EFFECT OF LEVERAGE ON THE PROFITABILITY OF NIGERIAN CONSUMER GOODS MANUFACTURING FIRMS

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Abstract

This study examined the effect of leverage on the profitability of Nigerian manufacturing firms based on the data of seventeen (17) Nigerian consumer goods firms listed on the Nigerian Stock Exchange for the period of 2012 to 2017. The study adopted the dynamic panel model. The main finding of the study revealed that leverage has a significant positive effect on profitability with p-value of 0.0000. The study therefore recommended that companies in the Nigerian consumer goods industry should take advantage of debts’ tax shield from the interest in their financial structure in order to improve their profitability level.

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1. Introduction

Ideally, firms do take money from lenders to boost their operations in order to bring about higher earnings. Hence, such money borrowed from various sources indicates how leverage is associated with the firms. Leverage involves the use of borrowed money in order to make investments and returns on the said investments; for this reason, leverage is used in various situations as a way of varying the cash flow and financial structure of a firm (Smith, 2002) cited in (Acheampong, Agalega & Shibu, 2014). The nexus between
the capital structure and investment choices of enterprises is a key area of attention in the field of corporate finance (Thi Bich Ngoc, Ichihashi, & Kakinaka, 2019). The profitability of a firm for a particular period can be conceptualised as the final results of its investing and operating activities as well as the ability of the management to increase the firms’ profit via debt (Gatsi, Gadzo & Akoto, 2013). Hence, many researchers have argued that leverage is the top most factor among the other factors that can affect firms’ profitability (Ahmad, Salman & Shamsi 2015).

Modigliani and Miller (1958) in their seminal paper were of the opinion that the capital structure of a firm is not related to the firm’s value while Jensen and Meckling (1976) argued that leverage has impact on the corporate performance of a firm and also influence financial decisions. Ordinarily, an excellent capital structure framework is expected to bring about minimisation of overall cost of capital, maximisation of organisations’ value and enjoying the advantage of corporate leverage with the presence of corporate taxes. Leverage is the proportion of fixed interest capital (that is, debt and preference share capital) in financing the operations of a firm. Ordinarily the higher the degree of leverage, the higher the risk involved in meeting fixed payment obligations is(Akinsulire, 2011).

Various researchers have in the past worked on the relationship between leverage and profitability however, while there are differences in the proxy for the independent variable (leverage), contradictory results have also been reported. Some authors (Onuora 2019; Dalci 2018; Moghaddam and Abbaspour 2017; Nwanna and Ivie 2017; Adenuga, Ige and Kesinro 2016; Ahmad, Salman and Shamsi 2015; Raheel and Shah 2015; Enekwe, Agu and Eziedo 2014; Alaghi 2012) only considered financial leverage in their studies while others (Ahmad, Salman and Shamsi 2015; Raheel and Shah 2015; Titman and Wessels 1988; Sheel 1994; Wald 1999; Eunju and Soocheong 2005; Ahmad, Salman and Shamsi 2015) in their works reported that financial leverage has a significant negative relationship with profitability.

On the other hand, others (Nwanna and Ivie 2017; Moghaddam and Abbaspour 2017; Larry and Stulz 1995) reported a significant positive relationship / effect between leverage and profitability. However, Nwanna and Ivie (2017) in their work on financial leverage and firms’ performance; debt ratio, debt-equity ratio and interest coverage ratio were used to proxy financial leverage while the authors used profitability, size, liquidity, managerial efficiency and market capitalisation value to measure firms’ performance. Therefore, due to such contradictory findings and proxies observed from the literature, it becomes unclear as to whether leverage really influences profitability especially in developing economy like Nigeria.
Furthermore, notwithstanding the fact that Nigeria is the largest consumer market in sub-Saharan Africa, investment in the Fast-Moving Consumer Goods (FMCG) sector has been laudable in line with the massive potential for growth given the fascinating demographic configuration. In essence, FMCG sector in Nigeria remains fundamentally attractive to investors across countries. Therefore, there is the need to examine the effect of leverage (degree of operating leverage, degree of financial leverage and degree of combined leverage) on the profitability (Earnings per Share) of Nigerian FMCG firms.

The main objective of this study is to empirically ascertain the effect of leverage on the profitability of Nigerian consumer goods manufacturing firms. Specifically, and in line with what is obtainable in previous studies, the effect of three (3) proxies of leverage – degree of operating leverage, degree of financial leverage and degree of combined leverage were examined. Above all, the present study tries to improve on the gaps identified in previous studies of Dalci (2018), Raheel and Shah (2015) and others by increasing the number of samples involved as well as the scope covered to ten (10) years in order to give room for acceptable generalisation. Furthermore, the present study included firm size (SIZE) as control variable while the dynamic panel model was used to analyse the data.

