COMPARATIVE ANALYSIS OF THE BANK'S CAPITAL ADEQUACY ACCORDING TO THE BASEL AGREEMENT

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Abstract: *The present article has as a research field the theoretical, methodological and practical aspects of the capital bank adequacy mechanism, according to Basel Agreement. In this paper we intend to present the advanced approaches of measurement and the minimum requirements regarding the bank capital. The objectives of the research theme, presented in this paper, are oriented mainly towards: presenting the principles and rules which governance the bank capital adequacy mechanism; calculation and comparison of the bank capital adequacy indicators. An objective that we consider needs to be mentioned is the reflection of the modifications which will affect the bank environment in the next years, as a result of adopting the new General Frame of Bank Supervision. Even though the actual stage of research is advanced, in the Romanian and foreign literature, which dedicates a lot of theoretical and empiric studies of the bank capital adequacy mechanism, in this moment, the international crises pointed out the purpose and the implications of the credit institutions within the financial system. In our paper we will use a theoretical and a practical research. The theoretical research describes the laws, rules of application in the banking field in our country. In the practical research we will use as a research method, the quality-comparative analyses, by presenting details regarding the bank capital adequacy indicators. Within the study methodology, we will use the available channels in order to structure in an useful way the research by: description, explanation, exemplification, simulation, comparative. Within the approached channels we mention: reading, analyzing information, research on specialty sites, discussions in the professional groups, discussions with the top managers of the bank, explanation, induction and deduction, conclusion and supporting our own opinion. Among the complicated, difficult, urgent problems of the European integration, within globalization and change, in the fore-ground we have the state of the economy, the economic problems, situation of the banking system. In Romania there is now a modern and competitive banking system, which provides circulation of the economy and domestic supplies banking products and services in accordance with trends in the European banking sector. In this way, the action line, I did a comparative study determining capital requirements under Basel 1, Basel 2, the standardized approaches, credit risk determined. Capitalization of Romanian bank's remain comfortable, providing good conditions for meeting additional capital requirements Basel III. In what concerns the capital adequacy management, the leading structures of a credit institution need to establish strategies and effective policies in order to maintain, on a continuous base, a level, a correct structure of their own funds, proper for covering the risks that the credit institution is exposed to. We conclude that a bank needs to increase its own funds, which is achieved by several methods decided by management. Presentation of concrete cases in approaching the bank's capital adequacy represent the personal work which completes the study concerning the purpose of back-up accounting in the banking system, adequate correlation of the risks and capitals.*

Keywords: *Bank's Capital Adequacy; Weighted Assets; Own Funds; Solvency; Accord Basel, Comparative Analysis*

JEL Classifications: *G21*

1. Generally Introduction

The present article aims to reflect that the current global financial turmoil continues to pose a threat to the effectiveness of the Accord Basel rules which are aimed at achieving global financial stability. This study presents the common problems of the credit institutions, introducing theoretical aspects and also practical aspects of applying a model and of interpreting risk situations, considering the attempts of alignment of the Romanian banking system to the requests of the European Union, materialized in the stipulations of Basel Accord. Considering the scientific research methodology, the following issues were set: introduction, motivation, importance and scientific research methodology, objectives, development of the article, estimated scientific results. In the introduction is being argued the research theme, the necessity and the importance of it. In the present economic-financial context, the fluid character which often brings major differences of opinion. The motivation of choosing the research theme is formulated and further the used research methodology is being presented. In the scientific research methodology, there are presented the scientific research areas, the field and the objectives of the scientific research, and also its structure. The present research is based on a deductive approach - strictly qualitative. For analyzing all the data I used the following research methods: comparative method, document analysis, external observation. I choose this subject for scientific reasons and realistic reasons. I consider that Romania' chances, on the road to the European integration in globalization, firstly depend on its own performance, the quality of management at all levels. Romania's efficient integration within the above mentioned context cannot be achieved otherwise than through a performance superior to that already existing. The necessary performance can be achieved only with an advanced, new, modern management, with good results of own funds in the banking system. The objectives of this study are determining capital requirements under Basel Accord I, Basel Accord II, Basel Accord III the standardized approaches, credit risk and interpretation of this evolution in the banking system. Imposing minimum capital adequacy regulations is one way of fostering stability in the global banking system.

