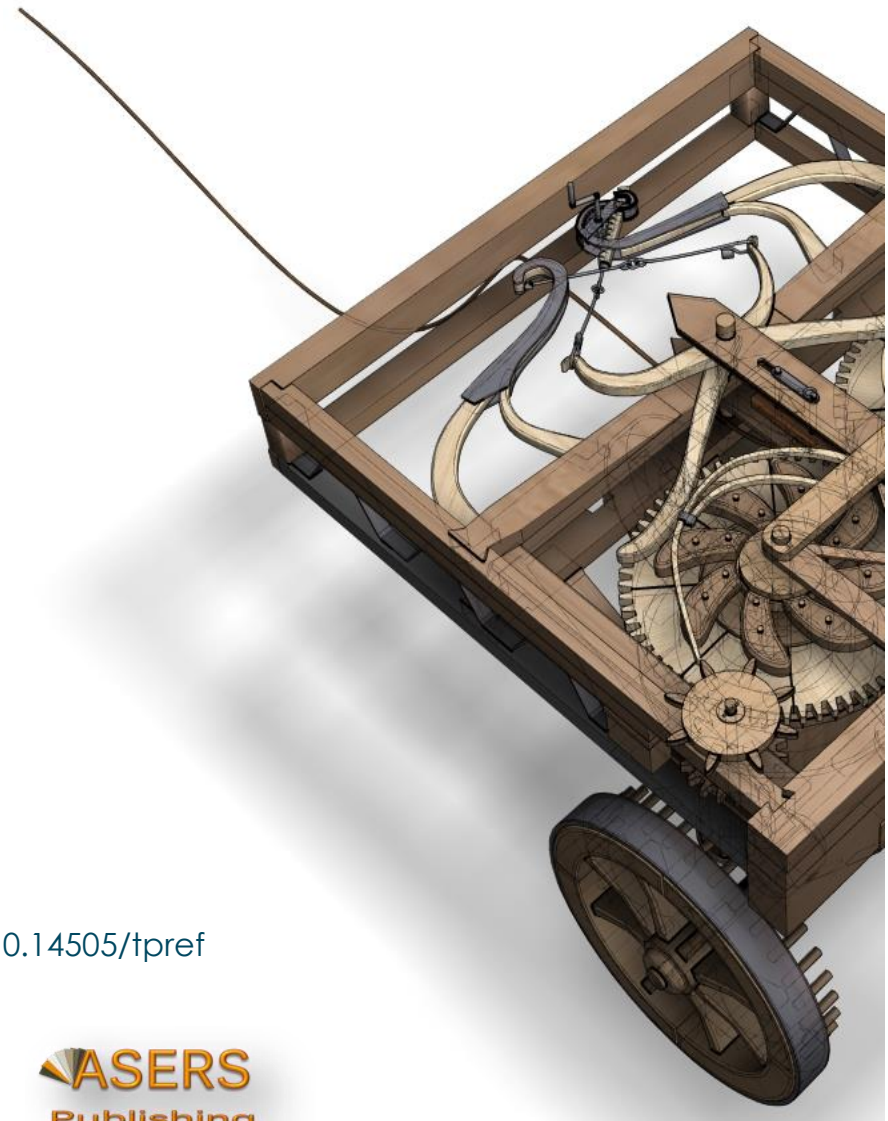
Theoretical and Practical Research in Economic Fields



Quarterly
Volume XV
Issue 4(32)
Winter 2024

ISSN: 2068 – 7710
Journal DOI: https://doi.org/10.14505/tpref

ASERS
Publishing

Volume XV
Issue 4(32)
Fall 2024

ASERS Publishing
ISSN 2068 – 7710
Journal's Issue DOI:
https://doi.org/10.14505/tpref.v15.3(31).00

Table of Contents

Volume XV
Issue 3(31)
Fall 2024

ASERS Publishing
http://www.asers.eu/asers-publishing
ISSN 2068 – 7710
Journal's Issue DOI:
https://doi.org/10.14505/tpref.v15.3(31).00

Call for Papers
Spring Issue
Theoretical and Practical Research in Economic Fields

Many economists today are concerned by the proliferation of journals and the concomitant labyrinth of research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models, and methods in all fields of economic research.

Theoretical and Practical Research in Economic Fields publishes original articles in all branches of economics – theoretical and practical, abstract, and applied, providing wide-ranging coverage across the subject area.

Journal promotes research that aim at the unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems and that are penetrated by constructive and rigorous thinking. It explores a unique range of topics from the frontier of theoretical developments in many new and important areas, to research on current and applied economic problems, to methodologically innovative, theoretical, and applied studies in economics. The interaction between practical work and economic policy is an important feature of the journal.

Theoretical and Practical Research in Economic Fields is indexed in SCOPUS, RePEC, ProQuest, Cabell Directories and CEEOL databases.

The primary aim of the Journal has been and remains the provision of a forum for the dissemination of a variety of international issues, practical research, and other matters of interest to researchers and practitioners in a diversity of subject areas linked to the broad theme of economic sciences.

At the same time, the journal encourages the interdisciplinary approach within the economic sciences, this being a challenge for all researchers.

The advisory board of the journal includes distinguished scholars who have fruitfully straddled disciplinary boundaries in their academic research.

All the papers will be first considered by the Editors for general relevance, originality, and significance. If accepted for review, papers will then be subject to double blind peer review.

Deadline for submission of proposals:	10th February 2024
Expected publication date:	30th March 2024
Website:	http://journals.aserspublishing.eu/tpref
E-mail:	tpref@aserspublishing.eu

To prepare your paper for submission, please see full author guidelines in the following file: https://journals.aserspublishing.eu/tpref/Template_for_Authors_TPREF.docx on our site.

DOI: https://doi.org/10.14505/tpref.v15.4(32).04

The Determinants of SME Credit Rationing in Morocco. Case of SMEs in the Casablanca Settat Region

Adil BOUTFSSI
Research Laboratory in Applied Economics and Finance
FSJES Ain chock-Casablanca
Hassan II University, Morocco
Boutfssi.adil@gmail.com

Tarik QUAMAR
Research Laboratory in Applied Economics and Finance
FSJES Ain chock-Casablanca
Hassan II University, Morocco
quamar.univ@gmail.com

Article info: Received 14 September 2024; Received in revised form 9 October 2024; Accepted 8 November 2024; Published 30 December 2024.

Abstract: In this article, we are concerned with a central element of the Moroccan economy, namely small and medium-sized enterprises (SMEs), which often find themselves in a situation where alternative sources of financing are not easily accessible, including bank financing. Indeed, Moroccan SMEs are closely dependent on banking institutions to obtain the financial support necessary for their projects. However, these businesses frequently face the phenomenon of credit rationing, necessitating improved access to credit. In this research work, we have contributed to the study of this phenomenon, focusing specifically on the Casablanca Settat region. Our research revolves around two essential objectives. Firstly, we aimed to evaluate the impact of credit rationing on SMEs in this region. Next, we focused on empirically identifying the determinants of this phenomenon. To achieve these objectives, we selected a target population of 218 SMEs from the Casablanca Settat region. Our initial statistical tests revealed that SMEs in the Casablanca-Settat region are facing both total credit rationing and partial credit rationing.

Subsequently, the results obtained from multinomial logistic regression tests reveal that the SME's sector of activity, age, reputation, legal status, size, gender of its manager, age, education, nature of the relationship with the bank, and professional experience all play an important role in explaining this phenomenon.

Keywords: Moroccan SMEs; information asymmetry; credit rationing; bank financing.

JEL Classification: G23; G32; D82; C10.

Introduction

In addition to its role as a driver of economic growth, private investment plays an important socio-economic role as the primary creator of jobs, justifying the special attention and regular support of public authorities for this sector. Small and medium-sized enterprises (SMEs) are essential players in all sectors of the Moroccan economy, generating quality jobs. With a share of 29% in the economic fabric, they employ 40% of the active population, contribute 30% to GDP, 26% to added value, and 21% to exports. These performances illustrate the ability of SMEs to effectively address concerns related to economic growth and employment. Their essential role in the Moroccan economy highlights the need for sustained attention to their development and strengthening.

However, small and medium-sized enterprises often need help obtaining bank financing due to limited profitability and an inability to meet the requirements of financial institutions. According to Daoui and Haj Khalifa (2013), restricted access to bank financing is one of the main obstacles that Moroccan SMEs face in terms of development.

According to Dietsch and Mahieux (2014), the financing needs of SMEs rely on external resources, particularly bank credit. However, even though the number of funding requests is on the rise, it remains difficult to meet the credit demand of small and medium-sized enterprises. This situation encourages banks to adopt a more rigorous approach to analyzing these requests and to implement drastic financing conditions that can sometimes

be discriminatory, such as increasing interest rates, requiring additional collateral worth significantly more than the amount of credit requested, or even refusing to provide financing. Furthermore, the credit market imperfection, which arises from information asymmetry, creates uncertainty regarding the granting of financing, particularly in the context of relationships between banks and SMEs.

