

Exploring the Impact of Accounting Information System on Profitability of Manufacturing Companies in Nigeria

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ABSTRACT

Accounting Information System is a structure that provides stakeholders within an organisation with vital data relating to the organisation financial activities so as to aid the operations of employees, owners, customers and other stakeholders. This paper explores the impact of Accounting Information Systems (AIS) on Financial Performance of Quoted Manufacturing Companies in Nigeria. Secondary data were sourced through annual statement of financial report of manufacturing companies listed on the Nigerian Stock Exchange over a period of 6 years (2013-2018). A total of five companies were purposively selected because they hold a strong market. They are Nestle Nigeria PLC, Dangote PLC, GlaxoSmithKline Nigeria PLC, Friesland Nigeria PLC, and Cadbury Nigeria PLC. Panel data analysis was adopted with focus on fixed and random effects techniques on STATA 12. Findings revealed that the level of investment in AIS is justifiable as it positively impacted on the profitability of the selected companies. The result further shows that the adoption of AIS has not altered the basic accounting procedures. It is therefore recommended that manufacturing companies in Nigeria should put mechanisms in place to aid further investments in the adoption of Accounting Information System.

KEYWORDS: *Accounting Information System; Profitability; Hausman Test; Fixed Effect; Random Effect.*

INTRODUCTION

The main objective of any business organisation is to make profit and remain a going concern. To achieve this, information about the accounting and financial well being as well as the accurate documentation of financial transactions of the organisation is essential. Onaolapo & Odetayo (2012) elucidated that Accounting information is an ingredient in most, if not all, financial managerial decisions. Accounting information system is the combination of human resources, machines and technologies, policies, instructions and processes, data along with internal control

mechanisms that works together to identify, collect, organise, summerise, interpret and communicate financial data for informed decision making.

Accounting Information System is a system that provides people with requisite data relating to organisation activities so as to aid the operations of employees, owners, customers and other stakeholders (Kashif, 2018). It is important to note that decision makers rely majorly on the effective and proficient utilization of limited resources at the disposal of the organisation which is dependent on the availability of quality accounting information. Accounting Information System is a structured system that business adopts mainly for the purpose of storage, management, process, retrieval and also to report financial data so as to aid accountants, financial officers, consultants, auditors, regulators and tax authorities in taking adequate decisions. To achieve this task, an Accounting Information System must have a source document from which financial data is computed into the input devices for the information processing through the aid of aid of accounting softwares. There must be the storage devices and then an output device for eventual communication of the required data.

Hence, Etim (2011) held that accounting information combines the study and practice of accounting with design, implimentation and monitoring of information systems. Such system make use of modarn information technological devices in conjunction with the traditional accounting methods with the aim of equiping decision makers with information needed to manage the organisation.

Nnenna (2012) stated that accounting information is needed not only by management in the direction of an organisation but also by other stakeholders who require periodic financial data in order to assess the performance of the company. This makes it an obvious fact that information system is essential to manage a successful organisation. The manufacturing industry relies on stuctured accounting information system to process payment, collect, process and store financial data, production of managerial report and financial statement as well as providing accurate records and process data.

Accounting information system presents lots of advantages to the stakeholders, as it provides a platform for the automation and integration of different business department, such as sales, finance, purchase, inventory and production as well as facilitates the arrangement of accurate and up-to-date business information in a readily usable form. It also allows user to assess fast and accurate data entry and at the same time has the flexibility to record the transactions with the changing volume of business. It generates quality report in real time because of high speed and accuracy yet not lossing confidentiality as compared to the traditional accounting system (www.toppr.com). Gilbert (2019) further stated that Accounting Information Systems makes accounting jobs easier by the use of software packages which can compile financial, tax and payroll data and also parforms other book-keeping functions. This is then communicated to managemnt and other stakeholders for the pur[ose of decision making. He further held that it if efficient and cost effective.

PROBLEM STATEMENT

Accounting Information System (AIS) being a critical component of management decision making. This study seeks to explore the impact of accounting information systems on profitability of manufacturing companies in Nigeria. There are four main reasons for concentrating on this topic:

- 1) Limited research on AIS and profitability in developing countries with emphases on manufacturing companies as the few ones are basically in the banks and financial institutions particularly in Africa.
- 2) Nigeria with a population of approximately over 180 million people, with 169 listed companies and over 14 trillion naira capitalization, there are 12 sectors in the Nigerian Stock Exchange of which companies with elements of manufacturing occupies 8 and recent Federal Government of Nigerian policies which is geared towards encouraging local manufacturing as against importation makes it imperative for this research to be carried out.
- 3) The manufacturing industry employs in large scale and also deals with lots of financial transaction between the stakeholders (suppliers, employees, tax authority etc).
- 4) Lastly, the challenge of cost of setting up the technological infrastructure, cost human expertise, fraud, accuracy of information and loss of data vis a vis the profitability of the companies is essential as the overall aim is to remain profitable which is a requirement to remaining in business.

