Bank Credit Availability to SMEs in Nigeria: The Impact of Firm and Owner Characteristics

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Abstract

This study empirically examines the effect of firm and owner characteristics on the availability of bank credit to small and medium size enterprises (SMEs) in Nigeria using firm-level data from the World Bank Enterprise survey. We found that SMEs with a financial statement and an audited financial statement are more likely to have credit than SMEs that don't. Medium sized firms are more likely to have credit than small firms whilst higher performing firms are more likely to have credit than SMEs that have lower performance. Additionally, we also found that firms with a sole proprietor are less likely to have credit than partnerships or corporations. These findings provide empirical support to the theory that a reduction in information asymmetry reduces the perceived higher lending risk and hence the bank is more likely or willing to lend in these circumstances.

Keywords: Firm and owner characteristics; Bank credit; SMEs; Nigeria

1. Introduction

Banks are a vital source of credit to firms but more especially to SMEs that do not have access to capital markets in order to raise funds. Commercial banks close the funding gap that informal or internal sources cannot fill. Traditional theory for a well-functioning market would suggest that a firm's performance and the expected future cash flows that had been adjusted for risks and transaction cost would be factors that should affect credit decisions of commercial banks. However, studies have revealed a number of firm and owner characteristics that may affect banks willingness to extend credit or not to SMEs (Kunchev *et al.* 2012, Beck *et al.*, 2005). The characteristics include the size of the firm, age of the firm, gender of the owner/manager, educational level of owner/manager and also if the firm has financial or audited financial statement. While some of these characteristics enhance commercial banks decision or willingness to extend credit, others impede their willingness to extend credit.

Several empirical studies have been carried out to examine characteristics of SMEs and how they affect the credit decision of banks. Kunchev *et al.* (2012) found that for developing economies the size of the firm significantly affects bank credit decisions. Berger and Udell (1995) found that small firms that are 10 years older pay a lower loan rate. Korting and Harhoff (1998) in their study of German firms found that older firms pay less for a loan and are faced with less collateral arrangements. However, a study by Yang *et al.* (2012) found that once the size of the firm is controlled, the age of the firm played no significant role in the credit decision of a bank. The Wilson and Marlino (2005) study of UK small firms found no evidence of the owners' gender influencing bank credit decisions. Similarly, Cole (1998) found a positive and significant relationship between firm performance and credit availability.

Despite SMEs' well recognised role in economic development and employment generation, studies on SMEs finance availability in developing countries generally and African countries in particular have been less frequent. It is within the authors' defined knowledge that to date, an empirical study that examines SMEs characteristics and how it affects credit decisions of banks has not been undertaken in Nigeria. Therefore, this study aims to fill this gap, as it seeks to empirically test the role of the above mentioned firm and that of owner/manager characteristics in the Nigerian environment. More specifically, our study seek to empirically test if the size and age of the firm and its performance, the gender of owner/manager, legal status, educational level, and financial/audited financial statement affects the decision of commercial banks to extend credit to SMEs.

Our study add to existing studies in a number of ways. It sheds and broaden the light on the issue of firm/owner characteristics and bank credit decisions in the Nigerian case. It also differs from the above mentioned studies in that it examines the effect of SMEs characteristics on credit availability by testing whether these characteristics affect the likelihood or probability that SMEs are denied or extended credit. Previous studies have mostly focused on the cost of credit and not the availability of credit. More so, this study includes some new characteristics that have rarely been empirically examined but theoretically is said to affect bank credit decision.

We conclude that a SME that has a financial and audited financial statement is more likely to be extended credit by banks than SME that does not. The audited financial statement, being the significant predictor of credit availability, supports the theory that firms with an audited financial statement poses less risk to potential lenders. The result also indicates that medium sized firms are likely to get loan banks than small firms.

Also, sole proprietorship is less likely to be extended credit than a partnership, corporation and Limited Liability Company. Furthermore, better firm performance increases the likelihood or probability of obtaining a loan. On the other hand, characteristics such as gender, educational level and the firm's age were not a significant predictor of bank credit to SMEs in Nigeria. Overall, the most significant predictor of whether a firm is extended or denied credit in all the characteristics examined in this paper is an audited financial statement.

