

# **BASEL III REQUIREMENTS TO BANKS' CAPITAL AND LIQUIDITY**

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**Abstract.** Bank capital adequacy and liquidity are always topical problem in the international banking system because Basel Committee constantly updates requirements for capital adequacy assessment and liquidity management to commercial banks. The present research focuses on the analysis of bank capital and bank liquidity. Therefore the goal of the paper is determination of bank capital adequacy level and assessment of financial strength of capital in Latvian commercial banks, as well as evaluation of liquidity position according to Basel III requirements. Research methods include: empirical analysis, comparative method, classification and generalization methods, cumulative analysis, as well as evaluation of capital adequacy and liquidity through quantitative change ratios. The main results and position of Latvian commercial banks according to Basel III include the following findings:

- weak banks will be driven out of the financial market,
- there will be a shift of demand from short term to long term financing,
- the risk of bankruptcy of banks will decrease,
- toughening of requirements to the capital and liquidity will lead to the reduction of crediting and recession of bank activity.

**Key words:** capital adequacy, risk weighted assets, conservation buffer, liquidity coverage ratio, net stable funding ratio.

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## **Introduction**

The Basel III Accord introduces new requirements to bank capital adequacy and liquidity. The new requirements of the Basel Committee will be fully implemented in banking system in 2019, so it is still time for commercial banks to start preparation for the transition to the new standards. According to the agreement, the minimum requirement for common equity and the highest form of loss absorbing capital will be raised to 4.5% after the application of stricter adjustments. Implementation of new minimum requirements began in January 2013. Banks should provide the new minimum requirements in relation to risk-weighted assets. The minimum common equity and Tier 1 requirements are phased in between 1 January 2013 and 1 January 2015. On 1 January 2013, the minimum common equity requirement grew to 3.5%. The Tier 1 capital requirement grew from 4% to 4.5%. On 1 January 2014, banks have a 4% min-

imum common equity requirement and a Tier 1 requirement of 5.5%. On 1 January 2015, banks have the 4.5% common equity and the 6% Tier 1 requirements yet. The indicator of capital conservation buffer is introduced in banks' practice on 1 January 2016. The capital conservation buffer indicator will be increased from 0.625% in 2016 to 2.5% in 2019. The total capital requirement remains at the existing level of 8.0%. The difference between the total capital requirement of 8.0% and the Tier 1 requirement can be met with Tier 2 and higher forms of capital (Basel III... 2010).

Acknowledging the necessity for an increasing level of bank's liquidity risk management and control, the Basel Committee on Banking Supervision (BCBS) developed a new version of Basel III. It provides for the introduction of uniform requirements for the maintenance of a sufficient amount of liquid resources reserve in order to prevent the in the future periods of crisis the high level of insufficiency financial resources. In this case, for commercial banks are offered two new ratios, which regulate the condition of liquid assets: LCR – Liquidity Coverage Ratio and NSFR – Net Stable Funding Ratio (Konovalova, Zarembo 2015).

The stability of a bank depends on a bank's capital, its quality and size. A bank's capital is a mandatory and integral part of its financial resources, and its development in the form of core capital is a required step even before establishing a commercial bank (Saksonova 2006). Practically every stage of a bank's business is directly or indirectly linked to the capital at the bank's disposal and its value. A bank's capital serves as one of determinants in the evaluation process of its stability. In case of sudden capital adequacy problems a bank may lose its competitiveness (Greuning, Brajovic – Bratanovic 2009). The main function of a commercial bank's capital is generation of bank's income and profit respectively, and provide for a possibility to cover unexpected operating losses of a commercial bank (Chorafas 2004). American scientists Schooner and Taylor (2009) in their book „Global Bank Regulation: Principles and Policies” offer an identical definition, but in addition to that they stress the possibility to use capital of a commercial bank to cover possible losses caused by credit risk.

