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The Relationship among Cash Flow, Firms' Size and Financial Performance of Food and Beverage Companies Listed on the Nigerian Stock Exchange (NSE)

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Abstract:

Cash flow viewed to be more effective in determining company's or firm's effectiveness and competitiveness in the market while, firm size is a form of learned interest that has much explanatory power, and an understanding of its importance can be significant for companies or firms which operate in today's competitive environments. Examining the role of firm size and cash flow in explaining financial performance has been existent in the fields of business organization and industrial economies. The study based on the return on assets, equity and sales which are the models of this study: Relationship among cash flow, firms' size and financial Performance of food and beverage companies listed on (NSE) from the period of 2013 to 2020. The specific objectives: investigate the impacts of cash flow and firms' size, to examine the relationship between firm size and financial performance and explore the association between firms' leverage and financial performance of selected food and beverage companies. Cash flow measured using Net Cash Flow from Operations/Total Current Liabilities and proxied by liquidity, firm size as independent variable measured using Natural Log of Total Assets, firms leverage measured using Total Liabilities/Total Assets, while financial performance as dependent variable, proxied Return On Assets (ROA) measured by Net Income/Total Assets, Financial performance proxied Return On Equity (ROE) measured by Net Income/Total Equity and financial performance proxied Return On Sales (ROS) measured by Net Profits/Net sales. The study emphasized the description of the dataset and trend analysis, Cross-sectional reliance test and unit root tests. The Husman and Kaos tests were employed for co-integration analysis, Pooled ordinary least Square (OLS) and random panel regression. The study used secondary data, which were gathered from quarterly financial reports and accounts, fact books and websites of selected food and beverage companies listed under Nigerian Stock Exchange (NSE). The study findings indicated that Current ratio (as cash flow index) has a positive and significant impact on return on assets as a measure of financial performance, also cash flow ratio (as a cash flow index) has a positive and significant impact on return of equity (as a measure of financial performance). Findings from the studies imply positive impacts of cash flows on financial performance where the p value of cash flow $0.2450 < 5$, while firm size seen to have a significant but negative impact on return on sales as a measure of financial performance of the p value $0.0001 < 1$, also the causation results further revealed that firm size has a direct impact on both return on assets and return on equity as a measure of financial performance of listed food and beverage companies in Nigeria. In conclusion, there was significant impact of cash flows and firm size on financial performance; there was a relationship between firm's leverage and financial performance and there was relationship between firm size and financial performance of listed food and beverage companies. It was recommended that firms should try to match their high market performance with real activities that can help make the market performance reflect financial performance and the firms should develop a good strategy targeted at using more of equity to maximize their market performance in such a way that it yields growth opportunities.

Keywords: Cash flow, firms leverage, firm size, financial performance

1. Introduction

Financial performance is fundamental in business world; it is one of the required tools of business management (Francoise, Gerald and Mansi, 2005). Performance can also be used as a measure to control organizational growth and development. The performance of an organization unfolds the level of improvement made by a company or firm within a period of time that is, financial performance serves as an instrument that measures the success of a company. Financial performance is often used as a benchmark for investors to invest their funds in a firm or company which is of requisite importance for investors, stakeholders and economy at large. According to Mirza and Javed (2013), for investors, the return on their investment is highly valuable, and a well-performing business can bring high and long-term return for their investors. Moreover, financial performance of a company will improve the income of its employees, bring better quality

products for its customers, and have better environment-friendly production units. Besides, more profits will mean more future investments, which will give rise to employment opportunities and compliment the income of people.

Furthermore, the fact that a firm is profitable does not mean that it is also solvent because profit is not defined by cash only (Bingilar and Oyadenghuan, 2014). Turcas (2011) researched that financial performance of a firm or company is set on the firm's ability to generate positive cash flow from its operating, investing and financing activities. Many studies have been conducted to determine various financial and non-financial methods that can boost or have an adverse effect on the performance of the firm. But still no single effective model has been established which comprehend maximum variation. Meanwhile, Cash flow of a company or firm is one of the important factors that enhance financial performance. According to Efobi (2018), due to the relevance of cash flow in the company's operations and performance, corporate organizations need to develop a suitable cash flow mix and apply it in order to maximize shareholders' values, considering the facts that financial performance of a firm is also a key concern which has the ability to absorb market shocks and contribute to the stability of the system in general and the firm specifically.

Hence, profitability of a firm has become the major criterion in determining its financial performance, since investors and stakeholders pay most of their attention on profitability before dealing with firms. However, some of these businesses have experienced the opposite of their stated objectives, thus for organizations to achieve their set objectives.

They must employ different types of firm performance management systems (Kolawole, 2013) considering the fact that a firm's performance is likely to be determined by different factors. Presently, accounting researchers at the local level have not made any significant contribution to the debate on whether cash flow has effect on investment of firms. Finance literature in advanced economies like America and Europe tend to demonstrate evidence of the impact of cash flow on corporate investment. These economies have viable investment climates and vibrant stock markets. However, the economy of African countries and Nigeria in particular significantly differs from advanced countries. The capital markets are almost in a state of disrepair and are at contrast to that found in the America and Europe. Nigeria makes a good case for examining the impact of cash flow on investment (Fodio, Onah and Oba, 2013).

On the other hand, the factors that influence performance of business organizations, as it is usually suggested that performance of firms can be explained by various characteristics which could be firm specific or industry specific. Consequently, certain factors are likely to either improve or impair sustainable financial performance. Therefore, corporate performance cannot be overlooked to a reasonable extent since the performance of firms could be used as benchmark as well as comparison measures to know if the motives behind the establishment of these business organizations have been achieved or not as cited by Bala and Matthew (2015). Hence, the business world will always require management to be creative in an effort to improve their performance, and should also have the ability or they should take advantage of opportunities in order to improve company's performance (Mohammad and Ebrahim, 2010).

