

LEVERAGE AND FINANCIAL PERFORMANCE: THE CORRELATIONAL APPROACH

¹MOHAMMED MUSAH, ²YUSHENG KONG

¹Ph.D Candidate, School of Finance and Economics, Jiangsu University, 301 Xuefu Road, Zhenjiang, Jiangsu, P.R China; Email: prophe2013@yahoo.com

²Professor, School of Finance and Economics, Jiangsu University, 301 Xuefu Road, Zhenjiang, Jiangsu, P.R China; Email: 1000001042@ujs.edu.cn

Abstract: *The purpose of this study was to examine the relationship between leverage and the financial performance of non-financial firms listed on the Ghana Stock Exchange (GSE). Panel data extracted from the audited and published annual reports of the Ghana Oil Company Ltd, Total Petroleum Ghana Ltd, Starwin Products Ltd, Camelot Ghana Ltd, Aluworks Ltd, Clydestone Ghana Ltd, African Champion Industries Ltd, Benson Oil Palm Plantation Ltd, Fan Milk Ltd, Guinness Ghana Breweries Ltd, Unilever Ghana Ltd, PZ Cussons Ghana Ltd, Produce Buying Company Ltd, Mechanical Lloyd Company Ltd and Sam Woode Ltd for the period 2008 to 2017 was used for the study. Both the descriptive and inferential techniques of data analysis were employed for the study. In the descriptive technique of data analysis, the mean, standard deviation, variance, minimum and maximum values, range, skewness and kurtosis of the study's variables were analysed; whilst the Pearson Product-Moment Correlation Coefficient technique of data analysis was employed to establish the bivariate associations between leverage and the firms' financial performance as measured by ROA, ROE and ROCE (inferential analysis). All the data analysis were conducted through the use of STATA version 15 statistical software package at an alpha (α) level of 5% ($p \leq 0.05$). From the study's Pearson Product-Moment Correlation Coefficient output, leverage had a significantly negative association with the firms' financial performance as measured by ROA. However, an insignificantly positive association between leverage and the firms' ROE and ROCE was also established. Based on the findings the study recommended that, since there was a significantly negative association between leverage and the firms' financial performance as measured by ROA, the firms should be careful about the amount of debt they undertake to finance their operations, as this may adversely affect their final bottom line. It is also recommended that, the firms should operate with a capital structure mix that would minimize the cost of capital and maximize shareholders' wealth.*

Key Words: *Leverage; Financial Performance; Correlational Approach; Return on Assets (ROA); Return on Equity (ROE); Return on Capital Employed; Ghana Stock Exchange (GSE).*

1. INTRODUCTION:

Perinpanathan (2014) viewed financial leverage as the degree to which an establishment uses its fixed income securities such as debt and preferred equity. According to the author, a high degree of financial leverage is associated with high interest payments, as a result, the final bottom line of corporations is adversely affected. As explained by Gwey and Karanja (2014), leverage can be in the form of a loan or other borrowings (debt), the proceeds of which are reinvested with the ambition of earning a greater rate of return than the cost of interest. If a firm's marginal rate of Return on Assets (ROA) is higher than the rate of interest payable on the debt, then its overall Return on Equity (ROE) will be higher than if it did not borrow. On the contrary, if a firm's Return on Assets (ROA) is lower than the interest rate, then its Return on Equity (ROE) will be lower than if it did not borrow (Laurent, 2005 cited in Gwey & Karanja, 2014). The key goal of every firm's financing decision is wealth maximization, and the quality of the financing decision has an impact on the firm's profitability (Mwangi, Muathe, & Kosimbei, 2014; and Maina & Kondongo, 2013). Financial managers must therefore ensure that, the financing decision they opt for will be the one that will minimize costs and maximize shareholders' wealth.

