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## Application of Management Accounting Methods and Viability of Small and Medium Enterprises in Nigeria

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### Abstract

*The viability of Small and Medium Enterprises (SMEs) is of interest to both government and operators of the enterprises in the Nigerian economy. The viable operation of the businesses is a function of both internal (endogenous) and external (exogenous) factors. In as much as enterprises depend on government intervention in the area of provision of critical infrastructure for their operation and viability, the application of internal management accounting methods is also sacrosanct for the viability of the enterprises. Unfortunately, the businesses, in the economy are facing viability challenges not only because of a lack of critical infrastructure but due to the failure of the operators of these enterprises to deploy internal managerial accounting methods for the viability of the businesses. Research/studies on the impact/influence of the methods on the viability of the enterprises could have been one of the ways of bringing enlightenment to SME operators in the country on the impact of managerial accounting methods on the viability of the businesses but none. Previous studies on SME operations are on the impact of external factors on the profitability of the businesses. Therefore, this study aims to examine the impact of the application of management accounting methods on the viability of SMEs in Nigeria. A survey research design approach was employed to achieve the stated objective. Data for the study were collected primarily from randomly selected 240 respondents made of up owners and managers of 240 SMEs across the six geopolitical zones of Nigeria. The analysis of the data was done using correlation Analysis of Variance (ANOVA) and multiple regressions. Results showed that all the explanatory variables of the study: Capital Budgeting (CB), Inventory Costing (IC), Total Quality Management (TQM), Trend Forecasting Analysis (TFA), Cash flow Analysis (CfA), and Constraints Analysis (CA) have a positive and significant impact on Business Viability (BV) as indicated by  $R^2$  value at 0.4862. The study recommended that SME operators in Nigeria should in addition to government intervention for the provision of critical infrastructure deploy internal managerial accounting methods in their operation and viability.*

**Keywords:** Management, Accounting, Methods, SMEs, Viability

### 1. Introduction

The role of Small and Medium Enterprises (SMEs) in the socio-economic transformation/development of a nation cannot be overemphasized. The operation of the sector has been contributing to the economic well-being of citizens of many countries through job creation, poverty reduction, and improved standard of living. The contribution of SMEs to the improved standard of living of citizens of a nation comes in different forms of economic activities that will trigger the improvement of infrastructure such as roads, health facilities, education, shopping centers, and other public and private services. The sector is revered as the spinal cord of a country in terms of economic growth as they (SMEs) produce goods and other industrial materials required in a country to satisfy human wants (Garth & Cosmond, 2013). Satisfaction of

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human needs and wants involves value addition to the inputs as the activity will make the business output more attractive for the price customers will pay.

Value creation in business entails the professional skills of managers in the area of formulation of policies planning, controlling of operations, and appropriate accountability for resources used (Noorhoney, 2015). The essence of the quartet (Policy formulation, planning, control, and accountability) is to ensure that resources obtained are effectively and efficiently utilized in the accomplishment of the organization's goal(s). Management accounting methods assist the management of enterprises in determining whether organizations are meeting their set objectives or not.

Activity evaluation of an enterprise involves data gathering about the ratio and application of a variety of management accounting methods such as trend and forecasting analysis, cash flow analysis, and constraint analysis for it to be able to respond adequately to issues that might hinder its viable operation. The use of management accounting methods by entrepreneurs has been notable in promoting the viability and competitiveness of SMEs in many developed economies such as China, Japan, the USA, and the UK (Kingston & Wegner, 2020). It is with the importance of these methods in the operations of these businesses in these countries that studies have been conducted on the influence/impact of the managerial accounting variables on the viability of SMEs in different economies. Some of these include (Longman & Young, 2014; Williams & Tonsh, 2016; Borleau & Pillen, 2019; Chu & Shane, 2021).

