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AN EMPIRICAL ANALYSIS ON CAPITAL STRUCTURE, OWNERSHIP STRUCTURE AND FIRM PERFORMANCE: EVIDENCE FROM INDIA

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ABSTRACT

The study has attempted to empirically examine the effect of capital structure and ownership structure on the accounting performance of Indian manufacturing firms listed and traded on Bombay Stock Exchange (BSE) of India during the period of 2009-16. The capital structure is represented by the debt to equity ratio whereas the various forms of ownership structure are represented by percentage of domestic promoters' ownership, percentage of foreign promoters' ownership and percentage of institutional ownership. Besides, return on assets and return on net worth are introduced to measure firms' accounting performance. The study is based on panel data analysis. We have introduced Fixed Effect Model for the regression on such panel data. We estimated Restricted F test, Lagrange Multiplier Test and Hausman Test for the purpose of final selection of appropriate model for our regression analysis. Finally, the study found a significantly negative effect of capital structure on accounting performance of our sampled firms. However, the study found a significant and positive impact of almost all forms of ownership structure on firms' accounting performance. Thus, the study proposed the firms' accounting performance as the function of almost all the variables of capital and ownership structure used in the study.

Keywords*: Capital structure, Ownership Structure, Firm Performance.*
JEL Classification: *G3, G32*

Introduction:

The theoretical framework of financial management suggests three main different but closely interrelated functions of a finance manager in a joint stock firm: to work on various issues related to financing, to undertake decisions on investments in fixed and currents assents and to decide on the various issues regarding distribution of profits. All these functions are based on the objective of maximization of shareholders returns and creation of wealth or worth for the firm. A finance manager is to exercise these functions mainly for the best interest of shareholders of a firm. But one of the prominent issues in a joint stock firm is an existence of clash of interests between the owners of such firms also called the principals and the managers (the agents), whereby the managers are supposed to enjoy a series of private benefits such as high perquisites, added earnings, job security etc and many times can compromise organizational interest for their self betterment and satisfaction. So, the principals and the agents are two distinct entities and their personal interests generally don't go in same line and there exist a conflict of such interests called agency cost as described in the (Jensen & Meckling, 1976)Agency cost theory. However, Jensen and Meckling are not the earliest scholars who described this clash of interests. Long before their proposition, it was the world famous and eminent Scottish economist, philosopher, and author Adam Smith (1776), said how and why the directors or the

employed managers in a joint stock company can't be well expected to watch over the business as anxiously and vigilantly as the partners do in a private copartnery. According to Smith, there always exists a sense of negligence and profusion in the management of the affairs of such a company. Now, a firm has to suffer in two broad ways due to this agency crisis. Firstly it suffers due to ineffective and self serving attitude of agents which is supposed to directly affect its efficiency and profitability and secondly a firm has to incur a number of expensive preventive and controlling mechanism for such agency crisis like incentives for managers, punishments, accounting procedures, budgetary constraints, and even technical devices such as CCTV cameras and computer software to monitor their actions. The latter activities actually increase the general and administrative expenses of the firm.

However, we are in this study more interested and curious on documenting the role played by the magnitude of debt in the capital structure and the distribution of ownership of a firm towards firms' profitability through the reduction in agency cost. The hypothesized effect of capital and ownership structure on firm profitability is backed and justified by theoretical views and handful of empirical evidences in context of different economies and time periods. For instance, According to (Jensen, 1986) if a firm contracts more debt, this will limit the amount of money available in the hands of firms' managers which is supposed to curve inefficient expenditure by managers. According to the (Grossman & Hart, 1982) study a high debt acts as a disciplinary device in reducing managerial cash flow waste by creating a fear or threat of liquidation. However, a model developed by Mayers (1977), (Jensen, 1986) an (Stulz, 1990)showed debt as to mitigate overinvestment problem but sometimes to introduce underinvestment problem in firms which may lead to reduced firm performance.

