

Effects of capital structure choice on profitability of oil marketing companies in Ghana (OMCs):

Case studies of Ghana Oil Company limited and total petroleum Ghana limited

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Abstract

Capital structure is actually a mix of different securities. The importance of capital structure cannot be over emphasized since it impacts on firm's value. Capital structure choices have had significant impacts on shareholders wealth. The study investigated the impact of capital structure on the profitability of Oil Marketing Companies (OMC's). With regards to the firm's capital structure, the study employed short-term debt to total capital, long-term debt to total capital and total debt to total capital in comparison with return on assets (ROA), return on equity (ROE) and net profit margin (NPM). The study employed secondary data and the data was analysed using multiple regressions. The result reveals that short term debt to total capital, long term debt to total capital, total debt to total capital, firm size, and sales growth, have varying and mixed relationships with profitability in terms of return on asset, and return on equity of the Oil Marketing Companies (OMC's). The study recommend that companies implement due diligence in considering debt financing decisions, to come out with the best possible financing blend which will maximize profitability for their companies.

Keywords: capital structure, oil marketing companies, return on assets (ROA), return on equity (ROE) and net profit margin (NPM)

1. Introduction

Globally, the significance of financing decisions in a firm's success or failure is dependent on several factors such as strategies and financial decisions that contribute positively to the growth of the business (Abdul, 2012; Chandrasekharan, 2012) ^[1, 70]. According to Chandrasekharan, (2012) ^[70], the finance factor cannot be overlooked as it forms enough grounds for financial problems. In reality the result of financing decisions in a particular capital structure can result in either a success or failure of a business. Thus, it comes as a great difficulty for business managers and investors alike to draw a thin line to what, in the best of their ability, constitute a best possible capital structure. According to Abor (2005; 2007) ^[2, 3] and Chandrasekharan, (2012) ^[70], financial leverage is basically the fraction of debt in the capital structure. The reason had been that capital structure, historically, is viewed in literature as a key factor from a financial economics perspective (Abdul, 2012; Chandrasekharan, 2012) ^[1, 70]. In practice, business firms obtain their funds from sources such as external or internal (Ezeoha, 2010; Shehu, 2011) ^[71, 57]. Funds obtained from internal sources may include profits retained from business and those obtained through external sources include loans (Short term and/or Long term) (Shehu, 2011) ^[57]. What this means is that, the development of a capital structure in any business entity can to a large extent demonstrate how business decisions are carried out (Abdul, 2012; Shehu, 2011) ^[1, 57]. Nonetheless, such financing choice within the capital structure represents just an aspect of managerial decisions (Abor, 2005; 2007 & 2008) ^[2-4].

There is extensive literature connecting capital structure and company profitability (Adesola, 2009; Chandrasekharan, 2012; Gatsi & Akoto, 2010; Kajola, 2008; Salawu, 2007) ^[7, 70, 17, 25, 56]. The reason is because a company's use of debt and equity form a foundation of capital structure required for

operations (Gatsi & Akoto, 2010; Kajola, 2008; Salawu, 2007) ^[17, 25, 56]. It is quite insightful to point out that numerous studies have examined the association between capital structure and either company profitability or performance in developing continents such as Africa, Asia and South America. Companies' behaviour in developed countries differ from that of developing countries and it's quite rational at this point to discuss past studies from developing countries. For example, research scientists such as Chandrasekharan's, (2012) ^[70] and Shehu's (2011) ^[57] findings were inconsistent with common attributes in the capital structure of companies in Nigeria. Several studies in Ghana including Abor, (2005; 2007; 2008); Awunyo-victor & Badu (2012); Boadi, & Li (2015); Boadi *et al.*, (2013); Gatsi & Akoto, (2010); Marfo-Yiadom & Boachie-Mensah, (2010) and Amidu, (2007) ^[2-4, 72, 12, 34, 17, 36, 11] have identified various determinants of capital structure and performance of listed companies and their results showed mixed findings. Some studies found mixed results suggesting either positive relationship or negative relationship for capital structure and companies profitability. Shehu's (2011) ^[57] findings revealed that businesses with more debts tend to be more profitable. In line with these findings was a study by Gatsi & Akoto, (2010) ^[17] on firms in Ghana which established a positive link between profitability and capital structure. A more recent study by Boadi & Li (2015) ^[72] examined the association of capital structure and firm performance in Ghana by testing the link using GMM regression method and established a positively significant relationship between leverage and companies performance. The findings from Boadi & Li (2015) ^[72] was consistent with Aliakbar *et al.*, (2013) ^[9]. Also Awunyo-victor & Badu (2012) ^[12] empirically determined the correlation involving capital structure and performance of listed banks in Ghana for the period 2000-2010 using Return on Assets, Return on Equity

