Capital Structure and Profitability:
An Empirical Analysis of SMEs in the UK

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Abstract

This study examines the relationship between capital structure and the profitability of non-financial SMEs in the UK for the period of 1998-2008. Using the Two Stage Least Squares, (2SLS) the results show a significant relationship with capital structure and profitability which is negatively related. The size of the firm appears a more important factor that determines the profitability in SMEs in the UK. There is consistent evidence for positive size-profitability relationship. The results of this study have shown that the capital structure of the firm has a significant influence on the profitability of SMEs in the UK. Especially, long-term debt to total assets ratio is negatively related with the profitability and this is an indication that SMEs are averse to use more equity because of the fear of losing the control.

Key Words: Capital Structure, Profitability, SME, Leverage
1. Introduction

Though many theories tried to explain the capital structure, a model to determine the optimal capital structure is still a famous area among finance researches (Gill et al., 2011). It is widely reported that in the static trade-off theory of capital structure, a more profitable firm is predicted to have a higher leverage ratio (Frank and Goyal, 2005). The empirical relevance of trade off theory has often been questioned. Company chooses the debt and equity mix by balancing the costs and benefits. Competent managers who identify the appropriate mix of debt and equity minimize the firm cost of finance, maximize the profitability and thereby improve the competitive advantage. Different firm specific strategies are implemented by the managers to gain competitive advantage to the firm and thereby enhance the firm value result in performance differences (Gleason et al, 2000).

Modigliani and Miller (MM), (1958) provided that the well-known theory of irrelevance of capital structure where financial leverage does not affect the firm’s market value. MM generally viewed this as a purely theoretical result since in order to derive it, they had to assume away many important factors in which it would influence capital structure decision. Specifically theory was based on very unrealistic assumptions which we cannot see in the real world. This provides the base with which to examine real world and to consider reason why capital structure is relevant. In particular presence of bankruptcy costs and favorable tax treatment of interest payment lead to the notion of an “optimal capital structure” which maximizes the value of the firm and minimizes the cost of capital.

MM(1963) revised their former (MM,1958) standpoint by incorporating benefit of tax as a determinant of capital structure choice arguing that employing more debt capital would increase the profit of the firm as interest paid on debt is a tax allowable expense. Therefore, Modigliani and Miller (1963) propose that in order to maximize the value of the firm they should use as much debt capital as possible where they ignored the risk. Later researchers suggested alternatives to the MM theory by introducing agency theory (Jensen and Meckling, 1976), pecking order theory (Myers and Mujilif, 1984) and theory of bankruptcy (Titman, 1984).

Theories that have been developed to explain the capital structure of firms include bankruptcy cost, agency theory and pecking order theory. Bankruptcy costs are the increased costs of financing with debt instead of equity that results from a higher probability of bankruptcy. These costs may be higher for the SMEs compared to the larger firms. According to the Warner (1977) and Brealey and Myers (1992) the cost associated to the bankruptcy possibility such as legal and administrative costs would increase with the debt reducing the profitability and the value of the firm. Titman (1984) shows that bankruptcy costs are the loss in profits incurred by the firm as a result of the unwillingness of stakeholders to do business operations with them. In addition to that, the use of debt capital also leads to agency costs.
Agency cost arises as a result of the relationship between shareholders and managers (Jenson and Meckling, 1976). Thus, higher leverage can mitigate conflicts between managers and shareholders concerning the choice of investment (Myers 1984). Agency theory suggests that capital structure decisions should be taken in order to minimize agency conflicts (agency cost) and thus increase the profitability of the firm. Conflict between the interests of shareholders and debt holders is the one particularly important agency issue. Further trade-off theory (Myers 1984) suggests of giving priority to the debt financing considering the benefits of various strengths and the restrictions caused by debt financing costs. So there should be an ideal leverage ratio and, profitability and leverage ratio is positively related.

Further Myers and Majluf (1984) have formulated a pecking-order hypothesis that places debt as the preferred source external financing. The pecking order theory predicts that firms will issue equity as a last resort. Capital structure is created in accordance with the priority order of diversified resources aimed at answering the financial needs of firms (Frank and Goyal, 2007). Specifically, they issue equity when firms exhaust their debt capacity. Thus, firms’ debt capacity plays a significant role in the choice and the size of debt financing.

