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PRESENTATION OF DISCLOSURES RELATED TO CREDIT RISK OF A CERTAIN BANK

Tijana Radojević*, Marina Kesić, Danica Rajin, Ričardas Butėnas

Faculty of Business Economics,
Singidunum University,
Belgrade, Serbia

Abstract:

The phenomenon of credit risk is one of the main distresses for the bank portfolio. If it becomes nonviable to gather claims from various main clients, a bank could persist in being insolvent. The latest financial crises have distinguished the necessity for a bank to identify, measure, assess, and control credit risk, in addition to providing an acceptable degree of capital to protect against possible decline in case of loan defaults. Accordingly, risk management depends steadily on the straight implementation of mathematical and statistical methods and models and the application of their outcomes for business goals. The aim of this paper is to present the disclosures that are related to bank credit risk, bearing in mind that credit risk management is one of the indicators of the results of banking operations.

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INTRODUCTION

The banking sector of an economy indicates an extremely large distress movement.[1] Imminent forfeitures or minor revenues resulting from banking business are signals of risk. Banks' disclosure of risks enhances since there are various types of risks, their concentration is dissimilar, and they are caused by their surroundings. In order to successfully operate a risk, the banks are supposed to perceive it, evaluate it, and classify their trials and purposes (Bessis, 2015).

Basel standards involve credit, market, and operational risk (National Bank of Serbia, 2022). Banking operations are also subject to (il)liquidity risk, investment risk, exchange rate risk, country risk, transfer risk, interest rate risk, legal risk, reputation risk, and other risks. Risk is a requirement in which there is a possibility of a negative deviation from the desired outcome that we anticipate or wait for. Accordingly, we can state that for the risk to occur in a financial business, it needs to be desirable, generate economic damage, be doubtful, and be random (Hull, 2018).

1 The paper, in the expanded form, was selected for publication from the international scientific conference FINIZ 2022.

*E-mail: tradojevic@singidunum.ac.rs

In the scientific world, as well as among institutions and practitioners, risk management has become a valuable and favorite management instrument. Identifying risk, assessing it, developing a plan to handle it, and regulating where to distribute resources are all forms of risk management. High volatility and market instability are components of the banking sector. As a consequence, the banking sector is a high-risk activity. Market risks are caused by persistent and prompt modifications. Exchange rates, interest rates, stock prices, the volume of monetary derivatives, and other monetary phenomena transform at lightning speed on the financial market, all considering modern communication systems. Alongside the economic, political, and geostrategic effects are progressively asserted. The consequences that occur are frequently crucial. The international banking sector is additionally complex by a large number of market participants, speculation, and asymmetric information. Bank losses or reduced profits are more probable to happen when there is a high degree of incertitude. The global financial crisis led to the bankruptcy of many banks or financial problems that were preserved by the states (with budget funds). Some banks were nationalized for political causes, while others were privatized in transition economies, or recuperated and powered. Nowadays business ambiance is distinguished by much more compelling and unstable modifications. Therefore, the risk is expanding constantly. Banks have progressively started to take risks.

Given the preceding, the objective of this study is to present the disclosures that are related to bank credit risk. The study demonstrates the importance of credit risk management as one of the indicators of the results of banking operations. This paper is divided into five sections. The first section is an introduction, and the second section is a review of the related literature in this field. Section three discusses the research methodology and results. Section four focuses on the COVID-19 pandemic and its impact on the bank's credit risk. The conclusion of the paper is given in section five.

LITERATURE REVIEW

Đukić (2021) advocates a modern approach to risk management that integrates bank-wide risk management to cover a wide range of off-balance sheet positions. In order to strengthen financial stability and make bank capital measurable and comparable, international institutions regulate this complex business. In Basel, the Bank for International Settlements introduced the Basel Standards (Baud & Chiapello, 2017). The goals were to protect the banking sector from excessive business risks and improve financial stability (Jones & Zeitz, 2017). According to International Financial Accounting Standards, the disclosure of the nature and degree of risk, their management, and public reporting are mandatory (IFRS Foundation, 2022). Banks should be required to do this in order to enable the users to assess the bank's risk exposure at the end of each reporting period (Lin, 2009). The availability of financial statements can have a major impact on the potential client's decision-making. This is because the client will be able to know how to manage the risk, how to monitor the risk, and how to mitigate or eliminate the risk (Naili & Lahrichi, 2022). According to Drennan and McConnell (2007), when planning a new project, one should consider risks at every level of the organization, including potential threats.

Banking risk management includes several stages, and it is a complex process (Chen, Liu, Opong, & Zhou, 2017). The first step is to properly identify the risks (Hilscher & Wilson, 2016). When banking risks are misidentified, it is like a doctor misdiagnosing a patient. In order to measure a risk, it must first be identified (Mateev, Nasr & Sahyouni, 2022). Choosing the right risk criteria leaves room for bank management to manage the risk (Cucinelli, Di Battista, Marchese & Nieri, 2018).

To avoid bankruptcy, a bank must mitigate a risk, monitor a risk, and implement adequate controls (Zamore, Djan, Alon & Hobdari, 2018). Finally, banks must conduct risk reporting timely and accurately. The bank's risk management cannot be effective without good information and informed management, and the bank's management must strategically lead in a certain direction (Gulati, Goswami, & Kumar, 2019).

Financial markets were also affected by the geopolitical and economic turmoil of the 1970s and 1980s, manifested by new global trends. As a result of the abandonment of the Bretton Woods monetary system and the two oil crises of the 1970s, as well as the strong dollar and high-interest rates of the early 1980s, Reaganomics and Thatcherism, the new world order has caused increased volatility, deregulation, globalization, debt crises and other negative effects throughout the world. Due to the difficulties in the financial market, the Basel Committee on Banking Supervision drafts and publishes Basel I, the first international agreement on bank capital. Basel I was created to introduce a unique way of calculating capital adequacy, with the aim of improving the financial stability of banks around the world. The severity of the opportunities being introduced to the banking sector reflects the benefits of implementing these standards (Feridun & Özün, 2020).

The application of Basel I as a capital adequacy standard for banks, its relatively simple structure, wide application, strengthening of competition on the international market, greater discipline in management, as well as a benchmark for evaluating banks are some of the positive effects of Basel I (Barakova & Palvia, 2014).

During the long-term application of the Basel I standard, the perceived shortcomings are that capital adequacy depends on credit risk, no differentiation is made between debtors of different quality and rating, the emphasis is on bookkeeping instead of risk mitigation, as well as insufficient use of risk mitigation funds.

In order to further improve the strength and stability of the banking system, Basel II was created (National Bank of Serbia, 2022). Among the three pillars of Basel 2, the first defines minimum capital requirements not only for credit, but also for market and operational risk, using sophisticated models and techniques. The second pillar of Basel 2 insists on effective supervision, focusing on the internal assessment of the adequacy of the bank's capital, while the third pillar emphasizes the need for reporting discipline and minimum requirements for publishing information about the bank.

The third pillar aims to strengthen market discipline by requiring banks to publish relevant information about their operations (Mariathasan & Merrouche, 2014). Financial market participants will have access to key information such as: application framework, capital, risk exposure, risk management process, and capital adequacy of the bank.

As part of the continuous improvement of the legal framework with international standards, at the end of 2013, a strategy for the introduction of Basel III standards was adopted in Serbia in order to improve the banking sector.

The National Bank of Serbia is responsible for the application of Basel standards in Serbia. As Basel III standards are gradually implemented (Dermine, 2015; Rubio, & Carrasco-Gallego, 2016), banks should be able to meet the new restrictions through reasonable profit retention and recapitalization, without jeopardizing their core role in the economy.

CREDIT RISK

Credit risk is the risk from a typical banking business and as such the biggest risk for the bank (Barjaktarović, 2015). As credit risk management is a multidimensional problem, different approaches are used, some of which are quantitative and the others are qualitative. Regardless of the method used, the key element is understanding behavior and predicting the likelihood that certain entities will default (Stefanovic, Barjaktarovic & Bataev, 2021).

Credit risk is the risk of the possibility of negative effects on the bank's financial result and capital due to the non-performance of the debtor's obligations to the bank (Law on banks, 2015). Credit risk can also be defined as "the potential that the contracting party will not fulfill its obligations in accordance with the agreed terms". Credit risk is also variously called default risk, performance risk, or counterparty risk. All these basically refer to the same thing: the impact of credit effects on a firm's transactions (Koju, Koju, & Wang, 2018).

There are three characteristics that define credit risk:

1) Exposure (to a party that could default or suffer a negative change in its ability to perform).

2) The probability that this party will not fulfill its obligations (probability of default).

3) Recovery rate (that is, how much can be recovered if there is a default).

Given the above, credit risk management is the process of controlling the potential consequences of credit risk (Apergis, Aysan & Bakkar, 2022). The process follows a standard risk management framework: identification, evaluation, and management. That is, it is necessary to identify the cause of the risk, assess the degree of risk and make decisions about how this risk will be managed (Witzany, 2017). The bank's credit risk is determined by the adequacy of its capital, internal acts for credit risk management, as well as the classification of its assets and off-balance sheet items. In addition to creditworthiness and regularity, the bank's credit risk is also determined by the debtor's creditworthiness, regularity in fulfilling his obligations to the bank, and the quality of the bank's debt security instruments (Lu & Boateng, 2018).

