SMALL AND MEDIUM ENTERPRISES’ FINANCING AND DYNAMICS OF GROSS FIXED CAPITAL FORMATION: EVIDENCE FROM NIGERIA

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Abstract
This study aims at investigating the impact of Small and Medium Enterprises’ (SMEs) financing on the dynamics of Gross Fixed Capital Formation (GFCF) in Nigeria in both short and long run. SMEs have been described as drivers of domestic investments and growth. Literatures reveal that although there had been concerted efforts at enhancing SME financing in Nigeria, the results reflect an empty box as the funds meant for SMEs are either grossly inadequate or diverted. This has undermined the role SMEs play in stimulating investment (GFCF) and ultimately, economic growth. The current recession in Nigeria could possibly be remedied by strengthening the SME sub-sector of the economy through adequate funding. This is necessary in the face of a tight monetary policy currently being enforced to check the growing inflationary trends in the country. Ordinary Least Squares (OLS), Co-integration and Error Correction Model (ECM) were used in analyzing the effect of SME financing on GFCF. The results revealed that over the period under review (1984 -2014), there actually exists a significant and positive relationship between SME financing and dynamics of GFCF in Nigeria in both the short and long run. Specifically, SME financing is a major contributor to the short run dynamic behavior of GFCF in Nigeria. This study therefore confirms that policies aimed at stimulating SME financing in Nigeria will invariably positively affect capital formation and ultimately, economic growth. The researcher recommends that the government should continue to implement policies that will channel cheap funds to the SMEs sector and ensure that these funds are not diverted to other sectors while creating the enabling infrastructural, legal and institutional environments for SMEs survival and growth. This will engender accelerated investments and may be the key to pulling the economy out of the current recession in the face of tightening monetary policy.

Keywords: SME, Gross Fixed Capital Formation, Error Correction Model.

Introduction
Gross Fixed Capital Formation (GFCF) is the main driver of economic growth (Iyoha, 2007). It describes the ratio of the income that is saved in the present period in order to make up for future returns. It involves acquiring new capital goods, equipment, physical stocks and infrastructures. Small and Medium Enterprises (SMEs) as defined by Sanusi (2003) are those organizations with an asset base not exceeding N200 million and staff base ranging from 10 to 300. In terms of turnover, Banji (2007), added that SMEs are firms that have less than N100 million annually and whose employees are not greater than 300. SMEs are drivers of capital formation and economic growth through their employment generation potentials (Raghnandam, 2005; Ismaila, 2012; Ferranty and Ody 2007; Anand, 2005 and Kauffman, 2005)

The roles SMEs play in an economy is evident in their ability to generate employment, enhance growth of entrepreneurship and generate the inputs of large-scale organizations thereby facilitating forward integration in the economy. They have been found to also assist the growth of businesses, governments and societies by fostering innovations, creating and sustaining jobs and generation of revenues via increases in tax base of the government (Bakare, 2011).

In developing economies, economic growth has been found to be positively influenced by capital formation (Beddies, 1999; Galbis, 1979 and Omankhanlen, 2012) and SMEs contribute to economic growth via capital formation. Izza (2011) posited that SMEs’ growth will be the foundation of any economic recovery. Emerging economies globally have made giant strides in their quest for sustainable growth via the contributions of the SMEs sector. This is mainly due to the cost effectiveness, efficiency and innovativeness of the sector. These are further enhanced by the dynamism they display since there are no significant time lags in making and implementing investment decisions. This is a major advantage SMEs have over large firms. About two-third of industrial jobs are created by SMEs in Nigeria. SMEs dominate the manufacturing sub-sector of the Nigerian economy and create more than 80 percent of total jobs. Even in developed economies where large firms dominate, the roles SMEs play in creating jobs,
improving technology and spearheading innovations cannot be overemphasized (Cull, Davis and Rosenthal, 2006).