Again, the corporate ownership may take different forms and most of the extant literatures (Berle & Means, 1932), (Fama, 1978), (Chakrabarti, 2005), (Kaur & Gill, 2009), etc) in this field identified a number of forms like concentrated ownership or block holdings, promoters' ownership, insiders' ownership (directors/managers), institutional ownership etc which affect firm performance. One of the important perceptions behind the effect of different forms of ownership and firm performance in almost all the literatures are routed to monitoring and supervisory hypothesis. For example, when the substantial fraction of share is hold by professional bodies like institutions and even big promoters (having substantial voting rights) they are supposed to monitor the firm and actively take part in firm's business decision, activities, plans and proposals. They have vested interest and substantial power to regulate and control the intension, action and decisions of the firm. In SEBI's Substantial Acquisition of Shares and Takeover Regulations, 1997 and Disclosure and Investment Protection Guidelines, 2000, promoters are supposed to have significant influence on firm activities through rigorous monitoring and regulating corporate decision and actions by virtue of their shareholding and management rights.

This empirical study has been carried out taking a sample of 91 manufacturing firms of BSE 200 indices aiming at examining the effect of capital structure and the various forms of ownership on the firms' profitability measured by *return on assets* and *return on net worth*.

Review of Literature:

Capital Structure and Firm Performance:

One of the prominent issues of corporate governance that has earned the attention of most of the eminent scholars and a bench of academicians is the clash of interests in joint stock companies caused by the separation of ownership and control. Adam smith ((1776) was rightly pointed out that "the directors of such [joint-stock] companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own". According to him there always prevail a sense of Negligence and profusion in the management of the affairs of such a company.

In their seminal work (Jensen & Meckling, 1976) have presented the issue in a more formal approach by putting forth a new theory called Agency Cost Theory. The essence of this theory is that, a high degree of leverage minimizes the agency cost of outside equity as it compels managers to act in the interest of shareholders which further leads to increased firm value. However, (Myers, 1977) confronted the idea and proposed that, a high debt equity ratio may cause conflict between equity and debt holders because of default risk and brings another agency cost. It creates a problem, which Myers named as "underinvestment" or "debt overhang problem". Here, debt will have negative impact on firm value. But, (Grossman & Hart, 1982) went with the line of (Jensen & Meckling, 1976) view and explained debt as an instrument having incentive effects of the threat of liquidation in widely held corporation which compels manager to act in the interest of the firm. Debt is also supposed to discipline managers (Jensen, 1986). According to Jensen, the free cash flow of a firm is used by its manger in different avenues like investment in projects, payments of dividends etc. The access cash flow remains as cash balance in the hand of managers. Managers may waste this access free cash flow guided by self interest if the firm is not

committed to some fixed payments such as interest on debt. But this fixed interest payment burden may force managers to forgo positive present value projects which further may adversely affect firm value (Stulz 1990).

Besides, use of debt curves the cost of capital generally due to interest tax shield. But additional debt may bring some bankruptcy cost and if the bankruptcy cost exceeds the benefits of interest tax shield than firm performance supposed to be inversely affected. So, firm has to make a proper trade-off between costs of liquidation and the gain from liquidation to both shareholders and managers (Harris & Raviv, 1991).

Blanchard et al. (1994) showed how managers of firms who get excessive idle cash often spend them desperately on acquisitions of unrelated firms and other activities which don't create any value for the shareholders. Subsequent studies on capital structure and profitability of firms gave us heterogeneous findings. (Krishnan & Moyer, 1997) documented a significantly negative impact of total debt to total equity (TD/TE) on return on equity (ROE). Likewise, the study of (Gleason, Mathur, & Mathur, 2000) also found firms capital structure to have a negative impact on firms performance measured by ROA, growth in sales (Gsales), and pre tax income (Ptax). However, (Abor, 2005) during investigating the impact of capital structure on profitability taking 22 listed companies of Ghana Stock Exchange during 1998-2002 observed the capital structure (total debt to total assets ratio) to positively affect the firm's Return On Equity (ROE). Moreover there are a number of other recent past studies those tried to inquire the impact of capital structure on firm performance (Gonzalez, 2013), (Javeed, Hassan, & Azeem, 2014), (Awais, Iqbal, Iqbal, & Khursheed, 2016), (Nassar, 2016) etc.