2. Literature Review

Discussions on leverage and profitability have been based on various propositions by different scholars in the past. Some of those theories comprise pecking order theory, trade-off theory as well as the famous agency theory. The pecking order theory posits that firms prefer internal financing if it proves to be sufficient but resort to borrowing where the internal financing proves to be insufficient and relied on external financing through equity as a last option. Hence, the theory is based on the idea that the order of resources prevails over their size. However, for developed countries, a new pecking order theory has been considered and it is characterised by a reassessment of the financing preference thus; retained earnings, equity and lastly long-term debt. On its submission, the trade-off theory posits that firms mark out their optimal financial structure by maintaining a balance between the costs of taking additional and the benefits derivable. Jensen (1986) stressed that the benefits of leverage include tax deductibility of interest and improved cash flow. Therefore, the theory postulates that a firm borrows up to the point that the marginal value of the tax advantage of debt is balanced by the increase in the present value of bankruptcy costs. The agency theory describes the relationship between principals (shareholders) and agents (managers) where the agents are expected to act in the interest of the principals but seek several personal benefits at the expense of the owners.
Empirically, several works have been conducted in the past to investigate the nature of relationship and or effects of leverage on the profitability of firms all over the world. These include but not limited to the works of Thi Bich Ngoc et al (2019) which investigated the relationship between financial leverage and investment decisions in Vietnam’s small and medium-sized enterprises in 2011, 2013 and 2015. The authors relied on quantitative data gathered from the survey of two thousand five hundred (2500) SMEs in Vietnam. Using logistic regression, the study revealed a positive relationship between financial leverage and investment decision. Furthermore, it was reported that firms with higher financial leverage are more expected to select external financing sources than internal ones.

Onuora (2019) examined the link between financial leverage and financial performance of eight (8) Deposit Money Banks in Nigeria from 2005 to 2017. The study used Debt- Equity Ratio (DER) and Debt Ratio (DR) as proxies for financial leverage, Return on Equity (ROE) as proxy for financial performance while size of the banks (represented by total assets) are used as control variable. The data was analysed via correlation analysis and OLS regression. The results revealed a significant negative relationship between ROE and DER. Furthermore, an insignificant negative relationship was reported between ROE and DR while the size produced a significant positive relationship with ROE.

Mulyana, Zuraida and Saputra (2018) where the influence of liquidity, profitability and leverage on earnings management and its impact on the value of one hundred and fifty (150) manufacturing companies listed on the Indonesia Stock Exchange from 2011 to 2015 was investigated. The study’s results revealed that liquidity, profitability and leverage collectively and individually have effect on both the firms’ earnings management as well as the value.

In the same vein, Sidhu (2018) studied the impact of leverage on stock market liquidity of one hundred and eight-seven (187) Indian firms from 2009 to 2013. The multiple regression models were used in testing the hypotheses. The results revealed a negative relationship between stock market liquidity and firms’ leverage. Hence, a low level of debt is likely to resort to high stock market liquidity. Similarly, Dalci (2018) examined the impact of financial leverage on profitability of one thousand five hundred and three (1,503) listed manufacturing firms in China from 2008 to 2016. The study used regression analyses for the panel data obtained. The results revealed that the impact of leverage on profitability is inverted U-shaped. Furthermore, it was reported that the positive impact of financial leverage on profitability is attributed to tax shield while the negative impact is caused by bankruptcy cost, financial distress, agency problems as well as information asymmetry.
Edem (2017) examined the impact of liquidity management (liquidity ratio, loan to deposit ratio and cash reserve ratio) and performance (Return on Equity) of twenty-four (24) Deposit Money Banks (DMBs) in Nigeria from 1986 to 2011. The study used multiple linear regression and correlation coefficient models in testing the study’s hypotheses. The regression results revealed that there is a significant relationship between liquidity management measures and return on equity of (DMBs) in Nigeria. The correlation results reported a positive impact of liquidity management measures (liquidity and cash reserve ratios) on return on equity of (DMBs) in Nigeria while loan to deposit ratio revealed a negative impact. Nabeel and Hussain (2017) studied the effect of liquidity management (current, quick, cash, interest coverage and capital adequacy ratios) on banks’ profitability [Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS)] in Pakistan. The study sampled ten (10) banks in Pakistan from 2006 to 2015. The study adopted both the correlation and regression techniques in testing the hypotheses. The study reported that interest coverage, capital adequacy and quick ratios have positive while cash and current ratios have a negative relationship with banks’ profitability proxy with ROA, ROE and EPS.

