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Introduction of NSFR Ratio in the Activities of Commercial Banks in Ukraine

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Abstract The main purpose of the research is to study changes in the methodology of formation and regulation of liquidity of commercial banks in Ukraine, as well as to study changes in the structure of bank assets that will result from the use of new approaches. For data collection, the following analysis methods were adopted: a semantic analysis of the traditional and new approach to determining the regulatory liquidity ratio, structural and dynamic analysis of assets and income of commercial banks, as well as a method of logical generalization in drawing conclusions about the analysis. The results of the research show that the introduction of new approaches to determining the liquidity of commercial banks on the basis of the Basel III agreement requires banking institutions to increase the general requirement for the principles of formation of their assets. There is also an objective need to develop new approaches to ensure the proper effectiveness of current liquidity control and ensure the stability of cash flows as well as an overall reduction in banking risks. Based on the analysis of the banking system of Ukraine, it is established that the introduction of the NSFR ratio instead of the regulatory ratio N6 provides for commercial banks a general reduction of the risk of banking operations and helps to expand sources of financing active operations. The study found that one of the key consequences of the introduction of the NSFR ratio in the activities of banking institutions in Ukraine will be a decrease in their net interest margin in lending operations. As a result, commercial banks will be forced to limit lending activities mainly by limiting the issuance of riskier loans. However, another consequence of the use of the NSFR standard will be the differentiation of active operations of banks, which will reduce the dependence of their operating activities purely on lending, which will also result in an overall increase in the financial stability of banking institutions.

Keywords Liquidity, Liquidity Ratios, LCR, NSFR

1. Introduction

As you know, ensuring an adequate level of liquidity of a commercial bank is one of the main conditions for the stability of its operation and ensuring financial stability in the long run. At the same time, the classical approach, based on the analysis of key liquidity ratios, no longer meets the requirements of commercial banks in technological changes in banking and the rapid variability of the banking market. In particular, the provision of liquidity purely through the accumulation of appropriate reserves of funds sufficient to cover a certain group of liabilities is currently not sufficient to ensure the efficient operation of the bank. After all, on the one hand, there is a problem of proper daily response to the number of

available funds, depending on the specifics of active and passive operations, the speed of which has more than doubled over the past 5-7 years. On the other hand, the diversion of funds to liquidity reserves does not allow using them to provide the bank with an appropriate level of income from the disposal of these funds. The way out is to reorient the new liquidity ratios recommended by the Basel III agreement. And if the LCR standard has been used in the practice of Ukrainian banks for several years, the NSFR ratio is new to them and the transition to its application requires a thorough study of all issues related to its implementation.

2. Literature Review

The problems of liquidity research of commercial banks, in general, are quite widely disclosed in scientific research. It is worth noting that a group of researchers consider using traditional approaches to ensuring the liquidity of banks based on compliance with liquidity standards [1, 4, 8]. However, the views of a group of scientists who are critical of the application of the most controversial of these indicators – the ratio of instant liquidity, arguing that his high value contributes to excessive outflow of funds from active operations of the bank [3, 11, 23]. The same remarks, but from the standpoint of a critical review of all liquidity ratios, are expressed in studies of general approaches to the formation of corporate liquidity, including banks [6, 21, 24]. In this aspect, it should also be noted that research aimed at defining the essence of bank liquidity as an element of ensuring their financial stability in times of crisis, which are reflected in the methodological approaches to liquidity recommended by the Basel Committee [17, 18].

What is of particular note is the study of liquidity assessment using the funding matrix of J. F. Sinki [20] and the macroeconomic principles of liquidity management of the bank Edwin J. Dolan [7]. Timothy W. Koch and S. Scott MacDonald also made a significant contribution to the study of the principles of meeting the liquidity needs of banks [10]. A study of liquidity management risks is widely disclosed in the works and mathematical models of T. Barnhill and L. Schumacher [2]. In addition, an important role in the study of technical approaches to the formation of bank liquidity is based on the study of institutional changes as a result of changes in the growing riskiness of banking operations [9, 16, 22].

It is also necessary to highlight the research of such modern authors as L. Minghui, B. Setiyono, and N. Vyhovska, who determine the specifics of the transformation of the structure of assets and liabilities of banking institutions due to their transition from traditional liquidity methods to Basel III recommendations [12, 19, 25].

