

BASEL II CREDIT RISK MANAGEMENT AGREEMENT

Băce Grigore

Babeş-Bolyai University, Cluj-Napoca, email: grigore.bace@bnro.ro, telephone no 0264598583,

Abstract. In the paper the author show the modalities of financing the companies taking into account Basel II Agreement.

Key words: capital adequacy, currency mismatch, haircut

1. The necessity of improving Basel I Agreement

In July 1988, The Basel Banking Supervision Committee issued a set of recommendations referring to the introduction of a minimum level of capital for international active banks in order to facilitate the fair competition between them (for example, the Japanese banks has a much lower capital than non Japanese banks with the same credit risk).

The proposals of Basel Committee were not imperative, but an expression of good practice. In the European Union there were introduced through the Capital Adequacy Directive.²³¹

According to the agreements, the basic capital of a bank has to be maintained at least 8% from the banks' exposure, and to the different exposure categories there were given a percent from 0 to 100, while to loan for companies a percent of 8%, irrespective of the credit's quality.

The main deficiency of this agreement was the fact that the percents used – 0, 20, 50 and 100% - was given on a simplistic basis. For example, a bank had to form the same capital irrespective if it gave a guaranteed credit to an AAA rating company or an un-guaranteed credit to a BBB rating company. Thus, a bank could administer these norms in the sense that exposure from high quality credits could be sold and credits could be given to debtors of inferior quality, but with a better yield. But, at that time the agreement was considered as a good compromise, since the technology of risk management was not developed enough to enable finer tuned capital request, and the banking industry required minimum capital requests harmonized for fighting the decline in banks' capital.

From that moment on, the process of allocating capital as compared to given credits became more sophisticated and many banks developed their own rating systems. Many banks went forward and used the series of historical data referring to the losses in the crediting activity in order to estimate the average and variation of losses for every type (measures) of credit and, thus, there were estimated the probability distributions of losses. These estimations could have been used for the whole management of credit portfolio, so that the bank would maintain a target rating of its credit portfolio.

In 1999, the Basel Committee decided to rectify the capital adequacy regime in order to adapt it to the changes in the process of risk management used by banks and that would offer them more freedom in credit risk management. In this sense, in 1999 and 2003, there were made public two consultative agreement projects and in July 2004 there was published the final version of the agreement.

The new agreement acknowledges the progresses made in credit risk management and brings incentives for enabling banks to use sophisticated models of risk management. Moreover, it is allowed the use of credit risk derivatives for covering the positions generated by crediting.

The agreement is structured on three pillars:

²³¹ 393L0006 (Capital Adequacy Directive) – Council Directive 93/6/EEC of 15 March 1993 on the capital adequacy of investment firms and credit institutions (Annex V), modificată de 398L0031 – Directive 98/31/EC of the European Parliament and of the Council of 22 June 1998 amending Council Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions și de 398L0033 – Directive 98/33/EC of the European Parliament and of the Council of 22 June 1998 amending Article 12 of Council Directive 77/780/EEC on the taking up and pursuit of the business of credit institutions, Articles 2, 5, 6, 7, 8 of and Annexes II and III to Council Directive 89/647/EEC on a solvency ratio for credit institutions and Article 2 of and Annex II to Council Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions.

- Pillar 1: minimum requirements of capital – the quantitative approach of prudential requirements;
- Pillar 2: supervision of the process of capital adequacy;
- Pillar 3: market discipline – requirements of more detailed reporting of the supervision institution and the population.

In order to calculate the required capital, Basel II agreement suggests three different approaches:

1. Standard approach, similar to that proposed by Basel I, uses more refined percents. This approach also enables the use of derived financial instruments for limiting credit risk and decreasing capital requests.
2. Foundation internal rating based (IRB) approach, which allows the bank to use its own rating system, including the use of own calculation regarding the probabilities of entering payment default (PD), but the losses recorded when the counterpart enters loss given default (LGD) are provided by the supervision authority.
3. The advanced IRB approach, where banks calculate their capital requirements basing on their own models, validated by the supervision authority, including PD and LGD probabilities.

The main advantages introduced by the new capital agreement are:

- Take into account the specificity of each credit institution and the risk profile it presents;
- Leads to the development of the rating agencies market;
- Ensures the diversification of the models referring to risk evaluation and the determination of the capital requirements in the context of the evolution from a simplified approach to advanced approaches;
- Implies the formation of human resources in order to due efficiently the procedures of evaluating rating agencies, the unfolding of the supervision process according to the requirements of the second Pillar and validation of the internal models of the credit institution;
- Stimulate the market transparency and discipline.

