Basel III: Theory and Implementation in the EAEU Countries

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Базель III: Теория и внедрение в странах ЕАЭС

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Аннотация. После глобального финансового кризиса 2007-2008гг Базельский коммитет представил новый документ с новыми требованиями к уровню ликвидности и капиталу. Коэффициенты LCR и NSFR на ряду с коэффициентом левериджа стали одними из основных требований документа. Новые требования документа Базель 3 будут внедрены поэтапно. Несмотря на то, что Базель 3 обязателен только для стран G10, больше 100 стран решили взять за основу банковского урегулирования именно систему данного документа. Финансовая и экономическая интеграция так же является причиной для вндерения единой сыстемы урегулирования финансовой системы в странах-участницах. Созданием ЕАЭС страны-участницы стремятся укрепить экономику за счет общих ресурсов, технологий и интеграции систем. Так же, между странами-участницами обеспечивается свободное перемещение товаров, услуг, капитала и рабочей силы. Стремление Евразийского экономического союза создать общий финансовый рынок и углубленную экономическую систему требует интегрированное и общее законодательство банковского сектора. Анализ показывает, что страны-участницы Евразийского экономического союза так же начали внедрения требований документа Базель 3. Среди стран Союза Россия находится на передовом месте по статусу внедрения и планирует закончить процесс внедрения к 1 января 2022г, несмотря на то, что в связи с кризисом из-за Covid-19 Базельский коммитет отложил конечный срок внедрения с 2022г на 2023г.
Ключевые слова: Базель III, рыночный риск, Евразийский экономический союз, коэффициенты ликвидности, LCR, NSFR, Tier 1 Capital, стандарты BCBS, внедрение Базеля III, backesting, экономическая и финансовая интеграция

Բազել III: Տեսական հիմքը և ներդրումը ԵԱՏՄ երկրներում

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**Ամփոփում`** 2007-2008 թվականների ֆինանսական ճգնաժամից հետո Բազելյան կոմիտեն ներկայացրեց նոր փաստաթուղթ `իրացվելիության և կապիտալի մակարդակի նոր պահանջներով: LCR- ի և NSFR- ի կապիտալի լծակի գործակիցները դարձել են փաստաթղթի հիմնական պահանջներից մեկը: Բազել 3 փաստաթղթի նոր պահանջները կիրականացվեն փուլային: Չնայած այն հանգամանքին, որ Բազել 3-ը պարտադիր է միայն G10 երկրների համար, ավելի քան 100 երկրներ որոշեցին այս փաստաթղթի համակարգը հիմք ընդունել բանկային կարգավորման համար: Ֆինանսատնտեսական ինտեգրումը նաև մասնակից երկրներում ֆինանսական համակարգի կարգավորման միասնական համակարգի ներդրման պատճառն է: Ստեղծելով ԵԱՏՄ, մասնակից երկրները ձգտում են ուժեղացնել իրենց տնտեսությունները ընդհանուր ռեսուրսների, տեխնոլոգիաների և համակարգերի ինտեգրման միջոցով` մասնակից երկրների միջև ապրանքների, կապիտալի և աշխատուժի ազատ տեղաշարժի հնարավորությամբ: Եվրասիական տնտեսական միության ձգտումը ֆինանսական համակարգի ինտեգրման պահանջում է միասնական կարգավորման մեխանիզմներ և միասնական բանկային օրենսդրություն: Վերլուծությունը ցույց է տալիս, որ Եվրասիական տնտեսական միության անդամ երկրները սկսել են ներդնել Բազել 3 փաստաթուղթը: Միության երկրների շարքում Ռուսաստանն առաջնագծում է իրագործման կարգավիճակի տեսանկյունից և կավարտի ներդրման գործընթացը մինչև 2022 թվականի հունվարի 1-ը` չնայած Կովիդ-19 ճգնաժամի պատճառով Բազելյան կոմիտեն հետաձգեց կատարման ժամկետը 2022-ից 2023թ:
Հիմնաբառեր` Բազել III, շուկայական ռիսկ, Եվրասիական տնտեսական միություն, իրացվելիության գործակիցներ, LCR, NSFR, 1-ին աստիճանի կապիտալ, BCBS ստանդարտներ, Բազել III ներդրում, բեքթեսթինգ, տնտեսական և ֆինանսական ինտեգրում

Introduction

Basel III is considered to be a direct response to the global financial crisis of 2007 and was aimed at improving the leakages of the pervious Basel Accords. But indirectly Basel III can also be linked to the same factors that forced the creation of Basel I and Basel II. With its introduction Basel III set some stricter standards for banking regulation and was required to be implemented only by the G10 countries but more than 100 countries decided to take the BCBS standards as a guideline for their banking regulation. Basel III introduced liquidity (LCR, NSFR) and leverage ratios, defined the capital levels and minimum capital requirements with defined schedule of full implementation globally till 1 January 2021 which has been twice delayed: 1st time in 2017 the full implementation was delayed to 1 January 2022 and the 2nd one as a result of Covid-19 the full implementation is set to be in force on 1 January 2023.

