Impact of Industrial Munificence, Industry Dynamism and Asset Structureon the Firm Leverage

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Abstract- For the past few decades, capital structure has maintained to be a vigorously researched area. A new stream in this area is the role played by environmental factors in driving leverage decisions. Based on above rationale, this study investigated various firm intrinsic and industry specific features of leverage using sample of 8 industries from non-financial sector of Pakistan. Secondary data was collected from annual reports for period from 2011 to 2015. As the data is of two levels, at level 1 there are firms whereas industries exist at level 2 and there exists a hierarchy so data being multi level in nature was analyzed using Hierarchical Linear Modeling (HLM). Software used for analysis is HLM 7. The analysis of variance breakdown unearthed that leverage variance is mostly caused by traits intrinsic to a firm i.e. to the extent of 89%. Out of the findings of random intercepts, two of firm specific traits i.e. profitability and distance from bankruptcy left their negative and significant influence on leverage whereas capital structure received positive influence from the factor i.e. size, asset structure appeared out to be negative and insignificant. Industry munificence was found to be positively and significantly whereas dynamism left its positive and insignificant impact on the leverage decisions. As far as results of random coefficients i.e. interaction variables are concerned, it was revealed that munificence made profitability less important in determining lower levels of leverage while outcomes related to dynamism were insignificant.

Keyword: Hierarchical Linear Modeling (HLM), Firm & Industry Fixed traits, Capital Structure

I. INTRODUCTION

Financial resources are vital for the error free functioning of firms. These can be obtained either from debt or equity that together comprise capital structure. The firm's choice to go either towards internally generated funds or externally issued debt relies on maintaining balance between risk and return (Abdo & Miri, 2003). Use of debt in capital structure leads to interest payments thereby providing tax shields to the firm and an increment in returns on stock. Along with the benefits, there is also risk of non-payments that is attached with debt and can reduce stock returns (Chipeta *et al.,* 2013). As the main agenda of a firm is to increase shareholder wealth; so the key responsibility of the manager becomes to plan such an optimal capital structure that can fulfill both needs i.e. use of optimal debt and increment in shareholder wealth.

The debate on capital structure was first pounded by Modigliani & Miller (1958) who proposed the independence of firm value from capital structure but the theory failed to apply in contexts having taxes and bankruptcy fears. Afterwards, many researchers stepped in and presented different theories, illustrating preferences of debt and equity (Supposition of pecking order (Myers, 1984); agency cost model (Jensen & Meckling, 1976)). Today capital structure has been researched vigorously and has added many potential explanations to financing policy of firms.

Many authors attempted to identify various country and firm specific factors of leverage (Sidlauskiene& Tran, 2009; Gungoraydinoglu&Oztekin, 2011; Fathi, Ghandehari&Shirangi, 2014; Chipeta *et al*., 2016; Rehman, Wang & Mirza, 2017). But literature about the impact of country level factors in making decisions of finance is comparatively under researched in the chain of research conducted under capital structure theme (Rajan& Zingales, 1995; Booth *et al*., 2001; Bancel&Mittoo, 2004; Antoniou *et al*., 2008; Beck *et al.,* 2008; de jong*et al*., 2008). These studies concluded that besides firm level attributes, firm's choice of financing can also be influenced by country-specific variables. Moreover, these studies established that country attributes (Sekely& Collins, 1988; Chui *et al.,* 2002) influenced capital structure. These studies have included various country level attributes like gross domestic product (GDP), stock market development etc, in making proposition that leverage of firms may vary among countries. Apart from the research of country related traits in molding leverage choices, the impact of country specific

variables on capital structure has found to be insignificant and the researchers have recommended these country level variables as being unworthy for future analysis with respect to study of capital structure (Kayo & Kimura, 2011; Fathi*et al.,* 2014, Bilal *et al*., 2014). From this statement, country level factors are deemed thatthese should not be considered in the firm analysis.

II. LITERATURE REVIEW

Scrutiny of leverage is a crucial act for companies with inclination towards triggering components. Researchers ascertained that firms opt from two widespread financing alternatives i.e. insider equity or external debt depending on the cost of issuance. Research hereafter encloses past studies on traits intrinsic to firm and environment with hypothesis supposition.