The rest of the paper is structured as follows. Following the introduction, the next section examines the theory and empirical findings of SMEs characteristics as it relates to bank credit availability. The subsequent section contains a description of the data used in this study, whilst the next section describes the variables, the coding of the variables and the method used. Regression results and their interpretation followed by a summary and conclusion are presented in the last two sections.

2. SMEs characteristics and bank credit availability: theory and empirical evidence

Firm size: A plethora of studies such as Francisco and Kumar (2005), Kunchev *et al.* (2012), Bigsten *et al.* (2003), Beck *et al.* (2005), Vergas and Mauricio (2012) and Nikaido *et al.* (2015) have shown that size is a significant predictor of credit availability. However, the effect of size on credit availability is associated with perceived higher risks and cost by banks which small businesses pose in lending, in comparison to large firms. In supplying credit to borrowers, the goal or aim of the bank is to minimise risk while maximising returns (Chapman & Martin, 2007).

The first risk banks that face is that of lending to a borrower who is a high risk in terms of low payback probability. One way of minimising this risk is if the lending bank has information that enables it to ascertain the risk to a reasonable extent (Cressy, 2000 & Kasekende, 2001). In this regard, smaller businesses are more informationally opaque than large firms. Little, if any, public information is known about their performances because they scarcely have public equity or debt securities. (Board of Governors of the Federal Reserve System, 2012). More so, Binks and Ennew (1996) pointed out that small businesses have poor or no audited financial statements and performance analysis was done by external organisations. Hence, the argument that small firms are likely to be screened out of the credit market because of information opacity is acute in small businesses.

In addition to the problem of information opacity associated with SMEs, another problem is that small firms are more likely than large firms to be associated with real risk (Lung and Wright, 1999, and Gertler and Gilchrist, 1991). It is has been argued that during times of economic downturn, small businesses are less able to survive due to fewer opportunities for diversification (Klapper *et al.*,2002, Hughes and Storey, 1994). Contrasting these with large firms that are more diversified, established and older, hence their ability to cope with economic downturn is greater (Brewer *et al.*, 1996). Saito and Villanueva (1981) argued that all of the above mentioned differences translate to a higher transaction cost of lending to small businesses as compared to large firms. According to Saito and Villanueva (1981), the real cost of lending to small businesses as compared to large firms is approximately twice as great. The study of Aryeetey (1994) found this to be the case in Ghana.

Firm age: The main thrust with the age of the firm and bank credit availability is that the firm's age is expected to have a dampening effect on the perceived higher risk associated with lending to SMEs. According to Korting and Harhoff (1998) and Berger and Udell (1995), a firm's age reflects the observable or public reputation of the firm which is built over time. This suggests that as firms get older, the probability of getting a loan from the banks increases. Study by Men and Dong (2014) carried out on emerging economies found evidence to suggest that younger and smaller firms are more credit constrained than older firms. Cole (1998) reveals that firms that are older found loan easier to obtain than younger firms (16 versus 11 years). A study done by Federal Reserve Board of Governors (2012) in US notes that older firms have more success than younger firms of the same size in getting loans from commercial banks. These differences are attributed to the fact that older firms have more records or information available for credit decisions, than younger firms. Hence, they are more likely to be granted a loan rather than the younger, informationally opaque firms.

Berger and Udell (1995) found that the older the firm, the lower the loan rate charged by the banking institution. Their result showed that a small firm, with all criteria equal except it was 10 years older, paid a 33 basis point less on loan rate. In addition to the above finding, Korting and Harhoff (1998) further found in their study of German SMEs that a firm's age had a positive correlation with the cost of the loan as well as the collateral requirement. However, a study by Yang *et al.* (2012) on 113 developing countries suggested that once the size of the firm was controlled, the age of the firm had no significant effect on credit availability.