and Tobin's Q ratio derived from annual reports of the listed 7 banks on the Ghana Stock Exchange. Other studies conducted in Ghana have used profitability ratios to measure, how efficient managers generate profits on sales and investments (Marfo-Yiadom & Boachie-Mensah, 2010)^[36], profitability of public companies on the Ghana Stock Exchange by (Abor, 2005)^[2]; determinants of capital structure of listed companies on GSE (Abor & Biekpe, 2005)^[5], determinants of capital structure for banks (Amidu, 2007)^[11], and capital structure and profitability of banks in Ghana (Gatsi & Akoto, 2010)^[17]. Hence this study paper intends to ascertain the effects of capital structure choice on the profitability of Oil Marketing Companies in Ghana during the period 2010 to 2014 in terms of Return on Asset, Return on Equity, and Net Profit Margin.

2. Problem Statement

Capital structure is an essential financial choice as it directly shows the link to the risk and return of the company (Abdul, 2012; Chandrasekharan, 2012; Marfo-Yiadom & Boachie-Mensah, 2010)^[1, 70, 36]. Any poorly thought and undeveloped capital structure choice lowers a company's value as a result of high cost of capital and vice versa. These principles of creating value for companies are what paved way for varying views on capital structure theory. After Modigliani & Miller's (1958)^[42] "irrelevance theory of capital structure", the theory has produced numerous interests. Cassar & Holmes (2003)^[73] found a positively significant link between long-term debt to total asset and Net Profit Margin (NPM). Chen, (2004)^[75], found that there were both positive and negative effects of capital structure on the profitability of the insurance companies. Abor's (2005)^[2] findings revealed a significantly positive relationship between the ratio of short-term debt to total assets and Return on Equity (ROE) of listed public companies on the GSE. The literature review identified that findings linking capital structure and profitability are conflicting which justifies further research. This creates a research gap that needs to be filled, thus, the exploring of OMC's listed on the Ghana Stock Exchange (GSE) is worthwhile. Boadi and Li (2015), Boadi *et al.*, (2013) Awunyo-victor & Badu (2012), Abor (2007; 2008), Gatsi & Akoto, 2010; Amidu, 2007, Abdul, (2012) and Chandrasekharan, (2012)^[72, 34, 12, 3-4, 17, 11, 1, 70] have demonstrated that the industry type affects the use of debt and in general, the company's overall performance, but relied predominantly on financial institutions. Therefore, to test our theory in relation to oil marketing companies, the study sought to establish the relationship between the capital structure and profitability among the Oil Marketing Companies (OMCs) present on the GSE.

3. Objectives

The main objective of this study is to assess the effects of capital structure choice on the profitability of Oil Marketing Companies in Ghana during the period 2010 to 2014 in terms of Return on Asset, Return on Equity, and Net Profit Margin. The research question that guided this study is how does capital structure affect profitability of OMC's in Ghana in terms of Return on Asset, Return on Equity, and Net Profit Margin?

4. Review of Related Literature

In business, a capital refers to the means of funding/financing

a business (Abdul, 2012). Thus capital of a firm can be in the form of equity, debt or internal financing. The combination of equity, debt or internal financing (Chandrasekharan, 2012)^[70] defines the mix of debt and equity that the firm uses in its operation. Many researchers agree to a large extent that the term capital structure denotes a combination of long-term debt and equity that a business entity uses to finance its operations (Abor, 2005; 2007; Abdul, 2012; Chandrasekharan, 2012; Ghazouan, (2013)^[2-3, 1, 70, 18]. However, these researchers differ in their approach to how capital structure should be carried out. For example, Ross *et al.*, (2008)^[59] argues that a firm has the utmost authority to determine its debt to equity ratio as well as its business implication that comes with it. Abor (2005)^[2] argues that availability of diverse securities determines the type and appropriate mix of funding a firm can choose to drive profitability whilst Brealey and Myers (2003)^[73] points out that the securities market drives a firm choice of debt-to equity mix.