A lot of research have been conducted on leverage and its connection with firms' financial performance. The discoveries of these studies have however been contradictory. For instance, Swagatika and Ajaya (2018) study on Indian manufacturing firms; Kocaman, Altemur and Aldemir (2016) study on 15 listed industrial firms in Turkey; Cudiamat and Siy (2017) research on 23 life insurance companies in the Philippines; Odusanya, Yinusa and Ilo (2018) study on 114 firms listed on the Nigerian Stock Exchange; Ali and Bilal (2018) research on 23 listed industrial firms on the Amman Stock Exchange; and Fareed, Ali, Shahzad, Nazir and Ullah (2016) study on 16 power and energy sector firms in Pakistan among others, all established adverse association between leverage and firms' financial performance. Also, Anila and Shila (2014) research on 50 firms listed on the Karachi Stock Exchange; Hongxing,

Muhammad and Gulzara (2018) study on 28 banks in Pakistan; and Kristina and Dejan (2016) research on the agricultural industry of Hungary, Bosnia and Herzegovina, Romania and Serbia among others, discovered positive relationship between leverage and firms' financial performance.

However, Guruswamy and Marew (2017) study on some selected life insurance companies in Ethiopia; Pratheepan (2014) research on 55 listed manufacturing companies in Sri Lanka; Navleen and Jasmindeep (2016) study on the Indian automobile industry; and Gichuhi (2016) research on 36 listed firms on the Nairobi Securities Exchange among others, found no significant affiliation between leverage and firms' financial performance. Irrespective of the numerous studies on leverage and its connection with corporate financial performance, there have been limited research that particularly sought to examine the strength and direction of the association that existed between leverage and the financial performance of non-financial firms that listed and traded their activities on the Ghana Stock Exchange (GSE). This study was therefore undertaken to help fill that gap.

1.1 Purpose of the Study

The general purpose of this study was to examine the association between leverage and the financial performance of non-financial firms listed on the Ghana Stock Exchange (GSE). This study contributes to the existing pool of literature on the link between leverage and firms' financial performance. It is hoped that, the findings of the study will be appreciated by academicians, who may discover useful research gaps that may arouse their interest for further studies. Put simply, the study adds more modernized empirical evidence to the existing finance literature in Ghana with regards to leverage and firms' financial performance. This would be of excessive benefit to the academic field as it will serve as a reference material for students and future researchers who may want to research more on this current topic. Specifically, the study sought to:

1. Establish the association between leverage and the firms' financial performance as measured by ROA.
2. Examine the relationship between leverage and the firms' financial performance as measured by ROE.
3. Explore the link between leverage and the firms' financial performance as measured by ROCE.

1.2 Study Hypothesis

The aim of this study could not be achieved without addressing some pertinent research hypothesis. Therefore based on the specific objectives of the study, the following research hypothesis were formulated to help achieve the study's ambition:

- H_{0A} : There is no significant association between leverage and the firms' financial performance as measured by ROA.
 H_{0B} : There is no significant relationship between leverage and the firms' financial performance as measured by ROE.
 H_{0C} : There is no significant link between leverage and the firms' financial performance as measured by ROCE.

2. LITERATURE REVIEW:

This section presents reviews on some literature that supported the topic understudy. The reviews are on the link between leverage and firms' financial performance as follows. Muhammad and Aminatu (2018) examined the influence of operating cash flow on the financial performance of five (5) listed conglomerate companies in Nigeria. Secondary data sourced from the firms' annual reports and accounts for the period 2005 to 2014 was used for the study. Adopting descriptive, correlational and panel data regression analysis, the study discovered that, the control variable leverage had a significantly negative influence on the firms' ROA. Swagatika and Ajaya (2018) explored the determinants of profitability in Indian manufacturing firms. Data covering the pre and post crisis periods from the year 2000 to 2015 was used for the study. From the study's results, leverage had a significantly negative influence on the firms' profitability as measured by ROA and NPM. Irm, Priyarsono and Tria (2017) conducted a study to examine firm specific and macroeconomic factors that determined the profitability of insurance companies in Indonesia. Panel data for the period 2010 to 2014 was employed for the study. From the study's findings, leverage ratio had a significantly positive effect on the firms' profitability.

