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Capital Structure and Firm Performance: Evidence from Manufacturing Companies Listed on the Ghana Stock Exchange (GSE)

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Abstract:

The purpose of this paper is to examine the moderating role of Capital Structure on firm performance with evidence from Manufacturing Companies listed on the Ghana Stock Exchange. Using secondary data of listed Manufacturing Companies listed on the Ghana Stock Exchange (GSE), the authors, empirically test the relationship between Capital Structure and Firm Performance using a secondary data for a seven-year period spanning from January 2013 to December 2019 to draw the inferences. The results of the study indicate that high debt ratio is detrimental to the performance measure (ROA) of the selected sample firms listed on the Ghana Stock Exchange due to increased financial distress. Furthermore, the study reveals that there is a significant inverse relationship between capital structure short-term debt component of capital structure measured by (STDA) and firm performance measure of ROA. However, there is a significant negative relationship between debt-to-equity measure of capital structure and ROE. The findings of the paper would go a long way to enable financial managers to understand the importance of keeping the right proportion of debt component in the capital structure and to help them to make the right capital structure decision that will improve firms' performance with the view to maximizing shareholders' wealth. The study contributes to the understanding of the relationship between capital structure theory and firms' performance in ensuring shareholders' wealth maximisation with particular emphasis on listed Manufacturing firm in Ghana. This research study also seeks to broaden the knowledge base of other researchers on capital structure as a finance theory and also contribute to empirical evidence relative to the completeness of the concepts that supports the best capital structure combination that ensures the culmination of shareholder wealth maximisation.

Keywords: Capital structure, pecking order theory, trade-off theory, performance, assets structure

1. Introduction

The theory of Capital structure has over the years received the popularity of becoming one of the critical and topical finance theories in financial management. It is viewed as the epitome of the financial base of a firm and it encompasses the various sources of financing that firm have tapped into funding its total assets and other short-term financing needs. The capital structure theory seeks to analyse the various sources of financing opportunities available to business entities, and it is of great significance to firms and academia. The theory strives for an effective analysis of the specific capital sources being used by businesses, coupled with the preferences of their application, in consonant with the capital structure policy being implemented. It is worth noting that even though firms in particular and businesses in general, may have their own peculiarities in relation to their capital structure composition depending on sizes, the vibrancy of business opportunities and the capacity of the financial system prevailing coupled with the competitive external environment they operate in, funding decisions for firms have now become one of the most complex and crucial financial issues to be dealt with by finance managers and other finance experts. There is also the significance for firms to ensure that an ideal combination of capital is raised mainly from both internal and external sources to finance their total assets and operating activities bearing in mind that the choice of the capital mix should ensure that the cost of capital is minimal to yield a positive effect on the firm's performance and shareholders' wealth maximisation according to Ramadan, & Ramadan (2015). The capital structure thus refers to the combination of debt, preferred stock and common stock composition in the capital base of the firm required to finance total assets to promote business processes and continuity. The capital structure according to Chadha & Sharma, (2015) refers to debt, equity capital (common stock) and preferred stock employed by the firm to finance the various total assets and long-term projects of the firm. Capital structure in the view of Mujahid, & Akhtar, (2014) refers to as a firm's summation of debt and equity financing as they effectively can only finance investment from these two main internal and external sources. The key challenge faced by finance managers and investors alike is how to identify the optimum capital structure mix that has the potency of maximizing the wealth of

shareholders in addition to improved financial performance. Akomeah, Bentil, & Musah, (2018). The prominence of capital structure decisions to firm and how they directly or indirectly affect their performance is proven by the several studies conducted on the theory of capital structure (Chadha & Sharma, 2015; Cole, Yan & Hemley, 2015; Ma, 2015; Akomeah, Bentil, & Musah, 2018). However, there is an unending difficulty in determining the most optimum level of debt and equity characteristics in the capital structure of companies across the various industries, according to Saputra, Achsani, & Anggraeni, (2015). This seemingly unending difficulty has now become an alarming issue for firms, finance experts and researchers to contend with given the contradictory views expressed by these stakeholders, most especially given the ultimate goal of significantly minimizing the cost of capital that will propel maximisation of the firm's value. It is no surprise that the capital structure composition has over the past years been a major critical but also controversial relative to firm performance. Cole, Yan, & Hemley, (2015) argue that a firm should try their utmost best to adopt making use debt capital as a primary source of financing since there is a huge benefit of arising from interest-tax shield which makes the after-tax cost of capital relatively cheaper and hence the likelihood of increasing firms' financial performance to the admiration of investors. Empirically, several research works have suggested that there is an optimum capital structure level that has the potency of maximising the performance and value of the firm nevertheless, according to Hasan, Ahsan, Rahaman, & Alam, (2014), it is very difficult to provide financial managers with a precise strategy for determining a firm's ideal capital structure. Ultimately, the financial strategy of every company is to maximize its market value and minimize its cost of capital, while deciding on its capital structure. The decision of the firm regarding its capital structure is very essential since it has a substantial effect on its performance and survival.

2. Literature Review and Hypotheses Development

2.1. Theories Underlying Capital Structure

The emergence of the modern theory of capital structure has over the years triggered innumerable theoretical and empirical controversies leading to conflicting conclusions. This research is not an extension of the exploration of this prolonged controversy in modern finance theory, but the researcher is motivated to examine the relationship between capital structure composition and financial performance of listed manufacturing firms in Ghana with the view to determine the most appropriate mix of debt and equity combination that firms can adopt to maximise financial performance which is prerequisite to shareholder wealth maximization. The publication by Modigliani & Miller (1958) has set the main framework for the modern theory on capital structure and firm value. This study, therefore, looks at the two key theories underlying modern capital structure, namely, Pecking order theory and the Trade-off theory.

