

MANAGING CREDIT RISK STRATEGIES FOR COMMERCIAL BANKS: THE CASE OF KOSOVO

Arbana Sahiti Ramushi

University of Prishtina «Hasan Prishtina», Republic of Kosovo

Sevdie Alshiqi

University of Prishtina «Hasan Prishtina», Republic of Kosovo

Inna Neskorođieva

V. N. Karazin Kharkiv National University, Ukraine

Arben Sahiti

University of Gjilan “Kadri Zeka”, Gjilan, Kosovo

Xhelil Bekteshi

St. Clement of Ohrid University of Bitola, North Macedonia

ABSTRACT

The study aims to substantiate effective strategies to manage credit risks in commercial banks, for example, Kosovo. Based on the annual financial statements of commercial banks in Kosovo for 2010-2020. We built polynomial regression models to assess the impact of credit risk on the bank's financial stability. Empirically, determined and argued the different nature of the credit risks influencing the bank's financial stability according to various on the assets size of commercial banks. Preventive and reactive scenarios for minimizing the negative impact of credit risk on the financial stability of commercial banks in Kosovo have been determined using the constructed regression models. The results obtained are of practical importance and can help develop effective strategies for managing the financial risks in commercial banks in times of crisis and building up financial stability in stable conditions.

Keywords: risk management, credit risk, commercial banks, Kosovo, financial stability, strategy, management

DOI: <http://dx.doi.org/10.15549/jeecar.v9i2.847>

INTRODUCTION

The Republic of Kosovo, like other states of the Balkan Peninsula, faced an economic recession in 2020 caused by the humanitarian crisis of the

world economy over the spreading of the COVID19 pandemic. The Kosovo authorities and businesses were forced to introduce restrictive measures on economic activity to ensure the

regime of social distancing. That hit the economic development of the country hard. In 2020, there was a contraction of the national economy at the level of 7%, against the backdrop of state support in the form of transfers for the citizens in Kosovo and entrepreneurship, which increased by 38% (OECD, 2020; World Bank, 2021b). Under current conditions, it is pretty challenging to make any forecasts regarding the further consequences of the coronavirus for the economy of Kosovo because the risk of uncertainty remains relatively high, and the country continues to resist the COVID19 pandemic.

A feature of the country's socio-economic development is the low development of social protection and healthcare, the shadow employment of the population, and the high level of unemployment (OECD, 2020). These factors, especially over the pandemic COVID19, cause the country's economy's increased predisposition to crisis manifestations. And in this aspect, the financial stability of the banking system of Kosovo is of particular importance, the fundamental task of which is to neutralize the medium and long-term negative impact of the pandemic on the socio-economic system, especially concerning supporting medium and small businesses.

The banking system in Kosovo is represented by 11 commercial banks operating on the provisions of the Basel Accord and the directives of the European Union (BIS, 2022; EC, 2022). The lion's share of all banking assets in the country (86%) is owned by nine foreign banks, and two national commercial banks own only slightly more than 14%. (International Trade Administration, 2021). In general, ca note that despite the impact of the COVID19 pandemic, the banking system has shown its reliability in the context of the global crisis due to the efficient operation of the Central Bank of Kosovo (CBK): first, introduced a moratorium on the repayment of commercial loans without applying penalties to borrowers, and then a loan restructuring program for borrowers experiencing financial difficulties as a result of the effects of the pandemic to reduce the credit burden (Central Bank of the Republic of Kosovo, 2022a). But should be noted that the result of these measures turned into a challenging test for commercial banks: a complete stop of the business cycle of collecting loans from commercial banks for more

than two months, which led to a significant lack of liquidity. This is not to say that banks have not prepared to minimize credit risks at the beginning of the pandemic. Most banks have developed a liquidity stress test based on the assumption of loan defaults within 20% while imposing the moratorium on 100% of loans (Global Agriculture & Food Security Program, 2020). Of course, this could not but affect the financial stability of the commercial banks in Kosovo. Even in the current conditions, a gradual return to the dynamics of business activity and the volume of demand for loans suffers losses, especially concerning small banks.

