The Impact of Competition and Risk Exposure on Profitability of the Romanian Banking System During the COVID-19 Pandemic

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Abstract

In the context of the economic uncertainty generated at the national level and caused not only by the COVID-19 pandemic, for a healthy evolution of business relations in the competitive environment, for resilience and survival in this context of the pandemic and efforts to counteract possible financial losses, optimal risk management plays a key role in the banking system to avoid excessive exposure with a negative impact on financial performance. The present research aimed to provide an analysis of the potential relationship between the competition presented on the example of the Romanian banking market (before the onset of the COVID-19 pandemic and after its start), risk management in terms of risk-weighted assets (credit risk, market risk and operational risk), on one hand, and the profitability of the banking system measured by the ROA (return on assets) indicator, on the other. In order to test the formulated hypotheses, the authors used a predominantly quantitative research methodology based on a statistically deductive analysis with a series of testing objectives and potential cause-effect links. The results of this study indicate, before the onset of the COVID-19 pandemic, the existence of a significant intensity correlation between the banks' exposure to the total risk (RWA) (risk-weighted assets) and the market share (as dependent variables) and the banking performance indicator (ROA) (as an independent variable) and, after the onset of the COVID 19 pandemic, banks' exposure to the credit risk, together with the position on the banking market.

1. INTRODUCTION

The COVID 19 pandemic, which began in March 2020, generated a deep economic and financial crisis in the context of fluctuations and disruptions shown at the level of the national economies and implicitly global economies. In this context, following the major reforms manifested after the crisis of 2007-2009, banks have been a source of resilience and stability, recording a high level

of capitalization and liquidity to be able to support the financing needs of the national economies (Borio, 2020). However, due to disruptions in all sectors of the economy, banks will inevitably be subject to excessive risks generated by a number of insolvencies or bankruptcies that may occur among companies. Thus, the crisis caused by the COVID 19 pandemic comes in the context of the combination of the last decade of maintaining low levels of interest rates, regulations and competition in the banking sector. The question is: What will be the consequences of the COVID 19 crisis for the banks' business model? In this context, the authors estimate that the effects of the COVID 19 crisis will accelerate pre-crisis trends, i.e., a moderate increase and a low level of interest rates that will persist for a long time, and competition will intensify against the background of digitalization of banking processes.

The COVID 19 crisis came at the end of a decade in which there were significant changes in the financial services sector worldwide caused by the low level of interest rates, affecting the profitability of banks, the increase in prudential requirements, compliance costs and regulatory control, the effect of the 2007-2009 financial cut. These rules significantly contribute to improving the stability of the financial sector, but at the same time, put pressure on the competitiveness and the profitability of banks, by the digitization of banking processes and services, which has led to the emergence of new competitors in the banking sector.

The relationship between financial stability and banking competition has been a significant topic, with a series of debates in the literature (Louati et al., 2015). According to the competition-fragility hypothesis, strongly supported in the economic literature, the banking competition leads to a reduction in bank interest income with an effect on the profitability of the banking system, which can therefore lead to a general disruption of the financial system (Tăchiciu et al., 2020).

In the literature, an increasing number of studies estimate that the COVID 19 pandemic continues to affect the economies, deteriorating macroeconomic indicators, including aggregate demand, output, supply, savings, investment and employment, effects that could deepen poverty and, at the same time, trigger a possible recession (Coibion et al., 2020; Chen et al., 2020; Barua, 2020a; Barua, 2020b; Barua, 2020c; Baldwin & de Mauro, 2020; OECD, 2020a; World Bank, 2020a). In a pandemic or post-pandemic period, such disruptions can pose a threat to financial stability and security, both in the economies of developing and developed countries (Baret et al., 2020; Beck, 2020; Cecchetti & Schoenholtz, 2020; World Bank, 2020b; Stiller & Zinc, 2020; FSB, 2020; BIS, 2020; Mann, 2020; World Economic Forum, 2020). At the level of the banking system, there may be excessive risk exposure because the banks usually face a wider range of risks (e.g., lending rate, operational risk, market risk, etc.) that are strongly interconnected with the activities of the business environment, clients, legal entities or individuals (Stulz & Carey, 2006).