Unfortunately, many SMEs in the Nigerian economy are facing viability challenges not only because lack of critical infrastructure like electricity, good road network, and security (exogenous factors) but also due to the failure of operators of these businesses to deploy managerial accounting methods for their viable operation (Obbot & Okon, 2021; Imabe & Eneyo, 2022). The failure has led further to issues that bother on competitiveness and performance of the businesses in both local and internal markets (Obbot & Okon, 2021). Studies into the extent to which the usage of these methods can impact the viability of SMEs in the Nigerian environment would have been of benefit to entrepreneurs but no study in the area. Studies on SME viability only focused on exogenous factors and their influence on business viability and performance in the country. For instance, the studies of (Otayi & Seun, 2017; Ngulu & Ubuchie, 2018; Joel & Onuwa, 2019; Titilayo, 2022) focused on the impact of infrastructure, insecurity, and their influence on the viability of SMEs in Nigeria. The dearth of studies on the endogenous factors and their influences on the viable operation of businesses in Nigeria is buttressed by Obagu (2023) who remarked that there are no research studies on the influence of managerial accounting methods on the viable operation of SMEs in the country.

The general aim of this study therefore is to investigate the influence of the application of management accounting methods on the viability of the operation of SMEs in Nigeria. The specific objectives however are to: ascertain the impact of capital budgeting, inventory costing, total quality management, trend and forecasting analysis, cash flow analysis, and constraint analysis on the viability of SMEs in Nigeria. The six (6) variables are the major classification of management accounting methods as part of internal measures usually applied by managers for improved performance (Detheryl & Foxlin, 2017).

The study is of value and contributes to knowledge of endogenous factors that propel the viability and growth of SMEs in Nigeria. The viability of SMEs is significant to the growth of the Nigerian economy and interest to entrepreneurs, the government, and the people of Nigeria.

## **2. Literature Review and Hypotheses Development**

### *2.1 Conceptual Review*

**Management Accounting Methods (MAMs):** These refer to accounting methods that help organizations in planning and controlling operations for the attainment of short-, mid-, and long-term objectives (Dodcard & Kutlee, 2016). The essence of planning, control, and constant assessment of threats to the attainment of objectives is to ensure that businesses survive and grow in the future. MAMs are managerial accounting measures that enable businesses to meander through uncertainty for the attainment of objectives (Detheryl & Foxlin, 2017).

**2.1.2 Capital Budgeting (CB):** The accounting method is useful for project/investment analysis. CB also known as investment appraisal is a financial management tool used by entrepreneurs and managers to measure potential risk and expected long-term return on projects (Harsleys & Pimm, 2016). Managers use CB methodology to make well-informed decisions about projects to choose for implementation in the face of limited resources (Jordan & Perroto, 2015). This methodology of accounting methods involves the creation of budget costs, estimation of a timeline for expected return, and a decision on whether the project value is worth its capital investment (Webbord & Shack, 2018).

**2.1.3 Inventory Costing (IC):** The method involves analysis of costs to order and hold inventory as well as administration of related paper and expenses (Gordon & Destiglitz, 2017). Thalmat et al (2018) defined IC as a process of balancing the

costs and benefits of having products readily available to meet customers' demands. The costs broadly classified into ordering and holding costs are further segregated to include the cost of storage, insurance taxes, depreciation, obsolescence, and other associated costs while the benefit of stock holding is meeting the demands of customers. (Kentmoor & Wyther, 2018). Finding a balance between holding and stock-out costs is the essence of IC and key to effective inventory management, customer satisfaction, and profitability of an enterprise (Pvider & Deberger, 2016).

**2.1.4 Total Quality Management (TQM):** It is a management philosophy based on the belief that the success of a business is rooted in quality delivery. Thus, Martins, et al (2018) observed that for quality delivery, the focus of workers should be on key areas namely: reduction of product defects, minimization of production waste, and discovery of potential areas for improvement and innovation. Thus, Dominic et al (2016) defined TQM as a system of management based on the principle that employees' commitment to customer satisfaction through quality delivery will trigger sales and patronage. Bartney and Detmon (2015) identified the benefits of TQM to include competitive advantage strengthening, adaptability to change, higher productivity, enhanced quality, elimination or reduction of defects, and higher profitability.

**2.1.5 Trend and Forecasting Analysis (TFA):** It is an act of shaping a picture of what the future might look like for a business based on what has occurred in the past (Bernard & Jonita, 2018). The analysis involves using market research and consumer buying habits and preferences to create products that meet the needs of consumers. The key importance of TFA lies in the fact that it helps prevent enterprises from spending resources on products that may not be acceptable to target audiences (Mieen & Graham, 2015).