4.1 Capital Structure Theories

Capital structure theory originates from the study done by Modigliani and Miller in the late 1950's. Since then several enterprises and financial experts or scientist have worked or derived many propositions of capital structure as a result of Modigliani & Miller's (1958)^[42] study. Likewise, numerous journal articles and textbooks have cited and attributed the capital structure theory to Modigliani & Miller (1958)^[42]. Basically, capital structure theories and evidences from empirical studies centre largely on firm's financing strategy and its selection of an optimal debt ratio to operate in a distinct institutional environment (Chen & Zhao, 2004; Abdul, 2012; Myers, 2003; Mesquita & Lara, 2002; Kayhan, & Titman, 2007; Gowthorpe, 2003)^[74, 1, 39, 26, 16]. The numerous citation of the theory does not only underscore its credibility but provide the framework that highlights the difference in total debts ratios in financing strategies (Abdul, 2012; Chandrasekharan, 2012; Ghosh *et al.*, 2000; Lartey *et al.*, 2013; Margaritis, & Psillaki, 2010; Moyer *et al.*, 2005)^[1, 70, 15, 34, 37, 43].

4.2 The Modigliani-Miller Theorem (M & M)

The theory was that the value of a business entity is not affected by its financial structure. This theory was based on the premise that when markets were perfectly competitive, then a business entity performance would not depend on capital structure, thus implying that there is no significant link of capital structure and profitability. Several criticisms from numerous financial scientists whose arguments pointed to the assumptions postulated by Modigliani & Miller (1958)^[42]. Several studies argued that Modigliani & Miller's (1958)^[42] assumptions of a perfectly competitive market do not account for the other factors such as tax, inflation and transaction costs associated with raising money or going bankrupt and information asymmetry (Hamada, 1969)^[21]. Accordingly, the criticisms led to a modification of the first theory into a second theory popularly known as M&M 2 (Hatfield *et al.*, 1994)^[22]. The modification included tax benefits as a component of capital structure. The explanation provided by Modigliani & Miller (1963) and Miller, (1977)^[41, 40] was that a business entity that honours its tax responsibility, benefit from tax shield (due to less interest build up).

4.3 Agency Cost Theory

This theory explains that the probability distribution of cash flows provided by a firm is not independent of its ownership structure and that this fact may be used to explain optimal capital structure by (Jensen & Meckling 1976) [77]. Fama *et al.*, (1976) modified the theory into a model. The model stipulates that capital structure is determined by its agency cost. Their findings identified conflict between debt holders and shareholders to create agency cost. A typical example is the study by Brealey & Myers (2003) [78] who found a company manager conflict with shareholders because of differences in how the company should be managed. A study by Megginson & Smart (2010) [39] explains how this type of conflict arises. Brealey and Myers (2003) [78] proposed a solution to how to resolve this two types of conflict by recommending evaluation and monitoring techniques to be incorporated into the day to day firms' operations.

4.4 Profitability of Firms

Following the Modigliani & Miller theory and its subsequent modification to the initial theory regarding firms' performance and capital structure, business managers and owners became more involved with financial issues. The basic reason was that owners invest their money for at least a reasonable return. Therefore profits are necessary for continuation of any business entity. The structural composition of the capital of a company thus has an impact on its profit earning capacity (Nyanamba *et al.*, 2013) [49]. Profitability is a factor focusing on the two theories of Trade-off Theory and Pecking Order Theory in the capital structure arena. The trade-off theory says that firms seek debt levels that balance the tax advantages of additional debt against the costs of possible financial distress. The trade-off theory predicts moderate borrowing by tax-paying firms. The pecking order theory says that the firm will borrow, rather than issuing equity, when internal cash flow is not sufficient to fund capital expenditures. Thus the amount of debt will reflect the firm's cumulative need for external funds (Myers 2001; 2003) [45, 46].

