



Current issues of banking approaches for assessing the credit risk of a corporate borrower in conditions of instability

Cuestiones actuales de los enfoques bancarios para la evaluación del riesgo de crédito de un prestatario sociedad anónima en condiciones de inestabilidad

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ABSTRACT

The article is devoted to the issue of assessing the credit risk of a corporate borrower of a bank in the conditions of the coronavirus pandemic and its consequences. The situation in the banking sector in the current conditions has been outlined, the directions of the regulator for improving the banking sector within the framework of a risk-oriented approach have been presented. The necessity of modernization of methods for calculating credit risk based on the model of expected losses, taking into account the superposition of the factor of cyclical fluctuations of economic systems, has been revealed.

Keywords: credit risk, corporate borrower, loan portfolio, underwriting, probability of default of the borrower.

RESUMEN

El artículo está dedicado al tema de la evaluación del riesgo crediticio de un prestatario corporativo de un banco en las condiciones de la pandemia de coronavirus y sus consecuencias. Se ha esbozado la situación del sector bancario en las condiciones actuales, se han presentado las directrices del regulador para mejorar el sector bancario en el marco de un enfoque orientado al riesgo. Se ha puesto de manifiesto la necesidad de modernizar los métodos de cálculo del riesgo de crédito basados en el modelo de pérdidas esperadas, teniendo en cuenta la superposición del factor de fluctuaciones cíclicas de los sistemas económicos.

Palabras claves: riesgo de crédito, deudor corporativo, cartera de préstamos, aseguramiento, probabilidad de incumplimiento del deudor.

1. INTRODUCTION

The world economy shrank by 3.5% in 2020, in the context of the COVID-19 pandemic and restrictive measures (growth was 2.8% in 2019). Negative trends were recorded in most macro-regions of the world. The Russian economy showed better dynamics than the world economy, shrinking by 3.1%. Russian banks have made a significant contribution to the implementation of state measures to overcome the economic consequences of the coronavirus pandemic for the population and business. Due to state support

measures, regulatory easing, as well as maintaining liquidity and capital safety margin, in general, the banking sector of the Russian Federation has maintained systemic stability. However, due to the easing introduced by the regulator, negative trends in the economy have not yet been fully reflected in the banks' reports. Currently, the agenda includes complex and responsible tasks of the recovery period both for the economy as a whole and for the banking sector in particular.

The greatest concern is the state and forecast of the banking sector's indicators in terms of the dynamics of the growth of the loan portfolio and its quality during the pandemic crisis, especially concerning the corporate segment, which makes up almost half of the bank's assets. The loan portfolio of Russian banks for corporate business in 2020 increased by 5.7 trillion rubles – from 39 trillion rubles to 44.7 trillion rubles, or by 14.7% (in 2019 – only by 2.6%), including by 11.7% – for non-financial organizations (Table 1).

Table 1. Structure of the loan portfolio of the banking sector (billion rubles) (Statistical indicators of the banking sector of the Russian Federation, 2021)

| Indicators | Total | | | | |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|---------------|--------------|
| | January 1, 2019 | January 1, 2020 | January 1, 2021 | April 1, 2021 | July 1, 2021 |
| Loan portfolio, net of provisions for possible losses | 50,640.7 | 53,417.8 | 61,117.0 | 62,550.0 | 65,325.6 |
| Loans, acquired claims and other placed funds | 55,788.3 | 59,177.9 | 67,595.2 | 69,059.8 | 71,731.3 |
| including: overdue debt | 2,931.2 | 3,521.4 | 4,093.7 | 4,106.9 | 4,112.9 |
| Corporate loans | 38,011.0 | 39,003.7 | 44,760.2 | 46,869.4 | 48,136.2 |
| Non-financial organizations | 32,902.1 | 33,249.6 | 37,149.0 | 38,897.5 | 40,311.7 |
| Loans (not overdue) | 30,329.3 | 30,100.4 | 33,697.3 | 34,310.1 | 35,775.2 |
| Acquired rights of claim (not expired) | - | - | - | 1,252.0 | 1,240.2 |
| Other deposited funds (not overdue) | 534.6 | 583.0 | 536.3 | 456.1 | 414.1 |
| Overdue debt | 2,038.1 | 2,566.2 | 2,915.4 | 2,879.3 | 2,882.2 |
| Financial organizations | 4,639.2 | 5,227.1 | 6,990.3 | 7,347.5 | 7,199.6 |
| Loans (not overdue) | 1,967.2 | 2,513.8 | 3,821.0 | 3,792.4 | 3,639.6 |
| Acquired rights of claim (not expired) | - | - | - | 68.2 | 66.6 |
| Other deposited funds (not overdue) | 2,594.7 | 2,574.5 | 2,972.1 | 3,294.0 | 3,298.9 |
| Overdue debt | 77.4 | 138.9 | 197.2 | 192.9 | 194.5 |
| Individual entrepreneurs | 469.7 | 527.0 | 620.9 | 624.5 | 624.8 |
| Loans (not overdue) | 414.5 | 475.4 | 572.6 | 572.7 | 572.6 |
| Acquired rights of the claim (not expired) | - | - | - | 1.4 | 1.4 |
| Overdue debt | 55.2 | 51.6 | 48.3 | 50.4 | 50.8 |
| State structures including financial authorities of the subjects of the Russian Federation and local self-government bodies | 885.2 | 820.1 | 807.0 | 711.2 | 618.9 |
| Individuals | 884.2 | 820.1 | 807.0 | 711.2 | 618.9 |
| Loans (not overdue) | 14,901.4 | 17,650.7 | 20,043.6 | 21,261.2 | 22,756.3 |
| Loans (not overdue) | 14,141.0 | 16,886.2 | 19,111.2 | 19,949.1 | 21,384.7 |
| Acquired rights of the claim (not expired) | - | - | - | 328.0 | 386.4 |
| Overdue debt | 760.4 | 764.5 | 932.4 | 984.1 | 985.2 |