Cuong, Quan and Lan (2018) explored the influence of internal factors on the financial performance of listed construction-material firms on the Vietnam stock market. Panel data from 30 listed firms was employed for the study. From the study's findings, Debt Ratio (DR) had a significantly positive impact on the firms' financial performance. Nanik and Halim (2017) examined the influence of leverage change, size, market to book ratio, transaction cost and interest rate after merger or acquisition on the profitability of bidder companies listed on the Indonesian Stock Exchange. Cross sectional data from public bidder companies for the period 2009 to 2015 was employed for the study. From the study's multiple regression analysis, leverage had an insignificant influence on bidder firms' profitability one year after a merger or acquisition. Ofoegbu, Duru and Onodugo (2016) studied the effect of liquidity on the profitability of pharmaceutical companies in Nigeria. Secondary data from the annual reports and the financial statements of some listed pharmaceutical companies for the period 2000 to 2011 was used for the study. From the study's multiple regression analysis, debt ratio had an insignificant influence on the firms' financial performance as measured by ROA.

Ayu, Zuraida and Mulia (2018) studied the impact of liquidity, profitability and leverage on profit management and its effect on company value in manufacturing firms listed on the Indonesian Stock Exchange. Secondary data extracted from the websites of 150 listed manufacturing firms and the official website of the Indonesian Stock Exchange for the period 2011 to 2015 was used for the study. From the study's findings, leverage had a significant influence on the firms' profit management. Mehmet and Mehmet (2018) examined the influence of financial characteristics on the profitability of energy firms listed on Borsa Istanbul Stock Exchange. Quarterly (2008:Q1-2015:Q4) panel data of 10 quoted energy firms was employed for the study. From the study's multiple regression analysis, financial leverage had a significantly negative effect on the firms' profitability as measured by ROA. Akenga (2017) studied the impact of liquidity on the financial performance of firms listed on the Nairobi Securities Exchange (NSE). Data obtained from a sample of 30 listed firms selected through the purposive random sampling technique was used for the study. From the study's inferential analysis, leverage represented by the debt ratio had an insignificant influence on the firms' financial performance as measured by ROA.

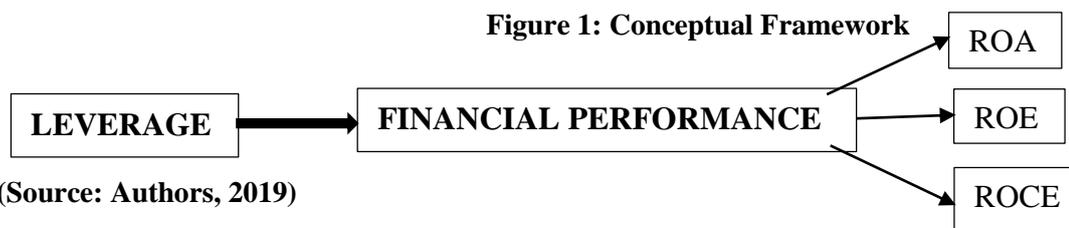
Derbali (2014) examined the determinants of the financial performance of insurance companies in Tunisia. Panel data from eight (8) life insurance companies for the period 2005 to 2012 was employed for the study. From the study's multiple regression output, leverage was not a significant predictor of the firms' financial performance. Ashutosh and Gurpreet (2018) analyzed the financial performance of sugar mills in Punjab. Panel data from both co-operative and private sugar mills for the period 2003-04 to 2013-14 was adopted for the study. From the study's multivariate regression analysis, solvency had a significant influence on the profitability of co-operative sugar mills in Punjab sugar industry. Rachna and Sudipa (2018) delved into firm specific and macroeconomic factors that affected the financial performance of insurance companies in the UAE. Data for the period 2009 to 2013 was employed for the study. The study's findings provided evidence of leverage being statistically significant in explaining firms' profitability in the insurance sector. Kocaman, Altumur and Aldemir (2016) delved into the profitability determinants of 15 listed industrial firms in Turkey for the period 1997 to 2013. From the study's fixed effects panel data econometric model, leverage was significantly negatively related to the firms' profitability.