Liquidity and liquidity risk management are the key factors for the safety of business operations in any commercial banks (Bertham 2011). Recently, many banks are facing the problem of liquidity strain when severe competition about how to attract deposits forces the banks to find other sponsors (Rose 2002). Unreasonable liquidity is the first sign of financial instability (Schinasi 2011). For some financial companies, the problem is not just one liquidity, but that there is also a threat to their solvency (Allen 2013). Liquidity risk is a term widely used in the popular press now, but the truth is that few practitioners or academics seem to understand this risk well. Perhaps not surprisingly, because until just

a few years ago, there was very little work being done to analyse this risk factor (Chacko et al. 2011). Together with the development of finance market, opportunities and risks in liquidity management of commercial banks will also meet a correlative increase. This shows the importance of planning the liquidity needs by the methods with high stability and low cost in order to sponsor for business operations of commercial banks in the global growing competition (Kochubey, Kowalczyk 2014). Liquidity risk is difficult to measure and depends on so many factors that a capital requirement is unsuitable to prevent it (Ruozi, Ferrari 2012).

## **2. Impact of Basel III requirements on capital adequacy of Latvian banking sector**

Examination of impact of introducing Basel III requirements on capital adequacy ratios of Latvian banks, first of all, includes evaluation of increase in risk-weighted assets of banks. It would not be possible to calculate the total amount of risk-weighted assets of each bank by means of the direct method of Basel III, since financial statements do not contain sufficient data required for calculations. Therefore analysis was performed by means of the indirect method using quantitative change ratios published in the Basel research.

To evaluate an impact of Basel III requirements on capital adequacy in Latvian banking sector author split all Latvian commercial banks into 3 groups in accordance with the capital belonging criterion: Group 1 – banks established on Latvian capital, Group 2 – banks established on European capital, Group 3 – banks established on Eastern capital.

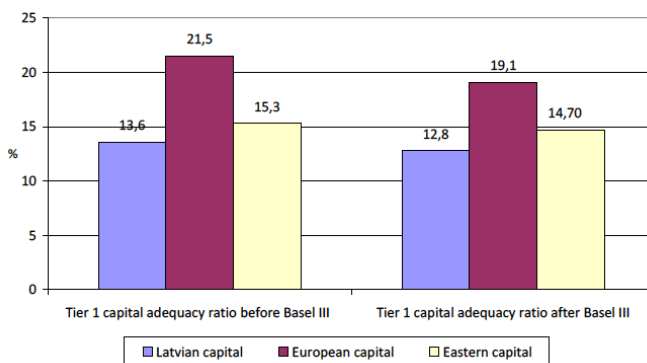
Changes in risk-weighted assets affect also capital adequacy of each group of banks. Figure 1 shows breakdown of changes in Tier 1 capital adequacy in groups of Latvian commercial banks before and after introduction of Basel III requirements. A new regulatory requirement of 6 % is also introduced for this ratio.

Evaluation of Tier 1 capital adequacy changes shows that Latvian banks in general will be able to ensure sufficient capital adequacy. Each group of banks will satisfy Basel III requirements though the result will be greatly dispersed among groups of banks. The group of banks with European capital will be ahead of other groups of banks, since their Tier 1 capital adequacy will drop by 2.4 %, thus ensuring the highest result 19.1 %. Groups of banks with Eastern and Latvian capital will loose on the average 1.13 %. Thus each group of banks will be able to ensure Tier 1 capital ratio of 6 %, maintaining also a considerable reserve on the average over 7.87 %, and ensure compliance with the common equity adequacy standard in the mount of 7 % (including 2,5 % buffer).

Examination of changes in total capital adequacy helps to evaluate fully changes in capital adequacy ratios after introducing Basel III in the banking sector (Figure 2). Total capital adequacy shows similar tendencies to Tier 1

capital adequacy ratios. The group of banks with European capital will be able to ensure the highest capital adequacy level (19.1%) with reduction ratio 2.4 %. Capital adequacy of groups of banks with Latvian and Eastern capital will decrease by 1.40 % on the average, and their capital adequacy ratio will exceed 8 % (total capital minimum requirements).

