

Streamlining Strategic Cost Management on Firm Profitability

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Abstract: This study investigated the impact of streamlining strategic cost management on profitability of local pharmaceutical firms in Nigeria. The dependent variable is represented with return on asset (ROA), and the independent variable is represented with: cost of inventory (COIV), cost of labour (COLB) and cost of selling/distribution (COSD). The design used secondary data collected from the published annual reports of selected listed local pharmaceutical firms published in Nigeria, 2016- 2021. A further purposive sample size of five (5) firms that have the required data applied. Our analyses techniques applied Regression Model, Correlation and Descriptive Statistics. The specific findings are that COIV and COSD are positive and non insignificant on ROA; while COLB is positive and significant on (ROA) of local pharmaceutical firms in Nigeria. This study contributes to the existing body of knowledge with: the positive impact of the three variables applied; the modernized model of the study, the empirical findings and the reach literature for academia. We recommend that firm policy makers, are to streamline cost management policies of: COIV, COLB and COSD; as they impact on ROA in Nigeria. Implications show that managers and other policy makers who desire to use these findings: should know that only one of the study variables is positive and significant on ROA and besides, the study focused only on pharmaceutical firms in Nigeria and thus, may not be generalized in all industry.

Keywords: Inventory, Labour, Selling/Distribution, Profitability, Strategic Management.

Introduction

Background to the Study

Streamlining strategic cost management CM is a process connecting management accounting, financial management, cost management and strategic management. This involves optimization of cost and financial requirement. These days, there a need to manage cost properly in order as business strategy to be able to surmount modern business challenges and be able to overcome any “economic crises”, (Mohammad, Hajer & Leo-Paul, 2021). Aiming at this, firm managers have to understudy the firms past costs records or history and use them to make effective decision. More-so, they should apply other available techniques fit for managerial accountants and financial analysts, such as ABC, cost estimation, cost-volume-profit CVP and management information systems MIS. If various cost items are not streamlined, cost of production can rise above the sett standard by the management and this may affect the production unit prices and ultimately affect income. Therefore, the level of a firms cost output can be applied as an index to measure management cost control ability.

Pamplona, Fiirst , De Jesus , Silva , Da Silva and Zonatto, (2016) indicated that “notions of cost behavior are a key element in management accounting” . On the other hand, Hadad Baygi, (2012) argued that today, competition increase “in domestic and international markets has forced managers to better understand their cost structure and become aware of cost orientations and means of how costs change”. Part of firm growth can be attributable to proper streamlining of strategic cost management. If costs are streamlined effectively in an organization it will definitely enhances profit. There is the need for essential cost management strategy in any organization, (James & Luke, 2014). Prior studies have shown that there are important cost management strategies, (Zengin & Ada, 2010); and cost management strategies are considered as critical factors to increase revenues, (Kumar & Shafabi, 2011). Strategic Cost management assists in decision making and makes firms face business competitions and increase revenue (Ellram & Stanley, 2008). Also, Groth and Kinney, (2019) said that cost management can help management to forecast cost occurrence in the future. Strategic management discipline dates back from 1950s and 1960s. Many among the numerous early contributors on this subject matter were Peter Drucker, Philip Selznick, Alfred Chandler, Igor Ansoff, and Bruce Henderson.

The modern day strategic cost management was born out these earlier thinking fathers dating back thousands of years. Management are required based on the limited resource to reduce cost in the stage of pre-production (Caroline, 2014). Up to date there is still the need to streamline strategic cost management. Firm’s cost management strategy has to do with determining the amount of cost in the future, with the current cost information. If this is done, it can positively improve the growth of firms, (Caroline, 2014).

Statement of the Problem

Streamlining strategic cost management on firm profitability has remained an issue of research area today. The various studies findings on this subject matter have proved it has remained unresolved. Many views are that strategic cost management is an effective and efficient way of improving firm financial performance; while others argue that strategic cost management is outdated opinion based on the founder’s of yester year’s opinions. Their opinions are that past information cannot on its own impact on firm financial performance of any firm. Evidences of some of these studies like; Omar, (2013) clearly elaborates that firm characteristics affect firm performance. Eluyeleye, Akomolafe and Ilogho (2016) found a positive relationship between cost management and firm performance in Nigeria. Tomasi, (2018) discovered that there is a significant and strong positive relationship between cost control and organization performance. Adegbola, Adebayo and Osemene, (2020), found that strategic cost management practices SCM

positively improve performance. Swatdikun, (2020) stated that firm performance is an indication of a high level of SCM issue in Thailand; while Yong Wang, (2019), found that SCM uses “empirical research and clear research framework and proposed a future research”. Yang, Duan and Un, (2020) found that “quality cost management and quality management” are positively associated with firm performance. Umelo, Ibanichuka and Ironkwo, (2021) found that target cost has negative and non-significant effect on ROE, ABC has a negative and significant effect on ROE; absorption costing is positive and significant. On the other hand, Hafiz and Abubakar, (2019) discovered that “cost driven is a major strategy” that increase firm performance.

From the foregoing, the empirical findings some were positive; while others were negative. But, our search did not find any research work on streamlining strategies cost management on firms profitability. Yong Wang, (2019), proposed a clear research framework on this subject matter; (Umelo, et al., 2021), found disjointed result on the variables they applied; (Yang, et al., 2020 and Adegbole et al., 2020), found a mixed results respectively; while (Swatdikun, 2020) emphasized on high level of awareness on SCM issues by accounting executives in Thailand. Oyewo, (2013) found that Nigerian companies are receptive on the philosophies of STMS but has some challenges in being adoption in the Nigerian environment. These evidences and others are the reasons for an urgent need to further research on this theme “streamline strategic cost management on firm profitability in Nigeria”. This study is based from the foregoing above that has various inconclusive opinions on the subject matter. This study, focus on streamlining strategic cost management on firm profitability in Nigeria. The outcome of this work will contribute to the body of existing knowledge, recommendations and the result implications made at the end.

