Jelena BirovljevUniversity of Novi Sad
Faculty of Economics Subotica
Department of Agricultural
Economics and Agribusiness**Milivoje Davidović**University of Novi Sad
Faculty of Economics Subotica
Department of Finance, Banking,
Accounting and Auditing**Biljana Štavljanin**University of Novi Sad
Faculty of Economics Subotica
Department of Agricultural
Economics and Agribusiness

BASEL III: REDESIGNED REGULATORY FRAMEWORK FOR BANKS

Bazel III: redizajnirani regulatorni okvir za banke

Abstract

The global financial crisis has confirmed the global regulatory mechanism weakness in the prevention of the causes and consequences in stress situations. As an expression of inadequacy, Basel Committee designed Basel III standard as a new regulatory framework for banks. Its implementation involves the compliance of strict capital requirements, liquidity standards and leverage. Researches about the effects of Basel III standards indicate that a shorter time horizon, these are the consequences for economic growth is greater. For the four-year implementation period, the increase in capital requirements for the 1% would result in a reduction in global GDP by 0.1%, while the largest drop in GDP would be recorded after 18th quarter and amounted to 0.19%. Also, during the implementation horizon cross-country spillover effect will occur that would be stronger in developing countries relative to developed countries and amounted to 0.03%. Based on the above, pure effect of increasing capital requirements on the reduction of world GDP is estimated to 0.016%.

Key words: *Basel III, capital adequacy, capital conservation buffer, countercyclical buffer, leverage ratio, liquidity standards*

Sažetak

Globalna finansijska kriza je potvrdila nemoć globalnog regulatornog finansijskog mehanizma u prevenciji uzroka i smanjenju posledica u stresnim situacijama. Kao izraz neadekvatnosti, Bazelski komitet je dizajnirao Bazel III standard kao novi regulatorni okvir za banke. Njegova implementacija podrazumeva poštovanje strožijih kapitalnih zahteva, standarda likvidnosti i nivoa leveridža. Istraživanja efekata Bazel III standarda ukazuju da što je kraći vremenski horizont, to su posledice po ekonomski rast veće. U okviru procene za četvorogodišnji period implementacije, povećanje kapitalnih zahteva za 1% bi rezultiralo smanjenjem svet-skog BDP-a za 0.1%, dok bi najveći pad BDP-a u periodu implementaci-

je usledio nakon 18-og kvartala i iznosio bi 0,19%. Takođe, prilikom implementacije će se pojaviti efekat preliivanja između zemalja koji bi bio snažniji u zemljama u razvoju u odnosu na razvijene zemlje i iznosio bi 0,03%. Na osnovu prethodnog, čist efekat povećanja kapitalnih zahteva na smanjenje svetskog BDP-a je procenjen na 0,016%.

Ključne reči: *Basel III, adekvatnost kapitala, tampon za zaštitu kapitala, kontraktilni tampon, leveridž racio, standardi likvidnosti*

Introduction

The absence of regulation and supervision and “cheap money policy” are identified as main causes of the current financial crisis. The development of “shadow financial system” and the “myopia” of monetary policy created a housing market bubble that burst and caused financial system bankruptcy. In addition to the inadequate monetary management, perhaps the most important factor for generating the crisis is certainly inadequate financial regulation. Regulatory arrangements in pre-crisis period were the result of international coordination and cooperation, but they had a high degree of rigidity. The rigid regulatory standards are not able to follow modern trends in financial markets triggered by deregulation, globalization and the development of information technology. The dynamics of financial market created additional maneuver space in which, through “creative accounting” as a tool, financial

institutions respect regulatory standards *de jure*, while the real situation was unsustainable: a high degree of leverage, an unacceptably high systemic risk, lack of transparency, moral hazard and negative selection, lack of market discipline etc. In such circumstances, the financial crisis was inevitable. Regulators and supervisors, based on past experience and lessons from the current crisis are designed regulatory framework for banks and established a stronger regulatory requirements in terms of volume and quality of capital, liquidity, leverage, risks coverage and information disclosure. In addition, stricter requirements are imposed in the procedure for the regulatory capital calculation relative to risk-weighted asset. Impact of new standards can be considered at two levels: the level of the *banking industry* (as a need for additional capital, as a reduction of the current capital adequacy coefficient) and the level of *economic activity* (through the impact of increased capital requirements to the GDP, taking into account the spillover effect).

