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The determinants of bank credit to SMEs in Gauteng, South Africa

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ABSTRACT

Background: Despite the availability of external finance, access to bank finance has been identified as the main challenge to SMEs' survival, growth and sustainability in South Africa.

Purpose of the study: The study investigated the factors influencing bank lending to SMEs in the Gauteng province of South Africa.

Design/methodology/approach: A probability-stratified random sample (N = 188) of commercial bank employees in the Gauteng province was utilised.

Findings: A regression analysis indicated that creditworthiness, lending technology, collateral, and innovation strategies make a positive and statistically significant contribution to bank credit supply to SMEs in South Africa.

Recommendations/value: The results suggest that SMEs should have collateral and good financial standing to access bank finance. Furthermore, the findings also suggest that banks need to employ lending technologies and innovation strategies that suit the unique financial needs of SMEs. This study was limited to a cross-sectional analysis due to the absence of longitudinal data on bank lending to SMEs.

Managerial implications: This study extends prior research on SME access to finance by adding insights into the relationship between lending technology, innovation strategies, creditworthiness, and bank credit availability from an emerging market perspective.

Keywords

Bank-SME relationship, collateral, credit supply, creditworthiness, innovative strategies, lending technology, risk management, SME financing

JEL Classification: M13

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are widely acknowledged to positively impact the economic and social growth of both developed and developing nations (Ayyagari *et al*., 2011; Pang, 2008, as cited by Kongolo (2010). In terms of the economy, SMEs are seen as catalysts for achieving the growth goals of emerging nations (Ahmad & Alaskari, 2014; Mtshali & Chinyamurindi, 2021). They play a significant role in generating employment (Oji *et al.*, 2017) and income for rural and urban populations. Additionally, compared to big businesses, they frequently employ more labour-intensive technology (Newman, 2010). According to Ayyagari et al. (2007), SMEs comprise nearly 80% or more of the manufacturing sector employment in countries such as Chile, Greece, Spain, and Thailand.

According to Abor and Quartey (2010), South Africa's SMEs account for approximately 91% of businesses, between 52% and 57% of the country's gross domestic product (GDP), and 61% of jobs generated by formal business firms. Despite these economic benefits, SMEs in South Africa confront several challenges, such as a poor macroeconomic climate, deteriorating physical infrastructure, administrative difficulties (Fatoki, 2012), and a lack of collateral (Rector et al., 2016). However, limited access to capital is still one of the biggest obstacles to the development, survival, and expansion of SMEs in South Africa (Asah *et al*., 2015; Domeher *et al*., 2016; Oji *et al*., 2017; Erdogan, 2018).

Due to their high-risk status, SMEs in developing countries, including South Africa, largely remain unattractive for investment by mainstream investors (Fatoki & Garwe, 2010; Maleka & Fatoki, 2016). Investors are particularly concerned about currency and credit risks associated with SME financing. But in recent years, there has been a rise in interest from financiers, including banks, that hope to double the value of their investments in SMEs by promoting economic growth and earning reasonable profits simultaneously.

Many SMEs in South Africa are credit-constrained and unable to provide other forms of finance for bank loans. It has been argued that a lack of access to finance has adversely affected the growth and sustainability of SMEs (Fatoki, 2017; Ganbold, 2008; Maleka & Fatoki, 2016; Lee & Luca, 2019). Musara and Fatoki (2012) examined the supply of loans to SMEs in South Africa. They concluded that SMEs are credit-constrained due to information asymmetries and a lack of collateral for formal bank credit. Mutezo (2013) confirmed that the lack of bank funding in South Africa was hampering the development and growth of SMEs but did not test the contribution.

This study was aimed at identifying the factors that influence bank credit supply to South African SMEs. Although various international studies highlight SMEs' lack of access to finance,

there is a need for more research concerning the factors influencing the availability of bank credit to SMEs in South Africa. Due to SMEs' existing inability to obtain bank financing and create more employment (Fatoki, 2012; Fatoki, 2017; Pooe & Mahlangu, 2017), the present study seems timely and essential. The study also intends to add to the knowledge of SME financing.

Correlations and standard multiple regressions were used to determine the association and relationships between credit supply (dependent variable) and independent variables (creditworthiness, collateral, transaction costs, lending technology, risk management, and bank-SME relationship). This study's findings could help SMEs discover factors that can improve their funding and reduce South Africa's high rate of SME failure. Thus, entrepreneurs may know which essential elements banks consider to increase their likelihood of financing. To improve their chances of getting bank funding and, more significantly, raise their credit rating profile, SME managers should comprehend the lending officer's decision-making process when applying for bank loans (Bruns & Fletcher, 2008). According to predictions made by Calice et al. (2012) as well as Pooe and Mahlangu (2017), increasing access to bank credit could be the key to SME sustainability and expansion, boosting the South African economy.