2. Literature review

Even though the stage of research in this field is advanced, in both Romanian and foreign literature, which dedicate a lot of theoretical and empiric studies to bank's capital adequacy mechanism, in this moment the international crises pointed out the purpose and implications of credit institutions in the financial field. We want, in the allocated space, based on those already presented, to refer to the „capital adequacy in the banking system". Referring to the literature in the field, a very useful starting for our research is the series of papers developed under BIS (Bank for International Settlements).The BIS carries out research and analysis to contribute to the understanding of issues of core interest to the central bank community, to assist the organisation of meetings of Governors and other central bank officials and to provide analytical support to the activities of the various Basel-based committees. The BIS also comments on global economic and financial developments and identifies issues that are of common interest to central banks. The research agenda of the BIS is focused on key areas of interest to central banks, such as monetary and financial stability, monetary policy and exchange rates, financial institutions and infrastructure, financial markets, central bank governance, and legal issues. The National Bank of Romania offers to its users, information's regarding the determining capital requirements under Basel Accord I, Basel Accord II, Basel Accord III the standardized approaches, credit risk, through the Reports of Financial Stability and the Annual Reports. I have been used due to their importance, new character and desire to be largely and deeper known and especially used in the scientific research and in the practical activity.

3. Research design and methodology

Considering the scientific research methodology, the following issues were set: introduction, motivation, importance and scientific research methodology, objectives, development of the article, estimated scientific results. In the introduction is being argued the research theme, the necessity and the importance of it. The motivation of choosing the research theme is formulated and further the used research methodology is being presented. In the scientific research methodology, there are presented the scientific research areas, the field and the objectives of the scientific research, and also its structure. The present research is based on a deductive approach - strictly qualitative. For analyzing all the data I used the following research methods: comparative method, document analysis, external observation. I choose this subject for scientific reasons and realistic reasons. I consider that Romania' chances, on the road to the European integration in globalization, firstly depend on its own performance, the quality of management at all levels. Imposing minimum capital adequacy regulations is one way of fostering stability in the global banking system. Romania's efficient integration within the above mentioned context cannot be achieved otherwise than through a performance superior to that already existing. The necessary performance can be achieved only with an advanced, new, modern management, with good results of determining capital requirements under Basel I, Basel II, Basel III the standardized approaches, credit risk determined in the banking system. I consider that bank's capital levels should be regulated to enhance global financial stability.

The objectives of this study are presentation of concrete cases in approaching the capital bank's adequacy represent the personal work which complets the study concerning the purpose of back-up accounting in the banking system, adequate correlation of the risks and capitals, evolution of the capital requirements and interpretation of this evolution of in the banking system. For analysis of national or international data, we used comparative longitudinal research method (showing the evolution of bank's capital adequacy according to Basel I, Basel II and Basel III).

4. Results and discussions

4.1. Capital requirements under Basel Accord III

Basel Accord III is a comprehensive set of reform measures, developed by the Basel Committee on Banking Supervision, to strengthen the regulation, supervision and risk management of the banking sector. The reforms target:

-Bank-level, or micro-prudential, regulation, which will help raise the resilience of individual banking institutions to periods of stress.

-Macro-prudential, system wide risks that can build up across the banking sector as well as the pro-cyclical amplification of these risks over time.

These two approaches to supervision are complementary as greater resilience at the individual bank level reduces the risk of system wide shocks.