Global crisis - Spiritus movens of regulatory reforms

Together with the policy of “cheap money”, a importance factor for generating financial crisis is certainly a lack of adequate financial system regulation and supervision practice. Past few decades we have witnessed dramatic evolutionary changes in modern financial systems: powerful trends of deregulation, financial engineering has become a tool for creation of complex financial packages, development of the shadow financial system. When it comes to the shadow financial system, it operates with high leverage, with no maturity matching of assets and liabilities (short-term borrowings, and long term investments). Also, the financial intermediation flows have been redirected from traditional banks to other financial institutions that had not strong capital base and had not been under stringent regulation and supervision. Faced with declining volume of financial intermediation, traditional banks have gradually changed their business form to compete with the modern financial institutions. In order to achieve scale economies of, they are engaged in agencies that are granted loans as credit agents. Since the profitability of their business was connected with the

volume of signed arrangements and that were not subject of regulation and supervision (because they are not banking institutions *de jure*), their business was morally hazardous. The problem of moral hazard is expanded in the banking sector, which because of the possibility of securitization was not interested in the proper assessment and adequate risk management. Moral hazard was also immanent in the ranking of structured financial instruments, created in the securitization process. Rating agencies, in order to increase profitability, ranked collateralized securities as first-class investments to make it marketable. In this way the problem of information asymmetry on the financial market escalated: investor perceptions regarding the high-quality of collateralized securities are based on the rating agencies assessments, but these were essentially high-risk financial instruments. With a problem of information asymmetry, the logical consequence is the suboptimal investment decision making. Also, decades behind we were witnesses the lack of comprehensive supervision of the biggest multinational financial institutions, because national supervisors and regulators have been unable to get to the essence of their business transactions, due to the lack of valid information. The financial system regulatory framework, challenged by “too big to fail” philosophy broke down. The first major bankruptcies have shaken confidence in the financial system, systemic risk has increased sharply, funding flows have dried up, a complex financial architecture has collapsed.

Lessons for regulators and supervisors

The rapid growth of “shadow financial system”, the proliferation of new financial instruments and modernization of traditional banking procedures for monitoring and risk management have established a dynamic financial system. The pace of financial innovation was faster than the pace of regulatory mechanisms development and this regulatory gap was the cause of the modern financial system collapse. What are the lessons for supervisors? [9, pp: 112-113]

Lesson No 1: It is necessary to “remove the shadow” from a part of the financial system in order to enable the modern financial institutions to become subject to direct regulation and supervision, enabling thereby leverage

monitoring and increasing the transparency of their business operations (e.g. securitization). In this way, a uniform regulatory framework might be established for the entire financial system. This framework would be sufficiently flexible in order to enable financial innovations (making the financial market deeper and more liquid), as well as sufficiently robust to prevent potential future crises.

Lesson No 2: The “Too big to fail” logic has proved to be inadequate. Instead of *ex post* responses to rescue major financial institutions, the *ex ante* response, i.e. the preventive supervision and audit of large financial institutions, is more efficient. In this way, the risk of bankruptcy and the total system risks have been reduced to a minimum.

Lesson No 3: It is clearly that financial conglomerates were the largest source of the crisis, so their strict regulation and supervision on a consolidated basis is highly important. The effective coordination and harmonization of regulatory mechanisms of national regulators and supervisors at the global scale are the necessary requirements enabling the financial conglomerates’ business operation to be controlled. The comprehensive supervision of their activities would contribute both to the increase of transparency of their operations and to the increase of efficiency of monitoring and risk management

Lesson No 4: It is necessary to extend the focus of supervisors’ activities also to the rating agencies and loan brokers. As to the rating agencies, by supervising their operations and evaluating the rating process, the moral hazard in the financial market, i.e. the issue of information asymmetry, would be decreased. Loan brokers should be given the status of banks, in order to become subject to regulation and supervision.

Lesson No 5: Based on experiences from the current crisis, national regulators should be able to develop effective regulatory mechanisms and apply the stress test on a continuous basis. Based on the SCAPE methodology, a sophisticated stress test may be developed which could be a combination of historical experience and innovation in the field quantitative models. For the purpose of efficiency, monitoring and stress test procedures, once established, would have to be subject to permanent evolution according to the pace of development of modern financial systems.