2.1.1. The Pecking Order Theory

sources of finance to external financing and debt to equity. In this regard, internal financing sources such as retained earnings, income surplus, and reserves must be used by the firm before internal borrowing and where there still remains the need for additional financing then, debt capital is issued before equity capital is raised. This is indicative of the fact that firms give precedence (priority) to their sources of capital. The pecking order theory fundamentally is explained by transaction costs associated with raising capital, issuing costs and information asymmetry. Hence, comparing debt capital and equity capital as to which one is used first, is based on the reason that issuing debts requires lower information costs than raising equity capital. Moreover, the pecking order theory further argues that paid managers usually have a greater amount of information about the firm they operate than the owners of the firm who mainly are considered as external investors. The Pecking Order Theory as modified by Myers & Majluf (1984), Grinblatt & Titman (2002), Muritala, (2012), and Daskalakis, Jarvis & Schizas (2013) firms prioritize their sources of funding based on the principle of least effort in obtaining the capital. Hence, firms rely on a hierarchy of preference to the various sources of finance available to them based on the pecking order hypothesis which indicates that internal funds are used first, then the debt is issued secondly, finally, equity as a last resort based on the information asymmetry. Principally, firms rely on income surplus followed by internal debt, external debt and equity capital as the least preferred source.

2.1.2. Trade-off Theory

By adopting different approaches, the trade-off theory claims that a firm will prefer to trade-off the costs and benefits of using debt associated which is primarily associated with tax-shield savings as a result of interest cost deductibility making the after-tax cost of debt cheaper as compared to equity capital. This creates an optimal capital structure for the firm that will enhance the maximisation of the firm's economic value. The pecking order theory, according to Myers & Majluf (1984), indicates that the financing hierarchy of a firm favours preference for the use of internal financing source, before the use of external financing sources with the use of debt capital. An optimal capital structure as indicated by Ramadan, & Ramadan, (2015) is regarded as an end-result of the mutual relationship between the benefits of using debt and tax savings resulting from the use of debt (trade-off) as a source of financing. It is worth hinting that the financing decision is considered as one of the most complex financial decisions by financial managers given its impact on profitability and the value of the firm which is indicated by the optimum combination of debt and equity which should lead to a reduction in the weighted average cost of capital in order to minimize the financial risk that owners are exposed to and positively reflect on the market value of the company's shares, which in turn leads to shareholders' wealth maximisation. The use of debt as a component of capital structure to finance total assets of firms creates a number of benefits and challenges to the firm. The primacy ascribed to the use of debt relates to the development of trade-off theory of capital structure which indicates that there is a major benefit of using debt referred to as tax shield (Modigliani & Miller 1963). However, the use of debt according to several empirical studies such as in Jensen

&Meckling(1976); Jensen (1986) indicates that bankruptcy, as well as agency costs, exist. This theory indicates that there is an advantage of relying on debt financing (that is the tax benefit of debts and a result of tax-deductibility of interest expense before corporate tax payment as indicated by the cost of debt $(1-t)$ known as 'interest tax shield'. In the same way, the marginal benefit of further increases in debt falls as more and more debts are used by the firm and at the same time the marginal cost of additional debt increases.