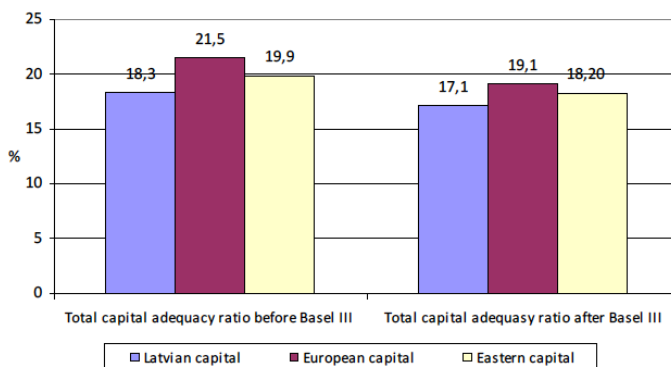
Figure 1. Breakdown of Tier 1 capital adequacy changes in groups of banks



Source: Financial and Capital Market Commission, Consolidated annual reports of Latvian banks, 2014.

In 2019 according to new regulations equity capital adequacy ratio of every bank must be at least 10.50 %. Respectively, after applying the new regulatory standards to the current indices of financial activities (2014) Latvian banks will be able to satisfy this ratio as well. Changes of each ratio in each group of banks are dispersed differently, but it is clear that as a result of introducing the new Basel III requirements capital adequacy of banks will drop (Table 1).

Figure 2. Breakdown of total capital adequacy changes in groups of banks



Source: Financial and capital market commission, Consolidated annual reports of Latvian banks, 2014.

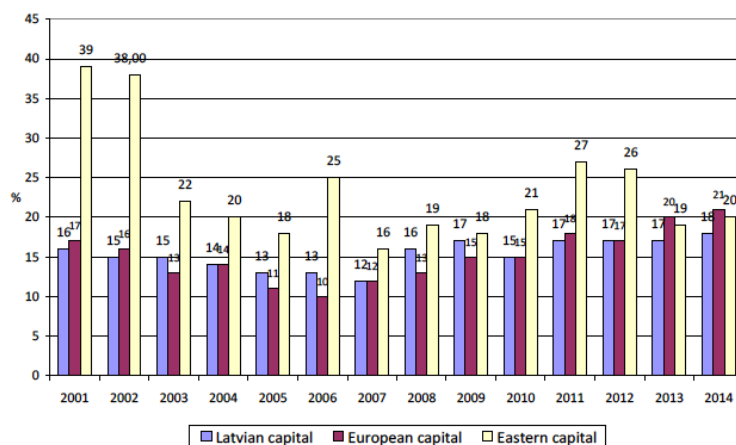
Table 1. Breakdown of changes in Tier 1 capital and Total capital adequacy ratios of Latvian banks

| Groups of Latvian commercial banks by the capital's origin country     | Changes in Tier 1 capital adequacy after introducing Basel III requirements | Changes in Total capital adequacy after introducing Basel III requirements |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Latvian banks with European shareholders' investments in their capital | -2,40%                                                                      | -2,40%                                                                     |
| Latvian banks with Latvian shareholders' investments in their capital  | -0,80%                                                                      | -1,20%                                                                     |
| Latvian banks with East shareholders' investments in their capital     | -0,60%                                                                      | -1,70%                                                                     |

Source: Financial and capital market commission, Consolidated annual reports of Latvian banks, 2014.

The capital adequacy ratio breakdown in groups of Latvian banks for the period from 2001 to 2014 is shown on the figure 3. In pre-crisis period 2001 to 2008 banks established on the Eastern capital worked with good capital strength. At the same period banks established on the Latvian and European capital worked with small capital strength. Since within crisis period all commercial banks restricted their risky transactions, also tightening their crediting policies, while carried out the absorption of losses increasing equity capital. Key factors, influencing on capital of Latvian commercial banks are provisions for outstanding debts and amount of banks assets, both factors are statistically significant. 2008 became the start of problems in commercial banks associated with outstanding credits. Crisis times in Latvia (2008-2010), when share capital exceeded own capital, losses of the system were higher than other components of capital. Now in post crisis period capital adequacy of Latvian commercial banks fully correspond with Basel III requirements.