| | | | | | |
|--------------------------------------------------------|----------|----------|----------|----------|----------|
| Acquired rights of the claim (excluding overdue debts) | 1,772.2 | 1,489.1 | 1,758.3 | x | x |
| Other | 218.5 | 214.3 | 226.1 | 218.0 | 220.0 |
| Provisions for possible losses (excluding IFRS 9) | -5,147.6 | -5,274.1 | -6,082.9 | -6,184.5 | -6,175.7 |

In the 1st-2nd quarter of 2021, the dynamics of lending to corporate clients was also characterized by a fairly high pace due to the expansion of demand against the background of the soft monetary policy and government support measures. In general, for the 1st half of 2021, the growth was 7.4% compared to the beginning of the year, including for non-financial organizations – by 8.6%.

Banks conducted a large-scale program of restructuring loans to businesses and the population during the pandemic. According to data received from 33 major banks (including 12 systemically significant ones), in the period from March 20, 2020, to June 30, 2021, the volume of restructured loan debt exceeded 6.1 trillion rubles or 16.5% of the total portfolio of the surveyed banks (except for small and medium-sized businesses) (Information Bulletin of the Bank of Russia, 2021). Also, the Bank of Russia granted banks a delay in creating reserves for possible losses on corporate borrowers. According to the measures taken, banks could not worsen the assessment of the financial situation of corporate borrowers and not attribute the loan issued to a lower quality category if the client had financial difficulties due to the outbreak of the pandemic, i.e. after March 1, 2020 (Information letter of the Bank of Russia N IN-03-41/137, 2020). Initially, the term of the preferential measures was valid until September 30, 2020, but in August, the regulator extended the relief until April 1, 2021, for corporate loans and until July 1, 2021 – for restructured loans to small businesses and the population. In March 2020, the Bank of Russia predicted the creation of about 1.3 trillion rubles of additional reserves, including 960 billion rubles for large companies. However, the actual current results are still more optimistic. The increase in the reserve for possible losses on "individual" loans to legal entities in absolute terms for the period from January 1, 2020, to July 1, 2021, amounted to 457.5 billion rubles, but its share even decreased from 9.9 to 9.4% against the background of the growth of the portfolio. (Table 2). In the context of the structure of the portfolio by quality categories, the greatest dynamics of the growth of loss reserve for the specified period is observed for loans of 4-5 categories – from 49.5% and 80.3% to 51.9% and 85.3%.

Table 2. Debt on loans granted to legal entities (except for interbank loans) and the reserve for possible losses formed on them (billion rubles) (Statistical indicators of the banking sector of the Russian Federation, 2021)

| Indicator | January 1, 2020 | | | January 1, 2021 | | | July 1, 2021 | | |
|-----------------------------------------------------------|-----------------|--------------|------------------|-----------------|--------------|------------------|--------------|--------------|------------------|
| | Debt | Loss reserve | Loss reserve (%) | Debt | Loss reserve | Loss reserve (%) | Debt | Loss reserve | Loss reserve (%) |
| Outstanding loans assessed on an individual basis – total | 36,417.5 | 3,609.0 | 9.9 | 41,436.1 | 4,060.6 | 9.8 | 43,167.2 | 4,066.5 | 9.4 |
| including by quality categories | | | | | | | | | |
| First category | 18,279.0 | - | - | 18,945.5 | - | - | 20,814.1 | - | - |
| Second category | 11,598.8 | 271.7 | 2.3 | 15,256.3 | 384.2 | 2.5 | 14,961.4 | 371.7 | 2.5 |
| Third category | 2,464.7 | 425.5 | 17.3 | 3,068.3 | 565.7 | 18.4 | 3,320.2 | 614.3 | 18.5 |

| | | | | | | | | | |
|-----------------|---------|---------|------|---------|---------|------|---------|---------|------|
| Fourth category | 1,173.1 | 580.3 | 49.5 | 1,222.3 | 630.9 | 51.6 | 1,177.9 | 611.3 | 51.9 |
| Fifth category | 2,901.8 | 2,331.5 | 80.3 | 2,943.7 | 2,479.9 | 84.2 | 2,893.5 | 2,469.5 | 85.3 |

The absence of a critical situation is also confirmed by the data on problem loans. Thus, according to the reporting data of banks as of July 1, 2021, the level of overdue debt on corporate loans (including financial organizations, enterprises, and non-incorporated entrepreneurs) amounted to 3.1 trillion rubles, an increase of 351 billion rubles, or 12.7%, since the beginning of the year. Therewith, the ratio of overdue debt to the total portfolio of corporate loans decreased from 7.1 to 6.5% (Statistical indicators of the banking sector of the Russian Federation, 2021).

It should be noted that the Russian banking system in times of crisis is characterized by a situation when the accumulation of overdue debt continues for a certain period. Thus, the peak of the growth of problem debt as a result of the global financial crisis occurred only in the middle of 2010, and the crisis events of 2014-2015 were reflected only in August 2016. (Figure 1). The reasons for this are the containment of problems against the background of the provided ones and the slow offensive maturation of problems among borrowers, which in general makes it possible to postpone the appearance of problem debt in the balance sheets of banks.