Ownership Structure and Firm Performance:

The relationship between ownership structure and firm performance dates back to the study of (Berle & Means, 1932). According to them, the firms in the US, that ownership of capital is dispersed among small shareholders and control is more concentrated in the hands of managers tends to have low level of performance. Following this, (Jensen & Meckling, 1976) developed the Agency Theory showing the managerial ownership may reduce agency cost by reducing managerial incentives and helps in aligning interest of managers & shareholders. Moreover, according to (Demsetz, 1983) the ownership structure of a firm should be thought of as an endogenous outcome of decisions which is influenced by the profit-maximizing interests of shareholders, as a result, there is no systematic relation between variations in ownership structure and variations in firm performance. Other concurrent studies those attempted to establish the relationship between ownership structure and firm performance are: Morck et al. (1988), (Loderer & Martin, 1997), (Demsetz & Villalonga, 2001), (Welch, 2003). The studies of these periods were mostly focussing on insider ownership, block holdings or ownership concentration, managerial shareholdings etc. However, since last two decades a number of other ownership forms have been gaining much importance in research and analysis. The role played by institutional investors, promoters including domestic and foreign in influencing managers' activities specially through effective monitoring and supervising has become a topic of sheer interest to a bench of academician, corporate practitioners and research scholars of this domain.

(Douma, George, & Kabir, 2006)adopted a multi-theoretic approach to establish the individual impact of foreign institutional, foreign corporate and domestic institutional, domestic corporate ownership on firm performance. The findings of the study highlighted that the effect of foreign institutional investors on firm performance is quite unclear and evidence was found that the foreign corporate ownership is more effective in respect of superior monitoring abilities, higher commitment and long-term involvement. Similarly, the domestic corporate ownership is found to have a positive effect on firm performance, whereas the domestic financial institutions' holdings were found to have negative impact on firm performance.

Liang, Lin, and Huang (2011) adopted simultaneous equations framework to explore the persistence of the relationship (across the life cycle of firms over time) between ownership and performance of Taiwanese firms using an unbalanced panel data of publicly listed companies from 1999 to 2008. Institutional ownership variable is found to be a function of companies' performance especially in maturity stage and vice versa. (Haldar & Rao, 2011) studied the effect of promoters' holdings and non-promoters' holdings on ROA & ROCE of Indian firm. The study found a significantly positive effect of promoters' holdings on firm performance, however non-promoters' holdings is found to be less significant for firm performance under the study. Apart from this, it is documented that unobserved firm heterogeneity is also a major cause behind firms' performance variations.

In another study (Gugnani, 2013)has studied the interrelationship between corporate governance parameters (like board size, board composition, duality in terms of board leadership, promoters' holdings) and firm performance. Taking listed Indian manufacturing firms for the period of 2005-12 and adopting Ordinary Least Square (OLS) method, corporate performance is found to be positively related to insiders (Promoters) holding. In a quite similar attempt V. Kerpagam et al. (2013) have made an inquiry to explore the relationship between Indian Promoters' and Foreign Promoters' holdings and other ownership type and firm performance taking BSE

sensex companies for the period of 2007-11. The Ordinary Least Square (OLS) result shows no such significant impact of ownership structure variables on firm performance. Again, Striewe, Rottke and Zietz (2013) examined the impact of changes in institutional ownership on alpha returns and operating performance of real estate investment trusts (REITs). The study encompasses 155 U.S. REITs for the period of 1st quarter of 1998 to 4th quarter of 2004. Employing Fama-MacBeth firm fixed- effects regression the study shows a significant and positive impact of institutional ownership on alpha returns/risk adjusted returns (market performance). An increase in institutional ownership is also found to positively affect Tobin's Q within three quarters and ROA within five quarters from such increment

More recently, V.K. Tawiah et al. (2015) have used 125 observations of 25 listed companies out of Nifty 50 companies for the period of 2009-13. Interestingly they have documented an inverse relationship between promoters' ownership and shareholders' wealth. The other recent efforts in the form of research articles made towards this issue are: Soufeljil.et al (2016), (Elvin & Hamid, 2015), (Asadi & Pahlevan, 2016), Abbasi et.al (2017) etc.

Going through the past literatures it is observed that the studies are conducted on different countries context and in varied time periods. So, the findings are heterogeneous and the effect of capital and ownership structure on firm profitability needs to be re-examined repeatedly with changing time and economic context.

In this backdrop, this empirical study is carried out with the broad objective to establish the effect of capital structure and ownership structure on accounting performance of Indian manufacturing firms.

Keeping in mind the objectives of the study the following hypotheses have been framed and tested:

Hypothesis – I:

Null Hypothesis (H_0): There is no relationship between the capital structure and accounting performance of Indian Firm.

Alternative Hypothesis (H_1): H_0 is not true.