LITERATURE REVIEW

THEORETICAL REVIEW

Contingency Theory

The contingency theory submits that the structure of an accounting Information System should be flexible so as for it to take into consideration the organisations environment and its structure. The theory further opined that Accounting Information Systems need to be tailored towards specific decisions being considered within the organisation. Gordon & Miller (1976) in their work on a contingency framework for the design of accounting information systems held that the basic framework for considering accounting information system lays within the contingency perspective.

Furthermore, Gordon & Narayanan (1984) held that in the act of decision making, Accounting Information Systems should be designed to meet the specific aspirations of the organisation. They additionally opined that in designing an Accounting Information System, the environment should be a factor to be considered.

Empirical Review

There has been a number of scholarly researched works carried out in the area of Accounting Information System and firm performance with varying results.

Al-Dalaïen & Khan (2018) in their work on the effect of Accounting Information System (AIS) on financial performance: a study of selected real estate companies in Jordan, examined the extent of impact of AIS on financial well being of selected real estate companies in Jordan. The study made use of primary data by administering questionnaire to the employees of the selected companies. While AIS was taken as the independent variable, financial performance was adopted as the dependent variable. The result of regression analysis shows that there exist a positive and significant relationship between AIS and financial performance in four of the selected five companies.

Soudani (2012) worked on the correlative impact of accounting information systems on the performance of organisation. The outcome of the research showed AIS to be an important factor for organisation performance through the collection, storage and processing of accounting data to be evaluated by its impact on the improvement of decision making and performance measures.

Ironkwe & Otti (2016) in the study titled accounting information and financial performance of banks in Nigeria. A total of 91 money deposit banks were adopted for the study while primary data were gathered through the aid of well-thought-out questionnaire. Data was analysed using Pearson Product Moment Correlation (PPMC) on SPSS. The finding showed accounting information to be statistically significant in determining their profitability as well as the quality of service delivery of banks in Nigeria.

Patel (2015) researched into the effect of accounting information system on organisational profitability. From the analysis conducted, the findings showed that there exist a positive and significant relationship between accounting information systems used by organisations and its profitability. The study further concluded that an effective accounting information system will lead to improved and qualitative financial reports, provide efficient internal control, ultimately increase the profitability base of the organisation and enhance critical decision making by management and other stakeholders within and without the organisation.

Firas (2018) on his study of the impact of the use of accounting information systems on the quality of financial data, held that there is a significant difference at ($\alpha \leq 0.05$) among Jordanian service companies in terms of the nature, inputs and security of accounting information systems and the quality of financial data attributed to the sector to which the company belong. A sample size of 70 individuals who works in different service sectors of the Jordanian economy were administered questionnaire out of which 56 representing 80% was useful.

Elena, Raquel & Clara (2011) studied the impact of accounting information systems on performance measures: empirical evidence in Spanish small and medium enterprises. The study is based on a survey carried out among small and medium sized firms to ascertain the extent to which

development and implementation of accounting information systems had taken effect. The result indicated that there is a positive relationship among the SMEs that use AIS for fiscal and bank management which leads to better performance measures.

METHODOLOGY

There are 12 sectors in the Nigerian Stock Exchange (NSE) with a total of 169 quoted companies and over 14 trillion capitalization. The study sets to evaluate the impact of Accounting Information System on the Financial Performance of the manufacturing industry in Nigeria. The research made use of secondary data covering years 2013-2018 collected from the annual report and accounts of the selected listed manufacturing companies. Six (6) manufacturing companies listed on the Nigerian Stock Exchange were purposively selected for the study because of their largest market share in the manufacturing industry.

Operating Expenses (OPEX), Cost of Human Resources (CHR), and Research and Development Cost (RDC) were used as proxies for Accounting Information System while Return on Capital Employed was adopted as proxy for Financial Performance.

RESULT AND DISCUSSION

The data for the study were gathered through secondary means. Data were gotten from the annual reports of five manufacturing companies listed on the Nigerian Stock Exchange. Data analyses were achieved using statistical package STATA 12. The result is thus presented.

FIXED EFFECT ESTIMATION

Fixed effect estimators are consistent where a long panel is involved and are preferred to random effect estimators and if the error components and one or more regressors are correlated, then the random effects estimators are biased, whereas those obtained from fixed effect model are unbiased. The fixed effect estimation covers both one-way fixed effect model and the two-ways fixed effect model. One-way fixed effect model only allows the intercept term (the fixed effect) to differ across individual subjects or time period, while the two-way fixed effect model allows for both the cross-sectional and time effect (Oscar, 2007).

