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Determinants of Leverage in Ghana: Evidence from listed Manufacturing and Trading Sector Companies

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Abstract

The paper examines the effect net profit, firm size, tangibility, firm growth and risk have on leverage of manufacturing and trading sector companies listed on the Ghana Stock Exchange during the period 2005 to 2014. The paper relied on published financial statements of the listed manufacturing and trading companies for the period. Using a panel regression model, the study found a significant negative relationship between firm size and leverage as well as growth and leverage. Profitability established a negative and insignificant relationship with leverage. An insignificant positive relationship was found between tangibility and leverage and an insignificant positive relationship was also found between risk and leverage. The study suggests listed manufacturing and trading companies should apply the pecking order theory in their capital structure decisions and favor internal source of funds for their financing needs.

Keywords: leverage; profitability; manufacturing and trading sector companies; Ghana Stock Exchange; financial statement

1.1 Introduction

Determining the capital structure mix that improves a company's value is an argumentative topic in financial literature and is one of the key finance issues among finance researchers and scholars. The capital structure debate has been live for decades with the main issue being whether capital structure positively or negatively impact firm value. This is more so as capital structure is tightly related to firms' ability to fulfill the needs of stakeholders. Studies on capital structure theory were pioneered by the seminal work of Modigliani and Miller in the year 1958. According to Krishnan and Moyer (1997) major empirical and theoretical extensions followed the broad consensus paradigm that firms choose an optimal level of debt, based on a tradeoff between benefits and cost of debt. Literature shows that no capital structure mix is suitable for all firms and therefore studying the relationship between capital structure mix and firms performance help determine the mix that will suit the business environment.

The capital structure of firms is a mixture of different securities. In general, firms can choose among different capital structure alternatives such as higher proportion of equity to debt. Despite the theoretical appeal of capital structure, researchers in financial management have not found the optimal capital structure. According to Abor (2008) the best academics and practitioners have done is the prescriptions that satisfy the short-term goals. Financial theories have been developed to explain capital structure with empirical evidence based upon large listed firms tending to support these theories (Caesar and Holmes, 2003). The applicability of these financial theories can be doubted when considering the influence of various institutional settings and availability of financing alternatives. To understand how firms in developing economies finance their activities, it is essential to examine the capital structure decisions of these firms. By examining the determinants of leverage of listed manufacturing and trading companies in Ghana, information would be available to aid these companies and other firms

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to make inform choice with their financing decisions. The importance of the study is critical in the Ghanaian context given the important role the private sector play in an economy regarded as one of the rising economies in Africa.

2.1 Theoretical Review

2.1.1 Modigliani and miller (MM)

Modigliani and Miller (1958) in an article '*The American Economic Review'* developed the modern theory of capital structure. Their irrelevance proposition debated that a firm's capital structure does not have any impact on its value. M&M are of the view that a firm's value is determined based on the active side of its statement of financial position. To them, the value of a firm is created by the earning power and risk of the underlying asset. The M&M theorem introduced two propositions. The first proposition states that the value of both levered firm and un-levered firm are equal. The second proposition expounds that the cost of equity is a linear function of the firm debt-equity ratio. M&M further developed their theorem since there is no perfect capital market. In most economies, taxes are deductible therefore the value of a levered firm exceeds un-levered firm's value. The effect of leverage creates a tax shield with the same value of a deductible interest of a debt. To this end, for a firm to maximize its value then it should be financed by debt only. The theorem was therefore extended to contain tax shield which affect both market capitalization and expected return on equity.

2.1.2 Static Trade-off Theory

The trade-off theory explains the reasons why firms are financed by both debt and equity. The proposition sees the tradeoff between costs and merits of debt to determine an optimal capital structure. The optimal capital structure therefore occurs when both the cost and merit of debt are equal. That is to say, the optimal capital structure exists when the marginal cost of debt is equal to the marginal benefit of debt. However, due to firm's characteristics, the optimal point differs from firm to firm. Cost in the trade-off theory is represented by the agency cost arising among creditors and owners and the cost of financial distress (Jensen and Meckling, 1976). Merit according to Myers (1984) is measurable by the tax shield of debt. To this theorem, at the point of optimal balance, a firm should stop increasing the debt-equity ratio as a firm market value is assumed to be maximized and the cost of capital as low as possible.

2.1.3 Pecking Order Theory

The pecking order theory which is applicable by financial managers in comparison to trade-off theory was developed by Myers and Majluf in 1984. The theorem assumes that there exists an information asymmetry among managers and outside stakeholders and as such managers who work on behalf of the stakeholders have better information than the stakeholder and other investors. To this theorem, financial managers' first choice is to use internal financing (retained earnings). A company's ability to use internal financing shows there is no need for either debt or equity. However, in the situation where this is not applicable or retained earnings is not enough, external financing becomes the available option. The external financing comes from issuing debt and or equity. However, there is a preference with the issuance of debt and equity. The first preference is debt financing since it is seen as a safer security and less risky than equity. The pecking order allows issuing equity when the capacity of debt is fully used (Myers and Majluf, 1984).

