THE IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF COMMERCIAL BANKS IN GHANA

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ABSTRACT

The study examined the effect of capital structure (measures as short term debt ratio, long term debt ratio, and total debt ratio) on profitability (measured as Return on Assets and Return on equity) of commercial banks in Ghana. The study sampled 23 banking over a six year period from 2010 to 2015 and extracted data from the annual of these banks. Data was analysed using descriptive statistics, correlation analysis as well as panel regression analysis. The results showed that banks in Ghana are highly leveraged with debt financing constituting 84% of total capital out of which 77% is short term debt despite the increase in minimum equity capital of these banks. The regression analysis revealed that short term debt ratio and long term debt ratio are negatively related with profitability of banks in Ghana. However, total debt ratio was positively associated with profitability of Banks in Ghana. On the control variables, firm size, foreign ownership and age of the bank were positively associated with banks profitability whiles growth in customers' deposits was negatively associated with banks' profitability. The results show that commercial banks in Ghana reliance on short term financing (deposits) reduces banks profitability and as such banks should shift their financing focus from deposits to other sources. The results call for firms to choose the right mix of short term and long term debt that will maximize profitability of bank.

Contribution/ Originality: The study contributes to literature by examining the impact of capital structure on banks profitability in the context of regulated equity capital for commercial banks both listed and non-listed. The study is among the few capital structure and performance studies on banks is developing countries. The study serves as a basis for future research into the right mix of capital for commercial banks in Ghana that will enhance profitability.

1. INTRODUCTION

Capital structure has attracted a lot of debate and academic attention across industries in the corporate finance literature over the past decades and continues to engage the attention of researchers (Niresh, 2012). The importance of the subject matter stems from the fact that capital structure affects the profitability of corporate entities irrespective of their industry. Capital structure is simply defined as the combination of debt and equity that achieves the stated managerial goal of maximizing the value or wealth of shareholder. The wealth of shareholders'

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in turn is measured by the current price of the firm's shares. In order to achieve this objective firm's management should take rational financing decisions regarding optimal capital structure which in turn would minimize its cost of capital (Goyal, 2013). The mixture of debt and equity that will achieve the above objective is the optimal capital structure.

Capital structure studies have been inspired by the pioneer work by Modigliani and Miller (1958). The authors at the time argued that a firm choice of capital structure does not have any positive effect of firm value. This argument was made on the assumption that there are no taxes, no transaction costs; there is symmetric access to the credit market etc. Since then, three different theoretical explanations on the subject have been developed: the Static Trade-off, the Pecking Order and the Agency Cost theories (Buferna *et al.*, 2005).

The Static Trade-off theory argues that an optimal capital structure is obtainable; where the tax benefit of debt financing is equal to the leverage associated costs which may include financial distress and bankruptcy while investment decision and firm assets are held constant (Chechet and Olayowola, 2014). The Pecking Order theory posits that the optimum capital is difficult to determine because firms make use of first equity capital, then debt and lastly equity in financing new investments. Equity capital appears both at the start and end of the pecking order. The Agency Cost theory lastly states that an optimal capital structure is attainable by reducing the costs resulting from the conflicts between the managers and the owners. Jensen and Meckling (1976) posit that leverage level can be used to monitor the managers to pursue the overall firms' objectives and not theirs. By so doing, cost is reduced leading to efficiency which will eventually enhance firm performance (Buferna *et al.*, 2005).

Capital structure has become one of the most researched areas in both the theoretical and empirical literature in finance (Hossain and Hossain, 2015). These studies have either focused to a lesser extent on determinants of capital structure (Amidu, 2007; Hossain and Hossain, 2015) and to a large extent on the effect of capital structure on profitability of listed firms in particular (Abor, 2005; Sayeed, 2011; Hossain and Ali, 2012; Siddiqui, 2012; Appiadjei, 2014; Anarfo, 2015; Hossain and Hossain, 2015). However Niresh (2012) argues that in the context of the banking industry, the subject has received a limited research attention.

Capital structure studies have been inspired by the pioneer work of Modigliani and Miller (1958) and subsequently by a litany of theories such as Agency theory, Pecking-order theory, Static Trade-off theory, Free Cash Flow theory, Signaling theory etc. Studies in Ghana and Africa on capital structure have focused mostly on Agency theory and to a lesser extent the other theories mentioned above (Chechet and Olayowola, 2014). This study therefore does not intend to impose a theory on the project but to test the aforementioned theories to determine the most applicable theory in the Ghanaian context since previous studies in Ghana have ignored this aspect. For instance, Awunyo-Vitor and Badu (2012) argue that previous studies on capital structure in Ghana did not examine its impact on profitability of banks (eg (Abor, 2005;2008; Amidu, 2007). The choice of banks in this study is very critical as it is one of the few sectors with regulated equity requirement. According to Niresh (2012) the capital structure decision of a bank is similar to that of a non-financial firm. Although there are considerable inter- industry differences in the capital structure of firms due to the unique nature of each industry's business, the intra-firm variations are attributed to the business and financial risk of individual firms (Niresh, 2012).