Micro-prudential regulatory measures CRD IV are the following three:

a) Strengthening the regulatory capital requirements to increase capacity to absorb further losses under / cessation of business by:

- Removing inconsistencies in the definition of capital
- Identifying eligible items comprising the capital and their relative level of risks taken by credit institutions by establishing the responsibility of shareholders to increased capital requirements, namely:
- Increase the minimum equity requirement (common shares, share premium, retained earnings and reserves) from 2% to 4.5%
- Increasing the Minimum Tier 1 (equity and hybrid instruments) from 4% to 6%.
- Although total capital requirement of 8% stayed structure is unchanged in meaning:
- Increase the share of equity (or shareholders effort to total own funds) and, respectively,
- Decrease weight Tier 2 (subordinated debt) to those of level 1 - 100% as it is now at 33%.

b) The introduction of new prudential ratios

c) Establishment of capital buffers. In the first period (until 2016) the change in the structure of total of own funds by increasing equity. From 2016 until 2019 occurs progressively establishing the damper fixed capital conservation to be achieved as presented in equity elements (based on effort shareholders).

d) Recognition diminished role of central counterparty credit risk by reducing capital requirements for exposures to such entities

e) Increased capital requirements for OTC transactions settled through a central counterparty

f) Maintain current level of positive discrimination SME sector (75% risk weight for SMEs to 100% risk weight to corporates) as a stimulus for its development

g) Remuneration

h) Corporate Governance.

These measures aim to:

-improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source

- improve risk management and governance
- strengthen banks' transparency and disclosures.

4.2. The evolution of own funds in the X-Bank

a) In order to determine minimum capital requirements for credit risk under Basel III, according application standard approach we leave the X-Bank balance of 2011, highlighted the beginning case study. X-Bank's own funds at 31 December 2010 and 31 December 2011, broken down into their components and is as follows:

Table no.1*:* X-Bank's Own Funds at 31 December 2010 and 31 December calculated according to Basel Accord III

Own funds - in RON -	**31 December 2010**	**31 December 2011**
Subscribed and paid up share capital	2.352.000	2.837.000
Share premium	-	2.000
Eligible Reserves *	848.000	580.000
Intangible assets	75.000	110.000
50 % of the shares and other equity securities held in other credit and financial institutions in excess of 10% of their share capital	84.000	36.000
50% of holdings in insurance companies, reinsurance companies	-	-
Own shares redeemed	-	-
Total Tier I	**3.359.000**	**3.565.000**
Revaluation reserve	50.000	48.000
Subordinated loans	247.000	123.000
50% of the shares and other equity securities held in other credit and financial institutions in excess of 10% of their share capital	-84.000	-36.000
50% of holdings in insurance companies, reinsurance companies	-	-
Total Tier II	**213.000**	**135.000**
Total equity	**3.572.000**	**3.700.000**

(Source: author based on archive of The National Bank of Romania)

b) Such X-Bank assets will have the following degrees of risk:

Table no. 2*:* The Weighted Assets of the X-Bank calculated accordind to Basel III

1. 2. Cash, deposits with central banks **APR**CASH = CASH*0% = 5000.000*0% = 0 u.m. **APR**DBC = DBC*0% = 2.218.000*0% = 0 u.m
3. Bills and other bills eligible for refinancing with central banks (government bonds) **APR**EPA = EPA*0% = 8.410.000*0% = 0 u.m.
4. Claims on credit institutions (maturity of up to 3 months) **APR**CIC = CIC*20% = 994.000*20% = 198.800
5. Claims on customers

APRCC = CC*100% + CC*75% + CC*35%, so: CC loans to companies – 100%, To individual-consumer loans - 75%, To individual-quarantees property - 35% (Credit-provision) x risk weight = 0.000.000*100%+5.000.000*75%+7.101.000*35% = 10.000.000
6. Bonds and other fixed income securities (municipal) **APR**OA = OA*20% = 915.000*20% = 183.000
7. Shares and other variable income securities (the company) **APR**AAV= AAV*100% = 221.000*100% = 221.000
8. Participating credit institutions - are not in stock X-Bank
9. Parties associated companies, f which: - Parts in credit institutions (with residual maturity greater than 3 months) **APR**PIC = PIC*50% = 195.000*50% = 97.500
10. Iintangibles" Assets **APR**IN = IND*0% + INN*100% = 110.000*0% = 0, where: IND is deducted from the own funds INN is no deducted from own funds
11.Tangible Assets **APR**IC = IC*100% = 434.000*100% = 434.000
12. Unsubscribed and paid up share capital **APR**CSN = CSN*0% = 0
13. Other Assets **APR**AA = AA*100% = 93.000*100% = 93.000
14. Prepaid expenses and accrued income **APR**CAV= CAV*100%=494.000*100%=494.000

