

Constraints and determinants of privates SME financing in Algeria: an empirical study of banking decisions

القيود والعوامل المحددة لتمويل الشركات الصغيرة والمتوسطة الخاصة في الجزائر: دراسة تجريبية للقرارات المصرفية

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Abstract:

The contributions of SMEs to economic development are well documented in various studies. However, in transition countries such as Algeria, this development may be hindered, notably because SMEs face difficulties in accessing external financing, which is often essential for business expansion and innovation.

Our study aims to identify the determinants of access to financing for SMEs in the Algerian context. Methodologically, we adopt a mixed-methods approach that combines qualitative data from interviews with bankers and quantitative data collected from an analysis of loan applications submitted by small and medium-sized enterprises (SMEs) to six Algerian public banks (BDL, CPA, BEA, BNA, CNEP and BADR). The logistic regression analysis is employed to identify key variables influencing credit approval decision. The results obtained through were used to define a basic model that will be validated with bankers.

Keywords: SMEs; Access to finance; Public banks; Logistic regression; Algeria

Jel Classification Codes : G21 ; G32 ; O16 ; C25

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Introduction:

Following the economic slowdown triggered by the oil price crisis from 2014 to 2016, the Algerian government recognized the urgent need to diversify the country's economic base. As a result, the public authorities have increasingly emphasized the role of small and medium-sized enterprises (SMEs) in promoting economic growth, innovation and job creation .

Through the Framework law for the promotion of small and medium-sized enterprises of January 10, 2017, the government demonstrated a strong commitment to the development of this sector by implementing support and innovation programs, as well establishing funds and financial mechanisms to facilitate and encourage the creation and growth of SMEs. The country's explicit commitment to entrepreneurship has stimulated entrepreneurial initiatives and generated significant economic momentum, as illustrated by the rapid expansion of SMEs, whose number increased from 656,949 in 2014 to 1,359,803 SMEs in 2023.

However, behind this quantitative expansion lies a more nuanced reality. The entrepreneurial fabric remains highly vulnerable, as reflected by the high rate of business failure. In 2022 alone, no fewer than 19,179 private SMEs were deregistered, including 4,799 legal entities and 14,380 sole proprietorships, highlighting the persistent structural weaknesses affecting a large share of the sector.

Furthermore, SMEs have become a central pillar of Algeria's economic strategy, regarded as a key for reducing dependence on hydrocarbons and promoting a more sustainable and diversified economy. Despite this strategic reorientation and the renewed focus on the sector, Algerian SMEs continue to face significant challenges, particularly in accessing adequate financing sources to support their growth and development. Public banks, often the primary source of financial support for SMEs, are struggle to effectively meet their financing needs.

The relationship between banks and SMEs is a highly issue, as both actors occupy a central position within the economic system. In Algeria, this issue remains particularly relevant, frequently giving rise to debates that highlight both the interdependence between these two parties and the reciprocal requirements stemming from it. Numerous studies emphasize the complexity of this relationship, which is often perceived as a major constraint on the survival and growth of SMEs.

Consequently, although the importance of SMEs at both the social and economic levels is undeniable, these enterprises have not received the support they truly deserve, particularly in terms of financing, whether from the State or from banks. This lack of adequate support has contributed to the fragility and vulnerability of the SME sector, which is struggling to achieve the necessary momentum for sustainable growth.

Financial institutions in general, and public banks in particular, face the difficult dilemma of being required, on the one hand, to apply strict lending standards and rigorously comply with banking regulation and prudential rules; while on the other hand, being expected to respond positively to the financing needs of SMEs. The latter are often unable to meet these same prudential and regulatory requirements.

In this context, the propose of this paper is to address the following question: **What factors increase or hinder the probability to granting a bank financing to Algerian SMEs?**

The main objective of our research is to develop knowledge that will enable us to understand the constraints to SME financing in Algeria and to improve their access to bank financing. Specifically, it seeks to identify the factors that influence the likelihood of obtaining bank financing for Algerian SME, particularly those related to the context of this developing country, as such

knowledge can enhance the probability of securing financing and improve credit conditions for SMEs.

The purpose of our research is to analyze the financing relationship between public banks and SMEs in the Algerian context. By identifying the variables that determine bank financing for Algerian SMEs, we aim to provide an explanatory model of credit approval for this type of enterprise. The study will be conducted through empirical research and statistical analyses, using various tests and hypotheses in line with the hypothetico-deductive approach.

Understanding the obstacles to SME financing has therefore become crucial for policymakers seeking to improve the business environment and foster a more dynamic entrepreneurial ecosystem.