The rest of the paper is organised as follows: Section 2 reviews the literature while Section 3 provides a description of the research design and methodology, followed by Section 4, which discusses the results, and Section 5 concludes the study. A review of the literature and formulation of hypotheses are presented in the next section.

2. LITERATURE REVIEW

This section explores the credit rationing theory that underpins the literature on SME access to bank finance. The empirical literature on the factors influencing credit supply to SMEs is also discussed.

2.1 Credit rationing theory

Stiglitz and Weiss (1981) contend that agency issues like asymmetric knowledge and moral hazard might affect the availability of credit and, consequently, the capital structure of SMEs. This issue was referred to as credit rationing by Stiglitz and Weiss (1981). Due to informational imbalances, poor decision-making and issues with monitoring, banks may decide to present interest rates that would leave many potential borrowers without access to credit (Das & Laha, 2017). The credit rationing theory suggests that many SMEs could use credit productively if funds were available. However, research shows that SMEs are unable or struggling to obtain formal bank financing (Li & Zheng, 2017).

Widespread empirical evidence points to flaws in the finance market when starting a business. One factor contributing to SMEs' lack of financial resources, according to Domeher et al. (2016) and Harris and Raviv (1991), is the reluctance of banks to lend money to small businesses. Banks encounter several significant information issues while evaluating credit applications. Information asymmetries exist in SMEs due to the substantial fixed costs associated with acquiring information (Beck *et al*., 2006; Cowling *et al*., 2016), which banks hesitate to take on for minor transactions (Blumberg & Letterie, 2008). Additionally, the incentives for banks to gather information decrease with the number of repeat transactions, mainly due to increased administrative costs and economies of scale.

2.2 Creditworthiness and bank credit supply

According to Bruns and Fletcher (2008), short-term loans (credit) and equities are the main sources of capital mobilisation (stocks). Most SME owners participate in the short-term loan markets (Berg & Fuchs, 2013). Due to the possible risk of default involved with credit agreements, lenders typically evaluate loan applications based on borrowers' purpose and capacity to repay the loan (Dutta & Magableh, 2006). To provide sufficient incentives for loan repayment, loan contracts need to contain interest rates and non-price conditions (collateral, market interlinkage). Therefore, because business owners are ready to pay a higher interest rate, there is no price rationing, and a binding supply constraint exists (Domeher *et al*., 2016; Hashi & Toçi, 2010). However, quantity rationing may occur, which manifests itself in lenders providing a borrower with a loan amount that is less than what was asked for or outright refusing the loan demand.

A company's ability to fund its capital requirements and lower the cost of credit depends on its creditworthiness (Wasiuzzaman *et al*., 2020). Additionally, a high credit rating increases an organisation’s capacity to raise outside capital. According to Berg and Fuchs (2013), the most significant external source of funding for SMEs' capital needs is bank loans. However, compared to larger companies, SMEs are thought to be more prone to default (Wang *et al.*, 2014).

Additionally, information asymmetry exists because bank lenders have more inadequate information about each business entity and its owner than the borrower (de La Torre *et al*., 2010). Thus, the bank needs to determine how likely an SME will repay a loan (principal and interest). Information asymmetry can lead to a well-known adverse selection problem (Cowling *et al*., 2016; Giannetti, 2012). As such, the study proposes the following hypothesis:

Hypothesis 1: There is a significant positive relationship between creditworthiness and bank credit supply to SMEs.

2.3 The relationship between perceived risk management and credit supply to SMEs

Borrowers and lenders view risk differently depending on how well the project turns out. The borrower realises the benefit after repaying the loan if the project is successful; if not, the lender loses the amount lent. According to Stiglitz and Weiss (1981), this leads to the problem of adverse selection, where it is more likely that high-risk borrowers will be keen to obtain outside financing. As a result, the pool of prospective borrowers becomes riskier as the risk premium demanded by lenders rises (Li & Zheng, 2017).