The main advantage of the new prudential requirements is that they imply the allocation of additional financial and human resources, cost that, on intermediary term, and will be compensated by the decrease of capital requirements.

2. Standard approach

In the standard approach, the percents are given according to the type of credited state/institution and according to their rating.

The most important categories of debtors are:

- States, including central banks;
- Local authorities;
- Multilateral development banks;
- Banks;
- Corporations.

Debtor	Capital requirements					
	AAA la AA-	A+ la A-	BBB+ la BBB-	BB+ la B-	Sub B-	Fără rating
States	0%	20%	50%	100%	150%	100%
Banks Option 1 (a)	20%	50%	100%	100%	150%	100%
Option 2 (b), (c)	20% (20%)	50% (20%)	50% (20%)	100% (50%)	150% (150%)	50% (20%)

				BB+ la BB-	Sub BB-	
Corporations	20%	50%	100%	150%	150%	100%

Table 1 - The Rating System

- a) percents are based on the rating of the state where banks have their headquarters
- b) prevents are determined according to the rating of the bank;
- c) Between brackets there are indicated the percents for short term (less then 3 months) credits.

In order to expose the retail credit (considered as such by the supervision authority), the risk percent is 75%. According to Basel II, in order to be classified as retail, the exposal has to meet the following conditions:

- to be over a individual entity or small business;
- to be generated by a certain bank product, for example credit cards or consumption credit;
- should not be over 0.2% from the retail portfolio acknowledged as such by the supervision authority;
- should not be over 1 million euro for any counterparty;
- these principles have been included in REF 14/2006

For the exposal on mortgage credits, capital requirement is 35%, substantially lower then 50% of Basel I.

The standard approach is largely based on the external ratings given by rating agencies (external credit assessment institutions, ECAI), acknowledged by national supervision institutions.

The eligibility criteria for rating assessment companies are:

- Objectivity: The methodology for rating determining has to be rigorous, systematic and validated on historical experience. Moreover, ratings have to be permanently re-evaluated and to answer to the changes of the financial standing of the debtor. Before being recognized by the supervisor, the methodology of determining the rating for every market segment, including their testing, has to be applied for at least 1 year, preferably 3 years.
- Independence: The external agency of rating should be independent and not subjected to political or economic pressure that might influence rating. The process of determining the rating should be free of the constraints that might appear in circumstances in which the composition of the administration council or of the shareholders' structure may be accused of creating conflicts of interests.
- Disclosure/ international access: Individual rating should be available both to national and international users. Moreover, the general methodology of rating assessment should be publicly available.
- Disclosure: The rating institution should make available the following information: the methodologies of rating assessment, including the definition of PD, current ratios of PD for each rating category and the probabilities of transition from one rating category to another.
- Resources: The rating institution should have enough resources for giving high quality ratings. These resources should enable the constant contact with the superior and operational levels of the units the rating of which is evaluated, in order to add value to the given rating. The evaluations should be based on methodologies that combine quantitative and qualitative approaches.
- Credibility: To a certain extent, credibility is derived from the above criteria. Moreover, the dependence of the independent users (investors, insurance societies, trade partners) of the ratings provided represents a proof of the credit institutions' credibility. Credibility also is influenced by the existence of internal procedures preventing the inadequate use of confidential data.

Basel II acknowledges credit risk reduction techniques through collateralization, collaterals and credit risk derivatives.

As far as the collateral is concerned, there are allowed two modalities of approach. The simplest approach is similar to Basel I approach, according to which the credit risk percent is replaced with the collateral's risk percent, which can not be smaller than 20%. The other, more advanced, approach, for protecting the bank against the volatility of the collateral's price, is based on the adjustment of the collateral's market price by applying haircuts, either provided by supervisor (basing on quantitative and/or qualitative criteria, or internally calculated. Then, the adjusted market value of the collateral is deducted from the gross value of the credit, thus obtaining the adjusted exposal, and then multiplied by the corresponding risk percent.

Thus, for a collateralized transaction, the exposal after risk mitigation procedure is calculated as follows:

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

where:

E^* is the value of the exposal after risk mitigation procedure;

E – current value of the exposal;

He – the *haircut* applied to the respective exposal;

C – current value of received collateral;

Hc – the *haircut* applied the respective collateral;

Hfx – the *haircut* applied for *currency mismatch* due to the expressed in different circulating mediums of the exposal and the collateral.