2.2. Empirical Studies on Capital Structure

Several empirical studies on Capital Structure and Firm Performance and Value have come out with very interesting results as indicated by the researchers. Chadha, Anil & Sharma (2015), in their study that has the objective of identifying the determinants of the capital structure of Indian manufacturing firms and also capital structure theoretical implications, such as trade-off and pecking on Indian manufacturing sector. Their study empirically concluded that size, age, asset tangibility, growth, profitability, non-debt tax shield, business risk, uniqueness and ownership structure are significantly correlated with the firm financial leverage or key determinants of capital structure in the Indian manufacturing sector as well as no single theory implications, such as trade-off and pecking order, to explain the capital structure nature of Indian manufacturing sector. Chadha, & Sharma, (2015) in their research study conducted on the impact of capital structure or financial leverage on firm financial performance with a sample size of 422 listed Indian manufacturing companies listed on Bombay Stock Exchange for a period of 10 years from 2003–2004 to 2012–2013 based on annual financial standalone data. The study reveals that financial leverage has no impact on the firm's financial performance parameters of return on asset and Tobin's Q. However, it is a negative and significant correlation with return on equity. Saputra, Achsani, & Anggraeni, (2015), in their study conducted mainly to investigate the effect of capital structure on firm performance of the financial sector in the Indonesia Stock Exchange (IDX) from 2009 to 2013 by relying on a panel data analysis to estimate the relationship between capital structure and firm performance. The study revealed that capital structure has a negative effect on firm performance measured by ROA, in line with the Pecking Order theory in line with Dawar (2014); Zeitun & Tian (2014) and Detthamrong, Chancharat, & Vithessonthi (2017). Sardo & Serrasqueiro (2017) in their research study that aims to analyse whether capital structure decisions of small- and medium-sized Portuguese firms are consistent with the predictions of dynamic trade-off theory based on the sample size of 1,377 small-sized firms and 811 medium-sized firms, using dynamic estimators for the treatment of data obtained from the Amadeus database for the period 2007–2011. The study results show that small- and medium-sized firms adjust their short-term debt and long-term debt ratios towards the respective target ratios with Small- and medium-sized firms presenting a high-speed adjustment towards the target short-term debt ratio, therefore, suggesting that both types of firm face costs of deviating from the target capital structure. Oktavina, Manalu & Yuniarti (2018), in their study that purposefully analyses the determinants of policy decisions relating to the capital structure of family firms listed on the Indonesia Stock Exchange (IDX) for the period ranging from 2012 to 2016 by measuring the firms' capital structure using debt to equity ratio (DER), determinants of capital structure using profitability (ROA), asset structure, growth (growth), firm size (size) and business risk (risk) This quantitative research uses a sample of 38 family-owned firms in Indonesia listed on the Indonesia Stock Exchange (IDX). Multiple linear regression results indicate that ROA had an insignificant negative effect on DER, whereas the asset structure had a significant positive effect on DER, with growth having no significant negative effect on DER. The research findings further show that the average family firm in Indonesia uses the Pecking Order Theory in its capital structure decision making and application. Ramadan, & Ramadan (2015), in their study aimed at identifying the effect of capital structure on the performance of Jordanian Companies listed on the Amman Stock Exchange during the period between 2005 to 2013, using Ordinary Least Square (OLS) regression model for the analysis. The study reveals that there was a significantly an inverse effect of capital structure on the performance of the Jordanian industrial companies listed at ASE expressed by Return on asset ratio (ROA). A study conducted by Saurabh Chadha & Anil, Sharma (2015), on the impact of capital structure or financial leverage on firm financial performance with a sample size of 422 listed Indian manufacturing companies on Bombay Stock Exchange for a period of 10 years from 2003–2004 to 2012–2013 and annual financial standalone data It was empirically revealed that financial leverage has no impact on the firm's financial performance parameters of return on asset and Tobin's Q, with a negative and significant correlation with return on equity. Corey Cole, Ying Yan & David Hemley (2015), in their study conducted with the purpose of determining whether there is a relationship between capital structure and firm performance of U.S. firms in the Industrial, Healthcare, and Energy Sectors. Their findings indicated that there seems to be some consistency regarding the relationship between capital structure and firm performance. The capital structure appears to have a negative relationship with return on assets and operating return in all three sectors, suggesting that firms seek alternative financing, as they sacrifice potential performance by financing with debt. An empirical study by Hasan, Ahsan, Rahaman, & Alam (2014) that seeks to determine the influence of capital structure on firm's performance by investigating a sample of 36 Bangladeshi firms listed on the Dhaka Stock Exchange during the period 2007–2012. Using four performance measures; Earnings per Share (EPS), Return-On-Equity (ROE), Return-On- Asset (ROA) and Tobin's Q; (as dependent variables) and three capital structure ratios namely: short-term debt, long-term debt and total debt ratios; (as independent variables) it was revealed that EPS significantly had a positive relationship with short-term, however, the results indicates that there is no statistically significant relationship between capital structure and firm's performance as measured by ROE and Tobin's Q. The study by Dawar (2014) which uses accounting-based ratios such as Return on Assets (ROA) and Return on Equity (ROE) to measure firm profitability or performance based on the list of S&P BSE 100 index companies as its sample. The list consists of 100 companies representing diverse sectors of the economy. The index is calculated by the Bombay Stock Exchange (BSE) using the free-float capitalization-weighted method and represents about 80% of the free-float market capitalization of the stocks listed on BSE. The study uses panel data regression methodology to conduct the analysis as it takes into effect