Moreover, to improve the company's performance is to create strategies, techniques and business tools that are appropriate and suitable for the company as high firm performance will increase the company's stock market prices and investors will respond positively. The concept of performance has become more prominent because of its application to everything and everywhere which serves as basis for comparison (Nousheen and Arshad, 2013). Additionally, prospective investors are only willing to purchase shares in company except at a reduced price and argue that conflict of interest increases the cost of external finance. On the flip side, due to information not being equally available in debt financing, lenders may only fulfill a part of borrowers' requirements for loans. Such credit rationing is done to ease risks and inherent information inequality according to Uremadu (2013). Meanwhile, an investment is the current commitment of funds for a period of time to gain a future flow of funds that will compensate the investing unit for the time the funds are committed, for expected rate of inflation, and also for the uncertainty involved in the future flow of funds. As such, firms become less accessible to external funds. In this light, profits gained from previous investments would have to be retained in order to smooth future investment activities.

According to the company Act 2020, financial statements are required to be maintained by a company which is balance sheet, profit and loss account, statement of cash flows and statement of changes in equity. Profit earned determines the efficiency of a corporation with greater profits equated to higher efficiency. Feldman (2005) noted that financial performance shows how well management can generate earnings. However, Kolawole (2013) and Yana (2010) have suggested that the use of modern financial ratios as performance measures are best because they consider some degree of market risk and create more value as against classical financial ratios that provide information of performance from the past. So, modern financial ratios are regarded more relevant when compared to the classical financial ratios. Nevertheless, the recent development and use of proxies like quality of management and quality of intellectual capital, environmental factors and others are considered and seen to be more efficient in determining the performance of a firm.

Firm size as an internal factor of a company has been considered to be a very important function of performance. This is because the size of a firm determines its level of economic activities and possible economics of scale enjoyed by a company. When a firm becomes larger, it enjoys economics to scale and its average cost of production is lower and operational activities are more efficient. Hence, larger firms generate larger returns on assets. However, if the top management loses control over certain strategic and operational activities, the reverse might be the case (Pathirawasam and Adriana, 2013). On the flip side, smaller firms do not enjoy economics of scale of which their average production cost could be higher than the larger firms but the flexibility in the system and the fewer top management provides opportunity to make quick decision, adapt to changes in the environment that result to larger average returns or profits for the firms. Firm size can be measured by the total asset of a firm. Firms should be large enough in order to be capable of competing in the global market. The reason is that increasing competition and improvements in communication networks, larger companies or firms have better advantages in the international market (Saidu, 2017).

Hence, it is believed that the larger the firm's total asset, the larger the size of the firm. Most scholars have agreed that firm age determines growth as well as performance (Muhammad and Shahimi, 2013). They believe that the hazard rate of a firm will fall with time and firm survival increases with age of the firm. Thus, this statement can be considered true because new firms are perceived unable to achieve economies of scale and they rarely have the sufficient managerial resources and expertise, while, some scholars made a conflicting remark stating that old firms are not flexible enough to make rapid adjustment, indicating barriers to innovation and profit making. Their organizational rigidities limit their growth by inhibiting change as they become harder to change over time, since most of the firms still own and use outdated machines, plants and equipment that limit their capability to innovate.

However, studies on firm age did not give conclusive evidence on the relationship between performance and the measurement of age. Several studies like those of Sriharan (2015), Obigbemi, Iyoha and Ojeka (2015), used different variables to measure firm age. However, most literature defined firm age as the length of time a firm has been in existence. It could also be the number of years in existence after listing on the stock exchange. In view of the basic challenges facing business enterprises in this period of extensive innovation and modernization in business, it becomes pertinent to examine the factors that impact performance of firms which enable business enterprises and investors to focus on their competitive advantage. This proposed study aimed at cash flow, firm's size and sustainable financial performance of all food and beverage companies in Nigeria listed under Nigerian Stock Exchange using internal and external variables of firms.

1.1. Statement of the Problem

Firms make several operational and strategic decisions which are usually moderated by the macro-economic environment; these include: financing decision, investing decision and operational decision (Owolabi, 2017). Ghareli and Mohammadi (2016) reported mixed findings for the effect of firm-specific characteristics on financial reporting quality. Studies have also substantiated the effect of firm characteristics on financial performance (Dioha, Mohammed, and Okpanachi, 2018). For instance, firm characteristics such as firm age (Reed, 2020), firm size (Malik, 2011), liquidity (Dogan, 2013) and leverage (Mule and Mukras, 2015) have been associated with financial performance. First and foremost, empirical studies indicate that the Nigerian capital market is imperfect (Oludoyi, 1999; Adelegan, 2006). Second, access to credit has been ascertained as the most critical problem facing the country (World Bank, 2007). This is associated with credit and capital rationing coupled with discrimination in the credit market. Potential savers would demand high-risk premiums as compensation from borrowers with low net worth usually regarded as high credit risk. According to Inanga (1999), the cost of external finance to such borrowers compels them to fall back on internal finance to fund investments. Some studies also examined the effect of working capital management and financial performance of listed deposit money banks in Nigeria. They took a sample of financial firms for specified temporal period. Their finding revealed a strong positive significant relationship with financial performance (Yahya and Bala, 2015; Arshad and Gondal, 2013; Ailemen and Folashade, 2014). However, authors in the studies of Pakistan, New York, Ghana, Kenya and Jordan such as: Raheman and Nasr (2007), Gill, Biger and Mathur (2010), AkotoVitor and Angmor (2013), Makori and Jagongo (2013), and Kaddumi and Ramadan (2012) performed an analysis on firms listed at their Stock Exchanges based on a certain period of time. They took average collection period as one of the indicators of working capital. They found that profitability and working capital management are negatively related to each other.

The recent study by Foyeke, Iyoha and Ojeka (2015), on a sample of firms from both financial and non-financial sectors in Nigeria, revealed a significant positive relationship between financial performance and firm size with the level of corporate governance disclosure. Thus, given the interaction of the two factors in determining performance, there is a need for additional evidence on the joint association among macro-economic factors, firm characteristics and financial performance in developing countries (Adeoye and Elegunde, 2012). While studies have confirmed that there exists some level of relationship between cash flow activities and entity's financial performance. Mbula, Memba and Njeru (2016) did examine the effect of receivable on the firm's profitability. The study adopted the ex post facto design. It was concluded that both variables positively relate to each other.

The studies of Yegon, Mouni and Wanjau (2014), citing Kajola (2008), suggested that what determines a firm size is the ownership of physical assets which are critical resources. This found that sales and assets are not specifically the appropriate methods of measurement for size; the important factor would be how agency transactions and the range of costs influence profits. Costs are normally related to the basic ways how an organization is controlled by ranking more than just the value of physical assets (Becker-Blease et al., 2010).

