

## **THE BASEL III APPROACH ON LIQUIDITY RISK**

**SBÂRCEA Ioana Raluca<sup>1</sup>**

*Lucian Blaga University of Sibiu*

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### **Abstract**

*The Basel III agreement has emerged due to the need for a more efficient risk management in banking in order to prevent banking crises. The vision presented by Basel III and then taken over by European regulations is much stricter than earlier agreements, one of the novelties brought by this agreement being the introduction of indicators to monitor the liquidity risk. Through this work we aim to perform an analysis on how to determine the indicators, because in general, these indicators are present only in their synthetic shape but the practical determination is complex and causes difficulties, particularly for small banks.*

**Key words:** *liquidity, risk, indicators*

**JEL classification:** *G21, F33, F65*

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### **1. Introduction**

Prudential regulations which have targeted appropriate bank risk management internationally were fructified, over time, in Basel Agreements, acknowledging 3 forms: Basel I (1988), Basel II (2004) and Basel III (2010). The main objective of international agreements is to outline the regulatory framework necessary to ensure a comfortable capitalization of banks, enabling them to have appropriate risk management (originally only credit risk was targeted, then market risk and operational risk were added and the latest agreement highlights the need for separate management and liquidity risk). Although the agreements II and III emerged as a need to improve the

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<sup>1</sup> *Ph.D. Assistant professor, Faculty of Economic Sciences, "Lucian Blaga" University, Sibiu, [ioana.sbarcea@ulbsibiu.ro](mailto:ioana.sbarcea@ulbsibiu.ro)*

regulatory framework, this has not always happened, i.e. the Basel II agreement has provided an opportunity for banks to grant risky loans (to retail customers or financial investment companies) using the same basis of capitalization. (Sbârcea, 2014). In the current context of the post-financial crisis, experts from the Basel Committee outlined a regulatory framework that will involve the need to increase bank capitalization, taking into account both the risks involved by the previous agreements and also new risks, such as systemic risk or liquidity risk. In this paper we propose to analyze the vision of the Basel III agreement on liquidity risk and the impact on the banking sector.

## **2. The Basel III and CRD / CRR IV Approach on Liquidity Risk**

The context generated by the financial crisis of 2007-2008 (issues in banking activities, the sudden erosion of capital quality, the rapid accumulation of nonperforming loans, banks distrust in others and in their customers) revealed a significant problem in the banking sector, namely the lack of liquidity in times of stress. Although the capital requirements were met, liquidity issues arose in the banking sector, highlighted in particular by: reduced liquidity after the crisis, although it was abundant before (the crisis has prompted "evaporation" of cash or other banks failed to capitalize on them); a strong link between financial operators and fast transfers of cash especially between financial groups; an overestimation of the possibilities of rapid transformation into liquidity of reserves in requirements of emergency; an inadequate reporting of liquidity risk by commercial banks in terms of content and comparability (usually central banks have not imposed stringent levels of liquidity indicators to commercial banks and rather a reporting on maturity ladder strips of assets and liabilities). (Bordeuț – 2012). Therefore Basel III proposes a better management of liquidity risk, because its manifestation especially in the first part of the crisis has led to difficulties in the banking sector. Liquidity is actually the bank's ability to fund increases in assets and to cover financial obligations according to their due dates, without suffering unacceptable losses and the liquidity risk is the possibility to record losses as a result of insufficient liquidity (Dănilă, 2011).

The liquidity risk approach under Basel III began by stating principles of management and the supervision of liquidity risk (BIS, 2008), of which the most important are the following:

- Liquidity risk management is the responsibility of the bank, which must ensure that there are sufficient high quality assets to provide sufficient liquidity in times of crisis;
- The tolerated level of liquidity is particular to each bank and should take into account the bank's strategy;
- The Board of each bank should review, at least once a year, the strategy and policies aimed at ensuring liquidity;
- Each bank must create the necessary framework to identify, measure, monitor and control the liquidity risk;
- Banks should ensure the diversity of funding sources they use;
- The differentiated management of unencumbered assets and those which are pledged as collateral;
- Banks must achieve permanent stress tests to reveal the tensions that may affect the liquidity of owned assets;
- Banks should have a contingency funding plan that they will call in critical situations;
- Banks should publicly report on the strategy of liquidity risk management;
- Supervisory authorities must continuously monitor liquidity risk exposure and request additional measures of liquidity when needed.

Therefore, liquidity risk should be approached from two perspectives, namely:

- The structural liquidity risk which refers to the existing liquidity in the bank's records and their ability to undergo changes in terms of value or maturity;
- The liquidity risk in requirements of emergency, which refers to the bank risk of not having immediate liquidity to meet its short-term obligations. The risk on liquidity in requirements of emergency has two components: the funding liquidity risk which relates to the inability to obtain capital to meet demands for the withdrawal of funds by customers and the market risk which refers to the inability to sell assets held in their real value.