2.2 Empirical review

Ashraf and Rasool (2013) conducted a study on the determinants of leverage of automobile sector firms listed in Karachi Stock Exchange by testing packing order theory. Using panel data for the analysis and ordinary least square method (OLS) for regression analysis, the study found a negative relationship between profitability, firm size, growth and leverage. However, a positive relationship was established between tangibility

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and risk and leverage. The studies concluded by suggesting that the automobile industry in Pakistan should prefer internal source of financing to meet their long term investment needs. Ali in the year 2011 conducted a study on the non-financial sector of Pakistan. The study found firm size and non-debt tax shield to have a positive relationship with leverage. Profitability, tangibility and liquidity were found to have a negative relationship. Salawu (2007) carried out an empirical analysis of the capital structure of 50 selected non-financial listed companies in Nigeria between 1990 and 2004. The statistical results indicate that debt financing for the companies corresponds mainly to a short term debt. Profitability was found to have a negative relationship with leverage while sizes of the firms have a positive relationship. He concluded that large firms can better support higher debt ratios than small firms. A study on the life insurance sector in Pakistan by Ahmed et al (2010) concluded that firm size, tangibility, growth and risk have a significant positive relationship with leverage while profitability and liquidity have a negative significant relationship with leverage.

A study in the textile sector in India by Liaqat (2011) found size, tangibility and non-debt tax shield to have a significant positive relationship with leverage while profitability and growth have significant negative relationships. A study by Khan and Shan (2007) also found size and tangibility to have positive and significant relationship with leverage with profitability and non-debt tax shield having significant and negative relationship. Hijazi and Tariq (2006) also conducted a study on the cement industry of Pakistan and found that tangibility and growth have a significant and positive relationship with leverage with profitability and size having a significant and negative relationship with leverage. Sabir and Malik (2010) also conducted a study on the oil and gas sector of Pakistan and found size, tangibility and liquidity to have positive and significant relationship with leverage while profitability has significant and negative relationship with leverage.

3.1 Materials and Methods

The study adopted a panel data technique to analysis the determinants of leverage of listed manufacturing and trading sector companies in Ghana. According to Baltagi (2005) panel data technique involves pooling of observations on a cross-section of units over several time periods and provides results that are simply not detectable in pure time series or cross-sections. The study utilised panel data which consisted of time series and cross sections. The study relied on published financial statements of listed trading companies for the period 2005 to 2014. The reliability and validity of the data can be assured as operations of listed companies in Ghana are well monitored by the Securities and Exchange Commission (SEC), Ghana Statistical Service (GSS) and their financial statements are prepared in accordance with the International Accounting Standards (IAS).

3.1.1 Model specification

The study is designed to develop a model to establish the determinants of leverage of listed manufacturing and trading sector firms in Ghana. A panel regression model is established by pooling cross sections and time period of panel data. The model for the study is specified as;

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}$$

Where;

Y = dependent variable
α = intercept
β = coefficient of the explanatory variables
X= set of independent variables in the estimation model
ε = error term
i = cross-sectional dimension
t = time-series dimension

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Therefore, adopting the above model from Ashraf and Rasool (2013), Liqat (2011) and Ahmed et al (2010), the model for the study becomes;

$LEV_{it} = \alpha + \beta_1 PROF_{it} + \beta_2 FSIZE_{it} + \beta_3 TANG_{it} + \beta_4 GROW_{it} + \beta_5 RISK_{it} + \varepsilon_{it}$

Where
LEV = leverage (long term debts / net assets)
PROF = profitability (profit before interest and tax / total assets)
FSIZE = firm size (log of total assets)
TANG = tangibility (non-current assets / total assets)
GROW = growth (change in total assets / total assets)
RISK= risk (profit before interest and tax / profit after interest and tax)

4.1 Results and Discussion

Table 1: **Regression Results**

Variables	Coefficient	Std. Error	T-Statistics	Sig.
CONS	1.097	0.424	2.587	0.004**
PROF	-0.022	0.035	-0.611	0.112
FSIZE	-1.016	0.278	-3.609	0.040**
TANG	6.253	3.316	1.886	0.116
GROW	-0.359	0.173	-2.075	0.045**
RSK	0.055	0.121	0.417	0.455

