CHAPTER 3

Credit Risk Management and Banking Business in Europe

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3.1 Introduction

Granting loans to excellent or low-quality enterprises is equally present in bank loan portfolio, with lowering or raising of the credit risk. A complete investigation should be carried out prior to the financing of investment projects, in order to ascertain the extent to which the project has the capacity to produce income. Such an assessment is always regarded as necessary. The temporal horizon and the methodologies used are different in the hypothesis of short-term as compared to medium-term or long-term credit.

These problems can be reduced or eliminated by production of information before and after the granting of financing. The information content produces uncertainty regarding the value of loans and value of assets; this, in turn, causes fluctuations in economic values and capital values. Information production is an important function performed by individual banks and, at the same time, involves an organisational structure. This function tends to produce good quality information as the bank will command greater support for achieving the right choices in the bank business

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areas. Information quality is particularly important for assessments in granting loans and, at the same time, in loan portfolio composition, which reveals different trends through time periods and economic trends.

This chapter aims to examine bank lending, credit risk and problems and solutions related to non-performing loans (NPLs).

3.2 Bank Lending

Granting loans postulates prior assessment of the credit capacity (Bianchi, 1992; Caprara, 1954; Dell'Amore, 1965; Dematté, 1974; Forestieri, 1991). Such an assessment is always regarded as necessary. The temporal horizon and the methodologies used are different in the hypothesis of short-term as compared to medium-term or long-term credit.

Application of the most modern risk analysis techniques is necessary in order to rationalise choices concerning the granting of credit to clients and, at the same time, to avert problems of adverse selection and moral hazard (Colombini, 2001; Hubbard, 2008; van Damme, 1994).

In an overall perspective, short-term as well as medium- and long-term loans constitute the most important class of bank assets. This is a feature which distinguishes the composition of bank assets with different ratios of total loans to assets from one bank to another and over time. It is important to stress that the loan share in the composition of bank assets bears a relation to costs and revenue and consequently to profits or losses. In the application of the universal model in the European banks, the range of loans partially or entirely includes the following technical forms: short-term loans, medium- and long-term loans, leasing, factoring, consumer credit.

There are differences among the technical forms in which loans are granted, and also in cash flow generation. In short-term loans, monetary flows result from intake of interest payments and from repayment of the entire sum at maturity, the latter often being tacitly renewed. In medium- and long-term loans, on the other hand, repayment arises as a result of the periodic monetary flows from collection of the instalments, which generally include the capital share and the interest share.

Although longer-term loans are associated with greater risk, the resulting cash flow may turn out to be greater and more stable; however, with regard to short-term loans, the implicit and sometimes systematic renewal that is an intrinsic feature of such loans should not be overlooked.

In medium- and long-term loans, the application of fixed rates leads to problems concerning exposure to interest rate risk. This leads to a positive or negative contribution to the profit and loss statement in the event, respectively, of a drop or a rise in market rates.

In the American experience of the 1970s and 1980s of the Savings and Loan Associations specialised in medium- and long-term loans, the growth of fixed rate loans on total assets gave rise to considerable problems, due to the increase in market rates. This led to a contraction of profits and even to cases of losses. Such circumstances caused repeated crises and bankruptcies in the medium- and long-term credit industry, drastically reducing the number of intermediaries present in the industry (Barth, 1991; Kane, 1989; White, 1991).

Some loans are assisted by covenants. In such cases, the debtor is required to obey certain clauses forming part of the loan contract, with particular reference to the following aspects: investment policies, own capital levels, guarantees granted, clarity of information. These clauses make a positive contribution to improvement in the quality of loans (Berlin & Mester, 1992; Rajan & Winton, 1995).

Loans may also be assisted by guarantees. Such guarantees are either personal or collateral. Guarantees create better prospects for recovery of loans in the event of debtor insolvency.

Thus covenants aim to reduce the estimate of exposure in case of insolvency (exposure at default, *EAD*), while guarantees are designed to reduce the percentage loss (loss given default, *LGD*).

Since the class of short-term and medium- and long-term loans is found to be the major component in the structure of a bank's total assets, the relations with cash flow generation and interest earned are immediate and have a considerable impact on monetary repayments and expenses and on the statement of profit and loss.

