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RESEARCH ARTICLE

Effect of Turnover Ratios on the Value of Consumer Goods Firms in Nigeria

[1]Udeh, Anastasia Ifeoma, [2]Prof. Nwoha, Chike E. and [3]Prof. Okwo, Ifeoma M.
[1]Department of Accountancy, Institute of Management and Technology IMT Enugu
[2&3]Department of Accountancy, Enugu State University of Science and Technology

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ABSTRACT

The study examined the effect of turnover ratios on the value of consumer goods firms in Nigeria as large number of business failures have been blamed on the inability of the firm managers to successfully use efficiency ratios to analyze, monitor and control the progress and performance of their firms. The ex-post facto research design and multiple regression analysis were adopted. The findings showed that inventory turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria with a t-statistic of 4.074926 and probability value of 0.0006 at 5% level of significance. Assets turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria with a t-statistic of 5.139843 and probability value of 0.0094 at 5% level of significance, It was equally observed that account receivable turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria with a t-statistic of 3.473243 and probability value of 0.0475 at 5% level of significance, the study further discovered that account payable turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria with a t-statistic of 4.410422 and probability value of 0.0050 at 5% level of significance. Based on the findings it was recommended that inventory of the companies should be reduced to avoid obsolete stocks. With effective account receivables and account payables the cashflow of companies will experience tremendous improvement.

Keywords: *Turnover Ratios; Value; Consumer Goods Firms; Nigeria*

Introduction

Firm managers are challenged by the extremely changing business environment to develop efficient strategies that will enable them compete with other firms in their industry to achieve the primary goals of their businesses. Such primary goals are customers' satisfaction, profit maximization, wealth creation and satisfying of the needs of other firm stakeholders. One of such strategies is the efficient use and management of firm's resources (Azad; Raza & Zaidi (2018). Management efficiency is an important component of corporate financial management because it directly affects the profitability of the firm (Jamaliand & Asadi (2012). The effective use of assets, both current and non-current assets for the purpose of profit maximization and wealth creation is described as management efficiency. In financial accounting, those set of ratios that are used to measure management efficiency are called efficiency ratio or turnover ratios (Jariya (2013).

Warrad and Omari (2015) described turnover ratios as measures to determine how effectively a firm is operating its assets to generate earnings and cash flow for the firm. Turnover ratios are used to analyze the relationship between the money used to fund operations and the sales generated from these operations. The smaller the current capital compared to the sales in this ratio, the higher the capital turnover ratio. The difference between profitability ratios and turnover ratios is the fact that turnovers ratios measure the efficiency of management, it focused on specific measurements within the business while profitability ratios measure overall performance. Ramachandran (2020) also described turnover ratios also called activities ratios or efficiency ratios as the type of financial ratios which are used by a firm in order to determine the efficiency with which firm management is able to use its different operating assets that are present in its statement of financial position and convert same to cash or sales revenue.

Enekwe (2015) asserted that there are many financial ratios used by firm managers, investors and financial analysts and most of these financial ratios can be classified according to their use in financial analysis: liquidity ratios, turnover ratios (activity ratios), profitability ratios, debt ratios and market ratios. Adeniyi (2004) states that the most popular way of classifying ratios is according to the needs of the users of financial statement or interested groups and this include, profitability ratios, liquidity ratios, turnover or efficiency ratios, debt or leveraging ratios and market ratios. Carlson (2019) also pinpoints that turnover ratio are the key to analyzing how effectively and efficiently firm managers utilize the firm's assets to produce sales and profit. These efficiency ratios which are also called assets management ratios or turnover ratios include: inventory turnover ratio, days sales in inventory ratio, account payable turnover, accounts receivables turnover, fixed asset turnover, working capital turnover and total asset turnover. For the purpose of this study, however, we shall focus on inventory turnover ratio, assets turnover ratio, account receivable turnover ratio and account payable turnover ratio with the objective of determining their effects on the value of consumer goods manufacturing firms in Nigeria.

Farooq (2019) defined inventory turnover ratio as a measure of the rate at which inventory is used over a measurement period. Inventory turnover measures the rate (number of times) at which inventory is used over a measurement period. The ratio is used to see if a business has an excessive inventory investment in comparison to its sales level, which can indicate either unexpectedly low sales or poor inventory planning. It is calculated by dividing the ending inventory figure or average inventory by the cost of sales. James (2021) defined asset turnover ratio as an efficiency ratio which measures the value of a firm's sales or revenues relative to the value of its total assets. It can be used as an indicator of the efficiency with which a firm is using its assets to generate revenue. The higher the asset turnover ratio, the more efficient a firm is at generating revenue from its assets. Conversely, if a firm has a low asset turnover ratio, it indicates it is not efficiently using its assets to generate sales.

Franklin (2020) described account *receivables turnover ratio* as an *accounting* measure used to quantify a firm's effectiveness in collecting its *receivables* or money owed by clients. The *ratio* shows how well a firm uses and manages the credit it extends to customers and how quickly that short-term debts are collected or is paid. Okpe and Duru (2015) described account payable as the suppliers whose invoice for goods or services has been processed but who have not yet been paid for the goods supplied or services rendered. Islam, Khan, Choudhury and Adnan (2014) stated that earnings per share is a profitability ratio that indicate the return earned by a firm per share. It points out whether the earning power of the firm has increased or decreased during the period.

