MANAGING INFORMATION ASYMMETRY AND CREDIT RISK – A THEORETICAL PERSPECTIVE

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ABSTRACT
Banking risk is a phenomenon present in the entire sphere of activity of banking companies and represents the uncertainty of achieving a certain level of profit or even the likelihood of a loss. Banking risk is generated by a multitude of operations and procedures, with the financial field requiring the approach as a complex of risks, often interdependent, which may have common causes or may cause other risks in the chain. It is constantly changing and evolving in complexity, besides traditional risks, adding today financial risks, operational risks, strategic risks, country risks, human risks, fraud risks. The aim of this research is to present some of the current concerns regarding the concepts of information asymmetry and credit risk analysis, performing an in-depth analysis of the field from three perspectives: information problems between the bank and the borrowers, solving information problems, bank's activism towards information asymmetry and presenting the most relevant findings related to the analyzed aspects. The methodology of the paper consists of literature review.

KEYWORDS: *information asymmetry, credit risk, bank risk management, adverse selection, moral risk*

JEL CLASSIFICATION: *G32, D81*

1. INTRODUCTION

Bank risk management represents a current issue and its main approach aimed at creating programs for prevention and correction imbalances occurring in the course of providing financial services. Risk theme is the subject of risk management. Numerous approaches to risk management (Corbel, 2012; Curaba, et al., 2009; Maders & Masselin, 2009; Nguéna, 2008) reveal that a risk prevention process has developed over time. The purpose of this process is to guide organizations' management in their actions to minimize the consequences associated with undesirable events. From this perspective, banks are cautioned about the need to address the sources of risk. These sources are called threats and must be subject to rigorous examinations.
Contemporary globalization has an impact on all aspects of human society, from the sphere of economy, international politics to that of culture and individual identity, through its economic, technological, social, environmental dimension (Cuc et al., 2015). Therefore, it can be regarded as a fundamental mistake to consider globalization to be an eminently economic phenomenon. Some benefits of globalization refer to increasing markets efficiency, stimulating competition and ensuring consistent economic growth among countries (Girneata & Mascu, 2014). The current process of trans-nationalization of the economic life and global integration of the financial industry - considered the engines of economic globalization - could not have existed without a certain political framework, which in its turn could not have been born without certain developments in human society.

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The phenomenon of globalization included primarily the financial sphere, with large financial capital owners interested in the possibility of rapid transfer of funds from one country to another from one continent to another to protect them from crises, devaluations, confiscations, national authorities and other dangers. One of the most significant developments in the financial sector is the emergence and the development of risk management activity by which economic agents have benefited from significant financial sector support in their competition with those in less-developed countries by using extremely complex and innovative financial instruments. Like any enterprise, the bank faces certain risks, some specific and others common to all economic agents. Credit risk is considered a debtor's insolvency risk, namely credit default risk. Chelly and Sebeloue (2014) consider credit risk as all consecutive losses incurred by a bank as a result of non-compliance with commitments to repay funds received by borrowers. The two researchers note that credit risk is caused by imperfection and credit quality degradation.

The main purpose of financial intermediation is to obtain information about the quality of the borrower. Possession of information is required by the interests of the bank "to mitigate credit market imperfections and information asymmetry" (Hertzberg, et al, 2010).

Information asymmetry defines relationships where an agent holds information while another does not hold it. From this point of view, asymmetry of information appears to be a major constraint for financing a project to the extent that one of the parties of the financing agreement has information that is more or less accurate than the other party.

Banks, in their capacity as financial intermediaries, are concerned with identifying agencies that have the ability to finance and those in need of funding. Banks operate the transfer of funds to agencies that need funding, to the borrowers. In this respect, banks are being challenged to have more information in order to gain expertise in assessing borrowers.

The main objectives of this article consist of researching the concepts of information asymmetry and credit risk analysis, analyzing three main aspects:

• Information problems between the bank and the borrowers;
• Solving information problems;
• Bank's activism towards information asymmetry.

This empirical research is based on the theoretical analysis of the main scientific articles and books published in the analyzed field, the research methodology consisting of literature review.

