CREDIT RISK MANAGEMENT WITH THE PURPOSE OF OPTIMIZING THE PERFORMANCES OF THE FINANCIAL INSTITUTIONS

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Abstract
Any loan transaction is accompanied by a risk: the probability that the borrower will not honor its commitment. The assessment of the risk is of paramount importance to the lender, since the enterprises are quite frequently facing difficulties (default, bankruptcy), and, since the consequences of these difficulties seriously affect the economy. Regarding the creditor, the existence of this risk affects his hope to earn profit from the lending operations and increases the likelihood of encountering serious difficulties, if the debtor is not able to repay the loan.

Key-words: credit risk, financial institutions, prudential management, ratio, regulation.

JEL classification: G20, G28.

1. Introduction

The very nature of the lending activity exposes the financial creditors to different risks. This risk refers to an event that may adversely affect the flow that should be brought to the borrower by a title loan. In practice, this risk is actually the risk of debt default of a bankrupt debtor. This risk is absorbed by the uncertainty that burdens the debtor who must repay his/her debt, that is, the uncertainty of losses that may be caused to a financial lender by a loan. Comprehensively, we could define the credit risk as being the risk of the degradation of the borrower’s situation. This deterioration has several consequences, such as the:
- Increasing loan default probability (default);
- Deterioration of the credit quality;
- Decrease in profitability of the lending operation.

2. The credit risk management conducted by the financial institutions

The financial institutions must implement a credit risk management with the purpose of improving their performance, of minimizing as much as possible the risk they involve, and, above all, of complying with the prudential regulation that constrains them. The credit risk sets in when an agent grants a loan to another agent. Analyzed from a more simple approach, we consider that the economy regroups four types of agents: the government, the enterprises, the banks and the households. All these agents are likely to be both creditors and borrowers (table no. 1).

<table>
<thead>
<tr>
<th>Agents (Model simplified)</th>
<th>Creditor</th>
<th>Borrower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Public loan&lt;br&gt;Suspension of payment for taxes</td>
<td>Public debt</td>
</tr>
<tr>
<td>Banks</td>
<td>Household credits&lt;br&gt;Loans for enterprises</td>
<td>Refinancing&lt;br&gt;Public cash advances</td>
</tr>
</tbody>
</table>
Agents (Model simplified) | Creditor | Borrower
---|---|---
| Loans for the government | Costumer credit: enterprises/households | Bank loans
Enterprises | Trade credit | |
Households | Savings investments | Bank loans

Suspension of payment


Therefore, different credit relations emerge (table no. 2).

Table no. 2 Credit relations in the economy

<table>
<thead>
<tr>
<th>Debtor</th>
<th>Creditor</th>
<th>Government</th>
<th>Banks</th>
<th>Enterprises</th>
<th>Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Loans between governments</td>
<td>Loans</td>
<td>Delay</td>
<td>Delay</td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td>Government loan</td>
<td>Interbank loan</td>
<td>Loans</td>
<td>Loans</td>
<td></td>
</tr>
<tr>
<td>Enterprises</td>
<td>N/A</td>
<td>Compulsory deposits</td>
<td>Inter-enterprise loans</td>
<td>Suspension of payment</td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>N/A</td>
<td>Compulsory deposits</td>
<td>Bonds</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>


The credit portfolio approach

A financial institution owns by construction a set of credits, explicit or underlying to the financial products and at different maturity dates. These credits make up the credit portfolio.

**a) Definition**

In order to describe a credit portfolio, it is important to distinguish between the different types of activities performed by a bank, which are the source of a credit risk:

- The banking book, which comprises the operations that a bank engages to perform until their due date; they are recorded in the balance sheet in their nominal value and the dividends in the account of the results.
- The trading book contains the operations and products designed to be released before their maturity date; their capitalization in the marked-to-market appears in the balance sheet and their fluctuation in the account of the results.

We consider “issuer risk”, the risk undertaken by a bank when it gives its funds to a counterpart. It includes, among other things, the risk associated to granted loans and titles for purchase.