Pervan and Višić (2012) emphasized on the conceptual framework that advocates a negative relationship between firm size and profitability which is noted in the alternative theories of the firm. The theory suggests that large firms come under the control of managers pursuing self-interested goals and therefore profit maximization as the firm's objective function which may be replaced by managerial utility maximization function. Akbas and Karaduman (2012) citing Athanasoglou, Brissimis and Delis (2008) claimed that size could impact the profitability negatively for firms that become extremely large due to bureaucratic and other reasons.

Again, several studies have been carried out in different countries or sector but, no research has been carried out on food and beverage companies with the composition of these variables here in Nigeria. There is a need for extensive research, to consider these other selected variables for firms, while it was found that firm size was positive and significantly related with performance in the studies of Windsor and Cybinski (2009), Agustinus and Rachmadi (2008), and Yana (2010). A significant negative relationship was found between firm size and performance in the work of Bala et al., 2005, who studied firm size and performance of 30 Malaysian firms, using panel data covering a period of 2001 to 2003, concluding that a firm with a relatively low asset base tends to perform better than its counterpart.

Despite these efforts geared towards sustaining a high level of corporate performance in the country, food and beverage firms across different sectors of the country find it difficult to sustain a high and stable level of performance. Notably, a large number of identified challenges to improved performance among quoted firms in the country are often attributed to finance (Chebii, Kipchumba, and Wasike, 2011). On the other hand, scholars, such as Omondi and Muturi (2013) and Liargovas and Skandalis (2015), have affirmed that factors affecting the financial performance of firms, especially in developed countries, are both internal and external, and that the performance of a quoted firm answers not only to finance. More so, the few researchers in Nigeria, like Kolawole (2013), have not captured the impact of liquidity ratio on firm performance even though other factors like firm size, firm age and cash flow have been considered in the literature (Maina, Kiragu and Kamau, 2019).

At the moment, the effect of cash flow and firm size for Nigerian listed food and beverage firms' financial performance is still uncertain, even though some of them are folding up because of the huge economic hardship (Gideon, Odunayo, and Kole, 2018). The relevance of cash flow in firms to great growth prospect and the ability to possess huge market power cannot be over-emphasized. This is premised on the fact that free cash flow, if properly monitored, can be used for the expansion of the business, payment of shareholder dividends, and debt reduction, among many others. It can also be used for reinvestment after the requirements of the entity have been fulfilled, serving as a cheap source of equity. However, cash flow has been highlighted as one of the issues that demand balancing when it comes to the discourse of managers and shareholders finding equilibrium (Gideon, *et al.*, 2018).

From the foregoing, the discovery from homogeneous studies performed outside may not be applicable to Nigeria because of variation in economic condition, time frame and variables; therefore, this study is applied in Nigeria. But, it is also not known whether the existing differences in financial performance measures and economic factors internal to firms that have been overlooked would also translate into differences in factors that could impact cash flow, firm size and financial performance. This study is poised at unfolding the impact of cash flow as an internally generated source of funding to investment opportunities in Nigerian firms or companies. The results of the study would be far-reaching and instructive. It will be useful for policy makers to ascertain the effects of financial constraints on firms' investment. It would as well provide useful information to management on issues of firms leverage, liquidity, flexibility and cash flow levels as an early warning signal to the health of operating firms or companies.

For this reason, it is pertinent to ascertain which factors are associated with listed food and beverage firms of financial performance in Nigeria. Hence, the current research intends to gain deeper understanding on cash flow, firm size and financial performance of a firm and also to understand the interconnectedness between firms leverage and financial performance of listed food and beverage companies in Nigeria.

1.2. Objectives of the Study

The broad objective of the study is to examine the relationship among cash flow, firms' size and financial performance of food and beverage companies listed on the Nigerian Stock Exchange (NSE). The specific objectives are to:

- Investigate the impacts of cash flow and firm size on financial performance of listed food and beverage companies in Nigeria.
- Examine the relationship between firm size and financial performance of listed food and beverage companies in Nigeria.
- Explore the association between firms leverage and financial performance of listed food and beverage companies in Nigeria.

2. Literature Review

2.1. Financial Performance

Firm's financial performance has not been defined in any specific manner by any study. To this end, it could be said that firm performance can be defined depending on the focus of the study. This is based on the fact that performance is a multi-dimensional concept and its explanation continues to occupy a prominent place in literature, (Theiri and Ati, 2011). The outcome of management process, from the point of strategic planning to the implementation of such plans, supports the measurement of performance. Financial performance is an important issue in corporate finance considering the recent levels of financial scandals and various degrees of firms' failures. The concept of financial performance in accounting literature refers to profit, return on assets and economic value (Hasan *et al.*, 2010). Profit is one of the most closely followed economic indicators. Profits are source of retained earnings, providing much of the funding for investment in plant and equipment that raises productive capacity.

Profits are also frequently used in measuring the rate of return on investment and the relationship between earnings and equity valuation. Profits may also be used to evaluate the effects of changes in policy on corporations or profits or in economic conditions. Profitability is the primary goal of all business ventures; without profitability the business will not survive in the long run. Therefore, the measurement of current or past profitability and projecting future profitability is very important. Profitability is the most important measure of the success of the business and a business that is not profitable cannot survive. Consequently, profitability of firm plays an important role in the structure and development of firm because it measures the performance, success of the firm and enhances the reputation of the firm (Nousheen and Arshad, 2013). Profitability provides a summary measure of corporate success or failure and thus serves as an essential indicator of economic performance. Consequently, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Corporate performance or firm's performance refers to the result of management process in relation to corporate goals. It is a product of the activities and return on investment in a given

period (Mohammad and Ebrahim, 2010). Firm performance helps to reveal the result of investment activities of the organizations, thus, informs and sends out signals to the public in relation to their worth/value to help investors make valuable economic decisions.

2.2. Measurements of Financial Performance

Measurement of performance can offer significant invaluable information to allow management's monitoring of performance, report progress, improve motivation and communication and pinpoint problems (Waggoner, Neely and Kennerley, 2013). Accordingly, it is to the firm's best interest to evaluate its performance. Nevertheless, this is a management area characterized by lack of consistency as to what constitutes organizational performance. Research dedicated to governance structures' relationship with financial performance was highly dependent on accounting-based indicators. Some studies have adopted individual measurements (account-based or market-based measurements). Although there are widely measurements of performance with many which it related to much fields but we tried to execute this measurement regarding to corporate governance.