Figure 1. Dynamics of the level of overdue debt to banks of the Russian Federation, % (Bankovskiy sektor v 2020 godu, 2021)

Let us list the main factors that had a positive impact on acceptable lending indicators for corporate borrowers. First of all, the restructuring of the bank portfolio and measures of state support for business. Secondly, the currency revaluation made a significant contribution to the dynamics of assets. An important fact of 2020 was also the switching of corporate clients to the issue of bond loans – its growth in 2020 amounted to 7% and reached 11.3 trillion rubles against the background of the easing of monetary policy by the regulator and the decline in yields to a historical minimum. Therewith, the stock market was replenished with more than 5 million customers, which allowed large borrowers to reduce the cost and lengthen their portfolio of obligations. According to experts, shortly, the Russian stock market will maintain an upward trend, thereby replacing bank lending with the issue of corporate bonds.

In addition, the regulator reduced the key interest rate for the first time during the crisis, lowering it in several stages over the year from 6.25% to 4.25%. This has become one of the most significant measures. In addition to the above-mentioned factors, we can add a general reduction in the debt burden of the Russian economy (in the previous 5 years, the share of loans to the non-financial sector and the population to GDP decreased from 52.7 to 46.7%). It is also fair to include the clearing of the financial sector carried out by the regulator and the reduction of the exposure of credit institutions to risks associated with fluctuations in the ruble exchange rate.

2. METHODS

Based on the data on the level of overdue debt, it can be assumed that the need to add additional reserves will have a greater impact on the profits of banks outside of systemically significant ones since the quality of borrowers is lower. In the context of post-pandemic development, the process of manifestation of real losses in banks' portfolios may intensify (risks of non-repayment of debts -due to a decrease in borrowers' income and an increase in debt obligations, an increase in the number of bankruptcies, including due to the curtailment and completion of measures of state support for non-financial sector enterprises, including SMEs). Accordingly, the share of loans of the 4th and 5th quality categories will increase. According to the most minimal calculations of rating agencies, due to the deterioration of the quality of existing loans, Russian banks may need additional reserves in the amount of 1.5-2 trillion rubles in 2021-2022. It can be stated that one of the most urgent and important tasks for the Russian banking system in the coming period will include "clearing" portfolios and creating a sufficient level of reserves, primarily for restructured loan debt. These issues will be the focus of both the regulator and the banks. In connection with the above, the question remains relevant regarding banking approaches to assessing the credit risk of a corporate borrower (corporate underwriting), the compliance of the level, and the quality of assessment with the current conditions of instability.

To date, Russian banks assess and measure credit risk in the implementation of the following tasks:

- 1) assessment and monitoring of borrowers to authorize credit transactions and form a reserve to cover possible losses;
- 2) assessment of capital adequacy to cover credit risks, credit risk management, and internal capital adequacy assessment process (ICAAP);
- 3) since January 1, 2019, in connection with the introduction of the IFRS 9 Standard in the Russian Federation – calculation of expected credit losses (ECL) by banks, its reflection in the accounting and reporting for information disclosure.

Let us consider each task in more detail and identify the existing problems.

When solving the first task, the key factor for banks is the assessment of the borrower's financial situation, its rating, as well as the calculation of risk metrics, including the forecast of the probability of its default, which ultimately allows classifying borrowers into quality categories to create a reserve for possible losses according to the Regulation of the Bank of Russia N590-P. Therewith, the methods of financial assessment of the borrower chosen by the bank should be adequate to the scale of the bank's activities, as well as the level and materiality of the risk. These methods are based, as a rule, on a comprehensive assessment of the company's creditworthiness, including quantitative and qualitative (financial coefficients, current account turnover, credit history, business reputation, and management level, etc.). In general, the methods of rating borrowers are similar for many banks. The difference consists in the choice of significant indicators, their weight value when forming a consolidated rating indicator, and its correlation with the level of the client's financial position to fulfill prudential requirements for reserving.

The assessment of the level of the credit risk of a corporate borrower by the largest banks of the Russian Federation is carried out by more progressive quantitative methods, as a rule, using econometric models for quantitative assessment of credit risk – PD (Probability of Default), LGD (Loss given default), EAD (Exposure at default) (Figure 2).