Objectives of the Study

The main objective of this study is to determine the effect of turnover ratios on the value of consumer goods manufacturing firms in Nigeria. The specific objectives of the study are to;

I. Ascertain the effect of inventory turnover ratios on earnings per share of consumer goods firms in Nigeria.
II. Determine the effect of assets turnover ratios on earnings per share of consumer goods firms in Nigeria.
III. Investigate the effect of account receivable turnover ratios on earnings per share of consumer goods firms in Nigeria.
IV. Evaluate the effect of account payable turnover on earnings per share of consumer goods firms in Nigeria.

Statement of the Hypotheses

The following hypotheses were formulated to address the research questions;

I. Inventory turnover does not significantly affect earnings per share of consumer goods manufacturing firms in Nigeria.
II. Asset's turnover does not greatly affect earnings per share of consumer goods manufacturing firms in Nigeria.
III. Account receivable turnover does not largely affect earnings per share of consumer goods manufacturing firms in Nigeria.
IV. Account payable turnover does not highly affect earnings per share of consumer goods manufacturing firms in Nigeria.

Review of Related Literature
Conceptual Review

Turnover Ratios

Carlson (2019) defined also turnover ratios as those financial ratios that are used to check the efficiency of the firm in converting its assets to earn revenue. The sales figure is compared with the assets (different assets) to measure how much of the assets are used to generate the number of sales. In a business, there are requirements for different types of assets and these are used to generate the revenue of the business so that the business can run. The turnover ratios are categorized under efficiency ratios as these ratios measures how a company or business is utilizing its different assets to achieve its revenue. Here the 'revenue' is construed differently for each type of turnover ratios. For example, in receivable's turnover ratio, only the amount of credit sales is used not the total sales figure and but for inventory turnover ratio, the total sales or the COGS is used. These ratios are more specific to the asset and revenue (denominator) is defined depending on the relationship between the asset and the revenue.

Ramachandran (2020) also described turnover ratios also called activities ratios or efficiency ratios as the type of financial ratios which are used by a firm in order to determine the efficiency with which firm management is able to use its different operating assets that are present in its statement of financial position and convert same to cash or sales revenue. Turnover ratios help in evaluating a business's operating efficiency by analyzing non-current assets, inventories and accounts receivables. It is not just expressing a business's financial health but also indicates the utilization of the statement of financial position's components. Turnover ratios include, inventory turnover ratio, total assets turnover ratio, non-current assets turnover ratio, working capital turnover ratio, account receivable turnover ratio, account payable turnover ratio and so in. Ebrahim, Abdullah and Faudziah (2014) also identified efficiency ratios as account receivable turnover, account payable turnover, inventory turnover, assets turnover, fixed assets turnover and so on. This study adopted inventory turnover ratio, assets turnover ratio, account receivable turnover and account payable turnover as measures of turnover ratio.

Inventory Turnover Ratio

Farooq (2019) defined inventory turnover ratio as a measure of the rate at which inventory is used over a measurement period. The profitability of firm depends upon various factors which directly or indirectly adhere to performance. These factors often shower their effects on profitability very strongly, such as cost of goods sold, interest rate, tax rate and inventory volume. Maness and Zietlow (2005) said that generally, to enhance working capital it is important to balance between having inventory for sales and keeping as less inventory as possible. The company loses out income if there are fewer stocks, and the company cannot meet the demand of the client. At the same time, the company should be careful about holding too much inventory to avoid an opportunity cost as well as obsolescence. Therefore, inventory management is among the greatest confusing chores for managers, as they must try to cut the inventory handing expenses and also need reduce the cash conversion cycle. Reducing a stock close to zero level may cause deficiency of raw material for production or finished product in demand. Such condition must be expensive for any firm because of the incomes they would lose. Ondari and Muturi (2016) also opined that too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage and loss. On the other hand, too little inventory often disrupts business operations, and increases the likelihood of poor customer service.

Inventory Turnover = Cost of Goods sold/Average Inventory.

Assets Turnover Ratio

Brigham and Houston (2010) stated that total assets turnover is a ratio that measures the turnover of all firm assets and is calculated by dividing total sales revenue by the total assets of the firm. It is part of the turnover ratio that measures the level of efficiency and effectiveness of all assets used by the firm in increasing sales revenue. Okwuosa (2005) asserts that the total asset turnover indicates the efficiency of the enterprise in utilization its total assets to generate income. The higher, the assets turnover, the more efficiently the firm is deemed to utilize its assets to generate income. Ceylan and Korkmaz (2012) stated that assets turnover ratio indicates how many times a firm's assets have been transferred over a period of one year in order to generate the sales amount within the year. This ratio shows how effectively and efficiently the firm's assets are used in revenue generation during the period. It is obtained by dividing net sales by the total of assets of the firm. Generally, a ratio between 2 and 4 is a positive indicator for the firm.