Bank of Ghana in 2008 increased the minimum capital for all commercial banks from GH¢ to GH¢60 million. The Central bank subsequently increased it from GH¢60 million to GH¢120 million in 2013. The Central bank in 2017 has reviewed the amount upward again even though it is unclear how much the new minimum capital is pegged at. Literature on the effect of capital structure on firm performance have focused on listed firms (Abor, 2008; Appiadjei, 2014; Anarfo, 2015) with the exception of Awunyo-Vitor and Badu (2012) study which only focused on listed banks. The consistent increase in minimum capital by the central bank and the little attention of previous studies on banks in Ghana justifies the need for this study. This study intends to cure these deficiencies by sampling all commercial banks on Ghana which currently stands a little above 30 to fully understand the impact of capital structure on banks performance in Ghana.

The study contributes to literature on capital structure and bank performance in Ghana using a larger sample compared to previous studies that focused on only listed banks in Ghana. The study will also guide banks in determining their optimal level of capital structure to achieve optimum level of firm's profitability in other to meet wealth maximization goal of firms. In addition, it will serve as a base for policy makers such as Bank of Ghana to look at the appropriate level of capital requirement for banks. Besides, it will also serve as a reference for other researchers in the area of corporate finance. The study being among the few studies on capital structure and firm performance of a particular industry in Ghana will guide future research on the subject matter on other industries in Ghana.

2. EMPIRICAL LITERATURE REVIEW

Over the past several decades' corporate finance researchers have devoted considerable efforts to transform rationalism of capital structure into empiricism (Aragaw, 2015). The literature on the relationship between firm performance and capital structure has produced mixed results. Hence, the relationship between capital structure and a firm value has been the subject of considerable debate. Apart from the pioneer work by Modigliani and Miller (1958) which does not recognize the importance of theory of capital structure and its subsequent revision in 1958, other theories have emerged. There have been succeeding arguments and researches such as Static Trade-off Theory of Myers and Majluf (1984) and pecking order theory of Myers and Majluf (1984) which argues in the contrary of static trade-off theory, there are empirical studies that emphasis on the relationships between capital structure and the profitability/performance of firms.

Salim and Yadav (2012) examined the relationship between capital structure and firm performance using panel data procedure for a sample of 237 Malaysian listed companies on the Bursa Malaysia Stock exchange between 1995 and 2011. The study used four performance measures including return on equity, return on asset, Tobin's Q and earning per share as dependent variable. Five capital structure measure including long term debt, short term debt, total debt, ratios and growth as independent variable. The empirical tests indicated that there is a significantly positive relationship between a firm's performance and its capital structure.

Arabahmadi and Arabahmadi (2013) also studied the relationship between capital structure and profitability using data from 252 non-financial companies in the period from 1999 to 2008 in Tehran (Iran) Stock Exchange. Consistent with earlier theories, it found a positive association between the return on equity and short-term debt. This suggests increasing short-term debts with low interest rate will lead to increase in profitability but when firms increase long-term debts, it results in a decrease in profitability.

A study by Abor (2005) when he investigated the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period (1998-2002). Panel data methodology and regression analysis were used in the estimation of functions relating the return on equity (ROE) with measures of capital structure. Findings from the study reveal a significantly positive relation between the ratio of short-term debt to total assets and ROE. However, a negative relationship between the ratio of long-term debt to total assets and ROE was discovered. This implies that, an increase in the long-term debt position is associated with a decrease in profitability and a positive association between the ratio of total debt to total assets and return on equity.

Shubita and Alsawalhah (2012) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of industrial companies listed on Amman Stock Exchange during a six-year period (2004-2009). The study sampled 39 companies and applied correlation and multiple regression analysis. The results revealed a significant negative relation between debt and profitability. These findings imply that an increase in debt position is associated with a decrease in profitability; thus, the higher the debt, the lower the profitability of the firm. The results also show that, profitability increases with control variables; size and sales growth, and their findings contradict with prior empirical studies by Abor (2005) and Arabahmadi and Arabahmadi (2013).

In congruence with Shubita and Alsawalhah (2012) findings, Chechet and Olayowola (2014) also examined the capital structure and profitability of Nigerian listed firms using the Agency Cost Theory perspective with a sample of seventy (70) over a ten-year period (2000 − 2009) with the aid of the Nigerian Stock Exchange Fact Book covering the period under review. Panel data for the firms were generated and analyzed using fixed effects, random-effects and Hausman Chi Square estimations. Two independent variables served as measure of capital structure: debt ratio (DR) and equity over the period (EQT) while profitability (PROF) as the only dependent variable. The result showed that debt ratio is negatively related with profitability whilst equity over the period is directly related with profitability.

Nirajini and Priya (2013) studied the capital structure and financial performance during 2006 to 2010 financial years ̶ of listed trading companies in Sri Lanka. For the purpose of this study, the data was extracted from the annual reports of sample companies. Correlation and multiple regression analysis were used for analysis. The results revealed a positive relationship between capital structure and financial performance. Capital structure also significantly impact on the financial performance of firms since the debt asset ratio, debt equity ratio and long term debt correlated with gross profit margin (GPM), net profit margin (NPM), Return on Capital Employed (ROCE), Return on Asset (ROA) and Return on Equity (ROE) at significant level of 0.05 and 0.1.

Ebaid (2009) studied the relationship between the different debt-equity combinations with company's performance. Multiple regression technique was used to find out the impact of debt policy on company's performance. Findings of the study revealed that both short-term debt and total debt were negatively related by return on assets. Capital structure including total debt was not significantly related with Return on Equity and Gross profit margin (ROE and ROA). Findings of the study revealed that ROA and firm performance were negatively related.