The objective of this research is to examine the impact of competition and the way of managing risks on the profitability of the Romanian banking system in the context of the COVID pandemic 19. At the same time, it contributes to the development of scientific literature in the field, focusing on the Romanian banking system, and studying possible influences between banking competition and capital adequacy requirements in terms of risk management and banking performance.

The paper continues with a review of the relevant literature on competition, risks and performance of the banking system, followed by a section focused on aspects of research objectives, data and

methodology used. Then, there are results and discussions, and finally, the conclusions of this article. This research confirms and extends the previous research from the literature, focusing on the Romanian banking sector in an atypical period of evolution during the COVID 19 pandemic 2019-2020 years, which highlights the novelty of this study.

2. THEORETICAL BACKGROUND

As the COVID 19 virus pandemic is an entirely new experience worldwide, the literature on its implications for the banking system is still in full development. However, the lessons learned from the global systemic financial crisis of 2007-2009 may be of some relevance as the effects are likely to be similar. Thus, a number of authors in the literature considered the results of the crisis to be contagious, like a pandemic. (Caballero & Simsek, 2009; Roubini 2008, Cecchetti & Schoenholtz 2020; Bachman, 2020). As such, the financial bubbles behave like pandemics and should be treated in the same way (Shiller, 2020; Haldane & May, 2011). The impact of the pandemic generated by the spread of the COVID 19 virus is the subject of extensive debates in the literature, using the information on the stock market with the effect on financial performance (Gormsen & Koijen, 2020; Landier & Thesmar, 2020; Ramelli & Wagner, 2020).

At the same time, there is a series of research in the literature with contradictory results regarding the impact of increased competition on the stability of the banking system. Thus, the increase in competition can have an effect on a decrease in the performance of the banking system. The key argument of this hypothesis is that bank managers benefit from incentives in situations of exposure to a number of excessive risks. In the same context, Dinu & Bunea (2019) believe that increasing competition in the banking sector can increase banks' profitability. Most previous research in the literature has shown that "a greater competition is associated with a lower likelihood of failure". In other words, there is a positive relationship between competition on the one hand and the bank's profitability and stability on the other.

Louati et al. (2015) studied the impact of the capital adequacy rate on banking risks in different competitive circumstances and the effects on the behavior of the banking system. The results of this study demonstrate that the capital adequacy ratio has a significant influence on the behavior of the banking system. In contrast, competition does not have a significant effect on the relationship between banks' behavior and the capital adequacy ratio to risks. Previous research (Benes et al., 2015; Bunea & Dinu, 2020) supports the role of capital adequacy requirements in protecting banks and limiting their excessive exposure to risks, as well as in improving the banking performance. Similarly, Karim et al. (2014), Nitescu & Cristea (2020) consider that banks' lending activities are strongly influenced/impacted by the capital requirements and appreciate capital as a credit risk buffer. A number of studies show a negative relationship between capital and risk, also considering capital as a highly effective tool in risk management. Other similar studies that report a negative relationship between risk and capital also indicate capital as an effective tool for the risk management (Zhang et al., 2008; Deelchand et al., 2010; Agoraki et al., 2011; Belas et al, 2012; Guidara, 2013; Agusman et al., 2014; May, 2015; Nguyen et al., 2015; Chang et al., 2016).