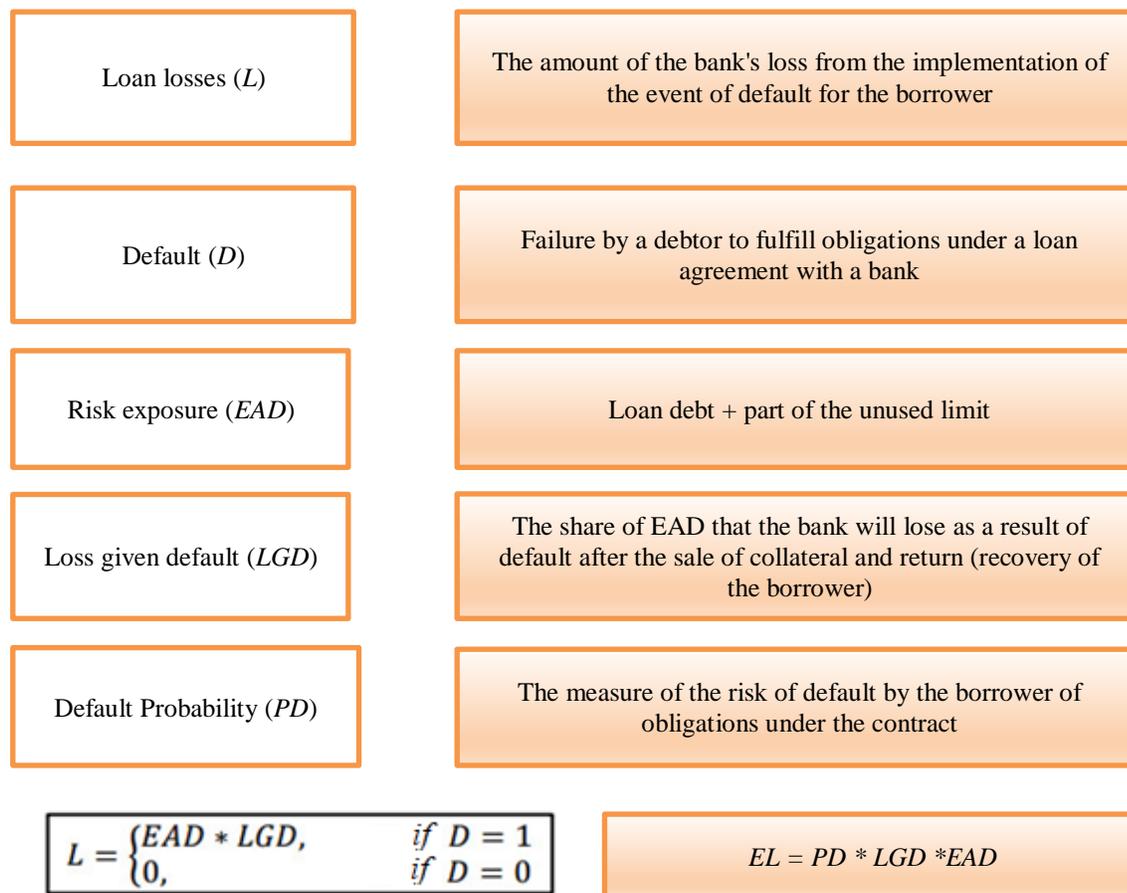


Figure 2. The main models and tools of the credit process in the systemically important credit institution

Such valuation models allow solving several tasks simultaneously – not only measuring potential losses and the size of the reserve but also structuring credit transactions, calculating the cost of a loan, setting limits on a group of related borrowers and products, making a decision on issuing a loan, etc. As part of the use of models, both the preparation of the application by a credit expert and an independent examination of the transaction by a corporate underwriter is carried out, thereby the system allows, among other things, standardizing the decision-making process – calculating the risk level of the application, determining the required level (category) of the underwriter, the authorized division and the format of decision-making.

The rating calculated by the basic model and adjusted taking into account the support of the group and the state, warning signals, manual adjustments, shows the probability of the counterparty's default.

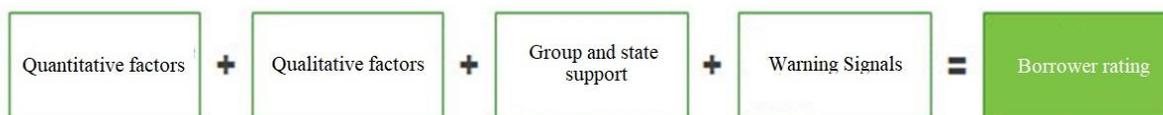
The rating scale of the methodology of the bank under consideration consists of 26 rating levels and is a table of compliance of credit ratings and values of the probability of default. The main criterion for

grouping a counterparty is the counterparty's industry/banking product. According to this criterion, counterparties are divided into non-financial companies (corporate clients, project financing, project financing of construction, subjects of the Russian Federation and municipalities) and financial institutions (banks, financial and insurance companies, leasing companies).

The PD model shows with what probability the borrower can fall into default, i.e. allow a delay on obligations of 90 days, within the next year (Figure 3).

| Rating | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|-------|-------|-------|
| Default Probability, % | 0.01 | 0.02 | 0.05 | 0.09 | 0.19 | 0.32 | 0.43 | 0.55 | 0.71 | 0.92 | 1.18 | 1.52 | 1.95 | 2.51 | 3.23 | 4.15 | 5.34 | 6.87 | 8.83 | 11.36 | 14.62 | 18.8 | 24.18 | 31.11 | 40.01 |

Rating Model Structure (PD)



Impact on the final rating

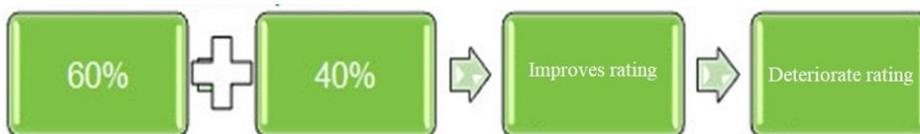


Figure 3. Structure of the rating model (PD)

The credit rating system provides a differentiated assessment of the probability of non-fulfillment / improper fulfillment by counterparties of their obligations based on an analysis of quantitative (financial) and qualitative (market factors and external influence factors, management quality characteristics, business reputation assessment, etc.) credit risk factors, the degree of their impact on the counterparty's ability to service and repay the obligations assumed.

In addition, the model defines warning signals for each segment. The final stage is the analysis of the group/state support indicators. The assessment is made only if the borrower is assigned to the group company, as well as if the counterparty is supported by his/her group/state. The group is formed following the principles described in the bank's internal approaches. The main criterion for assigning companies and individuals to a group is an economic or legal relationship. The principle of the materiality of the mutual influence of the cash flows of the companies of the group laid down in the criteria is of particular importance.

The rating approved in this way is used to make a decision on granting a loan and to form reserves for possible losses. Using valuation models, it is also possible to develop a multi-level system of limits for each line of business, based on limiting credit risk for lending operations and operations on financial markets.