systematic differences between the firms as compared to OLS regression methodology which assumes that model parameters remain constant across all firms. The study results indicate that capital structure negatively impacts firm performance. This is not in accordance with the assumptions of agency theory as commonly received and accepted in other developed as well as emerging markets. Detthamrong, Chancharat&Vithessonthi (2017), in their study that examines the relationship between corporate governance and firm performance using a panel sample of 493 firms of non-financial listed in Thailand over a 14-year period from 2001 to 2014 with an unbalanced panel sample of 3,854 observations of all non-financial firms. The study concludes that for the full sample, corporate governance is not associated with financial leverage and firm performance. Leverage has a positive effect on firm performance. Hasan et. al. (2014), in their paper that seeks to measure the influence of capital structure on firm's performance based on a sample of 36 Bangladeshi firms listed in Dhaka Stock Exchange during the period 2007–2012, using four performance measures; earnings per share (EPS), return on equity (ROE), return of asset (ROA) and Tobin's Q; as dependent variables and three capital structure ratios; short-term debt, long-term debt and total debt ratios; as independent variables with pooling panel data regression method, the study concludes that EPS is significantly positively related to short-term debt while significantly negatively related to long-term debt. The study further reveals that there is a significant negative relation between ROA and capital structure, however, there is no statistical relation existing between capital structure and firm's performance as measured by ROE and Tobin's Q. Le &Phan (2017), in their research study which uses unbalanced panel data from all non-financial listed firms during the period 2007–2012 to investigate the effect of capital structure on firm performance in Vietnam, with their results revealing that all debt ratios have significantly negative relation to firm performance. This outcome is not in accordance with most studies conducted in developed countries, with a positive relationship between capital structure and firm performance. Yazdanfar&Öhman (2015), in their research paper which uses a target population of all active unlisted, non-financial limited liability firms with fewer than 200 employees in five industry sectors, with total capital above approximately EUR 11,200 (SEK 100,000), and total revenue above approximately EUR 13,400 (SEK 120,000) with missing data were excluded from the sample with a sample selection procedures producing a sample of 15,897 firms in five industry sectors over the 2009-2012 period. The findings indicate that trade credit, short-term debt and long-term debt significantly have a negative effect on SMEs' profitability. Consistent with the pecking order theory, the current results confirm that profitable SMEs tend to use more equity capital and retained earnings, rather than external financing. The results further show that SMEs consistently prioritise the use short-term debt before to long-term debt with such strategy having the tendency to reduce costs related to information asymmetry and agency conflicts and also the lower the leverage level, the lower the agency costs of external debt and the higher the firm profitability. Mujahid& Akhtar (2014), in their study which had the main purpose to evaluate the impact of Capital Structure on the Firms Financial Performance and Shareholders Wealth in textile sector of Pakistan using a regression analysis based on a sample data of 155 textile firms for the year 2006 to 2011, using the overall textile sector ROA ROE and EPS ratios as accounting measures to evaluate the impact of Capital Structure on Firms Financial Performance and Shareholders wealth. The results show that the capital structure positively impacts the Firms Financial Performance and Shareholders Wealth. Rouf (2015), in his study that seeks to investigate the effect of firm performance on the capital structure for the listed non-financial companies in Dhaka Stock Exchange (DSE) for the period of 2008-2011 under judgment sampling method with the specific objective of examining the relationship between the attribute of capital structure and the performance as measured by Return On Assets (ROA) and Return On Sales (ROS) using multiple regression models to estimate the influence of capital structure on firm performance (measured by the debt ratio, debt to equity ratio, current debt ratio, proprietary of equity ratio and current assets proprietors' fund's Ratio). The results show that debt ratio, debt-to-equity ratio and proprietary of equity ratio are negatively and significant relationship with Return-On-Asset (ROA) and Return-On-Sales (ROS). Besides the control variable total asset is a positive and significant relationship with Return-On-Asset (ROA) and Return-On-Sales (ROS). Meero (2015), in his research paper with the objective of identifying the similarity of capital structure between Islamic and Conventional banks and to detect the relationship between capital structure variables and performance of Islamic and Conventional Banks in Gulf Countries (GC) based on a sample of 16 GC Banks (8 Islamic Banks and 8 Conventional Banks) for the period 2005-2014. ROE (return on equity) and ROA (return of asset) used as performance measures. Total debt to total assets, Equity to total assets, Debt to equity ratios have been used as capital structure measures with the size of the bank used as a dependent variable to identify its relationship with bank performance. The results of the research study indicate a similarity between the capital structure of Islamic banks and Conventional banks in Gulf countries. ROA as performance measurement has a significant negative relationship with financial leverage and a positive relationship with equity to assets ratio.

2.3. Conceptual Framework

The analytical tool that indicates how the variables in the research would relate to each other in this research is proposed as follows:

Figure 1: Conceptual Framework

3. Methodology

A sample comprising of all the sixteen (16) manufacturing Companies across manufacturing sub-sectors (namely; Agro-Food Processing, Other Food-related Consumables, General Goods & Paper Products, Pharmaceutical & Healthcare and Breweries (Soft drinks & Hard liquor) listed on the Ghana Stock Exchange were selected using purposive sampling method for the study. This study examines the bilateral relationship between capital structure and firms' performance of manufacturing companies listed on the Ghana Stock Exchange (GSE) for a seven-year period spanning from January 2013 to December 2019. This study adopted descriptive and causal comparative research design using secondary data gathered from audited annual reports of the selected companies for the period January 2013 to December 2019 resulting in a total of 112 observations for the investigation. Our data was a balanced panel due to no missing observation. The decision to select the sample period, from 2013 to 2019 was guided by data availability and the fact that the data should be current enough to exhibit prevailing characteristics of the sampled Firms and also the period selected should be reasonably long enough to ensure for effective comparison. Pearson's correlation and OLS regression model was used to analyse the data gathered. The firms' performance could be measured in several ways depending on the aspect of performance and they include such common measure as Gross profit margin (GP), Profit before interest and tax (PBIT), profit after Interest and tax (PAIT) return on investment (ROI), return on equity (ROE), return on assets (ROA) and price-earnings ratio (P/E ratio) based on the research objective to be achieved. In this study, the dependent variables indicated by performance of the firms is measured by the proxy of Return-On-Assets (ROA), and Return-On-Equity (ROE) with independent variables comprising of Debt ratio (DEBTR) Debt-to-Equity (DTEQ), Long-term debt to Asset (LTDA) and Short-term Debt to Asset (STDA). Control variables that are commonly used in the literature and adopted in this study include- firm size (SIZE), growth rate (GROWTH), Assets Structure (ASSTR), Assets Utilisation (ASSUR) and Liquidity (LIQUID).