Based on the regulations of the Basel III Agreement on the need to implement capital requirements, previous research in the literature argues that the capital regulation contributes to increasing the efficiency of the banking system and improves the banks' protection against exposure to excessive risks, especially in the context of the pandemic COVID 19 virus (Baker et al., 2020; Al-Awadhi et al., 2020; Ashraf 2020). Studies, such as Ashraf (2020) and Moudud-Ul-Huq (2020), on the impact of the pandemic on the performance of the banking system support the idea that, during the financial crisis, the reactions of bank capital to the risks to which banks are exposed to are not the same as those of an economically normal period. Diamond (2000) considers banks the most important financial institutions providing liquidity worldwide. In the banking system, the optimal level of allocated capital must comply with the mandatory minimum requirements imposed by the regulators, this sector being one of the most regulated in the world. This banking regulation addresses the minimum capital requirements imposed by the Basel Committee, whose role is to strengthen the stability of the banking system and prevent excessive risk exposure of banks. Even though these minimum requirements are mandatory in terms of capital adequacy to risk, the banks are found to be above the minimum required level. Studies in the literature show that one of the arguments is represented by the competition manifested in the banking market. Nitescu & Murgu (2019) appreciate that out of the desire to maximize profit, banks are compromising to attract a larger volume of loans, exposing themselves to a number of excessive risks, which may ultimately contribute to the deterioration of the quality of the loan portfolio. Also, Allen et al. (2005) consider that in highly competitive credit markets, the minimum equity level may be higher, with banks taking additional risks, having effects on increasing the volume of non-performing loans and thus on the banking performance.

The scientific literature includes a series of studies on the relationship between competition, capital levels and risk exposure. Soedarmono et al. (2013), Dinu & Bunea (2015) demonstrate the direct relationship between competition in the banking market, risk-taking and bank performance, the results of this study being similar for banks in different regions under investigation. At the same time, Fiordelisi et al. (2014) appreciate that in less competitive markets, European banks show a tendency to increase risk exposure. Bitar et al. (2016), in research on the banking system in the Asia Pacific region, find that a high level of competition increases the banks' fragility and increases the volume of risks assumed. Thus, a low level of banking competition may increase the likelihood of non-repayment of loans to customers, legal entities or individuals. However, a number of studies in the literature support the tendency of banks to take many excessive risks as competition in the banking sector increases (Bunea & Dinu, 2019; Vută. et al., 2019), having the effects at the level of capital requirements.

Following the onset of the coronavirus pandemic in March 2020, many studies have appeared in the literature on its effect on business performance (Adegboye et al., 2020; Hope et al., 2020; Ohia et al., 2020). In the studies, Xinhuao (2020) demonstrated the existence of a significant relationship between the COVID 19 pandemic and the Chinese financial sector, appreciating that the Chinese financial market has generally remained stable compared to other parts of the world. Iwedi et al. (2020) focused their studies on the effects of the COVID 19 coronavirus pandemic on the performance of Nigerian firms. At the same time, Wakode (2020) explores the possible influences of the COVID pandemic 19 on banks' exposure to credit risk by identifying a significant impact between the two elements.

Research by Demirguc et al. (2020) assessed the impact of the COVID 19 crisis on the performance of the banking sector, the results of this study indicating that the banking system has been under significant pressure since the start of COVID 19, with effects on its performance. The same result was achieved by Baret et al. (2020), who also drew attention to the impact of the COVID 19 pandemic in the area of financial markets and implicitly of banks, identifying evidence of the significant effects of COVID 19 on general financial markets, with declining oil prices, stocks and bonds.

Undoubtedly, the effect of the COVID 19 pandemic on the world economy has the most significant dimension compared to the impact of previous crises, and banks have a particularly important role to play in the recovery of the global economic system and implicitly nationally, even if there is a negative impact on their profitability (KPMG, 2020). By comparison, Baker et al. (2020) consider that the crisis manifested as an effect of the COVID pandemic 19 had a significantly more negative influence on the stock markets than any previous pandemic period, including the crisis caused by the Spanish flu of 1918.

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

The main objective of this paper is to identify the potential impact of the competition and the risk management in terms of exposure to banking risks on the performance of the Romanian banking system (before the onset of the COVID 19 pandemic and after its start). The authors aim to provide an analysis of the potential correlation between the competition from the Romanian banking market, the risk management in terms of risk-weighted assets (credit risk, market risk and operational risk), on one hand, and the profitability of the banking system measured by the ROA (return on assets) indicator, on the other hand. At the same time, the authors try to find reasoned answers to the question: is there a relationship or not? If the answer is yes, to what extent, how strongly does the level of competition and risk management impact banks' profitability?