However, the constant changes taking place in regional and global financial markets often require a critical consideration of approaches to ensuring liquidity of the bank. As practice shows, prompt response to changes in external conditions is necessary and appropriate for the effective operation of banking institutions. Therefore, there is a need to study the peculiarities of the introduction of new financial standards that allow achieving this goal.

3. Materials and Methods

Traditional approaches to the calculation of liquidity ratios of banking institutions are based on the application of standards of instant, current, and short-term liquidity. At the same time, the last of them (H6 standard in the practice of European banks) plays a key role in shaping short-term policy on attracting and using financial resources. The calculation of this ratio involves determining the ratio of liquid assets to liabilities with a maturity of up to one year:

$$N6 = \frac{A_l}{D_s}$$

where A_L – liquid assets;

Ds – short-term liabilities.

This standard specifies the minimum amount of assets required to ensure the fulfillment of its obligations by a commercial bank for one year. The normative value of the H6 coefficient must be at least 60%.

The introduction of a new liquidity ratio of commercial banks requires taking into account the peculiarities of the methodology for its calculation, which is unified due to the recommendations of Basel III. In particular, the calculation of the NSFR coefficient is performed according to the formula:

$$NSFR = \frac{Available\ Stable\ Funding\ (ASF)}{Required\ Stable\ Funding\ (RSF)} > 100\%$$

Herewith, banks are required to calculate this ratio in general for all currencies with which banking operations are conducted during the reporting period.

The process of calculating ASF as a component of the NSFR coefficient involves the inclusion of the following elements:

1) regulatory capital of the bank, reduced by the number of capital instruments with a residual maturity of up to one year;
2) liabilities of the bank: for unsecured financing, for secured financing, and other liabilities.

RSF elements, in accordance with the calculation methodology, defined the following:

1) bank assets: cash and bank metals; funds in the Central Bank, in other banks, loans, deposits, investments in securities; other assets;
2) off-balance sheet liabilities of the bank;

3) transactions with derivatives [5].

Simultaneously, the ASF reflects the level of stability of the components of the available stable financing on the horizon in one year, taking into account their residual maturity. And RSF characterizes the liquidity of the components of the necessary stable financing on the horizon in one year, taking into account their residual maturity.

4. Results and Discussion

It is known that the provisions of the Basel Accord of 2010, which resulted from the revision of banking liquidity after the global financial crisis of 2008-2009, provided for the gradual introduction of new standards and approaches to the liquidity of commercial banks, which would strengthen and specify the requirements of the previous Basel II standard. The main directions of innovations were the strengthening of requirements for the formation of liquid assets of the bank, as well as the introduction of standards aimed at controlling the stability of funding sources, which generally significantly diversifies the risk of banking operations and strengthen the stability of banks in the market.

