A Credit Risk Model To Develop The Credit Insurance Market

Salvador Vázquez Pérez Grovas, Universidad Anáhuac del Sur, Mexico

ABSTRACT

The globalization of the markets, as well as the deregulation of the economies, are world-wide tendencies that have created the necessity for the institutions to count on tools that collaborate in the identification, measurement and control of the risks in which they are exposed. It is necessary that all kind of companies be able to identify generic risks and to assure they count with the appropriate measurement systems that allow them to conceptualize, to quantify and to measure credit risks. This investigation has as main goals: to propose a credit risk model for Mexico and all Latin America that allow entrepreneurs of medium and large sized companies to measure and control their credit risk position; an alternative goal would be to propose some tools that can be used to make this kind of risks less damaging.

INTRODUCTION

Credit risk is defined as "the possibility of loss if a borrower defaults on a loan or a borrower regarded as likely to default on a loan."

Credit risk management is rapidly changing from transaction management to portfolio management and from monitoring portfolio performance to predicting portfolio performance. Traditional tools on this matter are becoming more sophisticated. New tools are being developed to predict and manage credit risk. These tools are being employed effectively by community banks as well as large banks, not only to improve the management on their portfolio credit risk but also on building competitive advantage. It is important to use this know-how to private non financial industries as well to develop a model that can be representative to Mexico and Latin America.

The globalization of the markets, as well as the deregulation of the economies, are world-wide tendencies have created the necessity for the institutions to count on tools that collaborate in the identification, measurement and control of the risks to which they are exposed. It is necessary that all kind of companies be able to identify generic risks and to assure they count with the appropriate measurement systems that allow them to conceptualize, to quantify and to measure credit risks. Risk concept is what distinguishes the modern society. Formerly risk was always uncertain and attributed to the aim of the Gods and a position that individuals, institutions and nations have to accept, as a big passive that in the future can offer some winnings. Financial risk can be defined as the potential loss about the future yields of assets.

We have the possibility to have more instruments in which we can invest and to have access to even more instruments in the international financial markets, this last one have increased the appetite of risks along with the possibility to obtain low or high profits depending the risk position that general investors want to expose. But the absence of techniques that measure the risk has caused great financial disasters. These setbacks today have full name, to only mention some: Nick Leeson, an operator of the market of derivatives that worked in the subsidiary of the English bank Baring in Singapore, suffered losses which they exceeded the capital of the bank and took to the institution into bankruptcy in February of 1995, with losses of more than 1,300 million dollars. Yasuo Hamanaka, a contract operator in Sumitomo Corp. lost 1,800 million dollars in June of 1996. Another case was reported in December of 1994 when the devaluation of the Mexican peso marked the fragility of the financial system due to the totality of the Financial Institutions had several losses by the dramatic change of the market. The common denominator in these disasters was the absence of policies and risks management in the organizations. That is why

in the actual time it is strategic to measure and to prevent the potential losses of the risk positions in which those corporations were involved, including the credit risks.

CREDIT MODELS BRIEF BACKGROUND

The development of models for the estimation of the nonpayment probability arises as a formal methodology at the end of the 60's decade and during the 70's decade. Nevertheless there are studies based on the traditional analysis of financial reasons in the 30's decade.

In 1849 begin a called company Dun & Bradstreet (Cincinnati Ohio) provided services to the companies related to the analysis of credit with base in the analysis of the financial information, actually this company is one of the world leaders providing credit reports and profiles as well as risk evaluation reports, sales and marketing solutions, and lead generation tools.

In 1967 it appears a work of Beaver, in which it does a one variable analysis of a series of bankruptcy indicators, finding that some of these indicators allowed to indiscriminant between companies good and bad and for predicting the bankruptcy until with five years of anticipation.

In general from the first studies they appear like indicators of possible variable bankruptcies like yield, liquidity and solution. Because most of this one variable analysis results are confusing, interpretations may had been manipulated or wrong. This type of studies the following questions arise: How to combine the information to obtain models with being able to predict? The information used is the best one to predict the bankruptcy probability? What weight must occur to the variables to improve the prediction capacity of the model? How to establish these weights with objective basis?

