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# Financing Small and Medium Enterprises in questions: Between Imperfect Information and Governance

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## Abstract

*This study focuses on the determinants of access to finance by SMEs in the city of Goma. With regard to theoretical and empirical reflections on the issue of credit rationing, this study explores a dual approach centered respectively on the theory of informational asymmetry and the governance theory.*

*Based specifically on a quantitative approach, the results of the surveys of 271 SMEs, using logistic regression, have clearly demonstrated that access to finance, in the context of highly imperfect markets such as that of the city of Goma, depends largely on the following variables: collaterals, solvency, nondefault, duration of existence and social capital, with reference to the preponderance of their odds ratios. Specifically, for collateral, it reduces distortions arising from information asymmetry while discouraging opportunistic behavior by SME owners. Analysis provided additional results according to which the holding of an additional income-generating activity as well as the interpersonal relations of the SME owner with the MFIs increase the probability of access to financing.*

*The extension of the analyses, by using principal component analysis, enabled the derivation of the governance quality index, whose average value was 0.45 and which indicates a governance weakness. These results call for the establishment of a better organizational framework, a consolidation of the management system and the observance of effective control mechanisms within SMEs. This remains a key success factor for easy access to finance.*

**Keywords:** Small and Medium Enterprise, Strategic, Developing countries, Capital accumulation

## INTRODUCTION

*What is the effect of governance mechanisms on access to finance for SMEs in microfinance institutions in Goma? What are the intrinsic factors that determine access to SME financing at MFIs?* These are the questions that this article aims to answer while contributing to the debate on SME financing.

Indeed, although the Small and Medium Enterprise (SME) sector has been set up as a strategic axis in the general objectives of the public authorities in the Democratic Republic of Congo, because they are convinced of the probable positive effects of this sector on the performance of the economy, the bitter fact is that these small economic units experience chronic difficulties in accessing adequate sources of financing in proportion to their needs, thus mortgaging their development. Significantly, they currently represent more than 90% of all national enterprises and create more than 70% of jobs (SNS-PME, 2019).

As in many developing countries, the added value of this sector is assessed in terms of its contribution to the process of inclusive economic growth, regional development, job creation and the reduction of both poverty and social exclusion (Meberbeche, 2019; Sahut et al. 2019; OECD, 2018; World Bank, 2016; Admassu, 2009).

Indeed, beyond the merit of the microenterprise as mentioned above, the efficiency of an SME is not only assessed by factors such as its human capital or the quality of the services and products it offers, but much more by the sources of financing that are accessible to it as well as the possibilities of capital accumulation (Evou, 2020; Anairi&Radi, 2017; Zeamari&Oudgou, 2015; Nanfosso&ali. 2014).

Concretely, the attention given to the recourse to credit is also justified by its incidence to increase the financial profitability of the SME and thus to break the constraints of survival related to its development and its perenniality (Barneto&Gregorio, 2009; Marniesse&Morrisson, 2000). Empirical studies oriented in this dynamic have demonstrated an effect that could be described as "multiplier" and advocate to this effect, the use by SMEs of services offered by financial institutions to increase their activities (Lapenu, 2014; Mbakul'Irah, 2014; Labie, 2010).

However, access to finance remains the major challenge for SMEs, where they are mainly confronted with insufficient self-financing and lack of capital contributions, which becomes a fundamental obstacle to their emergence and growth.

This situation of non-access is very pronounced in sub-Saharan Africa, where there are highly imperfect markets characterised by problems of information asymmetry, thus generating enormous transaction costs for the lender (Ngongang, 2015; Soledad & Peria, 2009; Lefilleur, 2008; Kalala, 2006; Ambassa & UmNgouem, 2002). In view of their profile, which is considered risky, SMEs, qualified as 'forgotten children' by traditional financial institutions, feel obliged to resort to a transactional orientation generally associated with multi-banking, which is offered by the microfinance industry and other proximity financial providers.

Whether for banks or MFIs, any credit operation is tainted by risk and leads, both upstream and downstream, to the problem of adverse selection (ex-ante opacity of the SME profile) and moral hazard leading ex-post to behavioural opportunism, which triggers the risk of default (risk of non-repayment of the loan), to the detriment of the financial institution (Soulama, 2002). In the absence of adequate mechanisms to address these dangers, financial institutions require physical collateral, often unfortunately not held by SMEs. In the end, this leads to total or partial credit rationing.

This reality is further reinforced by the managerial problems encountered, as the main criticism levelled at SMEs is the glaring deficiency in terms of governance materialized by a lack of transparency, a management information system that is almost incapable of producing accounting and financial information, the weakness in human capital, the non-respect of shareholder rights, etc. (Benaziz, 2017; Pigé, 2002). (Benaziz, 2017; Pigé, 2002). In a reverse reasoning, the implementation of adequate governance mechanisms allows to ensure the survival of the company and to meet the expectations of the stakeholders in order to ensure organizational efficiency (Toe, 2012).

This argument is reinforced by empirical studies (Elmajhed&Regar, 2020; Mendy&Diop, 2018; Kamala, 2016; Niyonsaba&al. 2015; Khaldi&Ali, 2014; Labie, 2014; Yassine, 2013) that show that the application of better governance practices improves the performance of SMEs and, moreover, increases their chances of accessing credit from financial institutions.

It follows from the above development that the profile of the entrepreneur, the characteristics of his or her business and his or her relationship with financial providers can highlight factors on the basis of which access to finance may or may not be possible.

Concretely, several studies (Dewa&al. 2020; Ngondi, 2020; Biboum&Bekolo, 2008; Saurina&Trucharte, 2003) show that some financial institutions opt for a double attitude (transactional and relational) depending on the nature of their clientele. Although there is a strong interdependence between these two actors of the economic activity, the nature of their relationship depends on the characteristics of the SMEs and their manager-owner.

Also, financial providers claim that entrepreneurs often display managerial incompetence (Ilboudo, 2018; Kamanda, 2015; Wamba&Tchamanbe, 2002) and do not provide all relevant information in their loan applications, seeking to reduce the level of information asymmetry (Souleymanou et al. 2019).

On the other hand, entrepreneurs complain that they are subject to abuse of power by financial institutions, which are said to be too formal towards them, not to accept the specificities of their businesses (Ngaya, 2020; Edding, 2002) and to perceive them only as a "risk" that may or may not be financed (Gardès&Maque, 2009). Such a business climate raises questions about the chances of SMEs to access finance easily.