Cudiamat and Siy (2017) analyzed the profitability of 23 life insurance companies in the Philippines for the period 2000 to 2012. Through the balanced pooled ordinary least squares regression analysis, leverage had a significantly negative association with the banks' profitability as measured by ROA. Odusanya, Yinusa and Ilo (2018) examined the determinants of the profitability of 114 firms listed on the Nigerian Stock Exchange for the period 1998 to 2012. Through the Generalized Method of Moments (GMM) approach of data analysis, short-term leverage had a significantly adverse influence on the firms' profitability. Ali and Bilal (2018) studied the determinants of the financial performance of 23 industrial firms listed on the Amman Stock Exchange. Secondary data for the period 2005 to 2015 was used for the study. From the study's regression output, leverage had a significantly inverse effect on the firms' financial performance as measured by ROA. Fareed, Ali, Shahzad, Nazir and Ullah (2016) examined the profitability determinants of 16 firms operating in the power and energy sectors of Pakistan. Panel data for the period 2001 to 2012 was used for the study. From the study's random effects regression model, leverage had a significantly negative influence on the firms' profitability.

Anila and Shila (2014) examined the profitability determinants of 50 firms listed on the Karachi Stock Exchange. The study's findings established a positive association between leverage and the firms' profitability. In Pakistan, Hongxing, Muhammad and Gulzara (2018) examined the profitability determinants of 28 banks for the period 2007 to 2016. From the study's two-step Generalized Method of Momentum (GMM) system estimator, solvency had a significantly positive influence on the banks' profitability. Kristina and Dejan (2016) analyzed the profitability determinants of the agricultural industry in Hungary, Romania, Bosnia and Herzegovina, and Serbia. Panel data for the period 2011 to 2014 was used for the study. From the study's findings, leverage had a significantly positive influence on agricultural firms' profitability in Hungary and Romania. Guruswamy and Marew (2017) delved into the profitability determinants of some selected life insurance companies in Ethiopia. A panel data sourced from the national bank of Ethiopia and the ministry of finance and economic cooperation was used for the study. Through the descriptive, correlation and regression analysis, the study disclosed an insignificant association between leverage and the firms' profitability. In Sri Lanka, Pratheepan (2014) delved into the profitability determinants of 55 manufacturing companies listed on the Colombo Stock Exchange for the period 2003 to 2012. From the study's panel data analysis, leverage was not a significant determinant of the firms' profitability as measured by ROA.

Navleen and Jasmindeep (2016) examined the profitability determinants of the Indian automobile industry for the period 2003-2004 to 2013-2014. Data from listed firms on the Bombay Stock Exchange (BSE) dealing in commercial vehicles, three wheelers, two wheelers and passenger vehicles were used for the study. From the study's correlation and step-wise regression analysis, leverage was not a significant determinant of the firms' profitability. Gichuhi (2016) examined the influence of capital structure on the profitability of firms listed on the Nairobi Securities Exchange. Secondary data deduced from the annual reports of 36 listed firms for the period 2011 to 2015 was employed for the study. From the study's findings, leverage had no significant association with the firms' profitability.

Figure 1: Conceptual Framework



(Source: Authors, 2019)

Figure 1 displays that leverage had an affiliation with the firms’ financial performance as measured by Return on Assets (ROA), Return on Equity (ROE) and Return on Capital Employed (ROCE). Return on assets was calculated as the ratio of net income to total assets of the firms. Return on equity was also calculated as the net income divided by the total equity of the firms, whilst the ratio of net income to capital employed of the firms was used to compute the ROCE. On the other hand, leverage was calculated as the total liabilities divided by the total assets of the firms.