**2.1.6 Cash Flow Analysis (CFA):** The analysis entails recording in detail, business inflows and outflows of actual cash and cash equivalents (Napoleon & Kevin, 2016). While consistent positive inflow is an indicator that a business is operating on strong footing, consistent negative cash flow is a sign that a business is in a financial crisis (Astraca & Dorcan, 2016).

**2.1.7 Constraint Analysis (CA):** It is a managerial accounting method that involves the examination of a condition (s) or events that may prevent a business from fully delivering its objectives (Giovanni & Kate, 2017). The analysis creates room for identifying, evaluating, and managing limitations that affect the performance of a business. Through the analysis, businesses can improve their decision-making, resource allocation efficiency, improved performance, and goal attainment (Maltomer & Fetcher, 2016)

**2.1.8 Business Viability (BV):** The concept has to do with business survival, growth, and profitability. The trio (survival, growth, and profitability) of any business and indeed SMEs are linked to the financial position and performance (Odokun & Dutola, 2018). A business like an SME is viable where it is returning enough profit to the owner or owners and is also able to meet its commitments to other stakeholders. It is the financial condition of a business where it has a reasonable chance of success for a long time (Roy & Collins, 2016). Entrepreneurs usually do BV analysis before embarking on any investment. The essence of the analysis according to Odusoya and Bosun (2015) is for profitability assessment meaning the prospect of the investment bringing in more revenue/money than its operational costs.

## 2.2 Empirical Review

Prior studies have been conducted in developed and developing economies in the area of the influence of management accounting methods on business viability and growth. For instance, Bernard and Nedley(2019) examined the effect of TQM on the viability of manufacturing enterprises in Japan for the period 1999-2017. Data for the study were obtained from responses from 1562 entrepreneurs in small machine manufacturing businesses. Results of descriptive analysis of the data indicated that TQM adoption played a significant role in customer satisfaction and profitability of the enterprises. In another study in China Hyan and Lin (2019) assessed the extent to which TQM has contributed to the success of manufacturing in the country. Results of ANOVA and MANOVA analysis of responses of 630 respondents made up of owners and managers of SMEs revealed that TQM has been significant in meeting customer needs and satisfaction with multiplier effect patronage, loyalty, and viability of businesses.

In the UK, Graham and Marndt (2020) did a study on the impact of inventory costing on the viability of SMEs. Data for the study were obtained from seven (7) manufacturing companies in Ireland. The analysis was done using a t-test, Pearson product-moment correlation tests, ANOVA, and multivariate linear regression analysis. Results showed that IC impacts significantly on the profitability of enterprises. In the developing nation of Egypt, Ishaq and El-Adam (2019) examined the influence of inventory control on listed manufacturing firms on the Egyptian Stock Exchange. The findings of the study revealed that IC has a positive and significant influence on the performance of the firms denoted by profitability.

Relmy and Aviano (2019) in their investigation of the role of CfA in assessing the financial stability of SMEs in India found from descriptive analysis of responses obtained from Managers in 260 SMEs that financial stability and profitability assessment of enterprises are related with CfA. Similarly in Indonesia, Lestari and Aditya (2022) investigated endogenous issues affecting the performance of SMEs in the Asian country. Data obtained from randomly selected 150 SME operators were analyzed descriptively. The result indicated that the lack of accurate determination of cash flow (Cf) patterns and trend forecasting constitutes the major issues hindering the profitability and growth of the businesses.

In Singapore, Wei and Damien (2021) examined the importance of constraint analysis in business operations. Data obtained from the responses of selected 97 respondents made up of managers and owners of the enterprises were analyzed using weighted mean and Kruskal-Wallis H test. Results indicated that CA has been significant in improving the performance of the businesses. Similar to Thailand, Sarawut et al (2022) carried out a study on factors aiding the survival and profitability of SMEs in Bangkok. Data obtained from a sample of 1050 SME operators were analyzed using multiple regression. Results revealed that CA has a significant impact on the survival and profitability of the enterprises.

