

## **Capital Buffer Implication: Evidence for Russian Banks**

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### **Abstract**

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*The article studies the interrelation between the stages of economic cycle and countercyclical buffer. Countercyclical buffer is aimed at forming a special reserve to be used during the economic downturn. For Russian banking system interrelations between the accumulation of capital surplus and stages of economic cycle is not evident. The authors make an assumption that Russian banks tend to decrease the capital buffer during the rise in economy and increase the capital buffer during the downturn. Recent global financial crisis showed the need to improve the regulation of the banking system and application of new requirements to the adequacy of capital of commercial banks. These requirements are aimed at strengthening the banks' control over the system risk level and decreasing pro-cyclic effect of the banking system. Basel Committee on Banking Supervision introduced new requirements to the bank capital that also apply to Russian banking system. The regulatory requirements were raised for basic indicators, and the banks were proposed to form the capital conservation buffer and countercyclical buffer.*

*The authors compared results of different research studies around countercyclical buffer and realized that there are no common trends for different countries. Thus they focused their research on Russian banking system and propose to construct a country-specific model with unique regression parameters.*

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**Keywords:** Basel III, capital buffer, economic cycle, Russian banking system

## **1. CAPITAL BUFFER AS A TOOL OF REGULATING THE BANKING SYSTEM**

### **1.1. Importance of bank's capital management**

The bank's capital is a totality of the bank's own funds constituting the financial basis of its operation, and the source of resources. The bank's capital is designated to support the trust of clients to the bank and convince the creditors of its financial sustainability.

Efficient operation of banks during crisis depends on maintaining the opportunities for the own development ensured by sustainable growth of the banks' capital. An importance precondition for the development of the banking system is an increase in capitalization of commercial banks and maintenance of the adequate level of capital coverage for the risks assumed by the banks. Economic difficulties (decline in oil prices, uncertainty risk, low profitability of industry) require an enhanced reliability of the banks. Solution of this task may be possible only if the banks strengthen their capital buffer.

This survey is built upon analysis of the relationship between the additional capital, accumulated by the banks over the required norms, and the stages of economic cycle. As has been earlier noted, availability of additional capital is particularly important during recession. If the banks do not accumulate additional capital in advance (during the growth period), the state of economy during recession may only deteriorate, since capital accumulation decreases the scope of crediting, and crediting under downturn conditions and resource deficit is particularly necessary for the development of industrial production.

The banks that suffer inadequacy of their own capital are helped by the state. During crisis of 2008, many states provided the banks with the tier 1 capital through purchasing of privileged shares by the state, which matched the criteria of tier 1 capital. In the US, the scope of recapitalization of banks amounted to one trillion dollars, and in Russia this indicator was significantly lower. In crisis in 2008-2009, recapitalization reached 1.1 trillion rubles, the support measures were provided for the total amount about 1.4 trillion rubles as per 1.01.2015.

But what could happen to the banking system and the economy of the country in general, if the state is unable to recapitalize the banks?

## 1.2. Credit cycles in economy: cycle theory

An integral part of economic cycle is a credit cycle. Credit cycle means the period, when the available scope of crediting for certain markets increases and then reduces. Economists of many countries hold a view that the credit cycle is the main driver of the economic cycle.

In order to decrease the impact of the banking sector on the economy the Basel Committee introduces new Basel III standards, which include a dedicated regulation tool – countercyclical buffer aimed at counteracting the procyclicality of the banking sector. The banks need to create adequate amount of reserves for the granted loans during the credit boom, since the banks' losses through overdue credits may adversely affect the banks' capital, thereby worsening the economic downturn even more. If during crisis of 2008 Russia banks were saved through the state support, it is not certain that the state will find the money again during the new crisis.

## 1.3. Basel III

In September 2010, the Basel Committee announced creation of new standards for assessing banks' capital and liquidity – Basel III. Basel III was the response to the global financial crisis of 2008. New Basel III standards are designated to strengthen risk regulation and management in the banking sector, and should increase sustainability of the financial sector during the economic downturn period. Basel III implementation started on 1 January 2013. Transition to the new standard will be performed in several stages and is planned to be completed by 2019.

The new standard implements 3 brand new changes:

- 1) changes in the structure of the banks' capital;
- 2) increase in requirements to capital adequacy (including application of new capital adequacy ratio);
- 3) establishment of capital reserves.