Figure 3. Capital adequacy ratio breakdown in groups of banks



Source: Financial and capital market commission, Consolidated annual reports of Latvian banks, 2001-2014.

## 1. Basel III requirements to banks' liquidity

During the time of the world's financial crisis, which began in mid-2007 (in Latvia – mid 2008), many banks started to implement intensive actions in order to provide the minimum level of liquidity. Before the crisis, the financial systems usually had a liquidity surplus and, because of this, the risk of liquidity and its management were monitored far less than other risks. But the financial crisis showed the speed at which a liquidity crisis can appear and at what speed the financial resources can disappear, thereby increasing the assets assessment problem. The most characteristic sign of the financial crisis was insufficient and ineffective method of managing liquidity risk. Acknowledging the necessity for an increasing level of bank's liquidity risk management and control, the Basel Committee on Banking Supervision (BCBS) developed a new version of Basel III. It provides for the introduction of uniform requirements for the maintenance of a sufficient amount of liquid resources reserve in order to prevent the in the future periods of crisis the high level of insufficiency financial resources. In this case, for commercial banks are offered two new ratios, which regulate the condition of liquid assets: Liquidity coverage ratio and net stable funding ratio.

*The Liquidity coverage ratio (LCR)* is an essential element of Basel's III reforms, which is regarded as the liquidity world standard for banks. LCR needs to strengthen global regulations of liquidity management with the objective to stimulate the world-banking sector being stronger. LCR stimulates stability of the banks in the short-term period. According to the requirements of Basel's III, in case of a crisis, the bank's liquid assets reserves should cover the predicted cash outflows in 30 calendar days. These measures will allow banks to have the necessary liquidity level in case unexpected withdrawals of cash or if a bank has troubles receiving a loan in the interbank market. In other words, the LCR will help improve the banking sectors ability to absorb upheavals and lighten the impact from financial and economic strain. LCR can be calculated with the formula 1.

Formula 1. The liquidity coverage ratio

|                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|
| $\text{LCR} = \frac{\text{Stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}} > 100\%$ |
|-------------------------------------------------------------------------------------------------------------------|

Source: Basel III: The liquidity coverage ratio and liquidity risk monitoring tools, 2013.

For each element of high quality liquid assets of HQLA were determined the share, which can be applied to calculate LCR (Table 2).

Table 2. Illustrative summary of the LCR (percentages are factors to be multiplied by the total amount of each item)

| Item                                                                                                                             | Factor |
|----------------------------------------------------------------------------------------------------------------------------------|--------|
| Stock of HQLA                                                                                                                    |        |
| A. Level 1 assets                                                                                                                |        |
| Coins and bank notes                                                                                                             | 100%   |
| Qualifying marketable securities from sovereigns, central banks, PSEs (Public sector entity), and multilateral development banks |        |
| Qualifying central bank reserves and domestic sovereign or central bank debt for non-0% risk-weighted sovereigns                 |        |
| B. Level 2 assets (maximum of 40% HQLA)                                                                                          |        |
| Sovereign, central bank, multilateral development banks, and PSE assets qualifying for 20% risk weighting                        | 85%    |
| Qualifying corporate debt securities rated AA- or higher and qualifying covered bonds rated AA- or higher                        |        |
| Qualifying RMBS (Residential mortgage backed securities)                                                                         | 75%    |
| Qualifying corporate debt securities rated between A+ and BBB-                                                                   | 50%    |
| Qualifying common equity shares                                                                                                  |        |

Source: Basel III: The liquidity coverage ratio and liquidity risk monitoring tools, 2013.