High-risk borrowers are “adversely selected” by higher risk premiums (Ganbold, 2008). This means that a higher interest rate lowers its usefulness and reliability for creditors as a method to separate excellent projects/borrowers from bad ones (Mutezo, 2013). To remedy this, dependable collateral offers from good borrowers might indicate their low-risk nature (Falkner & Hiebl, 2015) in return for a loan contract with a lower interest rate (Han *et al*., 2009). The bank must ensure credit is given to clients, including SMEs, that can repay the loan plus interest. In order to manage loans to SMEs, banks must, therefore, develop strategies that lower risk and uncertainty (Bruns & Fletcher, 2008; Falkner & Hiebl, 2015).

SME owners tend to invest their personal funds in initiatives where the return is highly probable and borrow money for riskier projects (Stiglitz & Weiss, 1981; Li & Zheng, 2017). Hence, lenders have created safeguards to prevent losses, which include gathering information indicating the borrower's chances of not paying back the debt. Such details relate to the borrower's personal traits. Second, the borrower may be asked to pay part of the investment as a deposit (Oji *et al*., 2017). To shift the bank's risk to the borrower, the bank can ask for a deposit from the borrower or collateral to secure the loan.

Since most SMEs are independently owned and operated, there is a concern that they lack information transparency regarding credit history. Banks may use this information asymmetry to limit their willingness to invest in SMEs (Das & Laha, 2017; Giannetti, 2012). Due to concerns that early disclosure may simplify the potential business opportunity for rivals to exploit, entrepreneurs may be reluctant to provide all relevant information regarding their business (Shane & Cable, 2002).

Bruns and Fletcher (2008) looked at lending officers’ considerations when extending credit to Swedish SMEs. They found that banks strongly emphasise the real accounting data provided by SMEs and elements that shift the risk from the lender to the borrower. The relationship between the borrower's financial situation and the offered collateral depends on the borrower's overall risk appetite. SMEs and new businesses find it challenging to get loans from banks when they have a poor track record (Giannetti, 2012). For SMEs, the conventional wisdom

that demands creating an effective business proposal before a project can be funded is not the best course. Instead, they must demonstrate that they are qualified to carry out the tasks included in the proposed project. They must also offer significant collateral, such as private property.

Deakins *et al.* (2010) investigated the variables influencing the judgment made by bank managers based on actual entrepreneurial case studies of loan funding applications in Scotland. The authors found that a sizeable minority of Scottish business owners had difficulty obtaining bank financing. According to loan officers, banks follow common financial 'models' regarding their financial requirements. However, depending on seniority, individual bank loan officers may exercise a great deal of discretion (Deakins *et al*., 2010). It was further established that younger SME owners without security found it more difficult to raise money for riskier endeavours or could not satisfy the banks' financial modelling standards (Verbano & Venturini, 2013). How quickly SMEs can get finance depends on several factors, including trading history and sound banking practices, together with information asymmetry. Thus, the study proposes the second hypothesis below:

Hypothesis 2: There is a significant positive relationship between perceived risk management and bank credit supply to SMEs.

2.4 Bank-SME relationship and bank-credit supply

The effect of long-standing SME-bank relationship on credit availability has been studied before. In a study of small businesses in the United States of America (USA), Petersen and Rajan (1994) found that SMEs with a strong bank relationship experienced less credit rationing in the bank credit market. Additionally, they found that the length of the relationship greatly raises credit availability while having no effect on capital cost. According to Hernandez-Canovas and Martinez-Solano (2010), SMEs enjoy more accessible credit at lower costs. SMEs trying to expand their network by borrowing from several lenders pay more money and have fewer loan options. Long-term bank customers are more likely to receive credit at cheaper rates and collateral requirements (Lussuamo & Serrasqueiro, 2020).

Cole (1998) provides evidence that, while relationship length is unimportant, a possible lender is more inclined to grant credit to a company with an established relationship. This is consistent with the studies of Petersen and Rajan (1994) and de La Torre *et al*. (2010), which found that obtaining a loan is lower among those firms maintaining multiple banking relationships. Close bank-firm linkages boost the amount of capital available to borrowing firms when access to credit is constrained. Their findings indicate that longer borrower-lender relationships increase credit availability but do not reduce costs. However, Shikimi (2013) found a positive

relationship between the SME-bank relationship and credit availability for financially constrained firms.

Furthermore, Bharath *et al.* (2011) found that excellent banking ties correlate with lower interest rates, larger loan amounts, and fewer collateral requirements. The ongoing interactions between the lender and borrower when providing different financial services can provide useful information for the lender when deciding whether to grant credit, price loans, request collateral or impose additional loan restrictions (Uchida *et al*., 2011). Shikimi (2013) confirms that the cost of credit is positively correlated with the number of banking links when the endogeneity of banking ties is taken into consideration.