Hypothesis – 2:

Null Hypothesis (H_0): There is no relationship between the ownership structure and accounting performance of Indian firm.

Alternative Hypothesis (H_1): H_0 is not true.

Data and Methodology:

The present study has made an attempt to establish the effect of capital structure and ownership structure on firm performance. For this, the study used a moderately balanced panel data from 2009-16 of 91 manufacturing firms regularly traded and listed in BSE 200 indices of India. A few manufacturing companies are eliminated due to data insufficiency. The study has introduced the Variance Inflation Factor (VIF) and pair wise correlation test to detect the Multicolinearity property of the independent variables. Again, ordinary least square model, fixed effect and random effect model are employed and Restricted F Test, Lagrange Multiplier Test and Hausman Test are estimated for the selection of best fit model for the panel data analysis. Besides, descriptive statistics like Mean, standard deviation, maximum and minimum values of all the variables are determined to know the data property.

The capital structure is represented by the debt to equity ratio (DER) whereas the various forms of ownership structure are represented by percentage of domestic promoters' ownership (DPO), percentage of foreign promoters' ownership (FPO) and percentage of institutional ownership (INSTO). The study has used return on assets (ROA) and return on net worth (RONW) as proxies for firms' accounting performance. In order to control the effect of other possible determinants of firms' performance, some observed firm characteristics, namely age of the firm (AGE), quick ratio (QR), assets turnover ratio (ATR) and size of the firm (FS) are taken into consideration.

Data Analysis, Interpretation and Findings:

Summary Statistics:

An outlook of summary statistics of all the variables taken in the present study can be obtained from table 1. In the table, the mean values of different variables are only rendering some apparent view for our sampled firms. So, the mean values with high standard deviation as found, can only represent an apparent picture which can't be generalized for all firms.

Starting from performance dimension of the sampled firms, we see the mean value of two accounting performance indicators i.e. ROA and RONW are 9.88 and 20.88 respectively. Another prominent finding is the debt to equity ratio (DER) of the firms, which is found to be 0.54; depicting owners' capital in our sampled firms on an average is two times of debt capital. Another notable finding is the low foreign promoters' and considerably high domestic promoters' ownership in the sampled firms. It indicates that the ownership of Indian firms is mostly lying in the hands of Indian promoters and very small fraction goes to their foreign counterpart.

Test of Multicolinearity:

Before we proceed to panel data analysis it is essential to test the existence of multicollinearity property among our independent variables. It is a data property in which two or more independent variables in a multiple regression model are highly correlated which can be linearly estimated from the others with a substantial degree of precision. The existence of multicollinearity leads to spurious results which may leads to ambiguous or erroneous research inferences. To test such data property the study first introduced the VIF test as shown in table 2.

From Table 2, representing VIF figures, it is quite clear that the independent variables are free from multicollinearity property. The two highest VIF values 3.70 and 3.06 respectively are found in case of DPO and INSTO. The average VIF value is found to be as low as 1.86. Generally a VIF value of more than 5 is considered as a signal of considerable multicollinearity. We confirm our suspicion by introducing the pair-wise correlation test as shown in table3:

The pair-wise correlation confirms that our variables are not suffering from high multicollinearity as the table shows a highest correlation value of -0.5069 between INSTO and DPO. Generally, a correlation value of more than 0.70 is considered as an indicator for existence of multicollinearity between two variables. So, both the test depicted the same results of non-existence of multicollinearity property between any two of the concerned variables.

Panel Data Analysis:

After testing the multicollinearity property of the data set, the study proceeds to the next important part i.e. analysis and interpretation of the panel data. At the outset, the study introduced three regression models namely Ordinary Least Square Model (OLS), Fixed Effect Model (FEM) and Random Effect Model (REM). The pooled regression model assumes all firms to be homogenous, the intercept as well as the slope coefficients are the same for all of them and there is no impact of time on the dependent variables of our study. The fixed effect model assumes that firms are heterogeneous in nature, intercept systematically vary across firms. Random effect model assumes intercept of a particular firm as being a random selection from a large population which varies non-systematically with a constant mean value.