Against the backdrop of economic recovery, GDP growth is predicted to be within 4.1% at the beginning of 2022, a lack of development sustainability. The impact of the pandemic has triggered an increase in unemployment in Kosovo, especially among women and youth. For example, the youth unemployment rate at the beginning of 2022 was almost 38%, which is nearly 6% more than at the height of the pandemic in 2020 (World Bank, 2021a). Therefore, one can argue about the deterioration of employment prospects in the country the decrease in the solvency of businesses and citizens. Thus, the development of the situation may require the Central Bank and other regulatory bodies to take additional actions to coordinate the condition, which will lead to an increase in the credit risks of commercial banks. Therefore, banks urgently need to develop plans for managing and accessing credit risks in stressful situations, considering the potential financial consequences. Minimize the impact of the COVID-19 pandemic, ensure the resilience of daily operations to ensure compliance with banking regulations during emergencies and uncertainties. This study aimed to substantiate alternative schemes and operating models for banks to neutralize the credit risks impact on the financial stability of a commercial organization in a crisis and uncertainty.

LITERATURE REVIEW

There are three fundamental approaches to credit risk management in the bank's practice. The first direction involves strict regulation by setting limits on lending volumes differentiated by region, industry, or borrower status (Anh, 2021). The second approach was based on the diversification of the loan portfolio, involving the

classification of loans according to the following critical criteria: loan duration, collateral, the purpose for the loan, borrower, and the degree of a risk taken into account the type of the borrower (Di Clemente, 2020). For example, in Kosovo, in 2012, a Credit Registry system was established to generate information on the financial condition of id individuals and legal entities to improve the process of assessing bank credit customers (Central Bank of the Republic of Kosovo, 2022b). The third concept is to form targeted reserve funds, the purpose of which is to cover credit risk losses (Yun, 2020; Keister & McAndrews, 2009).

Also, in recent years, hedging of bank credit risks has become popular, as the securitization of loan debt, the conclusion of commercial contracts regarding the transfer of the risks on a pool of loans or a separate loan, and more, the diversification of bank assets (Marqués-Ibáñez, 2017; Uddin et al., 2021; Alshiqi & Sahiti, 2021).

Nowadays, increasing the risk of lending, banks have gone further, constantly monitoring and optimizing the loan portfolio through assignment agreements or improving the loan portfolio. (Alshiqi & Sahiti, 2021).

The basis of banking activity in conditions of increased risks of the external environment is the optimization of risk parameters, which causes an integrated approach to creating a management system for them, especially concerning the formation of bank reserves, its financial stability, and credit risk. Within the whole economy, the banking sector is exposed the most to financial risks. As Alshiqi & Sahiti (2021) emphasized in their study, risk management and profitability depend on how banks manage their loans. Based on various empirical and theoretical researches, the determinants of a bank's performance are divided into two categories, internal and external factors. Internal factors include return on capital, return on assets, net interest margin, the ratio of assets to capital, the liquidity ratio, the bank's size, and the bank's efficiency. External factors, on the other hand, include GDP, inflation, unemployment, fiscal policies, and several other macroeconomic factors (Megits, Neskorodieva & Schuster, 2020; Vasiljeva et al., 2020; Athanasoglou, Brissimis & Delis, 2008).

Internal factors of profitability are usually determined by the decisions and policy objectives of the bank. The main goal of every bank is to provide and manage the liquidity of depositors and creditors (Kashyap & Rajan,

2002). Banks continue to be concerned about preserving liquidity and the potential insolvency of customers. According to Saidenberg & Strahan (1999), banks traditionally have held capital reserve to safeguard against default and liquidity (to protect themselves from sudden withdrawals by depositors). In the financial system, the quality of the bank's assets is essential and the regulatory authorities' primary concern in terms of bank management and economic stability in the country. According to Welfens (2008), deterioration in the quality of banks' assets and an increase in non-performing assets severely affects the financial intermediation process. Internal factors mainly influence the quality of assets and the growth of non-performing assets without underestimating external factors. Therefore, assessing the size of banks plays a crucial role in financial systems because the banking industry is highly related and serves other sectors of the economy (Schildbach, Schneider & Schneider, 2017; Vasiljeva et al., 2020). To evaluate banks' economic and financial performance, different parameters and indicators are used. Current academic research often focuses on the balance sheet, and banking industry analysts focus on market capitalization or total income (Schildbach, Schneider & Schneider, 2017).