Indeed, in our opinion, the persistence of information asymmetry puts Moroccan banks in a difficult position, as it is challenging to distinguish reliable borrowers from those with ill intentions who pose a significant default risk. This uncertainty can lead small and medium-sized enterprises to adopt an opportunistic approach once they have secured funding. As a result, in the face of this dilemma, banks in Morocco must adopt a conservative stance, which may lead to a rationing of credit demand.

Furthermore, in Morocco, there is a lack of information regarding the volumes of rejected bank financing requests. Indeed, the automatic overwriting or, in rare cases, archiving of the application file upon rejection of a funding application prevents SMEs from understanding the true reasons for the rejection of their funding request.

Furthermore, the review of previous studies on the financing of Moroccan SMEs revealed the existence of research examining the credit rationing of Moroccan SMEs, which is both limited in scope and restricted in time. Consequently, the issue remains insufficiently explored. Given these observations, we deemed it appropriate to analyze the phenomenon of credit rationing for SME.

A deeper exploration of this phenomenon in the Moroccan context, particularly in the Casablanca-Settat region, which is at the heart of Morocco's economic activity, is crucial for SMEs. This will allow them to identify their weaknesses in terms of funding requests. Furthermore, we believe that this study will enable Moroccan financial oversight bodies, such as Bank Al Maghreb, to assess the effectiveness of the financing and recovery plans granted to SMEs by banks.Thus, this scientific investigation seeks to answer the following question: What factors explain the credit rationing of SMEs in the Casablanca-Settat region?

Our reflection begins with a theoretical analysis of credit rationing and the presentation of the research variables and hypotheses. The second section presents the methodology, while the final section analyzes the results of the empirical study.

1. Literature Review

1.1. Theoretical Definition of the Concept of Credit Rationing

We have identified several definitions of credit rationing through our theoretical analysis. According to Jaffe and Russell (1976), credit rationing occurs when the amount of credit the bank grants is less than the amount requested. Two types of credit rationing are distinguished by Keeton (1979): Type I rationing, which results from a partial refusal of all borrowers within a group, and Type II rationing, which occurs when some borrowers receive the total amount requested within a group while others are restricted. According to Stiglitz and Weiss (1981), credit rationing occurs when the borrower is willing to accept the bank's terms and the bank has sufficient funds yet still refuses to grant the loan or moderates the requested amount.

In the same spirit, Bester (1987) assumes that credit rationing occurs when specific borrowers do not receive credit, even if they are willing to pay a higher interest rate or provide collateral. This situation can be explained by an imbalance in the credit market, where supply exceeds demand. Jaffe and Stiglitz (1990) adopt a more dynamic approach by incorporating the borrowing interest rate into the credit rationing equation. They identify four types of rationing:

-Type I Rationing: A borrower can obtain a loan of a smaller size than requested at a given interest rate. The borrower must pay a higher interest rate to obtain a larger loan.

-Type II Rationing: There are differing opinions on rationing. Some borrowers deemed low-risk cannot borrow at the interest rate and under the terms they consider appropriate, given their likelihood of default.

-Type III Rationing: "Redlining" distinguishes a situation in which the bank has all the information about the borrower that can reduce information asymmetry and assess their likelihood of default. In this situation, the bank decides to refuse the loan.

-Type IV rationing: Pure credit rationing occurs in a situation of significant information asymmetry, where the bank rations credit even for identical borrowers.

In general, based on the various theoretical definitions of credit rationing already mentioned, it is possible to conclude that under certain circumstances, credit rationing manifests either as a refusal of the financing request or as a limitation on the amount of credit requested.

1.2. Information Asymmetry and Credit Rationing

Several researchers have raised the issue of financing policy for SMEs in their work, whether from the perspective of the lender or the borrower. Furthermore, the theory demonstrates a causal link between credit rationing and information asymmetry Stiglitz and Weiss (1981); Binks and Ennew (1997).

Regarding credit rationing, in the credit market, information asymmetry refers to the information disparity between the lender and the borrower. On the one hand, the borrower is distrustful and refuses to share relevant information about themselves, their business, or their financing project. On the other hand, the lender, being rational, does not wish to incur additional costs to obtain the information deemed relevant Roger (1988). In this context, when the information provided is deemed poor quality or irrelevant by the bank's decision-making center, it may proceed to ration credit in various ways.

Credit rationing is more likely when information asymmetry is high, as Stiglitz and Weiss (1981) point out. Jensen and Meckling (1976) argue that ignoring information asymmetry can lead to unintended allocation of funds through asset substitution. When creditors lack knowledge about the projects they are financing, they become more vulnerable. In fact, managers have a better understanding of the quality of their investments than creditors because they do not have the same interests Jensen and Meckling (1976). When corporate managers find project ideas that have potential, they are reluctant to provide the bank with the necessary details. Thus, the leader of a small or medium-sized enterprise can conceal information deemed relevant by the bank in order to obtain a loan or to benefit from more favorable credit terms (Lobez and Vilanova 2006). This can lead to adverse selection upstream. Once the credit is obtained, the manager will seek to maximize profit, disregarding the existing agreement.

Van der Wijst (1989) demonstrates that access to credit for SMEs is directly related to the costs associated with information asymmetry. Binks and Ennew (1996) show that information asymmetry is a characteristic of small borrowers. Thus, the high cost associated with information production would explain why information asymmetry is more common in small businesses, which experience more credit rationing than their medium and large counterparts St-Pierre and Bahri. (2011). According to Binks *et al.* (1992) and Bruns and Fletcher (2008), the main problem faced by SMEs when trying to obtain financing is the need for more symmetric information about the project to be financed.

Williamson (1987) revealed a causal link between credit rationing and excessive agency costs related to monitoring the borrower's performance. In other words, rationing results from a cost-based reflection, and it will be considered if the bank believes that the costs incurred for controlling the SME exceed the profits to be made. Stiglitz (1986) demonstrates that agency costs increase in the context of moral hazard and information asymmetry, which explains why banks ration credit.

1.3. Implications of Prior Information Asymmetry on Credit Rationing

Akerlof (1970) was the first theorist to highlight the impact of information asymmetry in financial transactions. He stated that actors do not have the same information in the market. To explain his reasoning, Akerlof gave the example of the used car market in his article "The Market for Lemons" Akerlof starts from the general idea that the seller of a used car knows the characteristics of their car better than the potential buyer. Initially, buyers are aware that the market includes low-quality cars. They are therefore looking to pay a lower price for cars.

However, owners of good-quality cars refuse to sell at this price and are permanently withdrawing from the market. As a result, only low-quality cars remain on the market. Indeed, a buyer who needs to have all the information about the quality of the cars offered sets an average purchase price based on the market price. At this price, only sellers of inferior-quality cars remain in the market, creating adverse selection. To counter this distorted interpretation from the buyer, the honest seller must make an extra effort to signal on the market to justify their car's condition. According to Spence 1973, the signaling technique safeguards against negative interpretations in markets characterized by information asymmetry.

In theory, we have seen that information asymmetry leads to adverse selection resulting from an informational imbalance. Indeed, the market is constantly disrupted and affected by the fact that one party better understands the characteristics of the exchanged goods at the time of the contract signing (ex-ante). In this case, the price no longer serves its role as a credible indicator of value.

In a credit market, information asymmetries refer to the disparity between the information held by the firm seeking credit and that of the fund providers, who are often at a disadvantage in information. Regarding SMEs, Psillaki (1995) states that the existence of a challenging nature in these companies can lead to a specific adverse selection in the case of a credit request, thereby resulting in credit rationing. A preference for self-financing over external financing may be adopted in such a situation.

In the same vein, Jappelli and Pagano (2005) estimate that when information exchanges are appropriate, there can be four consequences, namely: 1) a decrease in adverse selection, 2) a decrease in borrower retention and banking information rents, 3) a decrease in disciplinary effects on borrowers, and 4) the elimination of incentives for over-indebtedness related to relationships with multiple banking institutions. When small and medium-sized enterprises actually provide the information required by banks, the latter grant loans more easily.