3. RESEARCH METHODOLOGY:

Generally, this study was a quantitative research. The study was quantitative because the researchers could repeat the methods adopted in another setting to verify or confirm the study’s findings. This reinforces the validity of groundbreaking discoveries or findings, thus eliminating the possibility of spurious or erroneous conclusions. The study was also quantitative in nature because, its data was in the form of numbers and statistics arranged in the form of tables that showed trends, relationships or differences among variables. This fostered understanding to the readers or clients of the research investigation. Specifically, the study was correlational in nature because it sought to explore the association between two or more variables. The study was finally panel in nature because it used the same variables throughout the study. This allowed the researchers to examine the exact changes that had taken place over time.

All non-financial firms that listed and traded their shares on the Ghana Stock Exchange (GSE) as of 31st December, 2017 formed the study’s target population. Because the study wanted to deal with a balanced data, a sample was made out of the entire population. The number of years in existence, technical suspension due to one reason or the other, unaudited financial records, non-existence of trend records, incomplete financial statements and the presentation of annual reports in foreign currencies either than that of the Ghana currency (because of the non-stability of the Ghana Cedi to major foreign currencies) were the factors or filters that were considered during the sampling process. Considering these factors or filters in making a choice out of the entire population implies, the study adopted the purposive or judgemental sampling technique in its sampling process. After critically considering the various factors or filters during the sampling process, fifteen (15) firms comprising of the Ghana Oil Company Ltd, Total Petroleum Ghana Ltd, Starwin Products Ltd, Camelot Ghana Ltd, Aluworks Ltd, Clydestone Ghana Ltd, African Champion Industries Ltd, Benson Oil Palm Plantation Ltd, Fan Milk Ltd, Guinness Ghana Breweries Ltd, Unilever Ghana Ltd, PZ Cussons Ghana Ltd, Produce Buying Company Ltd, Mechanical Lloyd Company Ltd and Sam Woode Ltd were selected for the study. This number represented 36.59% of the total number of listed firms or 53.57% of the total number of non-financial firms listed on the Ghana Stock Exchange (GSE).

A balanced secondary panel data extracted from the audited and published annual reports of the sampled firms for the period 2008 to 2017 was used for the study. The annual reports of the firms comprised of the comprehensive income statement, statement of financial position, statement of cash flows, statement of changes in equity and notes to the accounts. These annual reports were sourced from the official website of the Ghana Stock Exchange (GSE). Both the descriptive and inferential techniques of data analysis were employed for the study. In the descriptive technique of data analysis, the mean, standard deviation, variance, minimum and maximum values, range, skewness and kurtosis of the study’s variables were analysed, whilst the Pearson Product-Moment Correlation Coefficient technique of data analysis was employed to establish the bivariate associations between leverage and the firms’ financial performance as measured by ROA, ROE and ROCE (inferential analysis). All the data analysis were conducted through the use of STATA version 15 statistical software package at an alpha (α) level of 5% ($p \leq 0.05$).

4. RESULTS OF THE STUDY:

In the first aspect of this section, the descriptive analysis of the study’s variables comprising of the mean, standard deviation, variance, minimum and maximum values, range, skewness and kurtosis are outlined, whilst the second aspect presents the results and analysis on the association between leverage and the firms’ financial performance as measured by ROA, ROE and ROCE.

4.1 Descriptive Analysis

Table 1 shows that the average ROA of the sampled firms was 0.0052693 with a standard deviation of 0.4849762 and a variance of 0.2352019. This is an indication that, the ROA of the firms deviated from both sides of the mean by 0.4849762, which implies, the ROA data values were not too widely dispersed from the mean. The ROA also had maximum and minimum values of 0.7656 and -5.6487 respectively. The data for ROA was negatively skewed with a coefficient of -10.64317. This is an indication that, a greater portion of the ROA distribution fell on the

right side of the normal curve. The kurtosis coefficient of 124.8778 indicates that, the ROA distribution was abnormally distributed, which is explained by the range value of 6.4143.