** indicate significance at 5% level
R-square = 0.685, Adj. R-square = 0.621, F-statistics = 7.473 (0.001)
Source: Author's Calculation ***Dependent Variable:*** Leverage

The F-statistics of 7.473, with a p-value of 0.001 indicates that the overall model is highly significant and that all the independent variables are jointly significant in causing variation in the dependent variable (leverage). The R-squared shows that 68.5% variations in the leverage is explained by the model. The R-square and the adjusted R-square of 62.1% indicate the goodness of fit of the regression model.
The table 1 above shows the empirical regression results of the variables used in the study. Profitability indicates a negative and insignificant relationship with leverage (β= -0.611, p-value>0.05). This finding implies that as long-term loans increase in the manufacturing and trading sector in Ghana, profitability (profit before interest and tax divided by total assets) falls, which indicates long-term loans are not being fully utilized. The findings means profitable listed manufacturing and trading companies in Ghana depend more on internal source of financing such as retained earnings. The findings corroborate the capital structure irrelevance theory that was first postulated by Modigliani & Miller (1963). The theory argues that the amount of debt in the capital structure does not affect performance and firm value. The result is also consistent with the findings of Ashraf and Rasool (2013), Ali (2011), Liqat (2011), Ahmed et al (2010), Sabir and Malik (2010), Salawu (2007), Khan and Shan (2007) and Hijari and Tariq (2006).

A significant and negative relationship was established between firm size and leverage (β= -3.609, p-value<0.05). This findings show an increase in the size of listed manufacturing and manufacturing and trading companies will reduce leverage by 1.016. This shows as listed manufacturing and trading companies increase in size, their profit reduces. This indicates that diseconomies of scale exits in the manufacturing and trading sector in Ghana. The result conforms to the pecking order theory and the findings of Ashraf and Rasool (2013) and Hijazi and Tariq (2006) but contradicts the findings of Liqat (2011), Ahmed et al (2010) and Salawu (2007).

Also, an insignificant positive relationship was found between tangibility and leverage (β=1.886, p-value>0.05). The result indicates that an increase in the tangibility of non-current assets of listed manufacturing and trading companies in Ghana increases the level of their leverage by 6.253. A result which contradicts the pecking order theory and the study of Ali (2011) but corroborate the findings of Ashraf and Rasool (2013), Liaqat (2011), Sabir and Malik (2010), Ahmed et al (2010) and Hijazi and Tariq (2006). The findings means companies with more tangibility of non-current assets uses more leverage since non-current assets are used for providing collateral for long-term loans.

Furthermore, a negative significant relationship was established between growth of the listed manufacturing and trading companies in Ghana and leverage (β= -2.075, p-value<0.05). This shows a change in total assets will result in a change of -0.359 in leverage. The result is consistent with the findings of Ashraf and Rasool (2013), Liaqat (2011), and Khan and Shan (2007) but refutes the results of Ahmed et al (2010) and Hijazi and Tariq (2006). Finally, an insignificant positive relationship between risk of listed manufacturing and trading companies and leverage was established (β=0.417, p-value>0.05). The result shows an increase in risk will also increases leverage by 0.055. The relationship established is consistent with the findings of Ashraf and Rasool (2013) and Ahmed et al (2010). This shows an increase in the level of leverage also increases risk level which may be negatively perceived by investors as higher risk thereby demanding higher risk premium to compensate the risk.

5.1 Conclusion and Recommendations

The study used five variables to establish empirical determinants of leverage of listed manufacturing and trading companies in Ghana. Firm size was found to have significant negative relationship with leverage. A result which is consistent with the pecking order theory and some previous studies including Ashraf and Rasool (2013) and Hijazi and Tariq (2006). Firm growth also established a negative significant relationship with leverage. The result agrees with the studies of Ashraf and Rasool (2013), Liaqat (2011), and Khan and Shan (2007). Profitability has a negative and insignificant relationship with leverage. The findings confirms the capital structure irrelevance theory and previous studies including Ashraf and Rasool (2013), Ali (2011), Liqat (2011), Ahmed et al (2010). An insignificant positive relationship was found between tangibility and leverage which corroborates the findings of Ashraf and Rasool (2013), Liaqat (2011), Sabir and Malik (2010), Ahmed et al (2010). Finally, an insignificant positive relationship was found between risk and leverage. The result is consistent with the findings of Ashraf and Rasool (2013) and Ahmed et al (2010).

The findings suggest listed manufacturing and trading companies should concentrate more on firm size and growth as they play critical role in the leverage decision of the industry. The study recommends listed manufacturing and trading companies should apply the pecking order theory and consider some key assumptions under the capital structure irrelevance theory in their capital structure decisions. Furthermore, as much as possible the companies should favor internal source of funds for their financing needs.

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