1.4. Implications of Post-Contractual Information Asymmetry on Credit Rationing

The issue of credit rationing, in addition to worrying businesses, has long sparked the interest of researchers in the economic and financial fields. Although the characterization of a rationing situation seems to be widely agreed upon (demand for credit consistently exceeding supply at the prevailing market rate), the analysis of the origins of this phenomenon has remained superficial for a long time. The concept being precisely defined a true explanation of the origin of a credit rationing equilibrium situation was only provided by Stiglitz and Weiss (1981). Our two theorists consider the following interaction between a bank and risk-neutral, companies: At time t=0, a bank is faced with borrower candidates, each needing to borrow an amount B to finance an investment. The bank accepts or refuses to grant credit without having the ability to assess the candidate's risk. If the financing is approved, the bank sets an interest rate r and a guarantee amount C. At t = 1, the revenues from each funded project are generated. Let R be the revenue generated. Two states are possible: if $R+C \geq B(1+r)$, the bank is fully reimbursed. On the other hand, if $R+C \leq B(1+r)$, the borrower is in default and the bank captures all generated income.

One of the key points of the analysis by Stiglitz and Weiss (1981) also rests on the banks' inability to observe the risk of loan applicants. Consequently, in the case of a credit agreement, the bank applies the same rate R to all borrowers.

However, the application of a single rate, in the terminology of contract theory, does have consequences for the quality of loan applicants. The logic of Stiglitz and Weiss is based on the fact that the expected profit of borrowers is an increasing function of the risk of their project. The rule of limited liability for shareholders implies that a company's profit is a convex function of the outcome of its project. Indeed, shareholders have a loss limited to C in the event of default, while their gains are unlimited in the case of success. Thus, borrowers with the highest risks, who have a higher probability of generating high incomes, have a higher profit expectation than other firms. On this basis, Stiglitz and Weiss put forward the following proposition: for a given interest rate (r), there exists a risk threshold ô such that only firms with a higher risk ($o > ô$) will seek a loan. It is clear that a firm will only want to borrow if its profit is greater than 0. Knowing that the borrower's expected profit is an increasing function of its risk, only borrowers with a risk ($o > ô$) will have an incentive to apply for a loan.

The consequences of this proposal are significant. Firstly, we can consider the bank's incentive to raise the interest rate (r), as an increase in the interest rates charged leads to a change in the profile of loan applicants, with the bank then facing borrowers who are, on average, riskier.

The impact of an increase in interest rates on bank profits and ratios is significant. In response to risk aversion, the increase in borrowing interest rates will drive away good borrowers, leaving room for riskier borrowers. Thus, an increase in the rate generates two opposing effects on the bank's expected profit:

-A positive effect where the banking margin increases and the quality of borrowing candidates remains unchanged.

-A negative effect where the bank records a deterioration in the average quality of its clients.

That said, according to Stiglitz (1981), credit rationing can result from two actions: either because one party holds more information than the other or due to the costs deemed too high to obtain and process the information, which can likely lead to the phenomenon of credit rationing. Stiglitz (1981) also suggests two direct consequences of information asymmetry: adverse selection and moral hazard. Indeed, the lender does not possess all the information about the financing object. At the same time, the borrower holds all the information regarding the financing object and the likelihood of success of their project. This situation recalls the example of the "lemons" market. In such circumstances, adverse selection becomes predominant. Banking institutions offer high interest rates to protect themselves against the likelihood of default by dishonest borrowers considered to be bad borrowers. However, these conditions may discourage good borrowers and discriminate against them. The increase in interest rates can serve as a protective measure against risky borrowers. However, there is a threshold beyond which the increase in risk outweighs the rise in interest rates, leading banks to refrain from further increasing the interest rate. This then leads to the rationing of credit Stiglitz et Weiss (1981).

1.5. Signal Theory: Towards a Moderation of Information Asymmetry

The signaling theory, founded by Stephen Ross, who initiated the main work in this field in 1977, was developed to address the shortcomings of equilibrium market theory. It starts from the observation that each financing structure will have its price in the market in a situation of information asymmetry, as every financing decision will impact the firm's image.

In a context of informational asymmetry, where the bank can only rely on its assessment power to address issues related to moral hazard and adverse selection, the situation is considerably different for the fund seekers. Indeed, candidates with good intentions and a low risk of default are often undervalued by the bank, which forces them to use all available means to demonstrate their true worth.

According to Ross (1977), the transmission of an actual image of the company through signaling is not systematic, as it requires that the signal cannot be imitated on the one hand and that the marginal cost of the signal decreases with the quality of the sender on the other hand. Moreover, the role of the signal attributed to short-term debt, as highlighted by Flannery (1986), is based on the idea that this form of debt allows for the adjustment of the credit contract terms in light of new information.

Thus, to reduce issues related to information asymmetries, the leaders seek to signal their level of indebtedness to share certain credibility of the firm. The increase in debt thus reflects the confidence of lenders. By opting for a short-term financial solution, the leader sends a message to the market about their willingness to cooperate, highlighting their short-term performance by publishing cash flows. Thus, the funder can observe the company's performance over a short period and ultimately decide whether it deserves its long-term commitment.

According to Flannery (1986), investors can infer private information from issuers by observing the maturity of their debt. On their part, Leland and Pyle (1977) believe that a leader with a risk aversion can signal the quality of their projects to funders by investing a significant portion of their wealth in their business.

However, the inherent constraint of signaling is that poor signaling can lead to misinterpretation by the market, which will subsequently trigger an adverse reaction from investors. This difficulty arises even in the case of the most successful firms. However, the leader will strive to make the signals issued by the company as true to reality as possible to stand out distinctly.

Consequently, indebtedness can be seen as the preferred signal company leaders use to inform less informed agents about their financial situation. It is important to note that a less-performing firm cannot imitate the signal emitted by the leader of a high-performing firm due to its high cost and the negative consequences in the event of a misleading signal.

Ross (1977) has also examined bank borrowing from the perspective of signaling theory. Indeed, Ross (1977) suggests that a manager whose salary depends on the firm's current and future value will use debt to signal the quality of the company (which only he knows) in the market. The dependence of his salary on the company's current value encourages him to report, while a penalty in the event of bankruptcy pushes him to overestimate that value. Narayanan (1988) suggests that signaling results from the correlation between two elements: the status of the manager, who is the only person better informed about the firm's situation, and the context of information asymmetry.

Indeed, a competent business leader, confident in the profitability of the investments made and the availability of projected positive cash flows, will not hesitate to seek external financial support in the form of debt. Thus, the outside world perceives the use of debt as evidence of a strong potential for growth.

1.6. Microeconomic Factors of SMEs Influencing Credit Rationing

We have already mentioned that the persistent information asymmetry in the credit market impacts banks' decisions regarding lending to SMEs. From an empirical standpoint, numerous scientific studies have sought to establish a relationship between credit constraints and the characteristics of the company and its leader.

Due to the complexity of evaluating intangible assets compared to tangible assets, SMEs operating in the service sector face more financial constraints than those in the manufacturing sector Cressy and Olofsson, (1997). Briozzo and Vigier (2014) assert that companies in the manufacturing sector have a larger pool of assets available for loan collateral. This parameter helps reduce information disparities between the company and lenders, which increases the chances for these businesses to obtain access to credit. SMEs operating in the service sector encounter greater challenges when seeking external financing (Guercio *et al.* 2020).

According to the conclusions of Andrieu *et al.* (2018), SMEs operating in the manufacturing sector have a higher likelihood of obtaining bank loans and commercial credit compared to those in other sectors. The choice of funding sources affects SMEs in India engaged in export activities, according to Baker *et al.* (2020). Research

confirms that Mexican companies operating in the manufacturing sector have a higher probability of obtaining bank loans compared to those in other economic sectors, while those in the services sector have the lowest probability of accessing bank financing. Jiménez-Rico *et al.* (2023). Since the late 1980s in the United States, Levenson and Willard (2000) have observed that the size of a company in terms of workforce influences the financing decisions of small businesses.

Due to large companies' greater access to external financing sources and lower borrowing costs than small companies, Rao and Kumar (2018) found a positive correlation between the size of companies and their level of indebtedness.

According to Guercio *et al.* (2020), the legal structure of a company, such as a corporation or a limited liability company, which limits financial liability, impacts credit acquisition due to its increased transparency compared to companies without financial liability limitation.

In a similar context, Baker *et al.* (2020) highlight the fact that limited liability companies show a stronger preference for all sources of financing compared to sole proprietorships. According to Briozzo and Vigier (2014), companies operating as limited liability companies should benefit from more favorable bank credit conditions.

Berger and Udell (1995), in a study involving a sample of 3,000 SMEs, concluded that the longer the relationship between the SME and the bank, the more it benefits from privileges in terms of interest rates and collateral requirements.

Bellemare (2000), focused on credit constraints in urban Morocco, concludes that microenterprises in Casablanca face credit rationing. Business size, number of employees and apprentices, and bank account ownership affect this phenomenon. Due to large companies' greater access to external financing sources and lower borrowing costs than small companies, Rao *et al.* (2018) found a positive correlation between the size of companies and their level of indebtedness.

An international ISO certification, which attests to quality management and environmental management systems, increases the chances of accessing bank financing, according to empirical studies like the one Hattou (2016) conducted on SMEs in East Africa.

