Information Asymmetry and Credit Risk

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Abstract. *Information asymmetry defines relationships where an agent holds information while another does not hold it. Thus, to the extent that one of the parties to the financing agreement has information more or less accurate than another, the asymmetry of information appears to be a major constraint in the financing of a project. Banks, in their capacity of financial intermediary, operate the transfer of funds to agents in need of financing, to the borrowers, being necessary in this process to have more information in order to benefit of expertise in assessing borrowers. The research of information asymmetry and credit risk consists of interrogating the following aspects: information issues between the bank and borrowers; settlement of information issues; bank's activism towards information asymmetry. In our approach we will look at the first aspect, namely the information issues between the bank and the borrowers.*

Keywords: information asymmetry, credit relationship, credit risk, adverse selection, moral hazard.

JEL classification: E52, E58.

1. Introduction

Within the credit market, "the debtor", claims Crouzille et al. (2004, p. 445) is in a weak position because it does not have much more precise information on the financing project". When agents do not have the same level of information, they are in a situation of information asymmetry. In a credit relationship, the bank has an information asymmetry problem that results from the difficulty of credit risk assessment. If the bank has the ability to collect and treat information when loan applications are accepted, credit risk is minimized. The bank needs relevant information about the borrower both at the time of accepting a loan application and after the credit has been granted. Through relevant information, the bank can control the actions taken by the borrower. So, the bank, in search of information, is confronted with the issue of information asymmetry.

2. Information Asymmetry in the Credit - Bank/Borrower Relationship

On the credit market, in the course of the credit relationship between the bank and the borrower, information asymmetry generates two main problems: 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 loan agreement. After signing the loan agreement and granting the credit, information asymmetry becomes a source of moral hazard.

✓ *Adverse selection*

Adverse selection implies an immoral effect of market functioning, the effect that generates informational problems. These problems occur when there is a lack of observation of the characteristics of a product or service. There are situations where a loan applicant holds more information than a bank, more precisely the loan applicant may conceal some information about his/her characteristics: market position, competition, dependence on a partner, possible unpaid claims that may become non-performing, prospects of continuity of the activity for certain sectors of the economic activity, etc. The attitude of the loan applicant, not to provide the bank with this information, is immoral and the bank is not able to correctly observe the quality of the loan applicant. The example illustrates a situation of *ex-ante information asymmetry* where the bank is subject to an adverse selection problem. On this issue, Akerlof (1970, p. 489) considers that "the adverse selection, which occurs before the signing of the loan agreement, results from the fact that information about the characteristics of the borrower is dissimulated."

In a credit relationship, poor-quality borrowers, by hiding information, seek to be considered as good-quality clients, thus presenting themselves as risky clients. Also, by accepting a high interest rate, increased costs, the risky borrowers are asking for loans, not worried about the loan repayment. Of course, the most risky borrowers bring great damage to good-quality borrowers, negatively influencing the creditworthiness, namely the performance category of companies operating in a particular field, having partnerships with the same economic operators, etc. Hence, another immoral effect of the functioning of the credit market rises. As a result, banks are in a great difficulty to make a positive difference between borrowers of good quality and borrowers of poor quality. At the same time, it can be noticed the difficulty of banks to select the most cost-effective, the most secure financing projects. Equally well, it can be remembered that ex-ante information asymmetry induces an immoral, ineffective credit allocation. In this context, the interest rate seems to be a good mechanism for selecting loan applicants.

Through a rigorous and careful analysis of acceptance of credit conditions, the bank can differentiate loan applicants according to their quality. Those who are willing to borrow at high interest rates, with approval conditions imposed by the restrictive bank, with tight monitoring and execution deadlines, are loan applicants whose projects are the most risky. Conversely, loan applicants who do not agree to borrow against high interest rates, they require a review of the terms of the approval until a balanced formulation thereof is reached, so that they can be met, with deadlines to allow meeting these conditions, they propose projects for less risky financing. In view of the above, banks will also try to conceal the issue of information asymmetry by separating the two categories of financing projects: very risky projects and less risky projects.