Despite the potential roles SMEs play especially in developing economies like Nigeria, the sector had been fraught with a lot of challenges mainly financing. This work therefore aims at empirically investigating the impact of SME financing on the dynamics of Gross Fixed Capital Formation in Nigeria.

The problem
The Nigerian economy is bedeviled with a number of economic vicissitudes. The major concerns enumerated by the Nigerian monetary policy committee (CBN, 2015) include; economic downturns in many world economies including some developed nations; fall in global prices of crude oil and attendant losses to the countries that depend heavily on crude oil export; exchange rate and external imbalance; depleting foreign exchange reserves; hyperinflation worsened by infrastructural deficits and over dependence on imports. These developments have undermined employment generation and worsened the already bad condition of the country. Expansionary monetary policy could worsen the inflationary trends. Contractionary monetary policy could also worsen the recession currently experienced. It is a complex situation that needs a combination of well-articulated policies hence a review of the impact of selective financing (to SMEs) of this nature on investments and ultimately output is important. The way out should be creating investment climates by empowering SMEs through adequate financing.

However, OECD (2006) described SMEs in emerging market economies including Nigeria as typically characterized by low productivity, low level of investment and obsolete technologies for which increases in finance to them can greatly improve.

SMEs in an economy
Industrialization has a direct relationship with economic development of less developed nations of the world and SMEs have been found to fuel this relationship. In these economies, they are responsible for channeling scarce resources and funds to the sectors where they are mostly needed thereby facilitating the equitable redistribution of income. They also are a major channel of import substitution by varying the options consumers have in their choices of goods and services in the local market. By their concentration, they are able to enhance training and skills acquisition for indigenous entrepreneurs thereby contributing to the optimal utilization of limited human, physical and natural capital (Ferranti and Ody, 2007).

Despite these roles, Newberry (2006) identified three major factors affecting SME development. They are unfavourable investment climate, harsh regulatory environment and financial constraints. Barre (2005), Sidadoya (2005), Kimambo, (2005), Demirguc-Kunt and Maksi-Moric (2006) all agree that a major constraint of SMEs is finance. The World Business Environment Survey (2005) stated that from global survey, constraint with respect to finance was a major obstacle to SMEs growth. In the survey, SMEs in most developing countries in the world and Africa chose finance as the most predominant hindrance to their growth.

Arjan, Andre, Achileas, Wim & Mark (2009) observed that SMEs’ needs for finance change in line with their stages of growth, the firm’s specific growth objectives, the managements’ sensitivity to risk and the sector of the economy where the firm belongs. From the foregoing, the SMEs growth trajectory is divided into seed, start-up, expansion and replacement capital stages. During the seed stage, the founders and associates of the organization introduces own capital and loans to the business. This is known as insider finance. These own capital is complemented by bank loans, ‘angel financing’ and leasing at the start up stage of the business. Angels are investors of high net-worth, external to the organization. When the business grows to the expansion stage, venture capital is sought in combination with factoring and retained earnings. In the last stage, the business can go for initial public offering (Arjan et al, 2009).

Kauffmann (2005) identified inadequate financial facilities, lack of information about the ability to repay loans and underdeveloped financial system providing few financial instruments as some reasons why SMEs are unable to access finance. According to Augusto, Maria, Martinez & Sergio (2010), a main determinant of SMEs’ inability to access requisite financing is “Opaqueness”. This explains the challenge of not able to ascertain the capacity of a firm to meet its credit obligations. To Abereijo and Fayomi (2005), the main reason why SMEs cannot easily access finance is because they are seen as organizations with high risk of default worsened by inadequate capital base, lack of collateral, low asset base and susceptibility to market shocks and failure. SMEs’ inability to maintain proper financial records makes potential creditors
unable to assess their credit worthiness. The processing, administrative and litigation costs of lending to SMEs vis a vis the potential gains also deters financial institutions. The inability of SMEs to access finance is further exacerbated by the deficient and weak legal system, institutions and infrastructures (IFC, 2011). This further increases the rate of failure of SMEs.