Thus, at present, the Bank of Russia is expanding the capabilities of banks to use independent assessments of the borrower and the formation of a reserve based on the development of their internal rating system. This increases the role and responsibility of banks for the correctness, reliability, and effectiveness of the applied approaches to the analysis and underwriting of corporate segment borrowers. Nevertheless, at the moment, there are several difficulties and shortcomings in the approaches and processes of banks related

to the assessment of the credit risk of a corporate borrower, which will be summarized in the final part of the article.

The next purpose of assessing the credit risk of a corporate borrower is to *assess the adequacy of bank capital and the organization of the bank's ICAAP*.

To date, international capital adequacy assessment standards – Basel 2 and Basel 3 – are being implemented in Russia. According to the Basel standards and the internal requirements of the regulator, banks are allowed to choose one of two alternative approaches to measure credit risk (International convergence of capital measurement..., 2005):

- standardized approach (SA),
- an approach based on internal ratings (IRB approach).

The standardized approach is based on the classification of bank assets (claims) by groups/classes (based on the credit ratings of international rating agencies) and their weighting by credit risk coefficients. It should be noted that the majority of the loan portfolio of Russian banks is made up of borrowers who do not have international ratings, thus building a credit risk assessment system in this way is difficult. In addition, it is no secret that the assessments of international rating agencies are issued on a commercial basis, which means that they are not always objective. That is why the regulator presented two options for the Russian banking system – a simplified standardized approach, and from January 1, 2021, it outlined a finalized approach in Instruction 199-i, where instead of including assets in one of 5 groups (as in the simplified approach) and applying appropriate risk coefficients, 7 classes of counterparties were allocated: sovereign borrowers, credit organizations, international development banks, corporate borrowers, small and medium-sized businesses, individuals and central counterparties. A separate category has been designated – the "investment class" of borrowers with a risk coefficient of 65%. For corporate borrowers, there is a class of "specialized lending" with differentiation separately for the project, object, and commodity financing.

The standardized approach is generally convenient and easy to use, but the lack of flexibility and consideration of the bank's business features, limited differentiation of assets by risk level does not allow it to be fully used in the risk management system.

The IRB approach, based on the "internal" approach to the bank's credit risk assessment, includes two use cases: IRB-Foundation and IRB-Advanced. This is certainly a more "advanced" evaluation method (Pomazanov, 2020). The main advantage of the IRB is the ability of the bank to use its models for quantifying the main parameters of credit risk, based on the analysis of the statistics of borrowers' defaults. When implementing the IRB, banks not only get more accurate parameters when calculating the capital required to cover credit risk to calculate capital adequacy ratios but also transfer their risk management systems as a whole to a higher level of development (Lavrushin, Afanaseva, Kornienko, 2007).

Back in 2008, the Bank of Russia, together with the ECB, started implementing the project as part of assistance in the implementation of Basel 2 in Russia. The Central Bank of the Russian Federation worked with 8 "pilot" banks, as a result of which the most significant inconsistencies of existing banking practices in terms of assessing and managing credit risk were formulated with the minimum requirements of the IRB approach. At that time, the regulator did not receive proper confirmation that most of the "pilot" banks had a systematic approach to ensuring data quality, the use of the rating process did not affect business planning and development strategy, banks did not use rating systems to assess capital adequacy to cover credit risk.

Despite the long period since the introduction of Basel 2 in Russia, as of August 1, 2021, only two Russian banks – Sberbank and Raiffeisenbank – are allowed to use the IRB approach. Bank analysts note that the development and implementation of IRB models are extremely time-consuming. The main costs are incurred at the stage of data preparation. It can take years to set up IRB models, and the costs are significant even on the scale of a large bank. To date, the most powerful players in promoting the IRB approach have been and remain Russian systemically important credit institutions, as well as banks with 100% participation of foreign capital, realizing their targeted projects to implement the IRB approach at the level of a banking group (holding).

Taking into account these difficulties, today most banks have chosen to use a standardized approach that gives a discount on good assets. Table 3 shows the dynamics of bank assets weighted by the level of risk, including credit risk.

Table 3. Dynamics of assets of credit institutions weighted by risk level ¹ to calculate the indicator of the adequacy of proprietary funds (capital) N1.0 (billion rubles) (Statistical indicators of the banking sector of the Russian Federation, 2021)

| Indicator | January 1, 2020 | January 1, 2021 | April 1, 2021 | May 1, 2021 | July 1, 2021 |
|--------------------------------------------------------------------|-----------------|-----------------|---------------|-------------|--------------|
| 1. Credit risks – a total of them: | 73,984.5 | 72,810.4 | 73,067.7 | 75,045.0 | 75,856.9 |
| 1.1. Credit risk (standard approach) | 50,246.7 | 11,523.5 | 9,229.7 | 9,326.2 | 9,269.0 |
| 1.2. Credit risk (finalized approach) | | 38,622.1 | 40,693.9 | 41,974.8 | 42,581.7 |
| 1.3. Credit risk based on internal ratings (IRB ²) | 18,591.6 | 17,017.2 | 17,230.0 | 17,793.9 | 17,946.5 |
| 1.4. Macroprudential allowances ³ | 5,146.2 | 5,647.6 | 5,914.1 | 5,950.0 | 6,059.8 |
| 2. Increased risk on investments in shares and deferred tax assets | 3,006.4 | 4,308.6 | 4,184.1 | 4,190.2 | 4,343.1 |
| 3. Operational risk | 8,191.0 | 8,977.6 | 9,195.2 | 8,550.9 | 8,547.8 |
| 4. Market risk | 3,873.6 | 4,818.9 | 4,696.9 | 4,685.8 | 4,945.4 |
| Risk-weighted assets – total | 89,055.5 | 90,915.5 | 91,143.9 | 92,471.8 | 93,693.2 |