Sari, Miyasto and Mawardi (2017) opined that asset turnover ratio is the ratio of asset management, measuring the rotation or utilization of all assets at the disposal of a firm's management. If the firm does not get enough business volume to justify the size of the investment in its total assets, then total assets ratio will drop. A low assets turnover ratio indicate that the firm does not operate in a volume that is commensurate with the investment capacity of the firms. Thus, the firm is less able to manage its assets, therefore, the firm's assets are less effective and efficient in generating sales. Brain (2021) said that assets turnover ratio compares a firm's number of sales or revenues to its total assets. The asset turnover ratio calculates the net sales as a percentage of its total assets. Generally, a higher ratio indicates that the firm is efficient in generating sales or revenues. A lower ratio illustrates that the firm is not using the assets efficiently and has internal problems. The asset turnover ratio is calculated by dividing net sales or revenue by the average total assets.

Total Asset Turnover =Total Sales/Total Assets = times.

Account Receivable Turnover Ratio

Warren et al. (2014) describes accounts receivable turnover as the relationship between net sales and receivables, calculated by dividing net sales by average net receivables. The higher the accounts receivable turnover, the better, but vice versa, the slower the receivable turnover, the worse. The receivable turnover rate depends on the payment terms provided by the firm. Mutiso and Mwangi (2019) state that accounts receivables are the extension of credit by the firm to its customers. Such credit extension in manufacturing firms represent a cost of doing business. This is because, by keeping its money tied up in receivables, the firm losses time value of money and also runs the risk of non-payment by the customers. However, in return for incurring these costs, the firm can be competitive, attract and retain customers, improve and maintain sales hence achieve profitability. Carlson (2019) stated that account

receivables turnover is a ratio that works hand in hand with an average collection period to give the business owner a complete picture of the state of the accounts receivable. Receivable's turnover looks at how fast we collect on our sales or, on average, how many times each year we clean up or totally collect our accounts receivable. The calculation is as follows:

Receivables Turnover = Total Sales/Average Accounts Receivable = times

Account Payable Turnover Ratio

Murphy (2020) defined accounts payable turnover ratio as a short-term liquidity measure used to quantify the rate at which a firm pays off its suppliers. A decreasing turnover ratio indicates that a company is taking longer to pay off its suppliers than in previous periods. When the turnover ratio is increasing, the company is paying off suppliers at a faster rate than in previous periods. Tuovia (2021) stated that accounts payable is an account within the general ledger that represents a firm's obligation to pay off a short-term debt to its creditors or suppliers. They are amounts due to vendors or suppliers for goods or services received that have not yet been paid. The sum of all outstanding amounts owed to vendors is shown as the accounts payable balance under the current liabilities section on the firm's statement of financial posit. Accounts payable are short term debts obligations that must be paid off within a given period usually one year of one business operating cycle to avoid default. The other party would record the transaction as an increase to its accounts receivable in the same amount under its current assets section in the statement of financial position.

Payable Turnover Ratio = Total Sales / Account payable = in times.

Firm Value

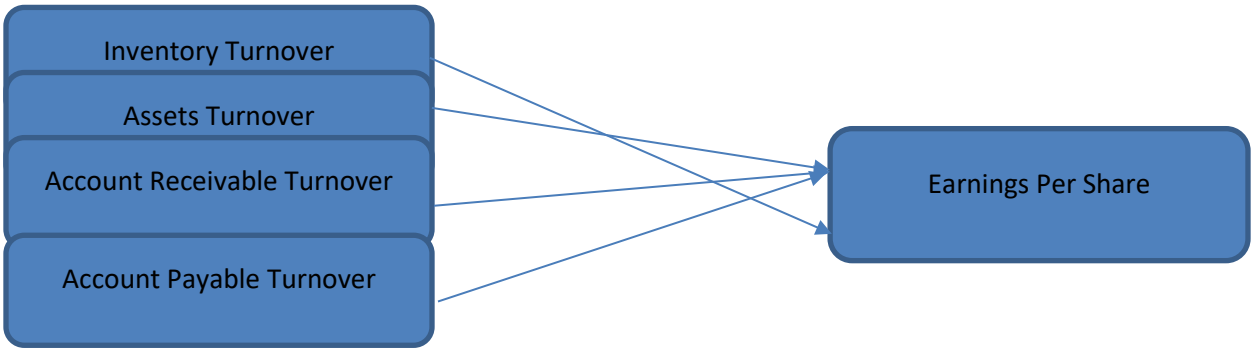
Bearly (2007) opined that firm value is an investor's perception of the firm's level of success, which is often associated with stock prices. High stock prices will increase the firm's value and increase market confidence not only in the firm's current performance but also in the firm's prospects in the future. Stock prices and firm values summarize investors' collective assessments of how well a company is doing, both in current performance and prospects. Ocean and Tomo (2009) also stated that firm value is reflected in the firm's market price, and is a price to pay when the firm experienced take over. Firm value is very important and needs to be improved for the benefit of shareholders and stakeholders, in order to increase shareholder wealth, and the interests of other stakeholders. It is, therefore, necessary to understand what factors that influence the value of the firm in order to enhance corporate value.

Earnings Per Share

Coleman (2017) describes earnings per share as the portion of a firm's profit that is allocated to every individual share of the firm's stock. It is a term that is of much importance to investors and people who trade in the stock market. The higher the earnings per share of a firm, the better is the profitability of the firm. While calculating the earnings per share, it is advisable to use the weighted ratio, as the number of shares outstanding can change over time. Islam, Khan, Choudhury and Adnan (2014) stated that earnings per share is a profitability ratio that indicate the return earned by a firm per share. It shows whether the earning power of the firm has increased or decreased during the period. It symbolizes the part of a firm's earnings, net of taxes and preferred stock dividend that is apportioned to each share of common stock in the firm. It refers to the ratio of the profit after tax of the firm for any financial year after payment of preference dividend

Earnings per Share = Profit for the Year/Total Number of Share Outstanding

Conceptual Summary



Theoretical Framework

Since turnover ratios emphasizes cash flow and ability of firms to convert assets into sales revenue and cash, the study is anchored on the Liquidity Preference Theory developed by John Maynard Keynes in 1936.