**SMEs’ financing: The Nigerian case**

The SME subsector in Nigeria had been adjudged to have underperformed. This has a potential to undermine its contribution to capital formation and ultimately economic growth. Inadequate financial resources have remained the pivotal restraint to SMEs ability to contribute to industrial growth in Nigeria. Other factors identified are; harsh macroeconomic environment, technological gap, low research culture, competitive pricing of funds, shortness of tenor of available credits, bureaucratic governmental structures and cumbersome paper-works and dearth of skills and managerial development institutions (Banji, 2007; CBN, 2012; Lead Capital, 2010).

There have been concerted efforts to enhance SMEs ability to access finance in Nigeria. Industrial Development Centers (IDCs) and the Nigerian Industrial Development Bank (NIDB) were established in 1962 by the federal government of Nigeria. The IDCs were to provide services that will enhance the management of SMEs’ ability to appraise projects, apply for loans and access trainings and assistance. The NIDB’s primary purpose of establishment was to assist SMEs access medium and long term financing for their businesses. In 1973, the Nigerian Bank for Commerce and Industries (NBCI) came on board as a financial institution of SMEs. SMEs in the agricultural sector in need of guarantees for loans were supported by the Agricultural Credit Guarantee Scheme formed in 1977. Outstanding defaults that are in excess of 25% of the loans guaranteed by the scheme are paid as collateral pledge (Olaitan, 2006). Deposit Money Banks (DMBs) operating in Nigeria are required to ration a minimum proportion of credit to some key sectors of the economy where SMEs play major roles at a reduced rate of interest. To help SMEs access the capital market for long term financing, the Second Tier Securities Market (SSM) began operation in 1985. The National Economic Reconstruction Fund was also established to cushion the medium and long term financing needs of SMEs. This came at a time of tight monetary policy necessitated by the Structural Adjustment Programme in 1986. In the same year, the National Directorate of Employment (NDE) was formed. The directorate ensured the operations of entrepreneurial development programmes, mature people’s scheme and graduate job creation scheme to empower entrepreneurs who are managers of SMEs in Nigeria.

DMBs were allowed to hold equity shares in SMEs by the amendment of BOFIA 1988. In 2002, the Bank of Industry (BOI) was established with the main objectives of providing credits for industrial sector development including SMEs at relatively low interest rates. A major milestone in SME financing in Nigeria was the introduction of Microfinance Policy in 2005. By this policy, all community banks were converted to Microfinance banks. The number of Microfinance banks has increased since then. The Commercial Agricultural Credit Scheme (CACS) was established in 2009 and funded through the issuance of FGN bonds by the Debt Management Office mainly to finance agricultural value chain from input to marketing. Intervention funds introduced by the CBN to further enhance SMEs’ access to finance in the same year were; N300 billion naira off-grid power and airline fund, N200 billion refinancing and reconstruction funds and N200 billion naira SME guarantee fund.

**Theoretical framework and empirical literature**

Investment has been found not only to depend on the rate of returns but also on the cost of capital. Jorgenston (1963) divided investment variables into three; capacity utilization, internal finance and external finance. External finance which he described as superior to internal finance in determining investment is mainly influenced by the cost of capital (interest rate). When the availability of external finance increases, the cost of capital declines and investment improves. Increasing SME financing increases the availability of external finance they can access and decreases the cost of capital to them, thereby enhancing their level of investment and the overall GFCF in the economy. This is in tandem with the Neo-classical model of investment (Modigliani & Miller, 1958).