These data confirm that the overwhelming number of banks use the finalized approach adopted by the regulator for evaluation – the share of bank assets under this approach has been the following since the introduction (January 1, 2021) – 53%, and as of July 1, 2021, it increased to 56%. At the same time, the Bank of Russia plans to prepare a legislative and regulatory framework for the organization of a mandatory transition to IRB for systemically important banks. The regulator formulated important advantages of switching to the IRB in its report for public consultations in June 2021, in particular: increasing the level of internal corporate culture; improving the internal risk management system; obtaining a comprehensive understanding of the significant credit risk factors that directly affect the bank's credit risk level, statistics of defaults and losses in default; creating a competence center within the bank for the development and validation of quantitative credit risk models (On the transfer of systemically important banks..., 2021).

To facilitate the transition, the regulator plans to create an individual plan for each systemically important credit institution, taking into account the capabilities of both the bank for the preparation and implementation of methods and models and the Bank of Russia for their evaluation.

Another, the most urgent current task of assessing credit risk for banks is the reflection *in the accounting of expected credit losses (ECL), following the requirements of the new standard IFRS 9 (2016).*

IFRS 9 was designed to respond to the global financial crisis of 2008: the previous IFRS 39 took into account only the actual losses incurred as a result of non-fulfillment of financial obligations, which led to late reflection and misinterpretation of data by users of the financial statements and distortion of the real level of risks. The new standard provides for three stages of asset impairment – the moment of recognition of the asset (stage 1) – the ECL is taken into account within 12 months, and subsequent changes in the deterioration of credit quality (stages 2 and 3) – the expected losses for the entire life of the asset are taken into account. The standard assumes the introduction of rating/point estimates into the evaluation process based on the calculation of the forecasted probability of default and expected losses, as well as the impact of macroeconomic indicators and other variables. Expected credit losses, according to IFRS 9, are credit losses weighted by the probability of their occurrence. Their assessment should also reflect the time value of money and forecast information about future economic conditions, which should be justified, even though it is not always available, and if it is, then its use in calculations requires the bank to create an appropriate methodology. The credit losses themselves (EL) are defined by IFRS 9 as the difference between the future cash flows due to the lender following contractual obligations and the cash flows that the lender predicts to receive when a default event occurs, discounted by the initial effective interest rate (EIR). In other words, credit losses under IFRS 9 represent the net present value (NPV) of the future cash flow of lost funds on a financial instrument, depending on one of the expected events defined as default.

The main difficulty in implementing the impairment model proposed in IFRS 9, in addition to classifying financial assets and determining the stage of their impairment, was the calculation of the number of expected losses. Large banks using or planning to apply the IRB approach to assess parameters of credit risk (PD, LGD, and EAD) have had the opportunity to modify working valuation models to include the consideration of the value of money and the impact of future economic conditions. In this case, the expected credit losses (ECL) are approximately calculated in the same way as the expected losses, according to the requirements of the Basel Committee, defined as $ECL = EAD \times PD \times LGD$, but taking into account the specifics of the standard, which, among other things, may require recalculation of PD and LGD for the life of the instrument. The other banks that use the procedure described in Regulation 590-P for assessing credit risk are certainly faced with a lack of data and the need to create a methodology for calculating ECL from scratch. Thus, according to the opinion of audit companies that conducted research and surveys of Russian credit institutions on the application of the new IFRS 9 standard, the main problem of implementing the model proposed in the standard was precisely related to the calculation of expected credit losses. The calculation method, which must comply with the requirements of IFRS 9, was chosen by credit institutions independently. In general, the transition procedure was assessed as quite costly both in terms of financial and technical resources for the implementation of the standard.

3. RESULTS AND DISCUSSIONS

As for the results, for the first time, it was possible to evaluate them based on the results of the publication of the annual statements of banks for 2018. The impact of the estimated reserve on capital was quite significant in some banks and in some cases would require additional capitalization, even though the Bank of Russia still applies the procedure for "neutralizing" such an impact on capital. The Bank of Russia retains two reserve calculations until the current moment. The first, according to IFRS 9, is used by banks for information disclosure, accounting, and reporting (except for taxation). The second is the prudential reserve, based on the provisions of Regulation 590-P and the Basel Committee on Banking Supervision. This comes laden with certain difficulties and consequences. The bank uses reserves under IFRS 9 in the statements published for the distribution of dividends. A reserve of 590-p – for capital, calculation of the current tax (for tax reporting). In both approaches, it is necessary to assess the financial component of the borrower and to assess the credit risk. This assessment is different today. This increases the labor intensity of economists, the probability of errors and abuses. Key management personnel can "draw" profits to distort the assessment of the bank's owners of the effectiveness of its work (while the regulator does not control this).

It should be noted that the Bank of Russia is currently working to tighten the requirements for existing models under IFRS 9 and has made recommendations for 2021 to conduct a self-assessment of the quality of the ECM models used by credit organizations and procedures for their application in a credit institution, based on the best international and Russian practices for applying the principles of the Standard (Information letter of the Bank of Russia N IN-03-36/14, 2021). Thus, for banks using the IRB approach (we recall that these are only two banks), the consistency of internal documents is ensured by using credit risk assessment indicators that meet the requirements of the IRB approach as basic estimates. It is also advisable for banks that have not previously used internal rating models when developing them to assess the ECL under IFRS-9 to be guided by the requirements for the rating system contained in Regulation No. 483-p, supplementing it with the requirements of the Standard in terms of "the availability of an unbiased and objective assessment in terms of the probability of loss; the use of reasonable and verifiable information about past events, current conditions and projected future economic conditions available at the reporting date, etc" (Information letter of the Bank of Russia N IN-03-36/14, 2021).