Abor (2007) investigated the effect of capital structure on the financial performance of Small and Medium-Sized Enterprises (SMEs). The observed finding of the study revealed that, a long-term debt and gross profit margin (GPM) were positively related; whereas short term debt had a significant and a negative relationship with gross profit margin (GPM), in both South African and Ghanaian perspectives. It was also observed that the total debt ratio was also significantly and negatively related with (GPM); whereas trade credit and gross profit margin (GPM) were also significantly negatively related with each other in case of both countries such as South Africa and Ghana. In Ghanaian perspective; return on assets had a significant and a negative relationship with all the measures of capital structure (short term debt ratio, long term debt ratio and total debt ratio); while return on assets had significant and positive relationship with both trade credit and short term in South Africa. The findings of the study revealed significant negative relationship between long-term debt and total debt with the return on assets. It further revealed that there was a significant and positive relationship between the performance of the SMEs and capital structure in the existence of the managed variables, whereas SMEs performance was particularly negatively affected by total debt and long-term debt.

Madan (2007) investigated the relationship between the capital structure and the overall performance of Indian firms. The study further assessed how different debt-equity combinations played an important part in firm's overall performance and expansion. The findings revealed that both lower and higher gearing ratios were not enviable for the firms. Companies which operated at break-even point also used debt in capital structure to insure the profits. Indian firms used 30/70 or 40/60 percent of debt and equity combination, other need was fulfilled through the reserves and capital and surplus.

Eriotis *et al.* (2000) investigated the relationship between debt-equity ratio and firm's profitability. In the study, the level of the firm in investment and its degree of market power was observed. The facts and figures of various industries of 1995-96 were taken into study. It was observed through the study that the financial structure played a key role in a firm's profitability. A firm's profitability depended on debt-to-equity ratio. The debt −to equity ratio varied from firm to firm. It was the selection of debt- to- equity ratio which made successful financial strategy. For

this purpose, some firms chose a high rate equity ratio and the others depended on lower rate equity ratio. It was observed from the study of various industries that debt-to-equity ratio had a negative impact on a firm's profitability. The study further revealed that the firms that financed their investment on their equity entertained much profit in comparison to the firms that financed their activities through borrowed capital.

Ager (2009) carried out an empirical analysis of capital structure rebalancing by firms listed at Nairobi Stock Exchange to establish whether firms actively tries to rebalance their capital structure when optimality was thrown off balance. The study findings showed that in some instances there were attempts at capital structure rebalancing but the evidence was weak and this could be attributed to inertia in capital adjustment by the listed firms. This concurs with Myers and Majluf (1984) assertion that the cost of such adjustment outweighs the benefits.

Gill *et al.* (2011) studied the effect of capital structure on profitability by examining the effect of capital structure on profitability of the American service and manufacturing firms. A sample of 272 American firms listed on New York Stock Exchange for a period of 3 years from 2005 − 2007 were selected. The findings of this paper also showed a positive relationship between short-term debt to total assets and profitability, long-term debt to total assets and profitability, and between total debt to total assets and profitability in the manufacturing industry.

Petersen and Rajan (1994) found a significantly positive association between profitability and debt ratios in a study designed to investigate the relationship. They argued that as such, profitable firms are more attractive to financial institutions as lending prospects. This is because; such firms are expected to have higher tax shields and low bankruptcy. Abor (2005) also reported a significantly positive relationship between the ratios of short term debt to total assets and profitability but a negative association between the ratio of long term debt to total assets and profitability. Margaritis and Psillaki (2007) investigated the relationship between capital structure, ownership structure and firm performance across different industries using a sample of French manufacturing firms. They found a positive relation between capital structure and profitability.

Awunyo-Vitor and Badu (2012) examined the effect of capital structure on performance of listed banks in Ghana. The study used a sample of 7 banks listed on the Ghana Stock Exchange. The results showed an inverse relationship between capital structure and banks performance. The implication is that banks cannot rely on debt as a measure of reducing agency cost thereby enhancing shareholders returns. However, it is my view that 7 banks is too small to generalise the findings for banks in Ghana. The study could have rather focused on all banks irrespective of their listing status and ignore the use of the Tobin q which required share price. That notwithstanding, it provides a starting point for other studies to be carried out such as the one I will be conducting. The study did not advance any theory in the initial stages of the paper except the state that it shares in the views of Modigliani and Miller (1958).

Yegon *et al.* (2014) examined the effect of capital structure on firms' profitability using sampled banks from Kenya. Their study found a positive relationship between short term debt and profitability, but found a negative relationship between long term debt and profitability. Finally, the study found no relationship between total debt and profitability. The authors argue that the implication of these findings is that the association of short term debt and the financial performance in contrast attests the static trade-off theory. The study did not provide any practical implication of the findings other than linking it to the Static Trade−off theory. The study also used a sample size of 11 which is too small for a study is this magnitude. However, it is usually the case in studies using developing countries. The study admitted that in the light of whole debate it is suggested that existing theories of capital structure contribute to some extant in decision-making process though certain aspects of the theories are partially refuted. The definite reason is the fact that the capital structure decision is a complex, multi-dimensional problem; thus capital structure decisions are likely to be the product of multifarious group processes. Simply it is difficult if not impossible to mull over all relevant factors with bounded rationality, at least in the current scenario. In-depth case study observations of individual institutions' financing decisions over time would be especially valuable in exploring this diversity.

