

## An evolving nature of credit risk regulations

Fomina L. (Russian Federation)

### Эволюция нормативных актов о кредитном риске

Фомина Л. Б. (Российская Федерация)

*Фомина Линда Борисовна / Fomina Linda – студент,  
кафедра мировой экономики и международного бизнеса,  
факультет международных экономических отношений,  
Финансовый университет при Правительстве Российской Федерации, г. Москва*

**Abstract:** *the article discusses how the evolving nature of Basel regulations affects the credit risks within the banking and finance industry. The changes in approaches of credit risk and minimal capital requirement calculation are analyzed.*

**Аннотация:** *статья рассматривает, как развитие Базельских соглашений повлияло на кредитный риск в банковской и финансовой сферах. Рассматриваются изменения в способах расчета кредитного риска, а также минимальных требований капитала.*

**Keywords:** *credit risk, Basel, capital, bank, finance .*

**Ключевые слова:** *кредитный риск, Базель, капитал, банк, финансы.*

It is well known that credit risk - the risk of loss following a change in factors driving the credit quality of an asset - is the most critical risk within the banking sector, that directly affects overall banking performance. Since banking business went through significant changes, so did credit risk regulations. So this part of work will be focused on the developing of Basel regulations, concerning credit within banking and finance industry.

#### Basel I

In the 1980s due to the internationalisation of banking and risk of capital arbitrage it was decided to internationally standardise capital requirements. It was connected with the great range of risks faced by institutions that the capital should be sufficient for. That is what the 1988 Basel Accord was primary created for: to reach the guidelines which protected financial system, but allowed financial institutions to prosper [1]. And although later banks became more important players in the capital markets and thus the influence of market risk became more significant, it's the credit risk that was the reason the first The Basel Capital Accord worked: initially it covered only credit risk, which was the dominant risk class in banks in the 1980s.

For meeting acceptable capital adequacy requirements, Basel I defined two minimum standards: asset-to-capital multiple and risk-based capital ratio.

More critical measure, focused on the credit risk, is risk-based capital ratio. A set of simple rules became the base of the regulatory capital calculation, defining the appropriate risk rates that should be applied to an asset or loan. The regulatory capital obtained as following:

$$\text{Capital} = 8\% \times \text{Risk weight} \times \text{Exposure}$$

The required capital ratio thus was set at a minimum of 8%, with at least 4% being core capital and supplementary capital. The objective of this capital is to serve as a buffer against unexpected losses and protect financial markets and depositors. Risk-weights in this approach are assigned to four possible asset classes. Basically, the more risky positions of a bank are, the higher would be the risk-weighted assets and the more capital would be charged. So, according to [2] risk-based capital charges were also a rough attempt to create a penalty for riskier assets.

Early requirements of Basel I were insufficiently considered and addressed a very limited range of risks. Nevertheless, they were simple enough to agree on. Basel I served the banking system quite well until the advent of securitisation technology.

#### Basel II

After enormous changes in capital markets, credit risk charges appeared to become outdated and even able to promote unsound behaviour by some banks [2]. Therefore, a large programme was started in the last years of twentieth century in order to create more sensitive to credit risk capital rules than Basel I [1].

Basel II extended the risk calculation to include market and operational risks, so capital adequacy will be measured as follows:

$$\begin{aligned} & (\text{Total Capital}) / (\text{Credit risk} + \text{Market risk} + \text{Operational risk}) = \\ & = \text{Bank's Capital Ratio} > 8\% \end{aligned}$$

As can be seen, the framework maintained the minimum capital requirement of 8% of risk-weighted assets, with 4% for Tier 1 and balanced Tier 2 [3]. The purpose of those 4% was to absorb unexpected losses, but the financial crisis clearly showed that this number is not sufficient and the expectations were not met.

The other change is about calculation of credit risk. Basel II provides banking institutions more approaches to assess credit risk, with direct impact on their capital adequacy ratios. Those approaches are varying in terms of complexity, but banks could choose one of them, depending to their risk profile, internal requirements and local or regional supervision authorities' requirements [4].

- Standardized approach

This is an extension of Basel I, however it uses external ratings for 11 risk categories with the new weights for banks and sovereigns (five categories) and for corporates (four categories). Banks can either assign a risk weight one notch below that of the sovereigns or to use an external credit assessment [2].