Firm performance, legal status and activity sector: Theoretically, a firm's performance should affect credit availability positively. If the bank credit decision is based significantly on current firm performance, expected future performance or return, the higher performing firms should be more likely to have credit (Kumar and Francisco, 2005).The empirical study of Francisco and Kumar (2005) in Brazil suggested that firm performance did not attain statistical significance. However, the result could have been due to their proxies (sales growth and turnover) for firm performance. Cole (1998), using profitability as proxy, found a positive significant relationship between profitability and credit availability.

The legal status of the firm, that is, if the firm is sole proprietor, partnership or corporation influences credit availability. Credit availability hinges on the possible higher risks associated with the lending to firms that are owned by a single individual as against a partnership or a corporation. The finding of Cole (1998) seems to support the theory that sole proprietorship poses a greater credit risk to banks than that of a corporation or partnership. The study by Petersen and Rajan (1994) reveals that a corporation pays 24% basis point interest rate, lower than for a sole proprietorship. Hence, both findings lend support to the theory that sole proprietorship is perceived as a greater risk for banks when considering a loan application. Hence, they are more likely to be credit constrained and pay a higher credit cost than partnerships or limited companies.

Sector or industry effect on credit availability is based on the view that some banks may be more disposed to providing a loan to firms that belong to a particular sector of the economy or industry. The reasons according to Rajan and Zingales (1998) as cited by Francisco and Kumar (2005) are, firstly, due to the fact that some sectors tend to have a higher growth potential than others and secondly, government owned banks could be more willing to lend, due to government policies being more greatly disposed to certain sector(s) for various reasons. However, the empirical study of Francisco and Kumar (2005) reveal no significant relationship between industry and credit from the bank.

Owner educational level: The study of Francisco and Kumar (2005) and Kumar *et al.* (2005) in Brazil explored the effect of the education of the top management/owner with credit availability. Kumar *et al.* (2005) found evidence to suggest that education has a significant impact on credit availability. The findings were attributed to the likelihood that educated managers are better able to smooth out complicated and rigorous loan application processes, present better business plans, and are better able to develop closer and longer relationships with the bank. A poor business package has been identified by Obamuyi (2007) as a factor that could inhibit credit availability.

The implication of the findings above are that to the extent to which the better educated manager/owner is able to present a better business plan or package, and form a closer relationship with the bank, increases the probability of obtaining a loan. More so, a study by Gordon *et al.* (2012) in US found evidence to suggest that educated business managers have better managerial skills and hence, they have higher firm performance than the uneducated or less educated group. These findings are corroborated by the McGurkin (1997) cited by Kumar and Francisco (2005) and Lotfizadeh and Shamsi (2015).

Owner gender: The main thrust of gender role in credit availability is the belief that female-owned enterprises are more likely to have less credit available or encounter more difficulties in accessing credit from the banks than their male counterparts. Marlow *et al.* (2008) points that in the context of credit availability, gender is not a biological determination of sexual characteristics but rather is a social constraint. This view is also held by Oakley (1972), as he defined gender as a social phenomenon where men and women are identified as having masculine and feminine characteristics respectively. According to Cranny-Francis *et al.* (2003), the masculine characteristics are viewed as positive and superior to the feminine. The perception when addressing the feminine gender suitability for credit suggests that female-owned enterprises are unattractive to lend to, weaker or inferior in comparison to the male-owned (Smith-Hunter, 2000 and Watson, 2000).

Brindley (2005) and Marlow and Carter (2006) pointed out that female-owned businesses tend to be smaller, younger in terms of firm age, and found in sectors that are crowded and poorly performing. Cole and Mehran (2011), corroborates these finding. In addition to the finding of Brindley (2005), Marlow and Carter (2006) reveal that female-owned enterprises are more likely to be sole proprietorship, have shorter customer-bank relationship, less experience and proprietor to be less educated. Hence, this reduces their prospects of obtaining a loan from the bank.

