Post-Crisis Aspects of Liquidity and Financial Stability as a Primary Goal of Monetary Policy

Branka Topić-Pavković [1]

[1] Faculty of Economics, University of Banja Luka, Bosnia and Herzegovina

Abstract. International financial regulatory reforms put emphasis on financial stability and its role in monetary policy. Maintaining financial stability, particularly in post-crisis conditions and changes at the global level is possible only with quality assessment of liquidity within the financial system. As a direct consequence of crisis, the financial organizations have been requested to strengthen the liquidity and capital adequacy. It is likely to expect that, in the coming years, importance of these positions will be at the center of attention with the aim of preventing or at least mitigating the crises. In order to assess the strength of liquidity within the system, this paper analyzes the new indicators of liquidity in banks as major financial institutions. We also introduced a new aspect of liquidity instruments appliance in post-crisis requirements, as a main goal to stability of the entire financial and monetary system.

Keywords: Financial and Monetary Stability, New Indicators of Liquidity Risk, Stress Testing.

1. Introduction

The global financial crisis has emphasized the role and importance of financial stability over the other instruments and targets of economic policy. Monetary policy through its instruments in the periods of crisis may affect the improving liquidity (through granting loans to banks, mandatory reductions reserves, lowering the benchmark interest rate) and also to increase public confidence. In the classical sense, monetary stability means a low, stable and predictable inflation and confidence in the local currency. The current and expected monetary policy affects the money market and financial market. Changes in these markets continues to affect the market of goods and services and, eventually, to aggregate demand, production and prices. Consequently, economic activity and inflation affect the monetary policy. At the same time, adverse market circumstances emphasize the problems of liquidity and financial instability. Financial stability, on the other hand, implies a healthy financial system, in which banks and other financial organizations are functioning well and responsibly ensure and manage their clients' money. The increasing complexity of the financial system and global crisis substantiates the bonds between monetary and financial stability. Consequently, the international trends are demanding new standards of liquidity and capital positions for financial institutions.[1] the future, the significance of these positions will involve the assumption of financial stability as a new primary objective of monetary policy. Special emphasis in achieving this objective assumes qualitative analysis of liquidity risk in banks as a major financial institution. The main goal of this study is to provide an answer of what changes are to expect in the future related to keeping adequate liquidity policy, and the preservation of financial stability. At the same time this paper presents a review of the bank's resilience to stress, as an instrument for managing liquidity risk in new global conditions set by regulatory bodies. The data are obtained from Bank for International Settlements (BIS) and thence International framework for liquidity risk measurement, standards and monitoring. Taking into account that the Basel I and Basel II standards are widely accepted in major world economies and financial institutions, in our study we looked at the basic guidelines of the new standards based on improvement of liquidity.

Use of internal models and simulation techniques assume that banks are expected to translate the key macro-economic variables on their balance sheet by the estimation of the expected evolution in the value of the assets and future profitability of the business. This generally requires the use of statistical methodologies (satellite models) and simulation techniques ('what–if' analysis) that estimate the link between macro-economic variables and banking variables (default rates, losses).

2. The Theoretical Framework

Parallel with financial globalization the frequency of financial crises has increased, bringing a new challenge in maintaining financial stability. Financial stability is reflected in the smooth functioning of all segments of the financial system, risk assessment and management, as well as the resilience of the system to sudden shocks. Finance directly affects the growth of economic activity and social well-being because they have a key role in the allocation of financial resources. According to a Gjederm (2005.) Financial stability is achieved if households and firms have an optimal choice between consumption and investment in terms of well-functioning financial system, which mediates between lenders and borrowers and redistribute risk in a satisfactory manner. Wieser (2005.) defines financial stability as the ability of the financial system to absorb different types of shocks without a financial crisis that would lead to the spread of multi-sectoral adverse macroeconomic effects. Schinassy (2006.) believes that a stable financial system allows the efficient allocation of economic resources, determine the cost and manage financial risks and is able to perform these functions and when faced with external shocks and imbalances. Ferguson (2003). has a somewhat different approach which considers that it is not possible to define financial stability, but that can only define financial instability [2]. According to the above definitions, we saw that financial stability is based on the confidence of participants in financial markets, and it significantly affected the cyclical fluctuations in their expectations and behavior. Therefore, maintaining financial stability is an important goal of economic policy because it results in major financial crisis, economic and social costs.

