



MANAGING CREDIT RISK IN CHANGING TIMES

Aruna Fernando

Assistant General Manager – Credit Risk, Seylan Bank PLC

“A ship in the harbour is safe, but that is not what ships are built for.” – John A. Shedd

Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with the agreed terms. The goal of credit risk management is not to shun extending credit to a bank’s customers but to maximize the risk adjusted rate of return by maintaining credit risk exposure within acceptable parameters. As such, credit risk management underpins a bank’s financial stability, growth prospects and profitability. Also, the effective management of credit risk in a changing business landscape is a critical component of a comprehensive approach to risk management and essential to the long term success of any banking institution and to the banking industry of the country as a whole. While the credit decision is relatively straight forward in principle: a practicing banker must decide whether to give credit or refuse credit to a potential client; in practice, it involves experience, judgement and a range of analytic and evaluative techniques that are designed to determine the likelihood that the money will be repaid – or equally, that the money will be lost due to a client not being able to repay the amount advanced by a bank.

This article reviews the processes and techniques that involve credit risk identification, credit risk assessment covering a range of judgemental or experience- based methods and subsequent management of credit risk by adopting various measures.

Though traditionally loans constitute the largest and most obvious source of credit risk for banks: in a rapidly changing business environment, additional sources of credit risks are emerging in the banking book and the trading book through other forms of financial instruments such as acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options and in the extension of commitments and guarantees etc.

Managing credit risk therefore is a complex multi-dimensional problem and as such the bankers have developed a number of different approaches, some of which are quantitative while others involve qualitative judgements. Whatever the method used, the key element is to understand the behaviour and predict the likelihood of a particular counterparty defaulting on their obligations. When the amount that can be lost due to a default by a particular set of firms is the same, a higher likelihood of loss is indicative of greater credit risk. In cases where the amount that can be lost is different then we need to factor in not just the probability of default but also the expected loss given default. Determining which counterparty may default is the art and science of credit risk management. Different approaches use judgement, deterministic, or relationship models, or make use of statistical modelling in order to classify credit quality



and predict likely default. Once the credit evaluation process is complete, the amount of risk to be taken can then be determined. At the same time, the banks need to determine that they hold adequate capital against these risks and that they are adequately compensated for the risks incurred.

Characteristics of Credit Risk

It is generally accepted that there are three characteristics which will determine the degree of credit risk:

- 1) Exposure to a party that may possibly default or suffer an adverse change in its ability to perform.
- 2) The likelihood that this party will default (or the default probability) on its obligations.
- 3) The recovery rate (i.e. how much can be retrieved if a default takes place).

A bank's credit risk will be high when the first two elements are at substantial levels. However, on the other hand, if a high amount can be recovered, the credit risk will be at comparatively lower level. Formally, we can express the risk as:

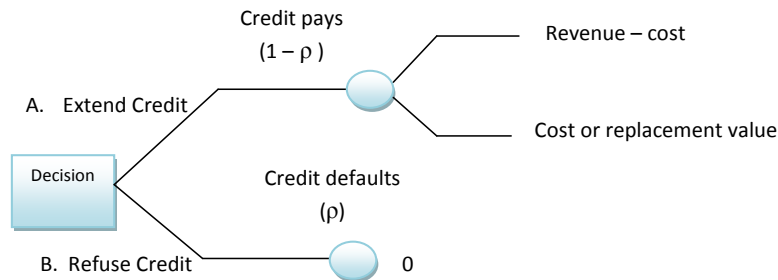
$$\text{Credit Risk} = [\text{Exposure}] \times [\text{Probability of Default}] \times [1 - \text{Recovery Rate}]$$

Given the above scenario, credit risk management can be defined as the process of controlling the potential consequences of credit risk. This process involves a standard risk management framework, namely: *identification, evaluation and management*. That is, the cause of the risk has to be identified, the extent of the risk has to be evaluated and decisions made as to how this risk is to be managed or mitigated.

In properly assessing credit risk, the probability of a counterparty defaulting in full, or in part, on its obligation needs to be correctly ascertained. This involves a decision either (a) to extend credit, which provides a reward but entails a risk, or (b) to refuse credit. The situation facing a lending officer is shown as a decision problem in the Diagram 1. The lending officer will have to cope with the challenge to balance the gain from taking the credit risk by extending credit against the potential loss. In this decision problem, the alternative is to refuse credit and not to obtain any reward. We can picture the credit decision in terms of the basic risk management model.



