KNOWLEDGE – International Journal
Vol.34.1
September, 2019

THE BASEL III REGULATORY FRAMEWORK AND ITS IMPLICATION ON THE LIQUIDITY OF THE BANKING SECTOR IN THE REPUBLIC OF NORTH MACEDONIA

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Abstract: The advent of the global financial crisis and its consequences have led the banking system to work towards more stringent regulatory rules. Additional regulatory requirements affect various aspects of banks' operations. In this regard, one of the most important questions that arises is how the implementation of the new Basel III regulatory framework affects the liquidity of banking institutions.
The focus in this paper is the liquidity of the banks in the Republic of Northern Macedonia. The subject of the study is focused on the strength and direction of the impact of the new Basel III regulatory framework on their liquidity. The aim of the study is to reveal the effect of the use of modern regulatory requirements on liquidity of the banking system. A coefficient analysis is applied using a system of appropriately selected indicators: change (increment or decrease) of liquid and highly liquid assets, relative share of liquid and highly liquid assets in the structure of assets, coverage of liabilities with liquid assets, coverage of short-term liabilities with liquid assets, coverage of deposits by non-financial entities with liquid assets, "loans / deposits" ratio.
The study includes observations on developments in the banking sector of the Republic of Northern Macedonia for the period 2007-2018. In terms of the impact of the new regulatory framework on banking liquidity, the twelve-year period analysed includes three distinct phases: 1) the time before the onset of the global financial crisis (until 2009); 2) the crisis period (2009 to 2012); 3) the post-crisis period (after 2012), during which the new regulatory measures are gradually moving (Basel III). For the purposes of the study, two working hypotheses are formulated: 1) first hypothesis - the new rules for regulating liquidity and capital adequacy have a negative or stagnant effect on the liquidity of banks in the Republic of Northern Macedonia, manifested in the form of sensitive fluctuations or in the form of sensitive fluctuations or a number of their financial liquidity indicators; 2) second hypothesis - the implementation of the new regulatory measures does not adversely affect banks' liquidity. The analysis of real empirical data shows that the implementation of the new regulatory measures does not have a negative impact on the liquidity of banks in the Republic of Northern Macedonia, but rather, a tendency to stabilize and improve a number of their key liquidity indicators.
Keywords: banks; banking system; bank liquidity; coefficient analysis; the Basel III regulatory framework

INTRODUCTION

The advent of the global financial crisis and its consequences have led the banking system to work towards more stringent regulatory rules. Additional regulatory requirements affect various aspects of banks' operations. In this respect, one of the most important questions that arises is how the implementation of the new Basel III regulatory framework affects the liquidity of banking institutions (Berger, 2018) (Chiaramonte, 2018).
Modern banks have a variety of sources to finance their operations at an affordable price. This makes the problem of liquidity under normal or any other conditions seem less significant than that of their capital adequacy. The financial crisis since 2008 once again brings to the fore the importance of liquidity for the functioning of the financial markets and the banking sector. The rapid deterioration of the economic situation exposes the liquidity of credit institutions to severe distress and requires action by central banks in their support. Some financial institutions go bankrupt because of difficulty in recruiting resources (Choudhry, 2018) (Hull, 2018) (Saunders, 2017) (Wernz, 2014). On this basis, Basel III introduces two international liquidity standards that are new and do not exist in the current framework. These are: Liquidity Coverage Ratio and Net Stable Funding Ratio (Regulation (EU) No 575/2013 of the European Parliament). The first is aimed at regulating liquidity in the short term and the second in the long term.
Two working hypotheses are formulated for the needs of the study: first hypothesis - the new rules for regulating liquidity and capital adequacy have a negative or stagnant effect on the liquidity of banks in the Republic of Northern Macedonia, manifested in the form of sensitive fluctuations or worsening their financial indicators for

liquidity; second, the implementation of the new regulatory measures does not adversely affect banks' liquidity, but rather, a tendency to stabilize and improve their key financial indicators for liquidity.