Supervisors, faced with the lessons responded with regulatory reform that can be structured as a regulatory reform at the national level and regulatory reform at the international (global) level. At the national level, they started with the stress testing of financial institutions, to assess the liquidity status and potential capital shortfall. Crisis showed that banks in many countries (because of “creativity” in applying regulative requirements) did not meet minimum capital requirements and adequate risk management systems. Consequently, it was necessary reactions of international regulators and supervisors (Basel III). Joint, national and international regulatory initiatives should act towards establishing more stringent capital adequacy and liquidity standards, to prevent future financial crises or mitigate its consequences.

Basel II: Reform package for the financial Regulation improvement

The reform package relating to new capital requirements and liquidity standards is based on the previous regulatory instruments (Basel I and Basel II) and lessons learned, but steams from the need of designing a new regulatory agenda that would ensure a more stable financial system, as prerequisite for long-term economic growth. Basel III provides more stringent requirements in terms of quantum of capital but also in terms of its quality. It also introduced new regulatory elements (leverage ratio and liquidity standards), while the macroeconomic aspect of the new agreement is reflected in the implementation of appropriate requirements to increase banking system resilience. In order to reduce systemic risk, Basel III establishes a capital conservation buffer and countercyclical buffer, as an additional amount of capital relative to risk-weighted assets. The transition from Basel II to Basel III standard, in terms of capital quantity and quality, is presented in the following table.

In addition to quantitative changes, Basel III has provided more stringent requirements in terms of coverage of certain items when calculating regulatory capital. In relation to the Basel II those rules are much stricter, as it provides a number of deductions that will reduce the regulatory capital, or affect the provision of additional

Table 1: Calibration of the capital framework (Capital requirements and buffers, %)

% relative to risk-weighted asset	CET1		Tier1		Total capital	
	Basel II	Basel III	Basel II	Basel III	Basel II	Basel III
Minimum (1)	2	4,5	4	6	8	8
Capital conservation buffer (2)	-	2,5	-	-	-	-
(1) + (2)	2	7	4	8,5	8	10,5
Countercyclical buffer range	-	0-2,5	-	-	-	-

Source: [1, p. 64]

capital from the regular (acceptable) sources. In addition to stronger requirements regarding capital adequacy, Basel III provides innovation in terms of leverage ratios, liquidity ratios and risks coverage.

Capital conservation buffer

This regulatory mechanism is a novelty compared to the previous regulatory arrangements and is based on the proactive approach to capital requirements to ensure bank solvency. Capital conservation buffer is 2.5% relative to the risk-weighted assets, and it includes common equity capital. In regular economic conditions bank absorb adequate capital amount, which can be reduced in stressful situations, but only up to the prescribed amount. This proactive mechanism is based on prevention of capital reducing below the minimum prescribed level, and operates automatically: in relation to the movement of the regulatory coefficient (Tier 1 ratio) supervisors are prescribed percentage amount (expressed as a percentage of earnings) that will be allocated for the capital conservation buffer (Table 2).

The intention to preserve the capital amount implied a gradualist approach: the less favorable position in terms of capital adequacy, it is necessary to extract the higher from net profit and the greater the restrictions on dividend payments and privileged distributions. Also, the implementation of this regulatory instrument has the attribute of gradualism: its implementation will start 2016th and the initial amount will be 0.625 %, with

a permanent increase each year to the 01 January 2019th, when banks have to apply the prescribed standard of 2.5 % relative to risk-weighted assets.

Countercyclical buffer

This regulatory instrument is designed with respect of ascending-descending business cycle phases. The banking system is, in accordance with their functions, expressively procyclical: in period of prosperity intensive lending contributes to economic growth, while in the period of stagnation and recession problematic loans reduce credit potential of banks, which causes the additional decline in economic activity. These interactions especially emphasize the importance of establishing an additional defense lines for the banking system during periods when the likelihood of systemic stress is evident [2, p. 57]. This mechanism is based on respect for the macroeconomic conditions and involves the implementation at the national and global level (for internationally active banks). At the national level, local regulators assess whether and how aggregate credit growth encourages systemic risk and provides an additional capital amount to fund potential losses. It is recommended that this amount ranges from 0 to 2.5% in relation to risk-weighted assets. The standard for internationally active banks should be calculated as a weighted average of the countercyclical buffer established within national jurisdictions in relation to the individual bank exposure. The countercyclical buffer regime consists of the following elements: [5, pp: 57-58]