Liquidity Preference Theory

John Maynard Keynes developed the liquidity preference theory in 1936. Keynes (1936) asserted that individuals and firms hold money for three motives, the transactions-motive, the precautionary-motive and the speculative-motive. The transactions motive refers to the fact that individuals have a preference for liquidity in order to guarantee having sufficient cash on hand for basic transactions because income is not always readily available. With this motive, the level of an income determines what amount of liquidity that is demanded; higher income levels equal a demand for more money to accommodate increased spending. The precautionary motive is related to preference for liquidity as additional security in the event that an unexpected occasion or problem arises that requires a substantial outlay of cash. Firms or individuals may also have a speculative motive, based on the belief that bond prices may begin to significantly decrease, thus offering the investor the opportunity to use liquid funds to make an investment offering a more attractive rate of return.

For these reasons, Keynes purported that they tend to relinquish interest earnings on their money in order to spend their money in the present. Keynes also theorized that when higher interest rates are offered, firms and individuals are more willing to hold on to less money in order to obtain a profit. The liquidity preference theory suggests that an investor demands a higher interest rate, or premium, on securities with long-term maturities, which carry greater risk, because all other factors being equal, investors prefer cash or other highly liquid holdings. Investments that are more liquid are easier to sell fast for full value. According to the liquidity preference theory, interest rates on short-term securities are lower because investors are sacrificing less liquidity than they do by investing in medium-term or long-term securities.

Since its birth, liquidity preference has been the subject of many articles without any apparent consensus on its foundations and meaning. Liquidity preference has evolved like an ice-barrier constituted of various layers of ice, each contribution adding its own explanation without removing the others. In this kind of situation, we usually go back to the original text by reading what the creator of the concept has written and try to guess how it could help to provide a solution to modern analytical ambiguities. Keynes presents personal ideas which matured during many years and were the result of many personal syntheses and revisions. The definition of liquidity preference in the General Theory is a good illustration of such a process.

Empirical Review

Garba; Mourad and Chamo (2020) examined the effect of inventory turnover management of profitability of conglomerate firms listed on Nigerian Stock Exchange. The population of the study consists of six (6) conglomerate firms registered on the Nigerian Stock Exchange during the period from 2007 to 2016. This entire population constituted the sample of the study. Data were generated from the yearly accounts of firms from and was analyzed using feasible generalized least square regression analysis. Result of analysis indicate that inventory turnover management negatively affects Nigerian conglomerate firms' profitability during the period. The study in view of this recommended regular stock-taking to determine slothful stocks. Also, inventory should be reduced to avoid obsolete stocks if there is no high demand for the goods. An extraordinary inventory management measures should equally be implemented to remedy the situation.

Nasution (2020) investigated the effect of inventory turnover on profitability in Automotive firms listed on Indonesia Stock Exchange from 2015-2017. The independent variable of the study is inventory turnover ratio while the dependent variable and surrogate for profitability is return on assets. The sample consists of eighteen (18) Automotive firms listed on Indonesia Stock Exchange during the period. The data used are the financial statements of each sample firms, which were obtained through Indonesia Capital Market Directory. The data were analyzed using simple linear regression analysis. Findings show that inventory turnover does not have a positive effect on return on assets of the Automotive firms during the period.

Nurlaela; Mursito; Kustiyah; Istiqomah and Hartono (2019) used quantitative research approach to examined the effect of capital structure, liquidity, asset structure and asset turnover on the financial performance of consumption industry sector firms listed on Indonesia Stock Exchange during the period from 2016-2018. A sample of 28 firms from the consumption industry sector listed in Indonesia Stock Exchange was sampled for the study. The secondary data obtained from the published annual reports and account of the firms were analyzed using multiple linear regression analysis. Results of the t-test which was used to test the hypothesis formulated for the study indicate that capital structure (debt to equity ratio), liquidity (current ratio), and turnover (asset turnover) have significant positive effect on financial performance surrogated with return on assets.

Bama; Maksum and Adnans (2019) adopted panel data regression analysis to investigate the effect of total asset turnover and profitability on firm value in food and beverage firms listed on the Indonesia Stock Exchange during 2010-2019 period. The study also examined the good corporate governance variable used as a moderating variable in the research model. The entire 26 food and beverage firms listed on the Indonesia Stock Exchange during the period were targeted for the study, out of which a sample of 14 were selected using purposive sampling technique. Data collected from the annual reports and financial statement of the sampled firms amounted to a total of 140 observations. At 5% level of significance, the findings from the study suggest that profitability has a positive and significant influence on firm value while total asset turnover has a positive but insignificant effect on firm value. Finding equally indicates that good corporate governance can strengthen the influence of profitability on firm value. However, good corporate governance cannot moderate the effect of total asset turnover on firm value.