Objective of the Study

The main focus of this study is to determine the impact of streamlining strategic cost management on firm profitability in Nigeria.

The specific objectives are:

To determine the impact of streamlining cost of inventory COIV; cost of labor COLB and cost of sales/distribution COSD on firm profitability

Research Question

To what extent do streamlining COIV; COLB and COSD on firm profitability FP?

Research Hypothesis

The posited hypotheses are as follows:

Streamlining COIV; COLB and have no significant effect on profitability

Review of Related Literature

Conceptual Framework

Strategic Cost Management SCM

The theme SCM is the development of CM information is to facilitate the main management function and SCM, (Selcuk Yalcin, 2019; Blocher et al., 2002). The view of Mohammad, Hajer and Leo-Paul, (2021) are that effective SM plays an important in the success of any organization.

These days many views are that increase in competition globally due to technological changes in business processes and cost management process. Management decision to adapt strategic attitude in production process will be geared towards customer's demands. Management cost strategy includes supporting and providing the information to buttress minimized products cost development and marketing. Shank and Govindarajan, (1993), argue that emergence of SCM results from a combination of underlying themes from strategic management literature. These strategic position analyses such as: “value chain analysis, and cost driver analysis” (Shank & Govindarajan, 1993). These strategies serve as “comparative position in the industry in terms of performance”. Again, (Botten and Sims, 2006) were of the view that value chain and system shows how managements combine business strategies to generates ‘value’ for the shareholder at end of business periods (Shank & Govindarajan, 1993). Thus, firms can lower cost and gain a competitive advantage (Drury, 2001).

Finally, SCM involves more of controlling organization cost drivers to create long-term process of cost reduction and production improvement. However, these include: analyzing, examining, measuring and explaining the financial impacts cost that are concerned with activity (Hansen et. al., 2007; Selcuk Yalcin, 2019). These supports decision making and improves competitive advantage, (Ellram & Stanley, 2008). Effective SCM helps to finish production with limited resources and ensure that the firms working capital invested remains through cost reduction of cost per unit, better quality of product, (Groth and Kinney, 1994).

Streamlining Cost of Inventory

Coyle, Bardi, and Langley, (2003), defines inventory as "raw materials, work-in-progress, finished goods and supplies required for creation of a company's goods and services". Davis, Aquilano and Chase, (2003) also defines inventory as "the stock of any item or resource used in an organization". It is also seen as an idle resource stocked for future use, (Dilworth, 1993). Inventory cost need to be controlled to reduce cost of manufacture and this involves a techniques. Ugwu and Nwakoby, (2020) explained inventory cost control system as a techniques or of process of managing inventory to satisfy customer demand at the lowest cost from a minimum investment. A successfully implementation of inventory cost control program is stated by (Ellram, 1996), to enshrine purchasing goods that commensurate with demand, seasonal variation, changing usage patterns, and monitoring for pilferage. Langabeer and Stoughton (2001), agrees that costs of inventory include such expenses in the form of storage costs, risks involved, and opportunity costs of idle capitals. It is also prerequisite to firm performance. This will have to inculcate inventory cost management ICM. Stevenson, (2010), defined ICM as a “framework employed in firms in controlling its interest in inventory costs”. It includes the

recording and observing cost of stock level, estimating future request, and deciding on when and how to procure more. Deveshwar and Dhawal, (2013) agreed that ICM is a techniques used by companies to organize, store, and replace inventory, to ensure that enough are available for production on time at minimized cost. High costs and poor management of stock will ultimately affect financial performance. Olanrewaju, (2013) observed that companies can fail to meet up supply of goods to customers as a result of inconsistency in ICM techniques. Several literatures have argued that high cost of inventory due to proper or improper inventory management determines firm financial performance, (Maria & Jones 2003). There is standard inventory carrying costs that arranges from 20% to 40% of inventory value, (Ballon, 2000). Properly ICM practice is necessary for firm profitability, (Palmer & Dean, 2000); while excess inventory is a liability and frequent increase inventory cost (Gill, Biger, & Mathur, 2010) and all these lead to lowering profitability. Firms should adopt more scientific approach to establish ICM with the objective of optimizing cost of inventory. Finally, Koumanakos, (2008) insist that efficient ICM leads to an improvement in a firm value.

Streamlining Cost of Labor

Cost of labour refers to total salaries and wages paid to workers it includes employee benefits; taxes charged. There are two types of labour costs and these are direct and indirect (overhead). The total labour costs include the deduction of employee subsidies from the total labour cost. Direct labor costs are traceable directly from a specific work carried in any production cost centre and cost unit. On the other hand, indirect labor cost is that employee and worker whose part of contribution in production is not directly traceable to a product cost centre and cost unit. There are fixed labour costs that do not change with the level of activity over given a period. Fisher, Krishnan and Netessine (2006), argue that more “labor cost at a store is associated with substantially higher sales”. Zeynep Ton, (2009) found that “retail executives who claim that they often have insufficient store labor see it more as a cost than as a profit-driver”. Some literatures (King & Lenox, 2002) explained that costs of “increasing labor are obvious and easy to measure and the benefits are indirect and not immediately felt”. While Zeynep Ton, (2009) stated that “increasing” a unit of labor relates with value added, and when stock is on proportional, it moves at a level where the “marginal benefit of adding labor exceeds the marginal cost”. Fisher et al., (2006) found that “more labor at retail stores is associated with higher customer satisfaction and higher sales”. While, Oliva and Sterman, (2001) stated that “increasing the amount of labor, and lowering the workload per employee”, minimize the possibility that workers would make errors or mistake in carrying out tasks. Roth and Jackson (1995) discovered that decreasing labor levels, reduces quality and performance reduces outcome. Lovejoy and Sethuraman (2000) also, found that “increasing employee workload can result in errors leading to quality problems”. The above views indicate that a positive relationship between labor levels and quality increase performances. In Swedish firms, Anderson, Fornell, and Mazvanchery (2004) found “customer satisfaction and return on investment varies across industries higher customer satisfaction is associated with higher labor productivity for firms producing goods”, and these indicates a “trade-off between customer satisfaction and productivity”. Mittal, Anderson, Sayrak and Tadikamalla, (2005) found there is a limited evidence for the effect of “customer satisfaction on inventory returns and positive on customer satisfaction using Tobin’s Q”, on firms.