Chen and Chen (2011) examined the influence of profitability on firm value with capital structure as a mediator and firm size and industry type and moderators. The study was unique as it departed from the conventional studies of examining capital structure on firm performance. The study made compelling argument in terms of the research gap and presented an appropriate methodology to execute it. On the implications of the study, the paper failed to provide either theoretical implications or practical implications of the study. The study only presented the findings but did not link them to practice and could not show how different the findings are considering the different approach and methodology adopted. Indeed, it was a very complex paper to review but the research problem was compelling. The sample size of 647 firms was large as compared to the previous studies reviewed.

Chechet and Olayowola (2014) study examined the effect of capital structure on profitability of listed banks in Nigeria from the perspective of agency theory. The study found evidence against agency theory as the results showed a negative relationship between capital structure and profitability of the banks in question. The authors also failed to communicate clearly the practical implications of their findings that do not support the agency theory. In other words, their findings suggest that additional debt does not reduce agency cost thereby improving the shareholder value. The authors did not provide any practical reasons why the results appeared so.

3. HYPOTHESIS DEVELOPMENT

3.1. Short Term Debt Ratio and Bank Profitability

Previous studies in capital structure and performance of firms including banks in Ghana and other developing economies found that firms use significant amount of short term debt to finance their activities relative to long term debt (Abor, 2005; Amidu, 2007; Awunyo-Vitor and Badu, 2012; Gatsi *et al.*, 2013). Awunyo-Vitor and Badu (2012) argued that the debt ratios of listed banks averaged 80% and the reason he attributed banks high leverage position was as a result of their over reliance on short term debt. The over reliance of short term debt by banks in Ghana could be as a result of the higher policy rate by the Bank of Ghana. On the findings of the variables above, Amidu (2007) found a negative relationship between short term debt ratio and profitability. Consist with the study of Amidu (2007); Anarfo (2015) also found a negative relationship between short term debt ratio and return on assets. On the contrary, Yegon *et al.* (2014) found a positive relationship between short term debt ratio and profitability of firms in Kenya. Other studies (Sayeed, 2011; Hossain and Ali, 2012; Siddiqui, 2012; Hossain and Hossain, 2015) reported a negative relationship between short term debt ratio and profitability therefore we hypothesize that:
H1: There is a negative relationship between short term debt ratio and banks profitability in Ghana.

3.2. Long Term Debt and Bank Profitability

In line with pecking order theory, more profitable firms will prefer to use internally generated funds to debt and as such there is a negative relationship between leverage and profitability. However, agency cost theory suggests a positive relationship between leverage and profitability as leverage will reduce agency cost. Previous studies on capital structure using long term debt and profitability suggest a negative relationship between the two variables (Abor, 2005; Amidu, 2007; Sayeed, 2011; Hossain and Ali, 2012; Siddiqui, 2012; Anarfo, 2015; Hossain and Hossain, 2015). Based on the empirical findings above, we hypothesize that:
H2: There is a negative relationship between long term debt ratio and banks profitability in Ghana.

3.3. Total Debt and Bank Profitability

This ratio used total liabilities divided by total equity and debt as a measure of capital structure. The result of previous studies on capital structure using total debt provides mixed results. For instance Gatsi *et al.* (2013) found a positive relationship between total debt and net interest margin even though the relationship with return on assets and return on equity were not statistically significant. Yegon *et al.* (2014) found no significant relationship between total debt ratio and profitability. However, some studies have shown a negative relationship between total debt

ratio and profitability (Awunyo-Vitor and Badu, 2012; Hossain and Ali, 2012; Niresh, 2012; Anarfo, 2015; Hossain and Hossain, 2015). Based on the results of the empirical findings discussed above, we hypothesize that;

H3: Total debt ratio has negative relationship total debt ratio and banks profitability in Ghana.

4. RESEARCH METHODS

The study adopts the quantitative approach of research design in line with previous studies and the objectives of the study. The population of the study includes all the licensed commercial banks operating in Ghana as at the end of 2016. At the moment, there are about 32 commercial banks licensed by the Bank of Ghana to operate in Ghana.

The sample frame included all banks that annual reports are readily available as at the end of 2016 financial year. The sample period ranges from the year 2010 to 2015. The study intends to use a balanced data and also to increase the sample observation to avoid small sample size. In all 23 banks were sampled over a six year period. The sample period was chosen because it was around this period that the Bank of Ghana started enforcing the minimum capital regulations. The minimum capital was increased to GH¢60 milliion in 2008 and have since been changed as and when the need arise with the recent increase in 2017. The study is this regard used panel data but it will be a balanced panel data. Anarfo (2015) argues that panel data is advantageous because of the numerous sample observations and data point which ensures that the degrees of freedom are increased and collinearity among the independent variables are reduced leading to an improvement of economic efficiency and an increase in the predictive power of the model.