In the province of North Kivu in DR Congo, particularly in the city of Goma, the entrepreneurial dynamic is all too apparent and there is a quantitative proliferation of micro-projects that generate income for the majority of the population. Unfortunately, many of them are struggling to make their activities viable, mainly due to insufficient financial resources and difficulties in accessing funding from local financial institutions.

Beyond the fragility of the Congolese financial system, which is underperforming in its mission to ensure effective financial intermediation, the allocation of resources needed to finance the economy remains a major challenge. This has been reinforced by the recent liquidity crises that have shaken the microfinance industry (2017) and whose genesis can be traced back, due to a lack of professionalism, to both the Dutch International phenomenon and the government decision to ban artisanal mining (Mbakul'Irah, 2013; Kankisingi, 2012; BCC, 2010).

This picture painted, testifies to the fragility of the DR Congolese financial system. This series of problems has led to a scarcity of loanable funds and, as a result, has made financial intermediation ineffective through the rigidity of credit granting conditions, especially for small and medium-sized enterprises, whose survival is threatened in a relatively hostile environment in terms of access to resources and markets. Thus, all these constraints that weigh on SMEs expose them to an early mortality (low and decreasing probability of survival) that oscillates around 27.3% (SNS-PME, 2018).

In such a context, adequate solutions to these bottlenecks would hold great theoretical and practical promise. This is the backdrop against which the present study revolves. On the basis of the above, this study proposes to analyze the determinants of access to finance by SMEs in microfinance institutions by elucidating both the intrinsic and managerial aspects.

## ANALYTICAL FRAMEWORK OF THE RESEARCH

The growing interest in the issue of SME financing in many studies is an indication of the importance of these economic units in the development process. Unfortunately, they have difficulty in gaining easy access to adequate financial sources. In view of the theoretical and empirical reflections on the issue of credit rationing, this article explores a dual approach centred on the theory of informational asymmetry and governance.

Indeed, the exploration of the financial theory of informational asymmetry can serve as a basis for understanding the barriers of non-access of SMEs to financing opportunities in both the formal and semiformal financial sphere. In addition to this theory, it is necessary to deepen the analyses and to place oneself on the side of the managerial theory which highlights the allocative and institutional inefficiency of SME and consequently, comes to reinforce this problem of rationing in the strict sense.

### Information imperfection and SME financing

In a credit relationship, whether it is direct or intermediated finance, the imperfect nature of information is observed between the two parties to the contract (Lobez, 1997). In many cases, the borrower (here, the microenterprise) has an informational advantage over the lender (information gap). In this case, there is a transformation for the lender from certainty to uncertainty, given the nature of the credit.

This state of affairs then generates two situations: upstream, a problem of adverse selection (characterized by pure credit risk) and downstream, a problem of moral hazard characterized by behavioral opportunism (Kalala, 2006; Soulama, 2002). It can be seen that information asymmetry can have two main origins, namely (i) the existence of a party with an informational advantage and (ii) the importance of the costs of obtaining information, which probably leads to the phenomenon of credit rationing (Goyer, 1995; Psillaki, 1995; Stiglitz and Weiss, 1981; Jensen and Meckling, 1976).

Speaking of credit rationing, the literature identifies four types of rationing from a double point of view: rationing relative to the number of borrowers and rationing relative to the size of loans (Ang, 2000; Eber, 1999; Nekhili, 1999; Stiglitz and Weiss, 1981; Williamson, 1987; Jaffee and Russell, 1976). Indeed, the lender may grant credit for an amount lower than that requested (type 1), or he may refuse to commit to certain borrowers (type 2). Also, he may refuse to lend at the rate desired by the borrower (type 3) or he may decide not to lend funds at all, commonly called "red-lining" (type 4).

From the above, the relevance and transparency of the information provided to borrowers and capital owners are the only solutions to reduce this informational disparity in order to alleviate the problem of access to finance, especially for small and medium enterprises.

### Determinants of credit rationing for SMEs

The main variables perceived as determinants of the credit crunch for SMEs will be used in the following for an empirical verification of the topic under study.

#### *a) Information withheld by SMEs*

This is the inability of financial institutions to fully understand the risk characteristics of companies, probably due to the lack of relevant, reliable and complete financial information. Several factors may be at the root of this state of affairs, namely The small size (Oudgou&Zeamari, 2019; Ang, 2001) and the fragility of young companies (Slimane&Rousselet, 2018; Vigneron, 2008).

Let us also underline the deficiency of the SME management information system, which is unable to provide relevant data to convince fund holders (Souleymanou & al. 2019). For Levratto (2000), the occultation is observed when the SME is unable to provide quantitative and qualitative information that meets the expectations of financial institutions.

The lanterns posed by the theory of information asymmetry have come to shed light on the question of the credit crunch for SMEs. Indeed, Benattou et al (2020) point out that the informational quality of SMEs on their relationship with the financial institution is more noticeable among microenterprises in the context of countries where property rights are poorly regulated, as entrepreneurs tend to keep their information confidential. This should contribute strongly to the informational imperfection between these economic units and the holders of loanable funds.

Similarly, a request for credit from a small enterprise presents a relative variability in the reliability of the information provided and in the future evolution of the enterprise (Bouslama&Nekhili, 2007). Berger et al (2005) show that opaque firms are more often rationed than others. On this basis, the informational concealment of SMEs would act positively on their credit rationing.

***b) Risk diversification and credit rationing***

Faced with the problems of adverse selection and moral hazard, financial institutions are forced to ration credit (red-lining) to SMEs due to their overly risky profile. Indeed, the business model of SMEs is tainted with highly risky projects and therefore, due to a lack of specialisation, these microenterprises have a certain investment agility (diversification mania due to uncontrolled growth) which increases their risk of asset substitution and, consequently, increases the probability of financing refusal.

Hence, the microenterprises that do not access financing are those whose lenders have identified upstream a risk of changing their project once the credit requested is granted, thus increasing the uncertainty of the investment project (Levratto, 2000). In the end, the oldest companies are pushed to choose only lowrisk projects given the cost generated by a loss of reputation; this plays in their favour when it comes to benefiting from a credit line.

***c) Long-term financial relationship strength and credit rationing***

The long-term financial relationship is a determining factor in the credit granting process. Indeed, it implies that the institution, in its past transactions with the client, holds his history and that can serve as a sub-base in its decision to grant credit in terms of evaluating new applications. There is then a positive correlation between the duration of the financial relationship and credit rationing (Saurina&Trucharte, 2003; Dietsch, 2003), in that start-ups therefore experience serious difficulties in obtaining financing, as they have not yet established a solid relationship with the providers of funds (De Bodt et al. 2005).

