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Original scientific paper

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MONETARY TRANSMISSION MECHANISM THROUGH THE INTEREST RATE CHANNEL IN THE REPUBLIC OF NORTH MACEDONIA

Abstract: The monetary policy of the central bank plays an important role, which is even further increased in times of crises.

This paper examines the efficiency of the monetary transmission mechanism through the interest rate channel in the Republic of North Macedonia. The research of the efficiency of the monetary transmission mechanism is carried out with the statistical methods of simple linear correlation and regression. Moreover, this paper examines the impact of the changes in the interest rate of the central bank treasury bills, on the interest rates of the interbank deposit market, and, then the transmission to the interest rates of the loans issued by the commercial banks.

The results indicate a slight difficulty in the functioning of the transmission mechanism through the interest rate channel in the country, since the commercial banks do not take immediate actions upon the monetary signals sent by the National Bank through the main instrument of the open market operations. The causes for this situation can be found in certain specific characteristics inherent to the Macedonian banking sector.

Key words: monetary policy, interest rates

JEL classification: E52, E43

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Introduction

In the vast majority of countries, primary goal of the monetary policy is maintaining price stability. Nevertheless, the monetary authority is also important for achieving “full” employment, financial system stability and normal functioning of the foreign trade payment turnover. In most countries worldwide, there is a political consensus that the price stability takes priority over the other monetary policy objectives.

The central bank has several instruments at its disposal; however, usually one of them has a dominant role, which depends on the financial market development level and the structural liquidity position of the banking system (Velichkovski, 2006). The authors who researched this issue reached a consensus that the situation with the structural liquidity of the banking sector in one country influences the decision of the monetary authority which instrument it would choose as primary in the open market operations, but it also affects the extent how efficient the chosen monetary intervention would be. It is empirically established that in countries with developed financial markets, where there is a lack of liquidity, the interventions of the central banks are transferred to the commercial banks faster and more efficiently.

The purpose of this paper is to show whether the monetary transmission mechanism through the interest rate channel is functional in the Republic of North Macedonia and to what extent the signals of the monetary authority in the country are implemented by the commercial banks in the country.

The statistical methods of correlation and regression examine the impact of changes in the interest rate of the National Bank treasury bills, on the interest rates of the interbank deposit market and then the transmission to the interest rates of the banks’ loans in the country.

The data used for the analysis refer to the period from January 2005 to December 2022, with the exception of the data on the interest rates of the newly approved Denar loans, which are available from January 2006. All data are taken from the official website of the National Bank of RNM.

Theoretically, in market economies, the signals of the monetary authority are being implemented by the commercial banks, which are expected to adjust their interest rate and credit policies to the changes in the interest rate of the treasury bills. However, due to certain specificities of the banking sector in the country, the hypothesis of this research is that the signals of the National Bank sent to the commercial banks through the changes in the interest rate on

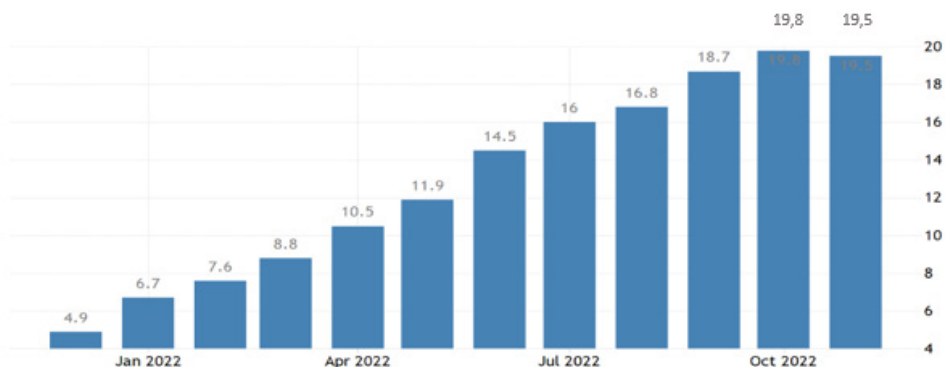
the treasury bills are not fully and immediately absorbed by the commercial banks.

In addition to the introduction, the paper briefly presents results and findings from previous research and contributions, the applied methodology and the data used for the research. At the end of the paper, the results of the research are discussed and the conclusions are presented, along with the possibility of applying the findings obtained, as well as the possibility of continuing the research.