Elyasiani and Goldberg (2004) investigated the relationship-lending effects on fund availability, loan rates and collateral requirements. The authors discovered that bank partnerships lower lending rates and boost credit availability. The result substantiates that multiple bank relationships reduce the power of any borrower-lender relationship (Berger & Udell, 2006; Elyasiani and Goldberg (2004). However, Rostamkalaei (2017) and Mtshali and Chinyamurindi (2021) argue that factors such as the entrepreneur's attributes, business type, relationship length, the variety of financial products purchased by SMEs and the economic and financial environment in which the SMEs operate determine the relationship between the bank and the entrepreneur. Consequently, it is hypothesised that:

Hypothesis 3: There is a significant positive relationship between the bank-SME relationship and bank credit supply to SMEs.

2.5 Relationship between transaction costs and bank credit supply to SMEs

Transaction costs can be broadly defined as exchanging credit for a promise to pay (Kshirsagar & Shah, 2005). Transaction costs for formal lending institutions are relatively greater, especially for small enterprises (Das & Laha, 2017; Wang, 2016; Ganbold, 2008). The cost of reviewing a loan application is mostly unrelated to the amount of the loan. The fixed costs involved include administrative costs, legal fees and costs related to acquiring information, such as purchasing credit profiles from the credit bureaux. For more modest loans and investments usually required by SMEs, it is difficult for the bank to recoup the fixed costs.

Banks incur further costs when performing inspections or attending board meetings following payout. The issue is worse in developing nations, characterised by information asymmetry and poor service delivery, such as property registration titles and collaterals (Beck & Demirgüç-Kunt, 2006; Beck *et al.*, 2013). Consequently, credit providers resolve the lack of information transparency by raising the cost of financing by raising interest rates (Wasiuzzaman *et al*., 2020) or administrative charges (Das & Laha, 2017). Khan and Hussain

(2011) found that the increased cost of lending has a negative impact on credit demand from entrepreneurs. Hence, small business owners prefer to take loans from relatives and other unofficial sources. Consequently, it is hypothesised that:

Hypothesis 4: There is a significant positive relationship between transaction costs and bank credit supply to SMEs.

2.6 Relationship between SME collateral and bank credit supply

According to Gitman (2009), collateral is a property that a borrower promises as security to a lender to repay a debt. Collateral lessens issues with information asymmetry between lending institutions and small businesses (Han *et al*., 2009). Banks consider collateral desirable because it carries low risk (Cowling *et al*., 2016). Businesses that make significant investments in physical assets typically have more financial leverage because they can borrow money at cheaper financing costs (Han *et al*., 2009) if their debt is secured with such assets. Thus, the small business owner's willingness to provide collateral demonstrates his or her dedication to the enterprise. However, in most cases, SMEs cannot provide collateral (Quartey *et al*., 2017).

In light of this, Fatoki (2012) asserts that collateral influences the entrepreneur's and the company's view of risk favourably. According to Falkner and Hiebl (2015), collateral serves as a screening tool and lowers the lending cost for financial institutions. Furthermore, it assures banks of the entrepreneur's readiness to repay the loan, increasing the likelihood that the SME will be given credit (Inderst & Muller, 2007). Collateral is thus a powerful instrument that allows commercial banks to offer debt at more favourable terms to SMEs that might otherwise be credit-rationed due to information asymmetry (Berger & Udell, 1998; Cowling *et al*., 2016; Han *et al*., 2009). This suggests that the availability of collateral impacts the supply of bank credit to SMEs (Beck *et al*., 2013). Collateral increases the likelihood of access even though it does not ensure credit (Falkner & Hiebl, 2015). Consequently, it is hypothesised that:

Hypothesis 5: There is a significant positive relationship between collateral and bank credit supply to SMEs.

2.6 Lending technology and bank credit supply to SMEs

Ashton and Keasey (2005) claim that the type and suitability of the loan technology utilised are key factors in the decision-making process for SME banking services. Transactional lending technology is a relationship between a bank and a company where the borrower provides the bank with quantifiable information that can be confirmed, such as audited financial statements, property valuations and credit scores (Berger & Black, 2011). The information is communicated to others in the bank by the loan officer. Financial statement

lending, asset-based lending, small business credit scoring, factoring, and leasing are the main lending technologies used for decision-making.

