

Banking Risk Management in the Light of Basel II

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Abstract. *This study presents a summary of what is the meaning of risk management in light of the Basel II Agreement. The study is structured in three parts, namely: credit risk management, significant credit risk management and credit risk management under Basel II Agreement. Thus, in the first part it refers to how developed the credit risk management over time and which are current phenomena that generate these risks, continuing in the second part with a summary of the reasons for which one wishes management of such credit risks, following the third party to talk about the shippings of Basel II in terms of credit risk management.*

Keywords: credit risk; banks; credit risk management; Basel II Agreement; rating.

JEL Codes: E51, G32.

REL Code: 11C.

1. Introduction

Risk management activity has experienced exponential growth over the past decade. Thus, credit risk management is much broader than simply lending operations. This extends and includes in its sphere of concern substantive issues relating to three phases of the credit process, namely: the decision phase of credit life and credit portfolio management process for credits (Trenca, 2004, p. 207).

Basis of a sound credit risk management is to identify existing and potential risks inherent in lending. Normally, measures to counter such risks include management policies and credit risk parameters to be controlled in credit risk. A set of such policies includes:

- Policies on the concentration and large exposures, adequate diversification, credit parties or monitoring risk exposures;
- Policy on classification of assets, which involve assessment of repayment capacity of the loan portfolio and other credit instruments, including interest incurred and not received that expose the bank to credit risk;
- Loss provisioning policies or establishment of an adequate provisions to absorb the expected losses in the loan portfolio and the level of assets that generates losses (Greuning, Brajovic, 2003, p. 94).

The term risk management has no universally accepted definition. In general, the term used in the risk management of financial institutions represents all policies and procedures that financial institutions have implemented to manage, monitor and control their exposure to risk.

Risk management function within credit institutions will be of particular importance in view of the application by them of the Basel II⁽¹⁾, especially given that credit institutions will want to use their own internal models for calculating capital requirements under the new agreement.

Credit risks from economic phenomena can be individual or a certain economic status circumstantial (Bernard, Colli, 1994, p. 56).

The first and foremost to the insolvency of debtors, their lack of promptness in repayment of loans, the banks holding of inaccurate information on borrowers.

Secondly, the economic situation may be that maintaining a particular state of risk. An example could be given to economic crises, political convulsions, etc..

Risk on line credit, banks must hold, as we noted, relevant information on economic and financial situation of debtors, the economic nature of transactions, the moral reputation of the borrowers, their credit status, etc.

2. The importance of credit risk management

It is certainly clear that a strategy should include both bank performance programs and bank risk management procedures that aim, in fact, minimizing the likelihood of such risks and the potential exposure of the bank. We maintain that it is obvious because the main objective of these policies is to minimize losses or additional expenses incurred by the bank and central goal of banking is to obtain as high a profit for shareholders.

But not always these two objectives – the general and sector – is in line. It may be that, in some cases, the cost of implementation and operation of risk management procedures designed to be greater than potential exposure to risk. Which only means that these programs should be selected according to efficiency criteria. In other cases it may be that the bank's strategy to involve greater risk taking or of new risks.

In this case the decision should always be taken in view the additional costs necessary to ensure adequate protection and greater potential losses. But if the decision is such, then minimization bank should under no circumstances become a goal in itself. Moreover, bank management objectives are three: maximizing return, minimizing risk exposure and compliance with banking regulations in force. None of them has an absolute primacy, a bank management's task is to establish objective and that the central management of each period.

The importance of bank risk management, however, is not confined only to minimize costs. Permanent concern to minimize exposure to risk management has positive effects on employee behavior that are more rigorous and conscientious in carrying out the work tasks, it is not negligible either psychological effect to deter fraudulent activities. The existence of adequate programs for prevention and control banking risks contributes to impose banking institution in the community, little or no experience of such conditional admission or participation in programs such bank inter-bank associations or obtain higher qualifications in the banking authority.