Moghaddam and Abbaspour (2017) studied the effect of leverage and liquidity ratios on earnings management and capital of fourteen (14) banks listed on the Tehran Stock Exchange from 2010 to 2015. The study adopted the multivariate linear regression models via panel data. The results revealed that degree of financial leverage and liquidity ratios have positive and significant effect on earnings management of banks. Nwanna and Ivie (2017) investigated the effect of financial leverage (debt ratio, debt-equity ratio and interest coverage ratio) on firms’ performance (profitability, size, liquidity, managerial efficiency and market capitalisation value) of thirteen (13) quoted banks in Nigeria from 2006 to 2015. The study employed the multiple regression models to test the effect of the independent variables on the dependent variables. After the analysis, it was reported that financial leverage has a positive effect on both profitability and managerial efficiency while on the other hand; financial leverage has no significant effect on liquidity, size and market capitalisation value.

Ghasemi and Ab Razak (2016) examined the effect of liquidity (current and quick ratios) on the capital structure (debt-equity and debt-asset ratios) among three hundred (300) listed companies listed on the Main Market of Bursa, Malaysia from 2005 to 2013. The pooled ordinary least square regression was adopted. The results revealed that the study’s liquidity measures have significant effect on the study’s measures of leverage. However, it was further reported that quick ratio has a positive effect on leverage while current ratio is negatively related to leverage. Similarly, Ah-
madv(2016) studied the relationship between liquidity management (current ratio, quick ratio and net working capital) and profitability (gross profit and net profit) of Standard Chartered Bank, Pakistan from 2004 to 2013. The correlation coefficient model was adopted in the study. The results revealed a weak positive relationship between almost all the liquidity ratios and profitability. That is, current ratio has a weak negative relationship with profitability; quick ratio has a moderate relationship with profitability while net working capital has a very weak positive relationship with profitability.

Adenugba et al (2016) investigated the relationship between financial leverage and firms’ value among five (5) selected firms listed on the Nigerian Stock Exchange from 2007 to 2012. The study used Ordinary Least Square (OLS) statistical technique to test the hypotheses. The study revealed that there is significant relationship between financial leverage and firms’ value. Above all, financial leverage is seen as a better source of finance than equity when there is the need to finance long term projects. On the other hand, Gombola, Ho and Huang (2016) examined the effect of leverage and liquidity on earnings and capital management of U.S. commercial banks from 1999 to 2003. The result of the study showed a negative relationship between earnings management and liquidity measures if all other things being equal, aggressive earnings management behaviour metamorphosed into aggressive leverage and liquidity policies.

Hussan (2016) examined the impact of leverage on risk of selected companies in Bangladesh via the use of regression analysis in testing the hypotheses. The study revealed that leverage has positive impact on the risk of companies in Bangladesh while Ahmad, Salman and Shamsi (2015) examined the impact of financial leverage on firms’ profitability in the cement sector of Pakistan. The study considered eighteen (18) cement firms and reported that financial leverage has a statistically significant inverse impact on profitability. Also, Hiadlovsky, Rybovicova and Vinczeova (2016) studied the importance of liquidity analysis in the process of financial management of one hundred and eighty-eight (188) companies operating in the tourism sector in Slovakia from 2011 to 2014. The results revealed that there is a weak relationship between liquidity management and profitability of selected companies.

Ahmad and Alghusin (2015) investigated the impact of financial leverage, companies’ growth and firms’ size on profitability of twenty-five (25) Jordanian industrial companies listed on the Amman Stock Exchange from 1995 to 2005 with the use of the pooled regression type of panel data analysis. The study revealed that financial leverage has significant effect on the profitability of industrial companies. In the same vein, Raheel and Shah (2015) studied the relationship between the financial leverage
and firms’ profitability of five (5) oil and gas marketing companies listed on Karachi Stock Exchange from 2007 to 2012. The study adopted Correlation coefficient and linear regression models to test the hypotheses. The results revealed that DFL, DOL and DCL have no significant relationship with EPS. Just like the present research, the authors used Degree of Financial Leverage (DFL), Degree of Operating Leverage (DOL) and Degree of Combined Leverage (DCL) to proxy the independent variable, leverage while the dependent variable, profitability was measured via Earnings per Share (EPS). However, in our own case, the number of samples involved as well as the scope (years) were increased to ten (10) to give room for acceptable generalisation. Furthermore, the present study used firm size (SIZE) as control variable.