Quamar (2008) shows that the new method of credit risk assessment, which takes qualitative forms due to the lack of transparency in SMEs' financial statements, is likely to influence the relationship between banks and SMEs in Morocco within the framework of the Basel II banking regulations. The variables on which the bank bases its rating of small and medium-sized enterprises (SMEs) are all qualitative. Quamar (2008) distinguishes two forms of qualitative variables. The first concerns the level of commitment from the management team and shareholders, measured by the leader's involvement in the project, the company's transparency, and the quality of support. The second form concerns the level of industrial risk of the company's activity, measured by the duration of its operations, the position of the sector in the economic cycle, and its position within its sector.

Rao *et al.* (2018) highlighted a positive correlation between the seniority of the company and its access to financing. Established companies are more likely to access credit, in contrast to newer companies that primarily rely on their internal resources and avoid external financing due to their limited credibility in the credit market.

As SMEs age, the share of bank loans gradually increases while the reliance on informal financing decreases Nizaeva and Coskun (2019). Small businesses in Mexico have a lower probability of obtaining bank loans. In reality, the age of the company proves to be the most reliable predictor of bank credit approval; according to the profile analysis, as the company's duration of existence increases, the likelihood of obtaining a bank loan gradually increases Jiménez-Rico *et al.* (2023).

Buttner and Rosen (1988) found that 106 banking executives were more likely to support businesses led by men than by women. According to Carrington (2006), women in leadership positions are much more exposed to banking discrimination in terms of access to financing. Naranchimeg (2015) noted that credit denials are more common for women-led businesses.

Chaudhuri *et al.* (2020) observed that there is approximately a 10 to 12% higher probability for male-owned businesses to obtain formal financing compared to female-owned businesses. Moreover, their conclusion highlights the obstacles faced by women-owned businesses due to sexist discrimination in the credit field. Phung (2009) conducted a study on Vietnamese small and medium-sized enterprises that revealed that manager characteristics, such as age, experience, and skills, often influence the decision to credit rationing.

Amrhar (2019) made a significant scientific contribution by examining the issue of credit rationing for companies operating in the Souss Massa region. The main results of this study are as follows: debt ratio, type of activity, type of company, turnover, age of the company and manager, location, legal aspects, debt level, location,

experience, age, and education level of the manager explain credit rationing for companies in Morocco, particularly in the Souss Massa region.

Companies in Mexico do not rely on the gender or experience of the manager as determining factors in obtaining bank financing (Jiménez-Rico *et al.* 2023).

Building on the previously mentioned elements, we propose to verify the following hypotheses:

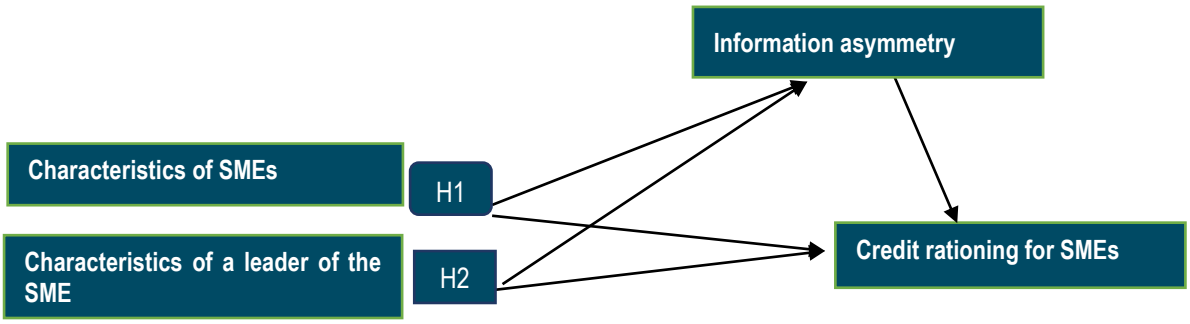
Hypothesis no 1: The characteristics of the SME are determinants of total and partial credit rationing.

Hypothesis no 2: The characteristics of the SME leader are determinants of total and partial credit rationing.

1.7. Conceptual Model

Our literature review has identified various microeconomic factors that could impact the decision to grant a loan to a small or medium-sized enterprise, particularly those related to these businesses' internal environment. From this perspective, we have developed a conceptual model highlighting the correlation between credit rationing and the characteristics of the SME and its leader. The general idea of our theoretical reflection on the phenomenon of credit rationing for SMEs in the context of information Asymmetry is summarized and illustrated by the conceptual model we propose. We also estimated that introducing the concept of information asymmetries as a mediating variable in the conceptual model we propose will allow for a more accurate assessment of the strength of the relationship between our variables and, thus, a more rigorous explanation of the phenomenon of credit rationing.

Figure 1. Conceptual model



Source: Compiled by the authors

2. Methodology

We asked small and medium-sized enterprises in the Grand Casablanca Settat region to voluntarily complete a simple questionnaire. The questionnaire we created is based on our literature review, particularly the works of Phung (2009) and Amrhar (2019). He proposes a combination of dichotomous questions and multiple-choice questions with selectable answers.

2.1. Sample

Based on the following criteria, we decided to select our sample: The SME must be located in the Casablanca-Settat region, operate in a specific sector of activity and achieve an annual turnover excluding taxes of between 10 and 175 million dirhams, according to the definition of SMEs given by Bank Al-Maghrib, (circular n°8/G/2010). 850 SMEs in the Casablanca-Settat region responded to our survey, 218 of them have at least used bank financing. It is essential to note that the data collection process began in the last quarter of 2021 and required a survey on our part over 12 months (from 09/2021 to 08/2022).

2.2. Characteristics of the Sample

Before starting the analysis of our database, which is composed of responses provided by SMEs, it is essential to present a statistical overview of the critical properties of our research subject. This preliminary step will enhance our understanding of this population, the structure of the observed subjects, and the characteristics under investigation. The table below presents the most notable characteristics of the sample.

Table 1. characteristic of the rationed SMEs in our sample

Variable	Mesure variable	Modality	Frequency	Valid percentage
Characteristics of SMEs	Activity	Commerce	21	17,2
		Industry	35	28,7
		Construction	5	4,1
		Service	61	50
	Legal status	Limited liability company (LLC)	68	55,7
		Sole proprietorship	29	23,8
		General partnership (GP)	4	3,3
		limited company	11	9
		Limited partnership company	10	8,2
	Family business	No	76	17,4
		Yes	46	10,5
	Number of employees	Fewer than 5 employees.	32	26,2
		Between 5 and 10 employees.	46	37,7
		Between 10 and 20 employees.	24	19,7
		Between 20 and 40 employees.	14	11,5
		Plus 40 employees.	6	4,9
	The age of the SME	Before 1990	2	1,6
		Between 1990 and 2000	5	4,1
		Between 2000 and 2008	39	32
		Between 2008 and 2018.	43	35,2
		Between 2018 and 2020.	33	27
	reputation	No	97	79
		Yes	25	21
	Accounting document	No	19	16
		Yes	100	84
Characteristics of a leader of the SME	Sex leader	Feminine	23	18,9
		Masculine	99	81,1
	Age of leadership	Under 30 years old.	22	18
		Between 30-40 years old.	49	40,2
		Between 40-50 years old.	36	29,5
		Over 50 years old.	15	12,3
	Category Training Leader	Literary	30	24,6
		Scientific	32	26,2
		Technical	60	49,2
	Level Leader	Baccalaureate level	7	5,7
		Two-year degree	45	36,9
		Three-year degree or bachelor's degree	37	30,3

Variable	Mesure variable	Modality	Frequency	Valid percentage
		Master's degree (Bac +5)	30	24,6
		Doctorate	3	2,5
	Training Management	No	69	56,6
		Yes	53	43,4
	Professional experience	No experience.	67	54,9
		Between 1 - 5 years	39	32
		Between 5 - 10 years.	6	4,9
		More than 10 years.	10	8,2
	Bank relationship Executive	Between 1 and 3 years.	61	50
		Between 3 and 5 years.	27	22,1
		Between 5 and 10 years.	20	16,4
		More than 10 years.	14	11,5

Source: Compiled by the authors

2.3. Measurement of Variables

We drew inspiration from the research of Phung (2009) and Amrhar (2019) on business credit rationing. Thus, six variables are used to measure the qualities of the SME: the type of business, the governance mode, the size of the workforce, the age of the SME and the reputation of the company as determined by its ISO certification and the certification of its accounting documents. The seven criteria used to measure the qualities of a manager are: the age of the manager, his gender, his level of education, his training specialty, his management training, his experience and his relationship with the bank.