And not the least, an effective management of banking risks will imprint on his public image of the bank. Customers want a bank safe and shareholders alike. Soundness of the banks attract depositors but given that deposits are not necessarily assured. If banks are not obliged to provide for civil liability to the depositors, then their interest to choose the most secure institutions is diminished and the main criterion is the profitability of investments. It may occur then a selection effect which is very likely that banks with the biggest problems in lack of liquidity to pay the highest interest. To avoid this adverse selection, it is preferable for the insurer to charge differentiated insurance

premiums higher for banks with weak risk management so that there is an explicit penalty for them.

In Romania, banks faced every factor of financial instability in a context of general instability as a result of the transition process. The transition meant for the Romanian banks to amend statutes, the legal framework of operation, freedom in the choice of internal and external partners, competition from other financial institutions (investment funds) and other banks, reducing direct refinancing by the central bank, permanent change of rules by NBR prudential and financial deterioration of most large customers. In these circumstances, the bank management, implementation of appropriate policies for risk management becomes a necessity, as the uptake by employees of new techniques and tools of risk management.

In the banking sector growth has become an essential attribute of bank performance. It is not an end in itself but is required for profitable investments in new technologies, possible only in conditions of “mass production”. The growth in the banking sector has two components: growth in traditional banking services (loans to customers, make transfers, property management) and growth in the new banking services (cash management, capital market operations, computer and information services, insurance). It is characterized by the competitive context and results in the financial institution providing a wide range of services. Some of these services are new and the staff is inexperienced and others involving the operation of the markets where banks are not familiar with, fact that make it seem like the staff lacks professionalism.

Therefore the image of banks in financial markets tends to be a loss, because they risk being treated by specialists as a conglomerate formed partnership to chance, run by people unaware of the new areas and unconscious net gain or specific risks.

Under a management right, increasing operations in two large areas – traditional services and new services – should have a synergistic effect. But losses incurred by some shareholders and the volatility of revenues are going to reduce the market value of banks, which is extremely expensive acquisition of additional capital (necessary for the general protection of the institution in terms of growth). Because communication with the public banks and even shareholders, in terms of bank risk management, is poor, the market tends to treat all banks equally. Bad management can affect several banks and public image of the other.

In conclusion, because the risks banks are a source of unexpected expenses, their proper management to stabilize revenue over time serves a shock damper. At the same time, strengthening the value of bank shares can

only be achieved through effective communication with financial markets and implementing appropriate risk management programs bank.

All banks and financial institutions must improve their understanding and practice of banking risk management to be able to successfully manage different product range. If the process of bank risk management and global management system is effective, then the bank will be successful. Banks can successfully manage the risks that banks recognize the strategic role of risk, if used paradigm for analysis and management to increase efficiency.

3. Credit risk management under Basel II

Banking crises have negative effects not only on major national economies of the countries where they are produced, but due to the growing interdependence caused by globalization, they even tend to contaminate and other economies, thus affecting global financial stability. For this reason, the national banking supervisory efforts have been made in a manner more pronounced in recent years by actions to improve the regulatory framework for banking internationally.

A first such agreement was drafted by the Basel Committee on banking regulations and supervisory practices (in short, the Basel Committee) since 1988. This agreement, as enshrined in the language bank Basel I, was meant to achieve a climate of fair competition among international banks by setting a minimum threshold level of 8% capital to asset weighted according to the degree of risk for each bank.

Compared to the previous agreement, Basel II brings the following key innovations:

- existence of a structure that is based on three pillars, which are: Pillar 1 - relating to rules on calculating the necessary capital, Pillar 2 - which refers to that played by supervisors, and Pillar 3 - relating to requirements more extended transparency models used by credit institutions to manage risks;
- a method of calculating capital requirements based on an increased sensitivity to risk, which emphasizes a greater extent on its risk measurement system of credit institutions;
- a wider recognition of risk mitigation instruments;
- introduction of additional capital requirements for operational risk.

Basel II brings changes in activity of banks and financial institutions, imposing mandatory capital requirements for banks' exposures. When a bank grants credit, it assumes a risk in its portfolio. To be a global event risk, throughout the bank and real time, it needs a good IT solution set, a set of

procedures, well trained people who know what to do when there are early warning signals. To collect and process all necessary information in real time, the bank requires a complex infrastructure, which, through diversity, entails a different type of risk, difficult to manage and quantify: the operational. While credit risk can be calculated, estimated, assessed for operational risk this is more difficult.