METHODOLOGY AND DATA

In this paper, a coefficient analysis is applied. A system of indicators is selected, selected according to the object and subject of the study outlined above. For convenience, they are systematized in Table 1, which presents a brief description of each. Of course, other financial indicators can be used to assess bank liquidity (Toor, 2016) (Rose, 2018) (Koch, T., & S. MacDonald, 2015), but as many of them are interrelated, we think that would only burden the exhibition.

Table 1. -Bank liquidity ratios

Indicators	Characteristics
Change (increment or decrease) of liquid and highly liquid assets	An increase in liquidity (including highly liquid assets) is generally seen as a positive phenomenon in terms of bank liquidity and vice versa. The other extreme is problematic - when their growth is unfounded and leads to excess liquidity.
Share of liquid assets $\frac{\text{Liquid assets}}{\text{Amount of assets}}$	Expresses how much of the bank's assets have the characteristics of liquid assets and, if necessary, are able to quickly and without risk of losses to meet liquidity needs.
Share of highly liquid assets $\frac{\text{Highly liquid assets}}{\text{Amount of assets}}$	Has a similar informational significance as the above indicator, but concerns only the most liquid part of the assets
Coverage of liabilities with liquid assets $\frac{\text{Liquid assets}}{\text{Amount of liabilities}}$	Expresses what percentage of the bank's liabilities are covered by liquid assets, i.e. what part of the liabilities can be relatively quickly and easily extinguished if they are hypothetically demanded. Reliable coverage of liabilities with liquid assets is an indicator of good liquidity.
Coverage of short-term liabilities with liquid assets $\frac{\text{Liquid assets}}{\text{Amount of short-term liabilities}}$	Short-term liabilities are highly demanding. Therefore, the comparison of fast liquid assets with highly required liabilities is a valuable source of information on bank liquidity.
Coverage of deposits from non-financial entities with liquid assets $\frac{\text{Liquid assets}}{\text{Deposits from non - financial entities}}$	For most banks, the liabilities on deposits received from non-financial entities occupy a significant share, and therefore the extent of their coverage with liquid assets is essential.
Ratio "Loans / Deposits" $\frac{\text{Loans to non-financial entities}}{\text{Deposits from non - financial entities}}$	It is considered normal if loans to businesses and individuals are less than the attracted funds from corporate and retail deposits. The opposite would mean that some of the loans granted to the non-financial sector have as a source of financing not the relatively inexpensive resource attracted by businesses and citizens, but the more expensive one - obtained from the financial market. In the long run, this implies an outflow of deposits, which the bank seeks to offset through loans from external sources.

It should be noted that the analysis of liquidity through a system of ratios does not always give a very accurate and precise estimate of its condition. Even with the same levels of performance, individual banks may have different liquidity. The reason is that it is evaluated in static (at a given moment) and mainly focuses on quantitative factors. Another approach is used to derive more precise conclusions from the coefficient analysis. It is based on the tracking of changes in liquidity indicators in dynamics (Vatev, 2017). The analysis aims at revealing trends in their development over several successive periods. The aim is to outline the prevailing regularities in changing the relevant coefficients over time. The idea is to reveal trends in the development of these key financial indicators for banks' liquidity over a period of time, covering stages with different characteristics. One of them is the stage of gradual implementation of the new regulatory framework (Basel III).

The analysis and conclusions presented in this paper are based on observations of the banking sector in the Republic of North Macedonia over a twelve year period (2007-2018). The following considerations are taken into account

when choosing this time interval. First, the aim is to investigate data for a longer time, as a prerequisite for more accurate delineation of typical patterns in the development of banks' liquidity. This can eliminate the impact of some short-term or random factors. Second, in terms of the impact of the new regulatory framework on banking liquidity, the twelve-year period analysed includes three distinct phases: 1) the time before the start of the global financial crisis (2007 to 2009), 2) the crisis period (2009) until 2012) and 3) a post-crisis period (after 2012), during which the new regulatory measures (Basel III) are gradually being implemented. This makes it possible to make a more precise comparative analysis of the studied indicators during each of these stages.

EMPIRICAL RESULTS

The findings of the study are based on information published officially by the National Bank of Northern Macedonia on the state of the banking sector in the country. In particular, the following basic information, summarized in Table 2, is of interest to us.