Onofrei, Tudose, Durdureanu and Anton (2015) examined the determinant factors of three hundred and eight-five (385) micro and small enterprises in Romania from 2008 to 2010. It was reported that leverage is negatively related to profitability while Goel, Chadha and Sharma (2015) examined the effect of operating liquidity and financial leverage on the performance of one hundred and fifty-one (151) machinery firms in India from 2004 to 2013. The study adopted both ratio analysis and panel data regression model. It was reported that there is significant impact between financial leverage and different measures of operating liquidity. Moghadam and Jafari (2015) described the role of financial leverage in the performance of one hundred and fifteen (115) companies listed on the Tehran Stock Exchange from 2007 to 2012. The study revealed that financial leverage has a positive significant relationship with the performance of companies listed on the Tehran Stock Exchange. More so, it was reported that companies with higher debt ratio are more profitable.

Alzorqan (2014) examined the relationship between bank liquidity risk (current ratio and loans to deposit ratio) and performance (return on investment and return on equity) of two (2) banks in Jordan from 2008 to 2012. The study adopted regression analysis to test the hypotheses. The results revealed that current ratio has significant effect on return on investment as well as return on equity while loans to deposit ratio also has significant effect on return on investment and return on equity. Patel (2014) studied the relationship between leverage (operating leverage, financial leverage and total leverage) on profitability [Return on Capital Employed (ROCE), Return on Equity (ROE), Return on Assets (ROA) and Earnings per Share (EPS)] of Sabar Dairy, a milk processing firm based in Gujarat State, India from 1986 to 2014. The regression models were employed to test the hypotheses. The findings revealed that leverage has an insignificant positive effect on ROCE, ROE and EPS while for ROA, degree of operating leverage has a significant positive effect; degree of financial leverage has an insignificant negative effect and degree of total leverage has an insignificant positive effect.
Acheampong, Agalega and Shibu (2014) examined the effect of financial leverage and market size of selected stocks on stock returns of five (5) manufacturing firms listed on Ghana Stock Exchange from 2006 to 2010. The study adopted Ordinary Least Square (OLS) regression methods. The results established a negative and significant relationship between leverage and stock return for the industrial data. In the same vein, Enekwe, Agu and Eziedo (2014) examined the effect of financial leverage on financial performance of three (3) quoted pharmaceutical companies in Nigeria from 2001 to 2012. The study used both Pearson correlation and regression model to the hypotheses. The study reported debt ratio and debt-equity ratio (financial leverage) have negative relationship with return on assets (financial performance) in the Nigerian pharmaceutical industry.

Kaya (2014) examined the impact of leverage on U.S trade firms’ profitability and liquidity measures from 2000 to 2005. The study revealed that highly levered retail and wholesale trade firms have a tendency to suffer from liquidity problem while highly levered retail firms have a tendency to suffer from profitability problem. However, the results for highly levered wholesale firms are mixed. Above all, it was reported that higher return on equity for highly levered wholesale firms was as a result of severely depressed equity values. However, Ibe (2013) examined the impact of liquidity management (cash and short-term fund, bank balances and treasury bills and certificate) on the profitability (profit after tax) of three (3) selected banks in Nigeria from 1995 to 2010. The study used regression models to test the hypotheses. The results revealed a significant relationship between liquidity and banks’ profitability. Also, Gatsi, Gadzo and Akoto (2013) examined the relationship between working capital management and leverage on one hand and the profitability of eighteen (18) insurance firms in Ghana using the panel data methodology. The study revealed that degree of financial leverage and liquidity are inversely related to profitability while it was reported that degree of operating leverage is positively related to profitability.

Lartey, Antwi and Boadi (2013) investigated the relationship between liquidity (temporary investment ratios) and profitability (return on assets) of seven (7) banks listed on Ghana Stock Exchange for the period from 2005 to 2010. The results revealed a weak positive relationship between liquidity and profitability of the listed banks in Ghana. Alaghi (2012) examined the effect of operating leverage on the systematic risk of fifty-eight (58) listed companies on Tehran Stock Exchange from 2006 to 2009. The linear regression technique was adopted in testing the study’s hypotheses. After the analysis, the results revealed that operating leverage has no effect whatsoever on the systematic risk of companies. Alkhatib (2012) investigated the determinants of leverage among one hundred and twenty-one (121) listed companies (from
industrial and services sectors) on the Jordanian Stock Exchange (JSC) from 2007 to 2010. The study used regression model to test the hypotheses. The results revealed that liquidity has significant relationship with leverage for the industrial and service sectors of Jordan. Above all, the study confirmed that there is a nexus between firm and economic variable on one hand and leverage on the other hand.

