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Determinants of small and medium scale enterprises financing by the banking sector in Nigeria: a macroeconomic perspective

Abstract

This study assesses from a macroeconomic perspective the determinants of small and medium scale enterprises (SMEs) financing by the banking sector in Nigeria between 1992 and 2014. The empirical model specifies commercial banks' lending to SMEs as a function of selected macroeconomic indicators which include commercial banks' total deposits, financial deepening, interest rate spread, lending rate, monetary policy rate, commercial banks' total assets and inflation rate. The 2SLS estimation results show that only commercial banks' deposit mobilization, depth of the financial sector and size of the banking sector act as determinants of SMEs financing by commercial banks.

Keywords: small and medium scale enterprises, banking sector, financing, generalised method of moments, Nigeria.

JEL Classification: C22, C26, C58, G21.

Introduction

The promotion of entrepreneurship is crucial to ameliorating the living standards of citizens and fostering the growth of an economy. Adeusi and Aluko (2014) recognize that Nigerians must embrace entrepreneurship regardless of their demographic characteristics such as education, religion and gender in order to alleviate the increasing level of poverty. Entrepreneurship manifests through the establishment of small and medium scale enterprises (SMEs). Small and medium enterprise is defined as a business entity in which the proprietor makes business decisions independently, enjoys all the profits and bears all the liabilities. SMEs are regarded as an important sector of any economy, whether developing or developed. For any meaningful development to take place in an economy, the SME sector must be performing at optimal capacity. Luetkenhorst (2004) argues that they are pertinent in supporting economic growth because they boost employment through their labor-intensive process, provide livelihood opportunities through simple, value-adding processing activities in agriculturally-based economies, and support the building up of systematic productive capacities and creation of resilient small economic systems through linkages between small and large enterprises and mature entrepreneurship.

Ukoha (2013) is of the opinion that for Nigeria to experience any significant economic growth, SMEs will be central to the process. According to Ojo

(2006), SMEs have the capacity to employ over 70% of the labor force as well as the ability to provide 70% contribution to Gross Domestic Product (GDP) in Nigeria. In European and American countries, they contribute more than 50% to GDP while in most Asian countries, they account for more than 40% (Oyeyinka, 2007). SMEs can be adjudged to be more valuable than large enterprises because they produce greater benefits to a nation by contributing more in terms of employment generation, poverty alleviation and productivity. Most industrialized and developed countries of the world reached their level of development by promoting SMEs.

Financing constraint is an inhibiting factor to the development of SMEs. The financing obstacles experienced by small firms have more adverse effect on their growth than for large firms (Beck, Demirgüç-Kunt & Maksimovic, 2005). Onugu (2005) observes that one of the major reasons for the performance of SMEs in Nigeria falling below expectation is attributed to their financing constraint. SMEs often encounter problem in seeking finance from the banking sector due to the perceived risky nature and alarming rate of failure of their business. Commercial banks have performed below the expected level required of them to make SMEs grow. The reasons attributed for banks' reluctance to lend to SMEs are the demand-side and supply-side constraints (Sanusi, 2013). The demand-side constraints include lack of managerial capacity, inadequate collateral and poor recording, among others; while the supply-side constraints include high cost transaction and dearth of understanding by banks on the nature and operations of SMEs. Some macroeconomic factors can also be constraints to the supply side which is dominated by the banking sector.

The aim of this study is to examine the determinants of SMEs financing by the banking sector in Nigeria

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from a macroeconomic view. Most studies have focused on individual or micro-level characteristics that influence SMEs' access to credit from banks. This study takes a different dimension by assessing those economic factors that can decide the volume of credit directed by the banking sector to SMEs. The period under review spans from 1992 to 2014. The rest of this study is organized as follows: the next Section is the literature review, Section two discusses the methodology, Section three focuses on the empirical results and the Final Section provides the conclusion.

1. Literature review

Abdesamed and Wahab (2014) assessed the factors that determine SMEs' bank loan application in Libya. Based on responses from 364 SME owners, the study found through logistic regression tests that business experience does not significantly influence owner's tendency to apply for bank loan. Also, it revealed that owner's educational background, firm's size, loan collateral and interest rate are negatively correlated with loan application while business plans and owner-banker start-up relationship are positively correlated with loan application. Zimmermann (2013) examined the financing of innovations in small and medium sized enterprises. The regression results indicated that financing constraints is a result of the asymmetric information existing between innovating companies and potential external investors. It also revealed that the proportion of bank credits is negatively correlated with increasing profit margins and equity ratios.