Data for the study is analyzed using multiple regression models. Multiple regressions extend the concept of simple linear regression to cases where a researcher wishes to apply several explanatory variables in predicting the value of the dependent variable. Below are the estimated regression models;

$$ROA_{it} = \beta 0 + \beta 1 SDR_{it} + \beta 2 LDR_{it} + \beta 3 TDR_{it} + \beta 4 SIZE_{it} + \beta 5 GROWTH_{it} + \beta 6 OWN_{it} + \beta 6 AGE_{it} + \varepsilon_{it}$$

$$ROE_{it} = \beta 0 + \beta 1 SDR_{it} + \beta 2 LDR_{it} + \beta 3 TDR_{it} + \beta 4 SIZE_{it} + \beta 5 GROWTH_{it} + \beta 6 OWN_{it} + \beta 6 AGE_{it} + \varepsilon_{it}$$

Table-1. Variable Definition and Measurement

Variable	Acronym	Measurement
Dependent variables		
Return on Assets	ROA	Profit after tax/ Average total assets
Return on Equity	ROE	Profit after tax/ Average total shareholders' fund
Independent variables		
Short term Debt Ratio	SDR	Short term debt/ equity + Debt
Long term Debt Ratio	LDR	Long term debt/equity +Debt
Total term Debt Ratio	TDR	Total debt/equity + Debt
Control variables		
Size of the Bank	SIZE	Natural logarithm of Total Assets
Bank Growth	GROWTH	$\left(\dfrac{Deposits_t - Depoits_{t-1}}{Depoits_{t-1}} \right)$
Ownership	OWN	Dummy, 1 if bank is foreign bank, 0 otherwise
Age of the Bank	AGE	represents the age of firm i in time t since incorporation

Source: Authors construct, 2017

4.1. Control Variables

There are some important variables that have been identified in literature to influence the profitability of banks. These variables will be included in the model as control variables to help achieve the objectives of the study. Some of the most used variables in previous studies include;

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4.2. Firm Size

Bank size is often considered an important determinant of its profitability. As in most studies in banking and even other studies that uses non-banks (Abor, 2008; Athanasoglou *et al.*, 2008; Arabahmadi and Arabahmadi, 2013; Chechet and Olayowola, 2014; Yegon *et al.*, 2014; Anarfo, 2015) firm size usually have a positive relationship with profitability. The reason for this positive relationship is because larger firms enjoy economics of scale and economics of scope and this is expected to translate into superior profits. For instance, Anarfo (2015) argues that larger banks can increase their market power and take advantage of huge investment deals that smaller banks cannot take. These are some of the reasons the Bank of Ghana gave when it increased the minimum capital requirement for commercial banks in Ghana. Larger banks benefits from diversification which reduces the impact of volatility and also be able to take on more debt.

4.3. Growth

In order to measure a bank's growth, the study uses the annual growth rate of deposits $\left(\frac{Deposits_t - Depoits_{t-1}}{Depoits_{t-1}}\right)$. One might expect a faster growing bank to be able to expand its business and thus generate greater profits. However, an increasing amount of deposits does not necessarily increase the banks' profitability, as a bank needs to be able to convert an increasing amount of deposits into additional income earning assets. Furthermore, growth is often achieved by allocating loans to borrowers with lower credit quality. In addition, high growth rates in a market might also attract additional competitors. This reduces the profits for all market participants. For instance Hossain and Hossain (2015) found a negative relationship between growth and profitability whiles Hossain and Ali (2012) has a positive relationship. Therefore, the overall effect of this variable is indeterminate from a theoretical point of view.

4.4. Ownership (Foreign Ownership)

The ownership of firms including banks particularly in developing economies tends to affect their level of profitability. Surveys have concluded that foreign owned banks are more efficient and have bigger financial muscles making them more profitable than local ones.

4.5. Age

Age is the amount of time during which a thing or being has existed. The bank age is defined as the number of years since its incorporation. Empirical evidence shows that the age of a firm positively or negatively affects its profitability. A positive relationship means the longer a firm has been in existence, the higher its profitability ((Papadogonas, 2007; Halil and Hasan, 2012; Akinyomi and Olagunju, 2013) as cited in Ilaboya & Ohiokha, 2016). A negative relationship on the other hand implies the longer a firm's existence, the lower its profitability ((Majumdar, 1997; Coad *et al.*, 2007; Doğan, 2013) as cited in Ilaboya & Ohiokha, 2016).

5. ANALYSIS AND DISCUSSION

Table-2. Descriptive Statistics

VARIABLE	MEAN	ST.DEV	MIN	MAX
ROA	0.0287	0.0307	-0.053	0.085
ROE	0.1539	0.4232	-0.452	0.5 1
SDR	0.7708	0.1013	0.423	0.957
LDR	0.8407	0.07007	0	0.351
TDR	0.8407	0.0774	0.485	0.991
SIZE	9.092	0.411	7.8	9.84
GROWTH	0.5579	0.2981	-0.203	2.299
OWN	0.5579	0.498	0	1
AGE	29.0217	10.1564	1	119

Source: Author construct, 2017

Table 2 shows a summary of descriptive statistics of dependent variables (Return on Assets (ROA), Return on Equity (ROE) and independent variables showing the average indicators of variable computed from the financial statement of banks operating in Ghana from 2010 to 2015. This shows the average indicators of variables computed from the financial statements. This helps to identify some irregularities or abnormalities in our dataset before the regression is carried out.

The summary of ROA shows that the average return on assets over the study period is 2.87%, the maximum return on assets is 8.5% and the minimum of negative 5.3%. The return on assets shows how efficient the bank is using its assets to generate profit measured by profit before interest and tax divided by total assets. The average return on assets is lower than the results of Awunyo-Vitor and Badu (2012) whose study showed an average return on assets of 4.3% and a maximum return on assets of 7.92% using a sample of 7 listed banks in Ghana over a 10 year period.

