance}$$

$$ECL_{on-balance} = LGD \cdot \sum_{k=0}^{N} PD_{t_k} \cdot \frac{CF_{t_k}^{contract}}{(1+EIR)^{t_k}}$$

$$ECL_{off-balance} = PD_{t_k} \cdot LGD \cdot EAD_{off-balance} \cdot CCF$$

Where:

$ECL_{on-balance}$ – assessment of expected credit losses on balance sheet assets; $ECL_{off-balance}$ - assessment of expected credit losses on contingent credit commitments (unused limits on credit lines and credit cards, guarantees and letters of credit);

$EAD_{off-balance}$ - the amount of the unused limit or the amount of the guarantee / letter of credit;

t_k – period from the reporting date to the date of receipt of the k-th payment, in years;

PD_{t_k} – estimation of the probability of default during the period from t_0 to t_k; where t_k is the time moment corresponding to the k -th payment, t_0 is the reporting date (t_0 = 0); if the time period between t_0 and t_k is more than 1 year, then the probability of default for a period of 1 year is used; if k is less than 1 year, then the estimate of the probability of default at time t_k is calculated using linear interpolation of the estimate of the probability of default for 1 year;

$CF_{t_k}^{contract}$ – the expected contractual cash flow on the balance sheet portion of the financial instrument at time t_k The amount of discounted cash flows is equal to the amount of exposure to default on balance sheet liabilities:

$$\sum_{k=0}^{N} \frac{CF_{t_k}^{contract}}{(1+EIR)^{t_k}} = EAD_{on-balance}$$

CCF – credit conversion ratio applied to credit contingent liabilities;

LGD – the level of losses in case of default on a financial instrument;

EIR — the original effective interest rate.

N - the number of payments for the asset after the date $t0$.

Stage 2 - Financial instruments that have factors indicating a significant increase in credit risk, but without any signs of impairment, for which expected credit losses are calculated over the life of the financial instrument:

$$ECL_{2nd\ stage} = ECL_{on-balance} + ECL_{off-balance}$$

$$ECL_{on-balance} = LGD \cdot \sum_{k=1}^{N} \left(PD_{t_k}^{cmlt} \cdot \frac{CF_{t_k}^{contract}}{(1+EIR)^{t_k}} \right)$$

$$ECL_{off-balance} = PD_{t_k}^{cmlt} \cdot LGD \cdot EAD_{off-balance} \cdot CCF$$

Where:

$ECL_{on-balance}$ - assessment of expected credit losses on balance sheet assets;

$ECL_{off-balance}$ - assessment of expected credit losses on contingent credit commitments (unused limits on credit lines and credit cards, guarantees and letters of credit);

$EAD_{off-balance}$ - the amount of the unused limit or the amount of the guarantee / letter of credit;

$PD_{t_k}^{cmlt}$ – estimate of the probability of default during the period t_k from the reporting date, if k is less than 1 year, then the estimate of the probability of default at time t_k is calculated using linear interpolation of the estimate of the probability of default for 1 year, a similar interpolation is applied for the periods related to intermediate values of integer periods (1 year, 2 years, 3 years, etc.);

t_k – period from the reporting date to the date of receipt of the k-th payment, in years;

t_0 – reporting date ($t_0 = 0$)

$CF_{t_k}{}^{contract}$ – the expected contractual cash flow on the balance sheet portion of the financial instrument at time t_k The amount of discounted cash flows is equal to the amount of exposure to default on balance sheet liabilities:

$$\sum_{k=0}^{N} \frac{CF_{t_k}{}^{contract}}{(1+EIR)^{t_k}} = EAD_{on-balance}$$

CCF – credit conversion ratio applied to credit contingent liabilities;

LGD – the level of losses in case of default on a financial instrument;

EIR – original effective interest rate

N – the number of payments for the asset after the date t_0.