2. INFORMATION PROBLEMS BETWEEN THE BANK AND THE BORROWERS

In the case when agents do not have the same level of information, they are in a situation of information asymmetry. In the credit market, "the debtor, claims is in a weak position because it does not have much more precise information on the financing project" Crouzille, et al. (2004) and the bank has a problem of information asymmetry resulting from the difficulty in assessing credit risk. Minimizing credit risk depends mainly on the bank's ability to collect and process information when accepting credit applications. At the level of acceptance of a credit application, the bank needs information about the characteristics of the borrower. The bank also needs information after the credit is given because through relevant information, the bank can control the actions taken by the borrower. Therefore, the bank, in search of information, is confronted with the issue of information asymmetry.

In the credit market, information asymmetry generates two main issues (Figure 1):

- Adverse selection, and
- Moral hazard.

Due to the existing information asymmetry between the bank and the borrower, the phenomenon of adverse selection or anti-selection is manifested before signing the credit agreement. After signing the credit agreement and granting credit, information asymmetry becomes a source of moral hazard.

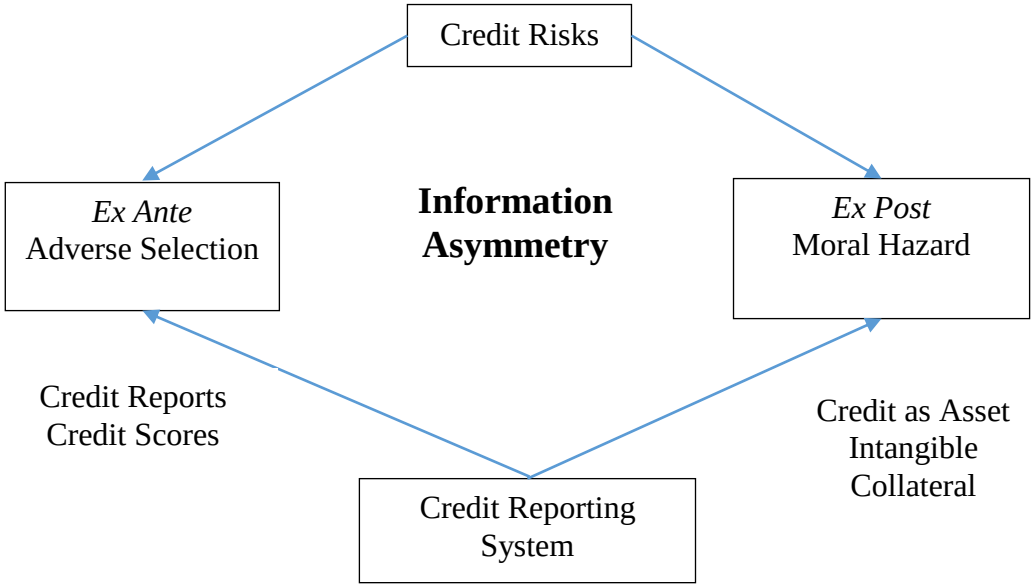

Figure 1. Credit risks and information asymmetry
Source: Adapted from Huang et al, 2016

The **adverse selection** designates an immoral effect of market functioning, which generates information problems. These problems arise when there is a lack of observation of the characteristics of a product or service. Akerlof (1970) considers that "adverse selection, which occurs before the signing of the credit agreement, results from the fact that information about the characteristics of the borrower is dissimulated."

In a credit relationship, poor-quality borrowers are looking to be seen as good-quality clients: by hiding some information, they want to show that they are less risky clients. Consequently, banks are in a great difficulty to positively discriminate borrowers of good quality. Through a good perception of accepting credit conditions, the bank can differentiate credit applicants according to their quality. Those willing to borrow at high interest rates are loan applicants whose projects are the most risky. On the other hand, loan applicants who do not agree to borrow with high interest rates are proposing for financing less risky projects.

According to Stiglitz and Weiss (1981), identifying good credit applicants is difficult and problematic. In many situations, the bank, under the effect of information asymmetry, cannot know exactly the quality of credit applicants and it is generally required to offer a single interest rate to all credit applicants.