The second dependent variable, return on equity showed a mean of 15.39% and a maximum of 51% over the study period. The average return on equity appears good as it far outweighs the return on assets. However this average ROE of 15% is lower than the results of Awunyo-Vitor and Badu (2012) whose return on equity of listed banks in Ghana is 25%.

The first dependent variable which is short term debt ratio has a mean of 77.08% and a maximum of 97.7% which suggesting that on average 77% of banks operations in Ghana Are financed by short term debt mainly deposits. This finding is corroborated by studies done by Abor (2005) and Amidu (2007) on related sectors in the Ghanaian economy like the banking sector. For instance, Amidu (2007) reveals more than 87% of the banks in Ghana are financed by debt and that average long-term debt represents only 8.2% while Abor (2005) reveals that about 45% of the total assets of Ghanaian listed firms are financed by short term debt.

The second independent variable long term debt to total capital shows that on average only 6% of banks capital is financed by long term debt. The result is similar to studies on banks in Ghana and other West African countries.

The last main independent variable which is total debt to total capital ratio shows that on average banks in Ghana uses 84% debt and the rest equity in the financing structure. The result is also similar with the findings of Awunyo-Vitor and Badu (2012) on listed banks of the Ghana stock exchange where it was revealed that 87% of their capital was debt.

On the control variables, the average growth in customers' deposits is 56% over the study period with the maximum growth rate at 229% and the minimum growth being negative 20.3%

On ownership, the results shows that the more than half (55%) of banks sampled are foreign banks. Finally, age of the banks is the last variable with the average age of the banks sampled being 29 years, whilst the oldest bank is 119 year as at the end of 2015. This result contradicts previous studies on commercial banks in Ghana where the average age was 37 (Awunyo-Vitor and Badu, 2012).

In summary, the results of the descriptive statistics show that banks are financially leveraged with a higher proportion of debt in the capital structure. This is possibly so because all of the banks in Ghana sampled for the study are deposit taking which constitute a component of their liabilities and therefore increasing their leverage.

Table-3. Correlation matrix showing the relationship between ROA and other variable

	ROA	SDR	LDR	TDR	SIZE	GROWTH	OWN	AGE
ROA	1							
SDR	–0.3108***	1						
LDR	0.1101	–0.0659	1					
TDR	–0.30667***	0.723	0.0604	1				
SIZE	0.2722**	0.2492	0.1552	0.4662	1			
GROWTH	–0.1422*	0.0578	–0.1367	–0.0481	–0.1299	1		
OWN	0.2714**	–0.0436	–0.344	–0.3592	–0.0901	0.0107	1	
AGE	0.2351***	0.4273	0.3746	0.0642	0.001	0.0035	0.0504	1

*** Significant at 1%, **Significant at 5%, * significant at 10%

The result from table 3 above shows that short term debt ratio is negatively related with return on assets at a 1% significance level. The results means that if banks increase the use of short term financing which is mainly customers deposits relative to other sources of finance, it will result in a reduction in the profitability of the bank. The results confirms the theoretical view short term financing are expensive and as such short not be relied upon in financing companies.

The results of the long term debt and return on assets showed a positively relationship even though it is statistically insignificant. The results confirms the theoretical finance view that long term source of finance are less expensive as compared to short term debt and as such improves the profitability of the firm. The results suggest that banks will improve their profitability performance if they finance their operations using long term source of finance as compared to the current short term debt being relied upon.

The result between total debt ratio and return on assets is also negative because short term debt dominates the liabilities of banks in Ghana. The result is statically significant at 1% significance level and shows that banks reliance of debt financing in Ghana reduces their profitability. The results suggest that banks should either focus on equity financing. However, if they have to use debt, they must focus of long term debt and reduce their overreliance on short term financing.

On the control variable, firm size measured as the logarithm of total assets is positively related with return on assets and statistically significant at 5% significance level. The results show that the bigger the bank, the more profitable than smaller banks in Ghana.

Growth in customer deposit is negatively related to return on assets at a 10% significance level suggesting that the higher the growth in customer deposits, the less profitable the banks. The results suggest that banks are unable to turn the huge customer deposits into assets through loans which results in a reduction in the banks' profits. This finding is consistent with the findings of Raharjo et al. (2014) whose study also had a weak but negative association between growth and banks profitability in Indonesia.

Foreign ownership of banks in Ghana is positively related to return on assets implying that on average the foreign banks are more profitable than the local indigenous Ghanaian banks. The result is statistically significant at 5% significance level.

Finally, the age of the bank is positively related to return on assets of bank in Ghana and statistically significant at 1% level. The results suggest that the older the banks, the more efficient and experienced they are thereby improving their profitability. This could also be attributed to early entry advantage Also, the results could be interpreted to mean that older banks have a better understanding of the banking terrain in Ghana and also have the goodwill and competent staff and personnel to deliver on their mandate and thereby increasing their performance in terms of profitability.