Harahapa, Septiania and Endria (2020) adopted panel data regression analysis to study the effect of current ratio, return on equity, net profit margin, total asset turnover and debt to asset ratio on firm value. A sample of 4 cable sub-sector firms from the manufacturing industry were sampled for the study. Secondary data covering the period of 2014 to 2018 were collected and analyzed. Result of the panel data regression analysis reveals that return on equity had a negative influence on firm value, while net profit margin, total assets to turnover and debt to assets ratio had positive effects on firm value. It was, however, observed that current ratio had no effect on firm value. Taken together all the financial performance variables affect firm value of the manufacturing firms. The implications of this finding are that firm value of the firms can be improved if the firms maintain a balanced capital structure between debt and equity, provided that debt is used to finance assets that are productive and efficient so that they can generate profits.

Rumbyarso; Suharto and Sodikin (2021) analyzed the effect of account receivable turnover and inventory turnover on the profitability of six (6) cable sub-sector issuers listed on the Indonesia Stock Exchange. Profitability was

measured with return on assets. The sample consists of six (6) cable sub-sector firms listed on the Indonesian Stock Exchange for 2013-2017 period. Multiple regression analysis was utilized to analyze the data collected from consolidated financial statements of the selected firms. Results of the analysis disclose that simultaneously receivable turnover and inventory turnover did not affect profitability of the firms. It was observed that accounts receivable turnover did not affect profitability of the firms due to a large number of receivables from cable issuers listed on the Indonesia Stock Exchange during the period.

Heliania; Yulianti; Herdinac; Maretad and Purnamasarie (2019) studied the effect of cash turnover, account receivable turnover and inventory turnover on return on assets in Mining and Quarrying Sector Companies Listed in Indonesia Stock Exchange. Purposive sampling method was used to select a sample of 33 firms from a population of 43 mining and quarrying sector companies listed on Indonesia Stock Exchange during the period from 2017-2019. The secondary data obtained from annual financial statements of the firms were analyzed using multiple linear regression analysis. Results show that cash turnover, accounts receivable turnover and inventory turnover have no significant effect on return on assets of the listed mining and quarrying sector firms during the period. This was as a result of decrease in the amount of production, cash flow constraints, low turnover of accounts receivable and low sales during the period. Inventory turnover was slow and inventory costs higher.

Azad; Raza and Zaidi (2018) studied the relationship between operational efficiency and profitability oil and gas sector of Pakistan during the period from 2010 to 2016. The explanatory variables of the study consist of total asset turnover, fixed assets turnover and debtor's turnover while current ratio and quick ratio were used as the control variables. The profitability of firms is measured by return on equity. A total of e four (4) oil and gas firm in the exploration sector of the Pakistani economy were sampled for the study. While seven (7) years financial data from 2010-2016 were collected through financial reports of the sampled firms. The data were analyzed using, descriptive statistics, correlation matrix and ordinary least square regression analysis. The results of the study show that the total assets turnover, debtors' turnover and quick ratio have strong negative impacts on the profitability measured by return on equity. The current ratio and fixed asset turnover have positive impacts on the return on equity. These results support the hypothesis that efficiency as measured by (total assets turnover, debtors' turnover, quick ratio current ratio and fixed asset turnover) has impacts on the profitability of firms.

Warrad and Omari (2017) studied the impact of turnover ratios on Jordanian services sectors' performance. The independent variables of the study are, total assets turnover, fixed assets turnover and working capital turnover while the dependent variable and measure of profitability are return on assets and return on equity. The sample consists of eight (8) Jordanian services sectors listed on the ASE for the period from 2009 to 2012. Liner regression analysis and Analysis of Variance (ANOVA) were used to analyze the data obtained from the sampled firms. Results indicate that the independent variables of the study do not have any significant impact on return on assets of Jordanian services sectors' firms during the period. It was further observed that the turnover ratios do not have any significant impact on return on equity of Jordanian services sectors' firms during the period.

Methodology

The researcher adopted *ex-post facto* research design. This study adopts secondary data which covered a period of 10 years i.e., 2012 – 2021, which was obtained from the financial statement of the selected firms. The area of study centered on consumer goods firms in Nigeria. The population of study comprised of the 22 listed consumer goods firms in the Nigerian stock exchange Nigeria. The sample size consists of five (5) consumer goods companies in the Nigerian Stock Exchange. They are: Cadbury Nigeria Plc, Guinness Nigeria Plc, Nigeria Breweries Plc, Champion Breweries and Dangote Sugar. These firms were selected with the aid of judgmental sampling based on the fact that the companies had no missing data report in the duration under study. The study was analyzed using diverse techniques, such as descriptive statistics, unit root test and panel regression model.

Model Specification

The model of the study was based on the classical regression model of Brooks (2014). The main aim of this study was the effect of turnover ratios on the value of consumer goods firms in Nigeria.