Subsequent entails various causal models of leverage with prominent additions in literature. These models hold diverse stances about debt financing. Detailed afterwards is the literature pounding to the empirical evidences of traits inherent to firms and industry.

Modigliani-Miller Model (1958)
This theory stands on the first position for instigating research on capital structure. The main theme of MM model (1958) is based on rationale i.e. in case of perfect market (a place where taxes do not exist, risk of bankruptcy is impossible and managers & investors enjoy benefits of having same information); a firm's financing choice is independent from its value. Rather, the cash flows generated in result of investments and the uncertainty linked with these cash flows, determine such value of firm. Moreover, it was argued that firms utilize magnitude of debt / equity (D/E) for the purpose of cash disbursements among their providers. In additional debate, this theory ascertains cash flows as such an entity not affecting from leverage choices. A tax evaded world can be reflected of one where value of firm receives no impact from capital structure. Regardless of being illusory in its suggestions, MM Model is still valued for the reason that it inspired potential authors to inspect leverage.

Trade-off Model
Due to unreal propositions, MM (1958) model was failed after introduction of taxes. In 1973, Kraus &Litzenberger presented classical version of trade off theory. Further step was taken by Bradley *et al.* (1984) who termed this model as static. Sequentially, this was pursued by Kane *et al.* (1984) who named it as dynamic trade off theory after they initiated time continuance model (Kumar, 2017). Basic concept behind the origination of this theory lies in an optimal practice of debt i.e. there should be a swap between tax cover merits of debt and costs associated with debt. An increasing level of bankruptcy as a result of great use of debt, in return enhances such cost. As proposed by trade-off theory, optimal debt levels have been set by firms which are then followed while opting about debt.

Pecking order Theory
Pursuing study on leverage, Myers &Majluf (1984) came up with preferential choice when deciding about debt. It was enlightened that an order is followed by firms concerned about financial decisions. Various costs are there, linked with dissemination of information, that makes the firms to abide by such preference orders. Two such costs can be acknowledged as dissimilar information and transaction costs that direct the firms towards internal finance by depicting debt as costly source (Kumar, 2017).

Agency cost Theory
As shareholders maintain a principle-agent relation with managers, their interests may go on odd. It's all because of managerial intention to earn benefit for them by placing shareholders' benefit at stake. Based on same rationale, agency cost model was projected by Jensen & Meckling (1976).

Although the concept of industry-level variables is not a new thing in literature and their relation with other dependent variables, like firm performance, social responsibility, strategy performance, corporate sustainability etc, have been researched many times (McArthur & Nystrom, 1991;Simerly& Li, 2000; Goll& Rasheed, 2004, 2005; Harrington & Kendall, 2005; Mezias, Park & Choi, 2008; Chen *et al*., 2015). However, the studies that pounded first to examine only the impact of these industry relevant variables on leverage cannot be exactly determined except for the ones described below (*See Figure 1for summary of hierarchical studies of leverage in literature*).

Through GMM method, robustness of countries tilting from viewpoint of capital market i.e. UK & USA was verified among areas that are bank oriented i.e. France, Japan & Germany while evidencing qualities of leverage. It was exposed that leverage transforms in the same direction as of asset position and firm size, however alters in opposite track of earnings status, growth prospects and act of share price in case of both economies. Country specific traits were spotted as having crucial implications in leverage choices. Bankruptcy risk got unnoticed by their research that is added in this study. GMM method was estimated by them while Hierarchical structure method has been frame-worked in this study. They

pondered firm and country specific attributes while this paper indicated firm and the related industry features of leverage.

By testing HLM to traits inherent in firm, environment and country, Kayo & Kimura (2011) sampled non-financial firms of 40 countries from 1997 to 2007. They allowed varying intercepts and slopes across firms. Their research acknowledged several crucial indirect impacts of environmental and country inbuilt predictors in triggering firm intrinsic attributes plus differential leverage behavior of firms across economies that are developed and emerging. It was unearthed that 78% alteration in leverage was brought by time and firm intrinsic traits. Attributes explicit to country were exposed as playing less crucial role in leverage decisions. This study can be segregated on grounds of random selection of sampled firms from Pakistani manufacturing industry, unnoticing of country inherent attributes as found insignificant by their study, assembling data from 2011-2015 that was from 1997-2007 in their research.