This shows the importance of the system of interest rates on loan portfolios and the mean return associated with such interest rates. A comparison can thus be drawn with the returns on similar classes of assets, allowing more rational choices concerning composition and recomposition.

It is also important to ensure correct association of the interest rate with the credit risk affecting individual loans, taking into consideration expected losses, unexpected losses and fund-raising costs. This, in turn, presupposes careful investigation of debtors' ability to repay: consequently, the different types of credit risk are classified on the basis of internal ratings (Colquitt, 2007; Jacobson, Lindé, & Roszbach, 2006; Nickell, Perraudin, & Varotto, 2007).

In this context, given equal borrowing and external funding, medium-sized and large enterprises show an increasing or decreasing tendency to have recourse to the market for bond and/or share placement, in order to reduce or increase the demand for bank loans. At the same time, increases or decreases in bank liquidity produce, respectively, positive or negative reflexes on the granting of credit.

3.3 Credit Risk: Measurement and Management

Credit risk is the risk of potential default of borrowers in the repayment of debt as principal and as interest. This is a very powerful risk as it can produce negative impacts and losses which will cause reductions in asset values and write-downs in loans' portfolios and therefore in the level of capital. In this framework, the analysis considers credit risk essentially with application to loans' portfolios.

More generally, credit risk appreciation can be carried out by the analysis of the following parameters: probability of default (*PD)*, loss given default (*LGD*), exposure at default (*EAD*), maturity (*M*).

PD, which is expressed in percentage terms, represents the probability of client insolvency within a year and oscillates between 0 and 1. *LGD* expressed in percentage terms quantifies the loss that would occur in the case of client insolvency. *EAD* measures the level of exposure at the time of client default. *M* concerns the maturity of loans granted to clients. Taking these different parameters into consideration, the bank can formulate precise credit risk assessments on clients' loan portfolio. *PD*, together with *LGD* and *EAD*, constitutes an assessment of the credit risk. Therefore, a rise in credit risk is accompanied by an increase in the credit rate applied.

Credit risk may give rise to expected loss (*EL*) which does not create problems for the bank as appropriate accounting provisions are always made. Therefore, the bank will not undergo any negative impact that would affect future profits. In contrast, if credit risk is unforeseen, this may cause unexpected loss (*UL*) thereby causing problems for the bank.

The distinction between expected loss and unexpected loss is important in consideration of management choices with regard to the following aspects:

- the amounts involved in direct value adjustments and in provisions necessary in order to ensure that expected losses will be covered;

- level of capital in order to cover unexpected losses;
- interest rates that are in line with value adjustments and with provisions designed to cover expected; losses and the cost of capital for unexpected losses.

It follows that it is important to ensure that correct methodologies are used for measurement of expected and unexpected losses (Bessis, 2015; Cirillo, 2005; Lusignani, 2004; Masera, 2005).

Expected loss (*EL*) can be calculated by means of the following product:

$$EL = PD \cdot EAD \cdot LGD$$

Unexpected loss (*UL*) can be identified as arising from volatility of losses around their mean value and, therefore, around expected loss. Unexpected portfolio loss is measured by the standard deviation of the frequency distribution of possible losses affecting the portfolio.

Considering the entire loss probability distribution and a confidence interval of 99.9 per cent on a one-year temporal horizon, the maximum loss level is measured by value at risk (*VaR*) which, after subtracting expected loss (*EL*), expresses unexpected loss (*UL*) and, therefore, the level of capital necessary in order to cover it. The situation is expressed by the following formula:

$$UL = VaR - EL$$

Credit risk can be transferred to other counterparties by means of credit derivatives. This creates cover against the risk of insolvency or deterioration of the debtor's credit quality, even if the credit relationship remains in the hands of the bank (Brandon & Fernandez, 2005; Clark, 1997; Duffee & Zhou, 2001; Moser, 1998; Neal, 1996; Rule, 2001).

Equally, credit risk can be transferred by securitisation, which implies the pooling of loans having similar characteristics and transfer of the pool to external investors; at the same time, asset-backed securities are created.

