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Managerial and Controlling Ownership, Profitability, Firm Size and Financial Leverage in Nigeria

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ABSTRACT: *An ordinary least squares regression test of sample of firms in manufacturing and services industries sorted into overall, low and high managerial and controlling interests (MCOWN), shows financial leverage (FL) as an increasing (decreasing) function of MCOWN, for firms with low (high) MCOWN and service (manufacturing) industry, and negatively (positively) related to profitability and size for firms with high (low) MCOWN. Result suggests increasing (decreasing) use of debt capital when MCOWN is low (high) and that the higher (lower) the MCOWN, the greater (lesser) the agency cost contradicting the notion that FL is a governance mechanism that mitigates agency problem.*

KEYWORDS: return on equity, return on assets, free cash flow theory, managerial and controlling interest hypothesis, convergence of interest hypothesis, entrenchment of interest hypothesis

INTRODUCTION

Since Jensen and Meckling (1976) established the link between managerial behaviour, agency cost and ownership structure a number of empirical studies has been conducted. This strand of research has been extended to show how agency cost affects the capital structure of the firm. In a study conducted by Akhtar and Oliver (2005) they indicated that agency cost as well as bankruptcy risk, value of assets, profitability and size are some of the factors responsible for the level of financial leverage. There seem to be a consensus that financial leverage is negatively related to profitability. There however appear to be varied opinions on the reason for this negative relation.

Linking the managerial self interest hypothesis and the capital structure of the firm as a product

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of managerial decision making, Brailsford, Oliver & Pua (1999) empirically established the effect that external block ownership has on managerial incentive to reduce non-diversifiable employment risk by reducing the debt level and the effect of managerial ownership on financial leverage. The combined effects of both external block ownership and managerial ownership on managerial incentives and ultimately on financial leverage were examined using the agency framework of analysis. They found a positive relationship between external block ownership and financial leverage and a curvilinear link between managerial ownership and financial leverage. This suggests that at low levels of external block ownership, when managerial ownership is expected to be more prominent, financial leverage is expected to be low. This is because managers ensure that the firm's exposure to the risk of bankruptcy is reduced and by so doing the self interested managers reduce the risk of losing their jobs. We build on this work and show that the combined impact of controlling interest (external block ownership) and managerial ownership interest is a determinant of the level of financial leverage and therefore an empirical proxy for agency cost. We further contend the direction of the relationship between financial leverage and profitability is defined by the level of agency cost. Thus at low level of managerial and controlling ownership, financial leverage is expected to be positively related with profitability. At higher levels of managerial and controlling ownership, the relationship between financial leverage and profitability is expected to be negative.

We therefore advance the managerial and controlling interest hypothesis that states that the higher the level of managerial and controlling ownership the greater the agency cost and vice versa; and that the level of managerial and controlling interest drives the relation between financial leverage and profitability even as managers invest the additional funds provided by external debt holders in perquisites and organisational inefficiencies. This contention is in tandem with the free cash flow theory. Our findings support this arguement as well as the free cash flow theory and contradict the notion that financial leverage is a governance mechanism that mitigates agency problem.The positive relationship between financial leverage and managerial and controlling interest and the negative relationship with profitability indicates that self interested manager use financial leverage to promote organisational inefficiencies rather than the interest of shareholders.

This study explains the relationship between financial leverage and managerial and controlling interest, in the light of contending agency and stewardship theories. This explanation is significant in a number of ways. It builds on free cash flow theory and provides evidence of the persistence of agency cost despite the view to the contrary that financial leverage mitigates agency problem. It provides empirical explaination of the often inconsistent and conflicting finding in the literature regarding the relationship between financial leverage and profitability. We provide evidence that contradicts the finding in extant literature that financial leverage is a governance mechanism that mitigates agency problem. Our evidence shows that higher levels of financial leverage rather than mitigating agency problem rather accentuates it as managers were found to invest the additional external funds in perquisites and organisational

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inefficiencies. It provides answer to what happens to the cash remaining after the interest and other other obligations to providers of external finance has been settled based on the free cash flow theory. The study is also significant because it is based on data of firms listed on the Nigerian capital market and it therefore provides an ample opportunity for out of sample test of the operation of the free cash flow theory in the Nigerian milieu. We show evidence of managerial and controlling interest hypothesis which suggests that manager behaviour is first constrained by rules and contracts and thereafter driven by self interest and before finallyserving the equity interest of shareholders. Our evidence of a negative (positive) relationship between financial leverage and profitability when the sample includes only firms with high (low) managerial and controlling ownership lends credence to this hypothesis.