In terms of liquidity risk management, Basel III introduces the notion of liquidity buffer, which is defined as a liquidity reserve that can be accessed in a tense period and that can be used for a certain period of time, called survival period. The overall liquidity risk framework is taken up in the European regulations as well (CRD IV, 2013) in a particular way, taking into

account the specificity of the European Union. The competent authorities of the Member States shall ensure that the institutions defined recovery plans in situations of illiquidity for branches established in other Member States as well, and the credit institutions take the necessary steps so that recovery plans can be applied immediately. These measures relate to ensuring the immediate availability of guarantees for financing from the Central Bank, namely ensuring the availability of security in the currency of another Member State, if it is not in the euro area, or in the currency of a third country to which the institution has exposures, or, where applicable, in the territory of a host Member State or of a third country in relation to which it has currency exposures.

Effective implementation of liquidity standards are reflected in CRR (CRR, 2013). Thus, under this Regulation the liquidity requirements are fully explained and they, synthetically, refer to achieving some liquidity standards, namely the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR), which refer to and are calculated as:

- **LCR = stock of high quality liquid assets / net cash outflows over 30-day horizon** which should be greater than or equal to 100% starting with 2019; This indicator actually reflects a liquidity buffer to cover the acute shortage of liquidity which may occur in times of crisis;
- **NSFR = available amount of stable funding / required amount of stable funding** (over one year horizon) which should be greater than or equal to 100% starting with 2019; this indicator will actually reflect a minimum level of liquidity to ensure the functioning of the credit institution on a longer period, in a context of stress.

Although at first glance monitoring the liquidity risk seems simple, requiring only the tracing of the two indicators, concretely, that risk management is complex because the default mode of the 2 terms of each report and the means to include the assets in the category of high quality can be achieved by complex procedures, case that we will try to explain briefly further on.

**LIQUIDITY COVERAGE RATIO (LCR)** is an indicator to be calculated and reported monthly (but also weekly or daily and in times of stress) by each credit institution and whether the minimum level fails, the institution must submit an action plan to the supervisory authority leading to

the standard fulfillment in a short time. In more detail, LCR is calculated as follows (Jurčík, 2015):

$$\text{LCR} = \frac{\text{Stock of liquid assets} - \text{Haircuts, if applicable}}{\text{Net cash outflows over 30-day horizon}}$$

The diagram illustrates the calculation of LCR (Liquidity Coverage Ratio) as a ratio of two components:

- Stock of liquid assets**: Calculated as the sum of **Market Value** minus **Haircuts, if applicable**.
- Net cash outflows over 30-day horizon**: Calculated as the sum of **Stressed Cash Outflows** minus **Stressed Cash Inflows**.

The **Net cash outflows over 30-day horizon** is further broken down into:

- Stressed Cash Outflows**: Calculated as the sum of **Cash Outflows** multiplied by the **Run-off Factor**.
- Stressed Cash Inflows**: Calculated as the sum of **Cash Inflows** multiplied by the **Inflow Rate**.

Regarding the stock of liquid assets (which should be about 10% of the total assets), according to CRR - art. 416, it consists of:

- Cash and cash exposures to central banks, provided that these exposures can be withdrawn quickly in times of crisis (there was not yet reached a consensus on the inclusion of minimum compulsory reserves in this category);
- Transferable assets that have a high level of liquidity (which will initially be determined by each credit institution in part); these assets must meet certain conditions, such as being unencumbered, not being held by the institution reporting them, being listed on a recognized stock exchange and having a trading price transparency;
- Stand-by credit facilities granted by central banks through the monetary policy, except those secured by highly liquid assets, because this would mean a double emphasis of values in this category;

Although this classification is not very clear, the Regulation also sets the assets that are not considered liquid, the most important being: assets held by credit institutions or assets held by investment companies, by insurance companies or financial holdings.

The amount of liquid assets that will be taken into account is the market value adjusted by certain percentages based on credit risk, liquidity

risk and adjustments specific to the crisis. Adjustment factors applied to liquid assets (CRR, Article 418), are detailed in table no 1.