Actually access to financial stability implies that the monetary policy analysis and monetary policy measures need to prevent threat to financial stability. This approach typically involves two dimensions of financial stability: the micro dimension that observed risks in terms of individual financial institutions and macro dimension that observed risks in terms of overall financial system [3]. The goal of this two-dimensional approach is that a good assessment of systemic risk or the risk that liquidity or solvency problems extend to the level from individual institutions to the entire system [4]. Research during the crisis has shown that the financial instability is more dangerous for functioning of the economy and financial system than the inflation (if it does not exceed the hyperinflation). Under inflationary conditions, real and financial system can function with more or less difficulty, but in terms of financial instability, there is a complete stagnation of the real and financial flows. Also, rehabilitation of financial instability requires much more time and money.

3. New Aspects of Liquidity

Liquidity is considered as a basic prerequisite for the sustainability of financial institutions in the financial market. Financial institutions, especially banks, must constantly keep an adequate level of liquidity [5]. The crisis showed that banks are part of the global economy and that their individual solvency requirement implies liquidity of the entire sector. Step towards establishing a more stable financial system due to the crisis is widespread stress testing, which analyzes the possibilities of individual financial institutions or the entire system to absorb different types of shocks. A large number of central banks and some international institutions (IMF, World Bank, BIS) today issue Statement of Financial Stability ("Financial Stability Report"), focusing on a stress test.

"Also, stress testing should be an essential tool to identify, measure and control liquidity risk financing, particularly for assessing banks' liquidity profile and the adequacy of liquidity in case of security instruments in stressful situations specific to the individual bank and the stress level of the entire market. In fact, stress testing assess the financial position of banks in a difficult, but possible scenario to help in making decisions on risk management within the bank."Studies in the field of stress testing method, indicate that the stress test is an analytical tool of risk management referred to as "a useful and increasingly popular, although not fully understood method of analysis of bank resistance. Demystification of stress testing and seeing his strengths and weaknesses is to show his importance in combination with other tools in risk management in banks." [6]

3.1. Liquidity Gap

Liquidity gap presents the difference between the average amount of loans and average deposits. Positive financial gap means that loans exceed deposits and are related to additional liquid assets - by selling assets or new borrowings. The gap can be static, which figures the ratio of current assets and liabilities and dynamic

which measures the ratio between assets and liabilities, with the projection of future demand for loans and the availability of new deposits. When liabilities exceed assets, the bank faces the risk of interest rate gap, because the return on investment is uncertain. Otherwise, the bank faces the risk of securing new sources of liquidity funds or paying higher interest rates on debt when liquidity is necessary.

Measuring, monitoring and assessment of the value of liquidity needs and liquidity sources are based on cash flow projections. The comparison of cash inflows and cash outflows in the individual time grades are calculated and they indicate potential liquidity gap. The objective of measurement of liquidity risk on the basis of future cash flows is to forecast and estimate future needs for liquidity of bank. Presentation of cash flows in the time frames for banks put insight into future needs for funding. Using the calculated short-term imbalances in the individual time frames, the bank can assess where in the period liquidity will excess, and when the shortfall is possible. This warns bank of possible problems with liquidity for a longer time horizon. This is important because it might need time to plan activities in the area of ensuring new sources of liquidity.

3.2. New Indicators of Liquidity Risk under Basel Standards

In order to successfully perform the inspection and supervision of banks and whether to perform an adequate level of liquidity risk, the Basel Committee on Banking Supervision in 2010. introduces new indicators of liquidity risk, which goals are different but complementary. These indicators must be consistently applied and globally coordinated with a certain respect for the specificity of each country. Two indicators are introduced: the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR).

Liquidity coverage ratio - LCR is an indicator of short-term liquidity up to 30 days, which indicates whether a bank is able to provide an adequate level of liquidity in case of stressful situations during the period of 30 days. The minimum standard is that the bank actually "survive" stressful shock in the first 30 days, while in the meantime, prepares the appropriate measures and actions to exit from the crisis.