Employing OLS regression and using data of non financial firms of Pakistan, Memona, Rus & Ghazali (2015) explored firm inherent and macro-economic factors of debt using two estimates of debt. It was found that interest rate and inflation rate are significant determinants of debt. Profitability affected positively whereas size and tax shield of non debt left their negative impact on leverage.
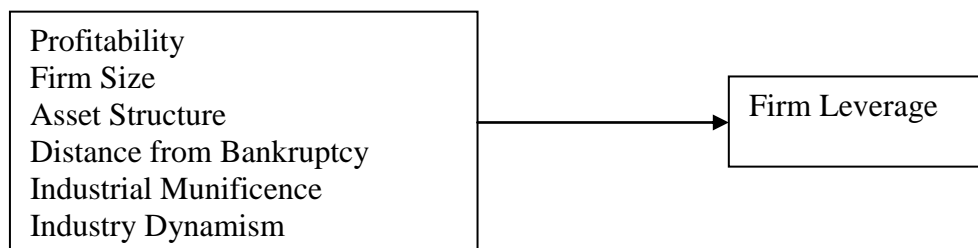
Using sample of non-financial firms of Bosnia and Herzegovina for the year 2012, Mangafić&Martinović (2015) identified firm intrinsic and manager's central determinants of leverage by employing Hierarchical modeling. It was concluded that firms with managers having less experience and larger firm growth tend to have a greater ratio of financial leverage. Collectively, the results proved that both financial proxies and personal traits happen to be statistically significant attributes of debt level.

Clustering covariates of leverage from various levels including financial, human related and country by sampling industrial and consumer sectors from 2008-2013 Ying, Albaity&Zainir (2016) employed GMM Method. Findings reveal the prominence of size in leverage choices among industrial sector while rest predictors were found crucial in consumer firms. Insignificance of country related traits was unearthed in industry sector. The grouping of firm & industry only attributes; the utilization of HLM, the assembling of data from 2011-2015 has made this paper dissimilar from their research.

Figure: 2 *Research Framework of the study*

Dependent Variable   *Independent Variable*

| Profitability
Firm Size
Asset Structure
Distance from Bankruptcy
Industrial Munificence
Industry Dynamism | → | Firm Leverage |

III. RESEARCH METHODOLOGY

The research has been conducted under positivism paradigm where analysis methods usually include statistical techniques and mathematical procedures.Deduction approach is used, to conduct this study, where a theory about the topic of interest already exists in literature. The study's research method is quantitative where numeric data is used for measurement; observations and tests the different theories.

As this study's sample has been selected randomly, so according to Huta (2014) best suited technique on randomly selected sample and when case is of nested data is Hierarchical Linear Modeling (HLM). So the study has selected this HLM method to analyze nested relations.Mangafić&Martinović (2015), while examining hierarchical features of leverage and after random selection of sample, employed methodology i.e. hierarchical linear modeling.

HLM requires sampling at each level of the analysis. At level 1 of the analysis, although HLM can work with as few as 2 observations per group, but Huta (2014) says that 5 to 10 observations are sufficient so this study is taking data of 5 years from 2011-2015. To reach 80% power, Huta (2014) says that sample size at level 1 should be closer to 50, whereas the selected sample size at level 1 i.e. 106 firmswhich is also satisfying this condition.

Table 1: Sample of Industries from Non-financial Sector

Sr.	Industry	Total firms in Industry	Annual Reports available	Firm level Obs.	Industry level Obs.
1	Food, Vanaspati & Tobacco	23	20	100	1
2	Sugar	31	24	120	1
3	Medicine	8	7	35	1
4	Paper	8	6	30	1
5	Minerals	8	7	35	1
6	Electrical Apparatus	7	6	30	1
7	Coke & Petroleum Refinery	10	7	35	1
8	Information & Communication	11	9	45	1
Summary		**106**	**86**	**430**	**8**
	Total Obs.		**438**		

Secondary data were collected for the period from 2011 to 2015. Out of sampled firms i.e. total firms are 106, annual reports of only 86 firms comprising of 8 industries were available. The response rate was 81% that is according to Rueda-Manzanares, Aragon & Sharma (2008) strong enough to achieve statistical power and parameter estimates. Firm level data were obtained for each firm level variable varying from year to year and firm to firm, thereby providing figure of 430 observations for each of the firm level variable. For industry level variables, data were gathered for each of the eight industries varying from industry to industry and time to time, giving 8 observations for each of the industry level variable. Software used for analysis wasHierarchical Linear Modeling (HLM) 7.