1. SPECIFICITIES OF THE MONETARY POLICY IN THE CASE OF REPUBLIC OF NORTH MACEDONIA

Monetary policy is in the focus of the interest of the experts and the general public, because of the challenge it is currently facing. Namely, the inflation rates reached the multi-decade maximum this past year:

Chart 1. Movement of the inflation rate in RNM in 2022



Source: <https://tradingeconomics.com>

In such conditions, in the period from January to December 2022, the National Bank increased the interest rate of the treasury bills eight times, from 1.25% to 4.75% per year. The main goal of this policy is for the commercial banks to reduce the issuance of loans by increasing the active interest rates on loans, which they offer to legal entities and individuals.

2. LITERATURE REVIEW

What is common for the papers addressing this topic conducted in the country is that they aim to contribute to a better awareness of the regulator about the effects of previous policies, as well as to help in the conception of future policies. Monetary policy measures, with a shorter or longer delay, have an impact on all sectors of the economy, and, hence, without proper understanding of the transmission mechanisms, these measures will fail to achieve the desired results.

According to Brinkmeyer et al (2015), there is a consensus among the economists that the monetary policy instruments generate, at least in the short term, real effects. However, the exact mechanism is still subject of a controversial debate. As early as the 1960s, Milton Friedman concluded that “long and varied delays” appear in the transmission of monetary impulses. The traditional interest rate channel transmits the effects of monetary policy on the aggregate consumption and other macroeconomic indicators through the changes in the interest rates.

According to Besimi et al (2006), in North Macedonia, but also in similar small and open economies in transition, there are three basic channels of monetary transmission: the exchange rate, the interest rates and the money supply. The findings in the paper show that the changes in the exchange rate and money supply have a stronger impact on the prices in the economy than those caused by the changes in the interest rates; devaluation increases domestic currency substitution, but also domestic currency substitution reduces inflationary pressure.

Jovanović et al (2015) state that excess liquidity in the banking system changes the transmission mechanism, reducing the efficiency of the traditional instrument – the interest rates. This suggests that the monetary policy can affect the economic activity through the reserve requirement ratio and the quantity (amount) of treasury bills offered.

The transmission mechanism through the interest rate channel in the Republic of North Macedonia is subject of research of two separate papers, drafted in 2005 and 2006 (Jovanovski et al (2005) and Velichkovski (2006)). In that period, the financial system of the country was characterized by low level of savings in the banks, a high participation rate of non-performing loans in the total loan portfolio of the banks, long litigation proceedings and difficulties related to the execution of mortgages by the banks, structural excess of liquidity, uncertainty created by non-economic shocks, etc. In such conditions,

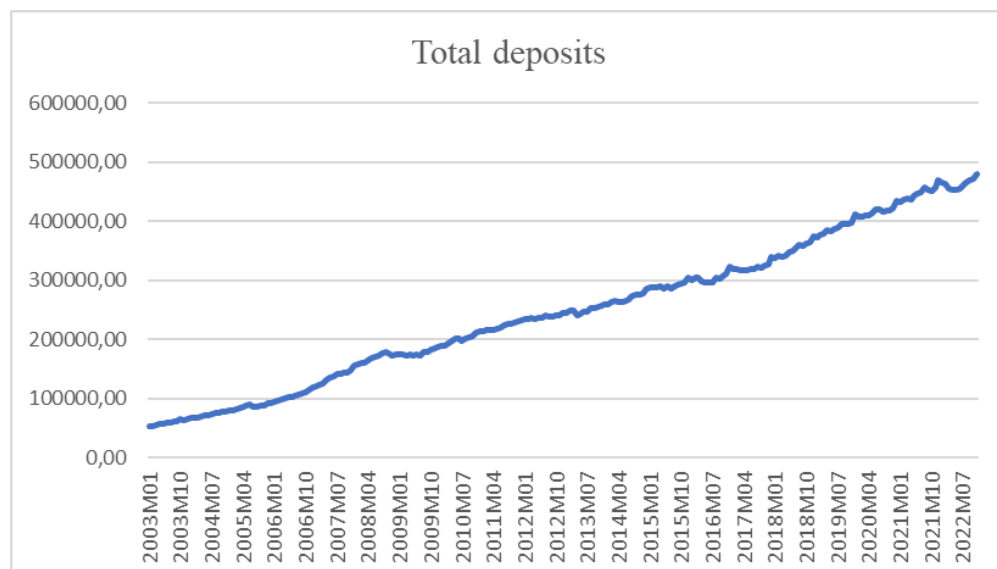
the authors conclude that the exchange rate is the most significant and fastest channel of monetary policy transmission in the country, taking into account the high level of openness of the economy, its dependence on foreign markets and the high level of euroization. For the same reasons, it is assessed that the interest rate channel does not provide for efficient transmission, i.e. it is insignificant. However, the authors refrain from systematic conclusions due to the relatively short periods of analysis. The Vector Error Correction Model indicated a weak and negative correlation between the bank interest rates and the treasury bill interest rates for the analyzed periods, which is opposite of what was expected. In addition to the stated conditions in the financial system, as reasons for such relations, the authors state the following: wide margins of the banks that allowed adjustment of the active interest rates despite the increases in the interest rates on the treasury bills; possibility of cost rationalization; expectations of the banks that the monetary policy measures are of a temporary nature; increase in the quality of competition in the banking sector; and long-term strategy for maintaining creditworthy customers even if there are short-term opportunity costs.