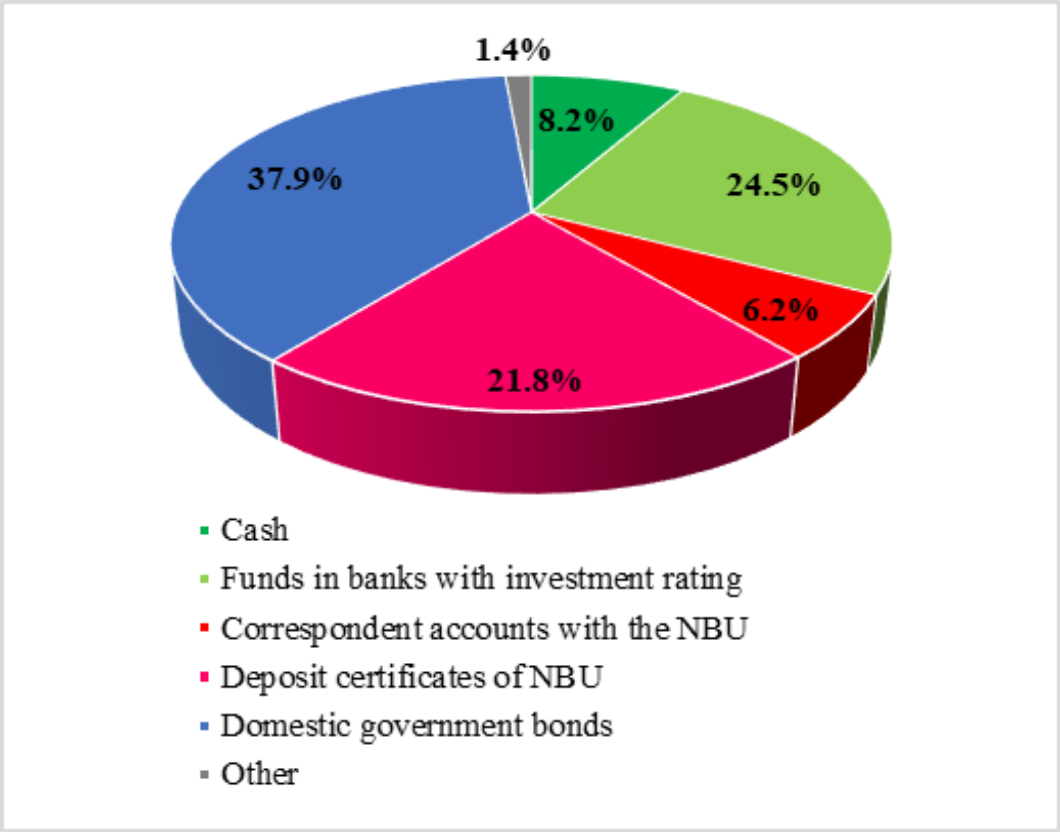
The liquidity coverage ratio (LCR) was the first to be introduced in this aspect. In particular, it is applied by conducting liquidity stress testing based on different scenarios using given assumptions about the level of cash outflows and discounts taking into account liquidity risk to assess the net cash outflow over the next 30 days. The discount is a percentage that is deducted from the value of liquid assets. Accordingly, cash and high-quality government securities (taking into account their liquidity) are accounted for at full price, and corporate securities are discounted. At the same time, the cash outflow factor indicates that the share of liabilities, according to the recommendations of Basel III, should be removed from the bank balance sheet in a stressful situation [6, p. 66].

The second element of the 2010 agreement is the net stable funding ratio of the NSFR. Definitely, the implementation of this standard was postponed for three years from the time of the introduction of the LCR coefficient and later postponed several more times. Currently, the deadline for the final implementation of the entire Basel III complex, which includes the NSFR coefficient, is set for 2022. In Ukraine, this standard became mandatory for commercial banks from January 1, 2021, and will be used in parallel with the short-term liquidity ratio (N6) until 2022. However, it is currently impossible to assess the change in approaches to the formation of liquidity of commercial banks, as the parallel use of the NSFR ratio and the H6 ratio by different banks leads to distortions in reporting. In particular, large systemic banks (PrivatBank, Raiffeisen Bank Aval, Crédit Agricole Bank) have introduced NSFR since the beginning of the year. At the same time, the short-term liquidity ratio was the basis for assessing the liquidity of medium and small banks based on the results of operations for 9 months of 2021. Therefore, the first objective assessments of changes in the structure of banking assets and liabilities can be made only at the end of 2021 after the publication and audit of annual reports of commercial banks of Ukraine.

According to experts of the National Bank of Ukraine, the main goal of the NSFR is to help reduce one of the systemic risks to financial stability associated with short-term bank funding, balance assets and liabilities of banks by maturity, create incentives for banks to attract long-term deposits and reduce dependence on short-term financing [5].

In practice, the introduction of the NSFR standard aims to reduce the excessive dependence of commercial banks on short-term sources of financing, which are formed through passive operations and aimed at reorienting banks to more attract more stable financial forecasting funds in the form of equity, long-term interbank loans and shares of long-term deposits in portfolio of the bank. Due to this, liabilities of the bank will be diversified by maturity, while currently, the bulk of liabilities are short-term. At the same time, to ensure the current liabilities of the bank, smaller reserves of liquidity have to be formed in the short term, which will have a positive impact on the profitability and profitability of banking operations, and will contribute to the growth of short-term liquidity of banks.