  Table 3 shows the formulation of explanatory variables and dependent variables along with summary statistics of the study. The summary explains that on average firms are 59.81% leveraged and 41.19% financed with equity; they manage to stay 6.58% profitable on average, the firms have maintained their tangibility at 49.74%, average value of distance from bankruptcy is 1.71 which according to Byoun (2008) comes under the bracket of "high bankruptcy" giving an insight that firms under non-financial sector are not distantly located from bankruptcy and have high likelihood of bankruptcy.Average values of industry covariates munificence and dynamism are higher than those mentioned by Kayo & Kimura (2011), Bilal *et al.* (2014) and Smith, Chen & Anderson (2014), following these the author translates that having 2.84 as mean value, environmental predictor i.e. dynamism portrays highlevels of change in sales value over the period of 5 years (Baron & Tang, 2011). Average value '4' belongs to predictor 'munificence' which can be regarded as higher munificence and explained that industries of non-financial sector are capable enough to maintain their growth.

Table 2:Construction of Predictors and Dependent Variable of Firm and Industry

Sr.	Variables	Proxy	Source	Summary Statistics Mean	S.D
1	Firm leverage	Total Liabilities / Total Assets	Shen, Tang & Zhang (2016)	59.81	38.85
2	Firm Profitability	EBIT (Operating Income) / Total Assets	Kayo & Kimura (2011), Rehman, Wang & Mirza (2017)	6.58	12.13
3	Firm Size	Natural Log of Sales	Kayo & Kimura (2011)	6.56	1.15
4	Asset Tangibility	Fixed Assets / Total Assets	Kayo & Kimura (2011)	49.74	21.89
5	Distance from Bankruptcy	Altman Z-Score given below: **$Z = 3.3*(EBIT/TA) + 1.0*(S/TA) + 1.4*(R.E/T.A) + 1.2*(W.C/T.A)$	Fathi, Ghandehari&Shirangi (2014)	1.71	1.46
6	Industry Munificence	1. Running regression b/w natural log of sales (taken as predictor) and time in years	Chen, Zeng, Lin & Ma (2015)	4.00	2.69

		as independent variable. 2. Afterwards, take anti log of beta value predicting slope coefficient for value of munificence.			
7	Industry Dynamism	1. Calculate standard error (S.E) of slope coefficient 2. Then take antilog of this SE to find dynamism value.	Chen, Zeng, Lin & Ma (2015)	2.84	1.37

** EBIT = Earnings before Interest & Taxes, S= Sales, R.E= Retained Earnings, W.C= Working Capital, T.A= Total Assets. This table shows the formulation of covariates and dependent variables along with description used in HLM. Source is also mentioned from which the description has been extracted.Table also shows some of the value of statistics i.e. Mean and SD.

Hierarchical natured data is commonly used. Examples of such hierarchies are students nested within schools, patients nested within hospitals, workers nested within organizations etc.

Nested data was previously analyzed using techniques like aggregation and disaggregation – these are simple linear regression techniques. Each of these techniques was having some problem like did not account for shared variance, increased risk of type 1 error, ignorance of group and individual effects. Woltman*et al.* (2012) proposed solution of these problems by suggesting multi level regression (i.e. HLM).

Out of multi level measures, to analyze nested determinants, various techniques are in limelight given as Hierarchical Linear Modeling (HLM), Structured Equation Modeling (SEM) and Repeated Measures(Raudenbush& Bryk, 2002). Each of these methods has its own benefits and demerits given subsequently.

HLM applies when data at lower level is distinguishable and non- distinguishable. Distinguishable data is one when observations can be ordered in some natural way. SEM and Repeated Measures apply to only distinguishable data (Huta, 2014).

When one wishes to analyze the interaction of some high level variable with some lower level variables, HLM can do this best by creating this interaction itself through HLM 7. SEM can also analyze interaction variables but this method needs to create interaction terms in dataset before analysis. Thus based on above benefits, HLM has been frame-worked for analysis (Huta, 2014).