I-Literature Review:

I-1- Obstacles to SME financing: A Review of the main determinants:

Financing is an essential lever for the development and sustainability of SMEs. However, these enterprises face several obstacles in accessing financial resources, particularly due to banking requirements, lack of collateral and information asymmetries. These constraints and obstacles significantly limit their growth and hinder their contribution to the economy, particularly in contexts where the financial system is poorly adapted to the needs of SMEs.

This review summarizes theoretical and empirical related to the determinants of SMEs' access to bank financing. We distinguish between two categories of factors. On the one hand, the internal characteristics of SMEs (size, age, financial situation); on the other hand, the practice and requirements specific to credit institutions (Quality of collateral, documentation requirements, loan amount and purpose, internal risk assessment).

I-1-1- Firm-specific internal factors of SMEs:

Most of the difficulties in the relationship between banks and SMEs stem from a mismatch between the objectives of banks and the specific characteristics of SMEs. Indeed, the objective of banks is not limited to granting loans, but to providing loans to 'good' borrowers. A good borrower is one whose probability of default is very low. However, the inherent characteristics of SMEs make them generally riskier in the eyes of banking institutions because they have low capitalization and a fragile financial structure (Berger & Udell, 1998; Beck & Demirgüç-Kunt, 2006). SMEs also display specific features, related to their size, which may increase their risk level compared to larger firms (Stiglitz & Weiss, 1981). According to Beck, Demirgüç-Kunt & Maksimovic (2005), larger SMEs have better financing prospects because they have stronger organizational structures, greater revenue diversification and offer more tangible collateral. Similarly, Berger and Udell (1998) point out that size reduces information asymmetries between banks and borrowers. Our first hypothesis, **H₁**: *The size of the SME has a positive effect on the probability of obtaining a bank loan.*

The age of a firm is also recognized as a determining factor. Diamond (1991) highlighted that age is a sign of reputation and credibility: the older the company is, the more it has a history of financial relationships, verifiable balance sheets and a track record of repayment. Older firms with more experience reduce information asymmetry and the perceived risk for banks. Banks are reluctant to extend credit to young firms, as their survival rates are generally lower than those of more established companies (Dierkes *et al.*, 2013). Kirschmann (2016) further demonstrates that young firms are more prone to credit rationing than their counterparts, because they have never received loans from banks and, as a result, are unable to ensure their survival and it is difficult for

banks to assess their track record. Given the above arguments, we hypothesized that: **(H₂)**: *The age of the SME increases the likelihood of credit approval.*

With regard to the industry sector, the literature consistently highlights its structuring role in firms' access to bank financing. Several empirical studies demonstrate that sector-specific characteristics directly influence risk perception, anticipated profitability, and business stability-determinants that condition banks' lending decision. In this respect, Berger & Udell (2002) emphasize that sectoral specificities affect not only financing conditions but also the cost of credit. Similarly, Stiglitz & Weiss (1981), in their classic study on credit rationing, discuss how banks may perceive risk differently depending on the sector of activity, which influences their willingness to lend. Beck, Demirgüç-Kunt and Maksimovic (2005) further demonstrate that access to finance is closely tied to industrial structure and sectoral stability, thereby conferring advantages or disadvantages depending on the field of activity. Finally, Love et al. (2015) show that firms operating in sectors characterized by stable demand and greater maturity generally benefit from more favorable financing conditions. In light of the above arguments, we have put forward the hypothesis that: **(H₃)**: *The industry sector significantly influences SMEs' probability of accessing bank financing.*

Banks base their assessment of SMEs' repayment capacity on an analysis of their financial statements, which serve as essential indicators of profitability, solvency, financial soundness, and more broadly, of the overall borne by the firm. Several studies highlight a significant relationship between the financial condition of an SME and its risk profile (Behr & Guttler, 2007; Altman & Sabato, 2007). In this sense, financial health plays a central role in the credit risk assessment process, confirming that information asymmetries can be partially mitigated through reliable and transparent financial statements (Dietsch & Petey, 2004). Accordingly, we hypothesized that: **(H₄)**: *The SMEs with stronger financial performance (high Turnover) are more likely to obtain bank financing.*

I-1-2- Factors related to Bank practices and requirements:

Due to the rigidity of credit allocation criteria, access to finance remains a major challenge for SMEs. Banks impose stringent requirements, particularly in regarding collateral such as mortgages and personnel guarantees, which disproportionately penalize SMEs, especially those in the growth or innovation phase. The lack of adequate collateral often represents the main barrier preventing SMEs from securing financing, whether from banks or on the financial markets (Beck, Demirgüç-Kunt & Maksimovic, 2005). Moreover, risk assessment is typically based on the financial condition of SMEs rather than their growth potential, thereby restricting their access to bank credit.