DIAGRAM – I: The credit decision as a decision problem



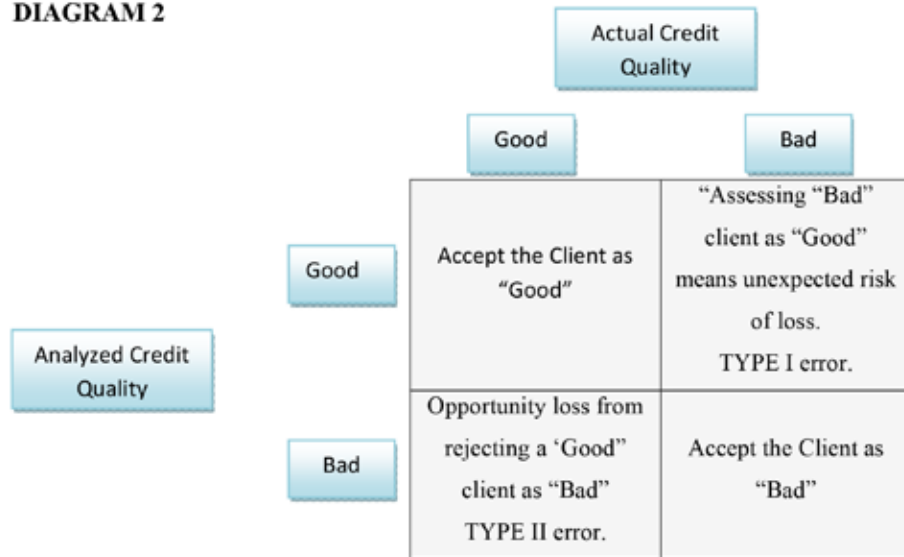
The credit risk decision facing a bank relates to (1) the gain if no default happens against (2) the potential loss from extending credit based on the likelihood that default takes place and the amount that is lost if default occurs. The probability that the client defaults is given as (p) . In this scenario there are only two possible outcomes: the client performs according to expectations or the client defaults. If the client defaults the loss to the bank will be the cost or the replacement value for what has not been provided. For instance, in deciding whether to grant a facility a bank needs to decide as to which applications to proceed with; what limit to set on the amount of credit to be extended and whether the proposed facility needs to be regularly reviewed over time; what action should be taken if there is a delay in repayment; and, which counterparties should be actively solicited for business etc.

Errors in the Credit Evaluation Process

However, in evaluating a credit proposition and arriving at a decision two different types of errors can occur. The Type I error is granting a facility to a client with low creditworthiness having mistakenly identifying such party as 'Good' and thereby incurring an unanticipated loss. The Type II error arises from misjudging a client with high creditworthiness as 'Bad' and thereby forgoing a sound lending opportunity and earning steady interest income. These different risks can be portrayed in terms of the Actual Credit Quality (here simply called 'Good' or 'Bad' credit) versus the Analyzed Credit Quality, as shown in Diagram 2.



DIAGRAM 2



The banks need to devote more time to avoid Type I errors where bad credits are assessed as good credits. The financial consequences of accepting bad risks that have mistakenly been classified as good ones are greater than if some good risks are mistakenly rejected. This is because the costs of extending credit in a situation where there is a large number of credit defaults are far greater than the opportunity for profit forgone by refusing credit to the good risk. This is due to the uncertainties in loss recovery rates and the opportunity costs involved. Due to this reason, many banks focus on eliminating the first type of error, applying a rigid evaluation criteria and rejecting applicants who do not fit the mould of the borrower. On the other hand, a credit evaluation model which habitually rejects high quality 'good' credits as 'bad' means excessive opportunity losses from forgone business. Hence the probability of default of a particular kind of credit needs to be carefully factored in to any analytical framework.

Credit Assessment Methods

In making a decision to extend credit to a client, it is necessary to analyze a credit proposition in detail in order to determine its soundness. This process can be simply defined as the determining of the client's creditworthiness which is an obligor's ability and willingness to honour its agreement with the bank granting the credit facility. In order to establish the status of the client, banks will typically use a combination of financial or accounting data and non-financial variables as well as a number of different models, or analytical tools. Some of these methods involve a subjective approach, such as judgemental methods, others are more systematic in that they use quantitative techniques to evaluate a credit against objective benchmarks. We can



distinguish a number of different approaches and their underlying methodology, as summarized below.

DIFFERENT APPROACHES TO THE CREDIT EVALUATION PROCESS

APPROACH	METHODOLOGY
Judgemental methods	Applies the assessor's experience and understanding of the case to the decision to extend or refuse credit.
Expert systems (e.g. lending committees)	Uses a panel approach to judge the case or formalizes judgemental decisions via lending system and procedures.
Analytic models	Uses a set of analytic methods, usually on quantitative data, to derive a decision.
Statistical models (e.g. credit scoring)	Uses statistical inference to derive appropriate relationships for reaching a decision.
Behavioural models	Observes behaviour over time to derive appropriate relationships for reaching a decision.
Market models	Relies on the informational content of financial market prices as indicators of financial solvency.