What factors determine the risk associated with interest rates? In addition to the number of approved loans, the bank's credit policy determines its credit risk (Cathcart, El-Jahel & Jabbour, 2015). Credit policies include customer selection, lending terms, billing terms, monitoring, and collection (Turan, 2016). The bank will not have financial problems if its credit policy is set correctly. When a large number of loans are approved, the bank becomes exposed to risk (the potential loss on loans increases). Credit risk management means eliminating risk (Apanga, Appiah & Arthur, 2016). Due to the mentioned factors, the risk is almost impossible to eliminate. management should mitigate risks as much as possible rather than eliminate them. Management of client credit requests requires maximum attention because this is where the first sources of problems and potential credit risks arise. Therefore, it is important to analyze the client's credit potential based on internal criteria (internal rating) and collateral as a secondary means of collection. Potential borrowers (clients to whom the bank has approved a loan) must be evaluated individually, as well as on an average level, or in banking terminology, on a portfolio basis (Ferhi, 2018).

Defining lending conditions is the next step for the bank (Tran, Nguyen & Nguyen, 2022). This implies defining a series of criteria. The most important criterion is the interest rate. It can vary significantly, for clients with similar characteristics (professional education, salary level, position, etc.). In what way? For instance, by saving, transferring money to a foreign currency account, using credit cards, etc. Risk takers usually pay higher interest rates because of the so-called risk premium

(Zheng, Moudud-Ul-Huq, Rahman & Ashraf, 2017). This means that banks want to protect themselves against potential losses by insuring risk-taking customers (Laeven, Ratnovski & Tong, 2016). When defining lending conditions, banks consider repayment dynamics in addition to interest rates. By determining stricter dynamics for credit risks with a higher rating, banks insure themselves by setting higher annuities. Contracts often contain additional protective provisions. These safeguards do not apply to so-called golden clients (clients with high incomes, deposits, or turnovers). Finally, the main means of bank security is collateral. For a client with higher credit risk, collateral is unfavorable because the bank wants to protect itself from losses (Đukić, 2021).

After the loan is approved, the bank must monitor the repayment of the loan, the so-called monitoring. The bank's operations are standardized, so financial reports are used for monitoring. Reporting should include measurement of mandatory losses, value adjustments and provisioning for expected losses to maturity. Taking care of the final collection of receivables from the client is the main purpose of credit risk monitoring. Here, also, the bank controls credit risk by monitoring clients' operations, regularly checking the debtor's creditworthiness, monitoring the servicing of annuities (interest and principal), checking the value of collateral, and observing protective provisions (Saleh & Afifa, 2020).

Final collection of receivables in case the client has problems with regular collection of loans, i.e., repayment of annuity, should be done by the bank. As a result, the bank can extend the repayment term, restructure claims, for example, forgive part of the debt or convert it into equity, execute collateral, sell and/or assign claims, or initiate litigation (Ekinci & Poyraz, 2019).

In order to protect itself in the most adequate way, the bank has adapted its business policy as follows: The bank deals with credit control and debt management by establishing rigorous procedures to achieve minimum credit standards for the client and transaction completion time. In this regard, it is possible to monitor the exposure to those risks (Song, Zheng, Chen & Shen, 2023). At least once a year, the bank updates and adjusts its internal acts, policies, and procedures in order to ensure an adequate credit risk management system and reduce credit risks as much as possible (Kanapickienė *et al.*, 2022). The bank assesses the risk of non-payment of obligations based on the probability that the client will enter the status of non-payment. As a measure of the risk that the other party will not fulfill its obligations, the bank determines the internal rating for each credit risk exposure and credit decision. The internal rating of each client is updated at least once a year. Provisions for credit risk are formed based on internal ratings at a quantitative level. In order to assess the risk of client default, all available information is taken into account (Đukić, 2021).

Groupings are made into four risk categories:

- Low risk - renowned and long-term clients, large internationally recognized clients as well as clients using a wide range of services. Those clients who have not been in arrears recently or in the past year. This category of clients is also mainly used to conclude new business.
- Special supervision (management attention) - financially satisfactory and unsatisfactory clients. It is very uncertain whether the loan will be sustained in the medium term. Early payment reminders are sent to customers from the population segment with limited numbers or possible payment problems.
- Performance below average (sub-standard) - economically and financially sensitive clients.
- Problematic claim (non-performing) - meets at least one of the following criteria for non-payment of obligations, as defined by the bank's internal acts: uncertain collection, payment delay of 90

days, restructuring due to which the Bank suffers a loss, realization of a loss, or bankruptcy proceedings. Restructured receivables that are not in arrears but are uncollectible are also problematic. The level of non-payment of obligations is determined at the level of the client, including natural persons; when one product is overdue, all products of that product are overdue.

Monitoring and supervision of credit risk

Through the process of regular re-approvals, the bank analyzes the overall status of the debtor in order to recognize any deterioration in the quality of the loan portfolio that may cause material losses for the bank.

Default status

There are five categories of status events in the bank, based on regulatory requirements at the banking group level:

E1 – The decline in the debtor's credit quality makes it unlikely that the obligations will be settled in full;

E2 – Payment of materially significant debt is delayed for more than 90 days;

E3 – Changes in repayment terms due to the deterioration of the client's economic situation;

E4 – Insolvency;

E5 – Bankruptcy.

If the guaranteed exposures are not met, there is an outstanding exposure based on the total nominal amount.

It is possible to trigger an event at the individual placement or client level, but in principle, the client is assigned default status for all individual exposures, with an internal rating of 'R', regardless of where the default event occurs. When one of the default events E1 - E5 occurs, all clients of the bank are in default, and each client is assigned an internal rating (R1 - R5). There is a precise minimum duration for each default event, and the exit from the default status requires the successful completion of the monitoring period, which occurs automatically after the expiration/termination of the validity period of the default event E1 - E5 for customers with any type of credit obligation and lasts at least 3 of the months. It is impossible to successfully complete the monitoring period if any criterion triggers or has triggered one of the previously defined default events E1 - E5.

Writing-off of receivables

The Bank writes off uncollectible receivables in accordance with the Bank's Rulebook on the write-off and transfer of receivables from balance to off-balance accounts after implementing all collection options. Additionally, write-offs may be considered when there is no alternative to collection due to higher costs, or when no further action is effective. Receivables are written off only for impaired and uncollectible placements. After determining that the court process or bankruptcy will take too long, and thus burden the Bank's balance sheets, a decision is made to transfer the claim from the balance sheet to the off-balance sheet, but the debt is not forgiven.

RESEARCH METHODOLOGY AND RESULTS

The main task of this research is to present the disclosures that are related to credit risk of a certain bank. The research is based on the publicly published annual financial reports of the bank for 2021 and 2020. In relation to the previous task, hypotheses have been put forward that will eventually be confirmed or refuted:

1. An integral part of loan placement of a certain bank is credit risk, which implies problems with cash flows and non-payment of obligations by the debtor.
2. With a model that assesses each risk, credit risk management is evaluated at the very beginning of the overall risk assessment in the credit placement of a bank.
3. In order to protect itself from the risk of loan collection, a bank needs to recognize potential risks and sources of a potential credit risk.
4. Creditworthiness is the primary indicator of credit risk in the process of processing credit requests of a bank. To ensure that the assessment is as relevant as possible, all checks must be carried out in detail. Credit risk is low when the creditworthiness of the person requesting the loan is high, and vice versa.

Analysis of the bank's financial performance

As of 31 December 2021, the Bank considers that the following items are not exposed to credit risk, with a presentation of the maximum exposure to credit risk:

Table 1. Assets exposed to credit risk 31.12.2021.

In RSD '000

	Assets exposed to credit risk			Assets not exposed to credit risk	Balance sheet
	Gross value	Accumulated allowance for impairment / provisions	Net value		
Cash and funds at Central Bank	21.946.699	-	**21.946.699**	17.983.248	**39.929.947**
Derivative receivables	285.448	-	**285.448**	-	**285.448**
Securities and pledged financial assets	58.544.094	44.371	**58.499.723**	-	**58.499.723**
Loans and receivables from banks and other financial organizations	10.714.768	5.481	**10.709.287**	-	**10.709.287**
Loans and receivables from customers	208.932.504	5.315.612	**203.616.892**	-	**203.616.892**
Investments in subsidiaries	-	-	-	93.560	**93.560**
Intangible assets	-	-	-	1.705.660	**1.705.660**
Properly, plant and equipment	-	-	-	3.049.741	**3.049.741**
Current tax assets	-	-	-	238.878	**238.878**
Deferred tax assets	-	-	-	224.019	**224.019**
Non-current assets held for sale and discontinued operations	-	-	-	11.902	**11.902**
Other assets	925.675	107.551	**818.124**	414.190	**1.232.314**
Balance sheet	**301.349.188**	**5.473.015**	**295.876.173**	**23.721.198**	**319.597.371**
Guarantees and warranties	31.473.531	160.208	**31.313.323**	-	**31.313.323**
Assumed contingent liabilities	62.546.945	134.172	**62.412.773**	-	**62.412.773**
Other off-balance exposure				315.958.421	**315.958.421**
Off-balance sheet	**94.020.476**	**294.380**	**93.726.096**	**315.958.421**	**409.684.517**
Total exposure	**395.369.664**	**5.767.395**	**389.602.269**	**339.679.619**	**729.281.888**

In accordance with Bank's policy, sources of credit risk are loans portfolio and receivables from customers, banks and other financial institutions, as well as off-balance exposure in form of financial guarantees and undertaken assumed liabilities, below in detail those exposures[1] are presented by of sector, category, status, collateral, maturity and value of collateral.

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

In accordance with the Bank's business policy, a detailed overview of these exposures by sectors and categories of claims, status, and method of impairment, maturity, and value of collateral, as well as other off-balance sheet exposures are shown.

Overview of securities:

Table 2. Securities 31.12.2021.