The empirical findings of Malapit (2010) in Philippines suggests that women-owned small enterprises have less credit availability than their male counterparts. Hansen and Rand (2014) found similar results though they also found that, using a different methodological approach, have yielded contradictory results. However, studies conducted by Wilson and Marlino in the UK (2005) found no evidence of gender bias in credit access from banks. It is noted here that there are other factors that can be alternative explanations for perceived gender bias, such as the performance of the firm, the type of business and industry and where the firm is located. This view is supported by Cole and Mehran (2011), as they found that observed differences in credit availability between female-owned enterprises and male-owned enterprises were insignificant when owner and firm characteristics were controlled for. We aim to test these predictions by using a Nigerian case study of SMEs and subsequently compare our findings with above mentioned literature to find out similarities and differences across the countries and studies. In the following, we discuss data, its sources, construction of relevant dependent and independent variables and their main features alongside the limitations.

3.Description of the data

The data in this study was obtained from the World Bank Enterprise Survey conducted in Nigeria in 2009. It covered a total of twenty six states. The survey was a structured face- to- face interview with key senior

managers/owners of the firm. The survey also included a selection of micro enterprises (establishments with less than five full-time paid permanent employees). The survey covers industries in the manufacturing and the service sector. It also includes construction and computer related activities. A total of 3,157 firms were covered. However, for the purpose of this study which is targeting only small and medium sized firms, 2,897 firms was used after excluding micro and large firms. A total of 65.7% of the firms were small (establishments with five to nineteen full time permanent paid employees) and the remaining 34.3% were medium sized firms (establishments with twenty to ninety-nine full time paid employees). Approximately 80% of the firms are sole proprietorship. The majority of the firms are in the manufacturing sector, precisely 53.5%, and 83.5% are at least six years old. Stratified random sampling was used in order to obtain an unbiased estimate of the population as well as for other reasons (The Nigeria dataset implementation note, 2014). Three levels of the stratification method were used namely: industry, region and size. The industry stratification covered all the industries in the sectors mentioned above.

4. Description of the variables

This study models the likelihood or probability of having credit available as a function of firm characteristics such as size, age, performance, ownership structure, owner characteristics such as gender status and educational level, and lastly but very importantly the availability of financial statement and audited financial statement. To model the availability of credit, we use the answer 'have obtained/utilised bank loan' as the dependent variable which is a direct measure of credit availability to SMEs, and hence a good measure to examine the credit availability situation to SMEs in Nigeria (Cole, 1998 and Scott and Danielson 2004). The SMEs in the dataset differ in all the above mentioned characteristics. The aim here is to use a method that captures these differences and relates it to the probability or likelihood of having bank credit. The independent variables were informed from theory and empirical evidence as already highlighted in section two. Additional motivation comes from the fact that the role of these variables have not been empirically tested in Nigeria before.

The variables' availability of both financial statement and audited financial statement were included because some banks do not consider the information in financial statements as reliable, if it's not audited. Furthermore, including both variables will help capture which variable amongst the two, affects credit availability and/or if both does. For firm age, this study used firms that are six years and above and eleven years and above as the cut-off point. Firms aged less than six years are treated as a base category. The reason for using both is that sometimes regression results could be sensitive to the cuff-off point hence both are used to minimise this problem.

Total sale was used as a proxy for firm performance. We use absolute sale figures rather than growth rates due to availability and a cross section nature of the data. The variable educational level of the owner/manager was given the codes ranging from 1-11. Where 1 is the lowest and 11 is the highest education level. The dependent and the rest of the independent variables used are dichotomous which requires zero and one coding. Table 1 below shows the variables and codes.

Table 1: Coding of Dichotomous Dependent and Independent Variables

Variables	Coding
Dependent variable	
Loan status	'1' if have loan and '0' if don't have loan
Independent variables	
Gender	'1' for male and '0' for female
Legal status	'1' for sole proprietor and '0' for others
Firm age-6	'1' for 6 years and above and '0' for less six years
Firm age-11	'1' for 11 years and above and '0' for less than eleven years
Activity sector	'1' for manufacturing and '0' for others
Financial statement	'1' for firms that have statement and '0' for firms that don't
Audited financial statement	'1' for firms audited financial statement and '0' firms that don't