Another reason for opting HLM is that as the data used in the study are a collection of time series and cross sectional observations (varying from firm to firm, year to year and industry to industry); so having panel and hierarchical nature (i.e. firms nested within industries) the study applies a suitable methodology that is Hierarchical Linear Modeling (HLM) suggested by Kayo & Kimura (2011). It allows us to model the impact of individual and institutional variables on the dependent variables of interest.

IV.   ANALYSIS / RESULTS

This area presents empirical findings about determining factors of leverage, the discussions of the results and their comparison with the theories present in literature. Firstly, the study throws light on the results of Empty Model (null model) and Random Intercepts Model along with detailed discussion of each variable one by one. Then the outcomes of Random Coefficients Model have been explained. Also the results have been compared with the conclusions presented by previous studies.

Checks for ensuring data consistency

Before running the models of HLM for purpose of testing the hypothesis of the study, the data collected needs to be checked first to ensure the consistency.

Check of Multicollinearity:

Multicollinearity can be described as regression equation contains correlated track of covariates / predictors. One approach to recognize multicollinearity is to calculate matrix of correlation for all predictors, if the correlated value of two variables is equal or greater than 0.8 there exists multicollinearity between them. Other way is to calculate Variance Inflation Factor (VIF), where a value above 10 can be interpreted as having high correlation. The methodology used in this study is HLM and in HLM during equation development, predictor variables are entered by centering a variable around its group mean / grand mean. According to Snijders&Boske (2012), the importance and benefits of centering a variable cannot be neglected. E.g. centering automatically eradicates the issue of multicollinearity among explanatory variables that can otherwise impact negatively on the estimation of the hierarchical model (Venkatraman, 1989, Aiken & West, 1991; Tabachnick&Fidell, 2012) as

implemented by Simerly& Li (2002) in their paper. In their study, Rueda-Manzanares, Aragon & Sharma (2008) fixed the variables around their mean to avoid the issue of multicollinearity and the same has been followed in the case of this study.

Check of Autocorrelation:

According to Peterson (2009) financial data can develop two kinds of dependency. There can be either time series dependency or cross-sectional dependency. Former can be expressed that residuals of a given firm can be dependent across time. Latter can be clarified as residuals across firms in a specific year are dependent.

Alternative methods of solving both forms of dependency were clarified by Peterson (2009) that authors tend to employ old standard errors of OLS, standard errors modified by White (White, 1980), also extended by Fama-MacBeth (Fama&MacBeth, 1973) but these techniques handled only the cross sectional dependency and did not properly accounted for time series correlation. The solution was proposed by Venanzi (2017) in their study that solved both forms of dependency named as "Multi-level Regression" or "Hierarchical Linear Regression (HLM)". Similarly, Thompson (2006) also conveyed that standard errors concurrently grouping both time and firm level should be favored in financial studies that are fulfilled by HLM.

Check of Heteroskedasticity:

A correlation of error term with any of the predictor or independent variables is stated as Heteroskedasticity.This issue may arise both at level 1 &2 of HLM (in case of this study) asomission of some crucial traits that were necessary to be made part of the model and were having impacts on level 1 and level 2 data. More specifically, other firm and industry covariates went unseen by the author at level 1 and 2 of the equation (Cook & Weisberg, 1982).

HLM analysis

Variance Breakdown of leverage:

To find out the by what percentage, leverage is varying by each level i.e. firm level and industry level. The variance breakdown analysis of leverage of Model 1 (null model), Model 2 (model with only firm intrinsic factors as predictors), Model 3 (model with both firm intrinsic and industry specific factors) and Model 4 (random coefficients model with profitability as random variable) is shown in Table 4 of the study by running Model 1, 2, 3 & 4 of the study respectively.