Bei and Wijewardana (2012) made an attempt to investigate whether financial leverage influences either negatively or positively on signaling the firm’s growth. The study considered sixty-two (62) firms in Sri Lanka from 2000 to 2009. The study revealed that financial leverage is positively related to firms’ growth and financial strength in Sri Lanka’s firms. Sarlija and Harc (2012) investigated the impact of liquidity on the capital structure of one thousand and fifty-eight (1058) Croatian firms for year 2009. The study employed Pearson correlation coefficient to examine the connection among liquidity ratios and debt ratios; the share of retained earnings to capital and liquidity ratios on one hand, and the relationship between the compositions of current assets and leverage on the other hand. Finally, it was reported that liquidity ratios and leverage ratios as well as leverage ratios and the compositions of current assets are significantly correlated. Furthermore, the study revealed that the connection between liquidity ratios and short-term leverage is stronger than the kind of connection between liquidity ratios and the long-term leverage.

Akinlo and Asaolu (2012) investigated the profit profile of Nigerian firms and also analysed the impact of leverage on profitability of sixty-six (66) non-financial firms listed on the Nigerian Stock Exchange from 1999 to 2007. The data were analysed via chi-square and pooled Ordinary Least Squares (OLS). The findings revealed that leverage was negatively related to profitability; hence, firms need to reduce their debt ratio in order to boost their profit level. Oduo (2011) examined the relationship between liquidity and leverage of companies quoted at the Nairobi Stock Exchange (NSE). The study focused on thirty (30) quoted firms on the NSE from 2006 to 2010. Secondary data were sourced and analysed via multivariate regression analysis. The finding revealed that there is a negative and insignificant relationship between liquidity and leverage. Hence, it was suggested that organisations should put in place good working capital management practice as well as short cash conversion cycles.

Accordingly, Titman and Safieddine (1999) examined the effect of leverage on corporate performance of five hundred and seventy-three (573) unsuccessful takeover attempts from 1982 to 1991. It was reported in the study that higher leverage assists firms to remain independent not just because of its management’s entrenchment but for the fact that it allows managers to improve on their operations. The study further revealed a negative relationship between changes in investment expenditures and
changes in leverage while it was also disclosed that increases in leverage after failed takeovers are correlated with decreases in investment. Myers and Rajan (1998) in their paper titled “The paradox of liquidity” considered the dark side of liquidity. They posited that the more liquid firms’ assets are, the higher their value in liquidation. Hence, higher assets liquidity has the tendency to reduce the firms’ capacity to raise external finance.

In conclusion, the above reviews have shown that there is no doubt to the fact that the literature is replete in terms of researches on leverage and profitability. In fact, majority of the studies reviewed so far have examined the relationship of the two variables. However, as stated in the introductory section of this study, it is still blurred as to whether leverage really influences profitability especially in developing economy like Nigeria due to the contradictory findings and proxies observed from the literature. Also, to the best of our knowledge, much research has not been conducted on Nigerian FMCG hence, the need for a study of this kind.

3. Methodology

The paper adopted ex-post facto research design as the data used were readily available and obtained from the annual reports and accounts of the selected seventeen (17) consumer goods firms [out of twenty-eight (28)] listed on the Nigerian Stock Exchange as at 31st December, 2018 via purposive sampling technique. The study covered a period of 2012 to 2017. The selected FMCG are Nigerian Breweries Plc, Guinness Nigeria Plc, 7up Bottling Company Plc, Nigeria Enamelware Plc, Flour Mills of Nigeria Plc, Vitafoam Nigeria Plc, PZ Cussons Nigeria Plc, NASCON, Honeywell Flour Mills, Dangote Sugar, Dangote Flour Mills, Cadbury Nigeria Plc, Unilever Nigeria Plc, Nestle Nigeria Plc, Northern Nigeria Flour Mills, Champion Brewery and MC Nicos Nigeria Plc. The multiple regression method was adopted which comprises Ordinary Least Square (OLS), Fixed Effect Least Square and Random Effect Generalised Method). These are consistent with some prior studies (see Akinlo and Asaolu (2012); Ibe (2013); Goel, Chadha and Sharma 2015; Adenugba, Ige and Kesinro 2016; Ghasemi and Ab Razak 2016).