However, numerous ways have been brought forward to measure financial performance and among them are: measurement of performance as the level of Return on Assets (ROA), Return on Equity (ROE), Tobin-Q, Profit Margin (PM), Earnings Per Share (EPS), Dividend Yield (DY), Price-Earnings Ratio (PE), Return on Sales (ROS), Expense to Assets (ETA), Cash to Assets (CTA), Sales to Assets (STS), Expenses to Sale (ETS), Abnormal returns; annual stock return, (RET), Operating Cash Flow (OCF), Return on Capital Employed (ROCE), Labor productivity (LP), Critical business Return on Asset (CROA), Cost of Capital (COC), Market Value Added (MVA), Operation Profit (OP), Return on Investment (ROI), Market-to-book value (MTBV), Log of market capitalization, LOSS, Growth in Sales (GRO), Stock Repurchases, Sales Per Employee (SPE), Return on revenue (ROR), Output per staff (OPS), Cost Per Service Provided (CPSP) and Cost per Client Served (CCS), Superior to cumulative abnormal returns (CARs), Profit Per Employee (PPE) and Return on Fixed Assets (ROFA), etc.

2.3. Cash Flows and Cash Flow Management

Cash flows are inflows (receipts) and outflows (payments) of cash and cash equivalents in the organizational business. Positive cash flow from operations indicates that the company's liquid assets are increasing which will enable it to settle its emerging financial obligations, while negative cash flow indicates that a company's liquid assets are decreasing.

Cash flow management is the planning, organizing, and controlling of cash inflows and outflows in an entity during a particular period. Cash flow is the total value of the money that is actually received by or paid out by an entity for over a certain time period (Fodio *et al*, 2013). Uremadu (2004) described cash flows of an entity as those pools of funds that the firm commits to its non-current assets, inventories, account receivables and marketable securities that generate profit. The ability of the company to efficiently and effectively choose adequate sources of funds to finance its activities will differentiate a strong cash flow management and poorly managed cash flows.

2.4. Firm Size

According to Kogan and Tian (2012), firm characteristics include firm size, leverage, liquidity, sales growth, asset growth and turnover. Others include ownership structure, board characteristics, age of the firm, dividend pay-out, profitability, access to capital markets and growth opportunities. (Bala, Darry and Mathew, 2005), Firm Size has become dominant in empirical corporate finance studies and has been widely established among the most significant variables (Kioko, 2013). Studies, however, document mixed results on the effect of size, while some confirm (Tarawneh, 2006; and others find mixed or no effect at all) (Ghareli and Mohammadi, 2016). There is a positive significant relationship between firm size and profitability. Mbula, Member and Njeru (2016) revealed that the relationship between size and financial performance is negatively mediated by indebtedness.

2.5. Firms Leverage

Firms leverage simply means the presence of debt in the capital structure of a firm. Similarly, in other words, we can also call it the existence of fixed-charge bearing capital which may include preference shares along with debentures, term loans, etc. There are basically three leverages:

- Operating Leverage
- Financial Leverage,
- Combined Leverage.

The objective of introducing leverage to the capital is to achieve maximization of wealth of the shareholder. Firms leverage deals with the profit magnification in general. It is also well-known as gearing or 'trading on equity'. The concept of firms leverage is not just relevant to businesses but it is equally true for individuals. Debt is an integral part of the financial planning of anybody whether it is an individual, firm or a company. We will try to understand it from the business point of view. In a business, debt (short or long-term) is acquired not only on the grounds of 'need for capital' but also taken to enlarge the profits accruing to the shareholders. Let us clarify it further. An introduction of debt in the capital structure will not have an impact on the sales, operating profits, etc. but it will increase the share of the equity shareholders, the return on equity percent (ROE%).

3. Methodology

3.1. Research Design

There are many types of research design, but an ex-post factor research design will be used in this study. This is because it involves events that have already taken place in the past. This is as well called causal comparative research design due to the fact that the variables used are embedded in the quarterly financial reports of the selected food and beverage companies in Nigeria. The choice for this design was informed by the research paradigm which is of the positivist philosophical research paradigm. Thus, the researcher follows the ontological and objective view which gives no room for any form of biasness. As such, the design is considered appropriate for finding out the relationship among cash flow, firm size and financial performance and establishing meaningful relationships between variables as well as understanding the impact made by these factors on financial performance.

3.2. Model Specification

In this study, financial performance as a response variable is proxied by three different measures of firm's performance, each of which represents dependent variable for three different models. With modification, the study follows the adoption in the study of Marian, Daniel and Dalia (2012). The measures used for firm's performance are: Returns on Assets (ROA), Returns on Equity (ROE) and Returns on Sales (ROS). The models are as stated below:

$$ROA = f(CFR, FSIZE, FIRLEV) \quad i$$

$$ROE = f(CFR, FSIZE, FIRLEV) \quad ii$$

$$ROS = f(CFR, FSIZE, FIRLEV) \quad iii$$

Where, ROA, ROE and ROS are as explained above whereas the vector of explanatory variables comprises liquidity: Cash Flow Ratio (CFR) as well as control variables: Firm Size (FSIZE), Firms Leverage (FIRLEV) with reference to the aforementioned variables and their proxies, the following econometric equations are estimated:

$$ROA_{it} = \alpha_i + \beta_1 CFR_{it} + \beta_2 FSIZE_{it} + \beta_3 FIRLEV_{it} + \mu_{it} \quad iv$$

$$ROE_{it} = \alpha_i + \beta_1 CFR_{it} + \beta_2 FSIZE_{it} + \beta_3 FIRLEV_{it} + \mu_{it} \quad v$$

$$ROS_{it} = \alpha_i + \beta_1 CFR_{it} + \beta_2 FSIZE_{it} + \beta_3 FIRLEV_{it} + \mu_{it} \quad vi$$

Where, α_i implies unobserved time-invariant, that is, the intercept of the models. Individual effect: β_1 , β_2 and β_3 respectively capture the effect of CFR, FSIZE and FIRLEV on ROA, ROE and ROS and μ_{it} is the error term.