The pecking order explains a negative relationship between capital structure and profitability, why the most profitable firms generally borrow less or vice versa. Not because they have low target debt ratio but because they don’t need external money for financing activities as they have generated sufficient money from the business operations. If the firm has no sufficient funds for their capital investment, the firm issues debt which makes the firm less profitable. Brealey and Myers, 1992; Gitman, 1997; and Weston & Brightam, 2000 contend that a capital structure concerns the composition of the liability of the company, or more specifically, which is the relative participation of the several financing sources in the composition of the total obligations. Simply the capital structure of a firm concerns the mix of debt and equity the firm uses in its operation. Brealey and Myers (1992) studies the cost associated with the bankruptcy possibility, identifying direct, legal administrative and indirect cost determined by the difficulty of managing a company during its bankruptcy process. They concluded that such cost increases with the debt capital and it will reduce the firm profitability. If the cost of debt is lower than the cost of equity, the firm with larger degree of financial leverage tends to present in normal conditions of operation, higher ratio of profitability on equity. This means that discounting the operational risk uncover from execution of companies

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1 Higher the borrowing would risk financial distress and lower the return. Financial distress can lead to reduce the efficiency of the management and conflict of interest between bondholders and shareholders. Shareholders’ interest is to invest in risky projects which increase the return but the risky projects are not the interest of debt holders. This also increases the probability of the firm value to decrease further since these projects’ net present value is negative and cost may occur from lost profit
business functions by the possibility of occurrence of rates of return lower to the expected ones. According to Brealey and Myers (1992) the estimation of cost of each capital source, basically serves to determine the minimum rate of profitability demanded to make the firm’s investment more attractive. Brealey and Myers (2003) state that the firm can issue dozens of distinct securities in countless combinations but it attempts to find the particular combination that maximizes the market value of the firm. As each source has a specific cost, the return rate can be influenced in a significant way of each composition.

Choice of the optimum capital structure in compliance with three models (Static trade off model Agency theory and the Pecking order theory) study by Booth et al (2001) concluded that based on the market imperfections and asymmetric information that the choice will be decided on the possibility of generation of funds to the firm, given the asymmetry of information. Based on the concept of asymmetric information the concept of optimal capital structure is also expressed by Myers (1984) and Myers and Majluf (1984). Myers (1984) argued with the notion of an optimal capital structure based entirely on the tradeoff of cost and benefit of debt in a world of information asymmetry between owners and managers.

Gleason et al. (2000) state that the utilization of different levels of debt and equity is one of the specific strategies used by managers in the search for improved performance. Thereby firms attempt to achieve the optimal capital structure which minimizes the cost of capital, thereby improves its competitive advantage in the market place. On the other hand, higher financial leverage position is coupled with high financial risk. The capital accumulation is at risk of loss if the firm enters into financial distress. In order to protect the reputation of the firm and capital and maintain the financial strength, the firm decreases financial risk by taking on low financial leverage position, where the financing decision is linked with operations of the firm. The higher business risk associated with higher return on assets is coupled with lower financial risk over lower financial leverage. Thus, financial leverage is negatively related to the return on assets. However, as noted by Myer (2001), each theory works on its own assumptions and hence, none of the theories gives a complete solution of the practice of capital structure. It is very clear from the above discussion that it is still a puzzle to choose the best capital structure for the firm.

In this study, we focus on the impact of capital structure on the risk premium of SMEs in UK. This paper contributes to the literature by utilizing recent advances in panel data econometrics to investigate the determinants of profitability for non-financial SMEs in the UK. The primary objective of this paper is to find the important factors in determining profitability of SMEs in the UK. To this time there has been no UK study of the determinants of profitability of SMEs in the UK.
The rest of the paper is organized as follows: the next section provides a summary review of literature. Section three describes the methodology used for this study. Section four discusses the results of the findings and section five concludes.