From this analysis, it should be noted that several factors facilitate the availability of credit: the age of the borrower and the length of the financial relationship, the multiplicity of services offered by the lending institutions. Hence, SMEs, in their permanent quest for financing, have every interest in maintaining healthy debt relationships with their financial providers, as the probability of rationing is lower when the enterprise maintains a healthy credit history (Carletti, 2004).

Moreover, the riskiest borrowers, rationed by their former financial providers mainly because of informational opacity, would be forced to change financing holders. This leads to the phenomenon of "financial bicycling", a situation likely to generate systemic risk if the credit bureaus are not operationalized.

***d) Collateral and credit rationing***

Collateral was one of the first mechanisms put in place by financial institutions to guard against problems of information asymmetry. However, SMEs have less physical collateral to offer than larger companies. They may need to provide more collateral than larger firms for the same amount of loan taking into account a low survival rate of the firm (Udell et al., 2006).

Indeed, financial institutions reach out to companies offering the required guarantees to fill the uncertainty of the imperfections of the loan market (adverse selection and moral hazard) leading to the reduction of situations of behavioral opportunism (De Miguel and Pindado, 2001). The same applies to the results of the work of Ngongang (2015) in his study of Cameroonian SMEs, Tuan-Anh PHUNG (2009) for the case of Vietnamese SMEs, and Psillaki (1995) and Kalala (2006) for financial intermediation in Kivu (eastern of DR Congo). Ultimately, the fact of presenting the guarantees would reduce the probability of the enterprise being refused financing.

**Managerial theory and SME financing: towards a restructuring of the organizational architecture**

Beyond the reasons supported by the theory of information asymmetry, the problem of access to finance for SMEs is also explained by dysfunctions encountered in the organizational architecture.

Indeed, the main criticism levelled at SMEs is their glaring deficiency in terms of governance. As Mamadou Toe (2012) points out, governance implies that the implementation of adequate mechanisms makes it possible to ensure the survival of the enterprise and to meet the expectations of stakeholders, with a view to ensuring organizational efficiency.

It should be noted that the theme of governance in SMEs is recent in the management science literature. However, most of the works that have focused on governance practices in SMEs have highlighted a positive and significant correlation with performance (Elmajhed&Regar, 2020; Kamala; 2016; André et al. 2006; Khaldi and Ali, 2014; Yassine, 2013). This implies an increased chance of accessing finance.

On the basis of the above, this section focuses on the analysis of governance in SMEs. In contrast to practices in large companies, the specificities (governance models) of SMEs will be addressed in order to highlight the organizational determinants that can serve as a basis for overcoming bottlenecks in access to finance.

**Specificities of SME governance**

As can be expected, SMEs are not simple models of large companies. Hence, it is not coherent and correct to transpose the theoretical corpus developed when addressing the issue of corporate governance to SMEs, as they are considered to be specific and have their own nature. From the above, it is important to define governance for this category of company and then identify the governance mechanisms that are applicable to them.

As noted, traditional definitions of governance cannot be applied as they are conceived to SMEs. The specificities of this category of enterprises suggest that the notion of governance should be approached in a new way.

SME governance, commonly referred to as entrepreneurial governance (Mendy and Diop, 2018; Essama et al. 2015; St-Pierre&Cadieux, 2011; Cerrada&Janssen, 2006) can be understood by taking into account three main parameters: parsimony, personification and particularism. They point out that these components are the source of important advantages likely to generate greater performance within the SME.

Indeed, parsimony refers to managerial prudence and the reduction of the likelihood of opportunism in that all strategic decisions within the SME commit the financial resources of the owner-manager and/or his family (Essama et al. 2015).

With regard to personification, it is this inability to make a clear difference between the legal person that is the SME and the person of the owner-manager, when it comes to assessing the architecture as well as the organizational authority. The concentration of capital and managerial power in his hands and/or those of his family allows him to free himself from both internal and external constraints (Mendy and Diop, 2018).

Finally, the particularism that derives from the previous characteristic, considers that the entity is a continuity of the owner-manager's personality. Thus, coupled with certain market imperfections, it allows the latter to pursue a different function-objective than a non-owner and/or non-family manager (StPierre&Cadieux, 2011).

According to Ménard (1994), governance in SMEs is the set of procedures and structures used to direct and manage both the internal and commercial affairs of the company, with the aim of increasing its long-term value for investors and ensuring its financial viability.

As can be seen, 'contrary to the usual definitions of the concept of governance, in the context of the SME, it is no longer a question of managing conflicts between stakeholders, but rather the interest is focused on the principles that structure decision-making, the objective of which is to increase the performance of the company.

In this perspective, Brouard & Di Vito (2008) extend the previous definition by focusing particular attention on the fact that the role of governance in the small and medium-sized enterprise is not to reduce the autonomy of managers through the control and monitoring of their actions, but rather to increase this autonomy so that they can act in an optimal way for the enterprise.

In most cases, SMEs are family businesses. In this logic, (Melin & Nordqvist, 2000) define governance as a set of processes, principles, structures and relationships that help the owners of the firm to achieve their goals and objectives.

From these three definitions, it is clear that the notion of conflict of interest is absent. It is clear that the owners occupy a prime position, as the notion of governance is focused on achieving general objectives and not only on increasing financial value (Mustakallio & al. 2002).

**Governance mechanisms for SMEs**

The governance mechanisms discussed in the literature refer to large public companies rather than SMEs. In' order to remedy this state of affairs, some authors (Cerrada& Janssen, 2006; Brouard& Di Vito,2008), although still few, have analysed the governance mechanisms specific to SMEs. Thus, in the light of the matrix proposed by Gérard Charreaux, they have distinguished between internal and external governance mechanisms.

**a) *Internal governance mechanisms specific to SMEs***

These mechanisms use internal SME processes to control or monitor the manager, where there is a clear distinction between ownership and control of the SME. These' include the board' of directors, remuneration schemes, advisory boards and family boards.

- The Board of Directors'

In all forms of organizations, the board' of directors fulfils practically the same functions. Indeed, it is in charge of the management of the company as well as of the elaboration' of organizational strategies but also of the remuneration of the managers (Brouard& Di Vito, 2008 ; Charreaux, 1997). However, in SMEs, this body is more or less present (Blumentritt, 2006) and insofar as the shareholders and the managers are confused, the board' of directors serves to 'approve decisions. Otherwise, the board' of directors assumes its normal role as mentioned in the previous paragraph.