Streamlining Cost of Sells/Distributions

Selling expenses are the costs associated with distributing, marketing and selling products and services. These are the expenditures incurred by firms to induce the selling and purchasing of their products and services. Selling and distribution costs are expenditures made by firms to ensure that goods and services available to the end users and do not exclude such logistics costs in the form of shipping and insurance. Leon, Kapil, and Rajdeep, (2020) said that firms incur costs in inducing buyers to purchase in the form of advertising, marketing and at the same time offer them sales commissions. Others views like Leon, et al., (2020), that firms incur significant costs by “absorbing freight-out costs and providing convenient or generous payment options” and some of these can result to bad debts in default on payments in negligent of the kind gesture, (Marriott, Edwards & Mellett, 2002; Otto, Szymanski, & Varadarajan, 2019). Most firms’ initiatives of marketing and distribution of products are to gain large market advantage and according to (Katsikeas, Morgan & Hult, (2016) to lower costs and increase sales volume. Selling/distribution cost are closely monitored by investors and analysts generally as a positive signal of cost reduction in financial markets as argue by, (Gupta, Pevzner, & Seethamraju, 2010). But, Leon, et al., (2020) views it as a convenient means adopted by a firm in “persuading customers to purchase its goods”. Berry, Seiders, and Grewal, (2002); Bronnenberg, (2015) both agree that it makes it easier for customers to purchase a firm’s products. There are other forms of selling, marketing and advertising expenses targeted on creating awareness or promoting or building a new brand of product, or creating more awareness and understanding and perceptions of the firm’s lots of products to boost sales, (Thompson & Malaviya, 2013); More cost of distribution and selling expenses includes freight-out expense cost and is defined as transportation cost that the firm incurs to ensure that their products and services reach buyers, (Weygandt, Kimmel & Kieso, 2009). More other cost includes bad debt that result as loss when customers default in payments for products and services offered to them, (Marriott, Edwards & Mellett, 2002). From the foregoing, firms’ managers are expected to streamline these costs items at the barest minimum to increase sales and improve firm profitability.

Firm Profitability

Ugwu, (2021) defined profit is an “excess of revenue over associated expenses for an activity over a period of time”. Profitability by several literatures has been associated with such similar meanings as: “firm performance”, “earnings”, “income”, and “margin”. The focus of firms in incurring financial costs is to earn profit. That was why Lord Keynes concludes that, “Profit is the engine that drives the business enterprise”. Government approvals of business establishment, aims on tax to be derived from profit earned and a means

of index to growth; improving national income and raising standard of living, (Ugwu, 2021). Profit is the legitimate objective of every business establishment. However emphasized by management in maximizing its profit, should not overlook the welfare of the society. Thus, profit is not just the reward to owners; but should include the interest of other segments of the society. Therefore, profit is the yardstick for judging not just the economic gain, but the managerial efficiency and social objectives, (Owolabi & Obida, 2012). Profit, shows how efficiently firms utilize all imminent costs to make returns from all resources available in the market. According to Harward & Upton, "profitability is the ability of a given investment cost to earn a return from its use." Past measurement of profitability have included "gross profit margin"; the amount of money made after direct costs of sales have been taken into account, "operating margin"; this is the gross and net measures of profitability and net profit margin, (Ugwu, 2020). It is also used as return on asset ROA which is defined as the "net income divided by total assets". ROA is widely used to compare the efficiency of all firm activities carried out to generate profitability of a firm as compared with the assets financed by shareholders. Shareholder's funds' interests are considered in this study as it concerns costs used in generating net profit. Thus, the higher the ROA, the higher it reflects higher managerial costs efficiency in proper application of shareholders fund to earn profit, (Ugwu, 2020; Botoe, 2012).

Theoretical Framework

Cost Efficiency Theory

This study applied "Cost Efficiency Theory" which states that managers, plan and control expenditures with better information on when and where costs occur and what costs add to the value of a product. Within the "traditional model of cost behavior", costs are classified as either "fixed or variable". "Fixed cost" remains constant within relevant range of activities; while "variable costs" change proportionately with changes in the level of activity, (Stelarios, 2006). Secondly, managers "deliberately adjust resources in response to changes in volume". These factors are posited to lead to "sticky" cost behavior in which "costs adjust asymmetrically; are more quickly for upward than for downward demand changes". This brought about the issue of small changes of cost and compensation in the form of increase or decrease of labour input to boost profit. According to this theory "adjustment occurs if the adjustment costs are more than compensated by incremental profits associated with producing efficiently at a new level of output" (Kallapur & Eldenburg, 2005; Hamermesh, 1995); which could be used to raise the tests of "asymmetric cost behavior", (Moel & Tufano, 2002). However, "adjustment costs may be certain", but recovered time is uncertain, (Stelarios, 2006).