This interest rate allows maximizing anticipated returns. If the credit demand is superior to the offer, the bank will not adjust interest based on the nature of the funded projects and the bank will not be able to fund excess demand. On the other hand, "the bank does not raise interest because the additional income resulting from the increase in interest is higher than the compensation from the income contraction, which results from the increase in the probability of weakness of the blamable credit claimants" (Guigou & Vilanova, 1999).

After signing a contract between the parties, ex post information asymmetry generates **a moral risk problem** due to the agent's inability to observe the actions of other agents. Moral risk occurs under certain conditions and gives rise to diverse situations. Berger, et al. (2011) distinguish two situations:

- The uninformed agent does not know the actions of his partners. The partners have an opportunistic behavior, taking advantage of the fact that the agent is uninformed and act in their own interest, claiming that the poor results are independent of their will.

- The uninformed agent knows the actions of the partners but cannot verify the validity of the actions because he she is not able to observe the circumstances in which the actions take place.

Berger (2011) appreciates that the issue of moral hazard "can be studied by going through the agent's theory with a master-agent model" and the main issue is to find the way to challenge the agent to act in his or her interest.

Stiglitz and Weiss (1981) assert that when the borrower exploits the information advantage to act in an opportunistic way, "the bank faces a risk of asset substitution or moral hazard". Bassole (2006) notes that "after the credit, the borrower can take risky actions leading to the failure of the funded project". Hence the opinion that the borrower is challenged to choose a risky project or to make less effort for the success of the project. In this case, the moral hazard is the result of non-compliance with the terms of the credit agreement.

As a result of the development of information problems between the bank and the borrowers, it can be remembered that the banks suffer an information deficit in relation to the loan applicants. For structuring credit agreements, banks need to have a very good perception of the risks inherent in information asymmetry. In the following figure there are summarized the main problems arising from information asymmetry.

3. SOLVING INFORMATION PROBLEMS

Companies use various means to signal their quality on the market, mainly through the level of indebtedness, maturity of indebtedness and the level of involvement of directors (Lobez and Vilanova, 2006; Lobez, 1997 and Flannery, 1986).

Freixas and Rochet (2008), Fields, et al. (2006), Guigou and Vilanova (1999) argue that this structure is developing to hide the problems of adverse selection and moral hazard. In addition to the capacity to produce information, banks have strong incentives to reduce information asymmetry and are providing loans when the creditworthiness of borrowers is difficult to analyze, or when risk is difficult to assess. The production of information by the bank is achieved mainly through the power of signaling and the credibility of the banking signal.

Lobez (1997) considers that "the fundamental postulate on which the information model is built is that which starts at the company's indebtedness level." The statement is correct because within companies, managers who hold internal information about financial statements are challenged to provide them to external investors. Within this framework, a high indebtedness of a firm reflects a high capacity to honor its commitments and reveals its good quality. Obviously, debt is a signal that reflects the quality of the borrower on the credit market. Opposite to this situation is the poor-quality borrower, who fails to report the increase in indebtedness. In case of inability to send signals about debt, the borrower is under pressure to jeopardize the company and to go bankrupt.

Lobez and Vilanova (2006) present important aspects regarding the level of involvement of managers. By donating funds to projects, they diversify the portfolio of projects in an optimal manner. The effort of managers to fund and diversify the project portfolio is a signal to support and test the quality of projects. Through this behavior, managers prove positivism and constructivism in their actions. Otherwise, when managers are unsure of the success of the projects, they will have no contribution to their funding, being aware that, in case of failure, they will bear a share of the losses.

The process of issuing signals by borrowers and lenders (banks) is a dynamic one. At the dynamics of this process, banks come with their own contribution. First, they collect information about borrowers' lending capacity, and secondly, in crossing the credit decision-making process, banks produce and circulate information relating to the quality of borrowers.

Freixas and Rochet (2008) state that "the bank is able to solve the problems inherent to information asymmetry much more effective than the foreign partners." Also, they note that the bank provides access to a payment system, converts assets, and manages information and risk. In addition, the two authors put more value to the "risk management" function.