Basel III requires gradual implementation of two capital buffers: capital conservation buffer and countercyclical buffer. Conservation buffer will be created in several stages from the net profit. It will be formed in equal portions (0.625%) starting from 2016. This buffer is used for covering losses of the banking sector in case of financial crisis.

The objective of Basel III implementation will be increasing the following requirements to the capital quality:

- 1) increase in requirements to the capital quality, i.e. increase in the authorized capital share in the tier 1 capital (T1) and increase in the T1 share in the aggregate capital;
- 2) increased requirements to the capital adequacy:
  - for equity capital — from 2 to 4.5%;
  - for tier 1 capital (T1) — from 4 to 6%;
  - for aggregate capital (T1+T2), the requirements remain at the rate 8%, but a capital conservation buffer is introduced in the amount of 2.5% (which increases requirements to the aggregate capital from 8 to 10.5%);
  - a countercyclical buffer is introduced in the amount between 0 and 2.5% (thereby, requirements to the aggregate capital grows up to 13%;

- additional requirements are introduced for the biggest banks to the capital in amount from 1 to 2.5% (target capital adequacy value for systematically important banks may increase for them up to 15.5%).

Basel III introduces a countercyclical buffer for the purpose to strengthen the capital during expansion in economy and decrease requirements during recession. Thereby, the accumulated capital will be used during the downturn in economy as a reserve. The amount and application procedure of countercyclical markup for credit institutions will be determined by the Bank of Russia. Both types of buffer may be decreased in order to cover the losses during the downturn period. Besides the changes in requirements to the capital, the second important change is the new liquidity requirements. Basel III introduces two liquidity ratios: liquidity coverage ratio and net stable funding ratio.

It may be concluded that Basel III applies significantly higher requirements to adequacy of different parts of the banks' capital. Moreover, new banking system regulation tools are introduced in response to the global economic crisis.

#### 1.4. Integration of the Basel Accord in the Russian legal regulatory environment

The Central Bank of the Russian Federation gradually enacts some elements of Basel III, adapting them with respect to specificity of the national banking system. Such elements particularly include a simplified standardized approach of assessing credit risk, simplified approached to assessing market risk, as well as basic indicative approach to assessing operation risk.

If we compare the requirements of the Bank of Russia and the Basel Committee, the requirements of the Bank of Russia will be stricter in a whole range of issues. Thus, capital adequacy ratios established by the Bank of Russia in 2013 were 2% higher than the ratios adopted by the Committee in Basel III. However, in 2016 the CB RF introduced a new minimum level of capital adequacy that equals to 8%. At the same time, the Bank of Russia has not yet determined the requirements related to capital conservation buffer and countercyclical buffer, and only gradually makes decisions on introduction of new capital requirements. The specified capital markups are not mandatory. However, if the capital adequacy level falls below the standard value increased by the capital adequacy markups, the banks will have to apply restrictions on profit distribution and payment of unfixed remuneration to the management of credit institution pursuant to Article 24 of the Federal Law On banks and banking activity. The markup for retaining capital adequacy (capital conservation buffer) is planned to be implemented with respect to all credit institutions. The amount of this markup, in accordance with Basel III Implementation Schedule, is planned to be implemented from 1 January 2016 in the amount of 0.625% of the risk-weighted assets. The annual increase by 0.625% is also planned, which will result in reaching the value 2.5% by 1 January 2019.

Table 1

#### Capital conservation buffer augmentation between 2016 and 2019

Date	01.01.2016	01.01.2017	01.01.2018	01.01.2019
Capital adequacy retention markup value, %	0.625	1.25	1.875	2.5

Source: CB RF official website; On Basel III implementation measures and regulation of activities of systematically important banks<sup>1</sup>.

As concerns the countercyclical buffer, the amount and application procedure of the countercyclical markup for credit institutions will be established by the Bank of Russia. At the same time, it is planned for 2016 that the Central Bank of the Russian Federation will set the amount of countercyclical markup equal to 0% of the risk-weighted assets, which is explainable in principle, since Russia suffers the crisis, banking business is low profitable now, and the accumulated credit risks are realized during the crisis. During the crisis, there are less investors willing to buy shares; therefore, it is more difficult for the banks to strengthen the capital.