Empirical Literature Review

Zeynep, (2009), examined "labor cost on profitability and quality". He used longitudinal data from a large retailer shop and found that labor increase affects returns and quality, but does not improve service quality; while service quality increase does not improve profitability. Adigbole, Adebayo and Osemene, (2020); Oyerogba, Olaleye and Solomon, (2014); Oluwagbemiga, Olugbenga and Zaccheaus, (2014), all studied strategic cost management practices (SCMP) and firm performance in Nigeria. Adigbole et al., employed primary data with "partial least squares structural modeling"; while Oyerogba et al., and Oluwagbamiga et al., each applied secondary data. They all found that SCMP are positive and significant on return on assets ROA. Swatdikun, (2020) investigated on the same theme in Thailand. He collected 213 questionnaires from accounting executives and the results show that "value chain management, target costing, and lean accounting" were positive on ROA. Yong Wang, (2019) carried out a review on SCMP from 2013 to 2017. His review found that SCMP has the "characteristics of using empirical research are not clear" and they suggested future research on the matter. Yang, Duan, and Lin, (2020) studied "quality cost management QCM and firm performance" in china. They applied primary data from across China and also analyzed the data collected with OLS. Their results show that "quality control and input" are positive on "quality management"; while "quality management" and QCM are positive on ROA. Umelo, Ibanichuka, and Ironkwe, (2021), examined "cost management accounting practices" and return on equity ROE in Nigeria". They used secondary data collected from 25 firms and analyzed them with "ordinary least square" OLS. They found that, "target costing" is negative and has no significant effect on ROE, "absorption costing" is positive and significant on ROE; while "activity based costing" has a negative and significant effect on ROE. In Nigeria, Hafiz and Abubakar, (2019) investigated "cost driven strategic outsourcing on firms. They applied primary data from (120) management staff, and analyzed the data with Linear Regression. They found that "cost-driven" helps organization to realize objectives and face global competition and increase ROE. Wall, (2021) studied "strategic management evaluation" as regards "family firms performance in Thailand". The study used 312 respondents, who were managers and the data collected was analyzed with "structural equation modeling". He found that "strategic management SM" and "management control system MCS" are positive and significant, and after the mediations between performance and "SM and control systems" the result was positive and significant; while MCS do not mediate between the two variables. Eluyeke, Akomolafe and Ilogho, (2016) investigated the CM in Nigeria using secondary data collected from listed firms. The result shows that it is positive and significant on ROA. Tomasi, (2018) considered "cost control" and ROA as well. The design used both primary and secondary data collected from 67 firms. The findings show that cost control is significant and positive. Gichuki, (2012), examined a similar theme in Nairobi using six listed firms. The data he collected were analyzed with "variance linear regression model". The results show that: "cost of distribution", "cost of labour" and "cost of stock" was positive on ROA. In the same Nairobi, Kinyugo, (2014) applied "cost efficiency" on returns of 47 firms and after the analysis the findings were that "assets management" is a demonstration of how efficient management is in the utilizations of firms' assets to increase sales within an accounting period. James and Luke, (2014) "examined quality" CM on ROA. They gathered data from hospital industry in Bayelsa State in Nigeria. After their analysis,

results show that there is a significant relationship between QCM and profitability. Innes and Michel, (2014) examined CM and companies performance in USA, using a sample of 380 respondents. Their findings were that firms with “low administrative” and “selling expenses” do better than those with “high administrative and selling expenses”. They also found that “fixed overhead was negatively correlated with performance”. Eneisik, (2021) reported that SCMP and listed banks return on investment were significant in Nigeria. The study design applied both primary and secondary data collected from 10 banks and the data collected were analyzed with OLS. The findings were that ABC is significant on profit before tax PBT; “target costing” is negative on PBT; while “standard costing” is positive and significant on PBT. Ezejiofor, Nwakoby and Okoye (2015), also reported the effect of CM, on “operating profit and earnings per share EPS” of Nigerian firms. They extracted data from five (5) food production firms and the data collected were analyzed with OLS. They found that “cost management”, “operating profit” and EPS are significant. Finally, Isu, (2019) studied the “efficiency of cost control system ECCS” on ROE of breweries in Aba State, Nigeria. The study data comprised oral interviews and questionnaires which were analyzed using: simple percentage, frequency, histogram and chi-square. The findings were that the firms adopt ECCS and this increases profitability.

Research Methods

Research Design, Population,

The study population comprised all the Local Manufacturing Pharmaceutical firms listed on the floor of the Nigeria Stock Exchange NSE, from 2016 to 31st December, 2021.

The sample size of this study utilized a purposive sampling technique to select five firms that have the required and complete financial statement published in the NSE’s annual Fact Book from (2016-2021) December 2021, for six years.

Variables Descriptions and Definitions

The dependent variable, Firm Profitability is ROA = Return on asset as in Ugwu, (2020), is return on asset in percentage and is computed as profit after tax divided by total asset.

The independent variable, Strategic cost management is represented by:

COIT = Cost of Inventories as in Deveshwar and Dhawal (2013), and is computed as Inventory divided by revenue or sales.

COLB = Cost of Labor as in Oliva and Sterman, (2001), is calculated as staff cost in thousands of the amount spent on employee salaries, wages and other related employee benefits.

COSD = Cost Selling/Distribution as in (Gupta, Pevzner, & Seethamraju, 2010), is operating cost to revenue in percentages and, is computed as operating expenses divide by revenue or sales.

Model Specifications

Our work adapted the model of, Stephen, Kate and John, (2015); Oyerogba , Olaleye and Solomon, (2014), $ROA_{i,t} = (\alpha_0 + \beta_1 COI_{i,t} + \mu_t) \dots\dots 1$ and

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \dots\dots\dots 2$$

Model modify as:

$$ROA_{sit} = \beta_0 + \beta_1 COIV_{it} + \beta_2 COLB_{it} + \beta_3 COSD_{it} + \mu_{it} \dots\dots\dots \text{Model 3}$$

Where we define working variables as follows:

ROA_{sit} = Return on Asset; β₀ = Constant term (intercept) of the study model; β₁- β₃ = explanatory variables coefficients of strategic cost management; μ_{it} = Component of unobserved error term of the firms, i in period t; COIV_{it} = Cost of Inventories, i in period t; COLB_{it} = Cost of Labour i in period t; COSD_{it} = Cost of Selling/Distribution i in period t; while t= 5 years, (2016-2021).