- Internal Rating-Based approach (the IBR)

The IBR is highly mathematical value-at-risk approach. Capital requirement based on the VaR calculated on a one-year time horizon and a 99.9% confidence level. Capital required is therefore the value at risk minus the expected loss, since usually expected losses are covered by the way a financial institution prices its products [5]. The weights are derived based on the banks' own risk measures. If using Foundation IBR, banks calculate their probability of default, but other VaR elements (the loss given default and exposure at default) are provided by the financial services authorities on base of the data from different banks. In Advanced IBR approach all VaR elements must be based upon internal estimates (Anderson, 2007). The accuracy of those models clearly depends on correct assessment of the probability of default.

Overall, the more advanced approach a bank decides to use, the higher is responsibility (to determine the risk parameters) and implementation cost for the bank [6]. However, while banks with simple portfolios can follow standardized approach, more advanced banks are expected to apply IBR approach. In order to do so, the bank should meet a set of minimum requirements, have reliable internal rating system, and bank-developed rating system must be approved.

So after implementation of Basel II credit risk capital was calculated in a more sophisticated way than previously. However, according to Dănilă [4], it is still discussed whether the regulatory framework was actually improved with new methods that were applied to credit risk or it contributed to the financial crisis, as banks were allowed to use their own predictions and models to assess credit risks and set capital adequacy ratios.

### Basel III

Unlike Basel I and Basel II, Basel III rules are mainly issued in response to the recent financial crisis. The application of Basel III framework from 2013 and gradually over the six-year period aims to make previous framework more effective and to straighten the international banking system's stability. Overall, three key elements of Basel III are higher capital ratios, better capital quality and stricter liquidity requirements.

Under Basel III, a bank's total capital consists of: Equity capital, additional Tier 1 capital and Tier 2 capital, thus there is no Tier 3 capital. New levels of capital requirements were expected to be sufficient to cover large amounts of losses and solve a problem of Basel II. The final structure of the regulatory capital is as follows:

*Table 1: Structure of the regulatory capital*

Capital	Basel II (%)	Basel III (%)
Common equity		
Minimum	2	4.50
Stabilizing	0	2.50
Total required	2	7
Tier 1 capital		
Minimum	4	6
Total required		8.50
Total capital		
Minimum	8	8
Total required		10.50

As percentages have been increased, it can be clearly seen that the Basel III rules became much more demanding. It is also proved by the fact that definition of equity capital for regulatory purposes has been tightened.

It was agreed that a conservation buffer minimum of 2.5% to be covered by common equity. Aim of this buffer make it sure that banks maintain a capital to absorb losses during financial crises. Additionally, in Basel III was set a countercyclical buffer. The extent to which it is implemented in a particular country is left to the discretion of national authorities, but otherwise it is similar to the capital conservation buffer (Hull, 2012). This buffer is supposed to protect the cyclicity of bank earnings. It can be set between 0% and 2.5% of total risk-weighted assets and must be met with Tier 1 equity capital. It should be noted that the above recommendations will be fully implemented after transitional period on January 1, 2019 [7].

For the first time it was decided to establish liquidity ratios at international level. Liquidity coverage ratio is supposed to ensure that a financial institution has the necessary assets to overcome short-term liquidity disruptions. It is required that banks keep an amount of highly liquid assets (cash or treasury bonds), equal to or greater than their net cash over a 30-day period. The ratio came into effect in January 2015 with minimum requirement of 60%, which will rise to 100% to 2019 [8].

Net stable funding ratio is created to compare the amount of a firm's available stable funding with required stable funding in order to measure funding of the firm's asset base. The aim of this indicator is to encourage banks to fund their activities with more stable sources in order to mitigate the risk of future funding stress.

There is a lot of criticism of the framework, for instance for being too costly. Vousinas [7] notice, that there is a risk of reduction in the credit supply provided by banks, which can negatively affect the real sector of the economy. It is clear however that the broad application of Basel III rules can produce more stable banking system, implementing stricter capital adequacy ratios and thus ensuring liquidity in times of financial distress. Therefore, it's duty of authorities to monitor the financial and banking conditions and to intervene when needed so the regulatory rules are followed.

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