The need to analyze again this subject stems from the fact that some of the conditions in the financial system have changed, compared to the period when the previous research was conducted as well as the availability of sufficient amount of data for conducting the regression analysis.

Namely:

1. The level of savings¹ has significantly increased: In the period from 01.01.2003, when the total deposits amounted to 52,464 million Denars, to 30.11.2022, when they amounted to 479,108 million Denars, their total increase is 913%.

¹ The data refer to the total deposits included in the M4 money supply. Restricted deposits over one year, blocked accounts and other restricted deposits are not included in the deposits included in the monetary aggregates according to the recommendations of the IMF for the Monetary and Financial Statistics. Only limited deposits up to one year are included.

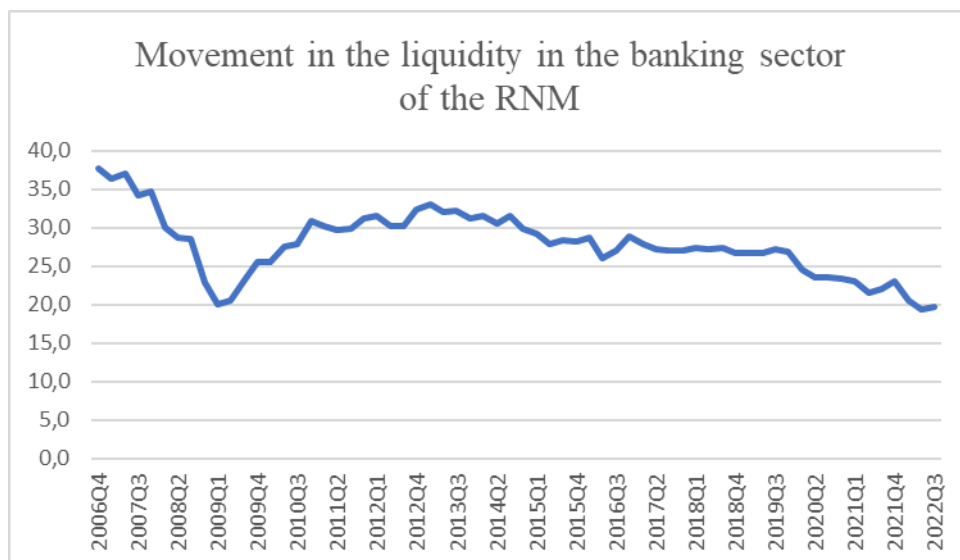
Chart 2. Movement of the total deposits in RNM

Source: Own calculations based on the data presented on the website of NBRM: <https://www.nbrm.mk/>

2. The level of liquidity has also changed. As a parameter for the liquidity in the banking sector in this paper, the ratio between the liquid assets² and the total assets of the banks was used (available data for the period from 31.12.2006 to 30.09.2022). This liquidity indicator at the beginning of the analyzed period was 37.7%, and at the end, i.e. on 30.09.2022, it was 19.7%, which is a decrease of more than a half compared to the initial one.