DEVELOPMENT

In Mexico and Latin America, medium and big sized none financial companies face a threat of bankrupts or unstable financial positions if the main customers or more important distributors decide not to pay their bills. This situation has been very critical as in 2003 when a chain of retail stores with around 150 branches in Mexico was declared in bankruptcy, causing great financial problems for the two greater suppliers of white goods and also cause bankruptcy for other suppliers of this retailer chain; in addition more than 3,000 direct jobs were lost by this financial insolvency, plus other around 500 indirect jobs that were fired by the suppliers of this company, before that moment they have never measured risks in which the company is involved because of their environment. have not diversify their portfolio, in addition this kind of companies have not shown previous interest to know the financial position of their customers or to establish the suitable guarantees or tools of protection. This problem can be solved by using some tools like the credit insurance and for the moment is poorly used in our Latin countries, among other causes, the main reason is the high costs these kind on insurance has. One of the objectives for the credit risk model that I want to propose is to make accessible this resource to more companies.

At the present time the development of the institutions and the economies is distinguished by a different attitude towards the future events, recognizing that future disgraceful events can be anticipated, simulated, and quantified, with base in quantitative and statistic tools. Main objective of these tools would be to seek the possibility to simulate possible consequences in monetary terms in order to protect the capital of the institutions and to prevent insolvencies that to promote big improvements in the decision making process. Other points of interest to review within the exposition: 1) Determine the technology that it requires to obtain a suitable management of the administration of risks, 2) evaluate the models and propose the most suitable to the none financial enterprises, 3) demonstrate that credit risk insurance can be a helpful too in Latin-America and used along with the credit risk model can reduce the actual high insurance costs, 4) demonstrate that having information sharing between companies can improve their interaction with their customers or distributions and to have indicators that contribute to limit their credit risk exposure.

According to some recent studies of Mexico central bank "Banco de Mexico" none financial companies grant around two third parts of the credit offered in the market and only one third is held by the Mexican financial institutions, information that remarks the importance of the credit risk as a daily element of the operation of many organizations in our country. Therefore credit risk is an inevitable component in the operation of the none financial companies, although the core element on their activity is not necessarily acquiring risks, but it is implicit in day to day operation and administration of the business; in the way to maximize its profits, businesses have to assume certain level of risk that have a direct relation with the productivity and effective earnings generation of the organizations. We all know the direct and most of the times conceptual relation between the degrees of risk assumed by a company and the potential of profits to be generated therefore a more active play and a proactive role in the operation of the financial institutions is needed. Companies have not become serious with the measurement of risks, meanwhile the possibility that a customer stop the payments of these bills continue with the respective impact to the organization cash flow. At the present time, the credit risk plays a very important role, for example in the banking institutions this one type of risk gets to represent until 80% of the total risk, and in none financial organizations in the region may represent more.

The model that will be built for measure credit risk intends to identify the determinant variables of the credit risk of the portfolios of each institution, in order to early prevent potential losses which the institution could incur. Unlike the market risk, the development of methodologies to measure the credit risk has been less numerous, since these depend on the own characteristics of each institution. To manage these kinds of risks in an efficient and holistic way is fundamental. The correct identification, measurement and control of risks allow the institutions to optimize the yield on its capital, and to have established and well defined limits of risks which help to provide better decisions among to the operation, losses prevention and capital protection.

The primary target of the risk management is to secure that the activities of operation and investment of an institution do not threat the future viability of the same, "is a tool that helps the process of decision making" (De Lara Haro, 2003). The holistic management of risks is in last instance, responsibility of the senior management as the counseling on the management culture of an institution, it corresponds to them to determine the strategic actions to take in this matter, as well as the define the tolerance to the risk that is arranged to assume. And although JP Morgan affirm that "no analytical technique by more sophisticated than is, will be able to replace to the experience and the good professional judgment in the handling of risks", (De Lara Haro, 2003) professional management of risks, models that measure risks and systems that provides controls must be active in organizations and added activities of the responsibilities of the financial departments on any kind of companies; along with the traditional support to guarantee the existence and the evolution of the same. It is a must for the risk measurement to make considerations beyond the quantitative data; therefore it is essential to make qualitative information analysis, as the analysis that specialized institutions provide on a particular subject or company that can help effectively for the credit model, and help in the decision making process too.