To calculate the necessary capital, Basel II proposes two different approaches:

a) The standard approach, which is similar to that proposed by Basel I, but using more refined weights. In addition to the previous agreement, this approach allows the use of derivatives to mitigate credit risk and reducing capital requirements.

In the standard approach, weights are given by type of state/institution credited according to their rating (Fisman, Love, 2004).

The main categories of debtors are:

- the States, including the central banks;
- the local authorities;
- the multilateral development banks;
- the banks;
- the corporates.

Table 1

Debitor	The change in bank ratings (%)					
	Capital requirement					
	AAA la AA-	A+ la A-	BBB+ la BBB-	BB+ la B-	Below B-	Without rating
State	0	20	50	100	150	100
Banking operations (a) ⁽²⁾	20	50	100	100	150	100
Operation (2) (b) ⁽³⁾ , (c) ⁽⁴⁾	20 (20)	50 (20)	50 (20)	100 (50)	150 (150)	50 (20)
				BB+ la BB-	Sub BB-	
Corporates	20	50	100	150	150	100

Source: Moody's.

For retail credit exposure risk, the weight is 75%. Under Basel II, to be classified as retail, the exposure must be:

- on an natural person or conventional person;
- generated by a bank product, such as credit cards or consumer loans;
- to not exceed more than 0.2% of retail portfolio recognized as such by the supervisor;
- to not exceed one million euros for any consideration;
- the principles contained in Regulation no.14/2006⁽⁵⁾.

For exposure to mortgages, the capital requirement is 35%, substantially lower than the share of 50% of Basel I.

Standard approach relies heavily on external ratings given by external credit rating agencies recognized by the national supervisory institutions.

In terms of eligibility criteria for rating companies mention that they can be structured as follows:

- objectivity;
- independence;
- international access/transparency;
- transparency;
- resources;
- credibility.

Basel II recognizes the techniques for reducing credit risk through collateralisation, the guarantors are credit risk derivatives.

As regards collateral, there are allowed two ways of treating it. The simplest approach is similar to the Basel I risk that the share of credit risk is replaced with the share of collateral, which can not be less than 20%. The other approach, advanced to protect the bank against the price volatility of collateral, is based on the collateral price adjustment by applying the share of collateral that is provided by the supervisor or are calculated internally. Then the market value of collateral is deducted from the gross amount of credit granted, thereby achieving adjusted exposure is multiplied by the appropriate risk weight.

Thus for a collateralised transaction, the weight of exposure after risk reduction is calculated as follows:

$$E^* = \{0, [E \times (1 + He) - C \times (1 - Hc - Hfx)]\}$$

where:

E^* – exposure value after risk mitigation procedure is - the current value of the exposure;

E – current exposure value;

He – haircut applied to such exposure;

C – the current value of collateral received;

Hc – collateral haircut that's applied;

HFX – Haircut applied to reduce currency risk due to expression in different currency exposure and collateral.

When collateral is composed of a basket of assets, haircut's basket of assets is applied $H = \sum_i a_i \times H_i$, where a_i is the rate of the asset (measured in monetary units) in the cart and H_i - haircut that's applied to asset⁽⁶⁾.

Acceptable collateral under both approaches can be represented by:

- cash and deposits,
- securities rated at least BB-, issued by governments or public entities,
- securities issued by corporations that have ratings of at least BBB-,
- shares or debentures forming part of a leading indicator,
- gold.

In addition advanced approach supports actions that are not part of a main index but are traded on a principal market, bonds without rating issued by banks, collective investment securities and other mutual funds.

To use these types of collateral, a bank must meet standards relating to:

- legal certainty of the documentation used,
- the requirement that the assets used to reduce the risk to have a low correlation with loans whose risk is reduced,
- robust collateral management policies.