Analysis Methods

The statistical methods applied: Descriptive Statistics, Correlation and Panel Regression.

Decision Rules and Apriori Expectations

The posited hypothesis: There is no significant relationship between strategic cost management and ROA in Nigeria @ 0.05 levels of significance:

Decision rules: reject or accept the hypothesis.

Here, our apriori is based on the existing accounting theory under consideration using: COIV will be positive (sign, +); COLB Cost will be positive (sign, +); COSD will be positive (sign, +).

Data Analysis, Presentation Interpretation and Summary of Findings

Table 1: Descriptive Statistics

	ROA	COIV	COLB	COSD
Mean	2.96483	2.57448	2.92881	4.09385
Median	2.57541	2.57458	2.71020	4.74672
Maximum	14.1300	2.70011	6.56546	5.08052
Minimum	2.50315	2.33668	2.00011	1.97268
Std. Dev.	2.08220	0.05271	0.80612	1.00172
Skewness	5.19542	-0.97672	2.66846	-0.59362
Kurtosis	28.0085	8.96994	9.89778	1.78440

Jarque-Bera	1833.51	98.6408	190.155	7.21808
Prob. Values	0.00000	0.00000	0.00000	0.02706
Sum	177.890	154.468	175.728	245.631
Sum Sq. Dev.	255.801	0.16400	38.3414	59.2043

Note: ROA= Return on Asset, COIV=Cost of Inventory, COLB=Cost of Labour, COSD=Cost of selling/Distribution

Source: Researcher Computation, (2023)

The descriptive table above shows the means of all the independent variables: COIV is 2.57448; COLB is 2.92881, and COSD is 4.09385. While the standard deviation of ROA as 2.082218; and COIV= 0.052723; COLB= 0.806137; and COSD=1.00172. The maximum value of ROA is 14.1300, while the minimum is 2.50315.

The “Skewness value” for ROA shows a positive distribution with “a long right tailed that is skewed to the right”; while, COLB has a positive but normal Skewness and this implies “a symmetric distribution”; then COIV and COSD have negative values which shows a “clear long left tailed distribution”.

The “Kurtosis Measures” value of ROA, COIV, COLB and these are (Kurtosis > 3) which is described as “fat tailed”; but COSD is (kurtosis < 3) and this is less than three, showing a normal distribution.

The “Jarque-Bera” statistics measures the difference between “Skewness and Kurtosis” to determine whether variables are normally distributed. The ‘Jarque-Bera statistics’ shows the values of ROA, COIV, COLB, and COSD as: [1833.51, 98.6408 190.155, 7.21808], respectively. They all have the probabilities values less than 0.05%, as a sign of normal distribution. The variables have normal distributions and appear to be suitable conducting the analysis

Table 2: Pearson correlation

	ROA	COIV	COLB	COSD
ROA	1.00000	0.14351	0.00680	0.12102
COIV	0.14351	1.00000	0.10587	0.44970
COLB	0.00680	0.10586	1.00000	0.10750
COSD	0.12102	0.44970	0.10750	1.00000

Note: ROA= Return on Asset, COIV=Cost of Inventory, COLB=Cost of Labour, COSD=Cost of selling/Distribution

Source: Authors Computation, (2023).

The Pearson correlation values did not find any “Multicollinearity”. There is no correlation among the explanatory variable and all the dependent variables. They did not exceed 80% as the normal stated by (Feldman, 1985).

Panel Regression Result

Table 3: Regression Model

Variable	Coeff.	Std. Error	t-Statistic	Prob. Sign
C	11.0313	18.0857	0.60994	0.5445 <
COIV	3.83444	7.42043	0.51674	0.0074 <
COLB	0.17821	0.50599	0.35220	0.7260 >
COSD	0.38800	0.35043	1.10720	0.0030 <
R-squared	0.52384	Mean dependent var		2.96484
Adjust R-squad	0.44714	S.D. dependent var		2.08221
S.E. of regress	2.13073	Akaike info criterion		3.43046
Sum squad. Resid.	249.701	Schwarz criterion		4.60499
Log likelihood	-127.914	Hannan-Quinn criter.		2.49873
F-stat.	0.33591	Durbin-Watson stat		1.25369
Prob(F-stat.)	0.00056			

Note: ROA=Return on Asset, COIV=Cost of Inventory, COLB=Cost of Labour, COSD=Cost of selling/distribution: < probability is greater than t-statistics; > probability less than the t-statistics

Source: Author’s Computation, (2022)

The model R-squared is 0.52384 which shows the co-efficient of determination or measure of goodness of fit of the model and the test of the explanatory power of the independent variables in the model. The value of R^2 is 52% and is fit for inferences. The Adjusted R^2 value is also 0.44714 (45%), reflecting the “systematic variation” in the dependent variable and this was jointly explained by the independent variables.

The f-statistics is 0.33591, with a probability of value of 0.00560 and this is less than 0.05. Based on this, we accept and conclude that there is a significant relationship between the dependent and the independent variables. Thus the parameter estimates explains the relationship in the dependent variable of our model is well specified at 10%.

The model shows the values of COIV as: [3.83444; 7.42043; 0.51674; 0.0074] and these show that COIV is Positive and statistically insignificant. This implies that it contributes to firm ROA but the increase is insignificant. The COLB values are [0.17821; 0.50599; 0.35220; 0.7260] and these show that COLB is positive and statistically significant on ROA, in other words, the contribution is positive on ROA. Finally, COSD has the following values: [0.38800; 0.35043; 1.10720; 0.0030], and with this evidence, it proves that the p-value is less than the t-statistics. Therefore, COSD is positive and insignificant on ROA. In conclusions, it contributes to firm profitability, but it is insignificant.