According to Stiglitz and Weiss (1981), identifying good loan applicants is difficult and problematic. In many situations, the bank incurs the effect of information asymmetry and cannot know the quality of loan applicants. Then, the bank is generally required to offer a unique interest rate to all loan applicants. This interest rate allows maximizing anticipated returns. If the loan application is superior to the offer, the bank will not adjust interest based on the nature of the financed projects. The bank will not be able to finance the extra application. On the other hand, "the bank does not proceed to a raise in the 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 blameable loan applicants" (Guigou and Vilanova, 1999, p. 61).

Adjustment is made through the credit volume. The process by which the bank limits the volume of loans to borrowers is imperfect and fear of adverse selection may lead banks to diminish the volume of credits granted to applicants.

Application of a unique, uniform interest rate according to the field of activity, the performance indicators, the revenue level generated for the bank, is not without effect on the quality of the loan applicants. At a fixed interest rate, some loan applicants will lose a market right when they will be willing to pay the interest rate proposed by the bank or a higher interest rate. Banks may raise interest rates to cause a change in the opinion of loan applicants who, after evaluation, have a poor quality. Of course, as we have previously pointed out, the most risky loan applicants remain, some of them, the least risky if another party leaves the market. Obviously, the most risky loan applicants, those "standing firm", get the loans. An increase in the interest rate may also lead to the re-orientation of loan applicants of good and very good quality, which implicitly influences banks' revenues by restricting investments.

Turning to the analysis of Stiglitz and Weiss (1981), we will note that a bank can be passive and active. A passive bank is one that can not or does not risk differentiating loan applicants and applies a unique interest rate to both quality and poor loan applicants. The active bank proposes differentiated contracts, which means that loan applicants are required to reveal, of course, in an ex-ante manner, their quality, especially if the client knowledge process reveals that the client possesses certain information that may lead to his/her classification in the low quality client category. From this perspective, Lobez and Vilanova (2006, p. 34) argue that "theories based on the passive bank hypothesis and those based on the active bank hypothesis do not oppose, but complement themselves in a banking market characterized by a strong information asymmetry".

✓ *Moral risk between bank and borrowers*

After signing a contract between the parties, information asymmetry, this time ex-post, generates a moral hazard issue. The moral hazard is due to the agent's inability to observe the actions of other agents. Moral hazard occurs under certain conditions and gives rise to diverse situations.

Berger et al. (2011) distinguish between two situations. The first situation corresponds to the case when the uninformed agent is unaware of the actions of his/her partners. The partners have an opportunistic behaviour, taking advantage of the fact that the agent is uninformed and acts in their own interest. Against an agent, his/her partners claim that poor results are independent of their will. In the second situation, 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.

The moral hazard issue, as Berger et al. (2011, p. 53) appreciate, "can be studied by going through the agent's theory with a principal-agent model". The principal sees a moral hazard when he/she notices the imperfection of the action or fails to know the action the agent performs in his or her interest. Therefore, the principal's problem is to find the way to challenge the agent to act in his or her interest.

Hertzberg et al. (2010, p. 807) "define, on the basis of the agent's modern theory, two types of solutions to counteract moral hazard:

- the principal establishes a surveillance system that allows external experts to assist the company's management;
- the principal implements incentive measures to reward or penalize the agent for his/her behaviour".