Proposals relating to guarantors and broaden the eligible collateral compensation balance sheet or the providers of credit risk derivatives contracts, the recognition of protection for credit risk provided by governments or banks with a risk weight lower than that of the debtor and other entities rated A - or higher. This last category includes the protection offered by its parent company, subsidiary or affiliate of the debtor when they have a risk weight lower than that of the debtor.

Similarly as for collateral, and for compensation there are determined haircut sites. Thus, the exposure obtained by use of a compensation agreement is:

$$E^* = \max\left\{0, \left[\left(\sum (E) - \sum (C)\right) + \sum (Es + Hs) + \sum (Efx \times Hfx)\right]\right\}$$

where:

E^* - exposure value after risk mitigation procedure;

E - current value of the exposure;

H_e - haircut applied to such exposure;

C - the value of collateral received;

E_s - the absolute value of the net position in a financial way;

H_s - haircut applied E_s ;

E_{fx} - absolute value of the net position in a currency different from the currency compensation;

H_{fx} - haircut applied to reduce currency risk.

As an alternative to the standard approach and to estimation their share for collateral (advanced approach), banks may use VaR method (Value-at-Risk) to reflect the volatility exposure and collateral for repurchase agreements covered by bilateral netting contracts.

The use of VaR is allowed only for banks whose internal market risk models have been recognized by the supervisory authority under the Amendment on market risk. Banks that have not received such a permission may require a separate recommendation by the institution to monitor market risk models for REPO. These models will be allowed only if the bank can prove the quality of the data model used for testing its results over a period of at least one year.

In this context, exposure of banks using internal models for market risk is:

$$E^* = \max\left\{0, \left[\sum(E) - \sum(C)\right] + multiplier \times result_model_VaR\right\}$$

In calculating capital requirements banks will use the results of VaR for the previous business day.

In the securities and derivative contracts on credit risk, operational requirements are the requirements to be met:

- they must be a derivative claim on the seller of protection and must explicitly address the exposure (or group of exposures) specifically so that protection should be clearly defined and unquestionable,
- the contract must be irrevocable,
- the contract should not have any clause specifying that the protection seller may unilaterally waive the protection of credit risk or to increase the cost of insurance protection if credit quality deteriorates,
- the contract is unconditional,
- the contract has no clause to allow the protection seller to delay payment of compensation in case of credit event.

If protection is denominated in another currency, its value will be reduced by applying a haircut, as follows:

$$G_A = G \times (1 / H_{FX})$$

where:

G - the nominal protection for credit risk;

H_{FX} - haircut applied;

G_A - actual value of the collateral.

If there are differences in maturity between the instrument that provides protection for credit risk and credit instruments, the protection for credit risk will be adjusted as follows:

$$P_a = P \times \frac{t - 0.25}{T - 0.25}$$

where:

P_a - value for credit risk protection adjusted for maturity differences;

P - value for credit risk protection adjusted for any haircut;

t - min (T, residual maturity of the contract for protection) in years;

T - min (5, residual maturity of the exposure to credit risk) in years.

b) Approach based on internally generated ratings:

- Methodology based on internal ratings based (Foundation Internal Rating Based (IRB) approach), which allows a bank to use their own rating system, inclusively using their own calculations on the probabilities of entry in default (PD), but losses when the counterparties to default (LGD) are provided by the supervisory institution.
- methodology based on advanced internal ratings (IRB advanced approach), in which banks calculate their capital requirements on their models, validated by the institution of monitoring, inclusively calculations on the probability of entry in default (PD) and loss if the counterparty enters into default (LGD).

Regarding *Pillar 1*, it allows banks to calculate credit risk as to choose, as we noted above, between three options, with increasing degrees of sophistication: the standard approach, which uses external ratings, and ratings based on two options internal: the basic approach and advanced approach. For both options, to grant approval of internal models must have approval ratings of supervisors.

Even in the standard approach there are significant differences compared to Basel I. The most important is the additional penalties for providing loans to entities with lower ratings. Thus, if the maximum capital requirement of Basel I was 100% of exposure to a particular entity, the Basel II ratings below B-weighting exposures is made with 150%, ie for each exposure of 100 units money to such entities, the credit institution must have 150 units of capital. Thus, exposure of credit institutions is discouraged from entities that have a high credit risk.

