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An empirical analysis of factors associated with the profitability of Small and medium - enterprises in Nigeria

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The paper empirically investigated the relationship between profitability, bank loans, age of business and the size of small and medium enterprises in Nigeria. Using fixed-effects regression model, the paper was based on a balanced panel data of 115 SMEs of existing firms that have taken loans or currently have active loans, randomly selected in Ondo State, Nigeria. The equation specified profitability as dependent variable and loans, sales, age of business, size of business and interest rate as independent variables. All the data except interest rate have been derived from the primary source/field survey. The results demonstrate that there is interdependence between the SMEs profitability and bank loans, and a significant relationship between profitability and the size of business. For high profitability, increased loans and growth in size of business remain important. The paper recommends that the government should formulate policies that will compel commercial banks to relax their restrictive regulations and operations which discourage borrowing, and offer more credit facilities for SMEs. Finally, the government should empower the SMEs to access and get credits from the commercial banks through formal and informal entrepreneurship education.

Key words: Profitability, bank loans, entrepreneurship education, fixed-effect.

INTRODUCTION

The performance of small and medium enterprises (SMEs) is of interest to all countries. The enterprises have a big potential to bring about social and economic development, by contributing significantly in employment generation, income generation and catalyzing development in urban and rural areas (Hallberg, 2000; Olutunla, 2001; OECD, 2004; Williams, 2006). In many of the newly industrialised nations, more than 98% of all industrial enterprises belong to the SMEs sector and account for the bulk of the labour force (Sanusi, 2003). It is estimated that SMEs employ 22% of the adult population in developing countries (Kayanula and Quartey, 2000), and provide more employment per unit of capital investment than large-scale enterprises (Inang and Ukpong, 1992). In Nigeria, the SMEs account for about 70% of industrial employment (Adebusuyi, 1997) and well over 50% of the Gross Domestic Product (Odeyemi, 2003). Thus, being able to find out the factors which improve the profitability of SMEs so that they are successful and grow into conglomerates is of considerable concern to the entrepreneurs and the Nigerian government. Recognising the importance of SMEs in economic development, government in Nigeria has set up various programmes and institutions aimed at developing the SME sector. However, SMEs are vulnerable and very few manage to survive due to the problems of finance, low sales, low profitability, high costs of doing business and labour market barriers. Sourcing initial and expansion capital funds has been a perennial problem of SMEs globally. Commercial banks have the capability to pull financial resources together to meet the credit needs of SMEs. Yet there has always been a gap between the supply capabilities of banks and the demanding needs of the SMEs. Specifically, in Nigeria, there is a huge supply of both equity and loanable funds in the commercial banking sector which the SMEs are not benefiting from. For example,
as at the end of the first quarter of 2007, out of N38.2 billion set aside under the scheme by the banks, only N18.1 billion or 47.3% had been assessed by the SMEs (CBN, 2007). Similarly, the Financial Guidelines every year stipulate that banks must dedicate a minimum proportion of their loan portfolio to the SMEs. However, since the 1970s the banks have not met this requirement. On the demand side, the SMEs have been reluctant to seek bank loans despite the various loan schemes being offered by the banks and the government, because of the fear of the business being taken away in case of any problem to meet the agreed terms.

The objective of this paper, therefore, is to investigate the relationship between profitability, bank loans, age of business and the size of business, measured by the number of employees.

The structure of small and medium enterprises in Nigeria

The Small and Medium Industries Equity Investment Scheme (SMIEIS) in Nigeria, defines small and medium enterprises (SMEs) as enterprises with a total capital employed not less than N1.5 million, but not exceeding N200 million, including working capital, but excluding cost of land and/or with a staff strength of not less than 10 and not more than 300. This paper adopts the employees’ criterion of a business with employees of 10 - 300 for ease of comparability with other countries and regions of the world.

The small and medium enterprises (SMEs) in Nigeria are a very heterogeneous group of business, usually operating in different sectors of the economy: The SMEs consist mainly of those engaged in the distributive trade who constitute about 50% of the SMEs, 10% are in manufacturing, 30% in agriculture and 10% in services, which together account for well over 50% of Nigerian Gross Domestic Product (Odeyemi, 2003). There are indications that the SMEs account for about 70% of industrial employment in Nigeria (Adebusuyi, 1997). The multiplicative effects of such employment generation on other sectors of the economy will enhance growth.