3.1. Variable Description and Development of Hypotheses

3.1.1. Dependent variable

Earnings per Share (EPS): This is the only dependent variable adopted by the study. It is one of the variants for measuring the efficiency of the management in using the shareholders ordinary share capital to create and maximise their wealth. It has been used in prior literature as a proxy for profitability (see Nabeel and Hussain
2017; Kwarbai, Olayinka, Ajibade and Ogundajo, 2016; Raheel and Shah 2015; Patel 2014). Furthermore, EPS is a good yardstick that can be used as an indicator to measure a company’s profitability condition and it is a key driver of share prices (Islam, Khan, Choudhury & Adnan, 2014). The study used basic EPS because it considers only the existing shareholders. However, unlike diluted EPS, basic EPS does not account for any dilution in companies’ shareholdings.

3.1.2. Independent variables

Three independent variables were used to proxy leverage. They include: Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL). These have also been used in prior studies (see Raheel and Shah 2015; Patel 2014). In addition, Size of the firm (SIZE) was used as a control variable.

3.2. Model specification

Dynamic Model:

\[ \text{EPS}_{it} = \beta_0 + \beta_1 \text{EPS}(-1)_{it} + \beta_2 \text{DOL}_{it} + \beta_3 \text{DFL}_{it} + \beta_4 \text{DCL}_{it} + \beta_5 \text{SIZE}_{it} + e_{it} \]

Where:
\( \text{EPS}(-1)_{it} \) = Previous year Earnings per Share of firm i in period t
\( \text{EPS}_{it} \) = Earnings per Share of firm i in period t
\( \text{DOL}_{it} \) = Degree of Operating Leverage of firm i in period t
\( \text{DFL}_{it} \) = Degree of Financial Leverage of firm i in period t
\( \text{DCL}_{it} \) = Degree of Combined Leverage of firm i in period t
\( \text{SIZE}_{it} \) = Size of firm i in period t
\( e_{it} \) = Error Term of firm i in period t

3.3. Measurement of Variables

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Acronym</th>
<th>Measure</th>
<th>Expected effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings per Share</td>
<td>EPS</td>
<td>Total earnings after interest and tax/Number of ordinary share capital</td>
<td></td>
</tr>
<tr>
<td>Independent variables:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous EPS</td>
<td>EPS (-1)</td>
<td>A period year lag EPS</td>
<td>+</td>
</tr>
</tbody>
</table>
4. Results and Discussion

4.1. Descriptive Statistics

Table 2 below shows the descriptive statistics of the data used for the study. It shows that the average EPS is 3.7% and this ranges between minimum values of -2.5% to a maximum value of 42.5%. The average degree of operating leverage is 20% and it has a minimum of -109.2% and 1293.1% as maximum value. Degree of financial leverage is averaged 65.9% and ranges between -147.8% and 3886.4%. Finally, degree of combined leverage shows an average value of 37.9% and ranges from -109% to 770%.

### Summary of Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>3.7097</td>
<td>-2.51000</td>
<td>42.5000</td>
<td>6.961280</td>
<td>3.233931</td>
<td>14.94815</td>
</tr>
<tr>
<td>DOL</td>
<td>20.0358</td>
<td>-109.2188</td>
<td>1293.101</td>
<td>138.1748</td>
<td>8.191359</td>
<td>73.52135</td>
</tr>
<tr>
<td>DFL</td>
<td>65.86991</td>
<td>-147.7980</td>
<td>3886.371</td>
<td>407.1527</td>
<td>8.401370</td>
<td>77.91062</td>
</tr>
<tr>
<td>DCL</td>
<td>37.93521</td>
<td>-109.0000</td>
<td>769.9610</td>
<td>117.5940</td>
<td>4.144132</td>
<td>22.11926</td>
</tr>
<tr>
<td>LSIZE</td>
<td>17.60089</td>
<td>14.2661</td>
<td>22.39647</td>
<td>1.575751</td>
<td>-0.193004</td>
<td>2.776820</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.

4.2. Correlation

The correlation coefficients of the dependent and independent variables are shown in table 3 below. Degree of operating and degree of financial leverage have negative coefficient with EPS and they are found not to be significant at 5% level. This implies that increase in degree of operating and financial leverage translates to lower profitability. The relationship between combined leverage and profitability is positive and signif-
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icant at 1% level of significance. This implies that unique combination of leverage translates to higher profit in Nigerian consumer goods manufacturing firms.