On 2 January 2015 the Republic of Armenia joined the Eurasian Economic Union (EAEU) which was established on 29 May 2014 by the Russian Federation, the Republic of Kazakhstan, the Republic of Belarus. Having in its roots the Eurasian Customs Union (EACU) established on 1 January 2010 the aim of the EAEU was to create a single capital market and integrated financial system across with economic integration and ease of trade and capital flow.

Considering the importance of having an integrated and common banking regulation for the creation of single capital market as well as the presence of vast scope of prior studies highlighting the importance of financial integration for the development and the growth of the countries the aim of the paper is to examine the level of implementation of Basel III standards in the member and founding countries of the EAEU. The paper presents the new requirements of Basel III and their implementation schedule with concentration on the implementation status and details in the EAEU member States.

Literature review

After the introduction of Basel Accord on capital standards and its following amendments many regulatory agencies have initiated capital requirements to control the risks based on Basel documents. This accord was the first successful attempt to harmonize international rules of bank capital and resulted from a process under heading of the Basel Committee on Banking Supervision. In fact, the 1988 Basel Accord is a document approved in July 1988 by the member countries of the Committee establishing minimum capital requirements for credit risk. In 1992 only G10 countries were forced to comply to Basel I standards but actually more than 100 countries chose to implement the regulations. The regulations were meant to improve the stability of the financial system with the new minimum requirements to the reserves of international banks. Basically, it imposes a capital requirement of at least 8% of the risk-adjusted asset, defined as the sum of asset positions multiplied by asset-specific risk weights. Basel I provided a framework for managing credit risk through the risk weighting of different assets. Basel I classify the assets into the following categories taking into consideration their risk weights:

- 0% for risk-free assets
- 20% for loans to other banks or securities with the highest credit rating
- 50% for residential mortgages
- 100% for corporate debt [**27,** p. 42]

Additionally, banks with a significant international presence were required to hold 8% of their risk-weighted assets as cash reserves. Based on the documentation international banks were advised to make investments in lower-risk assets. The accord also recommended investing in sovereign debt and residential mortgages in preference to corporate debt.

Basel II was introduced in 2004 with concentration on minimum capital requirements, supervisory mechanisms and transparency and market discipline. By creating standardized measured for credit, operational and market risk, Basel II created a more comprehensive risk management framework. Basel I had one crucial limitation of minimum capital requirements determination based only on credit risk, ignored operational, and market risks. Basel II introduced standardized measures for operational risk and focused on market values instead of book values, when looking at credit exposure. Moreover, it strengthened supervisory mechanisms and market transparency by developing disclosure requirements to oversee regulations. And also, it guaranteed better access to information for the market participants.

Basel III was created in November 2010 after the 2008 Financial Crisis and in 2017 the full implementation globally was delayed to January 2022. The reason was that during the monitoring of the implementation process the Committee noted several challenges and gave banks more time to develop appropriate infrastructures for Basel III implementation. In addition, on March 27 2020 the Basel Committee's oversight body endorsed several measures to give the banks opportunity to adequately respond to the new stability priorities which resulted from the Covid-19 pandemics. According to the Chairmen of the Committee the new measures will give the banks space to be able to respond to the economic impact of Covid-19. The measures include deferment of Basel III standard implementation date to 1 January 2023 and the accompanying transitional arrangements for the output floor extension to 1 January 2028. Also, the implementation date of the revised market risk framework and the Pillar 3 disclosure requirements was extended to 1 January 2023. Output floor is scheduled to be 50% starting from 1 January 2023 and reach 72.5% on 1 January 2028 according to the Basel III transitional arrangements. [**6,** p. 8; **10,** p. 1; **12,** p. 4; **13**; **36**].

Basel III identified the key reasons that caused the financial crisis among which:

- Poor corporate governance and liquidity management,
- Misaligned incentives in Basel I and Basel II.