In RSD '000

	Securities					
	Gross value			Accumulated allowance for impairment		
	AC	FVOCI	FVTPL	AC	FVOCI	FVTPL
Derivative receivables	-	-	285.448	-	-	-
Of which: Other	-	-	285.448	-	-	-
Securities	34.600.992	13.798.974	10.144.128	44.371	18.022	-
Of which: State bonds of the Republic of Serbia	34.105.993	13.686.471	10.117.081	44.371	18.022	-
Of which: Other	494.999	112.503	27.047	-	-	-
Total exposure	34. 600.992	13.798.974	10. 429.576	44.371	18.022	-

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

As of 31 December 2021, 98.91% of securities exposures initiate to the exposure position on government bonds of the Republic of Serbia, which, likewise the valid Decision on the capital adequacy of the bank, allocates a risk weight of 0%.

Credit rating of the Republic of Serbia for long-term borrowing as of 31 December 2021:

- Moody's Investors Service Ba2 / stable outlook
- Fitch Ratings BB + / stable outlook
- Standard and Poor's BB + / positive outlook

As of 31 December 2020, the Bank deliberates that the subsequent items are not stated to credit risk, with correspondence of the maximum exposure to credit risk:

Table 3. Assets exposed to credit risk 31.12.2020.

In RSD '000

	Assets exposed to credit risk			Assets not exposed to credit risk	Balance sheet
	Gross value	Accumulated allowance for impairment / provisions	Net value		
Cash and funds at Central Bank	16.324.367	-	16.324.367	19.078.281	35.402.648
Derivative receivables	408.411	-	408.411	-	408.411
Securities	54.215.110	38.059	54.177.051	-	54.177.051
Loans and receivables from banks and other financial organizations	3.182.837	1.968	3.180.869	-	3.180.869
Loans and receivables from customers	192.689.264	4.607.220	188.082.044	-	188.082.044
Investments in subsidiaries	-	-	-	93.560	93.560
Intangible assets	-	-	-	1.129.945	1.129.945
Properly, plant and equipment	-	-	-	3.043.349	3.043.349
Current tax assets	-	-	-	185.043	185.043
Deferred tax assets	-	-	-	151.941	151.941
Non-current assets held for sale and discontinued operations	-	-	-	11.902	11.902
Other assets	860.059	114.415	745.644	391.385	1.137.029
Balance sheet exposure	267.680.048	4.761.662	262.918.386	24.085.406	287.003.792
Guarantees and warranties	24.370.655	150.575	24.220.080	-	24.220.080
Assumed contingent liabilities	39.354.514	105.575	39.248.939	-	39.248.939
Other off-balance exposure	-	-	-	321.662.431	321.662.431
Off-balance sheet exposure	63.725.169	256.150	63.469.019	321.662.431	385.131.450
Total exposure	331.405.217	5.017.812	326.387.405	345.747.837	672.135.242

In accordance with Bank's policy, sources of credit risk are loans portfolio and receivables from customers, banks and other financial institutions, as well as off-balance exposure in form of financial guarantees and undertaken assumed liabilities, below in detail those exposures[2] are presented by of sector, category, status, collateral, maturity and value of collateral.

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Overview of securities:

Table 4. Securities 31.12.2020.

In RSD '000

	Securities					
	Gross value			Accumulated allowance for impairment		
	AC	FVOCI	FVTPL	AC	FVOCI	FVTPL
Derivative receivables	-	-	**408.411**	**-**	**-**	**-**
Of which: Other	-	-	408.411	-	-	-
Securities	**28.012.519**	**15.199.663**	**11.002.928**	**38.059**	**19.252**	-
Of which: State bonds of the Republic of Serbia	27.517.518	15.096.119	10.738.607	38.059	19.252	-
Of which: Other	495.001	103.544	264.321	-	-	-
Total exposure	**28.012.519**	**15.199.663**	**11.411.339**	**38.059**	**19.252**	-

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

As of 31 December 2020, 97.67% of securities exposures initiate to the exposure position on government bonds of the Republic of Serbia, which, likewise the valid Decision on the capital adequacy of the bank, allocates a risk weight of 0%.

Credit rating of the Republic of Serbia for long-term borrowing as of 31 December 2020:

- Moody's Investors Service Ba3 / positive outlook
- Fitch Ratings BB+ / stable outlook
- Standard and Poor's BB+ / stable outlook

Loans and receivables from customers, banks, and other financial institutions

Overview by the credit quality of non-problematic receivables and value of the collateral of those receivables as of 31 December 2021:

Table 5. Credit quality of non-problematic receivables and value of collateral 31.12.2021.

In RSD '000

	Credit quality of non-problematic receivable				Value of collateral*		
	High	**Medium**	**Low**	**Problematic receivables[3]**	**Non-problematic receivables**	**Problematic receivables**	**The impact of collateral on reducing the value of impairment ***
Receivables from retail customers	**80.477.069**	**12.086.658**	**2.419.301**	**1.931.683**	**41.878.408**	**259.041**	**105.010,89**
Housing loans	47.811.451	2.265.399	391.176	345.170	41.747.617	258.952	103.650
Consumer and cash loans	31.127.203	9.472.152	1.957.754	1.462.065	110.376	-	1.319
Transactions and credit cards	522.988	110.920	23.180	16.946	852	88	27
Other receivables	1.015.426	238.187	47.190	107.503	19.563	-	15
Receivables from corporate clients	**89.210.138**	**14.020.042**	**2.690.600**	**2.189.002**	**19.870.584**	**609.154**	**1.063.047**
Large enterprises	18.517.814	48.273	-	62.756	4.863.352	62.756	78.294
Small and middle sized enterprises	39.113.890	7.760.008	1.895.859	1.148.377	8.816.960	445.753	774.186
Micro sized enterprises and entrepreneurs	18.520.901	5.892.092	762.783	919.894	5.007.216	74.930	195.987
Agriculture	2.759.027	283.569	31.958	57.975	1.183.055	25.714	14.115
Public enterprises	10.298.506	36.099	-	-	-	-	466
Receivables from other clients	**14.449.769**	**6.228**	**4**	**166.780**	**109.482**	**61.075**	**47.594**
Total receivables	**184.136.975**	**26.112.928**	**5.109.904**	**4.287.465**	**61.858.473**	**929.269**	**1.215.652**

* Effect of collateral on value adjustment reduction calculated by simulating LGD parameters by excluding collateral. The simulation refers to general provisions and special provisions for individually significant clients (for impaired exposures that are not considered individually significant, the collateral does not affect the value of the LGD).

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Overview by credit quality of non-problematic receivables and value of collateral of those receivables as of 31 December 2020:

Table 6. Credit quality of non-problematic receivables and value of collateral 31.12.2020

In RSD '000

	Credit quality of non-problematic receivables			Problematic receivables[4]	Value of collateral*		The impact of collateral on reducing the value of impairment*
	High	Medium	Low		Non-problematic receivables	Problematic receivables	
Receivables from retail customers	**73.223.169**	**12.226.354**	**2.732.196**	**1.374.100**	**39.494.921**	**228.013**	**112.289,50**
Housing loans	44.515.915	2.184.217	504.355	315.842	39.359.198	227.426	110.770
Consumer and cash loans	27.293.347	9.554.892	2.116.453	989.560	96.354	588	1.516
Transactions and credit cards	496.382	140.057	37.328	14.834	2.046	-	1
Other receivables	917.525	347.188	74.060	53.864	37.324	-	3
Receivables from corporate clients	**81.328.787**	**13.927.647**	**3.461.984**	**984.362**	**23.208.565**	**111.954**	**501.406**
Large enterprises	17.649.981	42.733	88.436	-	6.886.982	-	50.118
Small and middle sized enterprises	39.343.958	9.277.194	2.102.137	183.371	11.918.272	58.429	175.377
Micro sized enterprises and entrepreneurs	15.905.625	4.451.428	1.219.263	760.030	4.095.429	26.109	272.805
Agriculture	97.764	156.292	52.149	40.961	93.227	27.417	1.935
Public enterprises	8.331.460	-	-	-	214.655	-	1.171
Receivables from other clients	**5.828.373**	**398.196**	**42.681**	**344.252**	**132.434**	**128.516**	**55.348**
Total receivables	**160.380.329**	**26.552.197**	**6.236.861**	**2.702.714**	**62.835.921**	**468.483**	**669.044**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Overview of gross and net exposure to credit risk by sector and category of receivables, means of collateral, maturity, and value of collateral as of 31 December 2021:

Table 7. Gross and net exposure to credit risk by sector and category of receivables, means of collateral, maturity, and value of collateral 31.12.2021.