The model is shown as follows;

$Y = \beta_O + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 - - - - - -\beta_nX_n + u_t$ ---------- 3.1

Where;

Y = dependent variable

X_1, X_2, X_3---Xn = Explanatory or independent variable

β_1, β_2, β_3---- β_n = the slope of coefficient of the parameter estimate

U = Error or disturbance term

t = time

In relating this to the study

EPS= f (ITR, ATR, ARTR, APTR) (1)
Where:
EPS = Earnings per Share
ITR = Inventory Turnover Ratios
ATR = Assets Turnover Ratios
ARTR = Account Receivable Turnover Ratios
APTR = Account Payable Turnover Ratio

In a linear regression form, it becomes:

$EPS_t = \beta o + \beta_1 ITR_t + \beta_2 ATR_t + \beta_3 ARTR_t + \beta_4 APTR_t + \mu$ (2)
βo = Constant Term
β_1 = Coefficient of Inventory Turnover Ratios
β_2 = Coefficient of Assets Turnover Ratios
β_3 = Coefficient of Account Receivable Turnover Ratios
β_4 = Coefficient of Account Payable Turnover Ratio
μ = Error Term

Decision Rule

Reject the null hypothesis if the t – statistics is greater than 2.0 and the P-value is less than 5%, otherwise accept the null hypothesis.

Data Presentation and Analysis
Data Presentation

Data for the study, sourced from the annual report of the selected companies were presented, tested and analyzed. The data collected were organized and used for testing the hypotheses. From the analysis and results generated, deductions and logical conclusions were obtained.

Table 1: Table Showing the Raw Data of Cadbury Nigeria Plc, Guinness Nigeria Plc, Nigeria Breweries Plc, Champion Breweries and Dangote Sugar

YEAR	COMPANY	TS	TA	COGS (000)	INV (000)	AP	AR
2012	Cadbury Nigeria Plc	132222	48233	97321	242113	14839588	1.7E+08
2013		667860	1289552	362419	691727	29667893	1.34E+08
2014		827035	1577290	109508	898715	12758000	88683000
2015		895354	1802008	526777	2092495	13470000	8.73E+08
2016		1126559	2079862	408742	3430000	17616000	12666000
2017		1580250	3423819	25935	4608386	16814000	1.15E+08
2018		1849225	2333017	639932	5870431	31415000	2.01E+08
2019		2193224	2983621	999698	7121637	19393000	2.73E+08
2020		2252172	3439915	549223	7670860	21673000	2.13E+08
2021		2016520	3690295	464600	8135460	35410000	2.44E+08
2012	Guinness Nigeria Plc	573465	1151086	33561836	36862557	38419000	33749000
2013		571127	1119063	43385172	31524701	71795000	69427000
2014		596457	1216464	47694924	34199119	50010000	14760000
2015		570714	1461131	55043605	38871371	19700000	51853000
2016		796942	1797376	56199939	38611514	19700000	51853000
2017		884587	1812277	56078434	46039111	11159000	57299000
2018		822694	1627060	51333214	45061717	19069000	54351000
2019		1090355	1698859	55891520	48341376	21136000	41209000
2020		1173214	1877736	41810413	41660605	22528000	34219000
2021		1213801	2424108	48315304	42943015	31192000	72901000
2012	Nigeria Breweries Plc	376658	1244030	70899817	32229181	16850000	58773000
2013		8820	1330771	75472408	46570094	29155000	78492000
2014		1744446	1784490	87167925	49279276	51245000	84742000
2015		1316407	2171807	109077080	78304741	46551000	86310000
2016		367571	2575117	125452144	93447892	62272000	1.59E+08
2017		242842	2558562	136477042	112359185	40000000	1.2E+08
2018		137546	2399822	188461821	171882830	43285000	3710000
2019		204469	2490578	179508368	172233465	14361000	9590000
2020		7585	3143338	135524019	165805542	4670000	5751000
2021		16639	3486691	142549160	178150934	10599000	7114000
2012	Champion Breweries	2.37E+08	2.73E+08	562459	924721	20243154	20287953
2013		3.24E+08	3.35E+08	562459	924721	46815911	51214901
2014		3.19E+08	4.12E+08	1496212	2010743	15294128	15915606
2015		3.5E+08	6.44E+08	2041323	2516680	15294128	15915606
2016		4.51E+08	7.15E+08	3123162	1583323	8041618	24678784
2017		6.18E+08	7.34E+08	7721440	4413621	90111236	34939235
2018		5.93E+08	7E+08	7701230	9380173	15800611	25933787
2019		6.6E+08	6.58E+08	8902634	11380173	14391271	30085267
2020		6.5E+08	6.9E+08	9061478	12168259	26729647	31481835
2021		6.33E+08	8.22E+08	10708935	13997391	49928617	40267095
2012	Dangote Sugar	3.60E+08	4.06E+08	0.03657	48233	50540999	73187845
2013		4.03E+08	4.41E+08	8.65216	1289552	23572417	1.72E+08
2014		4.91E+08	5.23E+08	0.0878	1577290	22200121	90521190
2015		5.55E+08	1.09E+09	0.9015	1802008	25631621	60869620

2016		7.35E+08	1.27E+08	0.86442	2079862	87006691	48708157
2017		1.02E+09	1.32E+09	1.17612	3423819	2.67E+08	72178426
2018		1.24E+09	1.53E+09	0.72836	2333017	13746682	49008466
2019		1.59E+09	1.81E+09	0.81356	2983621	5675545	47714495
2020		1.77E+09	1.91E+09	0.83177	3439915	25075618	8512611
2021		1.68E+09	2.06E+09	0.86214	3690295	6321370	90060440

Source: Financial Statement of the selected companies

NB:

TS	**TA**	**COGS (000)**	**INV (000)**	**AP**	**AR**

TS = Total Sales
TA = Total Assets
COGS = Cost of Goods Sold
INV = Inventory
AP = Accounts Payable
AR = Accounts Receivable

Table 1 showed the raw data adopted in calculation of the ratios used in the analysis of the study. The formula for the ratios is all indicated in section three of this study

Data Analysis

The abbreviations used to signify the variables of study in all tables are shown below.