When the collateral is formed from a basket of assets, the haircut applied the the asset basket is

$$H = \sum_i a_i H_i$$

where a_i represents the percent of the asset (measured in circulating mediums) in the

basket and H_i represents the haircut applied to the respective asset (Regulation of BNR no 19/2006).

The acceptable collateral according to both approaches represents:

- Money or deposits;
- Financial securities with at least BB- rating issued by the government or public authorities;
- Financial securities issued with corporation of at least BBB- rating;
- Shares or bonds belonging to a principal index;
- Gold.

Moreover, the advanced approach accepts shares that do not belong to a principal index, but are tranzactioned on a principal market, bonds without rating issued by bank institutions, collective and mutual funds investment securities.

In order to use these types of collateral, a bank has to meet standards referring to:

- the legal certainty of the documents used;
- the requirement that the assets used for risk mitigation should have a reduced correlation with the credits the risk of which is reduced by them;
- the solidity of the management policies of the collateral.

The proposals referring to warrants and balance sheet netting enlarge the area of eligible warrants or of suppliers of derived contracts on credit risk, through the acknowledgement of the protection for credit risk provided by the government or other banks with lower risk percentage then the debtor's and other units with A- or better rating. This latter category included the protection provided by the mother-company, subsidiaries or affiliates of the debtor, when they have a lower risk percentage then the debtor.

As for the collateral, in the case of the compensation there are determined haircuts. Thus, the exposal obtained after the use of a master netting agreement is:

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

where

E^* is the value of the exposal after risk mitigation procedure;

E – current value of the exposal;

H_e – the *haircut* applied to the respective exposal;

C – value of received collateral;

E_s – absolute value of the net position in a financial security;

H_s – *haircut* applied E_s ;

E_{fx} – absolute value of the net position in a circulating medium different from the *settlement currency*;

H_{fx} – *haircut* applied for reducing *currency mismatch*.

As an alternative to the standard approach and the estimation of own percentages for the collateral (advanced approach), banks may use value-at-risk (VaR) models for reflecting the volatility of the exposal and the collateral for the *repo* contracts covered by netting contracts.

The use of VaR models is allowed only for the banks with internal models of market risk acknowledged by the supervision authority according to the Market Risk Amendment. Those banks that did not receive this authorization may request separately (from Market Risk Amendment) the supervision authority to acknowledge the above models of market risk for *repo* transactions. These models will be authorized only if the bank is able to prove the quality of the model used though data referring to the testing of its results for a period of time of at least 1 year.²³²

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

$$E^* = \max \{0, [(\sum(E) - \sum(C)) + \text{multiplier} \times \text{results VaR}]\}$$

In the calculation of capital requirements, banks will use the result of VaR model (VaR value) corresponding to the previous working day.

As far as the derived contracts and guarantess are concerned, the operational requirements to be completed are:

- they have to be a direct receivable over the protection seller and have to refer to the specific exposal (or the group of exposals) , so that the protection should be clearly defined and solid;
- the contract should be irrevocable; the contract should have no clause stating that the protection seller may, unilaterally, renounce the ensuring of credit risk protection or to increase the cost of protection in the case in which the quality of the credit deteriorates;
- the contract should be unconstrained;
- the contract should have no clause that would allow the protection seller to delay the payment of damages in the case of the credit event.

If protection is in another circulating medium, its value should be reduced by applying a haircut:

$$G_A = G \cdot (1 - H_{FX}),$$

where:

G – nominal value of credit risk protection;

H_{FX} – *haircut* applied;

G_A – effective value of collateral.

In the case in which there are maturity differences between the instrument providing credit risk protection and the credit instrument, the value of the credit risk protection will be adjusted as follows:

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

where:

P_a = value of credit risk protection adjusted for maturity differences;

²³² The supervision institution rates these models according to the errors generted in the green, yellow and red area and, according to the area to which the model belongs, it gives a multiplier for VaR value.

P = value of credit risk protection adjusted for any *haircuts*;

t = $\min (T, \text{residual maturity of protection contract})$ expressed in years;

T = $\min (5, \text{residual maturity of credit risk exposal})$ expressed in years.

3. Internal rating approach

This method enables banks to determine their capital requirements for different exposals, using their own estimations for a part or all the components of risk. They include:

- the probability of default;
- loss suffered by the bank (as percentage from the value of the exposal) in the case of loss given default;
- exposal in the moment of exposure to default, EAD;
- effective maturity of the credit instrument, M.

The use of an own methodology in estimating these credit risk components is the object of the supervision authority's approval and, in certain circumstances, banks will have to use, for one or several risk components, values provided by the supervision authority.

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