As a delegated controller instead of the debtor, the bank is able to hold an information monopoly power (Fields, et al., 2006). In close connection with this power, it may be found that it is more advantageous, in terms of control, for banks to delegate financial control to borrowers. This aspect is found in the Diamond model (1984). The model is part of an ex-post information asymmetry between the bank and the borrower. In particular, the bank cannot know the borrower's ability to repay the loan. The borrower, following an opportunistic behavior, tends to hide the yields obtained through the use of credit. In this situation, rigorous control of the borrower's actions is required.

Freixas and Rochet (2008) consider that the bank plays the role of a financial intermediary that collects the funds of the depositor(s), providing a fixed return for them, and carries out expenditure to insure the control and execution of credit agreements. As a delegated controller, the bank can achieve economies of scale because bank costs are much lower than the sum of individual depositor costs.

Banks differ from other financial intermediaries by specific sources of information, namely providing financial services and management of payment means. The bank manages to make more effective and efficient use of the scale economy by ensuring delegate control. With a much more diversified offer of financial products and services, the bank capitalizes on its chance to be a privileged source of confidential private information that is publicly non-available. Observing the current costs with great care, the bank capitalizes on the chance to gain access to information. This access helps the bank to hold and strengthen a competitive advantage of evaluating and controlling credit applicants. Freixas and Rochet (2008), Fields, et al., (2006), Scialom (1999), consider that banks are distinguished from other financial intermediaries by their information advantage, and especially by the credibility of information circulated on the financial market.

4. THE BANK'S ACTIVISM TOWARDS INFORMATION ASYMMETRY

The banks use contracts as effective means of solving information problems for credit applicants. An active bank mobilizes the tools to determine companies to comply with the terms of the original credit agreement. From this perspective, "banks implement contingent, incentive contracts (characterized by restrictive contractual clauses and collateral requirements) and show a major interest in the development of banking relationships" (Lobez and Vilanova, 2006). Although it has a specific information advantage over other financial intermediaries, banks remain incompletely informed about the borrowers. For more complete information, banks promote contracts to reduce information misunderstandings and to enable borrowers to disclose their ex ante quality. In structuring the contracts, following a careful analysis, banks propose restrictive contractual clauses to grant loans. According to the Stiglitz and Weiss model (1981), banks are interested in obtaining as much private information as possible about the quality of credit applicants.

The bank defines conditions within the cost of obtaining the credit referring to both tariff terms (interest) and non-tariff terms (maturity). By using the range of terms, it aims to reduce information asymmetry and credit risk. Lobez and Vilanova (2006) note that "the bank imposes restrictive clauses and reduces the maturity of loans by requiring borrowers to take multiple risks into account and by limiting their freedom of action." In this way, the bank causes the borrower to increase the risk of his investment portfolio once the credit has been given to him.

Following the philosophy of restrictive contractual clauses, such as reducing credit maturity, the bank promotes short-term constraints. By resorting to these contracts, the bank limits the issue of asset substitution and obtains two more effects. On the one hand, it causes the borrower to reduce the risk of his original project and, on the other, to have sufficient liquidity to provide a new loan. Lobez and Vilanova (2006) note that the great advantage of restrictive contractual clauses is that "if the borrower fails to meet his commitments, the clauses allow the bank to force the renegotiation or liquidation of the loan ahead of schedule."

Banks have the ability to motivate their managers to overcome the inherent problems of information asymmetry. Also, banks have the ability to provide the necessary funds for loan applicants. The

ability to motivate managers and the ability to provide funds to borrowers facilitates the production of information by banks.

The bank loan has a signaling character and is the result of the bank's signaling power. This is particularly noticeable when companies are unable to send signals to the financial market. Under these circumstances, the bank produces and transmits free information to the financial market about the firm's quality and its future income (Freixas and Rochet, 2008). The information produced by the bank is addressed to external partners - investors or not. Negotiation can lead to the conclusion of contracts that favor both sides' satisfaction and efficiency.