Asset quality review (AQR) and, at the same time, stress tests by the Banking Supervision of the European Central Bank (ECB) focus on asset values and fluctuation values as the most important problem arising from financial crises in European banks. Deterioration in loan portfolios

tends to create non-performing loans (NPLs) which present problems in terms of non-paying interests and non-repaying capital in variable proportions.

3.4 Non-performing Loans: Origins and Solutions

The subprime mortgage financial crisis brings to light the inadequate credit risk management produced by the banking system, which initially gave rise to negative consequences for the financial system and subsequently for the economic system.

Similarly, the sovereign debt crisis highlighted the unbalanced public finance management characterised by the widespread use of debt which, together with the subprime mortgage financial crisis, had a severe impact, as substantial public resources had to be destined to the rescue of banks and financial systems.

Increasing the level of credit risk borne by sovereign states initially generates negative repercussions on public issues and, as a result, on fluctuations in value of financial instruments' portfolios of financial intermediaries.

Readjustments of public accounts cause a tax increase and/or a reduction in public expenditure. In the European context, during the time period between 2007 and 2014, policies for rebalancing the public accounts generated a recessive push economically, essentially implying a loss estimated in several percentage points of gross domestic product (GDP), despite differences among European countries. This is a loss in wealth that is becoming practically irrecoverable, thus underscoring a negative aspect: public accounts rebalancing operations in the context of financial and economic crises imply negative results economically. In Europe, public accounts rebalancing policies generated economic recessions over several years, with a recovery phase which started towards the end of 2013.

Several years of economic recessions gave rise to non-performing loans (NPLs) in a commercial banking context, causing the credit crunch. In Europe, the increase in NPLs is partly attributable to severe economic conditions that leave many customers unable to proceed with the repayment of interest and capital; to some extent, however, the increase in NPLs can also be ascribed to bad selection and monitoring of investment projects and firms. Certain distinctive features of banks and efforts to improve risk management and efficiency exert a positive influence on the

evolution of NPLs. Poor management of banks tends to exacerbate the creation of poor-quality loans, negatively influencing efficiency and NPLs (Altunbas, Carbo, Gardener, & Molyneux, 2007; Avgouleas & Goodhart, 2017; Berger & De Young, 1997; Cucinelli, 2015; Duran & Lozano-Vivas, 2015; Kwan & Eisenbeis, 1997; Williams, 2004; Zhang, Cai, Dickinson, & Kutan, 2016). Banks follow some approaches for identification, measurement and management of NPLs and, at the same time, of write-down problems, reducing the level of NPLs and raising negative impact on the profit and loss account.

The introduction of the asset quality review (AQR) and, at the same time, of stress tests by the Banking Supervision of the European Central Bank (ECB) places emphasis on asset values and fluctuation values as the most important problem arising from financial crises in European banks. Deterioration in loan portfolios tends to create non-performing loans (NPLs) which present problems due to non-payment of interest and/or capital, in variable proportions.

The supervision unit at the ECB carries out checks on the level of NPLs in the euro area and, at the same time, on the validity of governance structures, strategies and suitable processes of individual banks for NPL management, taking into consideration the evolution of risk over time.

Considering the high level of NPLs in a number of European banks, it becomes important to set up special units within banks; such units will be dedicated to NPL management and resolution. The definition of strategies over time, with the participation of high level management, is extremely important. Loan classification and underlying guarantees as well as related judicial and non-judicial procedures postulate choices at appropriate times for raising cash and for establishing the number of loan repayments on a regular basis, with the final aim of reducing the new problematic loans. The composition of NPL units requires human resources with high-quality and professional skills, as they have to deal with a delicate and critical issue for evolution of the loan business and for repercussions on costs and revenue of individual banks.

Recovery from non-performing loans can be achieved only in the medium and long period; furthermore, management of such loans requires modernisation with efficient use of information technology to build up an overview of the situation of non-performing loans.

The economic consequences of the credit crunch performed by banks on their customers severely affected the companies' investments, with the logical consequence of sharpening the forces of recession.

Regarding NPL stock, the ECB Banking Supervision published the Guidance to banks on non-performing loans on March 2017, requiring banks with high levels to submit NPL strategies, including targets and reduction plans.

