



THE EFFECT OF CAPITAL STRUCTURE ON THE PROFITABILITY OF NON-BANK FINANCIAL INSTITUTIONS': AN EMPIRICAL EVIDENCE FROM THE GHANA STOCK EXCHANGE (GSE)

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ABSTRACT

This research aimed to investigate the effects of capital structure on profitability of listed non-bank financial institutions (NBFIs) on the Ghana Stock Exchange (GSE). The research used panel data obtained from the fifteen (15) companies, for the period 2010-2017. In the study, short-term debt (STDTA), long-term debt (LTDTA), firm size (SZ) and liquidity (LQDTY) as a measure for capital structure while Return on Asset (ROA) measure profitability. Result: The study findings show that there is a negative and statistically significant relationship between short-term debt and profitability. However, long-term debt indicates a positive and significant association with the profitability of the firms. The findings of this empirical research are of higher significance for developing nations such as Ghana because it calls for the concentration of firm's leadership and policymakers to pursue measures that decrease or increase debt dependence in order to achieve optimal capital structure.

KEYWORDS: *Effects, capital structure, non-bank financial institutions, profitability, Ghana Stock Exchange.*

1.0 INTRODUCTION

Over the years, many researchers have studied the capital structure of firms and their effect on the consequences of the firm owing to their significance to firms. Reviews of theories and studies on the impact of capital structure on company value, size and profitability assist company management to combine the company's resources into efficient and effective use. The company's capital structure relates to the financing sources used to finance the investments of a company. Business performance relies on its financing sources as it will affect its profitability (Awunyo-Vitor & Badu, 2012 and Tanni, 2014 and Zeitun, 2014).

With the many research that has been conducted on capital structure, there is no optimal choice for which of the method of financing a business is the best. Yagon et al. (2014) conducted a study in Kenya using panel regression analysis. The study found a positive relationship between short term debt and profitability and a negative relation between long term debt and profitability. They concluded that there is no relation between total debt and profitability. Which agreed with the static trade-off theory. According to Saad (2010) and Puwwanenthiren (2011) capital structure is a mixture of short term, long term or the fusion of the two sources of fund and equity shares with or without reserves and surplus. The relationship between capital structure and firm performance has again attention by many types of researchers in the field of finance. Awunyo-Victor and Badu (2012) conducted a study in Ghana on listed banks, with a sample of 7 banks according to their finding capital structure is a mix of debt and equity used to finance an organization. Hossain and Hossain (2015) stated that capital structure required a more careful strategic decision making with a mix of both debt and equity. The decision to choose a particular capital structure mix requires both business and non-business factors.

Also, Thi and Thi (2017) conducted research on capital structure and firm performance in Vietnam non-financial firm listed, the result indicated debt ratios have a significantly negative relation to firm performance. Berger and Bonaccorsi (2006), conducted a study in the US, the result shows that a higher debt ratio is associated with higher performance. A 1% increase in the debt ratio leads to a 6% increase in profitability. The conclusion was that more debt reduces agency cost. A study conducted in Sub-Saharan Africa on 37 banks concluded that the capital structure of a firm has no effect on performance (Anarfo, 2015). Although many authors have research on the effects of capital structure on performance, there are few in the context of Ghana. Also, the finding of the empirical research above contradicts each other. Therefore, there is the need to study the capital structure and its effects on profitability of NBFIs in Ghana a developing

country to test the validity of the financial theories. This study is of great importance in Ghana and Africa after the Bank of Ghana in 2016-2017 restructure the minimum equity capital requirements. The study will make the following contributions: (a) many types of research in the field of capital structure and profitability do not control for liquidity but this study control for liquidity. (b) The connection between capital structure and profitability have been reviewed by researchers with debt to total assets (DA) and total equity to total asset (EA) as proxies for Capital structure but this study employed a unique measurement short-term debt to total and long-term debt to total assets.

1.1 PURPOSE OF THE STUDY

This research attempted to examine the impact of capital structure on the profitability of the Ghana Stock Exchange (GES) listed companies. The research also sought findings that would be relevant to all learners in the scholarly community because they would be subjected to the different elements of capital structure and its impact on firms' profitability. The research thus contributes to the current literature pool on the link between capital structure and profitability of companies, and further serves as reference material for future studies. As executives there are many problems pertaining to the organization's capital structure, if left unattended, it will jeopardize the organization's purpose. Therefore, this research was conducted as an eye-opener for all executives. In particular, the research attempted to:

1. To examine the effects of capital structure on the firm's profitability as measured by ROA.
2. To explore the relationship between capital structure and firm's profitability as measured by ROA.

1.2 RESEARCH HYPOTHESIS

Based on the various reviews of literature, the following hypothesis was developed to direct the focus of the study:

H1: Capital structure has a significant effect on the firm's profitability as measured by ROA.

H2: Capital structure has no significant relationship with the firm's profitability as measured by ROA.

2.0 LITERATURE REVIEW

This part of the research provides theories and literature reviews that support the understudied subject. The reports contain the relationship between capital structure and firms' profitability and the link between capital structure and firms' profitability.

2.1 THEORETICAL REVIEWS

This part of the study reviews theories on trade-off, pecking order and market timing signal models of capital structure is first provided in this chapter. The second aspect of the chapter deals with empirical results on the connection between capital structure and

profitability of non-banking financial institutions, while the section's final part is the conceptual model or framework of the study.