In RSD '000

	Unimpaired receivables[5]		Impaired receivables[6]		Total gross receivables	Accumulated impairment allowances			Total net receivables	Value of collateral	
	Not past due	Past due	On individual basis	On collective basis		Impairment allowances on unimpaired receivables	On individual basis	On collective basis		Unimpaired receivables	Impaired receivables
By sector											
Receivables from retail clients	**94.679.477**	**386.902**	**238.904**	**1.609.428**	**96.914.710**	**1.564.435**	**133.893**	**1.150.873**	**94.065.510**	**41.909.277**	**228.172**
Mortgage loans	50.450.966	54.125	227.009	81.097	**50.813.196**	328.646	123.359	46.716	**50.314.475**	41.778.486	228.083
Consumer and cash loans	42.321.929	280.803	11.270	1.405.172	**44.019.174**	1.202.523	9.951	1.048.197	**41.758.503**	110.376	-
Transactions and credit cards	656.223	988	334	16.490	**674.034**	10.661	307	12.924	**650.143**	852	88
Other receivables	1.250.360	50.987	291	106.668	**1.408.306**	22.605	276	43.037	**1.342.389**	19.563	-
Receivables from corporate clients	**105.695.983**	**244.101**	**2.015.880**	**153.818**	**108.109.782**	**1.137.065**	**1.074.134**	**114.813**	**105.783.770**	**19.870.584**	**609.154**
Large enterprises	18.528.303	37.785	62.756	-	**18.628.844**	69.911	3.138	-	**18.555.795**	4.863.352	62.756
Small and middle sized enterprises	48.659.390	110.367	1.130.507	17.870	**49.918.135**	602.620	435.805	15.565	**48.864.146**	8.816.960	445.753
Micro sized enterprises	25.118.549	74.700	787.109	115.311	**26.095.669**	390.012	605.966	83.095	**25.016.597**	5.007.216	74.930
Agriculture	3.065.640	10.744	35.508	20.637	**3.132.529**	24.344	29.225	16.154	**3.062.805**	1.183.055	25.714
Public enterprises	10.324.101	10.504	-	-	**10.334.605**	50.177	-	-	**10.284.428**	-	-
Receivables from other customers	**14.382.351**	**73.650**	**154.317**	**12.463**	**14.622.780**	**27.130**	**107.927**	**10.824**	**14.476.899**	**109.482**	**61.075**
Total exposure	**214.757.811**	**704.652**	**2.409.100**	**1.775.709**	**219.647.272**	**2.728.629**	**1.315.953**	**1.276.510**	**214.326.179**	**61.889.342**	**898.400**
By category of receivables											
Non-problematic receivables	214.656.116	703.691	-	-	**215.359.807**	2.712.823	-	-	**212.646.984**	61.858.473	-
of which: restructured	569.875	3.046	-	-	**572.920**	41.046	-	-	**531.874**	337.605	-
Problematic receivables	101.695	961	2.409.100	1.775.709	**4.287.465**	15.806	1.315.953	1.276.510	**1.679.195**	30.869	898.400
of which: restructured	87.520	905	716.273	228.876	**1.033.574**	15.003	553.288	158.883	**306.399**	24.387	133.067
Total exposure	**214.757.811**	**704.652**	**2.409.100**	**1.775.709**	**219.647.272**	**2.728.629**	**1.315.953**	**1.276.510**	**214.326.179**	**61.889.342**	**898.400**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Overview of gross and net exposure to credit risk by sector and category of receivables, means of collateral, maturity, and value of collateral as of 31 December 2020:

Table 8. Gross and net exposure to credit risk by sector and category of receivables, means of collateral, maturity, and value of collateral 31.12.2020.

In RSD '000

	Unimpaired receivables[7]		Impaired receivables[8]			Accumulated impairment allowances				Value of collateral	
	Not past due	Past due	On individual basis	On collective basis	Total gross receivables	Impairment allowances on unimpaired receivables	On individual basis	On collective basis	Total net receivables	Unimpaired receivables	Impaired receivables
By sector											
Receivables from retail clients	**87.881.281**	**372.016**	**235.622**	**1.066.900**	**89.555.819**	**1.714.697**	**163.985**	**851.135**	**86.826.001**	**39.516.238**	**206.696**
Mortgage loans	47.182.397	46.444	229.926	61.562	**47.520.328**	373.130	159.810	37.189	**46.950.200**	39.380.515	206.108
Consumer and cash loans	38.795.573	215.300	5.621	937.759	**39.954.252**	1.294.780	4.105	759.478	**37.895.889**	96.354	588
Transactions and credit cards	672.653	1.398	14	14.536	**688.601**	14.800	13	12.188	**661.600**	2.046	-
Other receivables	1.230.659	108.875	61	53.043	**1.392.638**	31.987	58	42.281	**1.318.312**	37.324	-
Receivables from corporate clients	**98.343.518**	**374.901**	**888.296**	**96.066**	**99.702.780**	**886.918**	**604.064**	**68.829**	**98.142.969**	**23.208.565**	**111.954**
Large enterprises	17.719.977	61.172	-	-	**17.781.150**	72.541	-	-	**17.708.609**	6.886.982	-
Small and middle sized enterprises	50.475.125	248.164	156.413	26.959	**50.906.659**	465.981	112.616	20.060	**50.308.002**	11.918.272	58.429
Micro sized enterprises	21.527.797	48.519	703.611	56.419	**22.336.346**	288.751	465.105	38.885	**21.543.604**	4.095.429	26.109
Agriculture	293.853	12.351	28.273	12.688	**347.165**	20.840	26.344	9.883	**290.098**	93.227	27.417
Public enterprises	8.326.765	4.695	-	-	**8.331.460**	38.804	-	-	**8.292.656**	214.655	-
Receivables from other customers	**6.196.754**	**72.496**	**338.355**	**5.897**	**6.613.502**	**30.269**	**284.859**	**4.430**	**6.293.944**	**132.434**	**128.516**
Total exposure	**192.421.553**	**819.414**	**1.462.273**	**1.168.862**	**195.872.101**	**2.631.884**	**1.052.909**	**924.395**	**191.262.914**	**62.857.238**	**447.166**
By category of receivables											
Non-problematic receivables	192.350.888	818.499	-	-	**193.169.388**	2.623.598	-	-	**190.545.790**	62.835.921	-
of which: restructured	586.463	3.058	-	-	**589.522**	55.765	-	-	**533.757**	325.542	-
Problematic receivables	70.665	914	1.462.273	1.168.862	**2.702.714**	8.286	1.052.909	924.395	**717.124**	21.317	447.166
of which: restructured	65.773	820	767.350	253.591	**1.087.535**	7.367	489.850	191.322	**398.996**	19.701	197.127
Total exposure	**192.421.553**	**819.414**	**1.462.273**	**1.168.862**	**195.872.101**	**2.631.884**	**1.052.909**	**924.395**	**191.262.913**	**62.857.238**	**447.166**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

According to the impairment status and number of days past due as of 31 December 2021, data on exposure to credit risk by sectors and categories of receivables are shown in Table 9.

Table 9. Impairment status and number of days past due 31.12.2021.

In RSD '000

	Unimpaired receivables					Impaired receivables				
	Not in delay	up to 30 days	from 31 to 60 days	from 61 to 90 days	over 90 days	Not in delay	up to 90 days	from 91 to 180 days	from 181 to 360 days	over 360 days
Receivables from retail clients	**81.341.728**	**13.285.742**	**355.756**	**83.152**	**-**	**364.735**	**512.039**	**257.323**	**229.777**	**484.458**
Mortgage loans	49.716.058	766.133	21.081	1.818	-	144.094	82.790	19.990	11.846	49.387
Consumer and cash loans	30.105.951	12.098.548	320.192	78.041	-	163.461	418.946	227.027	202.464	404.544
Transactions and credit cards	643.714	1.456	10.749	1.291	-	3.207	1.311	2.732	2.785	6.789
Other receivables	876.005	419.605	3.734	2.002	-	53.974	8.991	7.575	12.683	23.737
Receivables from corporate clients	**102.552.936**	**3.352.917**	**26.077**	**8.153**	**-**	**113.838**	**292.134**	**794.390**	**152.092**	**817.243**
Large enterprises	18.269.426	296.662	-	-	-	62.756	-	-	-	-
Small and middle sized enterprises	46.660.540	2.100.754	317	8.147	-	13.923	259.055	760.105	19.832	95.462
Micro sized enterprises and entrepreneurs	24.483.246	688.664	21.339	-	-	23.695	28.149	29.463	131.243	689.871
Agriculture	2.844.001	227.955	4.422	6	-	13.464	4.930	4.822	1.018	31.910
Public enterprises	10.295.723	38.882	-	-	-	-	-	-	-	-
Receivables from other customers	**14.123.639**	**298.315**	**34.046**	**-**	**-**	**29.024**	**483**	**17.447**	**278**	**119.547**
Total exposure	**198.018.304**	**16.936.974**	**415.879**	**91.305**	**-**	**507.596**	**804.657**	**1.069.161**	**382.147**	**1.421.248**
By category of receivables										
Non-problematic receivables	197.950.085	16.906.063	414.731	88.928	-	-	-	-	-	-
of which: restructured	472.075	99.809	1.036	-	-	-	-	-	-	-
Problematic receivables	68.219	30.911	1.148	2.377	-	507.596	804.657	1.069.161	382.147	1.421.248
of which: restructured	54.643	30.289	1.117	2.377	-	101.403	121.448	21.151	44.722	656.425
Total exposure	**198.018.304**	**16.936.974**	**415.879**	**91.305**	**-**	**507.596**	**804.657**	**1.069.161**	**382.147**	**1.421.248**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

According to the impairment status and number of days past due as of 31 December 2020, data on exposure to credit risk by sectors and categories of receivables are shown in Table 10.

Table 10. Impairment status and number of days past due 31.12.2020.