The Nigerian financial system

In Nigeria, the financial system is dualistic and consists of formal and informal subsystems. The Informal Financial System (IFS) comprises the institutions such as money-lenders, rotating savings and credit associations and a host of others that are virtually outside the control of the established legal framework. The Formal Financial System (FFS) refers to an organized, registered and regulated sector of the financial system. The formal financial system comprises the banking sector, non-banking sector and the financial markets. Structurally, the financial system comprises the Central Bank of Nigeria (as the apex bank), Nigeria Deposit Insurance Corporation, deposit money banks, and other financial institutions such as development banks, community banks, stock exchange, discount houses, primary mortgage banks, finance companies, and bureaux de change. However, the financial sector is dominated by commercial banks in Nigeria.

In an attempt to make the banking sector sound, stable, reliable, dependable and internationally competitive, the Central Bank of Nigeria (CBN) announced on July 6, 2004, that with effect from January 1, 2006, the minimum paid up capital should be N25 billion. To meet the N25 billion capitalizations, banks were allowed to merge, consolidate or even acquire another bank. At the end of the consolidation exercise, out of the 89 existing commercial banks, 24 groups of banks emerged, while 14 banks that could not merge were set for liquidation. To raise the funds the banks used strategies such as mergers, acquisition, floating of new shares and so on. The hope for the consolidation is that, banks would be able to mobilize a large amount of funds to provide loanable funds to the productive sector. The sector is dominated by the small and medium enterprises in Nigeria. Thus, the tendency is for the SMEs to grow into large and conglomerate firms. The bank will also be able to meet the minimum capital adequacy ratio of eight percent, as prescribed by the Basle Committee of Central Bank Supervision. The eight per cent ratio which relates capital to credit implies that for every N100 credit, a bank needs N8 capital.

SMES finance and government initiatives in Nigeria

The small and medium enterprises in Nigeria are expected to raise funds from two main sources: Equity and debt. The sources of equity (sometimes called internal funds) include owners’ savings and ploughed back profits. Oftentimes, firms make use of debt (external funds) for expansion. These funds can be obtained from informal sources (that is friends/relatives, credit associations, co-operative societies) and also from formal sources (that is banks and governmental agencies). However, because the level of saving is low, derivable from poor income level, business owners cannot save enough or borrow enough from the informal sources.

Similarly, accessibility to formal financial system, especially by SMEs is very limited. On the supply side, banks are not expanding SMEs loans due to imperfect information, high transaction cost of dealing with small loans, geographical dispersion of the SMEs and large number of borrowers and low returns from investment.

On the demand side, SMEs are reluctant to obtain loans because of the collateral security, high interest rate and untimely delivery of credits.

This problem of finance has persisted for a long time, despite the existence of various economic reform programmes by the government aimed at developing the SME sector. The government has introduced, since the early 1970, various credit schemes. The list of past and present pro-
Table 1. Ratio of loans of SMEs to commercial banks’ total credit.

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial Banks Loans To Small Scale Enterprises (₦ Million)</th>
<th>Commercial Banks Total Credit (₦ million)</th>
<th>Commercial Banks loans to Small Enterprises as percentage of total credit (%)</th>
<th>CBN prescribe minimum lending %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>20,400.0</td>
<td>41,810.0</td>
<td>48.8</td>
<td>20</td>
</tr>
<tr>
<td>1993</td>
<td>15,462.9</td>
<td>48,056.0</td>
<td>32.2</td>
<td>20</td>
</tr>
<tr>
<td>1994</td>
<td>20,552.5</td>
<td>92,624.0</td>
<td>22.2</td>
<td>20</td>
</tr>
<tr>
<td>1995</td>
<td>32,374.5</td>
<td>141,149.0</td>
<td>22.9</td>
<td>20</td>
</tr>
<tr>
<td>1996</td>
<td>42,302.1</td>
<td>169,242.0</td>
<td>25.0</td>
<td>20</td>
</tr>
<tr>
<td>1997</td>
<td>40,844.3</td>
<td>240,782.0</td>
<td>17.0</td>
<td>-</td>
</tr>
<tr>
<td>1998</td>
<td>42,260.7</td>
<td>272,895.5</td>
<td>15.5</td>
<td>-</td>
</tr>
<tr>
<td>1999</td>
<td>46,824.0</td>
<td>353,081.1</td>
<td>13.3</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>44,542.3</td>
<td>508,302.2</td>
<td>9.7</td>
<td>-</td>
</tr>
<tr>
<td>2001</td>
<td>52,428.4</td>
<td>796,164.8</td>
<td>6.6</td>
<td>-</td>
</tr>
<tr>
<td>2002</td>
<td>82,368.4</td>
<td>954,628.8</td>
<td>8.6</td>
<td>-</td>
</tr>
</tbody>
</table>