Peavler (2018) regarded the capital structure as the composition of long-term liabilities; particular short-term liabilities such as banknotes; common equity; and preferred equity, which constitute the resources that a company utilizes for its activities and growth. The capital structure focuses on selecting a proposition that minimizes investment costs and maximizes profits per share. As such, the selection of equity capital alone; preferential capital alone; debt alone; a combination of equity and debt; a combination of debt and preferential capital; a combination of equity and preferential capital; and a combination of equity, preferential capital and debt capital in varying ratios are the multiple choices for companies to choose from in their capital combination (Kennon, 2018 and Zhu, 2014). There are many theories on the study capital structure and profitability. However, for the purpose of this study three of such theories will be explained.

2.1. Modigliani and Miller's capital structure irrelevance

Modigliani and Miller's capital structure irrelevance theory was first published in 1958. According to Modigliani and Miller (1958) in a perfect capital market financing of firms is not important. Value maximization by the firm is determined by a firm asset quality and productivity. The capital market irrelevance theory was theoretically very sound only holds under the assumption of perfect capital markets. These perfect capital markets are defined by Modigliani and Miller as follows: homogeneous shares of different firms which are perfect substitutes of each other, all shares being traded under the perfect capital market conditions, investors known expected future returns on all shares, the cost of debt is the same irrespective of the issuer. In concluding their seminal paper Modigliani and Miller (1958) stated that these and other drastic interpretations had been necessary in order to come to grips with the capital structure problem, and having served their purpose they could now be comfortable in the direction of greater realism and relevance. Other theories of capital structure have been developed as a result of the MM theorem.

2.2 Trade of theory

The most advantage capital structure, according to the trade-off theory, is where the expenditure debt advantages are in balance with the debt-related expenses (Myers, 1984). The institutions under this hypothesis, as described by de Jong, Verbeek and Verwijmeren (2010), have a specific debt ratio as their primary goal and attempt to achieve that fixed goal. According to Hiller, Clacher, Ross, Westerfield, and Jordan (2014), when deductible tax advantage fits the price of financial distress, the intended debt ratio is met. Nevertheless, debt obligations result in the case.

Thus, under ordinary economic environments, the trade-off theory predicts an advantageous connection between leverage and financial results of companies. However, leverage is anticipated to have an inverse connection to the economic results of companies in the case of a financial crisis, as increasing threat and capital scarcity could render debt more expensive (Hiller, Clacher, Ross, Westerfield & Jordan, 2014; De Jong, Verbeek & Verwijmeren, 2010; and Schulz, 2017). The outflows as interest and claims have to be resolved, diminishing the liquidity of companies (Schulz, 2017).

2.3 Picking Order Theory

The main hypothesis of the concept of the pecking order is information asymmetry, as company administrators have more ideas about the operations of companies and future prospects than outsiders (Harrison & Wisnu, 2014). In the event that corporations go into an external source of funding, they imagine debt-to-equity in that there are lower debt-to-equity expenses (Frank & Goyal, 2002). According to Schulz (2017), cost-effective institutions use less debt because they fund their activities with inner resources. In summing up the pecking order hypothesis, Fama and French (2002) assumed that the wealthier a company is, the lower its debt-to-equity ratio, the companies favor the use of inward resources as such. Accordingly, leverage is anticipated to have a negative association with the economic results of companies that promote Ngoc, Trang, and Payel (2017) and Shehryar (2017).

2.4 Market Timing Theory

Market timing principle of capital structure describes that when their share price is overrated, companies purchase fresh equity and purchase back stocks when the share price is underrated (Baker and Wurgler, 2002). This fluctuation in share prices affects the choices on corporate funding and lastly the company's capital structure. They further describe that the pecking order theory of capital structure market timing concept does not shift to target leverage as equity operations are entirely subject to stock market circumstances. This means long-lasting modifications in the capital structure supported by market timing (Bessler et al, 2008). This proposition explains that gearing ratios are negatively linked to previous stock returns (Welch (2004) found that stock returns are the most important determinant of capital structure. However, Hovakimian (2006) stated that in the long-run market timing has no significant impact on the capital structure of the firms. Confirming the same Alti (2006) shows that the impact of market timing on gearing will diminish completely within two years.

2.5 The Signaling Theory

Through the selection of capital structure, this concept seeks to tackle the underinvestment issue created by information asymmetry. The signal model

states that information can be transmitted and that strong value can be signaled to external buyers by considering different adjustments in funding. He claims that the greater leverage provides shareholders with greater performance income and potential cash flows. By raising debt rates, companies actually implicitly state that they would be prepared to fulfill the extra debt duty (enhanced interest expenditure) in relation to greater potential profitability and cash flows. Companies can, therefore, undertake to greater rates of debt to indicate their future market requirements. The issue occurs, however, that "how do companies choose their capital structure? In 1984 (Myers). Certain company-specific features have come to light that determines the company's capital structure. These studies created the concepts over the years focusing in particular on the expenses of agencies, information asymmetry, and tax advantages. Titman and Wessels (1988) define the following features that may affect the company's funding conduct: asset structure, non-debt tax shields, development possibilities, uniqueness, sector ranking, magnitude, the volatility of income and profitability.