Considering a series of results of some studies from the specialized scientific literature, but also the observations from the banking practice in Romania, the authors of this paper formulated the following five hypotheses:

H1: It was assumed that the competition in the banking market has an impact on the level of the Romanian banks' profitability.

H2: It was assumed that the total risk exposure (RWA) has an impact on the level of the Romanian banks' profitability.

H3: It was assumed that the exposure to the credit risk has an impact on the level of the Romanian banks' profitability.

H4: It was assumed that the exposure to the market risk has an impact on the level of the Romanian banks' profitability.

H5: It was assumed that the exposure to the operational risks has an impact on the level of the Romanian banks' profitability.

In order to test the hypotheses, the authors used a predominantly quantitative research methodology based on a statistical-deductive analysis, the starting point being the agency's theory, with a series of testing objectives and potential cause-effect links, analyzing at the same time their level of significance.

In this research, the necessary data processing was performed using SPSS software under Windows (correlation tests and regression analysis). The analysis focused on the financial information for 2019 and 2020, respectively (before and after the onset of the pandemic generated by the COVID virus 19). At the end of 2020, 32 credit institutions were registered on the Romanian banking market; out of which a total of 25 are banks, Romanian legal entities and respectively seven are branches of foreign banks operating in Romania. Out of the total of 32 credit institutions, 25 banks are included in the sample subject to research, respectively Romanian legal entities, the information related to them being extracted from their official websites for the years 2019 and 2020, respectively. Branches of foreign banks were removed from the sample subject to research, for which, according to NBR Regulation no. 25/30/2006 on information disclosure requirements for credit institutions and investment firms, there is no obligation to publish information in Romania (they are made public in the country of origin of the group to which the branch belongs).

The present study used exclusively the public information posted by each analyzed bank on the official websites, on the National Bank of Romania website, both in the reports for the financial years 2019 and 2020 and in the reports on transparency and disclosure requirements (for 2019 and 2020) prepared in accordance with NBR regulations.

To meet the objectives of this research, the two distinct categories of variables were identified and defined, namely: independent and respectively dependent variables. The authors studied the correlation between them. Table 1 includes a detailed presentation of the independent variables, a subject to research, and how to define and determine them.

Tab. 1 – Presentation of independent variables. Source: own research

Independent variable	The symbol used	Definition of the variable	How to determine
Markets share	Comp	Share of assets held in the total banking system in Romania	Total bank assets / Total assets of the Romanian banking system
Total risk-weighted assets	RWA_Total	Measure of the risks in a bank's portfolios, reflecting the degree of risk of the assets	Log of total multiplied banking assets according to internal models, with a degree of risk specific to each asset category
Credit risk-weighted assets	RWA_RC	Measure of credit risk exposure	Log of the total amount of credit risk exposure
Market risk-weighted assets	RWA_RP	Measure of market risk exposure	Log of the total value of the market risk exposure

Operational risk-weighted assets	RWA_RO	Measure of exposure to operational risks	Log of the total amount of exposure to operational risks

Comp – Markets share
RWA_Total – Total risk-weighted assets
RWA_RC - Credit risk-weighted assets
RWA_RP - Market risk-weighted assets
RWA_RO - Operational risk-weighted assets

As risk-weighted assets (RWAs) determine the bank's regulated capital requirement and influence the capital indicator, special importance is given to the fulfillment of the objectives and planning and forecasting activity for this parameter at the level of each bank. The information in the bank reports on risk-weighted assets is used to effectively enforce the requirements of the Basel III Accord as a whole. At the same time, banks ensure that they have the appropriate management and staff with the necessary expertise, internal processes and systems to measure, monitor and control all sources of risk to which banks are exposed. Also, the risk strategy is appropriate to the nature, size and complexity of the activities at the level of each bank. Risk appetite is quantified by risk limits. It is monitored through models that provide early warning signals for potential management actions, and there is a formalized escalation mechanism in case of exceedances. In the risk planning process, as well as in the budgeting process, the limits on risk appetite are divided by types of risks (credit risk, market risk, operational risk), segments and portfolios. This system translates risk tolerance and appetite for each risk category into risk monitoring measures.