We also explore the differential impact of managerial and controlling ownership interest on financial leverage in manufacturing and services industry. We found that when the relation is negative as in the manufacturing industry, *ROA* is also negative and that when the relation is positive as in the services industry, *ROA* is also positive suggesting that industry plays a key role in defining how owner managers apply the free cash flow. It is interesting to find that *ROE* moved in opposite direction with *ROA* suggesting that financial leverage is a(n) decreasing (increasing) function of *ROE* in service (manufacturing) industry.

This work is similar to Brailsford et al (1999) who studied the effect of managerial share ownership (*MSO*) and external block ownership (*EBO*) on financial leverage. It however differs from Brailsford et al in that we combine their two measures to derive managerial and controlling ownership (*MCOWN*). Managerial ownership and controlling ownership is combined in this study because we believe that both groups of shareholders have similar influence on the decision making process in the firm through their representation in the governing boards.

The rest of the paper proceeds as hereafter:- In Section 2, empirical literature is reviewed; Section 3 addresses theory and hypotheses development; Section 4 examines the methodology and specification of model; Section 5 deals with result and discussion of findings and Section 6, the conclusion.

EMPIRICAL LITERATURE

The use of debt to supplement the capital provided by common equity has remained a persistent characteristic of business firms. In some countries of the world the use of debt capital is rather high as the market for bank loans, bonds, commercial papers and other debt instruments is highly developed leading to the classification of those countries as bank financed as against capital market financed countries (Nobes, 1998, La Porta et al, 1997).Even in capital market financed countries, the use of debt capital is equally persistent. What has driven this persistence of debt finance has been attributed to many factors.In a study of the determinants of the capital

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structure in capital market oriented and bank oriented economies Antoniou, Guney and Pudyal (2008) found that financial leverage increases with tangibility of assets and size but decreases with profitability, growth options and share price. This further corroborates the findings of Gill and Mathur (2011) and Gill, Biger, Pai and Bhutani (2009).

Financial Leverage is a means of boosting returns to shareholders from investment in productive activities using external debt capital. When productive activities generate cash flows in excess of the available investment opportunities, financial leverage compels managers to pay interest to debt holders rather than invest in managerial perquisites and organisational inefficiencies. The free cash flow theory holds that financial leverage is a necessary governance mechanism for managing agency cost arising from the separation of ownership from control (Easterbrook, 1984; and Jensen, 1986). What has not been accounted for adequately is what happens to the cash remaining after interest to debt holders has been paid. We explore the impact of managerial and controlling ownership on financial leverage arising from debt capital and offer some explaination as to how managers respond to the excess cash flow.

In an analysis of the inter-relationship of ownership concentration, capital structure, monitoring and pecuniary incentives, Heinrich (2000) show that ownership concentration reduces incentive to monitor the activities of management as owners assume more managerial decision making roles. Along with the reduction in monitoring comes reduction in risk toelerance and hence the loss of benefits accruing from risk taking which managers are paid to do. And in tandem with standard model of lower risk lower return, profitability is negatively affected. But to mitigate this loss, firms with ownership concentration employ leverage to share the risk of decision making thus higher ownership concentration often leads to higher levels of financial leverage. This argument has been used by Bergelof (1991**)** to justify the fact that the takeover of firms which leads to highly concentrated ownership is always financed with debt capital. Although this current study is related to ownership concentration, it is focused on the magnitude and level of managerial and controlling ownership interest and its effect on financial leverage and not on the concentration or dispersion of ownership as was the case with Heinrich.

THEORY AND HYPOTHESES DEVELOPMENT

Stewardship theory states that managers act in the best interest of the firm and ultimately in the best interest of common equity holders. It rejects the notion of self interested managers even as it posits that managers are driven rather by self worth, sense of accomplishement and good reputation and other non-financial feeling of accomplishment. Managers who are so motivated by these non-financial goals ensure that decisions taken lead to the maximisation of shareholder wealth. Managers shall therefore contract debt only if it is in the best interest of shareholders. Therefore, guided by the notion of optimal leverage, even when managers contract debt it should increase the wealth of shareholders by increasing profitability. Stewardship theory therefore supports a positive relationship between financial leverage and managerial and

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controlling ownership interest and profitability.