The significant trading losses of the banks during the recent financial crisis showed the importance for new and improved framework for market risk assessment. Besides strengthening the minimum capital requirements Basel III introduced various capital, leverage and liquidity ratio requirements. According to the Accord banks are required to maintain the following financial ratios:

$$Tier\ 1\ Capital\ Ratio = \frac{Equity\ Capital}{Risk\ Weighted\ Assets} \geq 4.5\% \quad (1.1)$$

$$Leverage\ Ratio = \frac{Tier\ 1\ Capital}{Average\ Total\ Assets} \geq 3\% \quad (1.2)$$

$$LCR = \frac{Liquid\ Assets}{Total\ Outflows\ Over\ Next\ 30\ Days} \geq 100\% \quad (1.3)$$

$$NSFR = \frac{Avaiable\ amount\ of\ stable\ funding}{Required\ amount\ of\ stable\ funding} \geq 100\% \quad (1.4)$$

"Available stable funding" is defined as the portion of capital and liabilities expected to be reliable over the time horizon considered by the NSFR, which extends to one year. [**9,** p. 2].

Also, Basel III included new capital reserve requirements and counter cyclical measures to increase reserves in periods of credit expansion and to relax requirement during periods of reduced lending. The new standard categorized banks into groups based on their size and significance to the economy. Hence, larger banks for being more significant were forced to have higher reserve requirements. Basel III also introduces the Common Equity Tier 1 (CET 1) capital. In order to gauge market risk, the Basel Committee adopted the VaR metric. Obviously, the regulator itself requires also an evaluation and validation of the accuracy of the VaR forecasts. That procedure is known as backtesting. Basel Committee defines backtesting as follows:

Backtesting is an ex-post comparison of the risk measure generated by the risk model against actual daily changes in the portfolio value over longer periods of time, as well as hypothetical changes based on static positions. [**7,** p. 4]

A backtesting program is required by the Basel Committee and the national financial regulators, because banks and other financial institutions are allowed to use, as we already pointed out, internal risk models for official risk reporting. It is worth noting that regardless of legal requirements, several financial institutions have recently adopted internal VaR-based models for market risk management.

Hence, given the importance of internal models' recent studies have addressed the economic implications of the adoption of capital requirements based on the Basel Accord proposals. For instance, Basak and Shapiro investigate the implications of the investment decision problem when trader is subject to an exogenous VaR limit. Cuoco and Liu study the behavior of a financial institution subject to capital requirements based on self-reported VaR measures. These authors found that VaR-based capital requirements can be very effective not only in reduction portfolio risk but also in inducing revaluation of this risk. [**5,** p. 376; **16,** p. 364].

At the same time, it is widely recognized that portfolio losses exceed VaR more often than the confidence level suggests and that the frequency of these excesses changes over time while incorrect distributional assumptions in statistical models for VaR can result to incorrect capture of market risk. [**14,** p. 14].

Eurasian Economic Union (EAEU)

The Eurasian Economic Union emerged from the Customs Union after the global financial crisis of 2007-2008. The member countries aimed to strengthen their economies through shared resources, technologies and integration of systems. The EAEU was formed on May 29, 2014 in Astana when the presidents of the three founding states (the Russian Federation, the Republic of Kazakhstan, the Republic of Belarus) signed the Treaty. The Republic of Armenia and the Kyrgyz republic joined on 2 January 2015 and 12 August 2015 respectively. The document ensures free movement of goods, services, capital and labor and aims to create harmonized and single policy in the sectors determined by the document within the Union. According to the Treaty a coordinated macroeconomic policy with common principles of functioning of the economy of the member States should be carried out. Eurasian Economic Union also aims to have a single common financial market and the financial market integration means the member States also should have coordinated regulation of financial markets. The purpose of this is to deepen the economic integration of member States and ensure a secure and effective protection of rights. The Treaty also states the requirements of having common prudential and risk management approaches for banking activities, insurance activities and activities in the securities market. Moreover, within the banking sector, the member States should ensure the regulation and surveillance over them using international best practice and the principles of effective banking supervision of the BCBS. Giannetti et al. state several core channels through which financial integration facilitates financial development in the EU. It increases the depth, liquidity, and transparency of financial markets leading to better diversification of risks and wider choice of financial products across the borders. The raising competition between the domestic and foreign banks in terms of better technological solutions stimulates financial innovations in the banking sector and reduces the cost of financial intermediation between the countries. This in turn enforces development of domestic regulations. Monti notes that EU economic development is crucially based on the creation of single capital market and single market of financial services. [**17**; **18**, p. 58; **23**, p. 105-107].