The central role of collateral in credit decisions is well documented. Banks frequently require the pledging of tangible assets (real estate, equipment) to secure loans. According to Bek and Demirgüç-Kunt (2006), the existence and value of collateral significantly increase the likelihood of loan approval, as they mitigate the risk of loss in the event of default. Based on these findings, we hypothesize: **(H₅)**: *The level of collateral coverage has a positive and significant effect on the probability of SME loan approval.*

Another major characteristic of SMEs is their informational opacity (Berger & Udell, 1998; Hyytinen & Pajarinen, 2008). One of the main difficulties faced by SMEs lies in their inability to provide reliable and accurate information to the market. Compared to larger firms, the information disclosed is often less sophisticated, less structured and less validated (European SME Observatory, 2003). For bankers, such information is perceived as asymmetric, as it does not always reveal all the elements required to properly assess the risks associated with each borrower. The 'bank-SME'

relationship is a complex one, most often based on imperfect and incomplete information (Stiglitz & Weiss, 1981). Banks do not always have access to comprehensive and transparent financial statements regarding the projects submitted by SMEs. Similarly, firms are unaware of the strategies followed by banks in their lending decision and of the risk assessment methods applied. Banks increasingly demand not only financial information but also relevant and reliable disclosures to support credit decision and set lending terms. Rigid requirements concerning liquidity, leverage, and profitability ratios are systematically applied, making access to credit more difficult for smaller firms. As highlighted by Berger and Udell (1998), lending decision that rely heavily on financial statements require these to be transparent and trustworthy. As a result, banks tend to favor firm with an established credit history, which puts newly created and growing SMEs at a distinct disadvantage (Behr & Guttler, 2007; Berger & Black, 2011).

Thus, in order to reduce this asymmetry, banks require SMEs to provide extensive documentation and information, while acknowledging that such information may be of poor quality or incomplete (Berger & Udell, 1998). Banks consequently resort to credit rationing, particularly for SMEs that cannot demonstrate their solvency through credible guarantees or reliable financial statements. Drawing on information asymmetry theory (Akerlof, 1970; Stiglitz & Weiss, 1981), which suggests that banks have limited access to reliable information on SMEs and therefore perceive them as riskier borrowers, we put forward the following hypothesis: **(H6):** *Weaknesses in financial disclosure and the opacity of accounting practices significantly reduce the probability of SMEs obtaining bank credit.*

While collateral and interest rates are central in credit allocation, they are not sufficient to discriminate effectively between high-risk and low-risk borrowers, which persistence of credit rationing (Jaffee & Stiglitz, 1990). The amount of credit represents another decisive factor, as it directly conditions the bank's potential exposure in the event of default. It can also influence the bank's decision, as it represents the loss it will incur in the event of default.

Berger and Udell (1992) were among the first to highlight the importance of loan size in explaining credit rationing. The literature identifies two opposing mechanisms: on the one hand, larger loan increases the likelihood of rationing due to heightened risk exposure; on the other hand, they may improve approval prospects by allowing banks to cover the fixed costs associated credit origination. We put forward the following hypothesis: **(H7):** *The size of the loan requested significantly influences SMEs' access to bank credit, with the larger loan amounts increasing the probability of credit rationing.*

Beyond informational constraints, the financial products offered to SMEs are often modeled on those designed for large enterprises and fail to meet the specific needs of smaller firms. Short-term credit, largely favored by banks, is insufficient for SMEs that require medium- and long-term financing to support investment and sustainable growth. The cumulative of these constraints severely limits SMEs' ability to access financial resources, thereby restricting their growth and contribution to economic development. As highlighted in OECD reports (OECD, 2019, 2022), the mismatch between traditional banking practices and the financing needs of SMEs remains a critical barrier in both developed and emerging economies. To foster the emergence of a more conducive environment, banks must develop tailored financial products, adopt more flexible financing criteria, and operate within a regulatory framework that better accommodates SMEs specific needs. Accordingly, we propose the following hypothesis: **(H8):** *The mismatch between the loan purpose and the financial products offered by banks significantly reduces SMEs' access to credit.*

Table n°1: Summary of the main theoretical frameworks for the determining factors of bank financing according to the risks associated with SMEs