Table-4. Correlation matrix showing the relationship between ROE and other variable

	ROE	SDR	LDR	TDR	SIZE	GROWTH	OWN	AGE
ROE	1							
SDR	–0.0319	1						
LDR	0.0669	–0.0659	1					
TDR	–0.0119	0.723	0.0604	1				
SIZE	0.2497***	0.2492	0.1552	0.4662	1			
GROWTH	0.0412	0.0578	–0.1367	–0.0481	–0.1299	1		
OWN	0.1413*	–0.0436	–0.344	–0.3592	–0.0901	0.0107	1	
AGE	0.1372	0.4273	0.3746	0.0642	0.001	0.0035	0.0504	1

*** Significant at 1%, **Significant at 5%, * significant at 10%

The results from the correlation between return on equity and the three independent variables measuring capital structure of banks are all statistically insignificant with return on equity but showed the same consistent in terms of relationship with return on assets. Both short term debt ratio and total debt ratio have a negative

relationship with return on equity whiles long term debt have a positive relationship with return on equity. The implication of the results is that banks must reduce their dependence on short term financing and long term financing but look for a mix of long term and short term that will maximize profitability

On the control variables, firm size continues to be positively and statistically significant with banks profitability even with return on equity at a 1% significance level. Foreign ownership of banks also showed a positive and statistically significant relationship with return on equity at a 10% significance level.

The results clearly show that capital structures of banks in Ghana are more related to return on assets than they are to return on equity.

5.1. Effect of Capital Structure on Banks Profitability in Ghana

Table-5. Correlated Panels Corrected Standard Errors Regression Results (ROA)

Variables	Coefficient	¤ Standard Error	Z-Values

R-Square- within   20.72
         Between   56.71
          Overall   35.60
Wild Chi2 (7) = 302.68
Prob 0.0000			

SDR	-12.12893**	5.0676	-2.39
LDR	-12.0941**	5.08879	-2.37
TDR	11.986669**	5.07099	2.36
SIZE	0.02163***	0.00714	3.03
GROWTH	-0.00388	0.00678	-0.5
OWN	0.007694*	0.00487	1.8
AGE	0.000973**	0.000484	2.01
CONST	-0.05684	0.08285	-0.69

*** Significant at 1%, **Significant at 5%, * significant at 10%

The regression results from the table 5 shows a lower adjusted R-square of 35.6% which suggest that the independent variable can explain only 36% of the changes in the dependent variable. However, the probability of the Wild Chi^2 is statistically significant at 1% significance level which suggests that the model is fit.

The results from table 5 above shows that short term debt ratio is negatively associated with Profitability (ROA) of banks in Ghana. The relationship is significant at 5% significance level suggesting that an increase in short term debt capital relative to total capital will reduce profitability of banks in Ghana consistent with the results from the correlation analysis.

The second variable of interest which in long term debt ratio is also negatively related to banks profitability and significant at 5% significance level contrary to the positive relationship reported in the correlation analysis.

The third variable which is total debt ratio had a positive relationship with bank's profitability at a 5% significance level. This result suggests that an increase in debt financing will increase the profitability of banks' profit.

On the control variables the results show that firm size (SIZE) is positively related with profitability at 1% significance level. The results show that the bigger the assets size of the firms, the more profitable the firm will be and vice versa.

Growth in customer deposit is negatively associated with profitability of banks in Ghana at a 10% significance level. Foreign ownership of banks in Ghana on the other hand is positively associated with bank's profitability at 10% significance level. Finally, the age of the bank is positively associated with banks' profitability in Ghana at 5% significance level.

Table-6. Correlated Panels Corrected Standard Errors Regression Results (ROE)

Variables	Coefficient	Standard Error	Z-Values
SDR	-3.60263	42.144	-0.01
LDR	-2.7237	42.3406	-0.01
TDR	2.31742	42.118	0.01
SIZE	0.31629**	0.1129	2.8
GROWTH	0.105779	0.12054	0.88
OWN	0.163688*	0.092722	1.78
AGE	0.00779	0.00163	0.48
CONST	-1.83463	0.91086	-2.01
R-Square - Within	0.1442		
- Between	18.03		
-Overall	13.83		
Wild Chi2 (7)	20.67		
Probability	0.0043		

*** Significant at 1%, **Significant at 5%, * significant at 10%

The adjusted R-Square is 13.83% meaning that the independent variables have a low explanatory power. The overall F-Statistics which measure the fitness of the model had a probability coefficient of 0.0043 meaning that the model is well fit.

The results from this model using return on equity as a measure of banks profitability showed similar results wit regards the three main independent variables where short term debt ratio and long term debt ratio had a positive relationship with banks' profitability whiles total debt ratio had a positive relationship with banks profitability in Ghana. However, in the case of return on equity the relationship is statistically insignificant.

On the control variable, firm size had a positive relationship with return on equity consistent with the results from the first model at a 5% significance level. Foreign ownership also had a significant positive relationship with return on equity. The remaining control variables were all statistically insignificant.

6. DISCUSSION OF FINDINGS

The results from the regression results Table 5 showed a negative relationship between short and long term debt ratio and profitability of banks in Ghana. The results in this regards confirms hypothesis 1 and 2 which states that there is a negative relationship between short term debt ratio, long term debt ratio and profitability of banks. The results suggest that debt-returns on assets do not exist in the banking industry in Ghana which is similar to findings by Gatsi and Akoto (2010) on commercial banks in Ghana. It is important to note that whether debt would have a significant effect on returns on assets depends to a large extent on what the debt is used for. Assuming deposits are taken but are not efficiently utilized this will results in little or no returns on assets since a significant proportion of banks' capital come from debt. On the other hand, if deposits are taken and given out as loans but at high default rates, it is again expected that debt will have little or no effect on profitability of banks. The results of this study also confirm findings of previous studies in Ghana and other jurisdictions.