The counterparty risk is defined as the credit risk of all the operations which are not necessarily related to financing. It involves the operations included in the trading book, intended for reselling before their due date. The exposure to counterparty default risk is evaluated in the marked-to-market (or replacement value).

The composition of the credit portfolio is designed to regroup from a certain perspective the borrowers according to their risk class. But, the reasoning for a portfolio is not limited to a set of individual credit risks. It is necessary to dispose of a pattern which allows you to assess the portfolio credit risk. The portfolio credit risk is defined as the uncertainty related to the possible losses of the respective portfolio at a certain moment. In terms of value (marked to market), it corresponds to the uncertainty of the unanticipated changes of the value of the portfolio derived from the risk variation of the borrowers. Therefore, it is necessary to integrate the classic “portfolio effects”, such as the concentration or diversity. The potential losses related to a credit portfolio strongly depend on the default credit correlation between the components of the portfolio. Furthermore, the connection between the risks is high, and the probability of the related losses is also important (whether the losses are high or low).

**b) Treatment of the credit risk portfolio**

The portfolio analysis helps us to distinguish between the two types of losses:

- The potential losses (expected losses) are the losses expected in regular market conditions;
- The unanticipated losses (unexpected losses) that correspond to extreme losses, noticed in extreme market conditions.

Their treatment for the financial institutions is different.

- Treatment of expected losses
At the level of the portfolio, the expected losses correspond to the amount of losses estimated for the whole credit portfolio. As they can be estimated with a relative precision and are issued by the current activity of the bank, the losses can be covered by provisions.

For a financial institution, it is essential to implement a management coordinated by its assets and liabilities, but also by its components “outside the balance sheet”. This aspect is achieved by the Assets and Liabilities Management (ALM). Its purpose is to estimate and cover the main risks, to which it is exposed due to its commercial activity: rate, liquidity, foreign exchange, etc. and the credit risk. In a certain way it is about the management of the bank’s balance sheet. The ALM involves a centralization of all the activities and the definition of the flow perspective (return to liquidity) of all the assets and liabilities. It mainly concerns the financial risks associated to the appropriation of liquidities and to the financing of the banking operations.

In this framework, according to the risk management logic, every financial institution should implement an internal strategy on the credit risk management. The strategy includes more steps:
- The measure for the individual credit risk and the global measure of the portfolio.
- Analysis of the risk of the portfolio: identifying the positions that have a strong impact on the risk, study on the individual and marginal contribution of each positions, etc.;
- Reduction and hedging (see supra);
- The passage of a provision in order to cover the expected losses in the current market conditions (expected losses insurance).

Thus, the expected losses are covered by the provisions in ALM.

➢ Treatment of unexpected losses

The extreme losses, associated to the extreme market conditions, could lead to the failure of the financial institution. These severe losses must be covered by a donation in a specific equity: the economic capital. Therefore, it is necessary to evaluate the unexpected losses from a certain perspective, considering the uncertainty of future losses and creating the probability of the global losses at the level of the portfolio. In this way, we could define the amount of economic capital able to cover the losses (to absorb them) at a certain moment. Therefore, a financial institution is stirred up to possess enough equity in order to cover the unexpected losses. Currently, it is about an interval estimate of the distribution probability of the losses, for instance: 99,9% per year.

Therefore, the credit risk management consists of defining a level of equity which allows the absorption of losses that are either expected, or unexpected (table no. 3).

<table>
<thead>
<tr>
<th>Type of loss</th>
<th>Nature</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected losses EL</td>
<td>Losses associated to normal market conditions</td>
<td>Provision passage</td>
</tr>
<tr>
<td>Unexpected losses UL</td>
<td>Losses in extreme market conditions</td>
<td>Allocated equity: economic capital</td>
</tr>
</tbody>
</table>


We can notice that the reasoning based on the credit portfolio allows us to considerably improve the individual credit risk management. For a start, a bank may choose its new types of credit according to their marginal contribution to the risk portfolio, thus, establishing an innovative measure targeting the acceptance or the refusal to granting loans. Subsequently, the individual action, to determine prices for credits, turns out to be more effective when referring to a portfolio, the bank should grant loans only, if they guarantee a high marginal profitability for the economic capital (or regulation).