<sup>1</sup> Data of the official website of the Central Bank of Russia [Electronic resource]. – Access mode: <http://www.cbr.ru>.

That is why CB RF does not apply the countercyclical buffer because it needs to be implemented during the economy growth period. In order to determine the timing for application of countercyclical buffer, the Bank of Russia plans to use a credit gap as the main indicator – the difference between the ratio of the scope of credit offer to GDP and the long-term trend of this ratio determined in accordance with the method proposed by the Basel Committee on Banking Supervision.<sup>2</sup>

Pursuant to CB RF Instruction No. 139-I, the bank's capital adequacy ratio (R1) was 10% between 2006 and 2013. Capital adequacy ratios established by CB RF at that moment were 2% higher than those provided for by Basel III.

Table 2

**CB RF and Basel III capital requirement comparison as per 2013**

<b>Capital adequacy ratio, Bank of Russia</b>	<b>Adequacy ratio, Basel III</b>
Equity (capital) adequacy ratio of credit institution (R1.0) $\geq$ 10%	Aggregate capital adequacy ratio $\geq$ 8.0%
	Countercyclical buffer $\geq$ 2.5%
	Capital conservation buffer $\geq$ 2.5%

Source: Ernst&Young Report in Basel II/Basel III Implementation in Russia.

Russia was one of the first countries that started discussing application of Basel III standards. In particular, capital markups are planned in Russia during 2016-2019. The main objective of countercyclical buffer is to remedy the pro-cyclical effect made by the banking sector on the economy. One of the main targets of Basel III implementation in Russia is to conform the banking regulation and supervision in the Russian Federation with the international standards in this area. Russia needs to increase the credit ratings of banks, which would allow them being full participants of international transactions.

### 1.5. Dependence of the capital buffer on the economic cycle

Though the requirement to introduce the countercyclical buffer was adopted in 2011, studies on this topic has been published since early 2000-s.

One of the first surveys on the impact of economic cycle on the capital buffer was presented in [Ayuso, Perez, Saurina, 2003]. The survey was aimed at checking, if there is any interrelation between the capital buffer accumulated by Spanish banks and economic cycles. In order to find the interrelation, the authors used econometric regression with 5 variables: return on equity, share of non-performing loans, size of the bank calculated as the amount of assets, GDP growth, and binary variable responsible for who is the bank owner. The data were collected between 1986 and 2000. This period was chosen because the Spanish regulating authority changed the capital adequacy ratio in 1985. The data were used from 142 banks throughout 15 years. As a result, the sample consisted of 1,309 observations. The authors [Ayuso, Perez, Saurina] revealed a significant negative relation between economic cycle and the capital buffer.

The authors [Tabak, Noronha, Cajueiro, 2011] also analyzed the dependence between economic cycles and the capital of Brazilian banks. According to them, the size of the capital buffer depends on several indicators.

First, it is return on equity. Capital surplus kept by the banks as a capital buffer makes no additional benefit to their owners. Therefore, if the resources do not work for the bank, this affects the bank's return on equity. Second, the bank's loss risk. The non-performing loans ratio was chosen as such indicator. If the bank accumulates "bad assets", it will need a "safety cushion". In this case, the safety cushion is the capital buffer. The third indicator is the size of the bank calculated as the amount of the bank's assets. The main reason for including this factor in the model: diversification effect, "too-big-to-fail" hypothesis, big banks have a privileged access to the capital.

<sup>2</sup> Guidance for national authorities operating the countercyclical capital buffer. Basel Committee on Banking Supervision. Bank for International Settlements. 2010 (December). – Access mode: [www.bis.org/publ/bcbs187.pdf](http://www.bis.org/publ/bcbs187.pdf).

The authors [Tabak, Norohna, Cajueiro, 2011] made an assumption that the size of the capital buffer may also depend on who is the bank owner, and the impact of public and foreign interest in the bank's capital was assessed. Moreover, a correlation was described between the growth of the credit portfolio and the size of the capital buffer, economic cycle and SELIC interest rate.

As a result, [Tabak, Norohna, Cajueiro, 2011] the data from 134 Brazilian banks between 2000 and 2010 revealed that the banks increased the capital buffer during economic downturn and decreased it during economic growth. Thereby, it may be concluded that economic cycles has negative interrelation with the accumulated capital.