Padilla-Pérez and Ontañón (2013) investigated commercial banks' lending strategies for micro-enterprises and small and medium-sized businesses in Mexico and the factors that promote or hinder lending to these businesses. The study discovered that the barriers to increasing the credit supply are lack of information, credit protection failures, informality as well as the changes and disruptions that commercial banking has experienced over three decades. Ukoha (2013) examined the impact of global financial crisis on the Nigerian banking industry in order to establish whether the financial crisis reduced the volume of bank loans to SMEs. The major finding showed that global financial crisis did not disrupt the flow of credit to SMEs.

Ohachosim, Onwuchekwa and Ifeanyi (2013) evaluated the relevance of accounting information in SMEs in Nigeria. The study revealed that SMEs have poor accounting system and their access to finance depends largely on the quality of accounting information they can generate. Nkuah, Tanyeh and Gaetan (2013) examined the challenges and

determinants of access to bank credits in Ghana by focusing on SMEs in the Wa municipality. The result indicated that there was significant positive relationship between certain attributes of a firm and access to credits. It was also discovered that business registration, documentation/recording, business planning, asset ownership among others impact greatly on SMEs' access to bank credits.

Kira (2013) used a sample of 1933 firms located within 5 East African countries. Extracting data from World Bank Business Enterprises survey to evaluate determinants of financing obstacles of firms and analyzing data using ordered probit and multivariate regression models, the study found that SMEs encounter greater financial constraints as compared to large firms because of their size and form of business. Adomako-Ansah (2012) investigated the loan eligibility criteria for SMEs among Ghanaian financial institutions. The sample consists of 10 banks and 5 non-bank financial institutions in Tema Metropolis. The study showed that collateral is the most important lending criteria for all the financial institutions. For banks, it was discovered that lack of guarantor's tax document and age of firm are the lending criteria while collateral, guarantor, business registration documents, bank statement, recommendation by risk managers and credit history are pre-requisites for SME loan application from non-bank financial institutions.

Calice, Chando and Sekioua (2012) conducted a survey of SME financing in four East African countries (Kenya, Tanzania, Uganda and Zambia). It was discovered that a number of obstacles constrained banks' further engagement with the SME segment. These obstacles include SME-related factors, macroeconomic factors, business regulation, legal and contractual environment, lack of a more proactive government attitude towards SMEs, some areas of prudential regulation and some bank-specific factors. Hernández-Cánovas and Koëter-Kant (2011) examined the influence of cross-country differences on bank loan maturity for SMEs, using a sample of 3366 SMEs from 19 European countries. The study obtained that SMEs in countries that protect its creditors and enforce existing laws are more likely to obtain long-term debt. It also showed evidence that banks seem to rely on the institutional environment when determining loan maturity for micro-firms than medium-sized firms.

Serrasqueiro and Nunes (2011) built a panel data to investigate whether firm's age is a determinant of Portuguese SMEs' financing decisions. The study found that age is relevant for the impact of financial deficit on variations of short-term and long-term debt, the level of adjustment of short-term and long-term debt toward the respective optimal levels and the

relationships between usual determinants and short-term and long-term debt. Shen, Shen, Xu and Bai (2009) evaluated how bank size, discretion over credit, incentive scheme, competition and the institution's environment affect lending to small and medium sized enterprises in China. The panel data estimations showed that size is an insignificant factor for banks' decision on SME lending, but lending authority, bank competition, incentives of loan officers, and law enforcement encourage commercial banks to lend to SMEs. Schäfer, Werwatz and Zimmerman (2004) observed that the likelihood of a young high-tech firm in Germany to obtain finance through equity is an increasing function of its financial risk.

2. Methodology

2.1. Sample period and data source. This study aims at assessing, from a macroeconomic point of view, the determinants of lending by the banking sector to SMEs in Nigeria. Annual time-series data from 1992 to 2014 are obtained from Central Bank of Nigeria (CBN) *Statistical Bulletin* for 2014. The rationale for starting from 1992 is because the year was when CBN began to report statistics on SME financing by commercial banks in its annual publication of the *Statistical Bulletin*.

$$LCLSME_t = \alpha + \sum_{k=1}^n \beta_1 LCBTD_{t-k} + \sum_{l=1}^n \beta_2 LFD_{t-l} + \sum_{s=1}^n \beta_3 LIRS_{t-s} + \sum_{m=1}^n \beta_4 LLR_{t-m} + \sum_{p=1}^n \beta_5 LMPR_{t-p} + \sum_{b=1}^n \beta_6 LCBTA_{t-b} + \sum_{c=1}^n \beta_7 LINFR_{t-c} + \varepsilon_t \quad (2)$$

Where L denotes natural logarithm, β_1 - β_7 are elasticities of the independent variables and ε_t is the residual or error term.