Stage 3 - Financial instruments with indicators of impairment, for which expected credit losses are calculated over the life of the financial instrument.

$$ECL_{3rd\ stage} = LGD_{in\ default} \cdot (EAD_{on-balance} + EAD_{off-balance} \cdot CCF)$$

Where:

$LGD_{in\ default}$ – the level of losses on an asset showing signs of impairment;

$EAD_{on-balance}$ – the amount of the credit requirement for the impaired balance sheet asset;

$$EAD_{off-balance} - \ the\ amount\ of\ the\ credit\ claim\ for\ impaired\ off-balance\ sheet\ liabilities$$

CCF – credit conversion ratio applied to credit contingent liabilities;

4. Analysis and factors influencing performance

Factors indicating a significant increase in credit risk are identified for each segment of financial instruments. Factors can be applied at the borrower / counterparty level or at the financial instrument level:

If the factor is applied at the level of the borrower / counterparty, then when this factor occurs for one financial instrument, it is considered that there is a significant increase in credit risk for all financial instruments of this borrower / counterparty.

If the factor is applied at the level of a financial instrument, then the occurrence of this factor for one financial instrument does not affect a significant increase in credit risk for other financial instruments of this borrower / counterparty.

If there are factors at the reporting date that indicate a significant increase in credit risk, the financial instrument is classified as Stage 2.

Improvement in the credit quality of financial instruments for which, as at previous reporting dates, factors indicating a significant increase in credit risk were identified to the level of financial instruments related to Stage 1, occurs in the absence of indicators of impairment and factors indicating a significant increase in credit risk at the reporting date from the date of initial recognition.

List of factors indicating a significant increase in credit risk.

Impairment factors are determined for each segment of financial instruments. Factors can be applied at the borrower / counterparty level or at the financial instrument level.

Relevant impairment factors for different segments of financial instruments, thresholds, their level of application (counterparty / borrower or financial instrument), and reasons for improving credit quality.

An improvement in the credit quality of credit-impaired financial instruments to the level of financial instruments in Stage 1 occurs in the absence of any indications of impairment or factors at the reporting date that indicate a significant increase in credit risk since the date of initial recognition.

5. Conclusion

To take into account forecast information, the functional dependence of credit risk on macroeconomic factors is determined. The dependent variable is the centered and normalized values of the share of overdue debt (or its various transformations, for example, absolute changes, relative increases) in the loan portfolio of Uzbek banks (hereinafter NPL). The share of arrears is defined as the ratio of arrears to the total amount of arrears for each time frame.

The explanatory variables are the centered and normalized values of macroeconomic factors: the first lag of the relative change in the inflation rate and the relative change in the unemployment rate. To build the regression, quarterly values of macroeconomic factors and NPL are used as historical data. Two-factor linear regression is used as a form of functional dependence:

$$\widehat{delta\ NPL}_t = \alpha_1 * \text{delta}(Inflation\ rate)_{t-1} + \alpha_2 * \text{delta}(Unemployment\ rate)_t$$

where, $\alpha_1, \alpha_2 - estimating\ regression\ coefficients$

For forecasting, several scenarios of changes in macroeconomic factors, weighted by probability, are used. The scenarios, as well as their probabilities, are determined by experts.

The forecast information in the estimates of the default probabilities is taken into account by adjusting the default vector (the corresponding column of the "Point-in-time" migration matrix for each segment) by the coefficient k. Since a proportional change in the probability of default can lead to a situation where the value of the probability of default, taking into account the forecast information, will be greater than one, then the transformation of the values of the PD PIT vector is used in the following form:

$$odds\ PD\ PIT = \frac{PD\ PIT}{1 - PD\ PIT}$$

The current and forecast levels undergo a similar transformation NPL:

$$odds\ NPL_t = \frac{NPL_t}{1 - NPL_t}$$

$$odds\ NPL_{t+1} = \frac{NPL_{t+1}}{1 - NPL_{t+1}}$$

Where:

$NPL_t -$ the level of the share of overdue debt as of the last reporting date

$NPL_{t+1} -$ forecasted level of the share of overdue debt for one year in advance.

Next, the relative change in the predicted level of overdue debt to the current level is determined:

$$k_2 = \frac{odds\ NPL_{t+1}}{odds\ NPL_t}$$

In the next step, the converted PD values are calculated taking into account the forecast information: $odds\ PD\ PIT\ (macro) = k_2 * odds\ PD\ PIT$

Next, the inverse conversion to PD is performed:

$$PD\ PIT\ (macro) = \frac{odds\ PD\ PIT\ (macro)}{1 + odds\ PD\ PIT\ (macro)}$$

The resulting PD PIT vectors are substituted into the last column of the annual PIT migration matrix (for each segment), and all the probabilities of transitions between ratings are normalized so that the sum of elements in a row is equal to 100%.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

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