2.6 Empirical Review On Capital Structure And Firm's Profitability

Umawadee (2017) examine the relationship between corporate governance and firm performance for a panel sample of 493 firms of non-financial firms in Thailand during the year 2001–2014. When the analysis was done on the full sample, corporate governance is not related to financial leverage and firm performance. Leverage has a positive effect on firm performance. The sample was grouped into small and large firm subsamples, it was observed that, there exit negative effect of audit committee size on firm performance is obvious for large firms while the effect of audit reputation on firm performance is obvious for small firms only. Thi and Thi (2017), examined the effects of capital structure on the performance of non-financial listed firms in Vietnam, using unbalance panel data for the period 2007 – 2012. The result shows that there was a negative relation between debts ratio and firm performance. Jumanne (2015) investigated the impact of capital structure on SMEs in Tanzania. The research used primary and secondary information from 100 SMEs chosen through the stratified random sampling technique. The results of the study indicated that the capital structure had a significantly positive effect on the profitability of SMEs from the simple regression output of the study.

Memoona, Syed, Mobeen, and Muhammad (2017) investigated the impact of capital structure on non-financial firms' in Pakistan. The study data was adopted from 213 listed companies on the Karachi Stock Exchange for the period 1999 to 2015. From the complete sample regression analysis of the study, the

capital structure assessed by long-term debt to total investments had a significant negative impact on the economic results of the companies as assessed by the ROA, ROE, Tobin's Q and Price Earnings (PE) percentage, but the capital structure depicted by short-term debt to total investments had a significant negative impact on the economic results of the companies assessed. The research also disclosed a considerably inverse effect on the ROE and Tobin's Q of the companies of the debt-equity ratio. Alhassan (2017), conducted a study in Ghana. The period of study was 2006-2015 with a total of 42 non-bank financial institutions. To measure the impact of capital structure and firm performance of NBFIs, the study employed both ROA and ROE as a measure of financial performance and total debt to capital ratio as capital structure measure. Other control variables used in the study was credit, firm size, asset composition and age of the firm. With the use of Pearson correlation and regression capital structure was positively related to the performance of NBFIs in Ghana but statistically significant with ROA. Asset composition and firm size also show a positive association.

The impact of capital structure on banking results in Iran was researched by Seyedeh (2015). The research used secondary data from 17 companies mentioned on the Tehran Stock Exchange's economic reports for the era 2009 to 2014. From the regression assessments of the study capital structure surrogated by the debt-to-equity ratio, the economic output of the companies assessed in terms of ROA and ROE had a significant adverse effect. Ahmad (2015) studied the impact of capital structure on the Bahrain Bourse's economic results of listed institutions. The research used data from the documents of 17 selected non-financial companies for the era 2009-2013. The capital structure used by the proportion of total liabilities to complete resources had a considerably beneficial impact on the economic results of the companies as assessed by ROE, but not by ROA, EPS and Dividend Yield (DIYILD). Mohammed and Yusheng (2019a) conducted a study on the influence of capital structure on the financial performance of firms listed on the Ghana Alternative Market (GAX). The period of the study ranges from 2015-2018. From the Pearson Product-Moment Correlation Coefficient estimates of the study, capital structure had a significantly negative connection with the financial performance of companies, while the Robust Ordinary Least Squares (OLS) regression output of the study showed that capital structure had a significant negative impact on the financial performance of companies as evaluated by ROCE, ROA, and ROIC.

Mutwiri (2015) evaluated the effect on the economic results of energy and petroleum companies mentioned on the Nairobi Securities Exchange (NSE) of capital structure choices. The research recruited

secondary data from the annual accounts of the five (5) listed companies working in the energy and petroleum sector between 2004-2014. From the multiple regression analysis of the study, the capital structure supported by the debt ratio had a considerably beneficial impact on the economic results of companies as evaluated by ROE. Schulz (2017) studied the impact of capital structure on the results of non-listed Netherlands SMEs. For the study, panel data from the records of 3,363 non-listed SMEs were used for the period 2008 to 2015. From the results of the study, capital structure surrogated by the long-term debt to complete assets proportion, short-term debt to complete resources, and total debt to total equity had a significant adverse impact on the performance of companies as measured by ROA. Manjuru (2015) researched the impact of capital structure on the performance of the Nairobi Securities Exchange-listed non-financial companies. For the study, secondary data extracted from 40 listed non-financial firms' annual financial statements for the period 2009 to 2013 were adopted. From the multivariate regression analysis of the study, capital structure based on the proportion of long-term liabilities to full resources, short-term liabilities to full resources and total liabilities to complete resources had a substantially inverse impact on the economic results of the companies as evaluated by ROA.

Mohammed and Yusheng (2019b) conducted a study on the association between capital structure and the financial performance of non-financial firms listed on the Ghana Stock Exchange (GSE). Through Pearson's Product-Moment Correlation Coefficient technique of data analysis, for the period 2008-2017. The study discovered that, capital structure proxied by DA had a substantially reverse affiliation with the financial performance of companies as measured by ROA ; DE-proxied capital structure had an insignificantly positive connection with the economic performance of companies as measured by ROA ; capital structure

measured by ETA had a significantly positive association with the financial performance of the companies as measured by ROA ; the capital structure measured by DA had an insignificantly positive connection with the financial performance of the companies as measured by ROE ; the DE proxied capital structure had a substantially reverse association with the financial performance of the companies as measured by ROE; ;capital structure proxied by ETA had an insignificantly negative relationship with the firms' financial performance as measured by ROE; capital structure proxied by DA had an insignificantly positive association with the firms' financial performance as measured by ROCE; DE-proxies Capital structure had a significantly adverse connection with the firms' financial performance as measured by ROCE; and capital structure proxied by ETA had an insignificantly inverse relationship with the firms' financial performance as measured by ROCE.