Onakoya, Fasanya and Abdulrahman (2013) in examining SME financing in Nigeria using quarterly time series data between the periods of 1996 and 2006, found a direct relationship between SME financing and economic growth via investment generation. This is further buttressed by the findings of
Akingunola (2011) using Spearman’s Rho correlation test. Arjan, Andre, Achileas, Wim & Mark (2009) employing panel methodology on ten countries in an examination of the effects of loans and equity financing to SMEs on the macro-economy, found that business cycles result significantly from bank loans to Small and Medium Enterprises. Omankhanlen (2012) in the examination of bank role in capital formation using Ordinary Least Squares regression technique found a positive and significant relationship between credits to SMEs and GFCF in Nigeria.

Methodology and model specification
In this study, multiple regression analysis will be carried out to find the relationship between SME financing and dynamics of GFCF in Nigeria. The Phillips-Perron (PP) Unit-Root test for stationarity, Ordinary Least Squares, Cointegration and the Error Correction Mechanism shall be the estimation procedures employed. While the Ordinary Least squares and Cointegration tests will be used to show the long run relationships between the variables, the ECM will show the short run dynamics of GFCF to changes in SME financing. The secondary data used spanned from 1984 to 2014 and were gotten from the Central Bank of Nigeria annual statistical bulletins and Nigerian Stock Exchange fact-books. The model is as specified below;

$$GFCF_t = b_0 + b_1SMEF_t + b_2PLR_t + b_3INFL_t + b_4RGDP_t + b_5EXCR_t + e_t$$

Where; GFCF, SMEF, PLR, INFL, RGDP, and EXCR are Gross Fixed Capital Formation, SME financing, prime lending rate, inflation rate, Real GDP and exchange rate respectively; $t$ is time; $e$ is the disturbance error term; $b_0$ is intercept; $b_1$, $b_2$, $b_3$, $b_4$ and $b_5$ are the parameters of the model. GFCF describes capital formation which is proxy for investment and SMEF is measured as the credits advanced to SME by DMBs as a proportion of total credits. It is expected that SME financing positively affect changes in GFCF in both short and long run.

Results and discussions

Table 1: Ordinary Least Squares Estimation Results

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Coefficients</th>
<th>$t$-ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMEF</td>
<td>14.923</td>
<td>2.54</td>
</tr>
<tr>
<td>PLR</td>
<td>-13.90</td>
<td>-1.44</td>
</tr>
<tr>
<td>INFL</td>
<td>-3.63</td>
<td>-1.94</td>
</tr>
<tr>
<td>RGDP</td>
<td>0.0049</td>
<td>11.88</td>
</tr>
<tr>
<td>EXCR</td>
<td>-2.56</td>
<td>-3.12</td>
</tr>
<tr>
<td>$R^2 = 0.884$</td>
<td>$R^2 = 0.849$</td>
<td></td>
</tr>
<tr>
<td>$F_{stat} = 32.58$</td>
<td>$DW_{Statistics} = 1.89$</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation using e-views

Table 1 shows the long run relationship between GFCF and the explanatory variables in the model. With a co-efficient of determination of 0.884, 88.4% of the systematic variation in GFCF is explained by the model. The adjusted co-efficient of determination confirms this implying that there is goodness of fit in the model. The F-statistics that measures the overall impact of the explanatory variables together on GFCF with a value of 32.58 passes the 5% significance test. This implies that the variables taken together significantly affect GFCF. From the $t$-ratios, it is evident that SMEF, INFL, RGDP and EXCR individually affect GFCF significantly at 5% significance level. This is indicated by their absolute values of 2.54, 1.94, 11.88 and 3.12 respectively. With co-efficient of 14.92, a unit change in our variable of interest (SMEF) will result in a significant change in GFCF of 14.92 units in the long run.