Authors	Mobilized Theory	Factors influencing access to finance
Stiglitz & Weiss (1981)	Information Asymmetry Theory	Adverse selection, moral hazard, credit ratioing
Berger & Udell (1995)	Financial Intermediation Theory	Firm age, credit history, size, banking relationships
Diamond (1984, 1991)	Reputation Theory	Banking relationship history, firm reputation, quality of collateral
Binks & Ennew (1996)	Signaling Theory	SMEs' ability to provide credible signals (Business plan, audits, personal guarantees)
Beck, Demirgüç-Kunt & Maksimovic (2005)	Institutional/ Regulatory Context theory	Institutional quality, financial development level, legal protection of creditors

Source: Authors' compilation based on the literature Review

I-2- SMEs in Algeria: Structural characteristics and financing constraints:

In Algeria, the development of the SME sector has followed a complex historical trajectory. Until the liberal reforms of the 1990s, SMEs were marginalized due to ideological and political considerations that were unfavorable to their growth. It was only towards the end of that decade that the State, recognizing the strategic role SMEs could play in complementarity with large industrial companies, began to assign them development-oriented missions, particularly at the local level.

The gradual opening up of the Algerian economy and the establishment of a more liberal framework have fostered a notable entrepreneurial dynamic, reflected in sustained growth of the SME sector, which reached 1,359,803 units in the first half of 2022 (**Figure n°1**). They constitute the backbone of the productive fabric, both in terms of their number and their role in job creation (3,307,821 in 2022) and economic diversification. This expansion, however, is heavily polarized around very small enterprises (VSEs), which account for around 97% of all SMEs, highlighting an economic structure dominated by micro-sized entities. These firms are characterized by a fragile organizational structure, marked by a low capitalization, excessive dependance on the owner-manager, and a concentration in low value-added sectors such as trade or construction. In addition, the persistent informality limits business formalization and restricts access to formal financial mechanisms.

Empirical studies (Gillet & Madoui, 2004; Melbouci, 2008; Madoui, 2009; Kadi, 2013) underline several structural features: low asset intensity (particularly in construction and industrial sectors), managerial control often confined within the family circle, limited female representation among executives, and generally low educational levels, which hinder the adoption of modern management practices.

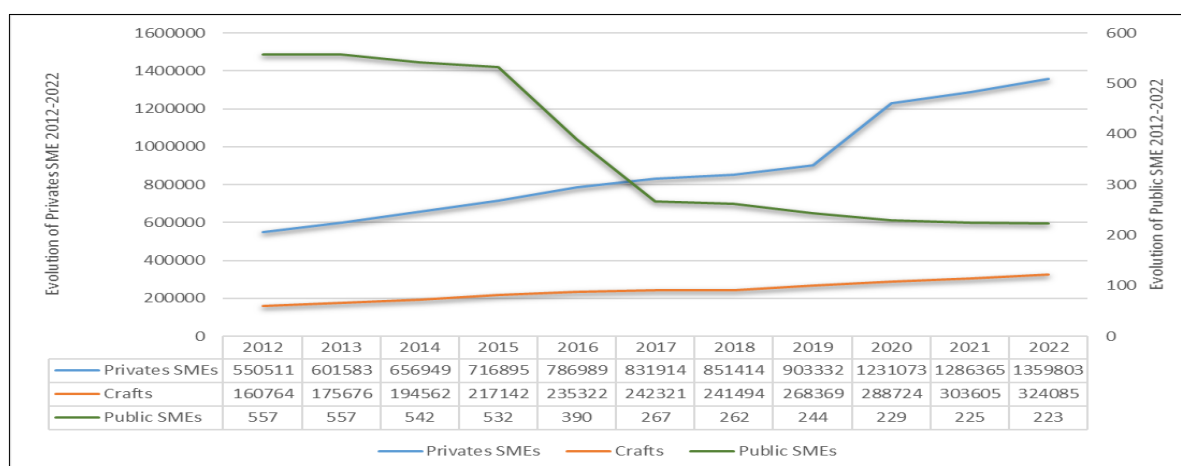
Despite their numerical weight, Algerian SMEs suffer from multiple structural weaknesses, among which access to bank financing remains a critical constraint, widely documented in the literature (Si Lakhal, 2012; Madouche *et al.*, 2017). Difficulties in obtaining bank loans stem from

systemic factors such as the high-risk perception of lending institutions, insufficient collateral, financial opacity, and the underdevelopment of alternative financing mechanisms such as venture capital or crowdfunding. The Algerian banking system remains highly traditional, primarily towards financing large firms or projects closely tied to the state.