The size of the bank, credit risk, ROA, ROE, debt-equity ratio, and operational efficiency are used in many studies to analyze and determine a bank's profitability. These same variables have been used by Nouaili, Abaoub & Ochi (2015), and Staikouras (1996) while Quoc & Nguyen (2018). Depending on the characteristics and size of each different bank type of business, this factor in the interior control may be more focused than other factors. According to W. R. Keeton (1990), the size of banks is of particular importance where he explained that small banks are indisputable compared to large banks. Small banks from an economic shock can more easily cope with failures and non-payment. Loans increase non-performing loans compared to large banks that lend with a wide variety (W. R. Keeton, 1990).

In addition, based on the findings of different authors, Pasiouras & Kosmidou (2007) noted a relationship between the size and profitability of the bank. We consider these findings also respond to the reality of commercial banks operating in Kosovo because larger banks are likely to have a higher degree of product and

credit diversification than smaller banks.

According to Dräger, Heckmann-draisbach & Lewis (2020) concluded that banks exposed to credit risk should try to stabilize the medium-term net interest margin or have a separate budget for credit risk. In addition to the interest income generated from lending as a traditional banking activity, banks can generate revenue through activities that are not related to the interest rate. Such examples may be account maintenance, cash transactions charges, national and international transfers fees, currency exchange spreads, and other services that generate non-interest income. According to the annual report of the Central Bank of the Republic of Kosovo (CBK) in 2018, "Kosovo commercial banks due to the advancement of these products today can be compared with banks in the region and Europe" (Central Bank of the Republic of Kosovo, 2018). Commissions and percentages of total income derived from non-banking activities are commonly used to expand these activities (Sufian, Akbar & Mohamad, 2009).

Fees and commissions increase the level of total revenues. There is an argument that there is a positive relationship between them and that commissions are usually higher interest rate margins, so fees and commissions are expected to increase the profitability of banks with higher income from commission margins (Sufian, Akbar & Mohamad, 2009).

Efficient cost management is another crucial determinant of a bank's profitability, usually measured by the ratio of operating costs to revenue. "Often by the management the operational costs are considered a result of banking management" (Athanasoglou, Brissimis & Delis, 2008). Many researchers suggest that improved operating cost management improves efficiency and yields positive results. According to the specific factors of the banking industry, a bank's profitability is a function of market attributes, which is shown by stability (solvency). Commercial banks in Kosovo have shown that they have significant oversight in implementing measures that have brought them high benefits and good management in supervising bad loans (Alshiqi & Sahiti, 2021). Commercial banks should also follow the instructions of central banks regarding non-performing loans, provisions for credit risk, capital adequacy ratio, and advance ratio to keep credit risk at an optimal level and for

sustainability (Chandra et al., 2020). A bank's sustainability depends on its structure and its ability to generate income from the spread between credit interest rates and deposit interest rates. Commercial banks have different shareholding structures. Some of them are banks with foreign capital and some with domestic capital. The structure of liabilities of the banking sector is dominated by deposits, which account for 81% of the total.

Considerable research on credit risk management was done in different countries, but little research was done on banking in Kosovo. This paper fills this gap for commercial banks in Kosovo, which is significant for further studies.

METHODOLOGY

The study aimed to assess the effect of credit risks on the financial stability of banks and the importance of bank reserves. The statistical base of the study was formed by using the data of the annual financial statements of 11 commercial banks in Kosovo for 2010-2020 (Banka Ekonomike, 2022; Banka Kombëtare Tregtare, 2022; BPB, 2022; Komercijalna Banka, 2022; NLB Banka, 2022; ProCredit Bank Kosova, 2022; Raiffeisen Bank Kosovo, 2022; TEB Bank, 2022; Ziraat Bank, 2022; İşbank, 2022). The use of data from all banks ensured the representativeness of the survey results for the country. In this study, we considered as credit risk:

- the risk of loan default due to a violation of the borrower's creditworthiness;

- the risk of a shortfall in profits due to the formation of unreasonably large reserves for loans.

To assess the credit risk, we used the following indicators: % of non-performing loans in the structure of the loan portfolio, expressed in% (*NPL*), the maximum amount of risk per borrower, thousand euros (*EPB*), the total size of significant credit risks, thousand euros (*LCR*), the total amount of risk for the bank's insiders, thousand euros (*INS*) (Ngo, Le & Le, 2021; Anh, 2021; Di Clemente, 2020). To assess financial stability - capital adequacy ratios (*CAR*) and Tier 1 capital adequacy ratios (*CAR1*) (BIS, 2022). To evaluate the availability of reserves - the percentage of required reserves (*R*) (Yun, 2020).