Table 4 shows the coefficient as well as t-statistics obtained from the three regression model considering the ROA as our dependent variable. Now, we find the F-statistic of ordinary least square model and fixed effect model and the Wald-χ2 statistic of random effect model to be significant, implying that all the three models introduced are suitable for the study. But, all of the models can't be equally suitable and for the purpose we need to select a particular regression model which is most appropriate and befitting for the analysis. Now to choose between ordinary least square model and fixed effect model as par rule we considered the restricted- F test. The underlying null hypothesis of restricted- F test is, no difference in intercepts or in other words the pooled regression model is suitable. As shown in the table 5, the Restricted F-stat is found to be [F (76, 440) = 13.09*] significant and as a result the null hypothesis is rejected and the FEM is found to be better suitable than pooled regression model. Now, in the next step, we introduced Lagrange Multiplier Test as suggested by (Breusch & Pagan, 1980). The null hypothesis in this case is that there is no random effect and it uses a test statistic which follows χ2 distribution. Now looking at the table we see the Lagrange Multiplier Test statistic [χ 2 (1) = 442.77*] is found to be significant and the null hypothesis is rejected. So, this test validates the REM model as superior than OLS. Now, to obtain a final choice between FEM and REM, we introduce the Hausman test suggested by (Hausman, 1978). The null hypothesis as shown in Table 5 is 'difference in coefficients is not systematic' and the rejection of the null validates the FEM as the most appropriate model for the regression analysis. The Hausman test statistics as shown in the table is significant [χ 2 (8) = 43.31*] and it confirms the selection of FEM as the best suitable model.

Table 6 shows the regression results when we consider RONW as the dependent variable. Here again the F statistic of ordinary least square model (27.53*) and fixed effect model (40.97*) and the Wald-χ2 statistic (297.56*) of random effect model is found to be significant. So, again we need to go for Restricted F (See Table 7) test where we find the fixed effect model as fit [F (76, 447) = 9.49*] and Breusch-Pagan Lagrange Multiplier Test where we find random effect model [χ 2 (1) = 260.99*] is fit for regression. Now, we have employed Hausman Test for appropriate selection of model. The Hausman Test statistic [χ 2 (8) = 126.06*] is found to be significant, confirms the difference in coefficients is systematic and the fixed effect model is fit for our regression analysis.

Finally, for the sake of convenience the results of all the regression analysis taking FEM as the best fit model are merged together in a summarized form as below:

From the summarized results of panel data analysis (as shown in table 8) employing the fixed effect model the following inferences can be drawn:

- Capital Structure represented by *debt to equity ratio* has a negative impact on firm performance represented by *return on assets* and *return on net worth* and the null hypothesis of no relation between capital structures and accounting performance is, thus, rejected. The findings of our study somewhat go with the line of studies like (Myers, 1977), Stulz (1990), (Krishnan & Moyer, 1997),(Gleason, Mathur, & Mathur, 2000) etc.
- Ownership structure represented by the extent of *percentage of domestic promoters' ownership* positively affects accounting performance of Indian manufacturing firms. The findings can be aligned with the studies of (Haldar & Rao, 2011), R. (Gugnani, 2013)etc. Apart from there is also a significant and positive impact of ownership by foreign promoters' on the *return on assets* of Indian manufacturing firms.
- Percentage of ownerships hold by institutions has positively contributed to firm performance and the findings is supported by the studies of (Liang, Lin, & Huang, 2011), Lin, and Huang (2011), (Striewe,

Rottke, & Zietz, 2013)and a number of other studies.

- Our second null hypothesis stating no relationship between various forms of ownership and accounting performance of Indian firms is also rejected.

Summary and Conclusion:

The various issues associated with financing decision of a firm like any other decision areas are certainty complex and controversial for the finance mangers of a firm. The equity shares are the owners' fund whereas the debt is the creditors fund and the right choice on the mix of these two sources of capital would likely to promote administration, sound management and thereby superior firm performance. The relationship is theoretically accepted and empirically established. Again, ownership structure i.e. the distribution of equity ownership to different types of investors has an important bearing on the success or failure of an enterprise. This is because equity investors are different in terms of objective of investment, expertise on investment and its nurturing and voting rights or control towards the action and decisions of management. It is true that, an individual investor with very small fraction of ownership with a firm along with less expertise would have a more or less no influence on the decisions and functioning of a firm. On the other hand large promoters and institutions having substantial ownership to the same firm with high expertise and specialized skill in nurturing investment and managing portfolio are expected to influence the firms' performance and efficiency by participating in the crucial decisions and modifying functioning of the firm accordingly.