Variable	Proxy Measurement	Code	Adapted From
Dependent Variables – Firm's Performance			
Return-on-Asset	Net Income/ Total Assets	ROA	Saputra, Achsani&Anggraeni (2015). Ahmed &Afza (2019)
Return-on- Equity	Net Income/ Total Equity Fund	ROE	Ahmed &Afza (2019) Saputra, Achsani&Anggraeni (2015).
Independent Variables: Capital Structure Components			
Debt Ratio	Total Debts/ Total Assets	DEBTR	Akomeah, Bentil&Musah (2018). Saputra, Achsani&Anggraeni (2015).
Debt-to-Equity Ratio	Total Debts/Total Equity Fund	DTEQ	Ahmed &Afza (2019) Saputra, Achsani&Anggraeni (2015).
Total Long-term Debt to Assets	Long-term Debts/ Total Asset	LTDA	Ahmed &Afza (2019) Saputra, Achsani&Anggraeni (2015).
Total Short-term to Assets	Short-term Debts/ Total Asset	STDA	Ahmed &Afza (2019) Saputra, Achsani&Anggraeni (2015).
Control Variables: Firm Specific			
Firm's Size	Natural Log of Total Assets	SIZE	Ahmed &Afza (2019)
Firm's Growth	(Current Year's Turnover/Previous Year's Turnover) -1	GROWTH	Ahmed &Afza (2019) Ramadan& Ramadan, (2015).
Assets Structure (Tangibility)	Fixed Assets/Total Asset	ASSTR	Su, (2010; Abor&Biekpe (2009); Alipour, Mohammadi&Derakhshan (2015)
Assets Utilisation	Net Sales/Total Assets	ASSUR	Eldomiaty&Azim (2008) Sheikh&Wang (2011); Alipour, Mohammadi&Derakhshan (2015)
Liquidity	Current Assets/Current Liabilities	LIQUID	Eldomiaty&Azim (2008) Alipour, Mohammadi&Derakhshan (2015)

Table 1: Descriptive Variables and Proxy Measurement

Note: Description of Variables

(ROE)= Return-On-Equity; (ROA) = Return-On-Assets; (DEBTR) = Debt Ratio;(DTEQ) = Debt-to-Equity; (LTDA) = Long-term Debt-to- Assets; (STDA) = Short-term Debt-to-Assets;(SIZE)= Size of the firms; (GROWTH)= Firm's growth; (ASSTR) = Assets Structure; ASSUR= Assets Utilisation rate; (LIQUID)= Liquidity of the firm.

3.1. Null Hypotheses

The following null hypotheses were tested to ascertain the effect of Capital Structure on Performance of Manufacturing firms listed on the Ghana Stock Exchange.

H0₁: There is a significant relationship between ROE and Debt ratio (DEBTR)

H0₂: There is a significant relationship between ROE and Debt-to-Equity (DTEQ)

H0₃: There is a significant relationship between ROE and Long-Term to Debt-Total Assets (LTDA)

H0₄: There is a significant relationship between ROE and Short-Term Debt to-Total Assets (STDA)

H0₅: There is a significant relationship between ROA and Debt ratio (DEBTR)

H0₆: There is a significant relationship between ROA and Debt-to-Equity (DTEQ)

H0₇: There is a significant relationship between ROA and Long-Term to Debt-Total Assets (LTDA)

H0₈: There is a significant relationship between ROA and Short-Term Debt to-Total Assets (STDA)

4. Research Model

It is known that most of the existing studies on Capital structure, have adopted the use of OLS Regression model. This study uses contemporary econometrics of panel data to estimate the parameters in our capital structure model. Panel data models are considered effective research instruments that takes cognisance of the effects of cross-sectional data. This in turn may help us estimate the appropriate empirical model. The researchers made use of general models for panel data that makes it possible to produce an empirical estimate of the relationship between Return on Equity and Return on Assets (ROE, ROA) as dependent Variables and Debt ratio (DEBTR), Debt-to-Equity (DTEQ), Long-term Debt-to-Total Asset (LTDA), Short-term Debt-to-Total Assets (STDA) as Capital Structure determinants, as Independent variables as well as firm-specific variables such as Size of Firm (SIZE), Growth of Firm (GROWTH), Assets Structure (ASSTR), Assets Utilization (ASSUR) and Liquidity Position of the Firm (LIQUID) as control variables.

4.1. Regression Models

Model 1:

$$ROE_{it} = \alpha + \beta_1 DEBTR_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (1)$$

Model 2:

$$ROE_{it} = \alpha + \beta_1 DTEQ_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (2)$$

Model 3:

$$ROE_{it} = \alpha + \beta_1 LTDA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (3)$$

Model 4:

$$ROE_{it} = \alpha + \beta_1 STDA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (4)$$

Model 5:

$$ROA_{it} = \alpha + \beta_1 DEBTR_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (5)$$

Model 6:

$$ROA_{it} = \alpha + \beta_1 DTEQ_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (6)$$

Model 7:

$$ROA_{it} = \alpha + \beta_1 LTDA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (7)$$

Model 8:

$$ROA_{it} = \alpha + \beta_1 STDA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 ASSTR_{it} + \beta_5 ASSUR_{it} + \beta_6 LIQUID_{it} + \varepsilon_{it} \quad (8)$$

5. Empirical Results and Analysis

5.1. Descriptive Analysis

The descriptive statistics of this study is presented in the table 2. The ROE which is one of the dependent variables that measures the performance of the firm sampled for the study has reasonable average value of 7.44% over a seven years' period. However, the ROA with only an average return on equity as 1.72% over the same period. This indicates that listed manufacturing companies do have been having better performance in terms of ROE as compared to abysmal performance in respect of return on assets used by the firms during the period under investigation. The DEBTR variable has an average value of 63.51% with Debt-to-Equity ratio (DTEQ) of 0.7223 indicating maximum debt of 10.94 times of the equity capital and a minimum level of -12.65 times with a huge standard deviation of 2.96 which shows a very wide dispersion from the mean value of 0.72 times. The results further show that total debt of the manufacturing firms are made up of long-term (LTDA) with an average mean of almost 6% whereas the short-term debt (STDA) has an average mean of 59.10%. This shows that listed manufacturing firms in Ghana use more debt as a component of their capital structure relative to equity. This is indicative about the fact that they are on a high leverage as they are relying on more debt to finance their total assets in line with the trade-off theory which suggests that firms should use more debt as component of their capital structure due to the benefit of interest –tax shield which makes the after-tax cost of debt cheaper for firms. However, the theory also indicates that excessive use of debt capital will expose the firm to financial distress since the marginal benefit of using additional debt overtime will be lower. It is evident to note from the results that, manufacturing firms in Ghana though use more debt financing as compared to equity capital, greater proportion of their debt capital is