In RSD '000

	Unimpaired receivables					Impaired receivables				
	Not in delay	**up to 30 days**	**from 31 to 60 days**	**from 61 to 90 days**	**over 90 days**	**Not in delay**	**up to 90 days**	**from 91 to 180 days**	**from 181 to 360 days**	**over 360 days**
Receivables from retail clients	**77.140.778**	**10.556.510**	**360.220**	**195.790**	**-**	**289.785**	**328.404**	**114.616**	**160.120**	**409.596**
Mortgage loans	46.517.761	682.806	26.849	1.425	-	137.381	45.807	16.293	28.514	63.493
Consumer and cash loans	29.088.687	9.484.932	253.976	183.277	-	148.748	275.628	78.898	119.584	320.522
Transactions and credit cards	657.244	1.632	10.585	4.589	-	1.631	1.105	3.473	2.308	6.033
Other receivables	877.086	387.140	68.810	6.499	-	2.025	5.864	15.953	9.714	19.549
Receivables from corporate clients	**95.102.804**	**3.405.242**	**170.345**	**40.027**	**-**	**59.203**	**76.451**	**620.924**	**91.481**	**136.302**
Large enterprises	17.669.199	111.951	-	-	-	-	-	-	-	-
Small and middle sized enterprises	47.893.362	2.822.444	7.147	335	-	8.143	35.528	27.913	24.139	87.649
Micro sized enterprises and entrepreneurs	21.130.953	429.255	9.435	6.673	-	49.485	38.226	591.381	66.170	14.769
Agriculture	261.775	36.458	4.890	3.081	-	1.575	2.698	1.631	1.173	33.884
Public enterprises	8.147.514	5.134	- 148.873	29.939	-	-	-	-	-	-
Receivables from other customers	**6.216.633**	**825**	**51.792**	**-**	**-**	**6**	**18.189**	**-**	**148.018**	**178.040**
Total exposure	**178.460.215**	**13.962.577**	**582.357**	**235.817**	**-**	**348.994**	**423.044**	**735.540**	**399.619**	**723.939**
By category of receivables										
Non-problematic receivables	178.423.351	13.936.362	575.982	233.692	-	-	-	-	-	-
of which: restructured	488.015	97.412	1.672	2.422	-	-	-	-	-	-
Problematic receivables	36.864	26.215	6.375	2.125	-	348.994	423.044	735.540	399.619	723.939
of which: restructured	34.183	24.113	6.264	2.034	-	186.755	141.533	566.448	40.949	85.257
Total exposure	**178.460.215**	**13.962.577**	**582.357**	**235.817**	**-**	**348.994**	**423.044**	**735.540**	**399.619**	**723.939**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on problematic receivables as of 31 December 2021:

Table 11. Problematic receivables 31.12.2021.

In RSD '000

	Gross receivables value	**Accumulated impairment allowance on total receivables**	**Gross value of problematic receivables**		**Accumulated impairment allowance on total receivables**	**% of problematic receivables**	**Collateral value of problematic receivables**
			Total	**of which: restructured receivables**			
Receivables from retail clients	**96.914.710**	**2.849.201**	**1.931.683**	**383.469**	**1.293.210**	**1,99**	**259.041**
Housing loans	50.813.196	498.721	345.170	144.730	172.921	0,68	258.952
Consumers and cash loans	44.019.174	2.260.671	1.462.065	238.681	1.063.708	3,32	-
Transactions and credit cards	674.034	23.891	16.946	-	13.234	2,51	88
Other receivables	1.408.306	65.917	107.503	59	43.347	7,63	-
Receivables from corporate clients	**91.295.291**	**2.042.229**	**1.961.192**	**640.182**	**1.057.685**	**2,15**	**512.199**
Sector A	7.356.115	448.024	278.001	-	149.057	3,78	-
Sectors B, C and E	23.341.901	706.771	782.880	601.141	562.682	3,35	128.762
Sector D	11.887.106	298.505	597.523	-	168.590	5	317.327
Sector F	13.556.698	88.534	10.558	6.468	8.226	0,08	1.986
Sector G	10.477.409	179.075	157.598	32.572	106.954	1,50	75
Sector H, I and J	7.569.553	87.331	31.115	-	23.963	0,41	1.293
Sector L, M and N	17.106.510	233.989	103.516	-	38.212	0,61	62.756
Receivables from other clients	**31.437.271**	**429.664**	**394.589**	**9.924**	**257.375**	**1,26**	**158.029**
Total receivables	**219.647.272**	**5.321.093**	**4.287.465**	**1.033.574**	**2.608.270**	**1,95**	**929.269**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on problematic receivables as of 31 December 2020:

Table 12. Problematic receivables 31.12.2020.

In RSD '000

	Gross receivables value	Accumulated impairment allowance on total receivables	Gross value of problematic receivables		Accumulated impairment allowance on total receivables	% of problematic receivables	Collateral value of problematic receivables
			Total	of which: restructured receivables			
Receivables from retail clients	**89.555.819**	**2.729.818**	**1.374.100**	**468.280**	**1.023.406**	**1,53**	**228.013**
Housing loans	47.520.328	570.128	315.842	195.973	199.489	0,66	227.426
Consumers and cash loans	39.954.252	2.058.363	989.560	272.307	769.271	2,48	588
Transactions and credit cards	688.601	27.001	14.834	-	12.227	2,15	-
Other receivables	1.392.638	74.326	53.864	-	42.419	3,87	-
Receivables from corporate clients	**88.148.991**	**1.382.599**	**881.152**	**613.492**	**590.927**	**1,00**	**79.443**
Sector A	7.008.852	144.511	19.318	-	18.724	0,28	-
Sectors B, C and E	20.989.262	565.475	657.197	589.164	416.019	3,13	51.007
Sector D	10.966.803	104.682	-	-	-	-	-
Sector F	13.776.681	89.595	12.892	6.048	11.024	0,09	1.181
Sector G	11.499.688	170.409	111.657	0	86.341	0,97	6.240
Sector H, I and J	9.918.581	108.075	21.459	-	15.888	0,22	2.734
Sector L, M and N	13.989.125	199.851	58.631	18.280	42.930	0,42	18.280
Receivables from other clients	**18.167.291**	**496.770**	**447.462**	**5.763**	**371.257**	**2,46**	**161.027**
Total receivables	**195.872.101**	**4.609.188**	**2.702.714**	**1.087.535**	**1.985.590**	**1,38**	**468.483**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on changes of problematic receivables in 2021:

Table 13. Data on changes of problematic receivables in 2021.

In RSD '000

	Gross value at beginning of year	New problematic receivables	Reduction of problematic receivables				Other changes	Gross value at year end	Net value at year end
			Total	of which: collected	of which: transferred to non-problematic category	of which: write-off			
Receivables from retail clients	1.374.100	1.541.495	1.000.071	280.177	433.829	286.064	16.159	1.931.683	638.474
Receivables from corporate and other clients	1.328.614	1.642.923	923.211	542.801	94.772	285.638	307.455	2.355.781	1.040.721
Total receivables	**2.702.714**	**3.184.418**	**1.932.282**	**822.978**	**528.601**	**571.702**	**323.614**	**4.287.465**	**1.679.195**

* Other changes relate to the increase in credit exposure of existing NPL clients (transition from off-balance sheet to on-balance sheet exposure).

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on changes of problematic receivables in 2020:

Table 14. Data on changes of problematic receivables in 2020.

In RSD '000

	Gross value at beginning of year	New problematic receivables	Reduction of problematic receivables				Other changes	Gross value at year end	Net value at year end
			Total	of which: collected	of which: transferred to non-problematic category	of which: write-off			
Receivables from retail clients	1.384.659	449.014	541.472	181.398	282.665	77.409	81.899	1.374.100	350.694
Receivables from corporate and other clients	777.511	828.485	317.775	262.196	4.561	51.018	40.393	1.328.614	366.431
Total receivables	**2.162.170**	**1.277.499**	**859.247**	**443.593**	**287.226**	**128.428**	**122.292**	**2.702.714**	**717.124**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Collateral and other means of protection against credit risk

Once the placement is approved, the Bank expects the debtor's future cash flows to ensure payment. In addition, within this type of collection, the Bank takes various security instruments (collateral) as protection against potential loss due to the potential default status of the debtor. The bank prefers collateral that is quickly and easily realized. Business competition and the current market situation determine whether collateral can be taken. Credit risk mitigation techniques can be measured and controlled by monitoring how long it takes to realize the collateral and how far the realized value deviates from the expected value (Tursoy, 2018).

The Strategic Risk and Collateral Management Department is responsible for all aspects of collateral management, from preliminary analysis to implementation. The stages of the process are divided into three categories:

1. During the collateral management process, the collateral analysis phase is the first step. The identification, analysis, and documentation of collateral, as well as the registration of collateral in the collateral registration system, begin with the identification and analysis of potential collateral.
2. In the collateral monitoring phase, the value and determination of the collateral is monitored. The main function of this system is to record, monitor, update, and control collateral data.
3. When the collateral is realized (by selling to close the placement), the collateral is closed in the collateral record system and the process is completed. The data collection phase for calculating the average realization and collateral recovery rate is also included.

Basic types of material credit protection instruments

Credit protection is primarily provided by cash and cash equivalents deposited with the Bank. As part of its credit risk mitigation strategy, the bank currently does not apply on-balance sheet or off-balance sheet netting.

Basic types of credit protection providers based on guarantees and credit derivatives

Intangible credit protection is provided by the state and commercial banks with sufficient credit quality and international development banks - exposure secured by bank guarantees and international development banks.

Exposures secured by real estate mortgages

The decision on the adequacy of the bank's capital recognizes real estate as a protection instrument when all conditions are met. It is necessary to meet certain conditions in order to be placed in a special class of exposure, exposure secured by real estate mortgages, which is assigned a more favorable credit risk weight than the recognition of the effects of the credit risk mitigation technique. The exposure or part of the exposure that is fully secured by a mortgage on residential real estate is assigned a risk weight of 35%; exposures that are fully secured by commercial real estate mortgages are assigned a risk weight of 50%.

Other types of material credit protection instruments

When all conditions defined by the Decision on Bank Capital Adequacy are met, cash and cash equivalents deposited with the bank are considered an acceptable means of security.

Data on the type and value of collateral and guarantees by sector providers and categories of receivables as of 31 December 2021:

Table 15. Means of collateral up to the receivables amount 31.12.2021.