The analysis of the empty model (Model 1), by including no covariate, reveals important information i.e. the respective importance of each level can be observed on leverage's variance. It is clear from the results that level of the firm is causing a major fraction in leverage in contrast to industry level attributes, depicting that firm inherent attributes constitute a significant part of financial decisions of firms. UsuallyIntra-Class Correlation Coefficients (ICC), a ratio, is employed to depict the fraction of between group variance in total variance (Woltman*et al.*, 2012).The predicted ICCof firm level accounts for 89.07% variance in leverage of firms. This high influence of firm level in leverage decisions is also established by previous studies that focused on the finding the influence of firm specific factors (i.e. profitability, asset structure etc) on capital structure decisions (Balakrishnan & Fox, 1993; Taylor & Lowe, 1995). Prominently, this result may give an insight to managers to focus on internal factors while devising the firm's corporate level policies. Bilal *et al*. (2014) also established the main role of firm level in variance of leverage and tied this high proportion to the role of firm intrinsic factors. Kayo & Kimura (2011) also concluded that the major contributor of change in leverage comprises level of firm and that managers may consider intrinsic firm traits while developing their policies.

The second proportion of industry level factors accounted for 10.93% variance in firm leverage. This percentage shows that analysis of industry level attributes is also vital in determining capital structure decisions. Past studies on industry specific traits of leverage showed mixed results. Bradley, Jarrell & Kim (1984) found significant influence of industry factors on firm leverage and revealed that 54% of leverage is caused by industry factors. Kayo & Kimura (2011) presented that industry level attributes constitute 11.6% of leverage variance and that one should make these industry level factors part of their analysis while examining determinants of leverage. The same results were discussed by Bilal *et al*. (2014) in words that on second level, industry factors play significant role in elaborating leverage decisions. It was found that between industry leverage may differ from within industry leverage by Mackay & Phillips (2005) giving reason that there may be multiple ways for the industries to differ. Previous studies on firm inherent factors of capital structure used to include the dummy predictors of industries rather than characterizing the industry on the basis of attributes. And this line of research is not much common except for few studies like Kayo & Kimura (2011), Bilal *et al*. (2014). So this study expects to characterize the industry from viewpoint of capital structure determinants in the context of Pakistan.

Variance results of model 4 convey special results. As explained before, firm level variables contribute most in leverage variance, this Model also unearthed that capital structure receives influence of 89.42%

of firm specific traits. It was unveiled that the ICC of industry level variables accounted for 10.55% of leverage variance which shows that the indirect influence of industry level variables in connection with the firm level variable profitability on leverage has found to be in high proportion as compared to the direct effect on leverage without the interaction of firm level trait profitability. The results show that the bonding of industry features with firm intrinsic attributes is significant for affecting leverage. Another important finding of Model 4 is the role of firm inherent covariate profitability on leverage variance. The proportion of firm level predictor i.e. profitability in leverage is calculated to be 0.03% although it is minimal but it is significant and can be translated that in the total leverage variance, profitability discretely appears to be triggering 0.03% variability in leverage.

Table 3: Variance Decomposition Analysis of Capital Structure

	1st Model	2nd Model	3rd Model	4th Model
Variance Breakdown				
Industry level, u_{ojk}	167.8 (12. 95)	173.7 (13.18)	108.3 (10.41)	111.06 (10.54)
Firm level, r_{ojk}	1367.9 (36.99)	1122.1(33.50)	1121.4(33.49)	940.45 (30.66)
Profitability, u_{1jk}	-	-	-	0.22 (0.46
Percentage of Total Variances				
Between Industries	10.93%	13.40%	8.07%	10.55%
Between Firms	89.07%	86.60%	91.93%	89.42%
Profitability	-	-	-	0.03%

The table depicts results of random-effects of HLM. Variance breakdown estimates are being shown in this table for industry level (u_{ojk}) and firm level (r_{ojk}). Standard errors are in parenthesis. Model 1 is showing the outcomes of null model, depicting the individual role played by each level in variation of leverage, without any predictors. Firm and industry level traits are added gradually in Model 2 & 3 whose fixed effect estimates are shown in Table 4 of the study. Model 4 shows the effects on leverage variance of random coefficient model. Dependent variable of the study is leverage defined as total debt to total assets. Building of all variable of the study is shown in Table 1 of the study.

Random Intercepts Model:

Table 5 conveys the predicted results of HLM by estimating the fixed effects of firm and industry levels. Along with parameter estimates of firm and industry level, table also narrates the stats of fitness of model i.e. Deviance, Standard of Akaike (AIC) and Principle of Bayesian (BIC) for the purpose of comparing Model 1, 2 & 3. From the table, it can be inferred that as the values of statistics i.e. Deviance, AIC & BIC are decreasing with the gradual addition of independent variables in the model, it is thereby increasing the overall fit of the model. As one of the HLM studies established that the lower value of statistics leads to the better fit of the model (Kayo & Kimura, 2011). So it can be concluded that the Model 3 having both firm level and industry level variables has fitted best among others, recommending that predictors of all levels are equally important in elucidating leverage of firms.