Table 2. Variables of the study

Variable	Nature variable	Mesure variable
Total or partial credit rationing	Dépendent	The credit application may be rejected or the requested credit amount may be lowered.
Characteristics of SMEs	Independent	Activity, Age, Legal form, Size of the SME, family-owned SME,ISO Certification(reputation), Certification of accounting documents
Characteristics of the SME leader.	Independent	Sex, Age, Education, Level of education, Management skills, Professional experience, Banking relationship with executives

Source: Compiled by the authors

2.4. Statistical Data Analysis Methods

The statistical tests we used in this scientific work include Chi-square contingency tests and multinomial logistic regression.

2.4.1. Cross Table (chi-square)

The Chi-squared analysis allows for evaluating the relationship between two categorical variables. We use this statistical test to ascertain the independence of the two variables. By default, the null hypothesis (H0) states no relationship between the variables. The decision rule is based on the (p-value), which represents statistical significance. If the (p-value), is less than (0.05), we reject (H0), which suggests a significant relationship between the two variables.

The test statistic for the Chi-Square Test of Independence is computed as:

$$\chi 2 = \sum_{i=1}^{R} \sum_{j=1}^{C} \frac{(oij - eij)2}{eij} \quad (1)$$

where:

– oij is the observed cell count in the ith row and jth column of the table.

- eij is the expected cell count in the ith row and jth column of the table, is computed as:

$$\mathbf{eij} = \frac{\mathbf{row\ i\ total} * \mathbf{col\ j\ total}}{\mathbf{grand\ total}} \quad (2)$$

We use Cramer's V coefficient to measure the relationship's strength. A (V value) greater than or equal to (0.70 indicates a profound relationship, while a (V value of 0.00) indicates an absence of a relationship.

2.4.2. Multinomial Logistic Regression Test

Logistic regression is used to model a variable with two binary response modalities or multiple polychromatic response modalities (K ≥ 2 classes), based on a matrix of explanatory variables X1, X2, ..., XP, whether they are quantitative or qualitative. In general, the logistic regression test allows for assessing the model's overall validity and evaluating the impact and relationship of each variable on the model. It also allows for checking the model's validity for each of the variable Y's modalities.

The following equation expresses the logistic regression model:

$$P(Y) = \beta 0 + \beta 1\ X1 + \ldots + \beta P\ XP + \varepsilon \quad (3)$$

2.4.3. Cox and Snell R^2

The Cox and Snell $\mathbf{R}^2$ coefficient measures the strength of the association (the effect size) and provides an indication of the model's fit. It represents an estimate of the variance explained by the model. The higher the values of this coefficient, the closer the predicted probability by the model is to the observed value.

The Cox and Snell R^2 is:

$$R2 = 1 - (L0|LM)^{\frac{2}{n}} \quad (4)$$

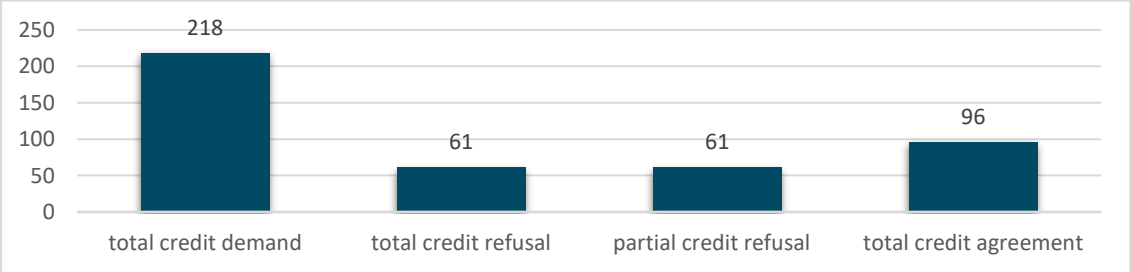
L0 is the value of the likelihood function for a model without predictors, and LM the likelihood of the estimated model.

3. Results and Discussion

3.1. Identification of Credit Rationing in Our Sample

We decided to use Jaffe et Russell (1976) and Keeton (1979) definitions, which assumes that there is rationing when the bank refuses to grant the loan or modifies the requested amount, to identify the phenomenon of credit rationing in our sample.

Graph 1. Result of the credit request from SMEs that sought bank financing



Source: Author's calculations

Previously, we presented several theoretical definitions of credit rationing. It is important to note that our base sample consists of 365 SMEs, of which 218 have already sought bank financing. We have observed that 56% of SMEs have already experienced rationing. Indeed, out of this total, 61 SMEs had their credit requests denied, and 61 SMEs received a favorable agreement but with a partial amount of the requested sum.

On the other hand, we found that of SMEs that received a favorable decision on their credit request with full acceptance of the amount requested is the highest in our sample, at 44%.

Ultimately, SMEs in the Casablanca-Settat region are experiencing both total and partial credit rationing. This situation can hinder SMEs' development and justify implementing public policies to facilitate their access to bank financing.

3.2. SMEs' Characteristics Determine Total and Partial Credit Rationing

3.2.1. Chi-Square Test

Our cross-tabulation reveals that the variables Activity, Legal Status, Company Capital, Number of Employees, Age, and Reputation are significant at the 0.05 level, indicating a relationship between the outcome of the credit application and the characteristics of the SME.

Regarding the activity of SMEs, we observe that total credit rationing primarily affects service SMEs (18%), while industrial SMEs are more impacted by partial rationing (11%). SMEs in the construction sector are less rationed, experiencing only partial rationing (5%).In terms of legal status, we observe a high level of total and partial rationing affecting limited liability companies (68%), followed by individual SMEs. Furthermore, we observe the limited company are less rationed and only experience partial rationing, but they have a high degree of acceptance of credit demand.

Family-owned and non-family-owned SMEs are experiencing total and partial rationing, although it is more pronounced among non-family-owned SMEs.Total credit rationing generally affects SMEs with fewer than 10 employees, while it is less pronounced among SMEs with more than 10 employees.

Regarding reputation, measured by the possession of an ISO certification, we find that SMEs without it are the most rationed, at 28%, and those not affected by rationing, at 23%. The limited number of SMEs with an ISO certificate in our sample explains this.

We also note that total credit rationing has the most negligible impact on the oldest SMEs. However, our statistical tests reveal that SMEs with over 20 years of experience complete rationing at 1% and partial rationing at 2% despite enjoying a credit application acceptance rate of 23%.

Table 3. Chi-Square Test results related to SME characteristics

Independent variables	Analysis variable	Chi-square test	Significance threshold
Characteristics of SMEs	Activity	X2 (6) =36,402a	0,000
	Legal status	X2 (8) =114,261	0,000
	family business	X2 (2) =7,169a	0,028
	Number of employees	X2 (8) =121,096	0,000
	Age	X2 (8) =120,867	0,000
	Reputation ISO	X2 (2) =68,497	0,000
	Accounting certification	X2 (2) =3,326	0,190

Source: Author's calculations. SPSS

3.2.2. Multinomial Logistic Regression Tests

To begin our analysis, we will conduct multinomial logistic regression tests using the explanatory variables of the SME as well as the dependent variables related to credit rationing. These variables revealed significant importance with a threshold of 5% during the previous correlation tests. Regarding total-type rationing, our results indicate that the age and activity category of the SME play an important role.

Table 4.The results of the most significant variables in our model explaining total credit rationing

Total credit rationing	B	Wald	Ddl	Sig.	Exp(B)
Constant	-73,719	0	1	0,99	
Activity category	-2,174	5,207	1	0,022	0,114
Age SME	-2,19	3,905	1	0,048	0,112

Source: Author's calculations, SPSS

Our results indicate that the legal status, the number of employees, and the possession of an ISO certification can explain partial rationing.

The pseudo R-squared of Cox and Snell, calculated in our model, is 0.70. This indicates that variables like the SME's age, activity category, and reputation account for about 70% of the variance in the risk of not receiving credit or receiving it partially. The remaining 30% remain unexplained, which may be due to other unmentioned variables.

Table 5. The results of the most significant variables in our model explaining partial credit rationing

Partial credit Rationing	B	Wald	Ddl	Sig.	Exp(B)
Constant	-1,528	0,629	1	0,428	
Legal status	-2,366	4,742	1	0,029	0,094
Number of employees	-2,275	3,644	1	0,05	9,724
Réputation ISO	2,992	7,03	1	0,008	19,932

Source: Author's calculations, SPSS

Table 6. Cox and Snell R-squared Result

	R2 Step 1	R2 Step 2
R-deux Cox et Snell	,701	,699

Source: Author's calculations, SPSS

3.2.3. Discussion of the Results

We assessed the impact of different SME characteristics on the probability of either partial loan approval or total loan denial. Our results showed that the sector of activity and the age of the SME are determinants of total credit rationing. At the same time, size, which is measured by the number of employees, the legal aspect, and reputation, which is measured by holding an ISO certification, are determinants of partial credit rationing.