Table 2: Phillip Perron test of stationarity

<table>
<thead>
<tr>
<th>Variables</th>
<th>PP lag</th>
<th>PP Test Statistic</th>
<th>Critical PP Value (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGFCF</td>
<td>1</td>
<td>-3.99*</td>
<td>-2.99</td>
</tr>
<tr>
<td>DSGMEF</td>
<td>1</td>
<td>-5.67*</td>
<td>-2.99</td>
</tr>
<tr>
<td>DEXCR</td>
<td>1</td>
<td>-4.75*</td>
<td>-2.99</td>
</tr>
</tbody>
</table>
DINFL 1 -4.41* -2.99
DPLR 1 -8.18* -2.99
*Confirms stationarity at the 5% level of significance

Table 2 confirms the stationarity of all the variables in the model after first differencing. This is evident in their individual PP test statistics which exceed their corresponding critical values. The PP test statistics of DGFCF, DSMEF, DEXCR, DINFL and DPLR are -3.99, -5.67, -4.75, -4.41 and -8.18 respectively are greater than the critical PP value of -2.99 at the 5% significant level.

Table 3: Cointegration test result

<table>
<thead>
<tr>
<th>Variable</th>
<th>PP Lag</th>
<th>PP Test Statistic</th>
<th>Critical value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residuals</td>
<td>0</td>
<td>-5.60</td>
<td>-2.99</td>
<td>*Stationary</td>
</tr>
</tbody>
</table>

*Stationary at 5% level of significance

From table 3 above, the residuals are stationary at 5% level of significance implying that the variables are co-integrated and confirming the OLS results that a long run relationship exists between SME financing and GFCF in Nigeria.

Table 4: Error Correction Model results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>T-Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSMEF</td>
<td>13.99</td>
<td>3.09</td>
</tr>
<tr>
<td>DPLR</td>
<td>-37.38</td>
<td>-7.39</td>
</tr>
<tr>
<td>DINFL</td>
<td>-18.01</td>
<td>-14.23</td>
</tr>
<tr>
<td>DEXCR</td>
<td>-10.83</td>
<td>-8.29</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.91</td>
<td>58.23</td>
</tr>
</tbody>
</table>

R² = 0.98  R² = 0.97
F stat = 35.51  DW Statistics =1.98

Source: Author’s computation using e-views
Table 4 presents the results of the Error Correction Model. Again as expected, the coefficient of determination of 0.98 implies 98% of the short run variations in GFCF is explained by the model. Thus the short run dynamic behavior of Gross fixed capital formation is explained by the ECM. A look at the error correction term (ECT) reveals that the term is correctly negatively signed and significant at the 5% significance level which is impressive. The F-statistics shows that taken together, the explanatory variable of interest (DSMEF) and the other control variables (DPLR, DINFL, DE&XCR) chosen for the analysis significantly explain short run variations in GFCF. This is evident in their t-ratios of 3.09, -7.39, -14.23, -8.29 and 58.23 respectively. Specifically the result indicates that a unit increase in one period lagged SME financing (DSMEF) will significantly increase GFCF by 13.99 units in the short run in Nigeria. The ECT value of -0.91 implies that we are 91 percent certain that the disequilibrium in GFCF caused in a period will be corrected in the subsequent period therefore guaranteeing the relative stability of the model.

From the results presented above, it is evident that a significant and positive relationship exists between SMEs financing and the dynamics of Gross Fixed Capital Formation both in the long and short run. This is in line with the studies of Onakoya et al (2013), Akingunola (2011) and Arjan et al (2009).

Conclusion
This research work was aimed at ascertaining the relationship between SME financing and the dynamics of Gross Fixed Capital Formation in Nigeria. Employing the Ordinary Least Squares regression, Cointegration and Error Correction Modeling techniques, the researcher found that increasing SMEs’ access to finance will enhance investments in both short run and long run. Specifically, the short and long run dynamic behaviors of GFCF are explained significantly by SMEs financing.

Recommendation
The researchers recommends that the government should continue to implement policies that will channel cheap funds to the SMEs sector and ensure that these funds are not diverted to other sectors while creating the enabling infrastructural, legal and institutional environments for SMEs survival and growth. This will engender accelerated investments and may be the key to pulling the economy out of the current recession in the face of tightening monetary policy.

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