4. RESULTS AND DISCUSSION

In order to meet the objectives of this research, the authors used a number of specific data processing tools using SPSS software under Windows (correlation tests and regression analysis). Thus, for each independent variable under investigation, the analysis and interpretation of each possible identified influence, which provides an argument for accepting or rejecting the hypotheses, is based on a linear regression analysis (multiple regression model under SPSS or Backward method).

The Backward method used in this research starts with all the variables considered in the model and at each step, the best predictor (independent variable) is eliminated. The weakest predictor is defined by the least important independent variable, i.e., the variable that causes the smallest reduction in Fisher (F) statistics, the variables being eliminated until an established significance threshold F is no longer reached. The results of this research are described in detail, both for 2019 and the end of 2020, in Tables 2a (2019) and 2b (2020) Matrix of partial correlations, in Table 3 Summary of the model and Table 4 ANOVA results.

Tables 2a and 2b Correlation matrix show the Pearson coefficients, the value of the significance (Sig.) related to each correlation coefficient and the number of cases considered in the study (N).

Tab. 2a – Matrix of partial correlations 2019. Source: own research

		ROA	Comp	RWA	RWA_CR	RWA_PO	RWA_RO
Pearson Correlation	ROA	1.000	.636	-.689	-.501	-.377	-.382
	Comp	.636	1.000	-.976	-.971	-.858	.636
	RWA	-.689	-.976	1.000	.999	.853	-.689
	RWA_RC	-.601	-.971	.999	1.000	.837	-.601
	RWA_RP	-.377	-.858	.853	.837	1.000	-.377
	RWA_RO	-.502	-.902	.905	.890	.803	1.000
Sig (1-tailed)	ROA		.04	.033	.076	.142	.069
	Comp	.04		.000	.000	.001	.004
	RWA	.033	.000		.000	.001	.005
	RWA_RC	.076	.000	.000		.001	.006
	RWA_RP	.142	.001	.001	.001		.142
	RWA_RO	.069	.000	.000	.000	.003	

Tab. 2b – Matrix of partial correlations 2020. Source: own research

		ROA	RWA	RWA_CR	RWA_RP	Comp	RWA_lv
Pearson Correlation	ROA	1.000	-.533	-.746	-.485	.673	-.690
	RWA	-.733	1.000	.999	.863	-.957	.988
	RWA_RC	-.746	.999	1.000	.849	-.952	.984
	RWA_RP	-.485	.863	.849	1.000	-.884	.870
	Comp	.573	-.957	-.952	-.884	1.000	-.961
	RWA_RO	-.690	.988	.984	.870	-.961	1.000
Sig (1-tailed)	ROA		.08	.04	.078	.03	.064
	RWA	.08		.000	.001	.000	.000
	RWA_RC	.04	.000		.001	.000	.000
	RWA_RP	.078	.001	.001		.000	.001
	Comp	.03	.000	.000	.000		.000
	RWA_RO	.014	.000	.000	.001	.000	

From Tables 2a and 2b, it is observed that the value of the coefficients on the diagonal is equal to 1, each variable being perfectly correlated with itself. Concerning the end of 2019 (before the onset of the COVID 19 pandemic), there is a strong indirect link between total risk exposure (RWA) and bank profitability (ROA) and a significant direct association between the market share and ROA. In the case of these variables, the correlation coefficients registering values of -0.689 and 0.636, respectively, with a value of Sig. less than 0.005.

As a result, for 2019, corroborating with the results presented in the Summary model and ANOVA

Tables, the results determined acceptance of the H1 hypothesis, namely that competition in the banking market has an impact on the level of profitability of banks and the H2 hypothesis, respectively, namely that the total risk exposure (RWA) has an impact on the level of profitability of banks.