According to empirical studies that try to figure out where the risks that come with small and medium-sized businesses come from, the type of business accounts for the difficulties they face in getting financing. Indeed, according to Psillaki *et al.* (2010), the industry sector impacts the credit supply due to the specific operating modes of each sector, which is a synthetic indicator of the risk associated with the company's main activity. This is consistent with our results, which show that service SMEs are more exposed to the risk of total credit rationing. Even though over 40% of Moroccan SMEs operate in the tertiary sector, they remain vulnerable to the risk of total credit rationing. This situation contrasts with the numerous government announcements aimed at addressing the issue of access to financing for the tertiary sector, raising questions about the effectiveness of the support and financial assistance programs developed by the government to encourage this category of businesses. It is therefore likely that credit distribution programs are more beneficial to industrial companies rather than to SMEs in the tertiary sector.

Furthermore, the age of the SME, measured by the number of years in operation, is a variable that can reflect the degree of maturity and experience gained by it. As a result, younger companies have more trouble getting external funding. Our results show the significant role of the age of the SME in the decision to grant bank credit, indicating that the age of the SME can explain total credit rationing. These results align with the conclusions of Amrhar (2019), who noted that the company's age is one of the determinants of credit rationing for businesses in the Souss Massa region.

In terms of the legal aspect, our logistical model shows that the public limited company is significantly and negatively correlated with partial credit rationing compared to our reference variable (the limited partnership). Thus, limited partnerships are the most exposed to partial credit rationing, unlike public limited companies.

Furthermore, we observe that the size of the SME (measured by the number of employees) significantly impacts bank credit decisions. The larger the company, the more likely it is to have its credit approved. Our model predicts that partial credit rationing will most likely affect small SMEs with fewer than 5 employees.

Finally, our estimates highlight the negative and significant impact of an SME's ISO certification on the likelihood of accessing bank financing. Our results show that SMEs without ISO certification are more vulnerable to partial credit rationing, indicating that ISO certification can prevent an outright rejection of their credit application.

These results align with those of Mohammed Hattou (2016), who found in his study on SMEs in East Africa that possessing an ISO international certification, which validates quality management systems and environmental management, increases the chances of accessing bank financing for SMEs. Furthermore, our results align with the findings of Sharma (2005), indicating a positive correlation between obtaining an ISO certification and the company's financial performance. Thus, this criterion is considered credible by the credit file evaluators, enhancing the application through the company's internal management quality by global standards.

3.3. The Characteristics of the Owner-Manager Determine Total and Partial Credit Rationing

3.3.1. Chi-Square Test

Our cross-tabulation reveals that the variable of the leader's gender is significant at the 0.001 level, indicating a relationship between the outcome of the credit application and the leader's gender. Male leaders are the most affected by credit rationing, whether total or partial and receive the highest number of credit application approvals. This result can be attributed to our sample's relatively small number of female leaders.

Regarding the age of the leader, we observe that leaders over 40 are the least affected by total credit rationing, and they receive the full amount of credit requested in 35% of cases in our sample. On the other hand, leaders under 40, particularly those aged 30 or younger, are the most rationed.

Regarding the intellectual level of the leader measured by the variables of level and field of study, our results indicate significant importance at the thresholds of (0.000 and 0.003), demonstrating that education plays a role in the bank's financing decisions. Indeed, according to our results, leaders with an education level higher than a master's degree are better protected against total credit rationing.

Furthermore, we observe that leaders with a technical background are more likely to receive the requested funding, representing 31% of our sample. Then, the relationship between management capacity and credit rationing, measured by management training and years of experience, is significant at the threshold of (0,000 et 0,000). We observe that leaders who have not received management training are the most likely to be rationed. Regarding the number of years of professional experience, leaders with significant experience are the least constrained. In other words, the more years of experience a leader has, the greater the chances of their loan application being accepted.

Finally, according to our results, leaders who are clients of the same bank as the SME they manage are the least affected by total credit rationing and are more likely to receive the requested funding.

Table 7. Results of the Chi-squared test related to the characteristics of the leader

Independent variables	analysis variable	Khi-2	materiality threshold
characteristics of a leader of the SME	Gender of the leader	X2 (2) =14,86	0,001
	Age of the leader	X2(6) =118,096	0,000
	Level of training	X2 (8) =37,588	0,000
	Field of specialization	X2 (4) =16,387	0,003
	Management training	X2 (2) =48,908	0,000
	Executive experience	X2(6) =101,684	0,000
	Bank-leader relationship	X2 (2) =52,453	0,000

Source: Author's calculations, SPSS

3.3.2. Multinomial Logistic Regression Tests

With a significant WALD statistic at the 5% threshold, the logit model, developed to measure the probability of a credit request's denial, highlights the most significant variables.

Table 8. Results of the multinomial regression model regarding total rationing

Total credit rationing	B	Wald	ddl	Sig.	Exp(B)
Constant	-7,643	27,936	1	0	
Sex leader	3,319	14,334	1	0,000	27,645
Age of leadership	4,783	15,955	1	0,000	119,46
Category of executive training	2,034	5,017	1	0,025	7,642
Banking relationship with executives	2,523	13,599	1	0,000	12,466
Executive experience	3,39	9,03	1	0,003	29,678

Source: Author's calculations, SPSS

This variables include the manager's gender, the manager's age, the manager's educational background, the bank-manager relationship, and the manager's experience.Our results, which are based on the age and

professional experience of the manager, explain partial rationing. In other words, SMEs with leaders in the 40-to-50-year age group and less than 5 years of professional experience are likely to face partial rationing.

Table 9. Results of the multinomial regression model related to partial rationing

Partial credit rationing	B	Wald	ddl	Sig.	Exp(B)
Constant	-3,283	21,711	1	0	
Age of leadership	1,849	8,811	1	0,003	6,353
Executive experience	1,807	6,892	1	0,009	6,09

Source: Author's calculations, SPSS

The pseudo R-squared of Cox and Snell, calculated in our model, is 0.61. Variables such as gender, age, education, level of training, and the bank-manager relationship explain approximately 61% of the variance in the risk of not receiving credit or receiving a partial acceptance of the requested amount. The remaining 39% of the variance is unexplained and may be due to other variables not accounted for in our model.

Table 10. Cox and Snell R-squared result

	R2 Step 1	R2 Step 2
Cox et Snell	,622	,606

Source: Author's calculations. SPSS

3.3.3. Discussion of the Results

Even though many Moroccan women have successfully ventured into female entrepreneurship, our results indicate that women who lead SMEs are the most affected by total credit rationing. Hattou (2016) research revealed that the gender of the owner-manager of a small or medium-sized enterprise (SME) contributes to the challenges SMEs in the East African region face in obtaining bank financing.

Moreover, startup investments for women are generally more partial than those for men. However, the reputation of women entrepreneurs for repaying loans and credits is enviable, particularly regarding Tijari and Smouni (2022). This justifies the significant proportion of women entrepreneurs represented in our study.

Furthermore, previous studies have concluded that bank officials are more inclined to finance businesses led by men than by women. For instance, Buttner and Rosen (1988) survey of 106 bank account managers revealed their preference for financing companies led by male executives over those led by women. Carrington (2006) also concluded that women entrepreneurs are much more likely to face banking discrimination regarding access to financing. Today, the world recognizes female entrepreneurship as a true driver of women's empowerment and one of the main sources of growth, job creation, innovation, and wealth. However, women entrepreneurs face more specific challenges due to social stereotypes and gender discrimination. Access to financing is one of the main obstacles for women with projects, as highlighted by Tijari and Smouni (2022). Moreover, they operate in a society that encourages discrimination and inequality, which makes their situation even more difficult.

Next, our results show that SME leaders who do not have bank accounts opened at the same bank where the credit application was initiated are also the most affected by total credit rationing in our study. According to Berger and Udell (2002), small banks with simple organizational structures often choose relationship financing. This close relationship between the bank agent and the SME manager allows for the collection of crucial qualitative information about the manager's personality over time.

However, it is essential to note that the bank agent may have interests that differ from those of the bank, which can lead to decisions based on business volume rather than a thorough client assessment. In this context, it is crucial for banks to carefully analyze the nature of the relationship with the company's leader.

Subsequently, the leader or owner's age significantly impacts the likelihood of obtaining credit, according to our logistic regression model. Previous studies, such as those conducted by Rutherford and Oswald (2000) and Amrhar (2019), have also highlighted the importance of the leader's age variable in rationing partial and total credit.

However, other studies, such as Phung (2009) study, note that the age of owners does not affect the decision to ration credit for SMEs in Vietnam.

Furthermore, our results show that the leader's training specialty can be considered a determinant of total credit rationing. Management literature often links the company's ability to grow or its failure to the intellectual level of the leader. Studies have highlighted that business failures are often due to a lack of general knowledge or

skills of the owner-manager or the management team, as noted by Perry and Pendleton (1983), Baldwin *et al.* (1997), and Argenti (1976).