"The LCR is intended to promote resilience to potential liquidity disruptions over a thirty day horizon. It will help ensure that global banks have sufficient unencumbered, high-quality liquid assets to offset the net cash outflows it could encounter under an acute short-term stress scenario. The scenario entails a significant stress, albeit not a worst-case scenario, and assumes the following:

-a significant downgrade of the institution's public credit rating;
-a partial loss of deposits;
-a loss of unsecured wholesale funding;
-a significant increase in secured funding haircuts; and
-increases in derivative collateral calls and substantial calls on contractual and non-contractual off-balance sheet exposures, including committed credit and liquidity facilities." [7]

Liquidity coverage ratio formula:

$$LCR = \frac{\text{Very high quality liquid assets}}{\text{Net cash provided in a stressful situation in a 30 days period}} > 100\%$$

As we see from the above formula liquidity coverage ratio is determined by the amount of high quality liquid assets and the estimated net cash flow in the coming period of 30 days. High quality liquid assets primarily related to securities and especially on a first-rate public securities. Due to this fact LCR must be over 100%, because it is based on the standard liquidity ratio and must show that the bank is able to cover cash outflows. Stable sources have a lower weight for large, sudden outflow of cash. The reserve consists of the highest quality securities, government securities able to cover net cash outflows in the period of 30 days. To obtain a high level of LCR bank needs to have a very high state of quality and liquid assets, mandatory reserves and high level of long-term deposits in the balance sheet. If the bank faces negative LCR it would mean that in a stressful situation bank has more outflow than inflow, and that there is insufficient liquid assets that would shortly be turned into cash to cover the initial shock came under the influence of the crisis.

Net stable funding ratio is the second ratio and presents:

$$NSFR = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} > 100\%$$

This metric establishes a minimum acceptable amount of stable funding based on the liquidity characteristics of an institution's assets and activities over a one year horizon. This standard is designed to act as a minimum enforcement mechanism to complement the LCR and reinforce other supervisory efforts by promoting structural changes in the liquidity risk profiles of institutions away from short-term funding mismatches and toward more stable, longer-term funding of assets and business activities.

In particular, the NSFR standard is structured to ensure that long term assets are funded with at least a minimum amount of stable liabilities in relation to their liquidity risk profiles. The NSFR aims to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and encourage better assessment of liquidity risk across all on- and off-balance sheet items. In addition, the NSFR approach offsets incentives for institutions to fund their stock of liquid assets with short-term funds that mature just outside the 30-day horizon for that standard. Indicator NSFR requires that the available stable financing (equity, long-term liabilities and stable level of deposit) are equal to or greater than the needed financing in the stress scenario which represents a longer period of time (up to 1 year).

Strong liquidity base, with these high-quality reserves of liquidity, strengthen financial stability and possibility of resistance of the system to adverse and unexpected shocks on the market. The introduction of new indicators of liquidity shows that banks should hold higher and quality funds, which will consequently lead to lower risk taking and greater resilience to future shocks.

3.3. Stress Test as an Instrument of Liquidity

Stress test is a mechanism for simulating different scenarios of adverse market events and assessment of bank's ability to survive shocks with or without the necessary capital increase. Stress testing determines whether the bank, due to adverse events, can continue with regular activities. In financial literature, stress testing has traditionally referred to asset portfolios, but more recently it has been applied to whole banks, banking systems, and financial systems [8]. In response to the global crisis, various regulatory initiatives emphasized the need to introduce stress testing, which should include emergency scenarios in aggravated circumstances. It is an analysis conducted under unfavorable economic scenarios which is designed to determine whether a bank has enough capital to withstand the impact of adverse developments. Stress tests can either be carried out internally by banks as part of their own risk management, or by supervisory authorities as part of their regulatory oversight of the banking sector. These tests are meant to detect weak spots in the banking system at an early stage, so that preventive action can be taken by the banks and regulators. Stress tests focus on a few key risks – such as credit risk, market risk, and liquidity risk – to banks' financial health in crisis situations. The results of stress tests depend on the assumptions made in various economic scenarios, which are described by the International Monetary Fund as "unlikely but plausible." Stress testing is increasingly seen as a key supervision, risk management and surveillance tool in the wake of the global financial crisis [9]. The number of stress scenarios and their division into several levels of stress situation depends on the complexity of business models and sizes of financial institutions as well as exposure to certain risks and risk management strategy.