5. Method of estimation: binary response regression model

Regression models where the dependent variable is qualitative and dichotomous with just two responses are known as binary models. This is the case with the dependent variable in our case too. Because the dependent variable is dichotomous, the use of ordinary least squares to estimate the coefficients is inappropriate (Cole, 1998 and Hoetker 2007). Probit and logit models are used instead when modelling a dichotomous variable, where the interest is to find out the likelihood between the alternatives as to which of the two alternative occurred (Cole 1998, Danielson and Scott 2004, Yom *et al.*, 2008, Timm and Harhoff, 1998, and Hoetker, 2007). The dependent variable Y_i is modelled as a function of the vector of explanatory variables X_i for firm i. Y_i is a latent variable that is linearly correlated to firm and owner characteristics X_i for firm i so that:

$$Y_i^* = \beta X_i + \mu_i \ (1)$$

Where X_i is a vector of firm and individual characteristics variables as mentioned above, Beta are the parameter estimates of the independent variables, μ_i is the random disturbance term. However, binary model instead of having a continuous variable it models the probability of $Y_i = 1$ as a function of the independent variables because Y_i can only take values between 0 and 1. Hence the equation below:

$$Pr(Y_i = 1 \mid X_i) = F(X_i, \beta) \ (2)$$

Equation 2 above shows the probability that the independent variable takes value of 1.

$$Pr(Y_i = 0 \mid X_i) = F(X_i, \beta) \ (3)$$

Equation 3 above is simply showing the probability that Y_i takes on zero. Therefore Y_i, the dependent variable is a latent variable that is determined by the result of the estimated coefficients.

$$Y_i = \{1 \text{ if } Y_i^* > 0\} \ \{0 \text{ if } Y_i^* \leq 0\} \ (4)$$

Equation 4 above explains the values the dependent variable takes when it exceeds a threshold of zero. The dependent variable Y takes the value of one if the estimated coefficients are greater than one and takes zero if the coefficients are less than or equal to zero. Positive coefficients mean that the variable is more likely to have credit while a negative coefficient is interpreted to mean less likely to have loan.

6.Analysis of empirical results

Descriptive statistics: The dependent variable frequency results show that only about 22.42% of the SMEs have loan. The standard deviation result (see Table 2) does show that the responses are not far apart from the mean, that is, they are concentrated around the mean. The minimum and maximum for all variables except for educational level and firm performance are all zero and one respectively. The maximum for educational level is PhD which only 2.2% of firm owners/managers have and the minimum is no education. For firm performance.the minimum is N170, 000 (£567 British equivalent) and the maximum is N320, 000,000 (£ 1,066,667 British equivalent).

Table 2: Descriptive Statistics

	Firm aud. fin. stat.	Firm fin. stat.	Firm size	Firm age-6	Firm age-11	Firm perform	Firm legal stat.	Owner gender	Owner educ. level
Mean	0.193	0.656	0.657	0.83	0.521	1.21E+0.8	0.795	0.855	5.101
Median	0	1	1	1	1	10800000	1	1	5
Maximum	1	1	1	1	6	3.2E+10	1	1	11
Minimum	0	0	0	0	0	170000	0	0	1
Std. Dev.	0.394	0.4749M	0.475	0.376	0.521	1.13E+09	0.404	0.353	1.989
Skewness	1.558	-0.654	-0.664	-1.758	0.642	19.03	-1.458	-2.012	0.107
Kurtosis	3.429	1.434	1.44	4.091	7.673	423	3.126	5.049	2.809

Model statistics: First, out of the ten independent variables, six of them are statistically significant at a 5% level. Secondly, LR Statistic (likelihood ratio), is used to test the significance of the model and the bigger the LR Statistic, the better the model. LR Statistic in this study is 204 for both probit and logit model with a probability of 0.00 for both probit and logit. The result therefore shows that the independents variables are jointly highly significant. The expectation prediction result shows that overall, the estimated model correctly predicts 77.89% and 77.82% of the observations for probit and logit model respectively. Though the McFadden R-squared is low at 0.06 for both probit and logit model but not unusual for a cross section of observations.