The pecking order hypothesis states that firms first use internal resources in the form of retained earnings for expansion and thereafter use debt capital (Myers & Majluf, 1984). They only issue additional equity as a last resort suggesting that managers protect shareholders interest from dilution as far as is practicable. The preference for debt capital over equity is positively viewed by the market as a signal of potential profitability. Financial leverage is also viewed as a governance mechanism that mitigates agency costs and helps protect the interest of non-managerial and non-controlling (residual equity holder) shareholders from expropriation (Jensen & Meckling, 1976). Jensen & Meckling further argue that managerial share ownership helps to reduce agency problems through the convergence of interest of managers with those of residual shareholders by reducing their incentives to invest in perquisites and other forms of organisational inefficiencies. The level of managerial and controlling interest is therefore expected to be positively related to financial leverage and profitability.

There is the suggestion that managers who seek to diversify or reduce their exposure to employment risk reduce the debt level (Friend & Lang, 1988) as a strategy for reducing the bankruptcy risk. They also strive to reduce their employment risk by ensuring the continued viability of the firm (Amihud & Lev, 1981). This view is more in tune with the stewardship theory where managers are expected to serve in the best interest of the firm. Managers therefore use financial leverage as a mechanism for protecting the interest of shareholders. Under this scenario, managerial ownership of shares should lead naturally to convergence of interest of managers with those of other shareholders.

Despite the theoretical advantages of financial leverage, studies of the relation between capital structure and profitability have revealed mixed results. Some show a positive relationship while others show a negative relationship. The notion of optimal leverage suggests that there is a level of financial leverage that maximises profitability beyond which profitability decreases resulting in negative relation. Shubita & Alsawalhah (2012) states that agency cost could instigate managers to use higher than appropriate level of financial leverage that result in a negative relationship with profitability. We contend that the negative relationship between financial leverage and profitability reported by prior studies is primarily due to agency cost which stems in the main from the conflict of interest arising from the separation of ownership from control. We further contend that managerial and controlling ownership is a good proxy for agency cost and therefore drives the direction of the relationship between financial leverage and profitability. To investigate this, we examine the impact of managerial ownership and controlling ownership and profitability on financial leverage.

Furthermore and given the potential for opportunistic behaviour by owner-managers, agency cost is expected to be positively related to managerial and controlling ownership while the

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residual equity interest becomes the buffer for debt holders (Jensen & Meckling 1976). It has been argued that rather than help to mitigate agency problem, managerial share ownership will lead to the entrenchment of management resulting in an increase in expropriation of residual shareholders (Jensen & Meckling, 1976; Fama & Jensen, 1983 and Agrawal & Nagarajan (1990). Managers who want to superintend over a large business entity often use debt capital for expansion over and above the optimal level. If these assertions hold true, then financial leverage is therefore expected to be negatively related with managerial and controlling ownership and profitability.

Thus managerial ownership may lead to either a positive or a negative relationship with financial leverage. Brailsford et al (1999) argued that at low level of managerial share ownership, management interest and shareholder interest are likely to converge leading to increase in debt holding hence the *convergence of interest hypothesis*. At high level of managerial share ownership, debt holding is likely to reduce as management becomes more entrenched leading to the *entrenchment of interest hypothesis*. This has intuitive support in prior studies that found a non-linear relationship between managerial share ownership and firm value (McConnel & Servaes, 1990) (Morck, Shleifer, & Vishny, 1988). To test expected direction of the relation between the level of managerial and controlling ownership and financial leverage, we hypothesize that:-

Ho_1: Financial leverage is not an increasing function of managerial and controlling ownership for firms with low level of managerial and controlling ownership and not a decreasing function of managerial and controlling ownership for firms with high managerial and controlling ownership.
Ho_2: Financial leverage is not an increasing function of managerial and controlling ownership in service industry and not a decreasing function of managerial and controlling ownership in manufacturing industry.
Ho_3: Managerial and controlling ownership interest does not determine the direction of the relationship of financial leverage with profitability and size.