Table 1.Stress scenarios

STRESS LEVELS	STRESS SCENARIOS		
	1.Bank specific	2.Market specific	3.Combination of 1. and 2.
1. STRESS LEVEL	very strong stress, lasts a short time period (first month)		
2. STRESS LEVEL	strong and stress is moderately long period of time (up to 6 months)		
3. STRESS LEVEL	combination of 1.and 2.,very strong stress,which becomes less strong and stress in 1 year period		

Source: Processed by author

Analysis of scenarios through sensitivity analysis or stress tests does not mean the probability that some event will occur, but to indicate weak points in the system and ability to absorb shocks. It is important to note that financial stability does not rule out shocks, cyclical movement or distortions in the markets, but assumes that the financial system must be able to absorb them without negative impact on the economy. The basis for the development of management scenarios are cash flows that bank is planning the next one-year

period with a detailed analysis of cash flows in the first month as the most critical. Cash flow in normal and adverse situations are analyzed in detail by the time classes (up to 3 days, 1 week, 2 weeks, 3 weeks, one month and monthly for up to one year). Cash flows in the coming one-year period are all expected cash flows in relation to the residual maturity of assets and liabilities that arise over time.

Well prepared scenarios are very important for successfully managing liquidity, involving several interrelated factors and impact on liquidity risk. Based on the estimated possible future cash flows due to the occurrence of stressful situations, the bank must provide appropriate action or decision for the current crisis situation. Stress test as an analysis of banks' exposure to disruptions in the market aims to strengthen confidence in the banks and financial system, and consequently ensure financial stability.

4. Conclusions and Policy Implications

New instruments of liquidity are of great importance and support for the liquidity policy decisions and also monetary policy in achieving the stability. Financial stability does not rule out shocks, cyclical movement or distortions in the markets, but assumes that the financial system must be able to absorb them without negative impact on the economy. Monetary and financial stability are closely linked and as we have seen from the increasing complexity of financial systems and economic crises, there is a tendency of strengthening the bonds between monetary and financial stability. To raise the resilience of banks, as dominant financial organizations in monetary system, to potential liquidity shocks, the liquidity standards should be implemented consistently by supervisors around the world. To this end, most of the parameters used in the standards are internationally harmonised, with prescribed values and methodology.

The new aspects have shown that standards and instruments of liquidity should be a key component of the supervisory approach to liquidity risk, but must be supplemented by more stringent standards or parameters to reflect liquidity risk in individual bank profile. The challenge of financial stability is continuously repeated in a years of crisis. Reliable risk management process is essential to support and strengthen the market participants' confidence in financial and monetary institutions. The objective of the reforms is to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy.

Monetary policy has its main classical objectives - price stability and predictable inflation. In stressful circumstances however, issues of liquidity and financial instability are emphasized as the main problems of economic policy. At the same time the recent crisis underlined the importance of effective liquidity risk management in banks toward maintaining financial stability. Therefore we can say that the monetary policy, as a part of economic policy, will face significant changes and challenges in the future, especially related to financial stability.

5. References

[1]   IMF, (2009). *Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management.* http://www.imf.org/external/np/pp/eng/2009/020409.pdf

[2]   Žugić, R., Fabris, N.: *Financial stability as a goal of central banks*. Central Bank of Montenegro, Publications Division, May 2011.

[3]   Grubišić Z., Galić, J.: *New trends in monetary policy*. Challenges and prospects of integration of Southeast Europe, University of Tuzla, Faculty of Economics. Proceedings, December 2011.

[4]   Fabris, N. *Central Banking in Theory and Practice*, Central Bank of Montenegro, Publications Division, 2006.

[5]   Goodhart, Charles, 2006, "A Framework for Assessing Financial Stability?," *Journal of Banking and Finance*,

[6]   Dušanić, J., Špirić, N.: *Monetary and Public Finance*. Faculty of Economics, Banja Luka, 2009.

[7]   Basel Committee on Banking Supervision, 2008a, *Principles for Sound Liquidity Risk Management and Supervision* (Basel, September).

[8]   Bank for International Settlements - Basel Committee on banking Supervision: *Basel III: International framework for liquidity risk measurement, standards and monitoring,* December 2010.

[9]   Čihák, M.: *Introduction to Applied Stress Testing*//Working Paper, No.07/59, International Monetary Fund, 2007.

[10] Čihák, M. *Systemic Loss: A Measure of Financial Stability. Finance a úvěr/Czech Journal of Economics and Finance* 2007.

[11] Ong, L., Maino, R., Duma, S.: *Into the Great Unknown: Stress Testing with Weak Data*//Working Paper, No.10/282, International Monetary Fund, December 2010.