In Nigeria, previous studies (Tajudeen et al, 2013; Hawal & Sule, 2015; Ogalla & Daudu, 2016; Otayi & Seun, 2017; Ngule & Ubuchie, 2018; Joel & Onuwa, 2019; Titilayo, 2022) focused on exogenous variables particularly infrastructure and insecurity and their impact on the performance of SMEs in the country. This study therefore differs from the previous ones as it used endogenous variables of management accounting methods and the influence of these variables on the viability of SMEs in the country. This study is a response to the identified gap and a contribution to knowledge on research in the area of entrepreneurship growth and profitability in Nigeria. It is based on the identified gap in research that the study has the following conjectural hypotheses:

- H0<sub>1</sub>: Capital budgeting has no significant influence on the viability of SMEs in Nigeria
- H0<sub>2</sub>: Inventory costing has no significant impact on the viability of SMEs in Nigeria
- H0<sub>3</sub>: Total quality management has no significant impact on the viability of SMEs in Nigeria
- H0<sub>4</sub>: Trend and forecasting analysis has no significant impact on the viability of SMEs in Nigeria
- H0<sub>5</sub>: Cash flow analysis has no significant impact on the viability of SMEs in Nigeria
- H0<sub>6</sub>: Constraint Analysis has no significant impact on the viability of SMEs in Nigeria.

### 2.3 Theoretical Framework

The study is anchored on the Fit-Viability (FV) theory developed by Goodhue in 1995 (Ertmond & Moore, 2017). FV theory is a theoretical framework that addresses the importance of balancing organization fit and viability to achieve sustainable success (James & Lyon, 2015). The theory emphasizes the need for organizations to activate their internal system, strategy, methods, culture, and strength against external forces (exogenous factors) to remain viable. The provision of the framework of the theory is for organizations such as SMEs in Nigeria to activate their internal strategy against external variables particularly poor infrastructure to survive and remain viable in the long term (Nkechi & Obasi, 2020).

The relevance of the theory to this study is from its emphasis on the importance of maintaining a balance between fit and viability which ensures that organizations including SMEs are not overly focused on external factors that limit their viability. Rather, businesses should deploy their internal managerial effectiveness for success.

### 3.0 Data and Methods

The study was a survey research that made use of primary data. Questionnaires were distributed to collect data from randomly selected 240 respondents made up of owners and managers of 120 SMEs in six (6) states and the Federal Capital Territory. It was a simple randomization based on a single sequence where every person in the desired sample size (240) had equal opportunity to be selected. Out of the 240 questionnaires distributed, 165 of them were returned representing approximately 72 percent response rate though, 152 of the questionnaires were found usable representing approximately 66 percent usable questionnaires. The data were analyzed using multiple regression to examine the impact of explanatory variables on the response variable.

### 3.1 Research Instrument and Validation

The questionnaire used is a close ended 5 point likert scale format adopted from the works of Hyan & Lin (2019), Harkin (2017) and Harmmer (2016). Reliability of the measuring instrument was done using Cronbach's Alpha for each Construct on the variables (Predicator and response variables). The Cronbach's Alpha values for the constructs are above 0.70 confirming the internal consistency and the reliability of the measuring instrument (Hair et al, 2017).

**Table 1: Reliability of the Measuring Instrument**

Variable	No. of Items	Cronbach's Alpha Value
BV	8	0.813
CB	6	0.712
IC	7	0.703
TQM	6	0.868
TFA	8	0.792
CfA	9	0.811
CA	7	0.774

Source: Author's Computation (2023)

### 3.1 Model of the Study

The model of the study was adopted from the work of Surkartrio et al (2010) Barnley (2012) and Gowner (2015). The econometric equations of the model are as follows:

$$BV = f(CB, IC, TQM, TFA, CfA, CA) \text{ ----- (1)}$$

The linear equation depicting the relationship between the response variable (y) and the explanatory variables ( $x_1, x_2, x_3, x_4, x_5, x_6$ ) represented by CB, IC, TQM, TFA, CfA, and CA in equation 1 is given below:

Inputting the coefficient of the variables:

$$BV = a + \beta_1 CB + \beta_2 IC + \beta_3 TQM + \beta_4 TFA + \beta_5 CfA + \beta_6 CA + \varepsilon = (2)$$

Where a = Intercept, BV = Business Viability of SMEs, CB = Capital Budgeting, IC= Inventory Costing, TQM = Total Quality Management, TFA = Trend Forecasting Analysis, CfA= Cash flow Analysis CA = Constraint Analysis,  $\beta_1$ - $\beta_6$  = Coefficient of the explanatory variables

The assumed positive signs of the Coefficient were the apriori expectation of a positive trend among the predictor variables.