The ROE of the sampled firms had a mean value of 0.167214, a standard deviation of 1.184918 and a variance of 1.404031. This means, the data values of ROE deviated from both sides of the average by 1.184918, implying, the ROE data values were a bit widely dispersed from the mean. The maximum and minimum values of ROE were 12.8951 and -4.5277 respectively, resulting in a range of 17.4228. The data for ROE was positively skewed with a coefficient of 7.859589. This is an indication that, most of the ROE data fell on the left side of the normal curve. The kurtosis coefficient of 91.75657 shows that, the ROE distribution was abnormally distributed, which is substantiated by the wide range of 17.4228.

The ROCE of the sampled firms had a mean value of 0.1945633, a standard deviation of 1.09571 and a variance of 1.20058. This implies, the data values of ROCE deviated from both sides of the average by 1.09571, meaning, the ROCE data values were a bit widely dispersed from the average. The maximum and minimum values of ROCE were 12.8951 and -1.5666 respectively, resulting in a range of 14.4617. The data for ROCE was positively skewed with a coefficient of 10.44939. This is an indication that, most of the ROCE data fell on the left side of the normal curve. The kurtosis coefficient of 122.057 shows that, the ROCE distribution was not normally distributed, which is justified by the wide range of 14.4617.

Table 1: Descriptive Statistics on Study Variables

Variables	ROA	ROE	ROCE	LEV
Mean	0.0052693	0.167214	0.1945633	0.7674467
Std. Dev.	0.4849762	1.184918	1.09571	1.717878
Variance	0.2352019	1.404031	1.20058	2.951105
Minimum	-5.6487	-4.5277	-1.5666	0.0493
Maximum	0.7656	12.8951	12.8951	21.1263
Range	6.4143	17.4228	14.4617	21.077
Skewness	-10.64317	7.859589	10.44939	11.24853
Kurtosis	124.8778	91.75657	122.057	133.372
Obs (N)	150	150	150	150

(Source: STATA Output, 2019)

Finally, the LEV of the sampled firms had an average value of 0.7674467, a standard deviation of 1.717878 and a variance of 2.951105. This implies, the LEV distribution deviated from both sides of the average by 1.717878, meaning, the data values of LEV were a bit widely dispersed from the mean. The LEV distribution had a minimum value of 0.0493 and a maximum value of 21.1263 resulting in a range of 21.077. The data for LEV was positively skewed with a coefficient of 11.24853. This shows that, a greater portion of the LEV distribution fell on the left side of the normal curve. The kurtosis coefficient of 133.372 for LEV implies, the LEV distribution was abnormally distributed, which is explained by the wide range of 21.077.

4.2 Correlational Analysis

The Pearson Product-Moment Correlation Coefficient technique of data analysis was used to explore the connection between leverage and the firms’ financial performance as measured by ROA, ROE and ROCE. From Table 2, there was a significantly strong and adverse association between LEV and ROA at the 5% level of significance [$r = -0.9630$, ($p = 0.0000$) < 0.05]. The negative association between LEV and ROA implies, an increase in LEV led to a decrease in ROA and vice-versa. The degree of association between LEV and ROA is evidenced by the coefficient of determination ($r^2 = 0.9274$) which indicates that 92.74% of the variations in ROA was accounted for by LEV and 92.74% of the variations in LEV was explained by ROA. The unexplained variations [7.26% (100-92.74)] may be accounted for by other inherent variabilities.

Table 2: Correlational Matrix for ROA, ROE, ROCE and LEV

Variable	ROA	ROE	ROCE	LEV
ROA	1.0000			
ROE	0.0037 (0.9642)	1.0000		
ROCE	-0.0156 (0.8498)	0.9516* (0.0000)	1.0000	
LEV	-0.9630* (0.0000)	0.0154 (0.8515)	0.0223 (0.7867)	1.000

Note: * implies significance at 5% and values in parenthesis () represent probabilities.