**Table 1: The haircuts with have to be applied to the HQLA**

High Quality Liquid Assets (HQLA)	Haircuts
A. High Quality Assets which must represent at least 30% of the HQLA value, except covered bonds:	
➤ coins and bank notes, qualifying marketable securities from sovereigns, central banks, regional government, PSEs, and multilateral development banks; qualifying central bank reserves and exposures to credit institutions, central or regional government of Member States or third country sovereign or central bank debt with lower credit quality for local currencies only	0%
➤ Qualifying high quality covered bonds	7%
B. Less liquid assets than those belonging to level A, which must represent a maximum of 40%:	
B.1 Sovereign, regional government, central bank, multilateral development banks, Qualifying corporate debt securities, qualifying covered bonds (lower credit quality)	15%
B.2. – maximum of 15% of HQLA	
➤ Qualifying Asset backed securities	
➤ Qualifying corporate debt securities	Qualifying 25-35%
common equity shares	50%
➤ Restricted use committed liquidity facilities	50%
	50%

In this context, whether determining the stock of liquid assets only assumes their division into categories and applying adjustments where needed, the determination of net cash outflows, over a 30 days horizon, requires a more complex procedure. Net cash outflows represent the subtraction between the cash outflows and inflows, both adjusted by a percentage which shows their outflow ability, respectively their inflow ability during the crisis.

**Cash outflows** and the probable outflow percentages, as set out in CRR (Articles 420-424), primarily refer to retail deposits (deposits held by individuals, SMEs and companies who meet certain eligibility criteria) to which a probable outflow rate of 5% applies if deposits are likely to find

themselves in a guarantee scheme or of 10% if the deposits are riskier; an exception to this provision is represented by deposits made on a period of 30 days and the depositor is not entitled to early withdrawal or deposits of the central bank (in this case no outflow rate applies) and cancelled deposits having a maturity of less than 30 days or deposits of other banks or financial institutions for which a very high risk of withdrawal in crisis is considered and for which an outflow rate of 100% is applied. Retail deposits, considered riskier and having an outflow rate of 10 to 20% must meet the criteria of size (deposits exceeding 500,000 euros), the method of incorporation (only on the internet) and the currency lodging (other than the euro or the currency of any other Member countries of the EU). Cash outflows also include other liabilities (EBA, 2013).

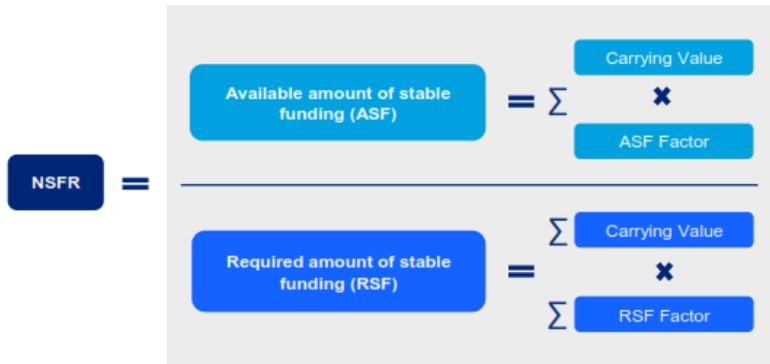
Regarding *cash inflows*, they refer to credit repayments resulting from contracts that have not expired and are performing and for which inflow subtraction rates are applied again, respectively: 100% for financial customers loan inflows, 50 % for non-financial customers loan inflows, 20% for credit inflows having the maturity period not clearly defined (such as overdrafts). To generate a liquidity reserve, the value of inflows factored into LCR is limited to 75% of the outflow value, with some exceptions provided by CRR (art. 425).

Under the regulations, in particular, intra – group transactions are dealt with, for which in the determination of LCR a possible outflow percentage of 100% is set as well as an inflow percentage of 100%.

Capital inflows are limited to 75% in relation to outflows, which means that banks must hold a liquid assets reserve of 25% of liquidity outflows. However, this provision has a few exceptions regarding the inflows in intra-group transactions, the inflows for mortgage credits; no upper limit is required for specialized lending companies (leasing and factoring companies) if their main business is not granting consumer credits or credits to purchase machinery but a 90% upper limit is required for the same companies with loan specifics having as main activity the grant of consumer loans or loans for purchasing or building a property.

By **NET STABLE FUNDING RATIO (NSFR)** it is meant to establish a stable cash level that ensures the institution development for 1 year within times of stress. How accurate the reporting of this indicator is has not yet been determined but it will become mandatory from 2018. The issue raised by this indicator is again the framing mode of the parts providing stable

funding and requiring stable funding, based on the indicator's way of determination (Jurčík 2015).



Referring to stable funding sources, they relate mainly to regulatory capital level 1 and 2 (tier 1 and tier 2), retail deposits which are either subject to a solid contractual relationship, which is unlikely to cease, or belong to companies which benefit of standing transaction accounts, including salaries transaction accounts.