RESEARCH METHODOLOGY, MODEL SPECIFICATION AND MEASUREMENT OF VARIABLES

Sample, Data and Method of Data Analysis

We collected and analysed panel data for an eleven year period from 2004 to 2014 from the published annual reports of a sample of 10 firms in manufacturing and services industrial sectors of the Nigerian Stock Exchange intended to comprise 110 firm years. However, for consistency and in other to eliminate the problems associated with outfliers, firms with persistent negative profitability and those with negative equity balance were excluded from the sample. Also firm years with incomplete data were also excluded from the data set, leaving

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only 94 firm years for our analysis. The service sector companies in our sample are engaged in the provision of non-financial services.

There was a two stage sorting of the samples and eventual testing of the above stated hypothesis. First , the samples were sorted into two portfolios (1) Firms with ratio of managerial and controlling ownership interest below 50% (Low *MCOWN*) and (2) firms with ratio of managerial and controlling ownership interest above 50% (High *MCOWN*). At the second stage, and following the taxonomy of Gill & Marthur (2011) who analysed the determinants of financial leverage, the samples were sorted into manufacturing and services industrial sectors.

We conducted an ordinary least squares (*OLS*) multiple regression analysis with *Microsoft Excel* data analysis tool.

The Model Specification and Regression

We attribute variations in financial leverage as being primarily driven by managerial and controlling ownership which are the set of owner-managers who superintend over the affairs of the company as members of board of directors and those who by virtue of their significant ownership interest in the shares of the company, often exercise significant influence in the policy and decisions of the firm. We specify a model of financial leverage (*FL*) that is a function of managerial and controlling ownership (*MCOWN*) as independent variable, profitability (ROE, ROA) as explanatory variable and subject to firm size *(SIZE)* as control variable and industry dummy (InDummy) as categorical or indicator variable:-

$FL = f(MCOWN, ROE, ROA, SIZE, InDummy)$

Our regression model is of the form:-

$$FL_{it} = \beta_{oit} + \beta_{1it}MCOWN + \beta_{2it}ROE + \beta_{3it}ROA + \beta_{4it}SIZE + \beta_{5it}InDummy + \varepsilon_{it}$$

FL_{it} is the dependent variable *i* in time *t*, β_{oit} is the intercept and β_{1it}, β_{2it}, β_{3it} and β_{4it} are coefficients expected to be

$\beta_{2it}, \beta_{3it}, \beta_{5it} < 0 < \beta_{1it}, \beta_{4it},$ where managerial and controlling ownership is < 50% and

$\beta_{1it}, \beta_{2it}, \beta_{3it}, \beta_{5it} < 0 < \beta_{4it}$ where managerial and controlling ownership is > 50%.

The ellipsis, ε_{it} is the error term.

Measure of Financial leverage

The composition of the capital structure otherwise known as financial leverage is measured in this study as Long-term Debt denominated Equity (*LDE*).

Measurement of Managerial and Controlling Ownership

We measure managerial and controlling ownership as shares held by board of directors plus shares held by shareholders having significant interest of more than 5%, as a ratio of total shares in issue. Managerial ownership and controlling ownership is combined in this study because we believe that both groups of shareholders have similar influence on the decision

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making process in the firm through their representation in the governing boards. They are therefore subject to managerial self interest and managerial opportunism. Brailsford et al (1999) however separated managerial ownership from controlling ownership and labeled the later external block ownership.

Measures of Profitability

The traditional accounting measures of profitability are return on equity (ROE) and Return on Assets (*ROA*). Return of Equity is measured as Profit after Interest and Tax divided by Equity while retun of assets (*ROA*) is measured as Profit after Interest and Tax divided by Total Assets. We consider these measures of profitability are adequate for the tests conducted hence market measures of profitability were excluded.

Measure of Size and Industry Dummy

Following Anthoniou, Guney & Pudyal (2008) and Gill & Mathur (2011) we measure firm size using the natural logarithm of sales to control for the effect of size on financial leverage. The natural logarithm of sales was howver not lagged by one year as in the case of Gill & Mathur. The indicator variable, Industry Dummy is assigned the value of 1 for maufcaturing and 0 for service industry causing the effect of the later to disappear from the resulting beta estimate.