3.3. Description of Research Variables

The variables for the study are classified into dependent and independent variables. The dependent variable is return on Assets, return on equity, return on sales which is proxy for financial performance. While, the independent variable is firm size, firms leverage and cash flow ratio.

Variable	Variable's Description	Proxy	Measurement/Formulae
ROA	Return on Asset	Financial Performance	Net Income/Total Assets
ROE	Return on Equity	Financial Performance	Net Income/Total Equity
ROS	Return on Sales	Financial Performance	Net Profits/Total Assets or Net Sales
FSIZE	Firm Size	Independent Variable	Natural Log of Total Assets
FIRLEV	Firms Leverage	Independent Variable	Total Liabilities/Total Assets or Equity
CFR	Cash Flow Ratio	Independent variable	Net Cash flow from Operations/ Total Current Liabilities

Table 1: Measurement of Dependent and Independent Variables

Source: Researcher's Construction (2021)

4. Data Analysis and Discussion

4.1. Analysis of Descriptive Statistics

This section of the study provides summary statistics of variables. These summaries are both quantitative and visual. They formed the basis of the initial description of the data as part of a more extensive statistical analysis. This section comprises both the descriptive statistics and the correlation matrix analysis. In our descriptive analysis, we described each variable in terms of reporting measures of central tendency; these described the way our data tend to cluster around the same value. However, in our correlation matrix analysis, since the study made use of multiple variables, we described relationship between them by making use of quantitative measures of dependence of which the study used the correlation test to describe statistical relationship between the variables and also graphical representation through the use of scatter plots and line plots. The descriptive analysis explores each variable in a data set separately, looking at the range of values as well as the central tendency of the values. It describes the pattern of response to the variable, by describing each variable on its own.

Using equation (1,2,3) and Equation (4,5,6), where return on assets, return on equity and return on sales are adopted as different measures of financial performance respectively, we, therefore, present Table 1, which represents the measure of central tendency of our data in its raw form. It presents the results of normality tests for random variables with different numbers of observations of data randomly generated from the standard normal distribution. From Table 1, it can be seen that the variables are well-distributed and normally clustered around same value.

The descriptive analysis chart shown in Table 2 highlights the means, standard deviations and number of observations in the data set. Among the financial performance variables, which are dependent variables in the 3 equations,

the measure for return on sales (ROS) has the highest mean value, which is 0.26583 with a standard deviation of 0.37663, alongside return on equity (ROE) which has a mean value of 0.021014 with standard deviation of 0.046126, while return on asset (ROA) has the least mean 0.014709 among the dependent variables with a standard deviation of 0.046546. This result implies that the average return of sales (ROS) has the highest ratio performance metric 26%. While average return on asset (ROA) and average return to equity (ROE) for this is quite low at 1.47% and 2.1% respectively; this shows that foods and beverages companies in Nigeria have a very low accounting performance. For the explanatory variables, the firm size has the highest mean value of 8.854019 and standard deviation of 0.803177; this is followed by the cash flow variable (CFR) and firms leverage (FIRLEV), which have the lowest mean of 0.185083, 0.70609, and standard deviation of 0.149556 and 0.473904 respectively.

Variables	Obs	Mean	Median	Std. Dev.	Maximum	Minimum
ROA	64	0.014709	0.00273	0.046546	0.315445	0.000132
ROE	64	0.021014	0.005905	0.046126	0.315445	0.000215
ROS	64	0.26583	0.140758	0.37663	1.760032	0.003443
FSIZE	64	8.854019	8.878715	0.803177	11.38973	7.498137
FIRLEV	64	0.70609	0.569729	0.473904	2.707633	0.204146
CFR	64	0.185083	0.172531	0.149556	0.740297	0.002107

Table 2: Analysis of Descriptive Statistics
Source: Author's Compilations (2021)

4.2. Correlation Matrix Analysis

In this section of the study, we considered the use the correlation test to describe statistical relationship among the selected variables. All the data were expressed in the natural log form as described in the methodology. In the correlation result matrix in Table 3, it is deduced that varied relationship exists between the variables, and since the major reason for test is to ascertain the possible presence of multi-co-linearity, results do not show its presence between the variables. Only a few instances noted between firm size (FSIZE), Firm size (FSIZE) and financial leverage (FIRLEV) recorded rather a high degree of positive correlation between variables. It is important to note that the descriptive statistics and correlation analysis only indicate the associate link between variables. They do not necessarily establish a causal relationship even with high coefficients. Consequently, more rigorous and advanced econometric techniques are required to adequately capture definite significant relationship between the corporate performance measures and the explanatory variables.

	ROA	ROE	ROS	FSIZE	FIRLEV	CR
ROA	1					
ROE	0.97191	1				
ROS	0.063521	0.119782	1			
FSIZE	0.207817	0.153208	0.140477	1		
FIRLEV	0.517502	0.49987	0.165382	0.628709	1	
CFR	-0.00875	0.001157	0.49557	0.216544	0.011406	1

Table 3: Correlation Results Matrix

4.3. Cross-sectional Reliance Technique

In this context, the Breusch and Pagan (1980) LM test, Pesaran (2004) scaled LM test, and Pesaran (2004) CD test were utilized, and across the 3 variations of financial performance model (ROA, ROE and ROS) assessed in this study, the findings were reported in Table 4. The null hypothesis of no cross-sectional dependence can only be accepted if the probability values of the cross-sectional test are greater than 5% (0.5). Findings in Table 4 illustrate that the null of 'no cross-sectional dependence' is accepted for all the 3 equations (ROA, ROE and ROS), as all probability value of the t-statistics in the 3 models are greater than 0.5; hence, we accept the null hypothesis that there is no cross-sectional dependence across all the variables.