Apriori Expectation, Result of Hypothesis Testing and Discussions

Our “a priori expectations” was based on the existing accounting theory. It is applied in this study and we showed its signs with the accounting relationship as earlier posited. The model explanations show that the value of COIV is 3.8344, and it has a positive sign in agreement with the “a priori expectation”. This indicates that any decrease in cost of inventory increase ROA by approximately 3.8%. COSB has a positive sign; showing that increase in COSB affects ROA by 0.17%, in agreement with the “a priori expectation”. COSD has a positive sign and this suggests that any increase in COSD, increases ROA by 0.38% in agreement with our earlier stated “a priori and theoretical expectation”.

Result of Hypothesis Testing

Ho1: COIV is Positive and statistically insignificant on Firm Profitability

This implies that it contributes to firm ROA but the increase is insignificant on ROA, this agrees with the findings of: (Koumanako, 2008; Gill et al., 2010; Gichuki, 2012).

Ho2: COLB is positive and statistically significant on firm profitability

Cost of labour is found to be positive on firm performance and this agrees with the findings of (Fisher, et al., 2006; Zeynap Ton, 2009; Rust et al., 2002; Gichuki, 2012).

Ho3: COSD is positive and statistically insignificant on firm profitability

Cost of selling and distribution is positive on firm performance and this agrees with the prior findings of these authors: (Berry et al., 2002; Bronnenberg, 2015; Innes and Micheal, 2014).

Finally, the f-statistics is 0.3359 with a corresponding probability value of 0.00560. This is less than 0.05 as evidence that there is a significant relationship between the dependent and the independent variables. By the above, our overall study result agrees with the prior researchers’ findings on our topic “strategic cost management and firm profitability”: (Akomolafe & Ilogho, 2016; Tomashi, 2018; Adegbola, et al., 2020; Mohammed, et al., 2021; Oyerogba, et al., 2014; Tong Wang, 2019; Wall, 2021; Eluyeleye, et al., 2016; James and Luke, 2014, Oluwagbemiga, et al., 2014; Enessika, 2021; Isu, 2019).

Summary of Findings, Conclusions, Contributions, Implications and Recommendations

The R-squared value is 52% and Adjusted R² value is 45% and these indicate that the variables applied this study jointly explain the profitability of the pooled firms for the selected period in

The specific findings are: that COIV and COSD are positive and statistically insignificant; while COLB is positive and statistically significant on return on asset of the pooled firms in Nigeria.

Conclusions

We conclude with the evidence: that Cost of inventory and Cost of selling/Distribution are positive and statistically insignificant on ROA; while Cost of Labour is positive and statistically significant on return of asset of the pooled firms in Nigeria, from (2016-2021).

Contributions to Knowledge

This study contributes to the existing body of knowledge with: the positive impact of the three variables applied in the study, the modernized model of the study, the empirical findings and finally, the reach literature for academia

Recommendations

Firm policy makers, are advised to streamline cost management policies of: inventory, labour and selling/distribution expenses; as they impact on firm profitability in Nigeria.

Implication of the Study Finding

Firm managers and other policy maker who desire to use these findings: should know that only one of the study variables is positive and significant on ROA and besides, the study theme focused only on pharmaceutical firms and thus, may not be generalized in all industry.

Further Study

We suggest that further study should be carried out using other industries.

References

- [Adigbole](#), E. A., [Adebayo](#), A. O and [Olubunmi F. Osemene](#), O. F. (2020) Strategic Cost Management Practices And Organizational Performance: A Study Of Manufacturing Firms In Nigeria. [Global Journal of Accounting and Finance](#)(Vol. 4, Issue 1) Publisher: Institute for Global Business Research
- Anderson, C., Banke, D., & Janakiraman, N. (2003). Selling, General, and Administrative Costs Sticky. *Journal of Accounting Research* 41(1), 47 – 63.
- Anderson, Shannon W. (2007). *Managing Costs and Cost Structure throughout the Value Chain: Research on Strategic Cost Management*. Handbook of management accounting research, Elsevier Ltd.