Table 2: Individual bank minimum capital conservation standards

Common Equity Tier 1 Ratio	Minimum Capital Conservation Ratios (expressed as a percentage of earnings)
4,5-5,12 %	100%
> 5,12 - 5,75	80%
> 5,75 – 6,375	60%
> 6,375 – 7,0	40%
> 7,0	0%

Source: [1, p. 56]

1. National authorities will monitor credit growth and other indicators that may signal a build up of system-wide risk and make assessments of whether credit growth is excessive and is leading to the build up of system-wide risk. Based on this assessment they will put in place a countercyclical buffer requirement when circumstances warrant. This requirement will be released when system-wide risk crystallises or dissipates.
2. Internationally active banks will look at the geographic location of their private sector credit exposures and calculate their bank specific countercyclical capital buffer requirement as a weighted average of the requirements that are being applied in jurisdictions to which they have credit exposures.
3. The countercyclical buffer requirement to which a bank is subject will extend the size of the capital conservation buffer. Banks will be subject to restrictions on distributions if they do not meet the requirement.

This standard shall be applied parallel to the capital conservation buffer: from 01 January 2016th the standard will be introduced to a maximum level of 0.625% in relation to risk-weighted assets, with periodic increases that would lead up to the maximum standard of 2.5% at the end of the planned implementation period (2019th).

Leverage ratio

Due to the lack of transparency in financial reporting before the crisis, many financial institutions are, using technology leverage (specific forms of lending, derivatives, etc.) with modest investments provide great exposure to the profit / loss (depending on the market conditions). This fact encourages the creation of aggressive capital structure of banks, with a significant amount of debt, rising interest rate and problems in terms of interest payments. One of the basic characteristics of the current crisis is creating on-balance sheet and off-balance sheet leverage in the banking system. During the most severe part of the crisis, the banking sector was forced by the market to reduce its leverage in a manner that amplified downward pressure on asset prices, further exacerbating

the positive feedback loop between losses, declines in bank capital, and contraction in credit availability [5, p. 61]. To prevent it, in addition to requirements in terms of market discipline (disclosure), which is provided by Pillar 3 in previous regulatory arrangement (Basel II), a new regulatory agreement establishes a minimum leverage ratio in the amount of 3% relative to Tier 1. Implementation of this requirement began in 2011th, with the parallel period during the application horizon from 2013th to 2017th. Banks are required to calculate the leverage ratio relative to the prescribed definition of capital and overall exposure, respecting the new definition of capital, accounting standards, off-balance sheet activities of banks, repurchase agreements, derivatives, securitization, etc.

Liquidity standards

Strong capital requirements are a necessary condition for banking sector stability but by themselves are not sufficient. A strong liquidity base reinforced through robust supervisory standards is of equal importance

[5, p. 8]. To enhance regulatory architecture Basel III introduced new standards in terms of liquidity to made more resistant to short-term liquidity problems, but also to ensure the necessary conditions for long-term structural liquidity. For this purpose it established two liquidity standards:

- a) *Liquidity Coverage Ratio (LCR)* – It is calculated as the ratio between the highly liquid assets and bank liabilities with original maturity of 30 days. The recommended value of this liquidity indicator is 1 (100%), which implies that, in short-term turbulence condition and expressed liquidity pressure, bank has sufficient funds available to pay off current liabilities. Liquid reserve should consist of liquid funds (cash and deposits) and short-term cashable securities that can be quickly transformed into primary liquidity medium. Starting from the previous one, the regulatory standards in terms of liquidity favoring the asset conversion strategy compared to a strategy of borrowed liquidity.
- b) *Net Stable Funding Ratio (NSFR)* – It is calculated as the ratio of available financial sources, in relation to the required resources. It is more long-term

character than the LCR and its calculation is based on more complex balance sheet analysis. The objective of balance sheet analysis is to find the neuralgic liquidity points, and the standard suggests that banks use long-term sources of funds to achieve appropriate liquidity.