The present study has attempted to provide some empirical insights into the impact of capital and ownership structure on the accounting performance of Indian manufacturing firms. The study has chosen manufacturing firms as the sample unit because of data availability in a uniform pattern. A moderately balanced panel data consisting 91 manufacturing firms listed and regularly traded in the Bombay Stock Exchange of India is taken as the sample. To measure the firms accounting performance, the study has introduced two variables namely, *return on assets* and *return on net worth*. The various forms of ownership structure introduced in the study are *percentage of domestic promoters' ownership*, *percentage of foreign promoters' ownership*, *percentage of institutional ownership* and the capital structure is measured by the *debt to equity ratio* of the sampled firms. The study found a negative effect of capital structure measured by debt to equity ratio on firm performance. Based on this empirical study we are to some extent being able to recommend or suggests that, the capital structure should be highly considered as one of the sensitive decision areas and the magnitude of leverage should be maintain at a possibly minimum level i.e. the Indian firms should mostly rely on owners' fund i.e. equity capital than debt. However, especially domestic promoters' ownership and institutional ownership are suggested to be maintained at a reasonably high level. The study is supposed to have important implications in the field of corporate governance practices and policy formulations for Indian manufacturing firms. The study confirmed the role of capital structure and various forms of ownership including promoters and institutional shareholdings on firm performance.

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List of Tables:

Table 1: Summary Statistics of the Variables

Variable	Mean	Std. Dev.	Min	Max
AGE	39.91	20.06	1.00	92.00
QR	1.45	1.63	0.13	22.41
ATR	1.01	0.58	0.00	2.52
FS	8.81	1.26	5.92	11.73
DER	0.54	0.58	-1.02	3.25
DPO	45.22	23.37	0.00	90.40
FPO	2.92	8.31	0.00	39.70
INSTO	27.74	11.62	3.03	53.15
ROA	9.88	6.95	-9.51	30.66
RONW	20.88	17.84	-80.31	114.58

Source: Authors' Calculation

Table 2: Variance Inflation Factor

Variable	VIF	1/VIF
Variable	VIF	1/VIF
DPO	3.70	0.27
INSTO	3.06	0.33
FPO	2.03	0.49
DER	1.38	0.73
ATR	1.28	0.78
FS	1.24	0.81
QR	1.12	0.89
AGE	1.10	0.91
Mean VIF		1.86

Source: Authors' Calculation

Table 3: Pair-wise Correlation Matrix

Independent Variables	Age	QR	ATR	FS	DER	DPO	FPO	INSTO
AGE	1	---	---	---	---	---	---	---
QR	-0.0444	1	---	---	---	---	---	---
ATR	0.0570	-0.2304*	1	---	---	---	---	---
FS	-0.0137	-0.0215	-0.3309*	1	---	---		
DER	-0.1488*	-0.1939*	-0.0225	0.1910*	1	---	---	---
DPO	-0.1603*	0.0867**	-0.1950*	-0.0840**	-0.0048	1	---	---
FPO	-0.0345	-0.0392	0.2688*	-0.1441*	-0.0070	-0.3646*	1	---
INSTO	0.1303*	0.0458	-0.1093*	0.2397*	-0.0433	-0.5069*	-0.1460*	1

Source: Authors' Calculation

Table 4: Regression Results: ROA

Ordinary Least Square Model			Fixed Effect Model			Random Effect Model		
Variable	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**z-Stat**
Intercept	12.210	4.05*	Intercept	15.554	2.98*	Intercept	17.213	4.42*
AGE	-0.0091	-0.87	AGE	-0.387	-3.04*	AGE	-0.040	-1.47
QR	0.461	1.68***	QR	0.260	1.97**	QR	0.343	2.71*
ATR	3.541	7.48*	ATR	8.109	11.12*	ATR	6.110	10.41*
FS	-1.183	-6.07*	FS	-0.826	-1.09	FS	-2.014	-6.39*
DER	-4.903	-10.62*	DER	-5.616	-8.47*	DER	-5.191	-8.89*
DPO	0.091	3.99*	DPO	0.154	2.81*	DPO	0.110	3.38*
FPO	0.041	1.07	FPO	0.190	1.82**	FPO	0.051	0.85

Ordinary Least Square Model			Fixed Effect Model			Random Effect Model		
Variable	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**z-Stat**
INSTO	0.078	2.18**	INSTO	0.126	3.24*	INSTO	0.091	2.57*
F-Stat	45.94*		F-Stat	37.61*		Wald-χ2	319.46*	
R^2	0.450		R^2-Within	0.406		R^2-Within	0.390	
			R^2-Between	0.171		R^2-Between	0.481	
			R^2-Overall	0.166		R^2-Overall	0.418	

Source: Authors' Calculation * Statistically significant at 1 percent level. ** Statistically significant at 5 percent level. ***Statistically significant at 10 percent level.