From the above empirical works of literature, it is understood that different studies have been done on capital structure and firm performance with different analysis both in developed and developing countries. However, it observed that many of the studies have been then in the banking industry. This study was conducted in Ghana on the Non-bank financial institutions (NBFIs) listed on the Ghana Stock Exchange (GSE) to measure the effects of capital structure on firm profitability.

2.7 Conceptual Framework

Based on the variables outlined in the Figure 1, the following conceptual framework has been developed for this study, which diagrammatically explains how capital structure impacts on Non-bank financial institutions profitability whilst controlling for other variables. Capital structure was measured by short-term to total assets, long-term debt to total asset, firm size, and liquidity. Return on asset was used as the proxy of profitability.

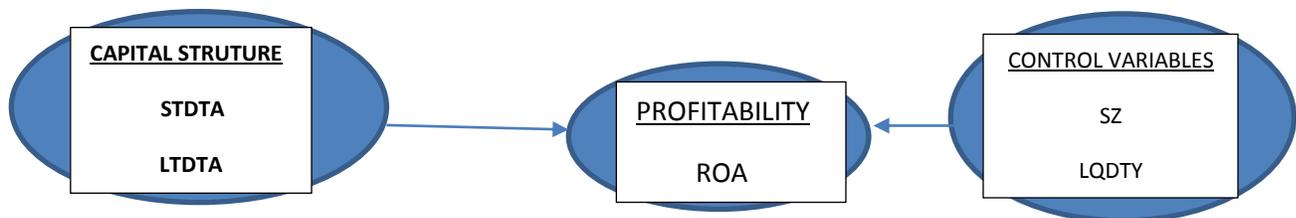


Figure 1. Conceptual framework of the study.

3.0 METHODOLOGY

As described by Kallet (2004), research methodology defines the activities to be taken to explore a research problem and the rationale for applying particular processes or methods to recognize, pick, process and analyze data used to understand the research problem, thus enabling readers to critically assess the general legitimacy and accuracy of a study. The methodology chapter of a document addresses questions according to Denscombe (2014): how was the information gathered? and, how has the information been analyzed?

3.1 Research design

A research design is, according to Creswell (2014), a collection of processes and methods used to collect and study measurements of factors recognized in a research problem. This study was quantitative research. The research was quantitative because it looked at classifying characteristics, quantifying them in terms of figures and creating a statistical model for testing hypothesis and explaining findings. The research was specifically experimental in nature because it sought to explore the cause and effect relationship between the explained and the explanatory variables. The study was finally correlational in nature as it attempted to investigate the bivariate connections between capital structure and firms’ profitability.

3.2. Population and sampling

The target population of the study was formed by all non-financial companies that listed and traded their shares on the Ghana Stock Exchange (GSE) as of December 2017. Because the study wanted to handle balanced data, a sample from the entire population was made. 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 as opposed to that of the Ghana currency (because of the Ghana Cedi's non-stability in major foreign currencies) were the factors or filters consisted. Considering these factors, the research embraced the purposive sampling technique in its sampling method when making a decision out of the entire population. Fifteen (15) companies after critical consideration of the different factors during the sampling phase. These list of companies were considered for the study 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 denoted 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).

3.3 Data collection

The research used a balanced secondary panel data obtained from the selected companies audited and released annual accounts for the era 2008 to 2017. The company's annual reports included the Comprehensive Revenue Statement, Financial Statement, Cash Flow Statement, Statement of Equity Changes and Account Notes. These annual accounts have been acquired from the Ghana Stock Exchange (GSE) formal website. The study ensured reliability in the data by ensuring that the data collected was within the study period; the data was complete and accurate; the data was obtained from its original source and not from a source where it could have been manipulated or altered. On ethical considerations, Tripathy (2013) indicated that if the data is freely available on the Internet, books or other public footers. This research recognized all sources from which information or data were acquired.

3.4 Data analysis

For the study analysis, descriptive and inferential data analysis methods have been used. The mean, standard deviation, minimum and maximum values, range, skewness, and kurtosis of the factors have been analyzed in the descriptive assessment. While the data analysis method of Hausman robust fixed effects and Pearson Product Moment Correlation Coefficient was introduced to examine the connection between the capital structure and the firm’s profitability of the companies. All the assessment was carried out through the software package of STATA version 15.