Implementation of this standard involves the application of appropriate techniques for monitoring, measuring and analyzing liquidity trends at the micro level and the banking system level. The Basel Committee has also established 17 principles of management and supervision of liquidity risk, respecting the lessons from the crisis period. These principles recommend appropriate practice for liquidity risk treatment and suggest appropriate supervision procedures. They also point out that, for an effective liquidity regulation and supervision, it is necessary coordination and cooperation between supervisors and other stakeholders, primarily the central banks and the banks themselves [5, p. 10]. Because of the potential impact on profitability, and ultimately to the accumulation of capital, liquidity standards implementation requires special caution. After an observation period beginning in 2011, the LCR will be introduced on 1 January 2015. The NSFR will move to a minimum standard by 1 January 2018. The Committee will put in place rigorous reporting processes to monitor the ratios during the transition period and will continue to review the implications of these standards for financial markets, credit extension and economic growth, addressing unintended consequences as necessary [5, p. 10].

When it comes to risks coverage, Basel III devotes particular attention to credit and market risk. Calculating credit risk is enabled or standardized approach or internal rating-based approach, alternatively, with a focus on counterparty credit risk, which is particularly expressed in financial derivatives transactions. There is a possibility for measuring counterparty risk with the current exposure model (CEM) model and the positive expected exposure model. Special attention was paid to the trading book, off-balance sheet activities and securitization. For the credit and market risk assessment Basel III recommends VaR methodology, stress tests, developing the internal risk measurement procedures, with consideration of the external rating agencies assessments.

Basel III standard implementation: assessment of the effects

Financial regulatory reform in terms of capital adequacy, liquidity, leverage and risk assessment will certainly cause the relevant economic implications. These implications can be seen as the impact on the banking industry, but as the impact on economic growth across the globe. The results presented should be taken with a grain of salt in some segments, despite the representativeness of research, since some banks were unable to provide adequate information necessary to fully assess the effects of Basel III standard implementation.

The impact on the banking industry

The study results are based on a survey of the Basel Committee, which included 263 banks from 23 member jurisdictions. Banks are divided into two groups: first group consists of 94 banks and second of 169 other banks. Group 1 banks are those that have Tier 1 capital in excess of €3 billion, are well diversified, and are internationally active. All other banks are considered Group 2 banks [3, p. 8]. The effects of stronger capital requirements to the banking industry are sublimated through the impact on the capital ratios and capital shortfall.

Table 3: Average capital ratios by banking group, in percent

	Number of banks	CET 1		Tier 1		Total	
		Gross	Net	Current	New	Current	New
Group 1	74	11,1	5,7	10,5	6,3	14,0	8,4
Group 2	133	10,7	7,8	9,8	8,1	12,8	10,3

Source: [3, p. 8]

In this study, 74 banks are participated in Group 1 and 133 in Group 2, since they were able to offer consolidated data ending to 2009th. Table 3 shows the changes of capital adequacy, if we apply the new standards should be implemented by 2019on on the balance sheet data in 2009th.

The CET1 ratios presented in the table compare gross CET1 amounts (before the application of deductions and filters) in relation to banks' current risk-weighted assets (column "Gross") with net amounts in relation to new risk-weighted assets and the application of deductions

and filters (column “Net”) [3, p. 8]. Also, we can see that, in relation to all three capital structures, capital adequacy ratios decreased. This decreasing is the result of more stringent rules, and represents at least two facts. On the one hand, the sharper new rules provide a broader range of deductions that can not be calculated as capital, while provide clearer standards for calculating the risk-weighted assets, on the other hand. Consequently, capital (numerator) are reduced while risk weighted assets (denominator) are increased, which results in capital adequacy reduction. If we compare two groups, banks in Group 1 recorded higher average reduction of capital ratios.

Table 4: Estimated overall CET1 shortfall, participating Group 1 and Group 2 banks, in € billions

	Group 1 banks	Group 2 banks
Number of banks	87	136
CET1 shortfall – 4.5%	165	8
CET1 shortfall – 7.0% (2019)	577	25
Note: The shortfall is calculated as the sum across individual banks where a shortfall is observed. The calculation includes all changes to RWA (eg definition of capital, counterparty credit risk, trading book and securitisation in the banking book). For banks where complete data on the total change in RWA were not available, it was assumed that RWA for missing items would remain constant.		