(Source: STATA Output, 2019)

Also, an insignificantly positive link was established between LEV and ROE at the 95% confidence interval [$r = 0.0154$, ($p = 0.8515$) > 0.05]. The positive connection between LEV and ROE is an indication that, an increase in LEV led to an increase in ROE and vice-versa, and a decrease in LEV also led to a decrease in ROE and vice-versa. The strength of association between LEV and ROE is substantiated by the coefficient of determination ($r^2 = 0.0002$) which shows that 0.02% of the variations in ROE was accounted for by LEV and 0.02% of the variations in LEV was explained by ROE. The unexplained variations [99.98% (100-0.02)] could be attributed to other factors that did not form part of the study.

Finally, an insignificantly positive affiliation was discovered between LEV and ROCE at $\alpha = 5\%$ [$r = 0.0223$, ($p = 0.7867$) > 0.05]. The positive association between LEV and ROCE is an indication that an increase in LEV led to an increase in ROCE and vice-versa, and a decrease in LEV also led to a decrease in ROCE and vice-versa. The degree of association between LEV and ROCE can also be justified by the coefficient of determination ($r^2 = 0.0005$) which indicates that 0.05% of the variations in LEV was explained by ROCE and 0.05% of the variations in ROCE was accounted for by LEV. The unexplained variances [99.95% (100-0.05)] may be attributed to other variables that were not part of the study.

5. DISCUSSIONS AND TESTS OF HYPOTHESIS:

In this section, discussions on the major findings of the study are brought to light. The discussions are conducted in the order of; the association between leverage and the firms' financial performance as measured by ROA, the relationship between leverage and the firms' financial performance as measured by ROE and the link between leverage and the firms' financial performance as measured by ROCE. Each sub-section ends with its test of hypothesis.

5.1 Association between Leverage and the Firms' Financial Performance (ROA)

The study revealed a significantly strong and adverse association between LEV and ROA at the 5% level of significance [$r = -0.9630$, ($p = 0.0000$) < 0.05]. This finding supported that of Muhammad and Aminatu (2018) whose study on the influence of operating cash flow on the financial performance of five (5) listed conglomerate companies in Nigeria, discovered a significantly negative association between the control variable leverage and the firms' ROA. The finding was also in line with that of Swagatika and Ajaya (2018) whose study on Indian manufacturing firms, established a significantly inverse link between leverage and the firms' profitability as measured by ROA. The finding was however not consistent with that of Irm, Priyarsono and Tria (2017) whose study on insurance companies in Indonesia, found a significantly positive connection between leverage ratio and the firms' profitability. The finding was also not consistent with that of Cuong, Quan and Lan (2018) whose research on 30 listed construction-material firms on the Vietnam stock market, discovered a significantly positive relationship between debt ratio and the firms' financial performance.

Test of Hypothesis One: A significantly strong and inverse association between LEV and ROA was discovered at the 5% level of significance [$r = -0.9630$, ($p = 0.0000$) < 0.05]. The study therefore failed to accept the null hypothesis (H_{0A}) that, there was no significant association between leverage and the firms' financial performance as measured by ROA, and concluded that, leverage had a significantly inverse association with the firms' financial performance as measured by ROA.

5.2 Relationship between Leverage and the Firms' Financial Performance (ROE)

An insignificantly positive link was established between LEV and ROE at the 95% confidence interval [$r = 0.0154$, ($p = 0.8515$) > 0.05]. This finding supported that of Nanik and Halim (2017) whose study on bidder companies listed on the Indonesian Stock Exchange, found an insignificant affiliation between leverage and bidder firms' profitability one year after a merger or acquisition. The finding also agreed with that of Ofoegbu, Duru and Onodugo (2016) whose research on pharmaceutical companies in Nigeria, discovered an insignificant connection between debt ratio and the firms' financial performance. The finding was however not consistent with that of Ayu, Zuraida and Mulia (2018) whose study on manufacturing firms listed on the Indonesian Stock Exchange, established a significant relationship between leverage and the firms' profit management. The finding was also not in tandem with that of Mehmet and Mehmet (2018) whose research on 10 quoted energy firms listed on Borsa Istanbul Stock Exchange, disclosed a significantly negative affiliation between leverage and the firms' profitability.