- Methods of remuneration

In the case of SMEs, shareholders are generally involved in the management of the firm' and therefore the problem of information 'asymmetry coupled with agency' conflicts is not very present (Brouard & Di Vito, 2008; Chua et al. 2006). In the case of role dissociation between shareholders and managers, remuneration schemes are most often used to reward the 'effort of managers.

- Advisory and family councils

Advisory councils intervene in SMEs when boards' of directors do not exist (St-Cyr& Richer, 2003). During meeting sessions, managers are advised on the general policy orientation regarding the management strategies of the SME. It should be noted at this level that many SME promoters have a low level of education (Moungou&Niyonsaba, 2012) and in order to break the management barriers imposed by this educational deficit, they convene family councils, especially for family-type SMEs. In many cases, advisory and family councils are more or less present in SMEs.

*b) External governance mechanisms specific to SMEs*

These mechanisms use both markets and institutions to reduce managerial 'discretion in the context of the separation between shareholder ownership and managerial control. In this case, they include: the market for products and services, the legal system, corporate values and ethical standards, creditors and debt, and institutional investors.

- The market for products and services

To avoid losing their competitive position in the market, managers must make optimal decisions that allow the SME to produce products and services that meet profitability requirements while remaining competitive (Brouard & Di Vito, 2008).

**The legal system**

The legal' system applies to SMEs when they resort to external financing (Brouard& Di Vito, 2008). In order' to prevent the manager from using the company's profits for his or her own benefit, the legal system provides for control mechanisms, a strict governance code and sanctions for SME managers informing them of their civil liability towards the shareholders (Lopez-de-Silanes et al. 1999).

- Ethics' and societal values

They are well-founded within the SME, which is totally dependent on the company (customers, suppliers, etc.). Therefore, ignoring these rules in its management practices could lead to an immediate loss of customers or suppliers and its bankruptcy (Pasquero,2004 ). Consequently, ethical standards and societal values can be' a relatively crucial device for influencing the behavior of SME managers.

- Institutional investors

In the case of both large companies and SMEs, this governance mechanism is important (Brabet, 2002). These investors (banks, 'investment companies) have the possibility to control part of the monetary value of the companies as well as the actions of their managers. During the general meetings of SMEs, institutional investors exert pressure in order to hold' managers accountable.

- Creditors and debt

The debt contract is an effective governance mechanism in SMEs because creditors have the motivation and power to force managers to repay their debt (Shleifer & Vishny, 1997). For Carpenter (1994), debt appears above all as a control mechanism that limits the behavior of managers by forcing them to make good use of the funds to guarantee repayment. Thus, the more the SME's management team "sends debt, the less free it is to make decisions.

## RESEARCH METHODOLOGY

This research is based on an essentially quantitative approach in view of the analytical tools that were mobilized to test the hypotheses formulated. The use of this approach is mainly justified by the existence of a theoretical framework well known in the literature. Thus, it is based on individual primary data collected through a survey questionnaire addressed to owners of small and medium enterprises active in the city of Goma. Also, the structured interview was used to administer the guide for the construction of the Governance Quality Index (GQI), a key indicator in the analysis of the relationship between credit rationing and the quality of managerial practices within SMEs.

**Data collection techniques**

In order to test the determinants of non-access to financing from microfinance institutions by small and medium-sized enterprises operating in the city of Goma, the questionnaire survey technique was used.

Also, a survey questionnaire was developed and administered directly to the promoters of these SMEs.

**Target Population and Sampling Technique**

The population covered by this study is all microenterprises that are members of microfinance institutions (MFIs) that have already applied for at least one loan from an MFI in the city of Goma. As previously reported in the SME Promotion Fund report (2019), the number of SMEs that have already applied for financing is 1255.

Thus, since the size of the population is known, we opted for random or probability sampling using Israel's (1992) formula for determining the sample size. The formula is derived as follows:

n $= \frac{N}{1+N(e)^2}$ with : N= Population size; e= Margin of error acceptable for scientific research and which is set at the 5% threshold, i.e. 0.005 for a 95% confidence interval. Integrating the values, we obtain :

n $= \frac{1255}{1+1255\,(0.05)^2} =$ 303 SMEs to be surveyed

It should be noted, however, that of the 303 questionnaires administered and recorded in the database, 32 questionnaires were partially completed and therefore not usable in the research. This brought the number of SMEs involved in this study down to 271.

**Models used and estimation procedures**

The methodology adopted to validate the hypotheses is often constrained by the nature of the data available. Most of the variables from the database compiled at the end of the field survey are either qualitative or quantitative. Thus, in order to meet the econometric requirements on the one hand and to test the hypotheses on the other, we use a linear regression model for the 'qualitative' variable to be explained.

Among the methods considered as explanatory, linear regression is the best known and most widely used. Its success is mainly due to its simplicity of use, which lends itself more easily to its application.

**Logistic regression models of the Logit type**

Logit models are currently considered as "advanced methods" in statistical analysis. The use of this type of model is necessary when the variable to be explained (dependent) is a dichotomous or binary variable that takes the value 0 or 1. In this case, the use of classical linear regression becomes impossible, as the assumptions on the error terms are no longer respected. To get around this pitfall, it is then interesting to use non-linear probability models: the Logit or Probit models (Jacquot A., 2000).

A Logit model is a regression on the probability of an event occurring. In this case, the probability assigned is Y=1. This probability is of the form P=P (Y=1), where P is in the interval [0; 1]. In this approach, the probability of an event occurring is studied by one or more explanatory variables. The logit model uses a logistic linkage where Log (P/1-P) is a function of the selected variables. This probability function is presented as follows (Horowitz&Savin, 2001):

$$P = (Y = 1) = \frac{1}{(1+e^{-(a+\Sigma\frac{bx}{}}))}$$

With : Y is the binary variable of interest or "response variable"; a is the model constant, x is the vector of explanatory variables in the model, and b is the vector of coefficients associated with these variables.

Thus, in practical terms, the interpretation of the results table of a Logit model is as follows:

A positive coefficient indicates that, 'all other things being equal', the variable under consideration increases the probability that the response value takes the value1. Conversely, a negative coefficient associated with a variable indicates that it decreases, "all other things being equal", the probability that the response value takes the value1.

The estimation is made by the maximum likelihood method (Jacquot A., 2000). Thus, the sign of the coefficients provides information on the direction of the link and their level indicates the importance of the influence of the variables.

The global interpretation of the model is done in the same way as for a classical regression by an analysis of the pseudo-R2 and at the level of each coefficient by the asymptotic error and its associated Chi-square. The maximum likelihood corresponds to Fisher's F test in a classical regression (Liato T.F., 1994).