At the same time, public support structures struggle to effectively address the needs of entrepreneurs, who often face discouraging bureaucratic complexity and limited advisory capacity. This financing gap hampers SMEs growth, reduces their ability to innovate, and undermines their potential contribution to economic diversification.

Thus, despite significant efforts made by the state to mitigate SME fragility and improve access to finance, the results remain mixed. The structural weaknesses of SMEs, combined with the rigidities of the banking system, maintain a vicious circle: banks' cautious behavior limits productive investment, and the lack of adequate financing hampers SME growth and formalization. This financial lock-in contributes to heightened structural vulnerability, as illustrated by the significant rate of annual business closure, with 19,179 private SMEs deregistered in 2022, confirming the fragility of the entrepreneurial ecosystem in Algeria. This situation highlights the need for a more integrated reform of the business environment— reforms that focus on simplifying procedures, banking sector modernization, and strengthening managerial capacities to better support SME development.

Figure n°1: Evolution of SME in Algeria: 2012-2022



Source: Author's elaboration based on data from the Ministry of industry and Mines (2012-2022)

II-Data and Methodology of the Empirical Study:

To illustrate and shed light on the issues previously discussed regarding the relationship between banks and SMEs, as well as the various determinants of the constraints they face in accessing bank financing, this study adopts an empirical approach that is essential to a better understanding of the underlying mechanisms at play.

II-1- Research methodology:

This study adopts a mixed-methods approach (Creswell, 2014), combining qualitative data collected through semi-structured interviews with credit officers in public banks and quantitative data derived from the analysis of loan applications submitted by small and medium-sized enterprises (SMEs) to six Algerian public banks (BDL, CPA, BEA, BNA, CNEP and BADR).

This methodological choice seeks to ensure a deeper understanding of the bank-SME relationship by linking the analysis of institutional discourses with the statistical examination of firm profiles and credit decisions.

II-2-Sample and quantitative data collection:

The sample consists of 107 loan applications submitted by private SMEs to six public banks in Algeria. The data were collected between September 2024 and April 2025 through collaboration with the regional directorates of the respective banks. For reasons of professional confidentiality, the names of the SMEs and any information that could identify them were removed. Each loan application includes information on:

- **Firm profile** (size, sector, age, legal form, Turnover);
- **Loan application characteristics**(amount, duration, purpose of the loan);
- **Bank's stated reasons for decision:**
 - *Acceptance:* adequate collateral coverage, positive financial performance, credible repayment capacity, strong business plan, stable activity history, ...
 - *Rejection:* insufficient guarantees, weak financial statements, high credit risk, incomplete documentation, lake of a viable business plan, ...
- **Supporting documentation** (financial statements, collateral records, and business plan).

This dual perspective on both acceptance and rejection factors provides a comprehensive view of how banks evaluate SME creditworthiness, offering insights into the determinants that condition access to finance in Algerian context.

II-3- Data processing and analysis:

Data analysis and processing were carried out using the statistical software **SPSS, version 24**. The analysis is based on descriptive statistics and binary logistic regression, an appropriate technique for modeling a dichotomous dependent variable (accepted vs. Rejected loan applications). This method estimates the effect of different SME characteristics and features of their loan applications on the likelihood of obtaining credit in Algeria.

III- Results:

The presentation of this study's findings encompasses the descriptive analysis and the regression of variables, the detailed reporting of results, and a final discussion of outcomes.

III-1- Descriptive analysis

The **Table n°2** summarizes the descriptive statistics of the explanatory variables retained in our theoretical model and which are tested in this study.

Table n°2: Descriptive statistics of SMEs profile and loan application (N=107)

Characteristics	Categories/Values	Frequency (N)	Percentage (%)
Legal status	Individual enterprise	31	28,98
	Legal entity (Company)	76	71,02
Firm age	New business	13	12,15
	1-2 years	29	27,10
	2-5 years	47	43,93
	> 5 years	18	16,82
Sector of activity	Industry	30	28,03
	Construction (BTPH)	27	25,23
	Services	35	32,72
	Trade & Tourism	09	08,42
	Agriculture	06	05,60
Number of employees	< 10 employees (Micro-firm)	47	43,92
	10 – 49 employees	33	30,84
	50 – 250 employees	27	25,24
Annual turnover	<5 million DZD	22	20,56
	>5 million DZD	85	79,44
Loan amount requested	< 5 million DZD	31	28,97
	5 – 20 million DZD	47	43,93
	> 20 million DZD	29	27,10
Loan purpose	Short term loans	69	64,48
	Medium or long loans	38	35,52
Bank decision	Accepted	65	60,74
	Rejected	42	39,26

Source: Authors' calculations based on survey of SME loan application, 2025

The descriptive statistics underline that the SME population is predominantly composed of legal entities (71%), while only 29% are registered as legal entities. This structural composition reflects the persistence of small, often family-based models, which may limit financial transparency and weaken firms' ability to meet banking requirements.