Relationship lending technology solves information asymmetry issues in businesses, particularly SMEs. To provide financial services, banks maintain ongoing contact with SMEs and collect "soft" information from them (Berger & Black, 2011; Carbó *et al.*, 2009). The data is then utilised to assess the SME owner/manager's creditworthiness as part of the loan application procedure to guarantee that any possible loans will be repaid. The increased value of the information acquired is a crucial aspect of such a relationship with the lender (Baas & Schrooten, 2006; Carbó *et al.*, 2009). In view of this, as the relationship gets stronger, loan interest rates should gradually decline. Consequently, it is hypothesised that:

Hypothesis 6: A significant positive relationship exists between perceived lending technology and bank credit supply to SMEs.

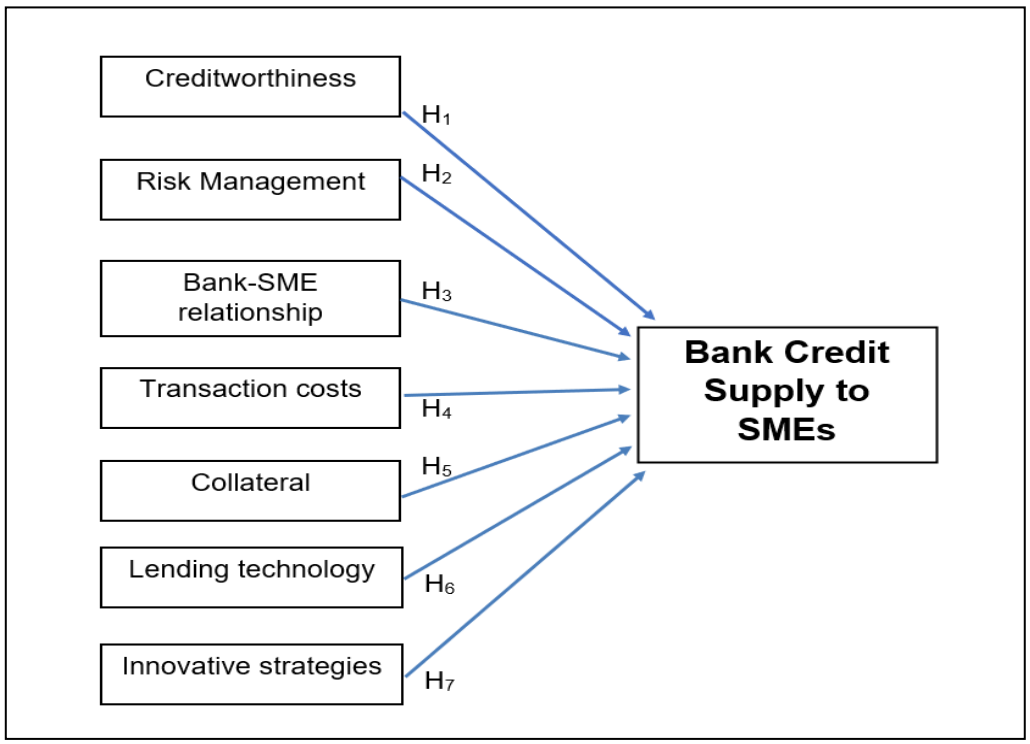
2.7 Innovation strategies and bank credit supply to SMEs

Chironga *et al*. (2012) claim that banks are adapting to rapidly changing client behaviour and technical and regulatory realities. As more SMEs gain access to mobile phones and laptops, banks must stay abreast of technology advancements like the internet and mobile banking. For instance, M-Pesa, a mobile phone-based product that offers customers the ability to make payments, deposits or savings, is used by 60% of micro, small and medium-sized businesses (MSMEs) in Kenya (Chironga *et al*., 2012; Mutezo, 2013). According to Calice *et al.* (2012), many MSMEs in Kenya and Tanzania with traditional bank accounts prefer M-Pesa for adaptable, acceptable, secure, and dependable transactions (Chironga *et al*., 2012). With new technologies, banks are reportedly more inclined to seek channel innovation to reach SMEs, especially in far-flung rural areas. Thus, the Internet will lower operating expenses and speed up the processing of loan applications. Consequently, it is hypothesised that:

Hypothesis 7: There is a significant positive relationship between innovative strategies and bank credit supply to SMEs.

Figure 1 shows the conceptual framework for the research.

Figure 1: Conceptual framework



Source: Own compilation

To diagrammatically illustrate how credit supply determinants (independent variables) relate to the dependent variable (credit supply), Figure 1 above was created based on the research assumptions.