			In RSD '000
	Means of collateral up to the receivables amount (as in KA4)		
	Deposits	Residential real estate	Other real estate
Receivables from retail clients	**55.761**	**41.896.577**	**185.111**
Household loans	1.205	41.849.049	156.316
Consumer and cash loans	53.616	43.184	13.576
Transactions and credit cards	940	-	-
Other receivables	-	4.343	15.219
Receivables from corporate clients	**1.342.788**	**1.038.145**	**18.098.804**
Large enterprises	58.801	-	4.867.307
Small and middle sized enterprises	851.972	385.210	8.025.531
Micro sized enterprises and entrepreneurs	428.271	633.478	4.020.398
Agriculture	3.745	19.456	1.185.568
Public enterprises	-	-	-
Receivables from other clients	**12.141**	**14.469**	**143.946**
Total exposure	**1.410.691**	**42.949.191**	**18.427.860**
Per category of receivables			
Non-problematic receivables	1.409.577	42.501.896	17.947.001
of which: restructured	639	187.099	149.867
Problematic receivables	1.114	447.295	480.860
Of which: restructured	75	104.326	53.052
Total receivables	**1.410.691**	**42.949.191**	**18.427.860**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on the type and value of collateral and guarantees by sector providers and categories of receivables as of 31 December 2020:

Table 16. Means of collateral up to the receivables amount 31.12.2020.

			In RSD '000
	Means of collateral up to the receivables amount (as in KA4)		
	Deposits	Residential real estate	Other real estate
Receivables from retail clients	**41.998**	**39.480.441**	**200.495**
Household loans	4.101	39.424.900	157.622
Consumer and cash loans	35.851	44.108	16.983
Transactions and credit cards	2.046	-	-
Other receivables	-	11.433	25.891
Receivables from corporate clients	**1.794.712**	**1.234.702**	**20.291.106**
Large enterprises	60.454	56.755	6.769.773
Small and middle sized enterprises	1.374.658	251.978	10.350.065
Micro sized enterprises and entrepreneurs	359.601	902.671	2.859.266
Agriculture	-	23.297	97.346
Public enterprises	-	-	214.655
Receivables from other clients	**27.794**	**25.375**	**207.782**
Total exposure	**1.864.504**	**40.740.517**	**20.699.383**
Per category of receivables			
Non-problematic receivables	1.863.530	40.516.292	20.456.099
of which: restructured	-	179.994	145.548
Problematic receivables	974	224.226	243.284
Of which: restructured	-	134.326	82.501
Total receivables	**1.864.504**	**40.740.517**	**20.699.383**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

During 2021, the Bank had acquired following means of collateral through collection of receivables:

Table 17. Means of collateral through collection of receivables 2021.

Means of collateral acquired through collection of receivables	Residential real estate	In RSD '000 Total
Gross value at the beginning of the period	12.073	12.073
Acquired during period	-	-
Sold during period	-	-
Gross value at period end	**12.073**	**12.073**
Accumulated allowance for impairment	12.073	12.073
of which: Allowance for impairment during period	-	-
Net value at the end of period	**-**	**-**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

During 2020, the Bank had acquired following means of collateral through collection of receivables:

Table 18. Means of collateral through collection of receivables 2020.

Means of collateral acquired through collection of receivables	Residential real estate	In RSD '000 Total
Gross value at the beginning of the period	12.073	12.703
Acquired during period	-	-
Sold during period	-	-
Gross value at period end	**12.073**	**12.073**
Accumulated allowance for impairment	12.073	12.073
of which: Allowance for impairment during period	-	-
Net value at the end of period	**-**	**-**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

LTV ratio

The table 19 represents the so-called LTV ratio[2] for housing loans, which represent a portion of the total retail loans approved.

Table 19. LTV Ratio

Value of LTV ratio*	**Value of receivables secured by mortgage as at 31 December 2021**	**In RSD '000** **Value of receivables secured by mortgage as at 31 December 2020**
Below 50%	9.282.954	8.576.818
50% to 70%	13.142.753	11.654.996
70% to 90*	18.777.925	21.608.166
90% to 100%	2.602.600	1.593.313
100% to 120%	4.670.332	3.584.764
120% to 150%	2.960.574	1.762.871
over 150%	4.741.150	2.701.501
Total exposure	**56.178.287**	**51.482.429**
Average LTV ratio	78,6%	76,5%

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

2 The LTV indicator represents the ratio of the gross value of the receivables to the market value of the real estate (only mortgages on the apartment or private home are taken into account and reduced by the amount of previous charges) with which the receivables are secured.

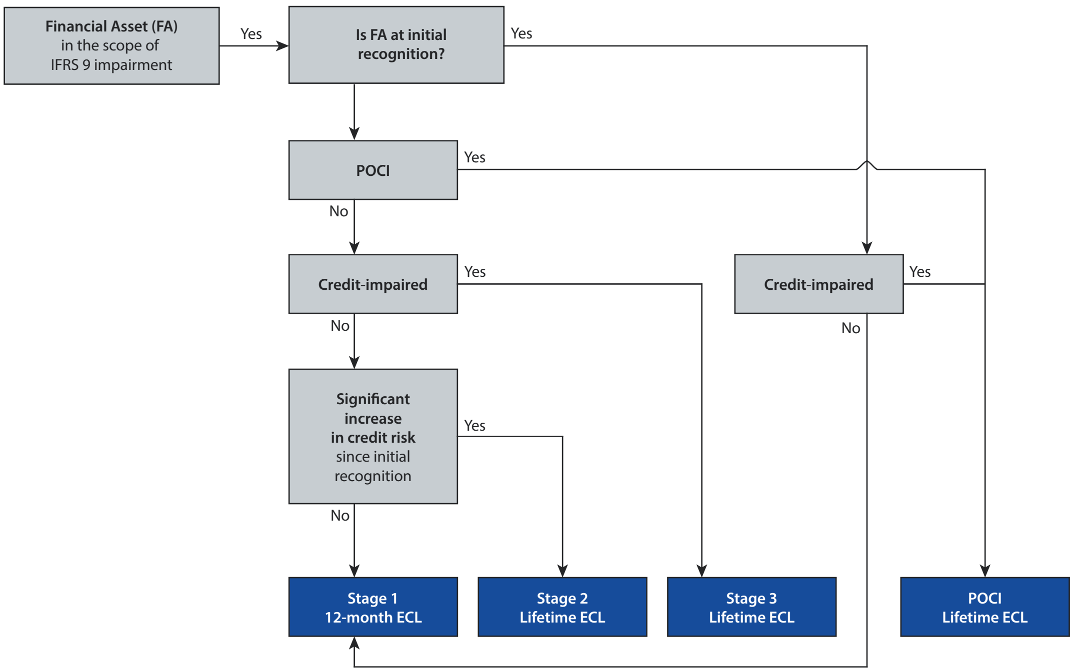
Assessment of impairment of financial assets

The bank establishes a structure, tools and processes that enable timely determination of credit losses in accordance with IFRS 9. To cover expected economic losses from financial assets, the bank regularly assesses the needs and creates value corrections in accordance with regulatory and accounting standards (IFRS Foundation, 2022).

Expected credit loss/impairment represents all reductions in expected cash flows over the expected life of the financial asset. In contractual terms, the reduction represents the difference between the cash flows owed to the Bank and the cash flows the Bank expects to receive. Even though the Bank expects to be paid in full, a credit loss may still occur after the expiration of the contractual term.

The process of impairment due to credit losses are presented in Figure 1:

Figure 1. The process of impairment due to credit losses



Stage 1

1. Financial assets at initial recognition (other than POCI assets)
2. Financial assets meeting the requirements of low credit risk
3. Financial assets without significant increase in credit risk from initial recognition regardless of their credit quality.

For Stage 1 the credit risk loss allowances are calculated as 12-months ECL

Stage 2

It includes financial assets with a significant increase in credit risk, but not credit-impaired at the reporting date, including initially recognized assets described above.

For Stage 2 the credit risk loss allowances are calculated as lifetime ECL.

Stage 3

It includes financial assets which are credit-impaired i.e. have default status at the reporting date.

For Stage 3 the credit loss allowances are calculated as lifetime ECL.

POCI asset

It is an asset with a financial impairment that is recognized on initial recognition. Since POCI assets are not transferable between tiers, regardless of changes in the credit quality of the client after initial recognition, expected credit losses are calculated over the lifetime of the financial asset. When calculating the fair value of a POCI asset, lifetime expected credit losses must also be considered (credit loss allowances are only recognized if changes in outcome expectations have reduced expectations compared to the inception valuation date; if expectations improve, the gross book value of the asset increases). The bank uses the following qualitative and quantitative criteria that indicate a significant increase in credit risk:

Qualitative criteria

- Days past due (DPD) - The Bank defines more than 30 days past due with applied materiality threshold as a backstop indicator that lifetime expected credit losses should be recognized;
- Forbearance – Both performing and non-performing forbearance status are considered to be an indicator of significant increase in credit risk since initial recognition;
- Transfer of the client to workout department - The transfer to workout department is considered as significant increase in credit risk since initial recognition;
- Fraud - in case of evidence of fraudulent activity related to financial assets that were not performed by the debtor and the debtor was not granted default status for objective reasons, financial assets should be transferred to level 2, i.e., expected credit losses over the life.
- Portfolio level criteria - The performance of the assessment of significant increase in credit risk on portfolio level is necessary if the increase in credit risk on individual instrument level is only available with a certain time lag.

Quantitative criteria

- Relative change in the probability of a default status (PD) over a lifetime - that is, a comparison of an annualized PD over the lifetime allocated on the reporting date and the adjusted annualized PD over the life of the assigned financial asset on initial recognition. Significant increase in credit risk from initial recognition is considered if the ratio is higher than the defined threshold. Defining the threshold is in the jurisdiction of the bank, and in accordance with the IFRS 9 Concept for estimating the SICR threshold.
- Absolute change in the probability of default status (PD) over a lifetime - that is, a comparison of the annualized life-time PD at the reporting date and the adjusted annualized PD over the lifetime of the financial asset at initial recognition. An absolute change above 50 bps is considered a significant increase in credit risk from initial recognition at the Group level.