Berger and Udell (2005) suggest that it is difficult for a bank to implement contracts that include all possible clauses, and instead of interest, maturity and restrictive clauses, the bank can opt for collateral for credit agreements. Theoretically, Berger, et al. (2011), Gardes and Machat (2011), Blazy and Weill (2006), Berger and Udell (2005), consider that the use of collateral guarantees in bank contracts is justified in two respects. On the one hand, the internal or external guarantee proposed to the credit applicant ensures the reduction of the ex-ante information asymmetry and, on the other hand, it allows to reduce the problems inherent to the ex post information asymmetry with the granting of the credit. The bank, not considering any information about the quality of the credit applicant, uses the warranty to assess it. Therefore, in the context of information asymmetry, the guarantee represents a good quality signal for the borrower. It can also be considered that the guarantee allows the bank to minimize the credit split.

Based on a sample of American banks, Berger and Udell (2005) identify a positive and significant relationship between the use of guarantees and ex ante credit risk as measured by the risk premium. However, the two authors recognize the existence of errors in risk assessment. In fact, Berger and Udell (2005) use the interest rate on non-performing loans, which means that they take into account ex post credit risk. Berger and Udell (2005) confirm that the guarantee is associated with a much greater risk. In the same direction, Blazy and Weill (2006) validate the risk hypothesis observed on a sample of 564 bank loans granted by franchise banks and find that banks charge higher interest rates and require more guarantees for risky firms.

Following the approaches presented, **it can be concluded** that banks have the contractual instruments needed to manage information asymmetry and credit risk. Banks also lean towards restricting the freedom of action of borrowers in providing short-term loans and the inclusion of restrictive clauses in credit agreements. Banks require guarantees to protect themselves against significant risk-taking from borrowers. Finally, I join the opinion of Gardes and Machat (2011), according to whom the contract is a starting point that will not allow a sufficient understanding of the funding relationship.

Based on the contracts, banks are able to distribute the loan, ask for guarantees and raise interest. At the same time, it is necessary to recall that banks have relational superiority with other financial intermediaries. The source of banks' superiority is a better knowledge of the borrower. This advantage is based on the collection of objective and subjective data necessary for relationships that have developed over time between the bank and the borrowed firm. Multiple long-term contracts have given rise to a bank-business relationship or a banking relationship.

From the first studies on the banking relationship (Roosa, 1951; Hodgman, 1961; Kane and Malkiel, 1965; Fried and Howitt, 1980; Okun, 1981), it can be noted that the bank gains an important information advantage in long-term relationships with companies. The bank obtains an information advantage over its competitors as it can identify and control the behavior of its clients when managing deposit accounts. This advantage creates the conditions for reducing credit distribution to customers.

Following these studies, the concept of banking relationship has developed and in the literature many definitions of the banking relationship can be found. In a chronological order, the definitions given by: Boot (2000), Lehmann and Neuberger (2001), Jimenez and Saurina (2004), Freixas (2005), Elsas (2005) allowed the observation of the variety of nuances regarding the dimensions of the banking relationship addressed in terms of content and dynamics.

5. CONCLUSIONS

The issue of banking and its management has many complex and delicate facets. Without mechanisms and instruments built on real bases, the functioning of the banking industry, regardless of its evolutionary stage, encounters serious difficulties. Banks, are vital institutions of the economy and cannot operate in profitable conditions without the existence of well-defined and performing risk management.

In my view, risk management is one of the key objectives of financial intermediation. From this perspective, banks, irrespective of their size, must address all kinds of risk. In such a vision, banks must develop their capacity of understanding and adapting to banking realities; avoid relationships with institutions like hedge funds (in order to reduce risk exposure); focus on deposit creation and risk managed credit granting.

In conclusion, the banking relationship is a lasting commitment between the bank and the borrower, it is exclusive and non-exclusive and is concretized in a confidential information volume. The banking relationship reflects the bank's ability to obtain private information over time. This information relates to the solvency of the credit applicant. By repeating credit agreements, the bank gathers information about the borrowers without getting involved in motivating good project risk management. The banking relationship is a powerful source of information of high quality.

Reducing information asymmetry and effectively managing its problems should be of major concerns for any bank. From this point of view, it is essential that a bank identifies the appropriate means for knowing and managing the causes of information asymmetry, mainly adverse selection and moral hazard. Borrowers should also be interested in reducing the adverse consequences of information asymmetry.

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