The outcomes of null model are depicted by Model 1 where estimate of the intercept is found to be 56.83% which can be interpreted as mean leverage of industries of the study. In other words, this portrays that on average the industries are leveraged to the extent of 56.83%. This intercept is varying for Model 2 i.e. 57.77% & for Model 3 i.e. 56.92%. As Table 4 involves the results of random intercepts model, the different values of intercepts is confirming this phenomenon. The results show that with the gradual increase of firm level covariates (in case of Model 2 of the study), the intercept then becomes 57.77% which shows the mean leverage of industry in case when firm intrinsic factors are part of the model. The intercept estimate of Model 3 of the study is 56.93% which shows the average leverage of industry when both firm level and industry intrinsic traits are part of the model. The intercept of Model 1 i.e. 57% is also near to the mean value of leverage from the table of descriptive statistics that is 59%.

Firm inherent and industry inherent variables are then gradually added in Model 2 & 3. Firm level variables are made part of Model 2 of the study where all traits are found to be having significant impact on capital structure except for assets position. One of the firm level variables is found to be having a positive and significant relation with leverage i.e. firm size. The positive impact on leverage is received significantly from firm size portrayed through sales or revenues. A high amount of sales predict large size of firms which are less prone to bankruptcy thereby attracting more creditors and more finance from market. Additionally, this positive impact can be interpreted in words that firms listed in non-financial

sector of Pakistan enjoy high sales that encourage the creditors to grant loan to them because the firms then have less risk of bankruptcy.

Two of the firm level variables are found to be having a negative and significant relation with leverage i.e. profitabilityand distance from bankruptcy. The interpretation of negative impact between firm's earnings status and leverage is given in words that when firms are in profitable state they tend to finance their operations from internally generated funds. Moreover, this negative impact can also be depicted that non-financial sector firms finance their operations from retained earnings that they retain from profit of the firms and generally go for less debt.

Tangibility, leaving its negative and insignificant impact on leverage, portrays that firms in nonfinancial sector of Pakistan while having or maintaining high level of fixed assets (that can be placed as collaterals) are inclined towards less loan.

Model 3 includes industry level traits of leverage i.e. Industry Munificence & Industry Dynamism along with firm level factors. It is clear from the results of Model 3 that the firm level estimates of Model 3 appear to be same in its impact and significance as they are in the case of Model 2 of the study. Both profitability and distance from bankruptcy impacted negatively and significantly on leverage, firm size left a positive and significant influence on leverage whereas tangibility passed a negative influence on leverage but in insignificant way even after the inclusion of industry level variables. As far as industry traits are concerned, munificence can be cleared as abundance of resources available in the environment of a given industry and dynamism can be portrayed as the risk of volatility and unpredictability in the respective industry.

Table 4: Random Intercepts Model

Fixed Effects	1st Model	2nd Model	3rd Model
Intercept	56.83 ***	57.77***	56.92***
Firm Variables			
Profitability		-0.96 ***	-0.96 **
Size		9.78 ***	9.79 ***
Tangibility		-0.04	-0.04
Distance from Bankruptcy		-5.98 ***	-5.97 ***
Industry Variables			
Munificence			4.01***
Dynamism			5.90
Model Fit Statistics			
Deviance	4332.75	4244.07	4231.86
AIC	4344.26	4252.18	4237.53
BIC	4351.92	4259.62	4242.71

*** is P-level < 1%,** is P-level < 5%,* is P-level < 10%.

Table 3 shows fixed effects results from HLM with random intercepts. Model 1 is null model without any predictors. Model 2 contains only firm level covariates and Model 3 is the final model adding both firm level and industry level variables. Model fit statistics is also listed to show about goodness of model fit.

Model of Random Slopes:

The outcomes from model of random slopes are presented in Table 6 of the study. Model 4 estimates the interaction between predictors illustrating the moderating impact of environment specific traits on capital structure. Furthermore, another translation of this can be given that it is likely for the industry variables i.e. munificence and dynamism to affect firm intrinsic predictor i.e. profitability. When this firm level variable receives effect from industry level variables it will then become random predictor.