For the end of 2020 (after the onset of the COVID 19 pandemic), corroborating with the results presented in the Summary model and ANOVA Tables, the results indicate a significant indirect relationship between the ROA-dependent variable and credit risk exposure (RWA_RC), as well as a direct association between bank profitability (ROA) and market share, the correlation coefficients being -0.746 and 0.673, respectively, with a value of Sig. less than 0.05. Thus, for the year 2020, these results also determined the acceptance of the H1 hypothesis, namely the competition in the banking market, has an impact on the level of profitability of the banks and, respectively, the H3 hypothesis, namely the exposure to credit risk has an impact on the level of profitability of the banks.

In what concerns the testing of the H4 hypothesis and the H5 hypothesis, the results of the research presented in Table 2, respectively, the values of the correlation coefficients corroborated with the levels of significance (Sig.) corresponding to each correlation coefficient (higher than 0.05), determined their rejection.

Table No. 3 - Summary model, for each regression model, information is presented on the correlation coefficient (R), the value of the coefficient of determination (R^2) and the standard error.

Tab. 3 – Model summary. Source: own research

Model	2019				2020			
	R	R^2	Adjust-ed R^2	Std. Error of the Estimate	R	R^2	Adjust-ed R^2	Std. Error of the Estimate
1	.882 [of]	.777	.499	4.60112	.876 [of]	.767	.475	6.10370
2	.882 [b]	.777	.599	4.11579	.876 [b]	.767	.580	5.45971
3	.878 [c]	.772	.657	3.80352	.875 [c]	.766	.648	4.99462
4	.872 [d]	.761	.693	3.60310	.869 [d]	.756	.686	4.72122
Predictors: (Constant), RWA_RO, RWA_RP, RWA_RC, dimension, RWA b. Predictors: (Constant), RWA_RO, RWA_RP, Comp, RWA c. Predictors: (Constant), RWA_RP, Comp, RWA d. Predictors: (Constant), Comp, RWA e. Dependent Variable: roa				Predictors: (Constant), RWA_RO, RWA_RP, Comp, RWA_RC, RWA b. Predictors: (Constant), RWA_RO, Comp, RWA_RC, RWA c. Predictors: (Constant), Comp, RWA_RC, RWA d. Predictors: (Constant), Comp, RWA_RC e. Dependent Variable: ROA			

Table 3 shows for each regression model the value of the correlation coefficient (R), the value of the coefficient of determination (R^2) and the standard error. The inclusion of irrelevant values

also leads to an increase in the standard error. In the present research, the value R, the value R^2 adjusted and the standard error demonstrate that the best predictors (independent variables that best estimate the dependent variable) for the end of 2019 are the variables "market share" and "total risk exposure" respectively, for the end of 2020, that the best predictors are the variables "market share" and "credit risk exposure".

The same conclusion was drawn by analyzing the results in Table 4 ANOVA, presenting the results of the analysis of the variance of the dependent variable under the influence of the regression factor and the residual factor, information on the sums of the squares of the deviations of the dependent variable due to the regression model and the residual factor, variance estimates due to the two sources of variation, ratio F and Sig.