A professional management of risks must consider macroeconomic variables to measure the risk for the future, such as changes on the interest rates, variations in the exchange rates, as other variables as the political and economic situation, as well as possible impacts due to local or foreign events, nature conditions, only to name a few; information will be included as passive variables, only to know if a volatile change on prices or indirect effects due to changes on other risks or markets can have influence on our credit model. Otherwise including this information will be more complex and may not provide substantial information to the model. An ideal system of risks management must consider the following aspects:

1. Consider and evaluate the different types of risk from which the institution is exposed. To be consistent with the recommendations formulated internationally.
2. To allow the institutions to identify, to measure, to manage and to monitor the different types from risks in a fully integrated tool.

It is necessary that the institutions count with the necessary information, to identify generic risks and with measurement systems that allow them to conceptualize, to quantify and to control the risks in the institutional scope.

Management reports and managerial information systems must be in order to satisfy the organizational objectives for that it is recommended to include credit risk information on their periodical reporting.

The main target of the risks management is to make sure that the activities of operation and investment of a financial institution are not exposed to losses that can threaten the future viability of the institution. A professional management of credit risks is, in last instance, responsibility of the senior management as well as advice on the management of the institution, is to those who correspond the responsibility to clarify the strategic actions to take, as well as the tolerance to the risk that is arranged to assume.

Risk management models measure different kind of risks and the finance departments in charge of the internal control must agreed to own this activity, after clarifying the importance of this activity. Also it is important to evaluate the effectiveness degree of an institution to control such items, as well to evaluate the reports this department elaborate, beginning with the analysis of the disposure of critical information and continuing with other reports or forms of communication; that in order to verify if the objectives can be accomplished and secured that all relevant information is being measured and reported accurately.

As other functions of the top management has the responsibility to secure transparency and consistency of the information as well as communicating this information according to their policies and needs, with respect of risk levels is the same, clarifying which position the organization want to assume, additional responsibility is to make a periodic revaluation of the acceptable degree of risk and to change their position in the case they want to change risk exposure due to a new strategy. the institution with relation to the handling and measurement of risks, as well as the fulfillment to the established limits, the existence of functional internal controls and an extensive process of reports and analysis of risks.

An integral risk management must include:

1. The identification and estimate of the different types from risks.
2. The establishment of policies, procedures and limits of risk.
3. Monitor and provide reports that fulfill the requirements and the control of the risk established limits.
4. Delineation of the assigned capital and the administration of the,
5. Portfolio and capital investment guides for the development of new products and the inclusion of new exhibitions the risk within.
6. Using the existing structure to use new methods of measurement.

A financial institution does not have to accept the introduction of a new product until all the personnel as well as the top management has a deep understanding of the product and after this product has passed all tests including the finance and risks controls. The check up process of new products must assure that these are introduced in such a way that the potential losses are being limited that of these can arise. The evolution towards global markets, as well as the evolution of the financial instruments, makes the risks measurement very difficult, however, methodologies and processes of analysis exist, some of which are already of common use, they allow to identify the risks of certain activities, therefore exists procedures that result in a single and specific king of process by each type of risk. In addition the institutions dedicated to measure the risk, help to have specific characteristics in their portfolios to diversify it, by taking into account the pertinent considerations with relation to the risk profile and the global strategy of the companies. All the greater risks must be measured consistently to integrate themselves into a system that fully measures the risks of the companies.

The systems and procedures must recognize that the risk measurement in many cases is subject to variations in the approach by the different types of economic and market factors. A healthy practice of risk measurement is to maintain identified the continuous changes on the conditions of the market, which can affect negatively to the companies. A system of risk management must satisfy the following necessities:

1. To consider the different types of risk from which the institution is exposed.
2. To be consistent with recommendations formulated internationally.

3. To help the institutions to identify, to measure, to manage and to monitor the different types from risks, on a fully integrated procedure.

The most important elements within a risk management system are:

1. Identification of the different types of risk.
2. Define models for the measurement of the risks.
3. Identify risk origins.
4. Formulate detailed analysis that considers all the risk factors detected from the previous elements.