Table 2. Baseline information for calculating bank liquidity ratios

(in million denars)

Years	Assets	Liquid assets	Highly liquid assets	Total liabilities	Short-term liabilities	Loans to non-financial entities	Deposits by non-financial entities
2007	200 720	69 650	41 951	197 322	148 825	124 905	160 296
2008	286 358	65 576	46 405	220 845	202 395	167 908	180 913
2009	263 520	67 461	54 285	234 534	180 377	173 710	187 875
2010	298 650	92 283	75 559	269 285	196 765	186 545	213 270
2011	321 189	100 211	81 261	291 099	204 930	202 405	234 161
2012	337 122	110 913	99 114	310 203	209 270	216 225	245 373
2013	373 311	111 264	101 914	324 264	224 672	230 132	259 299
2014	387 042	128 498	98 696	352 670	216 901	252 967	288 775
2015	408 217	128 181	99 197	372 038	233 658	277 533	306 190
2016	429 330	132 663	110 338	390 046	247 742	280 962	322 797
2017	448 940	133 784	104 154	403 954	258 368	297 576	339 281
2018	492 810	150 800	111 375	438 913	283 379	320 085	371 333

Note: When calculating liquidity ratios, assets and liabilities do not include interbank assets and liabilities of local banks.

Source: (www.nbrm.mk)

The following section analyses real-world empirical data on the state and development of the banking sector in the Republic of Northern Macedonia. The purpose is to test the formulated working hypotheses.

Table 3. Changes in liquid assets, highly liquid assets and total assets

Year	Change (increase or decrease) in liquid assets compared to the previous year	Change (increase or decrease) of highly liquid assets compared to the previous year	Change (increase or decrease) of assets compared to the previous year
2007	+23,3%	+65,5%	+15,3%
2008	-5,8%	+10,6%	+42,7%
2009	+2,9%	+12,2%	-8,0%
2010	+36,8%	+39,2%	+13,3%
2011	+8,6%	+7,5%	+7,5%
2012	+10,7%	+22,0%	+5,0%
2013	+10,4%	+2,8%	+10,7%
2014	+4,9%	-3,2%	+3,7%
2015	-0,2%	+0,5%	+5,5%
2016	+3,5%	+11,2%	+5,2%
2017	+0,80%	-5,6%	+4,6%
2018	+12,70%	+6,9%	+9,8%

Table 3 presents data on the dynamics of the liquid and highly liquid assets of the country's banking system for the period 2007-2018, and in Figure 1 - their relative share in the assets for the same period. It is clear that the beginning of the analysed period (2007) is characterized by a significant growth rate of liquid and highly liquid assets, while maintaining their share in the structure of assets at a rather high level. However, in 2008, there was a sharp decrease in the indicators under consideration - liquid assets decreased by -5.8% (from 69 650 million Denars in 2007 to 65 576 million Denars in 2008) and the total assets reported a significant increase of + 42.7% (from 200 720 million Denars in 2007 to 286 358 million Denars in 2008). Thus, the share of liquid assets decreased from 34.7% to 22.9%. This can be explained, on the one hand, by the strong credit growth and, on the other hand, by the first signs of the financial crisis and the panic caused by customer behaviour. Banks, however, apply a prudent and conservative approach to pre-crisis liquidity management, enabling them to accumulate a satisfactory level of liquid assets and, in the face of difficult market conditions and unplanned cash outflows in the crisis, to successfully overcome the problems that have arisen. Nevertheless, the global financial turmoil is being felt by banks in the Republic of Macedonia and is reflecting on the volume of liquid assets at their disposal. These consequences for local banks are mainly due to fluctuations in funding sources and mainly to deposits. Negative changes in liquidity ratios are gradually being overcome after 2009. Throughout the economic crisis until 2012, banks' liquid and highly liquid assets have steadily increased in line with asset growth. Given the risks posed by the state of the real sector, the prudent policy pursued by credit institutions is essential to ensuring a stable liquidity position. In particular, the known limitation of the deposit potential for lending to non-financial entities and other long-term investments and its targeting the short-term government securities market may be noted. In general, the large banks group remains the main carrier of the banking system's liquid assets. After 2013 until 2018 (from the Basel III perspective, these are the years in which the new regulatory framework is phased in), the trend is not significantly changed. Although there has been a slight increase in lending activity and an increase in banks' inclination to make long-term investments during this period, the liquidity of the sector remains essentially stable. The share of liquid and highly liquid assets remains stable and no indication of a sharp fluctuation in the dynamics of these indicators is observed. For example, the share of liquid assets for the entire period from 2013 to 2018 remains with values ranging from about 30%, which, from good banking practice, reflect the stable liquidity of the country's banking sector.