(Source: author based on archive of The National Bank of Romania))

c) Total credit risk-weighted assets = 0 u.m.+ 0 u.m.+ 0 u.m.+ 0 u.m.+ 22.101.000 u.m. +183.000 u.m.+221.000 u.m.+195.000 u.m.+0 u.m +434.000 u.m +0 u.m +93.000 u.m +247.000 u.m. = 23.474.000 u.m.
d) Solvency ratio must be at least 12% so
e) 12% * Average risk own funds ↔ ≤ 12% * 23474000 um = 2,816,880 u.m.≤3,700,000u.m.
The solvency ratio has the value: Own funds / Total credit risk-weighted assets * 100 = 3.700.000/ 23.474.000 * 100= 15, 76%

Table no. 3: Comparative Analysis of Capital Requirements under Basel I, Basel II, Basel III - (the Years of references 2011)

Capital requirements Basel I Basel II Basel III	Basel I	Basel II	Basel III
Capital requirements for credit risk, counterparty credit risk, the risk of dilution and incomplete transactions	2.471.980	3.088.875	3.294.800
Capital requirements for position risk, foreign exchange risk and commodities risk	132.000	132.500	133.000

Capital requirements for operational risk	1.444.050	1.447.050	1.500.000
Total requirements of capital	**4.048.030**	**4.668.425**	**4.927.800**

(Source: author based on archive of The National Bank of Romania)
Analysis comparative of capital requirements calculated under the three agreements Basel reflect the fact that:

Capital requirement under Basel I < capital requirement under Basel II < capital requirement under Basel III.

Thus the need for capitalization of banks is increasingly bet on increasing. We will need to adopt new models asset management, balance sheet size will be bet on the determinate of all funds that the bank may increase (liabilities) and total assets will be adjusted to equal the liabilities available. Also we believe that the bank will be necessary to grow up tier one level from 2% to 7% in 2019. Another important element is to avoid future bottlenecks to request bank to possible growth and create liquid assets from various sources, such as the exchange of bills or other debt instruments. Although total capital requirement of 8% stayed structure is unchanged in meaning: increase the share capital (shareholders effort to total own funds) and, respectively, lower weight Tier 2 (subordinated debt) to of the level 1 to 100% as it is now at 33%. It should be noted that along with measures surveillance and efforts to increase the share capital to shareholders, a contribution to maintaining a high level of solvency ratio had substantial stock of government securities existing bank balance, characterized by a low risk and high liquidity, with a direct impact on capital requirements. However the presence of excess of these elements can adversely affect operational efficiency as a result of debt levels attached to the existence of a much smaller share of loans to the real sector. The completion of these requirements solicit eligible participants more capital.

5. In conclusion

Since the recent crisis, stress testing and reverse testing have become integral tools in managements of banks'. Liquidity management and compliance is central to Basel Accord III. It is placing new demands on financial institutions as well as providing new opportunities. Accepting a higher risk level by credit institutions means strengthening the level of own funds, even over the level stipulated by the bank. Capital adequacy is prominent feature in the management of any risks encountered by the credit institution. The credit institutions should manage the inherent risks. The very efficient management of risk it is essential for the success on long term of any bank. We want to mention and express our opinion that the methods and techniques of managing risk, calculation of capital need permanent revision and adaptation to the changes that take place on the financial market the appearance of Basel Accord III, which are absolutely necessary in the actual economic and financial context. Implementing Basel III is a significant challenge for any bank. The key issues are deciding how best to implement a solution that allows them to comply, how to streamline their systems and processes for improved operational effectiveness and how to reduce their capital requirements.

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