This method is appropriate for this study in view of the nature of some of the qualitative variables to be studied.

**Presentation of the variables included in the study**

The variables presented at this level are derived from the theoretical development outlined in the first section on the theory of asymmetric information in the previous chapter.

| Description | Measure | Expected sign |
|---|---|---|
| Guarantee (Guarantor) | 1= if the company gives a guarantee | Positive (+) |
| | 0= if it does not give a guarantee | |
| Solvency (Solvab) | 1= if the company is solvent | Positive (+) |
| | 0= if insolvent | |
| Failure (Failure) | 1= if the company has not experienced a default | Positive (+) |
| | 0 = if it has experienced | |
| Lifetime (Durvie) | Number of years the company has been in existence | Positive (+) |
| Share capital (Capsoc) | Level of the company's share capital | Ambiguous |

| | | |
|---|---|---|
| Secondary gainful activity (Actsec) | 1= if the SME has a secondary gainful activity<br>0= if no | Positive (+) |
| Interpersonal social relations (Relsoc) | 1= if the owner has interpersonal relationships with MFIs; 0= if no | Positive (+) |
| Education level of the owner (NivEd) | 1= if the owner has a state diploma (and/or professional training) ;<br>0= if no | Ambiguous |
| Number of employees" of the SME (Nbsal) | | Negative (-) |

**Table 1Variables retained in the model and expected signs**

**Source: Census conducted by the author**

**Process for constructing the Governance Quality Index (GQI)**

As mentioned in the introductory part of this study, the GQI reflects the weight of different governance mechanisms. In concrete terms, in order to test the hypothesis that managerial practices would be a determining factor in maximizing the chances of an SME accessing financing from microfinance institutions, it proved relevant to calculate a composite index of governance quality that brings together several criteria captured by binary values. With regard to several dimensions identified to assess the internal and external mechanisms of governance, the GQI is intended to be an index that synthesizes information while capturing both the weight and the impact of each indicator in the index.

Thus, its construction will be done thanks to the principal components analysis (PCA) which is a method of exploratory analysis of data and which is most often applied to averaged data sets comprising n individuals and p variables. PCA allows the initial variables to be replaced by synthetic variables, the principal components. They are uncorrelated. It also makes it possible to extract relevant information and synthesize it in the form of principal components, new axes for describing the data set (Saporta, 2006).

In fine, the calculation of the GQI is adjusted according to the "PCA-Polychoric" technique of Kolenikov&Angeles (2009) appropriate to the application of principal component analysis on discrete variables mixed with continuous variables.

The latter will be captured by a Likert scale, which is a psychometric tool for measuring an attitude in the subjects surveyed. Thus, the construction of the GQI goes through five steps[11].

**Presentation of the components and variables used in the calculation of the GQI**

As mentioned above, the components selected at this level are taken from the work of Correia et al (2009) but of course contextualised with regard to the complex if not atypical landscape in which SMEs operate in DR Congo in general and in the city of Goma in particular. The mode of operation defines the indicators and their expected sign on the quality of governance.

**Components and variables used in the calculation of the GQI**

| Components | Selected variables | Nature of the variables | Expected signs | Empirical facts |
|---|---|---|---|---|
| Institutional and cultural aspects of SMEs | Education level of the owner (NivedPro) | (Likert scale) 1= no education (+technical training); 2= primary; 3= secondary; 4= higher | Positive | Bird & al (2012);<br>Ndjamou, R. & Sassine,<br>M. (2014) |
| | Seniority in post (AncD) | Number of years in post (continuous variable) | Ambiguous | Ndjamou, R. & Sassine, M. (2014) |
| | Percentage of women in staff (Pfe) | % of women in the workforce | Positive | Igalens & al (2011);Toe (2012); |
| | Ethnic origin (OrEth) | 1= Same origin for the majority and 0= No | Positive | Berger-Douce,S. (2009) |
| | Religious beliefs (CroR) | 1= same belief for the majority and 0=No | Positive | Muamba M., P., & N.<br>Mutombo, P. (2014), |
| Legal system and management information system | Identification in the Trade and Real Estate Credit Register (idRCCM) | 1= if in possession of RCCM number 0= if not | Positive | - |
| | Financial statement keeping (Tenetaf) | 1= keeping financial statements 0=No | Positive | A., Dewa(2020) |
| | External certification audit (AeCert) | 1= External audit mission; 0= No | Positive | - |
| | Profile of the accountant (ProfCom) | 1= Person with qualification; 0=No | Positive | - |
| | Support for Public Administration (SoutAP) | 1= APU support; 0= No | Positive | - |

[1] For details on how this composite index is calculated, see the work of (Krishnakumar & Nagar, 2008; Nagar & Basu, 2002)

| | | | | |
|---|---|---|---|---|
| Planning and management system | Development of the Annual Action Plan (AAP) | 1= if annual plan is developed; 0=No | Positive | - |
| | Holding an investment plan (Pinv) | 1= Existence of an investment plan 0= No | Positive | - |
| | Existence of an internal audit service (ServAE) | 1= Existence of external audit; 0= No | Positive | - |
| | Existence of a policy and procedures manual (PPM) | 1= Existence of a Procedures Manual 0=No | Positive | - |
| | Conflict and Dysfunction Management (CDM) | 1=Existence of conflicts and dysfunctions, 0=No | Positive | |
| Management control mechanisms | Board of Directors (BoD) | 1= Presence of AC; 0=No | Positive | (Ngok Evina, 2010) |
| | Control by external auditors (CAE) | 1= Control by external auditors; 0=No | Positive | |
| | Control by the family council (CCF) | 1= Control by the family council; 0=No | Positive | - |
| | Control by the owner himself (CPlm) | 1=Control by owner himself; 0=No | Positive | - |
| Remuneration scheme | Remuneration of the manager (Redir) | 1= If Owner is paid; 0=No | Positive | - |
| | Staff Remuneration and Incentives (RemPPrim) | 1= Good; 0=Poor | Positive | (Soumaya Dlimi , 2020) |
| Public relations and competition | Degree of competition (deconc) | (Likert scale) 1=High; 2=Medium; 3=Low | Positive | Sogbossi&Houessou (2018) |
| | Suggestion box (Bàsug) | 1= Existence of a suggestion box; 0=No | Positive | - |
| | Mechanisms for monitoring customer complaints (spcl) | 1=Follow-up on customer complaints; 0=No | Positive | - |
| | Membership of a professional network (Réprof) | 1= Membership of a professional network; 0= No | Positive | - |

**Source: Author based on adapted from Correia &al. (2009); Niyonsaba (2015)**

From the above table, it should be noted that the context in which SMEs operate in DR Congo requires a certain amount of flexibility in the choice of variables in that the sector straddles the formal and informal sectors, and it is not surprising that there are glaring distortions in the application of legal and regulatory texts governing the sector. The duality of the sector, in the absence of coercive mechanisms, suggests that most SMEs operate at will.
This is most evident in the respect of tax regimes, the preparation of financial reports, the keeping of financial statements without reference to standards, the non-respect of rules and procedures materialized by strong social relations between the management and the staff, etc.