As Hallberg (2000) observes, government assistance strategies in both developed and developing countries often try to achieve a combination of equity objectives (alleviating poverty and addressing social, ethnic and gender inequalities) and efficiency objectives (raising the productivity and profitability of firms). However, as Ojo (2003) argues, all these SME assistance programmes have failed to promote the development of SMEs. This was echoed by Tumkella (2003) who observes that all these programmes could not achieve their expected desires due largely to abuses, poor project evaluation and monitoring as well as moral hazards involved in using public funds for the purpose of promoting private sector enterprises.

At the urban and rural levels, private individual and small firms have established Community Banks since 1990 as a means to stimulate the economy from the grassroots.

The Bankers’ Committee introduced Small and Medium Industries Equity Investment Scheme (SMIEIS), from 1st August, 2001, and directed all commercial banks to invest 10% of their profit before tax in small and medium scale enterprises of their choice. This is aimed at improving the flow of funds to re-vitalize the real sector of the economy.

Although, commercial banking system aggregates credit to the domestic economy has grown phenomenally from ₦41, 810.0 million to ₦954, 628.8 million in 1992 and 2002 respectively, Table 1 shows that the ratio of loans of small-scale enterprises to commercial banks’ total credit to the economy has continued to decrease over the years.

The implication of the above scenario is that commercial banks are ready to give a sizeable proportion of credits to SMEs, only if they are forced to do so. For instance, Table 1 shows that since October 1, 1996, when the mandatory bank’s credit allocations of 20% of the total credit to small scale enterprises wholly owned by Nigerians was abolished by the government through CBN directives, commercial banks’ credits to SMEs have declined progressively to 8.6% in 2002.

Theoretical framework

The main problem of SMEs is finance because all smaller firms live under tight liquidity constraints (Da Silva et al., 2007). Finance, whether owned or borrowed, is needed to expand so as to maximise profit. The pecking order theory states that firms prioritise the source of financing from internal (cash flow or entrepreneur’s own capital) to external, according to relative availability and (opportunity) cost. For most firms, the internal funds are always insufficient to undertake the required level of transactions for profitable projects. This calls for external finance to fill the finance gap. When the sums so borrowed are invested by the firm and the investment has proved a success, additional
Accessibility to finance
- Entrepreneur’s own capital
- Banks
- Credit Associations
- Government support agencies
- Non-governmental Organisations

Factors of Production
- Increased quality and quantity of factors of production. eg. Capital, equipment and machinery, labour, etc

Production and marketing efficiency
- Bulk purchases of productive resources
- Economies of scale
- Effective marketing strategies

Firm’s Performance
- Improved performance eg. higher profits, higher growth in sales, employment, etc.

Constraints
- Increased risk due to asymmetric information
- Higher cost of capital

Figure 1. Model of loans and firm’s profitability.

assets are created, which can again be used as security for further borrowing. Thus, accessibility to finance is expected to positively influence the availability of factors of production such as land, labour, capital, equipment and machinery, subject to the constraints of asymmetric information and high cost of capital. For instance, interest rate, being cost of obtaining credit, is inversely related to the profitability of the firm, since rising interest will force the producers to incur higher costs of production. All things being equal, increased quality and quantity of factors of production available to a firm will generate more production, and through effective and efficient marketing strategies enhance firm’s performance. Availability of finance also enhances bulk purchases of productive resources, which decrease unit cost of production as a result of economies of scale. The reduction in unit cost of production is also expected to generate an increase in profit. Thus, the improved firm’s performance ensures higher profits, higher growth in sales and employment and wealth maximization for the owners.

Based on the aforementioned theoretical framework, the paper is of the option that availability of finance would result in improved firm’s performance (Figure 1).

Statement of hypothesis

Firms profitability is positively related to bank loan, business sales, age of firm, size of business and interest rate.