In terms of age, almost 44 of firms are between two and five years old, with only 17% exceeding five years. This relative youth suggests limited business maturity and track record, factors often perceived by banks as increasing credit risk. The sectoral distribution is also concentrated, with services (33%), industry (28%), and construction (25%) according for the majority of firms, while agriculture and trade/tourism remain marginal.

Firm size reinforces this picture, as nearly 44% of SMEs are micro-enterprises with fewer than 10 employees, compared with only 25% in the medium-size category. The predominance of small-scale structures suggests limited economies of scale and reduced capacity for collateralization, further constraining access to credit.

The loan characteristics reinforce the SMEs profiles. The majority request medium-sized amounts (5-20 million DZD), with a strong orientation toward short-term credit (64,5%), reflecting liquidity needs rather than investment strategic. Loan-term financing remains limited, restricting growth and innovation potential. Although 61% of loan applications are accepted, the rejection of nearly two in five underlines persistent financing obstacles, likely lined to firm age, guarantees, and

sectoral risk. Overall, the findings highlight a structural mismatch between SMEs' financing needs and the banking system's lending practices, which remain cautious and short-term oriented.

Table n°3: Distribution of loan Accepted/Rejected rates according to SME profiles(N=107)

Variables/categories	Rejected (%)	Accepted (%)
Legal status		
Individual enterprise	61,84	38,16
Legal entity (Company)	48,38	51,62
Firm age		
New business	69,23	30,77
1-2years	62,06	37,94
2-5years	17,02	82,98
> 5 years	16,66	83,34
Sector of activity		
Industry	37,03	62,97
Construction (BTPH)	45,71	54,29
Services	30,00	70,00
Trade & Tourism	55,56	44,44
Agriculture	33,33	66,67
Firm size		
< 10 employees	65,95	34,05
10 - 49employees	60,60	39,40
50 – 250 employees	18,52	81,48
Collateral		
Sufficient	16,8	83,2
Insufficient	46,7	43,3

Source: Authors' calculations based on survey of SME loan application, 2025

The distribution of loan outcomes according to SME profiles shows that legal entities (companies) have a higher approval rate (51.62%) than individual enterprises (38.16%), which is consistent with the expectation that formalization, clearer governance, audited accounts and corporate collateralability improve perceived creditworthiness. Firm age reveals an inverse pattern: new firm (30.8%) and those aged those aged 1-2 years (37.9%) record low acceptance rates, while older firm achieve far better outcomes, with 82.98% accepted for firms aged 2-5 years and 83.34% for those older than five years. This indicates that banks prefer lending to established SMEs.

The sectoral distribution also reveals substantial variation. Trade and Tourism are the most disadvantaged, with only 44% acceptance, whereas Services (70%) and Agriculture (66.7%) show stronger access to credit, despite their exposure to risk. Industry (62.9%) and construction (54.2%) occupy intermediate positions, suggesting that banks tend to allocate resources to sectors linked to production and services rather than to Trade.

Firm size and collateral emerge as decisive structural factors. Medium-sized firms (50-250 employees) have the highest approval rate (81.48%), followed by small (39.4%) and micro-firms (34.05%). This confirms that scale provides a credibility advantage, with banks perceiving larger SMEs as less risky and more capable of repayment. Above all, collateral availability proves crucial: firms with sufficient guarantees have an overwhelming approval rate (83.2%) compared to only 43.3% for those with insufficient collateral.

III-2- Econometric model: The Logistic Regression

The results of the statistical tests analyzed above enable us to identify significant relationships between variables likely to influence access to bank financing and the dependent variable, which is obtaining financing. However, as we have pointed out, these tests do not identify causal relationships and do not take into account other variables that may influence the dependent variable. Therefore, in order to test these relationships, we will proceed in the next section to multivariate analyses using the logistic regression method.