The important finding is related to the result of interaction variables. It can be seen from the table that the first interaction variable i.e. MUNF * PRF has negative influence on profitability at significance level of 10%. This negative impact can be translated that munificence plays its significant moderate role and declines the drive of profitability to go towards lower debt. Accordingly firms with escalated profitability and functioning in munificent surroundings, have lesser level of debt employed in contrast to firms operating in less munificent surroundings. Although profitability is still negatively influencing the debt level but the characteristics of industry (the firms are part of) also alters this leverage decision. Or having munificence in its surroundings, firms find less pressure on their profitability to have lower debt.

Additionally,the drive of firms (with elevated earnings) i.e. to be lesser leveraged, lessenswhen they found their industry munificent because the firms are then open to high leverage due to munificent industries.

Table 5: Random Coefficients Model

Fixed Effects	*4th Model*
Intercept	56.89***
Firm Variables	
Profitability (PRF)	-1.41***
Size (SIZ)	10.59 ***
Tangibility (TNG)	-0.08
Distance from Bankruptcy (DBNK)	-4.87***
Industry Variables	
Munificence (MUNF)	3.98 *
Dynamism (DYNA)	5.98
Interaction Variables	
MUNF * PRF	-0.47 ***
DYNA * PRF	0.09
Model Fit Statistics	
Deviance	4164.56
AIC	4171.42
BIC	4174.18

Model 4 illustrates the fixed-effects statistics of firm and industry intrinsic variables along with interaction predictors signifying the moderating effect of environmental trait on firm specific attributes. *** shows significance < 1%, ** shows significance < 5% and * shows significance < 10%. Table also lists model fit statistics to show about goodness of model fit.

V. CONCLUSION

This research contributes the industry level knowledge of leverage about non-financial sectors of Pakistan. We examined various multi level traits of leverage by random selection of 8 Industries and 106 firms of non-financial sector throughemploying technique i.e. Hierarchical Linear Modeling. First assessment is made to analyze the contribution made by each level i.e. firm and environmental level towards leverage. Subsequently, direct effects of firm level and industry level variables were identified. Additional tests were carried out to investigate the direct effect of industry level attributes on firm level variable profitability and their indirect effects on leverage.

Findings of variance breakdown of capital structure demonstrated that the majority contribution towards leverage variance is made by firm inherent attributes. The study also unveiled that the second largest contribution in decisions of leverage is made by industry specific traits which shows that along with firm intrinsic attributes, industry traits are also worth considering for making decisions of leverage. These discoveries are an important addition to the literature of capital structure in the context of Pakistan.

The direct effects of firm and industry level variables were found significant (except for tangibility and dynamism) on leverage depicting their equal importance in capital structure decisions. As the author proposed about the generalization of outcomes, so conclusion can be presented that non-financial sector of Pakistan tends to be more financed with debt than equity i.e. 59% debt and 41% equity. In terms of earnings, non-financial sector has unveiled to be having low ratios of true profitability i.e. 8% profitable.When it comes to status of fixed assets, firms of non-financial industry have been unearthed with 51% as tangibility status. Firms from non-financial sector have found to be sitting at near location to bankruptcy with Z-Score = 1.78 as Byoun (2008) says that a Z-score < 1.80 means lying under the bracket of high likelihood of bankruptcy. As far as industry predictors are concerned, non-financial sector's firms have found to be operating in industries persisting moderate degree of dynamism. With such impacts, firms in such industry realize a moderate change in their revenues / sales over a period of sampled years.

In general, half results of firm level variables are found complying with trade off theorywhile others confirm pecking order model thereby confirming the compliance of both theories in the non-financial sector. Special results are linked to the significant effects of munificence and insignificance influence of dynamism on leverage, as the literature neglects the attributes of industry as compared to firm level traits, so this study is considered to be targeting an underexplored stream. The non-trivial role played by interaction variables towards debt financing also gives important information that the direct effect of industry variable munificence is significant firm level variable profitability while insignificant with

dynamism. This can be concluded in words that the firm level variables also receive effects from the respective industry they are working in and are affected by the surroundings of industry.

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