Basel III Implementation in the Eurasian Economic Union (EAEU)

In order to form an effective functioning single market of financial services depends on the successful creation of harmonized prudential and financial regulations across the countries of the union. EAEU Central banks have started implementation of Basel standards simultaneously to their introduction. According to a study by Pak and Iwata as of 1 January 2016 Russia, Kazakhstan and Belarus complied with Basel III regulation partially. [**25**, p. 12]

The Republic of Armenia: In Armenia banking risks and mostly market risk is regulated by the Regulation 2 of Central Bank of Armenia and the calculation of market risk is specified in the Appendix 4 of the abovementioned regulation. The regulation defines the market risk as a grand total of FX risk, interest rate risk and capital instruments price risks by the formula

$$\boldsymbol{MR = FXR + IRR + EPR} \quad (2.1)$$

MR = market risk,
FXR = foreign exchange risk,
IRR = interest rate risk by average daily calculations for a month,
CIPR = capital instruments price risk by average daily calculations for a month.

To calculate the capital adequacy standard, the foreign exchange risk should be calculated using either Standard of VaR methodology. Banks choose the methodology for this purpose once a year and inform the Central Bank of Armenia prior to December 31 of the year preceding each year.

According to the Regulation 2 of Central Bank of Armenia Tier 1 Capital Ratio, LCR and NSFR ratios are listed among the prudential standards for banking. [**15**, p. 4]

Tier 1 Capital Ratio (1.1) can be compared to the $\mathbf{N1^1}$ prudential ratio also known as *capital adequacy ratio* but is different from the core Tier 1 Capital Ratio as currently the "core capital" defined by the Regulation 2 does not comprise the same elements of capital as Tier 1 capital defined in the Basel III document. $N1^1$ is calculated as follows:

$$N1^1 = \frac{Core\ capital}{Risk\ weighted\ assets} \geq 12\% \quad (2.2)$$

Risk weighted assets are calculated based on the credit risk, market risk and operating risk as follows:

$$RWA = CR + \left(\frac{25}{3}\right) * (MR + OR) \quad (2.3)$$

CR – credit risk, calculated according to the appendix 3 of the Regulation 2
MR – market risk, calculated according to the appendix 4 of the Regulation 2
OR – operating risk, calculated according to the appendix 5 of the Regulation 2

The LCR ratio (1.3) corresponds to the $\mathbf{N2^3}$ prudential ratio of the Regulation 2 in Armenia and the formula is below: [**15,** p. 21]

$$N2^3 = \frac{liquid\ assets}{Net\ cash\ outflow} \geq 100\% \quad (2.4)$$

And both *highly liquid assets* and *net cash outflows* are calculated in accordance with the appendix 12 of the same regulation.

The NSFR ratio (1.4) corresponds to the $\mathbf{N2^4}$ ratio in the Armenian regulation and is calculated as follows:

$$N2^4 = \frac{available\ stable\ funds}{required\ stable\ funds} \geq 100\% \quad (2.5)$$

The available and required stable funds are described in the appendix 13 of the Regulation 2.
For both LCR and NSFR ratios there is a schedule for implementation and reaching the level of 100%. [**15,** p. 5]

Table 1: *Schedule of implementation of LCR and NSFR ratios in Armenia*

Minimum level	Period
≥ 60%	Till 30 June 2021
≥ 80%	From 1 July 2021 till 31 December 2021
≥ 100%	Starting 1 January 2022

Russian Federation: The Russian framework for risk-based requirements is implemented through various regulatory documents, including Regulations, Ordinances and Instructions. That legal framework relates to all credit institutions, which are commercial banks and state-owned institutions. The framework has since been periodically updated to be consistent with Basel 2.5 and Basel III.

In July 2015, the Bank of Russia (CBR) completed an extensive self-assessment of the capital regime as part of their preparation for the RCAP exercise. The self-assessment found out some divergences of Russian regulation from the BCBS requirements. The Bank of Russia was tasked to upgrade the prudential framework.

As of October 2015, 714 banks were registered in Russia with total assets of about RUB 80,6 trillion. Compared to 2020, there are nearly half of that number. As of 31 December 2020, the number of registered banks is 365 but the total assets have increased to about 103.8 trillion. CBR has implemented the Standardized Approach of market risk assessment and introduced requirement for the gamma and Vega risk of options. Moreover, issued a guidance on valuation adjustments of less liquid positions for regulatory capital purposes. CBR has not implemented the Advanced Modelling Approaches for market risk, as the advanced approaches for market risk assessment are optional in Basel Standards.