In particular, the structure of high-quality liquid assets (HQLA) of Ukrainian banks, recorded in June 2020 (Fig. 1), suggests that the calculation of net stable bank financing in the future will be provided by a sufficient amount of highly liquid assets. That is, banks are ready for the introduction of NSFR and have a properly formed asset structure to ensure compliance with the appropriate level of liquidity.

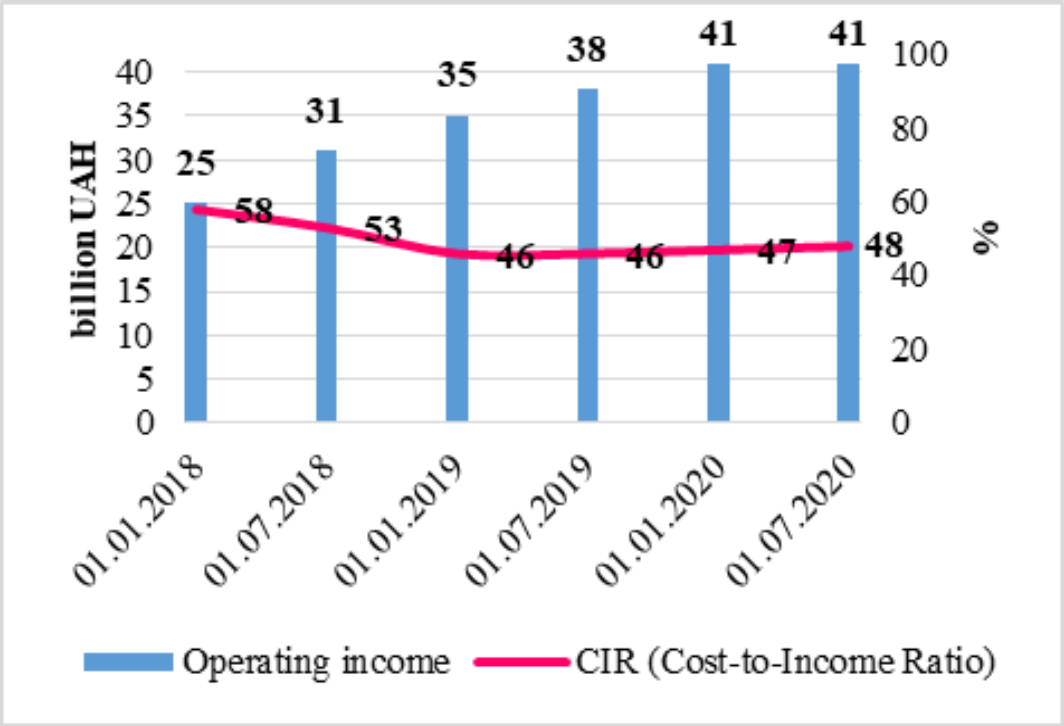


Source: calculated by the authors based on [15].

Figure 1. The structure of high-quality liquid assets of banks of Ukraine as for June 2020

Also, by introducing the NSFR ratio, the Basel Committee intends to reduce the risk of bank financing. This will simplify the management and financial management of retail banking, as well as improve the structure of the deposit portfolio and allow banks to gradually move to sources of long-term financing. This step, of course, is aimed at ensuring the stabilization of the financial condition of banks in the long run by ensuring compliance with the liquidity ratio without speculative transactions.

On the other hand, NSFR will certainly create big problems for investment banks, because it is no secret that a significant part of their operations is based on "quick money" when investments in securities should give a quick result in the form of dividend payments or market value growth. However, since Ukrainian banks are not very active in this market sector, such issues will not have a significant impact on the national banking market as a whole. In particular, as can be seen from Fig. 2. Despite the steady growth of operating income of commercial banks in Ukraine over the past two years, the value of CIR remains virtually unchanged. It should be noted that a significant increase in income of commercial banks in 2018 was due to inflationary trends, and after stabilization in early 2019, the overall dynamics of operational efficiency of banks have stabilized. That is, the potential impact of the introduction of NSFR on the operating income of Ukrainian banks should be insignificant.



Source: calculated by the authors based on [15].