- Anderson, E.W., C. Fornell, S. Mazvancheryl. 2004. Customer satisfaction and shareholder value. *Journal of Marketing* 68(4) 172-185
- Anderson, E.W., C. Fornell, R. Rust. 1997. Customer satisfaction, productivity, and profitability: differences between good and services. *Marketing Sci.* 16(2) 129-145.
- Ballon, R. H. (2000). *Business logistics/supply chain management. Planning, organizing and controlling the supply chain* (5th ed.). USA: Pearsons-Prentice Hall. [\[Google Scholar\]](#)
- Berry, Leonard L., Seiders, Kathleen, Grewal, Dhruv (2002), "Understanding Service Convenience," *Journal of Marketing*, 66 (3), 1-17. [Google Scholar](#) | [SAGE Journals](#)
- Beverly, J. (2002). ABC vs. TOC: *It's a Matter of Time*. *Management Accounting*, 37- 40.
- Blocher, E.J., Chen, K.B. and Lin, T.W. (2002). *Cost Management, A Strategic Emphasis*, McGraw- Hill, Boston.
- Blocher, E., Chen, K. & Lin, T. (1999). *Cost Management: A Strategic Emphasis*. The McGraw Hill Companies, Inc., New York
- Botten, B. and Sims, A. (2006). *Management Accounting – Business Strategy*, Elsevier.
- Bronnenberg, Bart J. (2015), "The Provision of Convenience and Variety by the Market," *RAND Journal of Economics*, 46 (3), 480-98. [Google Scholar](#) | [Crossref](#)
- Drury, C. (2004). *Management and Cost Accounting, Sixth Edition*. Thompson Press.
- Drury, C. (2001). *Management Accounting For Business Decision*, Second Edition, Thompson Learning.
- Daniel Atnafu & Assefa Balda. (2018). The impact of inventory management practice on firms' competitiveness and organizational performance: Empirical evidence from micro and small enterprises in Ethiopia *Cogent Business & Management* Volume 5, 2018 - Issue 1.
- Ellram, Lisa M. & Stanley, Linda L. (2008). *Integrating strategic cost management with a 3DCE Environment: Strategies, practices, and benefits*. *Journal of purchasing and supply management*.
- Emery, W. & Marques, A. (2011). The Effects of Transaction Costs, Payment Terms and Power on the Level of Raw Materials Inventories. *Journal of Operations Management*, 29(1), 236-249.
- Farrell, J. (1957). The Measurement of Productive Efficiency. *Journal of Royal Statistical*.
- Fisher M.L., J. Krishnan, S. Netessine. 2006. Retail store execution: an empirical study. *Working paper*.
- Flint, J. (2000). Improve Internal Reporting with ABC and TOC. *Management Accounting*, 18 24.
- Forbes Trefis Team (2014), "Best Buy's Sales Suffer Due to Weak Holiday Season and Bad Weather,"
- Forbes (March 4), <https://www.forbes.com/sites/greatspeculations/2014/03/04/best-buys-sales-suffer-due-to-weak-holiday-season-and-bad-weather/#3474735f661b>. [Google Scholar](#)
- Forbes Trefis Team (2016), "Qualcomm's Stock Price Surges After a Strong Performance in Q3," *Forbes* (July 21), <https://www.forbes.com/sites/greatspeculations/2016/07/21/qualcomms-stock-price-surges-after-a-strong-performance-in-q3/#5c945b637476>. [Google Scholar](#)
- Galbraith, John Kenneth (1967), *The New Industrial State*. Boston: Houghton-Mifflin Co. [Google Scholar](#)
- Gill, A., Biger, N., & Mathur, N. (2010). The relationship between working capital management and profitability evidence from the United States. *Business and Economic Journal*, 31, 1-9. [\[Google Scholar\]](#)
- Groth, John C. & Kinney, Michael R (1994). *Cost Management and value creation*. Management decision.
- Gupta, Mahendra, Pevzner, Mikhail, Seethamraju, Chandra (2010), "The Implications of Absorption Cost Accounting and Production Decisions for Future Firm Performance and Valuation," *Contemporary Accounting Research*, 27 (3), 889-922. [Google Scholar](#) | [Crossref](#)
- Hafiz B. & Abubakar T. A. (2019). The Impact of Cost- driven Strategic Outsourcing on the Organizational Performance of Manufacturing Companies in Nigeria. *South Asian Journal of Social Studies and Economics* 3(4): 1-7, 2019; Article no.SAJSSSE.50212 ISSN: 2581-821X
- Hamermesh, S. (1995). Labour Demand and the Source of Adjustment Costs. *The Economic Journal* 105 (430): 620-634.
- Hansen, D.R., Mowen, M.M. and Guan, L. (2007). *Cost Management Accounting & Control*, Sixth Edition, South Western Cengage Learning.
- Im, Kun Shin, Grover, Varun, Teng, James T.C. (2013), "Research Note—Do Large Firms Become Smaller by Using Information Technology?" *Information Systems Research*, 24 (2), 470-91. [Google Scholar](#) | [Crossref](#)
- Jonsson, P., & Mattsson, S. A. (2008). Inventory management practices and their implications on perceived planning performance. *International Journal of Production Research*, 46(7), 1787-1812. doi:10.1080/00207540600988071 [\[Taylor & Francis Online\]](#), [\[Web of Science @\]](#), [\[Google Scholar\]](#)
- Katsikeas, Constantine S., Morgan, Neil A., Leonidou, Leonidas C., Hult, G. Tomas M. (2016), "Assessing Performance Outcomes in Marketing," *Journal of Marketing*, 80 (2), 1-20. [Google Scholar](#) | [SAGE Journals](#)