Net cash outflow in the next 30 calendar days is established by the BCBS proposed formula 2, where the stress scenario is a severe drop in rating, a partial loss of deposits, the loss of unsecured funding, etc. According to this scenario the cash outflow and inflow is calculated in accordance with the legislative standards (the minimum coefficient for stable deposit withdrawal is 7.5% etc.).

Formula 2. The net cash flow in the scenario of severe stress

$$\text{Total net cash outflows over the next 30 calendar days} = \text{outflow} - \text{inflow}$$

Source: Basel III: The liquidity coverage ratio and liquidity risk monitoring tools, 2013

The LCR will be established on the 1st of January 2015 and the minimum requirement at first year shall be 60% (Table 3). Furthermore, the LCR requirement will increase by 10% each year, meaning that by 2019 it shall be 100%. This approach shall be used to ensure that the implementation of the LCR occurred without interruptions.

Table 3. The minimum requirement for the liquidity coverage ratio (%) (2015-2019)

| Minimum LCR | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------|------|------|------|------|------|
|             | 60%  | 70%  | 80%  | 90%  | 100% |

Source: Basel III: The liquidity coverage ratio and liquidity risk monitoring tools, 2013

Continuing the research it is necessary also look into the other new liquidity indicator, which was proposed by the BCBS – *The net stable funding ratio* (NSFR). The objective of NSFR is liquid assets coverage by 100% at the expenses of 1-year stable liabilities. The NSFR planned to be implemented on the

1st of January 2018 (Basel III... 2014). The NSFR was created that investment assets, off-balance sheets and other securitized assets could to receive financial support by stable liabilities. The purpose of this indicator is to limit the reliance on large financial sources in periods of liquidity surplus and promote the more precise liquidity risk assessments for all sheets of balance and off-balance sheets. This kind of approach will help the commercial banks lower the possibility of a sudden deterioration of the liquidity indicator and prevent the increase of liquid assets reserves on the account through the short-term sources of funding.

The NSFR is calculated by the formula 3 (Basel III... 2014).

Formula 3. The net stable funding ratio

|                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|
| $\text{NSFR} = \frac{\text{Available amount of stable funding (ASF)}}{\text{Required amount of stable funding (RSF)}} > 100\%$ |
|--------------------------------------------------------------------------------------------------------------------------------|

Source: Basel III: The net stable funding ratio, 2014

The gist of the NSFR is: the greater is the amount of the non-liquid assets in the bank, the greater is the necessity for a secure and stable financial support because the stable resources outflows would be less probable and it would allow using these resources as financial support of non-liquid assets in stress situations.

## Conclusions

As a result of the given research the author has arrived to the following conclusions:

- Implementation of Basel III recommendations shall have a positive effect on the financial stability of the banking system in the long-term period, because commercial banks will choose more balanced growth strategies;
- Estimation of new capital indicators TIC/RWA and TC/RWA showed that most banks were ready to observe them already in the period 2001 to 2014.
- Key factors influencing the capital of Latvian commercial banks are provisions for outstanding debts and amount of banks assets; both factors are statistically significant;
- In turn, the key factors influencing the bank liquidity are banks' assets structure, high quality liquid assets level, stability of bank deposits, as well as risk level of bank assets and quality of bank total assets.

Based on conclusions obtained, the author has the following proposals to the commercial banks:

- Every month to calculate and evaluate capital adequacy ratios and new liquidity ratios (liquidity coverage ratio and net stable funding ratio) in accordance with Basel III requirements;

- To ensure continuous control and monitoring of capital adequacy and changes in new indicators of capital (common equity capital ratio, Tier 1 capital ratio, and total capital ratio);
- To review the capital management policy not rarer than once a year;
- To ensure the bank capital adequacy assessment under stress scenarios;
- To reveal the reasons of terms mismatches between banks' funds and banks' assets allocation;
- To ensure the constant control of cash outflows and cash inflows in commercial banks;
- To obtain the long-term funds through the following tools:
  - receiving syndicated loans,
  - issuing the long-term debt securities,
  - offering to customers more favorable terms for long-term deposit.

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