The fixed effect estimation employed in this study made use of the least square dummy variable (LSDV) technique, which included $n-1/t-1$ dummy variables for the one way fixed effect estimation and $[(n-1)+(T-1)]$ for the two-way fixed effect estimation in order to avoid falling into the dummy variable trap (a situation of perfect co-linearity).

The result reported shows co-efficient of determination (R^2) of 0.8635 and Adjusted (R^2) of 0.7617 which indicates that the independent variable incorporated into this model have been able to revealed that AIS has positive impact on financial performance of the companies under study

Table 1: Fixed Effect Parameter Estimate Model 1

Fixed-effects (within) regression **Number of obs** = **30**

Group variable: company **Number of groups** = **5**

F(3,22) = **9.66**

corr(u_i, Xb) = -0.9346 **Prob > F** = **0.0003**

```
-----+-----
       roce |      Coef.  Std. Err.   t  P>|t|  [95% Conf. Interval]
-----+-----
operatinge~s |  2.47e-07  1.51e-07   1.63  0.116  -6.66e-08  5.61e-07
costofhuma~e |  7.04e-06  2.66e-06   2.64  0.015   1.51e-06  .0000126
researchan~t | .0000167  .0000208   0.81  0.429  -.0000263  .0000598
       _cons | -21.70771  10.38086  -2.09  0.048  -43.2363  -.1791181
-----+-----
```

F test that all u_i=0: F-stat(4, 22)=3.19 Prob > F = 0.0330

Source: *Authors' Computation (2020)*

RANDOM EFFECT ESTIMATION

Evidence from literatures reveals that because of the problems inherent in the fixed effect model such as the loss of degree of freedom model as more dummy variables are added to the model, probability of multi co-linearity, inability of the fixed effect model to track the impact of time-invariant variables e.t.c, random effect assumes that the heterogeneity is random rather than fixed and that the random effect is incorporated into the error term thus forming a composite error term (Oscar, 2007).

The result reported shows co-efficient of determination (R^2) of 0.9672 and Adjusted (R^2) of 0.8455 shows the significance of the model.

Table 2: Random Effect Parameter Estimate Model 2

Random-effects GLS regression Number of obs = 30
 Group variable: company Number of groups = 5

```
-----+-----
      roce |   Coef.  Std. Err.   z  P>|z|   [95% Conf. Interval]
-----+-----
operatinge~s | 1.84e-07  9.44e-08   1.94  0.052  -1.46e-09  3.69e-07
costofhuma~e | 1.47e-06  1.18e-06   1.25  0.212  -8.38e-07  3.77e-06
researchan~t | .0000269  8.28e-06   3.24  0.001  .0000106  .0000431
      _cons | 2.986375  4.225821   0.71  0.480  -5.296082  11.26883
-----+-----
```

R-square=0.9672, Adjusted R-square=0.8455, F-statistics=61.33, Prob(F-stat)=0.0000

Source: Authors' Computation (2020)

HAUSMAN TEST

In an attempt to know the most reliable estimation between the fixed effect estimation and the random effect estimation, Hausman test was conducted to test if there is a substantial difference between the estimation of the fixed estimator and that of the random effect estimator for the two models estimated in this study. The result revealed chi-square value of 43.67 alongside probability value of 0.0000.

Table 3: Hausman Test

```
---- Coefficients ----
|  (b)    (B)    (b-B)  sqrt(diag(V_b-V_B))
|  fe     re    Difference  S.E.
-----+-----
```

operatinge~s 	2.47e-07	1.84e-07	6.38e-08	1.18e-07
costofhuma~e 	7.04e-06	1.47e-06	5.57e-06	2.39e-06
researchan~t 	.0000167	.0000269	-.0000101	.000019

chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 8.71, Prob>chi2 = 0.0335

Source: *Authors' Computation (2020)*

DISCUSSION OF FINDINGS

The level of investment in Accounting Information System is justifiable as it positively impacted on the financial performance of the selected companies under the study. While Return on Capital Employed (ROCE) was used to proxy Financial Performance, Operating Expenses (OPEX), Cost of Human Resources (CHR), and Research and Development Cost (RDC) was used to proxy Accounting Information System.

Furthermore, the result showed that the adoption and adequate investment on Accounting Information System has not altered the basic accounting procedure in the manufacturing sector, rather it has improved the financial performance of the manufacturing industry.

CONCLUSION AND RECOMMENDATION

The study concluded that all identified variables; Operating Expenses (OPEX), Cost of Human Resources (CHR), and Research and Development Cost (RDC) influenced the financial performance and that Accounting Information System has not altered basic accounting procedure but rather improved upon the reported financial performance.

In view of the above findings, the following recommendations are postulated:

- i. The manufacturing companies in Nigeria should put mechanisms in place to aid further investments in the adoption of Accounting Information System
- ii. To improve on the financial performance of manufacturing industry in Nigeria, attention must be paid to the elements used as proxies for Accounting Information System in this research work.

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