Finally, our results indicate that total and partial credit rationing is most likely to affect SME leaders who need more than 5 years of professional experience. This means that Moroccan banks pay particular attention to the leader's profile, especially the experience, which can be an asset for the SME in obtaining the desired financing or a handicap limiting its access to funding.

In conclusion, according to our final regression model, Moroccan banks pay particular attention to the quality of leadership, which is a crucial success factor for SMEs. Several studies emphasize the leader's critical role in their company's sustainability. For example, Altman noted in (1983) that leaders' incompetence is the leading cause of business failures. Similarly, Argenti (1976), Baldwin *et al.* (1997) emphasize that the lack of experience is one of the factors contributing to business failures.

Conclusion

The objective of this scientific article was dual: first, to highlight the typologies of credit rationing experienced by SMEs in the Casablanca-Settat region, and second, to analyze the explanatory factors for each typology separately. The initial statistical tests revealed that SMEs in the Casablanca-Settat region face both types of credit rationing: total and partial.

The results indicate that the industry sector and the age of the SME are among the determining factors of total credit rationing. We have observed that service SMEs are more exposed to the risk of total credit rationing. Furthermore, the younger the company, the more it struggles to access bank financing, contributing to total credit rationing.

The results highlight that reputation, legal aspects, and the size of the SME are important determinants of partial credit rationing. Furthermore, the sex, age of the SME owner or manager, the category of training, the banking partner, and the manager's experience are also explanatory factors of total credit rationing. The manager's age and level of experience primarily influence partial credit rationing.

The study highlights managerial implications: it sheds light on the reasons for the total and partial credit rationing of Moroccan SMEs, particularly those located in the Casablanca-Settat region, which are the result of various aspects related to the SMEs and their leaders. Thus, SMEs in the Casablanca-Settat region seeking funding could, prior to submitting a financing request to the bank, look to increase their size and justify their governance and internal production systems by obtaining, for example, ISO certifications. On the other hand, the SME leader should seek further training, particularly in management disciplines, accumulate substantial professional experience, and maintain a meaningful relationship with the same bank as the SME. Furthermore, we believe that the study will enable Moroccan financial control bodies, such as Bank Al Maghreb, to assess the effectiveness of the financing and recovery strategies that banks offer to small and medium-sized enterprises in the Casablanca Settat region.

However, the study has limitations: first, the sample size only considers a single Moroccan region; second, the use of two independent variables related to the characteristics of the SME and the manager, while there are other variables such as the characteristics of the requested financing, the nature of the bank-SME relationship, and those related to the availability of guarantees that could explain credit rationing.

In this regard, the study could encourage future researchers to explore broader geographical areas and include the aforementioned variables in their econometric model in order to obtain more accurate information on the credit rationing of SMEs in Morocco.

Credit Authorship Contribution Statement

Adil Boutfssi: Conceptualization; Software; Data curation; Investigation; Formal analysis; Writing - original draft; Visualization.
Tarik Quamar: Validation; Project administration; Supervision, Methodology, review and editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

References

[1] Akerlof, G. (1970). The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics*, pp. 488-500.

[2] Altman, E. I. (1983). Why businesses fail. *Journal of Business Strategy*, 3(4): 15-21. DOI:https://doi.org/10.1108/eb038985

[3] Amrhar, A. (2019). Contribution to the Study of Credit Rationing for Businesses in the Souss Massa Region. Doctoral thesis, ENCG Agadir.

[4] Andrieu, G., Raffaele, S., Van Der Zwan, P. (2018). Bank debt and trade credit for SMEs in Europe: Firm, industry, and country-level determinants. *Small Business Economics*, 51. DOI:10.1007/s11187-017-9926-y

[5] Argenti, J. (1976). Corporate Collapse: The Causes and Symptoms. Holsted Press, McGraw-Hill, London.

[6] Baker, H., Kumar, S., Rao, P. (2020). Financing preferences and practices of Indian SMEs.Global Finance Journal, Elsevier, vol. 43(C). DOI: 10.1016/j.gfj.2017.10.003

[7] Baldwin, J., *et al.* (1997). Failing Concerns: Business Bankruptcy in Canada. Minister of Industry, Ottawa, Canada

[8] Bellemare, M. (2000). An empirical assessment of credit constraints in urban Morocco. An application of various discrete choice models to the case of micro-enterprises in Casablanca. Progress report to the Econometrics Workshop.

[9] Berger, A., and Udell G. (2002). Small Business Credit Availability and Relationship Lending: The Importance of Bank Organizational Structure. *The Economic Journal*, Vol. 112: 32-53.

[10] Berger, A., and Udell, G. (1995). Relationship Lending and Lines of Credit in Small Firm Finance. *The Journal of Business*, 68(3): 351-81. DOI: http://dx.doi.org/10.1086/296668

[11] Bester, H. (1987). The Role of Collateral in Credit Markets with Imperfect Information. *European Economic Review*, 31 887-889. DOI: http://dx.doi.org/10.1016/0014-2921(87)90005-5

[12] Binks, M. and Ennew, C. (1996). The Impact of Service Quality and Service Characteristics on Customer Retention: Small Business and Their Banks in The UK. *British Journal of Management*, 7: 219-230. DOI:http://dx.doi.org/10.1111/j.1467-8551.1996.tb00116.x

[13] Binks, M., and Ennew, T. (1997). The Relationship between U.K. Banks and Their Small Business Customers. *Small Business Economics*, 9(2): 167-178.

[14] Binks, M.R., Ennew, C.T. and Reed, G.V. (1992).Information Asymmetries and the Provision of Finance to Small Firms. *International Small Business Journal*, 11(1): 35.DOI:https://doi.org/10.1177/026624269201100103

[15] Briozzo, A., and Vigier, H. (2014). The role of personal loans in the financing of SMEs. A*cademia Revista Latinoamericana de Administración,* 27: 209–25.DOI: https://DOI 10.1108/ARLA-10-2013-0167

[16] Bruns, V., and Fletcher, M. (2008). Banks' Risk Assessment of Swedish SMEs. Venture Capital, 10, 171-194. DOI: https://doi.org/10.1080/13691060801946089

[17] Buttner, E. and Rosen, B. (1988). Bank Loan Officers Perceptions of the Characteristics of Men, Women, and Successful Entrepreneurs. *Journal of Business Venturing*, 3: 249-258. DOI: https://doi.org/10.1016/0883-9026(88)90018-3

[18] Chaudhuri, K., Subash S., and Rajesh, N.R. (2020). Gender, small firm ownership, and credit access: Some insights from India. Small Business Economics 54: 1165–81. DOI: https://DOI:10.1007/s11187-018-0124-3

[19] Cressy, R., and Olofsson, C. (1997). The financial conditions for Swedish SMEs: Survey and research agenda. *Small Business Economics*, 9: 179–92. DOI: https://doi.org/10.1023/A:1007975924164

[20] Daoui, D., and HajKhlifa (2013). Basel II: What Impact on the Inclusion of Moroccan Banks in a Sustainable Development Approach? CIGI 2013.

[21] Dietsch, M., and Mahieux, X (2014). Comprendre le déficit de financement des PME pour stimuler leur croissance. *Revue d'économie financière, Association d'économie financière*, 0(2): 17-30.

[22] Dwight M. Jaffee and Russell, T. (1976). Imperfect Information, Uncertainty, and Credit Rationing. *The Quarterly Journal of Economics, President and Fellows of Harvard College*, 90(4): 651-666. DOI:https://doi.org/10.2307/1885327

[23] Flannery, M.J. (1986). Asymmetric Information and Risky Debt Maturity Choice. *The Journal of Finance*, 41: 19-37. DOI: https://doi.org/10.1111/j.1540 6261.1986.tb04489.x

[24] Guercio, M., Briozzo, A.E., Vigier, P.H., and Martinez, L.B. (2020). The financial structure of Technology-Based Firms. *Revista Contabilidade & Finanças*, 31: 444–57. DOI: https://DOI 10.1590/1808-057x201909580

[25] Haj Khlifa, S. (2016). Balois System and Access of SMEs to Group Bank Financing.Doctoral thesis, Higher Institute of Commerce and Business Administration ISCAE Morocco.

[26] Hattou, M.F. (2016). Les déterminants d'accès au financement bancaire pour les PME: le cas de l'Afrique de l'est. Mémoire. Trois-Rivières, Université du Québec à Trois-Rivières, 100 p.

[27] Jaffee, D., and Stiglitz, J. (1990). Credit Rationing. In B. Friedman, & F. Hahn (Eds.), Handbook of Monetary Economics (Vol. 2, pp. 837-888). Elsevier.