comprised of short-term debt instead of long-term debt consistent with a study by Alipour, Mohammadi&Derakhshan (2015). This indicates that these firms prefer more short-term debts to long-term debt due mainly to reasons such as lack of availability of long-term debt stock such as bonds and debentures and perhaps, relatively easy access to short-term capital. The downside is that these firms end up financing their investment in fixed assets by short-term debt in contravention with prudent financial management practice. Manufacturing firms have a reasonable average growth rate of 9.54% slightly higher than the average return-on-equity of 7.44%. The assets' structure (tangibility) of Ghanaian manufacturing firms has average tangibility of around 60% indicating a larger investment in non-current assets (capital investment) consistent with Chadha & Sharma (2015) but in contrast with the empirical results of Dada & Ghazali (2016). Liquidity has an average of 2.0 times indicating an ideal ratio required by firms. However, the huge standard deviation number of 5.33 times is indicative of the fact that data relating to liquidity in respect of manufacturing firms operating in Ghana are widely spread.

	Minimum	Maximum	Mean	Std. Deviation
ROE	-1.79	1.59	.0744	.40582
ROA	-.39	.63	.0172	.15484
DEBTR	-2.14	6.35	.6351	.78396
DTEQ	-12.65	10.94	.7223	2.95540
LTDA	-3.20	1.42	.0592	.54157
STDA	.02	9.08	.5910	.93635
SIZE	.00	20.65	17.0153	2.97150
GROWTH	-1.00	2.85	.0954	.60897
ASSTR	.02	.99	.6006	.28290
ASSUR	.02	7.93	.8756	.88305
LIQUID	.05	53.08	2.0073	5.33151

Table 2: Descriptive Statistics
Output Source: SPSS

Note: Description of Variables;

(ROE)= Return-On-Equity; (ROA) = Return-On-Assets; (DEBTR) = Debt Ratio; (DTEQ) = Debt-to-Equity; (LTDA) = Long-term Debt-to- Assets; (STDA) = Short-term Debt-to-Assets;(SIZE)= Size of the firms; (GROWTH)= Firm's growth; (ASSTR) = Assets Structure; ASSUR= Assets Utilisation rate; (LIQUID)= Liquidity of the firm.

5.2. Correlation Analysis

The study results of Pearson's correlation analysis are presented in the table 3. The essence of the correlation analysis is to determine whether there is any bivariate positive, negative or no relationship between each pair of the dependent and independent variables used in the study. Additionally, there is the need to establish the extent of correlation relationship among the explanatory variables whether they are significantly high or low to pose multi-collinearity problems. The results indicate that there is a significant negative relationship between ROE (dependent variable) and DTEQ (independent variable), indicating that the DTEQ ratio is increasing, the ROE will be decreasing due to the inverse relationship. Hence, capital structure has an impact on performance and this is consistent with the study by Saputra, Achsan&Anggraeni (2015) but inconsistent with Chadha & Sharma (2015) which empirical evidence indicates that financial leverage (D/E) has no impact on the performance of the Indian manufacturing sector. ROA also has significant negative relationship with DEBTR and STDA (both determinants or components of capital structure). This is indicative that the performance of firms has a significant negative relationship with both DEBTR and STDA. Conversely, STDA has a positive significant relationship with firm's growth but negatively significant effect on ROA and the ASSTR. These relationships are adjudged at 1% and 5% level.

	ROE	ROA	DEBT	DTEQ	LTDA	STDA	SIZE	GROWTH	ASSTR	ASSUR	LIQUID
ROE	1										
ROA	.319**	1									
DEBTR	.023	-.293**	1								
DTEQ	-.307**	.011	-.156	1							
LTDA	.025	.017	-.059	-.003	1						
STDA	-.002	-.267**	.855**	-.113	-.534**	1					
SIZE	.066	.080	-.066	-.072	.141	-.157	1				
GROWTH	.032	.185	.262**	-.038	-.193*	.278**	.118	1			
ASSTR	-.038	-.195*	-.098	-.266**	.185	-.187*	.200*	-.103	1		
ASSUR	.110	.094	.190*	.106	-.424**	.355**	-.042	.060	-.488**	1	
LIQUID	.026	.092	-.153	-.006	.048	-.146	-.052	.117	-.082	-.086	1

Output Source: SPSS
 **. Correlation is significant at the 0.01 level (2-tailed).*. Correlation is significant at the 0.05 level (2-tailed).

Table 3: Pearson's Correlation

Note: Description of variables;

(ROE)= Return-On-Equity; (ROA) = Return-On-Assets; (DEBTR) = Debt Ratio; (DTEQ) = Debt-to-Equity; (LTDA) = Long-term Debt-to- Assets; (STDA) = Short-term Debt-to-Assets;(SIZE)= Size of the firms; (GROWTH)= Firm's growth; (ASSTR) = Assets Structure; ASSUR= Assets Utilisation rate; (LIQUID)= Liquidity of the firm.