According to the Regulation of CBR, no 511-P market risk is calculated as follows: [**4,** p. 52]

$$MR = 12{,}5 * (IR + SR + CR + CMR)$$

IR = interest rate risk
SR = stock risk
CR = FX risk
CMR = commodity risk

According to the Regulation of the Bank of Russia the short-term liquidity ratio corresponding to the LCR of Basel III is calculated as follows: [**1,** p. 22]

$$Short - term\ liquidity\ ratio = \frac{liquid\ assets - adjustments}{net\ cash\ outflow} \quad (2.6)$$

Starting from 1 January 2016 all credit institutions are required to maintain capital conservation buffer of 0.625% of RWA and set to increase reaching 2.5% in 2019. According to the 18 December 2020 press release of the Bank of Russia, the board of directors decided to retain the value of capital buffer and capital adequacy ratio at 0% of RWA on several types of loans and retained the same decision on 19 March 2021. as the capital buffer for systematically important banks at the domestic level has been in effect since 1 January 2016 and set at 0.15%. Also according to the Bank of Russia there are no global systematically important banks (G-SIBs) in Russia. [**32**; **33**; **34**]

When calculating the IR, SR and CMR the net positions are taken, i.e. the difference of sum of all long positions and sum of all short positions of the homogeneous financial instruments. The CBR started implementing the LCR in 2016 setting the minimum required level of 70% as of 1 January 2016 with increase reaching the 100% on 1 January 2019 to comply with the Basel III standards. The LCR requirements are to be applied to the systematically important banks defined by the Bank of Russia. [**31**; **35**]

The Republic of Kazakhstan: The Republic of Kazakhstan introduced the Basel III definition of capitalization and adopted standardized approach of calculating credit and market risks. On 1 January 2015 the National Bank of Kazakhstan also set minimum requirements of capital ratios (CET 1, Tier 1, Total capitalization) but raised them on 1 January 2017 choosing to implement tighter policy with comparison to internationally accepted standards. Capital conservation buffer was also increased in 2017 after being introduced in 2015. The NSFR is in effect starting from 1 January 2019 and the LCR ratio is set to be reached 100% in 2022. Full adoption of Basel III was postponed to 2021 but after the Covid-19 pandemic the Basel Committee on Banking Supervision postponed the full adoption of Basel III to 1 January 2023. [**25,** p. 13-14]

The Republic of Belarus: The National Bank of the Republic of Belarus has fully adopted the capital minimum requirements and leverage ratio according to the methodology defined by the BCBS between the 2012-2016 with a deviation in capital ratio. The capital conservation buffer and the methodology of calculating the countercyclical buffer was issued in 2013. The NBRB also issued methodology of systematically important banks at the domestic level and the Group I banks have and additional capital of 0.75% from January 2018 and 1.5% from January 2019. [**28**; **29**]

In addition, the NBRB developed instruction for risk management regulation and internal control process for banks and non-bank credit institutions.

The Kyrgyz Republic: The National Bank of the Kyrgyz Republic adopted a resolution to comply with the international standards of Basel III. The resolution contains amendments and regarding the improvement of forms of periodic regulatory banking reports. The resolution also includes respective changes to several regulatory acts of the National Bank: Instruction on Determination of Capital Adequacy Standards, on economic Standards and requirements mandatory for commercial banks of the Kyrgyz Republic, on periodic regulatory banking report, on limitation on lending and on corporate governance and external audit. [**2**; **3**]

Conclusions

The 2007-2008 global financial crisis forced the Basel Committee on Banking Supervision issue a new Basel Accord Basel III with stricter capital requirements. Basel III introduced liquidity requirements and suggested standardized and internal models' usage for market and credit risk management.

Though the EAEU member States started implementation of Basel III before joining the Union, after the integration was in effect having a banking system regulation in line with international standards and among the State member is a mandatory for the Union. The research showed, that all the States of the Union have started making resolutions and amendments to adhere to the Basel III accord but the process of the implementation is not finished. The Russian Federation is the one that has gone the farthest in implementation process and the Kyrgyz Republic is behind the other States in the process. As for the Armenian banking system, the Regulator (Central Bank of Armenia) has already introduced the liquidity requirements and scheduled their full implementation on 1 January 2022. The study shows that even though currently the financial system is facing instability challenges as a result of Covid-19 the State Regulators are trying to reach the full implementation in 2022.

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