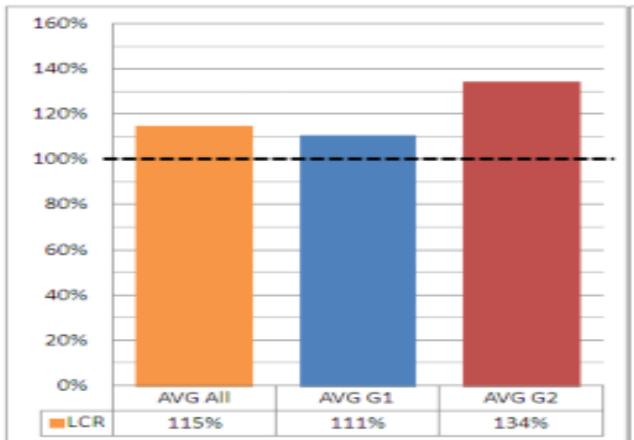
In terms of balance sheet items requiring stable funding, they are composed primarily of: liquid assets, corporate exposures with an allocated risk weighting of 20%, with a 50% assigned risk weight (CRR, art. 122) and other assets, equity securities of non-financial entities listed on a major index in a recognized stock exchange, other equities, gold and other precious metals on the one hand and on the other, credits that are not to be renewed, extended to individuals, SMEs, governments or central banks, loans secured by mortgages on residential or commercial premises.

### **3. The Expected Impact of the Liquidity Indicators Implementation**

As regards the two indicators reporting, banks report them to the supervisory authority, but they are only made public at an aggregate level and not at the individual level. The European Banking Authority conducted a study in 2013 analyzing the impact of LCR on 357 banks in the European banking sector, with assets representing approximately 67% of the total European banking assets. The banks taken into consideration were divided into two groups, one with 50 major banks and group 2 consisting of 307 banks. As a result of analysis, EBA concluded that the banks in discussion are

very different especially from the point of view of their business model. At the individual level there were four countries where the average LCR level was recorded as being below 100% (EBA, 2013). As a recorded average level, for the analyzed countries the LCR level is above the minimum level set at 100% (chart 1).

**Chart 1: The LCR average level for all banks and for the 2 groups of banks (G1 and G2), separately analyzed**



Source: European Banking Authority - Report on impact assessment for liquidity measures under Article 509(1) of CRR, December 20, 2013, pg. 26.

As regards the impact on the Romanian banking sector, yet, there not being imposed a bottoming of 100% for LCR, the National Bank of Romania only monitors this indicator, without the data being published on individual level in the case of each bank (NBR, 2014).

Thus, The National Bank of Romania reports the LCR indicator level synthetically as the minimum, average and maximum level for the Romanian banking sector, organized in banks of systemic importance (respectively: BCR, BRD, Transilvania Bank, Raiffeisen, CEC, Unicredit and ING) and banks not being systemically important (table no. 2).

The analysis of these data shows that neither systemically important banks, nor those without systemic importance have difficulties in achieving the minimum LCR level of 100%, the only difficulty coming from a number

of banks that are not systemically important, but that are not yet made public, which have a reduced LCR, below 50%.

**Table 2: The minimum and average LCR level in the Romanian banking sector**

	<b>Minimum LCR</b>	<b>Average LCR</b>
<b>Systemically important institutions</b>	100%	300%
<b>Institutions systemically non-important</b>	30%	250%

Processing after NBR – Report on financial stability, 2014 pg. 146

#### **4. Conclusions**

Basel III appeared as a result of the financial crisis development in the banking sector in 2008, a crisis which highlighted the risks of inadequate banking management, one of them being liquidity risk, very briefly addressed in previous agreements. In the present study, we performed an analysis of the indicators proposed by Basel III and taken over by the prudential rules on the European banking, CRD IV and CRR IV. After analyzing liquidity indicators there comes the conclusion that the manner of their determination is a complex procedure because it requires a clear predefinition in the IT bank management of each asset and liability, and the setting of weights for each in part is based on several criteria: the holder/issuer, risk or stress period. In addition, there are adjustment criteria for each element not yet clearly defined and in the case of some categories of balance sheet items, the manner of determining can be defined by each bank's strategy. So far there is no individual reporting in public on how to achieve liquidity ratios (LCR and NSFR) but only reports to supervisory authorities. Thus, after analyzing public data, we conclude that systemically important banks, both in the EU and in Romania, will achieve liquidity indicators, they being the owners of significant assets and liabilities portfolios enabling them their potential restructuring for the purposes of liquidity assets acquisition with high or medium terms to attract resources. Small banks are likely to have difficulties, because for them the lack of assets with a high degree of liquidity will mean, besides changing the business model, an additional capitalization as well and also attracting additional resources from the market on longer terms that are to ensure stable financing. This can only be achieved with high costs, which, if we add to the additional cost of recapitalization, we will get an extra level of pressure on small banks, which are deemed to have two main alternatives: to

cease the activity or to accept the takeover or merge with a more liquid banking institution.

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### **Acknowledgment**

This work was supported by the strategic grant POSDRU/159/1.5/S/133255, Project ID 133255 (2014), co-financed by the European Social Fund within the Sectorial Operational Program Human Resources Development 2007 – 2013.