Test	ROA	ROE	ROS
Breusch-Pagan LM	40.83804(0.0556)	37.01034(0.1186)	31.41499(0.2990)
Pesaran scaled LM	1.715555(0.0862)	1.204057(0.2286)	0.456347(0.6481)
Pesaran CD	0.230003(0.8181)	0.182646(0.8551)	1.894395(0.0582)

Table 4: Test for Cross Sectional Dependency
Probability Value in Parenthesis
Source: Author's Compilations (2021)

4.4. Unit Root Test

The second test is the stationarity test which checks for unit root in each of the variables for both the pool data and individual unit or cross-sectional data. For the pooled unit using the Levin, Lin & Chu t^* , all the variables are stationary at level for the individual unit root test (Augmented Dickey and Fuller, Im, Pesaran, Shin, Phillip and Perron Test). The results were mixed; some of the variables such as- return on equity, return of sales, firm size are stationary at levels, while all the remaining variables are found to be stationary. Based on the mixed results presented in Table 3, we carefully conclude that panel non-stationarity is likely for some of the variables such as ROA, FSIZE, FIRLEV and CFR; therefore, we

treat them as integrated of order one, i.e., $I(1)$. While ROA, ROS and CR are stationary at levels; hence, they are integrated of order zero. This result suggests that there might be long run relationship among some of the variables. Long-run relationship between non-stationary variables can only exist if variables are co-integrated.

Variables	Levin, Lin & Chu t	ADF	Im, Pesaran and Shin	PP	Int. Order
ROA	-2.73346 (0.0031)	42.6963 (0.0003) *	3.1877(0.0007)*	50.3942(0.0000) *	$I(1)$
ROE	-3.43558(0.0003)	26.5822(0.0464)	-4.08881(0.0000)*	28.6383(0.0265)	$I(0)$
ROS	-19.2177(0.0000)	43.3348(0.0002)	-5.02139 (0.0000)	28.6160(0.0267)	$I(0)$
FSIZE	-2.85452(0.0022)	33.6780(0.0060)*	-2.30926(0.0105)*	30.3472(0.0163)	$I(1)$
FIRLEV	-1.94531(0.0259)	25.0549(0.0689)*	-1.76021(0.0392)*	32.2346(0.0093)*	$I(1)$
CFR	-5.18845 0.0000	48.4013 (0.0000)*	-3.73608(0.0001)*	70.0151 (0.0000)*	$I(1)$

Table 5: Unit Root Test
Source: Author's Compilations (2021)

4.5. Panel Co-integration Technique

Based on the unit root, which suggests that there might be co-integration among some of the variables, there is need to further check the existence of co-integration among the 3-equation focused in this research. The common method of to assess is Kao test and Pedroni; due to the limited data, only the Kao test was adopted for this study. The null hypothesis states there exists no co-integration; we reject this null hypothesis if the probability value is less than 5% level of significance. Table 5 shows the existence of co-integration among the 3-model specified.

	ROA Model	ROE Model	ROS Model
T-Statistics	-4.609969	-5.484725	-5.454552
	0.000	0.000	0.000

Table 6: KAO Test for Co-integration
Source: Author's Compilations (2021)

4.6. Estimation and Results - Panel Data

The approach taken is to address each research hypothesis and display the results from the various empirical techniques used. The pooled OLS estimation is simply the OLS method run on a panel dataset which ignores individual fixed effects. Although the pooled OLS does not differentiate between time and cross-sections, on the other hand, the fixed effects model chosen on the basis of the Hausman test result (see Table 5) eliminates all unobserved heterogeneity (individual fixed effects) in the data. Before the panel data estimation, it is essential to test for cross sectional dependency among the data used for estimation.

The results of the Pooled Ordinary Least Square (OLS), Fixed Effects and the Random Effects estimation models for the panel data for each of the performance measures and for the full sample of observations for the period 2013 to 2020 displayed in Table 4. The panel regression model results using return on assets, (ROA) return on equity (ROE) and return on sales (ROS) were assessed as different measures of financial performance. The estimation was done using the White Standard Error for robustness in order to tackle any instantaneous effect of auto-correlation which could bias the results.

Dependent Variable: ROA			
Independent Variables	Pool OLS	Random Effect	Fixed Effect
C	-0.17481	-0.17481	-0.509813
	(-1.89712)*	(-2.43153)*	(-4.888049)*
FSIZE	0.183624	0.183624	0.59712
	(1.821147)***	(2.334153)**	(4.506765)*
FIRLEV	0.017228	0.017228	0.04271
	-0.886501	-1.136223	-1.597188
CFR	0.022995	0.022995	0.067143
	-0.734906	-0.941925	(2.070657)**
	Chi-Sq.	Prob.	
Hausman Test	0	1	
R-squared	0.503049	0.503049	0.735301
Adjusted R-squared	0.44093	0.44093	0.659672
F-statistic	8.09818	8.09818	9.72255
Prob(F-statistic)	1E-06	1E-06	0
Akaike info criterion	-3.7618	-3.7618	-4.1729
Durbin-Watson stat	1.50558	1.50558	1.55492
No of OBS	64	64	64

Table 7: Panel Regression Estimation for Return on Asset

Table 7 shows the estimation result for the return of asset (ROA) model, the Pool OLS estimation suggests that firm size (at 10%, 1% and 10% significant level respectively) has a positive and a significant relationship on return on asset as a measure of financial performance, while the other variables, such as firms leverage and cash flow ratio, all have insignificant relationship with return on asset. The random effect model also depicts a similar result with the Pool OLS; the

result also shows that firm size (at 5%, 1% and 5% significant level respectively) has a positive impact on return on asset as a measure of financial performance. The random estimation result further revealed that the efficiency variable has a negative relationship with return on assets. The fixed effect estimation depicts a different result from the random and pool OLS estimate; the result of the fixed effect estimation shows that firm size and cash flow ratio has a positive and significant impact on return on equity; the fixed effect model further shows tangibility (at 1%, 5%, and 10% level of significance respectively), and other explanatory variables were found to have insignificant impact on return on asset.

Although the 3 variations of the panel data model (pooled OLS, fixed effect and random effect model) were estimated in this study, the Hausman test was conducted to further guide this study in adopting the right model between fixed effects model or a random effects model. The null hypothesis is that the preferred model is random effects. The alternate hypothesis is that the model is fixed effects essentially; the tests look to see if there is a correlation between the unique errors and the regressors in the model. Hausman test is fairly straightforward; if the p-value is small (less than 0.05), we reject the null hypothesis. The Hausman diagnostic test, as revealed in Table 8, implies that the random effect model is best fit for the study; hence, the random effect model was preferred for the return on asset equation and study concludes that firms leverage and business growth significantly impact return on equity as a measure of financial performance.