5.3. Regression Results Presentation

In this section, the empirical analysis of the capital structure drivers is presented. The results of regression analysis (pooled and panel) are provided in Tables 4 and 5. The regression results of dependent variables (ROE) and (ROA) in relation to the independent variables and the control variables used in the regression model (indicated by tables 4 and 5) for the study shows interesting results that form the basis of either accepting or rejecting the null hypotheses proposed for the study, with a significant level of P-values of less than 0.05.

Model 1- ROE and DEBTR						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.13153779	0.131591407	0.99959258	0.31980577	-0.12938366	0.392459244
DEBTR	-0.022878	0.033384723	-0.6852832	0.494675327	-0.08907373	0.043317748
SIZE	-0.0045119	0.005390395	-0.8370263	0.404478859	-0.01520006	0.006176255
GROWTH	0.07774788	0.046229145	1.68179363	0.09558082	-0.01391597	0.169411738
ASST	0.01040944	0.103116544	0.10094834	0.919783977	-0.19405161	0.214870502
ASSUR	-0.0007185	0.033832116	-0.0212375	0.983096474	-0.06780135	0.066364325
LIQUID	-0.000836	0.004875548	-0.1714584	0.864193316	-0.01050327	0.008831357
Model 2- ROE and DTEQ						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.188068985	0.121732862	1.5449319	0.1253714	-0.0533048	0.4294428
DTEQ	-0.03383019	0.008185174	-4.1331056	7.217E-05	-0.0500599	-0.0176005
SIZE	-0.003621567	0.005014984	-0.7221493	0.471808	-0.0135654	0.0063222
GROWTH	0.062008273	0.041030104	1.5112873	0.1337191	-0.0193468	0.1433634
ASST	-0.088286884	0.098860924	-0.8930413	0.3738773	-0.2843098	0.1077361
ASSUR	-0.002018082	0.031429891	-0.064209	0.9489259	-0.0643377	0.0603016
LIQUID	-0.000681621	0.004458364	-0.1528859	0.8787817	-0.0095217	0.0081585
Model 3- ROE and LTDA						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.12983678	0.12490167	1.039512	0.300955	-0.11782	0.37749372
LTDA	0.14937274	0.05050877	2.957362	0.003833	0.0492232	0.2495223
SIZE	-0.0080674	0.0053266	-1.51456	0.13289	-0.018629	0.00249423
GROWTH	0.08362425	0.04279405	1.954109	0.053348	-0.001228	0.16847695
ASST	0.0212598	0.09914571	0.21443	0.830628	-0.175328	0.21784742
ASSUR	0.03278381	0.03455949	0.948619	0.344992	-0.035741	0.1013089
LIQUID	-0.0005997	0.00461915	-0.12982	0.896959	-0.009759	0.00855928
Model 4- ROE and STDA						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.187048088	0.130217742	1.4364255	0.1538541	-0.071149641	0.445245816
STDA	-0.069636181	0.029712677	-2.3436522	0.020979	-0.12855093	-0.01072143
SIZE	-0.007150969	0.005383852	-1.3282254	0.1869835	-0.017826153	0.003524215
GROWTH	0.098800179	0.04502415	2.1943819	0.0304115	0.009525607	0.188074752
ASST	0.009907568	0.100588574	0.098496	0.9217263	-0.189540992	0.209356129
ASSUR	0.01782092	0.034046626	0.5234269	0.6017802	-0.04968725	0.085329091
LIQUID	-0.002171756	0.004757512	-0.4564898	0.6489807	-0.011605022	0.007261511

Table 4: Regression Analysis- ROE and Debt Components of Capital Structure

5.3.1. Discussion of Regression Results (ROE and Debt Components)

From the empirical results indicated in model 1 by table 4, the study fails to reject null hypothesis (H_{01}) since the P-value of 0.49 is statistically not significant. In lieu of this the study fails to reject the null hypotheses (H_{01}). The regression results further indicate statistically, non-significant P-value for the null hypothesis (H_{02}). In connection with the relationship between ROE and (DTEQ) and in this perspective, the study has no reasonable ground to reject the null hypothesis (H_{02}) but rather upholds it since the P-value is statistically not significant. The study empirically indicates a P-value of 0.0038 for the null hypothesis (H_{03}) which states that there is a significant relationship between ROE and Long-term Debt-to-Assets (LTDA). Since the empirical data is statistically insignificant, study fails to reject the null hypothesis but upholds it. The relationship between ROE and short-term debt-to-total Assets (STDA) as a component of capital structure (H_{04}), indicated an empirical result of P-value of 0.02 which is statistically significant, hence the study accordingly fails to reject the null hypothesis (H_{04}). Hence, there is reasonable grounds to indicate that there is a significant relationship between ROE and long-term debts (LTDA) and short-term debts (STDA).