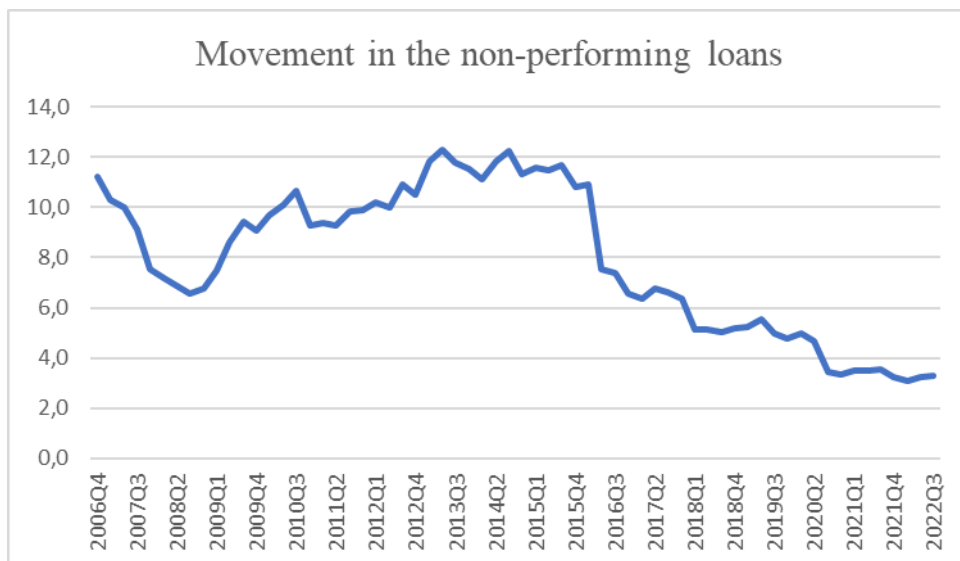
² The liquid assets consist of highly liquid assets and short-term time deposits with foreign banks. Total assets do not include assets in domestic banks.

Chart 3. Movement of the liquidity in the banking sector in RNM



Source: Own calculations based on the data presented on the website of NBRM: <https://www.nbrm.mk/>

3. The share of non-performing loans in the total gross loans in the banking sector has significantly decreased. The ratio between the non-performing loans and the gross loans of the non-financial sector is calculated for the period from 31.12.2006 to 30.09.2022. This indicator at the beginning of the analyzed period was 11.2%, and at the end, i.e. on 30.09.2022, it was 3.3%, which is a decrease of approximately 3.5 times.

Chart 4. Movement of the non-performing loans in the banking sector in RNM

Source: Own calculations based on the data presented on the website of NBRM: <https://www.nbrm.mk/>

There is also a significant change in the way the interest rates of the loans are defined. Namely, until 01.10.2017, the contractual provisions of the loan agreements provided the banks the discretionary right to change the interest rates on the loans approved to customers, at any time and at their own discretion (period of adjustable interest rates). After this date, the interest rates in the loan agreements are defined as fixed or variable. In the loan agreements with variable rates, a reference rate is introduced which is upgraded by a certain margin corresponding to the assumed credit risk, with the possibility of choosing different reference rates by the banks: SKIBOR, the interest rate on the treasury bills, etc. In the largest number of Denar loan agreements without a currency clause, the national reference rate (NRS) is used by the commercial banks in the country, which is actually the interest rate on the Denar deposits without a currency clause.

3. METHODOLOGY AND DATA

In order to examine the efficiency of the monetary transmission mechanism through the interest rate channel in the country in the analyzed period, the following statistical methods were used: correlation and regression.

The correlation method is used to examine the direction and strength of the quantitative agreement of the variations of the variables, and as a relative measure to quantify the strength of the correlation relationship in the sample the Pearson's coefficient of simple linear correlation (r) is used.

The regression analysis is used to determine the variation of the dependent variable, from the variation of the independent variable.

The EViews 12 software tool was used to analyze and process the variables.

When modeling the interactions and effects for the purposes of this analysis, monthly data were used for the period from January 2005 to June 2022, with the exception of the data on the interest rates of the newly approved Denar loans³, which are available from January 2006. Thus, the model includes 215 observations, except for the analyses of the interest rates of the newly approved Denar loans, with 203 observations.