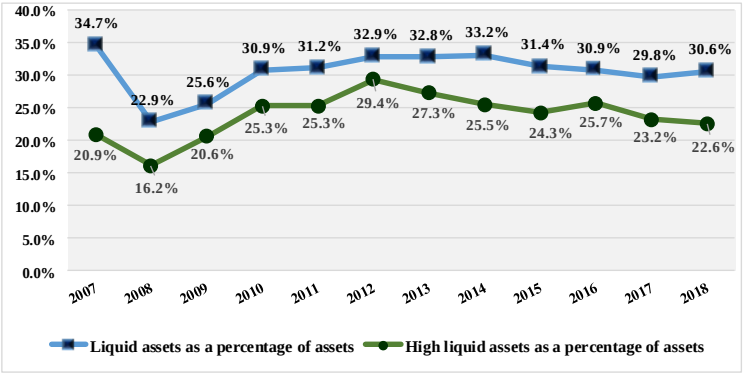

Figure 1 - Share of liquid and highly liquid assets in the asset structure

Similar considerations can be made with respect to the following three substantially similar indicators of bank liquidity analysis considered by us - coverage of total liabilities, coverage of short-term liabilities, and coverage of deposits from non-financial entities with liquid assets (Figure 2 and 3). The dynamics of these indicators also confirm the conclusion that 2008 and, to a certain extent, 2009 are critical for the analysed period, during which there is a visible deterioration of their values. The key reason is the shrinking amount of liquid assets. In 2008 compared to 2007, the total liabilities of the banking sector increased by + 11.9%, of short-term liabilities by + 36.0%, of deposits from non-financial and entities by + 12.9%, and at the same time the amount of liquid assets decreases by -5.8%. The problematic situation is overcome in a relatively short period of time, as in the coming years there is a clear tendency to strengthen the liquidity of the banking sector in the country. This also applies to the period 2013-2018, in which the Basel III regulatory framework is being phased in.

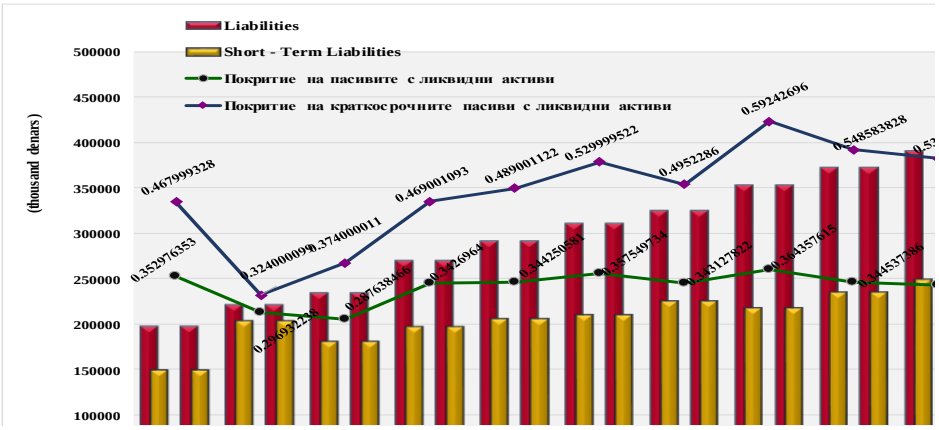

Figure 2 - Coverage of obligations (liabilities) and short-term liabilities with liquid assets