Tab. 4 – ANOVA. Source: own research

Model		2019				2020			
		Sum of Squares	Mean Square	F	Sig.	Sum of Squares	Mean Square	F	Sig.
1	Regression	295.335	59.067	2.790	.171 [b]	489.679	97.936	2.629	.185 [b]
	Residual	84.681	21.170			149.021	37.255		
	Total	380.016				638.700			
2	Regression	295.317	73.829	4.358	.069 [c]	489.657	122.414	4.107	.077 [c]
	Residual	84.698	16.940			149.042	29.808		
	Total	380.016				638.700			
3	Regression	293.215	97.738	6.756	.024 [d]	489.022	163.007	6.534	.026 [d]
	Residual	86.801	14.467			149.677	24.946		
	Total	380.016				638.700			
4	Regression	289.140	144.570	11.136	.007 [e]	482.670	241.335	10.827	.007 [e]
	Residual	90.876	12.982			156.030	22.290		
	Total	380.016				638.700			
Dependent Variable: ROA						Dependent Variable: ROA			
b. Predictors: (Constant), RWA_RO, RWA_RP, RWA_RC, Comp, RWA						b. Predictors: (Constant), RWA_RO, RWA_RP, Comp, RWA_RC, RWA			
c. Predictors: (Constant), RWA_RO, RWA_RP, Comp, RWA						c. Predictors: (Constant), RWA_RO, Comp, RWA_RC, RWA			
d. Predictors: (Constant), RWA_RP, Comp, RWA						d. Predictors: (Constant), Comp, RWA_RC, RWA			
e. Predictors: (Constant), Comp, RWA						e. Predictors: (Constant), Comp, RWA_RC			

If the value of the significance of the statistic F is small (Sig. is less than 0.05), then the independent variables explain the variation of the dependent variable. In the present research, the lowest values Sig. correspond to the model that explains the variation of a bank's profitability (ROA) depending on the total risk exposure and the market share held in the banking system.

Adherence to the regression analysis hypotheses (errors are distributed normally with zero means; errors have constant variance; errors are independent of each other) was also verified graphically, using PP Plot diagrams (Figure 1) and Scatterplot (Figure 2).
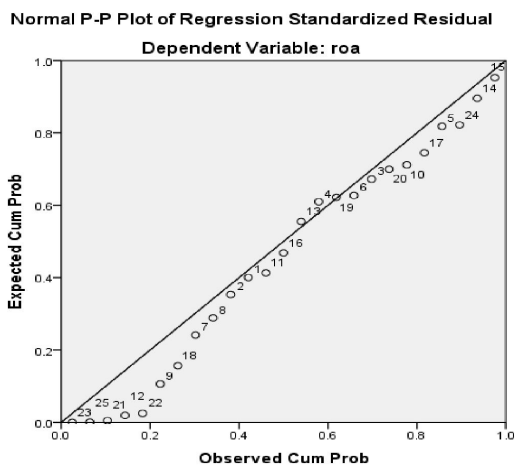
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: roa

Fig. 1 – PP Plot diagram. Source: own research

The P-P plot diagram (Percent Percent) compares the distribution of the variables, highlighting that the points are not seriously deviated from the straight line, which indicates a normal distribution. Thus, it can be observed that the majority of points are placed in quadrants arranged diagonally, which assumes that there is a linear relationship between the variables. The same result is obtained and presented through the Scatterplot diagram, in which the distribution of variables can be observed, between which there is a linear relationship.
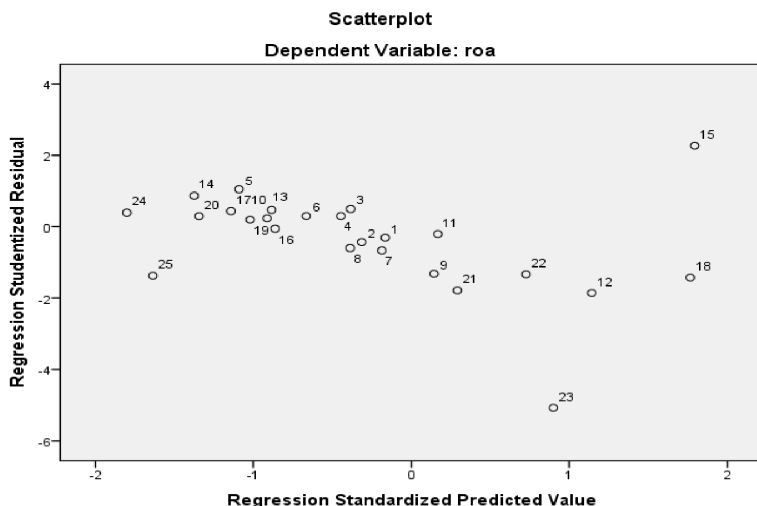