RESULT AND DISCUSSION OF FINDINGS

Descriptive statistics and Correlation of Variables

The properties of the observed data indicate that the variables are positively skewed and significant at 95% level of confidence. The only exception is natural log of size which shows some irregularity perhaps due to standardization of the real numbers. We also observed that the profitability measures are wide apart with *ROA* nearly 50% below *ROE* suggesting the extent of disparity in debt financing of total assets relative to equity financing. However our measure of financial leverage was the ratio long-term debt to equity with a mean value of about 31.5% as shown in Table 1.1 below.

All the variables in the model are positively correlated except *ROA* that is negatively correlated with financial leverage, managerial and controlling ownership and Industry Dummy as shown in Table 1.2. The negative correlation of *ROA* with financial leverage and *MCOWN* may have been accentuated by measurement issues described above. The industry dummy variable measures the ratio of manufacturing industry with respect to the service industry and the negative correlation with ROA suggests that the later is more profitable than the former.

The approximately 58% correlation of LnSize with Indummy indicates the size of manufacturing industries in the sample relative to service industries in the sample. Manufacturing industries in the sample negatively contribute at least 50% to the value of ROA

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and positively contribute 36.5%, 15.8% and 22.3% to financial leverage, ROE and MCOWN respectively.

Effect of High and Low Managerial and Controlling Ownership on Financial Leverage

The goodness of fit of the regression model shown by the regression statistics of High and Low Ordinary Least Squares (*OLS*) regression estimates as indicated by the standard error in Table 1.3 are fairly similar. The coefficient of determination of the regression model for high managerial and controlling ownership (*MCOWN*) was however slightly higher than the one for low *MCOWN*.

However while the intercept and the beta coefficient of low *MCOWN* was positive, those for high *MCOWN* were negative. This indicates that at low level of managerial and controlling ownerhip, financing decision leads to increasing use of debt and hence financial leverage, confirming that at this level there is convergence of interest between managerial and controlling shareholders and the residual shareholders. On the other hand at high level of managerial and controlling share ownership, financial leverage is a decreasing function of managerial and controlling ownership thus supporting the entrenchment of interest hypothesis. This evidence supports Brailsford et al (1999) who found that there is a curvilinear relationship between managerial share ownership and financial leverage. It also corraborate the entrenchment of interest hypothesis put forward by McConnel & Servaes (1990) and Morck, Schleifer & Vishny (1988) that there is a curvilinear relationship between managerial share ownership and firm value.

Effect of industry on the relation between managerial and controlling ownership and financial leverage

Sorting the sample by industry yielded 15 observations for service industry and 79 observations for manufacturing industry making 94 overall observations. The goodness of fit of the three regression models were similar although service industry appears to be slightly better with a coefficient of determination of about 61% and a low standard error statistic of 0.0766 compared to the coefficient of determination of firms under the manufacturing portfolio of about 46% and a standard error statistic of 0.2236 as shown in Table 1.4 below.

While the relationship between financial leverage and *MCOWN* is positive in service industry with a beta coefficient of 0.3704, it returned negative with in manufacturing industry with a beta coefficient of -0.2552 suggesting that financial leverage is an increasing function of *MCOWN* in service industry and a decreasing function in manufacturing industry. This negates the null hypothesis and confirms the alternate hypothesis that financial leverage is an increasing function of managerial and controlling ownership in service industry and a decreasing function of managerial and controlling ownership in manufacturing industry.

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The overall picture indicates that there is a negative but significant relationship between financial leverage and and managerial and controlling ownership with a beta coefficient of -0.4339 (p-value < 0.05 at 0.039) suggesting that the higher the *MCOWN* the lower financial leverage. This confirms the entrenchment of interest hypothesis indicating an increase in managerial opportunism. Our finding supports those of Brailsford et al (1999) however as shown in the earlier on, this phenomenon is more pronounced in firms with high *MCOWN* and manufacturing industry.