The model is estimated with the Two-Stage Least Squares (TSLS) Method. This method overcomes the problems of endogeneity and simultaneity bias in regression models because it uses instrumental variables (IVs).

Data description

1. CLSME: This is the total amount of financial resources channelled by banks to the SME sector. It reflects the level of financial support received by SMEs from the banking sector.
2. CBTD: This is the amount of funds mobilized by the banking sector in form of deposits. It consists of savings and time deposit with commercial banks. The banking sector through its intermediary role converts deposits to credit, thus, an increase in deposits increases the ability of the banking sector to lend to SME sector.
3. FD: It is the ratio of broad money supply (M2) to GDP and it shows the depth of the financial sector. This is an index of financial development

2.2. Model specification and estimation method.

The model specifies Commercial Banks' Lending to SMEs (CLSME) which represents the dependent variable as a function of some macroeconomic indicators. The macroeconomic indicators (independent variables) were selected based on the premise that each has the ability to influence the banking sector towards financing the SME sector. The indicators are Commercial Banks' Total Deposits (CBTD), Financial Deepening (FD), Interest Rate Spread (IRS), Lending Rate (LR), Monetary Policy Rate (MPR), Commercial Banks' Total Assets (CBTA) and Inflation Rate (INFR). The functional expression of the model is presented as:

$$CLSME = f(CBTD, FD, IRS, LR, MPR, CBTA, INFR). \quad (1)$$

This study built a model which expresses the dependent variable as a linear function of one-period lagged values of the independent variables. The lagged dependent variable is not included as a regressor because of its tendency to reduce the explanatory power of the independent variables (see Achen, 2001). Taking the logarithm (L) form of all the series, the AR model specification of Equation 1 is given as:

and it indicates the ability of the banking sector to supply financial services to the real sector. The deeper the depth of the financial sector, the higher the propensity for banking sector to lend to the SME sector.

4. IRS: It is the difference or margin between lending and deposit rates and it reflects the cost of financial intermediation in the economy. The wider the margin, the more profits banks are likely to earn. Increase in interest rate spread encourages banks to lend for investments so as to enhance their profitability.
5. LR: This is the price paid by a borrower for the use of funds (credit). It is the opportunity cost of a bank for not directing funds for other use. LR is an index for interest rate policy. High lending rates are likely to discourage SMEs from borrowing. However, the banking sector is more willing to lend to the SME sector when the lending rate is high.
6. MPR: It is a money market interest rate charged on loans sought from the CBN by banks and it guides all other money market interest rates. MPR is also an index for interest rate policy. Increase in MPR implies that lending rate

charged by commercial banks on loans will also increase, thus discouraging SMEs from lending from them.

7. CBTA: It is the total value of current and fixed assets held by commercial banks and it indicates the size of the banking sector. The greater the size of the banking sector, the higher the ability for banks to extend credit to SME sector.

8. INFR: This is the persistent increase in the general price level of goods and services and it is an index for macroeconomic instability. The prevailing inflation rate tends to influence the decision of banks when charging interest on loans. The higher the level of inflation, the greater the tendency for banks to increase their lending rate and this, resultantly, affects lending to the SME sector.

3. Empirical results

Table 1. Descriptive statistics

Series	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque-Bera
CBTA	7802.267	3047.900	25778.40	159.2000	0.790809	2.033009	3.293398
CBTD	2629.337	655.7400	11936.90	43.44000	1.264637	3.455024	6.329098**
CLSME	35156.57	32374.50	90176.50	12550.30	1.001269	3.423023	4.014558
FD	18.24783	18.70000	38.00000	8.600000	1.230484	4.837670	9.040338**
INFR	17.77826	10.30000	72.80000	6.600000	2.114330	6.426839	28.39042*
IRS	12.91087	13.70000	20.70000	1.660000	-0.937431	4.308313	5.009011***
LR	18.83261	18.29000	29.80000	13.54000	1.614823	6.397570	21.05851*
MPR	13.48652	13.50000	26.00000	6.130000	0.910807	4.880171	6.567766**

Source: authors' computation.

Note: *, ** and *** denote rejection of null hypothesis of normal distribution at 1%, 5% and 10% significance level, respectively.