These data are publicly available on the website of the National Bank of RNM, while the variables used are:

1. the weighted interest rate on the treasury bills -KS BZNBМ,
2. the interest rate on the interbank deposit market -KS MBD,
3. the weighted active interest rate on the Denar short-term loans of the commercial banks -KS KRATKMKD,
4. the weighted active interest rate on the total Denar (short-term and long-term) loans of the commercial banks -KS VKMKD, and
5. the weighted interest rate on the newly approved total Denar loans of the commercial banks -KS NVKMKD.

Considering that the interest rate on the treasury bills of the National Bank of RNM is used as a reference rate in a small part of the loan portfolios of the commercial banks, the changes in the weighted interest rate on the newly approved total Denar loans of the commercial banks were also examined, since this interest rate is expected to most significantly absorb the changes in the interest rate on the treasury bills of the National Bank.

³ The newly approved loans include all new loan agreements concluded between the customers and the commercial banks in the month for which it is reported, in which the terms of the agreement are agreed upon and specified for the first time.

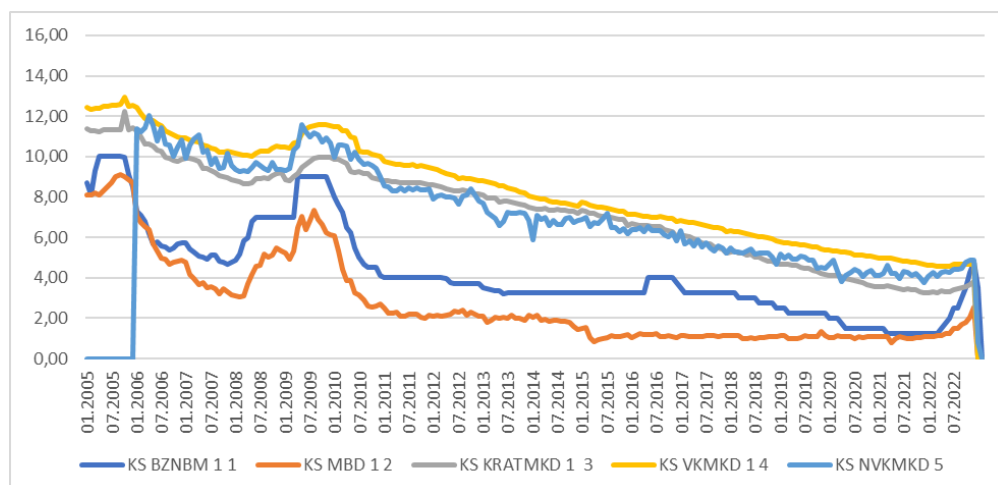
The stationarity of the series is obtained by the logarithmic value of the variables.

4. RESULTS AND DISCUSSION

4.1 Correlation analysis

The correlation analysis starts with a display of the movement trend of the analyzed variables. The chart below shows an evident downward movement of all analyzed interest rates in the period from 2005 to 30.06.2022, given that in the period from the second quarter of 2008, throughout 2009⁴ and the second half of 2022, there is an increase in all rates, which is significantly higher for the interest rate on the treasury bills and the interest rate on the interbank deposit market, compared to the one for the active interest rates on the Denar loans of the commercial banks.

Chart 5. Movement of the interest rates in RNM



Source: Own calculations based on the data presented on the website of NBRM: <https://www.nbrm.mk/>

⁴ This is the result of the global financial crisis in 2008.

Table 1. Correlation matrix:

	KS BZNBM	KS KRATKMKD	KS MBD	KS NVKMKD	KS VKMKD
KS BZNBM	1.000.000	0,313613	0,357431	0,077259	0,227883
KS KRATKMKD	0,313613	1.000.000	0,210965	0,338994	0,662191
KS MBD	0,357431	0,210965	1.000.000	0,124118	0,194491
KS NVKMKD	0,077259	0,338994	0,124118	1.000.000	0,326567
KS VKMKD	0,227883	0,662191	0,194491	0,326567	1.000.000

Source: Own calculations

According to the results obtained from the calculations performed by using EViews, it can be concluded that there is a weak positive correlation between the analyzed variables:

- the correlation coefficient between the weighted interest rate on the treasury bills and the interest rate on the interbank deposit market has the strongest intensity of 0.36,

- the correlation coefficient between the weighted interest rate on the treasury bills and the weighted interest rate on the newly approved Denar loans of the commercial banks has the weakest intensity of 0.08.