The ROA estimation diagnostic result depicted in Table 7 shows that the R^2 is satisfactory in all cases. The R^2 for both the pooled OLS and random effect model is 0.44093, while 0.659672 is for the random effects and pooled OLS models respectively. This indicates that a good percentage of the variation in return on asset as a measurement of performance of food and beverage firms is explained by the variations in their size, firms leverage and cash flow ratio. The F-statistics and Durbin-Watson (DW) statistics also indicate that the regression equations are significant. The DW statistics for the pooled OLS, random effect model and fixed effect model are 1.505579, 1.505579 and 1.554921 respectively, and this indicates that the regression equation is free from the problem of autocorrelation. The implication of this is that the estimated equation can be relied upon in making valid inference about the influence of the explanatory variables on the financial performance of food and beverage companies in Nigeria.

Dependent Variable: ROE			
Independent Variables	Pool OLS	Random Effect	Fixed Effect
C	-0.076107 (-0.761147)	-0.076107 (-0.917753)	-0.421256 (-3.501546) *
FSIZE	0.090062 (0.823136)	0.090062 (0.992497)	0.519471 (3.399016) *
FIRLEV	0.041395 (1.962952) ***	0.041395 (2.36683) **	0.059415 (1.926246) ***
CFR	0.030227 (0.890227)	0.030227 (1.073392)	0.061049 (1.632201) *
Hausman Test	Chi-Sq. 0.0000	Prob. 1.000	
R-squared	0.404119	0.404119	0.641365
Adjusted R-squared	0.329634	0.329634	0.538898
F-statistic	5.425503	5.425503	6.259231
Prob (F-statistic)	0.000087	0.000087	0.000001
Akaikeinfo criterion	-3.598359	-3.598359	-3.887345
Durbin-Watson stat	1.497714	1.497714	1.579197
No of obs	64	64	64

Table 8: Panel Regression Estimation for Return on Equity

Table 8 shows the estimation result for the return on equity (ROE) model; the Pooled OLS estimation suggests that only firms leverage (both at 10% and 5% significant level respectively) have positive and significant impacts on return on equity as a measure of financial performance, while the other variables such as firm size and cash flow ratio have significant relationship with return on equity. The random effect model also depicts a similar result with the Pool OLS; also only firms leverage and growth have a significant and positive impact on return on equity as a measure of financial performance. The fixed effect estimation depicts a different result from the random and pool OLS estimate; the result of the fixed effect estimation demonstrated in Table 8 shows that firm size, firms leverage and cash flow ratio have a positive and significant impact on return on equity.

The Hausman diagnostic test reveals that the random effect model is best fit for the study; hence, the random effect model was adopted for the return on equity equation and study concludes that firms leverage and business growth significantly impact return on equity as a measure of financial performance. The ROE estimation diagnostic result depicted in Table 9 shows that the R^2 is satisfactory in all cases. The R^2 for both the pooled OLS and random effect model is 0.44093, while 0.659672 is for the random effects and pooled OLS models respectively. This indicates that a good percentage of the variation in return on equity as a measurement of performance of food and beverage firms is explained by the variations in their size, firms leverage and cash flow ratio. The F-statistics and Durbin-Watson (DW) statistics as well indicate that the regression equations are significant. The DW statistics for the pools OLS, random effect model and fixed effect model are 1.505579, 1.505579 and 1.554921 respectively, and this indicates that the regression equation is free from the problem of autocorrelation. The implication of this is that the estimated equations' results can be relied upon in making valid

inference about the influence of the explanatory variables on the financial performance of food and beverage companies in Nigeria.

Dependent Variable: ROS			
Independent Variables	Pool OLS	Random Effect	Fixed Effect
C	0.668074 (0.883019)	0.668074 (1.684838) ***	1.040446 (1.808684) ***
FSIZE	-0.823489 (-0.994693)	-0.823489 (-1.897918) ***	-1.303156 (-1.783277) ***
FIRLEV	0.52623 (3.297912) **	0.52623 (6.292559) *	0.311934 (2.114985) **
	(7.030665) *	(13.41481) *	(2.867793) *
CR	0.038302 (0.357881)	0.038302 (0.682852)	0.139575 (1.054934)
Hausman Test	Chi-Sq. 0.0000	Prob. 1.000	
R-squared	0.4883	0.4883	0.877016
Adjusted R-squared	0.424337	0.424337	0.841878
F-statistic	7.634147	7.634147	24.95906
Prob (F-statistic)	0.000002	0.000002	0
Akaike info criterion	0.449128	0.449128	-0.75781
Durbin-Watson stat	1.012385	1.012385	1.301484
No of OBS	64	64	64

Table 9: Panel Regression Estimation for Return on Sales

Table 9 shows the estimation result for the return on sales (ROS) model; the Pool OLS estimation suggests that firms leverage and cash flow ratio both (at 5% and 1% respectively) have a positive impact on return on sales as a measure of financial performance, while firm size was found to have non-significant impact on return on sales. The random effect model also depicts a slightly similar result with the Pooled OLS; also firms leverage and current financial ratio have a significant and positive impact on return on sales as a measure of financial performance. Furthermore, efficiency was seen to have a negative impact on return on assets as a measure of financial performance, while firm size found to be insignificant. However, the fixed effect estimation depicts a different result from the random and pooled OLS estimate; the result of the fixed effect estimation depicted in Table 8 shows that only financial leverage has a significant and positive relationship with return on sales as a measure of financial performance, while firm size has a significant but negative relationship with financial performance. Other explanatory variables were found to have insignificant impact on return on equity.

The Hausman diagnostic test reveals that the random effect model is best fit for the study; hence, the random effect model was adopted for the return of equity equation and study concludes that firms leverage has significant impact on asset as a measure of financial performance.

The ROE estimation diagnostic result shown in Table 9 shows that the R^2 is satisfactory in all cases. The R^2 for both the pooled OLS and random effect model is 0.332129, while 0.820637 is for the random effects and pooled OLS models respectively. This indicates that a good percentage of the variation in return on asset as a measurement of performance of food and beverage firms is explained by the variations in their firm size, firms leverage and cash flow ratio. The F-statistics and Durbin-Watson (DW) statistics also indicate that the regression equations are significant. The DW statistics of for the pools OLS, random effect model and fixed effect model are 0.982189, 0.982189, and 1.554921 respectively and this indicates that there might exist a problem autocorrelation for both the regression equation for the pool and random OLS estimation, while only the fixed effect model is free from the problem of autocorrelation. The implication of this is that the estimated equation of the ROA equation might rely upon in making valid inference about the influence of the explanatory variables on the financial performance of food and beverage companies in Nigeria.