The survey [Guidara, et al 2013] showed that Canadian banks alternatively accumulate the capital buffer during expansion. The accumulated part of the capital is used during downturn periods for compliance with the capital requirements. The survey considers the extensive time period from 1982 till 2010. This period allows examining three economic and three main regulatory legal modes:

- 1) between 1982 and 1987, in the period before the Office of the Superintendent of Financial Institutions (OSFI), which has the status of a federal agency, adopted the Basel I Core Principles;
- 2) between 1988 and 1997, when OSFI adopted Basel I;
- 3) between 1998 and 2010, after OSFI adopted in 1996 amendments to Basel I Accord, which presented the market risk as a separate risk category, as well as Basel II period.

The survey revealed that Canadian banks have a good capitalization, which explains why they did not suffer any string impact of the financial crisis of 2008-2009. This survey allowed making two useful conclusions of the bank capital regulation policy. First, the increase in requirements to the capital should be made during the periods of economic growth because the banks can accumulate more capital in such periods; alternatively, during the economic downturn, the decrease in requirements to the capital would be desirable for the banks, since this would ensure high flexibility for overcoming the recession. Second, the increase in the growth period will reduce the cyclicity in economy, and the recession will not deepen. Application of this policy in regulating the bank's capital helped the banking system of Canada to cope with the crisis of 2008-2009 in a better way than the major banks in Europe and the United States.

The survey [García-Suaza, et al., 2012] uses panel data of Columbian banks quarterly data between 1996 and 2010. The work studied the interrelation between short-term changes in the banks' capital buffer and economic cycle. The main interest of the study is determination of the sign before the GDP variable. The existing bibliography allows assuming that this sign is negative, which proves that the capital buffer changes inversely to the economic cycle. Negative relation between the business cycle variable and change in the capital buffer shows that, during expansion, when the banks increases the amount of credits, the capital buffer falls down; while during economic downturns, the capital buffer increases. Such behavior was called "banking myopia" [Borio et al., 2001]. Apart from the annual GDP growth (GDP), the regression also included the following variables: return on equity (ROE), bad asset ratio to the total loan volume (RISK), real loan growth rate (DLOAN), and loan-asset ratio (LOANS).

The work revealed the negative relation between the capital buffer and economic cycle. However, it was also found the capital buffers of small and big banks behave in a different way during the economic cycle. The capital buffer of small banks is constant in time, while the big banks' buffer behaves in a countercyclical way. The survey results show the need of bank capital regulation measures.

The banks retain different capital rates depending on their individual features, such as access to capital markets, risk level, and size, as well as the business cycle stage. Decisions made by the banks with respect to the amount of capital they retain affect the crediting. Dependence of the capital buffer and the business cycle may negatively affect the macroeconomic stability. Empirical studies showed that the capital buffer of Western banks changes inversely to business cycles. The banks carry out risky activities during economic expansion, extending their credit portfolio without straightening capital reserves respectively.

During the downturn period, when the banks face increased credit risk, poorly capitalized banks will suffer the possible fall of the capital adequacy below minimum required rates. Therefore, they will have either to issue new shares or increase their capital reserves through reducing crediting. Taking into account that capital raising is particularly difficult during economic downturn, when the capital is difficult-to-obtain and expensive, many banks will have to reduce crediting to a great extent. As a result of decrease in supply of borrowed funds to companies, the scale of economic downturn will expand.

Thus, most of international researchers think that there is a negative correlation between accumulation of capital surplus and stages of economic cycle. This conclusion does not meet the expectations of regulatory authorities, which has the goal to reduce the pro-cyclicality of the banking system. The countercyclical capital buffer introduced by Basel III aimed to solve this problem.

For Russian banking system interrelations between the accumulation of capital surplus and stages of economic cycle is not evident as well. Just a few attempts have been made locally so far to evaluate the possible impact and feasibility of application of countercyclical buffer; therefore, the further survey on this aspect is particularly relevant and is expected to be very useful for Russian banking system.

The research question lies at the time when banks accumulate capital buffer at different stages of economic cycle. The future research objectives should examine the relevance of the capital buffer and discover its regression parameters in Russia. Preliminary scientific discussions suggest the following aspects to be studied: size of the bank's assets, return on equity, ratio of non-performing loans to the total amount of loans, growth of GDP, and amount of loans granted.

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