Effect of managerial and controlling ownership on the relationship between financial leverage profitability and size

Also both *ROE* and *ROA* indicated a negative relation with financial leverage at low *MCOWN* but at high level of *MCOWN*, only *ROA* showed a negative relation with fiancial leverage perhaps confirming that financial leverage is only a decreasing function of profitability at low level of *MCOWN*. Furthermore, the negative relation between financial leverage and profitability is supportive of the pecking order hypothesis that profitable firms have lesser need for external finance as retained profit builds equity financing. This phenomenon appears to be associated more with low *MCOWN* than with high *MCOWN* since the later returned positive and significant ROE. Under firms with low *MCOWN*, we found that financial leverage is a decreasing function of size and an increasing function of *MCOWN* suggesting that smaller firms tend to have lower level of financial leverage and higher *MCOWN*. For firms with high *MCOWN* however, we found that financial leverage is an increasing function of size and a decreasing function of *MCOWN* suggesting that larger firms tend to have higher level of financial leverage and lower *MCOWN*. This is consistent with Brailsford et al (1999) and Agrawal & Nagarajan (1990) who found that larger firms tend to have higher financial leverage. These negate the null hypothesis and confirm the alternate hypothesis that managerial and controlling ownership interest determines the direction of the relationship of financial leverage with profitability and size.

We also observe that MCOWN drives the effect of profitability on financial leverage. In Table 1.4 for service industry, when MCOWN was positive (0.3704), financial leverage was a decreasing function of ROE (-0.3551) and an increasing function of ROA (0.5388). On the other hand, for manufacturing industry when MCOWN was negative (-0.2551), financial leverage was an increasing and signifcant function of ROE (1.2135) and a decreasing and significant function of ROA(-1.1877). The combined effect of manufacturing and service industries indicate that overall, when financial leverage is a decreasing function of managerial and controlling ownership interest (-0.4339), it has a positive relation with ROE (0.4305) and LnSize (0.0751) and a negative relationship with ROA (-1.1877). These suggest that the relationship of financial leverage with profitability and size in manufacturing and service industries is determined by MCOWN. This finding perhaps provides explanation for Gill & Marthur (2011) that found that financial leverage is positively (negatively) related to

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profitability (ROA) in manufacturing (services) industry and positively related to firm size in both manufacturing and service industries.

CONCLUSION

We did not carry out a sensitivity analysis with regard to serial correlation and multi collinearity as done by Brailsford et al (1999) for the main reason that we believe that the effect of serial correlation and multi collinearity in our model is minimal given the low level of bivariate correlation as in Table 1.2. However, despite not doing so we found that our result strongly follows Brailsford et al and other similar studies and therefore we believe it a good out of sample test of those studies carried out in Australia (Brailsford et al), United States (Gill, Biger, Pai & Bhautani, 2009; McConnel & Servaes,1990), Canada (Gill & Marthur, 2011) and United Kingdom (Short & Keasy,1999). This study has therefore contributed significantly to the development of the theory and provided evidence within the scope of study.

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Table 1.1 Descriptive Statistics

	FL	*ROE*	*ROA*	*MCOWN*	*LnSize*	*InDummy*
Mean	0.3147	0.2063	0.1186	0.4512	16.5484	0.8404
Standard Error	0.0251	0.0200	0.0114	0.0190	0.1707	0.0380
Median	0.2236	0.1772	0.0955	0.5008	16.7426	1
Mode	0.1757	0.2440	0.1279	0.4780	N/A	1
Standard Deviation	0.2431	0.1936	0.1101	0.1844	1.6554	0.3682
Sample Variance	0.0591	0.0375	0.0121	0.0340	2.7404	0.1356
Kurtosis	0.1687	3.7245	3.5158	-0.4130	-1.1717	1.6037
Skewness	0.9048	-0.3557	1.0655	-0.7890	-0.1157	-1.8895
Range	1.0753	1.3975	0.7908	0.6579	6.2553	1
Minimum	-0.1207	-0.6000	-0.2462	0.0581	13.1535	0
Maximum	0.9546	0.7974	0.5446	0.7160	19.4088	1
Sum	29.5775	19.3933	11.1510	42.4142	1555.5511	79
Count	94	94	94	94	94	94
Confidence Level(95.0%)	0.0498	0.0397	0.0226	0.0378	0.3391	0.0754

The table above shows that data for Financial Leverage (*FL*) and return on assets (*ROA)* are positively skewed (with mean values higher than the median values), whereas return on assets (*ROE)*, *MCOWN*, *LnSize* and *Indummy* are negatively skewed (with the median values is higher than the mean values).