Model 5- ROA and DEBTR						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	4.825573182	6.481236454	0.7445452	0.4582099	-8.02552145	17.676668
DEBTR	-4.76202605	1.644288873	-2.8961006	0.004598	-8.02234715	-1.501705
SIZE	0.153817976	0.265491679	0.5793702	0.5635804	-0.37260298	0.6802389
GROWTH	6.321204961	2.27691177	2.7762187	0.0065133	1.806509527	10.8359
ASST	-6.08329686	5.078771627	-1.197789	0.233696	-16.1535628	3.9869691
ASSUR	0.354610322	1.666324177	0.2128099	0.8318878	-2.94940271	3.6586234
LIQUID	-0.02434956	0.240134072	-0.1013998	0.9194264	-0.50049106	0.4517919
Model 6: ROA and DTEQ						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.60601379	6.66730677	0.3908645	0.696689	-10.614	15.82605
DTEQ	-0.47801127	0.44830186	-1.066271	0.288747	-1.36691	0.410889
SIZE	0.1629706	0.27467061	0.5933311	0.554236	-0.38165	0.707592
GROWTH	4.26055218	2.24721809	1.8959229	0.060719	-0.19527	8.716371
ASST	-6.66620992	5.41461111	-1.2311521	0.221017	-17.4024	4.069964
ASSUR	0.19083417	1.72141458	0.1108589	0.91194	-3.22241	3.604081
LIQUID	0.0950116	0.24418452	0.3890976	0.697992	-0.38916	0.579184
Model 7: ROA and LTDA						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.131207459	6.486331622	0.328568994	0.743135865	-10.72998995	14.99240487
LTDA	5.862187358	2.622996373	2.234920116	0.027540373	0.661270087	11.06310463
SIZE	0.011296265	0.276618257	0.040837017	0.967503379	-0.537186641	0.55977917
GROWTH	4.951529745	2.222359399	2.228050848	0.028009537	0.545001584	9.358057907
ASST	-4.950897979	5.148785696	-0.961566138	0.338476747	-15.1599889	5.25819294
ASSUR	1.542831076	1.794726443	0.85964693	0.391942147	-2.015779926	5.101442079
LIQUID	0.086935801	0.23987954	0.362414407	0.717770808	-0.388701014	0.562572617
Model 8: ROA and STDA						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	7.3241069	6.3839976	1.1472603	0.25388148	-5.334181021	19.9823949
STDA	-5.6211658	1.4566806	-3.858887	0.00019695	-8.509494284	-2.732837237
SIZE	-0.0614637	0.2639464	-0.2328643	0.816320069	-0.584820555	0.461893165
GROWTH	6.8132658	2.2073341	3.086649	0.002588958	2.436529953	11.19000157
ASST	-5.5907451	4.9314111	-1.1337009	0.259501871	-15.36882229	4.18733204
ASSUR	1.7556447	1.6691549	1.0518165	0.29529837	-1.553981102	5.065270484
LIQUID	-0.0552168	0.2332397	-0.2367385	0.813320886	-0.517687982	0.407254354

Table 5: Regression Analysis- ROA and Debt Components of Capital Structure

5.3.2. Discussion of Regression Results (ROA and Debt Components)

The regression results in respect of the ROA and the debt levels indicated by the empirical data gathered exhibited mixed results. The regression results for the model 5 in relation to the second null hypothesis (H_{05}), with a P-value of 0.004 is statistically significant indicating a strong evidence for the null hypothesis to be rejected. Hence, there is enough evidence to discard the null hypothesis (H_{05}). The study however upholds the null hypothesis (H_{06}) that indicates that there is a relationship between ROA and Debt-to-Equity (DTEQ) since the P-value is statistically not significant at 0.288. Hence, the null hypothesis (H_{06}) is duly failed to be rejected by the study. However, the null hypothesis (H_{07}) that indicates the relationship between ROA and Long-term Debt-to-Assets (LTDA) is statistically significant with a P-value of 0.027 as indicated by the model 7, hence, the study fails to reject the null hypothesis. In likewise manner the hypothesis (H_{08}), that indicates the relationship between ROA and short-term debt-to-total Assets (STDA), as represented by model 8, provides empirical results that form the basis for the study's failure to reject both null hypotheses since the P-value of 0.009 is statistically significant at that level, hence, there is a statistical support to uphold the null hypotheses (H_{08}). Hence, the study holds a firm view that there is a significant relationship between return-on-

asset (ROA), as a performance measure and both long-term debts (LTDA) and short-term debts (STDA) to-total Assets as capital structure components.

6. Limitations of the study

This present study is fraught with a number of limitations which include the following. The study ignores the relationship between capital structure components and the state of the capital market in terms of its vibrancy and conditions relating to the securities market where both debts and equity financing for companies are dependent. Additionally, the study uses quantitative data to analyse the capital structure of firms without due regard to qualitative factors even though firms' capital structure decisions are significantly affected by qualitative variables, such as the characteristics of owner-managers, lenders and investors. A further research which will consider the prevailing conditions of the capital markets and macro-economic indicators such as inflation and GDP growth, as well as the owner-managers, lenders and investors qualitative variables in analysing the firms' capital structure decisions is worth suggesting.

7. Conclusions

The results of this study showed that there is statistically significant inverse relationship between capital structure, expressed by dependent variables such as Debt ratio to total assets, Debt-to-Equity and Short-term Debt on the performance, also measured by ROE and ROA of the Ghanaian manufacturing firms listed on the Ghana Stock Exchange (GSE). This is indicative about the fact that manufacturing firm that really aspire to improve performance should rely less on borrowing to finance their investment needs. This result is consistent with the trade-off theory which indicates that firms should be circumspect in the use of debt financing since excess use of debt increases the exposure of equity investors to increased financial risk as a result of the increased financial distress primarily caused by increasing payment of interest to lenders and debenture holders. Hence, an ideal capital structure that combines proportionate levels of debt and equity that ensures improved performance is recommended by the researchers. It is also conclusive that listed manufacturing firms in Ghana excessively rely on short-term debt rather than long-term debt and this is inimical to their performance since short-term debts create relatively quicker financial obligation in terms of interest payments and other financing obligations such as principal repayments. This situation is worth reversing to allow manufacturing firms longer periods for interest payment and debt repayment obligations.

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