The logit model estimates the probability P_i of loan approval for SME i , as a function of a set of explanatory variables related to firm characteristics, financial profile, and collateral. This econometric model quantifies the impact of SME characteristics and bank practices on the probability of obtaining bank financing, thereby providing an in-depth understanding of the determinants of access to credit for Algerian SMEs. For this study, the logistic regression model is specified as follows:

$$\text{Logit}(P_i) = \ln\left(\frac{P(\text{AccCred}=1)}{1-P(\text{AccCred}=1)}\right) = \beta_0 + \beta_1 \text{Size}_i + \beta_2 \text{Age}_i + \beta_3 \text{Sector}_i + \beta_4 \text{Turnover}_i + \beta_5 \text{Collateral}_i + \beta_6 \text{Transparency}_i + \beta_7 \text{Amount}_i + \beta_8 \text{Purpose}_i + \varepsilon_i$$

Where:

- P is the probability that the loan is approved ($\text{AccCred}=1$),
- $1-P$ is the probability of rejection ($\text{AccCred}=0$),
- $\ln\left(\frac{P}{1-P}\right)$ is the logit transformation of P ,
- $X_1, X_2, \dots, X_k$ represent the explanatory variables (firm and loan application characteristics),
- β_0 is the constant,
- $\beta_1, \dots, \beta_k$ are the coefficients to be estimated.

Table n°4: Coding and measurement of model variables

Variable	Code	Measurement
Loan Access	AccCred	Binary dependent variable: (1=accepted, 0=rejected)
Firm size	Size	Number of employees (1-249)
Firm Age	Age	Number of years in operation
Sector of activity	Sector	Industry classification of the firm
Annual Turnover	Turnover	Firm's annual revenue (sales)
Collateral	Collateral	Level of collateral provided
Accounting transparency	Transparency	Reliability of financial statements
Loan Amount requested	Amount	Amount of credit requested
Loan purpose	Purpose	Primary use of the requested loan

Source: Authors own computation from the survey data of SME loan application, 2025

The dependent variable is loan accepted (1=accepted, 0=rejected). Explanatory variables include firm size, age, sector, turnover, collateral level, reliability of financial statements, loan amount, and loan purpose. Categorical predictors (firm size, sector, loan purpose) are introduced as dummy variables, while skewed continuous variables (turnover, loan amount) are log-transformed.

Logistic identified several variables significantly associated with the probability of SME loan approval in Algerian public banks. The table below (**Table n°5**) presents the estimation results, including coefficients (β), odds ratios ($\exp(\beta)$), and significance levels.

Table n°5: Result of logistic regression estimation

Variables	Coefficient(β)	Wlad statistics	Sig. level	Odds ratio
SME size	0.35	4.85	0.028	1.42
SME age	0.62	9.76	0.002	1.86
Sector of activity	-0.18	2.12	0.145	0.84
Turnover	0.71	11.54	0.001	2.03
Collateral Level	1.25	23.67	0.000	3.49
Reliability of financial statements	0.95	15.32	0.000	2.58
Loan Amount	0.21	1.97	0.161	1.23
Loan purpose	0.12	0.88	0.349	1.13

Source: Authors' calculations based on SPSS 24 outputs, 2025

III-3- Discussion

Regression model results highlight several variables that may influence the probability of SME obtaining bank financing. The variable 'collateral level' exerts a positive and statistically significant effect on access to credit from public banks in Algeria at the 10% significance level. The presence of solid collateral substantially increases the likelihood of a loan approval ($\beta = 1.25$, $OR = 3.49$, $p < 0.001$). This result indicates that SMEs providing sufficient guarantees are over three times more likely to secure a loan compared to those with insufficient collateral.

Due to information asymmetry, banks rely heavily on the availability and quality of collateral when making credit decision. Collateral thus acts as a screening mechanism that mitigates credit risk. As a result, the ability of SMEs to provide adequate collateral facilitates their access to bank financing. As noted by St-Pierre (2004), bankers often prefer to finance a project with limited potential but strong collateral rather than a highly promising project with weak collateral. This finding is consistent with prior studies (Si Lakhel, 2012; Lassassi & Manaa, 2014; World Bank, 2020; Lalali, 2020; Boulahouat et al., 2022) but contrasts with the results of the work of Beck et al., 2006; Dinh et al., 2012. Interviews with credit officers further confirm the central role of collateral in formal lending procedures: by pledging collateral, borrowers signal both the quality of their project and their commitment to repayment. They consider collateral to be an essential condition in their decision, as this is a regulatory requirement of their institution.

Similarly, the reliability of financial statements exerts a strong positive effect ($\beta = 0.95$, $OR = 2.58$, $p < 0.000$), underscoring the importance of transparent and standardized accounting practices in building lender confidence, which aligns with the results of Pham (2010), which found that the quality of accounting documents influences Vietnamese SMEs' access to bank financing. In Algerian context, Lalali (2020) finds in his study that SMEs that do not have reliable, high-quality accounting documents increase their risk of information asymmetry, which explains why they are the most rationed.