Stiglitz and Weiss (1981) assert that when the borrower exploits the informational advantage to act in an opportunistic way, "the bank faces a risk of asset substitution or moral hazard". In turn, Bassole (2006, p. 32) notes that "the borrower, after the credit granting, can take risky actions leading that may lead to the failure of the financed project". Hence the opinion that the borrower is challenged to choose a risky project or to make less effort to succeed the project. In this case, the moral hazard is the result of non-compliance with the terms of the loan agreement. The bank can minimize this risk by setting intermediary (monthly or quarterly) deadlines for monitoring, contract terms/conditions through the loan agreement. Under the loan agreement, the bank may establish penalty clauses in the event of failure to comply with the credit conditions, clauses under the form of penalty interests, credit use blocking (credit balance freezing), and may go as far as withdrawing the financing and starting the procedure of foreclosure of guarantees. In general, a notification from the bank is provided with the allocation of a remedial delay, in the case of non-fulfilment situations with a minor impact.

Berger et al. (2011), analysing the risks of opportunistic behaviour of borrowers, identify ex-ante and ex-post risks. Ex-ante moral hazard occurs before signing the loan agreement. The borrower, through opportunistic behaviour, can allocate the loan he/she obtained to finalizing risky projects or unprofitable projects. In this way, the borrower, instead of exposing himself/herself to risk, increases the bank's exposure to credit risk. With regard to the ex-post moral hazard that occurs after signing the contract, the borrower may, voluntarily or involuntarily, not honour his/her commitments to the bank.

For an effective management of moral (ex-ante and ex-post) hazard issues, the bank supervises and controls borrower's actions. Although supervision and control are costly, the bank has to resort to these means to reduce moral hazard. The bank must cause borrowers to honour their commitments and make them take decisions to ensure repayment of loans. In other words, the bank has to force borrowers to choose projects that ensure reimbursement of the loans and make the right efforts for the success of the projects. In the case of adverse selection, the bank needs to ask for liquid, securitized, individualized market guarantees to control the performance of financed projects - periodic monitoring of progress reports, financial performance indicators for the project, prospects for completion within the assumed deadlines, eventual budget overdrafts and funding sources for these overdrafts, and structuring/planning in time the provision of credit-approved amounts in order to ensure strict monitoring of the use of these amounts and repayment of credits.

As the information problems between the bank and borrowers grow, the banks have to sustain an information deficit in relation to the loan applicants. In order to structure financing approved under loan agreements, banks need to have a very good perception of the inherent risks generated by information asymmetry. In Figure 1, we summarize the main issues arising from information asymmetry.

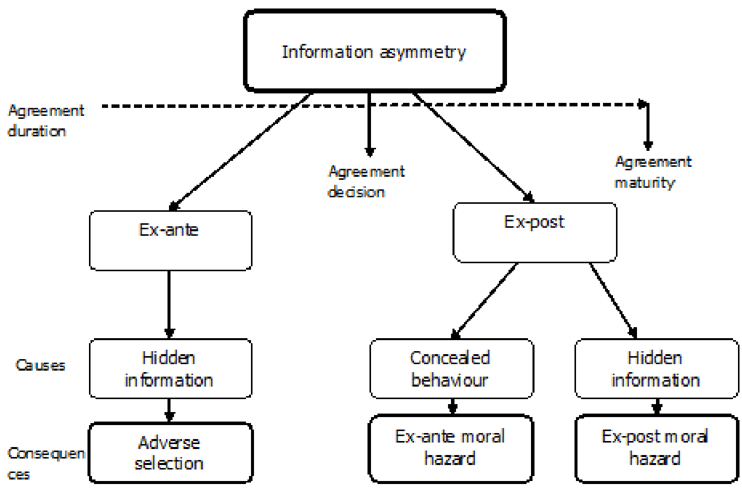

Figure 1. Main issues of information asymmetry
Source: Processing after J. E. Stiglitz and A. Weiss (1981)

3. Conclusions

Reduction in the effects of information asymmetry and their effective management should be major concerns for any bank. 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. Stiglitz and Weiss (1981) believe that borrowers should also be interested in reducing the adverse consequences of information asymmetry. Borrowers and banks have different perceptions about information asymmetry. For example, quality borrowers see the adverse selection as a problem that may cause their loan applications to be denied. For banks, increasing their exposure to credit risk is due to the behaviour of borrowers and information hidden by them.

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