Thus, the identified difficulties confirm the problem of banks' independent assessment of potential risks at the stage of issuing and monitoring loans to corporate borrowers in terms of correct PD assessment and rating assignment. In confirmation, we present the financial data of the largest corporate borrowers of Russian banks of the most affected industries with the assigned level of the credit rating of the Russian credit institution for 2015-2020.

Table 4 Financial indicators of the largest corporate borrowers of Russian banks in the most affected industries (in thousands of rubles) (Information Resource Spark, 2021)

| <i>Azimut Hotels Company LLC</i> | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 |
|---------------------------------------------|--------------|-------------|-------------|-------------|-------------|--------------|
| Revenue | 333,659 | 548,490 | 719,899 | 603,921 | 611,217 | 514,517 |
| Net profit (loss) | (63,704) | (244,573) | (115,588) | (3,809) | (161,332) | 33,496 |
| Assets | 17,985,450 | 16,864,038 | 16,693,020 | 12,489,303 | 12,134,304 | 6,983,801 |
| Capital | 12,778 | 76,482 | 321,055 | 436,643 | 440,453 | 601,784 |
| Total Debt to Equity | 0 | 0 | 0.02 | 0.03 | 0.04 | 0.09 |
| Current liquidity ratio | 1.4 | 2.9 | 1.2 | 1.2 | 1.1 | 1 |
| Return on sales | -26.1% | -24.2% | -11.9% | -1.5% | 17.4% | -2.2% |
| Credit rating | CCC | CCC | CCC | CCC | B | CCC |
| <i>Aeroflot PJSC</i> | | | | | | |
| Revenue | 229,766,365 | 551,767,420 | 504,696,789 | 446,649,442 | 427,900,527 | 366,307,485 |
| Net profit (loss) | (96,527,133) | 5,286,800 | 2,796,104 | 28,443,453 | 23,369,263 | (18,927,841) |
| Assets | 271,035,127 | 198,931,740 | 171,651,899 | 184,506,224 | 178,358,160 | 186,544,805 |
| Capital | 53,276,490 | 69,726,232 | 60,256,178 | 78,721,585 | 69,683,751 | 49,344,061 |
| Total Debt to Equity | 0.2 | 0.36 | 0.35 | 0.43 | 0.39 | 0.27 |
| Current liquidity ratio | 1.2 | 1 | 1 | 1.4 | 1.2 | 0.9 |
| Return on sales | -56.8% | -6.7% | -7.7% | -0.3% | 2.9% | 3.3% |
| Credit rating | B | B | B | A | BBB | B |
| Fitch –for reference | - | BB- | - | - | - | - |
| <i>Federal Passenger Company JSC</i> | | | | | | |
| Revenue | 130,930,077 | 236,871,820 | 226,124,901 | 216,205,785 | 201,210,804 | 181,232,354 |
| Net profit (loss) | (33,605,419) | 8,524,384 | 6,084,410 | 7,911,107 | 5,286,861 | 141,082 |
| Assets | 322,592,923 | 310,749,368 | 281,992,080 | 250,011,653 | 235,269,597 | 227,620,965 |
| Capital | 206,559,550 | 220,300,375 | 196,779,003 | 193,527,495 | 185,616,403 | 180,631,872 |
| Total Debt to Equity | 0.64 | 0.71 | 0.7 | 0.78 | 0.79 | 0.8 |
| Current liquidity ratio | 0.5 | 1.3 | 0.9 | 0.9 | 0.9 | 0.7 |
| Return on sales | -38.6% | 2.5% | 1.7% | 2.9% | -2.9% | -9.8% |

| | | | | | | |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Credit rating | CCC | BB | B | B | B | B |
| NRA– for reference | AAA(RU) | AAA(RU) | AAA(RU) | AAA(RU) | - | - |
| <i>McDonald's LLC</i> | | | | | | |
| Revenue | 57,956,765 | 58,410,455 | 69,263,115 | 66,272,547 | 66,815,222 | 60,638,971 |
| Net profit (loss) | 3,348,700 | 2,860,396 | 4,427,639 | 2,880,270 | 4,402,944 | 2,548,500 |
| Assets | 29,665,412 | 29,520,832 | 26,973,146 | 29,815,638 | 30,857,105 | 31,939,919 |
| Capital | 24,782,969 | 22,742,175 | 21,434,269 | 21,999,791 | 21,406,630 | 20,003,686 |
| Total Debt to Equity | 0.84 | 0.77 | 0.79 | 0.74 | 0.69 | 0.63 |
| Current liquidity ratio | 2 | 1.3 | 0.9 | 1 | 0.7 | 0.6 |
| Return on sales | 9.5% | 6.1% | 9.7% | 10.2% | 10.8% | 10.7% |
| Credit rating | BBB | BBB | BB | BB | BB | BB |
| S&P (McDonald's) for reference | BBB+ | BBB+ | - | - | - | - |
| <i>TT-TRAVEL LLC</i> | | | | | | |
| Revenue | 7,701,507 | 24,613,678 | 2,853,485 | 732,897 | 669,568 | 319,329 |
| Net profit (loss) | (4,020,951) | 317,548 | (1,768,383) | (1,212,253) | 589,330 | (2,006,309) |
| Assets | 25,705,361 | 18,952,815 | 6,167,217 | 2,260,486 | 2,793,083 | 2,202,970 |
| Capital | (1,365,785) | (6,410,936) | (6,728,484) | (4,960,101) | (3,747,848) | (4,337,178) |
| Total Debt to Equity | -0.05 | -0.34 | -1.09 | -2.19 | -1.34 | -1.97 |
| Current liquidity ratio | 0.9 | 0.8 | 0.7 | 0.4 | 0.4 | 0.2 |
| Return on sales | -21.1% | 0.4% | -38.3% | -172.9% | -70% | -212% |
| Credit rating | C | C | D | D | C | D |
| S&P (TUI) – for reference | CCC+ | - | - | - | - | - |