MATERIAL AND METHODS

The study was conducted in Ondo State of Nigeria, being a typical state in terms of the characteristics of SMEs in Nigeria, availability of physical and financial infrastructure as well as economic resources. Two methods were used to identify the SMEs, since no comprehensive listing of SMEs is available in the state. First, listing of firms from the Ondo State Board of Internal Revenue tax reports was used to identify the names and addresses of SMEs. Second, the names and addresses of SMEs were obtained from the listing at the Ondo Ministry of Commerce and Industry, Akure. The SMEs selected for the sample met the Small and Medium Industries Equity Investment Scheme’s (SMIEIS) definition for SMEs of having 10 - 300 workers. This study also required that selected firms must have been in existence for 3 years to get meaningful data. The data was selected for a 14 year period of 1990 - 2003.

A comprehensive structured questionnaire was developed to collect data from the firms on the amount of loans, sales, level of profit, size of business (measured by the number of employees) and business age. The questionnaire was pre-tested with 20 SMEs in two towns of Ado-Ekiti and Ikere Ekiti (both in a neighbouring State) with similar characteristics as the selected towns in our sample.

The study employed the fixed-effects model that involved specifying regression equation that incorporated profit as dependent variable, and loans, sales, age of business, size of business and interest rate as independent variables for the 115 firms randomly selected. The use of profitability to measure performance is in line with profit or utility maximization assumptions that are the cornerstones of many economic theories (Rantamaki-Lahtinen et al. 2007). As cited in Rantamaki-Lahtinen et al. (2007), Penrose (1995) observes that managers try to maximize long-run profits, while Barney and Arikan (2005) regard firm as a profit-maximizing entity. The fixed-effect regression model is specified as:

\[ \text{PROFIT}_t = \]
Where:

$\alpha_1 \text{LOANS}_j + \alpha_2 \text{SALES}_j + \alpha_3 \text{BIZAGE}_j + \alpha_4 \text{BUSIZE}_j + \alpha_5 \text{INTEREST}_j + \beta_j + \lambda_j + \epsilon_j$

$\alpha_1 > 0; \quad \alpha_2 > 0; \quad \alpha_3 > 0; \quad \alpha_4 > 0; \quad \alpha_5 < 0$

Thus, theoretically, our a priori expectations concerning the coefficients of the variables are that LOANS, SALES, BIZAGE and BUSIZE carry positive signs, while the coefficient of interest variable, INTEREST, is expected to carry a negative sign. The data for the dependent and independent variables used in the regression analysis, except that of the interest rate, were from the primary data from field survey. Data from the interest rate was collected from Statistical Bulletin of the Central Bank of Nigeria.

The main limitations of the study are the small size of the sample, the exclusive focus on Nigerian entrepreneurs and the reliance on owner-entrepreneurs who may have inflated idea of the true value of their ventures. Another limitation is that the data base does not allow us to capture the extraneous variables, which although may impact on the profitability of SMEs, but cannot be quantitatively measured by the model. These variables include socio-economic and political variables such as government policy on SMEs and the effect of changes in the environment. However, while the direct effect of the studied variables may have been confined, the use of fixed effect on panel data enhances the generalisability of the findings.

**DATA ANALYSIS, RESULTS AND DISCUSSION**

Effect of bank loans and other factors on firm’s performance /profitability

The econometric analysis was used to test the hypothesised relationship between the profitability of the firms and each of the performance indicators of loans, sales, age of business, size of business and interest rate (Table 2).

The coefficient of loan amount was positive and statistically significant and confirms our a priori expectations of economic theory. This implies that bank loan is positively related to firm’s profitability and that profits of SMEs tend to increase with increasing amount of loans. This result is consistent with simple economic theory which suggests that access to credit should lead to higher profits and further confirms the work of McMahon et al. (1993) that the financing decision impacts upon the profitability of an enterprise, and as stated by Keasey and Watson (1991), the use of banks’ financing by SMEs is associated with higher business performance.

The coefficient of sales carries a positive sign, in conformity with our a priori expectation of economic theory. This means that profits tend to increase with increase in sales. For profit maximising firms, a strategy to maintain a high level of profitability requires that the firms must produce quality products which can easily be sold to generate more revenues, especially through effective and efficient marketing strategies. To achieve full potential of sales, the product life cycle must be considered and the entrepreneurs must maximise the profitability during the growth stage.