It goes without saying that the quality of the governance index is poor and consequently reduces the chances of SMEs to access sources of finance for their operating or investment needs.

## RESEARCH RESULTS

The results presented at this level relate respectively to the derivation of the governance quality index and the identification of key variables with strong predictive power in terms of the probability of access to MFI financing by SMEs in the city of Goma.

### Derivation of the GQI

The aim was to carry out a multidimensional analysis applied to the specific mechanisms of SMEs as developed in the theoretical framework of this study. As a reminder, the GQI is measured on a scale from 0 to 1, where a score below 0.5 indicates a poor quality of governance and a score tending towards 1 indicates a better quality of governance.

The information contained in the table below shows that the average Governance Quality Index is around 0.451 with a standard deviation of 0.197. The ratio between these two statistical values allows the calculation of the coefficient of variation, the value of which was estimated at 43.68%. This being the case, the quality of governance in SMEs in the city of Goma is weak, if we refer to the median value of the measurement scale (0.5). Moreover, when looking at the results, it is clear that ethnic origin and religious beliefs improve the quality of governance on institutional and cultural aspects. This can be verified in the SMEs of entrepreneurs from the northern part of North Kivu Province and those from South Kivu.

| Components | Selected variables | Magnitudes (in %) | |
|---|---|---|---|
| | | Variables (in %) | Dimensions (in %) |
| Institutional and cultural aspects of SMEs | Education level of the owner (NivedPro) | 4,03 | |
| | Years in post (AncD) | 4,78 | 26,69 |
| | Percentage of women in staff (Pfe) | 4,89 | |
| | Ethnic origin (OrEth) | 6,02 | |
| | Religious beliefs (CroR) | 6,97 | |
| Legal and information system | Identification with theRCCM (idRCCM) | 6,07 | |
| | Financial statement keeping (Tenetaf) | 7,29 | |
| | External certification audit (AeCert) | 5,62 | 24,85 |
| | Profile of the accountant (ProfCom) | 4,08 | |
| | Support for Public Administration (SoutAP) | 1,79 | |
| Planning and management system | Development of the Annual Action Plan (AAP) | 5,97 | |
| | Holding an investment plan (Pinv) | 5,83 | |
| | Existence of an internal audit service (ServAE) | 6,49 | 21,23 |
| | Existence of a policy and procedures manual (PPM) | 4,85 | |
| | Conflict and Dysfunction Management (CDM) | -1,91 | |
| Management control mechanisms | Board of Directors (BoD) | 6,87 | |
| | Control by external auditors (CAE) | 2,39 | 12,14 |
| | Control by the family council (CCF) | -2,90 | |
| | Control by the owner himself (CPlm) | 5,78 | |
| Public relations and competition | Degree of competition (deconc) | 3,59 | |
| | Suggestion box (Bàsug) | 2,89 | 11,24 |
| | Mechanisms for monitoring customer complaints (spcl) | 2,70 | |
| | Membership of a professional network (Réprof) | 2,06 | |
| Remuneration scheme | Remuneration of the manager (Redir) | 4,68 | 3,87 |
| | Staff Remuneration and Incentives (RemPPrim) | -0,81 | |
| Total | | | 100,00 |
| Average IQG (x) | | 0,451 | |
| Standard deviation IQG ($\sigma$) | | 0,197 | |
| Coefficient of variation IQG (**σ/x**) | | 0,4368 | |

**Table 2 Calculation of the Governance Quality Index**

**Source: The author based on analyses**

For enterprises classified as medium-sized (as presented in the descriptive statistics), it can be noted that the planning system (preparation of the annual plan and audit mission), the keeping of financial statements and the presence of a board of directors significantly improve the quality of the mode of governance and therefore increase their chances of accessing credit insofar as financial performance, which is assessed by the quality of the indicators contained in the financial statements, is the central element for any financial institution that proceeds to the study of the credit application file.

Another major finding is the quality of governance mechanisms in the small firms in the sample. The fact that the management is done by the owner himself gives him a possibility in the proper conduct of his activities. This is most noticeable in the field in the city of Goma, where these micro-entrepreneurs argue that the genesis of their income-generating activities does not give them any luxury to entrust the management of their businesses to private individuals.

Finally, as can be seen, the quality of governance is negatively affected by the control mechanisms, notably control by the family council, the management of conflicts and dysfunctions, as well as staff remuneration and motivation bonuses. Indeed, the governance of family-type SMEs poses a problem given the amalgam observed in the decision-making bodies. Also, staff remuneration, which is a motivating factor for employees, can be a factor in theft, fraud and embezzlement in SMEs.

From an overall point of view, these results plead for the establishment of a better organizational framework, a consolidation of the management system as well as the observance of effective control mechanisms within the SMEs active in the city of Goma. This remains a key success factor for easy access to finance.

**Result of the logit model to identify the intrinsic factors of access to finance**

The parameters were estimated using the maximum likelihood (ML) method. It should be noted that only the odd ratio with a significant Wald value was interpreted.

In order to test the validity of the model (the goodness of fit of the model), we used the Hosmer and Lemeshow test. Finally, to check the strength of association of the models, we used the Nagelkerke $R^2$.