Probit and logit regression results

Table 3 shows the regression results. The probit and logit models almost produce similar results. All independent variables were entered simultaneous because the aim is to see which of these variables significantly affects the dependent variable. Unlike ordinary least squares (OLS), the magnitude of the estimated coefficients of binary model using probit and logit cannot be interpreted easily. Hence only the effect that the independent variable has on the dependent variable which is indicated by the sign either positive or negative is explained in the following discussion.

The two main variables, availability of financial statement and audited financial statement are both statistically significant at one percent significance level and positively affect credit availability. This simply means that SME that have a financial statement and an audited statement is more likely to have credit from a bank that uses a financial statement lending technology than SME that does not have a financial and/or audited financial statement. Hence the probability of obtaining a loan is enhanced or increased with the maintaining and provision of a financial and audited financial statement.

Although both financial and audited statements are statistically significant, the result does show that audited financial statement is a better predictor of credit availability than financial statement. This is shown by the coefficient and the correlation results. This result is consistent with theory and empirical findings already highlighted in section two that the more information the lending bank has, the more likely or willing they are to

lend. An audited statement is considered more reliable financial information than a simple financial statement. Hence a firm that has an audited financial statement reduces the perceived higher risk that banks face when lending to SMEs thereby increasing its probability of obtaining a loan. This result in fact, could also be an indication of the lending technology used by the commercial banks in Nigeria.

The variable firm performance measured by total sales is statistically significant at one percent and positively affects credit availability as expected. With SMEs, their total sales is a good proxy for the firm's performance, the result suggesting that a better performing SME is more likely to have credit from the bank, or the probability of having credit increases as a firm performance increases. It therefore follows that if, for example, firm A performs better than firm B, then firm A is more likely to be granted loan than firm B. A possible explanation for a bank's willingness to lend to a higher performing firm could be attributed to the possibility that a firm that performs better, could be perceived by the lending bank, as an indication of the firm's ability to repay a loan if was granted. After all, a firm that does not make higher sales cannot make a profit and hence may not be able to repay its loan. This result is consistent with theory and the empirical findings of Cole (1998).

The variable size is statistically significant and positive. This result suggests that the bigger the firm the more likely the firm is to get a loan from the bank. It therefore follows that large firms will have a higher probability of getting credit than medium firms. Similarly, medium sized firms have a higher probability of getting a loan than small sized firms. Possible explanations for this is that the smaller firms are more informationally opaque, less diversified and less likely to survive during an economic downturn, hence they are perceived as posing a higher risk to commercial banks (Klapper *et al.*, 2005). Empirical works of Laeven and Maskimovic (2005) and Francisco and Kumar (2005) produced similar results.

The variable firm ownership structure is statistically significant but negative as expected. To reiterate, sole proprietorship was given the code '1' and others '0'. The result simply means that the likelihood or probability of a sole proprietor who owns and controls and manages the firm has less chance of obtaining credit than a partnership or Limited Liability Company. A common characteristic of a sole proprietor is that the owner does everything from booking keeping to marketing instead of employing people who are especially skilled and therefore this could likely stunt the growth of the business. Additionally, there is also the fear of continuity of the business should the owner become incapacitated or die which could result also in the death of the business. All of these possibilities make lending to sole proprietors less desirable for banks than to partnerships or limited companies. This result is consistent with theory and the empirical finding of Cole (1998).

The two age related variables such as when a firm is 6 years old and above and firm age 11 years old and above were both insignificant. This study used 6 and 11 years as cut off for firm age, the interpretation is therefore done with caution because the regression result could, in some cases be influenced by the cut-off point. To a reasonable degree, the result could be interpreted to mean that firm age is not a significant predictor of credit availability by banks in Nigeria in lending to SMEs. The ability of an SME to pay back a bank loan is better captured by a financial statement, audited statement or by the firm's performance than by its age. This result is not an isolated case, the study of Yang *et al.* (2012) on developing countries found similar results.

The variable activity sector is statistically significant but negative. To reiterate, the manufacturing sector was given the code one and others sectors zero. The result simply means that the manufacturing sector is not more likely to have a loan from banks than other sectors in this research study. Hence, the activity sector plays no role in credit decision.