In case of approaches based on internal ratings, credit institutions use indicators such as probability of default (PD - Probability of default) and loss due to default (LGD - loss given default) to calculate capital requirements for each rating category given to its borrowers. For the basic approach, LGD is determined by the supervisory authority, while for advanced approach, LGD is determined by the credit institution, based on historical performance of its customers.

With regard to market risk, Basel II does not bring news to the previous agreement. Remain the standardized version, based on evidence provided by the supervisor, and that one based on internal models, respectively of VaR (Value at Risk).

Finally, as noted above, the new agreement provides for supplementing the capital requirements for credit institutions to accommodate operational risk. It is defined as potential loss arising from the deficiencies of internal systems, human activity and external shocks. Again Basel II provides three approaches for calculating minimum capital requirements, the basic indicator approach, standardized way and advanced internal measurement method, with progressive degrees of complexity.

Pillar 2 sets out basic principles for the supervision of the implementation of Basel II. These principles are broadly the following:

- Risk assessment is the obligation of the credit institution;
- Oversight of internal models to assess the institution's credit risk management strategy and the calculation of minimum capital requirements;
- At any time, the credit institution must have a level of capital above the minimum requirements;

The supervisory authority may order to any credit institution to increase its capital when it considers that the risks to which the bank is exposed are not adequately covered by existing capital.

One of the problems still considered insufficiently clarified in connection with the second pillar is the relationship between authorities in the country of origin and destination of bank capital (home - host country), in other words, the question of the relationship between the supervisory authority in the country where the parent bank is and the country where the subsidiary it.

The issue is critically important the more current, since some of the central and eastern Europe, including Romania, have banking systems dominated by subsidiaries of banks in Western Europe. The essence of this problem is given by the asymmetry of risk transfer mechanism. Thus, any major difficulties that would face the parent bank is very likely that would quickly send subsidiary, while a subsidiary issues would have a much lower impact on the bank's parent, if only because of financial power of different entities.

In these circumstances it is necessary to clarify, first, the extent of exchange of information between home and host supervisors, so that host country authorities can take timely steps for safety in the event of problems for the parent bank. On the other hand, it must be clarified to whom belongs the role of lender of last resort in case of problems induced by the parent bank in its subsidiaries in other countries.

In the *Pillar 3*, Basel approach is that market discipline is achieved and the pressure on players in the market - customers and other credit institutions - the banks make for a prudent conduct of risk management. For this pressure to be manifested, greater transparency is needed.

For this reason, credit institutions are required to provide both supervisors and the public detailed information on qualitative and quantitative risks assumed, capital and risk management policies and procedures. Requirements for providing information are particularly large as the banks that use more complex approaches for credit risk and operational.

4. Conclusions

This method allows banks to determine capital requirements for various exposures using their own estimates for some or all components of risk. These include, as we noted:

- probability of default (PD);
- loss given default (LGD -);
- behavior upon entry into the debtor's default (EAD - Exposure at default);
- the effective maturity of credit instruments (M - effective maturity).

Using their methodology for estimating these components of credit risk is subject to approval by the supervisory authority, and in some cases banks will have to use for one or more of the components of risk, values given by the supervisory authority.

Notes

- (1) According to Basel Committee on Banking Supervision, International Convergence of Capital Measurement and Capital Standards, A Revised Framework, Bank of International Settlements, June 2004.
- (2) (a) – the weights are based on the state ratings where the bank's head office.
- (3) b) – the weights are based on the bank rating.
- (4) (c) – in parenthesis are presented the weights for the short term loans (less than 3 months).
- (5) According to Regulation of the National Bank of Romania (B.N.R.) no. 14/14.12.2006, concerning the treatment of credit risk by the credit institutions and investment companies following the Standard Approach published in the Official Gazette no. 1033bis/27.12.2006.
- (6) According to Regulation of the National Bank of Romania (B.N.R.) no. 19/14.12.2006, concerning the treatment of credit risk mitigation used by credit institutions and investment companies, published in the Official Gazette no. 1034bis/27.12.2006.

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