Considering new NPLs, the ECB Banking Supervision published a draft addendum on its Guidance to banks on non-performing loans on October 2017, indicating supervisory expectations for minimum levels of provisions. More specifically, banks are expected to provide full coverage for the unsecured part of new NPLs after two years and for the secured part after seven years. It is worthwhile to stress the supervisory expectations' change every few months which will become *de facto* a restrictive constraint measure on banks' business.

The ECB Banking Supervision will present further policies to address the existing stock of NPLs including transitional arrangements and, at the same time, will evaluate feedback statements from consultation.

In this framework, the creation of bad banks on an internal or external level and NPL divestiture processes seek to reduce the phenomenon of the credit crunch and to promote recovery through better and optimal lending conditions for families and enterprises. The price applied in credit lending divestiture distinguishes between unsecured credit and mortgage credit, the lending rates being lower and higher, respectively.

3.4.1 Bad Bank

A bad bank implies the creation of state-owned or private companies for the use of capital in bad assets purchased from troubled banks, "cleaning up" their balance sheets and assessing the appropriateness of their purchase price. A company set up for bad banking activities implies either a definite public equity presence, feeding the list of public companies, or a definite private equity presence, thus feeding off-balance sheet vehicles.

A bad bank postulates the identification of bad assets and good assets, and a net partition between these two categories, in the sense that bad assets are separated and transferred into the assets of the purpose-established company (the 'bad bank'), whereas good assets remain in the existing company's assets. A clear distinction between bad bank and good bank is thereby introduced (Colombini, 2015; Colombini & Calabrò, 2011).

A bad bank is an intervention that has been repeatedly carried out in countries affected by the effects which have been experienced since the

2007 worldwide financial crisis. Therefore, the intervention establishes clarity and different types of risk management activity, in the context of a recovered bank (good bank) and of a surviving bank (bad bank): the latter now incorporates all the negative and problematic items from the past management.

The activity performed by a bad bank does not represent a sole right for bad banks: in the evolution of financial crises, central banks themselves engage in repeated purchases of government securities and toxic assets in the context of unconventional measures, thus contributing to the placement of government securities and to recovery from the negative situation of bank balance sheets.

These are interventions which cause a considerable increase in the volume of assets; moreover, they cast light and shadows over the central banks from the standpoint, respectively, of a hypothetical value increase or of a hypothetical value reduction due to the presence of financial instruments of high or low quality in their assets.

Taking a closer look, the weakness of many banks makes economic recovery slower and more complex not only for individual countries but also on a European scale. The presence of non-performing loans and, even more so, of toxic securities among banks' assets leads to greater capital absorption, thus comparatively reducing monetary resources allocated for lending to the economy. Rational decision-making in the selection and control of loans to customers is therefore of paramount importance.

On a European level, in order to reinforce economic growth, the creation of a number of bad banks for the ultimate cleaning up of balance sheets in each country is a measure to be pursued. This should recreate more favourable conditions for loans, especially loans to small- and medium-sized enterprises, and therefore as an aid to economic development.

The creation of a pan-European bad bank or asset management company (AMC) has been indicated as a possible solution for NPLs in banks' balance sheets (Arner, Avgouleas, & Gibson, 2017; Avgouleas & Goodhart, 2017; Hellwig, 2017).

The importance of a check-up of European banks' balance sheets needs to be stressed, identifying deteriorated credit levels and toxic securities. The "clean-up" requirements concern both individual countries and also the global level: private or public initiatives should be undertaken for the creation of bad banks and the restoration, by contrast, of good banks.

This fulfils financial stability targets and, in particular, targets for achieving the best conditions that will encourage economic development, as

much as good banks will be able to resume their traditional task, that of raising and lending funds to the worthiest enterprises. Even in the worst hypothesis, where, in some cases, it could prove necessary to make use of public resources, the economic outcomes pursued would be far superior to the expenditure of public resources.

Moreover, in past experiments the creation of bad banks—even when using public resources—does not necessarily produce a negative outcome for states. It has been found that the recovery of economic development encourages value readjustments even in bad assets, within bad banks. At the same time, the final net result may, in time, become positive.