It should be noted that almost all of these companies experienced a decline of varying severity during 2020 – a decrease in revenue, net profit and capital, and other financial indicators. However, there is no reduction in the credit rating at the end of 2020 for four out of five borrowers. This fact confirms that the current methods of assessing the creditworthiness of borrowers, which provide for the calculation of quantitative and qualitative assessments and the rating of the borrower and the forecast of the probability of its default, still do not fully implement a comprehensive assessment of the borrower's risks.

The study of banking approaches in the field of credit risk assessment and many years of experience in the field of corporate lending allow formulating the main disadvantages of existing banking assessment methods and practices for implementing the credit process (Table 5).

Table 5. The main disadvantages of banking methods for assessing the credit risk of a corporate borrower and practices for implementing the credit process (Compiled by the author)

| Disadvantages in terms of both methods and approaches | Problems related to the provision of false data | Disadvantages of the borrower and credit risk assessment process |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Development of methods for the existing quality of the loan portfolio with deliberate underestimation of credit risk, the subjectivity of the assigned rating | Distortion of the value of capital and other indicators due to the unreliable reflection of the revaluation of fixed assets, the value of financial instruments, real estate, IA | The analysis of loan applications is often superficial, in particular, concerning existing borrowers and applications in small amounts |
| The presence of a "double" credit rating system (5 classes of the Russian rating assessment according to 590-P, grades 8-11 according to the Basel norm), the disparity in the number of rating assessment classes, which makes it difficult for external experts to analyze | The reliability of the indicator of the concentration of the borrower's counterparties, which is key in assessing its position in the market, is questionable and cannot be fully confirmed by an expert | Insufficient information or the inability of the bank's controls to identify false information is one of the reasons for the inadequate assessment of the borrower at the stage of issuing and monitoring the loan |
| Significant fluctuations in the values | There are facts of "finishing" | Recognition of an insolvent borrower as |

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| of the weights of indicators in the rating scale, including their unjustified overestimation | accounting statements – understatement of obligations to creditors, distortion of the financial result, tax payments, etc. | acceptable for lending in the presence of liquid collateral |
| The set of financial coefficients used is not always sufficiently justified and effective | The use of intermediate links by enterprises in carrying out economic activities (repeated purchases from group companies to inflate the cost price, etc.) | Insider lending – abuse in the selection of borrowers, the issuance of loans with an excessive level of risk to companies in the presence of petitions of influential persons |
| Absence or a minimal set of qualitative factors, as well as their subjective interpretation | Non-reflection of balance sheet liabilities affecting solvency in the financial statements | Insufficient competence of credit specialists and underwriters |
| The rating assessment does not always take into account the forecast data of the borrower's cash flow | The composition of the members of the group of related persons with the borrower is not always transparent | Excessive, unjustified risky lending, when the client's debt overburden and high debt load are not an obstacle to the issuance of additional financing |
| There are facts of defaults in the presence of a high rating of the borrower, as well as reverse situations | Non-creation of reserves for overdue AR (concealment of delay) | A double different risk assessment for calculating a "double" reserve – according to 590-p and IFRS-9 is time-consuming, there is a high probability of errors and abuses |
| Lack of facts about the use of forecast information, including macroeconomic factors (including the factor of cyclical economic crises, the impact of the COVID-19 pandemic) | Changing the reporting deadlines in the IFNS (1 time per year) increases the risk of the unreliability of data | Difficulties associated with the transition of banks to the IRB approach: <ul style="list-style-type: none"> – significant cash and time costs for implementation – unstructured information about risk factors for the development of models – lack of experienced developers and validators, as well as the necessary information systems and software tools – the lack of a proper economic effect when calculating capital adequacy ratios in comparison with the new standardized campaign – insufficiency of the internal corporate culture of risk management concerning the principles of IRB |
| Insufficient assessment (or lack thereof) of the impact of the borrowers' business cycle, mainly overestimated unjustified assessments of the prospects of borrowers' activities during the boom of the industry prevail | RAS lagging behind the economic meaning of operations | |
| The methods of assessing internal ratings of borrowers do not contain possible scenarios of future changes in economic conditions | | |

CONCLUSION

To minimize the amount of credit risk in these conditions, it is necessary to refine multifactorial models for assessing credit risk, including, at least, the use of the cyclical factor of economic crises, and determining, following the stage of the economic cycle, its weight value, to predict the final indicators of

the rating assessment. The study of this issue should be carried out using statistical data from previous economic downturns, using modern digital technologies for risk analysis and assessment, allowing to anticipate and take into account the probability of risk realization. The development of new approaches to measuring credit risk, as well as the improvement of existing methods following the needs of participants in the national and global financial markets, is certainly important for the banking systems of different countries, including the Russian Federation, especially during the period of action and consequences of the global pandemic crisis.

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