4.2 Regression analysis

For each individual analyzed interdependence of the variables, a simple linear regression model can be determined:

$$Y_i = \beta_0 + \beta_1 X_i + u_i \quad (1)$$

Y_i - analyzed dependent variable;

β_0 - intercept coefficient;

β_1 - slope coefficient;

X_i - independent variable;

u_i - stochastic term,

Table 2. Regression analysis results

<u>Dependent Variable-Y</u>	<u>Independent variable-X</u>	<u>Intercept coefficient</u> $\beta_0\beta_0$	<u>Slope coefficient</u> β_1	<u>R-value of</u> $\beta_0\beta_0$	<u>R-value of</u> β_1	<u>Determination Coefficient</u> R^2
KS MBD	KS BZNBM	-0.395207	0.513700	0.4302	0.0000	0.137170
KS KRATMKD	KS BZNBM	-0.489335	0.077756	0.0000	0.0000	0.089527
KS KRATMKD	KS MBD	-0.492083	0.035515	0.0000	0.0053	0.035931
KS VKMKD	KS BZNBM	-0.438643	0.039984	0.0000	0.0003	0.059123
KS NVKMKD	KS BZNBM	-0.406004	0.063234	0.2044	0.2732	0.005969
KS NVKMKD	KS MBD	-0.383722	0.070911	0.2286	0.0777	0.015405

Source: Own calculations

$$\alpha=10\% \quad \alpha=5\% \quad \alpha=1\%$$

From the obtained results, it can be concluded that in the first four models, the independent variable affects the dependent variable, i.e. the obtained R-value of the slope coefficient - β_1 is statistically significant at all levels of significance. Therefore, the influence of the independent variables on the dependent variables in these four models is positive. The strongest influence exists in the first regression, where the subject of examination is the influence of the weighted interest rate of the treasury bills of NBRM on the interest rate of the interbank deposit market.

In the last two regression models, which examine the relationship of the weighted interest rates on the newly approved Denar loans with: the weighted interest rates on the treasury bills of the National Bank, and the interest rate on the interbank deposit market, it can be concluded that:

- the R value of the slope coefficient is not statistically significant at the level of 1% and 5% in the last regression model, i.e. the interest rate on the interbank deposit market affects the weighted interest rates on the newly approved Denar loans at a significance level of 10%,
- the weighted interest rate on the treasury bills of the National Bank does not affect the weighted interest rates on the newly approved Denar loans.

The obtained results of the regression model indicate a partial, i.e. poor functioning of the transmission mechanism in the banking sector in the country, taking into account the obtained values of the coefficient of determination, as an indicator of the participation of the explained variability in the total variability of the dependent and independent variable.

Hence, it can be concluded that the hypothesis set at the beginning of the research is approved since the signals sent by the National Bank to the commercial banks through the changes in the interest rate on the treasury bills are not fully and immediately absorbed by the commercial banks in the country in their credit and interest rate policies.

Conclusion

The purpose of this paper is to show whether the monetary transmission mechanism through the interest rate channel is functional in the Republic of North Macedonia and to what extent the signals of the monetary authority in the country are implemented by the commercial banks in the country.

The results of the correlation and regression analyses show that the transmission mechanism through the interest rate channel in RNM functions with a slight difficulty, i.e. the commercial banks are not immediately responsive to the monetary signals sent by the National Bank through the basic instrument of open market operations. This situation is also observed in other research papers that were conducted several years ago, despite the fact that the conditions in the financial system have changed significantly, as elaborated in more detail in this paper:

- the level of savings has increased significantly and recorded an increase of 913% in the period from 01.01.2003 to 30.11.2022,
- the level of liquidity has decreased in the banking sector in the period from 31.12.2006 to 30.09.2022 from 37.7% to 19.7%, and
- the share of non-performing loans in the total gross loans in the banking sector has significantly decreased in the period from 31.12.2006 to 30.09.2022, from 11.2% to 3.3%.