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Table 1.2 Correlation Matrix

	FL	*ROE*	*ROA*	*MCOWN*	*LnSize*	*InDummy*
FL	1					
ROE	0.2373	1				
ROA	-0.1196	0.5347	1			
MCOWN	0.1327	0.2165	-0.3335	1		
LnSize	0.3996	0.5514	0.0681	0.4858	1	
InDummy	0.3650	0.1577	-0.5019	0.2232	0.5769	1

Financial Leverage (*FL*) is positively related to all the independent variables except *ROA*. Similarly, *ROA* is negatively related with *MCOWN*, and *InDummy*. It is also note worthy that most of the variables have low correlationship between them with highest correlation being between *LnSize* and *Indummy* at 57%. This, in our view, limits the effect of auto-correlation.

Table 1.3

Comparison of Low and High Managerial Ownership OLS Regression Estimates

	Low		**High**	
Statistics	***MCOWN***		***MCOWN***	
Multiple R	0.4378		0.6290	
R Square	0.1916		0.3957	
Adjusted R Square	0.0853		0.3270	
Standard Error	0.2209		0.2026	
Observations	44		50	
Variables	***Beta***	***p Value***	***Beta***	***p Value***
Intercept	1.3585	0.398	-0.7116	0.383
ROE	-0.2299	0.694	*1.0830	0.007
ROA	-0.5561	0.627	*-2.8830	0.027
MCOWN	0.7711	0.195	-0.4553	0.151
LnSize	-0.0691	0.522	0.0877	0.153
InDummy	-0.2067	0.579	-0.2032	0.471

*Beta coefficients are significant at 95% level of confidence

The goodness of fit of the regression models for Low and High *MCOWN* as indicated by the standard errors above are fairly similar. The coefficient of determination of the regression model for high *MCOWN* was however slightly higher than the one for low *MCOWN*. However while the intercept and the beta coefficient of low *MCOWN* was positive, those for high

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MCOWN were negative suggesting that at low level of managerial and controlling ownerhip, financing decision leads to increasing use of debt and hence financial leverage, confirming that at this level there is convergence of interest between managerial and controlling shareholders and the residual shareholders. On the other hand at high level of managerial and controlling share ownership, financial leverage is a decreasing function of managerial and controlling ownership thus supporting the entrenchment of interest hypothesis.

Table 1.4

Inter-Industry Comparison and Overall OLS Regression Estimates

	Service		Manufacturing		Overall	
Statistics						
Multiple R	0.6088		0.4559		0.4903	
R Square	0.3707		0.2078		0.2404	
Adjusted R Square	0.1189		0.1650		0.1973	
Standard Error	0.0766		0.2236		0.2178	
Observations	15		79		94	
Variables	*Beta*	*p Value*	*Beta*	*p Value*	*Beta*	*p Value*
Intercept	-1.4181	0.175	-0.4582	0.288	-0.5797	0.061
ROE	-0.3551	0.655	*1.2135	0.001	*0.4305	0.040
ROA	0.5388	0.246	*-3.4504	0.001	*-1.1877	0.022
MCOWN	0.3704	0.173	-0.2551	0.319	*-0.4339	0.039
LnSize	0.0915	0.224	0.0584	0.063	*0.0751	0.007
InDummy					-0.1194	0.381

*Beta coefficients are significant at 95% level of confidence

For service industry, when MCOWN was positive (0.3704), financial leverage was a decreasing function of ROE (-0.3551) and an increasing function of ROA (0.5388). On the other hand, for manufacturing industry when MCOWN was negative (-0.2551), financial leverage was an increasing and signifcant function of ROE (1.2135) and a decreasing and significant function of ROA(-1.1877). The combined effect of manufacturing and service industries indicate that overall, when financial leverage is a decreasing function of managerial and controlling ownership interest (-0.4339), it has a positive relation with ROE (0.4305) and

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LnSize (0.0751) and a negative relationship with ROA (-1.1877). These suggest that the relationship of financial leverage with profitability and size in manufacturing and service industries is determined by MCOWN.

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