Scatterplot

Dependent Variable: roa

Fig. 2 – Scatterplot. Source: own research

Thus, the P-Plot and Scatterplot diagrams confirm the results of this research, namely whether before the onset of the COVID 19 pandemic (end of 2019), there was a significant indirect relationship between total risk exposure (RWA) of banks in the Romanian banking system and

their profitability. There was a direct relationship between the position held in the market, their market share (as a share of each bank's assets in the total assets of the Romanian banking system) and their profitability (ROA). After the onset of the pandemic (end of 2020), there is a significant indirect relationship between banks' profitability and their exposure to credit risk (RWA_RC), as well as a direct association between their market share and bank profitability (ROA) theirs.

The results of this study confirm previous research in the literature, such as Baker et al. (2020), Al-Awadhi et al. (2020) and Ashraf (2020), which support the need for banking protection against exposure to a number of excessive risks, especially by exposing them to credit risks, which can contribute to the deterioration of the quality of portfolios, especially in the context of the pandemic caused by the spread of the COVID-19 virus. Also, studies such as Ashraf (2020) and Moudud-Ul-Huq (2020) on the impact of the pandemic on the performance of the banking system support the idea that during the financial crisis, the reactions of bank capital to taking risks which banks are exposed to are not like those of a standard period from an economic point of view. The present research was carried out at the level of the Romanian banking system. At the same time, Stulz & Carey (2006) demonstrated that at the level of the banking system, as a result of a crisis, excessive risk exposure could manifest itself, all the more so as banks usually face a range of risks. Wider risks (lending rate, operational risk, market risk, etc.) are strongly interconnected with the activities of the business environment, corporate clients or individuals.

The same conclusions are found in the literature in Kozak's paper (2020) on the impact of the COVID 19 pandemic on the bank's performance in Southeast Europe. He thinks that banks are most vulnerable to the worsening of the COVID-19 pandemic on the background of exposure to credit default risks and that this situation may require increased supervision by supervisory bodies. According to the studies by AL-Bimani & Matriano (2021), the performance of Oman banks has been severely affected in the context of the COVID 19 pandemic by excessive risk exposure and especially credit risk, with business opportunities becoming extremely limited. Reza et al. (2021) in their research on Indonesian banks, consider that this negative impact on the performance of banks manifested in the context of the COVID 19 pandemic may determine that, after the relaxation of financial conditions. A large part of the loans granted as a result of excessive exposure turn into non-performing loans subsequently affecting even more the financial results of the banks.

5. CONCLUSION

In this research, the authors aimed to identify potential correlations between the level of competition (expressed by the market share held by each bank) and risk management (banks' exposure to total risks, credit risk, market risk or operational risks) on the profitability of the Romanian banking system during COVID 19 (2019-2020). Banks' profitability was analyzed using the ROA (return on assets) indicator often used in the literature to express financial performance.

The results of this study demonstrate, by the end of 2019, the existence of a significant intensity correlation between banks' total risk exposure (RWA), the market share held and ROA (bank performance indicator). At the same time, after the onset of the COVID 19 pandemic, the results

indicate that exposure to credit risk has a significant influence, along with the position held by the banking market, on the performance of banks operating in the Romanian banking system. In this way, the present research thus confirms and expands the previous research in the specialized literature, focusing on the Romanian banking sector.

However, the research also presents certain limits determined on the one hand by the relatively small number of banks in the sample studied (the number of banks operating in the banking system is small, 25 banks being included in this research) and on the other hand, part of the relatively short-time horizon since the onset of the COVID 19 pandemic, a crisis still unfinished, the effects of which can be felt on financial indicators over a much longer period. Despite these limitations, we appreciate that this study is a challenge for future research in the Romanian banking system and beyond by extending the analysis to other financial and capital indicators (ROE, return on capital, etc.) over a longer period of time (to identify other possible effects of the crisis generated by the COVID pandemic 19), thus being an important source of reflection and information for practitioners and not only those.

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