2. Empirical Evidence

MM theory was criticized due to the weaknesses and unrealistic assumptions. This provide foundation for the other theories and for the researchers to consider the market imperfections on firm value. MM (1963) indicated that because of the debt tax shield levered firm value is higher than the unlevered firm value. Contradictory results is shown by Stiglitz (1969) who explained that higher the debt capital, higher the risk of bankruptcy and lowers the value of the firm. On the other hand, higher the debt would raise the profitability of the firm due to debt tax shield. Therefore, the relationship between firm performance and capital structure can be either positive or negative. Rajan and Zingales (1995) found that the relationship between profitability and leverage is negative and this result is consistent with Titman (1988) who found that the financial performance of the firm is negatively influenced by the debt level.

The finance theory and literature argue that the firms actually have more debt in their capital structure than appropriate. According to Harris and Raviv (1991), higher level of debt supports the interest of managers and shareholders and managers may underestimate the costs of bankruptcy reorganization or liquidation. These lead to higher level of debt than appropriate in the capital structure which would then result in lower performance. Harris and Raviv (1991) argued that capital structure is related to the trade-off between cost of liquidation and return from liquidation to both shareholders and managers. Thus, firms might have more debt capital in their capital structure than is suitable as it gains benefits for both shareholders and managers which of course mitigate the agency problem too.

Gleason et al (2000) examined the relationship between performance and leverage and results indicate that there is a negative impact of debt on performance. Further this study has found that the capital structure is not the only factor effecting the performance, but the size of the company also influences the performance. This is consistent with Rajan and Zingales (1995) who state that size of the firm has a positive impact on the supply of debt. Booth et al. (2001), Fama and French (2002) argued on negative effects of profitability on leverage, supporting the Pecking order model. This indicates that leverage does not essentially lead towards higher performance as explained in the theory of asymmetric information. But consistent with the agency theory, higher the leverage could lower the performance of the organization. This

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2 If the cash flow is poor, debt gives investors the option of liquidation. The costs here are the information costs associated with determining whether or not liquidation should occur. Higher levels of debt make default more likely thereby making the liquidation decision more appealing. Consequently, firms with higher liquidation values will have more debt than those with lower liquidation values.
suggests that the firms which incorporate higher level of debt capital in its capital structure shows lower performance than firms which have low level of debt capital.

Glancey (1998) investigates the determinants of growth and profitability in small manufacturing firms. This study examines the impact of key determinants such as size, age, location and industry group of small firm performance identified by the previous literature. Findings suggest that entrepreneurs in the larger firms are motivated by financial factors and for the smaller firms lifestyle factors are the motivational factor. Firm characteristics are found to be of limited in explaining the firm profitability. Glancey (1998) confirms that an older firm may have a more rigid organizational structure which is not in line with the changes in the up-to-date market conditions. This can negatively affect the firm performance. He also found that size does not affect the performance. Researchers (Jenson & Meckling, 1976; Goddard et al, 2005) suggest that debt positively affect the firm value and performance. Increase in debt would increase the risk and increase the return on assets as well as due to the tax shield.

Other studies such as Goddard et al (1996) analyze the dynamics of profitability investigating the persistence of profits of 995 large public limited companies for the period of 1972 in UK manufacturing and service sector firms. Firm size appears to be determinants of persistence of profit for manufacturing but not for services, which suggest that barriers to entry may differ between the two sectors. Goddard et al (2005) shows that there is a consistently negative relationship between size and profitability, gearing and profitability and positive relationship between liquidity and profitability. Goddard et al (2006) found that a large proportion of the cross sectional or time series variance in firm level growth rates cannot be explained by variations in firm sizes.

A study based on Ghana, Abor (2005) argues that short-term debt is less expensive and higher the profit. This study found that ROE of the firm shows significantly positive relationship with the short term debt of the firm. Consistent with the above studies, this study found that there is a negative correlation between profitability and long term debt. This again proves that higher the debt capital, higher risk of bankruptcy and lowers the profitability of the firm. Aror (2007) found the same relationship for short term debt and long term debt confirming the previous finding. Further, this study confirms that size and sales growth have a negative relationship with RoA.

Many firms rely on bank overdraft and other short-term borrowings and in their total debt they include both long term and short term debt, especially in SMEs. This is reasonable as many firms use their short term fund as long term source of finance and to avoid bankruptcy, repaying long term debt using short term funds (Arnold, 2008). Gill, et al., (2011) presented that the impact of short-term debt to total assets and total debt to assets on ROA was positive in both the service and manufacturing industries and further this study indicated that short term debt to
total assets; long-term debt to total assets; and total debt to total assets had positive impact on profitability. In contrast, Omondi & Muturi (2013) and Bouraoui and Louri (2014) found that leverage impact negatively on the financial performance of the firm.