Table 2: Showing the Pooled Data of Cadbury Nigeria Plc, Guinness Nigeria Plc, Nigeria Breweries Plc, Champion Breweries and Dangote Sugar

YEAR	COMPANY	ATR	ITR	ARTR	APTR	EPS
2012	Cadbury Nigeria Plc	2.74132	0.40197	0.08725	0.02406	0.61
2013		0.5179	0.52393	0.22064	0.026147	0.25
2014		0.52434	0.12185	0.14386	0.018463	0.4
2015		0.49686	0.25175	0.01542	0.016412	0.17
2016		0.54165	0.11917	0.037992	0.09771	0.26
2017		0.46155	0.00056	0.19475	0.10898	1.49
2018		0.79263	0.109009	0.35849	0.10906	0.5
2019		0.73509	0.140375	0.5121	0.08604	1.32
2020		6.54853	0.071599	0.65835	0.13951	0.65
2021		0.54644	0.057108	4.27871	0.00898	0.65
2012	Guinness Nigeria Plc	0.49819	0.910459	1.13837	0.04058	0.68
2013		0.51036	1.376228	1.0341	-0.01044	2.21
2014		0.49032	1.394624	3.38821	0.01055	0.57
2015		0.39051	1.416045	0.46628	0.02989	0.09
2016		0.44339	1.455228	0.37992	0.040638	1.07
2017		0.48811	1.218061	0.19475	0.019264	1.07
2018		0.50563	1.139176	0.35805	0.02375	1.92
2019		0.64182	1.156184	0.5129	0.018246	1.06
2020		0.6248	1.003596	0.65835	0.011656	0.61
2021		0.50072	1.125103	0.42786	0.910459	0.16
2012	Nigeria Breweries Plc	0.30277	2.199864	0.28669	1.376228	0.42
2013		0.00663	1.62062	0.37143	1.394624	0.25
2014		9.7756	1.768856	0.60478	1.416045	0.4

2015		0.60613	1.392982	4.39346	1.455228	0.17
2016		0.14274	1.342482	0.39221	1.218061	0.26
2017		0.094913	1.21465	0.332287	1.139176	1.49
2018		0.05736	1.096455	11.66716	1.156184	0.5
2019		0.08211	1.042239	1.49739	1.003596	1.32
2020		0.00241	0.817367	0.81203	1.125103	0.65
2021		0.00477	0.800159	1.48988	0.553877	0.65
2012	Champion Breweries	8.68707	0.608247	0.99779	0.019808	3.46
2013		0.96605	0.608247	0.91411	0.027692	4.5
2014		0.77429	0.744109	0.96095	0.011674	12.8
2015		0.54401	0.811117	0.46417	0.018629	7.5
2016		0.62993	1.972536	0.32585	0.997791	8.25
2017		0.84217	0.6166	2.57908	0.914107	10
2018		0.84681	0.821012	0.60927	0.960952	8
2019		1.00354	0.782293	0.47835	0.464176	7
2020		0.94192	0.744682	0.84905	0.35324	3.2
2021		0.77035	0.765067	1.23994	0.293086	3.2
2012	Dangote Sugar	0.88801	0.03657	0.690573	0.055493	1.59
2013		9.15232	8.65216	0.13737	0.525194	4.85
2014		0.93872	0.0878	2.45272	0.84905	1.8
2015		0.50695	0.9015	0.42109	1.239936	1.15
2016		5.78172	0.86442	1.78629	30332118	1.25
2017		0.76986	1.17612	3.70495	0.039115	3
2018		0.81547	0.72836	0.19045	0.023135	3
2019		0.8795	0.81356	11.89483	0.027011	5.75
2020		9.26996	0.83177	2.9457	0.02634	4.89
2021		0.816869	0.86214	0.07019	0.26087	4.6

Source: Financial Statement of the selected companies

NB;

ITR = Inventory Turnover Ratio
ATR = Assets Turnover Ratio
ARTR = Accounts Receivable Turnover Ratio
APTR = Accounts Payable Turnover Ratio
EPS = Earnings Per Share

Table 2 showed the data comprising of inventory turnover ratio, asses turnover ratio, accounts receivable turnover ratio, accounts payable turnover ratio and earnings per share.