To assess the second component of credit risk - the impact of reserves on the bank profitability, as a dependent variable, the Return on Assets

Ratio (*ROA*), return on equity (*ROE*), net profit margin (*NPM*). As other indicators that mediate the impact of credit risk on financial stability, we used the indicator of the bank's instant liquidity (*IL*), the bank's current liquidity (*CL*), and the bank's long-term liquidity (*LL*). The choice of indicators to evaluate was confirmed by scientists' research and international regulations - agreements of the Basel Committee on Banking Supervision (Anh, 2021; Ngo, Le & Le, 2021; Nouaili, Abaoub & Ochi, 2015; BIS, 2022).

Models for assessing the effect of credit risk and bank reserves on banks' financial stability and profitability have been built using regression analysis. Statistical data were standardized by dividing the difference between the actual value of the indicator and the arithmetic mean by the standard deviation of the indicator. The simulation tested the credit risks impact and bank reserves on the financial stability and profitability of the banks, which manifests itself without a time lag and with a lag of 1-4 years. According to Akaike, Schwartz, Hann-Quinn criteria, the presence of lags we determined using the test for the maximum length of lag. (Kim, Shim & Park, 2022).

We used the polynomial form of the regression model and ensured the adequacy of the modeling results according to the following criteria:

- 1) F-Statistic. The empirical values of the standard exceed the critical values at a significance level of 0.01-0.10, which indicates the adequacy of the regression model;
- 2) t-Statistic. The empirical values of the criterion exceed the critical ones at a significance level of 0.01-0.10, which indicates the statistical significance of the independent variables in the model (Cunningham, Weathington & Pittenger, 2013);
- 3) Heteroskedasticity Test, the values of which indicate the absence of heteroscedasticity in the model;
- 4) Ramsey Test, the values of which indicate the correct modification of the regression model (EViews, 2021).

The fulfillment of the adequacy criteria guarantees the model for assessing the effect of credit risks on the financial stability of banks in

Kosovo (Formula 1):

$$ROA(CAR, CAR1) = -k_1 \times NPL^2 + k_2 \times NPL + k_3 \times R + Intercept \quad (1)$$

where *ROA* - standardized return on assets;

CAR - a standardized value of the capital adequacy ratio;

CAR1 - standardized value of the Tier 1 capital adequacy ratio;

NPL - a standardized value of the share of non-performing loans in the loan portfolio;

R - standardized value of the required reserves ratio;

k₁- *k₃* - significance coefficients of independent variables;

Intercept - free term.

Model (1) has been built using indicators with statistically significant according to t-Statistic at 0.01-0.10.

Researchers Adusei & Elliot (2015), Quoc & Nguyen (2018), Pasiouras & Kosmidou (2007) point out the differentiated effect of credit risks on the financial stability of banks, depending on the size of banks' assets; Ghenimi, Chaibi & Omri (2017) - depending on liquidity. We used the Chow test to test the validity of these findings for the Kosovo banking system.

The application of regression analysis puts requirements stationarity, verified by the extended Dickey-Fuller test, and normal distribution, verified by constructing distribution histograms. Used the **EViews 10** program to model the effect of credit risks on the financial stability of banks.

RESULTS

To substantiate the adequacy of the statistical data necessary to assess the effect of credit risks on the financial stability of commercial banks in Kosovo, we tested them for stationarity and the normal distribution (Table 1).

Table 1: The assessments of credit risks and financial stability of banks in Kosovo for stationarity and normal distribution

Indicator	Stationarity		Probability of Normal Distribution
	Integration level	Probability of data non-stationarity	
<i>NPL</i>	1	0.0041	0.6467
<i>CAR</i>	1	0.0005	0.9246
<i>CAR1</i>	1	0.0153	0.5953
<i>ROA</i>	1	0.0066	0.8002
<i>R</i>	1	0.0002	0.7123

NPL – a standardized value of the share of non-performing loans in the loan portfolio;

CAR – a standardized value of the capital adequacy ratio;

CAR1 – standardized value of the Tier 1 capital adequacy ratio;

ROA – standardized return on assets;

R – a standardized value of the required reserves ratio

Source: Authors' finding

A probability greater than 0.05 indicates that the indicators are stationary (Cunningham, Weathington & Pittenger, 2013). Variables are stationary at the 1st level of integration. Therefore, differentiation of the 1st level is carried out for them. The corresponding probability (Table 1), the value of which exceeds 0.05, indicates the normal distribution (EViews, 2021).