However, interviews with credit officers confirmed the importance of presenting reliable financial statements. Although they do not always guarantee the reliability of the financial report documents submitted by SMEs, the credit officers interviewed found that, for an SME, keeping accounts and submitting regular accounting and financial documents increases their perception of the quality of financial information. This helps to reduce their opacity.

Firm age and turnover also significantly influence loan approval, suggesting that mature SMEs with higher revenues enjoy better access to bank credit. Older firms are perceived as more stable and less risky (OR=1.86), while higher turnover indicates stronger repayment capacity (OR=2.03). Several empirical studies have highlighted the relationship between the age of the company and access to bank financing, emphasizing that more mature SMEs generally enjoy greater credibility and a more reassuring financial history for bankers (Beck et al., 2006; Pandula, 2011). Our interviews with bankers also revealed that the age of the company is a decisive criterion in the evaluation of credit applications. Companies that have been in business for several years inspire greater confidence, have verifiable financial data, and present a lower risk. They also consider turnover to be a decisive factor in their decision to grant credit. For them, turnover demonstrates the financial capacity of the company.

Conversely, the variables “loan amount” and loan purpose are not statistically significant, indicating that banks prioritize the risk profile of the borrower rather than the technical characteristics of the loan itself. However, sector of activity shows a negative, though insignificant, effect ($\beta = -0.18$), implying that credit decisions are less systematically tied to sectoral allocation. This finding differs from studies such as Kirschenmann (2016), which emphasized that banks often ration credit depending on the sector’s perceived volatility. The weaker effect here may reflect a more generalized risk assessment strategy adopted by Algerian banks, where the focus remains primarily on collateral and firm reliability than sectoral distinctions.

Conclusion:

The study investigated the determinants of Algerian SMEs' access to bank financing, with the aim of answering the central question: *What factors increase or hinder the probability to granting a bank financing to Algerian SMEs?* Statistical tests shows that traditional risk variables found in the literature (Collateral, the reliability of financial statements, firm age, and turnover) play a decisive role in the credit approval in the Algerian context. These results confirm that financial transparency organizational solidity and stability significantly increase the probability of loan approval in Algeria. These results reinforce the theoretical framework of information symmetry and adverse selection (Stiglitz & Weiss, 1981), emphasizing that banks continue to favor firms perceived as less risky based on tangible and verifiable indicators. With regard to the existence of variables specific to developing countries, and Algeria in particular, discussions with bankers have made us understand the importance of interpersonal relationships.

Theoretical implications:

From a theoretical standpoint, this research contributes to the literature on SME financing in emerging economies by demonstrating that, despite recent reforms, Algerian banks remain strongly influenced by traditional screening mechanisms. While the issue of SME financing is relevant everywhere in the world, it is of much greater concern to developing countries, as SMEs are their last hope for escaping underdevelopment. Although SMEs and their financing have been the subject of several studies, there is little research focusing on developing countries such as Algeria, even though SMEs in these countries face particular difficulties related to their context.

The findings also highlight a convergence with financing models in developed countries, where similar determinants are observed. However, the Algerian case diverges in that interpersonal relationship and informal networks play a critical role in shaping access to credit, reflecting a context where relational trust partially compensates for institutional weaknesses. The study also demonstrated the applicability of credit rationing and relational finance theories in the context of financing Algerian SMEs.

Practical implications:

The confirmation of the hypothesis has important implications. On the particle level, banks are invited to diversify their evaluation tools beyond collateral, integrating mechanisms such as credit scoring, relationship lending, and reputational indicators. The study can help entrepreneurs better understand the variables that determine their ability to obtain bank financing and the requirements of banks. Awareness among SME managers of the importance of the quality of their relationship with credit agencies could help reduce barriers to financing through better communication between the two parties. Policymakers should prioritize strengthening SME financial governance and accounting standardization while simultaneously fostering transparency and trust within the banking system.

Limitations and suggestions for future research:

Nevertheless, this study is not without limitations. The sample is restricted to public banks, limiting the generalizability of the results. Moreover, the quantitative approach could be enriched by qualitative insights into bankers' perceptions of risk. Another important limitation concerns the absence of SME managers' perception: their attitudes toward the banking system, their level of financial literacy, and their strategies in presenting loan applications can strongly influence the likelihood of approval. Future research should therefore not only compare public and private banks but also integrate the perspectives of SME managers to better reflect the relational dynamics at play in the Algerian financing model.

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