Test of Hypotheses

The test of hypothesis was carried out as follows;
Step 1: Re-statement of the hypothesis in the null and alternate forms
Step 2: Statement of decision criteria
Step 3: Presentation of test result
Step 4: Decision

Test of Hypothesis one

Step 1: Re-statement of the hypothesis.
Inventory turnover does not significantly affect earnings per share of consumer goods manufacturing firms in Nigeria

Step 2: Statement of Decision Criteria
Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 3: Presentation of test result

Table 3: Test of Hypothesis One

Dependent Variable: EPS
Method: Panel EGLS (Period random effects)
Date: 04/04/22 Time: 09:55
Sample: 2012 2021
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	58152716	1.00E+08	0.579703	0.5649
ITR	2146361.	28646482	4.074926	0.0006
ATR	2194.643	15693.59	5.139843	0.0094
ARTR	45278636	30733999	3.473243	0.0475
APTR	11.606549	1.477868	4.410422	0.0050

Effects Specification	S.D.	Rho
Period random	72969876	0.0199
Idiosyncratic random	5.12E+08	0.9801

Weighted Statistics

R-squared	0.777423	Mean dependent var	1.18E+08
Adjusted R-squared	-0.014231	S.D. dependent var	5.00E+08
S.E. of regression	5.03E+08	Sum squared resid	1.17E+19
F-statistic	4.607231	Durbin-Watson stat	1.731082
Prob(F-statistic)	0.007901		

Unweighted Statistics

R-squared	0.777423	Mean dependent var	1.23E+08
Sum squared resid	1.18E+19	Durbin-Watson stat	1.738049

Source: Author's Computation from E-View 10.0

From the above regression analysis, the R^2 is 0.777423 which is about 78%. The R^2 is used to explain the goodness of fit. Since it is about 78%, it implies that about 78% change in earnings per share is explained by the independent variables and the higher the R^2 the better fit the independent variables. Since the F – statistics is 4.607231 which is greater than 2.0 and the probability value is 0.007901 is < 0.05. This shows that the model is significant and has a high goodness of fit. The Durbin–Watson stat is approximately equal to two (2) indicating the absence of autocorrelation.

Step 4: Decision
Given the decision criteria to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05. Table 3 shows the t-statistics of ITR as 4.074926>2.0 with a probability of the t-statistics of 0.0006 > 0.05. We reject the null hypothesis (H0) and conclude that inventory turnover significantly affects earnings per share of consumer goods manufacturing firms in Nigeria.

Test of Hypothesis Two

Step 1: Restatement of the hypothesis.
Asset's turnover does not significantly affect earnings per share of consumer goods manufacturing firms in Nigeria.

Step 2: Statement of Decision Criteria
Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 4: Decision
Given the decision criteria to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05. Table 3 above shows the t-statistics of ATR as 5.139843 >2.0 with a probability of the t-statistics of 0.0094< 0.05. We reject the null hypothesis (H0) and conclude that assets turnover significantly affects earnings per share of consumer goods manufacturing firms in Nigeria.

Test of Hypothesis Three

Step 1: Restatement of the hypothesis.
Account receivable turnover does not significantly affect earnings per share of consumer goods manufacturing firms in Nigeria.

Step 2: Statement of Decision Criteria

Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 4: Decision
Given the decision criteria to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05. Table 3 above shows the t-statistics of ARTR as 3.473243 >2.0 with a probability of the t-statistics of 0.0475< 0.05. We reject the null hypothesis (H0) and conclude that account receivable turnover significantly affects earnings per share of consumer goods manufacturing firms in Nigeria.

Test of Hypothesis Four

Step 1: Restatement of the hypothesis.
Account payable turnover does not significantly affect earnings per share of consumer goods manufacturing firms in Nigeria.

Step 2: Statement of Decision Criteria
Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 4: Decision
Given the decision criteria to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05. 4.4.1 above shows the t-statistics of ARPR as 4.410422 >2.0 with a probability of the t-statistics of 0.0050< 0.05. We reject

the null hypothesis (H0) and conclude that account payable turnover significantly affects earnings per share of consumer goods manufacturing firms in Nigeria.

Discussion of Findings

The following findings were made from the analysis of study;

Hypothesis One

Inventory turnover significantly affects earnings per share of consumer goods firms in Nigeria based on the premise that the t-statistics of ITR which was 4.074926 was greater than 2.0 while the probability of the t-statistics of 0.0006 was greater than 0.05.

Hypothesis Two

Asset's turnover significantly affects earnings per share of consumer goods firms in Nigeria due to the fact that the t-statistics of ATR which was 5.139843 was greater than 2.0 while the probability value being 0.0094 was less than 0.05.

Hypothesis Three

Account receivable turnover significantly affects earnings per share of consumer goods firms in Nigeria as the t-statistics of ARTR which was 3.473243 was greater than 2.0 while the probability of the t-statistics of 0.0475 was less than 0.05.

Hypothesis Four

Account payable turnover significantly affects earnings per share of consumer goods firms in Nigeria as the t-statistics of ARPR which was 4.410422 was greater than 2.0 while the probability of the t-statistics of 0.0050 was less than 0.05.

Summary of Findings

The summary of findings for this study includes the following;

I. Inventory turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria.
II. Assets turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria.
III. Account receivable turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria.
IV. Account payable turnover ratio significantly affects earnings per share of consumer goods firms in Nigeria.

Conclusion

This study was carried out to ascertain how turnover ratios affect earnings per share of consumer goods companies in Nigeria. It was discovered that all the variables significantly affect earnings per share of consumer goods firms in Nigeria.

Recommendations

The following recommendations are made for the study:

I. The company's inventory should be reduced to avoid obsolete stocks if there is no high demand for the goods.
II. The companies should invest more in assets to further improve on their market value as the study found out that assets turnover significantly affects earnings per share of consumer goods firms in Nigeria.
III. The companies under study should improve its cash flow with effective account receivables and account payables.
IV. The companies should automate their primary account payable cycles as account payable turnover significantly affects earnings per share of consumer goods firms in Nigeria.

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