3.5 Model specification

This estimator was chosen after taking into observation the assumptions of the Classical Linear Regression Model (CLRM). The general econometric model adopted for the study was;

$$Y_{it} = \alpha + \beta_0 X_{it} + \mu_{it} \dots \dots \dots (1)$$

Y_{it} = Response variable of firm (i) in time (t); α = Intercept; β_0 = slope of the predictors

X_{it} = Vector of the predictor variables of firm (i) in time (t); and μ_{it} = error term of firm (i) in time (t)

From the above econometric model, the following functions were deduced:

$$Y_{it} = f(\text{Financial profitability}), \text{ but Financial profitability} = f(\text{ROA})$$

$$\text{Therefore, } Y_{it} = f(\text{ROA}) \dots \dots \dots (2)$$

$$\text{Also, } X_{it} = f(\text{Capital Structure}), \text{ but Capital Structure} = f(\text{STDTA, LTDTA, SZ and LQDTY})$$

$$\text{Therefore, } X_{it} = f(\text{STDTA, LTDTA, SZ and LQDTY}) \dots \dots \dots (3)$$

Substituting equation (2) and equation (3) into equation (1), the following working model was formulated to help direct the attention of the study;

$ROA_{it} = \alpha + \beta_1 STDTA_{it} + \beta_2 LTDTA_{it} + \beta_3 SZ_{it} + \beta_4 LQDTY_{it} + \mu_{it} \dots \dots \dots (4)$
 Where: α = Intercept; β_1 = Parameter slope coefficient of the predictor variable $STDTA_{it}$; β_2 = Parameter

slope coefficient of the explanatory variable $LTDTA_{it}$; β_3 = Parameter slope coefficient of the explanatory variable SZ ; and β_4 = Parameter slope coefficient of the explanatory variable $LQDTY_{it}$.

Table 1. Description of variables and measurements

VARIABLES	DEFINITION	MEASUREMENT	PROXY	EXPECTED SIGN
ROA	return on asset	Net income / total assets	Profitability	+
STDTA	short-term debt to total assets	current liabilities/ total assets	Capital Structure	+
LTDTA	long-term debt to total assets	long term liabilities /total assets	Capital Structure	+
SZ	firm size	natural log of total assets	Control Variable	+
LQDTY	liquidity	current assets /current liabilities	Control Variable	+

4.0 ANALYSIS OF DATA AND DISCUSSIONS

4.1 TEST FOR MULTI-COLLINEARITY

Kock and Lynn (2012) described multicollinearity as a phenomenon in which one predictor variable with a significant degree of precision can be

predicted linearly from the other. Multicollinearity was seen as a critical problem because its existence could make it less accurate to assess the effect of one variable on the reaction variable while controlling for the other than if the predictors were uncorrelated.

Table 2. Test for Multicollinearity.

Variable	VIF	1/VIF
LTDTA	1.16	0.863265
SZ	1.09	0.915606
STDTA	1.07	0.933444
LQDTY	1.02	0.983574
Mean VIF	1.08	

Note: VIF – Variance inflation factor

Multicollinearity according to a study by Kenton (2018) is where the variables of observation have a high intercorrelation and each other in the study. empirical studies have used the variance inflation factor. Kock & Lynn (2012) and O’Brien (2007) is the degree of acceptance (1/VIF). With the use of ordinary least square to (OLS) regression, with ROA as the dependent variable and STDTA, LTDTA, SZ and LIQDTY as the independent variables. From the rule of thumb, a variable with a VIF greater than 5 (VIF>5) and the degree of tolerance is less than 0.2(1/VIF<0.2) is said to have a high rate of collinearity with other explanatory variables. From the above table, the VIF’s of the variables are all less than 5, and their degree of tolerance were all more than 0.2. this indicated that the issue of multi-collinearity was not present among the variables.

4.2 TEST FOR NORMALITY

As Andersen (2012) puts it, information non-normality has two significant implications, (1) it presents efficiency problems-that is, the standard OLS mistakes are no longer the smallest, and (2) the standard OLS errors can be biased-that is, trust intervals and meaning tests can lead to false findings. For this research, the Shapiro and Wilk (1965) test for information normality was used. The Shapiro & Wilk tests the null hypothesis that, from a normally distributed population, sample $X_1 \dots \dots \dots X_n$ originated (Shapiro & Wilk, 1965; Field, 2009; and Razali & Wah, 2011). In other words, if the p-value is lower than the alpha (α) level selected, then the null hypothesis will be dismissed and there is proof that the information tested will not usually be distributed.

As shown in Table 3, the z-value of ROA was statistically significant at 5% level (p<0.05). this implies the null hypothesis that the data value of ROA was normally distributed could not be accepted. The z-

values of STDTA and LTDTA were also significant at $\alpha=5\%$ ($p=0.0000 < 0.05$). The study, therefore, failed

to accept the null hypothesis that the data values of STDTA and LTDTA were normally distributed.

Table 3. Shapiro-Wilk W test for normal data

Variable	Observe	W	V	Z	ProB>Z
ROA	120	0.2281	74.271	9.651	0.000
ROE	120	0.36087	61.502	9.228	0.000
EPS	120	0.37213	60.418	9.189	0.000
STDTA	120	0.16609	80.245	9.824	0.000
LTDTA	120	0.65237	33.452	7.864	0.000
SZ	120	0.94791	5.013	3.611	0.000
LQDTY	120	0.27752	69.522	9.503	0.000

In the case of SZ and LIQTY, the z-value of 3.611 and 9.310 respectively; with their respective probabilities of 0.000 and 0.000 indicates the test's significance at the 95% confidence interval ($p < 0.05$). the study, therefore, rejected the null hypothesis that the data values of SZ and LIQTY were normally distributed. From the analysis above, it can be inferred that all the variables under study were not normally distributed at $\alpha=5\%$ ($p < 0.05$). Therefore, a more generalized and robust estimator should be considered for the study's regression analysis.