3.4.2 Selling Loans

In setting up a strategy for NPL reduction, another alternative is represented by the sale of NPLs to specialised companies and funds. However, the crucial question is that the sale price may be very low, thereby creating losses in comparison with the readjusted book values. On the other hand, the loan values are normally reviewed every year in the balance sheet period, thus reducing the value of loans in trouble or NPLs.

A part of these assets can be sold on the market to specialised companies and funds, normally at a discounted price in comparison with the book value. This has a positive impact on the liquidity position of the bank and, at the same time, a negative impact on the profit and loss account.

In this context, variable shares of NPLs and variable decisions to sell such assets give rise to an NPL business that is of considerable importance for European banks and for the specialised companies and funds involved in this business, which are located in various different countries.

An NPL business comprises a range of prices for buying and selling, with differentiated repercussions on bank intermediaries and specialised companies and funds, which belong to various countries. In setting the price, management costs and revenue as well as the final sale price are the essential elements taken into consideration.

Financial crises and economic crises contribute to the expansion of NPLs. Therefore it is important to set a limit on NPLs, expressed as a ratio of total assets. An abnormally high level of NPLs reduces profitability and affects accounting provisions, as it points to the lower availability of liquid resources and, in the worst scenario, it can lead to write-downs of loans in the balance sheet.

In European banks, a higher level of NPLs can be observed in comparison with the banking systems of other countries. The reason lies in the slow recovery from the crisis that has extended over a period of many years and is particularly severe in comparison with the USA. This is and will be an economic gap that will not be recovered over time, as it is very high. It depends to a large extent on political and economic choices that were made and designed in a framework of austerity.

In this context, other routes can be followed. For instance, one possibility is the application of securitisation to risk class loan pools by shifting from the internal side to the external side, thereby reducing the level of NPLs and raising liquidity resources; another alternative involves credit derivatives, reducing the level of the credit risk on loan portfolios by shifting from the internal to the external side.

Pursuing legal action to recover credit losses also can be undertaken, keeping in mind, however, that there will be a variable waiting period. This is particularly true in some southern countries of Europe as compared to other countries where the judicial proceedings are executed more swiftly.

The longer the waiting period for the judicial decision, the more serious the negative impact will be. Keeping a high level of NPLs on the book and, especially, offering a high discount price in comparison with the book value may easily lead to losses in the economic statement of the European banks. This underlines the importance of corrections in efficiency and times of court decisions.

3.5 Conclusions

Granting loans postulates the prior assessment of the credit capacity manifested by customers. Application of the most modern risk analysis techniques is necessary in order to rationalise choices concerning the granting of credit to clients and, at the same time, to avert problems of adverse selection and moral hazard.

Since the class of short-term and medium- and long-term loans is found to be the major component in the structure of a bank's total assets, the relations with cash flow generation and interest earned are immediate and have a considerable impact on monetary repayments and expenses and on the profit and loss statement.

This shows both the importance of the system of interest rates on a loan portfolio and also the role played by the mean return associated with such

interest rates. A comparison can thus be drawn with the returns on similar classes of assets that allow more rational choices concerning composition and changes in composition through time periods.

A correct evaluation of the interest rate with the credit risk affecting individual loans, taking into consideration expected losses, unexpected losses and fund-raising costs, is important in order to build premises and rationales for profit.

Credit risk is the risk of potential default of borrowers in the repayment of debt as principal and as interest. It is a potential and severe risk as it can produce a negative impact and losses which will cause reductions in asset values as well as write-downs in loan portfolios and therefore in the level of capital. Thus it is important to ensure that correct methodologies are used for measurement and management of expected and unexpected losses. Credit risk can be transferred by derivatives or by securitisation, contributing to the credit risk reduction. Deterioration in loan portfolios creates non-performing loans (NPLs) which present problems arising from non-payment of interest and failure to repay capital at maturity.

Financial crises, which have been particularly severe in Europe over a prolonged period of time starting in 2007, and related economic crises, have given rise to non-performing loans spreading throughout European banks. This chapter has underlined the need to deal with and to solve the problem in question, which still has negative repercussions on the economic growth of the European Union, above all because it has meant fewer loans to the economy and especially to small- and medium-sized enterprises.

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