**Table 2: Measurement of Variables**

Variable	Measurement	Sources
BV	Measured by rated responses on BV constructs with a minimum between 1.0-1.80 and a maximum between 4.21-5.0 on five-point Likert Scale	Othman et'al (2014) Ferrtler (2016)
CB	Measured by rated responses on CB Constructs with minimum values between 1.0 - 1.80 and maximum between 4.21-5.0	Gideon & Hitcher (2015)
TQM	Measured by the rated responses on IC questionnaire constructs with minimum values between 1.0-1.80 and maximum between 4.21-5.0	Chapman & Lee (2016), Harkin (2017)
TQM	Measured by rated responses on TQM Construct with minimum values between 1.0 -1.80 and maximum between 4.21-5.0 on a point Likert scale	Barker & Dosner (2015) christen (2016)
TFA	Measured by rated responses on TFA constructs with minimum values between 1.0 -1.80 and maximum between 4.21-5.0	Wedler & Porter (2014) Singler (2015)
CfA	Measured by rated responses on CfA with minimum values between 1.0-1.80 and maximum between 4.21-5.0 on a point liker scale	Nicholas & Benta (2015), Torgger (2016)
CA	Measured by rated responses on CA items (questionnaire constructs) with minimum values between 1.0-180 and Maximum between 4.21-50	Ken & Tim (2016) Harmmer (2016)

Source: Table created by Author (2023)

## 4.0 Results

Table 2 presents the descriptive statistics for the normality test of the data distribution. The Skewness, Kurtosis, and Jarque-Bera statistics results fall within the acceptable values. For the skewness of the distribution, the values fall within the acceptable range of between -3 to +3 (Davlics & Portsh, 2013). Similarly, the kurtosis is within acceptable values of -10 to +10, and the Jarque- Bera values are close to zero (0) (Ken & Sarth, 2015). These values confirm the normality and absence of outliers in the data distribution and therefore suitable generation of the characteristics in the population. The absence of outliers further confirms that all the variables included in the model are normally distributed (Davlics & Portsh, 2013).

**Table 3: Descriptive Statistics and Normality Test**

Variable	BV	CB	IC	TQM	TFA	CFA	CA
Mean	4.34170	4.22392	3.67936	4.10214	3.68132	4.01273	3.2000
Maximum	4.027408	3.772296	3.950367	4.356112	4.278322	4.009235	4.328411
Minimum	1.35704	1.35704	1.35704	1.37613	1.20000	1.81000	1.04118
Std. Dev	4.98716	4.98716	4.98716	4.98716	4.98716	4.98716	4.98716
Skewness	-2.96152	1.96372	2.13452	-1.68963	0.68963	-1.03414	2.41331
Kurtosis	-8.76186	3.64615	-7.68441	3.63418	4.63418	3.3100	-2.99982
Jarque-Bera	0.079518	0.00613	0.03911	0.01037	0.01037	0.07130	0.00360
Probability	0.05781	0.4311	0.04618	0.02113	0.02113	0.11202	0.20000

Source: Author's Computation 2023

Table 3 shows the correlation/relationship between the pair of the predictor variables in a matrix form. The correlation coefficient values for all pairs are below 0.7 indicating the absence of multicollinearity (Rolland & Ferleen, 2014; Gerthrod & Pedlon, 2016). The absence increases the precision of the estimated coefficient and the high statistical power of the regression model. The high statistical power of the regression model is an indication of the high power of the explanatory variables to predict likely change in the responses variable.

**Table 4: Pair-wise Correlation Matrix**

Variable	CB	IC	TQM	TFA	CFA	CA
	0.5816		0.3633	0.4562	0.6483	0.5103
CB	1	0.2364	0.3152	0.3782	0.4082	0.5631
	0.0895	0.0127	0.0814	0.2235	0.0585	0.3816
IC	0.04615	1	0.4062	0.5721	0.5569	0.3083
	0.0017	0.0811	0.1109	0.1565	0.1734	0.0028
TQM	0.4181	0.3686	1	0.5114	0.3687	0.4413
	0.0470	0.1264	0.0561	0.1593	0.0206	0.0821
TFA	0.4163	0.5812	0.4873	1	0.3667	0.5614
	0.2169	0.1528	0.0167	0.1673	0.0561	0.0614
CFA	0.3864	0.4115	0.3262	0.4161	1	0.2117
	0.0184	0.1152	0.1556	0.1771	0.1396	0.0833
CA	0.3818	0.4146	0.5131	0.4264	0.3153	1