The variable owner educational level is statistically insignificant as shown in Table 3. These results demonstrate that the educational level of the CEO/Manager of SME does not predict credit availability. One possible explanation could be that banks in Nigeria do not consider educational level as playing a role in mitigating the risk in lending to SMEs, therefore may not be a factor that is considered by the lending bank in deciding whether or not to lend. The study of Francisco and Kumar (2005) in Brazil found the education level to be significant and attributed this to the ability of the educated manager to smooth complicated and rigorous loan procedures more than the less educated. The educated owner/manager may be able to apply for a loan no matter how complicated the loan procedure is but the decision to lend, as the result indicates may not be based on the educational level. Moreover, the frequencies shows that only 24.5% of the owner/manager have a university degree and 4.9% have master's degree hence even if educational level is considered, only comparatively few SMEs in the dataset have a university degree.

Table 3: Regression Results

Variables	*Probit model*				*Logit model*			
	Coef.	St. error	Z	Prob.	Coef.	St. error	Z	Prob.
Firm financial stat.	0.1614	0.0624	2.5867	0.0097	0.2815	0.1094	2.5729	0.0101
Firm aud. fin. stat	0.2855	0.0726	3.9326	0.0001	0.4871	0.1224	3.9796	0.0001
Firm size	0.2665	0.0660	4.0355	0.0001	0.4761	0.1152	4.1347	0.0000
Firm performance	0.0000	0.0000	3.3679	0.0008	0.0000	0.0000	2.9054	0.0037
Firm age-6	-0.1387	0.0768	-1.8048	0.0711	-0.2355	0.1307	-1.8012	0.0717
Firm age-11	0.0448	0.0612	0.7316	0.4644	0.0747	0.1061	0.7041	0.4814
Firm activity sec.	-0.5834	0.0560	-10.4180	0.0000	-1.0179	0.0988	-10.3041	0.0000
Firm legal status	-0.2453	0.0698	-3.5133	0.0004	-0.4145	0.1189	-3.4868	0.0005
Owner gender	-0.0789	0.0732	-1.0785	0.2808	-0.1179	0.1253	-0.9416	0.3464
Owner edu. level	0.0180	0.0153	1.1775	0.2390	0.0289	0.0267	1.0816	0.2794

The variable owner gender is statistically insignificant. This could be interpreted to mean that the gender of SME owner/manager does not affect the credit decision of banks. It could be that once an SME owner who wants to borrow provides a financial record, collateral if required, the decision to lend is not dependent on the gender but on the prospect of getting back the loan which is better captured by an audited financial statement and good firm performance. The empirical findings reviewed in section two showed a mixed result for different countries.

Disentangling the possible effect of financial statement and audited financial statement

In Table 4, the regression test is carried out without availability of a financial statement and an audited financial statement to examine if there will be significant change in the other independent variables. This is done to see if the above mentioned variables have any confounding effects on the other variables seeing that these variables could be an indication of the lending technology used. If that is the case then possibly some of the firm or owner variables that were significant initially might not be when both variables are removed from the model.

The result below showed no significant change in the coefficients of the variables, all variables that were statistically significant and insignificant remained the same and there were only small changes in the values of the coefficient. However, a correlation test was carried out and the result does indicate that an audited financial statement is the most positive significant predictor of credit availability to SMEs. Alongside financial statements, the firm's performance seems to important predictor of firm's ability to obtain credit. Hence when an audited financial statement is taken out of the picture, then firm's performance is the variable with most predictive power.