Test of Hypothesis Two: From the study's findings, an insignificantly positive relationship was established between LEV and ROE at the 95% confidence interval [$r = 0.0154$, ($p = 0.8515$) > 0.05]. The study therefore failed to reject the null hypotheses (H_{0B}) that, there was no significant relationship between leverage and the firms' financial performance as measured by ROE, and concluded that, leverage had an insignificantly positive connection with the firms' financial performance as measured by ROE.

5.3 The Link between Leverage and the Firms' Financial Performance (ROCE)

The study finally found an insignificantly positive affiliation between LEV and the firms' ROCE at $\alpha=5\%$ [$r = 0.0223, (p=0.7867)>0.05$]. This finding was in tandem with that of Akenga (2017) whose research on 30 listed firms on the Nairobi Securities Exchange (NSE) discovered an insignificant relationship between debt ratio and the firms' financial performance. The finding also agreed with that of Derbali (2014) whose study on eight (8) insurance companies in Tunisia, found an insignificant association between leverage and the firms' financial performance. The finding was however not consistent with that of Ashutosh and Gurpreet (2018) whose study discovered a significant link between solvency and the profitability of co-operative sugar mills in Punjab sugar industry. The finding was also not consistent with that of Rachna and Sudipa (2018) whose research on insurance companies in the UAE, provided evidence of leverage having a statistically significant relationship with the firms' profitability.

Test of Hypothesis Three: From the study's findings, an insignificantly positive association was found between LEV and ROCE at $\alpha=5\%$ [$r = 0.0223, (p=0.7867)>0.05$]. The study therefore failed to reject the null hypotheses (H_{0c}) that, there was no significant association between leverage and the firms' financial performance as measured by ROCE, and concluded that, leverage had an insignificantly positive relationship with the firms' financial performance as measured by ROCE.

Table 3: Summary of the Test of Hypothesis

Hypothesis	Analytical Tool	Result
H_{0A} : There is no significant association between leverage and the firms' financial performance as measured by ROA.	Correlation	Rejected
H_{0B} : There is no significant relationship between leverage and the firms' financial performance as measured by ROE.	Correlation	Accepted
H_{0C} : There is no significant link between leverage and the firms' financial performance as measured by ROCE.	Correlation	Accepted

(Source: Authors, 2019)

6. CONCLUSION AND RECOMMENDATIONS:

The purpose of this study was to establish the affiliation between leverage and the financial performance of non-financial firms listed on the Ghana Stock Exchange (GSE). Panel data extracted from the audited and published annual reports of the Ghana Oil Company Ltd, Total Petroleum Ghana Ltd, Starwin Products Ltd, Camelot Ghana Ltd, Aluworks Ltd, Clydestone Ghana Ltd, African Champion Industries Ltd, Benson Oil Palm Plantation Ltd, Fan Milk Ltd, Guinness Ghana Breweries Ltd, Unilever Ghana Ltd, PZ Cussons Ghana Ltd, Produce Buying Company Ltd, Mechanical Lloyd Company Ltd and Sam Woode Ltd for the period 2008 to 2017 was used for the study. From the study's Pearson Product-Moment Correlation Coefficient output, leverage had a significantly negative association with the firms' financial performance as measured by ROA. However, an insignificantly positive association between leverage and the firms' ROE and ROCE was also established. Based on the findings the study recommends that, since there was a significantly negative association between leverage and the firms' financial performance as measured by ROA, the firms should be careful on the amount of debt they undertake to finance their undertakings, as this may adversely affect their final bottom line. It is also recommended that, the firms should operate with a capital structure mix that would minimize the cost of capital and maximize shareholders' wealth.

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