The application of the Chow test made it possible to determine the differentiated effect of credit risks on the financial stability of banks, depending on the size of banks' assets. The use of t-Statistic for independent samples made it possible to identify two groups of banks by asset

size:

- large banks with assets > 836.28 thousand euros;
- small banks with assets < 803.74 thousand euros.

The empirical value of t-Statistic is 2.63, while the critical value is 1.99, which indicates the statistical significance of the differences between the average assets of these banks. In this regard, regression models have been built to assess the effect of credit risks on financial stability differentiated depending on the size of assets: for large and small banks (Table 2).

Table 2: Regression models to assess the effect of credit risks on the financial stability of banks in Kosovo

Independent variables	Coefficient	t-Statistic	p-level	F-statistic	Ramsey Test Prob	Heteroskedasticity Test Prob
Largest banks						
Included observations: 36				Dependent variable: <i>CAR</i>		
<i>NPL(-1)</i>	0.33	2.90	0.001	29.53	0.72	0.66
<i>NPL(-1)²</i>	-0.27	-2.81	0.003			
<i>R</i>	0.29	2.85	0.003			
Intercept	-0.13	-	-			
Included observations: 36				Dependent variable: <i>CAR1</i>		
<i>NPL(-1)</i>	0.23	2.77	0.003	41.67	0.69	0.73
<i>NPL(-1)²</i>	-0.19	-2.53	0.008			
<i>R</i>	0.21	2.75	0.003			
Intercept	-0.05	-	-			
Included observations: 36				Dependent variable: <i>ROA</i>		
<i>NPL(-1)</i>	0.23	1.96	0.068	29.05	0.72	0.83

Table 2: Continued.

<i>NPL(-1)[∞]</i>	-0.15	-1.82	0.084			
<i>R</i>	0.14	1.81	0.084			
Intercept	0.11	-	-			
<i>Small banks</i>						
Included observations: 47				Dependent variable: <i>CAR</i>		
<i>NPL(-1)</i>	0.28	1.91	0.061	50.24	0.89	0.71
<i>NPL(-1)[∞]</i>	-0.16	-2.04	0.050			
<i>R</i>	0.12	1.95	0.052			
Intercept	-0.01	-	-			
Included observations: 47				Dependent variable: <i>CAR1</i>		
<i>NPL(-1)</i>	0.18	1.88	0.069	27.05	0.72	0.59
<i>NPL(-1)[∞]</i>	-0.19	-1.85	0.071			
<i>R</i>	0.13	2.00	0.051			
Intercept	-0.06	-	-			
Included observations: 47				Dependent variable: <i>ROA</i>		
<i>NPL(-1)</i>	0.16	1.93	0.060	13.18	0.63	0.83
<i>NPL(-1)[∞]</i>	-0.20	-1.96	0.052			
<i>R</i>	0.11	1.82	0.076			
Intercept	0.05	-	-			

Source: Authors' finding

The influence of non-performing loans and required reserves on banking detail is manifested primarily through capital adequacy ratios. This effect is statistically significant for large and small banks at $p=0.1$, $p=0.05$, and $p=0.01$.

The constructed models helped establish the reverse effect of credit risk on the financial stability of banks. The impact of non-performing loans on the financial stability of banks manifests itself with a time lag of 1 year.

DISCUSSION AND CONCLUSION

The results confirm the conclusions of researchers (Adusei & Elliot, 2015; Ghenimi, Chaibi & Omri, 2017) about the negative effect of credit risk on the financial stability of a bank. The study showed that increasing non-performing loans in the loan portfolio of large banks to 18.63% does not violate capital adequacy standards. This level of credit risk is defined as acceptable - such that it does not pose a threat to the financial stability of commercial banks, given the existing volumes of bank reserves and capital adequacy ratios. For small banks, the margin of financial stability is less significant. For these banks to comply with capital adequacy requirements, the share of non-performing loans in the loan portfolio structure should be increased to 7.11%. A more significant increase in the percentage of non-performing loans in the

loan portfolio leads to a decrease in the financial stability of banks below the normative values. In this case, the credit risk is critical, requiring additional measures to minimize it.