To sum up, firms with higher bankruptcy cost (higher risk firms) tend to have less debt in their capital structure. The lower the level of debt reduces the overall risk. Firms with higher agency costs tend to have more debt capital in their capital structure. From the above literature analysis it is understood that profitability can be improved by reducing the agency cost as agency cost plays the major role in achieving the optimal capital structure. Similarly, it is also noticed that owner-managed firms are more willing to take risk than managerial-controlled firms. The review of empirical studies which have been carried out worldwide confirm the factors that determine the profitability. Firm size, leverage, industry type, liquidity, age ownership characteristics and sales growth are the popular variables among the researchers. These studies vary from each other as they have used different periods, countries, industries and firm specific factors. With respect to the previous studies this paper adds new evidence about the effect of capital structure on the profitability of SMEs in the UK which are much less common in the economics literature. However, these studies have also applied the theories which were originally developed using the larger firms. Thus, there has been substantial amount of empirical studies in relation to the large firms. The relationship between explanatory variables and their measurements are based on the above review.

3. Methodology

This study depends on the dynamic model to examine the relationship between capital structure and profitability. Return on assets (ROA) and Return on capital employed (ROCE) are used as dependent variables for measuring firms’ financial performance, while a set of independent variables with difference expected signs were used to measure the effect on firms’ profitability through the literature review.

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable sign</th>
<th>Sign</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>ROA, ROCE</td>
<td>-</td>
<td>Net profit to total assets, Earnings before interest and tax to capital employed</td>
</tr>
<tr>
<td>Capital Structure</td>
<td>GEARINGR</td>
<td>-</td>
<td>Debt to equity</td>
</tr>
<tr>
<td>Capital structure</td>
<td>LTD</td>
<td>+/-</td>
<td>Total debt to total assets</td>
</tr>
<tr>
<td>Capital structure</td>
<td>STD</td>
<td>+/-</td>
<td>Short term debt to total assets</td>
</tr>
<tr>
<td>Capital structure</td>
<td>STDTD</td>
<td>+</td>
<td>Short term debt to total debt</td>
</tr>
<tr>
<td>Size</td>
<td>LOGSIZE</td>
<td>+</td>
<td>Natural log of total assets/natural log of sales</td>
</tr>
<tr>
<td>Sales growth</td>
<td>SALESGR</td>
<td>+</td>
<td>Percentage growth in annual sales</td>
</tr>
<tr>
<td>Liquidity</td>
<td>LIQUIDITYR</td>
<td>+/-</td>
<td>Current assets to current liabilities</td>
</tr>
</tbody>
</table>

Author expect positive or negative relationship with performance based on literature review.
3.1 Panel Data Procedure

The empirical procedure utilizes all the available observations from 1998-2008 for all the firms described above. The process of estimation of equation will be the Panel Two Stage Least squares. The fixed effect model allows us to use the data, while the intercept is allowed to vary across firms and time. The effects of omitted explanatory variables can be captured in the changing company intercept. In addition to that by including a fixed time effect the model automatically assesses the impact of the macro environment on profitability.

The model for the empirical investigation can be stated as follows.

\[ ROA_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{GEARINGR}_{i,t} + \alpha_4 \text{STDTD}_{i,t} + \alpha_5 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(1)

\[ ROA_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{TDA}_{i,t} + \alpha_4 \text{STDTD}_{i,t} + \alpha_5 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(2)

\[ ROA_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{LDA}_{i,t} + \alpha_4 \text{SDA}_{i,t} + \alpha_5 \text{STDTD}_{i,t} + \alpha_6 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(3)

Where the subscript i denotes the cross section, i= 1, 2…n and t denotes the time t=1, 2…n.

\[ \text{ROA}_{i,t} \] is return on assets of firm i in time t, \( \text{LIQUIDITY}_{i,t} \) is liquidity of firm i in time t, \( \text{LOGSIZE}_{i,t} \) is sales or total assets of firm i in time t, \( \text{GEARINGR}_{i,t} \) is the financial leverage of firm i in time t, \( \text{STDTD}_{i,t} \) is the short term debt as a ratio of total debt of firm i in time t and \( \text{SALESGR}_{i,t} \) is the sales growth of firm i in time t. The parameter \( \lambda_t \) is a time dummy variable to pick up aggregate factors which influence profitability, although does not allow variation across firms, \( \eta_i \) the unobservable heterogeneity of each firm and \( \varepsilon_{i,t} \) measures the random disturbance. Like Krishnan and Moyer (1997) we also use two proxies to measure profitability.