Whatever the credit assessment method to be used, it would be prudent for a bank to apply the following principles in arriving at a proper lending decision and to effectively manage the credit risk:

* Take appropriate time to reach a decision: *detailed financial information takes time to absorb. If possible, it is preferable to get the 'paperwork' before the interview, so that it can be assessed and any queries identified.*

* Decide on the character of the borrower: *determine the borrower's commitment and ability to repay debts in accordance with the terms of a loan agreement. An individual's honesty, integrity and work ethic are typically the evidence of commitment.*



* Don't take customers' statements at face value and ask for evidence that will provide independent collaboration. Always get the full information from the customer and do not make unnecessary assumptions or 'fill in' the missing details.

- * Have a firm grasp on the answers to the following questions;
 - How is the client going to use the loan proceeds?
 - How much does the client need to borrow?
 - What is the primary source of repayment and when will the loan be repaid?
 - What is the secondary source of repayment; i.e. what collateral or guarantees are available?
- * Distinguish between the facts, estimates and opinions when forming a judgment.
- * Don't be overwhelmed by a client's reputation into authorizing unjustified credit lines.
- * Think again when the "gut reaction" suggests caution, even though the factual assessment looks satisfactory.
- * Establish credit risk limits for all counterparties with whom a bank conducts business and do not commence any dealings before the counterparty's limit is approved.
- * Aggregate the credit limits for each counterparty across all products (i.e. loans, securities etc.,) so that the bank is aware of its aggregate exposure to each counterparty.
- * Establish procedures for authorizing credit limit excesses and to report any serious breaches to the supervisory board. Review these limits at regular intervals.
- * Monitor the usage of credit risk by each counterparty against all limits.

Sound Principles for Management of Credit Risk

The Basel Committee too has set very specific guidelines to set up a suitable credit risk management process in the banks. Accordingly, the banks should strive to abide by the following principles in the management of credit risk commensurate with the scope and sophistication of a bank's activities.



MAIN PRINCIPLE	DESCRIPTION
1. Establishing an appropriate credit risk environment.	<ul style="list-style-type: none">• The board of directors to approve and periodically (at least annually) review the credit risk strategy and significant credit risk policies of the bank.• Senior management to implement the credit risk strategy approved by the board of directors and to develop policies & procedures for identifying, measuring, monitoring and controlling credit risk.• Banks to identify and manage credit risk inherent in all products and activities (existing and new).
2. Operating under a sound credit granting process.	<ul style="list-style-type: none">• Banks to operate within sound, well defined credit granting criteria which clearly indicate the bank's target market, thorough understanding about the borrower/counterparty, purpose/structure of the credit and the source of repayment.• Banks to establish overall credit limits at the level of individual borrowers/counterparties and groups of connected counterparties.• Banks to have a clearly established process in place for the approving of new credits as well as amendment, renewal and re-financing of existing credit.• All extensions of credit to be made on an arm's length basis. In particular credit to related companies and individuals should be authorized on an exception basis.
3. Maintaining an appropriate credit administration, measurement and monitoring process.	<ul style="list-style-type: none">• Banks to have in place a system for the ongoing administration of their various credit risk bearing portfolios.• Banks to have in place a system for monitoring the



	<p>condition of individual credits, including determining the adequacy of provisions and reserves.</p> <ul style="list-style-type: none">• Banks to develop and utilize an internal credit rating system consistent with the nature, size and complexity of a bank's activities.• Banks to have information systems and analytical techniques that enable management to measure the credit risk in all on and off balance sheet activities providing adequate information on the composition of the credit portfolio, including identification of any concentrations of risk.• Banks to have in place a system for monitoring the overall composition and quality of the credit portfolio.• Banks to take into consideration potential future changes in economic conditions when assessing individual credits and their credit portfolios, and should assess their credit risk exposures under stressful conditions.
<p>4. Ensuring adequate controls over credit risk depending on the nature and the size of the credit activities.</p>	<ul style="list-style-type: none">• Banks to establish a system of independent, ongoing assessment of the bank's credit risk management processes and the results of such reviews should be communicated directly to the board of directors and the senior management.• Banks to ensure that the credit granting function is being properly managed and that credit exposures are within levels consistent with prudential standards and internal limits. Any exceptions to these policies, procedures and limits to be reported in a timely manner to the appropriate level of management for action.• Banks to have in place a system for early remedial action



	on deteriorating credits, managing problem credits and similar workout situations.
5. The role of the supervisors	<ul style="list-style-type: none">• The supervisors to ensure that banks have an effective system in place to identify, measure, monitor and control credit risk as part of an overall approach to risk management.• Supervisors to conduct an independent evaluation of a bank's strategies, policies, procedures and practices related to the granting of credit and the ongoing management of the portfolio.• Supervisors to consider setting prudential limits to restrict bank exposures to single borrowers or groups of connected entities.

References

C N Rouse, Bankers Lending Techniques, Global Professional Publishing Limited – United Kingdom, 2011.

Ken Brown & Dr. Peter Moles, **Credit Risk Management**, Edinburgh Business School – Heriot Watt University, United Kingdom, 2011.

Basel Committee on Banking Supervision, **Principles for the Management of Credit Risk**, Basel – September 2000.