Smaller banks are more resilient to the adverse effects of credit risk. An increase in the actual value of non-performing loans by 1% leads to a decrease in capital adequacy ratios for large banks by 1.91% (for capital adequacy ratio) and 1.76% (for Tier 1 capital adequacy ratio). The reduction for small banks is 0.87% for the capital adequacy ratio and 0.63% for the Tier 1 capital adequacy ratio. In the constructed models for assessing the impact of credit risk on the financial stability of banks, the indicator of the presence of reserves we used as one of the independent variables. Empirical results testify that increasing required reserves has a dampening effect on the decline in the financial stability of banks.

At the point of transition from acceptable to critical risk, to neutralize the increase in non-performing loans in the loan portfolio of banks by 1%, the required reserve ratio should increase by 1.2% for small banks and by 1.7% for large ones.

The effect of credit risk and reserves on banks' profitability is insignificant (the result is statistically significant at $p=0.1$). The nature of the effect is similar to the impact on financial stability: the negative impact of non-performing loans and the positive impact of the size of bank

reserves. This conclusion contradicts the study result (Keister & McAndrews, 2009), where the growth of reserves is considered part of the credit risk that contributes to the inefficient accumulation of reserves that cannot generate a profit. This contradiction led to the conclusion that a possible option for neutralizing credit risks is the growth of bank reserves, which is confirmed by the positive effect of the required reserves ratio on banks' financial stability and profitability. The power of impact is more significant for large banks: a 1% increase in the required reserve ratio leads to a rise in the return on assets by 1.5%. For small banks, a 1% increase in provisions leads to a 1.1% increase in profitability.

According to the results of the constructed model for assessing the effect of credit risks on banks' profitability, small banks are more sensitive because increasing non-performing loans in the loan portfolio of banks by 1% leads to a decrease in the return on assets by 1.13%. Due to economies of scale, large banks' growth in the non-performing loans in the loan portfolio of banks by 1% provokes a decrease in return on assets by 0.94%.

The results obtained in our scientific research allowed us to create several scenarios for minimizing the inactive effect of credit risk on the financial stability of commercial banks in Kosovo in the context of a humanitarian crisis:

A scenario of preventive credit risk management. This scenario is implemented under conditions of acceptable risk and involves monitoring non-performing loans, meeting capital adequacy ratios, and controlling the number of bank reserves.

Reactive management scenario for banks that are in the critical risk zone. The possible options for minimizing credit risk must be:

- Increase in provisions for loans, which will increase the financial stability of banks and profitability;
- Avoidance of risk - the use of a more reasonable approach to assessing the borrower's creditworthiness and deciding on issuing a loan.

These credit risk management strategies are advisable for banks to use in their current activities regularly. But, the study showed that the increase in reserves in emergencies would

help maintain the financial institution's financial stability. Therefore, the use of these strategies will be relevant in the context of the COVID-19 pandemic too.

It can indeed be assumed that an increase in the required reserves of commercial banks and financial stability will be characterized by a directly proportional dependence up to a certain point; after that, increasing reserves may reduce financial stability. In this study, because of the fundamental nature and breadth of the problem, we did not empirically estimate the liminal levels of required reserves for large and small commercial banks in Kosovo. Therefore, our scientific priority in the future will be precisely these issues that are of practical importance for the sustainable development of the country's banks both in the conditions of the external environment crisis and for building up the financial potential of banks.

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ABOUT THE AUTHORS

Sevdie Alshiqi, corresponding author, email: sevdie.alshiqi@uni-pr.edu

Arbana Sahiti Ramushi, University of Prishtina «Hasan Prishtina», Republic of Kosovo.

Sevdie Alshiqi, University of Prishtina «Hasan Prishtina», Republic of Kosovo.

Inna Neskrodieva, Ph.D in Economics, an Associate Professor at Karazin Business School, V. N. Karazin Kharkiv National University, Ukraine.

Arben Sahiti, University of Gjilan “Kadri Zeka”, Gjilan, Kosovo

Xhelil Bektashi, St. Clement of Ohrid University of Bitola, North Macedonia.