**Model specification**

It should be noted that an estimation of the Logit model was used, the specification of which is as follows

$$\boldsymbol{Logit}[\boldsymbol{P}(\mathbf{ACCEFIN}=\mathbf{1}|\boldsymbol{Garant},\boldsymbol{Solvab},\boldsymbol{D}\acute{e}\boldsymbol{faill},\boldsymbol{Durvie},\ \boldsymbol{Capsoc},\boldsymbol{Actsec},\boldsymbol{NivEd},\boldsymbol{relsoc},\boldsymbol{nbsal}\ )]=$$

$$\boldsymbol{\beta_0}+\boldsymbol{\beta_1}*\boldsymbol{Garant}+\boldsymbol{\beta_2}*\boldsymbol{Solvab}+\boldsymbol{\beta_3}*\boldsymbol{Nondef}+\boldsymbol{\beta_4}*\boldsymbol{Durvie}+\boldsymbol{\beta_5}*\boldsymbol{Capsoc}+\boldsymbol{\beta_6}*\boldsymbol{Actsec}+\boldsymbol{\beta_7} * \mathrm{NivEd}+\boldsymbol{\beta}_8*\boldsymbol{relsoc}+\boldsymbol{\beta}_{\boldsymbol{9}}*\boldsymbol{nbsal}$$

With :

ACCEFIN: dependent variable "access to finance" which takes the values 1 if the enterprise has access to finance and 0 if not;
Collateral : independent variable " Collateral " which takes the values 1 if the enterprise gives a Collateral to be granted financing (credit) and 0 if not
Solvab: independent variable "Solvency" taking the values 1 if the company is solvent and 0 if not[2].
Failure: independent variable "failure" which takes the values 1 if the company has never experienced a failure throughout its existence and 0 if it has already experienced one;
Durvie: quantitative independent variable "Lifetime" of the enterprise.
Capsoc: Quantitative independent variable "Share capital" of the enterprise.
Actsec: Qualitative independent variable "Ownership of a secondary activity" by the enterprise;
NivEd: Independent variable representing the level of education of the owner;
Relsoc: Independent variable "owner's social relations with MFIs":
Nbsal: Independent variables "Number of employees" of the SME.
B. Econometric estimation

| | | Chi-square | Ddl | Sig. |
|---|---|---|---|---|
| Step 1 | Not | 73,748 | 5 | 0,000 |
| | Block | 73,748 | 5 | 0,000 |
| | Model | 73,748 | 5 | 0,000 |

**Table 3 Overall significance test of the model**

**Source: The author based on analyses**

Once the model was chosen, the estimation was made taking into account the Wald significance test for each variable. The table below shows the estimated values of the parameters.

The results show that the variables guarantee, creditworthiness, non-default and lifetime are each statistically significant in the model as the Wald value of each variable is relatively higher and their probabilities of significance (which are 0.004; 0.032; 0.006 and 0.012 respectively) are lower than the 0.05 significance level. The odds ratios (Exp (B)) for the variables guarantee, creditworthiness, non-default, lifetime are respectively; 1536,887189.973; 37.186; 4.106. This means that an SME with a guarantee when applying for credit has an estimated 1536.88 times

[2] This variable was captured by comparing the balance sheets of SMEs. For SMEs where the financial statements are not of good quality, an in-depth interview was conducted.

more chance of accessing credit than an SME without a guarantee. Similarly, a solvent SME increases its chance of accessing finance 189.97 times more than an insolvent one.

Also, an SME that has never defaulted increases its chance of accessing MFI financing 37.18 times more than one that has defaulted. Furthermore, when the life span of an SME increases by one year, it increases its chance of accessing credit from an MFI 4 times. Finally, when an SME's share capital changes positively by one dollar, it increases its chance of accessing credit from an MFI.

By integrating the variables at step II, the analyses provide satisfactory results. Indeed, the holding of an additional lucrative activity as well as the interpersonal relations of the SME owner with the MFIs are statistically significant. Thus, based on all these results, it is legitimate to confirm that these variables have a positive effect on access to credit granted by MFIs in Goma.

Estimation of the model and Wald test of significance of each variable

## Estimation of the model and Wald test of significance of each variable

| | | B | E.S | Wald | Ddl | Sig. | Exp(B) | 95% confidence interval for EXP(B) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Lower | Superior |
| Step 1[a] | Collateral (1) | 7,338 | 2,552 | 8,264 | 1 | 0,004 | 1536,887 | 10,329 | 228673,322 |
| | Solvab(1) | 5,247 | 2,447 | 4,596 | 1 | 0,032 | 189,973 | 1,569 | 23007,457 |
| | Failure(1) | 3,616 | 1,325 | 7,450 | 1 | 0,006 | 37,186 | 2,772 | 498,901 |
| | Durvie | 1,412 | ,565 | 6,249 | 1 | 0,012 | 4,106 | 1,357 | 12,428 |
| | Capsoc | ,000 | ,001 | ,006 | 1 | 0,940 | 1,000 | ,999 | 1,001 |
| Step Ib | Actsec | -0,158 | 0,095 | 2,727 | II | 0,059 | 21,854 | 0,708 | 1,030 |
| | NivEd | 0,474 | 0,404 | 1,376 | II | 0,831 | 1,607 | 0,727 | 3,549 |
| | Relsoc | 0,678 | 0,602 | 1,265 | II | 0.026 | 7,969 | 0,605 | 6,412 |
| | Nbsal | -0,718 | 0,560 | | II | 0.917 | 2,050 | 0,684 | 6,140 |
| | Constant | 10, 64 | 4,06 | 1,645 7,09 | I | 0,008 | ,000 | | |

a. Introduction of variables in step 1: Collateral, Solvab, Default, Durvie, Capsoc.
b. Introduction of variables at step 1I: Actsec, NivEd, Relsoc, Nbsal Source: The author based on analyses

### A. *Validation of model results*

Looking at the Chi-square value (1.711) and the associated probability of significance (0,832) obtained in the table below, we can see that the Hosmer and Lemeshow goodness-of-fit test is not significant, which is desirable. This leads to the acceptance of the null hypothesis at the 5% level that the distance is small. Thus, the predicted values are close to the observed values and, by extension, the fit is correct and the model is adequate.

| Not | Chi-square | Ddl | Sig. |
|---|---|---|---|
| 1 | 1,711 | 8 | 0,832 |

**Table 4Hosmer and Lemeshow test of Godness of fit**

**Source: The author based on analyses**

Also, the evaluation of the capacity of the model to discriminate the modalities of the variable of interest will be done from the ROC curve (Receiving Operating Curve) which, in the framework of the analysis of the fit for our model, are as follows:

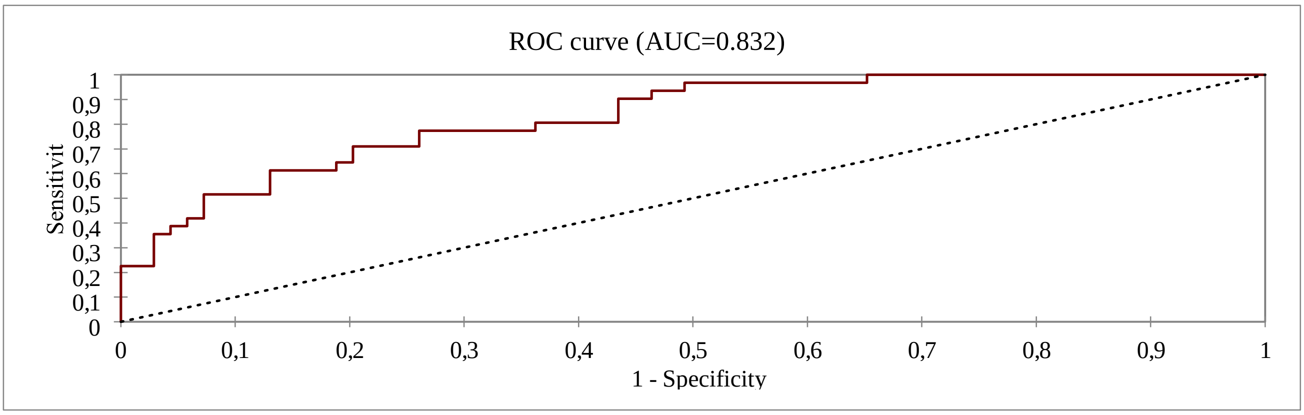


**Fig. 1: ROC curve**

**Source: The author based on analyses**

With regard to the strength of association, the table below shows the log likelihood (-2LL) and the CoxSnell and Nagelkerke $R^2$. Both coefficients can be understood in the sense of the coefficient of determination ($R^2$) obtained in classical regression (multiple regression) but, as mentioned earlier, they cannot be strictly compared with the latter. As can be seen, Nagelkerke's $R^2$ simply means0,832 that the five variables forming the model (collateral, creditworthiness, non-default, lifetime and social capital) explain 83.2% of the variance in access to credit.

| Not | Log likelihood -2 | Cox and Snell's R-two | R-two from Nagelkerke |
|---|---|---|---|
| 1 | 29,751[a] | 0,495 | 0,832 |

**Table 5Explained variance**

**a. The estimation stopped at iteration number 9, because the number of changes in the parameter estimates is less than .001.**

**Source: The author based on analyses**

Finally, we proceed to the analysis of the verification of the strength of the model. It is through this that we will know if the model is true in terms of the percentage of cases. In the classification table, by comparing the correct percentage with the overall percentage, a value of 93.5% is indicated, attesting to the fact that the model is true in 93.5% of cases, which is very satisfactory.

| Observed | | | Forecast | | |
|---|---|---|---|---|---|
| | | | Access to credit | | Percentage correct |
| | | | No | Yes | |
| Step 1 | Access to credit | No | 15 | 5 | 75,0 |
| | | Yes | 2 | 86 | 97,7 |
| | Overall percentage | | | | 93,5 |

**Table 6Percentage of total**

**Source: The author based on analyses**

## DISCUSSION OF THE RESULTS

This section discusses the results of different statistical and econometric analyses carried out to test the hypotheses and to meet the objectives of this research.

The results of the logistic regression model showed that access to finance, in the context of SMEs operating in the city of Goma, depends largely on the following variables: collateral, solvency, non-default, life span and social capital. With reference to the odds ratios (Exp (B)), for these variables, it is clear that the guarantee increases the chance of access to finance. Indeed, it reduces the distortions resulting from the asymmetry of information during the analysis of the credit request insofar as it forces the owner of the SME to repay for fear of not seeing his guarantee being liquidated as it is, in many cases, the titles of parcel owners. These results are in line with the analyses of Ngongang (2015) in his study on Cameroonian SMEs, Tuan-Anh PHUNG (2009) for the cases of Vietnamese SMEs, Psillaki (1995) and Kalala (2006) for financial intermediation in Kivu.

With regard to tenure, the results showed that when the tenure of an SME increases by one year, it increases its chance of accessing credit from an MFI four times. This is justified by the fact that seniority in the exercise of an activity allows the acquisition of managerial skills attributed to experience as well as management practices borrowed from the competition. These results are in line with the analyses of Wamba&al. (2018) and Tuan-Anh PHUNG (2009).

By integrating the variables at step II, the analyses provided satisfactory results. Indeed, the holding of an additional lucrative activity as well as the interpersonal relations of the SME owner with the MFIs increase respectively the probability for the SMEs to access financing by 21.845 and 7.969.

The analysis of the role of governance mechanisms found an average GQI of 0.451, which indicates the weakness of governance in SMEs operating in the city of Goma. The main criticism levelled at SMEs is the glaring deficiency in governance (Benaziz, 2017; Pigé, 2002).

Indeed, institutional performance in terms of organizational efficiency (Toe, 2012) remains one of the prerequisites for assessing the smooth running of business activities and can, as a result, have a positive impact on access to finance. This argument is reinforced by empirical studies (Elmajhed&Regar, 2020; Mendy and Diop, 2018; Kamala, 2016; Niyonsaba&al. 2015; Khaldi and Ali, 2014; Labie, 2014; Yassine, 2013) that show that the application of better governance practices improves the performance of SMEs and, moreover, increases their chances of accessing credit from financial institutions.

## CONCLUSION

The present study focused on the analysis of the determinants of access by small and medium-sized enterprises to financing from microfinance institutions. In conducting this study, the objective was, in light of the theoretical debates and mixed results of empirical work on this topic, to highlight the factors intrinsic to the SME that are likely to increase its chances of accessing finance by reducing the central problem of credit rationing, and to measure the quality of the organizational architecture, by means of a composite governance index.

Thus, based on an essentially quantitative approach, through an estimation of the Logit model applied to data from field surveys carried out in the city of Goma (Eastern DR Congo) among 271 SMEs, the empirical investigations made it possible to make a scientific contribution, through a close look at credit rationing and the quality of the organizational architecture.

First, the results of this study showed that beyond the classical factors of access to credit by SMEs, namely the possession of physical collateral, other factors come into play. Thus, the results of the logistic regression model proved that access to finance, in the context of SMEs active in the city of Goma, depends largely on the following variables: solvency, non-default, life span, social capital, holding of a lucrative activity as well as interpersonal relations.

Secondly, the analysis of the role of governance mechanisms allowed us to find an average GQI of 0.451, which indicates the weakness of governance in SMEs operating in the city of Goma. In fact, institutional performance in terms of organizational efficiency remains one of the prerequisites for assessing the smooth running of business activities and can consequently have a positive impact on access to finance, which shows that the application of better governance practices improves the performance of SMEs and, moreover, increases their chances of gaining easy access to credit from financial institutions.

These results call for the establishment of a better organizational framework, a consolidation of the management system as well as the observance of effective control mechanisms within the SMEs active in the city of Goma. This remains a key success factor for easy access to finance.

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