Source: Computation using R-Statistical package

Table 4 presents the results of the Analysis of variance (ANOVA) results. The Sum of Squares (SS) displays the total variation between the group mean and the overall mean having the same value of 7.319. Further, the overall fitness of the model was confirmed by the higher values of F-statistics greater than the critical value of 5.05 at a 5 percent ( $\alpha 0.05$ ) significance level. The fitness was also confirmed by the residual value which showed the average distance of the observed values from the regression line. The value on the table is 0.369 less than 1.00. The smaller the value, the better the regression and fitness of the model (Markus & Ornuell, 2020).

**Table 5: Analysis of variance (ANOVA)**

Source of Variation	Df	SS	MS	F-test value	Pr(>F)
CB	1	7.319	7.319	14.861	0.0101
IC	1	68.717	68.717	139.535	0.0349
TQM	1	122.693	122.693	249.134	0.0262
TFA	1	17.351	17.351	35.234	0.0483
CFA	1	21.846	21.846	42.096	0.0216
CA	1	94.192	94.192	112.094	0.0313
Residual	1	0.369	0.369		

Source: Computation using R-Statistical package

Table 5 presents the summary of the regression analysis. The Pr(>/t/) is the p-value. The values showed that the predictor variables are statistically significant at five percent or 0.05 chosen level of significance or 95 percent confidence level. Further, with the p values of all the predictor variables less than or equal to 0.05, the null hypotheses of the study are rejected. The rejection implies that all the predictor variables have a significant impact on the response variables (BV). The

finding is consistent with previous studies (Bernard & Nedley, 2019; Huan & Lin, 2019; Ishaq & El-Adam, 2019; Relmy & Aviano, 2019; Graham & Marndt, 2020; Lestari & Aditya, 2021; Wei & Damien, 2021 and Sarawut et al 2022).

The impact of the predictor variables on BV was further confirmed by the value of the coefficient of determination ( $R^2$ ). The combined impact of the predictor variable on the response variable at 0.4862 indicated that about 49 percent variation/likely changes in the dependent variable are accounted for by the explanatory variables while about 51 percent variation is accounted for by other factors outside the model of this study.

**Table 6: Summary of Multiple Regression Analysis**

	<b>Estimate</b>	<b>Standard. Error</b>	<b>t-value</b>	<b>Pr (&gt;/t/)</b>
<b>Intercept</b>	-146.371	9.241	-11.839	0.0300
<b>CB</b>	11.585	2.372	3.66	0.0421
<b>IC</b>	49.682	4.253	3.761	0.040
<b>TQM</b>	101.321	5.408	14.049	0.040
<b>TFA</b>	-38.162	3.919	2.739	0.026
<b>CFA</b>	23.102	3.005	5.768	0.0173
<b>CA</b>	70.55	3.432	4.259	0.0414
$R^2 = 0.4862$ Adjusted $R^2 = 0.4163$				

**Source:** Computation using R-statistical package

### 5.0 Conclusion and Recommendation

The paper examines the impact of the application of management accounting methods on the viability of SMEs in Nigeria. It was a survey research that made use of a questionnaire for data collection. Data obtained from randomly selected owners and managers in six states of the country and FCT was empirically analyzed using multiple regression. Results indicated that the predictor variables (endogenous managerial accounting methods) have a positive and significant impact on the viability of SMEs in Nigeria. Based on these findings, the study recommended that SME operators in the country in as much as they depend on the government for the provision of critical infrastructure for their operation, should also look inward for internal measures that can stimulate their viability such as the explanatory variables of this study.

The study is a contribution to the existing literature in the area of internal managerial accounting policies that can stimulate the growth and profitability of SMEs in Nigeria. The study therefore is worthwhile given the importance of the sector in the nation's economy and the lack of research on the combined effects of these managerial accounting methods on the viability of SMEs in Nigeria.

The study is limited by its focus. The research focused on SMEs, further studies on the impacts of these accounting methods are suggested for Micro businesses operating in Nigeria.

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