On the other hand the results of total debt ratio showed a positive relationship with return on assets and return on equity. This results in inconsistent with the hypothesis meaning that we reject the third hypothesis which states that there is a negative relationship between capital total debt ratio and profitability of banks in Ghana. The result shows that debt financing increase the profitability of banks in Ghana but maybe with the right combination of debt. The results are consistent with some few studies but inconsistent with many previous studies on the subject in Ghana and other jurisdictions.

Interestingly, these studies have shown a negative relationship between total debt ratio and profitability (Awunyo-Vitor and Badu, 2012; Hossain and Ali, 2012; Niresh, 2012; Anarfo, 2015; Hossain and Hossain, 2015). My findings are at variance with these studies. For instance (Gatsi and Akoto, 2010) found a positive relationship between total debt and net interest margin even though the relationship with return on assets and return on equity

were not statistically significant. Yegon *et al.* (2014) found no significant relationship between total debt ratio and profitability. In applying the findings of the study to theory, the results of the study can be said to be consistent with the argument of the pecking order theory.

The pecking order theory argues that there is a financing hierarchy in which firms prefer internal financing to external financing and if external financing is needed, the safest security is issued first. In its conclusion, the theory viewed a negative association between capital structure and the profitability of firms which is consistent with the results of this study because it maintains that high profitable firms will be able to generate more capitals through retained earnings and as such have less leverage. This seemingly has a negative relationship between leverage and profitability and is therefore in contrast with the static trade-off theory as was postulated by Myers and Majluf (1984). The results is however inconsistent with the argument of the agency theory, the trade-off theory and even Milner and Modigliani original theory. Based on the results of total debt ratio, the results is consistent with the agency theory which expects a positive relationship between capital debt ratio and profitability of banks. The results suggest that high debt increasing the monitoring of managers thereby reducing opportunistic behaviours which improves the performance of the firm.

On the control variables that affect profitability of commercial banks in Ghana, the study found that they were all statistically significant with profitability. In relation to size, there exists a positive and statistically significant relationship between the size of a bank and its profitability. This means that large banks are more profitable than their smaller counterparts. The result implies that larger banks enjoy economies of scale that reduces their cost of operations thereby enhancing profitability. The economies of scale will also reduce cost of gathering and processing information which will ultimately improve the profitability of the banks. The results can also be interpreted to mean that size is associated with diversification of risk which will impact on the portfolio of product thereby improving profitability. The results of my study supports findings of studies undertaken by is by Boyd and Runkle (1993); Akhavein *et al.* (1997) and Smirlock in 1985 (as cited in Kutsienyo, 2011). This congruence of findings of multiple studies can be attributed to the fact that banks in Ghana enjoy economy of scales by expanding and having branches all across the country and can extend credit efficiently further, large size banks have lower risk of default as compared to smaller banks also they can experiment with different types of portfolio that further enhance the profitability.

As we indicated in the outset the deposit growth of 55% a year, fail to generate enough profits for the bank. The coefficient has a positive sign because the Ghanaian banks were unable to invest this momentous growth in deposits into profitable loan portfolios. The banks are unable to turn majority of their deposit into asset resulting in a reduction in profits. The result is aligns with the findings of Hossain and Hossain (2015) who found a negative relationship between banks' profitability and customer deposit growth. However, the result is inconsistent with the findings of Hossain and Ali (2012) whose study revealed a positive relationship.

The ownership structure of the banks measured by OWN has a direct and significant relations with performance. This finding is somehow contrary to findings by Gyamerah and Amoah (2015) using all banks in Ghana where the results showed a negative association. The implication of this finding is that foreign ownership improves efficiency and effectiveness which is consistent with literature on developing markets. Perhaps this explains the recent influx of foreign banks in Ghana and the introduction of innovative products to help them compete favourably in the competitive banking in industry in Ghana.

Finally, age is reported to have a significant positive relationship with ROA. This indicates that the older the bank, the more profitable they become. The older banks have been able to become more efficient through experience which can translate into profitability. Older banks are supposed to be more profitable because of their reputation and long tradition. The results show that this variable affect profitability of banks and those older banks have higher profitability. Even though new banks are more aggressive in their entry strategies and put pressure on the

older ones thereby reducing their profitability the results shows a contrary view. The results are inconsistent with the findings of Majumdar (1997); Doğan (2013); Coad *et al.* (2007) as cited in Ilaboya & Ohiokha, 2016).

7. CONCLUSION

The study examined the effect of capital structure (short term debt ratio, long term debt ratio and total debt ratio) on profitability (Return on Assets and Return on equity) of banks in Ghana. The first observation of the study is the fact that most banks in Ghana are highly geared with an average debt of 84% of total capital. The panel regression results showed that there was an inverse relationship between capital structure (short term debt ratio and long term debt ratio) and profitability of banks except total debt ratio which had a positive relationship. The results of the study confirms the perking order theory which argues that more profitable firms will prefer to use internally generated funds to debt and as such there is a negative relationship between leverage and profitability. The study also found an inverse relationship between growth in customer deposit and profitability of banks in Ghana. However, firm size, foreign ownership, and age was positively related to profitability of banks. In conclusion, the finding of the study suggests that capital structure had significant impact on profitability of core business operations of banks. This implies that managers need to consider this impact in their financing or capital structure decision.

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