3. METHODOLOGY

3.1 Procedure and design

This study used a quantitative research approach. Data from the banks was gathered using a cross-sectional survey methodology. The participants were permanently employed in the small business sections of the four commercial banks in the Gauteng province. These employees were chosen as the unit of analysis for the study because they work with small business applications daily. Convenience sampling was used, and the data was gathered via a self-administered survey. The instrument used a five-point Likert scale and consisted of four sections: Section A comprised the demographic profile of the bank employees (E.g. Please indicate your level of education), Section B measured access to finance (E.g. Which of the following sources of finance did you use to finance your business activities?), Section C measured credit risk management (E.g. To what extent did you use the following types of collateral to secure your bank loans?) and Section D measured the bank-SME relationship (E.g. How long have you been banking with your main bank?).

The study employed a stratified random sampling technique. By dividing the target population into four mutually exclusive homogeneous parts, a sample size of 400 was calculated. Afterwards, a simple random sample was chosen from each stratum (Maree, 2017), ensuring a proportional representation from each bank, which resulted in the receipt of 188 responses. The instrument was validated by two academic experts in SME financing and entrepreneurship. It was also pre-tested with ten employees from one of the participating banks in a pilot study. These pilot study participants were omitted from the main survey. The instrument was adjusted based on the feedback from the pilot study.

Concerning ethical clearance, permission was obtained from the institution, and each participant signed a consent form. The participants received guarantees of anonymity, confidentiality, and the freedom to stop participating at any moment.

3.2 Data analysis

The data was analysed using the Statistical Package for Social Sciences (SPSS) version 26.0. The reliability and validity of the study instrument were successfully assessed by utilising Cronbach's alpha and confirmatory factor analysis (CFA) techniques. Internal consistency coefficients for Cronbach's alpha ranged from 0.622 to 0.854. Nunnally and Bernstein (2010) suggest a preferable reliability coefficient between 0.70 and 0.90. However, Cohen et al. (2013) suggested a range of 0.60 to 0.80 as appropriate. Hence, the present study's reliability data was regarded as acceptable for interpretation. Table 1 presents items from the instrument used and the reliability score through Cronbach's alpha coefficient tests.

Table 1: Cronbach's alpha coefficient scores

Scale	Example item	Cronbach alpha coefficient score
Creditworthiness (4 items)	Ability to pay back the loan	0.757
Risk Management (4 items)	SMEs are characterised by information asymmetry	0.632
Bank-SME relationship (4 items)	Lack of banking relationship	0.673
Transaction costs (4 items)	Lack of collateral to secure loan application	0.720
Collateral (4 items)	Vehicle and asset finance	0.671
Lending technology (4 items)	Financial statement lending	0.764
Innovation strategies (3 items)	Use of Internet banking	0.622
Credit supply (4 items)	I received funding from the bank	0.854

A standard multiple regression analysis was then conducted to determine whether the independent variables are significant predictors of bank credit to SMEs. The collinearity statistics (variance inflation factor [VIF] and the tolerance score) were also computed to

determine the extent of multicollinearity (Hair *et al*., 2019). All the results for the study were below 10, and multicollinearity was, therefore, not a problem when interpreting the beta values.

4. RESULTS

4.1 Descriptive statistics

In terms of the level of experience, most of the respondents had been employed for at least two years (29%), 3-5 years (21%), 6-10 years (29%), 11-15 years (17%) and greater than 15 years (5%). A summary of these experiences is given in Table 2.

Table 2: Demographic profile of the frequency distribution of the sample

Duration of banking experience	**Frequency**	**Percentage**
At most two years	55	29.3
3-5 years	39	20.7
6-10 years	54	28.7
11-15 years	31	16.5
Above 15 years	9	4.5
Job description		
Banker	59	31.4
Small business services manager	34	18.1
Relationship manager	46	24.5
IT manager	16	8.5
Risk manager	14	7.4
Supervisor	15	4.8

Note: N = 188

As a result, it may be deduced that the questionnaire was filled out by primarily knowledgeable employees who could supply insightful information. Consequently, the results can be viewed as a true reflection of the dynamics of human capital in the banking sector, the study's area of focus. The respondents comprised bankers (31%), small business services managers (18%), relationship managers (24.5%), credit managers (8.5%), risk managers (7.4%), supervisors (4.8%), and credit analysts (2.1%).

The descriptive statistics and the internal consistency reliability coefficients of the measuring instrument are presented in Table 3.