4.3 TEST FOR HETEROSKEDASTICITY

The existence of heteroscedasticity according to Muhammad (2012), that the Ordinary Least Squares

(OLS) estimators are no longer the Best Linear Unbiased Estimators (BLUE) because they become inefficient and lead to imprecise predictions. In addition, the testing of hypotheses (t-test, F-test) becomes invalid due to the inconsistency in the covariance matrix of the estimated regression coefficients (Muhammad, 2012). Heteroscedasticity testing, which tests the null hypothesis of homoscedasticity or the absence of heteroscedasticity in linear regression models, was adopted for this study by Breusch and Pagan (1979) and Cook and Weisberg (1983).

Table 4: Heteroscedasticity Test Results

Model	Chi2(1)	Prob>chi2
ROA	0.01	0.9060

The test tested the null hypothesis that all the fitted values of the ROA working models had no heteroscedasticity at the 5% significance level, as against the alternative. Table 4. indicates a hettest (Chi2) of 0.01 for all fitted values of ROA. The test was not statistically significant at $\alpha=5\%$ ($p > 0.05$). The study, therefore, accepted the null hypothesis that there was no heteroscedasticity among the fitted values of ROA.

4.4 TEST FOR SERIAL CORRELATION

Verbeek (2012) and Baum (2006) describe serial correlation as a mathematical depiction of the degree of similarity between a specified series and a cross-section and a legged version of itself over a consecutive time period. For this study, the Durbin Watson serial correlation test was used. The study, test the null hypothesis against the alternative hypothesis that, errors are seriously correlated. The test reports a d-statistic with a value from 0 to 4 where; 2 is no serial correlation, 0 to < 2 is a positive serial correlation and > 2 to 4 is a negative serial correlation.

Table 5. Serial Correlation Test Result

Model	Durbin-Watson d-statistic
ROA	0.1030458

From the above table, the Durbin-Watson d-statistic value was 0.1030458. This indicates that a positive serial correlation existed in the residuals of the ROA model. Therefore, the null hypothesis of no serial correlation in the model was rejected.

4.5 MODEL SPECIFICATION TEST

Model specification test included choosing the suitable functional form for the model variables tested. According to Asterious & Hall (2011), specification

errors occur when the functional model choice of regressors does not coincide with that of the underlying process leading to model misspecification. Also, as regards the adverse effects on the sampling characteristics of both estimators and tests, the consequences of model misspecification in regression analysis could be serious (DeBenedictis & Giles, 1996). The researchers conducted a test to choose

between the random or fixed effects model for this study.

Table 6: Model Specification Test Results

Model	Chi2(2)	Prob>chi2(6)
ROA	25.36	0.0000

From table 7, the Durbin-Wu-Hausman specification test for the ROA model indicates a chi2 of 25.36 which was statistically significant at the 5% level [(p=0.0000) <0.05]. The study, therefore, accepted the null hypothesis that, the fixed effects model was preferred over the random-effects model. The study used the Robust fixed effects GLS regression estimator because of the issue of serial correlation that was detected in the study’s diagnostic test.

4.6 DESCRIPTIVE ANALYSIS

Table 7: Descriptive Statistics on Study Variables

Variable	ROA	STDTA	LTDTA	FIRMSIZE	LIQITY
Mean	-0.0545926	0.6971817	0.1254768	6.312857	2.115923
Std.Dev.	0.7775083	1.906548	0.1870591	1.136272	5.203084
Variance	0.6045192	3.634924	0.0349911	1.291114	27.07208
Minimum	-7.742179	0.0079878	0.000000	4.378107	1.03e-09
Maximum	0.4071967	21.12634	0.9689459	8.532541	52.72038
Range	8.1493757	21.1183522	0.9689459	4.154434	51.69038
Skewness	-8.663389	10.37647	2.545352	0.3081441	8.11026
Kurtosis	83.03686	111.7147	9.913514	1.911705	76.85436

For the indicators of capital structure STDTA and LTDTA, the observed mean values were 0.6971817 and 0.1254768 respectively; standard deviations were 1.906548 and 0.1870591 respectively, and variances were 3.634924 and 0.0349911 respectively. This implies, the companies operated with a significant level of high short-term debt of 69.72% and a low Long-term debt of 12.55%.

For the control variables, liquidity had a mean value of 2.115923, a maximum value of 52.72038 and a minimum value of 1.03e-09 respectively. The firms also had a standard deviation of 5.203084 and a variance of 27.07208 for their liquidity. This means that dispersion around the mean liquidity was 5.203084. The skewness value of 8.11026 is an indication that the liquidity distribution was positively skewed. The kurtosis coefficient of 76.85436 signifies that the distribution for liquidity was not normally distributed.

The other control variable is the firm size with a mean value of 6.312857 and standard deviation values of 1.136272. The minimum and maximum values were 4.378107 and 8.532541 respectively resulting in a range of 4.154434. The standard deviation and

variance figures were 1.136272 and 1.291114 respectively. For the firm’s skewness, the observed value was 0.3081441. This coefficient implies that the firms are skewed to the right. The coefficient value for kurtosis was 1.911705, implying that the distribution is abnormal (1.911705-3= -1.080295).

4.7 CORRELATIONAL ANALYSIS

The Pearson's Correlation Coefficient data analysis technique was adopted to establish a link between the capital structure and the financial performance of the firms, and from Table 9 there was a statistically significant relationship between ROA and STDTA at the significant level of 1% [r=-0.8992, (p=0.0000) <0.001]. The inverse relation between STDTA and ROA indicates that a rise in STDTA has resulted in a reduction in ROA and vice versa. The association between STDTA and ROA can be justified by the determination coefficient (r²= 0.8086), which implies that STDTA accounted for 80.85% of the changes in ROA. The unstudied variables accounted for 0.1914. (r²=0.1914 or 19.14%).