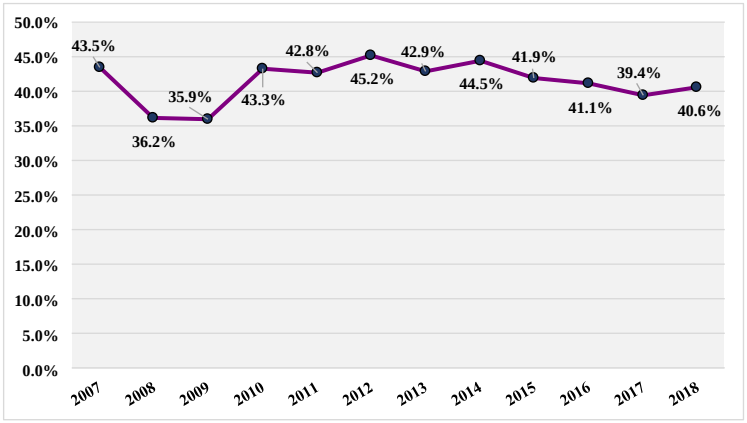

Figure 3 - Coverage of deposits from non-financial entities with liquid assets

It is well known that the tendency for an increase in the credit and deposit ratio with other things being equal means an increase in profitability, but it creates conditions for a decrease in liquidity. This requires limiting lending or expanding the resource base. It is generally considered normal if the deposit-to-loan ratio moves between 70-90%. When it is below 70%, it guarantees good liquidity but lowers profitability. With a credit-to-deposit ratio of more than 90%, earnings are rising, but this has a negative impact on liquidity. When the value of the indicator is above 100%, it shows the aggressive credit policy of the bank. In such cases, "over-lending" is observed, which is dangerous for her and puts her at considerable risk. It is desirable to maintain the balance between loans and deposits at reasonable levels, taking into account the following factors: the quality of the loan portfolio and its maturity profile; the composition of other assets other than loans; the stability and maturity structure of deposits; the fact that loans are generally not due from the bank before their maturity and deposits, including term loans, are largely due from their holders well before their maturity. These circumstances concentrate additional liquidity risk. In view of the foregoing, the data of Figure 4 clearly illustrate that in practice throughout the analysed period, incl. During the implementation of the new Basel III regulatory framework (2013-2018), the banking sector in the country maintained its stable liquidity position. A strong fluctuation in the negative direction was observed only in 2008. Due to the significant increase in loans to non-financial entities compared to deposits from non-financial entities, the credit-deposit ratio registered a sharp increase and reached 92.8% (in 2008 loans increased by 35% compared to the previous 2007, while at the same time deposits increased by only 13%). In the coming years, credit growth is adequate to change deposits, so that the ratio between them is maintained at reasonable levels and no significant fluctuations are outlined.

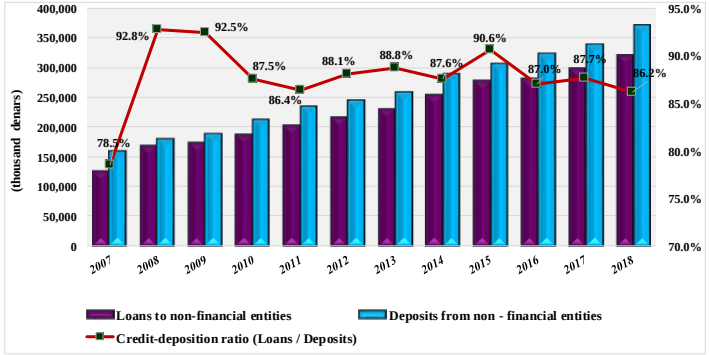

Figure 4 - Correlation "Credits / Deposits"

CONCLUSION

The foregoing allows us to make appropriate summaries of the working hypotheses formulated in the beginning. The first hypothesis that the implementation of the new Basel III regulatory framework, with its stricter regulatory rules, has a negative or stagnant effect on the liquidity of banks in the Republic of Northern Macedonia is not confirmed. The results of the analysis of the empirical data prove the second hypothesis - the new requirements for regulating capital adequacy and liquidity do not have a negative impact on banks' liquidity position, but rather on the contrary - there is a tendency to stabilize a number of their key financial indicators for liquidity.

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