Table 3: Descriptive statistics and bivariate correlations

	M	SD	A	CS	TC	RM	C	LT	CW	IS	BSMER
CS	3.60	0.90	0.85	1							
TC	3.17	0.60	0.72	-0.54***	1						
RM	1.88	0.50	0.63	-0.11*	0.08	1					
C	3.86	0.63	0.67	0.23*	0.06	0.14*	1				
LT	3.99	0.62	0.76	0.56***	-0.40**	-0.00	0.19*	1			
CW	3.25	0.62	0.76	0.63***	0.65***	0.21*	-0.07	-0.35**	1		
IS	3.48	0.81	0.62	0.46**	-0.40**	-0.18*	-0.03	0.26*	-0.45**	1	
BSMER	3.60	0.90	0.67	0.63***	-0.62***	-0.12*	0.18*	0.51***	-0.66**	0.44**	1

*** p ≤.001; ** p ≤.05; * p ≤ 0.01

Note: CS = Credit supply, TC= transaction costs, RM = Risk management, C = collateral, LT = lending technology, CW = creditworthiness, IS = innovative strategies, BSMER = Bank-SME relationship

Source: Own compilation

Table 3 summarises the mean and standard deviation for each of the variables. All variables have minimum and maximum values that match the extreme scales, showing that the responses are evenly distributed. As shown in Table 3, the lending technology variable obtained the highest mean score (M = 3.99; SD = 0.62), followed by collateral (M = 3.86; SD = 0.63), bank-SME relationship (M = 3.60; SD = 0.90), and innovative strategies (M = 3.48; SD = 0.81). This means that, generally, the participants agreed with the statements. In terms of risk management, participants obtained low mean scores (M = 1.88; SD = 0.50). The following section discusses the results of Pearson's correlation analysis.

4.2 Correlation analysis

The significant correlation coefficients between credit supply and the independent variables are reported in Table 3. As shown in Table 3, the intercorrelations range between r ≥.11 (small practical effect) and r ≥.65 (large practical effect). Table 3 indicates that collateral, lending technology, innovative strategies, creditworthiness, and bank-SME relationships were positively and significantly associated with credit supply (p values range between p ≤ 0.01 and p ≥ 0.05). Transaction costs and risk management were negatively and significantly associated with credit supply. These results supported the hypothesis that credit supply is negatively associated with transaction costs (Khan & Hussain, 2011).

4.3 Multiple regressions

As seen in Table 4, the credit supply and the independent variables produced a statistically significant regression model (F = 30.51; p < 0.00), accounting for approximately 58% (R^2 = 0.579; large practical effect) of the variance in the credit supply dependent variable. The result

of the R square showed that the credit supply model is suitable for this study. The results showed that creditworthiness (β = 0.30, p ≤.001), lending technology (β = 0.28; p ≤.001), innovative strategies (β = 0.16; p ≤.05), and collateral (β = 0.15; p ≤.05) significantly contributed to explaining the variance in credit supply, with creditworthiness accounting for most of the variance.

Table 4: Multiple regression analysis – factors influencing credit supply to SMEs

			Standardised coefficient		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig**
Constant	3.05	1.00		3.06	0.00
Creditworthiness	0.43	0.12	-0.30	3.74	0.00***
Risk management	-0.13	0.15	-0.05	-0.86	0.39
Bank-SME relationship	0.14	0.12	0.10	1.25	0.21
Transaction costs	-0.16	0.10	-0.13	-1.63	0.11
Collateral	0.33	0.13	0.15	2.57	0.01***
Lending technology	0.42	0.09	0.28	4.50	0.00***
Innovative strategies	0.18	0.07	0.16	2.66	0.01***
Model	**R** 0.76	**R Square** 0.76	**Adjusted R Square** 0.56	**Std. Error Estimate** 30.510	

***p ≤.001, **p ≤.01, *p ≤.05.

Source: Own compilation calculated from survey results

The dependent variable, bank credit supply, is influenced by four independent variables: creditworthiness, collateral, lending technology, and innovative strategies.

Hypothesis 1: Creditworthiness affects bank credit supply to SMEs.

The effect of creditworthiness on bank credit supply is significant as β = 0.43, t(188) = 0.3.74, p< 0.05 (at the 95% confidence level). The estimated coefficient is 0.43; for every unit increase in creditworthiness, bank credit supply will grow by 0.43 units. Hypothesis 1 is supported by this study. Hypotheses two, three, and four were not supported because their effect on bank credit supply to SMEs was insignificant.