An alternative model for equation 1 can be written as follows with the proxy of the dependent variable.

\[ \text{ROCE}_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{GEARINGR}_{i,t} + \alpha_4 \text{STDTD}_{i,t} + \alpha_5 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(4)

\[ \text{ROCE}_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{TDA}_{i,t} + \alpha_4 \text{STDTD}_{i,t} + \alpha_5 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(5)

\[ \text{ROCE}_{i,t} = \alpha_0 + \alpha_1 \text{LIQUIDITY}_{i,t} + \alpha_2 \text{LOGSIZE}_{i,t} + \alpha_3 \text{LDA}_{i,t} + \alpha_4 \text{SDA}_{i,t} + \alpha_5 \text{STDTD}_{i,t} + \alpha_6 \text{SALESGR}_{i,t} + \lambda_t + \eta_i + \varepsilon_{i,t} \]  
(6)

Where all variables are defined as above excluding the dependent variable, \( \text{ROCE}_{i,t} \). \( \text{ROCE}_{i,t} \) is the return on capital employed of firm i in time t.

3.2 Data

Data obtained from the FAME database. Selecting all the firms from all the industries reduce the problems associated with selecting a sample from specified industries. This study selects all private limited firms in all sectors (except finance sector) SMEs in the UK. Finance sector has excluded from the data as their financial characteristics and use of leverage is substantially different from other companies. We use data from 1998-2008. Our analysis cover data from 1999-2008 as data for year 1998 are used to calculate some variables for 1999. We dropped companies with zero sales. We remove all outliers in the dataset by excluding observations that
lie in the 1% tails of each regression variable. Finally the selected sample consists of unbalanced panel of 54183 firms.

3.3 Estimation and Results

Descriptive statistics\(^3\) show that average ROA is 7.3%, while ROCE is 25%. The average log sales are 7.6 million and log size is 4.75 million. There are number of important points to note when looking at the mean of gearing ratio, that firms are highly levered on average. Financial leverage is very high for the SMEs in the UK. The average sales growth is 0.063 for SMEs in the UK during the period under study. TDA 79.9% indicates that approximately 80% of total assets are financed through debt, of which 47% short term debt and 33% long term debt showing the fact that UK SMEs are largely depend on short term debt for financing their operations may be due to the difficulty in accessing long term finance or young firms are resistant to use external finance and rely on internally generated funds. The standard deviation is very much higher for almost all the variables.

There does not appear to be high correlation between any of the explanatory variables except the proxies of profitability and size\(^4\). As expected the variables that alternatively represent the firm size and profitability shows a high and positive correlation. The correlation coefficient between LOGSIZE and LOGSALES is 0.79, while that between ROA and ROCE is 0.81.

4. Panel Data Estimation

The panel data estimation uses variants of equations and all the available yearly observations from 1998-2008 for all firms as explained above. The estimation is done using 2SLS fixed effect. The analysis is based on variants of equations and incorporating alternative proxies to measure profitability (ROA, ROCE), leverage [TDA (LDA+ SDA), GEARINGR] and size (LOGSIZE). As can be seen in the variable definition Table 1 there are two alternative measures for profitability, two main alternative measures for leverage and two alternative measure for size of the firm.