Table 5: Selection of Appropriate Model

Purpose	Null Hypothesis	Test	Test Statistic
Pooled Regression Model Vs Fixed Effect Model	All ui = 0	Restricted F Test	F(76, 440) = 13.09 *
Pooled Regression Model Vs Random Effect Model	$\sigma^2_u = 0$	Breusch-Pagan Lagrange Multiplier Test	χ 2 (1)= 442.77*
Fixed Effect Model Vs Random Effect Model	Difference in coefficients is not systematic	Hausman Test	χ 2 (8)= 43.31*

Source: Authors' Calculation * Statistically significant at 1 percent level. ** Statistically significant at 5 percent level. ***Statistically significant at 10 percent level.

Table 6: Regression Results: RONW

Ordinary Least Square Model			Fixed Effect Model			Random Effect Model		
Variable	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**t-Stat**	**Variable**	**Coefficient**	**z-Stat**
Intercept	19.750	3.27*	Intercept	64.54	4.93*	Intercept	47.175	5.18*
AGE	-0.010	-0.39	AGE	-1.33	-4.16*	AGE	-0.078	-1.43
QR	0.110	0.38	QR	0.200	0.61	QR	0.418	1.33
ATR	11.470	10.35*	ATR	18.810	10.39*	ATR	14.830	10.77*
FS	-2.740	-5.64*	FS	-3.223	-1.70***	FS	-5.964	-8.31*
DER	-4.398	-3.90*	DER	-5.768	-3.48*	DER	-3.996	-2.83*
DPO	.2109769	4.23*	DPO	0.282	2.05**	DPO	0.211	2.87*
FPO	.0339594	0.40	FPO	-0.084	-0.32	FPO	-0.050	-0.38
INSTO	.2024013	2.68*	INSTO	0.300	3.06*	INSTO	0.194	2.26**
F-Stat	27.53*		F-Stat	40.97*		Wald-χ2	297.56*	
R^2	0.3989		R^2-Within	0.423		R^2-Within	0.399	
			R^2-Between	0.079		R^2-Between	0.449	
			R^2-Overall	0.090		R^2-Overall	0.377	

Source: Authors' Calculation* Statistically significant at 1 percent level. ** Statistically significant at 5 percent level. ***Statistically significant at 10 percent level.

Table 7: Selection of Appropriate Model

Purpose	Null Hypothesis	Test	Test Statistic
Pooled Regression Model Vs Fixed Effect Model	All $u_i = 0$	Restricted F Test	F(76, 447) = 9.49*
Pooled Regression Model Vs Random Effect Model	$\sigma^2_u = 0$	Breusch-Pagan Lagrange Multiplier Test	χ 2 (1) = 260.99*
Fixed Effect Model Vs Random Effect Model	Difference in coefficients is not systematic	Hausman Test	χ 2 (8) = 126.06*

Source: Authors' Calculation * Statistically significant at 1 percent level. ** Statistically significant at 5 percent level. ***Statistically significant at 10 percent level.

Table 8: Final Regression Results: The Summarized Form

Variables	ROA		RONW	
	Coefficient	t-stat	Coefficient	t-stat
Intercept	15.554	2.98*	64.54	4.93*
AGE	-0.387	-3.04*	-1.33	-4.16*
QR	0.260	1.97**	0.200	0.61
ATR	8.109	11.12*	18.810	10.39*
FS	-0.826	-1.09	-3.223	-1.70***
DER	-5.616	-8.47*	-5.768	-3.48*
DPO	0.154	2.81*	0.282	2.05**
FPO	0.190	1.82**	-0.084	-0.32
INSTO	0.126	3.24*	0.300	3.06*

Source: Authors' Calculation *Statistically significant at 1 percent level. ** Statistically significant at 5 percent level. ***Statistically significant at 10 percent level.

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