5. Summary and Implication of Findings

This study has so far investigate and explores the relationship and association among firms leverage, cash flows, firm size and financial performances of food and beverage companies in Nigeria. The scope of the study covers the period from 2013 to 2020 for food and beverages firms, specifically: Nestle Nigeria Plc, Nigerian Breweries Plc, Unilever Nigeria Plc, Flour Mills of Nigeria Plc, Dangote Sugar Refinery Plc, Honeywell Flour Mills Plc, Champion Breweries Plc and Cadbury Nigeria Plc. The study employed different measures of financial performance, namely- the return on asset (ROA), return on equity (ROE) and return on sales (ROS) as financial performance. Although the 3 variation of panel analysis (pooled, fixed and random test) was applied, the estimation of random effect model was preferred based on the Hausman test.

In examining the impact and of cash flow on financial performance, and going by the return on asset as a measure of financial performance, findings from the result show that only current ratio (as cash flow index) has a positive and significant impact on return on asset as a measure of financial performance, while Cash flow ratio, which is the other measure cash flow index, does not have significant impact on return on assets as a measure of financial performance. In the case of the second model estimation, where return on equity was used as a measure of financial performance, the estimation result for the return on equity (ROE) model suggests that cash flow ratio had a positive and significant impact

on return on equity as a measure of financial performance, but in this case, return on sales as a measure of financial performance, cash flow ratio is seen to have a significant and positive impact on return on sales as a measure of financial performance in all cases, but the return on sales equation, however the return on sales estimation. Furthermore, the causation result suggests that the impact cash flow has on return on equity is not direct but through its impact on firm size has direct causation on return of asset as a measure of financial performance. Based on the findings, the study concludes that cash flow index had a positive and significant impact on return on assets as a measure of financial performance; also cash flow ratio (as a cash flow index) has a positive and significant impact on return on equity (as a measure of financial performance). Findings from the studies imply positive impacts of cash flow on financial performance of listed food and beverage companies in Nigeria; the findings in this study are consistent with Kariyawasam (2019) who also found positive impact of cash flow on financial performance. Babalola and Abiola (2013) established that high ratio is a sign of unsystematic operation of funds, but this study's findings disagree with studies of Panigrahi (2013), Saleem and Rehman (2011), Bolek and Wili'nski (2012) who found negative relationship between cash flow and financial performance.

In examining the impact and of firm size on financial performance, and going by the return on asset as a measure of financial performance, findings from the result show that firm size has a positive and significant impact on return on asset as a measure of financial performance. In the case of the second model estimation where return on equity was used as a measure of financial performance, the estimation result for the return on equity (ROE) model has a positive but insignificant impact on return on equity as a measure of financial performance. In the case of return on sales as a measure of financial performance, firm size is seen to have a significant but negative impact on return on sales as a measure of financial performance. The causation results further revealed that firm size has a direct causation or impact on both return on asset and return on equity as a measure of financial performance. Findings in the study are consistent with Andow, Ango and Abdul (2017), and Sriharan (2017), who found positive influence of firm's size on the firms' financial performance. Sriharan (2017) study suggested that larger firms use better technology, are more diversified in terms of risks, and have better expense management; hence, the reason for the positive influence of firm size on financial performance of firms. It can also be deduced that increase in size helps firms to benefit from economies of scale; hence, it leads to a higher rate of turnover and financial performance.

In examining the impact and of firms leverage on financial performance, the return on asset estimation depicts that though financial leverage is positively related, it has an insignificant relationship with return on assets as a measure of financial performance. In the case of the second estimation, where return on equity was used as a measure of financial performance; the estimation result shows that firms leverage has a positive and significant impact on return on equity as a measure of financial performance. In the case of return on sales as a measure of financial performance, firms leverage is also seen to have a significant and positive relationship with return on sales as a measure of financial performance. The causation results further revealed that firm size has a direct causation or impact on both return on asset and return on equity as a measure of financial performance. The causation results further revealed that firms leverage does not affect return on assets as measure of financial performance directly, but affects growth, size and tangibility which, in turn, affect return on assets as a measure of financial performance. But, conversely in the case of return on equity, firms leverage has a direct causation on return on equity as a measure of financial performance. The result implies that firms leverage has a positive impact on both return on equity and return on asset as a measure of financial performance; the causation result implies that the impact firms leverage has on financial performance of food and beverage firms is indirectly related to its impact on firm size of the firms. Firms leverage is mostly viewed as the use of debt component of capital structure, through the use of fixed income securities, such as loans and bonds. As suggested by Taani (2012), it has a significant influence on the company's ability to achieve its ultimate goal, such as maximizing the shareholders' wealth. Although Tally (2014) has suggested that increased leverage results in increased return and risk. Hence, the effect of firms leverage in maximizing the return of equity or shareholders is based on the assumptions that the fixed-charges funds such as the loan and debentures can be obtained at a cost lower than the firm's rate of return on net assets (Damouri, Khanagha and Kaffash, 2013). In comparing the 3 estimation models for financial (ROA, ROE and ROS) in the study, the result was mostly not consistent, but the Akaike info criteria suggested that the return on assets is a better measure of financial performance.

6. Conclusion and Recommendations

This study tries to fill the gap left by other studies in this field by investigating the effect of cash flow ratio, firm size and firms leverage on financial performance of Quoted food and Beverage firms in Nigerian by extending the performance measures and leverage measures that have been hitherto employed by other studies. Based on the findings of the study, the following were recommended:

- Nigerian firms should try to match their high market performance with real activities that can help make the market performance reflect financial performance.
- Cash flow activities should be more tilted towards expansion, firm size and efficiency to maximize their market performance and return on investment.
- The firms should develop a good strategy targeted at using more of equity to maximize their market performance in such a way that it yields growth opportunities.
- Though there is high positive impact of leverage on financial performance of the firms, it does not directly translate to better financial performance. Hence, the firms should set a debt level that will maximize their performance as reflected in the high positive impact of leverage on their market performance.

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