The coefficient of the age of business (BIZAGE) carries a negative sign, contrary to our a priori expectation. This indicates that the older the SMEs are, the less their profitability. Although, this result is consistent with the work of Almus and Nerlinger (1999), that found an inverse relationship between age and growth rate, the study by Stanger (2000) did not support such conclusion. Stanger (2000) argues that the relationship should be positive, since older businesses are more likely to have attained diminishing costs of production over some range of sales and hence be able to operate more economically and efficiently than recently established ones. With regards to the Nigerian environment, the results of the inverse relationship between profitability and age of business may not be that unexpected, because newer firms are involved in a remarkable pace of innovation and technological change that demands a continuous research and dynamic efforts may lead to higher efficiency, as compared to older firms. Similarly, older firms find it difficult to adjust to hostile business environments like changing interest and exchange rates and high labour cost, all of which were not envisaged when they started, whereas, newer businesses are more familiar with their current operating environments and, therefore, build their businesses on such premises.

The coefficient of size of business (BUSIZE), measured by the number of employees, conforms to our a priori expectation of positive sign and the variable is statistically significant. This means that as the size of firms becomes bigger, more profits are expected to be realised. This is because larger firms find it easier to borrow money from banks.

**Table 2.** Results of fixed effects regression of the profitability of SMEs dependent variable – profit.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficients</th>
<th>t-stat.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOANS</td>
<td>0.000000000003</td>
<td>2.81</td>
<td>0.005*</td>
</tr>
<tr>
<td>SALES</td>
<td>0.00000000002</td>
<td>1.61</td>
<td>0.109</td>
</tr>
<tr>
<td>BIZAGE</td>
<td>-0.153177</td>
<td>-</td>
<td>0.459</td>
</tr>
<tr>
<td>BUSIZE</td>
<td>0.741</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTEREST</td>
<td>0.0438390</td>
<td>4.77</td>
<td>0.000*</td>
</tr>
<tr>
<td>R^2</td>
<td>0.771236</td>
<td>5.07</td>
<td>0.000*</td>
</tr>
<tr>
<td>Chi^2</td>
<td>0.768</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSS</td>
<td>9576</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s Computations from Study Sample Data

*Indicates significance at 5%

α_1 \text{LOANS}_j + α_2 \text{SALES}_j + α_3 \text{BIZAGE}_j + α_4 \text{BUSIZE}_j + α_5 \text{INTEREST}_j + β_j + λ_j + ε_j

Where,

PROFIT_j = profit before tax for firm j at time t
LOANS_t = amount of loan obtained by firm j at time t
SALES_t = level of sales by firm j at time t
BIZAGE_t = age of business by firm j at time t
BUSIZE_t = Size of firm j (measured by the number of employees) at time t
INTEREST_t = interest rate at time t
β_j and λ_j = intercept coefficients, which allow for different unobserved firm specific factor and vector of time series dummies.
ε_j is the error component that varies over both individual firms and time.

α_1, α_2, ……α_5 are parameters to be estimated,

j = 1,2,……115 and t = 1990-2003.
for expansion and hence be able to enjoy the economies of scale from bulk purchasing, and increase the quality and quantity of factors of production such as capital, equipment and machinery and employ more workers which will ultimately increase profitability.

Surprisingly, the interest variable, although statistically significant, had a positive sign contrary to our a priori expectation. This implies that the profits of SMEs tend to increase with increasing rate of interest. This counter-intuitive result could be accepted in Nigeria's case, because, the share of interest charges in total cost of operations of most Nigerian firms is low (Oleka et al., 2003). Moreover, often times, most Nigerian firms pass increased interest rates to the final consumers in form of proportionally higher prices, thus even getting higher profit level.

CONCLUSION AND POLICY IMPLICATIONS

The study has contributed to our knowledge on the series of factors associated with the profitability of small and medium-sized firms in Nigeria. The results demonstrate that there is interdependence between the SMEs profitability and bank loans, a significant relationship between profitability and the size of business and a positive relationship between profitability and interest rate. For high profitability, more loans and growth in size of business remain important.

The findings of the paper implies that government should formulate policies that will compel commercial banks to relax their restrictive regulations and operations which discourage borrowing and offer more credit facilities for SMEs. The Government should re-introduce and enforce the mandatory minimum credit allocation by banks to SMEs in the Annual Monetary Policy Circular and Guidelines. Also, the government should empower the SMEs to access and get credits from the commercial banks through formal and informal entrepreneurship education for SMEs to develop their managerial capabilities, accounting skills and overall, be more credit worthy. Certificates of attendance obtained from such trainings should be made a prerequisite to obtain loans.

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