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<tbody>
<tr>
<td>C</td>
<td>-0.5976</td>
<td>0.0000***</td>
<td>-0.6466</td>
<td>0.0000***</td>
<td>-0.7285</td>
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<tr>
<td>LIQUIDITYR</td>
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<td>0.0000***</td>
<td>-0.0116</td>
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<td>-0.0166</td>
<td>0.0061**</td>
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<tr>
<td>LOGSIZE</td>
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<td>0.0000***</td>
<td>0.0605</td>
<td>0.0000***</td>
<td>0.0612</td>
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</tr>
<tr>
<td>GEARINGR</td>
<td>-0.0184</td>
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<td></td>
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<tr>
<td>TDA</td>
<td></td>
<td>-0.0642</td>
<td>0.0000***</td>
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<tr>
<td>SDA</td>
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<td></td>
<td>0.0614</td>
<td>0.0085**</td>
<td></td>
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</tr>
<tr>
<td>LDA</td>
<td></td>
<td></td>
<td>-0.0509</td>
<td>0.0496**</td>
<td></td>
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</tbody>
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\(^3\) Appendix A

\(^4\) As can be seen in the correlation matrix STDTD and LDA, LDA TDA, SDA TDA, STDTD SDA, TDA GEARINGRATIO and SDA GEARINGR are also highly correlated because they all are alternative measures of leverage.
In panel A and B of Table 2 the estimated coefficient on ROA and ROCE are highly significant in all cases.

The variable firm size measured by LOGSIZE is always highly significant with positively signed estimated coefficients in all the estimations. Increase in profitability with the size of the firm support the earlier findings by Miller (1977), Fama and French (1998), Deloof (2003), Abor (2005), Teruel and Solano (2006) and Abor (2007).

The estimated coefficient for the leverage ratio is negative and highly significant. The two alternative variables GEARINGR and TDA are significant at 1% and 5% level in all estimations. The negative sign is consistent with the literature. Firms that become highly geared may tend to suffer, as the proportion of gross profits dedicated to servicing debt increasing and proportion allocated to the shareholders shrinks accordingly. Benito and Vlieghe (2000) found that one third of firms classified as highly geared recorded relatively low profitability for UK firms for the period of 1974-1998.

Liquidity ratio is negative for all the estimations of ROA and ROCE. Further it is significant at 1% or 5% level for ROA and ROCE. There is evidence that lack of liquidity has been an important cause of business failure. Higher the liquidity lower the profitability confirms the

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negative correlation between net profit to assets and earnings before interest and tax to capital employed. A survey conducted by the society of practitioners of insolvency (1999) reveals that lack of working capital and non-paying debtors are increasingly cited by companies as the primary reason for failure. Sales growth shows positive relationship with the profitability. It is not significant in any of the estimations. Sales growth which could be an indication of a firm’s business opportunities is an important factor allowing firms to enjoy improved profitability. Here the sign of sales growth is positive in all of the estimations for total sample for both estimations of ROA and ROCE. This is consistent with the previous findings of Deloof (2003), Abor (2005), Teruel and Solano (2006) and Abor (2007).

The variable which measures the impact of short term debt on profitability is highly significant in all the estimations and it is negatively correlated with the profitability. These findings are not consistent with the Fama and French (1998) and Abor (2007).

The panel procedure produces stronger evidence in support of the concept that firm size is an important determinant of profitability. Estimations show that size plays an extraordinary role in determining profitability. In all the estimations LOGSIZE show a positive association with the profitability.

GEARINGR is always negative and consistent with the previous research studies. The firms that become highly geared may tend to endure as the proportion of gross profit dedicated for servicing debt increases. The coefficient of return on assets (ROA) and return on capital employed (ROCE) confirm the inverse relationship between profitability and leverage, a more profitable company will have less leverage which is supported the pecking order hypothesis, which suggest that firms prefer to use internal equity to external funds. Arcas and Bachiller (2008) found that British firms have less leverage and the reason they explain for that is the British capital market are very developed and these firms will prefer to issue stocks in order to obtain financing.

The variable measuring the growth of the firm, SALESGR is positively related to the dependent variable in almost all the models. Sales growth which could be an indicator of a firm’s business opportunities is an important factor allowing firms to enjoy improved profitability. As we can see in the positive sign for the variable SALESGR this is consistent with the improvement of sales in period of higher economic growth.

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6 Most papers conclude this, for instance, the studies of Ozkan (2001) and Hall et al (2004), for British enterprises and the study of De Miguel and Pindado (2002) for Spanish companies. Godadard et al (2005) investigate the determinants of profitability for manufacturing and service sector firms Belgian, France, Italy and UK and in their study they found the same relationship with profitability and gearing ratio.
The variable which measures the short term debt to total debt shows positive correlation with profitability. This implies that long term debt is costly than short term debt. Overall SMEs in the UK find short term debt is more profitable than long term debt.