Table 8. Test for correlation analysis

Variables	ROA	STDTA	LTDTA	FIRMSIZE	LIQTY
ROA	1.0000				
STDTA	-0.8992* (0.0000)	1.0000			
LTDTA	-0.2701* (0.0029)	0.2327* (0.0105)	1.0000		
SZ	0.0066 (0.9431)	-0.0285 (0.7572)	-0.2829* (0.0017)	1.0000	
LIQTY	0.0437 (0.6352)	-0.0908 (0.3238)	0.0480 (0.6027)	0.0360 (0.6966)	1.0000

Note: * implies significance at the 1% level and values in parenthesis () represent probabilities

Again, LTDTA and ROA had a negative correlation coefficient of -0.2701 and a probability value of 0.0029 at $\alpha=1$ percent. The negative connection between STDTA and ROA implies that an increase in LTDTA has led to a decrease in ROA and vice versa, and a decline in LTDTA has also led to a rise in ROA and vice versa. The degree of connection that was between LTDTA and ROA can be shown by the coefficient. The coefficient implies $r^2=0.0729$ that 7.29% of the LTDTA is accounted for by ROA and 7.29% of the variation in LTDTS is explained by ROA. The non-study variables accounted for 92.71% ($1-r^2=92.70$).

Further, the relationship between firm size (SZ) and ROA was positively but statistically insignificant ($r= 0.0066$) ($p=0.9431$) >0.1]. The positive relationship between firm size and ROA is an indication that an increase in firm size led to a rise in ROA and vice versa, and a reduction in firm size led to a reduction in ROA and vice versa. The notch of connection that existed between firm size and ROA can also be proved by the determination coefficient ($r^2= 0.00004$), which

4.8 REGRESSION ANALYSIS

Table 9. Robust Fixed Effects of Capital structure on the Firms' Profitability (ROA)

Variables	Coef. (β)	Robust Std. Err	z-statistic	Prob(z)
STDTA	-0.349533	0.003424	-102.08	0.000*
LTDTA	0.2248308	0.0962476	-1.87	0.035**
SZ	-.0100429	0.0203518	-1.02	0.629
LQDTY	-0.0032376	0.0003936	-3.81	0.000*
CONS	0.2311344	0.1275805	2.40	0.092***
R-squared:		F-statistic	5.21	
Within	0.8064	Prob (F)	0.0000	
Between	0.8407	Number of observed	120	
Overall	0.7997	Number of groups	15	

Note: * implies significance at 1%; ** implies significant at 5%; *** implies significant at 10%.

Regression analysis which was the focus of this aspect of the study sought to examine the effect of capital structure on the firms' financial performance, and from Table 9, STDTA had a significantly positive

implies that 0.004% of differences in ROA were accounted for by firm size and 0.004% of differences in firm size were explained by ROA. The unexplained differences [99.99% or ($1-r^2= 0.9999$)] may be aligned with other non-study variables.

Lastly, the study established an insignificantly positive relationship between LIQDTY and ROA at a significant at 10% level [$r=0.0437$, ($p=0.6352$) >0.1]. Figure 0.0437 being the coefficient of correlation between LIQDTY and ROA implies that as LIQDTY increased, ROA also increased in the same direction and vice versa, and as LIQDTY decreased, ROE decreased in the same direction and vice versa. The strength of the connection between LIQDTY and ROA can be proved by the determination coefficient ($r^2=0.00191$), which demonstrates that LIQDTY accounted for 0.191 % of the differences in ROA and ROA described 0.0.191% of the differences in ROA. The unexplained [80.90 % or ($1-r^2= 0.809031$)] variations may be aligned with other factors not included in the study.

effect on ROA at $\alpha=1\%$ significant level ($p=0.0000$), with a coefficient of -0.349533. The beta (β) value of -0.349533 for STDTA indicates that, on the average, when all other factors were held constant, a unit

increase in STDTA led to a -0.394533 decrease in ROA. On the other hand, LTDTA, had a significantly positive influence on ROA at the 5% significance level (($p=0.035 < 0.05$)). The beta value of 0.2248308 for LTDTA implies that, on the average, a unit increase in LTDTA led to a 0.2248308 increase on ROA.

Also, SZ had an insignificantly adverse influence on the firm's ROA [($p=0.629 > 0.05$)]. This signifies that on the average when all other variables were held stationary, a unit increase in SZ did not have any material decrease in ROA. Finally, a positive and significant relationship was found between LQDTY and ROA at the $\alpha=1\%$ significance level ($p=0.000 < 0.05$)). The relationship between LQDTY and ROA is an indication that an increase in LQDTY led to a decrease in ROA by 0.0032376.