Financial assets are transferred to stage 2 only if it is estimated that both relative and absolute PD changes are significant, i.e., the two changes must be greater than certain relative and absolute limits.

Transfer between stages is a symmetrical process. This means that the financial asset will be transferred from Stage 2 to Stage 1 if no SICR criteria are met.

Calculation of expected credit losses

The Bank applies a collective assessment for non-performing financial assets, and the expected credit loss over its useful life is calculated in accordance with the following formula:

$$ECL_{LT} = \sum_{t=1}^{m} GCA_t \cdot PD_t \cdot LGD_t \cdot D_{t\text{-}1} \tag{1}$$

Where:

1. ECLLT is calculated lifetime expected credit loss;
2. M is the number of years since reporting date (t_0) till maturity (T) rounded up to the whole number, i.e. if the reporting date is the end of May 2015 (t_0 = 31 May 2015) and maturity is at the end of October 2020 (T = 31 October 2020) then the remaining lifetime of the financial asset till maturity in years is 5.4, then M = 6;
3. t represents the year since reporting date;
4. GCA_t is the estimate of the gross carrying amount in the t-the year since reporting date;
5. It is estimated as: $GCA_t = GCA_{t0} \cdot c_t$, where GCA_{t0} is the gross carrying amount booked at reporting date and ct is the coefficient calculated according to the "Estimation Concept for the IFRS 9 Risk Parameters EAD and CCF";
6. PD_t is the estimate of the probability of default in the t-the year since reporting date;
7. LGD_t is the estimate of the loss given default considered in the t-the year since reporting date;
8. $D_{t\text{-}1}$ is the discount factor applied in the t-the year since reporting date;

$$D_{t\text{-}1} = \frac{1}{(1+EIR)^{t\text{-}1}} \tag{2}$$

Lifetime ECL in case of undrawn loan commitment and financial guarantee contract is calculated according to the following formula:

$$ECL_{LT} = \sum_{t=1}^{M} EIR_t \cdot PD_t \cdot LGD_t \cdot D_{t\text{-}1} \tag{3}$$

Where EXP_t is the estimate of the exposure amount in the t-the year since reporting date which occurred due to the draw down of the undrawn loan commitment or due to payments under a financial guarantee.

For financial assets that are in the status of non-obligation of liabilities (assigned rating R). In the Bank for financial assets to defaulted customers, the lifetime expected credit loss is calculated as the difference between the asset's gross carrying amount and the present value of estimated future cash flows discounted at the financial asset's original EIR.

The ECL can be estimated either on individual or collective basis:

1. The individual approach is applied in case of individually significant customers.
2. The collective assessment (or so-called rule-based approach) is applied in case of individually not significant clients.

Risk parameters used to calculate expected credit losses

PD represents the probability that the performing client will fall into the status of default in the period of 12 months, or in the lifetime of the product.

PD one-year represents the probability of the client leaving the status of default in the next 12 months (or during the remaining period of the financial instrument if shorter than 12 months). The parameter is used to calculate the ECL for exposure in Stage 1 (Impairment Stage 1).

PD over a lifetime represents the calculated probability of the client going into the status of default during the remaining repayment period of a financial instrument. The parameter is used to calculate the ECL for exposure in Stage 2 and Stage 3.

The PD parameter (lifetime) represents the risk of the client going into default status at a certain point in time, considering forward-looking information (FLI components). As a result, one baseline scenario was obtained in the process of forecasting credit losses, as well as two alternative scenarios for selected macroeconomic variables (optimistic and pessimistic). Alternative scenarios were performed, together with the probabilities for their realization, as a deviation from the baseline scenario. Considering several scenarios, the "neutral" probabilities of going into default status are adjusted using macro models that link the relevant macro variables to the risk drivers.

Forward-looking information is incorporated into the process of calculating provisions for credit losses during the first three years. The unbiased and probability-weighted amount of expected credit loss (ECL) considering FLI (Forward-looking information) was calculated using the probabilities of each of the three macroeconomic scenarios. Examples of typical macroeconomic variables used in this process are real gross domestic product (GDP), unemployment rate (UR), industrial production index. The choice of macroeconomic variables depends on the availability of their predictions in the local market. Real gross domestic product (GDP) is considered the main indicator of the situation and economic development.

An overview of the macroeconomic variables included in the calculation of Forward-looking information as well as the period of their availability can be seen in the Table 20:

Table 20. An overview of the macroeconomic variables

MACROECONOMIC VARIABLE	BEGINNING OF THE SERIES	END OF SERIES
Industrial production index	2004Q1	2019Q4
Unemployment rate	2006Q4	2019Q4
Average salary	2005Q1	2019Q4
Gross domestic product - annual rate	2004Q1	2019Q4
6m EURIBOR	2004Q1	2019Q4
3m BELIBOR	2005Q3	2019Q4
Rate EUR/RSD average in the period	2004Q1	2019Q4

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Time series data from 2008Q4 to 2019Q4 were used to develop Forward-looking statistical models. FLI component calculation in 2021:

The methodological approach remained unchanged compared to 2020, except in the part of applied probabilities:

- In order to most adequately reflect the crisis caused by COVID-19 pandemic, the proposal of certain Bank Group experts is to change the probabilities for the used "Down", "Base", "UP" scenarios from 45%, 40%, 15% to 51%, 40% and 9% respectively.

The probability of scenario "Base" is retained at 40% with the purpose of adjusting to events that happened at the end of 2021:

- The new COVID-19 variant (Omicron);
- The inflation trends which can potentially lead to increase in interest rates;
- Unstable geopolitical situation (Ukraine/Russia) which can have impact on energy prices.

Data on changes of impaired receivables in 2021:

Table 21. Data on changes of impaired receivables in 2021.

In RSD '000

	Gross value at beginning of period	Receivables impaired during year		Receivables which have ceased to be impaired during year		Other changes	Gross value at period end	Net value at period end
		Total	of which: impaired individually	Total	From which: impaired individually			
Receivables from retail clients	1.302.521	**1.158.089**	**116.803**	**255.116**	**69.167**	**(357.162)**	**1.848.331**	**563.565**
Household loans	291.488	152.103	108.776	80.755	67.181	(54.729)	308.106	138.031
Consumer and cash loans	943.380	908.220	7.460	161.704	1.984	(273.453)	1.416.442	358.294
Transactions and credit cards	14.550	10.875	279	2.461	-	(6.142)	16.824	3.593
Other receivables	53.104	86.891	289	10.196	2	(22.839)	106.960	63.647
Receivables from corporate clients	984.362	**1.314.570**	**1.222.338**	**28.346**	**-**	**(100.888)**	**2.169.698**	**980.751**
Large enterprises	-	62.756	62.756	-	-	-	62.756	59.618
Small and middle sized enterprises	183.371	1.041.521	1.038.528	3.171	22.069	(73.344)	1.148.377	697.008
Micro sized enterprises and entrepreneurs	760.030	187.031	113.672	22.794	-	(21.847)	902.420	213.360
Agriculture	40.961	23.262	7.382	2.382	-	(5.696)	56.145	10.765
Public enterprises	-	-	-	-	-	-	-	-
Receivables from other customers	344.252	**46.474**	**45.713**	**-**	**-**	**(223.947)**	**166.780**	**48.029**
Total receivables	2.631.135	**2.519.133**	**1.384.854**	**283.462**	**69.167**	**(681.997)**	**4.184.809**	**1.592.345**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on changes of impaired receivables in 2020:

Table 22. Data on changes of impaired receivables in 2020.

In RSD '000

	Gross value at beginning of period	Receivables impaired during year		Receivables which have ceased to be impaired during year		Other changes	Gross value at period end	Net value at period end
		Total	of which: impaired individually	Total	From which: impaired individually			
Receivables from retail clients	**1.327.372**	**364.453**	**7.221**	**261.286**	**92.592**	**(128.018)**	**1.302.521**	**287.401**
Household loans	405.414	23.263	6.619	112.061	91.563	(25.128)	291.488	94.490
Consumer and cash loans	864.500	308.765	548	141.544	991	(88.342)	943.380	179.797
Transactions and credit cards	14.521	5.806	-	2.411	35	(3.365)	14.550	2.349
Other receivables	42.937	26.620	54	5.270	3	(11.183)	53.104	10.765
Receivables from corporate clients	**631.633**	**794.440**	**732.488**	**99.267**	**97.437**	**(342.443)**	**984.362**	**311.469**
Large enterprises	-	-	-	-	-	-	-	-
Small and middle sized enterprises	461.044	78.551	63.256	95.502	95.502	(260.722)	183.371	50.695
Micro sized enterprises and entrepreneurs	123.721	711.420	669.232	1.590	-	(73.521)	760.030	256.040
Agriculture	46.868	4.469	-	2.176	1.935	(8.201)	40.961	4.734
Public enterprises	-	-	-	-	-	-	-	-
Receivables from other customers	**145.878**	**18.616**	**15.593**	**-**	**-**	**179.758**	**344.252**	**54.963**
Total receivables	**2.104.882**	**1.177.509**	**755.302**	**360.553**	**190.029**	**(290.703)**	**2.631.135**	**653.833**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on accrued income from interest and collected interest for the year ended on 31 December 2021.

Table 23. Data on accrued income from interest and collected interest 31.12.2021.