Few studies have noted the relationship between firm's characteristics and company profitability and found that the pecking order theory of capital structure shows that if a firm is profitable, then it is more likely that financing would be from internal sources rather than external sources (Myers & Majluf 1984) [48]. Cassar and Holmes (2003) [73], and Hall *et al.* (2004) [20] also suggest negative relationships between profitability and both long-term debt and short-term debt ratios. Petersen and Rajan (1994) [50], however, found a significantly positive association between profitability and debt ratio.

5. Methodology

The study employed the mixed method technique, which includes both qualitative and quantitative method. The qualitative method provides in-depth and intensive information of the study by placing emphasis on subjective understanding of the subject area rather than statistical description. The quantitative research approach test objective theories in relation to variables been employed whilst qualitative research approach deals with individuals or groups trait to a problem (Kumar 2011; Saris & Gallhofer 2007) [32, 52]. The study employed explorative research design using Ghana Oil Company Limited and Total Petroleum Ghana

Limited as a case study to assess the association of capital structure and profitability of Oil Marketing Companies (OMC's) operating in Ghana. The criteria for selecting the study population was based on the registered members of the oil marketing companies in Ghana with good standing as in the year 2015. According to the National Petroleum Authority (NPA) database, there are about eighty-six (86) oil marketing companies registered with the Authority and operating in Ghana. The National Petroleum Authority is the regulatory body for the oil and gas industry in Ghana. However, due to non-availability of audited financial statements from many of these Oil Marketing Companies (OMC's), the research purposively selected two Oil Marketing Companies (OMC's) which includes Ghana Oil Company Limited and Total Petroleum Ghana Limited because they were the only companies listed on the Stock Market and by statutory requirement has published their financial statements. The study employed multiple regression models for the estimation. The general form of the model can be written as: $Y_{it} = \beta_0 + \beta_1 X_{it} + U_{it}$. The variables were transformed by natural log to ensure the smoothness of the variables and estimated in the following regression models:

$$\begin{aligned}
 Y_{it} &= \beta_0 + \beta_1 STD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + e_{it} \dots\dots\dots 1 \\
 Y_{it} &= \beta_0 + \beta_1 LTD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + e_{it} \dots\dots\dots 2 \\
 Y_{it} &= \beta_0 + \beta_1 TD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + e_{it} \dots\dots\dots 3
 \end{aligned}$$

Where:

Y_{it} represents Return on Assets, Return on Equity and Net Profit Margin for firm i , in time t . For a firm $_i$ in time t , the variables are defined as follows:

- **STD-** Short Term Debts
- **LTD-** Long Term Debts
- **TD-** Total Debt
- **FS-** Firm Size
- **SG-** Sales Growth
- e_{it} is the error term

6. Findings and Results

To assess the effects of capital structure on the profitability of Ghana Oil Ltd. and Total Ghana Ltd. as indicated in Table 1 below presents the results of descriptive statistics employed in the study.

Table 1: Descriptive statistics of results

Variables	Mean	Std. Deviation	Minimum	Maximum
Ln ROA	2.376	0.275	2.062	2.787
Ln ROE	3.569	0.219	3.193	3.860
Ln NPM	0.889	0.329	0.545	1.346
Ln STD/TC	4.198	0.053	4.095	4.295
Ln LTD/TC	0.729	0.995	-1.352	1.899
Ln (STD+LTD)/TC	4.240	0.058	4.123	4.349
Ln FIRM SIZE	2.121	0.024	2.081	2.153
Ln Sales Growth	3.287	0.498	2.025	3.986

Source: Authors computation, 2015

The result in Table 1 shows the descriptive statistics of the variables employed for the study. From Table 1, the positive values of return on assets, return on equity and net profit margin indicates that the companies were on the average, profitable for the years under review. The mean for ROA showed an average of 273.6% and that of ROE was 356.9%. Also, the mean for NPM recorded, gave a value of 88.9%. The Return on Asset measures how successful the oil marketing