The average (mean) value of CBTA, CBTD, CLSME, FD, INFR, IRS, LR and MPR between 1992 and 2014 is ₦7,802.267 billion, ₦2,629.337 billion, ₦35,156.57 million, 18.25%, 17.78%, 12.91%, 18.83%, 13.49%, respectively. It can be observed from the distribution that all the series are positively skewed except IRS. The coefficient of kurtosis for CBTD, CLSME, FD, INFR, IRS, LR and MPR is greater than 3, thus, indicating a peaked (leptokurtic) distribution while CBTA has a flat (platykurtic) distribution because their kurtosis

coefficient is less than 3. The Jarque-Bera statistic indicates that CBTD, FD, INFR, IRS, LR and MPR are not normally distributed while CBTA and CLSME are normally distributed.

The TSLS estimation is performed with the HAC (Newey-West) coefficient covariance matrix. 15 IVs were used which include the constant term, two-period lagged independent variables and three-period lagged independent variables. Table 2 presents the regression result of the TSLS.

Table 2. TSLS estimation result

Regressor	Coefficient	t-statistic	p-value
C	7.413664	4.785217	0.0004*
LCBTD(-1)	-1.616568	-2.380091	0.0348**
LFD(-1)	-0.434283	-2.044213	0.0635***
LIRS(-1)	0.820013	0.987683	0.3428
LLR(-1)	-0.613828	-0.898914	0.3864
LMPR(-1)	0.701232	1.565213	0.1435
LCBTA(-1)	1.553884	1.909021	0.0805***
LINFR	0.172925	0.888601	0.3917
Model diagnostics			
R^2	0.893333	F-statistic	13.28233
Adjusted R^2	0.831111	F-statistic p-value	0.000086*
J-statistic	8.291468	Second-stage SSR	1.284592
J-statistic p-value	0.307596	Jarque-Bera	0.177001
DW statistic	1.969773	Jarque-Bera p-value	0.915303

Source: authors' computation.

Note: *, ** and *** denote statistically significant at 1%, 5% and 10% significance level respectively.

From Table 2, it can be observed that only the lagged values of the independent variables of commercial banks' total deposits, financial deepening and commercial banks' total assets are

statistically significant on commercial banks' lending. This indicates that commercial banks' total deposits, financial deepening and commercial banks' total assets are the determinants of future

value of commercial banks' lending to SMEs. However, commercial banks' total deposits and financial deepening are negatively related to commercial banks' lending to SMEs. This implies that as deposit mobilization and the depth of the financial sector increase, banks tend to direct more credit to other sectors, thus reducing the opportunity for SMEs to have greater access to the credit facilities granted by banks. On the other hand, commercial banks' total assets are positively related to commercial banks' lending to SMEs and this indicates that as the size of the banking sector increases, banks increase their lending to SMEs.

The *J*-statistic accepts the null hypothesis that over-identification restrictions are valid, thus, indicating that the IVs used are valid and the model is not misspecified. The DW statistic is very close to 2 and this indicates that there is no first order autocorrelation in the model. The *F*-statistic is statistically significant, thus implying that the IVs used are not weak. The Jarque-Bera indicates that the residuals are normally distributed.

Conclusion

This study assessed the determinants of SMEs' financing by the banking sector in Nigeria from a macroeconomic perspective using annual time series data from 1992 to 2014. Literature suggests that individual characteristics of SME such as age of the

firm, size, business documentation, type of business, type of ownership among others are micro-determinants of financing to SMEs by banks. The influence of macroeconomic indicators on SMEs' financing by the banking sector cannot be overlooked. This is due to the reason that macroeconomic indicators have bearing on every segment of the economy including the banking and SMEs sectors. Based on this premise, some macroeconomic indicators assumed to directly influence the behavior of commercial banks in financing SMEs in Nigeria were selected. It was observed that deposits mobilization, financial sector depth, and the size of the banking sector influence the banking sector in channelling funds to SMEs in Nigeria. This study showed that the Nigerian banking sector places less importance on SMEs as the financial sector deepens and would prefer to supply credit to non-SMEs. In other words, banks perceive SMEs as less lucrative as the banking sector develops. It should be noted that the Nigerian banking sector has been characterized by high lending rate and this has made borrowers of funds passive towards the financial cost of raising funds from banks. This could be a plausible reason why lending rate did not act as a determinant of SMEs' financing by banks. This study suggests that banks' decision to lend to SMEs may not be influenced by the individual characteristics of the SME only but also by macroeconomic factors.

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