Hypothesis 5: The effect of collateral on bank credit supply to SMEs was positive and significant as β = 0.15, t(188) = 2.57, p <0.01. Bank credit supply will grow by 0.15 units for every unit increase in collateral. Thus, H_5 is supported by the study.

Hypothesis 6: Lending technology is positively and significantly related to bank credit supply to SMEs as β = 0.42, t(188) = 4.50, p <0.01. Bank credit supply will increase by 0.42 units for every unit increase in lending technology. Thus, H_6 is supported by the study.

Hypothesis 7: There was a positive and significant relationship between innovative strategies and bank credit supply to SMEs, $\beta = 0.15$, $t(188) = 2.57$, $p < 0.01$. Therefore, bank credit supply will grow by 15 units for every unit increase in innovation. Thus, H_7 is supported by the study.

5. Discussion

This research aimed to investigate the factors that induce credit supply, thereby increasing the funding of SMEs by banks. The overall fit of the hypothesised model, as indicated by the adjusted R^2, showed that these factors explained 56% of the variation. According to the analysis, the most relevant explanatory factors were creditworthiness, collateral, lending technology and innovative strategies. These findings corroborate those of Calice *et al*. (2012). The bank-SME relationship factor had an insignificant influence on credit supply. Its coefficient, however, was positive, suggesting that the bank-SME relationship is crucial in determining SME access to bank credit.

Creditworthiness was the most significant predictor of bank credit supply to SMEs, while lending technology was the second most significant predictor of credit supply. These results echo previous studies (Asah & Louw, 2021; Wasiuzzaman *et al*., 2020), meaning that banks prefer to fund SMEs with a good credit record and substantial collateral (asset) base. Such SMEs find it easier to access bank credit with favourable terms and fewer credit constraints (Wasiuzzaman *et al*., 2020).

Furthermore, lending technology and innovative strategies positively and significantly influenced bank credit supply. The simpler the technology used by banks, the easier it becomes for SMEs to adapt to it (Calice *et al*., 2012). The study suggests that innovation can provide a competitive advantage regarding a firm's access to credit. These findings suggest that SMEs with higher access to and use of new technologies are more likely to obtain financial resources from banks from a banking standpoint.

The study suggests that collateral, creditworthiness, and lending technology influence the supply of bank loans to SMEs. These findings suggest that banks should try to match their lending strategies to the swift technological advancements in order to serve as many SMEs as possible, especially in geographically scattered places (Beck *et al*., 2013). Banks must ensure they have cost-effective, innovative technology that enables them access to comprehensive and reliable SME information. Banks should address the underlying difficulties of securitisation and collateral realisation to serve SMEs better. From a banking perspective, it is recommended that SMEs acquire high collateral levels to obtain better finance access.

5.1 Practical implications

The study's conclusions have significant implications for banks, policymakers and SME departments in South Africa and other emerging countries. It has been found that SMEs are an excellent precursor to economic development, which then results in an increase in the standard of living and quality of life of citizens. Therefore, commercial banks may drastically reduce transaction costs by employing technology such as internet banking to boost the amount of credit available to SMEs and make banking services and products more widely available to SMEs. The ease of use and accessibility of e-banking by SMEs may be the secret to their expansion and sustainability. Banks must create novel strategies to seize this ostensibly lucrative sector if conventional lending practices are ineffective for SME finance (Mutezo, 2015; Wasiuzzaman *et al*., 2020).

5.2 Study limitations and future research directions

Owing to the absence of longitudinal data on bank lending to SMEs, this study was limited to a cross-sectional analysis, which excludes the firm's causation between latent variables. More informative results could be derived from an investigation covering time series data. Furthermore, the results cannot be generalised as the study was restricted to Gauteng province. Therefore, future research can extend the study to other provinces to effectively capture factors influencing the supply of bank credit to SMEs in South Africa. Additionally, there is a need for more studies adopting a qualitative method to enhance comprehension of the role of the factors that banks consider when lending to SMEs located in African countries.

6. CONCLUSION

The main obstacle to SME survival and expansion is the difficulty of obtaining bank finance. The study is a quantitative investigation of the factors influencing SME access to bank financing from a banking perspective. The survey data show that creditworthiness, collateral, lending technology and innovation affect SMEs' access to bank credit. The results of this study can add to the knowledge base and assist banks in identifying solutions and initiatives for availing finance to SMEs in South Africa. Overall, it can be concluded that creditworthiness, collateral, technology and innovation are essential for improving SME funding by commercial banks in South Africa, ensuring a positive contribution to its economic growth.

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