Source: [3, p. 8]

Table 4 shows the additional capital that banks need to meet new regulatory standards based on data from the end of 2009th. It is evident that the booth banking groups have a lack of capital, but this lack is particularly high in the Group 1. This result can be justified by the fact that

Group 1 composed by the internationally active banks that are under stricter requirements, with respect to its global financial role. Also, it is unambiguously stated that the profits that banks made in 2009th (209 billions of euro), was quite enough to fill the gaps in the capital shortfall within three to five years, even if the profits are distributed to shareholders in some percent [13, p. 1].

The impact on economic growth

Implementation of Basel III standards has caused reactions both optimistic and skeptical regarding to economic implications of the new regulatory framework. Optimists expect that will, the higher level of capital, together with measures of liquidity, significantly reduce the probability of occurrence and intensity of banking crises in the future. Historical data show that banking crises occur on average every 20 to 25 years. Thus, the annual probability that there will be a crisis is 4-5%, which is extremely high [8, p. 2]. Also, the average GDP loss o is about 60% of annual GDP, which means that any reduction in the probability of crisis by 1% resulted in benefits in the amount of 0.6% of GDP [8, p. 4]. Research shows that increasing capital standards for the 1% probability of banking crises decreased from 4.6 to 2.3%, which would result in benefits of 1.4% of annual world GDP. Skeptics who not support the global regulatory reform emphasize the counter-argument related to the reduction in GDP (Figure 1).

Based on the Figure 1, it is clear that regardless of the

Figure 1: Aggregate impact of a 1 percentage point increase in the target capital ratio: distribution of estimated GDP deviation

Source: [12, p. 2]

implementation period, increasing capital requirements for 1% reduces GDP for about 0.1% (at the end of implementation horizon). In addition, two-year implementation causes more appreciable GDP reduction at about the 10th quarter from start of implementation, while the four-year implementation has the greatest negative effect at 18-th quarter. Also, with the 20 to 80% probability estimation, two-year implementation could cause a decrease in GDP in the range of 0.05 to 0.28%. The maximum possible reduction during the implementation period is about 0.35%. Almost identical results are expected in the implementation of capital standards in the four-year implementation horizon. However, shorter implementation period would cause a little sharper maximum drop in GDP (0.22%) during the implementation period, compared to a longer (4-years) implementation period (0.19%). This estimate does not take into account the *cross-country spillovers* effect.

If the estimates include the *cross-country spillovers effect*, there are accompanying negative effects on GDP (Figure 2).

Figure 2 shows the spillover effect, i.e. the additional effect of GDP reducing caused by increasing of capital standards for 1%. For four-year implementation period, the maximum impact of the spillover effect is estimated at the 0.09% for emerging countries and 0.01% for developed countries. Figure 2 suggests that, the shorter implementation period, the greater spillover effect, especially when it comes to developing countries. This downward spillover effects trend in the developing countries appears to extend the

implementation period from four to six years, while the reduction is much more modest in developed countries. The existence of spillover effect is evident if one takes into consideration the impact of more stringent regulatory standards in the leading economies at the same time, in relation to the partial implementation of standards in individual countries [8, p. 6].

Conclusion

The global financial crisis, partly initiated by inadequate regulatory standards, provoked the financial regulatory reform at the national and international level. Based on experience from previous regulatory arrangements, and respecting the lessons of the current crisis, the Basel Committee on Banking Supervision is conceived the new regulatory framework as an architectural basis for monitoring and evaluation of bank performance. This regulatory mechanism is based on increasing the quality of capital, the new standards of liquidity, leverage and risk coverage. The main objective of the new regulations is to remove the shadow of the financial sector, to be based on improving market discipline and transparency, with respect to new capital and liquidity standards, provide longer-term financial and economic stability. Implementation has begun 2011th in certain areas and the first results of estimates are already visible. It is obvious that, compared to data from 2009th, most banks have significantly lower capital adequacy ratios, if you respect the new regulatory

standards. Also, this scenario analysis shows that banks have a shortage of capital in the amount of 173 billion euro, if viewed CET1 -4.5% as a standard, or even 602 billion euro, if viewed CET1 - 7.0%. Cost-benefit analysis reflects all the ambivalence of the attitudes of both proponents and skeptics regarding the implementation of Basel II standards. Proponents point out that the new regulatory framework creates robust global banking system that will be less prone to deviations, which will result in savings of loss GDP losses. Skeptics point out that the new capital requirements will cause and additional GDP

Figure 2: Impact of higher capital ratios on GDP: effects of cross-country spillovers

Source: [8, p. 6]

drop, while emphasizing that such influence will be greater in developing countries, especially taking into account the spillover effect.