The R-squared (R^2) value of 0.7997 depicts that the explanatory variables accounted for 79.97% of the variances in ROA. while the unexplained variances [20.03% (100-79.97)] were accounted for by other variables that were not part of the study. The F-value of 5.21 with its probability of 0.0000 indicates that the explanatory variables had a combined significant influence on the firms' financial performance as measured by ROA. The fitted model then became;

$$\text{ROA} = 0.2311344 - 0.349533\text{STDTA} + 0.2248308\text{LTDTA} - 0.0100429\text{FIRMSIZE} - 0.0032376\text{LQDTY}$$

5.0 DISCUSSION ON EFFECTS OF CAPITAL STRUCTURE ON FORM PROFITABILITY

The results of the empirical analysis show a negative but statistically significant relationship between short-term debt (STCD) and NBFIs profitability (as measured by ROA). This means that NBFIs performance declines as the proportion of short-term debt used in financing activities increases. This result is in line with the findings of Ramadan and Ramadan (2015), conduct a study in Jordan on 72 companies and concluded that Short term has a significant negative effect on firm's performance measured with ROA. Studies by Yagon et al (2014), This implies that the more NBFIs relied on short term debts the lower their profitability.

With the many research that has been conducted on capital structure, there is no optimal choice for which of the method of financing a business is the best. Yagon et al. (2014) conducted a study in Kenya using panel regression analysis. The study found a positive connection between short term debt and profitability and a negative association between long term debt and profitability. They concluded that there is no relation between total debt and profitability. Which agreed with the static trade-off theory.

Also, for long-term debts, there was a positive relationship with the firm's profitability. As indicated

in table 9, there was a significant level at 95% confidence interval. In similar studies by Nireesh (2012) in 10 Sri Lanka banks find a positive connection between long-term debts and profitability. The implication of our result shows that firm's that depends on long-term as a means of financing their firms will have a positive increase in their profitability.

For the control variables, liquidity had an inverse and a significant influence on ROA at $\alpha=1\%$ ($p=0.0000 < 0.05$). This finding supports that Mohammed and Yusheng (2019c) whose study on listed Non-financial firms in Ghana uncovered a negative association between liquidity and the firm's financial performance. Also, the study's by Mohammed and Yusheng (2019), reviewed the association between liquidity and firm financial performance in Ghana. Their studies findings indicated that liquidity measured by the Current Ratio (CR), Quick Ratio (QR) and the Cash Flow Ratio (CFR) had a significant connection with the firms' financial performance as measured by ROA, but liquidity proxied by the Current Ratio (CR), Quick Ratio (QR) and the Cash Flow Ratio (CFR) had no significant association with the firms' financial performance as measured by ROE and ROCE.

The negative coefficient (-0.0032376) implies that NBFIs are not able to meet their short-term debt obligations when they fall due. This may be because firms in Ghana mostly relied on short term debt, which increases the portfolios of their debt. Firm size was the other control variable introduce to check the relation between capital structure and firm's profitability. The findings show that there is a negative and insignificant association between firm size and profitability measured by ROA. Taani (2014) concluded that leverage, working capital management policy and size had a significant relationship with net income, return on equity and return on assets of the firms. This is conflicting with the findings of this study.

6.0 CONCLUSION

This research examined empirically the effects of capital structure on the performance of NBFIs operating in Ghana, by considering the information of 15 NBFIs for the period 2010–2017. After the specification test and analysis of the regression model, the findings show that STDTA has a negative relation effect on ROA. However, LTDTA has a positive relation impact on ROA. This finding is similar to the conclusions of Abor (2005); Anarfo, (2015) and Hossain & Hossain (2015) that STDTA and LTDTA have a significant effect on firms' profitability. The size and efficiency of the firm are negatively linked and statistically insignificant with respect to the control variables. There is a connection between liquidity and firm profitability that is negative and statistically significant.

Therefore, we concluded that the effects of capital structure on the company's profitability is of importance to managers and policymakers who make a decision on the choice of funding sources for the companies. As indicated in the finding, taking into account the study's significant results, the researchers suggested among other things that; management should pay more attention to the company's capital structure composition because the short-term ratio had an adverse impact on the profitability of the companies. As this article disclosed, capital structure and profitability are important determinants of economic performance, as such, careful planning and management of both is an important way to improve shareholders wealth. In addition, the sampled companies and all other organizations should adopt the notion of management of capital structure to assist them to address the risks connected with their activities. This will go a long way to improve the firms' profitability. Finally, it is suggested that companies should be subject to the prudential standards and operating rules established by the Ghana Stock Exchange in order to safeguard their shareholders' resources thereby ensuring the long-term economic sustainability of companies.

7.0 STUDY LIMITATIONS

This research aimed to examine the effect of capital structure on the profitability firms listed on the Ghana Stock Exchange (GSE). Therefore, the research relied exclusively on the Ghana Stock Exchange (GSE) annual reports released by the companies. Therefore, the research bore all constraints intrinsic in published financial statements. While the information used for the research was also verifiable as it came from GSE published data, it could still be susceptible to time deficiencies as the survey was restricted to the 2010-2017 period. A longer length of the study could have captured periods of varying financial significance, thus giving the research problem a wider dimension. However, the only accessible information on the Ghana Stock Exchange (GSE) was from 2010 to 2017, which the researchers considered being useful for the research as credible and reliable.

Once again, the research was restricted to only 15 listed non-bank financial Institutions listed on the GSE. It is therefore not possible to generalize the findings of the research to include all listed and non-listed companies in the country. Finally, the research used ROA as profitability measurement, STDTA, and LTDTA as capital structure measurement and control for SZ and LQDTY. Therefore, any intrinsic constraints on the performance and capital structure measures chosen may have an effect on the research findings.

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