Credit Risk Management is important for any company. Significant resources are devoted to this task by large companies with many customers or functional departments involved (whether they are businesses or individuals). For large companies outside Latin America, exists credit risks specialized departments whose job it is to assess the financial health of their customers, and extend credit (or not) accordingly to the risk it represent. For example, a distributor selling its products to a troubled retailer may attempt to lessen credit risk by tightening payment terms, or by selling fewer products on credit basis to the retailer, or even cutting off credit entirely, and demand the payment in advance. These strategies will probably impact the distributor's potential sales, and cause friction in the relationship with the retailer, but the company will end up better protected if the retailer or distributor pays the bills late or especially if it defaults and declares bankruptcy.

Credit risk is not really manageable for very small companies (i.e. those with only one or two customers). This makes these companies very vulnerable to defaults, or even payment delays by their customers.

The system for the credit risk measurement intends to identify the determinant factors of the risk of credit of the portfolios of each institution, in order to early prevent potential losses in which an institution could incur. The development of methodologies to measure the credit risk has been less numerous, part because of drastic dues of bills has not occurred and because the studies have been centered in market risks that can be used for individuals as organizations of all type and size.

Within the most important aspects to consider in this type of analysis they are: the criteria of qualification of the credit portfolios of the institution, the structure and composition of the credit portfolio, the macroeconomic and impacts in the portfolios and to consider the historical characteristics and behavior of the credit portfolios of each institution among others.

The analysis of credit risk must consider two levels of risk, individual represented for each company and the one of portfolio. The main ingredients in the analysis of the individual risk are the interval of probability in which a customer does not fulfill their payment obligations on the debt that it has contracted before. Appears other concepts as the rate of recovery that is defined as the proportion of the debt that could be recovered once the counterpart has fallen in this interval of probability; as well as the migration of the credit, which is defined as the possible change that can suffer the credit qualification, which can be improved or deteriorated if an entity does not fulfill their obligations. Companies take the risk and are aware that failing the debt recovery can harm their cash flow, pointing the necessity to have a good credit risk selection.

Nonpayment can be quantified from the Probability of Nonpayment designed by Altman, which reflects the degree in how a counterpart will have or not the capacity to pay its debt in agreement with the contractual obligations. Nonpayment is associated to the gradual deterioration that can be observed in the financial position of an institution along with the quality of its assets, which has an effect on the capacity of payment of a customer (or counter party).

The Probability of Nonpayment is an estimation of the probability on the payment failure of hypothetic corporate credits or on the failure of payment of the individual credit consumption, intends to have methodologies that allow:

1. To quantify the transition probabilities, which indicate the degree with which the quality of to a credit can improve or to deteriorate.
2. To identify the factors of credit risk of the portfolios.
3. To specify models that help to identify the determinant factors of the credit risk portfolios.
4. To quantify the effect of the most important variables involved in the credit risk.

Multiple alternatives exist to develop a credit model, one of them is using statistical methodologies for the of the nonpayment probability. Within the methodologies that have been applied for this aim, the following ones can be mentioned:

1. One variable analysis
2. Multi-varied analysis
3. Regression analysis
4. Transition matrix
5. Models of qualitative election

In general the information that is required to consider the nonpayment probability is the following one:

1. Characteristics of the credit and Credit attributes
2. Collateral guarantees.
3. Payment history of the analyzed entity (individual or company)
4. Economic background

Model must distinguish how to classify most important considerations, this to make a better forecast tool and aim the problem correctly. Estimation of the nonpayment probability is crucial and the greater amounts of quality information available at the time of applying a methodology, consists a very important part to the success of the model.

EXPECTED RESULTS

1. To develop a model for Latinamerica that is accepted to measure and to predict credit risks.
2. To convinced and demonstrate that the constant use of this tool can reduce the credit risk exposure.
3. To demonstrate to the insurance institutions that the model works effectively and will impact positevely in the risks they are going to insure or have already insured.
4. To give the companies capacity to negotiate new lower rates with the insurance institutions that reflects the improved rates credit of risks to the market making more accesible to acquire this type of premium.
5. To convert the insurance companies with their credit insurance tool in an ally of the growth of a company, acting as counselor qualifying who deserve to have credit or who have not.
6. To promote the cooperation between companies in sharing the credit historical information of their customers or other entities, that will help to have a stronger position, when an institution decide to approve or reject a credit line to a third party.

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