[28] Jappelli, T., and Pagano, M. (2005). Role and Effects of Credit Information Sharing. Center for Studies in Economics and Finance Working Paper, No. 136.

[29] Jensen, Michael C. and Meckling, William H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4): 305-360/

[30] Jiménez-Rico, A., Gómez-López, C.S., and Zamilpa, J. (2023). Determinants of Access to Bank Financing in SMEs in Mexico. *Journal of Risk and Financial Management*, 16: 477. DOI:https://doi.org/10.3390/jrfm16110477

[31] Keeton, W. (1979) Equilibrium Credit Rationing. Garland Press, New York. DOI:https://doi.org/10.4324/9781315207223

[32] Leland, H. and Pyle, D. (1977). Informational Asymmetries, Financial Structure, and Financial Intermediation. *The Journal of Finance*, 32(2): 371-387.DOI: http://dx.doi.org/10.2307/2326770

[33] Levenson, A.R., & Willard, K.L. (2000). Do Firms Get the Financing They Want? Measuring Credit Rationing Experienced by Small Business in the U.S. *Small Business Economics*, 14(2): 83-94.

[34] Lobez, F., and Vilanova, L. (2006). Microéconomie bancaire, collection finance, Eyrolles.

[35] Myers, S.C. (1984). The Capital Structure Puzzle. *The Journal of Finance*. No. 3. DOI: https://DOI 10.3386/w1393

[36] Narayanan, M.P. (1988). Debt versus Equity under Asymmetric Information. *Journal of Financial and Quantitative Analysis*, 23(1): 39-51. DOI: https://doi.org/10.2307/2331023

[37] Nizaeva, M., and Coskun., A. (2019). Investigating the relationship between financial constraint and growth of SMEs in South Eastern Europe. *SAGE Open*, 9: 1–15. DOI: https://doi.org/10.1177/2158244019876269

[38] Paranque, P. (1998). Financial Structure of French Industrial Companies: An Approach in Terms of Financing Convention.Bulletin of the Bank of France - No. 57

[39] Perry, C., and Pendleton, W. (1983). *Successful Small Business Management*. Sydney: Pitman Publishing.

[40] Phung, T. (2009). The Rationing of Credit for SMEs in the Case of Vietnam.Doctoral Thesis, University of Montpellier 1.

[41] Psillaki, M. (1995). Rationnement du crédit et PME: Une tentative de mise en relation. Revue internationale des PME, 8(34): 58-66. DOI: https://DOI:10.7202/1008359ar

[42] Quamar, T. (2008). The banking financing of SMEs under prudential regulation, Bâle II: The Case of Moroccan SMEs. Doctoral thesis, University of Montpellier.

[43] Rao, P., and Kumar, K. (2018). Reflection of owner's attributes in financing decisions of SMEs. *Small Enterprise Research*, 25: 52–68. DOI: https://doi.org/10.1080/13215906.2018.1428908

[44] Roger, P. (1988). Théorie des marchés efficients et asymétrie d'information: une revue de la littérature. *Finance*, 9(1): 57-98.

[45] Rutherford, M., and Oswald, S (2000). Antecedents of Small Business Performance. *New England Journal of Entrepreneurship*, 3(2). Article 3. DOI: https://doi.org/10.1108/NEJE-03-02-2000-B002

[46] Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3): 355-374. DOI:https://doi.org/10.2307/1882010

[47] Stephen, A. Ross (1977). The Determination of Financial Structure: The Incentive-Signaling Approach. *The Bell Journal of Economics*, 8(1): 23-40. DOI: https://doi.org/10.2307/3003485

[48] Stiglitz, J. E. (1986). The General Theory of Tax Avoidance.NBER Working Papers 1868, National Bureau of Economic Research, Inc.

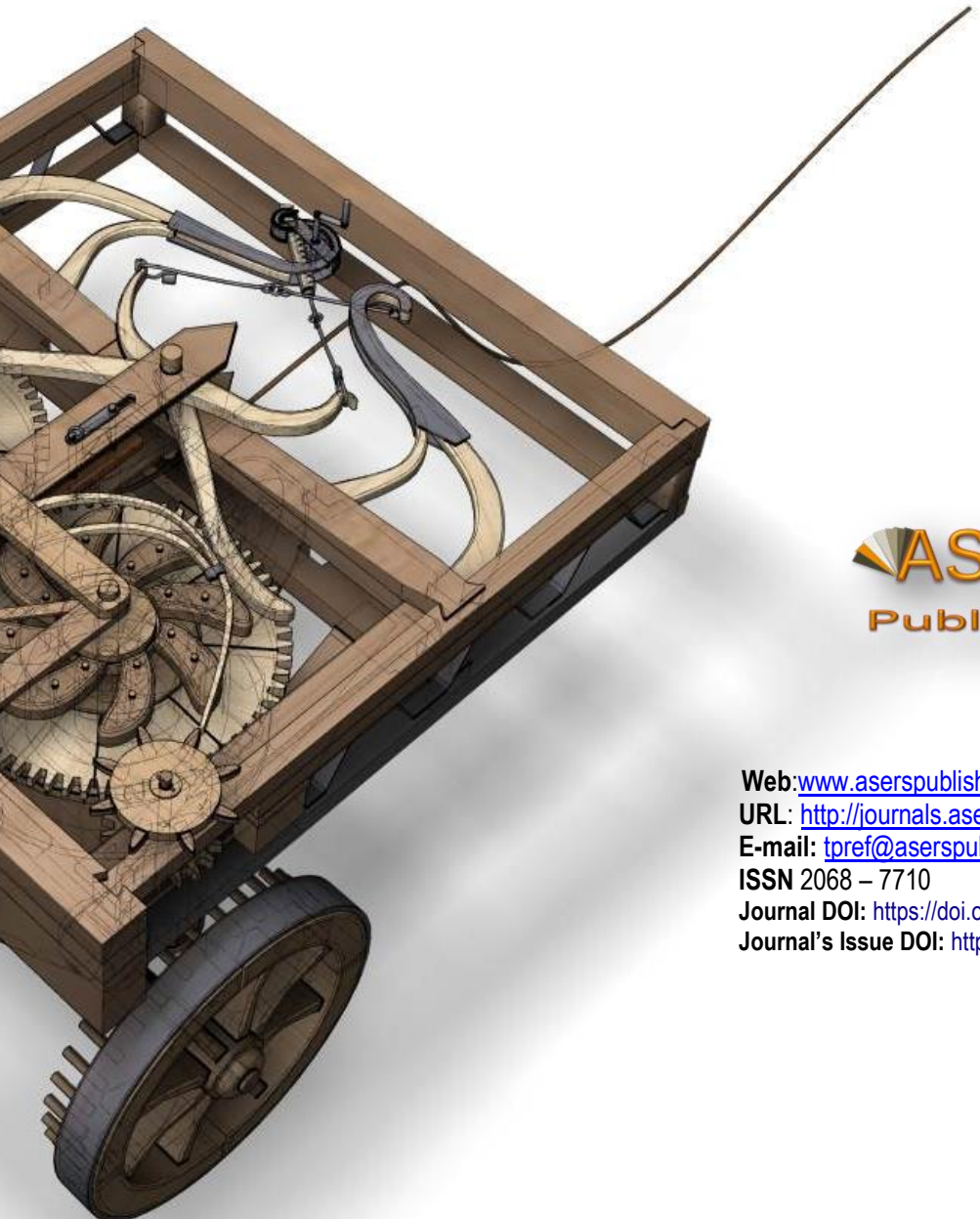
[49] Stiglitz, J., and Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. *The American Economic Review*, 71(3): 393-410.

[50] St-Pierre, J., & Bahri, M. (2011). the determinants of risk premium: the case of bank lines of credit granted to smes. *Journal of Developmental Entrepreneurship (JDE)*, World Scientific Publishing Co. Pte. Ltd., 16(04): 459-476. DOI: https://DOI: 10.1142/S108494671100194X

[51] Tijari, K. and Smouni, R. (2022). Entrepreneuriat féminin au Maroc: Freins et barrières spécifiques à l'engagement entrepreneurial des femmes. *Revue Internationale des Sciences de Gestion*, 5, 2 (May 2022).

[52] Van der Wijst, D. (1989). Financial Structure in Small Business. Theory, Tests and Applications. Lecture Notes in Economics and Mathematical Systems, 320, Springer-Verlag, New York. DOI:http://dx.doi.org/10.1007/978-3-642-45656-5

ASERS



ASERS Publishing

Web:www.aserspublishing.eu
URL: http://journals.aserspublishing.eu/tpref
E-mail: tpref@aserspublishing.eu
ISSN 2068 – 7710
Journal DOI: https://doi.org/10.14505/tpref
Journal's Issue DOI: https://doi.org/10.14505/tpref.v15.4(32).00