- Kallapur, S., & Eldenburg, L. (2005). Uncertainty, Real Options, and Cost Behavior: Evidence from Washington State Hospitals. *Journal of Accounting Research*, 2(3):1-5
- King, K., (2008). The Decomposition of Malmquist Productivity Indexes. *Journal of Productivity*. 1(1), 3-4.
- King, A., M. Lenox. 2002. Exploring the locus of profitable pollution reduction. *Management Science* 48(2) 289-299.
- Koumanakos, D. P. (2008). The effect of IM on firm performance. *International Journal of Productivity and Performance Management*, 57(5), 335–369. doi:10.1108/17410400810881827 [\[Crossref\]](#), [\[Google Scholar\]](#)
- Koh, L. D., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data System*, 107(1), 103–124. doi:10.1108/02635570710719089 [\[Crossref\]](#), [\[Web of Science @\]](#), [\[Google Scholar\]](#)
- Lovejoy, W.S., Sethuraman. 2000. Congestion and complexity costs in a plant with fixed resources that strives to make schedule. *Manufacturing & Service Operations Management* 2(3) 221-239.
- Luehrman, A. (1998). *Strategy in Constrains Options*. Harvard Business Review, September October, 89 – 99.
- Maria, X. L., & Jones, J. T. (2003). Quality initiatives and business growth in Australian manufacturing SMEs: An exploratory investigation. *School of Commerce Research Paper Series*, 03-3. [\[Google Scholar\]](#)
- Marriott, Pru, Edwards, J.R., Mellett, H.J. (2002), Introduction to Accounting. London: SAGE Publications. [Google Scholar](#)
- Mittal, V., E.W. Anderson, A. Sayrak, P. Tadikamalla. 2005. Dual Emphasis and the Long-Term Financial Impact of Customer Satisfaction. *Marketing Science* 24(4) 544-555.
- Moel, A. & Tufano, P. (2002). When are Real Options Exercised. *An Empirical Study of Mine Closings. Review of Financial Studies*. 15 (1): 35-64.
- Mohammad Mahdi Rounaghi, Hajer Jarrar & Leo-Paul Dana, (2021). Implementation of strategic cost management in manufacturing companies: overcoming costs stickiness and increasing corporate sustainability. *Future Business Journal* volume 7, Article number: 31 (2021) Cite this article
- Nixon, B. (1998). Research and Development Performance Measurement: A Case Study. *Management Accounting Research* 9(3):329–331
- Oliva, R., J.D. Sterman. 2001. Cutting corners and working overtime: quality erosion in the service industry. *Management Science* 47(7) 894-914.
- Otto, Ashley S., Szymanski, David M., Varadarajan, Rajan (2019), “Customer Satisfaction and Firm Performance: Insights from over a Quarter Century of Empirical Research,” *Journal of the Academy of Marketing Science*, 48, 543–64. [Google Scholar](#) | [Crossref](#)
- Oyerogba Ezekiel Oluwagbemiga1, Olaleye Michael Olugbengal & Solomon Adeoluwa Zaccheaus1 (2014) management practices and firm’s performance in the manufacturing organizations May 2014 *International Journal of Economics and Finance* 6(6), DOI:10.5539/ijef.v6n6p234
- Palmer, A., & Dean, H. (2000). How SMS freed 40% capacity and slashed throughput times. *Manufacturing Computer Solutions*, 6(11), 127–134. [\[Google Scholar\]](#)
- Rajdeep Grewal Published in *Journal of Marketing*, 2020, 84 (4), 23-44. DOI 10.1177/0022242920923307\
- Roth, A.V., Jackson III. 1995. Strategic determinants of service quality and performance: evidence from banking industry. *Management Science* 41(11) 1720-1733.
- Rust, T.R., C. Moorman, P.R. Dickson. 2002. Getting return on quality: revenue expansion, cost reduction, or both? *Journal of Marketing* 66(4) 7.
- Shank, J.K. and Govindarajan, Y. (1993). *Strategic Cost Management*, The Free Press, New York
- Selçuk yalçın, (2019) Strategic cost management process. in book: interdisciplinary public finance, business and economics studies volume ii (pp.191-200 doi:10.3726/b16175
- Steliaros, E, Thomas, M. & Calleja, K. (2006). A Note on Cost Stickiness: *Some International Comparisons*. *Management Accounting Research*. 17 (1): 127140.
- Swatdikun, T. (2020). The Impact of Strategic Cost Management Techniques on Firm Performance [Vol. 13 No. 19 \(2019\): July - December](#). Published: Feb 21, 2020
- Teunter, R. B. (2012). ABC classification: Service levels and inventory costs. *Production and Operations Management*, 19, 3. [\[Web of Science @\]](#), [\[Google Scholar\]](#)
- Thompson, Debora V., Malaviya, Prashant (2013), “Consumer-Generated Ads: Does Awareness of Advertising Co-Creation Help or Hurt Persuasion?” *Journal of Marketing*, 77 (3), 33–47. [Google Scholar](#) | [SAGE Journals](#)
- Ugwu, I. V. & Narkoby, N. P. (2020). Impact of inventory management on firm performance in Nigeria: Using grass roots opinin. *International Journal of Engineering and Information System (IJEAIS)*, ISSN:2643-640X, Vol.4, Issue 11, Nov. 2020, P: 34-46
- Ugwu, I. V. (2020). Audit quality moderation on earnings management of production industries in Nigeria IAA *Journal of Social Sciences (IAA-JSS)* 6(1): 30-50, 2020 [www.iaajournals.org](#)
-

- Ugwu, I. V., Ekwochi, E. A. & Ogbu, C. B. (2021). A critical study of corporate risk management committee impact on firm performance. *International Journal of Academic Information Systems Research (IJAIRS)*, ISSN: 2613-9026, Vol.5, Issue 4, April- 2021, p:24-39, www.ijeais.org/ijairs
- Umelo N. D, Ibanichuka, E. A.L & Ironkwe, W.I. (2021) Strategic Management Accounting Practices and Return on Equity of Quoted Manufacturing Firms in Nigeria *International Journal Of Business & Law Research* 9(4):120-130, Oct.-Dec., 2021 © Seahi Publications, 2021 Www.Seahipaj.Org Issn: 2360-8986
- Wall, W.P. (2021) Strategic management and evaluation of the performance of family firms using management control system. Received 14 Apr 2021, Accepted 08 Aug 2021, Published online: 27 Aug 2021 [Download citation](#) <https://doi.org/10.1080/19186444.2021.1967104>
- Weygandt, Jerry J., Kimmel, Paul D., Kieso, Donald E. (2009), “Freight Costs,” in *Financial Accounting*, 7th ed. Hoboken, NJ: John Wiley & Sons, 209. [Google Scholar](#)
- Yong Wang, (2019) Strategic Cost Management—A Review of Research Status at Home and Abroad. DOI: [10.4236/me.2019.102035](https://doi.org/10.4236/me.2019.102035) [PDF](#) [HTML](#) [XML](#) *Modern Economy* > [Vol.10 No.2, February 2019](#)
- Yang, S., Duan, Y., & Lin, Z. (2020). Impact of quality cost management and quality management on firm performance: evidence from china. *Journal of Global Economics, Management and Business Research*, 12(2), 26-39. Retrieved from <https://www.ikpress.org/index.php/JGEMBR/article/view/5037> May 4, 2020 P: 26-39.
- Zengin, Yasemin & Ada, Erhan. (2010). *Cost Management through product design: Targetcosting approach*. *International journal of production research*.