Figure 2. Dynamics of operating income and operating efficiency of Ukrainian banks in 2018-2020

Table 1. Moody`s requirements for calculating the NSFR

Indicators	Available Stable Funding (ASF)	Required Stable Funding (RSF)
Basic criteria	Depends on the relative stability of the source of funding, taking into account the maturity of liabilities and the propensity to withdraw funds	Depends on the general characteristics of liquidity, the specifics of the riskiness of the bank`s assets, and off-balance sheet exposure.
Basic assumptions	- Long-term liabilities are considered more stable than short-term ones. - Short-term financing from small businesses is more stable than from large ones. - Determining the maturity of equity or liabilities implies that investors will focus on the shortest payback period.	- Stable financing is needed for some loans. - Highly stable financing is needed to support banks that extend part of their loans to maintain relationships with customers. - Short-term assets require less stable financing than long-term ones. - High-quality assets should not be fully funded by stable funding. - Financial instruments, foreign currency, and paid goods are included in the calculation. - Securities received from financing operations are included in the calculation of the bank retains ownership of them and these assets remain on its balance sheet.
Calculation of the amount for funding	- The book value of the bank`s capital and liabilities is calculated. - For derivative liabilities, the replacement cost is calculated by deducting any margin. - The value of one of the ASF coefficients is assigned depending on the maturity of the obligations. - The summation of weighted amounts is performed to obtain the total ASF	- The book value of the institution`s assets is calculated. - For derivative assets, the calculation of the cost of their replacement is not adjusted for the amount of collateral, except for the margin of variation of cash. - The value of one of the RSF coefficients is assigned depending on the residual value. - The summation of weighted amounts and the total amount of funds.

Source: [13].

The practice of forming this standard is currently quite complex and unclear for its application in banking, which requires a transition period for banking institutions. Therefore, in this case, you should seek the advice of experts. In particular, analysts at the international rating agency Moody`s recommend following the following assumptions and requirements when calculating the NSFR (Table 1).

As we can see, the effective application of the NSFR standard will really allow commercial banks to stabilize

the situation with capital risk, promote more effective integrated management of market and credit risk of customers, as well as allow rapid adjustment of credit risk associated with deteriorating credit ratings.

Thus, it can be argued that the bank`s liquidity should be an effective tool for the financial planning system, as the lack and excess of liquidity can generate negative effects on bank resources, which, in turn, will reduce the efficiency of their use.

It should also be noted that this effect of the new liquidity ratios is confirmed by the Barnhill and Schumacher model [2], which involves modeling the bank`s balance sheet with network interaction and two stages of modeling, according to which each stage of the bank`s liquidity operation must relate to another type of risk NSFR criteria). However, although the first stage concerns credit stress and illustrates its impact on the problems associated with the bank`s equity, the consequences of the second stage are related to liquidity and are confirmed by examples of the functioning of the US banking sector.

5. Conclusions

Thus, it can be concluded that the NSFR ratio cannot be applied by itself, as it is definitely intended to supplement the liquidity coverage ratio (LCR) ratio, as the NSFR itself, unlike the LCR, is a structural rather than a stress indicator for the liquidity assessment system. Accordingly, the NSFR applied in the complex will really allow commercial banks to reduce the risk of financing in the long run, by reorienting banking institutions to finance their own activities from stable sources, which, in turn, will reduce the overall risk of potential bank problems in future periods.

In addition, the reduction in the net interest margin in lending due to the introduction of the NSFR standard will, on the one hand, forcing commercial banks to reduce their lending activities in the market, but at the same time help banks focus on other more profitable activities. A negative element of such stabilization of the market position of banks and increase of their financial stability may be the increase of interest rates on credit operations to maintain the appropriate level of their profitability. And this can lead to an overall decrease in demand for credit resources and, in a broad sense, may even affect the dynamics of the country`s GDP. However, such a possible consequence of the introduction of the new standard still needs further study.

Therefore, further study on the effectiveness of the introduction of new approaches to ensuring the liquidity of commercial banks requires the use of analytical methods to assess changes in the structure of assets and liabilities. In particular, we believe that after the transition period for the introduction of the NSFR ratio, there will be opportunities for comparative assessment not only of the overall stability of the bank but also changes in the volume of assets by maturity. Therefore, the dynamics of such changes should be studied after the accumulation of qualitative statistics on the structure of banks` balance sheets and changes in the quantitative values of the NSFR and LCR ratios using econometric and correlation analysis.

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