Table 3

Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>EPS</th>
<th>EPS (-1)</th>
<th>DOL</th>
<th>DFL</th>
<th>DCL</th>
<th>LISZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS (-1)</td>
<td>0.6836</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOL</td>
<td>-0.1062</td>
<td>-0.0771</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFL</td>
<td>0.1484</td>
<td>0.0882</td>
<td>-0.0260</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCL</td>
<td>0.3743</td>
<td>0.3604</td>
<td>0.5618</td>
<td>0.0032</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>LSIZE</td>
<td>0.3996</td>
<td>0.4408</td>
<td>-0.0593</td>
<td>0.1112</td>
<td>0.1615</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.

4.3. Multicollinearity Test

Variance Inflation Factor (VIF) approach was used in testing for the existence of multicollinearity between the explanatory variables. The major advantage of VIF is that it has the ability to filter from the model the variable(s) that may distort the regression result (Gujarati & Sangeetha, 2008). Table 4 depicts the multicollinearity test result. The acceptable maximum VIF value of any explanatory variable according to Gujarati (2003), Rumsey (2007), Gujarati and Porter (2009) and Wooldridge (2009) is 10 as any figure above this means the existence of multicollinearity which can distort the inferences to be made from the analysis. Hence, as shown in Table 4, none of the independent variables has VIF of at least 10. It ranges from 1.048 to 1.048 and with average value of 1.032. This shows that there is no problem of multicollinearity among the explanatory variables.

Table 4

Collinearity test

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOL</td>
<td>1.048</td>
<td>.954</td>
</tr>
<tr>
<td>DFL</td>
<td>1.001</td>
<td>.999</td>
</tr>
<tr>
<td>DCL</td>
<td>1.048</td>
<td>.954</td>
</tr>
<tr>
<td>Average</td>
<td>1.048</td>
<td>.969</td>
</tr>
</tbody>
</table>

Source: Researchers’ computation, 2019.
### 4.4. Regression Results

Regression results using pooled Ordinary Least Squares (OLS) technique for the models are presented in Table 5 thus;

**Table 5**

**Model Estimation Results Summary**

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-7.4858</td>
<td>7.0297</td>
<td>-1.0648</td>
<td>0.2902</td>
<td>10.2379</td>
<td>15.0948</td>
<td>0.6782</td>
<td>0.5001</td>
<td>-7.4858</td>
<td>4.5827</td>
<td>-1.633</td>
<td>0.1064</td>
</tr>
<tr>
<td>EPS (-1)</td>
<td>0.6084</td>
<td>0.1165</td>
<td>5.2229</td>
<td>0.0000</td>
<td>-0.2482</td>
<td>0.11428</td>
<td>-2.1726</td>
<td>0.0336</td>
<td>0.6084</td>
<td>0.0759</td>
<td>8.0117</td>
<td>0.0000</td>
</tr>
<tr>
<td>DOL</td>
<td>-0.0294</td>
<td>0.0127</td>
<td>-2.3092</td>
<td>0.0236</td>
<td>-0.0156</td>
<td>0.0995</td>
<td>-1.6334</td>
<td>0.1074</td>
<td>-0.0294</td>
<td>0.0083</td>
<td>-3.5423</td>
<td>0.0007</td>
</tr>
<tr>
<td>DFL</td>
<td>0.0014</td>
<td>0.0013</td>
<td>1.0988</td>
<td>0.2752</td>
<td>0.0018</td>
<td>0.0009</td>
<td>1.8901</td>
<td>0.0634</td>
<td>0.0014</td>
<td>0.0008</td>
<td>1.6855</td>
<td>0.0959</td>
</tr>
<tr>
<td>DCL</td>
<td>0.0179</td>
<td>0.0062</td>
<td>2.8628</td>
<td>0.0054</td>
<td>0.0100</td>
<td>0.0047</td>
<td>2.1013</td>
<td>0.0397</td>
<td>0.0179</td>
<td>0.0040</td>
<td>4.3913</td>
<td>0.0000</td>
</tr>
<tr>
<td>LSIZE</td>
<td>0.4983</td>
<td>0.4049</td>
<td>1.2306</td>
<td>0.2222</td>
<td>-0.3248</td>
<td>0.8561</td>
<td>-0.3794</td>
<td>0.7056</td>
<td>0.4983</td>
<td>0.2640</td>
<td>1.8877</td>
<td>0.0628</td>
</tr>
<tr>
<td>Adj. R-Squared</td>
<td>0.50708</td>
<td>0.79051</td>
<td>0.50708</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F – Stat</td>
<td>18.0770</td>
<td>15.9146</td>
<td>18.0770</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob. (F – Stat)</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin – Watson Test</td>
<td>1.76193</td>
<td>2.3854</td>
<td>1.76193</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausman Test (Prob.)</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Source: Researchers’ computation, 2019.*
From table 5, the F-statistic values for the models are significant at 1% level (prob value = 0.000). It depicts that each of the models as a whole is fit. The Durbin-Watson values of 1.76, 2.39 and 1.76 for the OLS fixed effect and random effect respectively are within the acceptable threshold of 1 to 3 (Gujarati, 2003, Asaeeed, 2005 and Gujarati and Porter, 2009) and it shows that the model has no serial autocorrelation issues. Also, the adjusted $R^2$ (79.1%) indicates that EPS (-1), DOL, DFL and DCL accounted for up to 79.1% percent variations in the dependent variable, profitability (EPS).