The reasons for this situation, in which part of the commercial banks in the banking sector of RNM do not immediately adjust their interest rate policies to the changes in the interest rates on the treasury bills, could be explained based on the following:

- the business policy of the commercial banks with dominant foreign capital, which is primarily aimed at increasing the market share in issuing loans to individuals and legal entities,
- the limited number of large customers who are creditworthy and the banks cannot afford to “lose” them as strategic customers, for the sake of increased short-term revenues due to the limited market,
- the expectations that the signals sent through the increase in the interest rates on the treasury bills are temporary, which, at least, causes a delay in the changes, again temporarily, in the interest rate policies of the commercial banks,
- the expectations of the management of the commercial banks regarding the speed of overcoming the crisis periods,
- the interest rate on the treasury bills is in very few cases used as a reference rate in defining the interest rates on the Denar loans. For this purpose, the national reference rate is most often used - the weighted interest rate on the Denar deposits without a currency clause.

As distinct specificities, the relatively small volume and the irregular transactions on the interbank deposit market could be mentioned.

This scientific research contributes to a better management of the transmission mechanism through the interest rate channel in the country. If the National Bank expects a faster transmission of the monetary signals sent through the increase in the interest rates of the treasury bills on the volume of credit activity of the commercial banks, it should be considered to define the interest rate on the treasury bills as a reference rate when determining the interest rates of the commercial banks.

The research can further be upgraded and further elaborated in order to check whether there is a time delay in the adjustment of the interest rate and credit policies of the commercial banks in the country, how significant that delay is, if there is a delay at all, and to what extent the adjustment is carried out.

References

- 1 Besimi, F., Pugh, G. T., & Adnett, N. J. (2006). The monetary transmission mechanism in Macedonia: implications for monetary policy. Centre for Research on Emerging Economies Working Paper, (02-2006).
- 2 Brinkmeyer, H. (2015). Transmission channels of monetary policy. In *Drivers of Bank Lending* (pp. 7-17). Springer Gabler, Wiesbaden.
- 3 Velichkovski, I. (2006). Monetary transmission through the interest rate channel and the financial markets in Macedonia: What have we done, what have we achieved and what have we learned? National Bank of the Republic of Macedonia, Skopje.
- 4 Jovanovic, B., Krstevska, A., & Popovska-Kamnar, N. (2015). Can Monetary Policy Affect Economic Activity under Surplus Liquidity? Some Evidence from Macedonia (No. 2015-03)]. Working Paper.
- 5 Jovanovski Z., Krstevska A., Mitreska A., Bojcheva Terzian S. (2005). Monetary transmission through interest rates in the Republic of Macedonia, National Bank of the Republic of Macedonia, Working paper No. 13.
- 6 Krstevska, A. (2008). The effectiveness of the transmission channels of the monetary policy in the Republic of Macedonia. *International Journal of Economic Policy in Emerging Economies*, 1(4), 376-387.
- 7 Mishkin, F. S. (1996). *The channels of monetary transmission: Lessons for monetary policy*. National Bureau of Economic Research, Cambridge, MA, Working paper 5464, 1996.
- 8 Petrovska, M., Tonovska, J., Nikolov, M., & Sulejmani, A. (2022). Evaluating monetary policy effectiveness in North Macedonia: Evidence from a Bayesian Favara framework. *The South East European Journal of Economics and Business*, 17(2), 67-82.
- 9 Risteski S., Tevdovski D. (2010). *Business and Economics Statistics*. Faculty of Economics Skopje, UKIM (pp. 361-391).

Internet sources:

- 1 *National Bank of the Republic of North Macedonia*, https://www.nbrm.mk/postavienost_na_monietarnata_politika.nspix (viewed on February 28th, 2023)
- 2 *Statistical web portal of the National Bank of the Republic of North Macedonia* https://nbstat.nbrm.mk/pxweb/mk/MS%20i%20KS/MS%20i%20KS_KS_Pondirani%20KS%20na%20bankite%20i%20stedilnicite%20NM%20-%20mesečni%20podatoci/2_PKSOdobreniKreditiPrimeniDepozitNovodogAktivnostiMesečniMK.px/ (viewed on February 28th, 2023)
- 3 *Tradingeconomics*, <https://tradingeconomics.com/macedonia/core-inflation-rate> (viewed on February 28th, 2023)