companies employs its fixed asset in making earnings. Therefore, a higher ratio provides an indication of improved firm performance with respect to the use of the company assets. For example, the ROA of 273.6% suggest that for every GH¢1000.00 invested in assets by an OMC the average return is GH¢273.6. In monetary terms this is significantly an average performance indicator. The ROE average value of 356.9% implies relatively high profitability of the listed OMC's in terms of shareholders investment. The ROE also suggest net earnings for every cedi invested by OMC's shareholders. The ROE value of 356.9% implies that for every GH¢1000.00 invested by shareholders, an average net income of GH¢356.9 is accrued to the shareholders of the OMC's. This indicates a higher efficiency of the capital invested by owners considering the current level of inflation and the Government of Ghana risk free interest rate. The average NPM for the OMC's over the period of 5years was 88.9% which means that for every GH¢ 1000 invested, an average NPM of GH¢ 88.9 on turnover was obtained. In monetary terms, this performance is a below average performance indicator. This shows that the OMC's under study are operating with high cost.

The standard deviation of the ROA is 27.5%. This value proves that both OMC's listed on the GSE actually are performing very well with respect to the use of assets which averages 273.6%. The standard deviation of the ROE is 21.9% indicating that the listed OMC's are able to achieve this average ROE if 356.9% are less than 500% of the total OMC's listed. The standard deviation for NPM is 32.9% which also indicates that the OMC's are able to achieve this average profit over turnover of 88.9% although it is a below average performance indicator.

The explanatory variables include short term debt to total capital (STD/TC), long term debt to total capital (LTD/TC) and total debt to total capital (STD+LTD/TC), firm size (FS) and sales growth (SG). The explanatory variable 'STD/TC' is the ratio of short term debt to total capital of the OMC's. This ratio provides an indication of the OMC's' level of debt in relation to the total capital of the company.

The average leverage value of 'STD/TC' is 419.8%. This result means that for every GH¢1000.00 worth of capital, the short term debt component is GH¢419.8 suggesting that OMC's listed on the Exchange are highly geared. The standard deviation of the 'STD/TC' of 5.3% suggests that the OMC's on the Ghana Stock Exchange achieved this average leverage level. Thus shown again by the minimum and maximum of 'STD/TC' this recorded 409.5% and 429.5% respectively.

'LTD/TC', which denotes ratio of long term debt to total capital, recorded an average of 72.9%. This indicated that on average the OMC's listed on the GSE have average of 72.9% of their debt level as being long-term. The same applies to the total debt component's (STD+LTD/TC) average value of 424%. In comparison with STD/TC means the OMC's depend heavily and rely on short term debt to finance their operations, the servicing cost of which is very expensive for them. The greatest proportions of their resources were financed by both long and short term debt.

The firm size of the OMC's is measured by taking the natural logarithm of the total asset. The reason was to normalise the values and bring them to the same level with the other variables for an efficient data analysis. The OMC's recorded a

mean value of 212.1%, with respective standard deviations of 2.8%, which indicates that the OMC's listed on the GSE have achieved the stated averages. Sales growth is the percentage change (% change) in net interest income of the OMC's over the period under review and this recorded an average of 328.5%.

7. Conclusion

The study found that the positive values of return on assets, return on equity and net profit margin indicate that the companies were on the average, profitable for the years under review. However, it was observed that the two companies are operating with high cost as illustrated by the tests conducted on their Net Profit Margins (NPM). This is mainly due to the high short term debt being used by the firms. The study found that capital structure is widely explored by numerous researchers in the field of finance since the Modigliani & Miller proposition in 1958. Capital structure theories, such as the pecking order and the trade-off theories emerged into the finance field and many have tried to analyze the implications of these theories for firms in the market. Capital structure decision have been the most significant decisions to be taken by any business organization for maximization of shareholders wealth and sustained growth.

8. Recommendations for Policy Formulation and Implementation

The findings of the study have confirmed most empirical studies on capital structure that they influence firms' profitability although the sample size was too small to make a generalized conclusion. The researcher recommends that managers of oil marketing companies should not over use the amount of leverage in their capital structure, but rather, they must try to finance their projects with retained earnings and use leverage as a last option. Managers must work to achieve the optimal capital structure level to maximize the firm's performance and try to maintain it as much as possible. The result from the study show that increases in short term debt and long term debt affects the performance of the oil marketing companies. The implication is that managers should make sure that they identify and maintain the optimal capital structure level to maximize the company's profit base.

9. Reference

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