Moreover, two very different questions are raised from the treatment of unexpected losses:
- How can we determine this potential loss? We can generally use a tool issued by the approach of the Value at Risk adapted in the case of credit.
- Should every institution decide on its economic capital? Taking into account the systematic risks related to this decision, the prudential rules impose an amount of regulatory capital to the institutions.

2.1 Prudential management

The outcome of the bankruptcy chain of the banks would be so serious, that the entire financial system could collapse, and the financing of the economy along with it.

Following the banking crises and the changes regarding the general economic conditions (and, therefore, the risk undertaken by banks), certain countries made public their desire to establish a set of prudential rules, that the banks should comply with.
The countries have confided to the Bank for International Settlement (BIS), whose headquarters is in Bales, the task of drafting this regulation.

- **Basel I**
  Within the Basel international rules (which should therefore be known as Basel I) it was established a logic of adequacy of the banks’ regulatory capital related to the risks they undertake. The Cooke ratio (the name of the Committee responsible) allows the establishment of a uniform regulatory framework, applicable to all banking organizations. This ratio encourages these organizations to reinforce the level of their regulatory capital for the international banks, and makes possible the reduction of the competitive distortions between banks with national rules so far heterogeneous. The ratio imposes that the regulatory funds of a credit institution should not drop under the threshold of 8% of the total average credit interest of the respective organization:

  \[
  Cooke \text{ ratio} = \frac{\text{regulatory capital}}{\text{average credit amount}} \geq 8\% 
  \]

  It is related to an innovative norm, which has a series of positive effects, the Cooke ratio has undergone numerous limitations (Kharoubi, C., Thomas, P., 2013).

- **Basel II Accord**
  The purpose of the Basel II Accord was to improve the Basel I agreement, by means of a new more complete accord, but which is not applicable in a uniform way to all the credit institutions. Since Basel I took into account only the credit risks this accord is focused on other 3 complementary pillars: the market risk, credit risk and operational risks. It is based on a modified prudential ratio.

  \[
  McDonough \text{ ratio} = \frac{\text{regulatory capital}}{\text{credit risk + market risk + operational risk}} \geq 8\% 
  \]

  Basel II requires a stricter ratio of own capital (pillar 1), but goes far beyond when it comes to the organizational aspects by creating a prudential surveillance (pillar 2), a financial communication and information (pillar 3).

- **Basel III**
  The purpose for Basel III is relatively simple: more regulatory capital, of the best quality, and more transparency. 5 main measures have been established, which aim at the regulatory capital reinforcement (thus improving the quality and lifting up the ratios), at the introduction of a buffer, at the establishment of a liquidity ratio, at the introduction of lever effect ratio and reduction of the systemic risk.

  Regarding the liquidity, the Basel Committee still has to define the use and utility of the lever ratio, that banks must make public starting with the year 2015, in sight of a possible change in the pillar 1 in 2018.

  As far as the liquidity ratio coverage is concerned, the implementation date was established for 2015, but the perimeter of the assets considered liquid is still to be determined. The initial definition for the net stable funding ratio should also be reformed, for the 2015 implementation. The compelling measures specific to the organizations which are defined by the systemic character are still being debated.

**Conclusions**

Since its drafting, the experts have highlighted the fact that the Basel III Accord just partially achieved its double objective that of avoiding the systemic crises and of establishing an effective discipline and control of the financial institutions.

It seems logical that the regulation device should be active and that at a certain moment one could adjust the contents and act on the variants and difficulties of its application in a financial universe which is troubled from a structural point of view. These regulation agreements are in fact convergence processes which demand a development and which fundamentally emerge from a stage of evolution. Furthermore, the existence of complementary regulation, indeed parallel (FACTA, MIFID, etc.) and the emersion of the new political principles (for instance, the splitting of banking activities) changed the application background of the prudential banking agreements. After several years of implementation, one can already notice a potential in the following years related to the working environment of the rules leading **probable to Basel IV**! The regulation involves the also the adhesion of all the states and a certain degree of flexibility, creating some sort of permanent working environment (Kharoubi, C., Thomas, P., 2013).

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