References

1. Basel Committee on Banking Supervision, (2010), *Basel III: A global regulatory framework for more resilient banks and banking systems*, Bank for International Settlements, Basel.
2. Basel Committee on Banking Supervision, (2010), *Basel III: International framework for liquidity risk measurement, standards and monitoring*, Bank for International Settlements, Basel.
3. Basel Committee on Banking Supervision, (2010), *Results of the comprehensive quantitative impact study*, Bank for International Settlements, Basel.
4. Basel Committee on Banking Supervision, (2010), *The Basel Committee's response to the financial crisis: report to the G20*, Bank for International Settlements, Basel.
5. Basel Committee on Banking Supervision, (2011), *Basel III: A global regulatory framework for more resilient banks and banking systems (revidirana verzija)*, Bank for International Settlements, Basel.
6. Basel Committee on Banking Supervision, (2010), *An assessment of the long-term economic impact of the new regulatory framework*, Bank for International Settlements, Basel.
7. Caruana, J., (2010), *Basel III: towards a safer financial system, 3rd Santander International Conference*, Madrid.
8. Cecchetti, G. S., (2010), „Strengthening the financial system: comparing costs and benefits”, *Remarks prepared for the Korea-FSB Financial Reform Conference*, Seoul.
9. Davidović, M., Zelenović, V., (2010), „Global Financial Crisis – Lessons Learned”, Rad saopšten na međunarodnoj konferenciji *Contemporary Issues in Economics, Business and Management*, Kragujevac.
10. Hannoun, H., (2010), „The Basel III Capital Framework: a decisive breakthrough”, *BoJ-BIS High Level Seminar on Financial Regulatory Reform: Implications for Asia and the Pacific*, Hong Kong.
11. Institute of International Finance, (2010), *Interim report on the cumulative impact on the global economy of proposed changes in the banking regulatory framework*, Washington D.C.
12. Macroeconomic Assessment Group of the Financial Stability Board and Basel Committee on Banking Supervision, (2010), *Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements*, Bank for International Settlements, Basel.
13. Wall Street Journal, *Banks Need More Cash to Meet Basel Requirements*, 17. decembar 2010., Preuzeto 15. marta 2012. godine sa <http://online.wsj.com/article/SB10001424052748703395204576023140257369716.html>
14. Wellink, N., (2010), „A new regulatory landscape”, *Proceeding the 16th International Conference of Banking Supervisors*, Singapur.

Jelena Birovljev

is a full professor at the Faculty of Economics in Subotica, University of Novi Sad. Her scientific research areas are Management in Agribusiness, Agribusiness Strategy and Management of organic food production. She is a president of Association of Economists in Subotica and a member of the Presidency of the Association of Economists Vojvodina and Serbia. She is also a Vice Dean for Doctoral Studies at the Faculty of Economics in Subotica. She has published over 70 scientific papers, participated in more than 20 international conferences and has written 9 books. She lives and works in Subotica.

Milivoje Davidović

is a teaching assistant at Faculty of Economics Subotica, University of Novi Sad. His scientific research areas are Banking, Monetary finance and Public finance. Currently, he is doctoral student at the Faculty of Economics Subotica. He participated in several national and international scientific conferences. He has published over 20 scientific papers in national and international journals and participated in several research projects that are importance for the economic development of Vojvodina. He is editorial coordinator of scientific journal *Annals of the Faculty of Economics Subotica*. He lives and works in Subotica.

Štavljanin Biljana

is a teaching assistant at Faculty of Economics Subotica, University of Novi Sad. Currently, she is doctoral student at the Faculty of Economics Subotica in the field of Agroeconomics. She participated in several national and international scientific conferences and published several scientific papers in national and international journals. She lives and works in Subotica.