Table 4: Regression Results without Financial and Audited Financial Statement

	Probit model				*Logit model*			
	Coef.	St. error	Z	Prob.	Coef.	St. error	Z	Prob.
Firm size	0.1626	0.0619	2.6242	0.0087	0.3046	0.1081	2.8169	0.0048
Firm performance	0.0000	0.0000	3.7034	0.0002	0.0000	0.0000	3.0764	0.0021
Firm age-6	-0.1374	0.0765	-1.7968	0.0724	-0.2301	0.1301	-1.7688	0.0769
Firm age-11	0.0534	0.0610	0.8746	0.3818	0.0915	0.1056	0.8663	0.3863
Firm legal status	-0.2721	0.0686	-3.9681	0.0001	-0.4562	0.1165	-3.9156	0.0001
Firm activity sec.	-0.5755	0.0557	-10.3320	0.0000	-1.0033	0.0982	-10.2139	0.0000
Owner gender	-0.0752	0.0729	-1.0319	0.3021	-0.1104	0.1246	-0.8866	0.3753
Owner educ. level	0.0358	0.0149	2.4127	0.0158	0.0605	0.0258	2.3410	0.0192

7. Summary and conclusions

This study empirically tests the relationship between firm and owner characteristics of SMEs in Nigeria, with the availability of bank credit to SMEs. Specifically, the characteristics empirically tested were: the firm's age 6 years and older, firm's age 11 years and older, firm's size, sector of the firm, firm's legal status, the availability of a financial statement and an audited financial statement, the educational level of the owner/manager and the gender of the owner. The test was carried out using the probit and logit model and the choice of dependent variables was a direct measure of credit availability.

The findings do seem to suggest that the characteristics such as the availability of a financial statement and an audited financial statement, the firm's size and performance do have a positive impact on credit availability in Nigeria. The result also indicated that larger and medium size firms are more likely to obtain a

loan from the bank rather than small firms. Also, sole proprietorship firms are less likely to get a loan from banks than firms that are in partnership, or a corporation together with limited liability firms. On the other hand, owner characteristics like gender and educational level had no significant impact on credit availability. Similarly, firm characteristics like the firm's age were not significant predictors of bank credit availability to SMEs in Nigeria.

This paper also tried to disentangle the potential effect of the indicated lending technology in order to see if it will lead to a significant change in the regression result, but the results were similar. However, the correlation results do show that an audited financial statement is the most significant predictor of credit availability in Nigeria. The results of the frequency of the dependent variable indicate that only about 22% of the SMEs in this study have loans from the banks. Additionally, the most significant predictor of credit availability was the availability of an audited financial statement, only 19.3% of the firms in this study having one out of which a majority of the firms that had audited statements being medium sized firms. The implication of this is that small firms will likely continue to be rationed out of the credit market or likely to have less credit available to them. The good news for small firms is that the better performing firms positively predict credit availability. A financial statement, which about 70% of firms had, included small firm, proved to be a predictor for obtaining bank credit also.

It is important to mention at this point that the overall financial health of the banking system, individual bank performance, government regulatory requirement like reserve requirement, liquidity ratio and capital adequacy ratio are all factors that could either increase or decrease the ability and willingness of banks to lend to SMEs irrespective of the   factors tested in this paper. Nonetheless, the findings from this study have useful policy implications and they are summarised below.

Policy recommendations

The finding that an audited financial statement is better preferred has implications for banks' policy makers. The focus on loan decision on this requirement could lead to the rationing of small firms and some medium firms that have good projects but don't have audited financial statements to back up their loan application. Hence, small firms will likely have problems getting a bank loan which may be due to lending technology used that are supply centred in its focus. Bank policy makers might want to look into using lending decisions that take into consideration the peculiar nature of small businesses. It is highly unlikely for small firm owners in a developing country such as Nigeria to hire the services of an external auditor to audit financial records. Therefore, there should be a lending policy or guidelines especially for small firms that is able to capture the peculiar nature of small businesses as well as the concerns of banks in terms of the risk involved in lending to SMEs.

On the other hand, SMEs are encouraged to do their best to maintain a sound financial statement as this will help reduce the perceived high risks in lending to them. Secondly, SMEs should try to develop a relationship with the potential lending bank and/or the loan officer over time. The latter will help the bank and/or loan officer to gather necessary information overtime about the SME owner and the business which could help reduce the information problems peculiar with small enterprises and hence improve the probability of getting a loan. Thirdly, they should be disciplined, acquire knowledge and skill in the business as this will help improve their business performance and also improve credit availability. Finally, the government at all levels should endeavour to make policies that are SME friendly so as to increase bank lending to SMEs as well as create an enabling environment.

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