	Interest income	Interest collected	Interest income on impaired receivables	In RSD '000 Collected interest on impaired receivables
Receivables from retail clients	**5.011.644**	**5.015.351**	**179.430**	**105.615**
Household loans	1.503.926	1.488.975	27.379	16.032
Consumer and cash loans	3.399.477	3.410.057	143.143	85.498
Transactions and credit cards	95.377	106.763	3.163	2.334
Other receivables	12.864	9.557	5.746	1.752
Receivables from corporate clients	**3.269.096**	**3.233.574**	**109.231**	**38.900**
Large enterprises	443.288	490.594	2.035	2.098
Small and middle sized enterprises	1.583.564	1.553.981	69.891	28.621
Micro sized enterprises and entrepreneurs	931.484	794.044	35.309	6.675
Agriculture	98.680	109.326	1.995	1.506
Public enterprises	212.081	285.629	-	-
Receivables from other customers	**2.525.051**	**2.422.319**	**5.045**	**2.327**
Total receivables	**10.805.791**	**10.671.244**	**293.705**	**146.843**
Per category of receivable:				
Non-problematic receivables	10.504.596	10.519.731	-	-
Of which: restructured	27.540	26.479	-	-
Problematic receivables	301.196	151.513	293.705	146.843
Of which: restructured	58.820	20.583	53.647	16.696
Total receivables	**10.805.791**	**10.671.244**	**293.705**	**146.843**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

Data on accrued income from interest and collected interest for the year ended 31 December 2020.

Table 24. Data on accrued income from interest and collected interest 31.12.2020.

	Interest income	Interest collected	Interest income on impaired receivables	In RSD '000 Collected interest on impaired receivables
Receivables from retail clients	**4.426.328**	**2.994.638**	**84.731**	**36.196**
Household loans	1.445.585	1.064.942	11.675	6.660
Consumer and cash loans	2.869.704	1.857.456	69.675	27.980
Transactions and credit cards	104.169	66.533	1.811	891
Other receivables	6.870	5.707	1.570	664
Receivables from corporate clients	**3.144.387**	**2.112.402**	**61.014**	**11.052**
Large enterprises	415.269	342.390	-	-
Small and middle sized enterprises	1.648.706	1.181.011	18.728	6.375
Micro sized enterprises and entrepreneurs	874.694	435.625	41.325	3.669
Agriculture	19.626	13.113	961	1.009
Public enterprises	186.091	140.264	-	-
Receivables from other customers	**2.145.002**	**1.848.120**	**5.715**	**3.122**
Total receivables	**9.715.717**	**6.955.160**	**151.459**	**50.370**
Per category of receivable:				
Non-problematic receivables	9.558.387	6.902.039	-	-
Of which: restructured	32.795	14.918	-	-
Problematic receivables	157.330	53.121	151.459	50.370
Of which: restructured	74.825	14.972	69.779	12.832
Total receivables	**9.715.717**	**6.955.160**	**151.459**	**50.370**

Source: *https://www.erstebank.rs/en/about-us/financial-statements*

According to the decision of the NBS on temporary measures to preserve the stability of the financial system, during the moratorium, the payment of interest on placements was postponed, and income was calculated in the amount of interest from annuities according to the initial repayment plan. All deferred interest was then allocated in proportion to the remaining term of the placement. The balance of accrued and uncollected interest on 31.12.2020 amounts to RSD 1,990,367.

Reprogrammed loans

It is preferable for the Bank to reprogram respectively, to restructure loans, rather than to realize collaterals when the conditions for reprogramming loans are met. In order to provide the client with better terms for the loan, one can extend the repayment period, reduce the interest rate, reduce the annuity, and partially write off the receivables or some other way. Reprograms can be business reprograms or forbearance restructuring. When the business is reprogrammed, the client is granted more favorable credit conditions that are not conditioned by the worsening of the debtor's financial position, or by mitigating its consequences. Due to the changing conditions on the market, the existing dynamics and lending conditions need to be adjusted to the new conditions. Due to financial difficulties, the debtor cannot fulfill the contractual obligations, and the bank must make concessions in order for the client to succeed in this.

Risk of placement concentration

A bank faces the concentration risk when it has a high exposure to a certain group of debtors or individual debtors. In the event of changes in economic, political or other circumstances that equally affect them, there may be a significant concentration of credit risk when a significant number of clients from the same industry, region or economic background are exposed to the same factors that affect their income or expenses (Barjaktarović, Vesić, & Balazs, 2022). In order to minimize concentration risk, maximum exposure levels and credit limits are determined, with regular monitoring of compliance with the established limits, in order to achieve and maintain a safer credit portfolio. As part of this process, the Bank analyzes the concentration of credit (as well as other) risk according to various criteria (exposure classes, economic sectors, collaterals, products, etc.). Considering all conditions defined by the Bank's Risk Management Decision, the Bank analyzes exposure to credit risk by looking at two indicators: exposure of one person or a group of related people which may not exceed 25% of the Bank's capital and the sum of all large exposures which may not exceed 400% (Law on banks, 2015).

Risks related to credit risk

In addition to residual risk and credit impairment risk, settlement/delivery risk and counterparty risk, market and foreign exchange risk are also included in credit risk. Using the same credit risk control processes and procedures, the bank also overcomes other risks to which it is exposed in its operations.

COVID 19

In 2020, the COVID 19 pandemic caused uncertainty in the global economy and markets (Dobrowolski, 2020; Bryce, Ring, Ashby & Wardman, 2020). Due to social distancing and movement restrictions, the economy has slowed down, and certain industries have experienced a significant drop in revenue (Ilić &Lepojević, 2022; Ceylan, Ozkan & Mulazimogullari, 2020). In order to mitigate the negative effects of the pandemic, the Ministry of Finance and the National Bank of Serbia introduced aid packages and measures. As a result, risk indicators (days of delay, significant increase in credit risk, restructuring, financial indicators, etc.) could not fulfill their functions in such circumstances, although such measures mitigate the negative effects on the economy.

In the first regulatory moratorium, benefits were used by 86% of clients (of which 88% were individuals and 60% were legal entities). During the second regulatory moratorium, 76% of customers used these benefits. The percentage of physical persons was 77%, while the percentage of legal persons was 68%. NBS introduced the third regulatory moratorium in 2021 based on the "opt-in" principle for 6 months, which was used by 3.4 percent of clients with a total exposure of RSD 9 billion. On 31.12.2021, all groups of clients who used moratorium 3 were placed in phase 2. This resulted in a total effect of 435 million dinars on reservations for these clients. In May 2020, the bank started approving loans with a state guarantee. In November 2021, only one guarantee was activated for the client Energia Gas and Power from 1528 in the amount of 92 million euros. 800,000 euros were charged for the activated guarantee of one million euros. Using the above criteria, the timely recognition of credit risk by the Bank at the end of 2021 resulted in an increase in level 2 exposures of 6.3 billion dinars with a corresponding impact on the income statement of 307 million dinars.

CONCLUSIONS

In its operations, the bank is most exposed to credit risk. This risk is as old as the banking itself, because lending money to another contracting party always carried the risk that the borrowed funds would not be returned. Various activities were undertaken to mitigate this risk in order to avoid negative consequences for banking operations. Of course, the degree of complexity of the mechanisms used to manage credit risk was much simpler then than it is today. When the financial market develops rapidly, when new instruments and banking products are created, the complexity of the management system is imposed as a necessity. In order to prevent unfavorable situations, exposure to risk must be adequately controlled and monitored, as well as preventive measures must be taken.

Since all approved credit facilities are risky in nature, credit risk has existed since the beginning of banking. Therefore, we fully accept the hypothesis that credit risk is an integral part of loan placement. The claim that credit risk management is evaluated at the very beginning of the assessment of total risk in credit placement is confirmed by the fact that two years ago credit risk was categorized into three levels, with the third level having the highest percentage of risk. Clients were also tracked as they transitioned from one group to another. In order to protect itself from credit risk, the bank applied mitigation techniques when obtaining acceptable security instruments (collateral). We hereby confirm hypothesis 3, which states that a bank needs to recognize the potential occurrence of credit risk. Two years ago, the National Bank of Serbia adopted a moratorium - a decision which prescribed the suspension of the settlement of the debtor's obligations in case of possible risks caused by an emergency, as well as the harmonization of the existing regulations on bank risk management, which also confirms the claim from hypothesis 4.

The main task of this paper was to present the disclosures that are related to bank credit risk. A bank prefers collateral that is quickly and easily realized. Credit protection is primarily provided by cash and cash equivalents deposited by a bank. Protection of intangible credit is provided by the state and commercial banks with sufficient credit quality and international development banks.

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PREZENTACIJA OBJAŠNJENJA KOJA SE ODNOSE NA KREDITNI RIZIK BANKE

Rezime:

Fenomen kreditnog rizika je jedan od glavnih problema za portfolio određene banke, obzirom da ako postane neizvodljivo naplatiti potraživanja od različitih glavnih klijenata, određena banka bi mogla ostati nesolventna. Poslednje finansijske krize su istakle neophodnost da određena banka identifikuje, meri, proceni i kontroliše kreditni rizik, kao i da obezbedi prihvatljiv stepen kapitala za zaštitu od mogućih padova u slučaju kašnjenja kredita. Shodno tome, upravljanje rizikom stalno zavisi od direktne primene matematičkih i statističkih metoda i modela, uz primenu njihovih rezultata za poslovne ciljeve. Cilj ovog rada je da se prikažu otkrića vezana za kreditni rizik određene banke, imajući u vidu da je upravljanje kreditnim rizikom jedan od indikatora rezultata bankarskog poslovanja banke.

Ključne reči:
kreditni rizik,
zalog,
banka.