4.5. Robustness check

In order to validate the result of pooled OLS technique as shown in table 4.4 above, two other analytical techniques mostly used in the literature, Fixed effects least squares and Random effects GLS regressions were conducted and the result was as presented in the table. Therefore, from the table, the summary of Hausman (1978) specification test indicates Chi square value of a prob value of 0.000 ($p < 0.05$), thereby supporting fixed effects ordinary least square for valid inference. Although, the results of both models (fixed effects and random effects) are similar, inference was made using fixed effects.

4.6. Discussions

From the above analysis, the fixed effect regression result indicates previous year EPS has a significant negative effect on current year EPS. This indicates that previous year EPS reduces current year EPS. Degree of Operating Leverage (DOL) has a negative insignificant effect on profitability (EPS) at 5% level. This suggests that the higher the degree of operating leverage the lower the profit. Hence, degree of operating leverage has an insignificant negative effect on profitability. This is in line with \textit{a priori} expectation of the study. The result of this finding is in tandem with the works of Raheel and Shah (2015); Onofrei \textit{et al} (2015). However, in contrary to our study’s findings, Patel (2014) reported that leverage has a positive but insignificant effect on EPS. Gatsi \textit{et al} (2013) who examined the relationship between leverage and the profitability of firms in Ghana reported that DOL is positively related to profitability.

The Degree of Financial Leverage (DFL) was found to have a positive significant effect on profitability (EPS) at 10% level. It suggests that high debt in the overall capital structure of a company impact positively on profitability because of the tax shield and low cost of issuing debt capital. The positive coefficient is in conformity with \textit{a priori} expectation; hence as more debts are used in financing firms’ operation,
the tax shield from the interest helps in reducing companies’ income tax and thereby increase profit after tax. Some prior empirical studies like (Moghaddam and Abbaspour 2017; Nwanna and Ivie 2017; Gatsi, et al 2013) have found similar results. Thus, financial leverage exerts positive significant effect on profitability of consumer goods manufacturing firms in Nigeria. However, Ahmad, Salman and Shamsi (2015) who worked on the cement sector of Pakistan reported that financial leverage has a statistically significant inverse impact on profitability while Raheel and Shah (2015) who studied the relationship between the financial leverage and firms’ profitability of oil and gas marketing companies listed on Karachi Stock Exchange reported that DFL has no significant relationship with EPS, though; these might be a reflection of industry and / or economy involved.

Findings regarding Degree of Combined Leverage (DCL) as a proxy for leverage show that it exerts significant positive effect on profitability (EPS) at 5% level. This finding is in line with a priori expectation. However, Raheel and Shah (2015) in their study reported that DCL has no significant relationship with EPS. Although, this might be a manifestation of the sector and / or economy involved.

Finally, firm size as a control variable was found to have negative but no significant effect on profitability. This means that larger firms in the sector are associated with lower profit. This may be a reflection of increased overhead costs that are attributable to size.

5. Conclusion / Recommendation

The study investigated the effect of leverage on profitability using regression analysis technique involving fixed effect on data of seventeen (17) consumer goods manufacturing firms in Nigeria from 2012 to 2017. The study’s findings revealed that previous year profitability exert significant negative effect on current year profitability. Degree Operating Leverage was found to an insignificant negative effect on profitability. Furthermore, it was discovered that DFL has a significant positive effect on profitability and that DCL exerts significant positive effect on profitability. Firm size as a control variable was found to exert negative but no significant effect on profitability. Therefore, the attributed low cost of issuing debt as against equity is also one of the issues which can make debt financing to exert a significant positive effect on profitability. Hence, owing to these findings, it is imperative for companies in the Nigerian consumer goods industry to take advantage of debts’ tax shield from the interest in their financial structure in order to improve their profitability level.
References


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