Appendix 1

Dependent Variable: LOGKS MBD
 Method: Least Squares
 Date: 03/03/23 Time: 12:37
 Sample (adjusted): 2 216
 Included observations: 215 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.395207	0.500058	-0.790322	0.4302
LOGKB_BZNBM	0.513700	0.088278	5.819101	0.0000
R-squared	0.137170	Mean dependent var		-0.540077
Adjusted R-squared	0.133119	S.D. dependent var		7.865401
S.E. of regression	7.323196	Akaike info criterion		6.829230
Sum squared resid	11423.02	Schwarz criterion		6.860584
Log likelihood	-732.1422	Hannan-Quinn criter.		6.841898
F-statistic	33.86193	Durbin-Watson stat		2.151066
Prob(F-statistic)	0.000000			

Dependent Variable: LOGKS_KRATMKD
 Method: Least Squares
 Date: 03/03/23 Time: 12:40
 Sample (adjusted): 2 216
 Included observations: 215 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.489335	0.096243	-5.084388	0.0000
LOGKB_BZNBM	0.077756	0.016990	4.576496	0.0000
R-squared	0.089527	Mean dependent var		-0.511264
Adjusted R-squared	0.085252	S.D. dependent var		1.473661
S.E. of regression	1.409446	Akaike info criterion		3.533529
Sum squared resid	423.1323	Schwarz criterion		3.564883
Log likelihood	-377.8543	Hannan-Quinn criter.		3.546197
F-statistic	20.94431	Durbin-Watson stat		2.154419
Prob(F-statistic)	0.000008			

Dependent Variable: LOGKS_KRATMKD
 Method: Least Squares
 Date: 03/03/23 Time: 12:40
 Sample (adjusted): 2 216
 Included observations: 215 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.492083	0.099146	-4.963208	0.0000
LOGKS_MBD	0.035515	0.012605	2.817562	0.0053
R-squared	0.035931	Mean dependent var		-0.511264
Adjusted R-squared	0.031405	S.D. dependent var		1.473661
S.E. of regression	1.450336	Akaike info criterion		3.590727
Sum squared resid	448.0402	Schwarz criterion		3.622081
Log likelihood	-384.0031	Hannan-Quinn criter.		3.603395
F-statistic	7.938653	Durbin-Watson stat		2.012553
Prob(F-statistic)	0.005294			

Dependent Variable: LOGKS_VKMKD
 Method: Least Squares
 Date: 03/03/23 Time: 12:42
 Sample (adjusted): 2 216
 Included observations: 215 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.438643	0.061909	-7.085314	0.0000
LOGKB_BZNBM	0.039984	0.010929	3.658483	0.0003
R-squared	0.059123	Mean dependent var		-0.449919
Adjusted R-squared	0.054706	S.D. dependent var		0.932500
S.E. of regression	0.906635	Akaike info criterion		2.651105
Sum squared resid	175.0832	Schwarz criterion		2.682460
Log likelihood	-282.9938	Hannan-Quinn criter.		2.663774
F-statistic	13.38450	Durbin-Watson stat		1.996202
Prob(F-statistic)	0.000320			

Dependent Variable: LOGKS_NVKMKD
 Method: Least Squares
 Date: 03/03/23 Time: 12:47
 Sample (adjusted): 14 216
 Included observations: 203 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.406004	0.318865	-1.273280	0.2044
LOGKB_BZNBM	0.063234	0.057558	1.098621	0.2732
R-squared	0.005969	Mean dependent var		-0.419433
Adjusted R-squared	0.001024	S.D. dependent var		4.542112
S.E. of regression	4.539787	Akaike info criterion		5.873441
Sum squared resid	4142.543	Schwarz criterion		5.906083
Log likelihood	-594.1542	Hannan-Quinn criter.		5.886646
F-statistic	1.206967	Durbin-Watson stat		2.658131
Prob(F-statistic)	0.273248			

Dependent Variable: LOGKS_NVKMKD
 Method: Least Squares
 Date: 03/03/23 Time: 12:48
 Sample (adjusted): 14 216
 Included observations: 203 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.383722	0.317753	-1.207609	0.2286
LOGKS_MBD	0.070911	0.039986	1.773387	0.0777
R-squared	0.015405	Mean dependent var		-0.419433
Adjusted R-squared	0.010507	S.D. dependent var		4.542112
S.E. of regression	4.518188	Akaike info criterion		5.863902
Sum squared resid	4103.218	Schwarz criterion		5.896545
Log likelihood	-593.1861	Hannan-Quinn criter.		5.877108
F-statistic	3.144903	Durbin-Watson stat		2.594429
Prob(F-statistic)	0.077679			