5. Conclusion

This study has examined the relationship between capital structure and the profitability of non-financial SMEs in the UK for the period of 1998-2008. The results show a significant relationship with capital structure and profitability which is negatively related. The size of the firm appears more important factor that determines the profitability in SMEs in the UK. There is consistent evidence for positive size-profitability relationship.

The estimation results indicate a negative correlation with the profitability and gearing ratio for both measures of profitability. The same relationship is shown for the other measure of leverage (TDA) and profitability for all estimations and the results also statistically significant. This is an indication that SMEs in consistent with the theory that says higher the risk greater the return. But this is consistent with the agency theory because higher the leverage greater the agency cost of outside debt. However, in terms of Long-term debt and total assets (LDA) the results show a statistically significant negative relationship with profitability while short-term debt to total assets (SDA) shows a positive relationship with profitability. This implies that profitable firms use more short term debt to finance their operations. Therefore, short term debt plays an extraordinary role in financing operations of SMEs in the UK. This could be the reason that use of expensive debt create agency problems and which could result in negative relationship with profitability. This is confirmed by Arbor (2007) and Gleason et al (2000).

Liquidity refers to a firm’s ability to meet its short-term financial obligations. The estimation results show negative relationship with profitability for total sample and negative as well as positive relationship with profitability for sector classification. The negative relationship between profitability and liquidity ratio which could be an implication of the past performance where less profitable firms granting incentives their customers or may be the negative sales growth declines profit and increase the stock levels. It is possible for a firm to go bankrupt if it has a lot of cash but no profit and vice versa. As available cash will have to be used to finance the losses and assets of the company will have to shrink because there will be insufficient funds to replace them. This can be caused by declining sales leading to lower profits and higher the level of inventory. Further, the negative relationship could be consequence of firms with less risk, and hence lower profits. This implies the inefficiency of the management as well. The negative relation between liquidity and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

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7 This is consistent with Terual and Solano (2007).
The analysis suggests that there is a weak link between the sales growth and return on assets and return on capital employed of small firms. This is evident in both the lack of any significant relation between the performance equation for sales growth and ROA and ROCE. Sales growth is positively related with profitability in most sectors and positively correlated in all estimations for the total sample. But this is not an important factor as we find an insignificant relation for the profitability of SMEs in the UK. The implication is the short term increase in growth will have no profitability effect and vice versa. Roper (1999) found the same that number of firm characteristic had the opposite marginal effect on profitability.

The results of this study have shown that the capital structure of the firm has a significant influence on the profitability of SMEs in the UK. Especially long term debt to total assets ratio negatively related with the profitability and this is an indication that SMEs are averse to use more equity because of the fear of losing the control and therefore employ more debt than in the capital structure that would be appropriate. To avoid agency issues and the problems face in acquiring equity SMEs increase the usage of debt. Future research should investigate generalizations of the findings beyond the UK, incorporating qualitative factors such as manager’s perception to determine the relationship between capital structure and profitability of the firm.

References


Appendix A - Descriptive statistics

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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>0.073</td>
<td>24.555</td>
<td>581774</td>
</tr>
<tr>
<td>ROCE</td>
<td>25.027</td>
<td>114.61</td>
<td>506579</td>
</tr>
<tr>
<td>LOGSALES</td>
<td>7.642</td>
<td>294.444</td>
<td>355842</td>
</tr>
<tr>
<td>LOGSIZE</td>
<td>4.751</td>
<td>3.786</td>
<td>867195</td>
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<tr>
<td>GEARINGR</td>
<td>265.108</td>
<td>791.403</td>
<td>377624</td>
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<tr>
<td>LIQUIDITYR</td>
<td>3.183</td>
<td>7.832</td>
<td>505694</td>
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<tr>
<td>SALESGR</td>
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<td>294.444</td>
<td>287939</td>
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<td>TDA</td>
<td>0.799</td>
<td>51.693</td>
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<tr>
<td>SDA</td>
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<tr>
<td>LDA</td>
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<td>48.293</td>
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<td>STDTD</td>
<td>0.716</td>
<td>0.365</td>
<td>400090</td>
</tr>
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